Integrated Trading & Clearing (ITaC)

Conceptual training for Clearing Members

03 November 2017

Session objectives

In preparation of the JSE ITaC project go-live, the JSE is conducting conceptual training for all impacted Clearing Member staff and other stakeholders that have had limited exposure to the project thus far or who have not been part of the various ITaC engagements

The primary objectives of this session are:

    I.   Provide an overview of the drivers and benefits of the ITaC project

    II.   Explain the key changes to the existing derivative clearing process

    III.   Describe the new services and functionality that will be introduced with ITaC

    IV.   Provide a view of the remaining activities in the lead-up to go-live (Q1 2018)

Agenda

- What is the JSE ITaC programme? *(Alex Comninos)*

- Changes to current derivative clearing process *(Alex Comninos)*

- New services and functions *(Andre Koen, Wilhelm Kuys, Hemash Kala)*

- Remaining activities leading up to go-live *(Gabrielle Hussain)*

Agenda

- What is the JSE ITaC programme?   *(Alex Comninos)*

- Changes to current derivative clearing process

- New services and functions

- Remaining activities leading up to go-live

ITaC programme overview

- The JSE currently provides trading, clearing and settlement services for:
    - Equity derivatives (EQD)
    - Foreign currency derivatives (FXD)
    - Interest Rate derivatives (IRD)
    - Commodity derivatives (CMD)

- ITaC is a **multi-year programme** to:
    - migrate all Derivative and Bond markets to the MIT trading platform
   - migrate all markets to a new Cinnober Real-time Clearing (RTC) platform

- Phased delivery approach will be followed:
    - Phase 1: Equity derivative and currency derivatives Q1 2018
    - Phase 2: Planning commenced

ITaC programme overview
Transition phase

- Post project 1 and prior to project 2 go-live:

RTC		Nuclears	
EDM		CDM	
FXD	IRC market separated	IRD	
		Cash Bonds	

ITaC INTEGRATE ACCELERATE GROW
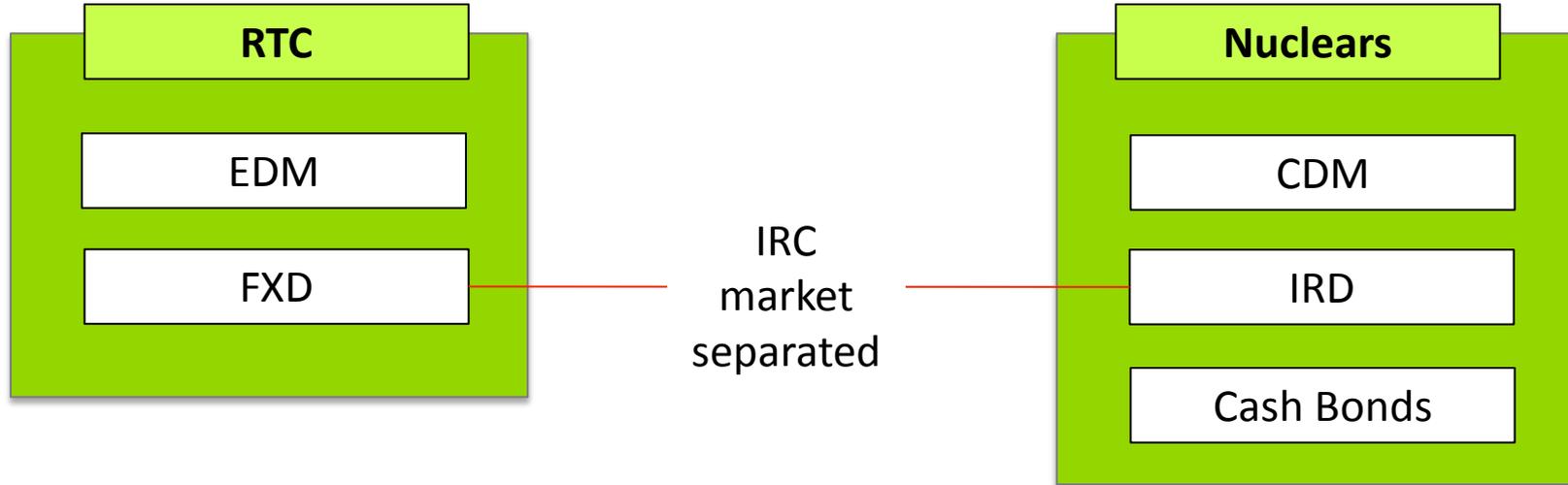
ITaC programme overview
## Strategic objectives

- The JSE aims to achieve its Integrated Clearing vision through ITaC

- The vision is based on three pillars:
    - Centralised and real-time risk management
    - Efficient asset utilisation
    - Consolidated clearing operations

- The JSE has selected Cinnober as its partner for the development of a new multi-asset clearing technology platform
    - Proven, high-performance real-time Clearing solution

ITaC programme overview – Transformation drivers
Centralised & Real-Time Risk Management

CURRENT

Derivative Clients

End of Day
Margin Exposure
Report

Consolidate

| Margin Calculation | Margin Calculation | Margin Calculation | Margin Calculation |

EQD | **IRD** | **FXD** | **CMD**

FUTURE

Derivative Clients

Real-Time
Margin Exposure
Monitoring

Optimised & Consolidated
Margin Calculation

EQD | **IRD** | **FXD** | **CMD**
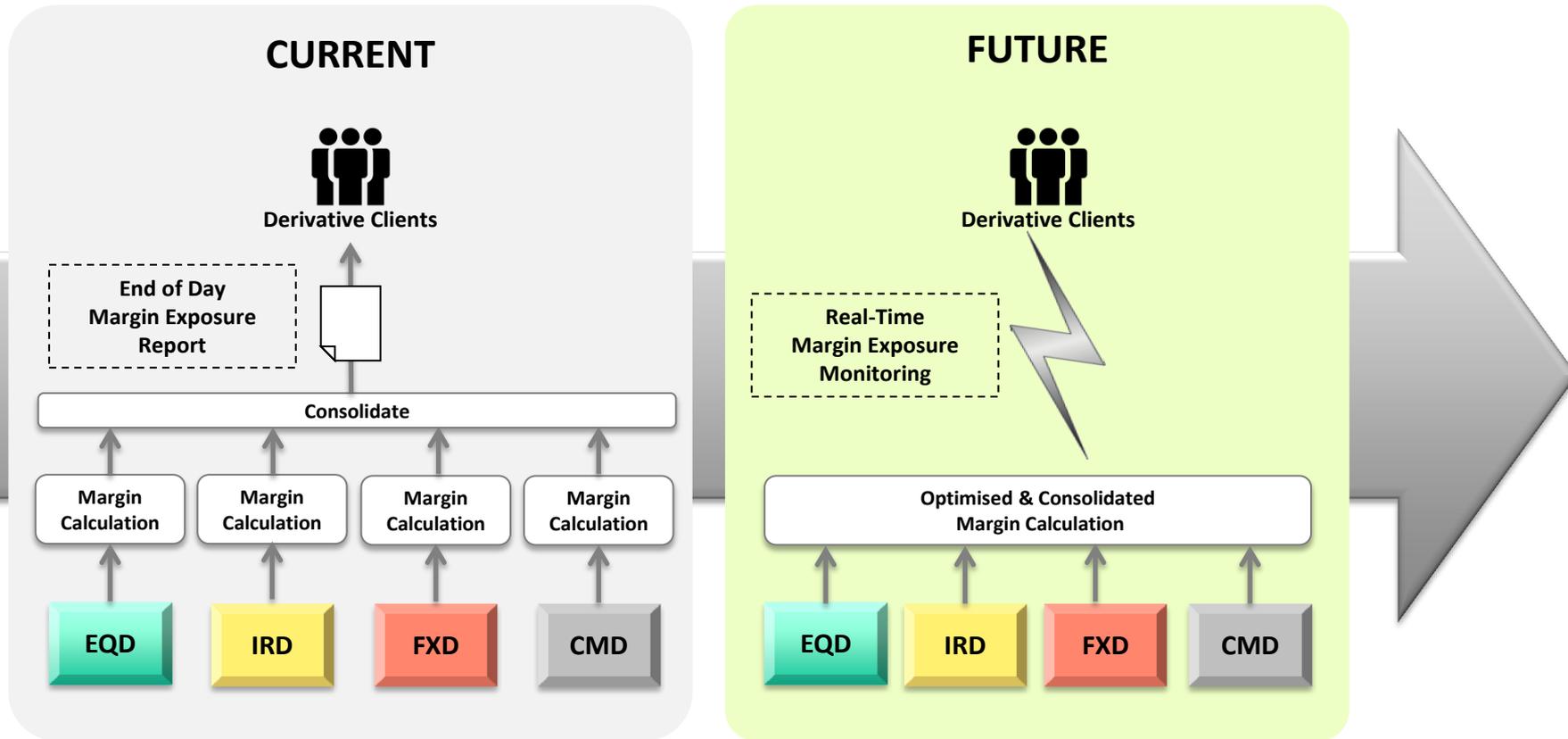
Key benefits:
- More efficient margin calculations with increased flexibility for offset,
- margins calculated centrally across all markets,
- and provided to client in real-time during the trading day

ITaC programme overview – Transformation drivers
## Client Capital Efficiency
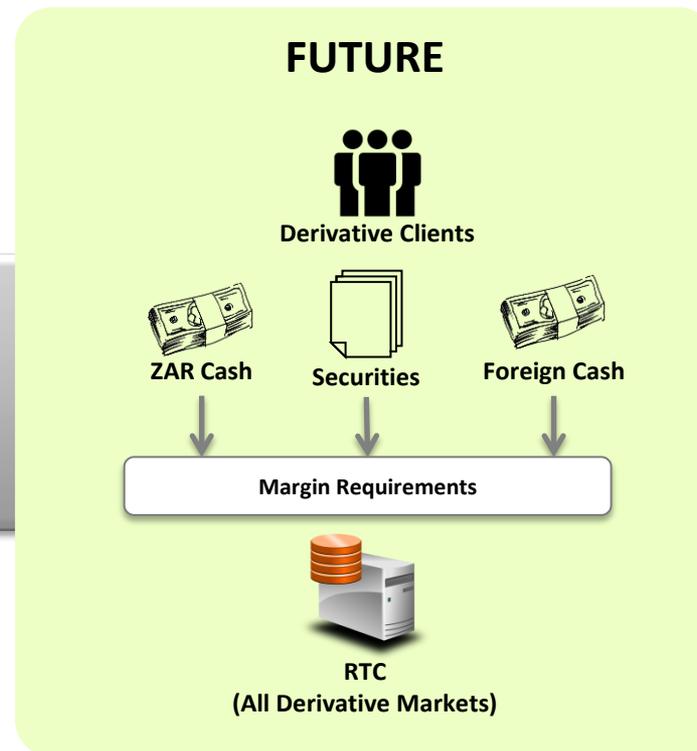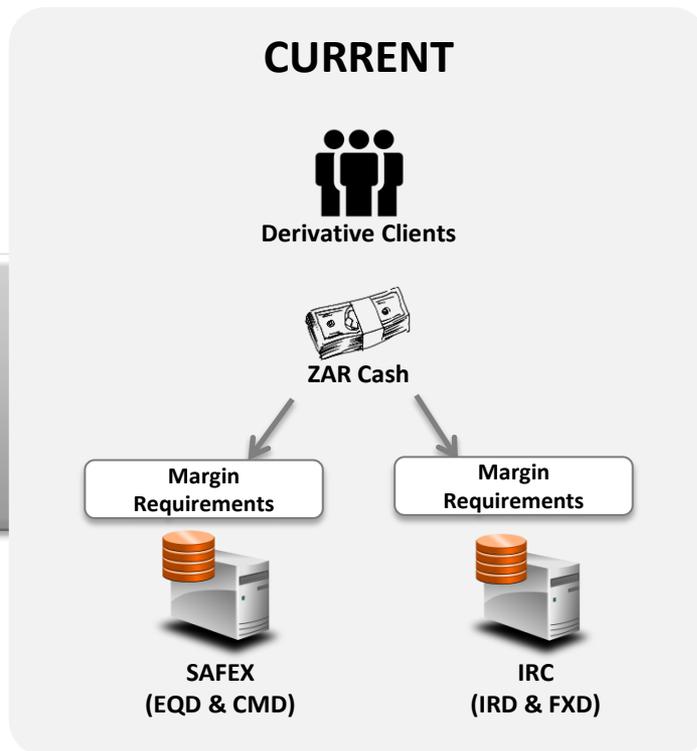
Key benefits:

➢ Acceptance of non-cash collateral will allow **freeing up of cash** and providing relief for clients in the face of rising capital requirements

ITaC programme overview – Transformation drivers
Business and IT Operational Efficiency

CURRENT

FUTURE

Equity Market

Derivative & Bond Markets

Business Operations

IT Operations

Business Operations

IT Operations

ECS

Nuclears (SAFEX & IRC)

Equities, Derivatives & Bond Markets

Business Operations

IT Operations

RTC
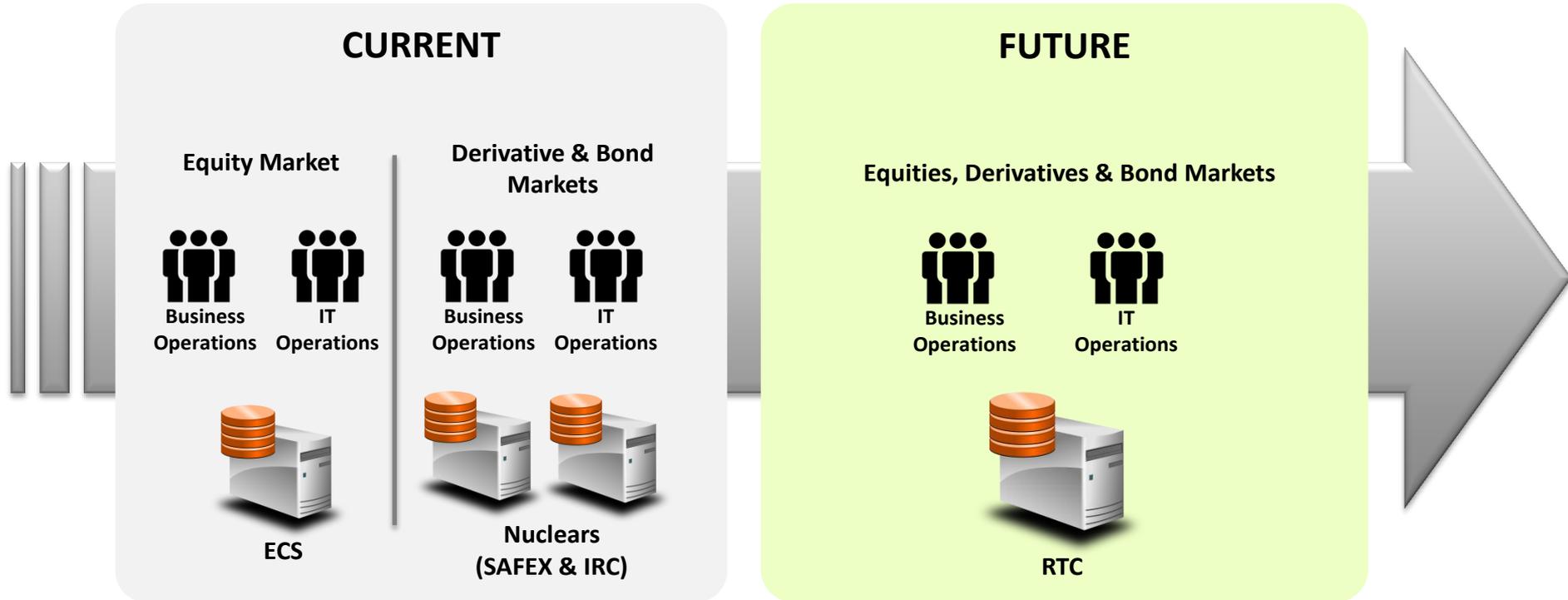
Key Benefits:

➢ **People** – consolidating Business and IT operation teams, cross skilled across all markets

➢ **Process** – automated/optimised business processes for maximum efficiency

➢ **Systems** – single consolidated IT system provided by industry leading software provider

Agenda

- What is the JSE ITaC programme?

