# Technical Stream:
# Extending the Reach of FIX: New Functionality in FIX Messaging

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**FPL Americas Conference 2004**
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**www.fixprotocol.org**

# FIX Repository

## “FIX for computers”

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# What is the repository?

- FIX – historically a Word document
- Easy for people; difficult for computer
- Generate tools, code
- Fewer errors
- More consistent approach
- FIX can support multiple formats with one piece of work

# What is the repository?

- Information extracted from the FIX specification
- In a different more computer usable format
- Programs written that extracted from Word
- Audited extraction process, e.g. manual checking
- Currently a series of XML documents and schemas
- Format can be easily changed
- Can be loaded into a database
- Specific SQL can reproduce the specification from the database
- Repository Applications will be used to generate future releases of FIX
- Repository Data will publicly available to FIX membership

# Repository Application

- Once a field has been added, add it to messages or component
- Regenerate consistent documentation, schema etc
- Export to XML repository application

# Construction

- There are a number of parts to the repository
  - Fields
  - Enumerations
  - Components
  - Messages – special type of component
  - Message Contents
- For each part of the repository there are 4 files
  - *.xml – The data itself
  - *.xsd – The schema for the data
  - *.xsl – A transform to display the data in IE
  - *.html – A page to invoke the transform and display the data in IE

# The FIX Specification Data Dictionary

- Fields & Enumerations – essentially the data dictionary from the FIX Specification - Volume 6
- Fields xml file contains
  - Tag,
  - FieldName,
  - Description,
  - XML Name
- Enumerations xml file contains
  - Tag,
  - Value,
  - Description
- One to many relationship between Tag in Fields and Tag in Enumerations

# Components (including messages)

- Components and Messages contains
  - Object ID,
  - Name,
  - Type,
  - Category,
  - Abbreviation,
  - Description
  - Indentation (only used for certain component types)
  - Order (only used for certain component types)

- Messages are a special case of components that include specific additional information. Messages are the top level application object in the FIX model.

# Message Content xml File

- Message Content contains
  - Object ID,
  - Tag Text,
  - Tag,
  - Description,
  - Required,
  - Position,
  - Indent,
  - Component Object ID
- Basically the result of selecting all records in from Message Content with an Object ID corresponding to a FIX message is data equivalent to the message table for that message in volumes 1, 3 – 5.

