



# ABS EGIRO AGGREGATOR

API Specifications Document

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## 1 Document Version Control

<b>Document Identification</b>	EDDA-TECH-002
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<b>Client</b>	The Association of Banks in Singapore (ABS)
<b>Document Author</b>	Deloitte Technology
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## Document Edit History

Version	Date	Additions/Modifications	Prepared/Revised by
V1.0	17 Nov 2020	Initial Draft	Samnil, Mohammed Kafoor
V2.0	2 Dec 2020	<p>Changes were made after feedback:</p> <p><b>3.1 Overview</b></p> <ul style="list-style-type: none"> <li>Updated API Taxonomy, Common Error Response format sections</li> <li>Added Allowed special characters section</li> </ul> <p><b>3.2 eDDA Creation Services</b></p> <ul style="list-style-type: none"> <li>Field changes/additions made to API Specifications</li> <li>Update of eDDA Creation API and eDDA Creation API to use ISO20022 format</li> <li>Removed Bank-initiated eDDA Creation Notification API section</li> </ul> <p><b>3.3 eDDA Cancellation Services</b></p> <ul style="list-style-type: none"> <li>Field changes/additions made to API Specifications</li> <li>Removed Bank-initiated eDDA Cancellation Notification API</li> </ul> <p><b>3.7 Report Services</b></p>	Samnil, Mohammed Kafoor

Version	Date	Additions/Modifications	Prepared/Revised by
		<ul style="list-style-type: none"> <li>Added API Specifications for Billing/Charging API and Transactions API</li> </ul> <p><b>5 Appendix</b></p> <ul style="list-style-type: none"> <li>Added list of error codes for Aggregator, Bank and BO</li> <li>Added list of purpose codes</li> </ul> <p>Updates have been highlighted in green</p>	
V3.0	22 Dec 2020	<p>Changes were made after feedback:</p> <p><b>Multiple sections</b></p> <ul style="list-style-type: none"> <li>Updated signKeyAlias to be optional instead of mandatory</li> <li>Updated data types to include max length for various eDDA Creation/Cancellation fields</li> </ul> <p><b>3.2 eDDA Creation Services</b></p> <ul style="list-style-type: none"> <li>Updated applicantIDHash description to include SHA-1 hashing algorithm</li> </ul> <p><b>3.7 Report Services</b></p> <ul style="list-style-type: none"> <li>Updated Transactions API response with additional fields</li> </ul> <p>Updates have been highlighted in blue</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.1	13 Jan 2021	<p><b>Multiple sections</b></p> <ul style="list-style-type: none"> <li>Updated common error response format in section 3.1.4 to return an array of errors. Sample error responses under each API has been updated</li> </ul> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Updated field name from BICOrBEI to AnyBIC</li> </ul>	Sammil, Mohammed Kafoor; Wang Shyan Ann

Version	Date	Additions/Modifications	Prepared/Revised by
		<ul style="list-style-type: none"> <li>Updated Othr field under Cdtr and Dbtr to return an Array</li> </ul> <p>Updates have been highlighted in blue</p>	
V3.2	15 Jan 2021	<p><b>Added new section</b></p> <ul style="list-style-type: none"> <li>3.1.6 Client ID and Transaction Reference Number format</li> </ul> <p><b>Updated sections</b></p> <p><b>3.1.1 API Taxonomy</b></p> <ul style="list-style-type: none"> <li>Updated API domain names</li> </ul> <p><b>3.2.1 Authorize Creation Redirection URL API</b></p> <ul style="list-style-type: none"> <li>Updated boDDARefNo from mandatory to optional</li> </ul> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Updated Othr field under Cdtr and Dbtr to Object, using nested SchmeNm and Prtry fields to store relevant data</li> </ul> <p><b>3.7.2 Transactions API</b></p> <ul style="list-style-type: none"> <li>Updated description to clarify on record retrieval based on Applicant Bank/BO Bank/BO entity types and included additional optional parameter typeOfBank</li> </ul> <p><b>Updated multiple sections</b></p> <ul style="list-style-type: none"> <li>Updated example values for boTransactionRefNo and clientID based on format</li> <li>Updated field lengths, values and datatypes</li> </ul>	Sammil, Mohammed Kafoor; Wang Shyan Ann

Version	Date	Additions/Modifications	Prepared/Revised by
		Updates have been highlighted in orange	
V3.3	09 Feb 2021	<b>3.2.4 eDDA Creation API</b> <ul style="list-style-type: none"> <li>Included mandatory Nm field (BO Name) under Cdtr</li> </ul> <p>Updates have been highlighted in orange</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.4	23 Feb 2021	<b>3.2.4 eDDA Creation API</b> <ul style="list-style-type: none"> <li>Included bank error code BA1004 for field input mismatch for max amount or expiry date</li> </ul> <p>Updates have been highlighted in orange</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.5	17 Mar 2021	<b>3.1.1 API Taxonomy</b> <ul style="list-style-type: none"> <li>Updated API domain names</li> </ul> <b>3.2 eDDA Creation Services &amp; 3.3 eDDA Cancellation Services</b> <ul style="list-style-type: none"> <li>Updated error response from application/json to text/html (sections 3.2.1, 3.2.2, 3.3.1, 3.3.2)</li> <li>Updated signKeyAlias value returned in response's Location header from KEY1 to AGK1 (sections 3.2.1, 3.2.2, 3.3.1, 3.3.2)</li> <li>Added mandatory request query parameter requestType for Authorize Creation Redirection URL API and Authorize Cancellation Redirection URL API to distinguish between Creation/Cancellation requests</li> </ul> <b>3.7 Report Services</b> <ul style="list-style-type: none"> <li>Updated report download link</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann

Version	Date	Additions/Modifications	Prepared/Revised by
V3.6	05 Apr 2021	<p><b>Updated sections:</b></p> <p><b>3.2.2 BO Redirection Page URL API (Creation) &amp; 3.2.3 Creation Callback API</b></p> <ul style="list-style-type: none"> <li>Updated boDDARefNo field in the request to be optional</li> </ul> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Added optional Nm field (Applicant Name) under Dbtr in the request body</li> </ul> <p><b>3.7.1 Billing/Charging API &amp; 3.7.2 Transactions API</b></p> <ul style="list-style-type: none"> <li>Updated fields and descriptions</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.7	14 Apr 2021	<p><b>Updated sections:</b></p> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Added BA3001 as a response status code</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.8	26 Apr 2021	<p><b>Multiple sections</b></p> <ul style="list-style-type: none"> <li>Updated optional field error messages</li> </ul> <p><b>3.2.5 eDDA Creation Response API</b></p> <ul style="list-style-type: none"> <li>Removed BAAM05 error code</li> </ul> <p><b>5.1.1 Aggregator Errors</b></p> <ul style="list-style-type: none"> <li>Added error codes BA3501, BA3502, BA3503 as common error codes</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann



Version	Date	Additions/Modifications	Prepared/Revised by
V3.9	10 May 2021	<p><b>Updated sections:</b></p> <p><b>3.2.2 BO Redirection Page URL API (Creation) &amp; 3.3.2 BO Redirection Page URL API (Cancellation)</b></p> <ul style="list-style-type: none"> <li>Updated error field type from String to Enum (User_Rejected   Incomplete_Flow)</li> <li>Updated status field type from String to Enum (Success)</li> <li>Updated descriptions for fields: error, status, signKeyAlias</li> </ul> <p><b>3.2.2 BO Redirection Page URL API (Creation)</b></p> <ul style="list-style-type: none"> <li>Fixed typo with error codes AG1000, AG1001, AG1002</li> </ul> <p><b>3.1.5 Allowed special characters</b></p> <ul style="list-style-type: none"> <li>Updated listed of allowed and non-allowed characters</li> </ul> <p><b>3.1.6 Client ID and Transaction Reference Number</b></p> <ul style="list-style-type: none"> <li>Updated description and format of Client ID</li> </ul> <p><b>3.7.2 Transactions API</b></p> <ul style="list-style-type: none"> <li>Updated response for Billing/Charging API to include API calls by Service Name</li> <li>Updated section for Transactions Report Request API and Get Transactions Report by Report ID API</li> </ul> <p><b>Multiple sections:</b></p> <ul style="list-style-type: none"> <li>Updated applicantBankCode length from max length = 11 to a fixed length = 11</li> <li>Updated example data values</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann

Version	Date	Additions/Modifications	Prepared/Revised by
V3.10	17 May 2021	<p><b>3.1.3 Common API Request and Response Headers</b></p> <ul style="list-style-type: none"> <li>Added boTransactionRefNo as common header for Mutual TLS APIs (Creation Callback, eDDA Creation, eDDA Creation Response, Cancellation Callback)</li> </ul> <p><b>3.2.3 Creation Callback &amp; 3.3.3 Cancellation Callback</b></p> <ul style="list-style-type: none"> <li>Added mandatory boTransactionRefNo header</li> </ul> <p><b>3.24 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Updated error message for BA1004 to include from date</li> </ul> <p><b>3.2.5 eDDA Creation Response API</b></p> <ul style="list-style-type: none"> <li>Updated MsgNmId field datatype from String to String (Enum)</li> </ul> <p><b>3.7.2 Transactions API</b></p> <ul style="list-style-type: none"> <li>Updated reportID datatype to String (UUID, length = 36)</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Wang Shyan Ann
V3.11	24 May 2021	<p><b>3.1.3 Common API Request and Response Headers</b></p> <ul style="list-style-type: none"> <li>Added "Sent to target party by Aggregator" column</li> <li>Added table for optional additional request headers injected by the Aggregator when making outbound calls to the BO/Banks</li> </ul> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Updated Ocrncs and Drtn fields from Optional to Mandatory</li> </ul>	Sammil, Mohammed Kafoor; Wang Shyan Ann

Version	Date	Additions/Modifications	Prepared/Revised by
		<b>3.2.5 eDDA Creation Response API</b> <ul style="list-style-type: none"> <li>Added BA1004 under “Request Error Codes and Error Messages sent from Bank to Aggregator”</li> </ul> <b>3.7.1 Billing/Charging API &amp; Transactions API</b> <ul style="list-style-type: none"> <li>Updated requestType enum values (Creation   Cancellation)</li> <li>Added sample CSV format for Transactions API</li> </ul> Updates have been highlighted in yellow	
V3.12	11 June 2021	<b>Multiple sections</b> <ul style="list-style-type: none"> <li>Added error code AG0067 for Duplicate requestID.</li> <li>Added error code AG5003 for failed to connect to target party</li> </ul> <b>3.2.3 Creation Callback API</b> <ul style="list-style-type: none"> <li>Updated applicantIDHash and applicantIDType to be mandatory</li> </ul> <b>3.2.4 eDDA Creation API</b> <ul style="list-style-type: none"> <li>Updated SeqTp field value to RCUR instead of OOFF</li> </ul> <b>3.2.5 eDDA Creation Response API</b> <ul style="list-style-type: none"> <li>Reinstated error code BAAM05. Updated error message for error code BA3005</li> </ul>	Sammil, Mohammed Kafoor; Wang Shyan Ann; Benjamin Ho Kar Ming

Version	Date	Additions/Modifications	Prepared/Revised by
		<b>5.1.1 Aggregator Errors</b> <ul style="list-style-type: none"> <li>Added error code AG5003</li> </ul> <b>5.1.2 Bank Errors</b> <ul style="list-style-type: none"> <li>Reinstated error code BAAM05. Updated error message for error code BA3005</li> <li>Added error code BA3006 and BA5003</li> </ul> <b>5.1.3 BO Errors</b> <ul style="list-style-type: none"> <li>Added error code BO5003</li> </ul> Updates have been highlighted in yellow	
V3.13	15 June 2021	<b>Multiple sections</b> <ul style="list-style-type: none"> <li>Added new Aggregator error code AG1099 with error message "Invalid payload"</li> </ul> <b>3.2.1 Authorize Creation Redirection URL API</b> <ul style="list-style-type: none"> <li>Updated boName to max length of 140 characters</li> </ul> <b>3.2.2 BO Redirection Page URL API (Creation)</b> <ul style="list-style-type: none"> <li>Updated typo for Aggregator errors (AG1000, AG1001</li> <li>, AG1002)</li> </ul> <b>3.2.3 Creation Callback API</b> <ul style="list-style-type: none"> <li>Updated applicantIDHash and applicantIDType to be optional</li> </ul>	Sammil, Mohammed Kafoor; Benjamin Ho Kar Ming

Version	Date	Additions/Modifications	Prepared/Revised by
		<b>3.3.1 Authorize Cancellation Redirection URL API</b> <ul style="list-style-type: none"> <li>Updated boName to max length of 140 characters</li> </ul> <p>Updates have been highlighted in yellow</p>	
V3.14	06 August 2021	<b>Multiple sections</b> <ul style="list-style-type: none"> <li>Additional Aggregator error code AG0068</li> <li>Updated content-type to text/plain for eDDA Creation/Cancellation APIs that require encrypted payload</li> <li>Updated error code BA1004 to remove “from date” from error message</li> <li>Updated API name from Billing/Charging API to Reconciliation API</li> <li>Updated API name from Transactions API to Billing/Charging API</li> <li>Updated bank error message for error code BA5001 and BA5002</li> <li>Updated aggregator error message for error code AG0016, AG1001 and AG1099</li> </ul> <b>3.1.2 eDDA Requests Tracing and Lifecycle</b> <ul style="list-style-type: none"> <li>Updated table with status and remarks</li> </ul> <b>3.1.5 Allowed special characters</b> <ul style="list-style-type: none"> <li>Added 3 new non allowed characters</li> </ul> <b>3.2.4 eDDA Creation API</b> <ul style="list-style-type: none"> <li>Updated sample payload typo error (“Other” field under “Dbtr” field)</li> </ul>	Sammil, Mohammed Kafoor; Benjamin Ho Kar Ming

Version	Date	Additions/Modifications	Prepared/Revised by
		<ul style="list-style-type: none"> <li>Updated Dbtr block to be optional</li> <li>Updated "FrDt" attribute description</li> </ul> <p><b>3.4.1 eDDA Status API</b></p> <ul style="list-style-type: none"> <li>Removed boDDARefNo attribute from response body</li> <li>Updated all status attribute example in response body</li> <li>Updated description of status attribute in response body</li> <li>Added additional sample success response</li> </ul> <p><b>3.7.1 Reconciliation API</b></p> <ul style="list-style-type: none"> <li>Updated response body with new attribute entityID and businessUnitID</li> <li>Updated API name from Billing/Charging API to Reconciliation API</li> </ul> <p><b>3.7.2 Billing/Charging API</b></p> <ul style="list-style-type: none"> <li>Added note for Content-Type</li> <li>Updated error message for AG0065</li> <li>Updated report format for CSV sample</li> <li>Updated all status attribute example in response body</li> <li>Updated API name from Transactions API to Billing/Charging API</li> </ul> <p><b>5.1.2 Bank Errors</b></p> <ul style="list-style-type: none"> <li>Added new error code BA3007</li> <li>Updated error message for error code BA1001, BA5001 and BA5002</li> </ul> <p><b>5.1.3 BO Errors</b></p>	

Version	Date	Additions/Modifications	Prepared/Revised by
		<ul style="list-style-type: none"> <li>Updated BO error message for error code BO1001</li> </ul> <p>Updates have been highlighted in yellow</p>	
V3.15	27 October 2021	<p><b>3.2.3 Creation Callback API</b></p> <ul style="list-style-type: none"> <li>Updated applicantIDHash description to use SHA-256 algorithm instead of SHA-1 and to be mandatory</li> </ul> <p><b>3.2.5 eDDA Creation Response API</b></p> <ul style="list-style-type: none"> <li>Updated request body attribute "AddtlRjctRsnInf" length from 105 to 200</li> </ul> <p><b>3.4.1 eDDA Status API</b></p> <ul style="list-style-type: none"> <li>Updated typo in sample request URL</li> <li>Added more examples for status response attribute</li> </ul> <p><b>3.7.1 Reconciliation API</b></p> <ul style="list-style-type: none"> <li>Added new field "businessUnitName" in response body. Updated sample response.</li> </ul> <p><b>3.7.2 Billing/Charging API</b></p> <ul style="list-style-type: none"> <li>Added table on error scenarios for status attribute values</li> <li>Added new field "boBusinessUnitName" in response body. Updated sample response.</li> <li>Updated description on S3 link validity</li> <li>Updated examples for "status" attribute for response body</li> </ul> <p>Updates have been highlighted in yellow</p>	Samnil, Mohammed Kafoor; Benjamin Ho Kar Ming

Version	Date	Additions/Modifications	Prepared/Revised by
V3.16	4 April 2022	<p><b>3.1.2 eDDA Requests Tracing and Lifecycle</b></p> <ul style="list-style-type: none"> <li>Updated status and remarks based on scenario of specific APIs</li> </ul> <p><b>3.2.3 Creation Callback API</b></p> <ul style="list-style-type: none"> <li>Updated applicantIDHash description to include additional notes</li> <li>Updated maxAmount to include additional notes</li> </ul> <p><b>3.2.4 eDDA Creation API</b></p> <ul style="list-style-type: none"> <li>Updated note for Applicant ID field (Field: Dbtr &gt; Id &gt; PrvtId &gt; Othr &gt; Id)</li> <li>Updated note for MaxAmt field</li> </ul> <p>Updates have been highlighted in yellow</p>	Sammil, Mohammed Kafoor; Benjamin Ho Kar Ming
V3.17	27 November 2023	<p><b>Distribution of Document</b></p> <ul style="list-style-type: none"> <li>Updated leadership details</li> </ul> <p><b>Add a Point to note for all API sections:</b></p> <ul style="list-style-type: none"> <li>Point to note: Please refer to “Technical Design Document” for details.</li> </ul> <p><b>Updated descriptions of timestamp attribute for following sections:</b></p> <ul style="list-style-type: none"> <li>3.2.1 Authorize Creation Redirection URL API</li> <li>3.2.2 BO Redirection Page URL API (Creation)</li> <li>3.3.1 Authorize Cancellation Redirection URL API</li> </ul>	Gan Yah Ing



Version	Date	Additions/Modifications	Prepared/Revised by
		<ul style="list-style-type: none"> <li>3.3.2 BO Redirection Page URL API (Cancellation)</li> </ul> <p><b>Added attribute for following sections:</b></p> <ul style="list-style-type: none"> <li>3.2.1 Authorize Creation Redirection URL API</li> </ul> <p><b>3.1.1 API Taxonomy</b></p> <ul style="list-style-type: none"> <li>For table listing of APIs with their corresponding API IDs, updated "Bank" as "Applicant Bank".</li> </ul> <p><b>3.7.1 Reconciliation API</b></p> <ul style="list-style-type: none"> <li>Added a Points to note (after the table)</li> <li>Added a new error code AG0058 – Cross month / year is not allowed.</li> </ul> <p><b>3.7.2 Billing/Charging Report Request API</b></p> <ul style="list-style-type: none"> <li>Updated description of "date" attribute</li> <li>Added a new attribute – toDate as an optional attribute</li> <li>Added a Points to note (after the table)</li> <li>Added a new error code AG0058 – Cross month / year is not allowed.</li> </ul> <p>Updates have been highlighted in yellow</p>	

## Document Review/Approval History

Date	Reviewed by	Organisation	Comments
27 Nov 2020	Participating Banks and ABS	ABS, BOC, Citibank, DBS, HSBC, ICBC, Maybank, OCBC, Standard Chartered Bank, UOB	V1.0 has been reviewed by banks. Their feedback has been incorporated in V2.0
16 Dec 2020	Participating Banks and ABS	ABS, BOC, Citibank, DBS, HSBC, ICBC, Maybank, OCBC, Standard Chartered Bank, UOB	V2.0 has been reviewed by banks and ABS. Minor amendments based on their feedback has been incorporated in V3.0
27 Nov 2023	Participating Banks and ABS	ABS, BOC, Citibank, DBS, HSBC, ICBC, Maybank, OCBC, Standard Chartered Bank, UOB	V3.17 has been reviewed by banks and ABS.

