Real Time Processing Documentation

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Credimetrics.com

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Credimetrics Reports Online Order Processing

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OVERVIEW

The Credmetrics system provides an online, real-time response to requests for merged and unmerged credit data products. Using the 128 bit encryption protection of SSL, the Credmetrics system securely protects your request information and returned credit information over the world wide web.

The system performs the following functions:

- Accepts your online request.
- o Validates your login account.
- o Validates your consumer identification information.
- Validates your product options.
- o Retrieves previously acquired credit bureau files.
- o Accesses the national credit repositories using your subscription information and retrieves credit bureau files.
- o Optionally merges the bureau data.
- o Returns back merged XML or merged Report products.
- o Returns back decision results from your lending profile.

PRODUCTS

The Credmetrics system provides a host of credit reporting products aimed at a variety of needs. Products range from simple credit files passed to the requestor directly from the national credit repositories, to merged credit files and online decisions based upon your credit policies.

The following is a list of the products currently provided:

Product Code	Product Description
MRG_XML	Merged Credit file in an xml format.
	Merged Credit file in an xml format where merged segments are followed by intra-bureau merged segments from each of
MRG_XMLSTACK	the three national credit repositories
MRG_RPTDTC	Merged Direct-to-consumer credit report in PDF Format.
MRG_RPTCOM	Merged Common, lending report.
MRG_DECISION	Automated lending decision.
OFACRPT	Suspicious persons report based upon entered name and address.
OFACXML	Suspicious persons XML file based upon entered name and address.
EFXPASSTHRU	Credit file passed directly from Equifax to requestor.
EFXCREDITCPU	Equifax cpu Credit file passed to requestor.
EFXCREDITTTY	Equifax tty Credit report passed to requestor.
EFXDTECTTY	Equifax tty DTEC report passed to requestor.
EXPPASSTHRU	Credit file passed directly from Experian to requestor.
EXPCREDITCPU	Experian cpu Credit file passed to requestor.
EXPCREDITTTY	Experian tty Credit report passed to requestor.

EXPSOCIALTTY Experian tty Social report passed to requestor.

EXPCOLLTTY Experian tty Collection report passed to requestor.

EXPEMPLTTY Experian tty Employment report passed to requestor.

EXPBULSEYETTY Experian tty BullsEye report passed to requestor.

TUCPASSTHRU Credit file passed directly from TransUnion to requestor.

TUCCREDITCPU TransUnion cpu credit file passed to requestor.
TUCCREDITTY TransUnion tty credit report passed to requestor.
TUCTRACETTY TransUnion tty Trace report passed to requestor.
TUCTRPLUSTTY TransUnion tty TracePlus report passed to requestor.
TUCFACTTTY TransUnion tty Fact report passed to requestor.

TOOT ACTITITY Transomorthly Lact report passed to requestor.

PRBCPASSTHRU Bill payment data passed directly from PRBC to requestor.

Passing Product Requests to Credimetrics

Credimetrics provides an XML request layout that enables multiple product requests to be made. The product code is passed in the CODE attribute of the PRODUCT element within the CMPRODUCTS section of the CMREQUEST XML document.

There is also support for an optional OPTIONS attribute where custom processing options can be submitted. These options are comma delimited name value pairs and are provided by Credimetrics administration personnel.

Notes on the MRG XML Product

The MRG_XML product returns an XML document containing credit history data on the consumer identified in the order. The XML document is contained in its entirety inside the CDATA section of the MRG_XML product response.

The data represents a merged view of any number of bureau or bill payment data sources requested. For example, if only an Equifax bureau is selected, the returned XML document represents a merge of Equifax data within itself, thus removing any duplicates that may be found within the credit file.

Notes on the MRG_XMLSTACK Product

The MRG_XMLSTACK product returns an XML document containing credit history data on the consumer identified in the order. The XML document is contained in its entirety inside the CDATA section of the MRG_XMLSTACK product response.

The data represents a stacked merged view of any number of bureau data sources requested. The merged element is followed by up to three child elements, one for each of the national credit repositories. The elements of the child are the same as the elements of the merged parent with the addition of an INTRA child element containing a Bureau attribute. The possible values of the Bureau attribute are "EFX" for Equifax, "EXP" for Experian and "TUC" for TransUnion. The child element reflects information derived solely from the bureau identified by the Bureau attribute.

Notes on the MRG_RPTCOM Product

The MRG_RPTCOM product returns a TTY report that is 100 characters wide and 60 lines per page; and containing credit history data on the consumer identified in the order. The TTY report is contained in its entirety inside the CDATA section of the MRG_ RPTCOM product response.

The data represents a merged view of any number of bureau data or bill payment sources requested. For example, if only an Equifax bureau is selected, the returned TTY document represents a merge of Equifax data within itself, thus removing any duplicates that may be found within the credit file.

Notes on the MRG_RPTDTC Product

The MRG_RPTDTC product returns a direct-to-consumer cred report that is formatted in the Adobe Acrobat PDF format; and containing credit history data on the consumer identified in the order. The PDF report is contained in its entirety inside the CDATA section of the MRG_ RPTDTC product response.

The data represents a merged view of any number of bureau data sources requested. For example, if only an Equifax bureau is selected, the returned PDF document represents a merge of Equifax data within itself, thus removing any duplicates that may be found within the credit file.

Notes on the MRG_DECISION Product

The MRG_DECISION product returns a set of decision results from a customized decision profile stored in the Credimetrics system. This product may need additional information in order to process the script such as 'Loan Amount' or 'Stated Income' or other such variables not normally found in a credit data set.

