HKATS Risk Functions

Pre-Trade Risk Management (PTRM)

Practice Session

Ref: January 2016

Disclaimer

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Overview

- *Introduction*
- *Login to HKATS Risk Functions for PTRM*
- *Pre-Trade Limit Group (PTLG)*
- *Difference Between Risk Limit Manager & Trading Units Login*
- *Email Notifications*
- *Audible Alerts*
- *Maximum Order Size Check*
- *Maximum Order Rate Check*
- *Maximum Intraday Exposure Check*
- *Emergency Buttons*
- *Contingency*
- *Market Rehearsal*
- *Summary*
- *Best Practice*
- *PTRM Reports*

Introduction

HKATS Risk Functions Overview:

- ***Applicable to HKATS Derivatives Market***
- ***A mean of protection for Participants from unintended erroneous orders***
- ***Mandatory risk checks to orders placed into HKATS Derivatives Market***
- ***Complementary to Participants' own risk controls***
- ***Clearing Participants (CPs) need to set limits for their Exchange Participants (EPs)***
- ***General Clearing Participants (GCPs) set limits for their Non-Clearing Participants (NCPs)***
- ***NCPs can execute Emergency Buttons (except Unstop Button)***
- ***Risk Checks: Maximum Order Size Check, Maximum Order Rate Check, Maximum Intraday Exposure***
- ***Emergency Buttons: Stop / Unstop / Mass Order Cancellation / Kill Switch***
- ***Email Notifications***
- ***PTRM Reports***

Introduction (cont'd)

HKATS Risk Functions User Guide

This Training Session is arranged by HKEx to familiarize Participants' Risk Limit Managers and Trading Units (Page 10) with the operations of the new software – HKATS Risk Functions. Risk Limits Managers and Trading Units are advised to read also the HKATS Risk Functions User Guide that will be disseminated by HKEx in due course.

Exchange Circulars

Important Exchange Circulars regarding HKATS Risk Functions for PTRM will be issued before production launch tentatively scheduled in Q2 2016. Risk Limit Managers and Trading Units are reminded to read the documents carefully for further information.

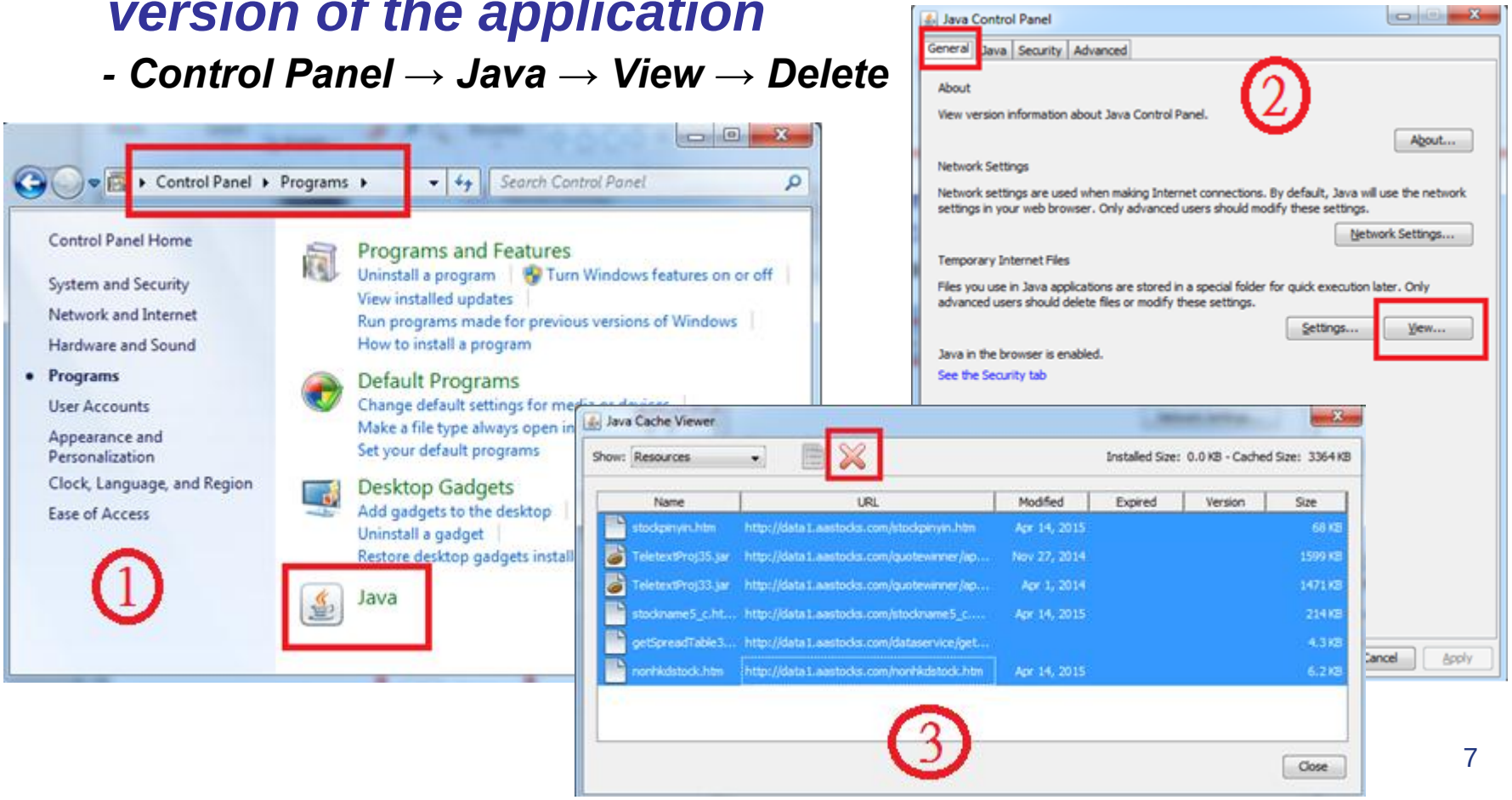
Introduction

Functions:

