# FIX TRADING COMMUNITY
## France Trading Conference 2023

– Orchestra Update –

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# Agenda

- Orchestra Technical Standard
  - Objectives
  - Orchestra in a nutshell
- Rules of Engagement with Orchestra
  - Application Level
- Data transformation with Orchestra
  - Use cases
  - Approach

# Orchestra Update

## Orchestra Technical Standard

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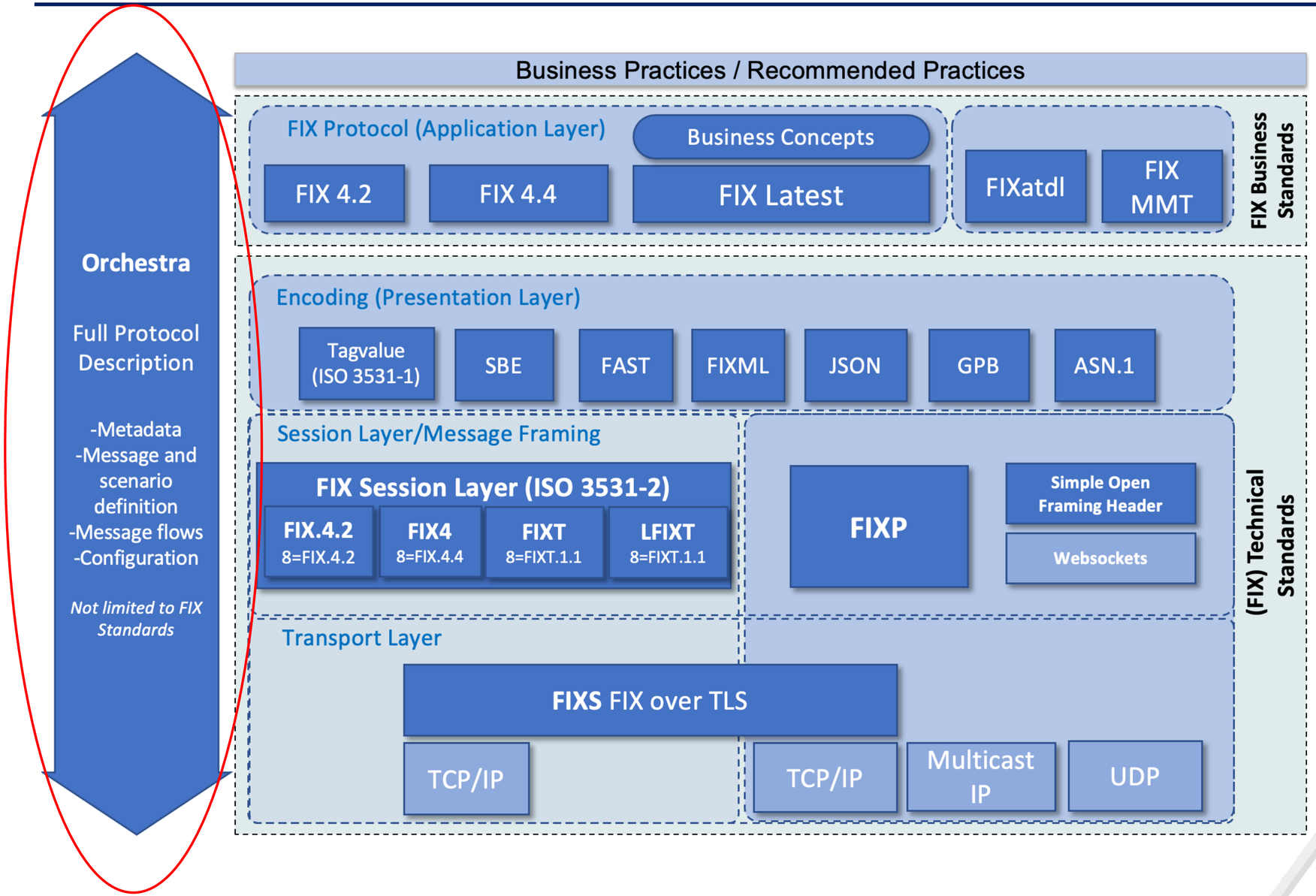
# FIX Standards

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# Objectives for Orchestra

- Machine-readable standard for meta-data describing the content and behavior of an electronic messaging interface.
- Protocol agnostic to be applicable to FIX and non-FIX interfaces.
  - FIX Protocol (across all versions and flavors, including user-defined elements)
  - Regulatory protocols (e.g. US: SEC-CAT, Europe: ESMA/FCA, Asia: SFC-DS-OL)
  - Industry standard protocols (e.g. ISO 20022, FpML)
  - Proprietary protocols (trading venues, clearinghouses, buy/sell-side, vendors)
- Encoding agnostic to separate the business semantics from the wire format (standard/proprietary, ASCII/binary, with/without meta-data).
- Metadata for technical connectivity (counterparties, connections, sessions, versions, encodings, security,...)

# Orchestra in a nutshell (application level)

- Basic features
  - Messages, groups, components, fields, code sets, codes, generic datatypes.
  - Nesting of groups/components inside messages, groups, components.
  - Simple presence rules (mandatory, optional, forbidden) for elements.
  - Unique identification and versioning (a.k.a. pedigree) of all elements.

- Advanced features
  - Conditional rules defined with expressions (e.g. Score DSL).
  - Scenarios for most elements to distinguish use cases.
  - Workflows to support request/response models or complex negotiations.
  - Actors and state machines to define transitions.

