CBOEDirect Release Notes

CBOEDIR_8.1

September 16, 2009

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Bug fixes included in this release

- PITS 13530 – A GTC order with STP contingency order that had been entered on May 15, 2009, became activated on May 21, 2009. In the process of trading this order, there was a NullPointerException encountered. The end result at the system level was that the order's trade activity did not get recorded, so the firm did not see a trade report immediately upon the trade occurrence. The trade report was sent to the firm as POSS DUP a few hours later.(Hemant)
- PITS 13434 to fix problem with lost capability to perform trader query/bust give the unique trade report id. This problem occurred in some cases involving multiple trade servers.(Hemant)
- PITS 13722 – ORSID 00D5O0; This order got stuck in OHS. This is not a problem order, it's just that it auctioned to many times on par (w270) and then got kicked to OHS.(Ellen)
- PITS 13718 - Several orders (172ye0, 2duL80, 2dum30 are examples) Manual Fill Report Timeout on W099. Why did these orders manual Fill Report Timeout? (Ellen).
- PITS 12803 – Auction response did not get canceled after auction ended because handling instructions were null.(Ellen).

- PITS 13125 – On products created intraday, OHS throws NullPointerexception and rejects simpl and complex order.(Ellen)
- PITS 13113/SEDL 7572 – Fix for Product Data cache race condition. (Meng)
- PITS 12814 – If Manual quote is on both the side(bid and offer), then incoming order between the market shouldbe booked in CD. (Rajesh)
- SEDL 7771 – Incorrect allocation when quote trigger is turned off.
- PITS#14008. Made the changes to the WFStepFinalDestination class to check if the last destination in the Alternated destination list is PAR workstation then route the order to OHS.(Ellen)
- PITS 13797/SEDL7708 - Currently, when an origin code (i.e. Customer, Firm, etc...) is set to restricted in OHS Routing Properties, any Open position order in a restricted class (defined in IPD) is rejected. We need Positions marked as Neither to be included in the restricted series eligibility code. Additionally, an edit should be added that will allow only "M" orders with an 'open' position AND an IOC contingency into restricted. Changes: OHS server changes only on OrderValidationDefaultStrategyImpl and OrderValidationOpenoutry to follow the new rules as requested. (Connie)
- PITS 13213/SEDL 7539 - ISO order cancelled issue. Buy ISO order should have been filled against resting "Sell order" , instead those got canceled.
- PITS 13292 – Strategy order trade through the order price when zero bid on leg market. (Crystal)
- PITS 14113 - When two spread orders trades each other, the Clearing indicator in the buy leg trade report should be 'D' for the buy side and the sell side, the Clearing indicator in the sell leg trade report should be 'D' for the buy side and 'D' for the sell side. (Ellen)

6294 – Cross product spread – monitor booked legs

Goal

The goal of this project is to add spread book and reCOA functionality for cross product spreads.

Summary of changes

Following functionalities have been added in this project: -

- Booking Cross product orders
- Monitor the legs
- Re-COA

6372 – OHS Reporting enahancement

Goal

The goal of this project is to make fixes and enahancment for report project.

Summary of changes

Included PITS are: -

- 12934 – Race condition for update close
- 12839 – Backup MDRS tables for 7 days
- 13203 – Fix for Half Hourly news wire reports

6318 – CBSX New order contingency types

Goal

The goal of this project is to provide new order contingency types (Bid peg and Offer peg) that will allow the user to send both sides of a cross as a protected order and have it print relative to the NBBO at the time. The contingency will allow the cross to be done either at the bid or the offer, or as an increment to the bid/offer. Additionally, the ISB (Intermarket Sweep Book) contingency will be allowed in CBSX and NBBO protection will be added for "I" orders.

Summary of changes

Following functionalities have been added in this project: -

- Bid Peg and Offer Peg Contingencies
- ISB Contingency for the CBSX session
- NBBO Protection for "I" orders in the CBSX session

6228 – Market Maker Handheld to CBOEdirect

Goal

The goal of the MMHH to CBOEdirect project is to replace the existing MMHH system with a new system that allows for notifications using the CMI interface. This project will also allow CMI user to manually enter and delete trades, replacing the functionality from the MMHH server.

Summary of changes

Following functionalities have been added in this project: -

- PAR Market Maker side clearing
- Creation of MMTNs to CMI, FIX users
- Ability to allow CMI, FIX users to create and delete floor trades

6356 – Reasonability Edits

Goal

The goal of this project is to add two new routing properties to bypass the Reasonability-edit for Market Makers to bypass the Reasonability-edit if the product state is pre-opening or opening-rotation.

5841 – PDS Option Symbology

Goal

The goal of this project is to support Options Symbology Initiative. Following changes were made.

- modify the PDS system to handle OSI (Options Symbology Initiative) format change and pass the changes on to our client.
- modify the existing COPP Bridge and COPP system to support OSI (Options Symbology Initiative) changes requiring passing of day of options expiry in addition to existing values of expiry month and year.
- modify the current half hourly reports to allow cboe.com to receive new option series information. This will be accomplished through the addition of expiry day and expiry year to the existing half hourly reports sent to cboe.com.

6373 – PCS Refresh

Goal

The goal of this project is to replace the automatic event based rebuilding of product class configuration(PC) cache(s) by manual AR (Administrative Request) command(s).

6307 – C2 Enhancements

Goal

The goal is to add additional functionality to the CBOEdirect code base to meet the requirements of the C2 exchange. The primary features being addressed in this project are:

- 'Do Not Route' Contingency
- AIM orders with new ISO contingency
- AIM orders with a SWEEP request
- New HAL and Linkage of Reserve Orders
- Handling Simple MKT Orders containing

5542 – New Options Linkage Plan Phase 3

Goal

The goal of this project is to add additional functionality to the CBOEdirect code base related to the New Options Linkage Plan. These features are needed to meet the overall requirements of the plan.

- New HAL for BOB classes
- Modifications to the way remaining quantity is handled in a sweep and return request
- New last sale prefix for AIM and SAL trades

Latency2

Goal

Quote Lock Notification is *disabled* for W_MAIN in CD 8.1.

Reduce Garbage collection time and improve response time in TradeServers.

6352 – NYFIX Appia 5.0 Upgrade

Goal

Reduce latency inherant in our current Appia version related to order and quote entry processing and to avoid running on an unsupported version of the vendor's application

CFE/COF DPM Allocation

Goal

Allocate to DPM only when there is only one lot for CFE/COF session.

New Linkage Bugfix 10 and 11

Goal

To fix various bug fixes in New Linkage (7.3) release. PITS/SEDLs are listed under details section below.

6391 - OPG Complex Orders

Goal

OPG Complex and Cross Product Orders are allowed to rest in the book only during “OPEN in the morning”.

Summary

1. OPG Complex Orders are allowed to rest in the spread book only during “the open”.
2. Once products have gone through the opening at 8:30, all incoming OPG orders will be cancelled.
3. MKT OPG orders are not allowed, they are rejected back with exception.
4. I OPG orders are not allowed, they are rejected back with exception.

Half hourly Report OSI

Goal

Under the Options Symbology Initiative (OSI) existing representation of option series would need to have more details like the expiry day and expiry year so as to allow definition of options expirying weekly or daily. The half hourly reports sent to the cboe.com to convey the most active series information needs to be updated accordingly to accommodate the changes for representing the individual series.

Summary of changes

The half hourly reports sent to cboe.com have been updated to include the expiry day and expiry year for each series information in the report. Currently the series information just contains the expiry month of year.

6325 HDE4

Goal

The goal of this project is to enhance the SAGUI Session Browser window to display order counts for PAR Workstations, and dynamically update users' login/logout status.

