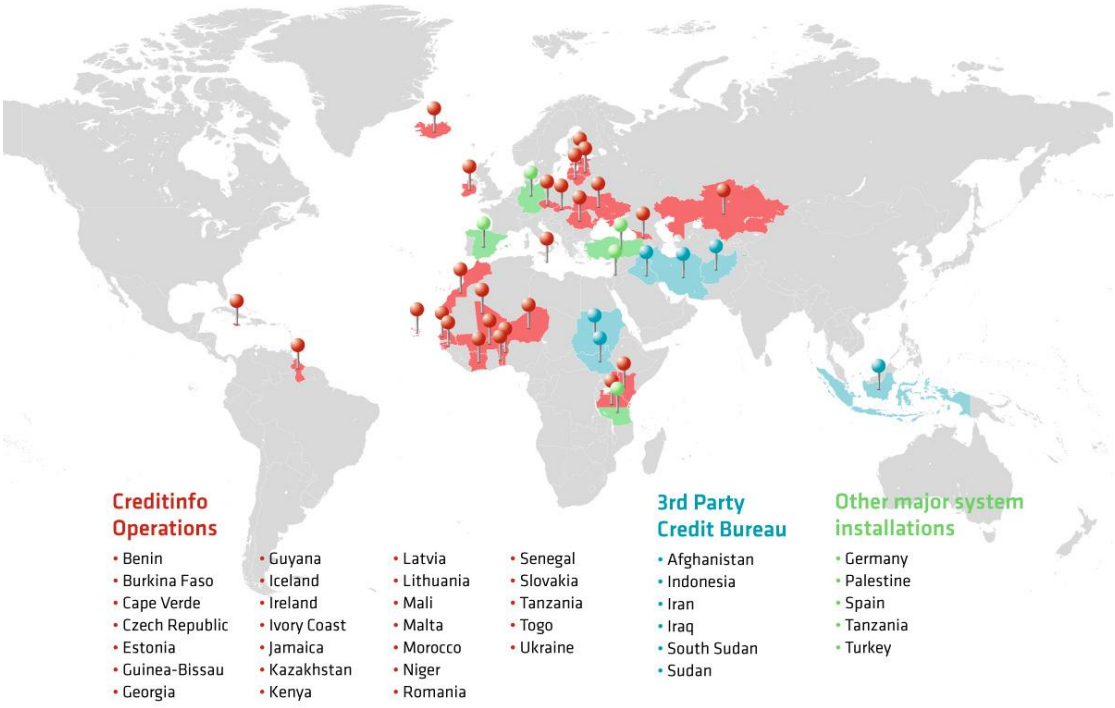
Instant Decisions Module

Connectivity Manual



1. Introduction

After Strategy Design has been successfully accomplished, the next step is to integrate lending platforms and application processing systems to IDM API.

The following information is used to integrate, and this document describes the way of successful integration.

1.1. Test Instance – Strategies and Credentials

Endpoint: https://idm-stage.creditinfo.co.tz/MultiConnector.svc

WSDL: https://idm-stage.creditinfo.co.tz/MultiConnector.svc?singleWsdl

Username: **###**

Password: **###**
Strategy Id: **###**

1.2. Live Instance – Strategies and Credentials

Endpoint: https://idm.creditinfo.co.tz/MultiConnector.svc

WSDL: https://idm.creditinfo.co.tz/MultiConnector.svc?singleWsdl

Username: **###**

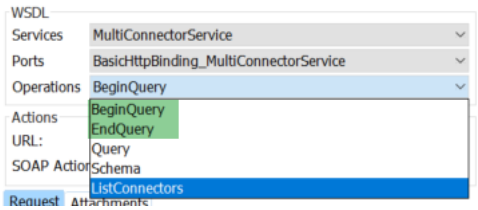
Password: **###**
Strategy Id: **###**

2. Connectivity – General Principles

Connectivity to IDM API follows the logic described below.

Below listed methods can be used to retrieve IDM response.

1. Combination of Begin Query and End Query method
2. Query method



Begin Query can be used to initiate IDM request and returns a token which is later used to get the IDM response. End Query uses the token to receive back a response when it is ready.

Also, instead of using two methods Begin and End Query while retrieving a response for a single request, Query method can be used whereby there will be no need of sending token to retrieve IDM XML response, Query method initiate IDM requests on web service and straight retrieves IDM response.