- *Pre-Trade Limits Group (PTLG)*
- *Intraday change vs Next day change*
- *Pre-trade check vs At-trade check*
- *Three Risk Checks:*
  - ❖ *Maximum Order Size*
  - ❖ *Maximum Order Rate*
  - ❖ *Maximum Intraday Exposure*
- *Emergency Buttons:*
  - ❖ *Stop*
  - ❖ *Unstop*
  - ❖ *Mass Order Cancellation*
  - ❖ *Kill Switch (First Stop and then Mass Order Cancellation)*

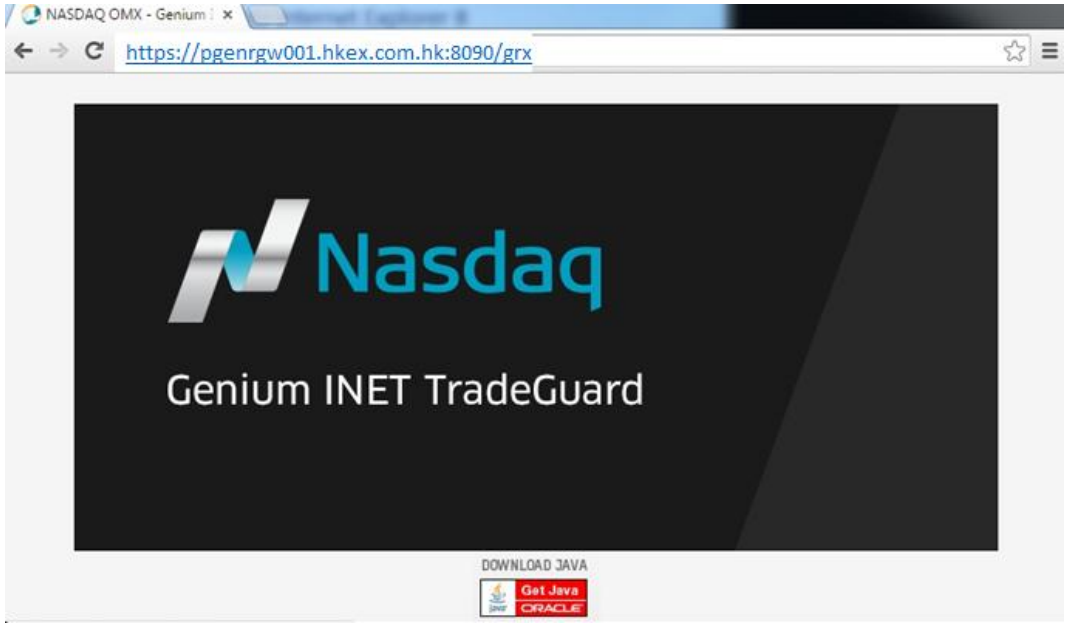
Login to HKATS Risk Functions

- ***Delete Java Cache before downloading the new version of the application***
  - ***Control Panel → Java → View → Delete***



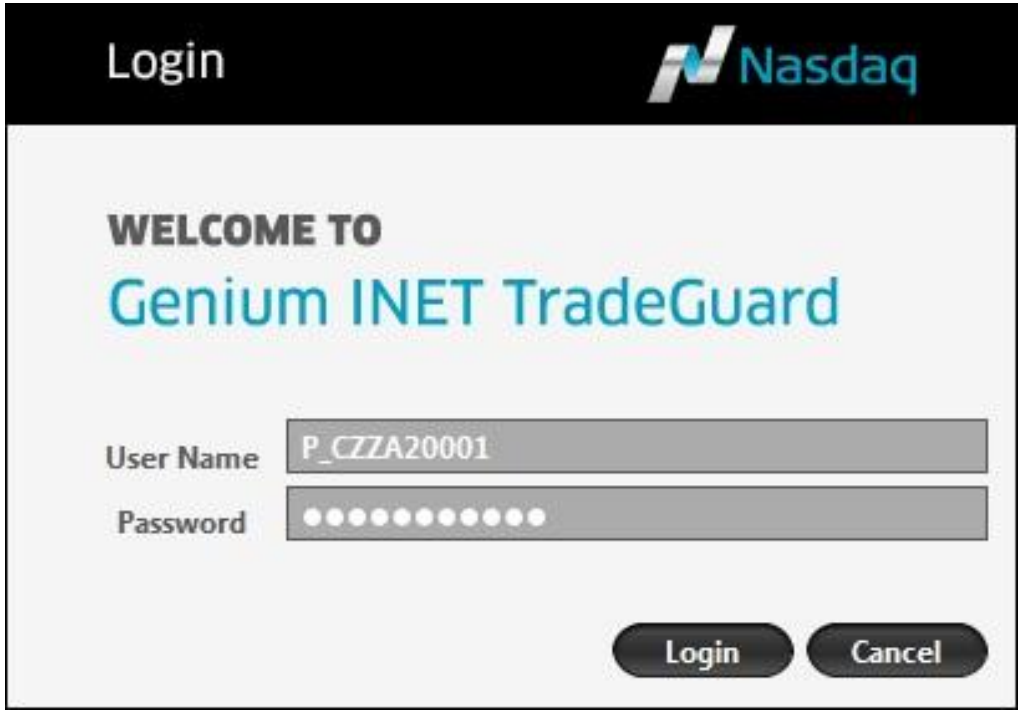
Login to HKATS Risk Functions (cont'd)

- ***Setup Host Table & Default Gateway before downloading the application***
- ***Check the firewall & security setting***
- ***Download the GUI application from the browser with Hostnames & Ports provided by HKEx***



