

Johannesburg Stock Exchange

Post-trade Services

JSE Guidance Note

Volume PT203 – Guide to Voluntary Clearing Member Testing (VCMT)

Version	1.00
Release Date	08 August 2017
Number of Pages	16 (Including Cover Page)

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1 DOCUMENT CONTROL

1.1 Document information

Drafted By	JSE Post-trade Services
Status	Initial version
Version	1.00
Release Date	08 August 2017

1.2 Revision history

Date	Version	Description
08 August 2017	1.00	Initial published version

1.3 References

Note: The documents in the table below are published on the ITaC website: <https://www.jse.co.za/services/itac>

Name	Description
Trading Related	
Volume 00D - Trading and Information Overview for the Derivative Markets	Provides an overview of the JSE trading services and capabilities for the Derivatives Markets
Volume 00E - Trading and Information Overview for the Equity Market	Provides an overview of the JSE trading services and capabilities for the Equity Market
Post-trade Related	
Volume PT01 – Post-trade EMAPI Common	Describes the semantics and syntax of the common or session/admin EMAPI protocol messages.
Volume PT02 – Post-trade EMAPI Clearing	Describes the semantics and syntax of the clearing or application messages of the EMAPI protocol.
Volume PT03 - Post-trade Margining Methodology Specification (JSPAN)	Describes in detail the JSE margin methodology including all calculations used in deriving margins
EmapiTransactionsForMember.html	HTML file describing the syntax of all EMAPI protocol messages for market participants i.e. clearing and trading members
EmapiTransactionsForMember.xml	XML definition of all EMAPI protocol messages for market participants i.e. clearing and trading members
EmapiTransactions.xsd	XML schema for EMAPI messages defined in “EmapiTransactionsForMember.xml”
EMAPI TagWire v1.1	Describes the syntax of the TagWire encoding of EMAPI messages

1.4 Contact details

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1.6 Definitions, acronyms and abbreviations

Term/Abbreviation/Acronym	Description
VCMT	<p><u>Voluntary Clearing Member Testing:</u> This is a passive phase of testing being offered by the JSE to its Clearing Members and software vendors, to assist them in testing their own solutions. This phase of testing is voluntary, and while participation is advised it is not mandated by the exchange.</p>
MCMT	<p><u>Mandatory Clearing Member Testing:</u> This phase of testing is mandatory, and is a pre-requisite for all Clearing Members going live with the JSE ITaC project. The MCMT phase will cover the full scope of ITaC testing for the Post Trade Services solution, including Billing.</p>
PPT	<p><u>Production Position Testing:</u> This phase of testing will provide for a take-on of production positions followed by an end-of-day with production prices on the new Post Trade Services Solution. It will provide clients the opportunity to reconcile margin calculations with production portfolios and prices.</p>
Test scenarios	<p>Prior to commencement of MCMT clients will be provided with detailed test scenarios that will be executed during this test phase. Included in these scenarios are the expected outcomes, to be observed and recorded as part of the scenario execution. Clearing Members are encouraged to review the initial scenarios and suggest any additional scenarios they would like executed.</p>
Transactional data pack	<p>This is a document that describes the data to be utilised for each of the test scenarios, which will be shared a day prior to the scheduled execution of the respective scenario(s).</p>
Test schedule	<p>This is a document that describes the daily schedule according to which the test scenarios will be executed.</p>
CSC Team	<p>Client Services Centre: These are JSE resources that are responsible for aiding clients in the resolution of queries and issues during the various test phases. They are the first point of contact during testing as well as for all production related queries.</p>

1.7 Document purpose

The purpose of this document is to provide Clearing Members and their software providers with guidance as to how the JSE Voluntary Clearing Member Testing (VCMT) process for the JSE ITaC project will be run. Key elements of this guide include:

- Entry and exit criteria
- High-level testing scope
- High-level view of daily run schedule
- Testing processes and procedures
- Testing progress status updates
- Defect and query logging process
- Data preparations and requests

1.8 Document exclusions

Any items not listed in this document are excluded from the scope of this document, however for further clarity the following requirements are explicitly excluded (document references for items out of scope have been inserted where relevant):

