

Johannesburg Stock Exchange

Post-trade and Information Services

ITaC Position Paper

Post-trade PP01 – Integrated Clearing Overview

Version	1.0
Release Date	23 May 2016
Number of Pages	19 (Including Cover Page)

1	DOCUMENT CONTROL	
1.1	Table of Contents	
1	DOCUMENT CONTROL	2
1.1	Table of Contents	2
1.2	Document Information	3
1.3	Revision History	3
1.4	Reference Documents	3
1.5	Contact Details	4
1.6	Definitions, Acronyms and Abbreviations	4
2	ITAC - INTEGRATED CLEARING	5
2.1	Integrated Clearing Objectives	5
2.1.1	Centralised, sophisticated and more real time risk management	5
2.1.2	Efficient asset utilisation	6
2.1.3	Enhanced efficiency and robustness of processes through consolidation	6
2.2	ITaC Project Phasing and Timelines	6
2.3	Overview of Clearing and Settlement Functions and Key Changes	6
2.3.1	Entity and account structure	8
2.3.2	Risk Management	10
2.3.3	Collateral Management	11
2.3.4	End of Day Process	12
2.3.5	Deal Management and Commissions Processing	12
2.4	Additional Information	15
	APPENDIX A – TRADE REPORTING AND DEAL MANAGEMENT PROCESSES	16

1.2 Document Information

Drafted By	Post-trade and Information Services
Status	Initial Published Version
Version	1.0
Release Date	23 May 2016

1.3 Revision History

Date	Version	Description
23 May 2016	1.0	Initial Published Version

1.4 Reference Documents

Name	Version	Description	Location

1.5 Contact Details

JSE Limited One Exchange Square Gwen Lane, Sandown South Africa Tel: +27 11 520 7000 www.jse.co.za	Post-trade and Information Services ITAC Queries Email: CustomerSupport@jse.co.za
Clearing specifications disclaimer Disclaimer: All rights in this document vests in the JSE Limited ("JSE") and Cinnober Financial Technology AB (publ) ("Cinnober"). Please note that this document contains confidential and sensitive information of the JSE and Cinnober and as such should be treated as strictly confidential and proprietary and with the same degree of care with which you protect your own confidential information of like importance. This document must only be used by you for the purpose for which it is disclosed. Neither this document nor its contents may be disclosed to a third party, nor may it be copied, without the JSE's prior written consent. The JSE endeavours to ensure that the information in this document is correct and complete but do not, whether expressly, tacitly or implicitly, represent, warrant or in any way guarantee the accuracy or completeness of the information. The JSE, its officers and/or employees accept no liability for (or in respect of) any direct, indirect, incidental or consequential loss or damage of any kind or nature, howsoever arising, from the use of, or reliance on, this information.	

1.6 Definitions, Acronyms and Abbreviations

ITaC	Integrated Trading and Clearing – a JSE project aimed at implementing an integrated Trading and Clearing solution across all of its markets i.e. Equity, Bonds and Derivatives.
------	---

2 ITAC - INTEGRATED CLEARING

The JSE is in the process of implementing its multi-year Integrated Trading and Clearing programme (ITaC). ITaC aims to migrate the derivative and cash bonds markets to the MillenniumIT trading platform and all JSE markets to the new Cinnober Real Time Clearing (RTC) platform in support of the JSE's integrated trading and clearing objectives. A phased approach has been adopted with the first derivative markets to be migrated to the new platforms being the equity derivative and currency derivative markets.

This document provides an overview of the integrated clearing objectives and the changes to clearing and settlement services and functions resulting from ITaC. Additional documents provide further detail on the new clearing and settlement services to be introduced through the ITaC project, namely intraday risk monitoring, the acceptance of non-ZAR collateral against derivative market exposures and a new commissions processing service.

2.1 Integrated Clearing Objectives

Post the global financial crisis, International regulatory bodies acted swiftly to ensure a more stable global financial environment. Regulations seek to increase transparency, tighten capital requirements and require more proactive and rigorous risk management. Many financial institutions have come under pressure due to the increased capital requirements. This environment provides a backdrop to the JSE's integrated clearing strategy and the integrated clearing objectives to be delivered through ITaC.

The integrated clearing objectives are categorised into:

- 1) Centralised, sophisticated and more real time risk management
- 2) Efficient asset utilisation
- 3) Enhanced efficiency and robustness of processes through consolidation

2.1.1 Centralised, sophisticated and more real time risk management

Integration of all the JSE markets onto a single platform allows for a participant's exposures and risk across markets to be monitored and managed centrally.

In order to allow more proactive management of risk the new clearing system will introduce a new intraday risk monitoring service, allowing for the monitoring of various exposure and risk metrics throughout the day as trading and deal management activities are performed.

Sophisticated and flexible risk management methods and practices are necessary to better protect the market and remain compliant with international best practices and regulations such as IOSCO and EMIR. This is vital in ensuring the JSE remain a viable and attractive market for both local and international participants. The new clearing system positions the JSE to appropriately develop and evolve its risk management methodologies such as margining, stress testing and back testing.

