Confidential

IORS – Support UPC Orders

Issue 1.0

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Related documents

DFS3810 Production Matcher R8.0 Part B-I v1.5 (section 7.4 – Underlying Price Contingency Orders)

Summary of changes

A history of significant changes to this template is described in the table below.

Issue	Date	Author	Change
0.1	02/14/2014	J. Frondoso	Initial draft
0.2	03/18/2014	J. Frondoso	Incorporated comments from draft BRD review with team
0.3	03/27/2014	J. Frondoso	Incorporated review feedback from Dev
1.0	03/28/2014	J. Frondoso	First issue

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Chapter 1. Introduction

1.1. Business Case

We want to offer Underlying Price Contingency (UPC) orders to our IORS users. This is a functionality currently supported by the Matching Engine (ME), PrecISE, and DTI. By allowing UPCs in IORS, the functionality will be easily available to all member connections. Extended availability means possibly increasing its usage at the ISE. IORS' adoption of the feature is should be simple because it is already support in DTI and in the ME.

1.2. Scope

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UPCs are available for complex instruments (standard and stock) only. Therefore, this order feature is not yet available in Gemini.

- ORA – *impacted*
- Order Drop Copy – *impacted*
- Trade Drop Copy – not impacted
- POB – not impacted
- TIB / DIB – not impacted
- IRC / MOE – not impacted

1.3. Planned Benefits

The benefits are:

- The functionality will be available to all member connections – DTI, PrecISE, and now IORS.
- Possible UPC usage increase
- Relatively simple implementation due to its availability in DTI with custom tags

1.4. Priority

Priority is high and requested for R10.

1.5. Key Definitions, Acronyms, and Abbreviations

Acronym	Description
IORS	ISE Order Routing Service
ORA	Order Router Adapter

DCA	Drop Copy Adapter
DB	Database
UPC	Underlying Price Contingency
ME	Matching Engine
GTD	Good Til Date
GTC	Good Til Cancel
POB	Private Order Broadcast
TIB	Trade Item Broadcast
DIB	Deal Item Broadcast

Chapter 2. Overview

2.1. Current Behavior

UPC orders are standard or stock combo orders that get activated based on the specified contingency price and underlying price condition. There is no POB when the order state changes from inactive to active, and vice versa. The current UPC behavior is explained in detail in the ME specs, section 7.4 of DFS3810 Production Matcher R8.0 Part B-I v1.5.

IORS does not support UPC orders. The functionality is available only for combo orders entered via DTI or PrecISE. There are no available FIX fields in IORS to support the required fields for a UPC order: contingency price low, contingency price high, underlying price condition.

2.2. Proposed Solution

IORS will support UPC orders by leveraging the existing UPC-specific fields in DTI:

- RelatedLowPrice (tag 8572)
- RelatedHighPrice (tag 8573)
- RelatePriceSource (tag 8574) – valid values are:
    - 1 = Underlying NBB
    - 2 = Underlying NBO

These optional fields will be available and editable in the NewMultileg message. If a Related Low/High Price is entered, then the RelatedPriceSource becomes mandatory. If there is a Related Low/High Price(s) without a RelatedPriceSource, the order will get rejected by the Gateway. The values of the UPC tags will be in the POB. Therefore, these tags will be in the Execution Report in ORA and the order drop copy. There is no impact to trade drop copy because it uses the trade item broadcast (TIB) and the UPC-related fields are not present in the TIB. Users can modify the UPC values on an open order.

Gateway

No changes to the Gateway. As long as IORS passes a valid value for the RelatedPriceSource, then the gateway will mark the order as a UPC order.

2.2. Assumptions

1. POB will continue to not publish the changed state when a UPC order goes from inactive to active, and vice versa.
2. The Gateway will mark an order as UPC if IORS sets a valid value for RelatePriceSource (tag 8574).
3. We will continue to use existing business logic and validations for UPC orders in the ME (section 7.4 of DFS3810 Production Matcher R8.0 Part B-I v1.5).

Chapter 3. Detailed Requirements

3.1. ORA

ORA will add the following fields to the NewOrderMultileg, NewOrderMultileg Cancel/Replace, and Execution Report messages and map it to the corresponding existing DTI fields:

IORS ORA Field	Tag	Req / Opt	DTI Field	Tag	Type	Allowed Value(s)
RelatedLowPrice *(new field)*	8572	Opt	RelatedLowPrice	8572	Float	
RelatedHighPrice *(new field)*	8573	Opt	RelatedHighPrice	8573	Float	
RelatePriceSource *(new field)*	8574	Opt	RelatePriceSource	8574	Int	1 = Underlying NBB 2 = Underlying NBO

Sample scenarios:

Scenario 1: New UPC order entered / existing UPC order modified:

