CBOEDirect Release Notes

CBOEDIR_8.2 and Infra 13

October 16, 2009

Table of Contents

Table of Contents 2

Summary of projects 5

Summary of SEDL fixes: 5

WR#6378 – Latency III 7

Infra 13 7

Away Exchanges Optimizations 7

Object Allocations IV 7

Other Changes 7

Contention Changes 7

WR#6228 Market History via Buffers 8

WR#6227 CBSX Trade Reversals 9

WR#6398 – Non-Entitlement Matching Algorithm (NEMA) 10

WR#6384 – NBBO Protection for quotes 11

WR#6273 – CBSX Linkage without Flash 12

Infra 13 12

Implementation Plan 8.2 for C1 13

GC Database changes 13

BC Database changes 13

Installation procedures GC02A/B 13

QA Steps 13

Server Group steps 13

Installation procedures GC01A/B 14

- QA steps 14
- Infra group steps after end of all sessions. 14
- Server group steps after end of all sessions. 14
- Other Verification after GC Upgrade 14
- GC - Saturday verification after upgrade 15
- Saturday Verification of Market Data Report Server 17
- Fallback 17

Installation procedure for the BC 17

- QA steps 17
- Server group steps after end of all sessions. 17
- Verification 18
- Final verification 18
- Fallback 19
- Saturday BC verification after upgrade 19

Installation procedures – SACAS hosts 20

(No SACAS install) 20

Installation procedures – CAS hosts 20

(No CAS install) 20

Installation procedures – FIXCAS hosts 20

(No FIXCAS install) 20

Installation procedures MDCAS hosts 20

(No MDCAS install) 20

Installation procedures – CFIX hosts 21

(No CFIX install) 21

Installation procedures LC's 21

QA steps..... 21

Server group steps..... 21

Verification 22

Summary of projects

- WR#6378 – Latency III
    - No business functionality changes.
- WR#6228 – Market History via Buffers
    - No business functionality changes.
- WR#6227 – CBSX Trade Reversal
    - Allow trade reversals to be created in CBSX.
- WR#6398 – Non-Entitlement Matching Algorithm (NEMA)
    - New allocation for non-entitlement processing.
- WR#**6273** – CBSX Linkage Without Flash
    - Skip Stock NBBO Flash and link away.
- WR#**6384** – CBSX NBBO Protection For Quotes
    - The goal of this project is to provide NBBO protection for quotes in CBSX.
- WR#**6307** – C2 Enhancements (continued)
    - AIM enhancement(autolink-request and ISO support) for C2 and W_MAIN

Summary of SEDL fixes:

Note: Sedl 7252 / Pits 12464 (class-based quote token) has been cancelled for CD8.2

SEDL	PITS	Rep	Description
7354	12596	Jim	CBSX short-sell w/ conting=27 rejected
7359	12634	Jim	CSCO spread products stuck in rotation
7636	11344	Frank	100,000'th update to property fails silently in GlobalServer. Add validation
7691	13655	Raghu	RTT problem FE->OHS (due to OHS order locking issue)
7726	13799	Ellen	Cancelled order stuck on OMT
7747	13892	Sri	Last sale to have 'S' sweep indicator attached
7782	13900	Misbah	Balance of 'S' sweep trade to open outcry from PAR
7812	13891	Raghu	Bypassed reasonability check @ close
7885	14023	Bob	cd8.1: reserve order remainder routing to HOMT rather than TE book
7968	14208	Hemant	Stock linkage trade volumes missing in RIO file
7982	14342	Hemant	Error in updateActivityTime in cancelQuotesForUser
8058	n/a	Bill	Add RTT timeout OHS->LC
8076	14375	Lin	DPM 5 lot allocation ratio change
8104	14552	Ellen	SPX order routed from PAR to TE routed back to wrong PAR on manual quote
8113	14629	Connie	Allocation fix for SAL, specific to C2
8115	14494	Ellen	Cxl/re that changes leg ratios was not rejected.
8118	14228	Ellen	Broker unable to “print” order from OMT

8138	14461	Connie	AON allocation issue on 5 lots or less
8172	14512	Jay	CBSX corrupt book in symbol STEC
8276	14908	Anil	Correct queue implementation's clearWhenFull setting (could hang enq op)
8345	n/a	Anil	AIM auction delays (trading property being lazily initialized)
8372	15208	Jay	2nd fix for reserve order overfill
7952	n/a		NPE in BOCollector (deprecated code base as of cd8.2)
8374	15355	Jay	0x0 markets in CBSX when updating quotes, etc.
8375	n/a	Anil	AddStrategyCommand calling GlobalServer
8199	14746	Sri	Last Sale Pre n AIM Sweep Cust - Cust the PO is trading with MO before a resting Customer Order at the same price as MO
8200	14748	Sri	In AIM ISO Cust- Cust the PO is not sweeping the CBOE book and instead is trading fully with the MO
8201	14749	Sri	In both AIM ISO Cust - Cust and AIM SWEEP Cust - Cust, a MO crossing the PO side market but at a super-marketable price results in both PO and MO getting cxld
8202	14808	Sri	In AIM SWEEP Cust - Cust, the NBBO check on PO side is being ignored resulting in trades outside the NBBO
8196	14827	Sri	Handling the S/R order after sweep and link away and before returning to PAR
8379		Sri	If a CXL/RE is submitted against an original order that DOES NOT have a DoNotRoute contingency, reject the RE if has a DoNotRoute contingency.
	15224	Mike	2 legged Cross-Product simple Buy_write Auction Response Accepted at Adjusted DSM
	14745	Mike	2 legged Cross-Product simple Buy_write AIM price improvement 1 penny
	14513	Mike	3 legged Cross-Product spread auction response reject
	14543	Mike	Order resting in CPS COB, improve AIM price 1 penny
	14551	Mike	Order resting in CPS COB inside Adjusted DSM

