

NMA Services 4.4

# Document Status

status: Request for Comment (valid values are < Request for Comment, Preliminary Review, Public Review, Architectural Review, Final Review, Published, Deprecated)

# Change Log

|  |  |  |
| --- | --- | --- |
| Version | Date | Changes |
| 0.1 |  | * Initial Creation |
| 0.2 |  | * Added description of services and use case flow. |
| 0.3 |  | * Clarified the order of services |
| 0.4 |  | * Updated Credit Card services to Card Services and changed definition * Updated definitions of some of the services |
| 0.5 |  | * Updated Overview of Specification |
| 0.6 |  | * Deleted Account Detail, added Collateral, Product Offering, Credential Group, Disclosure and Configuration Services, Search Methodology and updated Lead data and services to Product Service Request |
| 3.0 | **10/29/2013** | * Versioning and format change with release CUFX 3.0 |
| 3.1 | **07/17/2015** | * Updated to release 3.1 |
| 3.2 | **05/10/2016** | * Updated to release 3.2 |
| 3.3 | **02/15/2017** | * Updated to release 3.3 |
| 4.0 | **02/19/2018** | * Updated to release 4.0, Date Range Global Update, Microsoft Global bug fix |
| 4.1 | **12/10/2018** | * Updated to release 4.1, Global removal of choice constructs to eliminate cross language serialization issues. * Global update applied for minOccurs 0 maxOccurs 1. Xsd had 1 or more elements corrected to be consistent with the standard definition. * Account - Add enum Other to AccountType * Party - Removed listbase from Trust and estate, add trustType and estateType. For improved solution to MS issue. Types were not lists. Added parent child relationships financial institution and vendor for party association. Added a free form string field for organization sub type to drill down into the type of organization beyond it's taxable formation. Added partyDeletedBy, Added enum passport for improved localization support to type IndividualDocument * Party, PartyFilter - Add organizationTypeList, organizationSubTypeList and organizationNameList to party filter. Fixed invalid comment on organizationName, removed types PartyCreatedByList, PartyModifiedList, replaced with reference UserIdList. Changed PartyStatusComment to PartySubStatus, PartySubStatusList. * ProductOffering - Corrected productId, productType, and productSubType to minOccurs 0. InterestRateList set to minOccurs="0" |
| 4.2 | **03/05/2019** | * Updated to release 4.2, \*\*\* Release 4.2 is a breaking fix release. \*\*\* Errors found in App, ArtifactFilter, and BillFilter required a breaking fix to align with the standard and prevent additional implementation difficulties going forward. |
| 4.3 | **10/07/2019** | * Updated to release 4.3, renamed file removing version as proper version control is being used in Github. |
| 4.4 | **10/20/2020** | * Updated to release 4.4. Account - Deprecated type. Use accountType in accountBase. * Documented meta usage. * Added interestPostingFrequency, withholdingsInfoList, overDraftProtectionAccountId, overDraftProtectionAccountType, overDraftProtectionAccountSubType. * Added enums to accountType for Installment, CommercialLoan, CommercialLineOfCredit, GeneralLedger. OtherLoan. * DeprecatedAccountAccountTypeList and AccountAccountTypePair. * Added Type AccountIdentificationList, AccountIdentification, AccountSubType * Added enums ChargedOff, ChargeOffClosed to DepositAccountStatus * Account Filter - includeNotesFlag type to common:IncludeNotesFlag. Added accountIdentificationList * Party - Removed user from namespace. * Changed UserId types to reference common. * Added nonresidentAlienCertificationtype, nonresidentAlienCertificationDateTime, nonresidentAlienLimitationOnBenefits, nonresidentAlienSpecialWithholdingStatus, nonresidentAlienSpecialWithholdingRate, withholdingsInfoList, taxIdExpirationDateTime, maritalStatus * Added type maritalStatus, NonresidentAlienSpecialWithholdingStatus, * PartyFilter - Deprecated accountAccountTypeList. * Added accountIdentificationList to Filter" |

# Overview of Specification

The scope of the NMA project includes defining standard data set and services for the steps necessary to create a new membership relationship with a financial institution along with all products and services offered as part of the new membership process. The CUFX integration specifications for New Membership Application (NMA) include the following:

* Data Entity Model
* Data elements in the form of XSD’s
* HTML document for the database schema for each XSD
* Word document defining services, use cases and REST – JSON examples for the service messages
* Security Services; the CUFX recommendation of best security practices and examples

The RFC Process will consist of three iterations. The NMA Working Group is looking for feedback on the contents of the specifications, the process flows assumed by the specifications as well as the feasibility of implementation.