Login to HKATS Risk Functions (cont'd)

- ***Login – HKATS Risk Functions (Risk Limit Manager / Trading Units)***
  - ***Username***
  - ***Password***



Difference Between Risk Limit Manager & Trading Units Login

***Risk Limit Manager*: Setup PTLG(s), email notification, edit limit parameters and execute emergency buttons**

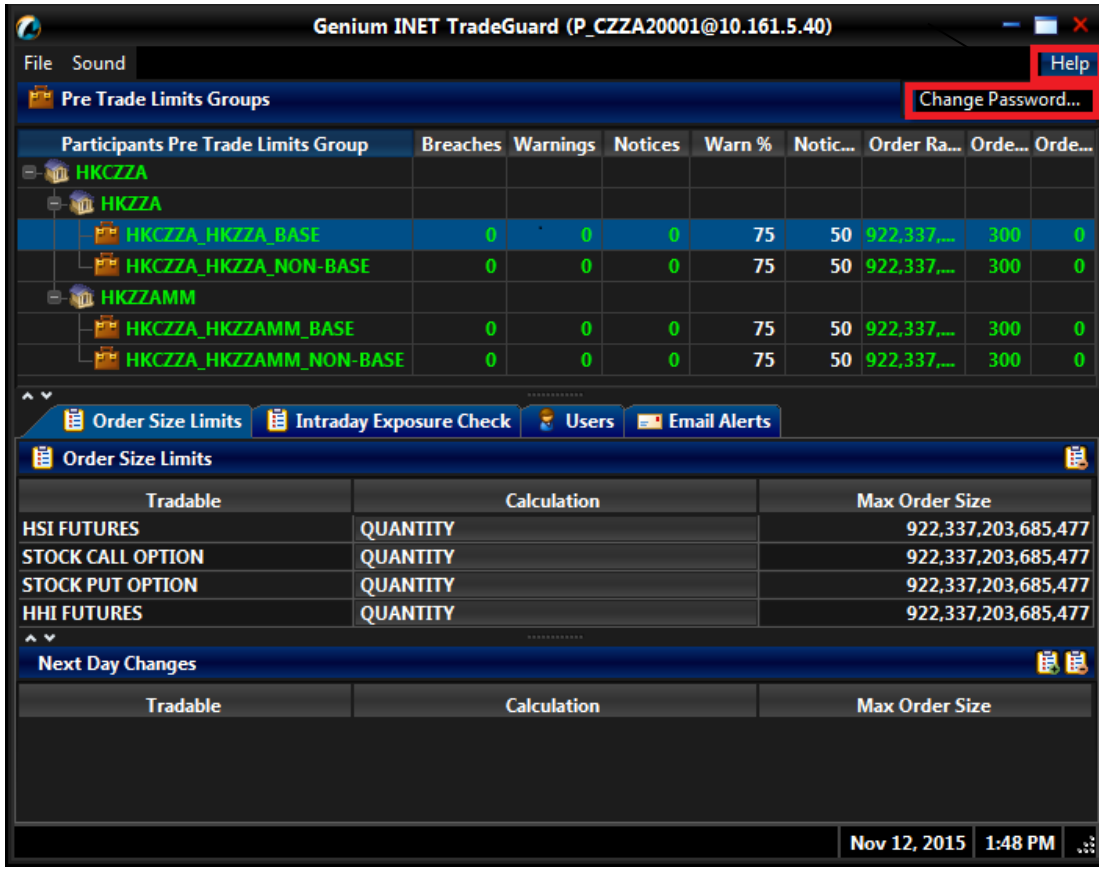
Trading Units*: Execute emergency buttons *(except Unstop button)

Functions	Risk Limit Manager	Trading Units
Create / Delete PTLG	√	
Create / Delete / Edit Email Notification	√	
Edit Risk Limits	√	
Execute Stop Button	√	√
Execute Unstop Button	√	
Execute Mass Order Cancellation Button	√	√
Execute Kill Switch Button	√	√

NCP will <u>not</u> be assigned a Risk Limit Manager Login

Password

- ***Change Password Function***
  - ***Help → Change Password***



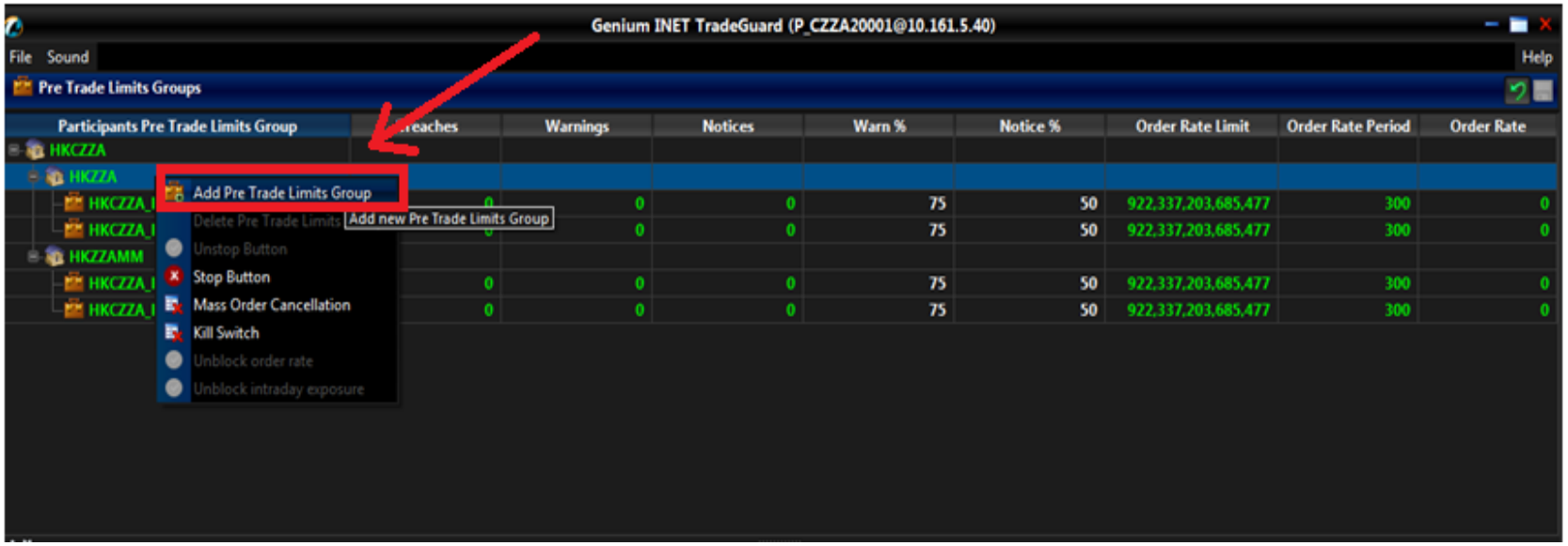
Pre-Trade Limits Group (PTLG)