# Orchestra in a nutshell (connection level)

- Basic features
  - An interface is a collection of services, protocols, sessions, and the transport exposed by a counterparty.
  - A service is an offering of an application (e.g. order entry) and requires the identification of an Orchestra XML file describing the messages etc.
  - A protocol relates to a specific layer of the technical stack of the interface, e.g. to the encoding or to the session protocol supported by the interface.
  - A session describes the connection with a counterparty (e.g. IP addresses).
  - A transport describes the lowest layer of the interface (e.g. TCP, UDP multicast).
- Advanced features
  - FIXatdl can be supported as the protocol used for the user interface and requires the identification of an FIXatdl XML file describing the GUI.
  - A session may have an effective time (start/end time) to support configuration prior to use.
  - A session definition may contain security keys (e.g. certificates, private keys) to be used when exchanging messages.

# Orchestra Update

## Rules of Engagement with Orchestra

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# Rules of Engagement (application level)

- Task
  - Design a FIX Latest compliant interface with an order entry message and a response confirming a) the successful addition to the order book and b) the partial or full execution of the order.
  - The order needs to support ticker symbols and ISINs for the security.
  - Order attributes are type (market or limit), side, price, quantity, target venue and an optional custom field “MyUDF” for additional information.
- Approach
  - Use spreadsheet to design messages “top-down”.
  - Use Playlist to design messages “bottom-up”.
    1. Define code sets (SecurityIDSource(22), OrdType(40), Side(54), ExecType(150), OrdStatus(39), MsgType(34), BeginString(8))
    2. Define components (Instrument, OrdQtyData, ExecType, OrdStatus)
    3. Define messages (NewOrderSingle(35=D), ExecutionReport(35=8))
  - Use Orchestra Server to add custom field “MyUDF” and create specification document
  - Export Rules of Engagement as Orchestra XML file and PDF document

# Step 1: Define messages in spreadsheet

| Message | Component | Field | Value(s) |
|---|---|---|---|
| **NewOrderSingle(35=D)** | | BeginString(8) | FIXT.1.1 |
| | | ClOrdID(11) | |
| | Instrument | Symbol(55) | |
| | Instrument | SecurityID(48) | |
| | Instrument | SecurityIDSource(22) | 4=ISIN |
| | | OrdType(40) | 1=Market<br>2=Limit |
| | | Price(44) | |
| | OrderQtyData | OrderQty(38) | |
| | | Side(54) | 1=Buy<br>2=Sell |
| | | ExDestination(100) | |
| | | MyUDF(20000) | |

| Message | Component | Field | Value(s) |
|---|---|---|---|
| **ExecutionReport(35=8)** | | BeginString(8) | FIXT.1.1 |
| | | ClOrdID(11) | |
| | | OrderID(37) | |
| | Instrument | Symbol(55) | |
| | Instrument | SecurityID(48) | |
| | Instrument | SecurityIDSource(22) | 4=ISIN |
| | | OrdType(40) | 1=Market<br>2=Limit |
| | | Price(44) | |
| | OrderQtyData | OrderQty(38) | |
| | | Side(54) | 1=Buy<br>2=Sell |
| | | ExDestination(100) | |
| | | ExecType(150) | 0=New<br>F=Trade |
| | | OrdStatus(39) | 0=New<br>1=Partially Filled<br>2=Filled |
| | | LeavesQty(151) | |
| | | CumQty(14) | |
| | | LastQty(32) | |
| | | LastPx(31) | |
| | | MyUDF(20000) | |