Feedback e-mails should indicate the artifact the feedback relates to, as well as your name and contact information, in case clarification or follow up discussion on the comment is needed.

The NMA Working Group is looking for feedback on the contents of the specifications, the process flows assumed by the specifications as well as the feasibility of implementation.

# Any know Errors in the document

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| **Error Description** | Status of Error |
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# Document Conventions

List any document conventions such as what bold and italics mean and how the document is intended to be read.

Within this specification, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in W3 Working Group (W3C). However, for readability, these words do not appear in all uppercase letters in this specification.

At times, this specification recommends good practice for authors and user agents. These recommendations are not normative and conformance with this specification does not depend on their realization. These recommendations contain the expression "We recommend ...", "This specification recommends ...", or some similar wording.

All formatting in this document utilizes Word Styles.

All Citations must utilize Word Citations so that it automatically shows at the end of the document.

All updates after the initial creation must be performed using Tracking Changes turned on and accepted by the Architecture committee.

# CUFX API and Documentation Support

CUFX is published to SwaggerHub at <https://app.swaggerhub.com/apis/dlacroix01/CUFX> . The latest default version will load automatically.

The purpose of this publication is to demonstrate the full range of CUFX messaging. Provide for complete documentation of the entire message structure and example usage.

Swaggerhub as a normal support feature also translates into several dozen of the most common and in demand client / server formats. This provides a technology specific version of the CUFX standard for essentially all platforms.

The CUFX Specification documents have been written to provide for limited examples of case usage but do not reflect the entirety of elements present in any given message. Please see the latest version of CUFX in Swaggerhub for the complete message and for superior documentation support.

# Release 4.0 Global Update Notes

CUFX Release 4.0 introduces a number modifications that significantly improves the standard and is not backward compatible with prior versions.

Messaging paradigm shift. Prior to CUFX 4.0 a Message Object would be sent and would expect the Object List to be returned or the error message. The response had to be interrogated to determine what was received. With CUFX 4.0, the Object Message that is sent is also expected to be the Object that is returned. Significant improvements have been made to the Message Context to fully support Success, Informational, Warnings and Error responses. End Points may continue to use the prior methods, but use of the Error.xsd is depreciated; all functionality has transitioned into MessageContext.xsd.

Date Range Filtering. A global update was applied across the standard to remove the pairs of date filter elements for any given range and replaced with a single Common.xsd definition DateRange complex type. This makes date range filtering completely uniform across the standard and associates the startDateTime and endDateTime together as an object set.

As example: elements transactionStartDateTime and transactionEndDateTime were replaced in the AccountFilter.xsd with transactionDateRange.

Microsoft Serialization Bug. We discovered the root cause of a serialization error impacting CUFX. A known Microsoft Serialization error from 2006 is present for single element complex types. It causes a naming error of the serialized constructs. If both endpoints are using a Microsoft compilation the error is consistent and does not present itself, the names are both wrong but pass data successfully. When one end point is not using a Microsoft compilation, the field names are in variance and fails. If both end points are using non-Microsoft compilation the serialization would be correct and match.

CUFX 4.0 has applied a global update across all list types throughout the standard. The CUFX list construct was consistently a single element complex type. For all occurrences we have applied an extension base of common:ListBase. ListBase provides pagination support and also resolves the Microsoft serialization error. No longer being a single element complex type, Microsoft compilation now generates the correct names. This will necessitate prior (Microsoft) implementations to remap to the correct serialized names.