  (Alex Comninos)

- Changes to current derivative clearing process

  - Overview of key changes and new services

  - Daily clearing lifecycle

  - Systems, interfaces and functions

- New services and functions

- Remaining activities leading up to go-live

Overview of key ITaC changes and new services

JSE

** Test as part of ITaC but implement post bedding down period after go live. FX pending legal approval

Trade Entry
- Non-validation of accounts on trading system
- Price bands

Reference Data
- Members Codes
- Sub accounts
- Instruments codes/fields
- Dividend neutral

EoD Process
- Single EoD run across all markets
- Two-step CM balancing process

Pre-Trade Risk
- Changes to pre-trade controls

Deal Management
- New commissions functionality to replace "Take-a-Turn"

Securities and FX Collateral *
- New service that allows trading members and clients to pledge securities and FX as collateral

Intra-day Risk Monitoring
- New real-time service for monitoring and setting exposure limits

Key ITaC changes
Post-trade

BDA Integration
- To include information of pledged securities collateral

Margining Methodology
- Minor changes to current JSPAN methodology
- Intentions to move to HistVaR methodology in future

Front-ends
- JSE no longer to provide vanilla trading and deal management front-ends

Interfaces, connectivity and bandwidth
- New technical interfaces
- Connectivity to JSE DR site required

JSE Services Agreement (JSA)
- All market participants to sign JSA prior to using JSE testing (CTS) or production services

Data Agreements
- Market participants to sign data agreements

JSE Rules and Directives
- Changes to JSE derivatives rules and directives in relation to new and removed services

Global Markets
- Remain on Nutron during transition (move to CMD)

New

Modified

Removed

Items to be covered in more detail

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Agenda

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ITaC **INTEGRATE ACCELERATE GROW**

Daily trading and post-trade lifecycles
Timeline of a typical day – Post-trade

Start of Day

Continuous Trading

Deal Mgt Period

CM Balancing & Settlement Instructions

Settlement Confirmation

09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00

08:00 20:00 08:00

(t)

09:00 10:00 11:00 12:00

(t+1)
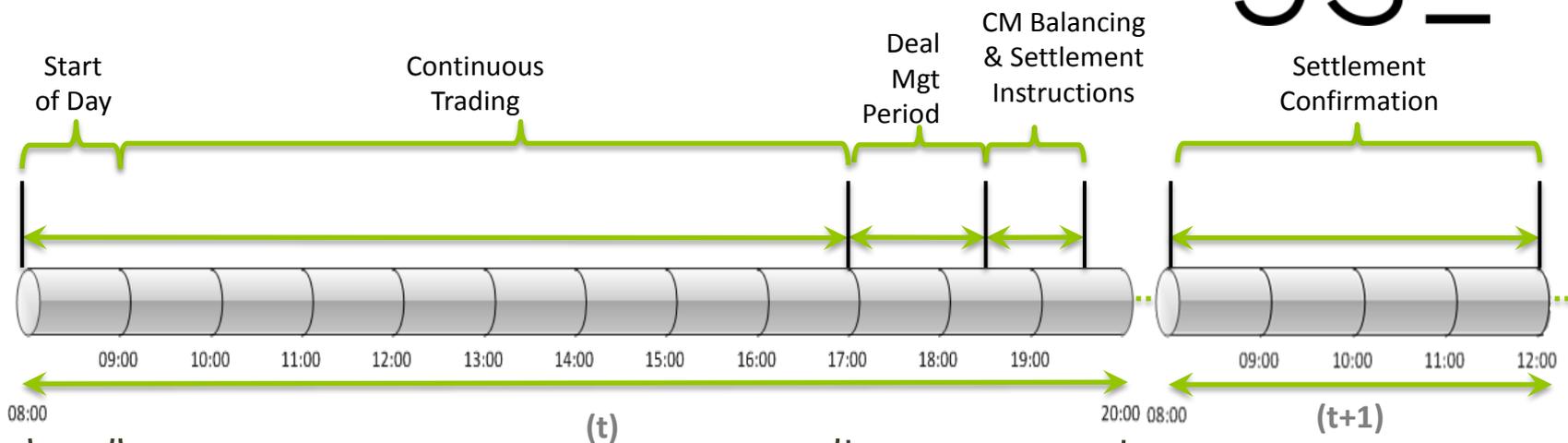
Start of Day (SoD)
- Data Downloads:
  - Member, Client & Account Data
  - Instrument Data
  - Risk Data
  - MtM Prices (T-1)
  - Public Member & Branch Codes

Intra-Day
- Trade, Deal, Position updates
- Deal Management
- Commissions Management
- Collateral Intra-day Process
- Price Updates
- Intraday Risk Monitoring
- Intra Day Reference Data Updates
- Publishing of Rates (JIBAR)
- Early valuations

End of Day (EoD)
- Final Deal & Commission Management
- Contract Expiries and Allocations (Futures and Options)
- Margin Calculations
- Clearing Member Balancing
- Collateral calls
- Billing
- Generation of Payment Instructions

Ad-Hoc
- Default Management
- Transfers
- Corporate Actions

Next Day
- SWIFT Payment Processing

Time	Description	Functionality Available
05:00	System is started	
05:00	Business date is set Reference data and transactional data available for download	Client loading
08:00	RTC starts receiving trades from the trading system	• Trade management • Commission management • Client loading • Indicative risk calculation • Risk alerting • Reporting • Position updates
10:00 (TBC)	Intraday collateral rebalancing process	Allows participants to change the mix of collateral posted against the previous day's margin call. For example substitute cash for securities or vice versa
11:00	Publication of rates e.g. JIBAR, STEFFI, Overnight deposit	
15:00	Early valuations - publication of prices	

Time	Description	Functionality Available
17:00	Central order book trading closes for currency derivative trading. Only deal management and booking of reported trades can be done	• Trade management • Receiving reported trades • Client loading • Indicative risk calculation • Risk alerting
17:30	Central order book trading closes for equity derivative trading. Only deal management and booking of reported trades can be done	• Trade management • Receiving reported trades • Client loading • Indicative risk calculation • Risk alerting
18:30	Trade management state ends (18:00 for FXD)	
18:30	"End of day" procedures begin, including: • Option and future expiration • Calculation and publication of initial and variation Margin, Fees, Commissions, Interest on Margin, etc. • Clearing Member balancing • Pledge and release of securities collateral • Settlement instructions	Client loading
	"Post end of day" state begins	
	Transfers and corporate actions	

Agenda

JSE

- What is the JSE ITaC programme?

(Alex Comninos)

- Changes to current derivative clearing process

  - Overview of key changes and new services

  - Daily clearing lifecycle

  - Systems, interfaces and functions

- New services and functions

- Remaining activities leading up to go-live

ITaC **INTEGRATE ACCELERATE GROW**

Systems and interfaces

Trading Member

Clearing Members

CSDPs and Clients

Settlement Banks

Front-end

Front-end

Trading API	Clearing API	Front-end		Front-end	SWIFT Messaging
JSE Trading System (MIT)	JSE Clearing System (RTC)	JSE Broker Accounting System (BDA)		Strate Collateral Management System (SCMS)	SWIFT Alliance Network

Trades

Update of pledged securities

Pledging and releasing of securities

FX and ZAR cash settlements

Clearing members front-ends will be able to connect to both the JSE trading (monitoring and on-behalf of activities) and clearing systems

High Level Architectural Overview

Trading Member

Clearing Member

Information Subscribers

ORDER & TRADE MANAGEMENT GATEWAYS

ALL MARKETS
- Trading (Native)
- Post Trade (FIX)
- Drop Copy (FIX)

EQUITY
- Trading (FIX)

DEAL MANAGEMENT & CLEARING

ALL MARKETS
- Deal Mgmt (EMAPI)
- Post Trade Risk Monitoring
- Collateral Mgmt
- Margin Methodologies
- Clearing and Settlement

REFERENCE, EOD & OTHER DATA

ALL MARKETS

Information Delivery Portal (IDP) (FTP)

Reference Data, Statistics & other

MARKET DATA GATEWAYS

ALL MARKETS
- Full Depth / Level 1 (MITCH)

DERIVATIVES BONDS & INTEREST RATE
- Full depth/ LvL1 (MITCH)

EQUITY
- LvL1 (FIX)
- Indices (FIX)
- News (FIX)

ITaC INTEGRATE ACCELERATE GROW

Overview of post-trade functions in the JSE RTC clearing system

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JSE Deal Management & Clearing System
Real-Time Clearing (RTC)

Trade receipt	**Deal management**	**Position management**
Risk management	**Collateral management**	**Settlement**
Default management	**Non-market facing functions** (Valuations, stress testing, back testing, etc.)	

Reference data

JSE Trading System (MIT)

Clearing Member (CM)

Trading Member (TM)

JSE Information Delivery Portal

Strate Collateral Management System

CM, TM, Client, CSDP

Settlement Bank

JSE Internal Systems

Agenda

JSE

- What is the JSE ITaC programme?

- Changes to current derivative clearing process

  (Andre Koen)

- New services and functions

  - Position accounts and reference data

  - Intraday risk monitoring

  - Commissions

  - Securities collateral

  - EoD process

- Remaining activities leading up to go-live

ITaC **INTEGRATE ACCELERATE GROW**

Entity and Account Structure

Position account view
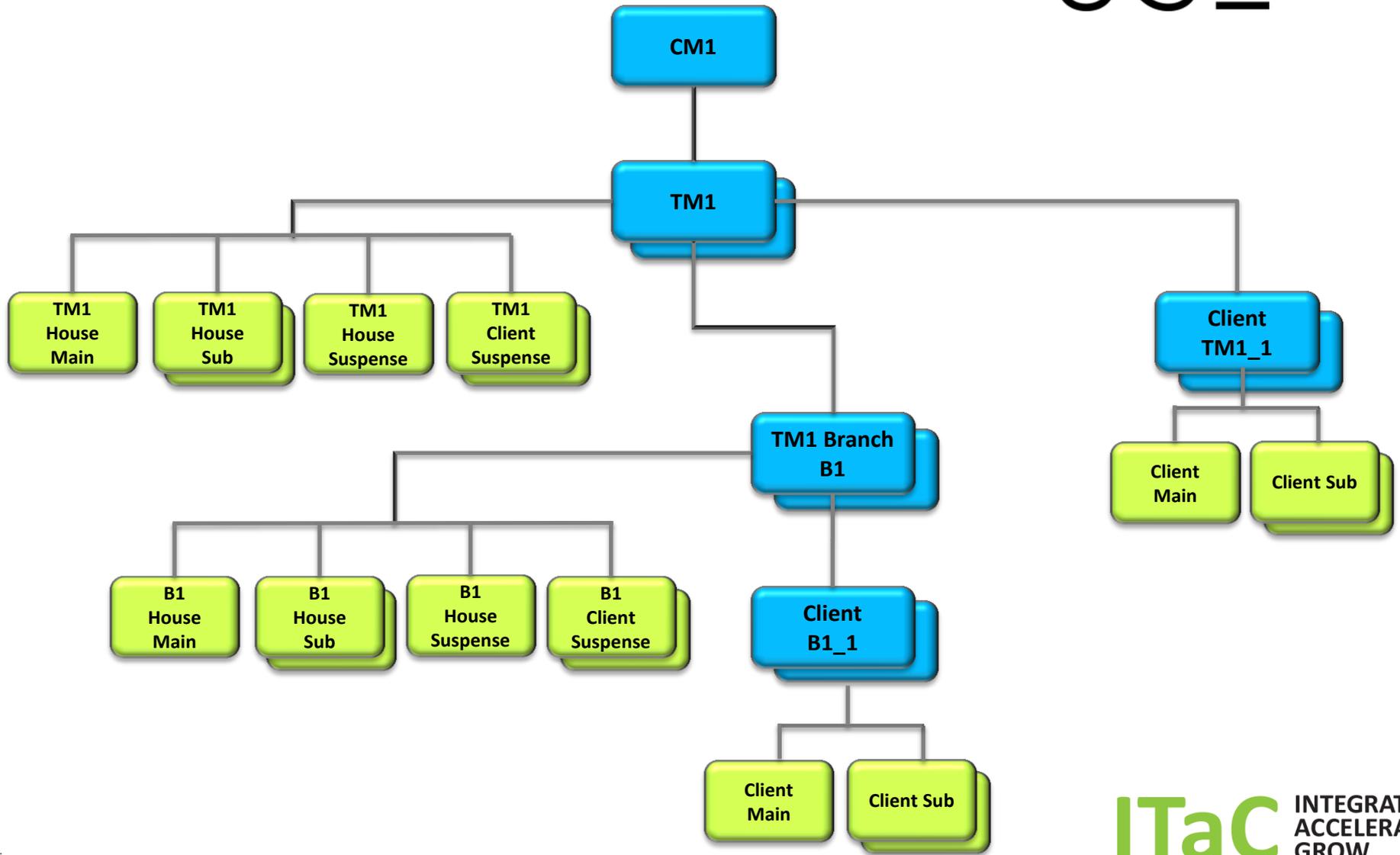
Entity and Account Structure
Risk & Collateral View

Legend
- Risk Node
- Position Account
- Collateral
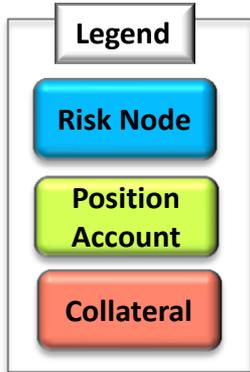
Segregation of collateral
Collateral of TM and each client separated

CM1

TM1

TM1 House
- ZAR
- Securities
- Currency

| TM1 House Main | TM1 House Sub | TM1 House Suspense | TM1 Client Suspense |

| B1 House Main | B1 House Sub | B1 House Suspense | B1 Client Suspense |

TM1 Branch B1

Client B1_1
- ZAR
- Securities
- Currency

| Client Main | Client Sub |

Client TM1_1

| Client Main | Client Sub |
- ZAR
- Securities
- Currency
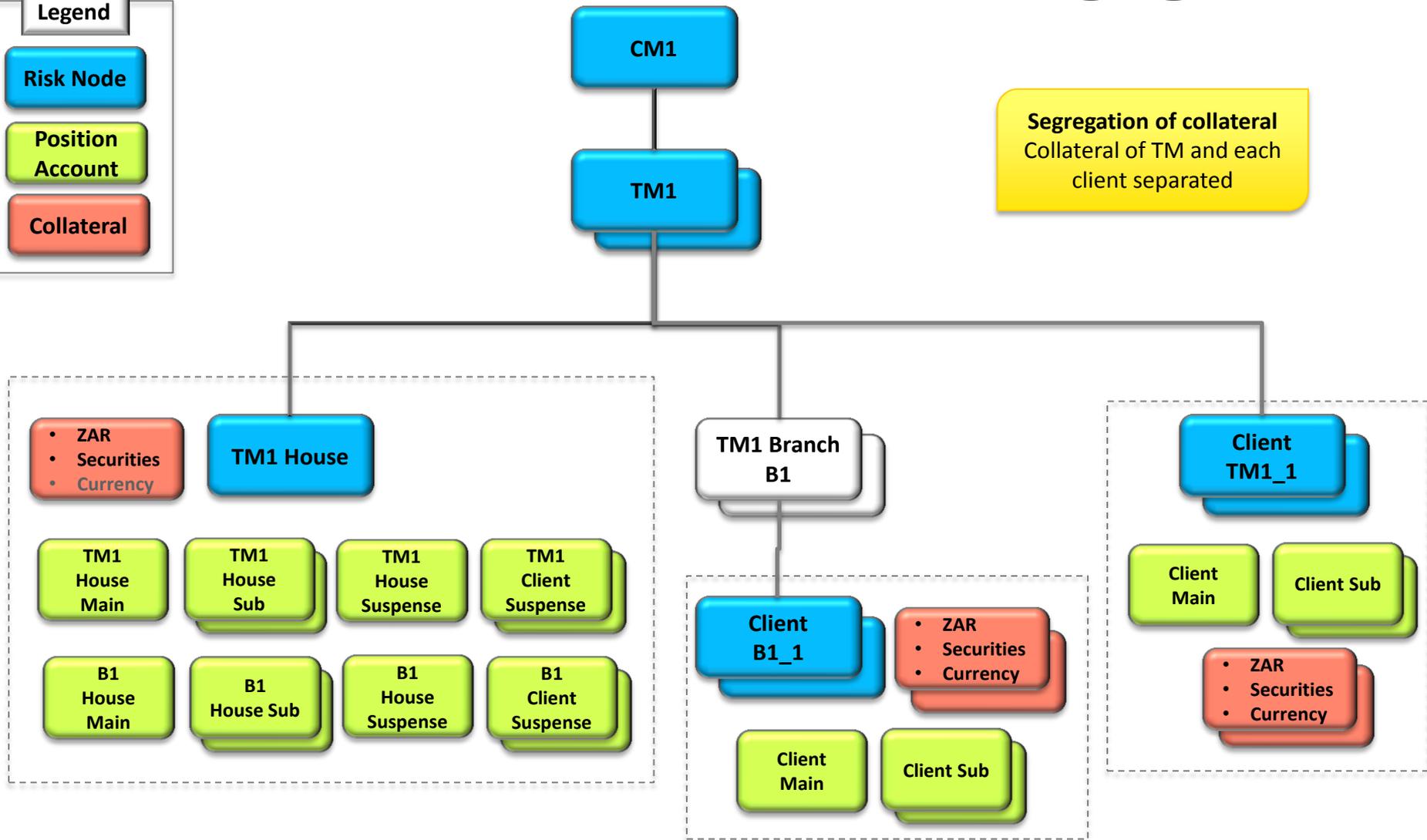
Entity and Account Structure