Points to note

- ***Creation / Deletion of PTLG(s) can only be done by Risk Limit Manager***
- ***Base PTLG cannot be removed by Participant***
- ***Base PTLG can exist without users***
- ***PTLG cannot be renamed***
- ***Participants will be given a guideline on the maximum number of PTLG creation***
- ***Only HKATS Usernames with trading functions can be assigned into a PTLG / User Picker List***
- ***New / unassigned HKATS trading users will be assigned to User Picker List***
- ***Each HKATS user can be assigned to one and only one PTLG***

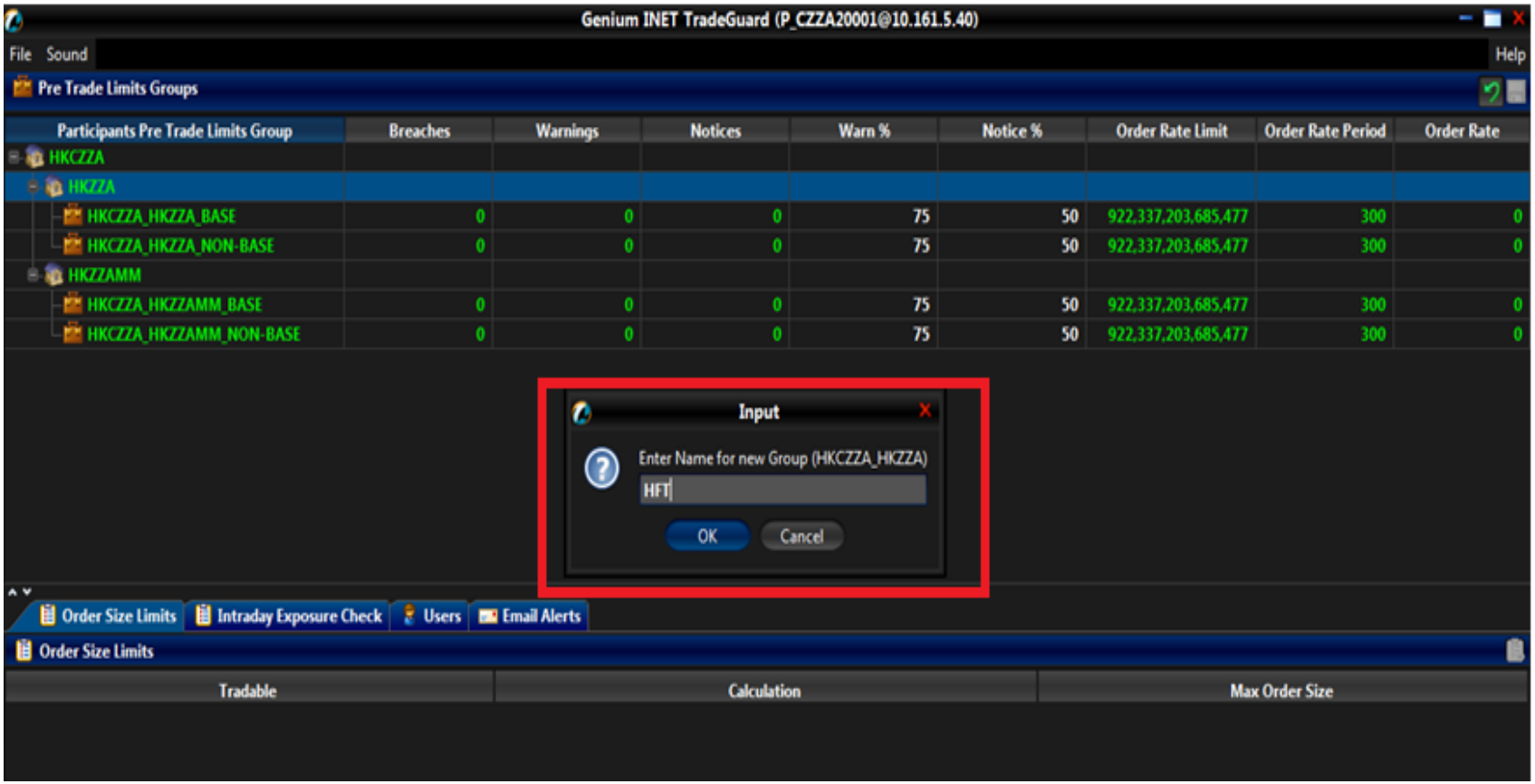
Pre-Trade Limits Group (PTLG) (cont'd)

- ***Add*** *a new PTLG (Next day change)*
  - ***Select Exchange Participants Level→ Right Click → Add Pre-Trade Limits Group → Enter the name of the PTLG (a-z, A-Z, 0-9) → Save***
  - ***At least One Tradable and One User must be added before saving the changes***