No.	Requirements	Description
1	Volume testing	Volume testing will not be part of the VCMT and MCMT phase of testing. It will be executed as part of the dress rehearsals.
2	Resilience (failover and disaster recovery) testing	Resilience testing will not be part of the VCMT and MCMT phase of testing. Clients will have an opportunity in the dress rehearsals to test from their high availability/ disaster recovery processes into the JSE primary site.
3	Foreign currency collateral	Out of scope of VCMT and MCMT as after consultations with clients FX collateral has been removed from ITaC Project 1 scope

2 OVERVIEW

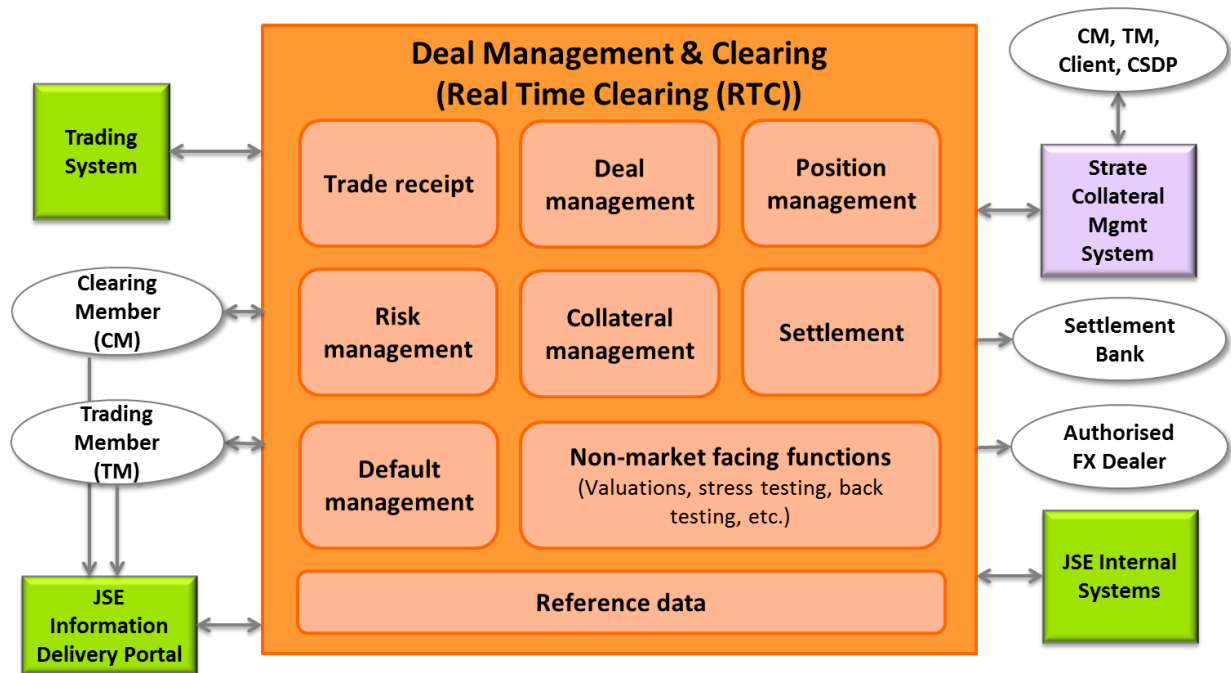
The purpose of this document is to provide clients with the required information to participate in the Voluntary Clearing Member Testing (VCMT) phase of the JSE ITaC project. The VCMT phase will provide the ability for Clearing Members and software vendors to gain early access to the JSE functional test environment, in order to test their clearing functions and processes by interacting with the JSE clearing system (i.e. RTC). The testing will cover a range of functional areas and will ultimately prove if Clearing Members' systems can interact and behave as specified against the functionality available in the JSE clearing system – particular focus will be on message flows and calculations functions. Testing will include the run-through of scenarios that are typically experienced during regular business days, as well as others that are more periodic.

VCMT will be open to all clearing-specific software vendors, whether they have already contracted with Clearing Member clients or are developing solutions for future potential clients. VCMT will not be available to software vendors providing solutions to Trading Members only. This is the case even though deal management and some other functions used by Trading Members are facilitated by RTC. The testing of Trading Member solutions will be done through the combination of testing in the JSE CTS environment, conformance and market dress rehearsals phases. The Mandatory Clearing Member Testing (MCMT) phase, that will follow a more formal testing and sign-off approach as well as the formal execution of a wider set of test scenarios, will follow post the VCMT phase.