## Distribution of Document

The following people are designated recipients of this document:

Recipients	Organisation
<b>ABS Secretariat</b>	ABS
<b>Nominated Representatives from the Banks (Business, Operations and Technology)</b>	BoC, Citibank, DBS, HSBC, ICBC, Maybank, OCBC, Standard Chartered, UOB
<b>Steering Committee</b>	BoC, Citibank, DBS, HSBC, ICBC, Maybank, OCBC, Standard Chartered, UOB
<b>BCS Leadership</b>	BCS

## **2 Introduction**

### **2.1 Project Background**

The Association Bank of Singapore (ABS) aims to transform the Direct Debit Authorisation (DDA) setup and operation process and deliver superior customer experience and propel Singapore further on its journey to a Smart Nation.

The current DDA is manual intensive and relies on snail mail and this process takes an average of 3 weeks before the auto deduction can take place between companies and individuals.

In this midst of COVID 19, this inefficacy has an adverse impact on the cash flow of many companies.

The participating banks consist of all the 9 major banks in Singapore and Billing Organisations (BOs) coming from various industries, namely public sector, financial, telecommunications, healthcare, clubs and members, and more.

### **2.2 Project Objectives**

#### **1. Improve customer experience and efficiency**

Enhance customer experience as the current process is based on manual forms and requires multiple hands-off across customers, Billing Organisations and Banks. The current process takes 3 weeks to setup, adversely impacting customer experience and the Banks' cost to serve due to the manual effort.

#### **2. Drive higher adoption of FAST collection**

As part of the Smart Nation agenda, the objective to reduce cash and cheques and hence the need to digitise the Direct Debit Authorization (DDA) to increase the digital adoption.

#### **3. Streamline the DDA experience**

Provide a bank agnostic platform for all stakeholders through offering consistent and industry standard services in API connectivity, security and process of DDA, building a centre of excellence and bringing open banking in Singapore to greater heights.

## 2.3 Purpose of Document

The purpose of this API Specifications document is to provide detailed specifications for the APIs consumed by the BOs and Banks. These include:

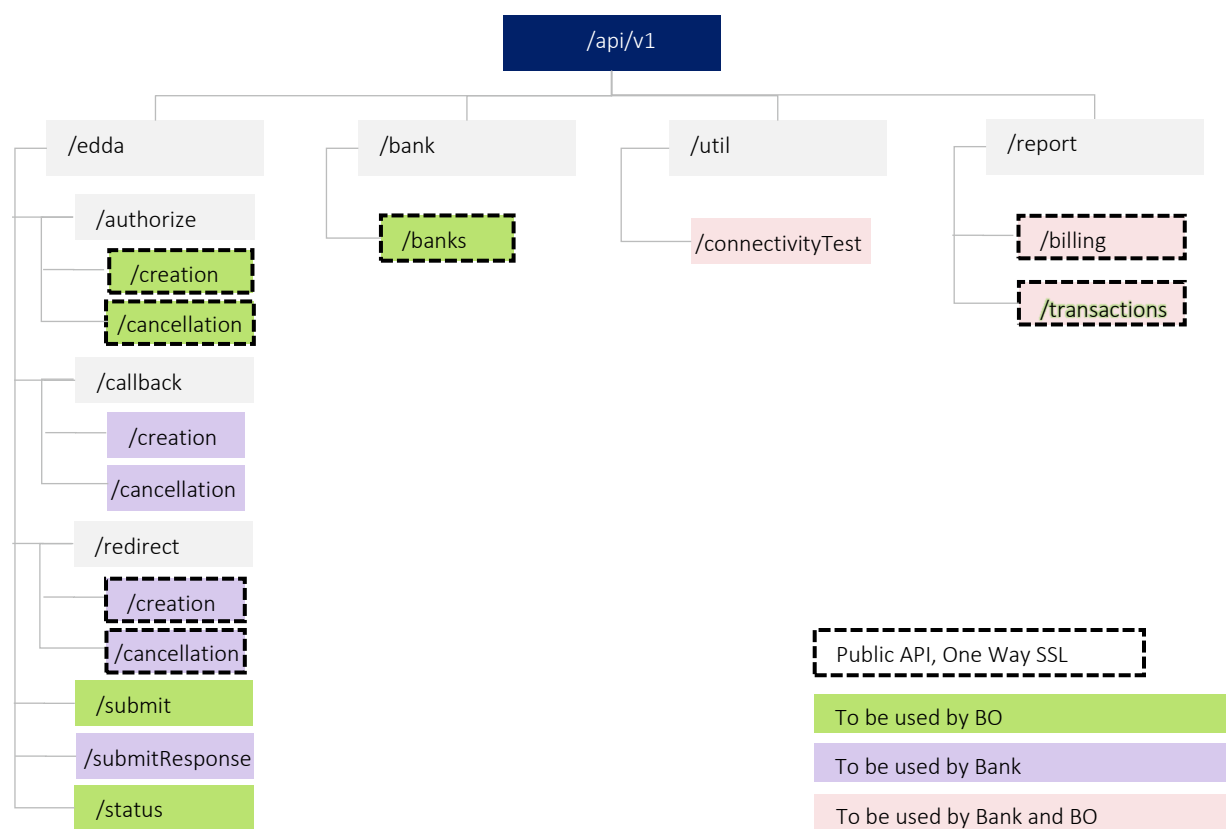
- API Overview
  - API Taxonomy
  - eDDA Requests Tracing and Lifecycle
  - Common API Request and Response Headers
  - Common Error Response format
  - Allowed special characters
- eDDA Creation Services
- eDDA Cancellation Services
- eDDA Status Services
- Bank Services
- Utility Services
- Report Services

### 3 APIs

#### 3.1 Overview

##### 3.1.1 API Taxonomy

The APIs are designed and categorized based on the 4 type of services delivered: eDDA, bank, utility and report services. These APIs can be called by the BO or Bank with different color codes below denoting the caller of the APIs. All APIs are secured via mutual TLS except for the /authorize (Creation AA Cancellation), /redirect (Creation & Cancellation), /banks, and /report APIs which are secured via one-way SSL.



The table below shows the API domain names based on API Type. The API domain names are to be confirmed.

API Type	Placeholder for API Domain Name	API Domain Name
One-way SSL APIs	aggregator_api_platform_domain	api.eddanow.sg
Mutual TLS APIs	aggregator_api_platform_domain_secured	api-secure.eddanow.sg

The table below shows the full list of APIs with their corresponding API IDs.

Service	API ID	API Name	API Resource	Calling Party	End Receiver
eDDA Creation	API001	Authorize Creation Redirection URL API	api/v1/edda/authorize/creation	BO	Applicant Bank
	API002	BO Redirection Page URL API (Creation)	api/v1/edda/redirect/creation	Applicant Bank	BO
	API003	Creation Callback API	api/v1/edda/callback/creation	Applicant Bank	BO
	API004	eDDA Creation API	api/v1/edda/submit	BO	Applicant Bank
	API005	eDDA Creation Response API	api/v1/edda/submitResponse	Applicant Bank	BO
eDDA Cancellation	API006	Authorize Cancellation Redirection URL API	api/v1/edda/authorize/cancellation	BO	Applicant Bank
	API007	BO Redirection Page URL API (Cancellation)	api/v1/edda/redirect/cancellation	Applicant Bank	BO
	API008	Cancellation Callback API	api/v1/edda/callback/cancellation	Applicant Bank	BO
eDDA Status	API009	eDDA Status API	api/v1/edda/status	BO	Aggregator
Bank	API010	Bank List API	api/v1/bank/banks	BO	Aggregator
Utility	API011	Outbound Connectivity Test API	api/v1/util/connectivityTest	BO / Applicant Bank	Aggregator
Report	API012	Reconciliation API	api/v1/report/billing	BO / Applicant Bank	Aggregator
	API013	Billing/Charging API	api/v1/report/transactions	BO / Applicant Bank	Aggregator

### 3.1.2 eGIRO Requests Tracing and Lifecycle

Each API Request should use the Request ID, Transaction Reference Number and DDA Reference Number identifiers to trace the API requests as well as the status of the eGIRO Requests.

Identifier	Field Name	Remarks
<b>Request ID</b>	requestID	Unique Id of request. This is to identify or correlate the specific API call. Each API call will have a unique ID. To be passed for every API call (via Header or Query String)
<b>Transaction Reference Number</b>	boTransactionRefNo	For a given applicant, the BO needs to submit the same Transaction Reference No while calling all the APIs (Authorize/ Callback /eDDA Creation / Cancellation / Status). The status will be updated based on the APIs called and response received from the Bank.  The format of the Transaction Reference No can be found in <a href="#">Section 3.1.6</a> .
<b>DDA Reference Number</b>	boDDARefNo	Billing Reference Number issued by BO to Applicant.

The Transaction Reference Number identifier will be passed in each API request and used to trace the eGIRO Request lifecycle. The status is maintained at the Aggregator based on the API calls and the response received for the given Transaction Reference Number.

API	Calling Party	Status	Remarks
<b>Authorize Creation Redirection URL API</b>	BO	Authorization Initiated	Redirected to bank website
<b>BO Redirection Page URL API (Creation)</b>	Bank	Authorized by Applicant	Applicant given authorization at bank website
		Rejected by Applicant	Applicant rejected the authorization at bank website
		Incomplete Flow	Bank responded with error incomplete flow due to applicant closing the browser or any inactive session. This status can be reported via <b>Creation Callback API</b> as well.



API	Calling Party	Status	Remarks
<b>Creation Callback API</b>	Bank	Token Issued	Bank Issued the Token
	Bank	eDDA Setup Rejected	Applicant rejected eDDA setup and Bank returns BA3002 error code to aggregator
	Bank	Incomplete Flow	Bank responded with error incomplete flow due to applicant closing the browser or any inactive session
<b>eDDA Creation API</b>	BO	eDDA Setup Submitted	BO submitted the eDDA
<b>eDDA Creation Response API</b>	Bank	eDDA Setup Success	Bank successfully setup the eDDA
		Error:< ErrorCode>	Bank rejected the eDDA setup
		Error:AG5003-PostingSuccessResponse	Successful setup status however there are any connectivity issues to connect to the BO
		Error:AG5003-PostingRejectionResponse	Rejected setup status however there are any connectivity issues to connect to the BO
<b>Authorize Cancellation Redirection URL API</b>	BO	Authorization Initiated	Authorization Initiated
<b>BO Redirection Page URL API (Cancellation)</b>	Bank	eDDA Cancel Submitted	Applicant given authorization at bank website
		Rejected by Applicant	Applicant rejected the authorization at bank website
		Incomplete Flow	Bank responded with error incomplete flow due to applicant closing the browser or any inactive session.

API	Calling Party	Status	Remarks
Cancellation Callback API	Bank	eDDA Cancel Success	Bank successfully cancelled the eDDA.
		eDDA Cancel Rejected	Bank rejected the eDDA cancellation due to consent not given by applicant or invalid DDA.
		Incomplete Flow	Bank responded with error incomplete flow due to applicant closing the browser or any inactive session.

### 3.1.3 Common API Request and Response Headers

Each API comes with a set of common Request and Response headers listed in the table below. Other API specific headers will be discussed in the later sections of this document.

Common Request Headers				
Attribute	Description	Data Type	Mandatory	Sent to target party by eGIRO Aggregator platform
x-api-key	API Key issued by eDDA platform for authentication. This will be issued during onboarding and will be passed by BO/Bank when the APIs are called.	String (UUID, length = 36)	Y	N
requestID	Unique ID of request	String (UUID, length = 36)	Y	Y
clientID	Unique ID for BO/Bank. This will be issued during onboarding and will be passed by BO/Bank when the APIs are called.	String (length = 15)	Y	Y
signKeyAlias	Alias of BO/Bank key	String	N	Y (but value will be replaced by Aggregator key value)
aggregatorKeyAlias	Alias of Aggregator key	String	Y (for mutual TLS)	Y (but value will be replaced by Aggregator key value)
boTransactionRefNo	Transaction reference number	String (length = 35)	Y (for mutual TLS APIs)	Y
Common Response Headers				
Attribute	Description	Data Type	Mandatory	
requestID	Unique ID of request	String (UUID, length = 36)	Y	
requestTime	Datetime of request following AWS API GW format. Currently only	String (dd/MMM/yyyy:HH:mm)	Y	

Common Request Headers			
	GMT+0 datetime format is supported.	ss +-hhmm format)	

Optional additional request headers will be injected by the Aggregator when making outbound calls to the BO/Banks.

Common Additional Request Headers				
Attribute	Description	Data Type	Mandatory	Sent to target party by eGiro Aggregator platform
Additional headers	Additional headers required (if any) by the BO/Bank to authenticate Aggregator, will be injected (Provided by BO/Bank to Aggregator during Onboarding)	String	N	Y (if provided)

### 3.1.4 Common Error Response format

Each API handles a set of success (2xx, 3xx) and error (4xx, 5xx) HTTP response codes returned by the request. Success codes are handled by having the API return a successful API Specific response to the caller. Error codes are handled with a common error response format with **errorCode** and **errorMessage** fields, returned in an **errors** array as shown below.

Common Error Response Format
<p>HTTP Response Code: &lt;HTTP Code&gt;</p> <pre> {   "errors": [     {       "errorCode": "&lt;Error Code&gt;",       "errorMessage": "&lt;Error Message&gt;"     }   ] }</pre>

The **errorCode** field is used to identify the originator of the error and the type of error. It is a 6-character string that comprises of a 2-character prefix (i.e BO/BA/AG), followed by a 4-digit suffix (i.e 0001/0002/0003).

The 2-character prefix is determined by the originator of error.

Originator of error	Prefix
BO	BO
Bank	BA
eGIRo Aggregator	AG

The 4-digit suffix is categorized based on the type of error.

Type of error	HTTP Response Code	Suffix range
Missing/invalid data fields	400	0001 – 1000
Encryption/Decryption/Verification/Signing	400	1001 – 2000
Invalid authentication/API Key	401	2001 – 3000
Forbidden access/Unsupported media type/API throttling limits hit	403, 415, 429	3001 – 4000
Resource not found	404	4001 – 5000
Server outages/unavailability	500, 503	5001 – 6000

Sample error codes are described in the table below.

Originator of error	Sample error codes
BO	BO0001, BO1001, BO2001...
Bank	BA0001, BA1001, BA2001...
eGIRo Aggregator	AG0001, AG1001, AG2001...

The **errorMessage** field is used to provide a descriptive message of the error. It is API specific and varies based on HTTP Response Code and API.

Sample error responses are shown below.

Sample Error Response (Single error)
<pre> HTTP Response Code: 400  {   "errors": [     {       "errorCode": "AG0001",       "errorMessage": "Missing/Invalid query parameter value: applicantBankCode"     }   ] }</pre>

Sample Error Response (Multiple errors)
<pre> HTTP Response Code: 400  {   "errors": [     {       "errorCode": "AG0001",       "errorMessage": "Missing/Invalid query parameter value: applicantBankCode"     },     {       "errorCode": "AG0002",       "errorMessage": "Missing/Invalid query parameter value: boDDARefNo"     }   ] }</pre>

### 3.1.5 Allowed special characters

The table below describes the allowed and non-allowed characters for query parameters only. This same set of characters applies for the DDA Reference number field as well.

Set	Allowed values
Alphanumeric	a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9
Special characters	<ul style="list-style-type: none"> <li>• Hyphen (“-”)</li> <li>• Underscore (“_”)</li> <li>• Space (“ ”)</li> <li>• Dollar (“\$”)</li> <li>• Lesser than (“&lt;”), Greater than (“&gt;”)</li> <li>• Asterisk (“*”)</li> <li>• Comma (“,”)</li> <li>• Colon (“:”)</li> <li>• Period (“.”)</li> <li>• Tilde (“~”)</li> <li>• Apostrophe (“’”)</li> <li>• Exclamation mark (“!”)</li> <li>• Semi-colon (“;”)</li> </ul>
Set	Non-allowed values
Special characters	<ul style="list-style-type: none"> <li>• At sign (“@”)</li> <li>• Pound (“#”)</li> <li>• Percent (“%”)</li> <li>• Caret (“^”)</li> <li>• Ampersand (“&amp;”)</li> <li>• Open parentheses (“(“), Closed parentheses (“)”)</li> <li>• Plus (“+”)</li> <li>• Equals (“=”)</li> <li>• Open brace (“{“), Closed brace (“}”)</li> <li>• Open bracket (“[“), Closed bracket (“]”)</li> <li>• Forward slash (“/“), Back slash (“\”)</li> <li>• Pipe (“ ”)</li> <li>• Question mark (“?”)</li> <li>• Backquote (“`”)</li> <li>• Quotation mark (“”)</li> <li>• Single quote (“’”)</li> </ul>

### 3.1.6 Client ID and Transaction Reference Number format

The Client ID is the Unique ID for BO/Bank, and it is unique for each Entity ID and Business Unit ID combination. This will be issued during onboarding and will be passed by BO/Bank when the APIs are called. Depending on whether the entity is a BO or a Bank, a different format is used. Padding 'X' will be used if the length requirements are not met or if the string contains spaces.