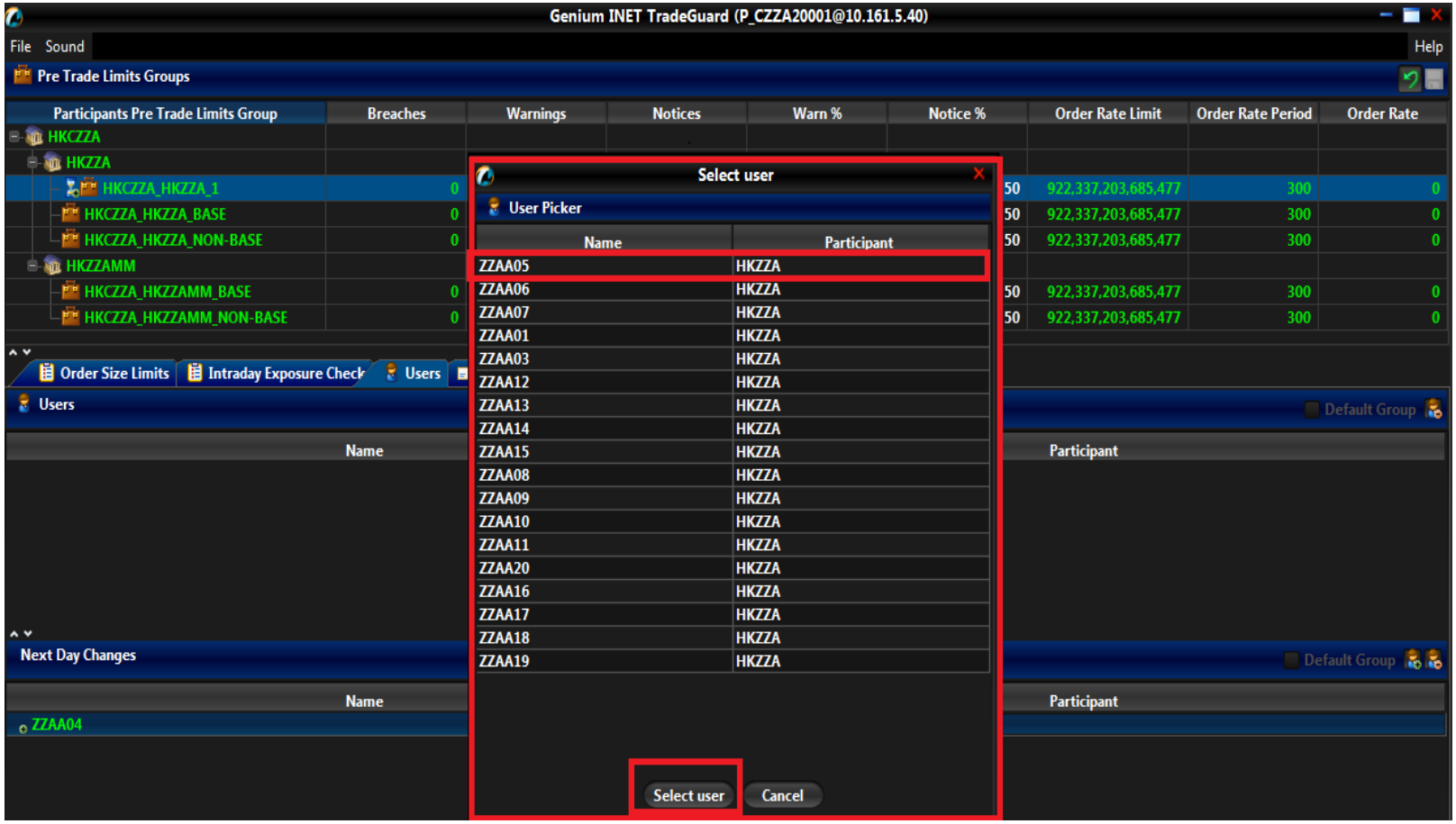
Pre-Trade Limits Group (PTLG) (cont'd)