Clearing different markets through different CMs

Risk Tree 1

CM1

Equity Derivatives

TM1

Separate risk structures with cloned accounts under each CM (risk tree)

Clients allowed by CM1

TM1 House

Client TM1_1

TM1 House Main	TM1 House Sub
TM1 House Suspense	TM1 Client Suspense

Client Main	Client Sub

Risk Tree 2

CM2

Currency Derivatives

TM1

Clients allowed by CM2

TM1 House

Client TM1_1

TM1 House Main	TM1 House Sub
TM1 House Suspense	TM1 Client Suspense

Client Main	Client Sub

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Entity and Account Structure

Consolidation of markets & Trading Member codes

Conceptual view of code consolidation:

Firm	Market	CM	TM Alpha Code (ITaC)	Current TM code (Nutron/Nuclears)
ABC Securities	ED	CM1	**ABC**	ABCE
ABC Securities	FXD	CM1	**ABC**	ABCY
DEF Securities	ED	CM2	**DEF**	DEFE
DEF Securities	FXD	CM3	**DEF**	DEFY
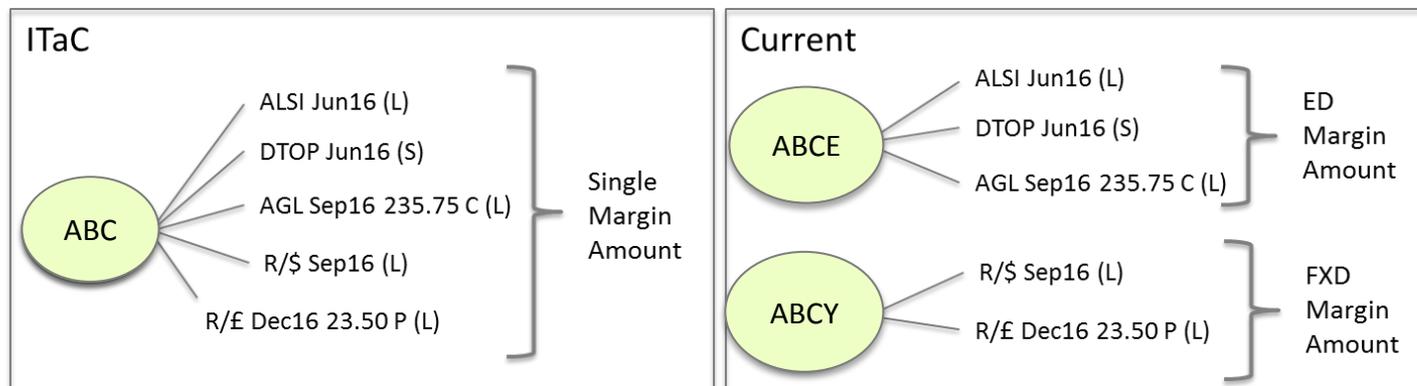
Entity and Account Structure
Consolidation of markets & Trading Member codes

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- New trading and clearing members Production Identifier Code (PIC) will be 11 alpha-numeric characters for the Derivatives market.

- The Production Identifier Code is also known as the Business Identifier Code (BIC) for the Equities Market.

- The code is used to identify the participant on the Production System and the Test System. The code is formatted as follows: ABCXXXCC001

  - First 3 characters (ABC) – this refers to the Trading member or Clearing member 3 character standardized alpha code (A-Z caps only)

  - Next 3 characters (XXX) – default characters of XXX

  - Next 2 characters (CC) – this refers to TM for trading member or CM for clearing member

  - Last 3 characters (001) – system generated 3 digit number, incremented if there is another PIC with the same prefix

Instrument Reference Data
New naming standards

- Three Instrument Identifiers
  - **Contract Code** (replacing the existing four character code)
  - **International Securities Identification Number** (ISIN)
    - Equity Derivatives ZAD
    - Currency Derivatives ZAF

  - **Unique ID** (Numeric)

- **New Contract Code standard**
  - Concatenation of fields

    e.g. <EXPIRY DATE> <ALPHA CODE> <SETTLEMENT TYPE> <CALL/PUT> <STRIKE>

  - Max length: 50
  - Examples:
    - 01DEC15 AGL PHY ANY DN
    - 01DEC15 AGL PHY ANY 23.99C
    - 17DEC15 GOOGL CSH
    - 01DEC15 GOOGL CSH QUANTO 23.99C
    - 01DEC15 USDZAR ANYDAY
    - 17DEC15 USDZAR QUANTO 23.999C
    - 17DEC15 ALSI MINI

Instrument Reference Data
Mapping old contract codes to new contract codes

- Existing four character Contract Code will be mapped to each contract that exists at go-live. We will call this the **Old System Code**

- A Instrument Contract code mapping spreadsheet will be made available for dress rehearsals, but with new instruments being added daily, the final mappings will be made available on the go live weekend

- For Equity Derivatives and Currency Derivatives post ITaC go live
  - Old system code - four character code will not be allocated to any new instruments that are listed or that are created as a result of corporate actions
  - Only the new instrument identifiers will be created

Instrument Reference Data

Mapping old instrument types to new instrument types

- A mapping between the existing instrument types and how these instruments will be classified in the ITaC systems will be made available prior to ITaC go-live

- Instrument standards
  - Correct Underlying names will be used for all contracts e.g 17DEC15 ALMI will now be 17DEC15 ALSI MINI

  - Many instrument types that are currently classified as CanDo's will now have standardised instrument types and will not be part of 'Structured Products' e.g. Anydays and Quantos

Instrument Reference Data
Dividend Neutral changes

- Current system (Nutron) the Dividend Neutral is a virtual contract meaning that when the Dividend Neutral (N) contract is traded the system creates an equivalent SSF (Q) and Dividend Future (F) in equal amounts, for example:
  - Member A Buy 100 15 Jun17 AGLN
    - Member A long 100 15 Jun17 AGLQ
    - Member A long 100 15 Jun17 AGLF

- As the Dividend on AGL goes Ex on the underlying market the JSE process a Journal transaction to accommodate the Dividend going EX on the Dividend Future

- In the new ITaC implementation - the Dividend Future will no longer exist as the Dividend Neutral contract will now be "one" contract and the Journal transaction will be processed on this contract

- Main reason for the removal of the Dividend Future, when Members roll over their SSF contracts to the next expiry they do not always roll the Dividend Future

Instrument Reference Data
Automation of Corporate Actions processing

- Corporate Actions processing will be automated
  - Reference data updates – Master Data System (MDS)
  - Position adjustments – Post-trade Clearing System (RTC)

- Corporate Actions on derivatives will now be managed by the same team that manages equity corporate actions

- Market Notices will no longer be issued but information on treatment of derivatives positions as a result of corporate actions will be available on JSE website

- Corporate Actions on International Equities will be sourced from Thomson Reuters

Instrument Reference Data
User created instruments

- Instrument Types permitted for user created Instruments:
  - AnyDay Futures
  - AnyDay (Naked) Options
  - Delta Options
  - Forward/Forward FX

- Instruments that are eligible for user-creation can be found in the client Trading reference data (CSV) files
- Futures can only be created if existing Futures Contracts already exist on the same underlying instrument known as Reference Instrument
- Instruments can only be created with a date before that of the furthest expiry
- Instruments created intra-day will be disseminated via the MITCH Market Data Gateways
- Embellished data will be added to the client Trading reference data (CSV) files as part of the batch end of day (EOD) run

ITaC INTEGRATE ACCELERATE GROW

Agenda

- What is the JSE ITaC programme?

- Changes to current derivative clearing process

  (Wilhelm Kuys)

- New services and functions
  - Position accounts and reference data
  - Intraday risk monitoring
  - Commissions
  - Securities collateral
  - EoD process

- Remaining activities leading up to go-live

Intraday risk monitoring

- Trading and Clearing Members set and manage exposure limits as required (ad-hoc)

- Clearing engine recalculates exposures throughout the day

    - 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

- As exposures are recalculated they are compared to the pre-set limits

- Alerts are published if exposures near or breach limits

Intraday risk monitoring (cont.)

- Risk information provided to Trading Members (TMs), Clearing Members (CMs) and updated throughout the day

- Information available on the JSE market facing API:

  - Initial Margin (IM), Additional Margin (AM), Variation Margin (VM), Collateral, Indicative Call

  - IM: J-SPAN, Large Position Add-on, Liquidity Period Add-on

  - Margins info provided at account level risk nodes and aggregated to the Client, TM, CM

  - IM and AM updated real-time based on continuous change to positions

  - VM and Collateral updated on a scheduled snapshot basis during the day

Intraday risk monitoring (cont.)

Thresholds

- A threshold can be set on the margin call of a client

  - (IM + AM + VM) - Collateral vs. Risk Threshold

- Exposures breaching their threshold are highlighted

- JSE sets a global threshold

- CMs can set a more conservative threshold for their TM's clients

- TMs can set a more conservative threshold for their clients

Intraday risk monitoring (cont.)
Example

| Clearing Member	Trading Member	Client	J-SPAN	Liquidation Period Add-on	Large Position Add-on	Settlement Margin	IM	AM	VM	Collateral Value	Indicative Call
AAA CM	AAA TM	AAA TM House	82 780	0	0	0	82 780	0	-16 507 557	100 000	-16 524 777
AAA CM	AAA TM	AAA TM BR1	439 700	25 000	0	35 000	499 700	0	558 317	499 700	558 317
CCC CM	CCC TM	CCC TM House	8 520 000	350 000	2 500 000	15 000	11 385 000	1 707 750	-2 869 199	9 200 000	1 023 551
CCC CM	CCC TM	CCC TM BR1	12 727 800	15 000 000	20 000 000	0	47 727 800	7 159 170	26 985 363	60 000 000	21 872 333
AAA CM	AAA2 TM	AAA2 TM House	59 200	0	15 000	0	74 200	0	37 338	100 000	11 538
AAA CM	AAA TM	AAA BR1 CL1	134 800	0	0	5 000	139 800	0	58 317	400 000	-201 883
BBB CM	BBB TM	BBB CL2	0	0	0	0	0	0	89 950	1 000	88 950
CCC CM	CCC TM	CCC TM CL1	46 620	0	0	0	46 620	6 993	26 985 363	50 000	26 988 976
DDD CM	DDD TM	DDD TM CL1	5 000	0	0	0	5 000	0	-47 500	0	-42 500

Trading Member Level

Clearing Member	Trading Member	J-SPAN	Liquidation Period Add-on	Large Position Add-on	Settlement Margin	IM	AM	VM	Collateral Value	Indicative Call
AAA CM	AAA TM	657 280	25 000	0	40 000	722 280	0	-15 890 922	999 700	-16 168 342
CCC CM	CCC TM	21 294 420	15 350 000	22 500 000	15 000	59 159 420	8 873 913	51 101 526	69 250 000	49 884 859
AAA CM	AAA2 TM	59 200	0	15 000	0	74 200	0	37 338	100 000	11 538
BBB CM	BBB TM	0	0	0	0	0	0	89 950	1 000	88 950
DDD CM	DDD TM	5 000	0	0	0	5 000	0	-47 500	0	-42 500

Clearing Member Level

Clearing Member	J-SPAN	Liquidation Period Add-on	Large Position Add-on	Settlement Margin	IM	AM	VM	Collateral Value	Indicative Call
AAA CM	716 480	25 000	15 000	40 000	796 480	0	-15 853 584	1 099 700	-16 156 804
CCC CM	21 294 420	15 350 000	22 500 000	15 000	59 159 420	8 873 913	51 101 526	69 250 000	49 884 859
BBB CM	0	0	0	0	0	0	89 950	1 000	88 950
DDD CM	5 000	0	0	0	5 000	0	-47 500	0	-42 500

Intraday Risk Monitoring
Information Flow

JSE

RTC Clearing

Instrument reference Data → Clients ⟳ ← Message: Clients

Instrument Prices → Instruments ⟳ → Message: Instrument

Prices ⟳ ← Message: PriceEvent

Positions ⟳ → Message: AccountPositionEvent

Risk Values ⟳ → Message: RiskNodeEvent

Trades

TM\CM
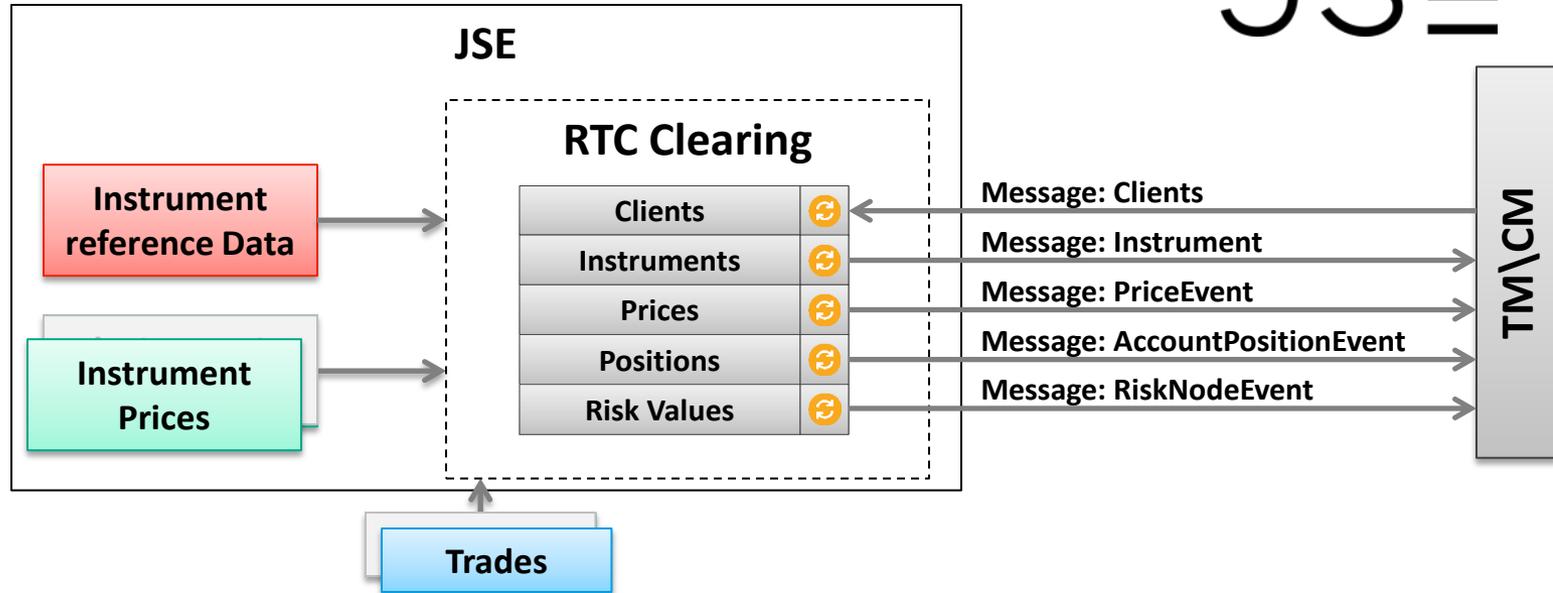
Depiction of API data updates														
	Prices	**140**	14.32	**45 300**	15.33	Risk Values								
	Instrument	15DEC16 AGL CSH	19DEC16 USD/ZAR	15DEC16 J200	15DEC16 J200 46338C	Notional	JSPAN	Liq Per AO	Lar Pos AO	IM	VM	Collateral Value	Indicative Call
Clients	Client 1	10				1 400	1 078	140	210	1 428	-143	1 200	85
	Client 2		14	2		90 800	69 916	9 080	20 385	99 382	19 876	109 320	9 938
	Client 3			4	-7	181 093	139 441	18 086	27 164	184 691	-55 407	92 346	36 938

Agenda

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- What is the JSE ITaC programme?