The following documentation should be read in conjunction with this document to gain a better understanding of all the functions and processes that are applicable in the new JSE clearing solution: [Volume PT00 – Post-trade Services Overview](#)

3 Derivative post-trade testing landscape

The following diagram provides an overview of the JSE derivative post-trade services that will form part of VCMT.



4 Voluntary Clearing Member Testing (VCMT)

VCMT will be conducted using the JSE test environment. Clearing Members are encouraged to join this phase of testing in an effort to prove and optimise their own system and integration testing. This will allow Clearing Members to execute high-level end-to-end testing with the JSE by ensuring that data flows are performing as expected, and that margin and settlement calculations produce outputs identical to those derived by the JSE. The JSE will verify that a client is ready to join the VCMT phase (refer to '[Entry and Exit Criteria](#)' section).

Below is a high-level overview of what Clearing Members may expect during VCMT:

- VCMT will dovetail the JSE's internal consolidated testing i.e. it will leverage and follows the scope, scenarios and execution sequence planned for consolidated testing
- Clearing Members will connect to the JSE test environment and will be exposed to the data created by the JSE as part of its consolidated testing phase, meaning:
 - The JSE will execute all scenarios on behalf of the clients, and clients will observe the corresponding trade and deal management activity being executed by the JSE
 - Clearing Members will have an opportunity to interact with this data as part of the daily intra-day and end-of-day operations and processes
 - Clearing Members wanting to execute specific scenarios may request that these be added to the list of test scenarios that are already being executed by the JSE
 - Clearing Members will be able to verify if they are able to balance back to the JSE at the end of each day and may also test integration flows with their downstream systems and processes

5 ENTRY AND EXIT CRITERIA

5.1 Entry Criteria

Prior to joining the VCMT test phase, all Clearing Members must have:

- A. Signed the updated JSE Services Agreement (JSA)
- B. Completed the JSE's technical connectivity and user enablement process
- C. Fully conformed all software applications connecting to the test environment (note: Clearing Members do not need to conform vendor provided solutions themselves, this will be done by the software vendor)
- D. Provide the JSE with the details of their assigned Test Manager
- E. Should software providers test on behalf of their clients in VCMT, formal notification of this must be provided to the JSE prior to their participation in the testing

5.2 Exit Criteria

While there is no formal exit criteria for VCMT, Clearing Members will be required to participate in regular checkpoints to give feedback on the outcomes of their testing involvement.

6 HIGH-LEVEL TESTING SCOPE OF VCMT

The table below provides a high-level view of the various functions what will form part of the VCMT testing scope. Certain functions will only be tested as part of the MCMT phase post VCMT.

Function	Category	In Scope?
Deal and Position Management	<ul style="list-style-type: none"> • Allocations to Member clients • Assignment of deals to trading members • Tripartite assign • Accumulation • Allocation correction • Principle correction • Deal sub account modification • Position sub account modification 	Yes
Futures Close-Out & Option exercise/abandon	<ul style="list-style-type: none"> • Futures Close-outs • Options exercise • Options abandon 	Yes
Portability	<ul style="list-style-type: none"> • Transfer of clients: Transferring of a member client from one trading member to another • Transfer of Trading Members: Transferring of a trading member from one Clearing Member to another 	No – to be tested in MCMT
Margin Calculation and Balancing	<ul style="list-style-type: none"> • Variation Margin • Initial Margin: <ul style="list-style-type: none"> ○ JSPAN ○ Large Exposure Add-on ○ Liquidation Period Add-on ○ Settlement Margin ○ Additional Margin 	Yes
Other Cash Movements Balancing	<ul style="list-style-type: none"> • Funding Interest • Dividend Payments • Interest on Cash Collateral 	Yes
Collateral Management	<ul style="list-style-type: none"> • EOD Collateral (ZAR, Securities) processes • Intraday Collateral (ZAR, Securities) processes 	Yes
Fees Balancing	<ul style="list-style-type: none"> • Booking fees • Risk fees • Commissions 	Yes
Settlement Amount Balancing	Balancing of daily settlement amount	Yes
Reports (JSE produced reports)	<ul style="list-style-type: none"> • Daily Account summary reports • Daily Margin reports • Physical Delivery report • Interest Statement <p><i>NB. Clearing Members will be able to test certain of their own reports</i></p>	Yes
EOD Re-run	<ul style="list-style-type: none"> • Simulate not reconciling and performing an EOD rerun after first balancing (margin & other cash) • Simulate not reconciling and performing an EOD rerun after second balancing (Fees & commissions) • Simulate not reconciling and performing an EOD rerun after EOD completed 	No – to be tested in MCMT
Default Management	<ul style="list-style-type: none"> • Member Client Default • Trading Member Defaults • Clearing Member Default 	No – to be tested in MCMT
Corporate Actions	<ul style="list-style-type: none"> • Simple Corporate Action • Complex Corporate Action 	Yes