# Step 2: Define code sets in Playlist

- BeginStringCodeSet - Type String
  - [ ] FIX.4.2=FIX42
  - [ ] FIX.4.4=FIX44
  - [x] FIXT.1.1=FIXT11
- MsgTypeCodeSet - Type String
  - [ ] 0=Heartbeat
  - [ ] 1=TestRequest
  - [ ] 2=ResendRequest
  - [ ] 3=Reject
  - [ ] 4=SequenceReset
  - [ ] 5=Logout
  - [ ] 6=IOI
  - [ ] 7=Advertisement
  - [x] 8=ExecutionReport
  - [ ] 9=OrderCancelReject
  - ...
  - [x] D=NewOrderSingle
  - ...
- SideCodeSet - Type char
  - [x] 1=Buy
  - [x] 2=Sell
  - [ ] 3=BuyMinus
  - [ ] 4=SellPlus
  - [ ] 5=SellShort
  - [ ] 6=SellShortExempt
  - [ ] 7=Undisclosed
  - [ ] 8=Cross
  - [ ] 9=CrossShort
  - [ ] A=CrossShortExempt
  - [ ] B=AsDefined
  - [ ] C=Opposite
  - [ ] D=Subscribe
  - [ ] E=Redeem
  - [ ] F=Lend
  - [ ] G=Borrow
  - [ ] H=SellUndisclosed
- OrdTypeCodeSet - Type char
  - [x] 1=Market
  - [x] 2=Limit
  - [ ] 3=Stop
  - [ ] 4=StopLimit
  - [ ] 5=MarketOnClose
  - [ ] 6=WithOrWithout
  - [ ] 7=LimitOrBetter
  - [ ] 8=LimitWithOrWithout
  - [ ] 9=OnBasis
  - [ ] A=OnClose
  - [ ] B=LimitOnClose
  - [ ] C=ForexMarket
  - [ ] D=PreviouslyQuoted
  - [ ] E=PreviouslyIndicated
  - [ ] F=ForexLimit
  - [ ] G=ForexSwap
  - [ ] H=ForexPreviouslyQuoted
  - [ ] I=Funari
  - [ ] J=MarketIfTouched
  - [ ] K=MarketWithLeftOverAsLimit
  - [ ] L=PreviousFundValuationPoint
  - [ ] M=NextFundValuationPoint
  - [ ] P=Pegged
  - [ ] Q=CounterOrderSelection
  - [ ] R=StopOnBidOrOffer
  - [ ] S=StopLimitOnBidOrOffer
- SecurityIDSourceCodeSet - Type String
  - [ ] 1=CUSIP
  - [ ] 2=SEDOL
  - [ ] 3=QUIK
  - [x] 4=ISINNumber
  - [ ] 5=RICCode
  - [ ] 6=ISOCurrencyCode
  - [ ] 7=ISOCountryCode
  - [ ] 8=ExchangeSymbol
  - [ ] 9=ConsolidatedTapeAssociation
  - [ ] A=BloombergSymbol
  - [ ] B=Wertpapier
  - [ ] C=Dutch
  - [ ] D=Valoren
  - [ ] E=Sicovam
  - [ ] F=Belgian
  - [ ] G=Common
  - [ ] H=ClearingHouse
  - [ ] I=ISDAFpMLSpecification
  - [ ] J=OptionPriceReportingAuthority
  - [ ] K=ISDAFpMLURL
  - [ ] L=LetterOfCredit
  - [ ] M=MarketplaceAssignedIdentifier
  - [ ] N=MarkitREDEntityCLIP
  - [ ] P=MarkitREDPairCLIP
  - [ ] Q=CFTCCommodityCode
  - [ ] R=ISDACommodityReferencePrice
  - [ ] S=FinancialInstrumentGlobalIdentifier
  - [ ] T=LegalEntityIdentifier
  - [ ] U=Synthetic
  - [ ] V=FidessaInstrumentMnemonic
  - [ ] W=IndexName
  - [ ] X=UniformSymbol
  - [ ] Y=DigitalTokenIdentifier
- ExecTypeCodeSet - Type char
  - [x] 0=New
  - [ ] 3=DoneForDay
  - [ ] 4=Canceled
  - [ ] 5=Replaced
  - [ ] 6=PendingCancel
  - [ ] 7=Stopped
  - [ ] 8=Rejected
  - [ ] 9=Suspended
  - [ ] A=PendingNew
  - [ ] B=Calculated
  - [ ] C=Expired
  - [ ] D=Restated
  - [ ] E=PendingReplace
  - [x] F=Trade
  - [ ] G=TradeCorrect
  - [ ] H=TradeCancel
  - [ ] I=OrderStatus
  - [ ] J=TradeInAClearingHold
  - [ ] K=TradeHasBeenReleasedToClearing
  - [ ] L=TriggeredOrActivatedBySystem
  - [ ] M=Locked
  - [ ] N=Released
- OrdStatusCodeSet - Type char
  - [x] 0=New
  - [x] 1=PartiallyFilled
  - [x] 2=Filled
  - [ ] 3=DoneForDay
  - [ ] 4=Canceled
  - [ ] 5=Replaced
  - [ ] 6=PendingCancel
  - [ ] 7=Stopped
  - [ ] 8=Rejected
  - [ ] 9=Suspended
  - [ ] A=PendingNew
  - [ ] B=Calculated
  - [ ] C=Expired
  - [ ] D=AcceptedForBidding
  - [ ] E=PendingReplace

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# Step 3: Define components in Playlist

- Instrument
  - ...
  - SecurityID(48) - Type String
  - SecurityIDSource(22) - SecurityIDSourceCodeSet - Type String - Union Reserved100Plus
  - SecurityReferenceDataSupplement(2962) - Type String
  - SecurityStatus(965) - SecurityStatusCodeSet - Type String
  - SecuritySubType(762) - Type String
  - SecurityType(167) - SecurityTypeCodeSet - Type String
  - SecurityXML - Component
  - Seniority(1450) - SeniorityCodeSet - Type String
  - SettlDisruptionProvision(2143) - SettlDisruptionProvisionCodeSet - Type int
  - SettlMethod(1193) - SettlMethodCodeSet - Type String
  - SettlRateIndex(1577) - Type String
  - SettlRateIndexLocation(1580) - Type String
  - SettlSubMethod(2579) - SettlSubMethodCodeSet - Type int - Union Reserved100Plus
  - SettleOnOpenFlag(966) - Type String
  - SettledEntityMatrixPublicationDate(1945) - LocalMktDate - Base Type String
  - SettledEntityMatrixSource(1944) - Type String
  - ShortSaleRestriction(1687) - ShortSaleRestrictionCodeSet - Type int
  - StateOrProvinceOfIssue(471) - Type String
  - StrategyType(2141) - StrategyTypeCodeSet - Type String
  - StreamGrp - Group
  - StrikeCurrency(947) - Currency - Base Type String
  - StrikeCurrencyCodeSource(2904) - CurrencyCodeSourceCodeSet - Type String
  - StrikeIndex(1866) - Type String
  - StrikeIndexCurvePoint(2600) - Type String
  - StrikeIndexQuote(2601) - StrikeIndexQuoteCodeSet - Type int
  - StrikeIndexSpread(2001) - PriceOffset - Base Type float
  - StrikeMultiplier(967) - Type float
  - StrikePrice(202) - Price - Base Type float
  - StrikePriceBoundaryMethod(1479) - StrikePriceBoundaryMethodCodeSet - Type int
  - StrikePriceBoundaryPrecision(1480) - Percentage - Base Type float
  - StrikePriceDeterminationMethod(1478) - StrikePriceDeterminationMethodCodeSet - Type ir
  - StrikePricePrecision(2577) - Type int
  - StrikeUnitOfMeasure(1698) - UnitOfMeasureCodeSet - Type String
  - StrikeValue(968) - Type float
  - SwapClass(1941) - SwapClassCodeSet - Type String
  - SwapSubClass(1575) - SwapSubClassCodeSet - Type String
  - Symbol(55) - Type String
  - ...