#### Client ID format for a BO

<b>Format</b>	BO (2 characters) + Organization Name (First 3 characters, filler X is used if length is less than 3 characters) + UEN (Last 5 characters, filler X is used if length is less than 5 characters) + Business Unit ID number (2 characters) + Business Unit Name (First 3 characters, filler X is used if length is less than 3 characters)
<b>Length</b>	15
<b>Example</b>	BOSIN1992001COR
<b>Example (with fillers)</b>	BOSIN1992001COX

#### Client ID format for a Bank

<b>Format</b>	BA (2 characters) + Organization Name (First 5 characters, filler X is used if length is less than 5 characters) + UEN (Last 5 characters, filler X is used if length is less than 5 characters) + XXX (3 Padding characters)
<b>Length</b>	15
<b>Example</b>	BXYZBAADBA1XXX
<b>Example (with fillers)</b>	BXYZBXADBA1XXX

The Transaction Reference Number is globally unique and is constructed based on the concatenation of Client ID (Unique and issued during onboarding), datetime and a 6 digit random number. Details are described in the table below.

<b>Format</b>	Client ID (15 characters) + Datetime (YYYYMMDDhhmmss format, 14 characters) + NNNNNN (6 digits)
<b>Length</b>	35
<b>Example</b>	BOSIN1992001COR20210303101010123456



### 3.2 eDDA Creation Services

#### 3.2.1 Authorize Creation Redirection URL API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/edda/authorize/creation			
Description	Redirects the applicant from the BO website to the Internet banking page to authenticate and select the account number for eDDA Creation			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: No response body (Success), text/html (Error)			
Authentication	N/A			
Connectivity	Public API, One-way SSL			
Calling Party	BO			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
applicantBankCode	Bank code (BIC) of applicant Bank	String (length = 11)	Y	XYZBANKXXXX
boDDARefNo	Billing reference number	String (max length = 35)	N	A0012334455
boName	The name of BO	String (max length = 140)	Y	SingHub
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
clientID	Unique ID of BO	String (length = 15)	Y	BOSIN1992001COR
purpose*	Billing purpose as a 4 letter code	String (Enum)	N	UBIL
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
requestType	Type of request to distinguish between an eDDA	String (Enum)	Y	Creation

	Creation and eDDA Cancellation			
segment	Segment of applicant. Can be Retail or Corporate	String (Enum)	Y	Retail   Corporate
nonce	Unique 20 digits random number created for every request	String (length = 20)	Y	79399129924850509749
Timestamp	Epoch time format (in milliseconds) to verify the validity for the URL based on the URL creation time	String	Y	1604536682681
signKeyAlias	Alias of BO key	String	N	KEY1
signature	Signature of the query string (Signed using the preferred encryption type PGP or JWT)	String	Y	<pre> ----- BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisof t+OpenPGP+Library+for +Java+3.2%0A%0AiAAA AwUAYIvJx2sHx69I4WIK AQLdqqf%2FYt2EkqXoq GqRPogFWFdZ6X2ise5j O%2BAm%0APKdF32% 2F0mdNW%2Fk5cnX0W GzxDbEWBd31g%2BuW 3LOOyKy871wG2i6AltPI UpB6StgWR%0Au2cc9Z RXfm3hGx0Hi%2BUMw 7XBBLvMV8nYfJMC01x 9eluq59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24Ck WrlGtFeqdQl6a9L13gCZ qDS9LRIP7aGgFLwWYq OPKhfojJWiUq32Ki%0A yXUsetf%2BAk1atttcMw gtzW4LEWYBGIkz%2B1 iv%2FixLqkgzuSc0BDlw GZ6zaWTjvhUV%0Am8 OoFYI67gOGdM4oRK1 M%2FSibkcLYcbxHQQ9 KaWGHdXwmywasav36 mA%3D%3D%0A%3DV 45Y%0A----- END+PGP+SIGNATURE -----%0Ai </pre>

Response: Headers			
Attribute	Description	Data Type	Example
Location	Redirect URL to bank login page, including all the query parameters sent by the BO and the signature of eDDA Aggregator	String	<pre> https://&lt;applicant_bank_internet_banki ng_url&gt; ?applicantBankCode= XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001 COR20210303101010123456 &amp;clientID=BOSIN1992001COR &amp;purpose=UBIL &amp;requestID=a6bfc2c0-3d46-11eb-adc1- 0242ac120002 &amp;requestType=Creation &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=----- BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+ Library+for+Java+3.2.%0A%0AiQEVaw UAYlvJx2sHx69l4WIKaQLdqqf%2FYt2 EkqXoqGqRPogFWFdZ6X2ise5jO%2B Am%0APKdF32%2F0mdNW%2Fk5cn X0WGzxDbEWBd31g%2BuW3LOOyKy 871wG2i6AltPIUpB6StgWR%0Au2cc9Z RXfm3hGx0Hi%2BUMw7XBBLvMV8nY fJMC01x9eluq59zk3O7jlrKN6MOkC3m t%0AZr3ZmK24CkWrIGtFeqdQl6a9L13 gCZqDS9LRIP7aGgFLwWYqOPKhfojJ WiUq32Ki%0AyXUsetf%2BAk1atttcMw gtzW4LEWYBGlkz%2B1iv%2FixLqkgz uSc0BDlwGZ6zaWTjvhUV%0Am8OoF Yl67gOGdM4oRK1M%2FSibkcLYcbxH QG9KaWGHdXwmywasav36mA%3D% 3D%0A%3DV45Y%0A----- END+PGP+SIGNATURE-----%0Ai </pre>
requestTime	Datetime of request	String (dd/MMM/yy yy:HH:mm:s s +-hhmm format)	16/Nov/2020:14:30:11 +0000

Response: Body			
Attribute	Description	Data Type	Example
N/A	N/A	N/A	N/A

\* For the full list of purpose codes, refer to [Appendix section 5.2](#).

**NOTE:** While constructing the query parameters for URL Signing, please do not include the query parameter with value empty for those optional fields. Also, please follow the order as in **Request: Query Parameters table** to construct the query string and create the signature. **No URL encoding is required for Query Parameters to create the Signature.**

### Sample Request and Response Body

Payload Type	Sample
Request	<pre> GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/edda/authorize/creation ?applicantBankCode=XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BOSIN1992001COR &amp;purpose=UBIL &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AiAAAwUAYIvJx2sHx69I4WIKaQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMCo1x9elug59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYI67gOGdM4oRK1M%2FSibkcLYc bxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai ----- No request body expected           </pre>

<p><b>Response</b></p> <p><b>Scenario:</b> Successful redirection with valid fields</p>	<p>HTTP Response Code: 302 Location: https://&lt;applicant_bank_internet_banking_url&gt; ?applicantBankCode=XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BOSIN1992001COR &amp;purpose=UBIL &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2.%0A%0AiQEVAwUAYIvJx2sHx69I4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9eluq59zk3O7JlrKN6MOKC3mt%0AZr3Z mK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1attcMw gtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYI67gOGdM4oRK1M%2FSibk cLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai</p> <p>requestTime: 16/Nov/2020:14:30:11 +0000</p> <p>-----</p> <p>No response body expected</p>
<p><b>Response</b></p> <p><b>Scenario:</b> Invalid fields passed in. HTML page content will be returned for display on user's browser*</p>	<p>HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000</p> <p>-----</p> <p>&lt;html&gt;   &lt;head&gt;     &lt;title&gt;Online eDDA Aggregator Service&lt;/title&gt;   &lt;/head&gt;   &lt;body&gt;</p>

	<pre> &lt;h1 color="red"&gt;&lt;font color="red"&gt;Online eDDA Aggregator Service &lt;/font&gt; &lt;/h1&gt; &lt;p&gt;We are sorry, We are unable to process your request, Please try again !!&lt;/p&gt; &lt;p&gt;If problem still persists, Please check with the Billing Organization / Bank.&lt;/p&gt; &lt;p&gt;Request Reference No : 7fc99d5f-6561-45a1-9ceb- 773022ac8956&lt;/p&gt; &lt;p&gt;Error Code . AG0002&lt;/p&gt; &lt;/body&gt; &lt;/html&gt; </pre>
--	---

\*HTML template displayed to be confirmed

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
302		Successful redirect
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0001	Missing/Invalid query parameter value: applicantBankCode
400	AG0002	Invalid query parameter value: boDDARefNo
400	AG0003	Missing/Invalid query parameter value: boName
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0006	Invalid query parameter value: purpose
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0008	Missing/Invalid query parameter value: segment
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature
400	AG0061	Missing/Invalid query parameter value: requestType
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
500	AG5001	Internal server error
503	BA5001	Bank is under maintenance, unable to process eDDA creation now

### 3.2.2 BO Redirection Page URL API (Creation)

**Point to note:** Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/edda/redirect/creation			
Description	Allows the bank site to redirect back the applicant to the BO website after eDDA creation			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: No response body (Success), text/html (Error)			
Authentication	N/A			
Connectivity	Public API, One-way SSL			
Calling Party	Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
boDDARefNo	Billing reference number	String (max length = 35)	N	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
clientID	Unique ID of Bank	String (length = 15)	Y	BAXYZBAADBA1XXX
error*	Error during creation authorization	String (Enum)	Y (for error)	User_Rejected   Incomplete_Flow
requestID	Unique Id of request	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
requestType	Type of request to distinguish between an eDDA Creation and eDDA Cancellation	String (Enum)	Y	Creation
status	Status of creation authorization	String (Enum)	Y (for success)	Success



nonce	Unique random number (20 digits) created for every request	String (length = 20)	Y	79399129924850509749
Timestamp	Epoch time format (in milliseconds) to verify the validity for the URL based on the URL creation time (300 seconds)	String	Y	1604536682681  Refer to Technical Design Document, section 8.2.3 Request Query Parameters Signing and Verification – timestamp (under Every Redirection URLs with Query String should have below fields)
signKeyAlias	Alias of Bank key	String	N	KEY1
Signature	Signature of the Query String (Signed using the preferred encryption type PGP or JWT)	String	Y	----- BEGIN+PGP+SIGNATURE-- --- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+3.2%0A%0AiAAAAwUAYlvJx2sHx69I4WIKaQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV8nYfJMC01x9eluq59zk3O7jlrKN6MOKC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1atttcMwgtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6zaWTjvhUV%0Am8OoFYI67gOGdM4oRK1M%2FSibkcLYcbxHQQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV45Y%0A--- --END+PGP+SIGNATURE--- --%0Ai



Response: Headers			
Attribute	Description	Data Type	Example
Location	Redirect URL to BO site	String	https://<bo_redirection_url> ?boDDARefNo=A0012334455 &boTransactionRefNo= BOSIN1992001COR202103031010101234 56 &clientID=BAXYZBAADBA1XXX &requestID=a6bfc2c0-3d46-11eb-adc1- 0242ac120002 &requestType=Creation &status=Success &nonce=79399129924850509749 &timestamp=1604536682681 &signKeyAlias=AGK1 &signature=----- BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didissoft+OpenPGP+Libr ary+for+Java+3.2%0A%0AiQEVAwUAYlvJ x2sHx69l4WIKaQLdqqf%2FYt2EkqXoqGq RPogFWFdZ6X2ise5jO%2BAm%0APKdF3 2%2F0mdNW%2Fk5cnX0WGzxDbEWBd3 1g%2BuW3LOOyKy871wG2i6AltPIUpB6St gWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7 XBBLvMV8nYfJMC01x9eluq59zk3O7jlrKN 6MOkC3mt%0AZr3ZmK24CkWrIGtFeqdQl 6a9L13gCZqDS9LRIP7aGgFLwWYqOPKh fojJWiUq32Ki%0AyXUsetf%2BAk1atttcMw gtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc 0BDlwGZ6zaWTjvhUV%0Am8OoFYI67gO GdM4oRK1M%2FSibkcLYcbxHQG9KaWG HdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE----- %0Ai
requestTime	Datetime of request	String (dd/MMM/yy yy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000
Response: Body			
Attribute	Description	Data Type	Example
N/A	N/A	N/A	N/A

\* **"User\_Rejected"** is sent when user explicitly rejects the authorization request

\* **"Incomplete\_Flow"** is sent when user closes the window or is inactive for long time.

**NOTE:** While constructing the query parameters for URL Signing, please do not include the query parameter with value empty for those optional fields. Also, please follow the order as in **Request: Query Parameters table** to construct the query string and create the signature. **No URL encoding is required for Query Parameters to create the Signature.**

### Sample Request and Response Body

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> Successful redirection	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/edda/redirect/creation ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;status=Success &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didissoft+OpenPGP+Library+for+Java+ 3.2%0A%0AIAAAwUAYIvJx2sHx69l4WIKaQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9elug59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYc bxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai ----- No request body expected</pre>
<b>Response</b>  <b>Scenario:</b> Successful redirection	<pre>HTTP Response Code: 302 Location: https://&lt;bo_redirection_url&gt; ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;status=Success</pre>

	<pre> &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2%0A%0AiQEVAwUAYIvJx2sHx69I4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9elug59zk3O7jlrKN6MOkC3mt%0AZr3Z mK24CkWrIGtFeqdQI6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1attcMw gtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYI67gOGdM4oRK1M%2FSibk cLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai  requestTime: 16/Nov/2020:14:30:11 +0000 ----- No response body expected </pre>
<b>Request</b>  <b>Scenario:</b> Valid fields passed in, Unsuccessful redirection (User_Rejected or Incompleted_Flow)	<pre> GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/edda/redirect/creation ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;error=User_Rejected &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AiAAAAwUAYIvJx2sHx69I4WIK AQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9elug59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQI6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYI67gOGdM4oRK1M%2FSibkcLYc bxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai </pre>

	<p>-----</p> <p>No request body expected</p>
<p><b>Response</b></p> <p><b>Scenario:</b> Valid fields passed in, Unsuccessful redirection (User_Rejected or Incompleted_Flow)</p>	<p>HTTP Response Code: 302</p> <p>Location: https://&lt;bo_redirection_url&gt; ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;error=User_Rejected &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Creation &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2%0A%0AiQEVAwUAYIvJx2sHx69l4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BA%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9elUq59zk3O7jlrKN6MokC3mt%0AZr3Z mK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1attcMw gtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibk cLYcbxHQQ9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai</p> <p>requestTime: 16/Nov/2020:14:30:11 +0000</p> <p>-----</p> <p>No response body expected</p>
<p><b>Response</b></p> <p><b>Scenario:</b> Invalid fields are passed in. HTML page content will be returned for display on user's browser</p>	<p>HTTP Response Code: 400</p> <p>requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002</p> <p>requestTime: 16/Nov/2020:14:30:11 +0000</p> <p>-----</p> <p>&lt;html&gt;   &lt;head&gt;     &lt;title&gt;Online eDDA Aggregator Service&lt;/title&gt;   &lt;/head&gt;   &lt;body&gt;</p>

	<pre> &lt;h1 color="red"&gt;&lt;font color="red"&gt;Online eDDA Aggregator Service &lt;/font&gt; &lt;/h1&gt;   &lt;p&gt;We are sorry, We are unable to process your request, Please try again !!&lt;/p&gt;   &lt;p&gt;If problem still persists, Please check with the Billing Organization / Bank.&lt;/p&gt;   &lt;p&gt;Request Reference No : 7fc99d5f-6561-45a1-9ceb- 773022ac8956&lt;/p&gt;   &lt;p&gt;Error Code . AG0002&lt;/p&gt; &lt;/body&gt; &lt;/html&gt; </pre>

\*HTML template displayed to be confirmed

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
302		Successful redirect
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0002	Invalid query parameter value: boDDARefNo
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature
400	AG0013	Missing/Invalid query parameter value: status or error
400	AG0061	Missing/Invalid query parameter value: requestType
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
500	AG5001	Internal server error

### 3.2.3 Creation Callback API

**Point to note:** Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain_secured>/api/v1/edda/callback/creation			
Description	Aggregator’s Callback API endpoint for the bank to return the token as well as the applicant bank code (BIC) and account number to Billing Organisation to submit the eDDA Creation Request			
HTTP Method	POST			
Content-Type	Accept: text/plain Produce: No response body (Success) / application/json (Error)			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of bank	String (length = 15)	Y	BXYZBAADBA1XXX
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
signKeyAlias	Alias of Bank key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
Request: Body, Scenario: Consent given by applicant				
Attribute	Description	Data Type	Mandatory	Example
applicantBankAccNo	Bank account number of applicant	String (max length = 34)	Y	0012345678

applicantBankCode	Bank code (BIC) of applicant bank	String (length = 11)	Y	XYZBANKXXXX
boDDARefNo	Billing reference number	String (max length = 35)	N	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
bankToken*	Access Token issued by bank	String	Y	g0ZGZmNjVmOWIjNTk
maxAmount	Maximum debit amount	Double (min value = 0, fraction digits = 5, max digits = 18). 18 digits exclude the 5 fraction digits.	N	100.00
fromDate	Start date of DDA	String (DD-MM-YYYY format)	Y	06-11-2020
toDate	End date of DDA (expiry)	String (DD-MM-YYYY format)	N	06-11-2021
segment	Segment of applicant. Can be Retail or Corporate	String (Enum)	N	Retail   Corporate
applicantIDHash	Applicant (Customer) Identification Number stored in the	String (Length = 64)	Y	5fc6af6026b91b00d008ab4edef2d64248a7b273b8a9e402f2be8ca9b207e909

	Bank system. Hash the applicant Id and pass the hash value. Hashing algorithm used is SHA-256. Applicant ID should be upper cased before applying the hashing. The Hashing algorithm should be SHA 256 and output should be converted to hex.			
applicantIDType	ID type of applicant	String (Enum)	N	NRIC   FIN   Passport   UEN
<b>Request: Body, Scenario: Consent not given by applicant/ Corporate - Approval not granted by Checker</b>				
boDDARefNo	Billing reference number	String (max length = 35)	N	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
errorCode	Error code. This will be provided in place of a bankToken. The list of error codes and error messages are shown at the end of this section	String (length = 6)	Y	BA3002



errorMessage	Error message with reason for rejection. This will be provided in place of a bankToken.  The list of error codes and error messages are shown at the end of this section	String (max length = 200)	Y	Consent not given by applicant on bank website for eDDA creation. eDDA creation unsuccessful
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000	
Response: Body				
Attribute	Description	Data Type	Example	
N/A	N/A	N/A	N/A	

