

DTCC

Securing Today. Shaping Tomorrow.®

CORPORATE ACTIONS

GETTING STARTED WITH ISO 20022 MESSAGING

VERSION 2.0

MAY 1, 2019



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TABLE OF CONTENTS

Disclaimer	5
Document History	6
Introduction	7
Corporate Actions and ISO 20022 Messaging	7
ISO 20022 Benefits	7
Key Concepts	8
ISO 20022	8
Overview of the Corporate Actions Data Model	9
Multiple Events	9
Identification	10
Event Types	10
Sub Event Types	10
Mandatory/Voluntary Indicator	11
Narratives	11
DTC Workflow Status	12
ISO 20022 Message Data	13
Message Structure	16
Client Resources and Documentation	19
DTCC Website	19
DTCC Asset Services Learning Center	19
Documentation	19
ISO 20022 Message Delivery and Network Protocols	20
Subscription Options	21
Customer Testing	21
Documentation Guide	22
Corporate Action Data Dictionaries	22
Corporate Action Event Scenarios	24
Event Type	25

Nature of the Event and Option Type.....	25
Default Option	26
Payout Details and DTC Legacy Values	26
Message Usage Guideline (MUG).....	27
Onboarding: How to get started	32
Contact Information.....	32
ISO 20022 Mapping.....	32
Client Support	32
Appendix A: DTCC Implementation of ISO 20022.....	33
DTC Naming Conventions	33
Supplementary Data (Extensions)	33
Notation.....	35

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DOCUMENT HISTORY

July 2015 **Note:** This document was previously titled “DTCC Corporate Actions Product Migration Guide for Adoption of ISO 20022 Messaging.”

May 2019 **Note:** This document was previously titled “Getting Started with ISO 20022 Announcements Messaging”

INTRODUCTION

Corporate Actions and ISO 20022 Messaging

DTC's Corporate Actions Service is supported by ISO 20022 standardized messaging and its user interface known as the Corporate Actions Web, or "CA Web". The backbone of the service is a data model based on event data with options and payouts.

ISO 20022 is an international messaging standard that is designed to simplify global business communication by creating a common language for communicating financial information that is unrestricted by national borders or regional conventions. DTC uses ISO 20022 messaging for automated electronic communication between itself and clients. The Corporate Actions Web (CA Web) is a web based platform.

ISO 20022 Benefits

ISO 20022 offers a host of benefits, including:

- **Flexibility** – both in terms of its content and tailoring of output. As new corporate actions are developed, the messaging standard can change to meet the demands of the business, not the other way around
- **XML Syntax** – due to its widespread support, XML allows for easier processing and more efficient yearly maintenance
- **Schema Validation** – used to confirm that each data element is populated with a valid value
- **Greater Straight-Through Processing (STP)** – corporate action events are announced using a data model that conforms to market practice, and accommodates more fielded and tagged data rather than narrative or "free text"
- **Unique Corporate Action ID for Each Event** – can be tracked through the life cycle of the event – from announcement, to election, entitlement, and payment
- **Enhanced Data Elements** – a comprehensive and granular number of data elements, which allows for greater accuracy and, ultimately, less processing risk on the part of the customers
- **Maintenance** – the yearly standards process requires DTC to constantly review, scrutinize and maintain its standard to ensure compliance with market practice. This systematic approach to the business rules driving the file formats results in a reduction in ad hoc maintenance
- **A Global Standard** – In defining a model for U.S. and global corporate actions, DTC worked closely with SWIFT, ISO 20022's registration authority. DTC then worked with the Securities Markets Processing Group (SMPG) and the International Securities Association for Institutional Trade Communication (ISITC) to develop proposals for changes to the ISO 20022 standard as it related to corporate actions, which were reviewed and approved by the Securities Standards Evaluation Group (CA SEG), a group of international industry experts who accept or reject changes to the ISO 20022 standard's repository. DTC then presented the proposals to the Corporate Actions Maintenance Working Group, a group that is responsible for all annual ISO standard release changes, for evaluation and admission for the final country vote.

KEY CONCEPTS

This section outlines some of the key concepts underpinning DTC's Corporate Actions service.

These are:

- The use of ISO 20022 messages and data model,
- The message structure (taking a corporate action announcement as an example), and
- The methods of communication with DTC systems.

ISO 20022

ISO 20022 is founded on modern data modeling techniques and business process analysis. Central to the standard is a global, cross-functional data dictionary and business process model. Aligning with these components enables DTC to provide clients with increased operability within their own systems and with other external processes.

There are, however, data elements and codes within the DTC data model that do not exist within the ISO 20022 corporate action announcement messages. To accommodate critical data that is not available as part of the core standard, DTC utilizes "supplementary data" structures also known as "extensions."

These extensions enable DTC to provide an agreed-upon and machine-readable structure within the messages for those data elements that have not been globally agreed to form part of the main message. Note that the structure of the extension must be validated by the ISO community and registered within ISO 20022, and this process includes the addition of the elements to the ISO 20022 data dictionary. This allows for improved interoperability while avoiding an impact on the messages themselves which may have been implemented in other communities.

In time, it is hoped that many of the elements initially placed in the extension structures will be accepted into the standard message globally. To that end, DTC is working with the National¹ and Global² Market Practice Groups to enhance the ISO 20022 standard. Other elements may be required only for coexistence with the existing DTC systems, or may not be accepted globally, and will thus remain in the extension structure for the foreseeable future.

Changes to the ISO 20022 standard occur annually, in November, and require DTC and its clients to accommodate specific changes within their systems. DTC revises technical documentation accordingly.

More information on the ISO 20022 standard can be found at <http://www.iso20022.org/>.

¹ The U.S. Securities National Market Practice Group is ISITC. See www.isitc.org.

² The Securities Market Practice Group, SMPG. See www.smpg.info.

The following are the different corporate action ISO message groups that are available:

ISO 20022 Message Group	Distributions	Redemptions	Reorganizations
Announcements	In Production (November 2011)	In Production (November 2011)	In Production (November 2011)
Entitlements & Allocations	In Production (February 2013)	In Production (August 2015)	In Production (July 2017)
Instructions*	In Production (March 2015)	N/A	2019-2020

* Inbound Messaging

Clients can replace the manual process of submitting instructions to DTC via CA Web with automated instruction messaging via ISO 20022 for:

- DRIPS
- Optional Distributions
- Foreign Currency
- Foreign Tax Withholding

These inbound instructions messages (CAIN/CAIC) can be submitted to DTC via MQ only.

Overview of the Corporate Actions Data Model

- The **identification** of the event is a key component in the ISO model. A corporate action identification number (CA ID or COAF as it is known in ISO 20022) is issued by DTC for each DTC-eligible event and remains consistent throughout the life of the event. DTC provides this official reference number **ONLY** through an ISO 20022 message for DTC-eligible securities.
- ISO 20022 uses its own set of **event type** codes to define the event and how it must be processed;
- A critical data item for each event is the **mandatory/voluntary indicator**, which shows whether an event is mandatory without options, mandatory with options or voluntary.
- ISO 20022 seeks, wherever possible, to avoid the use of **narratives** and free text; there are, however, occasions where data must be supplied in text form.