- OrderQtyData
  - CashOrderQty(152) - Qty - Base Type float
  - OrderPercent(516) - Percentage - Base Type float
  - OrderQty(38) - Qty - Base Type float
  - RoundingDirection(468) - RoundingDirectionCodeSet - Type char
  - RoundingModulus(469) - Type float

# Step 4: Define messages in Playlist

- [x] NewOrderSingle(35=D)
  - ...
  - [x] ClOrdID(11) - Type String
  - ...
  - [x] ExDestination(100) - Exchange - Base Type String
  - [ ] ExDestinationIDSource(1133) - ExDestinationIDSourceCodeSet - Type char
  - [ ] ExDestinationType(2704) - ExDestinationTypeCodeSet - Type int
  - [ ] ExecInst(18) - ExecInstCodeSet - Type MultipleCharValue
  - [ ] ExpireDate(432) - LocalMktDate - Base Type String
  - [ ] ExpireTime(126) - UTCTimestamp - Base Type String
  - [ ] ExposureDuration(1629) - Type int
  - [ ] ExposureDurationUnit(1916) - OrderDelayUnitCodeSet - Type int
  - [ ] FinancingDetails - Component
  - [ ] ForexReq(121) - ForexReqCodeSet - Type Boolean
  - [ ] GTBookingInst(427) - GTBookingInstCodeSet - Type int
  - [ ] HandlInst(21) - HandlInstCodeSet - Type char
  - [ ] IOIID(23) - Type String
  - [x] Instrument - Component
  - ...
  - [x] OrdType(40) - OrdTypeCodeSet - Type char
  - [ ] OrderAttributeGrp - Group
  - [ ] OrderCapacity(528) - OrderCapacityCodeSet - Type char
  - [ ] OrderHandlingInstSource(1032) - OrderHandlingInstSourceCodeSet - Type int
  - [ ] OrderOrigination(1724) - OrderOriginationCodeSet - Type int
  - [ ] OrderQty2(192) - Qty - Base Type float
  - [x] OrderQtyData - Component
  - ...
  - [x] Price(44) - Price - Base Type float
  - ...

- [x] ExecutionReport(35=8)
  - ...
  - [ ] CashMargin(544) - CashMarginCodeSet - Type char
  - [x] ClOrdID(11) - Type String
  - [ ] ClOrdLinkID(583) - Type String
  - ...
  - [ ] CrossedIndicator(2523) - CrossedIndicatorCodeSet - Type int
  - [x] CumQty(14) - Qty - Base Type float
  - [ ] Currency(15) - Currency - Base Type String
  - [ ] CurrencyCodeSource(2897) - CurrencyCodeSourceCodeSet - Type String
  - ...
  - [x] ExecID(17) - Type String
  - [ ] ExecInst(18) - ExecInstCodeSet - Type MultipleCharValue
  - [ ] ExecPriceAdjustment(485) - Type float
  - [ ] ExecPriceType(484) - ExecPriceTypeCodeSet - Type char
  - [ ] ExecRefID(19) - Type String
  - [ ] ExecRestatementReason(378) - ExecRestatementReasonCodeSet - Type int - Union Reserved100Plus
  - [x] ExecType(150) - ExecTypeCodeSet - Type char
  - ...
  - [x] LastPx(31) - Price - Base Type float
  - [x] LastQty(32) - Qty - Base Type float
  - ...
  - [x] LeavesQty(151) - Qty - Base Type float
  - ...
  - [x] OrdStatus(39) - OrdStatusCodeSet - Type char
  - [ ] OrdStatusReqID(790) - Type String
  - [x] OrdType(40) - OrdTypeCodeSet - Type char
  - [ ] OrderAttributeGrp - Group
  - [ ] OrderCapacity(528) - OrderCapacityCodeSet - Type char
  - [ ] OrderCategory(1115) - OrderCategoryCodeSet - Type char
  - [ ] OrderEventGrp - Group
  - [ ] OrderHandlingInstSource(1032) - OrderHandlingInstSourceCodeSet - Type int
  - [x] OrderID(37) - Type String
  - [ ] OrderOrigination(1724) - OrderOriginationCodeSet - Type int
  - [ ] OrderOwnershipIndicator(2679) - OrderOwnershipIndicatorCodeSet - Type int
  - [ ] OrderQty2(192) - Qty - Base Type float
  - [x] OrderQtyData - Component
  - ...
  - [x] Price(44) - Price - Base Type float
  - ...