\*BO will check for bankToken field present in the request payload to denote a successful request; if it does not exist, the errorCode and errorMessage fields are checked instead

## Sample Request and Response Body

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> Consent given by applicant	<pre> POST https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/edda/callback/creation clientID: BAXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- {   "applicantBankAccNo": "0012345678",   "applicantBankCode": "XYZBANKXXXX",   "boDDARefNo": "A0012334455",   "boTransactionRefNo": " BOSIN1992001COR20210303101010123456",   "bankToken": "g0ZGZmNjVmOWIjNTk",   "maxAmount": 100.00,   "fromDate": "06-11-2020",   "toDate": "06-11-2021",   "segment": "Corporate",   "applicantIDHash": "f98dda8be5b43b754c96281e3338a0bb8689b923",   "applicantIDType": "NRIC" } </pre>
<b>Request</b>  <b>Scenario:</b> Consent not given by applicant	<pre> POST https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/edda/callback/creation clientID: BAXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- {   "boDDARefNo": "A0012334455",   "boTransactionRefNo": " BOSIN1992001COR20210303101010123456",   "errorCode": "BA3002",   "errorMessage": "Consent not given by applicant on bank website for eDDA creation. eDDA creation unsuccessful" } </pre>

<b>Request</b>  <b>Scenario:</b> Corporate - Approval not granted by Checker	<pre> POST https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/edda/callback/creation clientID: BAXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- {   "boDDARefNo": "A0012334455",   "boTransactionRefNo": "BOSIN1992001COR20210303101010123456",   "errorCode": "BA3004",   "errorMessage": "Approval not granted by Checker for eDDA creation. eDDA creation unsuccessful" } </pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in	<pre> HTTP Response Code: 204 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected </pre>
<b>Response</b>  <b>Scenario:</b> Invalid/mis sing fields passed in	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "errors": [     {       "errorCode": "AG0020",       "errorMessage": "Missing/Invalid value: applicantBankAccNo"     }   ] } </pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
204		Success with no response body expected
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0020	Missing/Invalid value: applicantBankAccNo
400	AG0021	Missing/Invalid value: applicantBankCode
400	AG0022	Invalid value: boDDARefNo
400	AG0023	Missing/Invalid value: boTransactionRefNo
400	AG0024	Missing/Invalid value: bankToken
400	AG0025	Invalid value: maxAmount
400	AG0026	Missing/Invalid value: fromDate
400	AG0027	Invalid value: toDate
400	AG0028	Invalid value: segment
400	AG0029	Invalid value: applicantIDHash
400	AG0030	Invalid value: applicantIDType
400	AG0059	Missing/Invalid header value: boTransactionRefNo
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
401	AG2001	Invalid API key
500	AG5001	Internal server error
500	AG5003	Failed to connect to target party

## Request Error Codes and Error Messages sent from Bank to Aggregator

Error Code	Error Message
BA3002	Consent not given by applicant on bank website for eDDA creation. eDDA creation unsuccessful
BA3004	Approval not granted by Checker for eDDA creation. eDDA creation unsuccessful

### 3.2.4 eDDA Creation API (ISO20022: PAIN.009.001.05 format)

**Point to note: Please refer to “Technical Design Document” for details.**

URL	https://<aggregator_api_platform_domain_secured>/api/v1/edda/submit			
Description	BO to submit the actual eDDA Creation request by providing BO and applicant details along with the token issued by the bank			
HTTP Method	POST			
Content-Type	Accept: text/plain Produce: No response body (Success) / application/json (Error)			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	BO			
Request: Headers				
Attribute	Description	Data Type	Mandator y	Example
clientID	Unique ID of BO	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb- adc1-0242ac120002
x-api-key	API key issued to BO	String (UUID, length = 36)	Y	d12345ee-6c54-4b01- 90e6-d701748f0851
signKeyAlias	Alias of BO key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
bankToken	Authorization token generated by bank	String	Y	eyJH1234asdasfg456...
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR202 10303101010123456
Request: Body, Scenario: BO makes an eDDA Creation				
Attribute	Description	Data Type	Mandator y	Example
MndtInitnReq	Details of the Mandate Initiation Request	Object	Y	JSON Format
GrpHdr	Group header	Object	Y	JSON Format
MsgId	BO Transaction reference number. The	String (length = 35)	Y	BOSIN1992001COR202 10303101010123456

	same value of boTransaction RefNo field to be passed here			
CreDtTm	Creation Datetime of eDDA Request	String (DD-MM-YYYY HH:mm:ss format)	Y	06-11-2020 16:25:00
Mndt	DDA Mandate Object containing details of the eDDA	Object	Y	JSON Format
MndtReqId	Billing reference number	String (max length = 35)	Y	A0012334455
MaxAmt	Maximum amount of deduction. BO to input same amount received from Bank in API003.	Double (min value= 0, fraction digits = 5, max digits = 18 ). 18 digits exclude the 5 fraction digits.	N	100.00
Tp	Type of mandate	Object	N	JSON Format
SvcLvl	Service level of mandate	Object	N	JSON Format
Cd*	Billing purpose as a 4 letter code	String (Enum)	N	UBIL
Ocrncs	Provides details of duration of mandate and occurrences of underlying transactions	Object	Y	JSON Format
SeqTp	Identifies underlying transaction sequence as recurring or one-off.  This will be	String (Enum: RCUR)	Y	RCUR

	recurring so 'RCUR' value is to be used.			
Drtn	Length of time for which mandate remains valid (Expiry date)	Object	Y	JSON Format
FrDt	Start date of DDA.  This is the date of API004 submission date. If this date is passed as past date, Bank will use the date of API004 submission date.	String (DD-MM-YYYY format)	Y	06-11-2020
ToDt	End date of DDA (expiry)	String (DD-MM-YYYY format)	N	06-11-2021
Cdtr	Details of the Creditor. This will be the BO	Object	Y	JSON Format
Nm	Name of BO	String (max length = 140)	Y	SingHub
Id	Id details of the Creditor (BO).	Object	Y	JSON Format
Orgld	Organization Id details of the Creditor (BO).	Object	Y	JSON Format
AnyBIC	BIC/BEI identifier. This will be the UEN of BO	String (max length = 10)	Y	198000399A
Othr	Object for Generic organization fields.	Object	Y	JSON Format



Id	Business Unit Id	String (max length = 35)	Y	BU01
SchmeNm	Details of name of ID scheme	Object	Y	JSON Format
Prtry	BO relationship to BO Bank. This will be the BO Bank Relationship ID	String (format: boUEN + "-" + boBankCode, max length = 35)	Y	198000399ADBA1-XYZBANKXXXX
CdtrAcct	Details of Creditor Account. This will be the BO Bank account	Object	Y	JSON Format
Id	Account Id details of BO Bank account	Object	Y	JSON Format
Othr	Generic organization field to be used for BO bank account number details	Object	Y	JSON Format
Id	BO bank account number	String (max length = 34)	Y	0012345678
CdtrAgt	Details of the Creditor Agent. This will be the BO Bank	Object	Y	JSON Format
FinInstnId	Financial institution details of the Creditor Agent. This will be the bank code of the BO Bank	Object	Y	JSON Format
BICFI	BIC (Bank code) of the Creditor Agent. This will be the BO Bank Code	String (length = 11)	Y	XYZBANKXXXX

Dbtr	Details of the Debtor. This will be details of the applicant	Object	N	JSON Format
Nm	Name of Applicant	String (max length = 140)	N	Jack
Id	Id details of the Debtor. This will be the Id details of the applicant	Object	N	JSON Format
PrvtId	Details of the Private identification of applicant	Object	N	JSON Format
Othr	Object for Generic organization fields.	Object	N	JSON Format
Id	Applicant ID (Upper case letters)	String (max length = 35)	N	S1234567A
SchmeNm	Details of name of ID scheme	Object	N	JSON Format
Prtry	Applicant ID Type	String (Enum)	N	NRIC   FIN   Passport   UEN
DbtrAcct	Details of Debtor Account. This will be the Applicant bank account	Object	Y	JSON Format
Id	Id Details of Debtor Account. This will be the Id of Applicant bank account	Object	Y	JSON Format
Othr	Generic field used for Debtor Account Id.	Object	Y	JSON Format

Id	Applicant bank account number	String (max length = 34)	Y	00244345999
DbtrAgt	Details of Debtor Agent. This will be the Applicant Bank	Object	Y	JSON Format
FinInstnId	Financial institution details of the Debtor Agent. This will be Id the Applicant Bank	Object	Y	JSON Format
BICFI	Debtor Agent (BIC). This will be the Applicant Bank Code	String (length = 11)	Y	ABCBANKXXXX
Request: Query Parameters				
Attribute	Description	Data Type	Mandator y	Example
N/A	N/A	N/A	N/A	N/A
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yyyy :HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000	
Response: Body				
Attribute	Description	Data Type	Example	
N/A	N/A	N/A	N/A	

## Sample Request and Response Body

Payload Type	Sample
Request	<p>POST</p> <p>https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/edda/submit</p> <p>clientID: BOSIN1992001COR</p> <p>requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002</p> <p>x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851</p> <p>signKeyAlias: KEY1</p> <p>aggregatorKeyAlias: AGK1</p> <p>bankToken: eyJH1234asdasfg456</p> <p>boTransactionRefNo: BOSIN1992001COR20210303101010123456</p> <p>-----</p> <pre>{   "MndtInitnReq": {     "GrpHdr": {       "MsgId": "BOSIN1992001COR20210303101010123456",       "CreDtTm": "06-11-2020 16:25:00"     },     "Mndt": {       "MndtReqlId": "A0012334455",       "MaxAmt": 100.00,       "Tp": {         "SvcLvl": {           "Cd": "UBIL"         }       }     },     "Ocrncs": {       "SeqTp": "RCUR",       "Drtn": {         "FrDt": "06-11-2020",         "ToDt": "06-11-2021"       }     },     "Cdtr": {       "Nm": "SingHub",       "Id": {         "OrgId": {           "AnyBIC": "198000399A",           "Othr": {             "Id": "BU01",             "SchmeNm": {               "Prtry": "198000399ADBA1-XYZBANKXXXX"             }           }         }       }     }   } }</pre>

	<pre> "CdtrAcct": {   "Id": {     "Othr": {       "Id": "0012345678"     }   } }, "CdtrAgt": {   "FinInstnId": {     "BICFI": "XYZBANKXXXX"   } }, "Dbtr": {   "Nm": "Jack",   "Id": {     "PrvtId": {       "Othr": {         "Id": "S1234567A",         "SchmeNm": {           "Prtry": "UEN"         }       }     }   } }, "DbtrAcct": {   "Id": {     "Othr": {       "Id": "00244345999"     }   } }, "DbtrAgt": {   "FinInstnId": {     "BICFI": "ABCBANKXXXX"   } } } </pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in	HTTP Response Code: 204 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000 -----

	No response body expected
<b>Response</b>  <b>Scenario:</b> Invalid/missing fields passed in	<p>HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000</p> <pre> ----- {   "errors": [     {       "errorCode": "AG0031",       "errorMessage": "Missing/Invalid value: MsgId (Transaction reference number)"     }   ] } </pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected outcome
204		Success with no response body expected
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0019	Missing/Invalid header value: bankToken
400	AG0031	Missing/Invalid value: MsgId (Transaction reference number)
400	AG0032	Missing/Invalid value: CreDtTm (Creation datetime)
400	AG0033	Missing/Invalid value: MndtReqId (Billing reference number)
400	AG0034	Missing/Invalid value: Cdtr - AnyBIC (BO UEN)
400	AG0035	Missing/Invalid value: Cdtr - Id (Business Unit Id)
400	AG0036	Missing/Invalid value: Cdtr – Id (BO Bank Relationship ID)

400	AG0037	Missing/Invalid value: CdtrAcct – Id (BO bank account number)
400	AG0038	Missing/Invalid value: CdtrAgt – BICFI (BO Bank Code)
400	AG0039	Missing/Invalid value: DbtrAcct – Id (Applicant bank account number)
400	AG0040	Missing/Invalid value: DbtrAgt – BICFI (Applicant Bank Code)
400	AG0041	Invalid value: MaxAmt
400	AG0042	Invalid value: SeqTp (Sequence Type)
400	AG0043	Invalid value: FrDt (Start date of DDA)
400	AG0044	Invalid value: ToDt (End date of DDA (expiry))
400	AG0045	Invalid value: Cd (Billing purpose)
400	AG0046	Invalid value: Dbtr - Id (Applicant ID)
400	AG0047	Invalid value: Dbtr - Id (Applicant ID Type)
400	AG0059	Missing/Invalid header value: boTransactionRefNo
400	AG0060	Missing/Invalid value: Cdtr - Nm (BO Name)
400	AG0062	Invalid value: Dbtr - Nm (Applicant Name)
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
400	BA1004	Field input mismatch for max amount or to date (expiry)
401	AG2001	Invalid API key
401	BA3006	Invalid Token
403	BA3001	Token has expired
500	AG5001	Internal server error
500	AG5003	Failed to connect to target party
503	BA5001	Bank is under maintenance, unable to process eDDA creation now

### 3.2.5 eDDA Creation Response API (ISO20022: PAIN.012.001.05 format)

**Point to note: Please refer to “Technical Design Document” for details.**

URL	https://<aggregator_api_platform_domain_secured>/api/v1/edda/submitResponse			
Description	Aggregator’s Creation Response API endpoint for the bank to return the status of eDDA creation			
HTTP Method	POST			
Content-Type	Accept: text/plain Produce: No response body (Success) / application/json (Error)			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientId	Unique ID of bank	String (length = 15)	Y	BAXYZBAADBA1XXX
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
signKeyAlias	Alias of Bank key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
MndtAccptncRpt	Details of Mandate Acceptance Report	Object	Y	JSON Format
GrpHdr	Group header	Object	Y	JSON Format



MsgId	BO Transaction reference number. The same value of boTransaction RefNo field to be passed here.	String (length = 35)	Y	BOSIN1992001COR202103 03101010123456
CreDtTm	Creation Datetime of eDDA Request	String (DD-MM-YYYY HH:mm:ss format)	Y	06-11-2020 16:25:00
UndrlygAcptncDtls	Information of acceptance or rejection of mandate request	Object	Y	JSON Format
OrgnlMsgInf	Information on original message	Object	Y	JSON Format
MsgId	Transaction reference number of original mandate	String (length = 35)	Y	BOSIN1992001COR202103 03101010123456
MsgNmId	Message name identifier to which the message refers	String (Enum)	Y	pain.009.001.05
AcptncRslt	Information on acceptance result	Object	Y	JSON Format
Accptd	Acceptance status (Use 'true' for accepted and 'false' for rejected)	Boolean	Y	true   false
RjctRsn	Reason for rejection	Object	N	JSON Format
Prtry	Error code. The list of error codes and error	String (max length = 35)	N	BA3005

	messages are shown at the end of this section			
AddtlRjctRsnInf	Descriptive error message. The list of error codes and error messages are shown at the end of this section	String (max length = 200)	N	Duplicate boDDARefNo or applicantBankAccNo mismatch. Unable to create eDDA
OrgnlMndt	Details of Original Mandate	Object	Y	JSON Format
OrgnlMndtId	Billing reference number	String (max length = 35)	Y	A0012334455
Request: Query Parameters				
Attribute	Description	Data Type	Mandator y	Example
N/A	N/A	N/A	N/A	N/A
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MM M/yyyy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000	
Response: Body				
Attribute	Description	Data Type	Example	
N/A	N/A	N/A	N/A	

## Sample Request and Response Body

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> eDDA creation is successful	POST https://<aggregator_api_platform_domain_secured>/api/v1/edda/submit Response clientID: BXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1 boTransactionRefNo: BOSIN1992001COR20210303101010123456 ----- { "MndtAccptncRpt": { "GrpHdr": { "MsgId": "BOSIN1992001COR20210303101010123456", "CreDtTm": "06-11-2020 16:25:00" }, "UndrlygAccptncDtls": { "OrgnlMsgInf": { "MsgId": "BOSIN1992001COR20210303101010123456", "MsgNmId": "pain.009.001.05" }, "AccptncRslt": { "Accptd": true }, "OrgnlMndt": { "OrgnlMndtId": "A0012334455" } } } } }
<b>Request</b>  <b>Scenario:</b> eDDA creation is unsuccessful. Duplicate boDDARefNo or applicantBankAcc No mismatch.	POST https://<aggregator_api_platform_domain_secured>/api/v1/edda/submit Response clientID: BXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1 boTransactionRefNo: BOSIN1992001COR20210303101010123456 -----

	<pre>{   "MndtAccptncRpt": {     "GrpHdr": {       "MsgId": "BOSIN1992001COR20210303101010123456",       "CreDtTm": "06-11-2020 16:25:00"     },     "UndrlygAccptncDtls": {       "OrgnlMsgInf": {         "MsgId": "BOSIN1992001COR20210303101010123456",         "MsgNmId": "pain.009.001.05"       },       "AccptncRslt": {         "Accptd": false,         "RjctRsn": {           "Prtry": "BA3005"         },         "AddtlRjctRsnInf": "Duplicate boDDARefNo or applicantBankAccNo mismatch. Unable to create eDDA"       },       "OrgnlMndt": {         "OrgnlMndtId": "A0012334455"       }     }   } }</pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in	HTTP Response Code: 204 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected
<b>Response</b>  <b>Scenario:</b> Invalid/missing fields passed in	HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- <pre>{   "errors": [     {       "errorCode": "AG0031",       "errorMessage": "Missing/Invalid value: MsgId (Transaction reference number)"     }   ] }</pre>

	<pre> 1 } </pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
204		Success with no response body expected
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0031	Missing/Invalid value: MsgId (Transaction reference number)
400	AG0032	Missing/Invalid value: CrDtTm (Creation datetime)
400	AG0049	Missing/Invalid value: MsgNmId (Message name identifier)
400	AG0050	Missing/Invalid value: Accptd (Acceptance status)
400	AG0051	Missing/Invalid value: OrgnIMndtId (Billing reference number)
400	AG0052	Invalid value: Prtry (Error code)
400	AG0053	Invalid value: AddtlRjctRsnInf (Error message)
400	AG0059	Missing/Invalid header value: boTransactionRefNo
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
401	AG2001	Invalid API key
500	AG5001	Internal server error
500	AG5003	Failed to connect to target party