To convey these application-oriented variables; and to specify the decision profile name to execute, a section exists in the CMREQUEST XML document. In the CMREQUEST section, the decision profile name is set in the PROFILENAME element; and the optional parameters are set in multiple PARAMETER elements using the NAME and VALUE attributes. The NAME represents the name that the script will use to refer to the VALUE.

Notes on the OFACTTY/OFACXML Products

The OFACTTY and OFACXML products perform a search of the Suspicious Persons data provided by the United States Treasury Department. This product requires no DATASOURCE to be selected as the data is completely located within the Credimetrics system. The data is updated daily from a feed from the Treasury Department.

The search is based upon the entered Subject Name and/or Current Address. Both products can be returned on a single request just as other products are

ordered in the same transaction. Each product is encased in its own CDATA section.

The OFACTTY is a 100 character wide TTY report with no page breaks. It lists the date, time and subject on which the search is conducted; and lists each possible match along with aliases and addresses that match the suspicious person listed.

The OFACXML product is a direct equivalent of the TTY product and is the basis upon which the TTY product is built.

Notes on the EFXPASSTHRU, EXPPASSTHRU and TUCPASSTHRU Products

The 'passthru' products provided by Credimetrics are intended to serve those requests where the original bureau data is required. Using these product codes may be considered illogical when ordering merged products unless the 'passthru' product is a credit file in cpu format. This is because the merged products depend on cpu format credit files to operate.

When one of the 'passthru' product codes is submitted, the desired product from each of the bureaus to be passed is set in the PASSTHRUPRODUCT field for the particular bureau in the CMDATASOURCES section of the CMREQUEST XML document.

While it is possible to receive multiple products, only a single credit file from each of the repositories can be obtained through Credimetrics via a single request. Hence, a EFXPASSTHRU of a EFXDTECTTY report cannot be made in the same transaction that requests a three bureau merged credit report.

REALTIME PROCESSING

The system is engineered to accept a single, individual request for merged or unmerged credit data via a published Web Service. This service expects a request XML stream identifying the customer, the customer's repository subscription information, the consumer's identification information and general request information identifying a customer reference number, individual or joint indications, which bureaus to process and what products to return. Multiple products can be returned on a single request.

When the system receives the request XML via the Web Service, it begins processing the request; and returns a responseXML when the product is completed. Hence, the process is REALTIME.

During this processing, telecommunication tasks are conducted with the national credit and bill payment repositories. When the telecommunications processes are concluded, the products are fulfilled and returned.

It is possible for one or more of the national repositories to return a No Record; or have some outage. The outage can be temporary or an outage that is caused by some problem with the requesting information such as the customer's bureau subscriber code data.

In any case, the system continues and produces the requested products based on what credit data it has. An indication is made in the response that identifies the product as complete or incomplete and states the reason why it would be incomplete.

In the response is also a unique order number. Using this order number in a subsequent order will re-use any existing, good credit data; and will re-order any missing credit data.

How Realtime Processing Works

The realtime ordering process consists of:

- 1. Receiving the customer's order in a Request XML file via a Web Service.
- 2. Validating it.
- 3. Returning a response XML immediately if validation fails.
- 4. Retrieving any existing, good credit data based upon the inclusion of a valid, existing OrderKey.
- 5. Ordering any new or missing data based upon the bureau's being requested.
- 6. Fulfilling the requested products.
- 7. Returning the products back in a response XML file.

Placing the Real Time Order

Currently the only means of placing a Real Time Order is via the Credimetrics SOAP Listener. This SOAP Listener is a Web Service that accepts an XMLRequest and returns an XMLResponse.

Credimetrics Merge SOAP Listener

The Credimeterics Merge SOAP Listener is a published Web Service. The interface definition is found at:

https://webservice.credimetrics.com/merge/CMMergeListener.wsdl

This Web Service Definition Language file is shown below:

```
<schema targetNamespace="http://tempuri.org/type"</pre>
    xmlns="http://www.w3.org/2001/XMLSchema" xmlns: SOAP-
    ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" elementFormDefault="qualified" />
    </types>
- <message name="Order.Place">
 <part name="RequestXML" type="xsd:string" />
 <part name="ResponseXML" type="xsd:base64Binary" />
    </message>
- <message name="Order.PlaceResponse">
 <part name="ResponseXML" type="xsd:base64Binary" />
    </message>
- <portType name="OrderSoapPort">
- <operation name="Place" parameterOrder="RequestXML ResponseXML">
 <input message="wsdlns:Order.Place" />
 <output message="wsdlns:Order.PlaceResponse" />
    </operation>
    </portType>
- <binding name="OrderSoapBinding" type="wsdlns:OrderSoapPort">
 <stk:binding preferredEncoding="UTF-8" />
 <soap: binding style="rpc" transport="http://schemas.xmlsoap.org/soap/http" />
- <operation name="Place">
 <soap:operation soapAction="http://tempuri.org/action/Order.Place" />
 <soap:body use="encoded" namespace="http://tempuri.org/message/"</pre>
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"/>
    </input>
- <output>
 <soap:body use="encoded" namespace="http://tempuri.org/message/"</pre>
    encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"/>
    </output>
    </operation>
    </binding>
- <service name="CMMergeListener">
- <port name="OrderSoapPort" binding="wsdIns:OrderSoapBinding">
 <soap:address location="https://webservice.credimetrics.com/CMMergeListener.WSDL" />
    </port>
    </service>
    </definitions>
```

Credimetrics RequestXML

The request sent to Credimetrics Merge contains the following information:

- Order information Customer reference number, Previous OrderKey, Which Bureaus to Use, Individual or Joint accessing, What Products to return.
- Customer Information Customer login id and password.
- Data Source Information Subscriber codes for each of the national credit and bill payment repositories, or a profile name of a pre-defined subscription profile, or a stream of raw bureau data in lieu of accessing

the national repositories. Additionally, the name of a pass-thru product to be returned directly from the repository.