2.1.2 Efficient asset utilisation

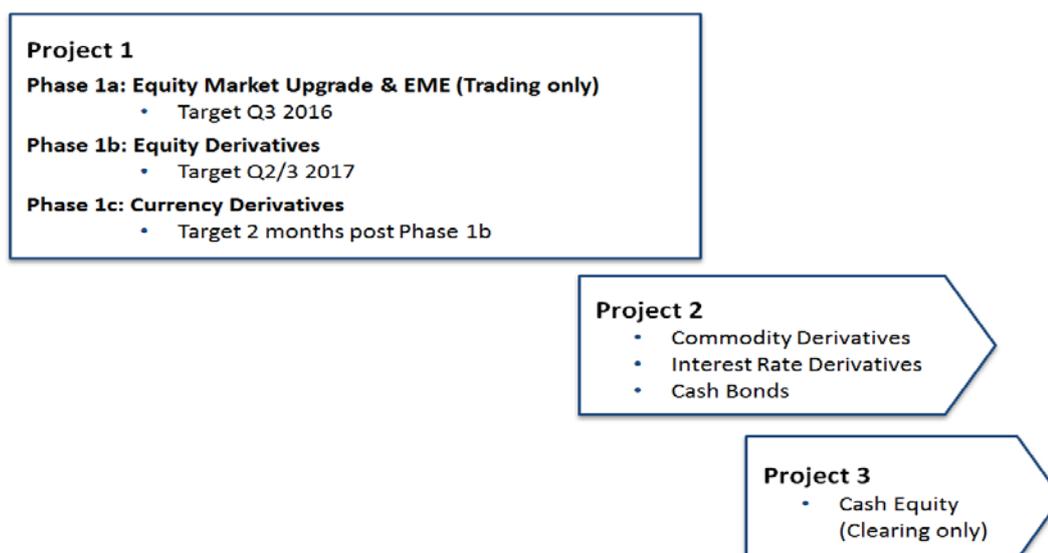
In context of increasing capital requirements, the acceptance of non-ZAR collateral is one of the key objectives to be delivered through ITaC and expected to provide relief for clients in the face of rising capital requirements. The ITaC solution will facilitate securities and for non-resident clients foreign currency cash. The integration of all markets onto a single platform may also create opportunities for netting of settlement and margin offset.

2.1.3 Enhanced efficiency and robustness of processes through consolidation

Consolidation of clearing operations will achieve operational efficiencies in post-trade client processes including improved valuations processes reducing risk of incorrect margin calls with associated financial implications to clients.

2.2 ITaC Project Phasing and Timelines

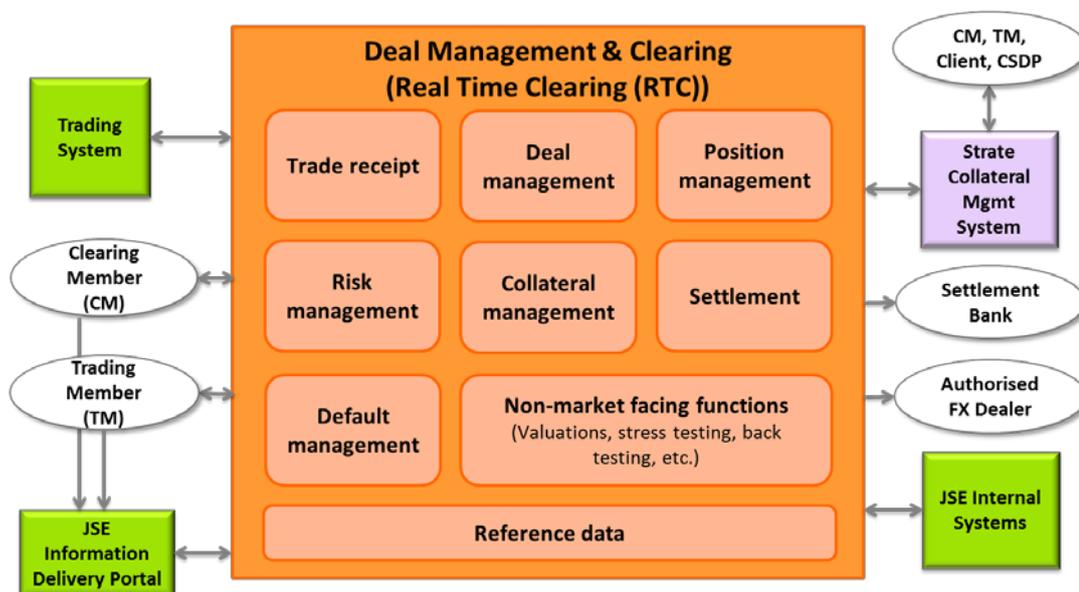
Given the scale of the ITaC project in order to manage the implementation and the impact on both the JSE and the market, the delivery will be phased as indicated below.



2.3 Overview of Clearing and Settlement Functions and Key Changes

The remainder of the document provides an overview of key business functions facilitated by the new deal management and clearing system (RTC) with specific focus on new and changed services.

The diagram below provides a high level illustration of the RTC system and the systems and entities it will interface with.