Summary of changes

The following functionalities have been added:

- The Session Browser's "PAR" tab has been modified to allow the SAGUI user to query for order counts for all PAR Workstations, or for a specific PAR Workstation.
- The Session Browser's "User" tab has been modified to update users' current login/logout status dynamically as events are received from SMS, rather than only updating the status when the SAGUI user initiates a manual refresh of the data. Columns were also added to the table in the "User" tab to display the front ends, time stamp of the last SMS update, and the Logout Message received from SMS.

6353 Client Strategy Product Cache

Goal

Cache strategy definitions in Client servers (FIXCAS, CAS, MDCAS, CFIX; will be included in SACAS in a future release) to reduce load on GlobalServer and to speed strategy lookup.

Summary of changes

- Refactor strategy lookup code so Client can share methods that Server uses
- New AR command in Clients: sessionStrategyCache
- No user-visible changes

Outage related enhancements

None

Outlier related enhancements

TTE and TT data

Goal

The goal of this critical is to enhance the FIX/CAS to use TTE and TT mechanism to track the Order and Quote within the system.

Summary of changes

FIXCAS will implement TTE to publish data locally and TT to publish data to an event channel. The TT data is collected on prdgc03a and will be transferred to devstor overnight. TTE data will store locally in FIX or CAS box and the EOD job will collect and put in prdcaslog01. Infra will create a script to read data and produce outlier report and TTE reports for FIX and CAS.

Performance related enhancements

Latency2 project.

Configuration and development/performance testing related enhancements

None

Other enhancements included in this release

OSI Compliance capability for FIX

Bugfixes included in this release

1.

Cross product spread monitor legs - Details of changes

Booking CPS orders

- CBOEdirect will book cross product spread orders per their instructions after they are auctioned and/or traded with the existing COB

Re-COA

- COB for cross products will monitor the option and equity legs market and based upon configured properties will start the ReCOA of CPS order.
- CBOEdirect will re-COA resting COB orders for cross product spreads when they are N-ticks (trading property TicksAwayForCPSReCOA) away from being marketable at NBBO.
- Once a cross product spread order is re-COA'ed, it will not be re-COA'ed again for X seconds (trading property CPSReCOAInterval).
- The resting cross product spread order will be re-COA'ed Y times (trading property NumberOfAttemptsForCPSReCOA).
- After the resting cross product spread order has been re-COA'ed Y times, it will not be re-COA'ed again for Z seconds (trading property SleepTimerForCPSReCOA).
- If a new cross product spread order is received that improves the top of the COB, all timers will be reset

PCS refresh- Details of changes

- The changes scope is to replace the automatic event based rebuilding of product class configuration(PC) cache(s) by manual AR (Administrative Request) command(s).

- The basic idea behind the change is to avoid huge burst of automatic incoming requests to Global Server upon PC data update(s) since this consumes processing cycles for rebuilding caches every time a change occurs in the product class configuration.

- With the on demand manual AR command(s), the user can flexibly update the PC cache(s) only on required/impacted processes immediately upon update(s) to PC data. This allows minimizing the load on the process rebuilding its cache and the overall load on the Global Server receiving requests for synchronizing cache(s).

- The changes also include two new AR commands for PC data retrieval by group and class.

Market Maker Handheld to CBOEdirect - Details of changes

Market Maker Trade Notifications (MMTN)

MMTNs will be created using the existing Quote Fill Report. This report will set the quoteId to 0 (i.e. zero) to represent a MMTN. Users will be required to subscribe for floor trades in order to receive these new messages. CMI users can either subscribe by using specific classkeys or by using the key of zero, for all classes. During transition, we anticipate firms receiving MMTNs over their existing CMI connection while still clearing through the old MMHH system. Once users are accustom to the new format, they can transition off the old system by having the help desk update their Firm Properties.

The FIX Execution Report for Quote Fills will be enhanced with the CBOE UDF 9465 (OrderOriginator) to support Acronym Group logins when it determines that an MMTN Message is in effect. Note that this enhancement is the result from user testing.

PAR Contra-side Clearing

With the addition of MMTNs, the system can now clear or ignore the contra-side of the PAR trades without requiring users to accept or reject notifications. A trade containing a valid contra broker and correct Firm Properties will allow all PAR trades to clear immediately within the CTMr system. Because of this, CMI users are allowed to bust these trades using a new method within the CMI interface. Trades containing invalid contra broker information will not be allowed to clear, sending a notification to the correct OMT terminal.

Firm Properties for MMHH to CBOEdirect

Firm Market Maker Trade Notification Parameter – This property must be set to true before any possible MMTNs can be created within the system. If there is no property found, the system will not send MMTNs by default.

Firm Mapping for Floor Trades – This trading property is used to map a Contra Party to a specific CMI user. Without this property defined MMTNs cannot be deliver and will routed to the proper OMT terminal.

Market Maker Trade Report Generation – This property will determine if the contra-side of a PAR trade should be marked as Clear (C) or Ignore (I). If the property does not exist, trades will be marked as ignore.

Creating or Deleting of Floor (MMHH) Trades

Create

The capability to create MMHH Trades is available in this release.

- Only Market Makers (i.e. Market Maker (M) and DPM_Role (D)) are allowed to create this new manual MM to MM trade. And, each MM is supposed to create his/her side i.e. buy or sell of the trade separately.

- The trade type of this new manual trade is 'Q' and is marked as the trade coming from CBOEdirect.

- The system accepts the trade upon verifying and validating trade inputs User ID, Executing MM Acronym, Session Name and Product Key.

- The Market Maker entering the trade will get Trade ID upon successful trade creation but he/she will not get any other confirmation such as Fill Report or Trade Notification.

- FIX Users will use User Defined Message U01 to do this.

Delete

The capability to delete MMHH Trades has also been incorporated. A valid tradeId, tradingSession, productKey, user acronym and exchangeFirm must be specified to delete an MMHH trade.

- The user acronym must match the acronym associated to the atomic trades (either buy or sell side) for the delete action to proceed.
- Only the trade(s) associated to the passed user acronym are deleted. In case of having more than one atomic trade with different acronyms only those associated to the passed acronym are deleted.
- The delete is total. In other words the full quantity is always deleted.
- If an MMHH trade is not deleted successfully an exception will be thrown specifying general cause.
- There will not be any TradeBust Reports sent out for deletes.
- FIX Users will use User Defined Message U02 to do this.

New Linkage Bug Fix 10 and Bug Fix 11

New Linkage Plan

Please refer to 7.3 release notes for details on new linkage plan. New linkage was implementated as part of the 7.3 CboeDirect release. Currently, New linkage is in production with new linkage turned off. The plan for turning on new linkage is currently 8-31-2009. There were two remaining branches that were left in new linkage that need to be in production before new linkage is turned on. These two branches consist of about 18 SEDL tickets that were found in new linakge with flags ON. The two branches have been merged to CD 8.1 Release. The following is the list of the tickets fixed for new linkage. Plesae refer to PITS and SEDL for additional information. Test Plans have been turned over for all problems below.

