



## Integrated Trading & Clearing (ITaC) Working Group

### Derivative Clearing Member focus

29 September 2016

**INTEGRATED TRADING  
& CLEARING** | Software Provider  
Showcase Day  
6 October 2016

Don't miss this opportunity to engage with software providers  
to understand the functionality and services they offer

- Welcome
- Reference and market data in support of clearing
- Risk management
  - Intraday risk monitoring
  - Margining
    - JSpan – what’s changing in ITaC
    - Liquidation Period & Large Exposure Add-on’s
- Operational changes not covered in previous sessions
- User readiness update
- Topics for future sessions

# Objectives



- A series of dedicated Clearing Member workshops that focus on the key changes as a result of the JSE ITaC project
- Create a 'workshop' type environment that encourages informal discussion
- Address key ITaC related concerns and challenges for Clearing Members



Clearing Member and software provider contribution to the discussions is vital to the success of these sessions

# ITaC Clearing Changes

Summary of key changes and new services



Covering/recapping in today's session

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

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

**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

**ITaC Clearing  
Key Changes**

**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

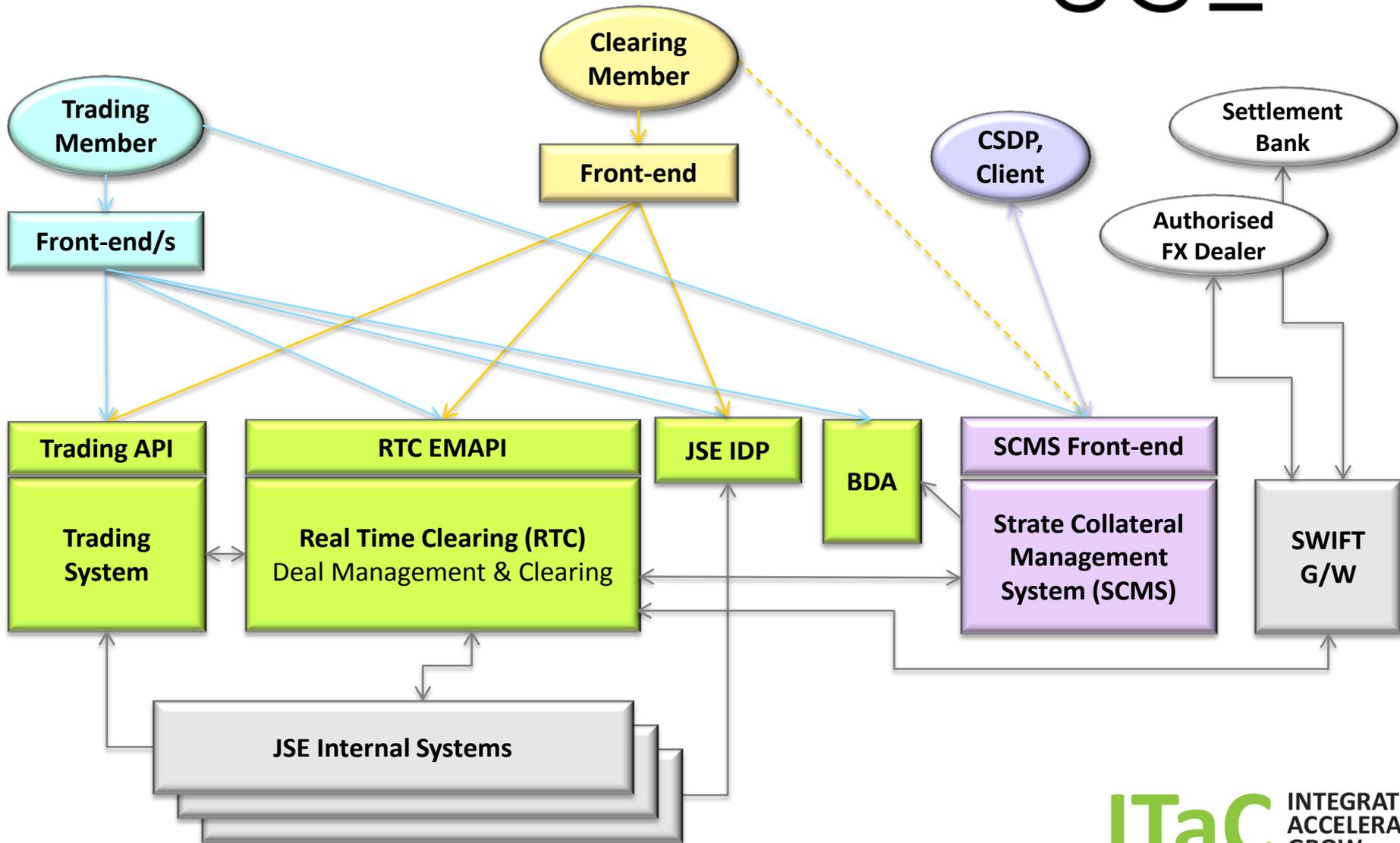
**JSE Rules and Directives**  
Changes to JSE derivatives  
rules and directives in relation  
to new and removed services