All methods use general authentication principle.

2.1. Authentication

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:mul="http://creditinfo.com/schemas/2012/09/MultiConnector"
xmlns:req="http://creditinfo.com/schemas/2012/09/MultiConnector/Messages/Request">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken wsu:Id="UsernameToken-1" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
        <wsse:Username>username</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-
token-profile-1.0#PasswordText">Password</wsse:Password>
```

```
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
```

The above header is used for Begin Query, End Query and Query method.

3. Begin Query

3.1. Begin Query Input

Begin Query is a method for submitting a request to IDM.

Headers:

Content-Type: text/xml SOAPAction:

http://creditinfo.com/schemas/2012/09/MultiConnector/MultiConnectorService/BeginQuery

Payload Body (XML):

```
<soapenv:Body>
    <mul:BeginQuery>
      <mul:request>
        <mul:MessageId> GUID </mul:MessageId>
        <mul:RequestXml>
          <mul:RequestXml>
            <req:connector id="1C8F01F8-71A2-4C99-98A1-8BD1D85C4F63">
              <req:data id=" GUID ">
                <req1:request>
                  <req1:Strategy>
                    <req1:Id>STRATEGY_ID</req1:Id>
                  </req1:Strategy>
                  <req1:ConnectorRequest>
                  <req5:query>
                    <req5:DateOfBirth>1999-09-26T00:00:00</req5:DateOfBirth>
                    <req5:FirstName>John </req5:FirstName>
                    <req5:FullName>John Doe</req5:FullName>
                    <req5:IdNumbers>
                      <req5:IdNumberPairIndividual>
                        <req5:IdNumber>19990926121010000126</req5:IdNumber>
                        <req5:IdNumberType>NationalID</req5:IdNumberType>
                      </req5:IdNumberPairIndividual>
                    </req5:IdNumbers>
                    <req5:PhoneNumbers>
                      <req5:string>+255123456789</req5:string>
                    </req5:PhoneNumbers>
                    <req5:PresentSurname>Doe</req5:PresentSurname>
                  </req5:query></req1:ConnectorRequest>
                  <req1:Consent>true</req1:Consent>
                </req1:request>
              </req:data>
            </req:connector>
          </mul:RequestXml>
        </mul:RequestXml>
            </mul:request>
    </mul:BeginQuery>
  </soapenv:Body>
```

Yellow-marked fields are dynamic: GUIDs must be generated for both Message Id and Data Id – generate new GUID for both fields: `Guid.NewGuid()`

Green-marked fields are constants: Connector Id, Strategy Id (refer to chapters 1.1 and 1.2 for strategy Ids) and Consent parameter.

In **ConnectorRequest** node use as much information of the subject as possible such as Full name, First name, Date of Birth, Identification, Surname and Mobile number of the subject.

4. Begin Query – With Custom Fields

If your strategy assumes Custom Input Fields, then the API expects custom input data as part of the request.

Custom Fields should be provided as per the strategy design and will be used during decision-making logic. If a mandatory field is not provided or there is a type mismatch, the whole request will not be processed.

Refer to the file below for the Description of the custom fields section.

```
<req2:CustomFields>
   <!--You may enter ANY elements at this point-->
</req2:CustomFields>
```

5. Begin Query Response and End Query

When the system accepted your request, it will return the token for the response obtaining.

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <BeginQueryResponse xmlns="http://creditinfo.com/schemas/2012/09/MultiConnector">
      <BeginQueryResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <MessageId>e133ea7f-0bea-480f-b363-fb6cfd9de730</MessageId>
      </BeginQueryResult>
    </BeginQueryResponse>
  </s:Body>
</s:Envelope>
```

For integration convenience the token is equal to the submitted Message Id that was generated in Begin Query call described in chapter 3.

5.1. End Query

Method end query is dedicated to obtaining the response to the strategy request.

Method starts with the general authentication described in chapter 2.1 with the same credentials.

Body of the request is as follows:

```
<soapenv:Body>
  <mul:EndQuery>
    <mul:ticket>
      <mul:MessageId>Message ID from input </mul:MessageId>
    </mul:ticket>
  </mul:EndQuery>
</soapenv:Body>
```

Where the token received as part of the Begin Query method response.