- (SEDL # 7473 – PITS # 13095) THE BUY ACC OF COLUMN IN MTK RELYSHOULD BE BLANK
- (SEDL # 7468) AON ORDERS THAT ARE PART OF A LOCKED CBOE MARKET DO NOT TRADE AS EXPECTED
- (SEDL # 7512) S/R PRICE IS NOT AVAILABLE ANYWHERE IN ORDER HISTORY .
- (SEDL # 7469 - PITS 13091) EVENT TYPE COLUMN SHOULD REFLECT THE AWAY EXCHANGE EACH LINKAGE FILL CAME
- (SEDL # 7472 - PITS 13094) SELL EXEC BKR COLUMN SHOULD DISPLAY XLK, NOT AEW
- (SEDL # 7511) ANY INCOMING PAR REQUEST DURING HAL ARE TRADE AT WORSE THAN SPECIFIED PRICE
- (SEDL # 7524 – PITS # 13228) IF THERE IS ONLY A ONE-SIDED QUOTE IN THE MARKET INCOMING ORDERS WILL TRADE
- (SEDL # 7540) INCOMING ORDER NOT TRADING WITH RESTING AON AFTER HAL AUCTION
- (PITS # 13350) STALE LINKAGE FILL FOR DR SITE/ELECTRONIC IS NOT REACHING TO HELP DESK OMT
- TRADE THROUGH WHEN LINKAGE STATE IS DISABLED FOR CLASS
- SEDL 7467: I-IOC orders than cannot be traded during new HAL must not be booked but rather must be cancelled immediately.
- SEDL 7478: HAL auction should not end after S/R order from PAR trades partially with the HAL order.

- SEDL 7479: OPG Market order HALed and then after the auction end, it should be cancelled.

- SEDL 7492: At the end of HALO auction, booked HALO order should have a booking event in order history.

- SEDL 7518: New HAL turn on should not break SAL mid-point price for a non-quote like order on the opposite side.

- SEDL 7547: TA/TB order should not prematurely end HAL auction.

- SEDL 7548: When linkage router vendor assignment is not configured, order will trade at CBOE.

OHS Reporting enahancments - Details of changes

Half Hourly report fix (PITS 13230)

To Fix the Half Hourly News wire report and volume reports. Currently HVOL and VOL are getting data for equity and future products. These products will appear in the reports and report validation fail, to avoid this situation we are excluding other product types such as equity, future from the processing so report validation should not fail.

Update Close race condition(PITS 12934)

Update Close for W_MAIN session was throwing the exception and the command could not finish. To Fix the Update Close command, we have modified the MarketDataSummaryServiceImpl to have update logger map inside the synchronized block, so exception should not occur while running the Update close command.

MDRS Table backup(PITS 12839)

RECAP_FOR_REPORTS and MARKET_DATA_HIST_FOR_REPORTS tables were not backed up for every day's transaction. To have a week data for investigation in backup table, Cleanup Server script is modified to truncate the today's partition from the backup table and backup today's data into the backup table. So we will have seven days data into the backup table.

CBSX New Order contingency Types - Details of changes

Bid Peg and Offer Peg Contingencies

- Order providers will be able to specify on inbound paired orders whether the paired orders should cross at the NBBO bid price, the NBBO offer price, or 'x' better than the NBBO bid or offer price (where 'x' can be designated as a value in pennies including up to 4 decimal places to indicate sub-penny values).

- The contingency information sent on the paired order set will have the following two characteristics:

    - An indication that the paired order set should cross at the NBBO Bid or the NBBO Offer ('Bid peg' vs. 'Offer peg').

    - A numeric value stored in the contingency price field representing how many pennies (including up to 4 decimal places to indicate sub-penny values) better than the NBBO Bid or the NBBO Offer at which this paired order set should trade.

    - If the specified increment should cause the price to go outside the NBBO (worse than the NBBO), the system should only increment to the other side of the NBBO. For example:

        - If the NBBO is 0.82-0.83 and the sender specifies on the paired order set that the contingency is a 'bid peg' with a contingency price of 2, the expected crossing price would be 0.84, but because it violates the NBBO, the system should cross the orders at 0.83 (assuming that there is no book being traded through).

- This contingency applies only to equity orders and the CBSX trading session.

- Note: The order price field on these orders will be set as 'Market'.

ISB Contingency for the CBSX session

ISO (Intermarket Sweep Order) contingencies, which trade regardless of the NBBO and cancel any remaining volume after trading, are already allowed into the CBSX session. This project will allow order providers to specify on inbound orders that, after trading, any remainder should be booked instead of cancelled. The remainder will be booked regardless of whether it crosses or locks an away market.

NBBO Protection for "I" orders in the CBSX session

In the current environment, orders with an origin code of "I" are treated similar to quotes and can be booked (partially or fully) even if it locks or crosses an 'away exchange'. For this project, "I" order behavior will be changed so that the order will be canceled instead of booked if the order would cross or lock the market.

Reasonabilty Edits - Details of changes

New Reasonability-edit By Class and Post/Station Routing Properties

The goal of this project is to add two new routing properties to bypass the Reasonability-edit for Market Makers to bypass the Reasonability-edit if the product state is pre-opening or opening-rotation. The new Routing Properties are the follows;

- ***Reasonability-edit Bypass By Class***
- ***Reasonability-edit Bypass By Post/Station***

PDS Option Symbology - Details of changes

The objective of this project is to modify the current PDS system to allow clients to receive new option series information. This will be accomplished through the addition of a new composite field to messages sent to clients. Overheads will be modified to handle new fields. Configurator will be modified to handle new tag positions.

The SBT will send a new 3-byte composite field to PDS. The first byte will be a binary format expiry-day [1-31], the second byte will be an ASCII format expiration-code [S,W,M,Q,C] and the third byte will also be an ASCII format leap-indicator [Y,N]. SBT will extract the information for these fields from the option expiray data-struct and by parsing data stored in the 'PROD_DESC' field of the PRODUCT table.

COPP/COPP-Bridge communication

The objective was to support 2-digit year value in expiration dates and passing of expiration-day, if missing for Reports and Summary from COPP-Bridge to COPP system. This has been done with minimal impact by redinining the definition of some of the fields within the existing interface, thus causing minimal impact.

The following changes have been made:

- Within Reports, the expiration year field, *expYear*, now carry composite data of four-charter length. The lowest significant two-digits is the expiration day. The most significant two-digits is the expiration year's last two-digits. In case of a year with last-two digits numerically less than 10, e.g. 2009, the field would be of three-character length with most significant one-digit as the expiration year.
- Within Summary, the expiration year field, *expYear*, will now carry a two-character data which will be the last two-digits of expiration year.

Half Hourly Report OSI

The objective of this project is to modify the current half hourly reports to allow cboe.com to receive new option series information. This will be accomplished through the addition of expiry day and expiry year to the existing half hourly reports sent to cboe.com.

SBT will send the new report format with the additional information expiry Day and expiration year to cboe.com.

New Options Linkage Phase 3 - Details of changes

The objective was to support 2-digit year value in expiration dates and passing of expirat

- Any AIM auction or SAL auction trade must be marked with the Last Sale Prefix of 'AUCT' and the single letter OPRA Code of 'R'
- If there is quantity remaining from the S/R request that cannot either be traded in CBOE or Linked Away then that remaining quantity must be kept ON-HOLD until all the received linked away responses are applied. After fully completing the first outbound linkage attempt (i.e. the linkage timer expires for the first time and all the responses/non-responses are applied) then the total remaining quantity from the S/R request including the non-responded / cancelled / rejected quantity must be handled as follows
    - Must not make any more outbound linkage attempts
    - if CBOE is not the NBBO then all the total remaining quantity must be returned to PAR
    - if CBOE is the NBBO and is tradable at the S/R price then the above remaining quantity must be traded up to the requested S/R price as much as possible and then return the remainder, if any, to PAR
- New HAL for BOB Class: This feature mainly involves starting the New HAL auction on a BOB Class for Tweener Lock and NBBO Reject orders even when there is a Manual Quote (MQ) present on same side of the incoming order. But if the incoming order is tradable with a MQ alone on the OPPOSITE side of the incoming order and if CBOE is not the NBBO then the New HAL auction is not started. During the New HAL auction, if there is a MQ on the SAME side of the auctioning order and if there is an incoming Non-MQ response on the OPPOSITE side of the auctioning order at a price that crosses the CBOE market on the SAME side of the auctioning order then that incoming response must be ACCEPTED and must be processed further as per New HAL rules. But if a MQ on the OPPOSITE side of the auctioning order becomes tradable then the HAL auction must prematurely end and trade with any SAME priced Non-MQ and then the remaining quantity of the auctioning order must be routed to PAR. If a MQ is not the NBBO and if there is a tradable MQ in CBOE market then during the Sweep and Link Away process, the incoming order must be swept and linked away only up to a PENNY BETTER than the MQ price but must not trade with the MQ then and after all the responses are received then on a re-evaluation if CBOE is the NBBO then the remaining underlying order quantity must trade with the available AQ first and then further remaining quantity must be routed to the Firm-Class PAR for trading with the MQ
  (Note: When a Limit Order is being swept and linked away up to a PENNY BETTER than the MQ price then the remaining quantity must not be booked or traded but rather must be kept ON-HOLD until all the responses are received or the linkage timer expires. Irrespective of whether the tradable is just MQ alone or a mix of MQ and AQ at a price point, this ON-HOLD behavior must be restricted to BOB Class only but also only when the trading involves a MQ)