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# Step 5: Upload to Orchestra Server (1)

FIX orchestra SERVER

API Specifications

**Orchestra Example** v 1.0

**API Dictionary Elements** Add

Search

- Messages (2)
  - ExecutionReport [8] (base)
  - NewOrderSingle [D] (base)
- Components (4)
  - Instrument (base)
  - OrderQtyData (base)
  - StandardHeader (base)
  - StandardTrailer (base)
- Groups (0)
- Fields (23)
- Code Sets (7)
  - BeginStringCodeSet (base)
  - ExecTypeCodeSet (base)
  - MsgTypeCodeSet (base)
  - OrdStatusCodeSet (base)
  - OrdTypeCodeSet (base)
  - SecurityIDSourceCodeSet (base)
  - SideCodeSet (base)
- Data Types (9)
- Sections (0)
- Categories (0)

- Fields (23)
  - BeginString [8] (base)
  - BodyLength [9] (base)
  - CheckSum [10] (base)
  - ClOrdID [11] (base)
  - CumQty [14] (base)
  - ExDestination [100] (base)
  - ExecID [17] (base)
  - ExecType [150] (base)
  - LastPx [31] (base)
  - LastQty [32] (base)
  - LeavesQty [151] (base)
  - MsgSeqNum [34] (base)
  - OrderID [37] (base)
  - OrderQty [38] (base)
  - OrdStatus [39] (base)
  - OrdType [40] (base)
  - Price [44] (base)
  - SecurityID [48] (base)
  - SecurityIDSource [22] (base)
  - SenderCompID [49] (base)
  - SendingTime [52] (base)
  - Symbol [55] (base)
  - TargetCompID [56] (base)

- Data Types (9)
  - char
  - Exchange
  - Length
  - Price
  - Qty
  - Reserved100Plus
  - SeqNum
  - String
  - UTCTimestamp

# Step 5: Upload to Orchestra Server (2)

**NewOrderSingle** [D] (base)

View Details | Edit Message | Duplicate Message | Delete Message

+ Add Element | + Bulk Add Elements | Edit Element | Delete Element(s)

Components | Groups | Fields | Code Sets

| Name | Id | Scenario | Presence | Documentation |
|---|---|---|---|---|
| + StandardHeader | 1024 | base | required | MsgType = D |
| ClOrdID | 11 | base | required | Unique identifier of the order as assigned by institution or by the intermediary (... |
| ExDestination | 100 | base | optional | |
| − Instrument | 1003 | base | required | Insert here the set of "Instrument" (symbology) fields defined in "Common Com... |
| Symbol | 55 | base | optional | Common, "human understood" representation of the security. SecurityID value c... |
| SecurityID | 48 | base | optional | Takes precedence in identifying security to counterparty over SecurityAltID bloc... |
| SecurityIDSource | 22 | base | optional | Conditionally required when SecurityID(48) is specified. |
| ISINNumber 4 | 22004 | | | ISIN |
| − OrderQtyData | 1011 | base | required | |
| OrderQty | 38 | base | optional | One of CashOrderQty, OrderQty, or (for CIV only) OrderPercent is required. Not... |
| OrdType | 40 | base | required | |
| Market 1 | 40001 | | | Market |
| Limit 2 | 40002 | | | Limit |
| Price | 44 | base | optional | Required for limit OrdTypes. For F/X orders, should be the "all-in" rate (spot rate... |
| + StandardTrailer | 1025 | base | required | |

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# Step 5: Upload to Orchestra Server (3)

**ExecutionReport** [8] (base)

View Details | Edit Message | Duplicate Message | Delete Message

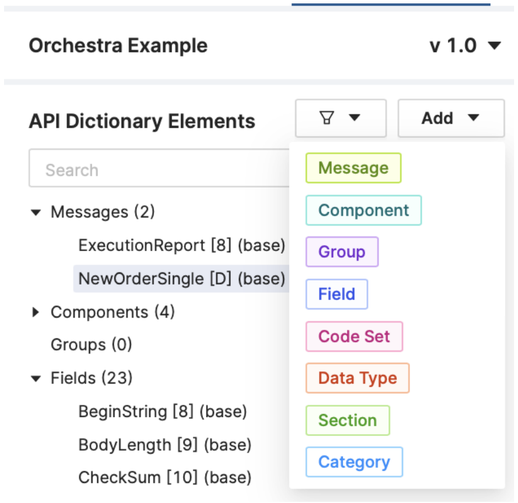
Add Element | Bulk Add Elements | Edit Element | Delete Element(s)

