

INTEGRATED TRADING AND CLEARING (ITAC) GUIDANCE NOTE ON DATA TAKE ON FOR THE EQUITY DERIVATIVE AND CURRENCY DERIVATIVE MARKETS

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1. REVISION HISTORY

Version	Description	Date
1.0	Initial release	02/10/2018
1.1	Minor amendments and further clarification added	1/03/2019

2. INTRODUCTION

2.1 Background

As part of the strategic integrated trading and clearing vision set out in 2012, the Johannesburg Stock Exchange (JSE) has embarked on designing and planning the new Information Technology (IT) and business landscapes that would deliver this vision. A formal Integrated Trading and Clearing (ITaC) programme was kicked off by the JSE to implement an integrated Trading and Clearing solution across all markets i.e. Equity, Bonds and Derivatives.

2.2 Purpose of the document

The intention of this Guidance Note is to provide a detailed explanation of the data take on activities that will be undertaken leading up to the Go Live of the ITaC Project (1b and 1c).

2.3 Scope

The migration of:

- The reference data from Nutron/Nuclears to the Real Time Clearing solution (RTC)
- The transactional data for the Equity Derivatives (EDM) and Currency Derivatives (FXM) instruments from Nutron/Nuclears to the Real Time Clearing solution (RTC) or the Valuation Input System (VIS).

Reference data that will be migrated includes:

- Member Clients
- Cash Accounts for Foreign Member Clients
- Linking of Member Clients to the Clearing Member
- Sub Accounts
- Additional Margin Percentages for Member Clients and
- Tripartite agreements.

Transactional data that will be migrated to RTC includes:

- Closing positions on the last day of trading on Nutron/Nuclears
- Margins balances on the last day of trading on Nutron/Nuclears.

Transactional data that will be migrated to VIS (the JSE's pricing system) includes:

- The closing prices as set on the last day of trading on Nutron/Nuclears.

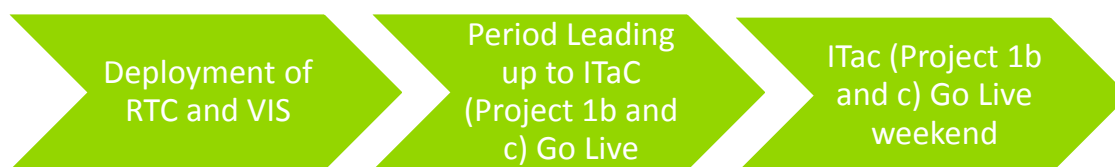
3. TIMING OF DATA MIGRATION

3.1 Deployment Approach

The deployment approach for ITaC has always been to reduce risk by deploying systems into production as early as possible, rather than following a Big Bang deployment approach of all systems on the same weekend. To this end, the RTC and VIS systems, together with the Integration components required for these two systems, will be deployed to production approximately 2 to 4 weeks before the actual Go Live weekend for ITaC Project 1b and c.

3.2 Timing of Data Migration Activities

The diagram below reflects the three stages of data migration:



3.2.1 Deployment of RTC and VIS

In addition to deploying RTC and VIS to the production environment, the following reference data will be migrated from Nutron/Nuclears to RTC:

- Member Clients
- Cash Account for Foreign Member Clients
- The linking of Member Clients to the Clearing Member and
- Sub Accounts.

3.2.2 Period Leading up to ITaC (Project 1b and c) Go Live

As Nutron/Nuclears will continue to be used until ITaC Project 1b and c goes live, any changes to the reference data on Nutron/Nuclears will need to be aligned to RTC. This includes:

- Any new Member Clients created
- Changes to the personal information of Member Clients
- Archiving of Member Clients
- Any Cash accounts created or changed
- Any changes in the linking between Member Clients and Clearing Members
- Any new Position Accounts created.

3.2.3 ITaC (Project 1b and c) Go Live

On the weekend of Go Live, the following migration to RTC will be undertaken:

- A final delta upload of changes to the reference data loaded leading up to go live
- Additional Margin Percentages for Member Clients
- Tripartite agreements
- Closing positions and
- Margins balances on the last day of trading on Nutron/Nuclears.

In addition, the closing prices from Nutron/Nuclears will be uploaded to VIS.

4. TRANSFORMATION RULES

4.1 Introduction

There is a difference in business rules between Nutron/Nuclears and RTC. When migrating the data from the old system to the new, certain transformation rules need to be applied to the data to ensure that the migration is successful.