WR#6378 – Latency III

The Latency III (LT3) project is a project which introduces a set of internal structural changes to the trade server process in the interest of improving performance. Garbage collection characteristics are especially targeted in this phase of the Latency initiative.

Note that two features which were intended to be included with this project have been removed:

- JGrinder transaction enhancements (removing Field accesors, using whole-object copies as transactional entities).
- New GMD implementation, based on JCache. This was targeted for infra13, but will instead be delivered with infra 13.1 (after CD8.2).
- Session name and other enum caching in inbound CORBA de-marshalling. This was not perf tested, so it will be re-tested after CD8.3.
- Redundant DB Broker changes have been deferred to CD8.3 due to a dependency on an infra change to support batching.
- Pool MarketDataWriteBuffers has been deferred to a future load since it's performance testing did indicated a degredation and time constraints did not permit an investigation.

The principal changes in LT3 are a re-engineering of the BOTR feed, pooling several types of internal objects.

A more comprehensive list of changes follows:

Infra 13

Eliminate remaining LinkedBlockingQueue$Node usage

Away Exchanges Optimizations

- Invert the BOTR calculation to the getter() (making it less frequent)
- Re-implement the away exchange cache (phase 2 of 2)

Object Allocations IV

- Fixed OrderBookPriceItem ArrayList creation by adding Custom Tradeable iterator.
    - (this had been slated for cd8.1, but was not bug-free by the cut-off date)
- Fly-weight implementation of MarketVolumeStruct instances

Other Changes

- Publish Market Buffer directly to channel
- Re-implemented remaining use of "old" server queue to ServerJDKQueue

Contention Changes

- Optimize getBotrQuantities (for HAL)
- Removed synch point from current market publisher
- Re-implemented count-down latch for parallel quoting
- Replaced synchronized map in SessionLocal storage
- Removed synchronization from quote home userid cache

WR#6228 Market History via Buffers

In a continuance of the changes being introduced for propagating quote history to the history severs via custom byte buffers, this project similarly converts market history events to the new encoding mechanism. This removes the last direct linkage between the trade server and history server, allowing for future projects to introduce redundant history servers, etc.

As part of this development effort, the data structures internal to the trade server used to propagate current market events were re-implemented to facilitate the conversion of histories to market buffers.

Note that as of this release, history server disconnects from trade server are less likely, and additionally are automatically recovered within a minute, so operator intervention is no longer required.

These changes should not change any of the data committed in market data history.

WR#6227 CBSX Trade Reversals

The goal of the CBSX Trade Reversal Function for SA GUI project is to provide the ability to properly reverse CBSX trades. The objective of this project is to develop SA GUI functionality that will improve trade reversal processing in CBSX.

Today, the Help Desk does not have the ability to properly flag trade all reversals for trades that occurred 'today' or for past dates. This has led to some billing problems in the past. By adding 3 additional functions to the SA GUI, the users will be able to correctly reverse 'regular' trades, report linkage trades, and reverse linkage trades.

The strategy for this project is to enhance the block trade screen on the SA GUI and related applications to support the additional trade reversal functionality.

- The Cd Server development group will make a system change that will allow the 'Regular Trade', 'Reverse Regular', 'Report Linkage Trade, and 'Reverse Linkage Trade' functions to be performed in any of the following product states:

    - Pre_Open
    - Opening_Rotation
    - Open *and* On_Hold *and* Ending_Hold

WR#6398 – Non-Entitlement Matching Algorithm (NEMA)

The following is the new allocation algorithm that we are discussing to help curb professional customers.

1. If there is no customer on the market, use the configured algorithm.
2. If there is a customer on the market and the customer was first at that price, use the configured algorithm.
3. If there is a customer on the market and the customer was not first at that price, allocate using either:
    4. Modified market-turner and pro-rata (no customer priority, no DPM/eDPM/PMM participation rights)
    5. Pro-rata (no customer priority, no DPM/eDPM/PMM participation rights)

The choice between market-turner/pro-rata or just pro-rata should be configurable by class and should not be tied to the ‘regular’ algorithm for the class.