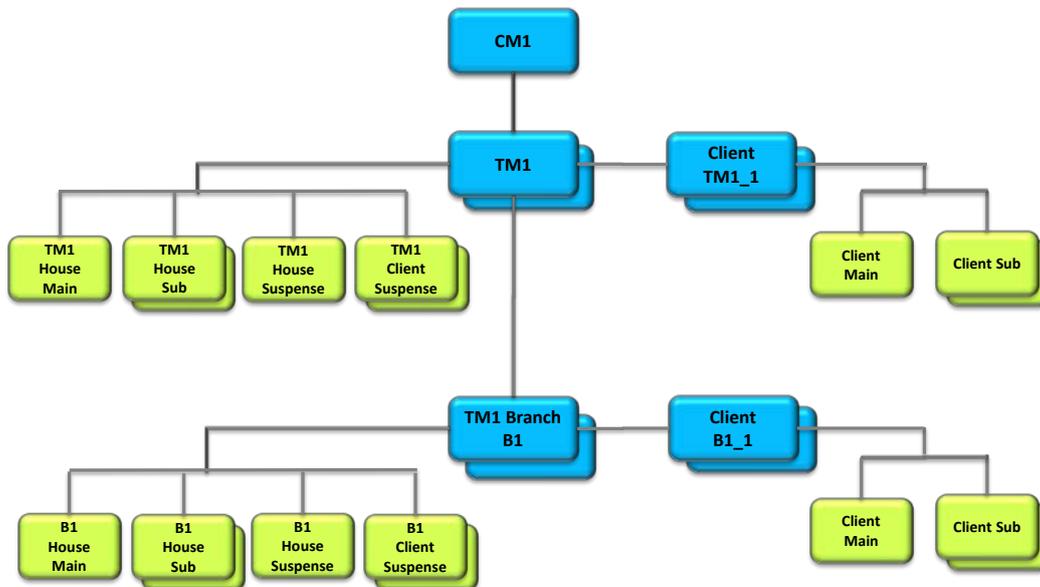
During the trading day, the clearing system will receive matched trades from the trading system as orders are executed and reported trades are captured. Trades will be automatically entered into the account reflected on the trade or into the house suspense account if the incorrect account is reflected. Trades are published to Trading and Clearing Members as they are processed by the clearing system. Following is a summary of the deal management and clearing and settlement processes that RTC will facilitate as it receives trades during the day and at end of day:

Intraday	
<u>Throughout the day:</u> <ul style="list-style-type: none"> ○ Deal management ○ Position and open interest* updates ○ Client maintenance ○ New contracts ○ Securities collateral substitutions and top-ups ○ Post-trade risk monitoring 	<u>At certain times in the day:</u> <ul style="list-style-type: none"> ○ Collateral intraday batch process including securities and cash withdrawals ○ ZAR and/or FX margins and fees payments (by specified time) ○ Benchmark rates published ○ Early valuations prices published
End of Day	
<u>Daily EOD margin and fees processes:</u> <ul style="list-style-type: none"> ○ Calculate & publish closing prices ○ Calculate margins, fees & commissions ○ Balance to Clearing Members ○ Pledging of securities collateral against initial margin ○ Calculate ZAR and FX cash payment amounts 	<u>Monthly:</u> <ul style="list-style-type: none"> ○ Interest on cash <u>Ad hoc:</u> <ul style="list-style-type: none"> ○ Portfolio transfers ○ Corporate actions
End of Day - Preparation for Next Day	
<u>Member Data:</u> <ul style="list-style-type: none"> ○ Member and client reference data ○ Final EOD positions ○ Deal updates generated to affect the position changes associated with portfolio transfers and/or corporate actions 	<u>Other Data:</u> <ul style="list-style-type: none"> ○ Member reference data (Counterparty codes) ○ Clearing reference data e.g. Initial Margin Requirements (IMRs) ○ Volatility surfaces

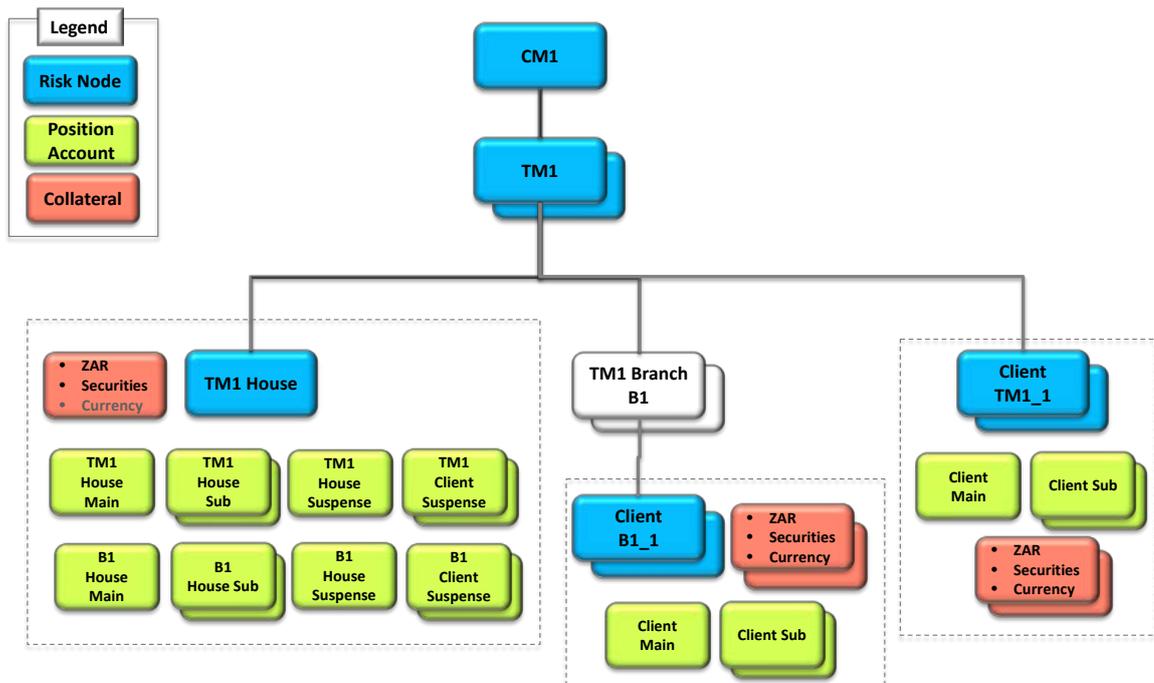
* Open interest will be published on the trading system market data gateway on a periodic snapshot basis