# Thus becomes

**News**

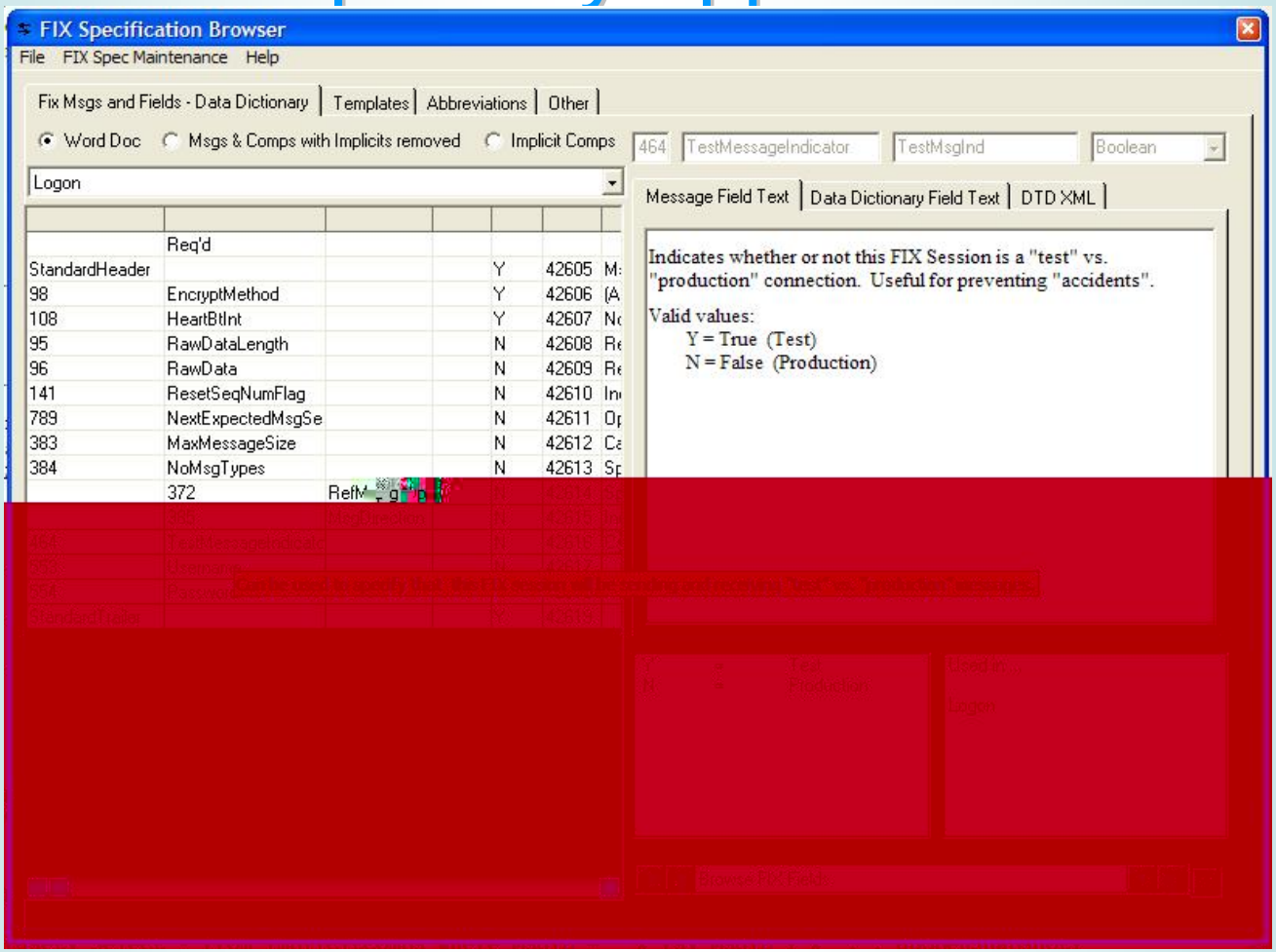
| Tag | Field Name | Req'd | Comments |
|---|---|---|---|
| | *Standard Header* | Y | MsgType = B |
| 42 | OrigTime | N | |
| 61 | Urgency | N | |
| 148 | Headline | Y | Specifies the headline text |
| 358 | EncodedHeadlineLen | N | Must be set if EncodedHeadline field is specified and must immediately precede it. |
| 359 | EncodedHeadline | N | Encoded (non-ASCII characters) representation of the Headline field in the encoded format specified via the MessageEncoding field. |
| 215 | NoRoutingIDs | N | Required if any RoutingType and RoutingIDs are specified. Indicates the number within repeating group. |
| → | ***216*** ***RoutingType*** | N | Indicates type of RoutingID. Required if NoRoutingIDs is > 0. |
| → | ***217*** ***RoutingID*** | N | Identifies routing destination. Required if NoRoutingIDs is > 0. |
| 146 | NoRelatedSym | N | Specifies the number of repeating symbols (instruments) specified |
| → | ***component block <Instrument>*** | N | Insert here the set of "Instrument" (symbology) fields defined in "COMMON COMPONENTS OF APPLICATION MESSAGES" |
| 555 | | | |

**MessageByID : Select Query**

| Indent | Tag | FieldName | Pos | Reqd | MsgID |
|---|---|---|---|---|---|
| 0 | StandardHeader | | 1 | ☑ | 12 |
| 0 | 42 | OrigTime | 2 | ☐ | 12 |
| 0 | 61 | Urgency | 3 | ☐ | 12 |
| 0 | 148 | Headline | 4 | ☑ | 12 |
| 0 | 358 | EncodedHeadlineLen | 5 | ☐ | 12 |
| 0 | 359 | EncodedHeadline | 6 | ☐ | 12 |
| 0 | 215 | NoRoutingIDs | 7 | ☐ | 12 |
| 1 | 216 | RoutingType | 8 | ☐ | 12 |
| 1 | 217 | RoutingID | 9 | ☐ | 12 |
| 0 | 146 | NoRelatedSym | 10 | ☐ | 12 |
| 1 | Instrument | | 11 | ☐ | 12 |
| 0 | 555 | NoLegs | 12 | ☐ | 12 |
| 1 | InstrumentLeg | | 13 | ☐ | 12 |
| 0 | 711 | NoUnderlyings | 14 | ☐ | 12 |
| 1 | UnderlyingInstrument | | 15 | ☐ | 12 |
| 0 | 33 | NoLinesOfText | 16 | ☑ | 12 |
| 1 | 58 | Text | 17 | ☑ | 12 |
| 1 | 354 | EncodedTextLen | 18 | ☐ | 12 |
| 1 | 355 | EncodedText | 19 | ☐ | 12 |
| 0 | 149 | URLLink | 20 | ☐ | 12 |
| 0 | 95 | RawDataLength | 21 | ☐ | 12 |
| 0 | 96 | RawData | 22 | ☐ | 12 |
| 0 | StandardTrailer | | 23 | ☑ | 12 |
| * | | | | ☐ | |