- ***Input the name of the newly created PTLG in the input window***



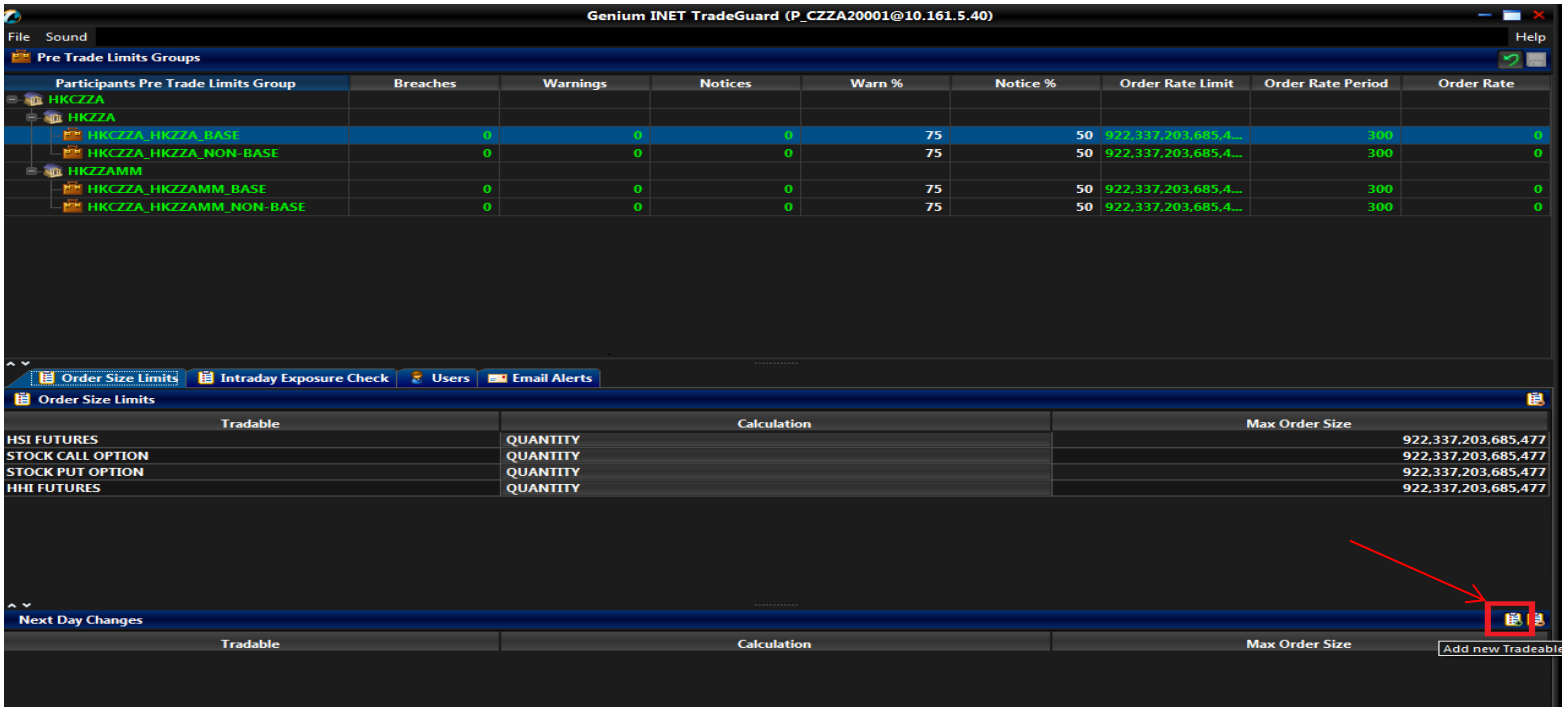
Pre-Trade Limits Group (PTLG) (cont'd)

- ***Add new user(s) from User Picker List to a PTLG***



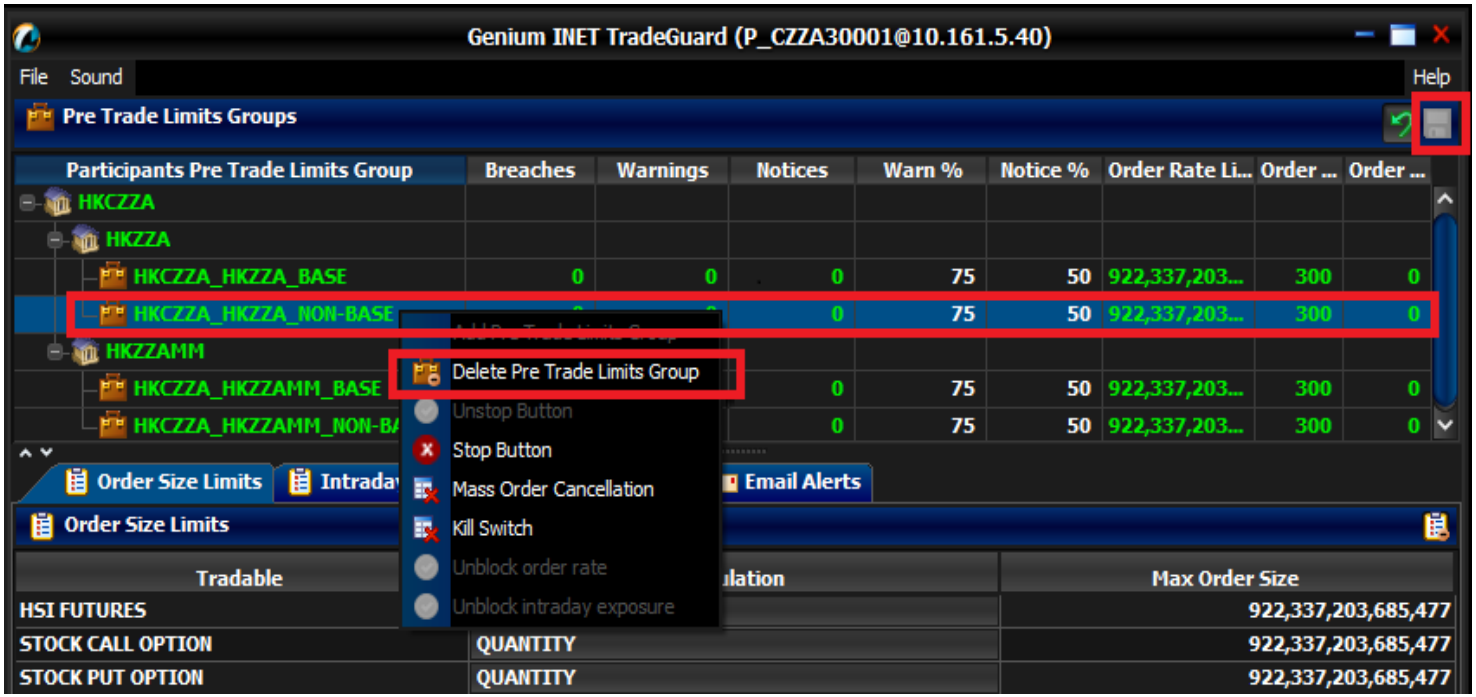
Pre-Trade Limits Group (PTLG) (cont'd)

- ***Add*** *new Tradable(s) (Next day change)*
  - ***Select Order Size Limits Tab → Click the Add Tradable Button → Choose Market → Select Instrument Type / Class in the Tradable Picker menu → Use this Tradable → Save***