7 HIGH-LEVEL DAILY RUN SCHEDULE

At a high-level, the daily VCMT schedule will be as follows:

Start Time	System Event	Functionality Available
Post end of pervious day (19h00 to 01H00 next day)		
01h00	System offline	None
06h00	<ul style="list-style-type: none"> • RTC is available for Login • Previous day Reference Data published 	<ul style="list-style-type: none"> • Previous Reference Data downloads • Client Maintenance
Market Open (08H00 to 15H00)		
08h00	<ul style="list-style-type: none"> • Current Business Date is set • Trades from the trading system can be received by RTC • Publication of start-of-day reference prices (and every 15 minutes thereafter) 	<ul style="list-style-type: none"> • Reference Data downloads • Client Maintenance • Trade Management • Commissions Management • Position and risk updates
11h00	<ul style="list-style-type: none"> • Collateral Intra-day rebalancing • Benchmark rates published • Early valuations prices published • Intraday Margin Call (optional) 	<ul style="list-style-type: none"> • New Tradeable Instruments • Reference price publication
13h00	No more on-book trades from the trading system can be inserted, only trade (deal) management can be done	<ul style="list-style-type: none"> • Reference Data downloads • Client Maintenance • Trade Management • Commissions Management • Position and Risk Update
End of Trade Management (15h00)		
15h00	Trade Management state ends	Reference Data downloads
End-of-Day (15h30 to 19H00)		
15h30	<ul style="list-style-type: none"> • Remove pending give-up instructions • Options and future expiration • Initial and Variation Margin calculation results • CM Balancing 1 • Securities and FX Collateral process • Fee calculations • CM Balancing 2 • Generation of payment of instructions (incl. payments from legacy derivatives systems) • Member and client transfers • Corporate Actions 	<ul style="list-style-type: none"> • Client loading • Reference Data updates • Position and Risk Update • Market data updates • Publication of account summaries • Settlement Event updates
Post End-of-Day (19h00 to 01H00)		
19h00	<ul style="list-style-type: none"> • Client Management • IDP publishes EOD reference data 	<ul style="list-style-type: none"> • Client maintenance • Reference Data downloads • EOD Reference Data available on IDP site (counterparty IDs, risk parameters and stressed prices reports)

8 TEST PROCESS

The VCMT process will be as follows:

1. Clearing Members to review the list of high-level test scenarios that will be executed by the JSE and request any additional scenarios that may be required
 - a. Additional scenarios must be requested in advance to give the JSE time to prepare the required reference and transactional data that may be required (refer to '[Data Request and Preparation Process](#)' section for more details)
2. The JSE to execute the scheduled test scenarios each day
3. The JSE will contact clients at the end of each test day to inform them of the following start times:
 - a. **End-of-Day (EoD)**: which should start at the same time every day, however the JSE may postpone/cancel the EoD run on account of issues or defects picked up during testing – this will be determined on a case by case basis
 - b. **Collateral Re-balance**: which will be performed by the JSE
4. Clearing Members to independently receive and validate test execution outputs during the course of the business day, and only contact the JSE's Clearing Test Administrator (CTA) when they require specific issue resolution or escalation.
5. EoD will run every afternoon. Clearing Members will not be required to execute any scenarios themselves and will only execute the relevant actions during the EoD balancing process

9 PROGRESS TRACKING AND UPDATES

During the VCMT phase, continuous tracking and progress updates will be performed by the JSE. The role of the Clearing Member's Test Manager will be to liaise with the JSE's Clearing Test Administrator (CTA) on a daily basis and provide information on:

- testing progress,
- logging of defects (refer to '[Defect and Query Logging Process](#)' section); and
- escalation of any issues.