- Consumer's identification information Subject Name, Spouse Name, Current and Former Address information.
- Product request information A set of product codes reflecting the products requested.
- Decision parameters The decision profile name and a set of parameter names and values.

The RequestXML schema can be found at:

https://webservice.credimetrics.com/merge/Schemas/CMRequest.xsd

The RequestXML schema is shown below:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--W3C Schema generated by XMLSPY v5 rel. 4 U (http://www.xmlspy.com)-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
         <xs:element name="ADDON">
                  <xs:complexType>
                           <xs:attribute name="MODELID" type="xs:string"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="ADDRESS">
                  <xs:complexType>
                           <xs:attribute name="TYPE" type="xs:string" use="required"/>
                           <xs:attribute name="ADDRESS" type="xs:string" use="required"/>
                           <xs:attribute name="CITY" type="xs:string" use="required"/>
                           <xs:attribute name="STATE" type="xs:string" use="required"/>
                           <xs:attribute name="POSTALCODE" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="CMCONSUMERS">
                  <xs:complexType>
                           <xs:sequence>
                                     <xs:element ref="SUBJECT"/>
                                    <xs:element ref="SPOUSE"/>
                                     <xs:element ref="ADDRESS"/>
                           </xs:sequence>
                           <xs:attribute name="ECOA" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="CMDATASOURCES">
                  <xs:complexType>
                           <xs:sequence>
                                     <xs:element ref="EQUIFAX"/>
                                     <xs:element ref="EXPERIAN"/>
                                     <xs:element ref="TRANSUNION"/>
                                     <xs:element ref="PRBC"/>
                           </xs:sequence>
                  </xs:complexType>
         </xs:element>
         <xs:element name="CMDECISION">
                  <xs:complexType>
                           <xs:sequence>
                                     <xs:element ref="PARAMETER"/>
                           </xs:sequence>
                           <xs:attribute name="PROFILENAME" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
```

```
<xs:element name="CMPRODUCTS">
         <xs:complexType>
                   <xs:sequence>
                            <xs:element ref="PRODUCT"/>
                   </xs:sequence>
         </xs:complexType>
</xs:element>
<xs:element name="CMREQUEST">
         <xs:complexType>
                   <xs:sequence>
                            <xs:element ref="CMREQUESTOR"/>
                            <xs:element ref="CMDATASOURCES"/>
                            <xs:element ref="CMCONSUMERS"/>
                            <xs:element ref="CMPRODUCTS"/>
                            <xs:element ref="CMDECISION"/>
                   </xs:sequence>
                   <xs:attribute name="REFERENCENUMBER" type="xs:string" use="required"/>
                   <xs:attribute name="ORDERKEY" type="xs:string" use="required"/>
         </xs:complexType>
</xs:element>
<xs:element name="CMREQUESTOR">
         <xs:complexType>
                   <xs:attribute name="LOGINNAME" type="xs:string" use="required"/>
                   <xs:attribute name="PASSWORD" type="xs:string" use="required"/>
         </xs:complexType>
</xs:element>
<xs:element name="EQUIFAX">
         <xs:complexType>
                   <xs:sequence>
                            <xs:element ref="SCORE"/>
                            <xs:element ref="ADDON"/>
                   </xs:sequence>
                  <xs:attribute name="PREAMBLE" type="xs:string" use="required"/>
<xs:attribute name="SUBCODE" type="xs:string" use="required"/>
                   <xs:attribute name="PASSWORD" type="xs:string" use="required"/>
                   <xs:attribute name="PROFILE" type="xs:string" use="required"/>
                   <xs:attribute name="PURPOSE" type="xs:string" use="required"/>
                   <xs:attribute name="PURPOSEUSER" type="xs:string" use="required"/>
         </xs:complexType>
</xs:element>
<xs:element name="EXPERIAN">
         <xs:complexType>
                   <xs:sequence>
                            <xs:element ref="SCORE"/>
                            <xs:element ref="ADDON"/>
                   </xs:sequence>
                   <xs:attribute name="PREAMBLE" type="xs:string" use="required"/>
                   <xs:attribute name="SUBCODE" type="xs:string" use="required"/>
                   <xs:attribute name="PASSWORD" type="xs:string" use="required"/>
                   <xs:attribute name="PROFILE" type="xs:string" use="required"/>
                   <xs:attribute name="PURPOSE" type="xs:string" use="required"/>
                   <xs:attribute name="PURPOSEUSER" type="xs:string" use="required"/>
         </xs:complexType>
</xs:element>
<xs:element name="GETUPDATED">
         <xs:complexType/>
</xs:element>
<xs:element name="PARAMETER">
         <xs:complexType>
                   <xs:attribute name="NAME" type="xs:string" use="required"/>
                   <xs:attribute name="VALUE" type="xs:string" use="required"/>
         </xs:complexType>
</xs:element>
<xs:element name="PRBC">
         <xs:complexType>
                   <xs:sequence>
                            <xs:element ref="GETUPDATED"/>
                   </xs:sequence>
                   <xs:attribute name="SUBCODE" type="xs:string" use="required"/>
                   <xs:attribute name="PASSWORD" type="xs:string" use="required"/>
```