C2 Enhancements - Details of changes

The goal is to add additional functionality to the CBOEdirect code base to meet the requirements of the C2 exchange. The primary features being addressed in this project are:

- 'Do Not Route' orders must be accepted both in C1 and C2. They must be rejected with an 'Invalid Contingency' if a Class is NOT enabled for New Options Linkage
- For HAL and Linkage Of Reserve Orders, the new HAL auction must be started only for the specified display quantify of the reserve order.
- Processing of simple orders at MKT price: A new trading property 'MKT Simple Order Drill-Through Amount' will be introduced to restrict the fills for a MKT order from occurring too many price points away from the INITIAL NBBO (i.e. NBBO at the time the order was received by TE). There are no changes for handling of complex MKT orders.
- AIM Sweep orders must be accepted only on New Options Linkage enabled classes For an AIM order to be handled for Sweep and Linking Away, A:AIS must be present in the Optional Data field of PO
- AIM orders with new ISO contingency: An AIM order with both Primary Order (PO) and Matched Order (MO) marked with ISO contingency will be handled as an AIM ISO order. AIM ISO orders will ignore NBBO for all purposes. When an AIM ISO order is submitted then the PO will trade against any interest in the book that is BETTER than the MO price. After trading everything up until a penny BETTER than the MO price then if possible the AIM auction is started, regardless of the NBBO. AIM ISO orders must not be allowed to start Directed AIM and must be REJECTED. Once the AIM auction is started for the AIM ISO order, the auction must be handled same as a regular AIM auction for all purposes. And similar to any regular ISO order trades, all the ISO Primary Order trades (i.e. both before and during AIM auction) must continue to be marked as a Sweep trade with the Last Sale Prefix of 'SWEP'.

Latency2 - Details of changes

Quote Lock Notification is *disabled* for W_MAIN in CD 8.1.

Object Allocations II

- Session name and other enum caching in inbound CORBA de-marshalling
- Minimize PriceSqlType creation
- Avoid nested TX on createTrade()
- Order book price level and tradable object caching
- Quote Cancel By Class Optimization (including QRM & logout)
- Optimize BOTR management in new away exchange quote processing
- ArrayBlockingQueue conversion in MarketDataService
- Calling startTransaction(String str) method in main path
- Fixed OrderBookPriceItem ArrayList creation by adding Custom Tradeable iterator.

Object Allocations III

- Order book price level and tradable object caching
- ExtensionHelper fixes (use .append() rather than +, avoid InitContainer)
- Order book iterator caching (phase I)
- Avoid quote sequence commands for sequences of 1 (most common pattern)
- Emit point for TCBCommand to copy context only if so configured (and config it to be false).
- Struct reductions:
    - PriceStruct flyweight factory config for use by infra factory [already in CD8.0?]
    - Config struct factory for all fields in QuoteStructV3 (QuoteStructV3, QuoteStruct, PriceStruct)

Other Changes

- JdkServerQueue ar commands: “drainTo” and “resurrectReader”
- Enum #pragma for all string typedefs
- **Disable QuoteLock Notification** (Needs updated release notes in order to pass the checkout)

- Publish on market buffer channel was being done on each quote for quote history which degraded response times for quote processing. The publishes are being buffered to improve response times. The market buffer data is enqueued on a publish and the queue reader thread does the buffering by blocking multiple events in a single publish. The number of events to block in a single publish, the size of the market buffer, the duration for which the queue reader thread blocks for number of events to enqueue in the queue and the max number of market data buffers that can be enqueued in the queue are configurable via tags in MarketDataBufferCollector.xml.
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Infra Changes (infra12)

- Re-implementation (simplification) of infra general logging service
- Queue Instrumentor optimization.
- POAKey allocation reductions
- CDR “save state” functionality – eliminate Integer-keyed maps
- Use linked-blocking queues in IIOP client pool

Update-Close Command Parameter Change

A parameter named updateClosingThreadPoolSize for the updateClose command is changed from 120 to 50. This parameter is an XML configuration parameter defined in MarketDataSummaryService.xml.

With introduction of new PCS groups for multiple trade servers, the updateClose command had been exhibiting an occasional server memory fragmentation that led to very long garbage collection pauses. During this time a database connection not fully logged in would time out and cause the GlobalServer to terminate. The timeout on the database side has been increased. Additionally the tuning down of the updateClosingThreadPoolSize parameter should help lessen the fragmenetation problems.

Infra 12

Included in QAINFRA_12 (Infra 12) base release, which is baselined to Latest QAINFRA_11.2

- Add CTMR alerts in LogWatcher parms
- Modify InstrumentorTypeValues.java to add constant for RATE key-value instrumentor that ICS will be using
- Some setContext changes to run ChannelAdmin as 64bit JVM, LogWatcher memory reductions
- Introduce the notion of Production "Remote" and "Local" CAS .setenv's; the difference is the MonitorURL, where "remote" CASs must point to prdgc2a/b, and "local" CASs can use mdgc02a/b. InfraEnv changes were done to support this.
- Add PERF 5 environment configuration details and .setenv's
- updateRoles changes to **not** publish "Role Updated" event by default
- Added "tcpdrop" program into VOB, for turnover to DOSS, loaded to /usr/local/bin/ or /opt/cboeutil/bin/
- LifeLine parameters can be changed dynamically
- Remove use of CacheSingleton in messaging code
- change pstats to show reserved memory address space by default
- For certain TraderService operations there is a lack of log information, for example, when exporting a service, the request can be aborted silently without any logging. Add appropriate log information if certain conditions happen
- When a process is registered with PW and no POA name, and if the process is up, its PW state is PROCESS_UP_NO_POA. When a client queries the watched process list & states the defined WatchedProcessAndStatusStruct has a field named poaState. But poaState for a process without a POA doesn't make sense. But, many clients use this as an indicator for process up/down. So, set poaState to ACTIVE if a process without POA is up.
- Provide a PRELOAD library that will intercept *_write* calls and prepend a timestamp to output. Supported systems: Solaris 10 SPARC and x86 (32-bit and 64-bit).
- Remove security server's shutdown hook due to potential deadlock risks.
- Enhance SMS admin tool: 1) ability to republish last SMS events, and 2) more granular commands to republish component states.
- Enhanced the Log Service design/implementation to improve performance.
- Put LogFormatter into a ThreadLocal so thread-safe optimizations can be done
- Address rollout issues with SecurityLogger
- Refine the logging service queue policy: 1) limited capacity: it will block if it reaches the capacity, 2) unbounded: unlimited queue growth, and 3) discarding: for a limited capacity queue, incoming log messages will be discarded if the queue reaches capacity
- AMQ "Crawler": a utility which will query AMQBrokers & display live event channel connections and map all topics/subjects per process
- Fix NullPointerException seen in the LocalTransport
- Latency: Optimize allocation and marshalling of ServiceContextLists