2.3.1 Entity and account structure

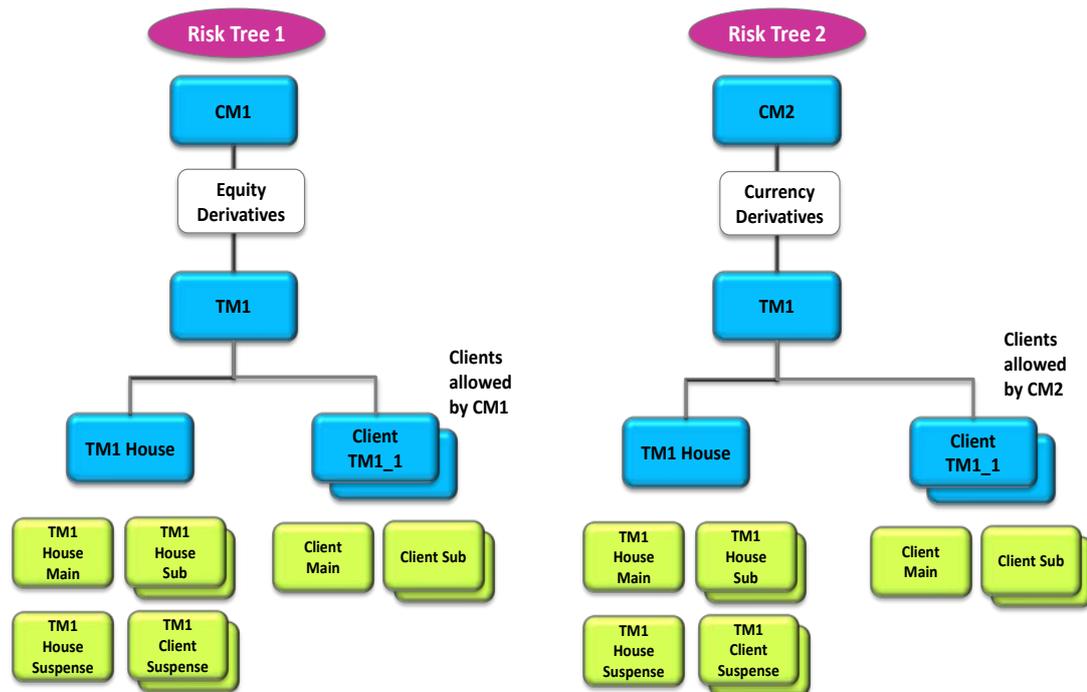
The diagram below represents the different levels at which positions can be managed on the new RTC system. Accounts can be created under Trading Member, Trading Member (TM) branch or Client levels.



The diagram below depicts the account structure from a risk management perspective illustrating the roll-up of risk to the various legal entity levels and the segregation of collateral of trading members and clients.

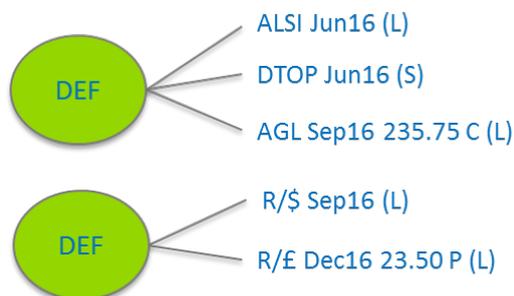


Clearing of different markets through different CMs is facilitated through separate risk structures with cloned accounts under each CM (risk tree) as illustrated below.

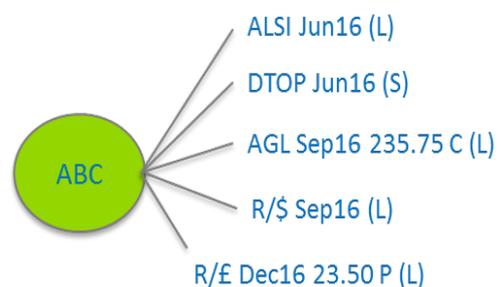


As the diagrams above indicate the entity (i.e. clearing member, trading member, branch and client) and account structure will remain essentially unchanged in ITaC. There is however an important change stemming from the integration of markets that ITaC ultimately aims to achieve (i.e. once all markets have been migrated to the new clearing platform and member and client codes have been consolidated). A participant will have a single account containing the positions (exposures) across all markets. This is fundamental to enabling key integrated clearing objectives described above. The diagrams below illustrate this concept and the move from separation per market to integration:

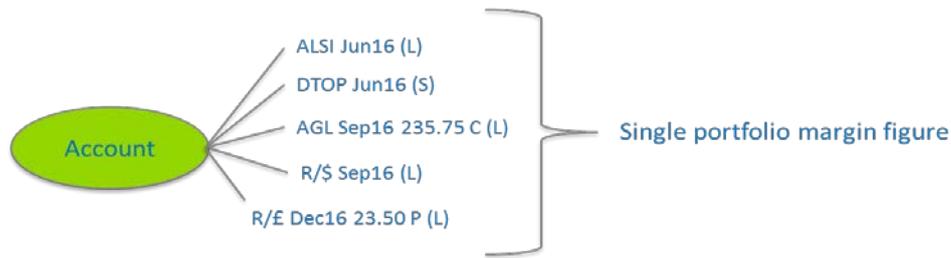
Currently markets are separated:



In future markets will be consolidated:



Taking this a step further a single margin figure will be calculated based on a participant's exposures across markets:



2.3.2 Risk Management

The JSE will go live with the current margin methodology i.e. JSPAN, with minor technical changes to the risk arrays and rounding. As is currently the case, liquidation and large position add-ons to J-SPAN will also apply. All data required by Clearing Members to replicate the margin calculations will be made available (through a combination of the RTC API and the Information Delivery Portal).

The move to a Historical Value-at-Risk (HistVaR) methodology is planned post project 1. Information and timelines relating to this will be communicated in due course.

Intraday Risk Monitoring

A new service that will be introduced through ITaC in support of the move to more real-time and proactive risk management is the intraday risk monitoring service.

This will support the monitoring of exposures and other risk metrics throughout the trading day. The Clearing House, Clearing members and members will be able to set and manage exposure thresholds on each account and at various aggregate levels in the 'risk tree' e.g. at the Trading Member level. Throughout the day the clearing engine will recalculate risk metrics:

Initial Margin per account is recalculated and published with each position update

Variation Margin per account per position is calculated and published at regular intervals

Collateral is revalued at regular intervals

By consolidating these elements, an estimation of the Margin Call that the client will face at the end of the day is also published.

As exposures are recalculated these are compared to the pre-set thresholds and if these are breached alerts are published.

For further details on the intraday risk monitoring service and other ITaC relevant risk management aspects, please refer to the following position paper found on the JSE ITaC website: ["ITaC Position Paper – Post-trade PP02 – Risk Management"](#)

The J-SPAN technical specification can be found at: [Link to J-SPAN technical specification](#)

2.3.3 Collateral Management

Currently JSE Clear, the Central Clearing Counterparty (CCP) for listed derivatives in the South African market, collects ZAR cash collateral against derivative exposures. Over recent years there has been a steady growth in demand from the market for the acceptance of securities and foreign currency collateral. Post the 2008 financial crisis and the tightening of risk and regulatory frameworks and policies such as Basel III, CPMI IOSCO and EMIR, the demand for efficient asset utilisation has increased. The ability to post securities and foreign currency collateral is expected to provide clients with some relief in the face of increasing capital requirements and free up ZAR cash.

JSE Clear calls for Initial Margin (IM), Variation Margin (VM) and Default Fund contributions from its clients as part of its risk management processes. These margins and contributions are currently payable in ZAR-cash only. The acceptance of alternate collateral forms will allow members to meet IM calls through a combination of ZAR-cash, selected securities and in the case of non-resident clients, selected foreign currency cash collateral. Support in principle for the acceptance of foreign currency cash collateral for non-resident clients has been obtained from the regulator however it is subject to formal approval from the South African Reserve Bank and National Treasury. VM will continue to be payable in ZAR cash. The option for Clearing Members to fulfil default fund contributions using alternative collateral has yet to be finalised and will be communicated in due course.

Two technology initiatives are underway to enable the acceptance of non-ZAR cash collateral. The first is an interim collateral solution planned to be delivered prior to ITaC Project 1 go-live that will facilitate the acceptance of securities collateral for the recently introduced large exposure margin add-on only. The second is the ITaC solution which will provide the systems and processing capability for the acceptance of securities and foreign currency collateral against the whole IM obligation i.e. not just the large exposure add-on portion of IM (note a minimum cash percentage will be applicable).

In addition to the technology and process capabilities that need to be enabled, the relevant policies, rules and legislation will need to support the acceptance of securities and FX collateral. The JSE in consultation with stakeholders is in the process of reviewing and addressing these aspects. A key focus of this and a requirement that needs to be satisfactorily addressed before JSE Clear can start accepting securities collateral is the ability to timeously liquidate assets in the event of a participant default and insolvency. Stakeholders will be kept informed as to the progress and expected timelines in this regard.

In order to adequately manage the risk of the CCP and safeguard the market, JSE Clear will set and manage various criteria relating to the acceptance of alternate collateral forms such as a minimum percentage of collateral that must be in the form of cash to meet liquidity needs in the event of a default, eligibility criteria determining the list of admissible securities and foreign currencies and valuation haircuts. The pledge is the proposed mechanism to be used for securities collateral.

In terms of systems and processes, the new JSE clearing system to be delivered in ITaC will integrate to the Strate collateral management system for the management of securities collateral. Processes will cater for the posting of securities collateral against initial margin calls at end of day. Non-resident clients will also be able to submit foreign currency cash, through their Trading and Clearing members, as collateral against end of day margin calls. The solution will also cater for flexibility required by market participants to manage the mix of the collateral posted against JSE Clear exposures during the course of the day, by for example substituting securities for cash, cash for securities or one security for another.

For further details on the collateral management principles and processes please refer to the following position paper found on the JSE ITaC website: [“ITaC Position Paper – Post-trade PP03 – Securities and Foreign Currency Collateral”](#)

2.3.4 End of Day Process

Post ITaC, in line with integrated clearing objectives, there will be single EOD margin and fees run for all markets. As mentioned previously a single margin amount will be calculated per participant/account based on exposures across all markets. Collateral will be called against this single margin amount.