**Global Markets**  
Remain on Nutron  
during transition

- New
- Modified
- Removed

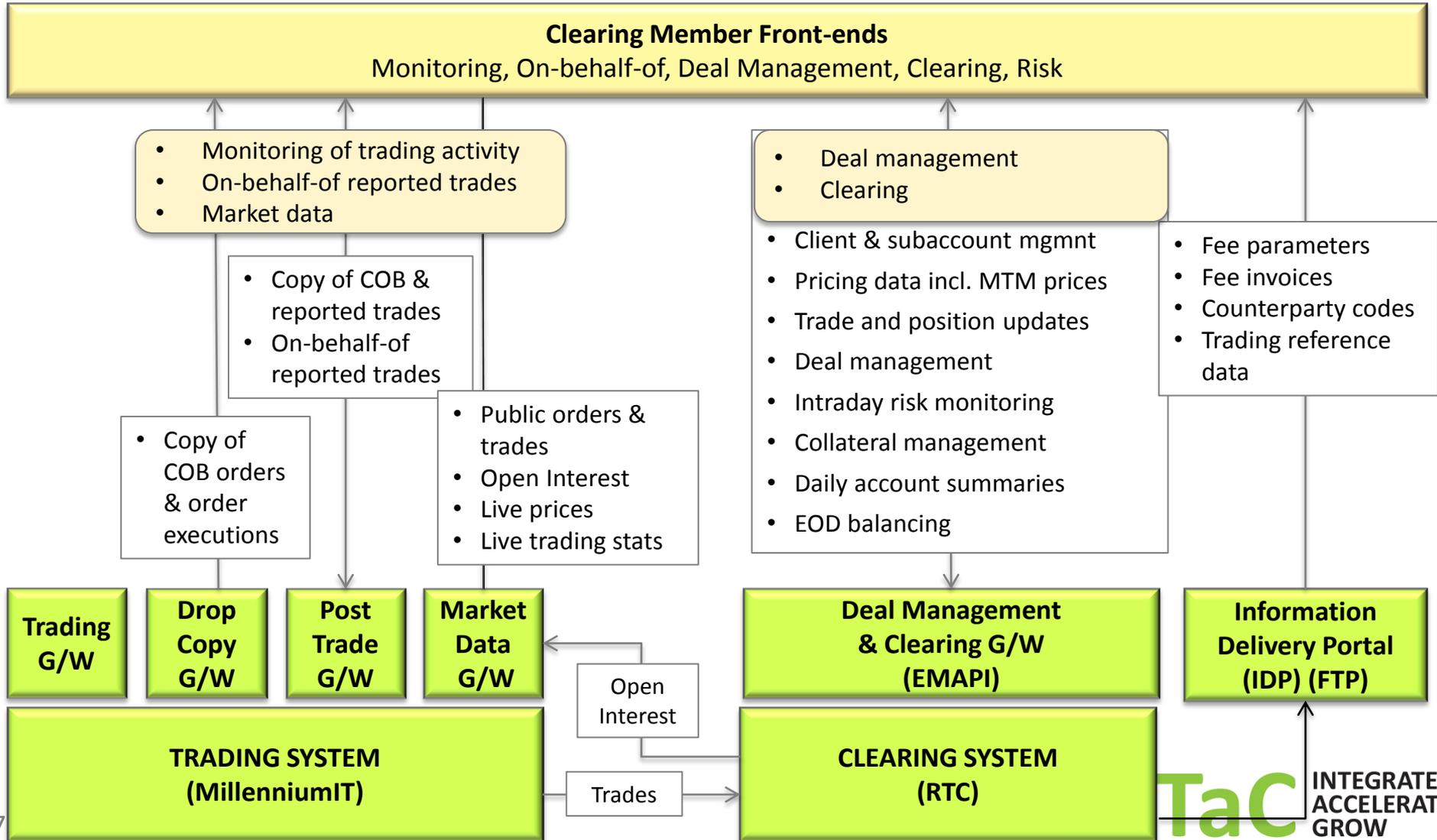
# ITaC Systems

Post-trade perspective



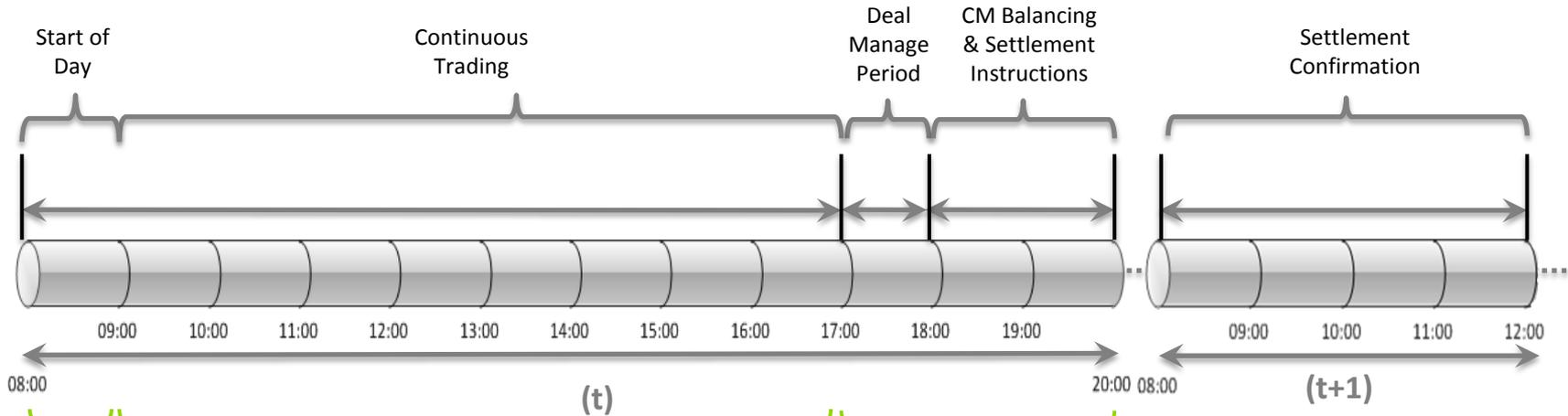
# ITaC Systems Interfaces

Post-trade perspective



# Daily Clearing Lifecycle

Timeline of a typical day



## Start of Day (SoD)

- Data Downloads:
  - Instruments
  - MtM Prices (T-1)
  - Public Member Codes
  - Public Branch Codes
  - Fee Parameters

## Intra-Day

- Trade, Deal, Position updates
- Deal Management & Commissions
- Collateral – Intra-day Rebalancing
- Intraday Risk Monitoring
- Reference and Pricing Data
- Next-day Trade Reporting
- Publishing of rates
- Early valuations

## End of Day (EoD)

- Final Deal Management & Commission Entry
- Contract Expiries and Allocations (Futures and Options)
- Margin Calculations
- Clearing Member Balancing 1 & 2
- Collateral calls
- Billing
- Payment Instructions
- Default Management
- Position Transfers
- Corporate Actions
- Downloads in prep for next day