## Request Error Codes and Error Messages sent from Bank to Aggregator

Error Code	Error Message
BA1004	Field input mismatch for max amount or to date (expiry)
BA3001	Token has expired
BA3005	Applicant Bank Acc No mismatch <sup>1</sup>
BAAC04	ClosedAccountNumber - Account number specified has been closed on the Receiver's books
BAAM05	Duplicate boDDARefNo
BAAC01	IncorrectAccountNumber - Format of the account number specified is not correct
BAAC06	BlockAccount - Account specified is blocked, prohibiting posting of transaction against it
BAAG01	TransactionForbidden - Transaction forbidden on this type of account
BABE01	InconsistentWithEndCustomer - Identification of end-Customer is not consistent with associated account number
BAMD02	MissingMandatoryInformationInMandate - Mandate related information data required by the scheme is missing
BAMD07	EndCustomerDeceased - End-customer is deceased
BAMS02	NotSpecifiedReasonCustomerGenerated - Reason has not been specified by end-customer
BAMS03	NotSpecifiedReasonAgentGenerated - Reason has not been specified by agent
BARC01	BankIdentifierIncorrect - Bank identifier code specified in the message has an incorrect format
BASL01	SpecificServiceOfferedByDebtorBank - Specific service offered by Debtor Bank
BAMD08	NoMandateServiceByAgent - Receiving agent does not offer e-Mandate services
BAMD09	NoMandateServiceOnCustomer - Account is not open to e-Mandate services
BAMD10	NoMandateServiceForSpecified - Account is not open to e-Mandate services for this particular creditor
BAMD11	UnrecognisedAgent - Agent to whom the message needs to be forwarded cannot be located
BAMD12	NotUniqueMandateIdentification - Mandate identification is not unique to the creditor
BAMD13	IncorrectCustomerAuthentication - There is a problem with the customer authentication

<sup>1</sup> - If the applicantBankAccNo issued for the bank token is not same as the applicantBankAccNo in eDDA Creation API field (DbtrAcct->Id->Other->Id)

### 3.3 eDDA Cancellation Services

### 3.3.1 Authorize Cancellation Redirection URL API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/edda/authorize/cancellation			
Description	Redirect the applicant from BO website to the Internet banking page to authenticate and select the DDA Ref number(s) for the eDDA Cancellation			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: No response body (Success), text/html (Error)			
Authentication	N/A			
Connectivity	Public API, One-way SSL			
Calling Party	BO			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
applicantBankCode	Bank code (BIC) of applicant Bank	String (length = 11)	Y	XYZBANKXXXXX
boDDARefNo	Billing reference number	String (max length = 35)	Y	A0012334455
boName	The name of BO	String (max length = 140)	Y	SingHub
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
clientID	Unique ID of BO	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002

requestType	Type of request to distinguish between an eDDA Creation and eDDA Cancellation	String (Enum)	Y	Cancellation
segment	Segment of applicant. Can be Retail or Corporate	String (Enum)	Y	Retail   Corporate
nonce	Unique 20 digits random number created for every request	String (length = 20)	Y	79399129924850509749
Timestamp	Epoch time format (in milliseconds) to verify the validity for the URL based on the URL creation time	String	Y	1604536682681
signKeyAlias	Alias of BO key	String	N	KEY1
signature	Signature of the query string (Signed using the preferred encryption type PGP or JWT)	String	Y	-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+Open PGP+Library+for+Java+3.2%0A %0AiAAAAwUAYlvJx2sHx69l4WlKAQLdqqf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3L0OyKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV8nYfJMC01x9elUq59zk3O7JlrKN6MokC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUs etf%2BAk1atttcMwgtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYcbxHQQ9KaWGHdXwmywasa v36mA%3D%3D%0A%3DV45Y%0A----- END+PGP+SIGNATURE----- %0Ai



Response: Headers			
Attribute	Description	Data Type	Example
Location	Redirect URL to bank login page, including all the query parameters sent by the BO and the signature of eDDA Aggregator	String	<pre> https://&lt;applicant_bank_internet_banking_url&gt; ?applicantBankCode=XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001COR20 210303101010123456 &amp;clientID=BOSIN1992001COR &amp;requestID=a6bfc2c0-3d46-11eb-adc1- 0242ac120002 &amp;requestType=Cancellation &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- - %0AVersion%3A+Didisoft+OpenPGP+Library +for+Java+3.2%0A%0AiQEVAwUAYIvJx2sHx 69l4WIKaQLdqgf%2FYt2EkqXoqGqRPogFWF dZ6X2ise5jO%2BAm%0APKdF32%2F0mdNW %2Fk5cnX0WGzxDbEWBd31g%2BuW3LOOy Ky871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXf m3hGx0Hi%2BUMw7XBBLvMV8nYfJMC01x9 eluq59zk3O7jlrKN6MOKC3mt%0AZr3ZmK24C kWrlGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1 atttcMwgtzW4LEWYBGIkz%2B1iv%2FixLqkgz uSc0BDlwGZ6zaWTjvhUV%0Am8OoFYl67gO GdM4oRK1M%2FSibkcLYcbxHQQ9KaWGHd Xwmywasav36mA%3D%3D%0A%3DV45Y%0 A-----END+PGP+SIGNATURE-----%0Ai </pre>
requestTime	Datetime of request	String (dd/MM M/yyyy:H H:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000
Response: Body			
Attribute	Description	Data Type	Example
N/A	N/A	N/A	N/A

**NOTE:** While constructing the query parameters for URL Signing, please do not include the query parameter with value empty for those optional fields. Also, please follow the order as in

**Request: Query Parameters table** to construct the query string and create the signature. **No URL encoding is required for Query Parameters to create the Signature.**

### Sample Request and Response Body

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> Successful redirection with valid fields	<pre>GET https://aggregator_api_platform_domain/api/v1/edda/authorize/cancellation ?applicantBankCode=XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BOSIN1992001COR &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AIAAAwUAYIvJx2sHx69l4WIKaQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9elUq59zk3O7JlRKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYc bxHQQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai  ----- No request body expected</pre>
<b>Response</b>  <b>Scenario:</b> Successful redirection with valid fields	<pre>HTTP Response Code: 302 Location: https://&lt;applicant_bank_internet_banking_url&gt; ?applicantBankCode=XYZBANKXXXX &amp;boDDARefNo=A0012334455 &amp;boName=SingHub &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BOSIN1992001COR &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation</pre>

	<pre> &amp;segment=Retail &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2%0A%0AiQEVAwUAYIvJx2sHx69l4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9eluq59zk3O7jlrKN6MokC3mt%0AZr3Z mK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1attcMw gtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibk cLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai  requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected </pre>
<b>Response</b>  <b>Scenario:</b> Invalid fields passed in. HTML page content will be returned for display on user's browser	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- &lt;html&gt;   &lt;head&gt;     &lt;title&gt;Online eDDA Aggregator Service&lt;/title&gt;   &lt;/head&gt;   &lt;body&gt;     &lt;h1 color="red"&gt;&lt;font color="red"&gt;Online eDDA Aggregator Service   &lt;/font&gt; &lt;/h1&gt;     &lt;p&gt;We are sorry, We are unable to process your request, Please try again   !!&lt;/p&gt;     &lt;p&gt;If problem still persists, Please check with the Billing Organization /   Bank.&lt;/p&gt;     &lt;p&gt;Request Reference No : 7fc99d5f-6561-45a1-9ceb-773022ac8956&lt;/p&gt;     &lt;p&gt;Error Code . AG0002&lt;/p&gt;   &lt;/body&gt; &lt;/html&gt; </pre>

\* HTML template displayed to be confirmed

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
302		Successful redirect
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0001	Missing/Invalid query parameter value: applicantBankCode
400	AG0002	Missing/Invalid query parameter value: boDDARefNo
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0003	Missing/Invalid query parameter value: boName
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0008	Missing/Invalid query parameter value: segment
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature
400	AG0061	Missing/Invalid query parameter value: requestType
400	AG0067	Duplicate requestID
400	AG0068	Invalid boTransactionRefNo for cancellation
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
500	AG5001	Internal server error
503	BA5002	Bank is under maintenance, unable to process eDDA cancellation now

### 3.3.2 BO Redirection Page URL API (Cancellation)

**Point to note:** Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/edda/redirect/cancellation			
Description	Allows the bank site to redirect back the applicant to the BO website after eDDA cancellation			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: No response body (Success), text/html (Error)			
Authentication	N/A			
Connectivity	Public API, One-way SSL			
Calling Party	Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
boDDARefNo	Billing reference number	String (max length = 35)	Y	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
clientID	Unique ID of Bank	String (length = 15)	Y	BAXYZBAADBA1XXX
error*	Error during cancellation authorization	String (Enum)	Y (for error)	User_Rejected   Incomplete_Flow
requestID	Unique Id of request	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
requestType	Type of request to distinguish between an eDDA Creation and	String (Enum)	Y	Cancellation

	eDDA Cancellation			
status	Status of cancellation authorization	String (Enum)	Y (for success)	Success
nonce	Unique random number (20 digits) created for every request	String (length = 20)	Y	79399129924850509749
Timestamp	Epoch time format (in milliseconds) to verify the validity for the URL based on the URL creation time (300 seconds)	String	Y	1604536682681  Refer to Technical Design Document, section 8.2.3 Request Query Parameters Signing and Verification – timestamp (under Every Redirection URLs with Query String should have below fields)
signKeyAlias	Alias of Bank key	String	N	KEY1
signature	Signature of the Query String (Signed using the preferred encryption type PGP or JWT)	String	Y	-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+3.2%0A%0AiAAAAwUAYIvJx2sHx69I4WIKaQLdqqf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzxDwEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV8nYfJMC01x9elug59zk3O7jlrKN6MOKC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1attcMwgtzW4LEWYBGikz%2B1iv%2FixLqkgzuSc0BDlwGZ6zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV45Y%0A-----

			END+PGP+SIGNATURE----- %0Ai
Response: Headers			
Attribute	Description	Data Type	Example
Location	Redirect URL to BO site	String	<pre> https://&lt;bo_redirection_url&gt; ?boDDARefNo=A0012334455 &amp;boTransactionRefNo= BOSIN1992001COR20210303101010123456 &amp;clientId=BAXYZBAADBA1XXX &amp;requestID=a6bfc2c0-3d46-11eb-adc1- 0242ac120002 &amp;requestType=Cancellation &amp;status=Success &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE--- -- %0AVersion%3A+Didisoft+OpenPGP+Library +for+Java+3.2%0A%0AiQEVAwUAYIvJx2sHx 69l4WIKaQLdqgf%2FYt2EkqXoqGqRPogFW FdZ6X2ise5jO%2BAm%0APKdF32%2F0mdN W%2Fk5cnX0WGzxDbEWBd31g%2BuW3LO OyKy871wG2i6AltPIUpB6StgWR%0Au2cc9Z RXfm3hGx0Hi%2BUMw7XBBLvMV8nYfJMC o1x9elug59zk3O7jlrKN6MOkC3mt%0AZr3Zm K24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7a GgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf %2BAk1atttcMwgtzW4LEWYBGIkz%2B1iv%2 FixLqkgzuSc0BDlwGZ6zaWTjvhUV%0Am8O oFYl67gOGdM4oRK1M%2FSibkcLYcbxHQQ 9KaWGHdXwmywasav36mA%3D%3D%0A% 3DV45Y%0A-----END+PGP+SIGNATURE----- %0Ai </pre>
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000
Response: Body			
Attribute	Description	Data Type	Example
N/A	N/A	N/A	N/A



\* **"User\_Rejected"** is sent when user explicitly rejects the authorization request.

\* **"Incomplete\_Flow"** is sent when user closes the window or is inactive for long time.

**NOTE:** While constructing the query parameters for URL Signing, please do not include the query parameter with value empty for those optional fields. Also, please follow the order as in **Request: Query Parameters table** to construct the query string and create the signature. **No URL encoding is required for Query Parameters to create the Signature.**

### Sample Request and Response Body

Payload Type	Sample
Request	GET
Scenario: Successful redirection	<pre> https://&lt;aggregator_api_platform_domain&gt;/api/v1/edda/redirect/cancellation ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation &amp;status=Success &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AiAAAAwUAYIvJx2sHx69l4WlKAQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9eluaq59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYc bxHQQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai ----- No request body expected </pre>



<p><b>Response</b></p> <p><b>Scenario:</b> Successful redirection</p>	<p>HTTP Response Code: 302 Location: https://&lt;bo_redirection_url&gt; ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation &amp;status=Success &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2%0A%0AiQEVAwUAYIvJx2sHx69I4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9elug59zk3O7jlrKN6MOkC3mt%0AZr3Z mK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1atttcMw gtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibk cLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai  requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected</p>
<p><b>Request</b></p> <p><b>Scenario:</b> Valid fields passed in, Unsuccessful redirection (User_Rejected or Incompleted_Flow)</p>	<p>GET https://aggregator_api_platform_domain/api/v1/edda/redirect/cancellation ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;error=User_Rejected &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AIAAAwUAYIvJx2sHx69I4WIK AQLdqgf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32</p>

	<pre>%2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9eluq59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYc bxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai  ----- No request body expected</pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in, Unsuccessful redirection (User_Reject ed or Incompleted_ Flow)	<pre>HTTP Response Code: 302 Location: https://&lt;bo_redirection_url&gt; ?boDDARefNo=A0012334455 &amp;boTransactionRefNo=BOSIN1992001COR20210303101010123456 &amp;clientID=BAXYZBAADBA1XXX &amp;error=User_Rejected &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;requestType=Cancellation &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=AGK1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for +Java+3.2%0A%0AiQEVAwUAYlvJx2sHx69l4WIK AQLdqgf%2FYt2EkqXoqGqRPogFWFdZ6X2ise5jO %2BAm%0APKdF32%2F0mdNW%2Fk5cnX0WGzx DbEWBd31g%2BuW3LOOyKy871wG2i6AltPIUpB6S tgWR%0Au2cc9ZRXfm3hGx0Hi%2BUMw7XBBLvMV 8nYfJMC01x9eluq59zk3O7jlrKN6MOKC3mt%0AZr3Z mK24CkWrIGtFeqdQl6a9L13gCZqDS9LRIP7aGgFLw WYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1atttcMw gtzW4LEWYBGlkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibk cLYcbxHQG9KaWGHdXwmywasav36mA%3D%3D% 0A%3DV45Y%0A-----END+PGP+SIGNATURE-----%0Ai  requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected</pre>

<b>Response</b>  <b>Scenario:</b> Invalid fields are passed in. HTML page content will be returned for display on user's browser	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- &lt;html&gt;   &lt;head&gt;     &lt;title&gt;Online eDDA Aggregator Service&lt;/title&gt;   &lt;/head&gt;   &lt;body&gt;     &lt;h1 color="red"&gt;&lt;font color="red"&gt;Online eDDA Aggregator Service   &lt;/font&gt; &lt;/h1&gt;     &lt;p&gt;We are sorry, We are unable to process your request, Please try again !!&lt;/p&gt;     &lt;p&gt;If problem still persists, Please check with the Billing Organization / Bank.&lt;/p&gt;     &lt;p&gt;Request Reference No : 7fc99d5f-6561-45a1-9ceb-773022ac8956&lt;/p&gt;     &lt;p&gt;Error Code . AG0002&lt;/p&gt;   &lt;/body&gt; &lt;/html&gt; </pre>
---	--

\*HTML template displayed to be confirmed

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
302		Successful redirect
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0002	Missing/Invalid query parameter value: boDDARefNo
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature

400	AG0013	Missing/Invalid query parameter value: status or error
400	AG0061	Missing/Invalid query parameter value: requestType
400	AG0067	Duplicate requestID
400	AG0068	Invalid boTransactionRefNo for cancellation
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
500	AG5001	Internal server error

### 3.3.3 Cancellation Callback API

**Point to note:** Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain_secured>/api/v1/edda/callback/cancellation			
Description	Aggregator's Callback API endpoint for the bank to return the responses for the cancellation to the BO			
HTTP Method	POST			
Content-Type	Accept: text/plain Produce: No response body (Success) / application/json (Error)			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of bank	String (length = 15)	Y	BAXYZBAADBA1XXX
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
signKeyAlias	Alias of Bank key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
Request: Body, Scenario: eDDA cancellation is successful				
Attribute	Description	Data Type	Mandatory	Example
boDDARefNo	Billing reference number	String (max length = 35)	Y	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456

status	Success status of cancellation	String (Enum)	Y	Success
<b>Request: Body, Scenario: eDDA cancellation is unsuccessful. Consent not given by applicant</b>				
Attribute	Description	Data Type	Mandatory	Example
boDDARefNo	Billing reference number	String (max length = 35)	Y	A0012334455
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
errorCode	Error code . This will be in place of status. The list of error codes and error messages are shown at the end of this section	String (length = 6)	Y	BA3003
errorMessage	Error message with reason for rejection. This will be in place of status. The list of error codes and error messages are shown at the end of this section	String (max length = 200)	Y	Consent not given by applicant on bank website for eDDA cancellation. eDDA cancellation unsuccessful
<b>Request: Query Parameters</b>				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
<b>Response: Headers</b>				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID,	a6bfc2c0-3d46-11eb-adc1-0242ac120002	

		length = 36)	
requestTime	Datetime of request	String (dd/MM M/yyyy: HH:mm :ss +- hhmm format)	16/Nov/2020:14:30:11 +0000
<b>Response: Body</b>			
<b>Attribute</b>	<b>Description</b>	<b>Data Type</b>	<b>Example</b>
N/A	N/A	N/A	N/A

### Sample Request and Response Body

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> eDDA cancellation is successful	POST https://<aggregator_api_platform_domain_secured>/api/v1/edda/callback/can cellation clientID: BXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- { "boDDARefNo": "A0012334455", "boTransactionRefNo": "BOSIN1992001COR20210303101010123456", "status": "Success" } 
<b>Request</b>  <b>Scenario:</b> Consent not given by applicant	POST https://<aggregator_api_platform_domain_secured>/api/v1/edda/callback/can cellation clientID: BXYZBAADBA1XXX requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1

	<pre> ----- {   "boDDARefNo": "A0012334455",   "boTransactionRefNo":     "BOSIN1992001COR20210303101010123456",   "errorCode": "BA3003",   "errorMessage": "Consent not given by applicant on bank website for eDDA cancellation. eDDA cancellation unsuccessful" } </pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in	HTTP Response Code: 204 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- No response body expected
<b>Response</b>  <b>Scenario:</b> Invalid/missi ng fields passed in	HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- <pre> {   "errors": [     {       "errorCode": "AG0022",       "errorMessage": "Missing/Invalid value: boDDARefNo"     }   ] } </pre>