The EOD process will be a two-step process. In the first step margins will be aggregated to Clearing Member level and Clearing Members will balance to the JSE (the process for confirmation of balancing will be automated via the RTC external interface, EMAPI). Balancing on margins will be followed by the collateral calling processes starting with the calling of securities collateral, then foreign currency cash (for non-resident clients) and finally ZAR cash.

The second step of the EOD process will be the calculation and balancing on fees and commissions.

Note during the transition phase (i.e. post project 1 when two of the derivative markets will be on the new RTC and two on the current Nuclears platform) the net amounts per Clearing Member for the markets still on the current Nuclears platform will be fed into RTC to maintain a single payment instruction and SWIFT payment per Clearing Member.

2.3.5 Deal Management and Commissions Processing

Existing deal management functions will be available in ITaC systems with one notable exception being the ability to take a turn (change the price) in deal management when performing assigns, allocations and tripartite allocations.

The JSE is obliged to ensure fair, efficient and transparent markets and promote price discovery and price transparency for providing best execution. In support of this and in line with international best practices regarding trade reporting, deal management and the treatment of agency and principal trades the ability to take a turn in deal management will not be available in ITaC systems.

When trading in a principal capacity a reported trade will be booked on the trading system at the price associated with the trade. The deal management functionality in RTC will not allow the price of a transaction to be changed when performing any deal management activities for principal transactions

RTC will provide existing functionality which allows members to allocate, assign and tripartite trades agency trades to clients at the same traded price. When acting in an agency capacity members must collect a commission (brokerage fee).

In order to assist the market in the processing of commissions the JSE will be providing a commissions solution. A summary of the JSE commissions offering follows:

- The primary role of the exchange will be to act as a payment clearinghouse for settling daily net commission amounts across Clearing Members on T+1

- The commissions solution will avoid trading members having to develop their own commission settlement solutions requiring invoicing of other members/tripartite clients to obtain commissions owed
- Daily commission amounts relating to give-up activity (i.e. between trading members and between trading members and tripartite clients) will be rolled up to the Clearing Member level and net amounts settled as part of the daily margin and fee settlement process on T+1
- Commission information will be provided to Trading and Clearing Members in order for them to do reporting, reconciliation, VAT invoicing as well as cash collections and payments at trading member and client levels
- Clearing Members, Trading Members and Independent Software Vendors (ISVs) will be required to develop the necessary front-end functionality to utilise the new JSE commission service
- Trading members will be required to actively monitor and manage their commission entries – JSE will not be liable for any mismanagement of commissions

Key features of the JSE commissions offering:

- Provide the ability for trading members to capture their commissions against clients (direct and tripartite) and other trading members
- Provide trading members with the ability to cancel and reject incorrectly booked commissions
- Aggregate commission amounts to the CM level and settle net amounts across Clearing Members as part of the daily settlement process on T+1
- Provide clearing members and trading members with sufficient reporting information to facilitate their reconciliation, collections/payments and VAT invoicing processes

For detailed information on the JSE commissions solution please refer to the following position paper found on the JSE ITaC website: [“ITaC Position Paper – Post-trade PP04 – Commissions”](#)

As mentioned above, with the exception of the ability to take a turn in deal management, existing deal management functions will be catered for. These are summarized in the table below.

Assign <i>(member acting on behalf of another member)</i>	<ul style="list-style-type: none"> ○ Trade matched on new trading system and the member assigns (gives-up) the trade to receiving member, at the same price. ○ Receiving member accepts/rejects the trade on RTC
Allocation <i>(member acting on behalf of own client)</i>	<ul style="list-style-type: none"> ○ Trade matched on the new trading system ○ Member allocates the trade to the client at the same price through deal management in RTC
Tripartite Allocation <i>(member acting on behalf of a tripartite client)</i>	<ul style="list-style-type: none"> ○ Trade matched on the new trading system ○ Member allocates the trade to the tripartite client at the same price through deal management on RTC ○ Tripartite agreement must already exist and receiving member accepts/rejects the trade
Member trades as principal with another member	<ul style="list-style-type: none"> ○ Member books reported trade (Off Book trade) on the new trading system with the other member as counterparty
Member trades as principal with own client	<ul style="list-style-type: none"> ○ Member books reported trade (Off Book trade) on the new trading system with the client as counterparty
Member trades as principal with tripartite client	<ul style="list-style-type: none"> ○ Member books reported trade (Off Book trade) on the new trading system with the tripartite client as counterparty
Accumulation	<ul style="list-style-type: none"> ○ Aggregation of several deals into a single deal with a volume weighted average price ○ The capacity (agency or principal) of the deals being accumulated must be the same
Deal sub-account modification	<ul style="list-style-type: none"> ○ Change a deal from member account to member sub-account or client suspense account and vice versa
Position sub-account modification	<ul style="list-style-type: none"> ○ Change a position from member account to member sub-account or client suspense account and vice versa
Allocation error correction	<ul style="list-style-type: none"> ○ Change the client code on a deal from one client to another client
Principal correction	<ul style="list-style-type: none"> ○ Change the client code on a deal from the incorrect client code to the member's house account

The table below lists the deal management functions applicable in a principal and agency capacity:

Capacity	State of Deal in RTC	Action allowed
Principal		<ul style="list-style-type: none"> • Accumulate • Deal sub account modification • Position sub account modification • Principal correction • Allocate on exception basis only • Allocation error correction
Agency	On client suspense account	<ul style="list-style-type: none"> • Accumulate • Allocate • Assign • Tripartite • Deal sub account modification • Position sub account modification
	On client account	<ul style="list-style-type: none"> • Accumulate • Allocation correction • Principal correction

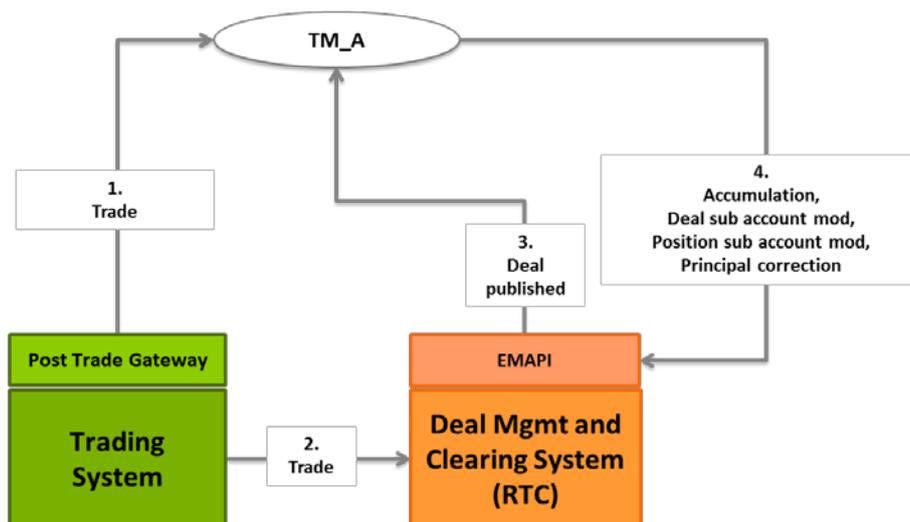
Refer to Appendix A for depictions of how the various deal management functions applicable in principal and agency capacities will be performed in the new landscape of the decoupled trading and deal management/clearing systems.

2.4 Additional Information

The complete set of ITaC information published to date can be found on the JSE ITaC website: [Web Link](#)

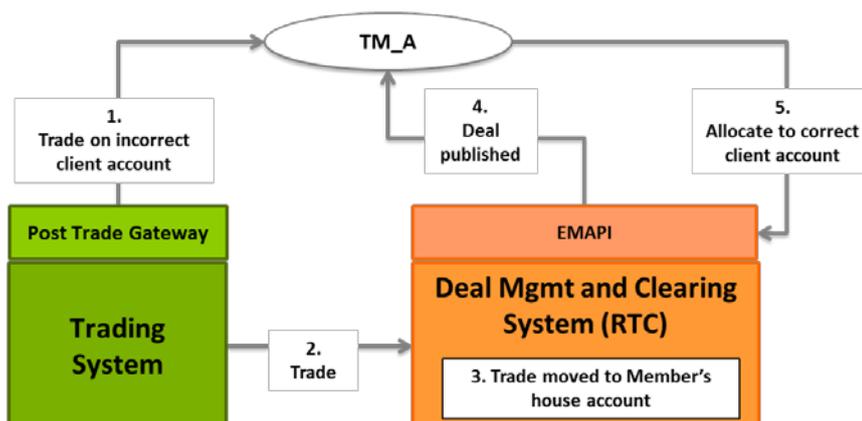
APPENDIX A – TRADE REPORTING AND DEAL MANAGEMENT PROCESSES

Accumulation, Deal and Position Sub Account Mod's, Principal Corrections

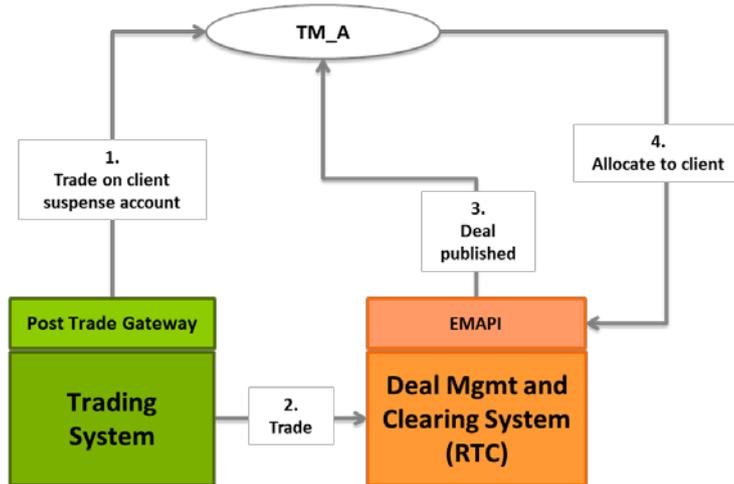


Allocation of a principal transaction - exception basis only

- When trading as principal with a client, allocations are to be performed on an exception basis i.e. to rectify an incorrect client code
- In the case of an invalid client code on the trade, the trade will be moved to the member's house account as it is processed into RTC. An allocation to the correct client account is then done in deal management.