- Latency: Change CDRByteBufferEncoder::write_string() to use charAt() instead of creating a char[] and using getChars()
- Latency: Methods added to CDRByteBufferInputStream: public byte[] read_lookupArray() and public int getLookupArrayLength() to support LT2 enhancements added to the IDL Compiler. These methods should be called only from code generated by the IDL Compiler
- Latency: QueueInstrumentor enhancements for LT2
- Latency: reflection-free changes to persistence services
- Latency: Optimize the way POAObjectKey is created and searched
- Latency: Changed LinkedBlockingQueue for IIOPProtocolParser to ArrayBlockingQueue. Setup work so additional saveState improvements can be made later.
- Fix to not cache POAObjectKey which is passed in by other process doing invocation
- Fix NullPointerException in TopicConnectionFactoryActiveAMQImpl
- Rework the SMS dependence on PW, which will address the timing issues of IGC A/B failover
- Change logSystemExceptionBeforeRetry in GenericBindMediator so that it logs the full exception
- BDX Extent Map generator fixes
- Support CASs 500-524 in production
- Extent Map generator enhancement to send BC's OrderRouting traffic to SACAS
- Modifications to the FF EventService to eliminate use of ConsumerFilterNotifier
- Enhancements to DNconsoleUtil
- updated the defineIdContexts script

Critical Branches on top of QAINFRA_12.0

- Change EOD processing to do most of the file transfer work in the "archive" step, allowing operations to restart the system much sooner.
- EOD semaphore fix

Implementation Plan 8.1 for C1

GC Database changes

- ☐ Run the following scripts in GLOBAL to create 2 archive tables for MarketDataReportServer:
  - ☐ *recap_reports_archive.sql*
  - ☐ *mkt_hist_reports_archive.sql*
- ☐ To verify the 2 archive tables for MarketDataReportServer are created properly, run the following after "loginDb GLOBAL":

  select PARTITIONED from USER_TABLES where table_name = 'RECAP_REPORTS_ARCHIVE';

  select PARTITIONED from USER_TABLES where table_name = 'MKT_HIST_REPORTS_ARCHIVE';

  col partition_position format 999 head "Pos"
  col partition_name format a10 head "Name"
  col high_value format a50 head "High Value"
  set line 120

  select partition_position, partition_name, high_value from USER_TAB_PARTITIONS where table_name = 'RECAP_REPORTS_ARCHIVE' order by 1;

  select partition_position, partition_name, high_value from USER_TAB_PARTITIONS where table_name = 'MKT_HIST_REPORTS_ARCHIVE' order by 1;

BC Database changes

- ☐ None

Installation procedures GC02A/B

QA Steps

- ☐ At 3:15 have qa load the new software.

Server Group steps

- ☐ Most of the steps here can be done after 3:15.
- ☐ Only if needed fix the setContext file in /sbt/prod/tradeeng directory. After you login, if the setContext version has changed then the setContext is not run and you will not be able to start any process. In this case just copy the /sbt/prod/tradeeng/CBOEDIR_8.1/setContext.template file into /sbt/prod/tradeeng as setContext and then correct all the variables in it. You can use the old setContext file as an example to update the new file.
- ☐ Change run_dir links for previous release.
- ☐ Change the run_dir link in /sbt/prod/tradeeng to point to the new release.
- ☐ Logout and log back in as tradengp.
- ☐ Run script $RUN_DIR/bin/genWatchedProcessList. Verify that $RUN_DIR/properties/ WatchedProcessListServer.out is generated and that all processes are listed correctly in this file.
- ☐ Do a diff against the old and new WatchedProcessListServer.out file to ensure they are the same. **DO NOT go any further if this does not work.**

Installation procedures GC01A/B

- **QA steps**

1. At 3:15 have qa load the new software using the QA setup steps.

- **Infra group steps after end of all sessions.**

2. Shutdown tradeengine on GC1a (if it is up…).
3. Load new ACL

- **Server group steps after end of all sessions.**

4. Install new software CBOEdirect.8.1 release, change run_dir links
5. Verify the following scripts are in the RUN_DIR/bin directory
    a. addCPSCOBTradingProperties
6. Start the GC processes.
7. Add new trading properties, event channel as explained below:
    b. Run the following commands to update the trading properties:
        i. addCPSCOBTradingProperties
        ii. addMKTOrderDrillThroughPenniesProperty
        iii. TradingPropertyServiceClient setPropertyDefinitions ${RUN_DIR}/properties/TradingPropertyDefinitions.csv
        iv. TradingPropertyServiceClient setPropertyDefinitions $RUN_DIR/properties/RoutingPropertyDefinitions.csv
        v. TradingPropertyServiceClient setPropertyDefinitions $RUN_DIR/properties/FirmPropertyDefinitions.csv
    c. Recreate BestOfTheRest event channel:
        i. Run “createSbtEC BestOfTheRest” to recreate BestOfTheRest event channel
        ii. Verify BestOfTheRest event channel is recreated properly by querying trader service:

trader -query EventChannel -constraint "channelname==ProdBestOfTheRest" –verbose |grep IFR

IFR_Id : [IDL:internalEvents/UnderlyingNBBODataEventConsumer:1.0]

IFR_Id : [IDL:internalConsumers/UnderlyingNBBODataConsumer:1.0]

IFR_Id : [IDL:internalEvents/BestOfTheRestEventConsumer:1.0]

IFR_Id :
[IDL:internalConsumers/BestOfTheRestConsumer:1.0]

8. Verify that all the new properties have been setup correctly.
9. Enable global external connections on the GC.
10. Start all sessions, do a quick quote and order test on one class on each bc.
11. Ops runs an "IPD Resync" report (Window staff would verify the data, a clean report is a good report)
12. End all the sessions.

- **Other Verification after GC Upgrade**

13. Check all files (.log, .debug, .out, .err) for errors, exception's and high system alarms.
14. If you are installing the Slave side box then perform a fail-over so that the upgraded box becomes Master and then continue on with the remainder of the plan.
15. Start all sessions using the SA GUI
16. Verify on prdgc01a/b that there are no products in NO_SESSION state.
17. Use SAGUI to open test products on all the BC's. You can get the list of test classes from operations (This list is taped to one of the monitors in the basement)
18. Login to 2 trader GUI's and bring up the market display window and status window on each of the GUI's. NOTE: Status Window is a scrolling display that shows status messages for orders and quotes as and when they occur. (This window can be used to verify that OrderStatus and QuoteStatus events are working).
19. Do test trades using quotes/orders on at least one BC for all sessions.
20. For Futures TradesServers (TradeServer3) – You can use the same user to enter Orders/Quotes.
21. For Hybrid TradeServers (you will need to use quotes to trade with each other) + Enter a couple of orders.
22. Verify that CurrentMarket (Mkt Bid and Mkt ask) is showing up on the market display window. This tests out that current market events are working.
23. Verify that the last sale price and quantity fields are showing up on the Market display window. This tests out that Last Sale and Recap events are working.
24. Verify that Order Status messages (New Order, Order filled are showing up on the Status window screen)
25. Check all files on prdgc01 (.log, .debug, .out, .err) for errors, exception's and high system alarms.