## Next Day

- SWIFT Payment Confirmations

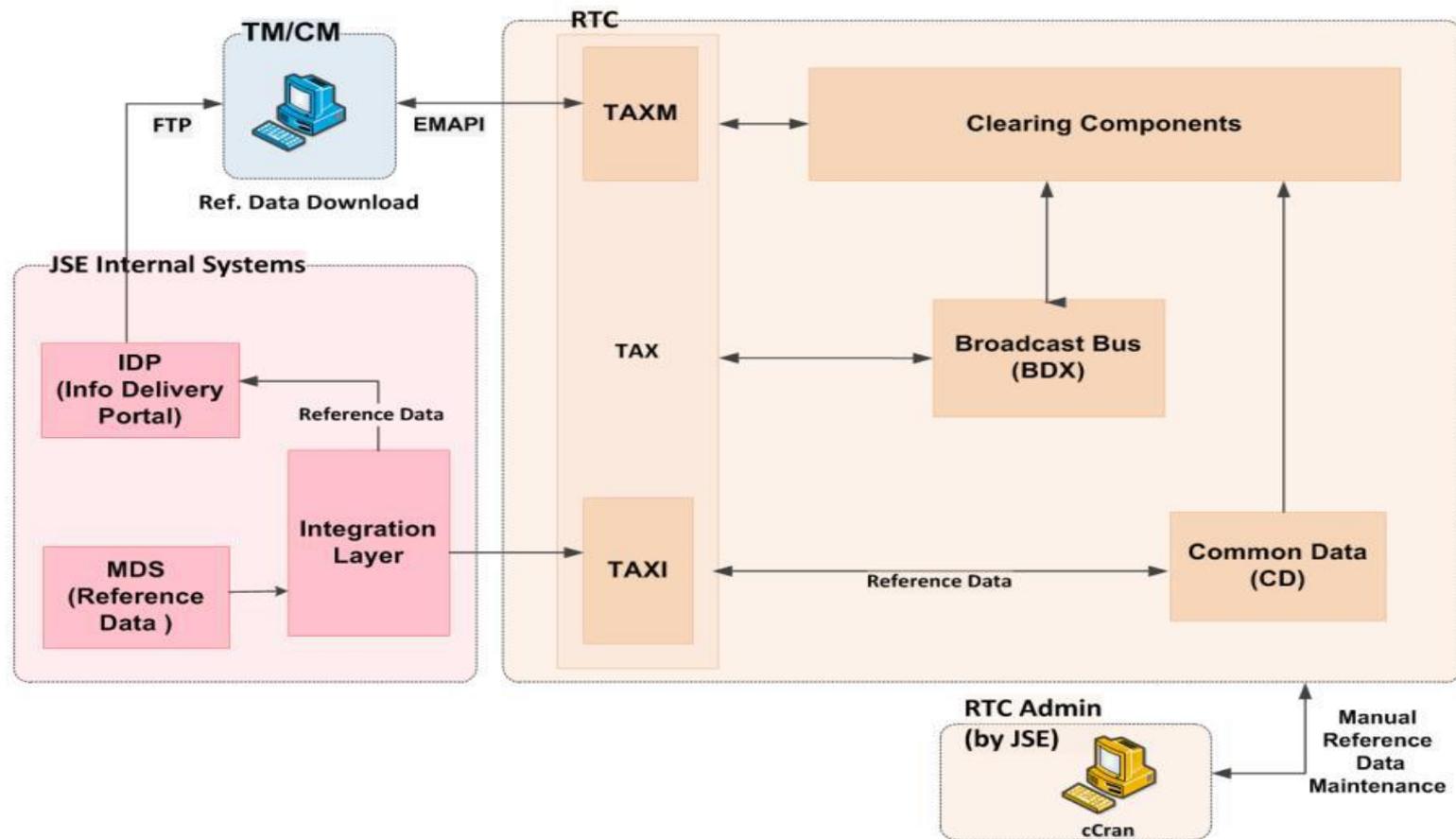
# Agenda



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- Reference and market data in support of clearing
- Risk management
  - Intraday risk monitoring
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# Reference and Market Data in support of Clearing

## Architecture overview



# Reference Data

## Principles



- All reference data required to interface to RTC is provide via EMAPI<sup>1</sup>
- A full set of reference data is provided daily
- Reference data is maintained by the JSE and Customers (via EMAPI)
- Reference data is published on guaranteed broadcast data flow (TCP/IP)
- Subscriptions can be done via snapshot (full set of reference data) as well as intraday updates.
- Replay of reference data is not supported as the snapshot subscription will provide all current reference data.