4.2 Transformation Rules Applied to the Member Client Reference Data

4.2.1 Member Clients

The following rules have been applied to the Member Client data:

- If the Client's physical address is not complete the Trading Member's physical address will be used
- If the Client's telephone number has not been populated on Nutron/Nuclears, the Trading Member's telephone number will be used. In the event that the Trading Member's telephone number is also null, then the telephone number of the Client is defaulted to 1234567890
- If the Client's e-mail address has not been populated on Nuclear / Nutron, the Trading Member's e-mail address will be used. In the event that the Trading Member's e-mail address is also null, then the e-mail address of the Client is defaulted to null@null.co.za
- All Clients that have a Country of Residence as 'FOR' (or 'Foreign') will be defaulted to 'GB' (Great Britain)
- If the Client's ID Number has not been populated, the field is defaulted to '12345678'
- If a non-resident Member Client does not have a passport number, the passport number is defaulted to '12345'
- If the Client is a Company, and the company registration number has not been populated, the company registration number will be defaulted to '12345678' and
- If a Client trades under a different branch or Trading Member between the Equity Derivatives and Currency Derivatives markets, the JSE will associate the Client with the Trading Member or Branch on which the Client last traded across the two markets.

The following criteria will be used to determine which Member Clients will be migrated to RTC:

- Status of the client must be 'Active' and the Client must be Verified; and
- The Client:
 - Must have had a closing position in the past two years leading up to ITaC Project 1b and c Go Live or
 - Must have had an open interest position in in the past two years leading up to ITaC Project 1b and c Go Live or
 - Has an active Tripartite agreement or
 - Was added in the past 90 days leading up to ITaC Project 1b and c Go Live or.

4.2.2 Cash Accounts of Foreign Clients

The following rules have been applied to the Cash Accounts of Foreign Clients:

The Bank name, account number and SWIFT Code are mandatory fields in RTC. As a result, any foreign Client that does not have complete bank account details will not have their cash accounts loaded. This will result in the Client not being enabled on RTC, even though the Client may have been loaded as part of the migration. Only cash accounts for foreign clients that meet the criteria for migration of Member Clients will be migrated.

4.2.3 Sub Accounts

The following rules have been applied to the Sub Accounts:

- Must have had a closing or intraday position in the last 2 years

PLEASE NOTE:

In RTC, a sub account name cannot be used more than once in the same Trading Member / Branch structure. In the event that this does occur a "1" is suffixed to the position account ID of the branch sub account that is duplicate.
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5. TAKE ON OF POSITIONS

5.1 Pre-Requisites for the Take-on of Positions

The following data must exist in the JSE's Master Data System (MDS) and RTC prior to taking on the closing positions:

- All Clearing Members, Trading Members and Branches must be aligned between MDS and RTC
- All instruments that have a closing position must exist on MDS and must be aligned to RTC
- All Member Clients must be created on RTC and mastered on MDS
- All Member Clients must be linked to a Clearing Member
- All Sub Accounts must be created on RTC and mastered in MDS.

5.2 Business Rules Applied to the Dividend Future Contracts that are being converted to Dividend Neutral Contracts

There are two types of Dividend Future contracts that are impacted:

- Single Stock Dividend Futures and
- International Equity Dividend Futures.

The following business rules have been applied to Single Stock Dividend Futures:

- These contracts are created as Physically Settled Dividend Neutral contracts in MDS
- The exception to this will be for Dividend Neutral Futures that have a corresponding Cash Settled Dividend Future contract.

The following business rule has been applied to International Equity Dividend Futures:

- These contracts are created as Cash Settled Dividend Neutral contracts in MDS.

5.3 Process for the Take On of Positions

The table below provides a high-level overview of the process that will be followed to migrate the positions across the Equity Derivatives and Currency Derivatives markets from Nutron/Nuclears to RTC:

ID	Process Step	Description
1	Map the new ID's for reference data	- Map the current ID's in Nutron/Nuclears to the Production Identifier Code for Trading Members and Clearing Members, or the MDS unique ID for Branches and Member Clients from the JSE's Master Data System (MDS) - Map the current instrument ID's in Nutron/Nuclears to the Universal Master ID's from the JSE's Master Data System (MDS) - A mapping spreadsheet will be provided on the Friday night prior to a Mandatory Market-facing Dress Rehearsal or the Go Live weekend, together with the Closing Price for the individual instruments.
2	Roll Up All Balances	- The Closing Positions reflected in Nutron/Nuclears are currently saved to the database up to a Dealer level. During this step all closing balances are rolled up to the following level: - Clearing Member - Trading Member (or Branch) - Member Client - External Account ID (Position Account ID) - Instrument ID - Instrument Expiry Date - Instrument Strike Price - Instrument Call / Put.
3	Calculate the revised positions for Dividend Futures and convert to Dividend Neutral contracts	A Dividend Neutral Future is a virtual contract in Nutron/Nuclears. When trading a Dividend Neutral Future in Nuclears today, you will receive an SSF and a DIVF in the same quantity. With the Go Live of ITaC Project 1b and c, all virtual Dividend Neutral Futures in Nutron/Nuclears will be converted to actual Dividend Neutrals in the new Reference Data system.
4	Calculate the Market Value for all open positions	Based on the Closing Position and closing price as at the last trading day before Go Live (or a Dress Rehearsal), calculate the Market Value and Initial Value. These values will become the Open Position on RTC when markets open on Day 1 of ITaC Go Live.

5.4 Conversion of the Dividend Neutral Futures to Dividend Neutrals

The current Nutron/Nuclears solution makes provision for virtual contracts called Dividend Neutral Futures (suffixed by an 'N' in the Short Name on the new Reference Data System, e.g. "RDFN") and International Equity Dividend Neutral Futures. These virtual contracts are stored as 2 records in the Nuclears database – one on the Dividend Future and one on the SSF / International Equity Dividend future, as reflected in the example below:

Clearing Member	Trading Member	Member Client	Position Account	Instrument ID	Expiry Date	Short Name	Notes	Closing Position
ABC	DEF	ABC101	ABC101	1011169	21-06-2018	RDF ^F	Dividend Future	-1740
ABC	DEF	ABC101	ABC101	1010284	21-06-2018	RDF ^Q	Single Stock Future	-1740

There are three possible scenarios when converting the Nuclears Dividend Neutral Futures to the ITaC Dividend Neutrals:

1. An 'F' contract (Dividend Future) is matched to a 'Q' contract (Physically Settled Single Stock Future) only.
2. An 'F' contract (Dividend Future) is matched to an 'S' contract (Cash Settled Single Stock Future) only OR, in the case of the International Equity Dividend Neutral Future, a 'D' contract (Dividend Future) is matched to a 'G' contract (Cash Settled International Equity Future).
3. An 'F' contract (Dividend Future) is matched to a 'Q' contract and an 'S' contract.

Data Conversion Process

The following process is undertaken when converting the Dividend Neutral Future to the Dividend Neutral:

1. Migrate all 'Q' and 'S' positions to RTC.
2. Match the 'F' Contract (Dividend Future) to the 'Q' contract (Physically Settled Single Stock Future):
 - a. If the quantity of the Dividend Future is less than or equal to the quantity of the Physically Settled Single Stock Future then migrate the Dividend Neutral using the quantity of the Dividend Future (Scenario 1 above) as a **Physically Settled Dividend Neutral**
 - b. If the quantity of the Dividend Future is greater than the quantity of the Physically Settled Single Stock Future, then update the Quantity of the Dividend Future to that of the Physically Settled Single Stock Future. The difference is then "reserved" so that a comparison to a Cash Settled Single Stock Future can be done (Scenario 3 above).
3. Create a contra transaction against the 'Q' contract.

4. Match the 'F' Contract (Dividend Future) to the 'S' contract (Cash Settled Single Stock Future):
 - a. If the quantity of the Dividend Future is less than or equal to the quantity of the Cash Settled Single Stock Future then migrate the Dividend Neutral using the quantity of the Dividend Future (Scenario 2 above) as a **Cash Settled Dividend Neutral**
 - b. If the quantity of the Dividend Future is greater than the quantity of the Cash Settled Single Stock Future, then update the Quantity of the Dividend Future to that of the Cash Settled Single Stock Future. The difference is then "reserved" so that the difference can be applied against the Physically Settled Single Stock Future (Scenario 3 above).
5. Create a contra transaction against the 'S' contract.
6. Convert any balances in the 'F' contract to a Physically Settled Dividend Neutral.
7. Create a contra transaction against the 'Q' contract.