Pre-Trade Limits Group (PTLG) (cont'd)

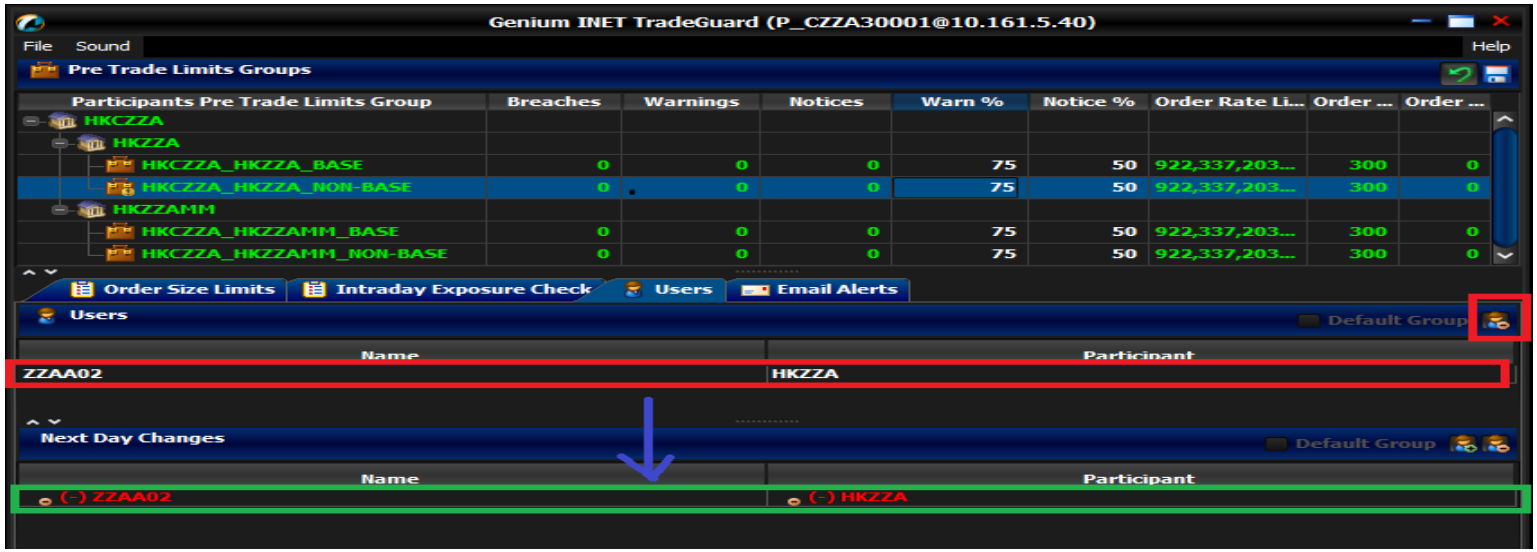
- ***Remove*** *PTLG (Next day change)*
  - ***Select PTLG → Right Click → Delete Pre-Trade Limits Group → Save***



Base PTLG cannot be removed

Pre-Trade Limits Group (PTLG) (cont'd)

- ***Re-arrange user(s) from Base PTLG to Non-Base PTLG***
  - ***Select user(s) from the user list in Base PTLG → Click the Remove User Button → Save → Select Non-Base PTLG → Select user(s) in User Picker List → Save***



Participants are reminded to remove the user from a particular PTLG before submitting their request to HKEx for permanently deleting the corresponding HKATS username