<sup>1</sup>Billing parameters available via IDP

# Reference Data

Sample reference data



#	Reference Data Entity	Reference Data Flow Object	JSE to Maintain (Yes/No)	Members to Maintain (Yes/No)
1.	Clearing Member	Member	Yes	No
2.	Trading Member	Member	Yes	No
3.	Member Branch	Member	Yes	No
4.	Member Client	Member	No	Yes
5.	Clearing Member Link	ClearingMemberLink	Yes	No
6.	Tripartite Agreement	TripartiteAgreement	Yes	No
7.	Cash Account	CashAccount	Yes	Yes
8.	Market	Market	Yes	No
9.	Market List	MarketList	Yes	No
10.	Segment	Segment	Yes	No
11.	Instrument	Instrument	Yes	No
12.	Tradable Instrument	TradableInstrument	Yes	No
13.	Calendar	RtcCalendar	Yes	No
14.	Currencies	Currency	Yes	No
15.	Country	Country	Yes	No
16.	Risk Node	RiskNode	Yes	No
17.	Series Spread Group	SeriesSpreadGroup	Yes	No

# Market Data in support of Clearing

Real-time data



- Certain market data will be provided via RTC EMAPI
  - Incl. events related to prices, curves, volatility surfaces, dividends and rates
- Market data is published on a RTC guaranteed broadcast flow (TCP/IP)
- Customers can set up subscriptions to receive the latest market data as well subsequent updates
- Replay of current day market data is supported
- Market data is published at regular intervals during the day

**NB.** Participants using public reference and pricing data provided via the RTC EMAPI interface for operational purposes will need to sign JSE Data Agreements stipulating for what purpose the data is allowed/not allowed to be used.

# Market Data in support of Clearing

Non-live market data



- Data provided in a FTP location (IDP) and pull based
- Data provided in fixed width and/or Excel formats
- Data available once a day at end of day
- Standard JSE IDP data retention principles apply
- Offering aimed as an alternative to EMAPI

NB. Participants using this data for operational purposes will need to sign JSE Data Agreements stipulating for what purpose the data is allowed/not allowed to be used.

# Market Data in support of Clearing

Non-live market data



Product	Description	New/ Changed
EOD Products – Equity Derivatives	All record types	Changed
EOD Products – Interest Rate and Currency Derivatives	All record types	Changed
Risk Parameters Report	Contains all input parameters for J-Span	New
Dividends	Dividend information for a tradable instruments	Changed
Volatility Surfaces	Market data for a surface	Changed
South African Rates	Yield information	Changed
Rand Spot	Exchange rate	Changed

IDP will replace the JSE website as the primary point of access for non-live market data

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# Intraday Risk Monitoring

## Monitoring and triggers



- Intraday Risk Monitoring
  - Risk information provided to Trading Members (**TMs**) and Clearing Members (**CMs**)
  - Key information available on EMAPI
    - Updated throughout the day as new prices become available
    - Updated throughout the day as positions are updated
- Thresholds
  - A threshold can be set on the margin call of a client
    - $(IM + AM + VM) - \text{Collateral}$  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