```
<xs:attribute name="PROFILE" type="xs:string" use="required"/>
                            <xs:attribute name="PURPOSE" type="xs:string" use="required"/>
                            <xs:attribute name="PURPOSEUSER" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="PRODUCT">
                  <xs:complexType>
                            <xs:attribute name="CODE" type="xs:string" use="required"/>
                            <xs:attribute name="OPTIONS" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="SCORE">
                  <xs:complexType>
                            <xs:attribute name="MODELID" type="xs:string"/>
                   </xs:complexType>
         </xs:element>
         <xs:element name="SPOUSE">
                  <xs:complexType>
                            <xs:attribute name="SURNAME" type="xs:string" use="required"/>
                            <xs:attribute name="FIRSTNAME" type="xs:string" use="required"/>
                            <xs:attribute name="MIDNAME" type="xs:string" use="required"/>
                            <xs:attribute name="GENERATION" type="xs:string" use="required"/>
                            <xs:attribute name="SSN" type="xs:string" use="required"/>
                            <xs:attribute name="AGE" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="SUBJECT">
                  <xs:complexType>
                            <xs:attribute name="SURNAME" type="xs:string" use="required"/>
                            <xs:attribute name="FIRSTNAME" type="xs:string" use="required"/>
                            <xs:attribute name="MIDNAME" type="xs:string" use="required"/>
                            <xs:attribute name="GENERATION" type="xs:string" use="required"/>
                            <xs:attribute name="SSN" type="xs:string" use="required"/>
                            <xs:attribute name="AGE" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
         <xs:element name="TRANSUNION">
                  <xs:complexType>
                            <xs:sequence>
                                      <xs:element ref="SCORE"/>
                                     <xs:element ref="ADDON"/>
                            </xs:sequence>
                            <xs:attribute name="MARKET" type="xs:string" use="required"/>
                            <xs:attribute name="SUBMARKET" type="xs:string" use="required"/>
                            <xs:attribute name="SUBCODE" type="xs:string" use="required"/>
                            <xs:attribute name="PASSWORD" type="xs:string" use="required"/>
                            <xs:attribute name="INDUSTRYCODE" type="xs:string" use="required"/>
                            <xs:attribute name="PROFILE" type="xs:string" use="required"/>
                            <xs:attribute name="PURPOSE" type="xs:string" use="required"/>
                            <xs:attribute name="PURPOSEUSER" type="xs:string" use="required"/>
                  </xs:complexType>
         </xs:element>
</xs:schema>
```

Request XML

A sample RequestXML xml file can be found at:

https://webservice.credmetrics.com/Schemas/CMRequest.xml

The RequestXML sample XML file is shown below:

```
<CMDATASOURCES>
<EQUIFAX PREAMBLE="" SUBCODE="" PASSWORD="" PROFILE="" PURPOSE=""
    PURPOSEUSER="">
                        <SCORE/>
                        <ADDON MODELID=""/>
                </EQUIFAX>
<EXPERIAN PREAMBLE="" SUBCODE="" PASSWORD="" PROFILE="" PURPOSE=""
     PURPOSEUSER="">
                        <SCORE MODELID=""/>
                        <ADDON/>
                </EXPERIAN>
                <TRANSUNION MARKET="" SUBMARKET="" SUBCODE="" PASSWORD="" INDUSTRYCODE=""
     PROFILE="" PURPOSE="" PURPOSEUSER="">
                        <SCORE MODELID=""/>
                        <ADDON/>
                </TRANSUNION>
                <PRBC SUBCODE="" PASSWORD="" PROFILE="" PURPOSE="" PURPOSEUSER="">
                        <GETUPDATED/>
                </PRBC>
        </CMDATASOURCES>
        <CMCONSUMERS ECOA="">
                <SUBJECT SURNAME="" FIRSTNAME="" MIDNAME="" GENERATION="" SSN="" AGE=""/>
<SPOUSE SURNAME="" FIRSTNAME="" MIDNAME="" GENERATION="" SSN="" AGE=""/>
                <ADDRESS TYPE="" ADDRESS="" CITY="" STATE="" POSTALCODE=""/>
        </CMCONSUMERS>
        <CMPRODUCTS>
                <PRODUCT CODE="" OPTIONS=""/>
        </CMPRODUCTS>
        <CMDECISION PROFILENAME="">
                <PARAMETER NAME="" VALUE=""/>
        </CMDECISION>
</CMREQUEST>
```

Notes on XMLRequest

The following is a partial data dictionary for the RequestXML file

Node	Attribute	Notes
CMREQUEST	REFERENCENUMBER	Optional. Value is extracted and used in CMResponse to sync the response to the request.
CMREQUEST	ORDERKEY	Optional. Used to reference an existing order's bureau data. Useful for re-ordering from a previously incomplete order.
CMREQUEST	ECOA	Optional. If used must contain I for Individual or J for Joint. I is default.
CMCONSUMER/SUBJECT	SURNAME,FIRSTNAME & SSN	Required. SSN must be 9 digit numeric.
CMCONSUMER/SPOUSE	SURNAME, FIRSTNAME & SSN	Optional but required if ECOA is J.
CMCONSUMER/SUBJECT OR SPOUSE	GENERATION	Optional. Valid values are: J,S,JR,SR,1-6,I- VI
CMPRODUCTS/PRODUCT	CODE	Required. MRG_XML - Merged credit data suitable for normal merged applications. MRG_XMLSTACK - Merged credit data suitable for normal or stacked merged applications. PRBC_XML - Non traditional bill payment data with Bill Payment Score Card. MRG_RPTCOM - Formatted consumer lending credit report.

		MRG_RPTDTC - Formatted direct to consumer report in PDF format. MRG_DECISION - Decision results based upon passed parms and customer decision script profile. OFACTTY - Suspicious persons report in TTY format. OFACXML - Suspicious persons report in XML format.
		NOTE: For other products, see Product Codes in the Products section of this document.
	OPTIONS	Optional. Contains comma delimited string of name, value option pairs. See Credmetrics administration personnel for values.
CMDECISION	PROFILENAME	Required if MRG_DECISION product code is specified. Name of a customized decision profile script to be used to provide decision.
CMDECISION/PARAMETER	NAME/VALUE	Optional. Set of name value pairs representing specific parameters to be passed to the script for processing.
CMDATASOURCES/bureau	Various elements	Subscriber code information for each of the requested bureaus including Permissible Purpose code and the End User name associated with the purpose code. Alternatively, all subscriber code info can be stored at Credmetrics and referenced by the PROFILE name.

Credimetrics Merge ResponseXML

The response returned from Credmetrics Merge contains the following information:

- o Order information Customer reference number, Assigned OrderKey, CompletionStatus, CompletionDate and CompletionMessage.
- Error Information If any errors or found a set of errors are returned containing an ErrorCode and ErrorMessage.
- Data Returned products containing Type of data and the returned product in a CDATA section.

ResponseXML

The ResponseXML schema can be found at: https://webservice.credmetrics.com/Schemas/CMResponse.xsd

The ResponseXML schema is shown below:

```
<?xml version="1.0" encoding="UTF-8" ?>
edited with XMLSPY v5 rel. 2 U (http://www.xmlspy.com) by Robb Murdock (Luxor Technologies,
  Inc.)
        <!-
W3C Schema generated by XMLSPY v5 rel. 2 U (http://www.xmlspy.com)
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"</p>
     elementFormDefault="qualified">
  - <xs:element name="CMData">
     - <xs:complexType mixed="true">
         <xs:attribute name="ProductCode" type="xs:string" use="required" />
         <xs:attribute name="StatusCode" type="xs:string" use="required" />
         <xs:attribute name="StatusMessage" type="xs:string" use="required" />
      </xs:complexType>
   </xs:element>
  - <xs:element name="CMDataSets">
     - <xs:complexType>
       < < xs: sequence>
            <xs:element ref="CMData" />
         </xs:sequence>
      </xs:complexType>
    </xs:element>
  - <xs:element name="CMErrors">
     _ <xs:complexType>
       < <xs: sequence>
           <xs:element ref="Error" />
         </xs:seauence>
      </xs:complexType>
   </xs:element>
  - <xs:element name="CMResponse">
     < < xs: complexType>
       < <xs: sequence>
            <xs:element ref="CMErrors" />
            <xs:element ref="CMDataSets" />
         </xs:sequence>
         <xs:attribute name="ReferenceNumber" type="xs:string" use="required"</pre>
         <xs:attribute name="OrderKey" type="xs:string" use="required" />
         <xs:attribute name="OrderCompletedDate" type="xs:string"</pre>
             use="required" />
         <xs:attribute name="OrderStatus" type="xs:string" use="required" />
         <xs:attribute name="OrderMessage" type="xs:string" use="required" />
      </xs:complexType>
    </xs:element>
  - <xs:element name="Error">
     < < xs: complexType>
         <xs:attribute name="Code" type="xs:string" use="required" />
         <xs:attribute name="Message" type="xs:string" use="required" />
      </xs:complexType>
    </xs:element>
 </xs:schema>
```

A sample ResponseXML xml file can be found at:

https://webservice.credimetrics.com/ Schemas/CMResponse.xml

The ResponseXML sample XML file is shown below:

<CMRESPONSE REFERENCENUMBER="" ORDERKEY="" ORDERCOMPLETEDDATE="" ORDERSTATUS=""
ORDERMESSAGE="" XMLNS:XSI="HTTP://WWW.W3.ORG/2001/XMLSCHEMA-INSTANCE">

Notes on XMLResponse

The following is a partial data dictionary for the ResponseXML file

Node	Attribute	Notes		
CMRESPONSE	REFERENCENUMBER	Optional. Will be returned and contain same value as found in		
CMRESPONSE	ORDERKEY	CMRequest/ReferenceNumber Optional. Will contain either new or existing assigned OrderKey if a product is returned. Will not be returned if input transaction could not be processed.		
CMRESPONSE	ORDERCOMPLETEDATE	Optional. Will be set if the order is deemed complete. That is, the OrderStatus is set to Complete.		
CMRESPONSE	ORDERSTATUS, ORDERMESSAGE	Constant. Status Codes and English text to indicate status of the order.		
		CODE DESCRIPTION O Order Completed 1 Order Incomplete 2 Order Not processed		
		The OrderMessage may contain extended verbiage to expound upon status.		
CMRESPONSE/ERRORS		Optional. Will contain Error Nodes if any input or processing errors were encountered.		
ERROR	CODE, MESSAGE	Constant if Error Node is present. Codes and Messages indicating any form of error.		
		CODE DESCRIPTION		
		0001 Communications failure. (Returned from the (CMMergeClient.Request object only).		
		1001 Customer invalid		
		1002 Order invalid		
		1003 Decision processing error		
		1004 Invalid XML request data		
		1005 Login processing error		
		1006 Product processing error		
		1007 Data sources processing error		
		1008 Bureau server processing error		
		1009 Product code parsing error		
		1010 Order completion processing error.		

		2001	Bureau com	m. Error
		2002	Bureaus inc	omplete
		2101	Equifax time	ed out
		2102	Equifax com	
		2103	Equifax retu	
		2201	Experian tin	
		2202	Experian co	mm. Error
		2203		turned error.
		2301	TransUnion	
		2302		comm. Error
		2303	TransUnion	
			error.	
		2401	PRBC timed	out
		2402	PRBC comm	
		2403	PRBC return	
		2404	PRBC No red	
		3000	Merge proce	
		4000	Decision err	
			1 = = = = = = = = = = = = = = = = = = =	
		Message	e may co	ntain extended
			e to expand up	
CMRESPONSE/DATASETS/DATA	PRODUCTCODE		type of data t	
		TYPE		DESCRIPTION
		MRG_>	KML	Merged credit
				data in XML
				format
		MRG_L	LUXCOM	Merged credit
				report in TTY
				format
		MRG_L	LUXDTC	Merged credit
				Report in PDF
				format.
		MRG_L	DECISION	Decision
				results in XML
		OFACE	DT.	format
		OFACR	PI	Suspicious
				persons
				report in TTY format
		OFACX	'N // I	Suspicious
		OFACA	IIVIL	persons
				report in XML
				format
		PRBC_	XMI	Bill Payment
		' '\bc_	/XIVIL	score and
				payment
				details in XML
				format.
		For oth	er products	see the Produc
				t Section of this
		docume		
		uocume	III.	

MRG_XML/MRG_XMLSTACK Credit Data

The MRG_XML and MRG_XMLSTACK products are XML data sets and are found in the CDATA section of the CMResponse.XML structure when the MRG_XML or MRG_XMLSTACK products are ordered.

The MRG_XML and MRG_XMLSTACK data sets are organized as 15 Segments:

IDENTIFICATION
ADDRESS
EMPLOYMENT
INQUIRY
CONSUMER_STATEMENT
CREDITOR
AKA
CONSUMER_REFERRAL
BANKING
SCORE
MISCELLANEOUS
PUBLIC_RECORD
BUREAU_ERROR
TRADELINE

Merged Bureau Distinction

These segments represent a merged view of credit data from any number of repositories. Based upon a SOURCE field, the segment can be identified as representing a combination of Equifax, Experian or TransUnion.

Similarly, not all of the bureaus may consider an item as derogatory. As such credit measuring segments such as TRADELINE and PUBLIC_RECORD contain a DEROGIND field which indicates which bureaus consider the data derogatory.

SOURCE and DEROGIND EXAMPLE:

1	Equifax
2	Experian
3	Equifax, Experian
4	TransUnion
5	Equifax, TransUnion
6	Experian, TransUnion
7	Equifax, Experian, TransUnion

MRG_XMLSTACK Stacked Merge Data

While the 15 top level segments adequately represent a merged data set, often it is desirous to also list a stacked merge data set. In this fashion, a cross bureau merged picture can be shown as well as a picture of each of the bureaus.

With the exception of the BUREAU_ERROR Segment, all segments contain a sub node named INTRA. The INTRA node contains the same field nodes as its parent node; and represents the un-merged credit data from each of the bureaus. There will be up to three INTRA nodes within each segment. Each

INTRA node represents one credit repository as indicated by a Bureau attribute.

EXAMPLE:

INTRA Bureau="EFX" Identifying this sub-segment as originating from Equifax.

INTRA Bureau="EXP" Identifying this sub-segment as originating from Experian.

INTRA Bureau="TUC" Identifying this sub-segment as originating from TransUnion

A schema for the XML_MERGE product can be found at https://webservice.credimetrics.com/schemas/mergeresponse.xsd, as well as a sample xml file at https://webservice.credmetrics.comschemas/mergeresponse.xml.

USING THE CREMETRICS CLIENT OBJECT