- Changes to current derivative clearing process   *(Hemash Kala)*

- New services and functions
  - Position accounts and reference data
  - Intraday risk monitoring
  - Commissions
  - Securities collateral
  - EoD process

- Remaining activities leading up to go-live

ITaC INTEGRATE ACCELERATE GROW

Commissions
Summary of JSE commissions service

- Trading members to capture commissions for transactions concluded in an agency capacity

- Primary role of JSE Clear will be to act as a payment clearinghouse to ensure settlement of net commission amounts across Clearing Members on T+1

  - Commissions will be rolled up to the Clearing Member level at EOD and **net** amounts per Clearing Member will be settled on T+1

- Commissions data entered into the Clearing system will be provided back to Trading and Clearing Members to support

  - Cash collections and payments from/to trading member and clients

  - Reporting, reconciliations and VAT invoicing

Commissions
Summary of JSE commissions service (cont.)

- Trading Members and Clearing Members will need to have relevant front-end capabilities to utilise the new JSE commission service

  - Commission entries submitted to JSE Clearing system to contain the commission as a ZAR cash amount inclusive of VAT --->

    - Commission fee structures and models to be built into participants' front end solutions

  - Other information to be included in commission entries

    - Market and Recipient Trading Member (mandatory)

    - Reference fields (optional) to assist in identifying the trade or trades for which the commission is being charged (commissions entries can be captured per trade or bulked)

- Trading members will be required to actively monitor and manage their commission entries

  - Executing trading members may cancel a submitted commission entry

  - Recipient trading members may reject a commission entry

  - If not cancelled/rejected the commission entry will be processed at EOD

Commissions
Key stakeholders and responsibilities

Key Stakeholders

- Initiating Trading Member
- Clearing Member A
- Clearing Member B
- Recipient Trading Member
- Member Clients
- JSE Clearing House
- Member/Tripartite Clients
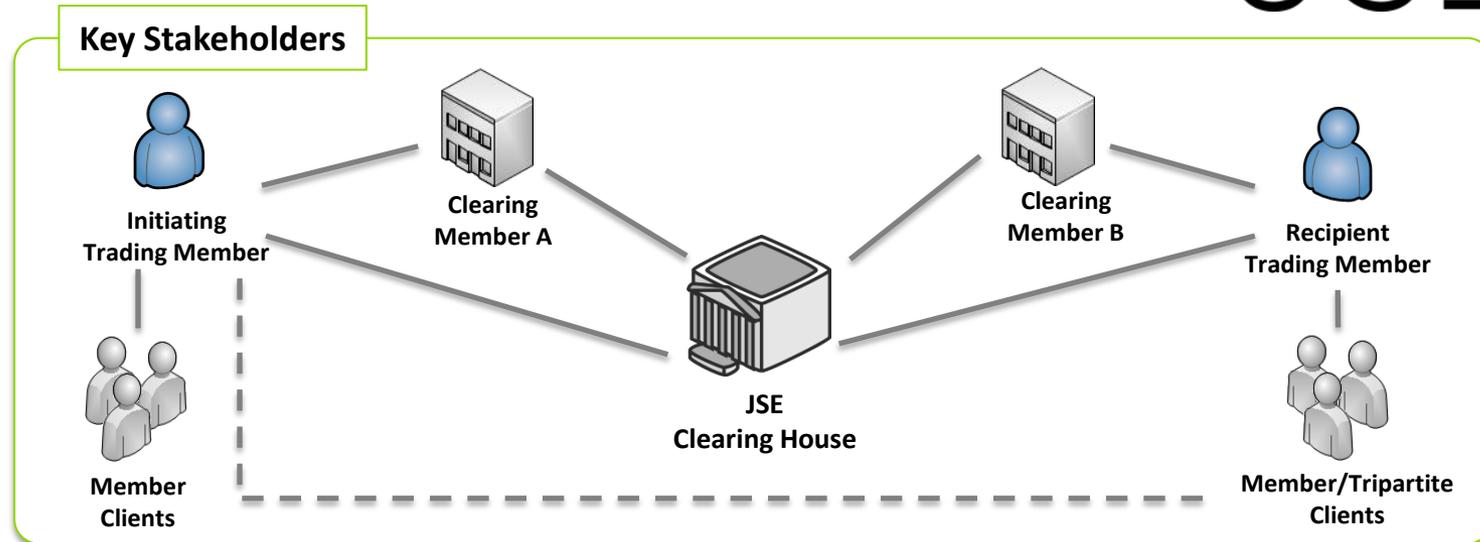
Key Responsibilities

- **Initiating Trading Member –** Calculating and capturing new commissions; Cancelling incorrect commissions;
  VAT invoicing of and cash collection from own Clients is typically done by the Clearing Member
- **Recipient Trading member –** Monitoring and rejecting incorrect commissions
- **Clearing Members –** Reconciling daily commissions; cash collection and payment between own Trading Members and Clients and associated VAT invoicing
- **JSE Clearing House –** Facilitate commission management between Initiating and Recipient Trading Members; Provide detailed commission information to Initiating and Recipient Trading Members and Clearing Members; Facilitate net settlement of commissions across Clearing Members on T+1

Commissions
General mechanics

General mechanics of the JSE commission solution:
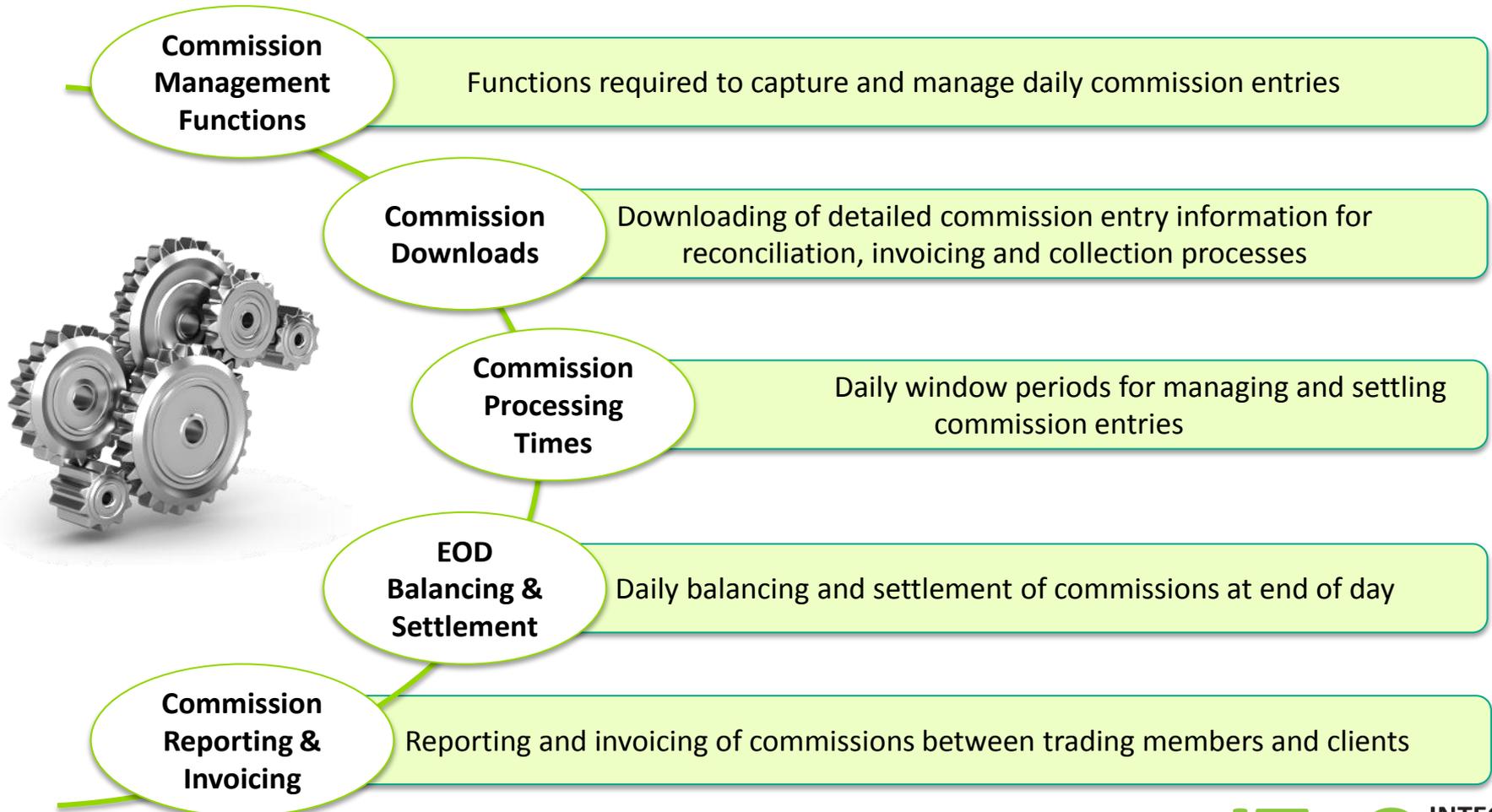
Commission Management Functions — Functions required to capture and manage daily commission entries

Commission Downloads — Downloading of detailed commission entry information for reconciliation, invoicing and collection processes

Commission Processing Times — Daily window periods for managing and settling commission entries

EOD Balancing & Settlement — Daily balancing and settlement of commissions at end of day

Commission Reporting & Invoicing — Reporting and invoicing of commissions between trading members and clients

ITaC INTEGRATE ACCELERATE GROW

Agenda

- What is the JSE ITaC programme?

- Changes to current derivative clearing process   *(Hemash Kala)*

- New services and functions

  - Position accounts and reference data

  - Intraday risk monitoring

  - Commissions

  - Securities collateral

  - EoD process

- Remaining activities leading up to go-live

Securities collateral
Background

- JSE Clear, the clearing house for listed derivatives in the South African market, calls for **initial margin (collateral) against all open derivative exposures** held by its clients

- Initial Margin (IM) requirements are calculated and collected/released as part of the daily risk management processes

- **These margins are currently payable in ZAR-cash only**

- 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**

- As a result, there has been a **steady growth in demand from the market for the acceptance of alternative forms of collateral**

- The ability to post securities and foreign currency collateral is **expected to assist clients in freeing up ZAR cash**

ITaC INTEGRATE ACCELERATE GROW

Securities collateral
Background (cont.)

- The new securities collateral service offering is being implemented as part of the JSE Integrated Trading and Clearing (ITaC) project with a go-live date of 19 Feb 2018 (and a 26 contingency go-live date of 26 March 2018)

- The introduction of the service will be phased:

  - **Phase 1a** – Pledging of select **SA government bonds** against initial margin requirements in the **Equity Derivative (EDM) and Currency Derivative (FXD)** markets in Q1 2018

  - **Phase 1b** – Pledging of select **Top 40 equities** against initial margin requirements in the **Equity Derivative (EDM) and Currency Derivative (FXD)** markets to follow a few months after Phase 1a

  - **Phase 2** – Pledging of select **SA government bonds and Top 40 equities** against initial margins requirements in the **Interest rate Derivative (IRD) and Commodity Derivative (CDM) markets**

  - **Phase 3** – Pledging of **foreign currency cash collateral i.e. USD, GBP and EUR**, will be launched once final regulatory approvals are obtained and testing with the market is completed

Note: Collateral for Cash Equity margins is being dealt with in the Equity CCP initiative

Securities collateral
Overview

| Participants who can use the service | Derivatives Trading Members (for proprietary exposures) | Derivatives clients who are non-controlled clients in the Cash Equity market | Clearing Members |

| Obligations that can be covered | Initial margin (including margin add-ons) | Clearing Member default fund contributions |

| Assets accepted | Liquid government bonds (GOVI index constituents) | Top40 Equities | FX cash (future) |

| Risk management of collateral | Min ZAR cash percentage | Valuation | Concentration |

Envisaged to be set to 40% min cash initially, reducing to 20%

10% GOVI Bonds
15% Top40 Equities

| SDA account & pledge mechanism | Participants w... need an SDA... account at Strate | ...ledged directly ...cipant SDA to JSE Clear | Auto-commits by CSDPs |

| Rules & Directives and Agreements | JSE Rules & Directives changes | Agreements updates |

| Processes | EOD process – collateralisation of daily IM call |
| | Intraday processes – substitutions, withdrawals & top-ups/releases |

Securities collateral
High-level transaction flow
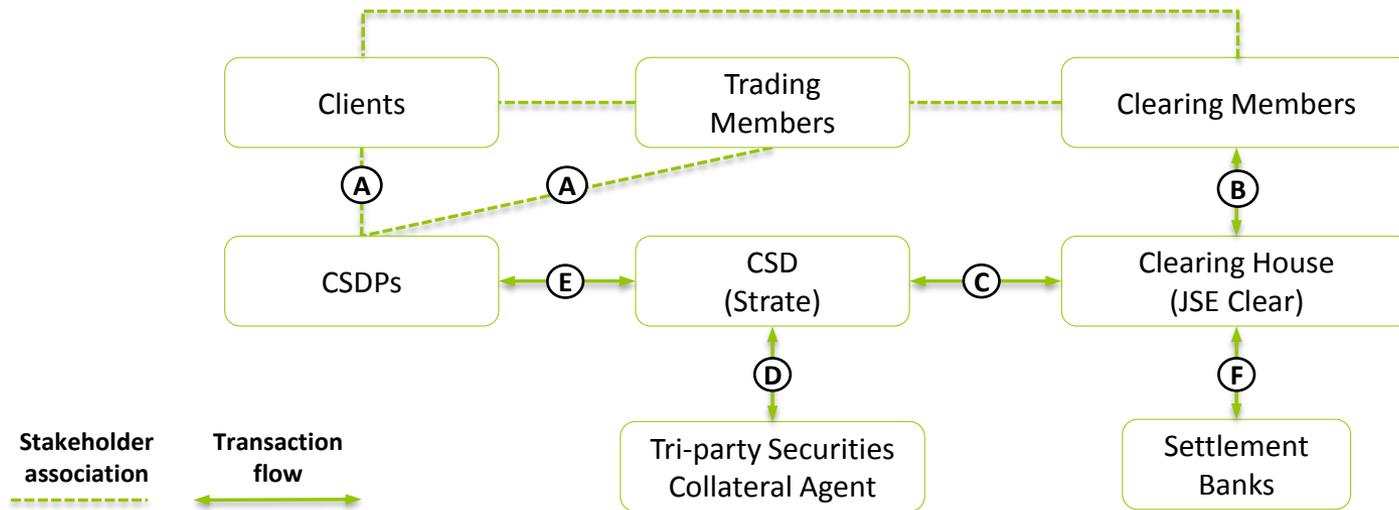
Associations and transaction flows:

A. Clients and Trading Members setup Segregated Depository Accounts (SDA) at the CSD via their CSDPs

B. Initial margin amounts confirmed by JSE Clear with Clearing Members as part of the daily end-of-day process

C. Allowable securities collateral amount sent to Strate per Client and Trading Member

D. Utilising their tri-party securities collateral service, Strate will allocate or release securities as available in Client and Trading Member SDA accounts

E. CSDPs are required to commit to all security allocation and release requests in order for them to be valid

F. Upon receiving the final collateral pledge statement from Strate, JSE to determine remaining cash amount required (i.e. total margin required less pledged securities) and cash settlements are done via the settlement banks

Securities collateral
Overview of collateral processes

The key collateral processes are:

- **End-of-day**: Pledging of securities collateral against initial margin

- **Intra-day collateral rebalancing**:

  - Withdrawal of pledged securities (call for more cash)

  - Release of cash if additional securities have been pledged

  - Revaluing of pledged securities resulting in top-ups/releases

- **Throughout the day**: Securities for securities substitutions

- **Corporate actions**: Processing of corporate action events against pledged securities

- **Default management**: Liquidation of securities collateral in the event of a default

End-of-Day (EoD) – Process overview

JSE

```
                    ┌─────────────────────────┐
                    │ Daily changes in        │
                    │ positions, prices and   │
                    │ volatilities            │
                    └─────────────────────────┘

┌──────────────────┐                          ┌──────────────────────┐
│ Process cash     │                          │ End-of day           │
│ settlements      │                          │ calculation of       │
│                  │                          │ initial margins (IM) │
│                  │     End-of-Day (EoD)     │ per client           │
└──────────────────┘     (6:30pm daily)       └──────────────────────┘

┌──────────────────┐                          ┌──────────────────────┐
│ Determine and    │                          │ Determine margin to  │
│ confirm remaining│                          │ be called for in     │
│ margin required  │                          │ securities collateral│
│ in ZAR cash      │                          │                      │
└──────────────────┘                          └──────────────────────┘

                    ┌─────────────────────────┐
                    │ Pledging or releasing   │
                    │ of securities collateral│
                    └─────────────────────────┘
```

End-of-Day (EoD) (6:30pm daily)

ITaC INTEGRATE ACCELERATE GROW

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Securities collateral
EoD exception scenarios

- EOD exception scenarios include:

  - **Delays** in EOD balancing with Clearing Members and/or in collateral processes e.g. due to system issues experienced by JSE, Strate or CSDPs

  - **Issues identified post EOD balancing** with Clearing Members which require rerunning of Clearing EOD process to recalculate initial margins

- Approach to collateral management in the event of exceptions

Issues resolved by a predetermined cut-off time*		
	Yes →	Collateral process will be run/rerun as applicable
	No →	Latest available collateral statement will be used
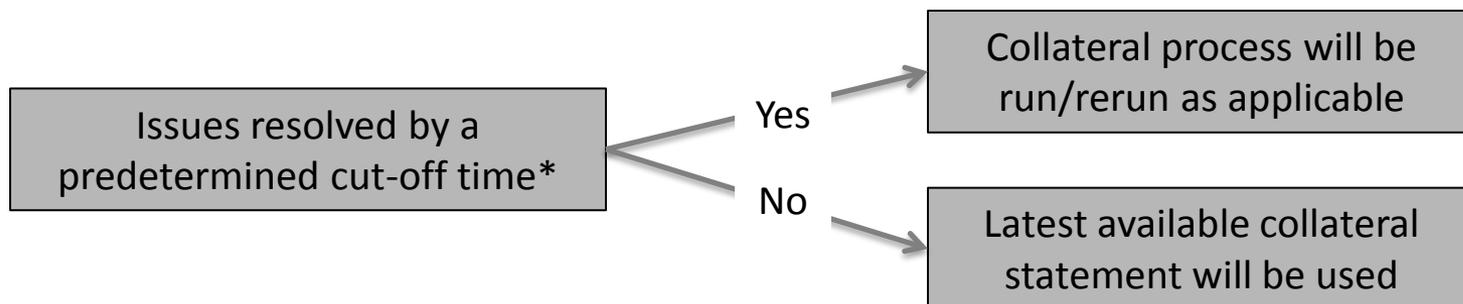
The predetermined cut-off time is dependent on finalisation of the SLAs of the various participants involved in the EOD collateral process (JSE, Clearing Members, Strate, CSDPs)

Securities collateral
EoD exception scenarios (cont.)