Multiple Events

The data model is able to define a single event with multiple options and payouts to account for the complexity of the event. Where the event complexity is such that processing is facilitated by multiple events, the events are linked by reference.

Where the market itself defines multiple events, they are linked by reference in the data model (see identification, below). DTC provides the possibility, through the browser known as Corporate Actions Web (CA Web), to view related events for the same CUSIP or CUSIP family.

The data model's approach to multiple events is summarized below:

Feature	ISO 20022 Model
Single event as defined by the market	Single event provides all details using multiple options and payouts to account for event complexity.
Multiple events as defined by the market	Event linking provided dynamically via reference to the event identifier (Related Event ID) and link type describing association/relationship.
Multiple events as defined by DTC	<p>Related events (same CUSIP or CUSIP family) are displayed in the browser (not included in messages).</p> <p>To facilitate processes at DTC some events may be announced as multiple events. Those events will be linked via reference to the event identifier (Related Event ID) and link type describing association/relationship.</p>

Identification

The ISO 20022 data model includes a number of identifiers for an event. The Corporate Action Event Identification must be populated by any institution (data providers or account servicers) that sends event announcements. This identifier is then referenced in any further communication (replacement announcements, or subsequent processing) for that event by that institution.

In addition, the Official Corporate Action Event Identification (CA ID or COAF as it is known in ISO 20022) is a unique event reference for the event, and is assigned by a designated body within each market. DTC publishes the Official Corporate Action Event Identification on DTC eligible securities on its ISO 20022 messages.

Where applicable, “related” events are linked using the Corporate Action Event Identification. For example, the relevant Event Identifications are listed on each event where two or more events should be taken together to understand a complete event, or where the events have a material impact on each other.

Event Types

DTC uses ISO aligned corporate action event types. In general, the event type defines the event without reference to the security type, processing flags or the mandatory/voluntary indicator, although some exceptions apply. DTC defined event types in some cases are more granular than ISO e.g., Maturity, Warrants Redemption, Termination are all represented as Final Maturity (REDM) in ISO Event Type value. These more granular DTC event types are identifiable by either using additional elements in the message, like: EventProcessingType or use of extensions like ExtendedEventGroup.

Sub Event Types

Most of the DTC defined event types in combination with sub event types have one corresponding ISO event type. However, there are instances where more than one DTC defined event type (+ sub event type) is represented by one ISO event type, and also where some DTC defined event types do not have a corresponding ISO event type. A complete list of DTC defined event types and sub event types and their corresponding ISO codes are available in the [DTC Corporate Action Announcements Data Dictionary](#).

Finally, a few of the DTC events are mapped onto the generic “other” ISO event type code. These events can be distinguished using existing message elements whenever it is possible or by using extensions. The following table lists some examples of the event types mapped to “other” (OTHR).

Event Name	Usage	ISO Event Type Code Mapping	Additional Qualifier (Message Element)
Distribution	A distribution by the issuer that is not classified as another specific event.	OTHR (Other)	(ISO) EventProcessingType: DISN
General Information	General information provided by the issuer that should not result in material changes to the security.	OTHR (Other)	(ISO) EventProcessingType: GENL
Reorganization	A reorganization event announced by the issuer that cannot be classified as another event.	OTHR (Other)	(ISO) EventProcessingType: REOR

Mandatory/Voluntary Indicator

The corporate action event types also include a notation as to the “nature” of the event, which will be one of the following:

- **Mandatory (MAND):** Events that occur without representation from the holder. These can be driven unilaterally by the issuer or as an attribute of the security. Examples are: Cash Dividend and Maturity.
- **Voluntary (VOLU):** Events that require an election, or not, from the holder. For example, Tender Offer and Rights Subscription.
- **Mandatory with Options (CHOS):** Events that are mandated by the issuer/offeror but where a choice of entitlement is offered. The holder can make an election or not respond and receive the default option. For example: Dividend with Options and Merger with Elections.

Narratives

A key goal of the ISO 20022 standard is to reduce the amount of data sent as free text, thus increasing straight-through processing (STP).

In the DTC implementation of ISO 20022, a number of different narrative fields are used to further clarify details of the event:

- **Terms** (mapped to ISO InformationConditions): Provides a summary of the event in a manner that will enable message recipients to send the information directly to their clients.
- **Restrictions:** Event restrictions are key details that need to be easily identified and understood by all parties. “Restrictions Text” occurs at two levels:
 - **Restrictions** (mapped to ISO InformationToComplyWith): Details restrictions that apply to the event.

- **Restrictions on Disbursed Security** (Payout Level, mapped to SecurityRestriction): Details restrictions that may be applied to the new security, including where the new security is not DTC eligible and needs to be “exited.”
- **Comments** (mapped to AdditionalText): Critical information regarding specific processing about the event.
- **Vendor** (mapped to NarrativeVersion): Information supplied by the data vendor.
- **Option** (mapped to OptionsDetails/ NarrativeVersion): Provides a summary of the option provided in a manner that will enable message recipients to send the information directly to their clients.

DTC Workflow Status

DTC’s data model contains different internal workflow statuses that ultimately map to the ISO 20022 standard workflow statuses. The chart below will help you understand some of those statuses and how they ultimately relate to what you receive via the ISO 20022 message.

			ISO EventCompleteness Status	ISO EventConfirmation Status	Message Type	Cancellation Reason Code
Workflow Status	Workflow Status Description	Description	Indicates whether the details provided about an event are complete or incomplete.	Indicates the status of the occurrence of an event.		ONLY for Cancellation advice message.
AP	Approved	All of the required data has been populated. Any conflicting data has been resolved. Either all information was in agreement (STP) or if manual validation was necessary, authorized review and changes/updates were performed.	COMP	CONF	CANO	n/a

			ISO EventCompleteness Status	ISO EventConfirmation Status	Message Type	Cancellation Reason Code
CA	Conditionally Approved	Announcement has been confirmed but not all of the required data is available. Event was validated or a specific STP criteria was met, however, data is still pending confirmation of the event.	INCO	CONF	CANO	n/a
CN	Cancelled	Event has been cancelled by the Issuer/Offeror.	COMP	CONF	CACN	WITH
DE	Deleted	Announcement record has been deleted/removed as an invalid record.	COMP	UCON	CACN	PROC

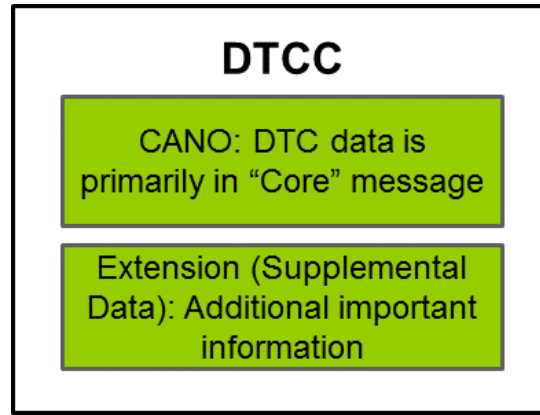
ISO 20022 Message Data

ISO market practice views information based on the sender of the message (usually an Asset Servicer). DTC issues data in its role as a Central Securities Depository (CSD) and generally, reflects the key data provided by DTC in the core message.