Example 1 - An 'F' contract (Dividend Future) is matched to a 'Q' contract (Physically Settled Single Stock Future) only

Clearing Member	Trading Member	Member Client	Position Account	Instrument ID	Expiry Date	Short Name	Notes	Closing Position
ABC	DEF	ABC101	ABC101	1011169	21-06-2018	RDF F	Dividend Future	800
ABC	DEF	ABC101	ABC101	1010284	21-06-2018	RDF Q	Physically Settled Single Stock Future	1000

Step	Pre Conversion			Post Conversion		
	F	Q	S	Physically Settled Dividend Neutral	Q	S
0 – Starting Point	800	1000	0			
1 – Migrate 'Q' and 'S' positions		1000	0		1000	0
	Total F Qty	F:Q Qty	F:S Qty	Physically Settled Dividend Neutral	Q	S
2a – 'F' to 'Q' match	800	800	0	800		
3 – Create a contra transaction 'Q'	800	-800	0		-800	
NET POSITION	800	200		800	200	

Example 2 - An 'F' contract (Dividend Future) is matched to an 'S' contract (Cash Settled Single Stock Future) only

Clearing Member	Trading Member	Member Client	Position Account	Instrument ID	Expiry Date	Short Name	Notes	Closing Position
ABC	DEF	ABC101	ABC101	1011169	21-06-2018	RDF F	Dividend Future	1200
ABC	DEF	ABC101	ABC101	1010385	21-06-2018	RDF S	Cash Settled Single Stock Future	1200

Step	Pre Conversion			Post Conversion		
	F	Q	S	Cash Settled Dividend Neutral	Q	S
0 – Starting Point	1200	0	1200			
1 – Migrate 'Q' and 'S' positions			1200		0	1200
	Total F Qty	F:Q Qty	F:S Qty	Cash Settled Dividend Neutral	Q	S
4a – 'F' to 'S' match	1200	0	1200	1200		
5 – Create a contra transaction 'S'			-1200			-1200
NET POSITION	1200	0	0	1200	0	0

Example 3 - An 'F' contract (Dividend Future) is matched to a 'Q' contract and an 'S' contract

Clearing Member	Trading Member	Member Client	Position Account	Instrument ID	Expiry Date	Short Name	Notes	Closing Position
ABC	DEF	ABC101	ABC101	1011169	21-06-2018	RDF ^F	Dividend Future	1600
ABC	DEF	ABC101	ABC101	1010284	21-06-2018	RDF ^Q	Physically Settled Single Stock Future	900
ABC	DEF	ABC101	ABC101	1010385	21-06-2018	RDF ^S	Cash Settled Single Stock Future	400

Step	Pre Conversion			Post Conversion			
	F	Q	S	Physically Settled Dividend Neutral	Cash Settled Dividend Neutral	Q	S
0 – Starting Point	1600	900	400				
1 – Migrate 'Q' and 'S' positions		900	400			900	400
	Total F Qty	F:Q Qty	F:S Qty	Physically Settled Dividend Neutral	Cash Settled Dividend Neutral	Q	S
2b – 'F' to 'Q' match	1600	900	700	900			
3 – Create a contra transaction 'Q'		-900				-900	
	Total F Qty	F:Q Qty	F:S Qty	Physically Settled Dividend Neutral	Cash Settled Dividend Neutral	Q	S
4b – 'F' to 'S' match	1600		400*		400		
5 – Create a contra transaction 'S'			-400				-400
	Total F Qty	F:Q Qty	F:S Qty	Physically Settled Dividend Neutral	Cash Settled Dividend Neutral	Q	S
6 – Convert balance against Physically Settled Div Neutral contracts	1600	300**		300			
7 – Create a contra transaction 'Q'		-300				-300	
NET POSITION	1600	0	0	1200	400	-300	0

Note:

- * The quantity on the 'S' contract is updated to 400 as the 'S' quantity was 400.
- ** The quantity of the 'Q' contract is updated to 300 because:
 - There were 700 units left to compare against the 'S' contract in Step 4
 - Because the 'S' contract only had 400 units, the Quantity is updated to 400 for conversion
 - The difference of 300 is then allocated against the 'Q' contract.

5.3 Calculation of Market Value and Initial Value

The Market Value and the Initial Value are calculated based on the following formula:

For Dividend Neutral Futures:

Closing Position X (Closing Price of the Dividend Future + Closing Price of Single Stock Future) X Contract Size

For Futures:

Closing Position X Closing Price X Contract Size

For Options:

Closing Position X Closing Price

The Closing Price will be derived from the Valuation System on the Friday night prior to Go Live i.e. the positions will be taken on into RTC on the Friday night based on the closing position and price for that Friday's date.

For additional information please contact the Customer Support team on:

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