## Response Status Codes

Success codes		
HTTP Response Code		Expected Output
204		Success with no response body expected
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0022	Missing/Invalid value: boDDARefNo
400	AG0023	Missing/Invalid value: boTransactionRefNo
400	AG0048	Missing/Invalid value: status
400	AG0059	Missing/Invalid header value: boTransactionRefNo
400	AG0067	Duplicate requestID
400	AG0068	Invalid boTransactionRefNo for cancellation
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
401	AG2001	Invalid API key
500	AG5001	Internal server error
500	AG5003	Failed to connect to target party

## Request Error Codes and Error Messages sent from Bank to Aggregator

Error Code	Error Message
BA3003	Consent not given by applicant on bank website for eDDA cancellation. eDDA cancellation unsuccessful
BA4001	Invalid DDA, cannot be found

### 3.4 eDDA Status Services

#### 3.4.1 eDDA Status API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain_secured>/api/v1/edda/status			
Description	Get the status of an eDDA by Transaction Reference Number. This status is returned from Aggregator based on the API calls and responses received.			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: application/json			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	BO			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to BO	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
signKeyAlias	Alias of BO key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
boTransactionRefNo	Transaction reference number	String (length = 35)	Y	BOSIN1992001COR20210303101010123456
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000	

Response: Body			
Attribute	Description	Data Type	Example
boTransactionRefNo	Transaction reference number	String (length = 35)	BOSIN1992001COR20210303101010123456
status	<p>Status of eDDA</p> <p>1. Sample response status for "Error: XXXXXX" as below</p> <p>&lt;API-STEP-NAME&gt;-Error:&lt;ErrorCode&gt;</p> <p>Example: "EDDA_CREATE_RESPONSE-Error:BA0001"</p> <p>2. For API005 (Step 5 Creation) and API008 (Step 3 - Cancellation) with Error AG5003 as below</p> <p>&lt;API-STEP-NAME&gt;-Error:5003-&lt;PostingSuccessResponse/PostingRejectionResponse&gt;</p>	String (Enum)	<p>Authorization Initiated   Authorized by Applicant   Rejected by Applicant   Token Issued   eDDA Setup Submitted   eDDA Setup Success   eDDA Setup Rejected   eDDA Cancel Submitted   eDDA Cancel Success   eDDA Cancel Rejected   Incomplete Flow  </p> <p>EDDA_CREATE_RESPONSE-Error:BA0001  </p> <p>EDDA_CREATE_RESPONSE-Error:AG5003-PostingSuccessResponse  </p> <p>EDDA_CREATE_RESPONSE-Error:AG5003-PostingRejectionResponse  </p> <p>EDDA_CANCEL_CALLBACK-Error:AG5003-PostingSuccessResponse  </p> <p>EDDA_CANCEL_CALLBACK-Error:AG5003-PostingRejectionResponse  </p> <p>EDDA_CREATE_CALLBACK-Error:&lt;Error Code&gt;  </p> <p>EDDA_CREATE-Error:BA3006  </p> <p>EDDA_CREATE_RESPONSE-Error:&lt;Error Code&gt;  </p> <p>EDDA_CANCEL_CALLBACK-Error:&lt;Error Code&gt;</p> <p><b>Possible API-STEP-NAME values:</b> Creation: API001: AUTHORIZE_EDDA_CREATE API002: BO_REDIRECT_CREATE API003: EDDA_CREATE_CALLBACK API004: EDDA_CREATE API005: EDDA_CREATE_RESPONSE</p>

			Cancellation: API006: AUTHORIZE_EDDA_CANCEL API007: BO_REDIRECT_CREATE API008: EDDA_CANCEL_CALLBACK
--	--	--	--

## Sample Request and Response Body

Payload Type	Sample
Request	<pre>GET https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/edda/status?boTransactionRefNo=BOSIN1992001COR20210303101010123456  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- No request body expected</pre>
Response (Success)	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "boTransactionRefNo":     "BOSIN1992001COR20210303101010123456",   "status": "eDDA Setup Submitted" }</pre>
Response (Success) – Error code returned for boTransactionRefNo	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "boTransactionRefNo":     "BOSIN1992001COR20210303101010123456",   "status": "EDDA_CREATE_RESPONSE-Error:BA0001" }</pre>

<b>Response (Success)</b> – Error code returned for boTransactionRefNo for AG5003 (Target party error)	<pre> HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "boTransactionRefNo":     "BOSIN1992001COR20210303101010123456",   "status": "EDDA_CREATE_RESPONSE-Error:AG5003-PostingSuccessResponse" } </pre>
<b>Response (Error)</b>	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "errors": [     {       "errorCode": "AG0004",       "errorMessage": "Missing/Invalid query parameter value: boTransactionRefNo"     }   ] } </pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
200		Successful retrieval of eDDA status
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
401	AG2001	Invalid API key
404	AG4001	eDDA with boTransactionRefNo not found
500	AG5001	Internal server error

### 3.5 Bank Services

#### 3.5.1 Bank List API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/bank/banks			
Description	Get list of banks and online/offline statuses			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: application/json			
Authentication	N/A			
Connectivity	Public API, One-way SSL			
Calling Party	BO			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
nonce	Unique 20 digits random number created for every request	String (length = 20)	Y	79399129924850509749
timestamp	Epoch time in milliseconds to verify the validity for the URL based on the URL creation time	String (length = 13)	Y	1604536682681
signKeyAlias	Alias of BO key	String	N	KEY1
signature	Signature of the query string (signed using SHA256)	String	Y	-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+3.2%0A%0AiAAAwUAYIvJx2sHx69l4WIKaQLdqqf%2FYt2EkqXoqGqRPogFWFdZ6X2i

				se5jO%2BAm%0APKdF32%2F0md NW%2Fk5cnX0WGzxDbEWBd31g% 2BuW3LOOyKy871wG2i6AltPIUpB6 StgWR%0Au2cc9ZRXfm3hGx0Hi%2 BUMw7XBBLvMV8nYfJMC01x9eUq 59zk3O7jlrKN6MOkC3mt%0AZr3Zm K24CkWrIGtFeqdQl6a9L13gCZqDS 9LRIP7aGgFLwWYqOPKhfojJWiUq3 2Ki%0AyXUsetf%2BAk1atttcMwgtz W4LEWYBGIkz%2B1iv%2FixLqkgzu Sc0BDlwGZ6zaWTjvhUV%0Am8Oo FYl67gOGdM4oRK1M%2FSibkcLYc bxHQQ9KaWGHdXwmywasav36mA %3D%3D%0A%3DV45Y%0A----- END+PGP+SIGNATURE-----%0Ai
--	--	--	--	--

#### Response: Headers

Attribute	Description	Data Type	Example
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000

#### Response: Body

Attribute	Description	Data Type	Example
banks	Array of Bank objects	Array	JSON Format
bankCode	Bank code (BIC) of bank	String (length = 11)	XYZBANKXXXXX
bankName	Name of bank	String (max length = 100)	XYZ Bank
segment	Segment of applicant. Can be Retail or Corporate	String (Enum)	Retail   Corporate
status	Online status of bank. Can be Online or Offline	String (Enum)	Online   Offline



## Sample Request and Response Body

Payload Type	Sample
Request	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/bank/banks ?clientId=BOSIN1992001COR &amp;requestID=a6bfc2c0-3d46-11eb-adc1-0242ac120002 &amp;nonce=79399129924850509749 &amp;timestamp=1604536682681 &amp;signKeyAlias=KEY1 &amp;signature=-----BEGIN+PGP+SIGNATURE----- %0AVersion%3A+Didisoft+OpenPGP+Library+for+Java+ 3.2%0A%0AiAAAAwUAYIvJx2sHx69I4WIKaQLdqqf%2FY t2EkqXoqGqRPogFWFdZ6X2ise5jO%2BAm%0APKdF32 %2F0mdNW%2Fk5cnX0WGzxDbEWBd31g%2BuW3LOO yKy871wG2i6AltPIUpB6StgWR%0Au2cc9ZRXfm3hGx0Hi %2BUMw7XBBLvMV8nYfJMC01x9elug59zk3O7jlrKN6MO kC3mt%0AZr3ZmK24CkWrIGtFeqdQl6a9L13gCZqDS9LRI P7aGgFLwWYqOPKhfojJWiUq32Ki%0AyXUsetf%2BAk1at ttcMwgtzW4LEWYBGIkz%2B1iv%2FixLqkgzuSc0BDlwGZ6 zaWTjvhUV%0Am8OoFYl67gOGdM4oRK1M%2FSibkcLYc bxHQG9KaWGHdXwmywasav36mA%3D%3D%0A%3DV4 5Y%0A-----END+PGP+SIGNATURE-----%0Ai  ----- No request body expected</pre>
Response (Success)	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "banks": [     {       "bankCode": "XYZBANKXXXX",       "bankName": "XYZ Bank",       "segment": "Retail",       "status": "Online"     },     {       "bankCode": "ABCBANKXXXX",       "bankName": "ABC Bank",       "segment": "Retail",       "status": "Offline"     }   ] }</pre>

	<pre>     ]   } </pre>
<b>Response (Error)</b>	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "errors": [     {       "errorCode": "AG0005",       "errorMessage": "Missing/Invalid header value: clientID"     }   ] } </pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
200		Successful retrieval of bank list and statuses
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature
400	AG0067	Duplicate requestID
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
500	AG5001	Internal server error

### 3.6 Utility Services

#### 3.6.1 Outbound Connectivity Test API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain_secured>/api/v1/util/connectivityTest			
Description	Initiate connectivity test from BO/Bank to eDDA Aggregator. Connectivity tests include IP whitelisting and payload encryption tests			
HTTP Method	POST			
Content-Type	Accept: text/plain Produce: application/json			
Authentication	API Key			
Connectivity	Mutual TLS			
Calling Party	BO/Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO/Bank	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to BO/Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
signKeyAlias	Alias of BO/Bank key	String	N	KEY1
aggregatorKeyAlias	Alias of Aggregator key	String	Y	AGK1
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
message	Test message	String	Y	This is a test message
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/y	16/Nov/2020:14:30:11 +0000	

		yyy:HH:mm :ss +- hhmm format)	
<b>Response: Body</b>			
<b>Attribute</b>	<b>Description</b>	<b>Data Type</b>	<b>Example</b>
status	Status of test	String (Enum)	Success   Error

### Sample Request and Response Body

Payload Type	Sample
Request	<pre> POST https://&lt;aggregator_api_platform_domain_secured&gt;/api/v1/util/connectivityTest clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 signKeyAlias: KEY1 aggregatorKeyAlias: AGK1  ----- {   "message": "This is a test message" } </pre>
Response (Success)	<pre> HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "status": "Success" } </pre>
Response (Error)	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "errors": [     { </pre>

	<pre> "errorCode": "AG1004", "errorMessage": "Unable to decrypt message"     }   ] }</pre>

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
200		Successful testing of outbound connectivity
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0067	Duplicate requestID
400	AG1004	Unable to decrypt message
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
401	AG2001	Invalid API key
500	AG5001	Internal server error

### 3.7 Report Services

#### 3.7.1 Reconciliation API

Point to note: Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/report/billing			
Description	Retrieves summary report of API usage per organization.  Reports will be grouped by: 1. API calls by a BO 2. API calls of BOs by Applicant Bank 3. API calls of BOs by BO Bank			
HTTP Method	GET			
Content-Type	Accept: No request body Produce: application/json			
Authentication	API Key			
Connectivity	Public API, One-way SSL			
Calling Party	BO/Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO/Bank	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to BO/Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
fromDate	Start date of reconciliation report	String (DD-MM-YYYY format)	Y	15-11-2020
toDate	End date of reconciliation report	String (DD-MM-YYYY format)	Y	16-11-2020
boBankCode	Bank code (BIC) of BO Bank.	String (length = 11)	N	ABCBANKXXXX

	<p>If entity is a bank and this field is passed in, API call records of BOs by BO Bank will be retrieved.</p> <p>If entity is a bank and this field is omitted, API call records of BOs by Applicant Bank will be retrieved.</p>			
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yy yy:HH:mm:ss +-hhmm format)	16/Nov/2020:14:30:11 +0000	
Response: Body				
Attribute	Description	Data Type	Example	
fromDate	Start date of reconciliation report	String (DD-MM-YYYY format)	15-11-2020	
toDate	End date of reconciliation report	String (DD-MM-YYYY format)	16-11-2020	
orgName	Name of organisation (BO/Bank)	String (max length = 100)	XYZ Bank	
bankCodeOrUEN	Bank code (BIC) of bank/UEN of BO	String (max length = 11)	XYZBANKXXXX	
apiCallsByBOs	Array of BOs and their API call details	Array	JSON Format	
boName	Name of BO	String	SingHub	

entityID	Entity ID of BO	String	BOSIN199201235B
businessUnitID	Business Unit ID of BO	String	BU01
businessUnitName	Name of business unit	String	Corporate Travel
apiCallsByRequestType	Array of API Calls by Request Type	Array	JSON Format
requestType	Request type of API	String (Enum)	Creation   Cancellation
successfulApplications	<p>Number of successful applications of eDDA Creation/eDDA Cancellation.</p> <p>For eDDA Creation, a successful application is counted upon completion of all 5 steps of eDDA Creation, ending with a successful eDDA Creation Response API call. This will be denoted by “eDDA Setup Success”.</p> <p>For eDDA Cancellation, a successful application is counted upon completion of all 3 steps of eDDA Cancellation, ending with a successful Cancellation Callback API call. This will be</p>	Integer	100



	denoted by “eDDA Cancel Success”.		
apiCallsByServiceName	Array of API Calls by Service Name	Array	JSON Format
serviceName	Name of service called	String (Enum)	Authorize Creation Redirection URL   BO Redirection Page URL (Creation)   Creation Callback   eDDA Creation   eDDA Creation Response   Authorize Cancellation Redirection URL   BO Redirection Page URL (Cancellation)   Cancellation Callback
apiCalls	Number of API calls by service name	Integer	100

Points to note:

- For a BO bank, once the “BO-Bank Relationship ID” has been identified, Aggregator will search for BO Transaction Reference Number, based on Creation/Cancellation APIs, in relation to “BO-Bank Relationship ID”. Aggregator will return results with all transaction, including Non-NFI and NFI, where applicable.
- Handling of Recon Report (API012) request from BO and Applicant Bank remains unchanged.
- The Aggregator will not allow the user to query records that are:
  - Cross Month (e.g. date range between 15 Aug to 15 Sep)
  - Cross Year (e.g. date range between 15 Dec 2022 to 15 Jan 2023)

## Sample Request and Response Body

Payload Type	Sample
Request	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/billing?fromDate=15-11-2020&amp;toDate=16-11-2020  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851  ----- No request body expected</pre>
<b>Response</b>  <b>Scenario:</b> Valid fields passed in	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "fromDate": "15-11-2020",   "toDate": "16-11-2020",   "orgName": "XYZ Bank",   "bankCodeOrUen": "XYZBANKXXXX",   "apiCallsByBOs": [     {       "boName": "SingHub",       "entityID": "BOSIN199201235B",       "businessUnitID": "BU01",       "apiCallsByRequestType": [         {           "requestType": "Creation",           "successfulApplications": 20         },         {           "requestType": "Cancellation",           "successfulApplications": 5         }       ]     },     {       "apiCallsByServiceName": [         {           "serviceName": "Authorize Creation Redirection URL",           "apiCalls": 30         },         {           "serviceName": "BO Redirection Page URL (Creation)",</pre>

Payload Type	Sample
	<pre>       "apiCalls": 28     },     {       "serviceName": "Creation Callback",       "apiCalls": 25     },     {       "serviceName": "eDDA Creation",       "apiCalls": 23     },     {       "serviceName": "eDDA Creation Response",       "apiCalls": 20     },     {       "serviceName": "Authorize Cancellation Redirection URL",       "apiCalls": 8     },     {       "serviceName": "BO Redirection Page URL (Cancellation)",       "apiCalls": 6     },     {       "serviceName": "Cancellation Callback",       "apiCalls": 5     }   ] } ] } </pre>
<b>Response</b>  <b>Scenario:</b> Invalid fields passed in	<p>HTTP Response Code: 400  requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002  requestTime: 16/Nov/2020:14:30:11 +0000</p> <pre> ----- {   "errors": [     {       "errorCode": "AG0014",       "errorMessage": "Missing/Invalid header value: clientID"     }   ] } </pre>

Payload Type	Sample

## Response Status Codes

Success codes		
HTTP Response Code		Expected Outcome
200		Successful retrieval of billing report
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0054	Missing/Invalid query parameter value: fromDate
400	AG0055	Missing/Invalid query parameter value: toDate
400	AG0058	Cross month / year is not allowed
400	AG0063	Invalid query parameter value: boBankCode
400	AG0056	toDate cannot be before fromDate
400	AG0067	Duplicate requestID
401	AG2001	Invalid API key
500	AG5001	Internal server error

### 3.7.2 Billing/Charging API

#### Billing/Charging Report Request API

**Point to note:** Please refer to “Technical Design Document” for details.

URL	https://<aggregator_api_platform_domain>/api/v1/report/transactions			
Description	Creates a request of EOD reconciliation transaction report generation. The reports are requested by BOs for exception handling.  Reports will be grouped by: 1) Transactions by a BO 2) Transactions of BOs by Applicant Bank 3) Transactions of BOs by BO Bank			
HTTP Method	POST			
Content-Type	Accept: application/json Produce: application/json  Note: No encrypted request is required to access the Report API. Request body to be in JSON format only.			
Authentication	API Key			
Connectivity	Public API, One-way SSL			
Calling Party	BO/Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO/Bank	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to BO/Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
Request: Body				
Attribute	Description	Data Type	Mandatory	Example
date	Start date of transactions report to be generated.	String (DD-MM-YYYY format)	Y	20-11-2020
toDate	End date of transactions report to be generated.	String (DD-MM-YYYY format)	N	20-11-2020 NB: <ul style="list-style-type: none"><li>If toDate attribute is excluded in the API,</li></ul>

				<p>transactions will be generated based on the date (also known as start date) attribute.</p> <ul style="list-style-type: none"> <li>If toDate attribute contains an empty/null value in the API, it will be rejected with error AG0057.</li> </ul>
reportFormat	Format of report. CSV or JSON	String (Enum)	Y	CSV   JSON
boBankCode	<p>Bank code (BIC) of BO Bank.</p> <p>If entity is a bank and this field is passed in, transactions of BOs by BO Bank will be retrieved.</p> <p>If entity is a bank and this field is omitted, transactions of BOs by Applicant Bank will be retrieved.</p>	String (length = 11)	N	ABCBANKXXXX
<b>Request: Query Parameters</b>				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
<b>Response: Headers</b>				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	20/Nov/2020:14:30:11 +0000	

Response: Body (HTTP Response code: 202)			
Attribute	Description	Data Type	Example
reportID	Report request ID	String (UUID, length = 36)	c9fe1c35-6807-4c82-bedf-c750a6e78d40
recordsCount	<p>Approximate number of transaction records.</p> <p>The attribute's value might not be the same as the number of records in the report file data as there might be more transaction records added while processing the request.</p>	Integer	1000
reportDelivery	<p>Method of delivery of a report file</p> <p>If the requested reportType is 'JSON' and the number of transaction records is small (&lt; approx.10,000), the value of reportDelivery is 'API'.</p> <p>For all other conditions, the value is 'SignedURL'</p> <p>To access the signed URL, no api key or client id to be supplied.</p>	String (Enum)	API   SignedURL
link	Download link of generated report. The reportID is appended to this URL	String	/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40

#### Points to note:

- If toDate contains an empty/null value, it will be default to the same value as date (also known as Start Date)
- Every Creation/Cancellation APIs received by Aggregator, Aggregator will based on the “Prtry” to tag the “BO-Bank Relationship ID” accordingly (Refer to Table 2 – Tagging Format of Sponsored Bank BIC Code) in the Transaction Log
- For a BO bank, once the “BO-Bank Relationship ID” has been identified, Aggregator will search for BO Transaction Reference Number, based on Creation/Cancellation APIs, in relation to “BO-Bank Relationship ID”. Aggregator will return results with all transaction, including Non-NFI and NFI, where applicable.
- Handling of Billing and Charging Report (API013) request from BO and Applicant Bank remains unchanged.
- Select Date Range for the downloading of Billing and Charging Report via eGIRO Portal or Report API (API013)
  - Date Range will NOT allow cross month selection, i.e. users can only select the dates within the same month.
  - Date Range will NOT allow cross year selection, i.e. users can only select the dates within the same year.
  - Date Range will NOT allow current and future dated value.