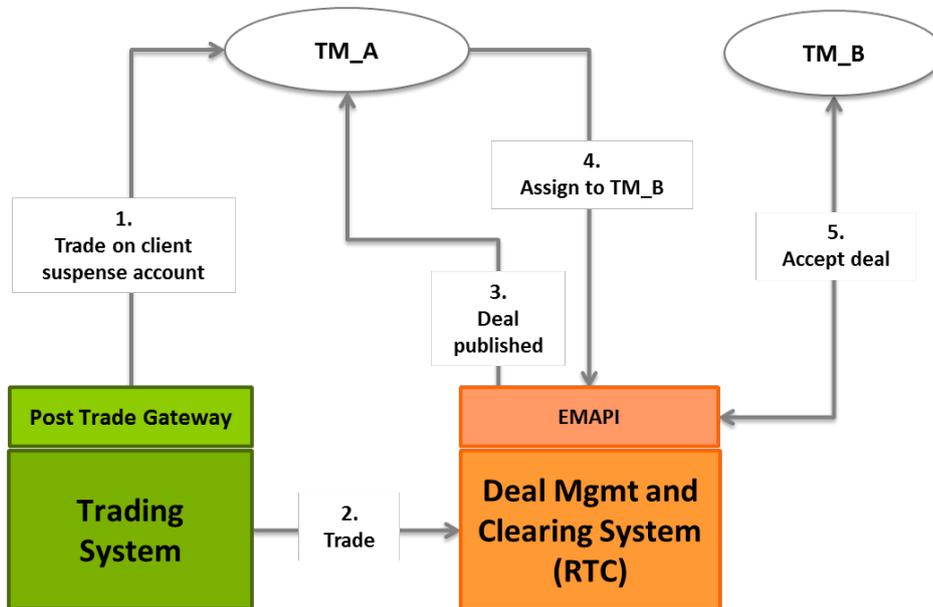


Allocation (Member to Client)

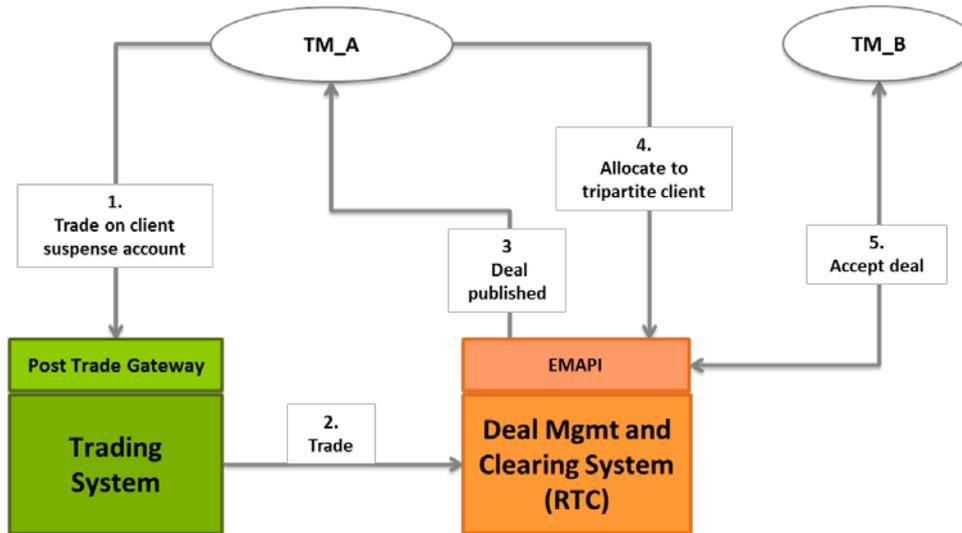


In the event that the agency trade is done directly on the tripartite client's account, no allocation would be required.

Assign (Member to Member)



Tripartite Allocation (Member to Tripartite Client)



In the event that the agency trade is done directly on the tripartite client's account, no allocation would be required.

Accumulations, deal and position sub account mod's, allocation error corrections

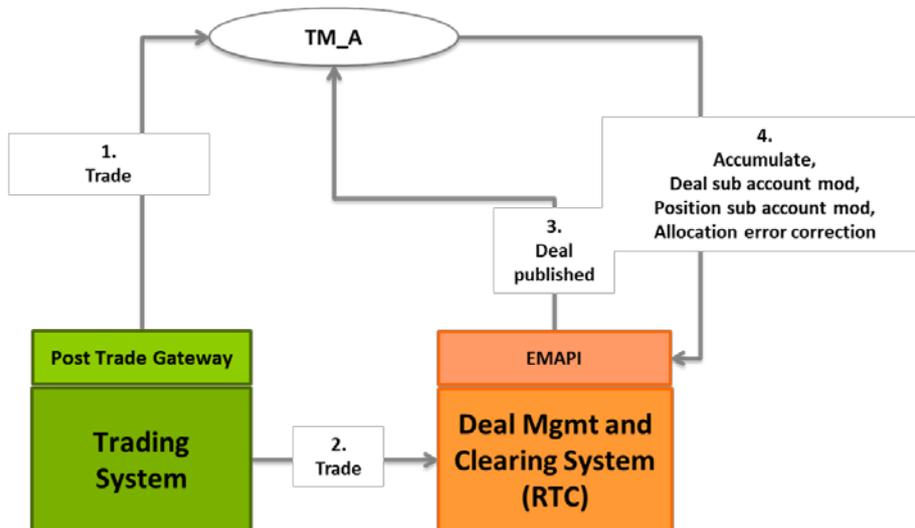


Illustration - Accumulation followed by allocation, assign, tripartite