Components | Groups | Fields | Code Sets

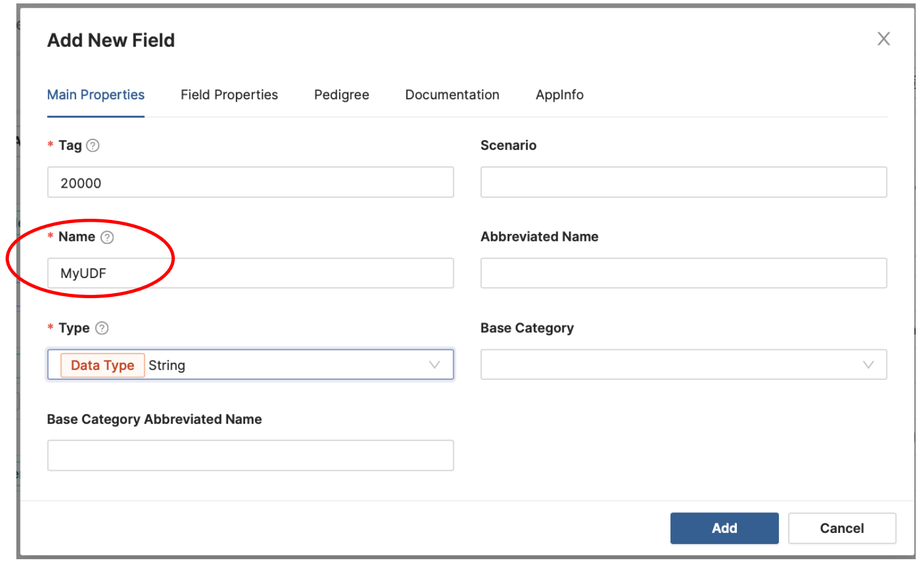
| Name | Id | Scenario | Presence | Documentation |
|---|---|---|---|---|
| StandardHeader | 1024 | base | required | MsgType = 8 |
| OrderID | 37 | base | required | OrderID is required to be unique for each chain of orders. |
| ClOrdID | 11 | base | optional | Required when referring to orders that were electronically submitted over FIX or otherwise assigned a ClOrdID(11). |
| ExecID | 17 | base | required | Unique identifier of execution message as assigned by sell-side (broker, exchange, ECN) (will be 0 (zero) for Exec... |
| ExecType | 150 | base | required | Describes the purpose of the execution report. |
| New 0 | 150001 | | | New |
| Trade F | 150014 | | | Trade (partial fill or fill) |
| OrdStatus | 39 | base | required | Describes the current state of a CHAIN of orders, same scope as OrderQty, CumQty, LeavesQty, and AvgPx |
| New 0 | 39001 | | | New |
| PartiallyFilled 1 | 39002 | | | Partially filled |
| Filled 2 | 39003 | | | Filled |
| Instrument | 1003 | base | required | |
| OrderQtyData | 1011 | base | optional | Conditionally required when the OrderQtyData component is required or specified in a prior, related message. |
| OrdType | 40 | base | optional | |
| Price | 44 | base | optional | Required if specified on the order |
| LastQty | 32 | base | optional | Quantity (e.g. shares) bought/sold on this (last) fill. Required if ExecType(150) = F (Trade) or ExecType(150) = G (... |
| LastPx | 31 | base | optional | Price of this (last) fill. Required if ExecType(150) = ExecType = F (Trade) or G (Trade Correct) unless FillsGrp or Or... |
| ExDestination | 100 | base | optional | |
| LeavesQty | 151 | base | required | Quantity open for further execution. If the OrdStatus(39) is = 4 (Canceled), 3 (Done For Day), C (Expired), B (Calcu... |
| CumQty | 14 | base | required | Currently executed quantity for chain of orders. |
| StandardTrailer | 1025 | base | required | |