Messages are constructed with a “core” standard message mapping required (for processing), and a supplementary extension.

The following illustrates the data mapping methodology:

For a Cash Dividend event, its payout data fields contain DTC Cash Rate, DTC Gross Rate and Declared Gross Rate, all of which are mapped to the “core” standard part of the message. Fields such as DTC Pay Method and DTC Pay Order are extended as supplementary data.



In most cases, the same options are offered (announced and processed) by both the Issuer/Offeror and by DTC. However, on occasion, there are options offered by the issuer that are not processed by DTC, while at other times it may be that DTC offers an option that is not offered by the issuer. The message will contain all known options for the scenarios outlined above. Each option will be “flagged” if it is not processed by DTC or if it is not offered by the issuer. It is also possible that the default option differs depending on source of the option: DTC or Issuer. These will also be flagged where appropriate.

The following table summarizes the DTC and Issuer Options scenarios:

Option Scenario	Issuer Supported Option Flag	DTC Supported Option Flag	Remarks
Issuer offers the option. DTC supports (processes) the option.	Y	Y	No special tag in the message. Option support by the Issuer and DTC is assumed unless specified otherwise.
Issuer offers the option. DTC does not support (process) the option.	Y	N	Option Features element in the core message will have code NOSE to identify this scenario. Securities must be delivered out of DTC for participants wishing to take part in the specific event option.
Issuer does not offer the option. DTC supports (processes) the option.	N	Y	Option Features element in the core message will have code AVSO to identify this scenario. The option is not supported by the Issuer - only DTC participants can take part.

The following table summarizes the DTC and Issuer default Option scenarios:

Option Scenario	Issuer Supported Option Flag	DTC Supported Option Flag	Remarks
Issuer offers the option. DTC supports (processes) the option. Both DTC and Issuer announce it as the default option.	Y	Y	Note: Events with a single option are required to have a default option, even if a mandatory event, per ISO standards.
Issuer offers the option. DTC supports (processes) the option, but announces different options as the default (DTC DRIP).	Y	N	
DTC does not support Issuer's Default Option.	Y	N	
DTC has an additional option (that Issuer does not offer) that option is designated as default at DTC.	N	Y	

The primary creators of corporate action content are the issuer / agent, depository and the stock exchange. DTC's data model, and to some extent ISO, accommodates the different 'owners' of the information either explicitly or implicitly. While the "ownership" of specific data elements is mostly straightforward, there are some concepts that DTC will differentiate, as DTC data and Issuer data are not noted as such in the ISO model.

The following table provides a summary on data element "ownership":

Scenario	Details	Example
DTC Only Information	Information that is created by DTC in its capacity as the Depository for DTC eligible securities or for DTC specific services. The data element will be prefaced by "DTC."	<ul style="list-style-type: none"> DTC Last Day for Deposit DTC Chill Release Date for Deposit
Issuer Only Information	Information only supplied by the issuer. Does not have specific notation.	<ul style="list-style-type: none"> Record date Proration date
Stock Exchange Only Information	Information only supplied by the stock exchange. Does not have specific notation.	<ul style="list-style-type: none"> Ex-date
DTC and Issuer Data Elements	Similar information that both the issuer and DTC provide. Custodian data is usually prefaced by "DTC" and the issuer by "Declared" or "Actual."	<ul style="list-style-type: none"> Actual Expiration Date Declared Cash Rate DTC Instruction Expiration Date DTC Cash Rate

Message Structure

The DTC corporate actions data model is aligned with ISO. There are, however, differences in the representation. This section will explain the relationship between the two models using a corporate actions announcement as an example.

The DTC Corporate Action Model has several “levels”. The levels are associated with ISO Corporate Action Notifications either directly or based on a condition. The multiplicity (noted using UML notation as 0..1, 0..n in the Message Usage Guideline for the CANO) is displayed for levels and message building blocks, as well as for associations between the DTC levels and the ISO message building blocks or components.

Details on the “payload” (core and extension) of the ISO 20022 message will be explored in depth immediately below. In addition to the core and extension component of the message, there are two header components to be aware of:

- **Network Header** – different formats for the SWIFT and SMART networks
- **Business Application Header (BAH)** – Standard for all DTC ISO 20022 messages

The payload of the message is where you will find important business information related to the corporate action event. It consists of the core and the extension components. The core consists of a number of data “levels,” a hierarchy of logical groups that contain related information.

The main data levels are:

- **Event level:** data that applies to the entire corporate action, such as the event type, and mandatory/voluntary indicator; the level is mandatory and non-repetitive;
- **Option level:** data that applies to a single option only, such as the option number, option type, and whether the option is supported by DTC and/or the issuer. Note that in the ISO 20022 data model, even a mandatory event with a single payout is defined as having one option; and,
- **Payout level:** data for each payout such as the identity of the outturn security or the rate of the security or cash payout; there may be one or more payouts per option; payout levels are distinguished by a payout number (sequential order) and payout type.

These data levels are also built into the structure of the extension component. Where there are DTC data elements not included in the ISO message structure, the element is placed in the structured extension at the appropriate level. For repetitive levels such as option or payout, it is possible to identify to which instance of the data the extended element belongs.

All “Mandatory” and “Mandatory with Option” events require a “default option” to be present to indicate which option will be given to the holder in absence of an election.

True voluntary events (i.e. Tender Offer) include an option zero (0). Option zero is published as “999” in the ISO message. The “0” option either represents the option to abstain or to take no action. These options are generated to represent the opportunity for the security holder to perform no action with regard to this event and assist clients with internal processing. Events that are considered “mandatory” or “mandatory with options” do not include this 0 option.

Where possible, each option is named based upon ISO definitions. However, DTC has also included a provision for several non-compliant option types, such as “Foreign Currency Payments.” DTC defines those special option types in the extension schema. When such an option is offered, it is noted in the options outturn in the core message (SECU for reinvestment, CASH for currency payment) and the ExtendedOptionFeaturecode is provided in the extension component. The Message Usage Guideline, a message specification document, reflects these definitions in detail.

See the following table for examples of the ISO message representation of DTC specific option types. A complete list of all option types is available in the Message Usage Guidelines document.

Option Type	Option Description	ISO Option Type	(Extended) DTC OptionFeature
Cash and Securities	Holder will receive a combination of cash and securities.	CASE	
Cash	Holder will receive cash.	CASH	
Exercise	Holder elects to exercise the intermediate security or warrant.	EXER	
Subscribe	Holder elects to exercise their right to subscribe to additional securities based upon the existing position.	EXER	
Retain	Holder elects to keep/retain their existing security rather than receive a new security.	MPUT	
Convert	Holder elects to convert security into a new security, cash or a combination of cash and securities.	PRUN	
Securities	Holder will receive securities.	SECU	

Payout level carries similar principles and logic to CashMovementDetails or SecurityMovementDetails (repetitive components in the CorporateActionOptionDetails building block). However, there is a key difference – the DTC data model factors out rate types from the rate itself (consideration for flexibility). Payouts contain information fields such as “generic” rate or price that is qualified by the payout type. ISO movement sections generally have separate rate fields within one Cash / Security / MovementDetails component. To maintain the straightforward relationship every Payout is allocated Cash / Security / MovementDetails in the ISO message.