- Implication of exception scenarios <u>if</u> the predetermined cut-off time is missed

Exception	Collateral statement used	Business implication
Delays	Collateral statement received prior to EOD process on T at 18h00 *Statement based on T-1 exposures*	Differences between IMs at EOD on T and T+1 will need to be settled in cash
Issues identified post, requiring correction of IM on T or T+1	Collateral statement received as part of initial Clearing EOD at 19h30	Differences between initial and corrected IMs will need to be settled in cash

NOTE: The intraday collateral process is envisaged to run mid-morning ~10am

Exact time to be finalised considering:

- Money market/treasury desk windows i.e. cut-off times for Clearing Members/participants to arrange the necessary cash funding
- Cash Equity and Bonds settlement windows/timings
- SAMOS payment window cut-off

Securities collateral
Intra-day rebalancing – Process overview

Change in collateral prices from previous end of business day and collateral movement requests from clients

Revaluing of pledged collateral resulting in one of the following outcomes:
- **Top-up:** Pledge additional eligible securities if available (cash shortfall if not)
- **Reduction:** release some of the pledged securities

Intra-day collateral rebalancing process (10am daily)

Release securities once cash payment to JSE Clear confirmed

Process client security withdrawal requests and additional pledges and determine cash to be called or paid back

Calculate and process cash settlements

Clearing Members to approve/reject withdrawal requests based on client's availability of cash

Securities collateral
Corporate Actions

- As a result of the 'pledge' mechanism outcomes of corporate actions on pledged securities will be entitled to the collateral giver e.g. dividend proceeds will be paid directly to the collateral giver

- The impact of corporate actions on pledged securities may result in two possible outcomes:

  - Pledged securities become ineligible and need to be substituted with cash or other eligible securities

  - Pledged securities remain eligible and are revalued accordingly

- In the event that pledged securities become ineligible as a result of a corporate action, the JSE will send out a market notice well in advanced to all impacted clients advising to start substituting out these securities

- In addition, the JSE may gradually start to limit the amount of these securities that may be pledged a few days leading up to last date of trade (LDT)

Securities collateral
Client enablement process

Step 1 — Contact trading member or clearing member to initiate enablement process

Step 2 — Contact CSDP to create a new Segregated Depository Account (SDA) at Strate

Step 3 — Complete securities collateral enablement forms* and submit to Strate

Step 4 — Receive confirmation from Strate once client accounts are loaded into the collateral management system and linked to the client's JSE derivatives account

Step 5 — Transfer eligible securities into newly created SDA at Strate

* List of forms to be completed by all new clients at Strate
- Collateral Management Service Agreement (CMSA) for Collateral Givers
- Customer and Segregated Depository Application Form
- Strate Collateral Management Eligibility Giver Forms

Agenda

- What is the JSE ITaC programme?

- Changes to current derivative clearing process   *(Alex Comninos)*

- New services and functions
  - Position accounts and reference data
  - Intraday risk monitoring
  - Commissions
  - Securities collateral
  - EoD process

- Remaining activities leading up to go-live

Clearing EOD Processes
Single EOD run across all derivative markets

Single margin figure per account across markets

ITaC

ABC
- ALSI Jun16 (L)
- DTOP Jun16 (S)
- AGL Sep16 235.75 C (L)
- R/$ Sep16 (L)
- R/£ Dec16 23.50 P (L)

Single Margin Amount

Current

ABCE
- ALSI Jun16 (L)
- DTOP Jun16 (S)
- AGL Sep16 235.75 C (L)

ED Margin Amount

ABCY
- R/$ Sep16 (L)
- R/£ Dec16 23.50 P (L)
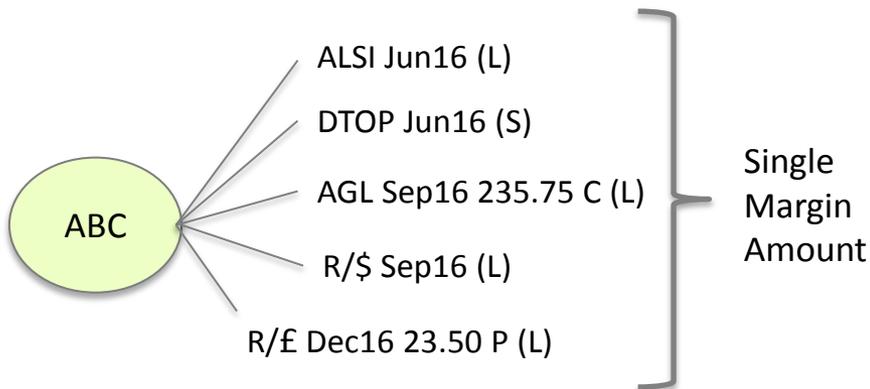
FXD Margin Amount
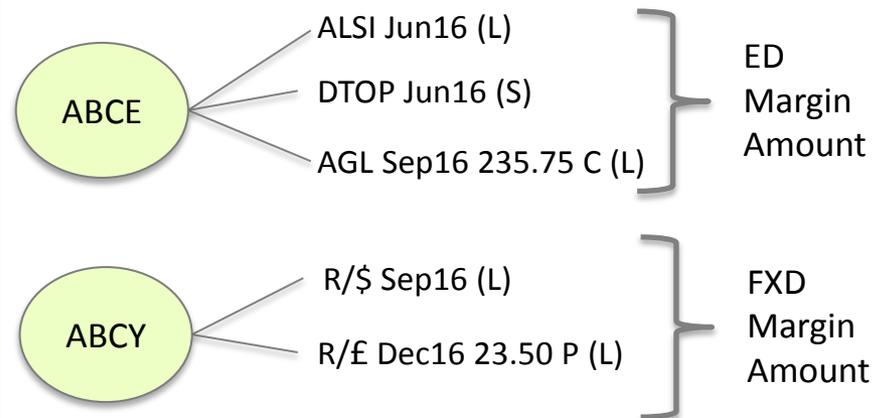
A margin breakdown report will be available to facilitate reconciliations

EOD timings to be revised as a result of

- Single EOD run
- Introduction of collateral processes

Clearing members to consider any other implications to their business and operations of the Consolidation of markets and single EOD run

Clearing EOD Processes
Transition phase
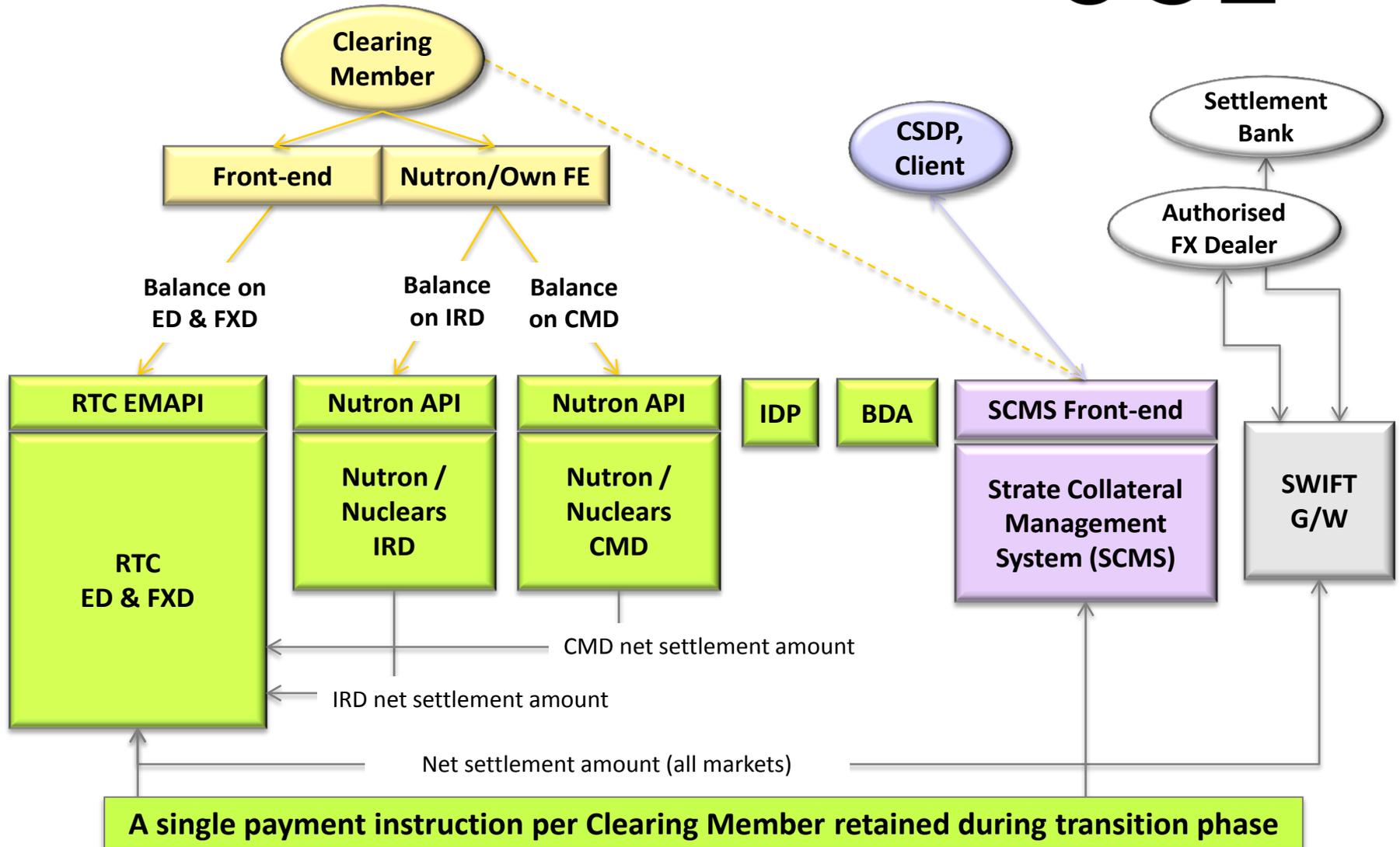
Clearing EOD Processes
Overview of the new EOD process

- Single EOD run for all markets on the new ITaC platform i.e. Equity Derivatives and Currency (FX) Derivatives, comprising the following sub-processes

  - **CM Balancing 1** - Publication and balancing on margins, dividend payments and CFD funding amounts

  - **Securities collateral process –** The calling and pledging of securities collateral against initial margin

  - **CM Balancing 2** - Publication and balancing on JSE fees and commissions

  - **Publication of final Daily Account Summaries** (on the RTC API)

- Separate EOD runs will continue for the markets operating on existing systems i.e. Interest Rate Derivatives and Commodity Derivatives

- Daily cash settlements at the Clearing Member level will still be netted across all derivative markets

- Post the EOD balancing process, corporate actions and client transfers are processed if applicable

Clearing EOD Processes
EOD processes and timings on a normal day

JSE

EDM, FXD (RTC)

IRD, CDM (Nuclears)

RTC SoD

RTC EOD

Clearing EOD

Post-EOD

RTC SoD

Roll Business Day

CM Bal 1 | Securities Collateral | CM Bal 2 | Net payment instructions (all markets) | Transfers and CAs

Roll Business Day

5am — 5:35p — 6:30pr — 6:40pm — 6:45pm — 7:00pm — 7:35pr — 7:45pm — 7:46pm — 11pm — 5am

EOD Prices

Late EOD Prices

Daily Account Summary

Final Daily Account Summary

Collateral pledges - client level

CM Balancing 1:
IM, AM, VM, Dividends, Funding Interest

CM Balancing 2:
Booking and Risk Mgt Fees, Commissions

EoD - IRD

EoD - CDM

ITaC INTEGRATE ACCELERATE GROW

Clearing EOD Processes
Exception Scenarios

- Exception scenarios are broadly categorised as follows

  - **Delays in the EOD process** - delays may result from system issues or JSE and Clearing Member/s not being able to reconcile, necessitating investigation to identify the source of the discrepancy

  - **Issues identified after EOD balancing (either on T or T+1)** which require margins and/or other settlement amounts to be rectified

- Issues identified after EOD balancing which have typically in the past resulted in consideration* of an EOD rerun on T+1 are listed below

Issue	Impact
Incorrect MTM price	Incorrect VM Incorrect IM on options
Incorrect IM parameter e.g. IMR, CSMR, VSR	Incorrect IM
Contract loaded with incorrect size	Incorrect VM and IM
Clearing Member does not balance to JSE on evening of T	Indicative of a potential issue which will need to be resolved the following morning

Considerations that influence a rerun decision
1) *Time on T+1 that the issue is identified*
2) *Value of the discrepancy in VM or IM*
3) *Number of clients impacted*

Clearing EOD Processes
Exception Scenarios (cont.)

- Other issues that impact EOD results, but which would not typically result in a rerun on T+1 in the current environment include:

  - Trades captured at incorrect price, impacting VM

  - Incorrect dividend payments

  - Incorrect fees

  - Incorrect interest on margin – could result from an incorrect interest rate or incorrect IM/settlement margins as a consequence of an IM or settlement margin issue

- An additional exception scenario post ITaC go-live is incorrect commissions

If not addressed the adverse impacts of issues identified post EOD balancing are:

- Incorrect settlements with associated funding costs

- Incorrect Client reporting

Clearing EOD Processes
Overall approach for managing exceptions

The high-level approach in ITaC for mitigating and managing potential issues is as follows:

1. **Preventative measures** – significantly improved preventative measures to avoid issues as far as possible (refer to Appendices)

2. **Processes in place** to manage exception scenarios including issues identified post EOD balancing

    - Whether these are identified in the evening on trade day (T) or on the next day (T+1)

    - In both cases, processes aim to address the key adverse impacts of such issues

        - Incorrect settlements with associated funding costs

        - Incorrect client reporting

3. **Fair compensation** in the event that despite steps 1 and 2 above, funding costs are incurred by Clearing Members due to JSE errors. Issues will be assessed on a case by case basis.

Clearing EOD Processes
Processes in the event of exception scenarios

- While the enhanced preventative measures are expected to significantly reduce the occurrence of exceptions, **processes need to be in place to handle any exceptions that do occur**

- The **approach to correct margins and settlements** depends on the specific exception scenario being addressed

- **One of three approaches** will be followed:

No.	Resolution Method	Example scenario
1	**EOD rerun in RTC**	Incorrect price identified on T
2	A **6-step process** aimed at achieving essentially the same outcomes as a full EOD rerun • Correct settlement instructions • Address incorrect client reports	Incorrect price identified on T+1
3	**Correction of settlement instructions only**	Non-material booking fee discrepancy

Refer to Appendices for detailed EOD re-run scenarios

Agenda

- What is the JSE ITaC programme?