# Release 4.4 Global Update Notes

CUFX Release 4.4 introduces a significant enhancement for complex Account identification and filter navigation. The foundational architectural design premise for account navigation is that the CUFX AccountId would be a unique value unto itself within a given institution, or that a composite unique key would be passed. With the direct support of several core system providers it was established that that later case is predominate. The AccountId is generally not a unique value unless in combination with several other values such as AccountType and AccountSubType. Hence passing a unique AccountId meant that the organization had to overload the element value making filtering implementation specific and forcing the endpoints to map overlay the accountId to unpack the value.

CUFX now fully recognizes this architectural paradigm while continuing to support the original architecture.

A global update was applied to provide the elements accountType and accountSubType in all objects that contained accountId.

A new filter list – AccountIdentificationList has been added to all account related filters so that AccountId, AccountType, and AccountSubType can be structured properly for discreet filtering of complex account keys, support filtering by the sub keys and also support inbound and outbound account filtering using the accountToFromIndicator.

By expanding the architectural paradigm to support a non-unique AccountId CUFX is now positioned to better support core adoption of the standard.

# Definitions related to the specification

CUFX Compliant nma application:

A New Member Application that’s developed using CUFX NMA services.

CUFX Compliant nma Services:

A CUFX complainant NMA service that offered by the core provider.

Data Provider

Any Financial Institutions Core Banking Provider from which new member application data is requested and returned using this specification.

# Data Elements

See Data Entity Model and related XSD’s.

# Services

Security-Services: The CUFX Security Services specification describes the format and methods for secure authentication and general communication security in support of other CUFX specifications such as Personal Financial Management (PFM). Version 2.0 represents a major shift from custom security standards to utilizing standards based security models such as SAML, OAuth, and SCIM.

Search Methodology: The purpose of this document is to provide a high-level overview of the CUFX search methodology as it pertains to using the Filters associated with different CUFX objects.

Card DATA and Services: The Card Data and Services specification defines the card data object for use by all specifications. A card defines either ATM, credit or debit plastic card information to connect to connect accounts such as loans and deposit accounts. This service is used to create, read, update and delete a card.

CUFX application Data and Services: The CUFX application Data and Services specification defines the features the definition for an application to use products and services at the financial institution. This entity can be related to product offering data, party and relationship data. See overview of capabilities for the service for more details.

CUFX Product Offering Data and Services: Defines the ProductOffering data object for use by all specifications. ProductOffering reference information is used by a financial institution to identify all products available. ProductOffering has rates associated to the product based on date range, rewards programs, product brand, risk rating, etc. See the ProductOffering.xsd for reference data that can be stored for the ProductOffering.

CUFX relationship Data model and Services: The CUFX Relationship Data model and Services defines the relationship Data object for use by all specifications. Relationships allow a financial institution to associate different accounts for account owners to easily consolidate account data.

CUFX Contact Data Model and Services: The CUFX contact data model and services defines the contact data model and services for party and relationship. Contacts include contact points such as email, mail, phone, instant message, and social media.

CUFX Deposit Data model and Services: This specification defines the features for creating share (deposit) accounts, including the ability to create a new share, draft or certificate account, specify overdraft priority, specify a relationship between an account and a party, order a Debit/ATM card and fund a new account.

CUFX Eligibility Requirement Data model and Services: Defines the eligibility requirement Data object for use by all specifications. Eligibility requirement reference information is used by a financial institution to identify if a potential party is eligible to use their services. Eligibility might be related to a particular company, geographical region or other community. In addition to a base set of eligibility requirements, the model should support data input by the user. See the party data and services for eligibility data that can be stored for the party.

CUFX Account Data Model and Services: The CUFX account Data model and Services defines the account data model and Services used by all specifications. Accounts are an abstract summary of loan, share and investment balances at a high level. An account represents any financial product stored in a back end financial services platform optionally including any transactions associated with that account.

CUFX Error Mapping: The CUFX Error Mapping specification describes the error code, sub code, error message and format for general communication in support of CUFX specifications. It contains all the specific error messages and their customizable constructs to provide additional detail for the end user and client application.