The following additional DTC levels (not including Event, Option, Payout explained above) are accommodated within the ISO 20022 message as follows:

DTC Level	Details	ISO Fields	Comment																				
Event Text	Contains additional information related to the event in text form, where there may be none, one or many occurrences of Event Text, distinguished by Text Type, and one Text Type per event.	Data from the event text level will populate ISO fields in AdditionalInformation message components.	This level is optional and repetitive.																				
Agent	<p>Information that applies to details of the agent related to the event, where there may be none, one or many agents, distinguished by Agent Type, and only one occurrence of an Agent Type per event.</p> <p>Agent details are factored into one level and qualified by the Agent Type element.</p>	<p>ISO message has separate message building blocks for each agent.</p> <p>Data elements from the Agent level will populate ISO fields in appropriate "agent" block based on the following rules:</p> <table border="1"> <thead> <tr> <th>Position</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>Event Agent</td> <td>Issuer Agent</td> </tr> <tr> <td>Event Agent (Bearer)</td> <td>Physical Securities Agent</td> </tr> <tr> <td>Drop Agent</td> <td>Drop Agent</td> </tr> <tr> <td>Information Agent</td> <td>Information Agent</td> </tr> <tr> <td>Solicitation Agent</td> <td>Solicitation Agent</td> </tr> <tr> <td>Remarketing Agent</td> <td>Reselling Agent</td> </tr> <tr> <td>Transfer Agent</td> <td>Paying Agent</td> </tr> <tr> <td>Drop Agent (Bearer)</td> <td>Extended</td> </tr> <tr> <td>Others</td> <td>Extended</td> </tr> </tbody> </table>	Position	Length	Event Agent	Issuer Agent	Event Agent (Bearer)	Physical Securities Agent	Drop Agent	Drop Agent	Information Agent	Information Agent	Solicitation Agent	Solicitation Agent	Remarketing Agent	Reselling Agent	Transfer Agent	Paying Agent	Drop Agent (Bearer)	Extended	Others	Extended	<p>This level is optional and repetitive.</p> <p>Non-ISO elements or Non-ISO agent types are extended.</p>
Position	Length																						
Event Agent	Issuer Agent																						
Event Agent (Bearer)	Physical Securities Agent																						
Drop Agent	Drop Agent																						
Information Agent	Information Agent																						
Solicitation Agent	Solicitation Agent																						
Remarketing Agent	Reselling Agent																						
Transfer Agent	Paying Agent																						
Drop Agent (Bearer)	Extended																						
Others	Extended																						
Related Events	Contains reference to the related events, where there may be none, one, or many Related Events per event.	Data elements from the Related Events level populate ISO fields in EventsLinkage message building block.	<p>This level is optional and repetitive.</p> <p>Non-ISO elements are extended.</p>																				
Lottery	Contains details about the lottery (e.g., total called quantity, type of the lottery, etc.) when applicable, there can be none or one Lottery record per event.	Data elements from the lottery level populate ISO fields in the CorporateActionDetails message building block.	<p>This level is optional and non-repetitive in the message. The DTC Browser will provide all lotteries. Message will contain details of the most recent one.</p> <p>Non-ISO elements are extended.</p>																				

DTC Level	Details	ISO Fields	Comment
Certificate	Contains details about the called certificates in corporate action events where the issuer chose to redeem part of the outstanding issue which may include specific certificate numbers.		This level is optional and repetitive. This level is extended.

Client Resources and Documentation

DTCC Website

The DTCC website (www.dtcc.com) is the primary repository for general information and documentation concerning DTC's processing of corporate actions. Clients can review the published documentation and use the website to stay up to date on new developments.

See: www.dtcc.com/catransformation.

DTCC Asset Services Learning Center

The DTCC Asset Services Learning Center hosts a variety of training materials including webcasts, user guides, videos, recordings of live demonstrations, job aids such as quick tips and FAQs.

The Learning Center can be accessed at <https://dtcclearning.com/products-and-services/asset-services.html>.

Documentation

To support system development needs for DTC clients, the following list of "Technical Documents and Specifications" can be found at <http://www.dtcc.com/settlement-and-asset-services/corporate-actions-processing/iso-20022-messaging-specifications>.

Please see the [Documentation Guide](#) section of this document beginning on page 38 for an explanation of how to use these resources.

- **Introduction to Corporate Actions ISO 20022 Messaging** (pdf): This document.
- **ISO 20022 Message Specifications for Announcements** (zip): Provides guidance to the message schemas: data element definitions, formats, DTC synonyms, and "extended" elements for announcement and cancellation messages.
- **ISO 20022 Message Specifications for Corporate Actions Entitlements and Allocations, Instructions and Proxy Meetings** (four separate zip files): Provide guidance to the message schemas: data element definitions, formats, DTC synonyms, and "extended" elements for the remainder of the lifecycle covering elections, entitlements and proxy meetings.

- **User Guide: ISO 20022 Messaging for Distributions Entitlements and Allocations** (pdf): Provides an overview and detailed explanation of the ISO 20022 message flows used in the distributions lifecycle with a focus on entitlements and allocations.
- **User Guide: ISO 20022 Messaging for Distributions** Instructions (pdf): Provides an overview and detailed explanation of the ISO 20022 message flows used in the distributions lifecycle with a focus on accepting instructions from clients.
- **User Guide: ISO 20022 Messaging for Redemptions** (pdf): Provides an overview and detailed explanation of the ISO 20022 message flows used in the redemptions lifecycle with a focus on entitlements and allocations.
- **User Guide: ISO 20022 Messaging for Reorganizations** (pdf): Provides an overview and detailed explanation of the ISO 20022 message flows used in the reorganizations lifecycle with a focus on entitlements and allocations.

Documents providing detailed mappings of event types to function/activity codes can be found at <http://www.dtcc.com/settlement-and-asset-services/corporate-actions-processing/scenarios>.

- **Corporate Action Scenarios Documents** (zip): Identifies event scenarios with specific one to one mapping relationships between DTC's data model and its legacy systems.
- **DTCC Corporate Action Data Dictionaries** (xlsx): ISO 20022 event types and data elements with mapping from DTC's legacy function code based data model.

The documentation is revised as necessary to reflect appropriate changes identified from the annual review processes.

ISO 20022 Message Delivery and Network Protocols

Messages are transported to clients using one of two networks, with the following protocols:

- SMART (DTCC Proprietary Network)
 - MQ (Real time single threaded messages)
 - NDM (File based protocol which runs in multiple batches throughout the day)
 - FTP (File based protocol which runs in multiple batches throughout the day)
- SWIFT
 - InterAct Store and Forward (Real time single threaded messages)

SMART

Customers considering using the SMART network should contact their DTC Relationship Manager to determine if they have a SMART circuit currently in place. If so, DTC will perform bandwidth utilization studies on the current lines to determine if an upgrade to a larger circuit is necessary. There is no cost for transmitting messages via SMART, but customers do have to pay for the circuit itself. Pricing – which is a direct pass-through from the telephone company servicing the line – is fixed based on circuit size.

SWIFT

Customers considering the SWIFT network should contact their SWIFT Relationship Manager for provisioning and pricing details.