9.1 Daily Progress Updates

The JSE's Clearing Test Administrator (CTA) will conduct daily one-on-one calls with participants to assess the outcomes of the day's testing and assist in the management and tracking of query logging and resolution:

- The progress update calls will take place during the mornings, and will cover testing progress achieved the previous business day. This daily call will also serve as a checkpoint for the current day's testing.
- Clearing Member Test Managers must be available for the daily one-on-one update calls with the JSE as per their allotted timeslot. The update will include a log of any issues/defects reported during testing of the previous days test scenarios, which will be distributed on the day of the call for the previous day's defects.
- In order for the issues/defect log to be accurate, all newly identified defects must be reported timeously to the JSE CSC team via telephone or email (refer to '[Defect and Query Logging Process](#)' section).
- The JSE will assist participants with assessing the outcomes of the daily testing and/or assist in query resolution.

9.2 Weekly Progress Updates

A weekly group conference call will be held at the end of each testing week with all Clearing Members to provide an update on the progress achieved for the week, and to discuss common issues being experienced over the course of the last five days.

10 DEFECT AND QUERY LOGGING PROCESS

Clearing Members must log defects/queries as soon as they occur, and must **not** wait for the daily call before reporting. Clearing Members must log all defects/queries by phone or email with the JSE CSC team. Clearing Members must provide the JSE CSC team with the following information which will assist defining the categorisation, severity, prioritisation and analysis of the issues reported to the JSE:

1. "User ID" of the user experiencing the issue
2. Steps to recreate the issue and screenshots (where possible) must be provided – client may also include content of actual API messages where applicable
3. Relevant data used during test execution e.g. account number being used during a deal management function
4. Severity of the defect/issue will be determined logging process
5. Relevant JSE teams will validate and categorise the issue as either query or a defect
6. JSE CSC team will log the issue, and supply clients with the relevant defect ID within 48 hours of the issue being reported
7. JSE CSC team will assign the issue to the relevant team for assessment and resolution
 - a. If it is a query the assigned team will provide feedback via e-mail, and the query will be resolved once the client is satisfied
 - b. If upon investigation it is found that the issue is a defect, it will be prioritized and logged accordingly against the teams current workload
8. Daily progress and feedback will be given on the issue when being fixed, deployed and will only be resolved upon being tested and signed off by the client
9. Should the retest result in a failed test, the issue will be re-prioritized on and worked on until it has been resolved

NB. Clearing Members are responsible for ensuring that they receive a defect number for all issues raised during testing

11 DATA REQUEST AND PREPERATION PROCESS

As mentioned previously, Clearing Members may request additional scenarios to be executed by the JSE (i.e. on-behalf of the Clearing Member), or should a Clearing Member wish to execute a specific deal management activities i.e. 'self-testing', they may add this to their request.

Where possible all scenarios must be requested prior to commencement of the phase of testing, however scenarios can be requested inflight, clients must then:

1. Submit the scenario using the 'Transactional Data Request' template which will be provided to Clearing Members upon request

Note: Transactional data requests must be submitted to the JSE a minimum of two working days (before 10h00) prior to the day of expected execution

2. The JSE will assess and prepare the required data for loading into the system for test execution – depending on scenario complexity and data preparation required the JSE will confirm the required preparation time and expected day of execution
3. The JSE will update the relevant run plan with the requested scenario
4. The JSE will send out the confirmed 'Transactional Data Request' i.e. the data that has been loaded and prepared for the requested scenario a day before the expected execution
5. The Clearing Member will then use this data to execute the requested scenario

12 TEST ENVIRONMENT AND REFERENCE DATA

The JSE will be using a single test environment for the execution of VCMT (and MCMT). This environment will be populated with a subset of converted production data, and certain attributes of this data will be aligned to the current production data. A limited amount of ring fencing of Clearing Member data will be done during VCMT where segregation of specific testing is requested.