- Changes to current derivative clearing process

- New services and functions

- Remaining activities leading up to go-live   *(Gabrielle Hussain)*

Project ITaC Count Down

As at 1 November 2017

7 business days

to 11 Nov 2017

1st market facing

dress rehearsal

74 business days

to Go Live

19 Feb 2018

Just over 15 weeks!

Remaining activities leading up to go-live
ITaC timeline & key dates

- Milestones completed successfully

Date	Milestone
22 Sept 2017	Conformance cut-off date

First Software Provider /Own solution developer Dress Rehearsal	
21 Sept 2017	Enablement requests for 7 Oct dress rehearsal
28 Sept 2017	Live Connectivity (LCON) tests to be completed
7 Oct 2017	First Software Provider/Own Solution developer dress rehearsal

Second Software Provider /Own solution developer Dress Rehearsal	
12 Oct 2017	Enablement requests for 21 Oct dress rehearsal
19 Oct 2017	Live Connectivity (LCON) tests to be completed
21 Oct 2017	Second Software Provider/Own Solution developer dress rehearsal

Remaining activities leading up to go-live
ITaC timeline & key dates (cont.)

Date	Milestone
Voluntary Clearing Member Testing (VCMT)	
3 Nov 2017	As requested by clients - extended time to 3 Nov 2017
Mandatory Clearing Member Testing (MCMT)	
13 Nov – 15 Dec 2017	MCMT Phase 1
8 Jan – 9 Feb 2018	MCMT Phase 2
Collateral Management testing by CSDPs to be facilitated	Timelines to be agreed with CSDP forum - meeting scheduled for 9 Nov 2017 at which this will be discussed

Note: **Collateral Management** will be tested during MCMT however it will **not be enabled from the ITaC go live day**
– the functionality will be turned on after an agreed production bedding period
– JSE will consult with clients to agree what a suitable bedding period should be

Remaining activities leading up to go-live
ITaC timeline & key dates (cont.)

- Upcoming Milestones 2017

Date	Milestone	Status
26 Oct 2017	Enablement cut-off date for all clients	All enablements received have been processed (bear in mind standard SLA is 7 days)
2 Nov 2017	Complete all Live Connectivity (LCON) tests (technical)	Tests to prove technical handshake between application adaptors and the JSE Gateways - Currently underway
11 Nov 2017	Mandatory Market Facing Dress Rehearsal 1	Simulate a production business day - On Track
25 Nov 2017	Mandatory Market Facing Dress Rehearsal 2	Simulate a production business day

Remaining activities leading up to go-live

ITaC timeline & key dates (cont.)

- Upcoming Milestones 2018

Date	Milestone	Status
1 Feb 2018	Final enablement amendments - cut-off date	Final enablement amendment request submissions (bear in mind standard SLA is 7 days)
8 Feb 2018	Final Live Connectivity (LCON) tests	Last date to prove any enablement amendments ahead of go live
17 Feb 2018 Contingency 24 Mar 2018	Mandatory Market Facing Dress Rehearsal 3	Execute final deployment and implementation activities Simulate a production business day
19 Feb 2017 Contingency 26 Mar 2018	**ITaC Go live**	Equity Derivatives and Currency Derivatives start trading and clearing through the new ITaC solutions And are published via JSE PoP Decommissioning of Equity Derivatives and Currency Derivatives trading and clearing on the legacy Derivatives Nutron/Nuclears solution Decommissioning of the DITCH Equity Derivatives market data feed to JSE London PoP

Remaining activities leading up to go-live
ITaC timeline & key dates (cont.)

JSE

Market Facing Dress Rehearsal Summary:

Date	Description	Objective	Participation	Schedule
7 Oct 2017 21 Oct 2017	Software Provider Dress Rehearsal	Prove technical deployment activities and basic functional tests to test a **selected set** of their clients site setups	**Mandatory** for all trading, market data and clearing solution Software providers, own solution developers and SIPs	**Successfully Completed**
11 Nov 2017 25 Nov 2017	Mandatory Market Facing Dress rehearsal	Prove technical enablements and connectivity and conduct full functional testing	**Mandatory** for all member and live market data subscribers	08h00 – 14h00 **On Track**
17 Feb 2018 and contingency 24 Mar 2018	Proposed FINAL Mandatory Market Facing Dress rehearsal	Prove final cut-over deployment activities and technical connectivity tests (some functional testing may be required)	**Mandatory** for all members and live market data subscribers	08h00 – 14h00

Questions?

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This presentation will be available post this session at the following link:- https://www.jse.co.za/services/itac

Appendices

Securities collateral
End-of-Day (EoD) – Processing steps

Clearing Members

2. Balance margins with JSE

JSE Clear

1. Calculate margins requirements

3. Calculate allowable securities collateral amount

4. Send collateral prices and amounts

9. Calculate remaining cash requirement

11. Calculate net cash settlement amounts

12. Generate and send settlement instructions

STRATE CMS

5. Determine securities to be pledged/released

6. Send securities allegements to CSDP

8. Confirm pledged securities to JSE

CSDP

7. Validate and auto-commit allegement requests

Settlement Bank

14. Settle ZAR to/from JSE margin account

Securities collateral
Intra-day rebalancing – Processing steps

JSE

Settlement Bank

Based on availability of required cash from client

8. Process and confirm cash settlements

Timeframe for payments TBC

Clearing Members

5. Approve/reject cash call for security withdrawals

At CM level

JSE Clear

10am

1. Generate and send latest collateral prices

4a. Receive cash call/release requests and send to CMs

6. Process approvals/ rejections

7. Generate and send net settlement instructions

9. Receive confirmation and confirm cash call

STRATE CMS

2. Batch run to: revalue pledged collateral and process security withdrawals

3. Send securities allegements to CSDP and cash calls/releases to JSE

10. Receive commit from CSDP and cash call confirmation from JSE and release/pledge securities

CSDP

All requests up to start of batch run (@10am) are considered

4b. Validate and auto-commit allegement requests

Client

0. Withdrawal of pledged securities

Triggered by sell or transfer of securities between accounts at Strate

0. Making additional eligible securities available for pledging

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Commissions

General mechanics – Commission functions

Capture New Commission

Performed by:

Initiating Trading Member

Description:

The ability for trading members to capture new commission entries against recipient trading members or clients (direct or tripartite)

Commission Management Functions

Cancel Commission

Performed by:

Initiating Trading Member

Description:

The ability for initiating trading members to cancel incorrectly captured commission entries

Reject Commission

Performed by:

Recipient Trading Member

Description:

The ability for recipient trading members to reject incorrect or unknown commission entries that have been captured against them

Commissions
General mechanics – Processing times

Window Period A

- All commission entries captured within this period will be settled as part of the daily settlement cycle. Any commissions not captured within this period, will need to be captured the following trading day

- Incorrect commissions that are not cancelled or rejected, will be settled as part of the daily settlement cycle. Commissions that were not corrected, can be corrected by capturing a new commission for the delta amount the following trading day

- Post the Deal Management Period, a short window period will be allowed to finalise new commission entries and reject any incorrect\unknown commissions

Window Period B

- Clearing members to receive final net commission amounts as part of the daily balancing cycle. Net commission amounts across Clearing Members to be settled on (t+1)

Capturing of new commissions, commission cancellations, and commission rejections

A

Final net commission amounts sent to Clearing Members; Sending of net settlement instructions on (t) and receiving settlement confirmation on (t+1)

B

Market Trading

Deal Mgmt Period

CM Balancing & Settlement Instructions

Settlement

09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00

08:00   20:00

(t)

09:00 10:00 11:00 12:00

08:00

(t+1)

Commissions
General mechanics – Commission downloads

Commission Downloads

- In addition to the real-time commission confirmation messages received upon new, cancelled and rejected commissions, recipient and initiating trading members, as well as associated clearing members, will be able to download all their commissions data during the course of the trading day and at EOD

- The commission entries will include all necessary information in order for trading members and clearing members to do reporting, reconciliations, VAT invoicing and cash collection down to client level

- Commission downloads will also include canceled and rejected commission entries

- Commission downloads will only include commission entries for the day – entries refreshed at the start of each day

Initiating/Recipient Trading Member

Commission Download Request

Commission Data
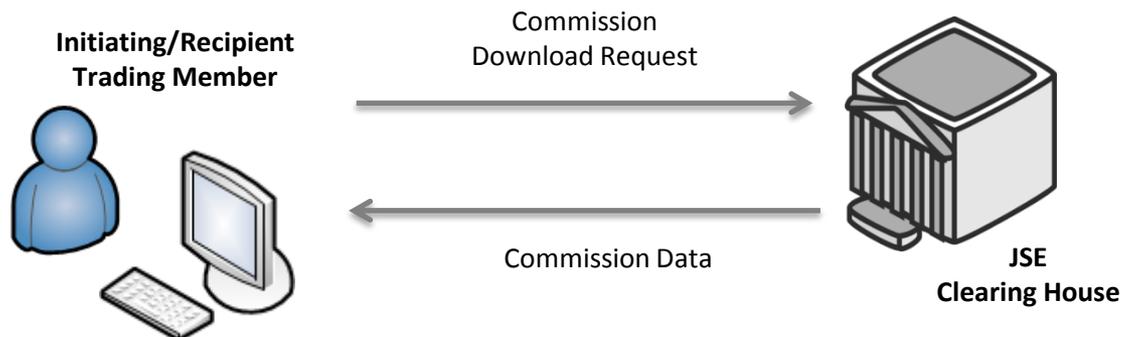
JSE Clearing House

Commissions
General mechanics – EoD balancing and settlement

End 0f Day (EOD) Balancing and Settlement

- As part of the daily end of day process, the JSE clearing system will send the final net commission amounts to the Clearing Members

- The net commission amounts will be sent as part of the second balancing step that includes the booking fees and interest on margin amounts - first balancing is for daily margin amounts

- Once the second balancing process is complete, the settlement process is kicked off and all commission amounts are rolled-up with other cash amounts and settlement instructions are sent out

Net Commission Amount

JSE Clearing House

Settlement Instructions

Clearing Members

SWIFT Alliance Network
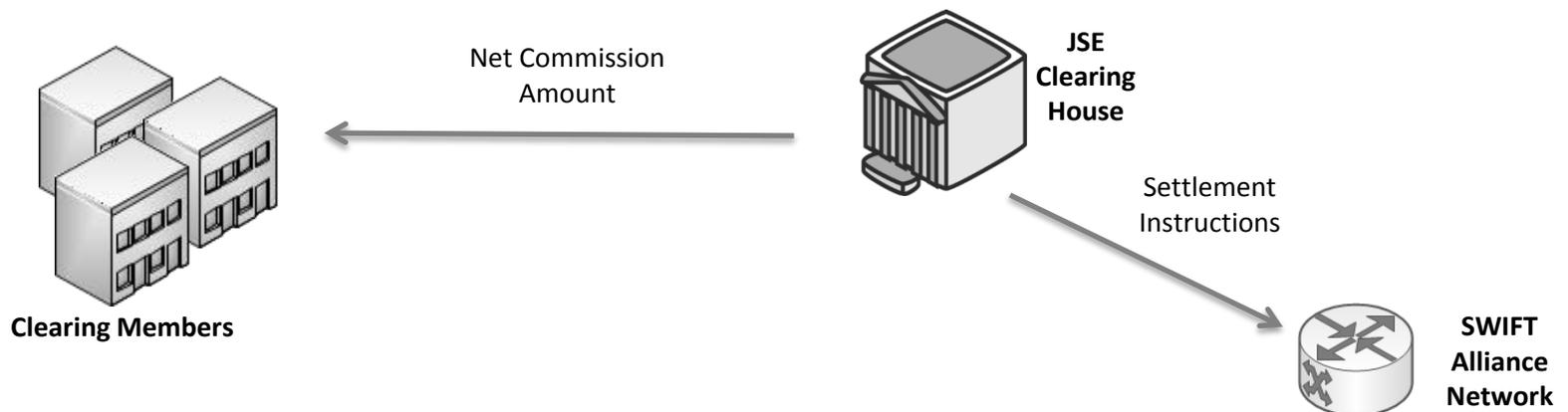
Commissions

General mechanics – Reporting and invoicing

Reporting

- Net commission amounts will be included in the Daily Account Summary reports that are available to each Clearing Member

- Information in the Daily Account Summary report will be at the trading member level

JSE Clearing House → Daily Reports → Clearing Members
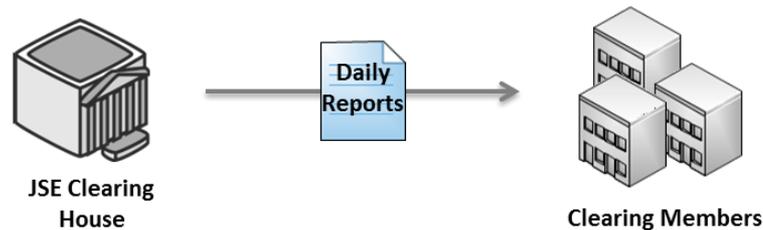
VAT Invoicing

- Trading Members (or Clearing Members on their behalf) are responsible for generating and sending VAT invoices, for relevant fees and commissions, to their clients and associated trading members

Initiating Trading Member → Invoice → Recipient Trading Member / Member Clients
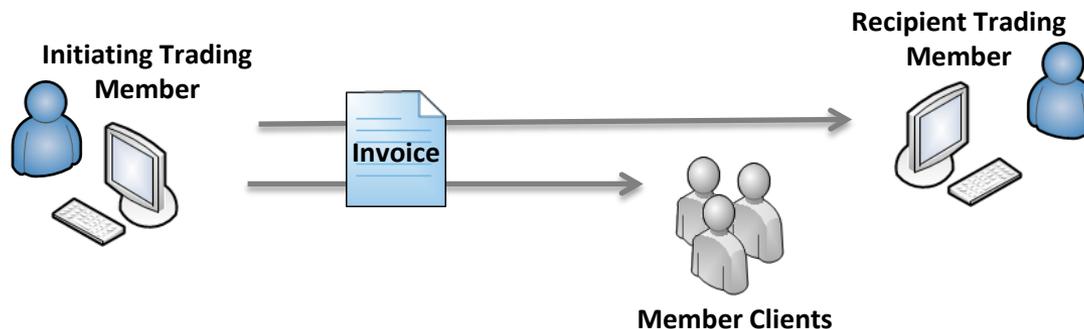
Commissions
Processing of Commissions on Agency Transactions

Scenario: Allocation - Member to Direct Client, under same Clearing Member

JSE Clear

Detailed commission info provided to CMs and TMs

(IM, VM, Fees)

CM_A

(IM, VM, Fees)

TM_A

Allocation

(IM, VM, Fees)   **(Comm)**
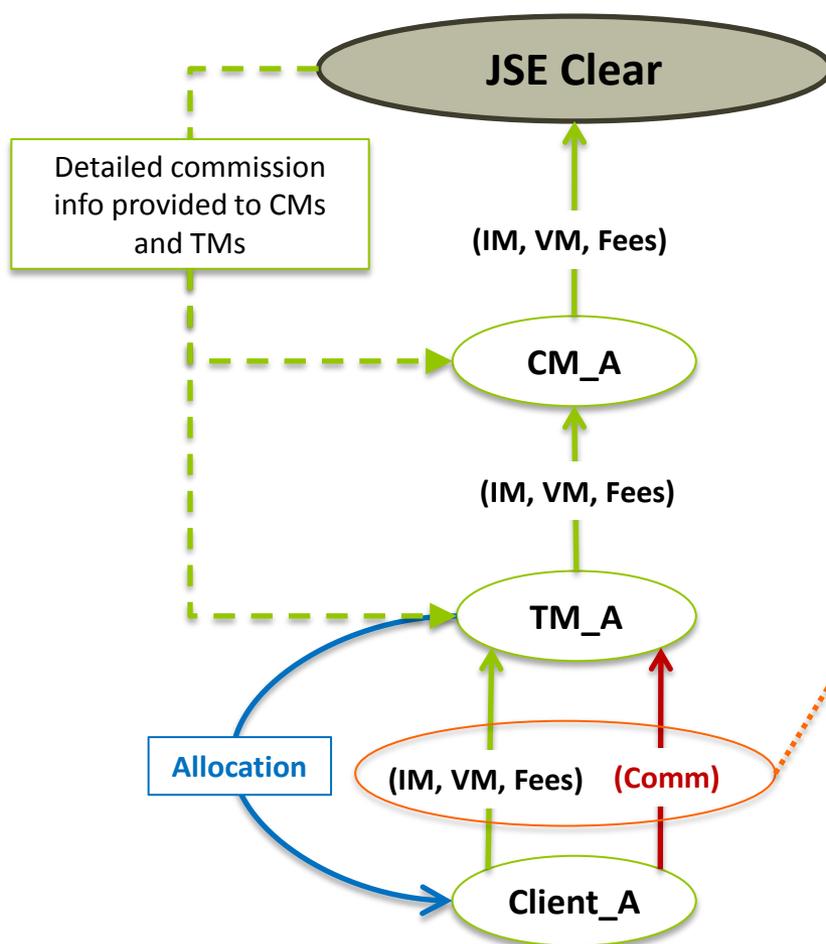
Client_A

IM, VM, Fees and Comm to be rolled up, for all flows, into a single cash amount during settlement