These communication methods allow DTC clients to benefit from:

- **Increased availability and timeliness for corporate actions data:** Customers benefit from the enhanced processing engine that allows for CA messages to be updated and published throughout the day. Updates are applied to existing events at intervals, for dissemination.
- **Subscriptions:** Subscription options exist for three main event groups: Distributions, Reorganizations and Redemptions. Within each event group, clients are able to choose to receive messages intra-day or end of day using various message protocols, depending on the criticality of the event. Additional information can be found immediately below.

Subscription Options

DTC provides a subscription model to allow clients to choose how they receive their messages and control the flow of data. Clients can set subscription options to select the receipt of data from DTC in a variety of methods, including timing and content. For example, clients can choose how frequently data is received based on their needs. In the event a client opts to receive data less frequently throughout the day, unread event messages remain queued for each client until the next time the client extracts the data. In addition to the frequent availability of new messages, subscription options allow clients to configure the data in a variety of ways. The ability to customize the receipt of data allows all participants to optimize the service to suit their specific business needs. Subscriptions allow clients to choose:

- Event groups such as Distributions, Redemptions and Reorganizations.
- The timing and frequency of announcements.
- To receive events based on “final” or “non-final” (Incomplete) workflow statuses.

Clients can receive messages either in real time via MQ or in file format via NDM or FTP. Files are available 16 times a day. Clients can choose to consume one, many, or all of the time slices.

To view a user guide about subscription options, log in to the Learning Center at dtcclearing.com, click **Documentation** on the menu bar, and search for “ISO 20022 Messaging Subscription Options for Corporate Actions.” Then, click the **Documents** tab.

This guide contains comprehensive details of all available subscription options.

Customer Testing

DTC provides test support to clients who are working to incorporate ISO 20022 messages into their internal systems. Please forward all questions to the corporate actions transformation mailbox at

CATransformation@dtcc.com.

NOTE:

ISO 20022 sample messages are available upon request.

DOCUMENTATION GUIDE

This section introduces a range of supporting documents that have been prepared by DTC and explains how they can be used to build an understanding of the data model.

The main set of documentation is comprised of the following and can be found at www.dtcc.com/catransformation:

- Corporate Action Data Dictionary spreadsheets,
- Corporate Action Scenario documents for announcements,
- Message Usage Guideline (MUG), and
- Event Level Message templates.

The **Corporate Action Data Dictionary** spreadsheet provides an overview of each event type in the ISO 20022 model and a comparison with legacy DTC event types (function codes). It also provides a list of data elements, their level, and a cross reference from existing DTC elements to the ISO 20022 element. An indication is also provided as to the level of compliance with global and U.S. industry norms.

DTC has created **Corporate Action Event Scenario** documents for all of the supported event types. The information provided demonstrates the relationship between DTC legacy systems and the event-based ISO data model. ISO values that are used in the messages are included for the event type, option type and payout type details which provide specific mapping guidelines.

The **Message Usage Guideline** is a document allowed by the ISO 20022 standard. It describes how one or more messages are to be used in the context of a specific business context (i.e., community of users). DTC has prepared a MUG detailing how each ISO 20022 message and the supplementary data structures are to be used.

Starting with the Message Usage Guideline for announcements, the **Event Level Message Templates** display at the event level for both the core and extension data only those data elements that apply to a particular event type, for example, partial call. The templates are available at <https://mystandards.swift.com>.

Corporate Action Data Dictionaries

DTC provides documentation describing the data model as it relates to announcements, the corporate actions lifecycle, and instructions. All three data dictionaries are presented in Excel spreadsheet form describing the data model, its relation to the DTC legacy model and ISO.

Each spreadsheet contains a number of tabs. It is recommended that users delve into each one to become familiar with the information that is provided and its location. Note that updates, additions, and deletes to any item in the dictionary are noted in the dictionary itself.

The Announcements Data Dictionary includes the following tabs. It is recommended that users start with the Legend tab as it provides a description of the information provided in the spreadsheet's remaining tabs, which offer specific data element detail.

- Legend
- Events
- Event Descriptions
- Elements
- Options
- Payouts
- Security Rates
- Cash Rates
- Event Statuses
- Asset Types
- NRA Tax Codes

Data is arranged in the spreadsheet in groups.

The DTC ISO data model:

- **Event Name:** the event name from the ISO model;
- **Sub Event Name:** the sub event name from the ISO model;
- **Mandatory / Mandatory with Options / Voluntary Indicator – Issuer:** the nature of the event at the issuer
- **Mandatory / Mandatory with Options / Voluntary Indicator – DTC:** the nature of the event at DTC.

DTC Legacy Data Model:

- **DTCC Event Group:** the event group (Distribution, Redemption, Reorganization);
- **Function Code / Activity Code:** the DTCC function code or activity code;
- **Function Code Name / Activity Code Name:** the DTCC function code name or activity code name.

ISO model:

- **Event Code:** the ISO event code;
- **Event Type Name:** where applicable, additional standard qualifiers that support the event identification;
- **Additional Indicator on the message:** an additional indicator in the extension structure where necessary to distinguish the event type;
- **Event Processing Type:** the ISO event processing type (general, distribution, reorganization); note that this is different from the DTC classification: an ISO reorganization incorporates both DTC redemption and DTC reorganization;
- **Extended (DTC) Event Type:** the DTC event type, carried in the extension structure for additional granularity;
- **Extended (DTC) Sub Event Type:** the DTC sub event type, carried in the extension structure for additional granularity;

- **Extended Event Group:** the DTC event group, carried in the extension structure for additional information;
- **SMPG EIG Compliance:** an indication of how well the new event model complies with the Event Interpretation Grid formulated by the Securities Market Practice Group (SMPG). The EIG has both a global flavor and a national flavor if that is different from the global.

ISO 20022 message considerations:

- **Additional Details to ISO Association Rule:** rules or notes to aid in mapping the data element from legacy to ISO;
- **CANO CSD:** where the element can be found in the CANO message CSD product mapping;
- **CANO CSD EXTENSION:** where the element can be found in the CANO message CSD product mapping extension.

The Distributions Elections Dictionary includes tabs for the five message types associated with distributions elections – CAIN, CAIS, CAIC and CAST, with rules and information about their usage. For additional detail, see the User Guide: ISO 20022 Messaging for Instructions, DTCC Corporate Actions.

The Entitlements and Allocations Data Dictionary includes tabs for each ISO lifecycle message type, an explanation of what it is, which event group (Distributions, Redemptions, Reorganizations) it is applicable to, and the name of the legacy CCF file this information can be traced back to. For additional detail, see the User Guide: ISO 20022 Messaging for Entitlements and Allocations, DTCC Corporate Actions.

Corporate Action Event Scenarios

Within the Corporate Action Event Scenario documents, information for each event type scenario is presented in a common format. The following section explains what information will be provided per column heading. A separate comment section following the detailed scenarios may exist to further explain specific details that are not comprehensive within the column headings or values therein. The Corporate Action Event Scenario documents can be found at <http://www.dtcc.com/settlement-and-asset-services/corporate-actions-processing/scenarios>.