Creditinfo recommendation for the response obtaining cycle is the following:

1. Obtain the response **after 5 seconds** from the initial request (we expect 90+ percent of responses to be generated within provided timeframe)
2. If the request is still processing, repeat the End Query call **every 5 seconds**, until you receive a positive response
3. Set maximum number of attempts to **20**
4. After 20 attempts the request can be considered as resulted in business timeout

5.2. Response Generation in Progress

If the query is still in processing, the Fault XML will be returned.

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <s:Fault>
      <faultcode>s:Client</faultcode>
      <faultstring xml:lang="en-US">Query is still in progress.</faultstring>
      <detail>
        <InProgress xmlns="http://creditinfo.com/schemas/2012/09/MultiConnector"
          xmlns:i="http://www.w3.org/2001/XMLSchema-instance"/>
      </detail>
    </s:Fault>
  </s:Body>
</s:Envelope>
```

5.3. Successful Response

Successful response using End Query method contains the End Query Response element.

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <EndQueryResponse xmlns="http://creditinfo.com/schemas/2012/09/MultiConnector">
      <EndQueryResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <MessageId>e133ea7f-0bea-480f-b363-fb6cfd9de730</MessageId>
          <ResponseXml>
            …
          </ResponseXml>
        <Timestamp>2021-10-11T20:27:52.9502138Z</Timestamp>
      </EndQueryResult>
    </EndQueryResponse>
  </s:Body>
</s:Envelope>
```

The result of the IDM request according to the specified strategy and for the specified ConnectorRequest subject search parameters is contained in the Response XML element and is custom made or generic according to the strategy design.

5.4. Full End Query Request Sample (SOAP UI)

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:mu
l="http://creditinfo.com/schemas/2012/09/MultiConnector">
   <soapenv:Header>
      <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401
-wss-wssecurity-secext-1.0.xsd" soapenv:mustUnderstand="1">
         <wsse:UsernameToken xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis
-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="UsernameToken-1">
            <wsse:Username>Username</wsse:Username>
            <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401
-wss-username-token-profile-1.0#PasswordText">Password</wsse:Password>
         </wsse:UsernameToken>
      </wsse:Security>
   </soapenv:Header>
   <soapenv:Body>
      <mul:EndQuery>
         <!--Optional:-->
         <mul:ticket>
            <mul:MessageId>e133ea7f-0bea-480f-b363-fb6cfd9de730</mul:MessageId>
         </mul:ticket>
      </mul:EndQuery>
   </soapenv:Body>
</soapenv:Envelope>
```

6. Query Method (Request and Response)

Query method is another method for submitting a request to IDM.

On using Query method, there is no need to send additional End Query request, A single Query request will retrieve IDM response XML.

Method starts with the general authentication described in chapter 2.1 with the same credentials.

6.1. Query Input

```
<soapenv:Body>
    <mul:Query>
      <mul:request>
        <mul:MessageId>GUID</mul:MessageId>
        <mul:RequestXml>
          <mul:RequestXml>
            <req:connector id="1C8F01F8-71A2-4C99-98A1-8BD1D85C4F63">
              <req:data id="GUID">
                <request >
                  <Strategy>
                    <Id> STRATEGY_ID </Id>
                  </Strategy>
```

```
                <ConnectorRequest>
                  <query>
                    <DateOfBirth>DOB</DateOfBirth>
                    <FirstName>John</FirstName>
                    <FullName>John Doe</FullName>
                    <IdNumbers>
                      <IdNumberPairIndividual>
                        <IdNumber>19990926121010000126</IdNumber>
                        <IdNumberType>NationalID</IdNumberType>
                      </IdNumberPairIndividual>
                    </IdNumbers>
                    <PhoneNumbers>
                      <string>+255123456789</string>
                    </PhoneNumbers>
                    <PresentSurname>Doe</PresentSurname>
                  </query>
                </ConnectorRequest>
                <Consent>true</Consent>
              </request>
            </req:data>
          </req:connector>
        </mul:RequestXml>
      </mul:RequestXml>
    </mul:request>
  </mul:Query>
</soapenv:Body>
```

6.2. Successful Response

Successful response using Query method contains the Query Response element.

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <QueryResponse xmlns="http://creditinfo.com/schemas/2012/09/MultiConnector">
      <QueryResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <MessageId>eefcc45f-e4a9-4e41-8252-c4646dd7518c</MessageId>
        <ResponseXml>
          …..
        </ResponseXml>
        <Timestamp>2021-10-11T11:27:29.3507536Z</Timestamp>
      </QueryResult>
    </QueryResponse>
  </s:Body>
</s:Envelope>
```

The result of the IDM request according to the specified strategy and for the specified ConnectorRequest subject search parameters is contained in the Response XML element and is custom made or generic according to the strategy design.