# Step 6: Add UDF with Orchestra Server

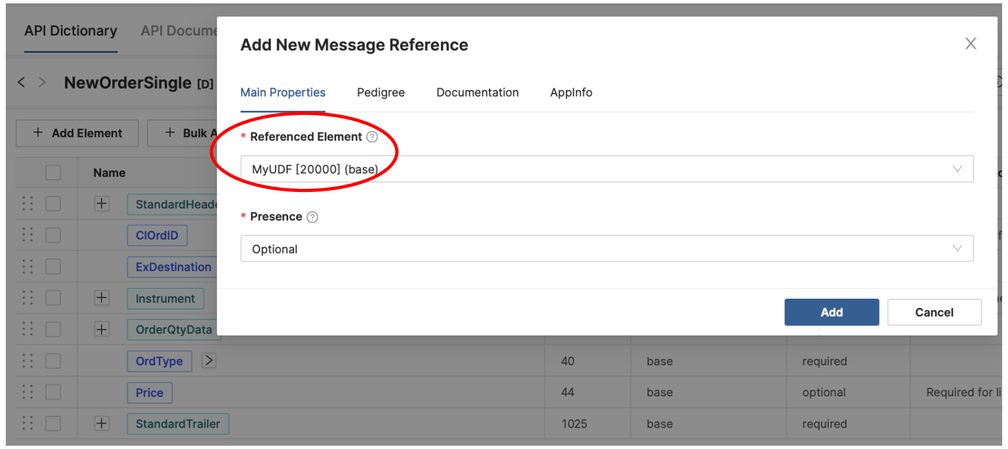
1



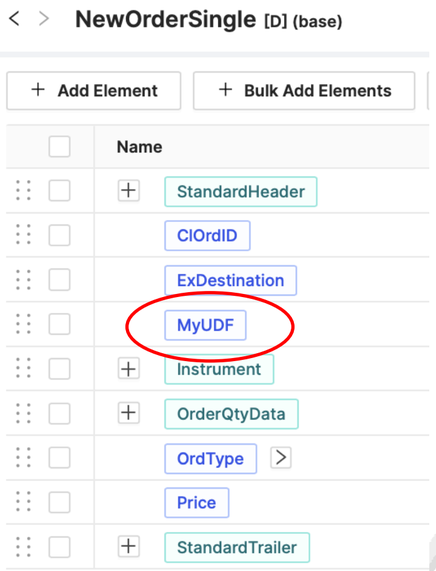

2




3




4

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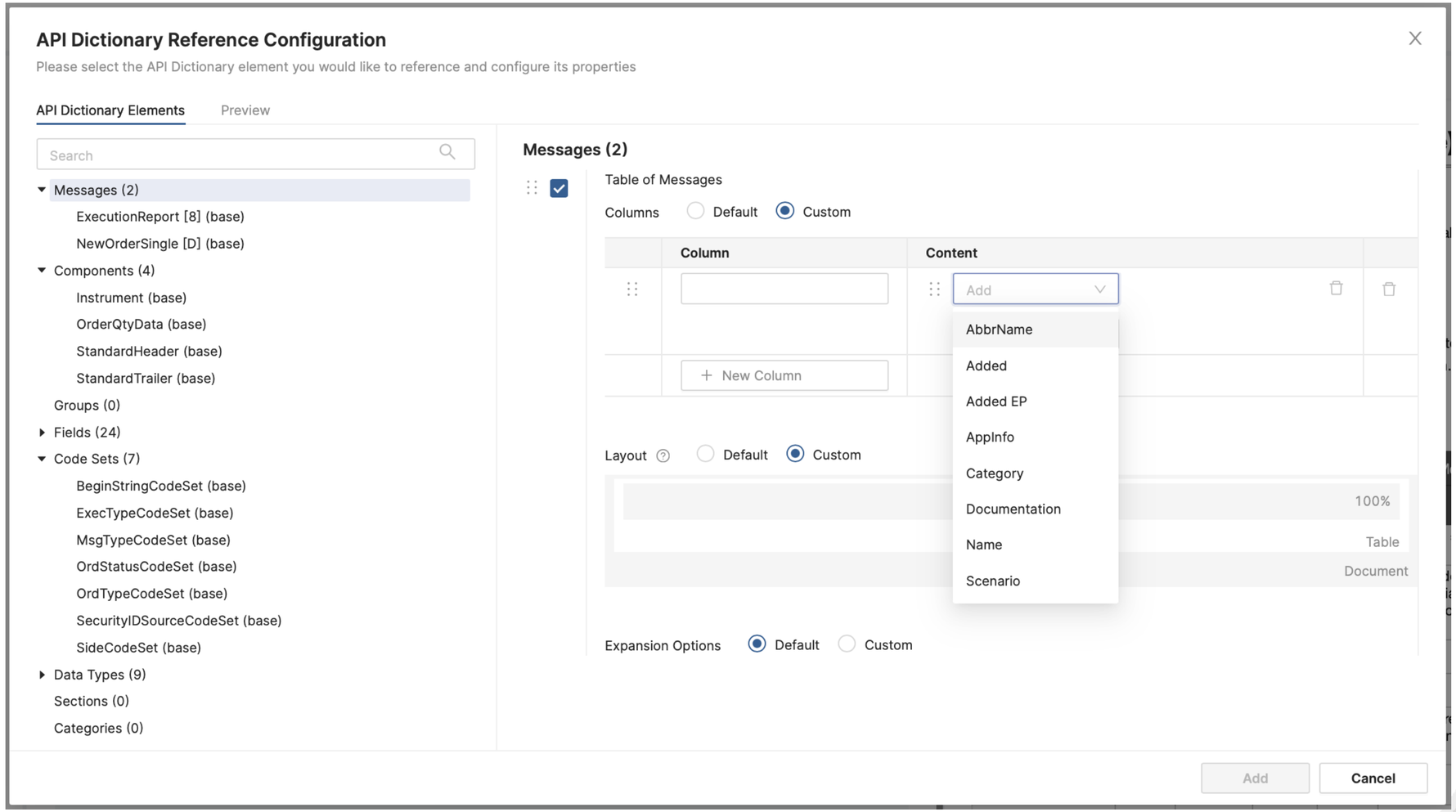
# Step 7: Create specification document

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# Step 7: Create specification document

API Dictionary | API Document | **Last saved:** Thu, Oct 12, 2023 3:48 PM | Standard Editor | Large API Document Editor | Save | Export API

H B I S — 66 | CB | Table of Contents | Preview

# Message: NewOrderSingle [D] (base)

```dictionaryRef
{
  "elementType": "Message",
  "id": 14,
  "scenario": "base",
  "documentation": {
    "order": 1,
    "items": [
      {
        "purpose": "SYNOPSIS"
      }
    ]
  },
  "childElementsTable": {
    "order": 2
  }
}
```

# Message: ExecutionReport [8] (base)

```dictionaryRef
{
  "elementType": "Message",
  "id": 9,
  "scenario": "base",
  "documentation": {
    "order": 1,
    "items": [
      {
        "purpose": "SYNOPSIS"
      }
    ]
  },
  "childElementsTable": {
    "order": 2
  }
}
```

# Fields (24)

```dictionaryRef
{
  "elementType": "Fields",
  "childElementsTable": {
    "order": 1
  }
}
```

## 1 Message: NewOrderSingle [D] (base)

### SYNOPSIS

The new order message type is used by institutions wishing to electronically submit securities and forex orders to a broker for execution.

### SYNOPSIS

The New Order message type may also be used by institutions or retail intermediaries wishing to electronically submit Collective Investment Vehicle (CIV) orders to a broker or fund manager for execution.

### Message Structure

| NewOrderSingle [D] - Message | | | | | |
|---|---|---|---|---|---|
| Name | Tag/ID | Presence | Added | Added EP | Documentation |
| <StandardHeader> component | 1024 | Y | FIX.2.7 | | MsgType = D |
| ClOrdID | 11 | Y | FIX.2.7 | | Unique identifier of the order as assigned by institution or by the intermediary (CIV term, not a hub/service bureau) with closest association with the investor. |
| ExDestination | 100 | N | FIX.2.7 | | |
| MyUDF | 20000 | N | | | |
| <Instrument> component | 1003 | Y | FIX.4.3 | | Insert here the set of "Instrument" (symbology) fields defined in "Common Components of Application Messages" |
| <OrderQtyData> component | 1011 | Y | FIX.4.3 | | |
| OrdType | 40 | Y | FIX.2.7 | | |
| Price | 44 | N | FIX.2.7 | | Required for limit OrdTypes. For F/X orders, should be the "all-in" rate (spot rate adjusted for forward points). Can be used to specify a limit price for a pegged order, previously indicated, etc. |
| <StandardTrailer> component | 1025 | Y | FIX.2.7 | | |