Example of available information



## Client Level

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

All risk information published

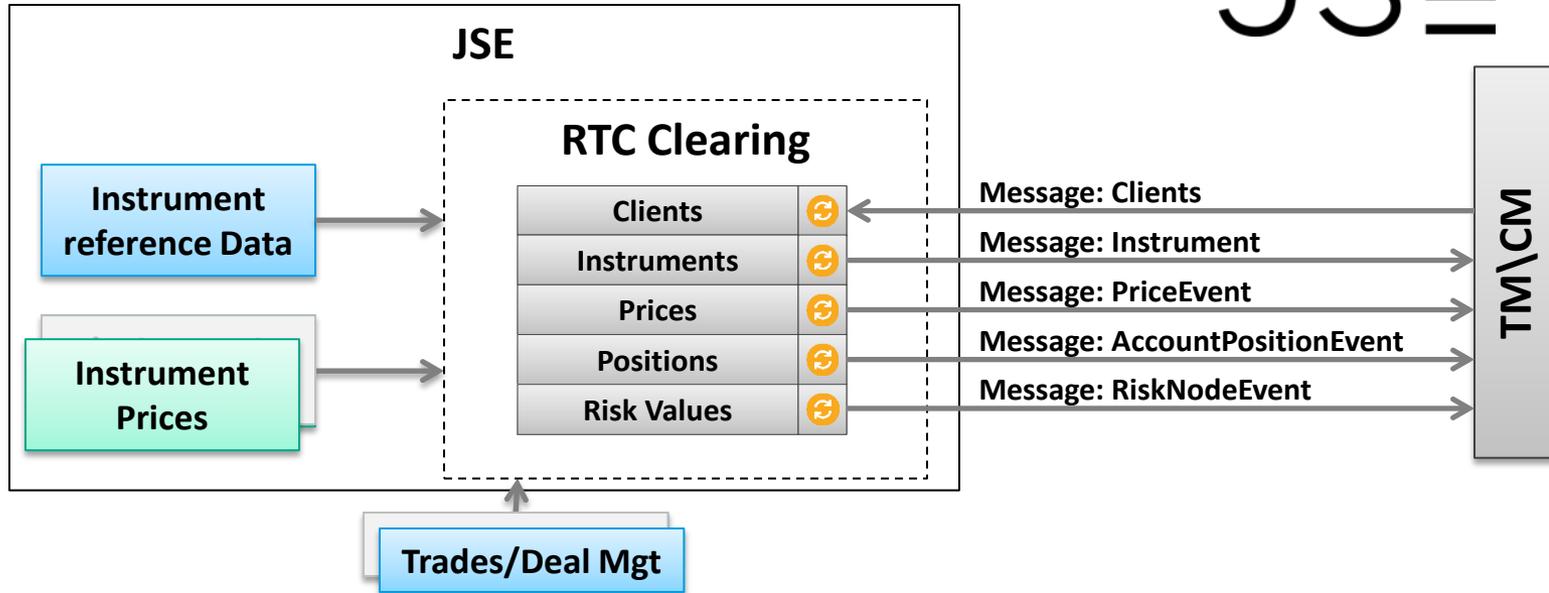


The RiskNodeEvent publishes the following information whenever there is a change on the client's account (Risk Node):

- RiskNode ID
- Variation Margin
- JSPAN Value
- Liquidation Add-On
- Large Position Add-On
- Settlement Margin
- Risk (=IM)
- Additional Margin
- Additional Margin Percentage
- Collateral Values
  - Qty & Value per Item
  - ZAR, FX, Securities
- Risk Limit
- Indicative Call (= IM + AM) - (VM + Collateral value))
- Alert (when Call > Limit)
- Notional Values
  - Total Notional Value
  - Per Underlying
  - Equity Notional Value
  - FX Notional Value

# Intraday Risk Monitoring

Information flow simulation



**Depiction of API data updates**

Prices		140	14.32	45 300	15.33	Risk Values							
Clients	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
		Client 1	10				1 400	1 078	140	210	1 428	-143	1 200
	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

**INTEGRATE  
ACCELERATE  
GROW**



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# Margining

## Overview



- End-state
  - Single margin run across all derivatives markets
    - Allows the JSE to give margin off-set where appropriate
- Transition phase
  - Markets will be migrated onto ITaC in phases
    - Equity Derivatives and Currency Derivatives (Project 1b & c)
    - Interest Rate Derivatives, Commodities Derivatives and Bonds (Project 2)
  - Margin calculated and shown separately for currency and interest rate derivatives
  - Single net payment per Clearing Member across all derivatives markets

# Margining

## Overview



- Initial Margin on go-live will be based on
  - J-SPAN
  - Liquidation Period Add-on
    - Caters for positions that could take longer to liquidate than assumed under J-SPAN
  - Large Exposure Add-on
    - Caters for losses that could exceed margin held for J-SPAN & Liquidation Period Add-on
  - Additional Margin charged by the CM is added to Initial Margin
- Later Historical VaR will be introduced
  - Hist VaR to replace/supplement J-SPAN at some point
  - Allows for more intuitive margin off-setting

# Margining

## Changes to JSPAN Methodology in ITaC



- There will be a specific field for Class Spread Group (CSG)
  - Currently CSG is the same as the contract code
- Introducing new field Contract Size Type to facilitate Mini/Maxi treatment

Pre-ITaC	Post-ITaC			
Contract Code	Alpha Code	CSG	Contract Size	Contract Size Type
MTNQ	MTN	MTNQ	100	Base
MTNS	MTN	MTNS	100	Base
ALSI	J200	ALSI	100	Base
ALMI	J200	ALSI	1	Mini
ZAUS	\$ / R	ZAUS	1,000	Base
ZAUM	\$ / R	ZAUS	100,000	Maxi