- **GC - Saturday verification after upgrade**

CBOEDirect verification after Global Cluster upgrade

#	Description	PASS/FAIL
1	**GC01 - Verification test**	
2	loadOpenInterest test	
3	Product download test – CAS	
4	Restart all CASes. Verify CAS startup time.	
5	Start all sessions using the SA-GUI	
6	Verify all products are assigned to sessions and no product is in NO_STATE	
7	Transition all products for all sessions to PRE-OPEN state.	
8	Run the Tips replay, replaying the Friday 8:29-8:45 traffic. Verify that all W_MAIN classes transitioned to OPENING-ROTATION, verify ticker and recap on GUI, Verify underlying price in MDH. Verify broadcast to a PDS. **Verifies Data from MDGC1**	
9	OPEN all products for all sessions.	
10	Login test for users, Password change test for users.	
11	Run ITG Checkout scrpt on all BC's	
12	Kill a CAS to verify users are logged out - SMS test Kill 2 fe's and verify users are logged out – SMS test.	
13	Update a user via SA-GUI. Trade Engine Update should receive. - Do a simple QRM update.	
14	Using 3 SAGUI-s - Open Trading Session screen and User Management screen at the same time. System should respond in under couple of minutes for all 6 calls.	
15	Trade engine simple functionality regression test - Minimum on 2 hybrid BC-s plus CFE/ONE_MAIN/COF_MAIN	
16	Enter Quote - Current Market Publish	
17	Enter Order - Status report publish	
18	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
19	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	
20	Enter Quote - Book Depth update (dynamic) - CFE/ONE_MAIN **Verify that data goes ot of CfnAdapter1 on mdgc01 (3 outbound lines for CFE and 3 outbound lines for ONE).**	
21	Generate Half Hourly reports for News Wire and HVOL	
22	Verify MDRS as explained below.	
23	**MDGC01 Verification test**	
24	Start Tips Replay. Verify recap + ticker from Trader GUI	
25	BC10 failover test. GC01a is master.	
26	**Trade engine simple functionality regression test – ALL BC's**	
27	Enter Quote - Current Market Publish	
28	Enter Order - Status report publish	
29	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
30	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	

31	Verify recap + ticker from trader gui	
32	Verify that data CM , LS and Product states are going out to PDS's.	
33	**MDGC01 failover test with GC01a as master.**	
34	MDGC01 Re-verification test	
35	Start Tips Replay. Verify recap + ticker from Trader GUI	
36	**CFE BC01, Hybrid BC, Stock BC : Failover test. GC01a is master.**	
37	Trade engine simple functionality regression test	
38	Enter Quote - Current Market Publish	
39	Enter Order - Status report publish	
40	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
41	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	
42	Verify recap + ticker from trader gui. Verify broadcast to a PDS.	
43	Enter Quote - Book Depth update (dynamic) - CFE/ONE_MAIN	
44	**FE failover test with GC01a as master (FE03 to FE04 failover).**	
45	Enter Quote - Current Market Publish	
46	Enter Order - Status report publish	
47	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
48	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	
49	Verify recap + ticker from trader gui	
50	**GC01 Fail over**	
51	RUN ITG Checkout script on all bc's are the fail over.	
52	Enter Quote - Current Market Publish	
53	Enter Order - Status report publish	
54	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
55	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	
56	Verify recap + ticker from trader gui	
57	Verify Failover times to see how long it takes to do the complete failover (Stop + goMaster + Pre-open products)	
58	Global regression test	
59	Halt->PreOpen->Open all products in all sessions	
60	Update QRM for a user	
61	Login test for users (Logout and login and user and send Quotes and trades).	
62	Update a user via SA-GUI. Trade Engine Update should receive. - Do a simple QRM update.	
63	Using 3 SAGUI-s - Open Trading Session screen and User Management screen at the same time. System should respond in under 10 mins for all 3.	
64	Bounce a CAS and do a product download	
65	Close all products and run End Of Sale and updateClose.	
66	FC02 failover…	
67	Run ITG checkout to verify failover worked properly	

- ## Saturday Verification of Market Data Report Server

1. Using SA_GUI, check open interest for some of the products.
2. Before starting sessions, around 2:00 run loadOpenInterest for all sessions.
3. Check Global.log for status.
4. Using SA_GUI, spot check some open interest for some of the products. It is should change matching with sbt_opt_dds_open_int for W_MAIN Verify for products in other session ONE_MAIN,CFE_MAIN,COF_MAIN too.
5. Verify hourly reports are generated every half an hour by Control-M
6. Run script **createHalfHourlyReport – nw W_MAIN**.
7. Verify that new report file is generated.
   log/HalfHourly_NewsWireReport_latest.xml.log
8. Repeat above for –hvol.
9. Do not run for –opra as there is no way just to create report and not send. –opra option can be verified on Saturday testing only.
10. Run ar MarketDataReportServer1 showTickerConsumerStats and verify number messages received.
11. Do test trade on any **production** class for W_MAIN. Note : do not do this on any other day than Saturday.
12. Run ar command and verify total number of events received increased.
13. Run reports as above again.
14. Verify the volume numbers in report increased.
15. **Run and verify new end of day procedure as listed in operator procedure.**

- ## Fallback

1. See operator procedures on how to failover GC's.

Installation procedure for the BC

- **QA steps**

1. At 3:15 have qa load the new software using the QA setup steps.

- **Server group steps after end of all sessions.**

2. Verify that the BC table changes have been done as explained above.
3. Verify that the default routing properties and trading properties have been set correctly.
4. Shutdown tradeengine on the Master BC (tradengp and tradengh login).
5. Install new software CBOEDIR.xxx release, change run_dir links .
6. Start the BC processes (tradengh first and then tradengp logins).
7. Enable business external connections on the master bc.
8. Start all sessions, do a quick quote and order test on one test class on the affected BC.

- **Verification**

9. Check all files (.log, .debug, .out, .err) for errors, exceptions and high system alarms.
10. Make sure all initialization is complete on all processes.
11. If you are installing the Slave side box then perform a fail-over so that the upgraded box becomes Master and then continue on with the remainder of the plan.
12. Start the sessions affected by the particular BC install using the SA GUI (NOTE: some BC's can trade multiple sessions in different trade servers).
13. Verify on prdgc01a/b that there are no products in NO_SESSION state.
14. Use SAGUI to open test products associated with the affected BC's . You can get the list of test classes from operations (This list is taped to one of the monitors in the basement)
15. Login to 2 trader GUI's and bring up the market display window and status window) on each of the GUI's. NOTE: Status Window is a scrolling display that shows status messages for orders and quotes as and when they occur. (This window can be used to verify that OrderStatus and QuoteStatus events are working).
16. Do test trades using quotes/orders on all BC's .
17. For Futures TradesServers & Options on Futures Trade Server (TradeServer2(BC02), TradeServer4 (BC01) and TradeServer3(BC01)) – You can use the same user to enter Orders/Quotes.
18. For Hybrid TradeServers (you will need to use quotes to trade with each other) + Enter a couple of orders.
19. Verify that CurrentMarket (Mkt Bid and Mkt ask) is showing up on the market display window. This tests out that current market events are working.
20. Verify that the last sale price and quantity fields are showing up on the Market display window. This tests out that Last Sale and Recap events are working.
21. Verify that last sale is showing up on MDRS that runs on the global server.

22. Verify that Order Status messages (New Order, Order filled are showing up on the Status window screen)
23. Verify that order status and quote status messages for all the TradeServer's on that BC are getting to StatusServer.
24. Check all files on the affected BC's (.log, .debug, .out, .err) for errors, exceptions and high system alarms.
25. Run the command **`businessExternalServices start`** to make sure that remote connections are established for the adapters on that bc.
26. Run the ar command **`hsAdmin –c stats –p HybridHistoryServer1`** to verify if counts on the HybridHistoryServer are increasing.
27. Run the ar command **`hsAdmin –c stats –p HybridTradeServer1`** to verify that counts on the TradeServer are increasing (which means that the TradeServer is sending data to the history server).

Note Some times after end of session the remote application will not allow us to connect to them. So the only way to verify is by looking at the log file to make sure that the program's are making an attempt to connect to the remote system on correct ip address and correct port nbrs.