WR#6384 – NBBO Protection for quotes

The objective of this project is to bring CBSX in compliance with the Reg NMS rule that prohibits quotes from locking or crossing the market.

The scope and approach for this project is to have the **CBOEdirect Server** group enhance the system so that inbound quotes will be canceled if they would lock or cross the NBBO market (i.e. they are not to be booked).

WR#6273 – CBSX Linkage without Flash

Use the Auction Enabled flash to disable the flash of a CBSX order and send directly to Linkage.

Infra 13

- Update ActiveMQ base software to version 5.2 GA
- Add support for Master/Slave negotiator in AMQBroker. This will allow the Master broker to match up & run on the same “side” as other application processes
- support for TTE in pub/sub events
- Security Enhancements that include RSA token support for authentication, and authentication restrictions by IP address
- IdService: Add code to print a warning message if an IDContext’s current value exceeds a configurable percentage of the maximum
- Changed Grizzly DefaultThreadPool so it allocates ArrayBlockingQueue instead of LinkedBlockingQueue, change MaxQueueSize to MaxPoolSize*2, and set non-MAX_INT size for default queue size in DefaultThreadPool
- LogWatcherEnhancements: 1) change text prior to publish, 2) throttle upon receipt count, and 3) throttle upon exceeding rate threshold
- Add “unregister from file” support in PW utility
- Change pstats, replacing %Lock column (no longer meaningful) with a column indicating whether the program is running in the 32-bit or 64-bit memory model
- Augment FoundationFramework TransTiming interface with routines to set or get the starting time; used for RTT purposes
- Support for BDX in configs
- Update cmdConsUtil to ask “are you sure” for a Full GC directive
- Change cmdConsUtil to try IIOP first, then TIOP
- Updates to CreateEventChannel.java to support an input file for creating channels
- Update TraderUtility.java (displayEC method) to make it more useful. In conjunction to this a change was made to EventJMSProfileImpl.java to return a “short form” of Session and Connection policies
- When a call to the Locator from ToftRebinder times out, a null object is returned by the ORB. But this also happens if the Locator returns "OBJECT_HERE". To avoid this ambiguity, an exception will be returned in the case of time out and caught in ToftRebinder.

Implementation Plan 8.2 for C1

GC Database changes

None

BC Database changes

New column added to the user_smart_cache table. An existing constraint must be modified, also.

alter table user_smart_cache add (TRADESERVERID NUMBER(1));

alter table user_smart_cache drop constraints USER_SMART_CACHE_U1;

alter table user_smart_cache add constraints USER_SMART_CACHE_U1 unique (userId,tradeserverid);

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. Start the GC processes.
    6. Add new trading properties, event channel as explained below:
        a. Recreate MarketBuffer event channels:
            i. Run "createSbtEC MarketBuffer#" to recreate BestOfTheRest event channel
            ii. Verify MarketBuffer event channel is recreated properly by querying trader service:

        trader -query EventChannel –verbose |grep MarketBuffer

    7. Enable global external connections on the GC.
    8. Start all sessions, do a quick quote and order test on one class on each bc.
    9. Ops runs an "IPD Resync" report (Window staff would verify the data, a clean report is a good report)
    10. 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. Run ITG checkout scripts on all BC's
    18. 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. **Update the version number in ~/setContext to 11 (no other change in setContext is required for BCs)**
  7. **Update the user_smart_cache table:**
     i. **SQL> update user_smart_cache set tradeServerId=1;**

ii. SQL> commit;

8. Start the BC processes (tradengh first and then tradengp logins).
9. Enable business external connections on the master bc.
10. Start all sessions, do a quick quote and order test on one test class on the affected BC.

- **Verification**

11. Check all files (.log, .debug, .out, .err) for errors, exceptions and high system alarms.
12. Make sure all initialization is complete on all processes.
13. 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.
14. 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).
15. Verify on prdgc01a/b that there are no products in NO_SESSION state.
16. 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)
17. Run ITG checkout scripts for the affected BC's
18. Check all files on the affected BC's (.log, .debug, .out, .err) for errors, exceptions and high system alarms.
19. Run the command **businessExternalServices start** to make sure that remote connections are established for the adapters on that bc.
20. Run the ar command **hsAdmin –c stats –p HybridHistoryServer1** to verify if counts on the HybridHistoryServer are increasing.
21. 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**

22. Close all products in all sessions using the SA GUI (Pick the tab to close ALL the products).
23. Verify memory usage for **all processes** on the BC and Garbage Collection activity by comparing with the OLD and NEW .out files.
24. End all the sessions

25. If you started this upgrade on the Slave side perform a fail-over so that the upgraded box becomes Slave now.
26. 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

(No SACAS install)

Installation procedures – CAS hosts

(No CAS install)

Installation procedures – FIXCAS hosts

(No FIXCAS install)

Installation procedures MDCAS hosts

(No MDCAS install)

Installation procedures – CFIX hosts

(No CFIX install)

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 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.