- POB is processed. Therefore,
- UPC fields are present in the ORA ER

Scenario 2: Existing inactive UPC order becomes activated in the ME:

- No POB when UPC goes from inactive to active. Therefore,
- No ER for ORA

Scenario 3: Existing active UPC order becomes inactivated in the ME:

- No POB when UPC goes from active to inactive. Therefore,
- No ER for ORA

Scenario 4: Existing active UPC order is traded

- POB is processed for trades (starting in IORS 8.0). Therefore,
- UPC fields are present in the ORA ER

Scenario 5: Cancel/Replace a UPC order to a non-UPC order

- User omits all UPC fields in a UPC cancel/replace
- POB is processed *without* UPC fields present in the ORA ER

Scenario 6: Cancel/Replace a UPC order by changing a non-UPC field

- User modifies a non-UPC field in a UPC cancel/replace
- UPC fields have to be re-entered by the user in order for the new (replace) order to qualify as a UPC order
- POB is processed with UPC fields present in the ORA ER

Scenario 7: Cancel/Replace a UPC order by changing a UPC field

- User modifies a UPC field in a UPC cancel/replace
- All UPC fields have to be re-populated/re-entered by the user in order for the modified order to qualify as a UPC order
- POB is processed with UPC fields present in the ORA ER

Scenario 8: UPC order reject

- Core rejects a UPC order
- POB is processed *without* UPC fields present in the ORA ER

3.2. DCA

Order drop copy currently processes the POB and will receive UPC fields.

No impact to trade drop copy. The ERs processed by DCA will not contain the new UPC fields.

Sample scenarios:

Scenario 1: New UPC order entered / existing UPC order modified:

- POB is processed. Therefore,
- UPC fields are present in the Order Drop Copy ER

Scenario 2: existing inactive UPC order becomes activated in the ME:

- No POB when UPC goes from inactive to active. Therefore,
- No ER for Order Drop Copy

Scenario 3: existing active UPC order becomes inactivated in the ME:

- No POB when UPC goes from active to inactive. Therefore,
- No ER for Order Drop Copy

Scenario 4: existing active UPC order is traded

- POB is processed for trades (starting in IORS 8.0). Therefore,

- UPC fields are present in the Order Drop Copy ER

Scenario 5: Cancel/Replace a UPC order to a non-UPC order

- User omits all UPC fields in a UPC cancel/replace
- POB is processed *without* UPC fields present in the Order Drop Copy ER

Scenario 6: Cancel/Replace a UPC order by changing a non-UPC field

- User modifies a non-UPC field in a UPC cancel/replace
- UPC fields have to be re-entered by the user in order for the new (replace) order to qualify as a UPC order
- POB is processed with UPC fields present in the Order Drop Copy ER

Scenario 7: Cancel/Replace a UPC order by changing a UPC field

- User modifies a UPC field in a UPC cancel/replace
- All UPC fields have to be re-populated/re-entered by the user in order for the modified order to qualify as a UPC order
- POB is processed with UPC fields present in the Order Drop Copy ER

Scenario 8: UPC order reject

- Core rejects a UPC order
- Order Drop Copy does not process reject messages from the core

3.3. POB

No impact to the POB. The UPC fields are processed in the POB today. Therefore, the execution report to ORA and order drop copy will include the UPC fields. POB will not report if the order state has been changed from inactive to active, and vice versa.

Chapter 4. Non-Functional Requirements

4.1. Connectivity

No change to IORS' connectivity to the core.

4.2. Monitoring

TBD. UPC distinction is not supported in any of the trading tools today, even when PrecISE supported the functionality. Pending confirmation from Market Ops if this is a feature they will need since IORS will now offer it.

4.3. Security

Anyone with trading privileges and entitlements to enter combo orders can trade UPC orders.

4.4. Reliability

The applications will continue to generate the current alerts to Market Ops and Computer Ops if there are errors or disconnections.

4.5. Availability

The functionality is available at ISE during normal trading hours when the market is in a regular or fast state.

4.6. Auditability

Application logs always have start-up, connection, and configuration information. No changes to the logs or generation of the logs.

4.7. Documentation

FIX manual will be updated with new fields.

No Ops documentation to update.

Appropriate external communication (MIC, TIC, Advisor, etc.) will be sent out with UPC education.

4.8. Data Requirements

TBD – Is there a report that captures UPC usages today?

4.9. Billing

No changes.

4.10. Acceptance Criteria

The application must confirm to ISE Operations standards. Specifically, the application must go through BAT, OAT, PAT and MAT process for acceptance.

4.11. Legal

No changes.

4.12. Rollout Strategy

TBD

4.13. Appendix

4.14. Open Questions / Future Enhancements