7. IDM Request Data dictionary

Attribute	Type	Description
Username	string	Username provided in 1.1/1.2
Password	string	Password provided in 1.1/1.2
message_id	GUID	A unique identifier of a request. Generate new GUID for each request
connector_id	GUID	Constant 1C8F01F8-71A2-4C99-98A1-8BD1D85C4F63
data_id	GUID	A unique identifier of a request. Generate new GUID for each request
strategy_id	GUID	A unique identifier of a strategy. E.g. salary loan is one strategy, mobile loan is another strategy. Provided for each product in chapter 1.1/1.2
query	Section	Contains a set of parameters with search parameters. E.g., Phone, Name, Id, etc.
DateOfBirth	Datetime Mandatory	Date of birth. E.g.,1979-03-13T00:00:00
FirstName	String	First Name. E.g., "Mohamed"
Full Name	String Mandatory	Full Name. E.g. "MOHAMED OMARY ALI"
IdNumbers	Section Mandatory	Section with ID documents
IdNumberPairIndividual	Section (repeatable)	A pair of IDNumber and IdNumberType
IdNumber	String Mandatory	Number of ID. E.g. "123456"
IdNumberType	Dictionary Mandatory	VotersID or TaxNumber or PassportNumber or NationalID or Driving licence
PhoneNumbers	Section Mandatory	A section with Phone numbers

string	String Repeatable Mandatory	A phone number. E.g. "0657645626"
PresentSurname	String	A surname. E.g. "ALI"
CustomFields	Section (optional)	Contains a set of custom input fields (e.g. Loan Amount, Salary, etc.).

8. Generic IDM XML Report

The system offers Generic Strategy and Generic IDM Report for an immediate start. The workflow in generic strategy is as follows:

1. User selects generic strategy and ID/Names/Mobile number/Date Of Birth of the subject and its type
2. IDM pulls the Credit report automatically from Credit Bureau
3. IDM runs obtained data through decision-maker automatically
4. IDM generates the Report back to the user through web-service if the request was sent by customer system automatically.

The generic strategy offers **20 best-in-class policy rules** specific to the local market, with proven relevance for decision-making.

The generic IDM report contains the following data.

8.1. Personal Information

Full Name, Date of Birth, calculated age, education, marital status, number of dependents, employment status.

8.2. Recommended Decision

Recommended decision based on bureau data Approve/Refer/Reject.

8.3. Scoring Analysis

CIP Score, Mobile Score, Risk Grades, Reason Codes with descriptions, scoring analysis policy rules and conclusion in wording.

8.3.1. Policy Rules – Scoring Analysis

5 policy rules focusing on Scoring Analysis, with recommended parameters and outcome, such as Score and Risk Grade cut-offs.

8.4. Inquiries analysis

Inquiries during last 7 days, 1 month, 3 months and 1 year and a word description for every value. Values for banking and non-banking inquiries, inquiries analysis policy rules and conclusion in wording.

8.4.1. Policy Rules – Inquiries Analysis

3 policy rules focusing on Inquiries Analysis, with recommended parameters and outcome based on time and type of inquiry and different sectors and financial institutions.

8.5. **Risk Analysis**

Contracts: open, closed, current banking, current non-banking, current positive (0-29 days overdue), current negative (30+ days overdue).

Amounts: total monthly payment, total balance banking, total balance non-banking, total balance at risk (on negative contracts), total current overdue amount, worst overdue amount last 12 months.

Dates and Days: last overdue date, worst current days past due, total current days past due, months without arrears last 12 months, date last contract opened, months until next contract matures, months until all contracts mature.

8.5.1. Policy Rules – Risk Analysis

11 policy rules with focus on risk assessment, customer's indebtedness and affordability, analysis of recent trends of financial health, with recommended parameters and rules outcome.