# Margining

## Changes to JSPAN Methodology in ITaC (cont.)



- Volatilities used in Risk Arrays
  - $\text{ATM Volatility}_{\text{Scenario}} = \text{ATM volatility} + \{-1 ; 1\} \times \text{VSR}$
  - Skew determined by moneyness of underlying future
  - Added to  $\text{ATM Volatility}_{\text{Scenario}}$
- Rounding
  - A limited amount of measures are rounded

Section	JSPAN Measure	Decimals
Risk Arrays	Risk Array element	2
PRE Quantities	Offset proportion	6
	CSM	0
Group PRE Quantities	Offset proportion	6
	SSM	0

*For more details refer to the latest JSE JSPAN Methodology document and the JSPAN step by step walkthrough in ITaC TWG presentation 20150921*

# Margining

Data in support of margin replication



- All data required to replicate margin will be made available
  - J-SPAN Margin parameters
    - IMR, CSMR, SSMR, VSMR, CSG, SSG
  - Instrument Reference data
  - Settlement Prices
  - Rates
  - Risk Arrays

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# Liquidation Period Add-On

## Background



- The Liquidation Period Add-On caters for the costs associated with liquidating a defaulting portfolio
- It is based on the assumption that larger positions take longer to liquidate in the event of a default
- During this time the price could move against the JSE and lead to losses in excess of the JSPAN margin

# Liquidation Period Add-On

## Calculation Steps



1. Determine client's position per instrument
2. Obtain delta adjusted notional per position
3. Aggregate the delta-adjusted notional values across the same underlying (per Alpha Code)
4. Compare the result against the ADVT to determine the time it would take to liquidate the portfolio in the underlying
5. Determine the total potential loss that could be suffered over this period given the 1-day VaR of the underlying
6. The Liquidation Period Add-On is the degree to which this loss exceeds the JSPAN margin

*Refer to the [JSE Clear Margin Methodology document](#) for more details*

# Large Exposure Add-On

## Background



- Large Exposure Add-On captures a client's margin shortfall under stressed market conditions.
- All instrument prices are stressed based on several approved JSE stress scenarios which are designed to simulate extreme trading conditions
- In the event of a default losses suffered could exceed the margin already held

# Large Exposure Add-On

## Calculation Steps



1. Determine client's position per instrument
2. Obtain stressed prices per scenario per instrument
3. Determine position P&L for each scenario
4. Aggregate position P&L per scenario
5. Determine scenario with the worst (negative) P&L
6. The Large Position Add-on is the degree by which this loss exceeds both the JSPAN and Liquidation Period Add-on values

*Refer to the [JSE Clear Margin Methodology document](#) for more details*

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# Operational changes not covered in previous sessions



- Non-validation of accounts on the trading system
  - Trades on an invalid account are moved to the Trading Member's House suspense account on receipt by the Clearing system
- Price bands
  - Trading system validates reported trades and flags those priced outside of the price band
  - Breaching trade matched and sent to the counterparts and to the clearing system
  - Deals published by the clearing system also include a flag indicating whether the trade breached a price band
  - Should the Clearing Member require that the trade be cancelled, a trade cancellation will need to be affected on the trading system
- Corporate actions, transfers & downloading of deals
  - Deals resulting from corporate actions and transfers will be available for download after EOD (at night) and the following morning
- Global market

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# User Readiness

## Update



- Post-Trade Customer Test Service
  - Version 1.10 publication of EMAPI specifications imminent
  - Post trade CTS environment upgrade date to be announced shortly
  - Service hotline will advise further details
- Software provider showcase day – 6 October 2016
  - The purpose of the software provider showcase day is to provide an opportunity for members to engage with software providers to understand the functionality and services they offer to meet your trading, deal management and clearing requirements
- October Clearing focus sessions
- Project manager contacts reminder



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# Topics Covered in Sep 2016 Clearing Working Groups



 Covered in Sep16 working groups

## ITaC Clearing Key Changes

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

**Global Markets**  
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-  New
-  Modified
-  Removed

# Topics to be Covered in Future Sessions

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- Topics for Clearing focus sessions
  - EOD reruns
  - Default management (Clearing Member perspective)
  - Commissions (Clearing Member perspective)
- Topics for TWGs (both Trading and Clearing relevance)
  - Pre-trade risk management
  - Commissions
  - Global market
  - Fees and billing
  - Connectivity
  - Technical interfaces & messaging
  - JSE Services Agreements and Data Agreements
  - Rules & Directives changes

# Questions?

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