#### Sample Request and Response Body

Request for a report (JSON or CSV format)

<b>Request</b>  <b>Scenario:</b> Request for a report in JSON format	<pre> POST https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/transactions  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851  ----- {   "date": "20-11-2020",   "reportFormat": "JSON" } </pre>
<b>Request</b>  <b>Scenario:</b> Request for a report in CSV format	<pre> POST https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/transactions  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851 </pre>



	<pre> ----- {   "date": "20-11-2020",   "reportFormat": "CSV" } </pre>

## Sample Request and Response Body

<b>Response</b>  <b>Scenario:</b> Successful request for a report. When recordsCount > 10000 for any report type OR When report type is "CSV", reportDelivery is "SignedURL"	<pre> HTTP Response Code: 202 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 20/Nov/2020:14:30:11 +0000  ----- {   "reportID": "123456",   "recordsCount": 25000,   "reportDelivery": "SignedURL",   "link": "/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40" } </pre>
<b>Response</b>  <b>Scenario:</b> Successful request for a report. When recordsCount < 10000 and reportType is "JSON", reportDelivery is "API"	<pre> HTTP Response Code: 202 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 20/Nov/2020:14:30:11 +0000  ----- {   "reportID": "123456",   "recordsCount": 1020,   "reportDelivery": "API",   "link": "/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40" } </pre>

## Sample error format

Payload Type	Sample
<b>Response</b>  <b>Scenario:</b> Invalid fields passed in	HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- <pre>{   "errors": [     {       "errorCode": "AG0014",       "errorMessage": "Missing/Invalid header value: clientID"     }   ] }</pre>

## Response Status Codes

Success codes		
HTTP Response Code	Expected Outcome	
202	Report generation is processing, with a link provided. User will be able to use the link to retrieve the report when it is available	
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0057	Missing/Invalid value: date
400	AG0058	Cross month / year is not allowed
400	AG0064	Invalid value: boBankCode
400	AG0066	Missing/Invalid value: reportFormat
400	AG0067	Duplicate requestID
401	AG2001	Invalid API key
500	AG5001	Internal server error

## Get Billing/Charging Report by ReportID API

URL	https://<aggregator_api_platform_domain>/api/v1/report/transactions/<reportID>			
Description	<p>Retrieves a transaction report by reportID.</p> <p>After submitting a request for report generation via Billing/Charging Request Report API, Get Billing/Charging Report by ReportID is used to retrieve the report or to check the status of the report generation.</p> <p>If the report generation is completed and</p> <ul style="list-style-type: none"><li>the report format is “JSON” with a small number of records (less than 10,000), the content of the report is returned in the response payload</li><li>the report format is “CSV”, a link to download the report file is returned in the response payload.Link is valid for 24 hours only, new report request to be submitted if link is expired</li><li>the number of records in the report in any format is large (greater than 10,000), a link to download the report file is returned in the response payload</li></ul> <p>If the report generation is not completed, the status with “Processing” as well as the same download link is returned. The Billing/Charging API should be called at a later time to retrieve the report.</p>			
HTTP Method	GET			
Content-Type	Accept: application/json Produce: application/json			
Authentication	API Key			
Connectivity	Public API, One-way SSL			
Calling Party	BO/Bank			
Request: Headers				
Attribute	Description	Data Type	Mandatory	Example
clientID	Unique ID of BO/Bank	String (length = 15)	Y	BOSIN1992001COR
requestID	Request correlation ID	String (UUID, length = 36)	Y	a6bfc2c0-3d46-11eb-adc1-0242ac120002
x-api-key	API key issued to BO/Bank	String (UUID, length = 36)	Y	d12345ee-6c54-4b01-90e6-d701748f0851
Request: Body				
Attribute	Description	Data Type	Mandatory	Example

N/A	N/A	N/A	N/A	N/A
Request: Query Parameters				
Attribute	Description	Data Type	Mandatory	Example
N/A	N/A	N/A	N/A	N/A
Response: Headers				
Attribute	Description	Data Type	Example	
requestID	Request correlation ID	String (UUID, length = 36)	a6bfc2c0-3d46-11eb-adc1-0242ac120002	
requestTime	Datetime of request	String (dd/MMM/yyyy:HH:mm:ss +-hhmm format)	20/Nov/2020:14:30:11 +0000	
Response: Body (When a JSON format report is ready to be retrieved, HTTP Response code: 200)				
Attribute	Description	Data Type	Example	
transactions	Array of transactions	Array	JSON Format	
boID	Unique ID of BO. This will be the ClientID of BO	String (length = 15)	BOSIN1992001COR	
boName	Name of BO	String (max length = 140)	SingHub	
boUEN	UEN of BO	String (max length = 10)	198000399A	
boBusinessUnitID	Business unit ID	String (max length = 35)	BU01	
boBusinessUnitName	Business unit name of BO's specific business unit	String	Corporate Travel	
boBankCode	Bank code (BIC) of BO Bank	String (length = 11)	ABCBANKXXXXX	
segment	Segment of applicant. Can	String (Enum)	Retail   Corporate	

	be Retail or Corporate		
purpose*	Billing purpose as a 4 letter code	String (Enum)	UBIL
date	Date of transactions report	String (DD-MM-YYYY format)	20-11-2020
callRequestReceivedDateTime	Time the API call request was received	String (DD-MM-YYYY HH:mm:ss format)	20-11-2020 07:30:00
callResponseReceivedDateTime	Time the API call response was received	String (DD-MM-YYYY HH:mm:ss format)	20-11-2020 07:30:02
applicantBankName	Name of applicant bank	String (max length = 100)	XYZ Bank
applicantBankCode	Bank code (BIC) of applicant Bank	String (length = 11)	XYZBANKXXXX
boTransactionRefNo	Transaction reference number	String (length = 35)	BOSIN1992001COR20210303101010123456
requestType	Request type of API	String (Enum)	Creation   Cancellation
serviceName	Name of services called	String (Enum)	Authorize Creation Redirection URL   BO Redirection Page URL (Creation)   Creation Callback   eDDA Creation   eDDA Creation Response   Authorize Cancellation Redirection URL   BO Redirection Page URL (Cancellation)   Cancellation Callback
status	Status of eDDA Request lifecycle	String	Authorization Initiated   Authorized by Applicant   Rejected by Applicant   Token Issued   eDDA Setup Submitted   eDDA Setup Success   eDDA Setup Rejected

			eDDA Cancel Submitted   eDDA Cancel Success   eDDA Cancel Rejected   Incomplete Flow    <b>Error:&lt;ErrorCode&gt;  </b>  <b>Error:AG5003-PostingSuccessResponse  </b>  <b>Error:AG5003-PostingRejectionResponse</b>
<b>Response: Body (When the report is ready to be retrieved and the report delivery type is “SignedURL”, HTTP Response code: 200)</b>			
Attribute	Description	Data Type	Example
status	Processing status of report generation. When the report generation is completed, the value of status is ‘Processed’	String (max length = 200)	Processed
link	Download link of generated report file from the file storage. Link validity is 24 hours.	String	https://s3.ap-southeast-1.amazonaws.com/s3sign2-bucket-hchq3nwuo8ns/s3-sign-demo.json?X-Amz-Security-Token=xxx&X-Amz-Credential=xxx&X-Amz-Date=20170125T044127Z&X-Amz-Expires=60&X-Amz-Signature=24db05...
<b>Response: Body (When the report is not ready to be retrieved, HTTP Response code: 200)</b>			
Attribute	Attribute	Attribute	Attribute
status	Processing status of report generation. User will have to wait before calling the API again to retrieve report download link	String (max length = 200)	Processing

	after report generation is complete		
link	Download link of generated report. The reportID is appended to this URL	String	/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40

\* For the full list of purpose codes, refer to [Appendix section 5.2](#).

### Sample Request and Response Body

Report is ready, reportDelivery is "SignedURL".

Payload Type	Sample
Request	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851  ----- No request body expected</pre>
Response	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 20/Nov/2020:14:30:11 +0000  ----- {   "status": "Processed",   "link": "https://s3.ap-southeast-1.amazonaws.com/s3sign2-bucket-hchq3nwuo8ns/s3-sign-demo.json?X-Amz-Security-Token=xxx&amp;X-Amz-Credential=xxx&amp;X-Amz-Date=20170125T044127Z&amp;X-Amz-Expires=60&amp;X-Amz-Signature=24db05..." }</pre>

Report is ready, reportDelivery is "API" and reportFormat is "JSON".

Request	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851  ----- No request body expected</pre>
Response	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 20/Nov/2020:14:30:11 +0000  ----- {   "transactions": [     {       "boID": "BOSIN1992001COR",       "boName": "SingHub",       "boUEN": "198000399A",       "boBusinessUnitID": "BU01",       "boBusinessUnitName": "Corporate Travel",       "boBankCode": "ABCBANKXXXX",       "segment": "Retail",       "purpose": "UBIL",       "date": "20-11-2020",       "callRequestReceivedDateTime": "20-11-2020 07:30:00",       "callResponseReceivedDateTime": "20-11-2020 07:30:02",       "applicantBankName": "XYZ Bank",       "applicantBankCode": "XYZBANKXXXX",       "boTransactionRefNo":         "BOSIN1992001COR20210303101010123456",       "requestType": "Creation",       "serviceName": "Authorize Creation Redirection URL",       "status": "Authorization Initiated"     }   ],   { </pre>



	<pre> "boID": "BOSIN1992001COR", "boName": "SingHub", "boUEN": "198000399A", "boBusinessUnitID": "BU01", "boBusinessUnitName": "Corporate Travel", "boBankCode": "ABCBANKXXXX", "segment": "Retail", "purpose": "UBIL", "date": "20-11-2020", "callRequestReceivedDateTime": "20-11-2020 07:30:00", "callResponseReceivedDateTime": "20-11-2020 07:30:02", "applicantBankName": "XYZ Bank", "applicantBankCode": "XYZBANKXXXX", "boTransactionRefNo": "BOSIN1992001COR20210303101010123456", "requestType": "Creation", "serviceName": "Creation Callback", "status": "eDDA Setup Rejected"     }   ] }</pre>

## Report format for CSV (Comma separated)

Note: The headers are added as the first record

boID, boName, boUEN, boBusinessUnitID, boBusinessUnitName, boBankCode, segment, purpose, date, callRequestReceivedDateTime, callResponseReceivedDateTime, applicantBankName, applicantBankCode, boTransactionRefNo, requestType, serviceName, status BOSIN1992001COR, SingHub, 198000399A, BU01, Corporate Travel, ABCBANKXXXX, Retail, UBIL, 20-11-2020, 20-11-2020 07:30:00, 20-11-2020 07:30:02, XYZ Bank, XYZBANKXXXX, BOSIN1992001COR20210303101010123456, Creation, Authorize Creation Redirection URL, Authorization Initiated, 199507933W- BABANKSGXXX BOSIN1992001COR, SingHub, 198000399A, BU01, Corporate Travel, ABCBANKXXXX, Retail, UBIL, 20-11-2020, 20-11-2020 07:30:00, 20-11-2020 07:30:02, XYZ Bank, XYZBANKXXXX, BOSIN1992001COR20210303101010123456, Creation, Creation Callback, eDDA Setup Rejected

In the event that the report is large and the report generation is taking longer than expected, a response with status 'Processing', together with a link with reportID will be returned. The Get Transactions Report API can be called at a later time to retrieve the report.

Payload Type	Sample
<b>Request</b>  <b>Scenario:</b> Retrieve CSV or JSON report data; still processing	<pre>GET https://&lt;aggregator_api_platform_domain&gt;/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40  clientID: BOSIN1992001COR requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 x-api-key: d12345ee-6c54-4b01-90e6-d701748f0851  ----- No request body expected</pre>
<b>Response</b>  <b>Scenario:</b> Retrieve text/csv or application data; still processing	<pre>HTTP Response Code: 200 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 20/Nov/2020:14:30:11 +0000  ----- {   "status": "Processing",   "link": "/api/v1/report/transactions/c9fe1c35-6807-4c82-bedf-c750a6e78d40" }</pre>

## Sample error format

Payload Type	Sample
<b>Response</b>  <b>Scenario:</b> Invalid fields passed in	<pre> HTTP Response Code: 400 requestID: a6bfc2c0-3d46-11eb-adc1-0242ac120002 requestTime: 16/Nov/2020:14:30:11 +0000  ----- {   "errors": [     {       "errorCode": "AG0014",       "errorMessage": "Missing/Invalid header value: clientID"     }   ] } </pre>

## Response Status Codes

Success codes		
HTTP Response Code	Expected Outcome	
200	Successful retrieval of EOD reconciliation billing/charging report. Response can be in JSON or CSV format	
Error codes		
HTTP Response Code	Error Code	Error Message
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0065	Missing/Invalid path parameter
400	AG0067	Duplicate requestID
401	AG2001	Invalid API key
404	AG4002	Transactions report with reportID not found
500	AG5001	Internal server error

### Status attribute's value in response body (error code scenarios)

Error Format	Scenario
Error:ErrorCode	HTTP Status Code is not 204 and Error Code is returned
Error:HTTPStatusCode	HTTP Status Code is not 204 and Error Code is NOT returned by target Party as per API Spec
Error:AG5003-PostingSuccessResponse	Applicable for API005/API008 and Error Code is AG5003. Aggregator is not able to reach the Target Party for posting the success response of API005 (Creation) and API008 (Cancellation)
Error:AG5003-PostingRejectionResponse	Applicable for API005 /API008 and Error Code is AG5003. Aggregator is not able to reach the Target Party for posting the rejection response of API005 (Creation) and API008 (Cancellation)

## 4 Glossary

Terms	Definition
API	Application Programming Interface
AWS	Amazon Web Services
BIC	Bank Identifier Code (Bank Code)
BO	Billing Organisation
DDA	Direct Debit Authorization
eDDA	Electronic Direct Debit Authorization
GET	HTTP Method for retrieving the resources from REST API
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
JSON	JavaScript Object Notation
MUTUAL TLS	Mutual Transport Layer Security
POST	HTTP Method for creating the resources with REST API
REST	Representational State Transfer Protocol
SSL	Secure Sockets Layer
URL	Uniform Resource Locator
UUID	Universally Unique Identifier

## 5 Appendix

### 5.1 List of Error Codes

#### 5.1.1 Aggregator Errors

HTTP Response Code	Error Code	Error Message*
400	AG0001	Missing/Invalid query parameter value: applicantBankCode
400	AG0002	<ul style="list-style-type: none"> <li>Missing/Invalid query parameter value: boDDARefNo</li> </ul> or <ul style="list-style-type: none"> <li>Invalid query parameter value: boDDARefNo</li> </ul>
400	AG0003	Missing/Invalid query parameter value: boName
400	AG0004	Missing/Invalid query parameter value: boTransactionRefNo
400	AG0005	Missing/Invalid query parameter value: clientID
400	AG0006	Invalid query parameter value: purpose
400	AG0007	Missing/Invalid query parameter value: requestID
400	AG0008	Missing/Invalid query parameter value: segment
400	AG0009	Missing/Invalid query parameter value: nonce
400	AG0010	Missing/Invalid query parameter value: timestamp
400	AG0011	Invalid query parameter value: signKeyAlias
400	AG0012	Missing/Invalid query parameter value: signature
400	AG0013	Missing/Invalid query parameter value: status or error
400	AG0014	Missing/Invalid header value: clientID
400	AG0015	Missing/Invalid header value: requestID
400	AG0016	Missing/Invalid header value: clientID or x-api-key
400	AG0017	Invalid header value: signKeyAlias
400	AG0018	Missing/Invalid header value: aggregatorKeyAlias
400	AG0019	Missing/Invalid header value: bankToken
400	AG0020	Missing/Invalid value: applicantBankAccNo
400	AG0021	Missing/Invalid value: applicantBankCode
400	AG0022	<ul style="list-style-type: none"> <li>Missing/Invalid value: boDDARefNo</li> </ul> or <ul style="list-style-type: none"> <li>Invalid value: boDDARefNo</li> </ul>
400	AG0023	Missing/Invalid value: boTransactionRefNo
400	AG0024	Missing/Invalid value: bankToken
400	AG0025	Invalid value: maxAmount
400	AG0026	Missing/Invalid value: fromDate
400	AG0027	Invalid value: toDate
400	AG0028	Invalid value: segment