Event Type

Scenario#4	Cash Dividend Distribution Eligible for DTC DRIP program						
DTCC Event Type	ISO Event Code	Extended Event Type Code	DTCC Sub Event Type	Extended Sub Event Type Code	Mandatory / Voluntary		
					Issuer	DTC	ISO
Cash Dividend	DVCA	-	DRIP (DTC Only)	-	MAND	CHOS	CHOS

- **Scenario:** Identifies the event and any additional explanation to assist in differentiating this scenario from another.
- **Event Type:** identifies the event name as defined within the published “Corporate Action Events Dictionary”. The ISO codes that will be used are presented. “OTHR” will be used where DTC presents an event type that is not within the ISO standard.
- **Sub Event Type:** identifies the sub event type’s name as defined within the published “Corporate Action Events Dictionary”. The sub event type is a further classification of the event which provides a more granular definition of corporate action. This information is in the event level.

Nature of the Event and Option Type

Mandatory / Voluntary			DTCC Option Type	DTCC Option Description
Issuer	DTC	ISO		
MAND	CHOS	CHOS	Cash	Holder will receive cash
			DDRP	DTCC Dividend Reinvestment Services

- **Mandatory / Mandatory with Options / Voluntary Indicator - Issuer/DTC:** indicates the nature of the event. A value of “Mandatory” indicates that holders do not have any options or elections to submit. A value of “Voluntary” indicates that the event requires client instruction in order to participate in the event. A value of “Mandatory with Options” indicates that though the event is mandatory, clients have been afforded options to choose from. Where the value is “Mandatory with Options,” a default option will be selected which will be the resulting option for those holders that do not submit instructions.
 - **Issuer:** This value represents how the event is announced in the market and how it should be treated following ISO standards.
 - **DTC:** This value represents how the event is being handled by DTC as the custodian for the corporate action.

In some cases, DTC may differ from how the issuer represents an event due to the number of options supported and/or additional services provided.

- **Option Type:** identifies the option(s) expected to be used for a specific event/scenario. The ISO codes that will be used are presented.
- **Description:** Provides a description of the option to provide clarity in addition to the ISO code.

Default Option

Option Declared (Supported)		Default Option Flag	
Issuer	DTC	Issuer	DTC
Y	Y	Y	Y
N	Y	N	N

- **Option Declared - Issuer/DTC:** Identifies which entity will support the specific option.
 - **Issuer:** This value represents whether or not the option is announced by the Issuer.
 - **DTC:** This value represents whether or not the option is being processed by DTC as the custodian.
- **Default Option Flag - Issuer/DTC:** Identifies which option will be the default in the scenario. If the security holder does not take any action on the event, the default option will be the resultant disbursement for the holder.
 - **Issuer:** This value represents whether or not the option is the default option of the event as announced by the Issuer.
 - **DTC:** This value represents whether or not the option is the default action for DTC processing.

All “Mandatory” and “Mandatory with Option” events will require a “default option” to be present to indicate which option will be given to the holder in absence of an election. Though there are cases when DTC’s default option is different, in most cases, DTC will provide the Issuer’s default as its own.

Payout Details and DTC Legacy Values

DTCC Payout Type	Principal ISO Movement Rate Tag	DTC Function / Activity Code	DTC Sequence #
Dividend	Gross Dividend Rate / INCO Net Dividend Rate	08	00X
Security	Additional Quantity For Existing Securities	30	008

- **Payout Type:** The payout type used to further define the entitlement received by the security holder.
- **DTC Function/Activity Code:** <Legacy Data Model> Provides the specific mapping to existing DTC legacy files. In some cases the DTC mapping is not at the event level but rather at the option and even payout levels.
- **DTC Sequence #:** <Legacy Data Model> Provides further granularity to assist mapping where options and/or payouts are the same.

Message Usage Guideline (MUG)

The transformation project implements a specific subset of the ISO 20022 schemas. DTCC has created additional restrictions to the ISO subset schema (which is already a “subset” schema since it reflects the restrictions imposed by the ISO 15022 coexistence rules).

DTC has prepared a Message Usage Guideline to provide details for its participants and clients on the usage of the ISO 20022 message schema and supplementary data schemas.

The message guidelines and schemas provide details of the ISO 20022 message implementation by DTC. They should be read in conjunction with the Message Definition Report for ISO 20022 MX messages Variant II (15022 compatible subset) available from www.swift.com.

The Message Usage Guideline can be used to cross reference ISO 20022 components with their DTC name. All DTC element names, definitions and usage rules listed in the dictionary are noted with its ISO element in this document.

Each MUG document defines the DTC implementation of one message schema. The document is split into three sections:

- Structure – providing high level outline of the components;

⊘ Removed - ◇ Ignored - ▲ Details below - M Mandatory - R[x..x] Repeatability[details]						
Index	Message Item	<XML Tag>	Or	Mult.	Usage Guidelines	Page
	<i>CorporateActionNotification002V05</i>	<CorpActnNtfctn>		[1..1]	▲	18
	Pagination	<Pgntn>		[0..1]	⊘	
	NotificationGeneralInformation	<NtfctnGnlInf>		[1..1]		18
	NotificationType	<NtfctnTp>		[1..1]	▲	94
	ProcessingStatus	<PrctgSts>		[1..1]	▲	95
	EligibleBalanceIndicator	<ElgblBallnd>		[0..1]	⊘	
	PreviousNotificationIdentification	<PrvsNtfctnId>		[0..1]		18
	Identification	<Id>		[1..1]		156
	LinkageType	<LkgTp>		[0..1]	⊘	
	InstructionIdentification	<InstrId>		[0..1]	⊘	
	OtherDocumentIdentification	<OthrDocId>		[0..*]		19
	Identification	<Id>		[1..1]		157
	DocumentNumber	<DocNb>		[0..1]	⊘	
	LinkageType	<LkgTp>		[0..1]	⊘	
	EventsLinkage	<EvtsLkg>		[0..*]		19
	EventIdentification	<EvtId>		[1..1]		77
	LinkageType	<LkgTp>		[0..1]	▲	78
	CorporateActionGeneralInformation	<CorpActnGnlInf>		[1..1]		19
	CorporateActionEventIdentification	<CorpActnEvtId>		[1..1]		81
	OfficialCorporateActionEventIdentification	<OffclCorpActnEvtId>		[0..1]		82
	ClassActionNumber	<ClsActnNb>		[0..1]	⊘	

- Guideline – providing element attributes, DTCC Name, Definition, Usage Rules;

6.22.4 EventType

XML Tag: EvtTp

Presence: [1..1]

Definition: Type of corporate action event

The EvtTp block contains the following elements (see datatype “CorporateActionEventType21Choice__1”

⊘ Removed - ◇ Ignored - ▲ Details below - M Mandatory - R[x..x] Repeatability[details]						
Index	Message Item	<XML Tag>	Or	Mult.	Usage Guidelines	Page
	Code	<Cd>	{Or	[1..1]		80
	Proprietary	<Prtry>	Or}	[1..1]	⊘	

Usage Guideline details

- on seev.031.002.05/CorporateActionGeneralInformation/EventType**
 - DTCC Event Type Rule:

DTCC event type scenarios are defined more granular than ISO in some cases, so it is possible for multiple events to use same ISO Event Type code. If this occurs other tags within the message will help to uniquely identify the event scenario, or Event Type codes can be found in the extension. Please refer to the DTCC Corporate Action Announcement Dictionary for complete DTCC Event Types matrix.
- on seev.031.002.05/CorporateActionGeneralInformation/EventType**
 - Annotation: true
 - Annotation: Activity Type (derived from)
- on seev.031.002.05/CorporateActionGeneralInformation/EventType**

Synonym (DTCC): Event Type
- on seev.031.002.05/CorporateActionGeneralInformation/EventType**

Comment: Type of corporate action event. (e.g., Exchange Offer, Final Paydown).