Record: 1 of 23

# Repository Application

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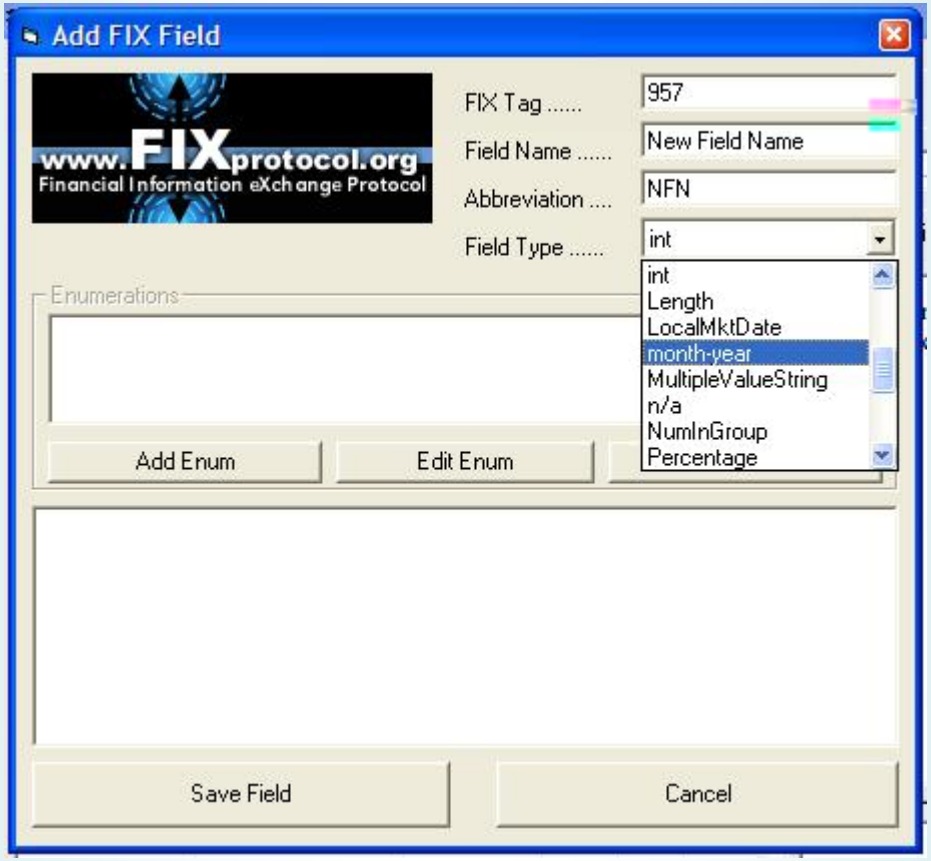
# Repository Application – Add Field

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# Why did we build the repository?

- I'm lazy and I make mistakes.
- BUT laziness can be a virtue.
- Asked by Global Technical Committee to help prepare the DTD to match the FIX.4.4 release.
- Needed to allow me to generate the DTD rather than create it by hand.
- This allowed us to apply one design to the whole of the FIX model.
- This approach has now been applied to FIXimate, the FIX schema and parts of the specification document.

# How have we used the repository?

- Generated Volume 6 – The FIX data dictionary
- Can and will generate all message tables for future releases of FIX
- Supports addition of messages and fields for future versions of FIX
- Generate FIXimate, FIX.4.4 DTD, FIX.4.4 Schema.
  - http://www.fixprotocol.org/specifications/fix4.4fixml
  - http://www.fixprotocol.org/specifications/fix4.4fiximate/index.html
- Cross check FIX specification, are names in message tables same as names in data dictionary.
- Pre compile all valid message possibilities and check against FIX design rules.