Collection of amounts from the Client and payment thereof to the Trading Member typically done by Clearing Member

Comm = Member Commission

Fees = JSE Booking Fees

IM = Initial Margin

VM = Variation Margin

Processing of Commissions on Agency Transactions

Scenario: Assign - Member to Member, under different Clearing Members
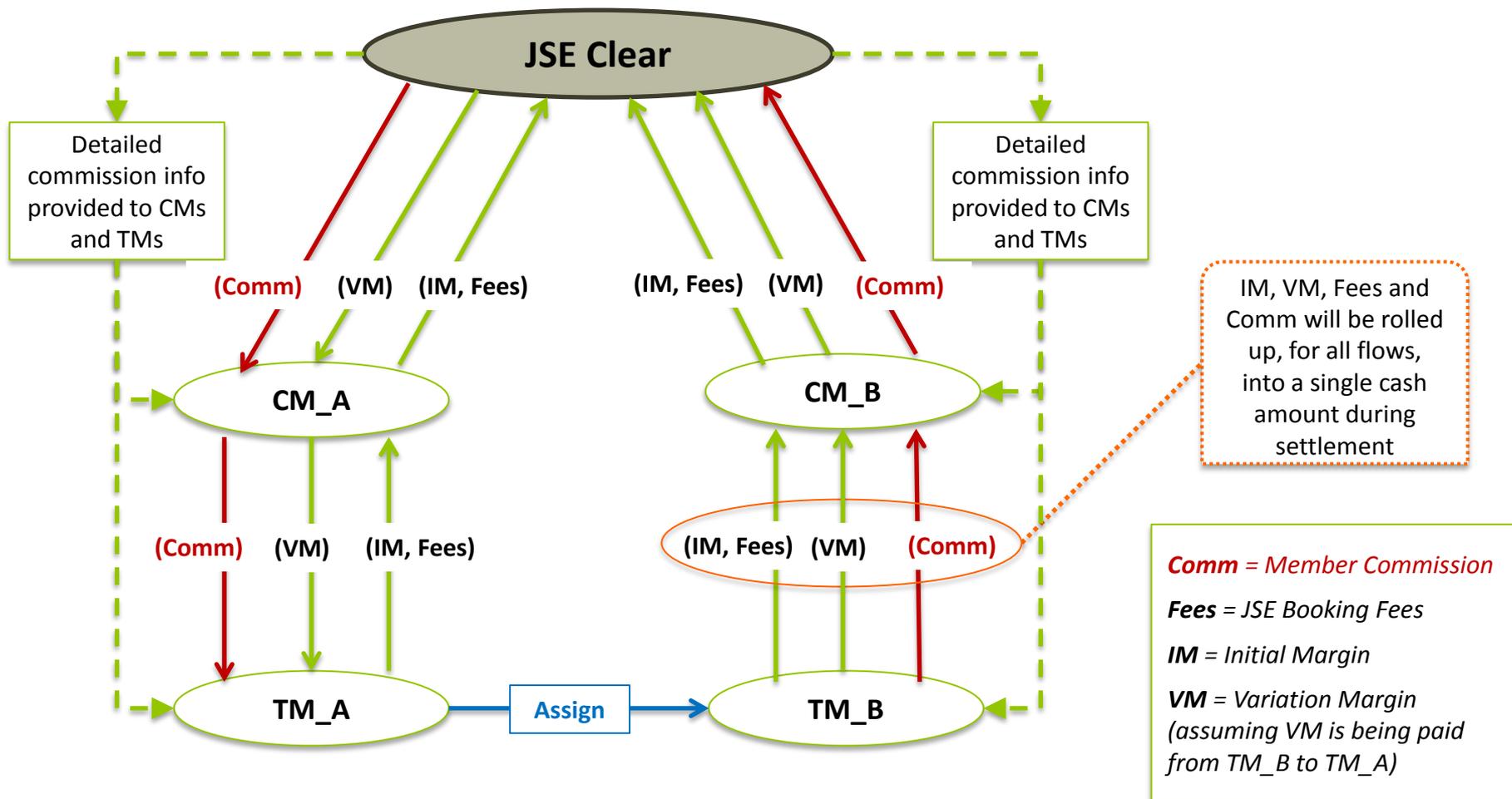
JSE Clear

Detailed commission info provided to CMs and TMs

Detailed commission info provided to CMs and TMs

(Comm)   **(VM)**   **(IM, Fees)**   **(IM, Fees)**   **(VM)**   **(Comm)**

CM_A   **CM_B**

(Comm)   **(VM)**   **(IM, Fees)**   **(IM, Fees)**   **(VM)**   **(Comm)**

IM, VM, Fees and Comm will be rolled up, for all flows, into a single cash amount during settlement

TM_A   →   **Assign**   →   **TM_B**

Comm = *Member Commission*

Fees = *JSE Booking Fees*

IM = *Initial Margin*

VM = *Variation Margin (assuming VM is being paid from TM_B to TM_A)*

Commissions
Processing of Commissions on Agency Transactions

Scenario: Assign - Member to Member, under same Clearing Member

In the event that the TMs clear through the same CM, there will be no flow of commission between JSE Clear and the CM due to the zero net effect when rolling up to the CM level

JSE Clear

Detailed commission info provided to CMs and TMs

(IM, Fees)

CM_A

IM, VM, Fees and Comm will be rolled up, for all flows, into a single cash amount during settlement

(Comm) **(VM)** **(IM, Fees)** **(IM, Fees)** **(VM)** **(Comm)**

TM_A → **Assign** → **TM_B**
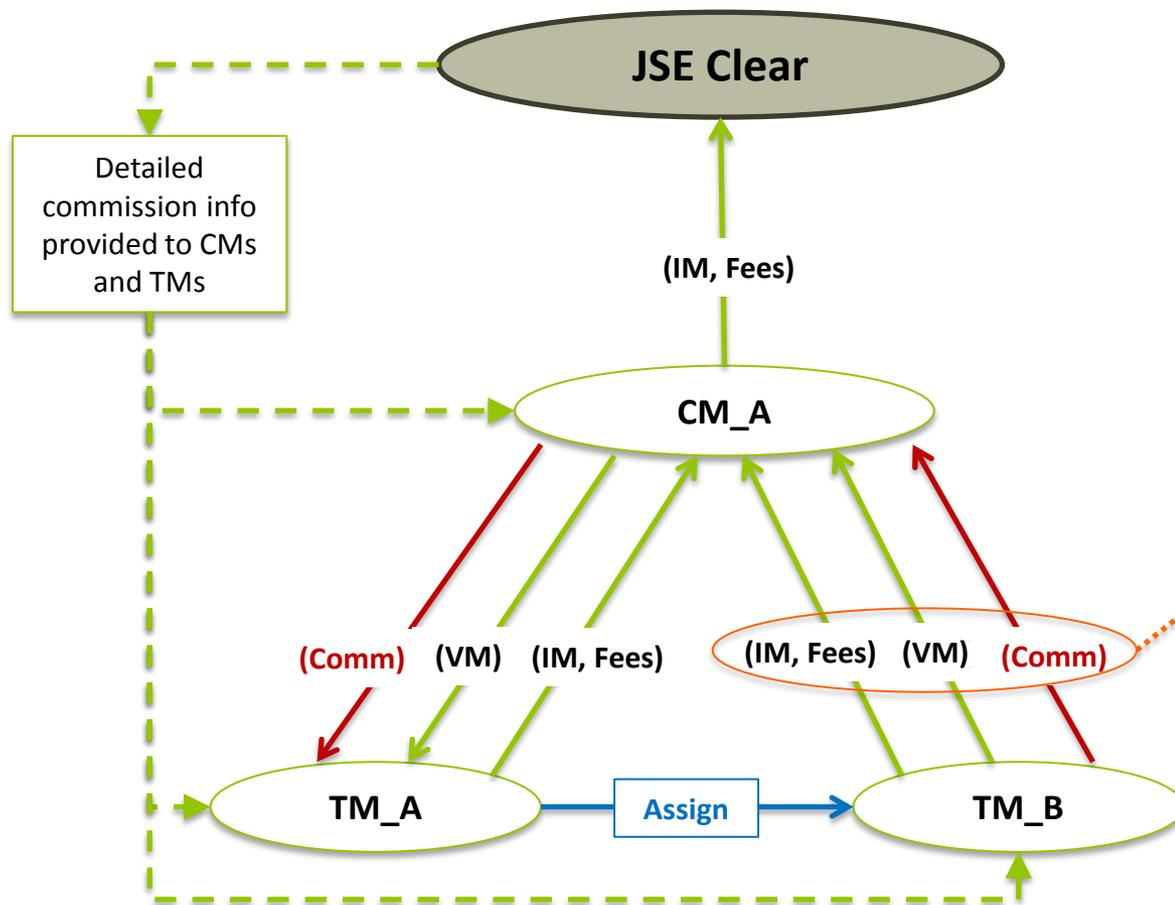
Comm = *Member Commission*

Fees = *JSE Booking Fees*

IM = *Initial Margin*

VM = *Variation Margin (assuming VM is being paid from TM_B to TM_A)*

Commissions
Processing of Commissions on Agency Transactions

Scenario: Tripartite Allocation - Member to Tripartite Client, under different Clearing Members

Commissions
Processing of Commissions on Agency Transactions

Scenario: Tripartite Allocation - Member to Tripartite Client, under same Clearing Member
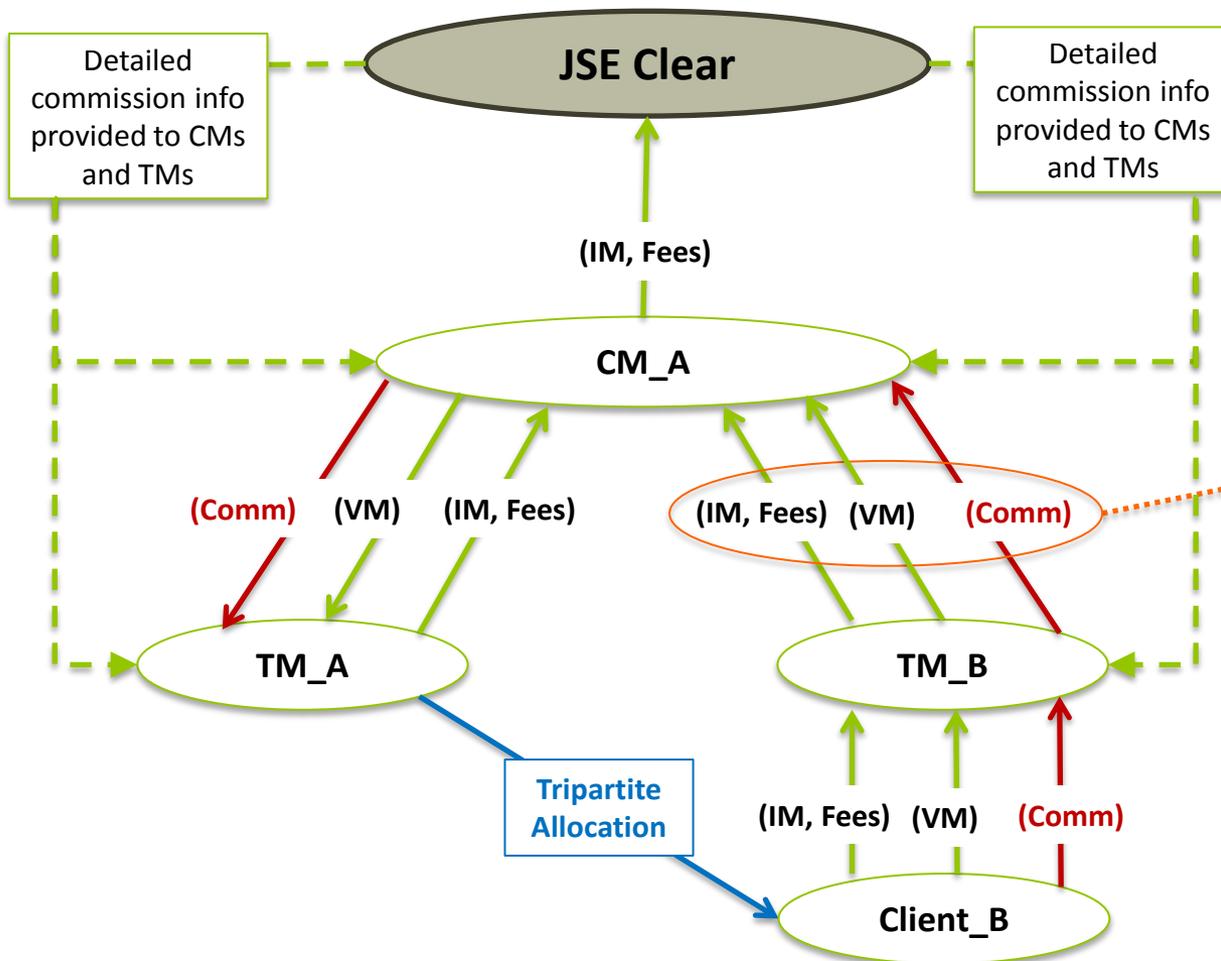
Detailed commission info provided to CMs and TMs

JSE Clear

Detailed commission info provided to CMs and TMs

In the event that the TMs clear through the same CM, there will be no flow of commission between JSE Clear and the CM due to the zero net effect when rolling up to the CM level

(IM, Fees)

CM_A

IM, VM, Fees and Comm will be rolled up, for all flows, into a single cash amount during final settlement

(Comm) **(VM)** **(IM, Fees)**

(IM, Fees) **(VM)** **(Comm)**

TM_A

TM_B

Tripartite Allocation

(IM, Fees) **(VM)** **(Comm)**

Client_B

Comm = Member Commission

Fees = JSE Booking Fees

IM = Initial Margin

VM = Variation Margin (assuming VM is being paid from TM_B to TM_A)

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ITaC INTEGRATE ACCELERATE GROW

Commissions
Front-End Capabilities

To fully utilise the JSE commission service, Clearing Member and Trading Member front-ends will need to have capabilities for managing commissions; these may include:

Clearing Member Front-Ends

- Ability to receive and monitor real-time commission confirmation messages across trading members and clients

- Ability to aggregate commission amounts for each trading member and determine their net commission amount to be settled

- Ability to receive and reconcile net commission amounts (payable/receivable) from the JSE and perform necessary VAT invoicing and cash collection where applicable

Trading Member Front-Ends

- Ability to automatically calculate and send new commission entries to the JSE, based on member defined commission structures (this can either be done in bulk at EOD or real-time as trades are booked and deal managed)

- Ability to cancel and reject incorrect commission entries

- Ability to actively monitor and alert (where and when applicable) the validity of all new commissions booked against the trading member or trading member's clients

- Perform necessary detailed commissions reporting and reconciliations at end of day

- Ability to generate and send necessary VAT invoices to trading members and clients

Clearing EOD Processes
Preventative measures

- ITaC introduces several improvements and new measures to reduce the possibility of exception scenarios – these are listed below with new/improved measures in bold

#	Measure	Issue mitigated	Benefit
1	**Automation of valuations processes**	Incorrect MTM	Many of the errors that have historically resulted in consideration of a next day rerun are the result of manual valuations processes that will be automated in robust systems with the implementation of ITaC
2	**Automated price validations - Missing, New, Deleted, Duplicate, Big change, Blank/null, No change**	Incorrect MTM	Automated validations will generate alerts and where configured to do so will stop processes allowing the issue to be resolved before proceeding with the Clearing EOD process
3	**Settlement prices will be published to the market at ~5:35pm on both the Trading System market data gateway and on the Post-trade system**	Incorrect MTM	Publication of settlement prices to a broad audience prior to EOD being run will provide market participants with improved opportunity to identify potentially erroneous prices

Clearing EOD Processes
Preventative measures (cont.)