- Components – technical definition of XML message components.

6.21.1 Code

XML Tag: Cd

Presence: [1...1]

Definition: Event types expressed as a code

Datatype: "CorporateActionEventType12Code"

7.11 CorporateActionEventType12Code		
<i>Definition:</i> Specifies the type of a corporate action event.		
<i>Type:</i> Code		
Code	Name	Definition
ACCU	Accumulation	<p>Funds related event in which the income (for example accumulation units) that accrues during an accounting period is retained within the fund instead of being paid away to investors. The retained income is nonetheless deemed to have been distributed to investors for tax purposes.</p> <hr/> <p>Usage Guideline restrictions for this code</p> <ul style="list-style-type: none"> • This code(seev.031.002.05/CorporateActionGeneralInformation/EventType/Code/Accumulation) is removed.
ACTV	ActiveTradingStatus	<p>Trading in security has commenced or security has been re-activated after a suspension in trading.</p> <hr/> <p>Usage Guideline restrictions for this code</p> <ul style="list-style-type: none"> • This code(seev.031.002.05/CorporateActionGeneralInforma-

ISO 20022 Message Specifications for Announcements

For announcements there is a set of documents consisting of:

- A Message Usage Guideline (MUG) document listing the subset of the elements within the schema implemented by DTC.
Example: Corporate Action Notification seev.031.002.xx.pdf
- A Message Supplementary Usage Guideline (MUG) document listing the subset of the elements within the extension schema implemented by DTC.
Example: Corporate Action Notification Extension supl.001.001.xx.pdf
- Message Usage Guideline for the business application header
Example: Business Application Header head.001.001.01 Outbound.pdf
- Extension implementation schema(s) (the .xsd file(s)).
- Delta Comparison document which shows the additions from the prior year's usage guideline by comparing the previous year's standard to the current year. These are only available at <https://www2.swift.com/mystandards/>.
- Unrestricted message schemas. These are only available at <https://www2.swift.com/mystandards/>.
- DTCC Event Templates. These are only available at <https://www2.swift.com/mystandards/>.

These corporate action announcement messages cover the following corporate action activities:

- Corporate action event announcements (for preliminary, updated, and confirmed events).
- Corporate action cancellation (for cancelled or deleted events)

ISO 20022 Message Specifications for Lifecycle Processing and Elections

The documents for the remainder of the lifecycle consist of:

- A Message Usage Guideline (MUG) document listing the subset of the elements within the schema implemented by DTC.
Example: Corporate Action Notification seev.031.002.xx.pdf
- A Message Supplementary Usage Guideline (MUG) document listing the subset of the elements within the extension schema implemented by DTC.
Example: Corporate Action Notification Extension supl.001.001.xx.pdf
- A Message Usage Guideline for the business application header.
Example: Business Application Header head.001.001.01 Outbound.pdf
- Extension implementation schema(s) (the .xsd file(s)).
- Delta Comparison document which shows the additions from the prior year's usage guideline by comparing the previous year's standard to the current year. These are only available at <https://www2.swift.com/mystandards/>.
- Unrestricted message schemas. These are only available at <https://www2.swift.com/mystandards/>.

The following table provides a summary cross reference between the ISO 20022 lifecycle messages and the activities they provide.

DTCC ISO 20022 Message Inventory					
MX Identifier	ISO 20022 Message Names	Extension (SD)	Short Name	Equivalent ISO 15022	Equivalent DTCC Processes
seev.031.002.xx	CA Notification	supl.001.001.xx	CANO	MT 564	Announcements
seev.039.002.xx	CA Cancellation Advice	supl.006.001.xx	CACN	MT 564	Announcement Cancellations
seev.031.002.xx	CA Notification with Eligible Balance	supl.007.001.xx	CANO-E	MT 564	Record Date Entitlements
seev.035.002.xx	CA Movement Preliminary Advice	supl.009.001.xx	CAPA	MT 564	Projected Payments
seev.044.002.xx	CA Movement Preliminary Advice Cancellation Advice	n/a	CAPC	MT 564	NEW
seev.036.002.xx	CA Movement Confirmation	supl.011.001.xx	CACO	MT 566	Allocations / Payments
seev.037.002.xx	CA Movement Reversal Advice	supl.025.001.xx	CARE	MT 566	NEW
seev.032.002.xx	CA Event Processing Status Advice	supl.010.001.xx	CAPS	MT 567	Unallocated Positions
seev.033.002.xx	CA Instruction	supl.008.001.xx	CAIN	MT 565	Instructions / Elections
seev.034.002.xx	CA Instruction Status Advice	n/a	CAIS	MT 567	Instruction Reply
seev.040.002.xx	CA Instruction Cancellation Request	n/a	CAIC	MT 565	Instruction Withdrawal
seev.041.002.xx	CA Instruction Cancellation Request Status Advice	n/a	CACS	MT 567	Withdrawal Reply
seev.042.002.xx	Corporate Actions Instruction Statement Report	n/a	CAST	n/a	NEW
seev.001.001.xx	Meeting Notification	n/a	MNOT	MT 564*	Announcements (AC 80)
seev.002.001.xx	Meeting Cancellation	n/a	MCAN	MT 564*	Announcements (AC 80) Cancellations

**Limited. Not backwards compatible*

How to Read an MX Identifier

The MX Identifier identifies the business area, message ID, and version of an ISO Message.

As an example, for the identifier **seev.036.002.06**:

- The first four alphabetic characters (“seev”) identify the business area. In this case, it is “Securities Events.” You can see the full list of business areas on the ISO 20022 Web site at http://www.iso20022.org/documents/general/ISO20022_BusinessAreas.pdf
- The next three characters (036) are the message identifier. The message in this example is a CACO message.
- The next three characters (002) are the “variant” identifier. Since “001” is always the main ISO message, “002” would be the second variant (and the one that is compatible with ISO 15022). DTC is using the second variant in order to comply with the industry’s requirement that the ISO 20022 messages we generate be backward compatible with ISO 15022.
- The last two characters (06) are the “version.” In this example, this is the sixth version of this message, representing SR 2015. Please note that the final two digits have the potential to change with each release. **For your coding purposes, be sure to consult the latest documentation for the most current version number.**

ONBOARDING: HOW TO GET STARTED

Contact Information

Participants and interested firms should contact their Relationship Manager to inquire about adopting ISO 20022, or email CATransformation@dtcc.com.

The process of choosing and implementing a network to receive ISO 20022 messages can take several months and should be one of the client's first considerations.