# Repository Value Proposition

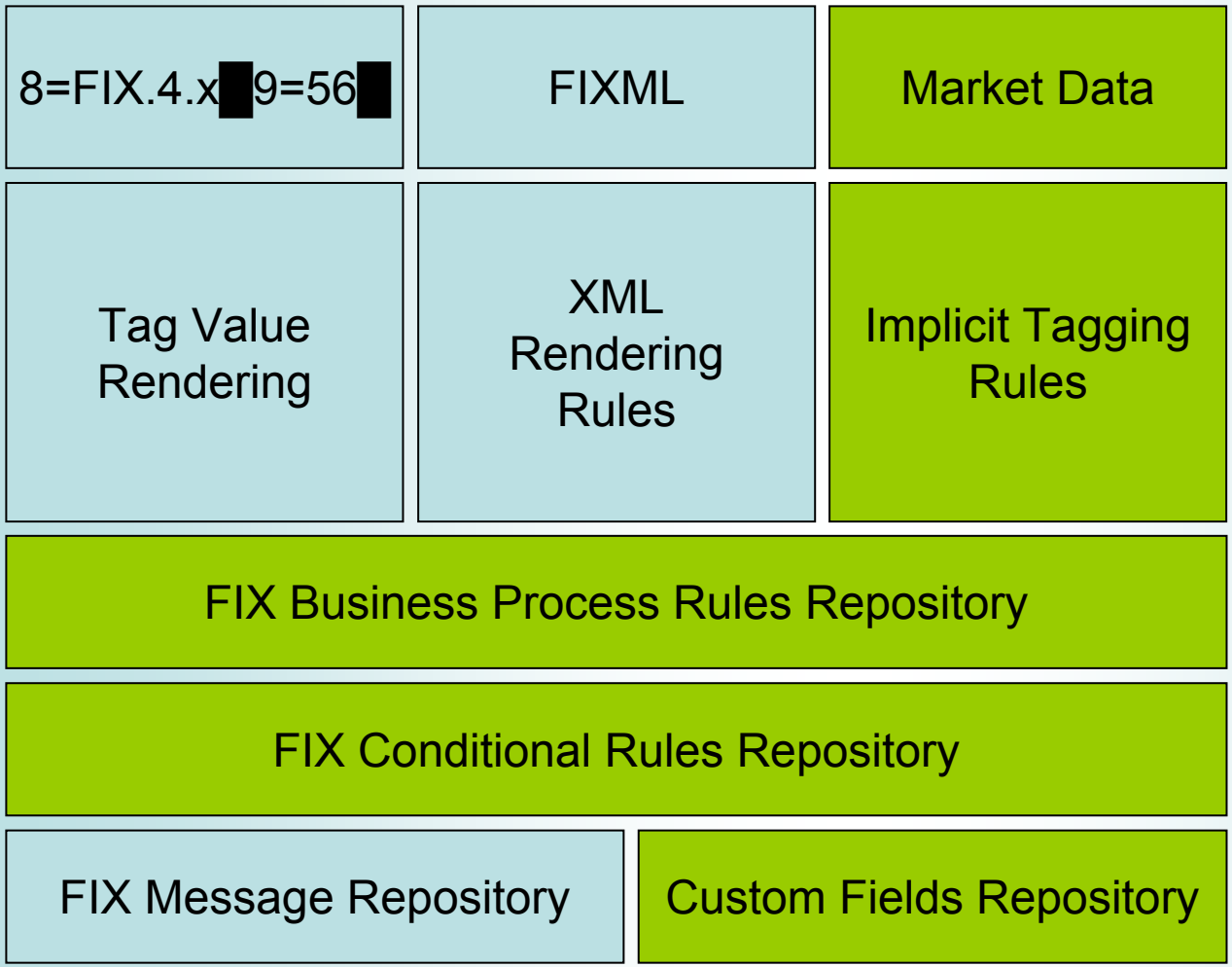
- FIX itself
  - Improved technical management of protocol specification
  - Improved consistency and accuracy of specification
  - Tools to allow generation of schema etc
  - Access is a benefit of FIX membership
  - Possible to write generic engines
  - Basis for other value add tools
  - A central piece of work for all member firms to benefit

- Status
  - First release on FIX website
  - Sample files available to non member
  - Conditional fields being investigated

# Decisions

- Approach to publication
  - XML based versions of the 5 tables
  - Documentation
  - Posted to members only section of www.fixprotocol.org
- Approach to internal tools
  - Repository maintenance tools
  - Word Document Generation
  - Schema, FIXimate etc generation
- Future extensions
  - XSLT rules for conditional fields
  - Inclusion of custom fields and messages
  - Inclusion of the FIX business process
  - Customisation of spec
  - Services on web site

# FIX Repository – FIX Foundations




Existing

Planned / In progress

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# Has anyone used it?

- Engine vendors – some already publish tools that enable their engines to use it. FIX engines get a step closer to being version independent
- Many other vendors and brokers have downloaded the full version
- 500 others have downloaded parts, the samples or the documentation
- Custom versions of FIXimate for specific counterparties interfaces
- FIX to FIXML translations

# How do I get it?

- http://www.fixprotocol.org/specifications/repository

Celebrating 10 Years
www.FIXprotocol.org
Financial Information eXchange Protocol
Connecting the Trading World

# Next Sessions

**Business Stream (4:30PM-5:30PM)**

Reducing FIX Implementation Efforts: Update on FIX Certification

**Location:**

Salon AB

**Technical Stream (4:30PM-5:30PM)**

Reducing FIX Implementation Efforts: Standardizing the Standard

**Location:**

Financial Ballroom

**5:30PM-7:30PM Cocktail Party at Roy's Restaurant (Music by The Lava Trading Band)**

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