#	Measure	Issue mitigated	Benefit
4	**Indicative VMs, IMs and margin calls published throughout the day on RTC**	Incorrect MTM Incorrect IM parameter Contract loaded with incorrect size	Allow market participants the opportunity to identify unexpected VMs and IMs
5	**VMs published at ~5:35pm will be based on official settlement prices, therefore these VMs will be the actual VM call at EOD**	Incorrect MTM Contract loaded with incorrect size	Provide market participants early view of actual EOD VM calls with the opportunity to identify unexpected VMs. Historically many erroneous prices have been detected by market participants viewing unexpected VM calls in client reports only on the morning of the next day
6	JSE VM exception report at client level will be assessed by JSE during the EOD balancing process	Incorrect MTM Contract loaded with incorrect size	Highlight large and potentially irregular VM moves resulting from potentially erroneous prices

Clearing EOD Processes
Preventative measures (cont.)

#	Measure	Issue mitigated	Benefit
7	JSE IM movement exception report will be assessed by JSE during the EOD balancing process	Incorrect IM parameter Contract loaded with incorrect size	Highlight large and potentially irregular IM moves aiding JSE in detecting erroneous IMs
8	**Irregular price checks:** **On Book trades - Circuit breakers trigger volatility auctions if orders are received at prices more than a specified percentage away from static and dynamic reference prices** Off Book trades - Flag on trade reports indicate that trade was reported outside of price bands	Trades at incorrect price	Aid prevention of trades captured at incorrect prices
9	**Incorrect size on contract:** **The reference data system will default the size of instrument types to the standard size for all instrument types except structured products. Also, rigorous internal process before newly created instrument is listed**	Contract loaded with incorrect size (IM and VM impact)	Aid prevention of instruments created with the incorrect size
10	**Automation of corporate actions**	Incorrect position updates	Reduces risk of delays and impacts associated with incorrect corporate actions

Clearing EOD Processes
Processes in the event of exception scenarios

- While the enhanced preventative measures are expected to significantly reduce the occurrence of exceptions, processes need to be in place to handle any exceptions that do occur

- The following sections describe the resolution approach and processes in the following exception scenarios, relating to the following issues: Incorrect MTM price, IM input or contract size

Scenario	Description
A	Delays in EOD on T
B	Issue identified post balancing on T
C	Issue identified post balancing on T+1
D	JSE and Clearing Member/s unable to balance on T

Clearing EOD Processes
Processes in the event of exception scenarios

- The approach to correct margins and settlements depends on the specific exception scenario being addressed; one of three approaches will be followed

No.	Resolution Method	Example scenario
1	EOD rerun in RTC	Incorrect price identified on T
2	A 6-step process aimed at achieving essentially the same outcomes as an EOD rerun • Correct settlement instructions • Address incorrect client reports	Incorrect price identified on T+1
3	Correction of settlement instructions only	Non-material booking fee discrepancy

- The approach to managing securities collateral in the case of exceptions is as follows
  - If issues are resolved before a pre-determined cut-off time*, the collateral process will be run or rerun as applicable
  - If issues are not resolved by specified cut-off time, the latest available collateral statement will be used

*The predetermined cut-off time (cut-off) is dependent on finalisation of SLAs of the various participants involved in the EOD collateral process (JSE, Clearing Members, Strate, CSDPs)

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario A: EOD delayed on T

Determination of settlement amounts
Once the cause of the delay has been resolved the EOD process will be run to determine margins and other settlement amounts

Securities collateral processing
If CM Balancing 1 (balancing on margins) is completed by the predetermined cut-off time • The securities collateral process will be run as normal If CM Balancing 1 is not completed by cut-off • The securities collateral process will NOT be run • The last collateral statement received by JSE Clear will be used to determine ZAR cash IM amounts • This will be the last statement received prior to the start of the EOD process at 6pm based on T-1 exposures • Any changes in exposure on T will need to be settled in ZAR cash

Clearing EOD Processes
Processes in the event of exception scenarios

JS≡

Scenario B: Issue identified post EOD on evening of T

Determination of settlement amounts

If an issue is identified in the evening on T, EOD can be rerun in RTC (multiple times as required) until the issue is resolved and JSE and CMs have balanced.
 	
Additional actions required for specific scenarios:
 	
Scenario B1: Incorrect price affecting contracts expiring on T
• RTC will create equal and opposite deals to reverse the closeout step of the EOD process
 	
   Important to highlight for client solutions: These deals will have a specific 'Position Reason' so that they can be identified by dependent systems as closeout correction deals allowing correct position keeping, fees calculations etc.
 	
Scenario B1.1: Incorrect price affecting physically-delivered contracts expiring on T
• New physical delivery reports will be generated and emailed to recipients
 	
   __Note:__ In the EOD process on a normal day the physical delivery reports are emailed out (physical delivery instructions are not published in the form of API messages). So in an EOD rerun scenario the new reports will simply supersede the incorrect ones.
 	
• JSE will recalculate and republish settlement margins (JSE confirming how to best provision this)

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario B: Issue identified post EOD on evening of T

Determination of settlement amounts
Specific scenarios at EOD on T which will not be resolved through a rerun in RTC: **Scenario B2: Incorrect contract size** At EOD on T • JSE will determine correct VMs and IMs outside of RTC • JSE will issue the correct contract size to CMs to enter into their systems and recalculate margins • A reconciliation will be performed between JSE results calculated outside of RTC and CM results • JSE will correct settlement instructions • CMs regenerate and re-distribute client reports On T+1 • Members close positions on the incorrect contract and book trades on the correct contract on T+1 • At EOD on T+1, CM and JSE results will be reconciled by taking into account the value of the discrepancy between incorrect and correct result as determined in Step 1   **Note**: Above is essentially the 6-step process described in the next section for resolving issues on T+1

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario B: Issue identified post EOD on evening of T (cont.)

Determination of settlement amounts
Specific scenarios at EOD on T which will not be resolved through a rerun in RTC (cont.):   **Scenario B3: Issues identified post 11pm after processing of Corporate Actions, New Instruments and Transfers**   • In the event there are corporate actions (CA), new instruments and/or transfers on the same day that an issue is identified post CM balancing on T, an RTC rerun will not be done after the processing of the CA, new instruments or transfer   • These processes will be scheduled to run at 11pm   • Therefore if an issue is identified after 11pm on T, it will be treated as a correction on T+1 (see Scenario C)

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario B: **Issue identified post EOD on evening of T (cont.)**

Securities collateral processing
A rerun of the securities collateral process will and only needs to be considered if IM is affected by the EOD rerun (VM always settled in ZAR cash) If CM Balancing 1 is completed by cut-off • The securities collateral process will be rerun If CM Balancing 1 is not completed by cut-off • The securities collateral process will NOT be rerun • The collateral statement received by JSE Clear in the initial EOD run will be used to determine ZAR cash IM amounts • Discrepancies in IMs from the initial EOD run and EOD rerun will need to be settled in cash   In the case of scenario B2 (incorrect contract size), any IM discrepancies will need to be settled in cash whether the issue is resolved before the cut-off or not

Clearing EOD Processes
Processes in the event of exception scenarios

JSE

Scenario C: **Issues identified on the following day (T+1)**

- The proposed approach for issues identified on T+1, while not a full EOD rerun in RTC, **aims to achieve essentially the same outcomes specifically with regards to addressing the key adverse impacts of such incidents**
  - Incorrect settlements with associated funding costs
  - Incorrect client reporting

Determination of settlement amounts
6-Step Resolution process:

- **Step 1** – JSE will recalculate previous day's margins outside of RTC

- **Step 2** – JSE will issue the corrected price, contract size or IM parameter to allow CMs to enter this into and recalculate margins in their systems

- **Step 3** – CM and JSE results (calculated outside of RTC) will be reconciled

- **Step 4** – Settlements will be adjusted manually by the JSE

  - Cancel and reissue settlement instructions if initial instructions have not yet been processed

  - Issue offsetting settlement instructions if initial instructions have already been processed

- **Step 5** – CMs regenerate Client reports in their systems and distribute to affected/all clients

- **Step 6** – Reconciliation between JSE and CMs in the evening EOD run on T+1

  - CM and JSE results reconciled by taking into account the value of the discrepancy between incorrect and correct result as determined in Step 1

Clearing EOD Processes

Processes in the event of exception scenarios

JSE

Scenario C: Issues identified on the following day (T+1) (cont.)

Determination of settlement amounts
Additional actions required for specific scenarios: **Scenario C1: Incorrect price affecting contracts expiring on T** • Per the 6-step process correct VM will be calculated outside RTC and settlement instructions will be corrected • RTC will not create equal and opposite deals for contracts that expired the previous day **Scenario C1.1: Incorrect price affecting physically-delivered contracts expiring on T** • In addition to following the 6-step process above, the JSE will generate new physical delivery reports and email these to recipients • Journals will be entered into RTC for the remaining 2 days of the physical delivery settlement cycle to ensure that the net settlement amounts at CM level are adjusted for the discrepancy in settlement margins over the settlement period **Scenario C2: Incorrect contract size** • Members to close positions on the incorrect contract and books trades on the correct contract on T+1   **Incorrect interest on cash collateral and risk mgt fees:** • If IM or settlement margin was incorrect, interest on cash collateral and risk mgt fees will be adjusted using a future-dated journal entry in RTC to ensure that the correct amount is included in the settlement instruction payable on the first business date of the next month

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario C: Issues identified on the following day (T+1)

The table below summarises the activities involved and the addressing of adverse impacts in the event of issues being identified on T+1, comparing the proposed '6-step' ITaC approach to the full EOD rerun in the current environment:

	Margins recalculated	Reconciliation between JSE & CMs	Client reporting addressed	Settlement instructions corrected	Funding costs avoided	Processing of delta client settlements required
ITaC Approach	Yes (outside RTC)	Yes (Step 3 of process)	Yes	Yes	Dependent on time issue identified and resolved	Yes
Full EOD Rerun	Yes	Yes	Yes	Yes	Dependent on time issue identified and resolved	Yes

Relevant reports and/or other supporting documentation will be provided to clients to address audit requirements

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario C: Issues identified on the following day (T+1)

Securities collateral processing
• In the event an issue is detected on T+1 that affects IM, the collateral process will not be rerun   • The collateral statement received by JSE Clear in the initial EOD run on T will be used to determine ZAR cash IM amounts   • Discrepancies in IMs from the initial EOD run and corrected IM will need to be settled in cash   **Note**: A rerun of the collateral process would only be relevant if IM amounts are affected by the rerun (VM always in ZAR cash)

ITaC INTEGRATE ACCELERATE GROW

Clearing EOD Processes

Processes in the event of exception scenarios

Scenario D: EOD on T not completed due to JSE and CM not balancing

In the event the JSE and one or more Clearing Members are not able to balance at EOD on T and the issue cannot be resolved that evening, the issue will need to be resolved the next day

Determination of settlement amounts
Once the cause of the discrepancy has been determined on T+1, the 6-step process described in Scenario C above will be followed to determine correct settlement amounts

Securities collateral processing
- The collateral process will not be run/rerun on T+1   - The last available collateral statement will be used in determining ZAR cash IM amounts. Which statement this is will depend on the specific sub-scenario: a) If the discrepancy between JSE and CM results on T is limited to VM, the securities collateral process will be run on T   b) If the discrepancy is on IM but limited in magnitude and isolated, a decision may be made to run the securities collateral process on T – **guidelines and processes relating to this to be discussed and agreed**   c) If the IM discrepancy is material the collateral process will NOT be run on T and the last collateral statement received prior to the EOD process on T at 6pm will be used   - This statement will be based on T-1 exposures, therefore any changes in IM on trading day T will need to be settled in ZAR cash

Clearing EOD Processes
Processes in the event of exception scenarios

Processes for other exception scenarios required to be resolved are:

Scenario E: Trade captured at incorrect price resulting in a significant VM discrepancy
- Settlement instructions will be adjusted by the value of the VM discrepancy at the time of resolution.
- Members to close out the position at the incorrect price and book trades at the correct price on T+1
- Settlement instructions will again be adjusted by the reverse value of the VM discrepancy in the EOD on T+1

Scenario F: Incorrect Dividend
- If incorrect dividend payments are identified, these will be calculated outside RTC and settlement instructions corrected

Scenario G: Booking Fees not reconciled
- If fees are not reconciled during EOD, adjustments will be done the next day if the discrepancy is found in the JSE's calculations

Scenario H: Incorrect Commissions
- Materially incorrect commissions can be cancelled before the settlement instructions are generated at EOD by the JSE on behalf of the trading member
- Correct commission to be re-booked by the trading member the next business day

Clearing EOD Processes
Processes in the event of exception scenarios

Scenario I: Incorrect interest on cash collateral due to incorrect interest rate
- Incorrect Interest on cash collateral will be corrected on RTC if the issue is picked up before or at EOD on the last business day of the month when the interest on cash collateral is added to the settlement instruction
- If the issue is picked up after the settlement instruction is generated at EOD on the last business day of the month, the interest will be adjusted outside RTC

Scenario J: Incorrect net settlement amounts for markets on Nuclears platform
- If incorrect external payments from Nuclears for the IRD and CDM are received by RTC for netting with EDM and FXD settlements, the discrepancy will be corrected with an off-setting settlement instruction
- If there are any delays in finalising the net payments of the IRD or CDM markets, RTC will continue to generate the settlement instructions without the outstanding net payments from the other markets.
    - A manual settlement instruction for the outstanding markets will be generated once the net payment is finalised.

Scenario K: Incorrect Corporate Actions
- Incorrectly processed corporate actions will be corrected in open state on T+1 by processing a correcting corporate action (after halting trading in affected contracts, if market is open)

    Important to highlight for client solutions: *To facilitate this solution deals resulting from corporate actions will be published in open state on EMAPI*

Scenario L: Incorrect Transfers
- Incorrect member and client transfers will be corrected at EOD on T+1

Summary of exception resolution processes

Summary of resolutions for exception scenarios A-D*

Scenario	Scenario Description	Resolution approach
A	**EOD delayed on T**	**Run EOD once delays resolved**
B	**Issue identified post initial EOD on evening of T**	**Rerun EOD in RTC** Scenario B1 (Incorrect price on expiring contracts) and B1.1 (Incorrect price on physically-delivered expiring contracts) include additional specific steps
B2	Incorrect contract size	6 step process + Members close positions on the incorrect contract and books trades on the correct contract on T+1
B3	Issue identified after 11pm on day of CA/new instruments/transfers	6 step process
C	**Issue identified next day (T+1)**	**6 step process + interest on margin & risk mgt fee adjustment if applicable** Scenario C1.1 (Incorrect price on physically-delivered expiring contracts) includes additional specific steps
C2	Incorrect contract size	As per Scenario B2
D	**EOD not completed on T due to JSE and CM not balancing**	**As per Scenario C**

*Scenarios A-D relate to the following issues: Incorrect MTM price, IM input or contract size

Clearing EOD Processes
Summary of exception resolution processes (cont.)

Summary of resolutions for exception scenarios E-L

Scenario	Scenario Description	Resolution approach
E	Trade captured at incorrect price	Settlement instructions adjusted by VM discrepancy at the time of resolution (and reverse at EOD on T+1) Members close out positions at incorrect price and book trades at correct price on T+1
F	Incorrect Dividend	Correct dividend calculated outside RTC and settlement instructions corrected
G	Booking Fees not reconciled	If amounts are material, settlements adjusted on T, else on T+1
H	Incorrect Commissions	If material JSE can cancel a commission at EOD on behalf of member. Correct commissions captured by member on T+1.
I	Incorrect interest on cash collateral due to incorrect interest rate	Corrected on RTC if before EOD on last day of month, else adjusted outside RTC
J	Incorrect net settlement amounts for markets on Nuclears platform	Corrected through separate settlement instructions
K	Incorrect Corporate Actions	Corrected on T+1 by processing a correcting corporate action
L	Incorrect Transfers	Corrected at EOD on T+1

Clearing EOD Processes

Summary of exception resolution processes (cont.)

Summary of collateral process in exception scenarios <u>if</u> the predetermined cut-off time is missed

Exception category	Collateral statement used	Business implication
Scenario A EOD Delays	Collateral statement received prior to EOD process on T at 18h00 *Statement based on T-1 exposures*	Differences between IMs at EOD on T and T+1 will need to be settled in cash
Scenarios B & C Issues requiring correction of IM on T or T+1	Collateral statement received as part of initial Clearing EOD at 19h30	Differences between initial and corrected IMs will need to be settled in cash
Scenario D - JSE and CM don't balance on T and issue resolved on T+1	Dependent on nature of discrepancy (VM or IM) – *refer to Scenario D*	Dependent on nature of discrepancy (VM or IM) – *refer to Scenario D*

Exception resolution processes will be documented and tested in Mandatory Clearing Member Testing