HTTP Response Code	Error Code	Error Message*
400	AG0029	Invalid value: applicantIDHash
400	AG0030	Invalid value: applicantIDType
400	AG0031	Missing/Invalid value: MsgId (Transaction reference number)
400	AG0032	Missing/Invalid value: CreDtTm (Creation datetime)
400	AG0033	Missing/Invalid value: MndtReqId (Billing reference number)
400	AG0034	Missing/Invalid value: Cdtr - AnyBIC (BO UEN)
400	AG0035	Missing/Invalid value: Cdtr - Id (Business Unit Id)
400	AG0036	Missing/Invalid value: Cdtr – Id (BO Bank Relationship ID)
400	AG0037	Missing/Invalid value: CdtrAcct – Id (BO bank account number)
400	AG0038	Missing/Invalid value: CdtrAgt – BICFI (BO Bank Code)
400	AG0039	Missing/Invalid value: DbtrAcct – Id (Applicant bank account number)
400	AG0040	Missing/Invalid value: DbtrAgt – BICFI (Applicant Bank Code)
400	AG0041	Invalid value: MaxAmt
400	AG0042	Invalid value: SeqTp (Sequence Type)
400	AG0043	Invalid value: FrDt (Start date of DDA)
400	AG0044	Invalid value: ToDt (End date of DDA (expiry))
400	AG0045	Invalid value: Cd (Billing purpose)
400	AG0046	Invalid value: Dbtr - Id (Applicant ID)
400	AG0047	Invalid value: Dbtr - Id (Applicant ID Type)
400	AG0048	Missing/Invalid value: status
400	AG0049	Missing/Invalid value: MsgNmId (Message name identifier)
400	AG0050	Missing/Invalid value: Accptd (Acceptance status)
400	AG0051	Missing/Invalid value: OrgnIMndtId (Billing reference number)
400	AG0052	Invalid value: Prtry (Error code)
400	AG0053	Invalid value: AddtlRjctRsnInf (Error message)
400	AG0054	Missing/Invalid query parameter value: fromDate
400	AG0055	Missing/Invalid query parameter value: toDate
400	AG0056	toDate cannot be before fromDate
400	AG0057	Missing/Invalid value: date
400	AG0059	Missing/Invalid header value: boTransactionRefNo
400	AG0060	Missing/Invalid value: Cdtr - Nm (BO Name)
400	AG0061	Missing/Invalid query parameter value: requestType

HTTP Response Code	Error Code	Error Message*
400	AG0062	Invalid value: Dbtr - Nm (Applicant Name)
400	AG0063	Invalid query parameter value: boBankCode
400	AG0064	Invalid value: boBankCode
400	AG0065	Missing/Invalid path parameter
400	AG0066	Missing/Invalid value: reportFormat
400	AG0067	Duplicate requestID
400	AG0068	Invalid boTransactionRefNo for cancellation
400	AG1001	Signature verification failed
400	AG1002	Decryption failed
400	AG1003	Invalid encryption type
400	AG1004	Unable to decrypt message
400	AG1099	Invalid payload   Missing/Invalid value: errorCode   Missing/Invalid value: errorMessage
401	AG2001	Invalid API Key
403	AG3501**	Unauthorized API access
415	AG3502**	Unsupported media type
429	AG3503**	API throttling limits hit
404	AG4001	eDDA with boTransactionRefNo not found
404	AG4002	Transactions report with reportID not found
500	AG5001	Internal server error
500	AG5003	Failed to connect to target party

\* Error messages for mandatory fields will start with “Missing/Invalid” while those for optional fields will start with “Invalid”

\*\* Common error codes apply to all APIs



### 5.1.2 Bank Errors

HTTP Response Code	Error Code	Error Message	ISO Error code
N/A	BA3001	Token has expired	N/A
N/A	BA3002	Consent not given by applicant on bank website for eDDA creation. eDDA creation unsuccessful	N/A
N/A	BA3003	Consent not given by applicant on bank website for eDDA cancellation. eDDA cancellation unsuccessful	N/A
N/A	BA3004	Approval not granted by Checker for eDDA creation. eDDA creation unsuccessful	N/A
N/A	BA3005	Applicant Bank Acc No mismatch <sup>1</sup>	N/A
N/A	BA3007	Duplicate boTransactionRefNo	N/A
N/A	BA4001	Invalid DDA, cannot be found	N/A
N/A	BA5001	Bank is under maintenance, unable to process eDDA creation now	N/A
N/A	BA5002	Bank is under maintenance, unable to process eDDA cancellation now	N/A
N/A	BAAC04	ClosedAccountNumber - Account number specified has been closed on the Receiver's books	AC04
N/A	BAAM05	Duplicate boDDARefNo	AM05
N/A	BAAC01	IncorrectAccountNumber - Format of the account number specified is not correct	AC01
N/A	BAAC06	BlockAccount - Account specified is blocked, prohibiting posting of transaction against it	AC06
N/A	BAAG01	TransactionForbidden - Transaction forbidden on this type of account	AG01
N/A	BABE01	InconsistentWithEndCustomer - Identification of end-Customer is not consistent with associated account number	BE01
N/A	BAMD02	MissingMandatoryInformationInMandate - Mandate related information data required by the scheme is missing	AD02
N/A	BAMD07	EndCustomerDeceased - End-customer is deceased	MD07
N/A	BAMS02	NotSpecifiedReasonCustomerGenerated - Reason has not been specified by end-customer	MS02
N/A	BAMS03	NotSpecifiedReasonAgentGenerated - Reason has not been specified by agent	MS03
N/A	BARC01	BankIdentifierIncorrect - Bank identifier code specified in the message has an incorrect format	RC01
N/A	BASL01	SpecificServiceOfferedByDebtorBank - Specific service offered by Debtor Bank	SL01

HTTP Response Code	Error Code	Error Message	ISO Error code
N/A	BAMD08	NoMandateServiceByAgent - Receiving agent does not offer e-Mandate services	MD08
N/A	BAMD09	NoMandateServiceOnCustomer - Account is not open to e-Mandate services	MD09
N/A	BAMD10	NoMandateServiceForSpecified - Account is not open to e-Mandate services for this particular creditor	MD10
N/A	BAMD11	UnrecognisedAgent - Agent to whom the message needs to be forwarded cannot be located	MD11
N/A	BAMD12	NotUniqueMandateIdentification - Mandate identification is not unique to the creditor	MD12
N/A	BAMD13	IncorrectCustomerAuthentication - There is a problem with the customer authentication	MD13
400	BA0001*	Missing/Invalid header/query parameter/body value*	N/A
400	BA1001*	Signature verification failed	N/A
400	BA1002*	Decryption failed	N/A
400	BA1003*	Invalid encryption type	N/A
400	BA1004*	Field input mismatch for max amount or to date (expiry)	N/A
401	BA3006*	Invalid Token	N/A
403	BA3001*	Token has expired	N/A
500	BA5003*	Connection Error <sup>2</sup>	N/A

\* - This combination of HTTP status code and error code is applicable for response for the particular API call. Other error codes without the combination are returned in request body.

<sup>1</sup> - If the applicantBankAccNo issued for the bank token is not same as the applicantBankAccNo in eDDA Creation API field (DbtrAcct->Id->Other->Id)

<sup>2</sup> - Where possible, Bank should return this error message when connection between aggregator and BO failed due Mutual TLS connection errors. If aggregator received the SSL exception instead of proper response, then aggregator will return AG5003 to the BO.

### 5.1.3 BO Errors

HTTP Response Code	Error Code	Error Message
400	BO0001	Missing/Invalid header/query parameter/body value
400	BO1001	Signature verification failed
400	BO1002	Decryption failed
400	BO1003	Invalid encryption type
400	BO1004	Unable to decrypt message
500	BO5003	Connection error <sup>1</sup>

<sup>1</sup> - Where possible, BO should return this error message when connection between aggregator and BO failed due Mutual TLS connection errors. If aggregator received the SSL exception instead of proper response, then aggregator will return AG5003 to the Bank.

## 5.2 List of Purpose Codes

The list of purpose codes values accepted by the eGIRO Aggregator are based off the mnemonic and purpose code guidelines on the ABS website ([https://www.abs.org.sg/docs/library/mnemonic\\_purpose\\_codes.pdf](https://www.abs.org.sg/docs/library/mnemonic_purpose_codes.pdf)), as shown below.

Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
ASN	ASSOCIATIONS	FCPM	PAYMENT OF FEES & CHARGES	Y
BNK	BANKS (EG FINANCING LOANS, SAFE DEPOSIT BOX RENTALS)	LOAN	LOAN	Y
CCC	CREDIT CARD COMPANIES	CCRD	CREDIT CARD PAYMENT	Y
CCO	CHARITABLE ORGANISATIONS	CHAR	CHARITY PAYMENT	Y
CDC	COMMUNITY DEVELOPMENT COUNCILS	FCPM	PAYMENT OF FEES & CHARGES	Y
CES	INLAND AUTHORITY OF SINGAPORE (CESS)	TAXS	TAX PAYMENT	Y
CHD	CHILD CARE SERVICES	EDUC	EDUCATION	Y
CLB	PRIVATE CLUBS	FCPM	PAYMENT OF FEES & CHARGES	Y
CPK	CARPARK CHARGES	CPKC	CARPARK CHARGES	Y
DNT	DONATIONS	CHAR	CHARITY PAYMENT	Y
FIN	FINANCE COMPANIES	LOAN	LOAN	Y
GST	INLAND AUTHORITY OF SINGAPORE (GOODS & SERVICES TAX)	GSTX	GOODS & SERVICES TAX	Y
HOS	HOSPITALS	HSPC	HOSPITAL CARE	Y
HP	HIRE PURCHASE	IHRP	INSTALMENT HIRE PURCHASE AGREEMENT	Y
HPN	HANDPHONE	TBIL	TELECOMMUNICATION BILL	Y
IBG	INTERBANK GIRO - FOR PAYMENTS THAT DO NOT HAVE CODES ASSIGNED	COLL	COLLECTION	Y

Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
INS	INSURANCE COMPANIES	INSU	INSURANCE PREMIUM	Y
INV	INVESTMENT (E.G. UNIT TRUST, GROWTH FUNDS, BONDS ETC)	INVS	INVESTMENT & SECURITIES	Y
ITX	INCOME TAX	NITX	NET INCOME TAX	Y
MBL	SINGAPORE TELECOM MOBILELINK PTE LTD	TBIL	TELECOMMUNICATION BILL	Y
MED	MEDICAL SERVICES & EQUIPMENT (INCLUDING RENTAL OF WHEELCHAIRS)	MDCS	MEDICAL SERVICES	Y
NSS	NEW SINGAPORE SHARES	INVS	INVESTMENT & SECURITIES	Y
PGL	SINGAPORE TELECOM PAGELINK PTE LTD	TBIL	TELECOMMUNICATION BILL	Y
PGR	PAGER	TBIL	TELECOMMUNICATION BILL	Y
PTR	REQUISITION FEES PROPERTY TAX DEPARTMENT	TAXS	TAX PAYMENT	Y
PTX	PROPERTY TAX	PTXP	PROPERTY TAX	Y
RCM	REFUSE & CLEANSING MAINTENANCE SERVICES	FCPM	PAYMENT OF FEES & CHARGES	Y
RIS	RETAIL INSTALMENT SCHEME	FCPM	PAYMENT OF FEES & CHARGES	Y
SCH	SCHOOLS	EDUC	EDUCATION	Y
SCV	SINGAPORE CABLE VISION	CBTV	CABLE TV BILL	Y
SDB	SINGAPORE DENTAL BOARD	DNTS	DENTAL SERVICES	Y
SEC	SECURITY HOUSES	INVS	INVESTMENT & SECURITIES	Y
SHG	SELF-HELP GROUPS (EG CDAC, EURASION ASSOCIATION, MENDAKI, SINDA)	CHAR	CHARITY PAYMENT	Y
SMC	SINGAPORE MEDICAL COUNCIL	MDC	MEDICAL SERVICES	Y
SNB	SINGAPORE NURSING BOARD	MDC	MEDICAL SERVICES	Y

Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
SOC	SOCIETY	FCPM	PAYMENT OF FEES & CHARGES	Y
SPB	SINGAPORE PHARMACY BOARD	MDC	MEDICAL SERVICES	Y
SPS	SP SERVICES LTD	UBIL	UTILITIES	Y
ST	SINGAPORE TELECOM	TBIL	TELECOMMUNICATION BILL	Y
STC	SINGAPORE TURF CLUB	FCPM	PAYMENT OF FEES & CHARGES	Y
UMS	UNION MEMBERSHIP	FCPM	PAYMENT OF FEES & CHARGES	Y
VEH	VEHICLE - RENTAL, FINANCE OR LEASE	FCPM	PAYMENT OF FEES & CHARGES	Y
WHT	INLAND REVENUE AUTHORITY OF SINGAPORE(WITHHOL DING TAX)	TAXS	TAX PAYMENT	Y
TLG	TRANSIT LINK	OTHR	OTHER	Y
GAS	PETROLEUM (USE OF CARD ISSUED BY PETROLEUM COS. E.G. SHELL CARD)	OTHR	OTHER	Y
ACR	ACCOUNTING & CORPORATE REGULATORY AUTHORITY	GOVT	OTHER	N
AVA	AGR-FOOD & VETERINARY AUTHORITY OF SINGAPORE	GOVT	OTHER	N
BB	BABY BONUS SCHEME (MINISTRY OF COMMUNITY DEVELOPMENT, YOUTH & SPORTS)	BBSC	OTHER	N
CDE	COMFORTDELGRO ENGINEERING PTE LTD	COMC	OTHER	N
CIS	COMMERCIAL & INDUSTRY SECURITY CORPORATION (CISCO)	COMC	OTHER	N

Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
CPF	CENTRAL PROVIDENT FUND BOARD	GOVT	OTHER	N
CUS	SINGAPORE CUSTOMS	GOVT	OTHER	N
DED	SOCIAL DEVELOPMENT UNIT	GOVT	OTHER	N
DOS	DEPARTMENT OF STATISTICS, MINISTRY OF TRADE & INDUSTRY	GOVT	OTHER	N
ECM	E-COMMERCE TRANSACTIONS	COMC	OTHER	N
EDB	ECONOMIC DEVELOPMENT BOARD	GOVT	OTHER	N
EHD	ENVIRONMENT OF HEALTH DEPARTMENT	GOVT	OTHER	N
EQM	PAYMENTS FOR EQUIPMENT & MACHINERY, RENTAL, FINANCE OR LEASE	COMC	OTHER	N
ENV	MINISTRY OF ENVIRONMENT (ALL OTHER PAYMENTS)	GOVT	OTHER	N
FCD	FOOD CONTROL DEPARTMENT	GOVT	OTHER	N
FWL	CENTRAL PROVIDENT FUND BOARD (FOREIGN WORKERS LEVY)	GOVT	OTHER	N
HAD	MINISTRY OF ENVIRONMENT (HAWKERS DEPARTMENT)	GOVT	OTHER	N
HDB	HOUSING & DEVELOPMENT BOARD	GOVT	OTHER	N
HDS	HOME DELIVERY SERVICES	COMC	OTHER	N
LOD	MINISTRY OF LAW (LAND OFFICE DEPARTMENT)	GOVT	OTHER	N
LTA	LAND TRANSPORT AUTHORITY	GOVT	OTHER	N

Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
MAG	PAYMENT FOR MAGAZINES & PUBLICATIONS SUBSCRIPTIONS	SUBS	OTHER	N
MAS	MONETARY AUTHORITY OF SINGAPORE	GOVT	OTHER	N
MCD	MINISTRY OF COMMUNITY DEVELOPMENT	GOVT	OTHER	N
MDA	MEDIA DEVELOPMENT AUTHORITY OF SINGAPORE	GOVT	OTHER	N
MOF	MINISTRY OF FINANCE	GOVT	OTHER	N
MOH	MINISTRY OF HEALTH	GOVT	OTHER	N
MOL	MINISTRY OF LABOUR	GOVT	OTHER	N
MPA	MARITIME PORT AUTHORITY	GOVT	OTHER	N
NET	NETWORK FOR ELECTRONIC TRANSFERS (NETS)	GDSV	OTHER	N
NEW	NEWSPAPER SUBSCRIPTION	SUBS	OTHER	N
OA	OFFICIAL ASSIGNEE	GOVT	OTHER	N
PPD	PRIMARY PRODUCTION DEPARTMENT	GOVT	OTHER	N
PSA	PORT OF SINGAPORE AUTHORITY	GOVT	OTHER	N
PUB	PUBLIC UTILITIES BOARD	GOVT	OTHER	N
PWD	PUBLIC WORKS DEPARTMENT (MINISTRY OF NATIONAL DEVELOPMENT)	GOVT	OTHER	N
RPT	REPORTS (EG SERVICES PROVIDER BY DATABASE CENTRES IN PROVIDING REPORTS)	COMC	OTHER	N
RTD	REGISTRY OF LAND TITLES & DEEDS	GOVT	OTHER	N



Mnemonic/ IBG Code	Mnemonic code description	4 letter purpose code	Purpose code description	Common List*
RTL	RENTAL (EG SHELF CHARGES PAID TO RETAILERS & SHOPS, OFFICE/HOUSE RENT)	COMC	OTHER	N
SCB	BOARD OF COMMISSIONER OF CURRENCY SINGAPORE	GOVT	OTHER	N
SEW	MINISTRY OF THE ENVIRONMENT (SEWAGE DEPARTMENT)	GOVT	OTHER	N
SGI	SAF PERSONNEL SERVICE CENTRE	GOVT	OTHER	N
SLA	SINGAPORE LAND AUTHORITY	GOVT	OTHER	N
SMT	SINGAPORE MINT	GOVT	OTHER	N
SNS	SINGAPORE NETWORK SERVICES	NWCM	OTHER	N
TDB	TRADE DEVELOPMENT BOARD	GOVT	OTHER	N
TPQ	TRAFFIC POLICE	GOVT	OTHER	N
"OTHR"	URBAN REDEVELOPMENT AUTHORITY	GOVT	OTHER	N

\* Items that are identified as "Y" shall be displayed per the purpose code descriptions. Otherwise, it shall be displayed as "OTH" or "OTHR" or "OTHER".