## 2 Message: ExecutionReport [8] (base)

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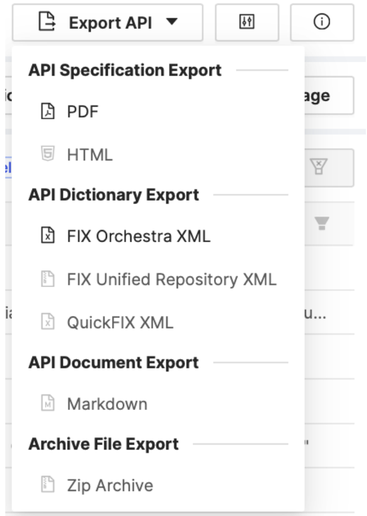
# Step 8: Export Rules of Engagement (XML)

1




2

**Exports**

Delete Selected

| Name | Version | Format | Status | Date created | Actions |
|---|---|---|---|---|---|
| Orchestra Example 1.0 | 1.0 | pdf | VIEWED | 10/12/2023 1:19:04 PM | Download View |
| Orchestra Example 1.0 | 1.0 | fixorchestra | VIEWED | 10/12/2023 12:28:31 PM | Download View |

1-2 of 2 1

3

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<fixr:repository xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
xmlns:fixr="http://fixprotocol.io/2020/orchestra/repository" name="Orchestra Example" version="1.0">
    <fixr:metadata>…
    <fixr:categories/>
    <fixr:sections/>
    <fixr:datatypes>…
    <fixr:codeSets>…
    <fixr:fields>…
    <fixr:actors/>
    <fixr:components>…
    <fixr:groups/>
    <fixr:messages>…
    <fixr:concepts/>
</fixr:repository>
```

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# Step 8: Export Rules of Engagement (PDF)

| NewOrderSingle [D] - Message | | | | | |
|---|---|---|---|---|---|
| **Name** | **Tag/ID** | **Presence** | **Added** | **Added EP** | **Documentation** |
| <StandardHeader> component | 1024 | Y | FIX.2.7 | | MsgType = D |
| ClOrdID | 11 | Y | FIX.2.7 | | Unique identifier of the order as assigned by institution or by the intermediary (CIV term, not a hub/service bureau) with closest association with the investor. |
| ExDestination | 100 | N | FIX.2.7 | | |
| MyUDF | 20000 | N | | | |
| <Instrument> component | 1003 | Y | FIX.4.3 | | Insert here the set of "Instrument" (symbology) fields defined in "Common Components of Application Messages" |
| <OrderQtyData> component | 1011 | Y | FIX.4.3 | | |
| OrdType | 40 | Y | FIX.2.7 | | |
| Price | 44 | N | FIX.2.7 | | Required for limit OrdTypes. For F/X orders, should be the "all-in" rate (spot rate adjusted for forward points). Can be used to specify a limit price for a pegged order, previously indicated, etc. |
| <StandardTrailer> component | 1025 | Y | FIX.2.7 | | |

# Orchestra Update

## Data Transformation with Orchestra

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# Use cases for data transformations

- FIX versions and customizations
  - Convert between external (e.g. FIX 4.2) and internal layouts (e.g. FIX Latest)
  - Convert layouts with customizations to standard FIX
- Regulatory reporting interfaces
  - Convert FIX to SEC-Consolidated Audit Trail
  - Convert FIX to MiFIR (ESMA/FCA) reporting
  - Convert FIX to SFC-DS-OL (order life cycle reporting)
- Standards interoperability
  - Convert between front-office (e.g. FIX) and back-office(e.g. ISO 20022)
  - Convert between FIX and FpML for OTC product defnitions
- Migration from proprietary interfaces to FIX
- Provide backward compatibility

# Approach for data transformations

- Objective is to enhance the Orchestra standard with a schema that defines the syntax for meta-data related to data transformations.
- Data transformation expressed as mapping of meta-data
  - The Orchestra standard supports FIX and non-FIX interfaces.
  - Source and target interface can be defined as an Orchestra XML file.
  - A mapping schema is required to transform messages from one interface into semantically equivalent messages of another interface.
  - Data transformations can be pipelined for automation (e.g. FIX 4.2 converted to FIX Latest converted to SEC-CAT).
- Types of data transformation
  - No transformation for fields using ISO standards (e.g. currencies, MICs).
  - Simple transformations for 1:1 mappings of fields and/or values only having different names in the respective Orchestra XML file.
  - Complex transformations for 1:n/n:1 mappings of fields or mappings between fields and instances of repeating groups.

# Orchestra Governance

- Organizational structure
  - The FIX Global Technical Committee (GTC) has an Orchestra Subcommittee looking after the Orchestra standard and related tools.
  - The Orchestra Subcommittee has multiple working groups for the standard
    - Repository Schema WG for the application level
    - Interfaces Schema WG for the connection level
    - Mapping schema WG for the interoperability of message standards
  - The Orchestra Subcommittee submits proposals for the standard to the GTC (proposal for Version 1.1 RC1 currently being reviewed by the WG).
- Options to contribute
  - FIX members can join the working groups and (sub)committees to engage in the development of the different schemas of the Orchestra standard.
  - Others can contribute through the public GitHub repositories maintained by the FIX Trading Community for the standard and open-source tools.