- ## Final verification

28. Close all products in all sessions using the SA GUI (Pick the tab to close ALL the products).
29. Verify memory usage for **all processes** on the BC and Garbage Collection activity by comparing with the OLD and NEW .out files.
30. End all the sessions
31. If you started this upgrade on the Slave side perform a fail-over so that the upgraded box becomes Slave now.
32. Test Complete, Notify operations.

- ## Fallback

1. See operator procedures on how to failover BC's or list instructions specific to your release here.

- **Saturday BC verification after upgrade**

#	Description	PASS/FAIL
	Hybrid BC - Verification Test	
	You will need 2 trader gui's and 1 sa gui - login thru all these guis before you start the test. TipsReplay data should be captured on a production day between 8:29-8:45	
1	Start all sessions	
2	Verify all products for W_MAIN are in closed state - use showProductStatesBySession	
3	Put products in pre-open for the whole session (verify using showProductStates to see if all hybrid products are in pre-open)	
4	Run Tips Replay and verify that all hybrid products go into opening rotation. Use showProductStatesBySession to verify.	
5	Run showProductStatesBySession for W_MAIN to ensure that all Hybrid products have changed states appropriately.	
6	While in opening rotation - Enter a dpm quote, time opening as to how long it takes to open the product (should be around 7- 10 seconds).	
7	Run ITG Checkout script on all the BC's.	
8	Send Orders - verify order status, current market state change on the trader gui.	
9	Do a few tests trades with quote - quote to test quote locks, quotes to orders to test quote trigger, verify last sale current market , order status, quote status on the Trader gui & PDS.	
10	Verify current market, last sale, trade reports, fill reports over all external connections MDB, CTM, COPP.	
11	Verify that message counts for all adapters and their appropriate connections are increasing.	
12	Update User via SA-GUI - Trade Engine Update should receive. - Do a simple QRM update and test to see it is applied and a password change	
13	Execute another trade to see if QRM takes affect and users quotes are cancelled.	
14	Verify TIPS Data is being received by the trade servers, Underlying recap, BOTR exchange indicators (Verify using ar commands)	
15	Do MDH Queries and verify NBBO,EI and other MDH data (Retrievals should be no more then 200 milliseconds). Do Page up page down, look at data and make sure the data looks legitimate for product states, quotes, trades, nbbo etc..	
16	Verify that the last sales from the installed bc's are getting to the MDRS process on the GC.	
17	Enter a manual price report in for one of the products on the Trader GUI. The last sale column should be updated. Check, MDH, there should be an entry for this last sale.	
18	Run ar TpfAdapter coppStatus command to verify that nothing has been sent to Copp	
19	Pick a class that is **not** a test class, and enter some quotes for it. Verify that quotes are sent to Copp (coppStatus command) (This can only be done during weekend testing).	

20	Run a few MDH queries. Time them – This should take only a couple of milliseconds.	
21	Enter a quote for a test class on each BC. Verify that the appropriate MDBAdapter received it.	
22	Enter a last sale for a test class on each BC. Verify that the appropriate MDBAdapter received it	
23	Run “ar commands” on HybridTradeServer and on the History Server processes to ensure that counts are increasing in nature and that the History Server is indeed being used for persistence. (Use the script **hsAdmin** to verify counts)	
24	**BC Failover tests (BC01, BC02) – ONE_MAIN, CFE_MAIN, COF_MAIN, HYBRID**	
25	Use the procedures as listed in the operator procedures and have ops execute the BC & Hybrid failover over procedures.	
26	Time the fail over	
27	After the fail over run the ITG checkot script on all BC’s.	
28	Enter Quote - Current Market Publish	
29	Enter Order - Status report publish	
30	Quote - Quote Trade - Trade report publish - Status Report publish - Current Market Update	
31	Quote - Order Trade - Trade report publish - Status report publish - Current Market Update	
32	Do MDH Queries and verify that data shows up on the Trade GUI.	
33	Enter Manual Quote – Verify Current Market Update	
34	Enter Manual Price Report – Verify Current Market Update – Verify MDH entry	
35	Open DSP (Display Price Series) screen and check information displayed for product	
36	Close the products, End the sessions and verfy that all the sessions have ended successfully.	

Installation procedures – SACAS hosts

QA steps

- ☐ On installation day after end of trading, deliver planned INFRA and SBT releases and scripts to designated SACAS and SAGUI boxes.

Infrastructure group steps

- ☐ Update the ExtentMaps for the designated SACAS boxes and refresh the ChannelAdmin.

Client group steps

- ☐ Refer to ***CASProductionInstallation.doc*** and follow the implementation procedures.
- ☐ (SACAS should already be configured to use JDK 1.6.0_14).

GUI group steps

- ☐ Install SAGUI on one box (possibly 2 or 3 boxes) so that SACAS can be verified.

Verification

- ☐ Verify that each SACAS rolled out is visible in Patrol.
- ☐ Use new SAGUI to log on and ensure that it receives data from SACAS. In particular, check the User Management Window, the Product Class Groups window, and the Product Definition window.
- ☐ On the first day of SACAS rollout, check all files (.log, .debug) for errors, exceptions and high system alarms.

Fallback

- ☐ Follow the standard backout procedure.

Installation procedures – CAS hosts

QA steps

- ☐ On installation day after end of trading, deliver planned INFRA and SBT releases and scripts to designated CAS boxes.
- ☐ On installation day after end of trading, install new configureCAS.ksh onto each CAS box being upgraded.

Infrastructure group steps

- ☐ Update the ExtentMaps for the designated CAS boxes and refresh the ChannelAdmin.

Client group steps

- ☐ Refer to ***CASProductionInstallation.doc*** and follow the implementation procedures.
- ☐ (CAS should already be configured to use JDK 1.6.0_14).
- ☐ Remove line export OSI_SESSIONS=NO_SESSION from hostname. setContext.v2cas01 if found. This propery is OSI specific and should not be rolled out at this stage.
- ☐ 8.1 Release has Heap size change which allows over 2GB meory for CAS process. Old 4100 CAS machies will not be able to support 2GB configuration. So, before rolling out 8.1 to everywhere, first prepare a list of 4100 boxes and decide a separate rollout plan for them with different memory settings. When rolling out these 4100 Boxes, loadClient script configures all of them with 4GB memory sesstings. Override this setting by preparing *hostname*.setContext.v2cas01 (in the installation setup directory) with this additional line before performing the installation:

  export CLIENT_HEAP_SIZE=2048M # override v2cas01/bin/setContext

  After the CAS starts, verify correct startup by examining the process arguments:
  pargs *processId* | grep Xm

- ☐ Stock CAS Boxes(3000 Series) were not upgrated to 8.0 during 8.0 rollout. So, there should be additional Properties in setContext and setContext.hostname files for these boxes.Change the configuration value for setContext file to add new parameters
  export SESSION_NAME= W_STOCK

  Copy file hostname.setContext from /home/cas/ProdConfig to /home/cas/Install.version.prod, and modify the copy. Change the configuration value for setContext.<engine> (i.e. setContext.v2cas01) file to add new parameters

  export EVENT_CACHE_CLASS=com.cboe.domain.iec.NoPoolingChannelEventCache

- ☐ Check with your manager for local cas vs remote cas setting changes if any. These setting can be changed by modifying file hostname.setcontext.v2cas01. Modify following property as needed,

  export CAS_REMOTE=false.

Verification

- ☐ Verify that each CAS rolled out is visible in Patrol.
- ☐ If today's rollout included a floor cas (cas0014, cas0015, cas0016, cas3005), use a Trader GUI to connect to it and make a trade using a test symbol. Ensure that the MarketDisplay window uses MDX. If possible, do two tests, one with a product in session W_MAIN and one with a product not in W_MAIN.
- ☐ On the first day of CAS rollout, Infrastructure group verifies that CAS is getting status via the ExternalQuoteStatus and ExternalOrderStatus channels.
- ☐ On the first day of CAS rollout, check all files (.log, .debug) for errors, exceptions and high system alarms on the CAS host and on the appropriate FE pair.