ISO 20022 Mapping

While considering a network and a protocol to receive ISO 20022 messages, participants and interested firms should use this guide and the documentation found at www.dtcc.com/catransformation to begin the data mapping process. Depending on the level of ISO 20022 knowledge, mapping the messages into internal systems can take several months. By reviewing this guide and the detailed mapping documentation, clients can familiarize themselves with the data model and the ISO 20022 standard.

Client Support

DTC's CA Transformation Team provides support throughout the mapping and on-boarding process and clients can work with their respective relationship and product managers to ensure a smooth adoption to this standard.

The process of mapping, choosing a network and on-boarding can be done in parallel so as to reduce the time needed to adopt ISO 20022 messaging.

APPENDIX A: DTCC IMPLEMENTATION OF ISO 20022

This Appendix contains additional detail that may assist Participants and clients in implementing the ISO 20022 messages. It covers the following aspects:

- DTC Naming Conventions,
- DTC Supplementary Data (Extensions), and
- Notation.

DTC Naming Conventions

DTC native data element names (located in the ISO message as DTCC Name, and in the extension component as component name) differ from ISO names as standard element names that usually are defined broader for more general interpretation. Object and Actor names like “Issuer,” “Offeror,” “Event,” and “Option” are capitalized. Element names prefixed with “DTCC,” “DTC” or “Declared” or suffixed with “Indicator” or “Flag” have special meanings:

- **Prefixed with “DTC”**: Specific to DTC (the depository core services); is relevant to the core DTC system and its Participants. In most cases denotes difference between “DTC field” and “Issuer field” (noted as “declared”), e.g. Declared Cash Rate (cash rate as issuer has declared) and DTC Cash Rate (DTC cash rate that DTC will distribute, which can be different from the Issuer declared rate on the same event).
- **Prefixed with “Declared”**: Specific naming to denote the difference between “DTC” and “Issuer” fields (noted as “declared”). Please refer to the example in paragraph above.
- **Suffixed with “Flag”**: Used when the permissible values for the element are “Yes” or “No”. For an example: Withdrawal Privilege Flag (ISO WithdrawalAllowedIndicator element) can only have “Yes” or “No” value.
- **Suffixed with “Indicator”**: Used when permissible values for the element are a restricted set. For an example: “Recycle Cutoff Indicator” (defined in extension message as RecycleCutoffIndicator) can only have three possible values (“Anticipated Early Cutoff,” “Early,” and “Late”).

Supplementary Data (Extensions)

As noted on page 8 in the section on ISO 20022, the DTC implementation of ISO 20022 makes use of an ISO 20022 concept of supplementary data, also called “extensions.”

Certain DTC corporate actions elements are not covered by the standard ISO messages. These elements have been defined as part of the project, and are implemented using the supplementary data components. The data fields within the supplementary data have been modeled using the ISO 20022 principles and will reside in the ISO 20022 data dictionary.

DTC extension elements are grouped into blocks of related data, based on the intended destination of that group of elements.

Physically, the extension data is found towards the end of the message with notations to indicate to which “core” data the extension data is related. The extension block uses a PlaceAndName element which is populated with the destination XPath. The extended elements are defined as optional in the model, meaning they will be used (populated with values) as necessary.

For example: CorporateActionRateAndAmountDetails extension message component is extending three elements:

- DeferredInterestRate
- InterestShortFall Rate
- RealizedLossRate

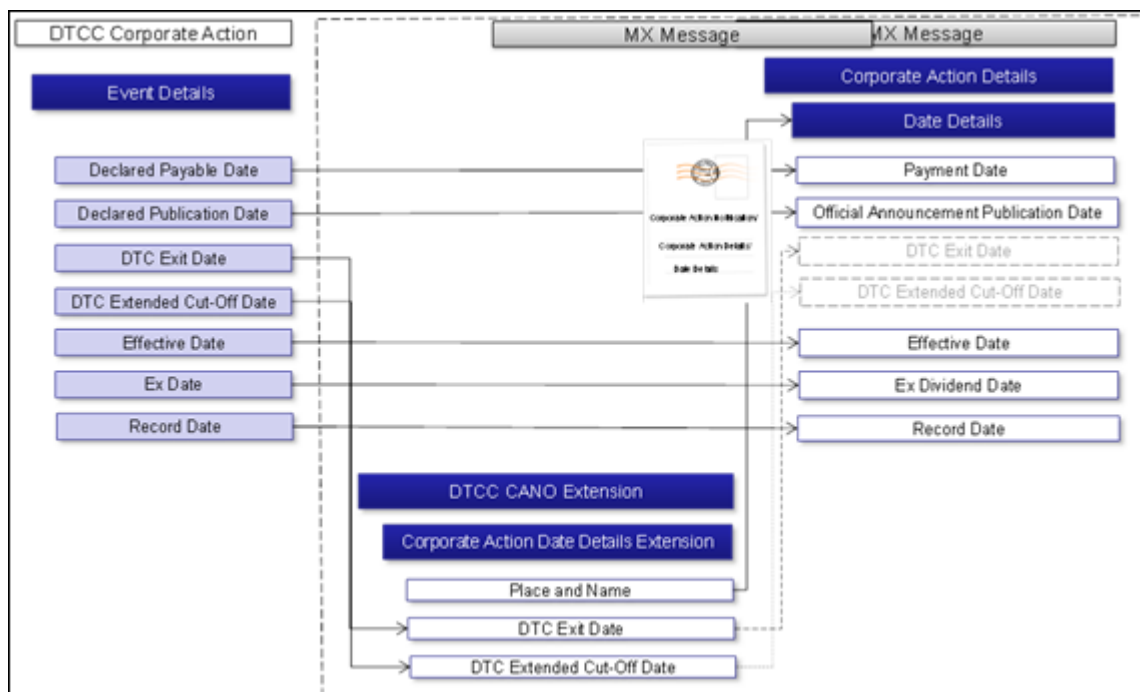


Message Element Place and Name is populated with value: CorpActnNtfctn\ CorpActnDtls\ RateAndAmtDtls.

Other message elements are populated with values if they are available, but at least one to-be-extended value must be available to use as extension message component.

When extending to repeatable ISO components, the XPath notation with the array order [n] must be used, e.g. CorpActnNtfctn\ CorpActnOptnDtls[1]\ SciesMvmntDtls[2].

The diagram below shows how the extension component is embedded using the ExtensionEnvelope.



Notation

The following labels are used to identify the attributes displayed in the specifications:

- **Multiplicity:** Standard UML notation signifying correlation of the element to the instance of a corporate action.
 - **0...1** – element occurs zero or one times.
 - **1...1** – element occurs one time.
 - **1...*** – element occurs one or many times.
 - **0...*** – element occurs zero or many times.
- **XML Tag:** Standard ISO XML tag.
- **Type:** Standard ISO data type (ISO data types can be complex and consist of another component).
- **Length:** Length of the field (when applicable).
- **ISO Name:** Standard conventional ISO element name.
- **ISO Definition:** Standard ISO Definition of the item.
- **DTCC Name:** DTCC used name for the item.
- **DTCC Definition:** DTCC definition for the item.
- **DTCC Usage Rule:** Rule defining how to use the item when reading the message.
- **DTCC Implementation Rule:** Rule defining how to create and to write the message.

FOR MORE INFORMATION

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www.dtccllearning.com