Customer systems operating in the Microsoft environment can take advantage of the Credmetrics Merge Client Object. This object accepts parameters from the customer's system, creates the appropriate XML document and interacts with the Credmetrics SOAP listener at the Credmetrics host.

Customers using this object will typically be web-based ASP (Active Server Page) applications, enterprise developed applications using Visual Basic or any other Microsoft Windows application that can interface with an ActiveX DLL.

CMMERGE CLIENT METHODS

The CMMergeClient Object's REQUEST class provides the following methods:

CreateXMLRequestString()

Creates an XML document from the current settings. Useful for applications that wish to perform their own SOAP dialogue with Credimetrics; and simply need a way to create the XML document

GetResponse(*ByVal ProductCode As String, ByRef StatusCode As String, ByRef StatusMessage As String*) As String

Extracts the product data for the specified ProductCode from the returned XML document from Credimetrics. Additionally, any status code or message related to that particular product code is returned in the parameters.

PlaceOrder()

Sends the XML request document to the Credimetrics SOAP Listener and waits for the response.

SetRequestor(*ByVal LoginName As String, ByVal Password As String*) Sets the customer login name and password for authentication with Credimetrics.

WriteResponseToDisk(*ByVal ProductCode, ByVal ReportPath As String, _ ByRef StatusCode As String, ByRef StatusMessage As String*) As

Integer

Similar to the GetResponse method, the WriteResponseToDisk method extracts the product data for the specified ProductCode from the returned XML document from Credimetrics and writes that data to a local disk file. Additionally, any status code or message related to that particular product code is returned in the parameters.

CMMERGE CLIENT PROPERTIES

The CMM erge Client Object's REQUEST class provides the following properties:

CompletionDate – returns the date and time from Credimetrics that the order was completed.

OrderKey – The order key assigned by Credimetrics when the product is returned; or the order key assigned by Credmetrics to be referenced on a re-access.

OrderStatus – The status code of the current order.
 OrderMessage – The English equivalent of the status code.

CMMERGE CLIENT CLASSES

The CMMergeClient Object provides the following classes:

CONSUMER - A class that contains information regarding the consumer on which the credit data is being ordered.

Properties:

ECOA Valid values are "I" for Individual or "J" for Joint access.

Methods:

SetSubject(ByVal Surname As String, ByVal FirstName As String, _ ByVal MidName As String, ByVal Generation As String, _ ByVal SSN As String, ByVal Age As String)

SetSpouse(ByVal Surname As String, ByVal FirstName As String, ByVal MidName As String, ByVal Generation As String, ByVal SSN As String, ByVal Age As String)

SetCurrentAddress(*ByVal Address As String, ByVal City As String, ByVal State As String, ByVal ZipCode As String*)

SetFormerAddress(ByVal Address As String, ByVal City As String, ByVal State As String, ByVal ZipCode As String)

DATASOURCES - A class containing repository subcodes, profiles and pass through product information

Properties:

UseExperian as boolean. TRUE if requesting Experian data
UseTransUnion as boolean. TRUE if requesting TransUnion data
UsePRBC as Boolean. TRUE if requesting PRBC data
PRBCGetUpdated as Boolean. TRUE if requesting an updated PRBC file after an original PRBC file has been ordered for this OrderKey. NOTE: this only affects the behavior of a re-ordered product. Normally, re-ordered products use the same PRBC data as from a previous order. Setting this value to TRUE causes a new PRBC data file to be used for this re-ordered product.

Methods:

SetEquifax(ByVal Preamble As String, ByVal SubCode As String, _ ByVal Password As String, ByVal Purpose As String, _ ByVal EndUser as string, ByVal Profile as String, _ Optional ByVal PassThruProduct as string, _ Optional ByVal RawData As String, _ Optional ByVal RawDataFile As String)

SetEquifaxScoreModels (ByVal ModelIds as string)

Comma delimited string of score model ids.

SetEquifaxAddOns (ByVal AddOns as string)

Comma delimited string of add on features.

SetExperian(ByVal Preamble As String, ByVal SubCode As String, ByVal Password As String, ByVal Purpose As String, ByVal EndUser as string, ByVal Profile as string, Optional ByVal PassThruProduct as String, Optional ByVal RawData As String, Optional ByVal RawDataFile As String)

SetExperianScoreModels (ByVal ModelIds as string)

Comma delimited string of score model ids.

SetExperianAddOns (ByVal AddOns as string)

Comma delimited string of add on features.

SetTransUnion(ByVal Market As String, ByVal SubMarket As String, ByVal IndustryCode As String, ByVal SubCode As String, ByVal Password As String, ByVal Purpose As String, ByVal EndUser as string, ByVal Profile as string, Optional ByVal PassThruProduct as String, Optional ByVal RawData As String, Optional ByVal RawDataFile As String)

SetTransUnionScoreModels (ByVal ModelIds as string)

Comma delimited string of score model ids.

SetTransUnionAddOns (ByVal AddOns as string)

Comma delimited string of add on features.

SetPRBC(ByVal SubCode As String, _

ByVal Password As String, ByVal Purpose As String, _ ByVal EndUser as string, ByVal Profile as string, _ Optional ByVal RawData As String, _ Optional ByVal RawDataFile As String)

DECISIONS - A class containing the name of the decision profile to be run and any optional decision parameters required by the profile.

Properties:

ProfileName as string. The name of the decision profile being executed. **ResultsNameList** as string array. An array of names of results parameters returned by the decision.

XML as string. The XML product data returned by the REQUEST class is passed to the DECISION class via this property for processing.

PRBCGetUpdated as Boolean. True forces Credimetrics to obtain a fresh copy of a PRBC data file even though one already has been accessed from PRBC.

Methods:

AddParameters (*ByVal ParmName As String*, *ByVal ParmValue As String*) Adds a decision request parameter by name and value to an internal collection of parameters used by the decision.

GetResultsByName(*ByVal ParmName As String*)

Retrieves the value for a given decision result parameter name.

PRODUCTS - A class containing product codes to be ordered in this request.

Properties:

ProductsList as Collection. A Visual Basic Collection containing the list of all the products being returned.

Methods:

AddProduct(*ByVal ProductCode As String, Optional ByVal Options as string*) Adds a product code to the request XML document.

RemoveProduct(ByVal ProductCode As String)

Removes a product code from the request XML document.

RemoveAllProducts()

Removes all product codes from the request XML document.

REQUEST - The main class of the CMMergeClient containing references to other classes and basic properties and methods. (See the CMMERGE CLIENT METHODS for details.)

CREIMETRICS CLIENT OBJECT SAMPLES

The code herein represents a sample of various ordering scenarios.

ORDERING MERGED PRODUCTS

This example orders all of the merged products in a single order.