Fallback

- ☐ Stop CAS and Infra processes.
- ☐ Client Group will change the run_dir and v2cas* directories to previous release.
- ☐ Operations will start Infra and CAS processes via Patrol.

Installation procedures – FIXCAS hosts

QA steps

- ☐ On installation day after end of trading, deliver planned INFRA and SBT releases and scripts to designated FIXCAS boxes.
- ☐ On installation day after end of trading, install new configureCAS.ksh onto each FIXCAS box being upgraded.
- ☐ When building the FIX tar file, a conmand line similar to the following should be used.

  FixEnv -c eng_15.cfg -s convert2OSI.cfg SBT_8.1

  (using an appropriate eng_??.cfg file for the host and replacing "SBT_8.1" with the exact label)

Infrastructure group steps

- ☐ Update the ExtentMaps for the designated FIXCAS boxes and refresh the ChannelAdmin.

Client group steps

- ☐ Refer to CASProductionInstallation.doc and follow the implementation procedures.
- ☐ (FIXCAS should already be configured to use JDK 1.6.0_14).
- ☐ Remove line export OSI_SESSIONS=NO_SESSION from setContext.v2fixcas?? if found. This propery is OSI specific and should not be rolled out at this stage.
- ☐ Fix stock CASes((fix20a, fix20b, fix21, fix21bk, fix22)) were not upgrated to 8.0 during 8.0 rollout. So, there should be additional Properties in hostname.setContext and setContext.<engine> files for these boxes.

  Change the configuration value for hostname.setContext file to add new parameters
  export SESSION_NAME= W_STOCK

  Change the configuration value for setContext.<engine> (i.e. setContext.v2fixcas01) file to add new parameters

  export EVENT_CACHE_CLASS=com.cboe.domain.iec.NoPoolingChannelEventCache
- ☐ Check with your manager for local fix vs remote fix setting changes if any. These setting can be changed by modifying file setContext.<engine>. Modify following property as needed,

  export CAS_REMOTE=false.

Verification

- ☐ Verify that each FIXCAS rolled out is visible in Patrol.
- ☐ On the first day of FIXCAS rollout, run a FIX script to connect to the FIXCAS and make a trade using a test symbol. If possible, do two tests, one with a product in session W_MAIN and one with a product not in W_MAIN.

- ☐ On the first day of FIXCAS rollout, check all files (.log, .debug) for errors, exceptions and high system alarms.

Fallback

- ☐ Stop FIXCAS and Infra processes.
- ☐ Client Group will change the run_dir and v2fixcas* directories to previous release.
- ☐ Operations will start Infra and FIXCAS processes via Patrol.

Installation procedures MDCAS hosts

QA steps

- ☐ On installation day after end of trading, deliver planned INFRA and SBT releases and scripts to designated MDCAS boxes.
- ☐ On installation day after end of trading, install new configureCAS.ksh onto each MDCAS box being upgraded.

Infrastructure group steps

- ☐ Update the ExtentMaps for the designated MDCAS boxes and refresh the ChannelAdmin.
- ☐ Set up MDCAS to use JDK 1.6.0_14.
- ☐ Configure INFRA installation.
- ☐ Verify as Operations runs startInfraSystem.

Client group steps

- ☐ Refer to ***CASProductionInstallation.doc*** and follow the implementation procedures.

Verification

- ☐ Ensure that Infra System and MDCAS processes start successfully when Operations starts them.
- ☐ On the first day of MDCAS rollout, check all files (.log, .debug) for errors, exceptions and high system alarms.

Fallback

- ☐ Follow the standard backout procedure.

Installation procedures – CFIX hosts

QA steps

- ☐ On installation day after end of trading, deliver planned INFRA and SBT releases and scripts to designated CFIX boxes.
- ☐ On installation day after end of trading, install new configureCAS.ksh onto each CFIX box being upgraded.

Infrastructure group steps

- ☐ Update the ExtentMaps for the designated CFIX boxes and refresh the ChannelAdmin.
- ☐ Set up CFIX to use JDK 1.6.0_14.
- ☐ Configure INFRA installation.
- ☐ Verify as Operations runs startInfraSystem.

Client group steps

- ☐ Refer to ***CASProductionInstallation.doc*** and follow the implementation procedures.

Verification

- ☐ On the first day of CFIX rollout, check all files (.log, .debug) for errors, exceptions and high system alarms.

Fallback

- ☐ Follow the standard backout procedure.

Installation procedures LC's

QA steps

- ☐ At 3:15 have qa load the new software using the QA setup steps as documented above.

Server group steps

- ☐ Master or Slave side can be upgraded after 3:15. There is no need to wait for End Of Session.
- ☐ If installing the master side box. Then shutdown tradeengine processes on the Slave Side first then shutdown tradeengine processes on the master side.
- ☐ If installing the slave side then Shutdown tradeengine processes on the Slave side.
- ☐ Verify QA setup steps from above (as listed in this document, use the check list for verification).
- ☐ Only if needed fix the setContext file in /sbt/prod/tradeeng directory. After you login, if the setContext version has changed then the setContext is not run and you will not be able to start any process. In this case just copy the /sbt/prod/tradeeng/CBOEDIR_8.0 /setContext.template file into /sbt/prod/tradeeng as setContext and then correct all the variables in it. You can use the old setContext file as an example to update the new file.
  - ☐ set the ALT_HOST for the LC to the host name of the paired LC (for example, if is installing on prdlc01a, then the ALT_HOST should be prdlc01b**)**
- ☐ Change run_dir links
  - ☐ NOTE : Delete orun_dir and move run_dir to orun_dir. Helpdesk needs "orun_dir" to look at old log files.
  - ☐ Change the run_dir link in tradeeng to point to the new release CBOEDIR_8.0
  - ☐ Logout and log back in as tradengp.
- ☐ Do any database conversions if needed..
- ☐ Establish SFTP keys by entering the following on each machine being rolled out to:

  a. ssh –l tradeeng deepfrz

  The above ssh command should bring you to a login prompt. You might have to answer "yes" if asked to accept the key. If it doesn't ask the question nor bring you to a login prompt, do not continue and get additional support.

  Also, if rolling out to the DR site, the hostname deepfrz should be replaced with *drdeepfrz* as in the following command:

  ssh –l tradeeng drdeepfrz

  b. exit

- ☐ Have operations bring up tradeengine processes using PATROL
- ☐ If this is the slave box then failover and run thru the verification steps listed below.

- ☐ If you are installing the master side then run **`linkageExternalServices start`** to verify if the connections are established correctly.
- ☐ Also use the OLA Fixometer to connect to OCC to verify if all connectivity is OK.

Note Some times because TPF is down and OCC is down you may be unable to connect to the external systems, in this case just verify in the log files that we have made an attempt and that the other systems are down at the time.

Verification

- ☐ Check all files (.log, .debug, .out, .err) for errors, exceptions and high system alarms.
- ☐ Make sure all initialization is complete on all processes.
- ☐ If you are installing the slave side box then installation is complete. (Just make sure operations runs the slave box in master mode the next day).
- ☐ When installing the Master side run through the procedure on "How to check Linkage processes using Test Orders". Follow the procedures as documented in the "Linkage Operator procedures". Basically a script "**`checkLinkageTestOrder`**" needs to be run that will test out the flow between all processes.
- ☐ Verify memory usage for **all processes** on the LC's and Garbage Collection activity by comparing with the OLD and NEW .out files.