CUFX Product Service Request Model and Services The CUFX Product Service Request Data and Services specification enables an application to submit details about products and services that the party is interested in that go beyond a loan or deposit product. Product or Service requests are pre- stage information requests to help internal staff identify additional products and services that a party has requested. A product request might be an Investment account that the party is interested in but can’t be supported through the Deposit services. A service request example is requesting a box of checks, or stopping payment on a check, notification that a card has been lost, etc. This entity can be standalone (in the case of a CRM like system) or related to party, account, contact and relationship data previously created on an account. See capabilities for the service for more details. In addition, the status of the events and tasks related to fulfillment of the request(s) can be accessed via this service.

CUFX Loan Data and Services: The Loan specification describes the services used as part of a new membership application process, for creating a loan, funding the loan, and disbursing the funds.

CUFX Collateral Data and Services: The Collateral specification describes the services used as part of a new membership application process, for creating, updating, and modifying collateral records.

CUFX Message Context Data: The CUFX Message Context Data object specification describes the object that can be included in all data requests to aid in the applying any additional discovery of who/what made the request. This is not provided for security purposes. See Security Services for more detail on how this fits into security processes.

CUFX Party Association Data Model and Services: The CUFX Party Association Data Model and Services defines the party Association Data object and services for use by all specifications. The party association allows an organization to see if parties work for, related to, or have a legal responsibility to another party.

CUFX Party Data Model and Services: The Party Data Model and Services define how a party is created, read, updated and deleted on the core. A party is an individual, organization, club or not-for-profit that uses or is associated to the financial institution’s products and services.

CUFX preference Data and Services: The CUFX preference Data and Services is a collection of services that drive the user experience and allow services to modify themselves and to be personalized to the consumer of the service. This model is flexible in that it can point to multiple accounts, contact points, parties, relationship, etc.

CUFX Artifact Data and Services: The CUFX Artifact Data and Services specification defines the features of the CUFX Artifact service. The Artifact service provides a set of methods to read and write Artifacts such as Images and/or Documents to a Repository. This specification also contains sufficient data to describe how the object model may be added to other objects models (such as the party data model).

CUFX Disclosure Data and services: The Disclosure Data Model and Services defines the information stored when a person signs a document or agreement electronically or manually. The model and services also relate the disclosures to the party(ies), relationship and/or account(s)s to which it relates. Disclosures can be created, read, updated or deleted within the back end system via the service methods.

CUFX NMA Validation services: The CUFX NMA Validation Services specification defines the features for validating a potential member’s identity and the risk they might pose to the financial institution. Included is credit reporting, authentication services, OFAC, etc.

CUFX Configuration Data and services: The Configuration Data Model and Services defines what capabilities the CUFX end points have enabled. The configuration services allow another endpoint to read what services an endpoint has allowed. One configuration service may support multiple financial institutions, so the configuration is stored for each financial institution accessible via the CUFX end point.

CUFX Credentials Group Data and services: The Credential Group Data Model and Services define how a credential group is created, read, updated and deleted on the core. A credential group is a combination of fields that allow a user access to a system and subsequently to a list of relationships and accounts.

## Sample Use Case

This use case is for the core where the member ship needs to be created first before creating party and accounts. This is one example of a possible workflow. THE ORDER OF THE SERVICE CALLS CAN BE MODIFIED AS NEEDED. In some cases the services may be provided by other data sources other than the core (such as credit bureau or identification services.)

CUFX NMA Services (provided by core)

8

Relationship API Response

3

Set T&Cs API Request

10

Product Offerings API Response

9

Product Offerings API Request (credit cards loans etc.)

7

Relationship API Request

9

Account API Request

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Preference API Request

2

Eligibility Services API Response

1

Eligibility Services API Request

4

Set T&Cs API Respoonse

5

Create Party API Request

6

Create Party API Response

10

Account API Response

CUFX Core Data Provider

7

Relationship API Request

8

Relationship API Response

CUFX Compliant NMA App

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Preference API Response

# Bibliography

W3C. (n.d.). *Key words for use in RFCs to Indicate Requirement Levels [RFC2119].* Retrieved Sept. 8th, 2011, from W3C.