```
Dim oCMMergeClient As New CMMergeClient.Request
Dim i As Integer
Dim MyStatusCode as string
Dim MyStatusMessage as string
'* SET THE LOGIN INFO
oCMMergeClient.SetRequestor txtLoginName, txtPassword
'* SET THE CONSUMER INFO
oCMMergeClient.Consumer.ECOA = "I"
oCMMergeClient.Consumer.SetCurrentAddress "111 AVERY RD", "ROME", "GA", "30361"
oCMMergeClient.Consumer.SetSubject "CRAWFORD", "ROBERT", "M", "JR", "143777890", "28"
'* SET THE BUREAU DATA SOURCE INFO
' USE MY OWN PRIVATE EQUIFAX SUBCODE AND PASSWORD INFO
oCMMergeClient.Datasources.SetEquifax MyPreamble, MySubCode, MyPassword, "", "", ""
oCMMergeClient.Datasources.UseEquifax = True
' REFERENCE THE EXPERIAN PROFILE ON FILE AT CREDMETRICS
oCMMergeClient.Datasources.SetExperian "", "", "","", "MYEXPPROFILE"
oCMMergeClient.Datasources.UseExperian = True
'DON'T USE ANY TRANS UNION DATA IN THIS REQUEST
oCMMergeClient.Datasources.UseTransUnion = False
' ADD PRBC DATA TO THIS REQUEST
oCMMergeClient.DataSources.SetPRBC "", "", "", "", "MYPRBCPROFILE"
oCMMergeClient.DataSources.UsePRBC = True
'* SET THE PRODUCT REQUEST INFO
oCMMergeClient.Products.AddProduct "MRG_XML"
oCMMergeClient.Products.AddProduct "MRG_RPTCOM"
oCMMergeClient.Products.AddProduct "MRG_RPTDTC"
oCMMergeClient.Products.AddProduct "MRG_DECISION"
oCMMergeClient.Products.AddProduct "OFACXML"
'* SINCE DECISION WAS REQUESTED, SET THE ADDITIONAL DECISION INFO REQUIRED
'* BY THE 'MYDECISIONPROFILE' SCRIPT ON FILE AT CREDMETRICS
oCMMergeClient.Decisions.AddParameters "INCOME", "50000"
oCMMergeClient.Decisions.AddParameters "LOANAMOUNT", "39544"
oCMMergeClient.Decisions.ProfileName = "MYDECISIONPROFILE"
Me.lstErrors.Clear
oCMMergeClient.PlaceOrder
txtCompletionDate = oCMMergeClient.CompletedDate
txtOrderKey = oCMMergeClient.OrderKey
txtOrderMessage = oCMMergeClient.OrderMessage
txtOrderStatus = oCMMergeClient.OrderStatus
If oCMMergeClient.OrderStatus = "0" Then
  MyTextBox = oCMMergeClient.GetResponse ("MRG_RPTCOM", MyStatusCode, MyStatusMessage)
   oCMMergeClient.WriteResponseToDisk "OFACXML", "C:\ofacxml.xml", "", "'
  oCMMergeClient.WriteResponseToDisk "MRG_RPTCOM", "C:\mrg_rptcom.txt", "",
   oCMMergeClient.WriteResponseToDisk "MRG_RPTDTC", "C:\mrg_rptdtc.pdf", "", ""
```

```
oCMMergeClient.Decisions.XML = oCMMergeClient.GetResponse("MRG_DECISION", "", "")
    MyForm.txtPassFail = oCMMergeClient.Decisions.GetResultsByName("PASSFAIL")
    MyForm.txtReason = oCMMergeClient.Decisions.GetResultsByName("REASON")

Else
    For i = 1 To oCMMergeClient.Errors.Count
        MyForm.lstErrors.AddItem oCMMergeClient.Errors(i)("CODE") & "-" &
oCMMergeClient.Errors(i)("MESSAGE")
    Next i
End If
```

ORDERING PASS THROUGH PRODUCTS

This example orders an Equifax DTEC TTY report from Equifax.

```
Dim oCMMergeClient As New CMMergeClient.Request
Dim i As Integer
'* SET THE LOGIN INFO
oCMMergeClient.SetRequestor MyForm.txtLoginName, MyForm.txtPassword
'* SET THE CONSUMER INFO
oCMMergeClient.Consumer.SetSubject "", "", "", "", "143777890", ""
'* SET THE BUREAU DATA SOURCE INFO
oCMMergeClient.Datasources.SetEquifax txtPreamble, txtSubCode, txtPassword, _
          "", "", "", " EFXDTECTTY"
oCMMergeClient.Datasources.UseEquifax = True
oCMMergeClient.Datasources.UseExperian = false
oCMMergeClient.Datasources.UseTransUnion = False
'* SET THE PRODUCT REQUEST INFO
oCMMergeClient.Products.AddProduct " EFXPASSTHRU"
Me.lstErrors.Clear
oCMMergeClient.PlaceOrder
MyForm.txtCompletionDate = oCMMergeClient.CompletedDate
MyForm.txtOrderKey = oCMMergeClient.OrderKey
MyForm.txtOrderMessage = oCMMergeClient.OrderMessage
MyForm.txtOrderStatus = oCMMergeClient.OrderStatus
If oCMMergeClient.OrderStatus = "0" Then
  oCMMergeClient.WriteResponseToDisk " EFXPASSTHRU ", "C:\efxdtecreport.txt", "", ""
  For i = 1 To oCMMergeClient.Errors.Count
     MyForm.lstErrors.AddItem oCMMergeClient.Errors(i)("CODE") & "-" &
oCMMergeClient.Errors(i)("MESSAGE")
End If
```