Email Notifications

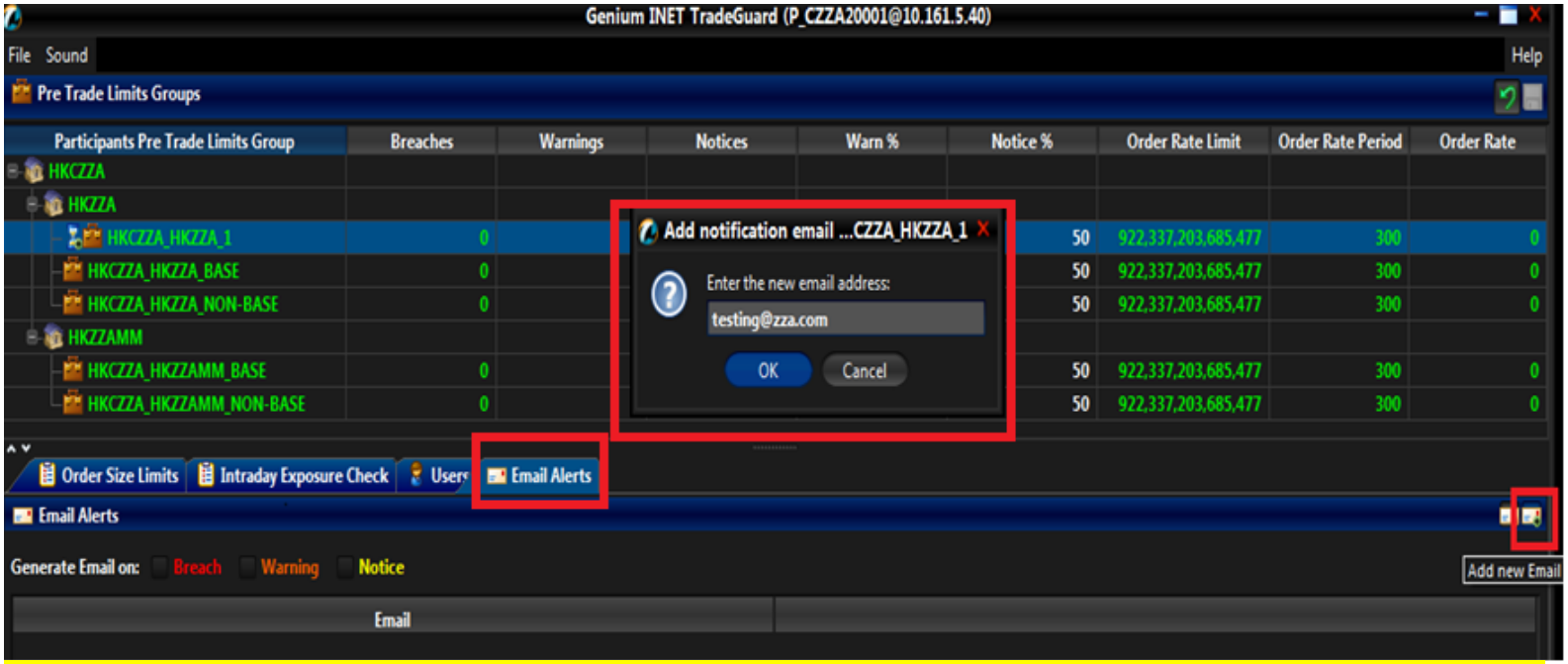
Points to note

- ***Email notifications will be sent out from ptrmadmin@ptrm.hkex.com.hk***
- ***Notice, warning and breach email alerts will be sent automatically to a preconfigured email list***
- ***Emails alerts for Emergency Button executions will be sent automatically to a preconfigured email list***
- ***Add new email alert recipients (intraday change)***
- ***Remove existing email alert recipient(s) (next day change)***
- ***Switch On / Off notice, warning and breach email alerts (next day change)***
- ***Do not reply the email***

Participants' Risk Limit Managers and Trading Units are reminded that email notifications are sent through internet which is not managed by HKEx. Risk Limit Managers and Trading Units should also refer to the same alerts from the interface

Email Notifications (cont'd)

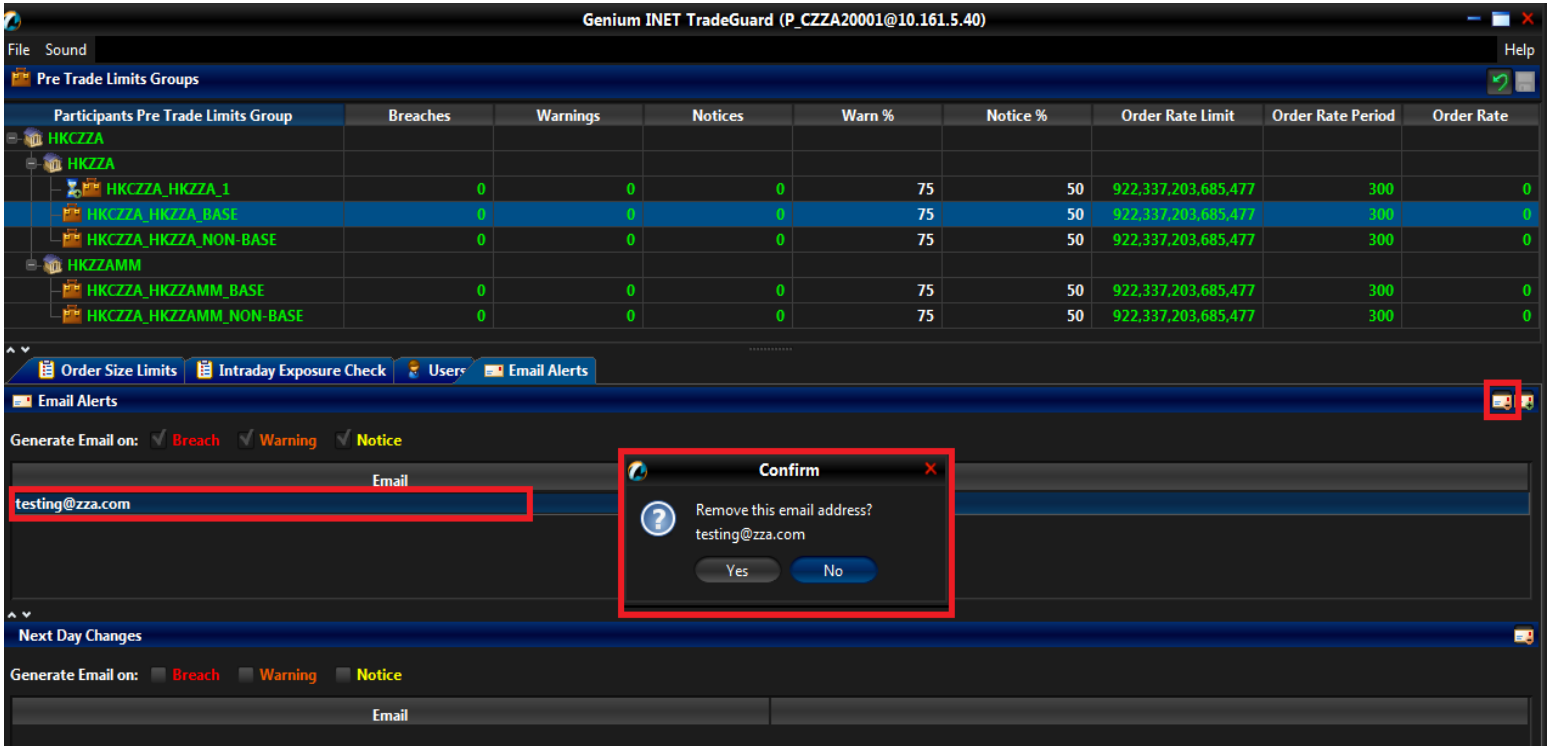
- ***Add*** *New Email Alert Recipients*
  - ***Click Email Alerts Tab → Add New Email Button → Enter the new email address → OK → Save***



Risk Limit Managers are advised to set up an email group to contain all email recipients. GCP's Risk Limit Managers can arrange setting up email alerts for their NCPs

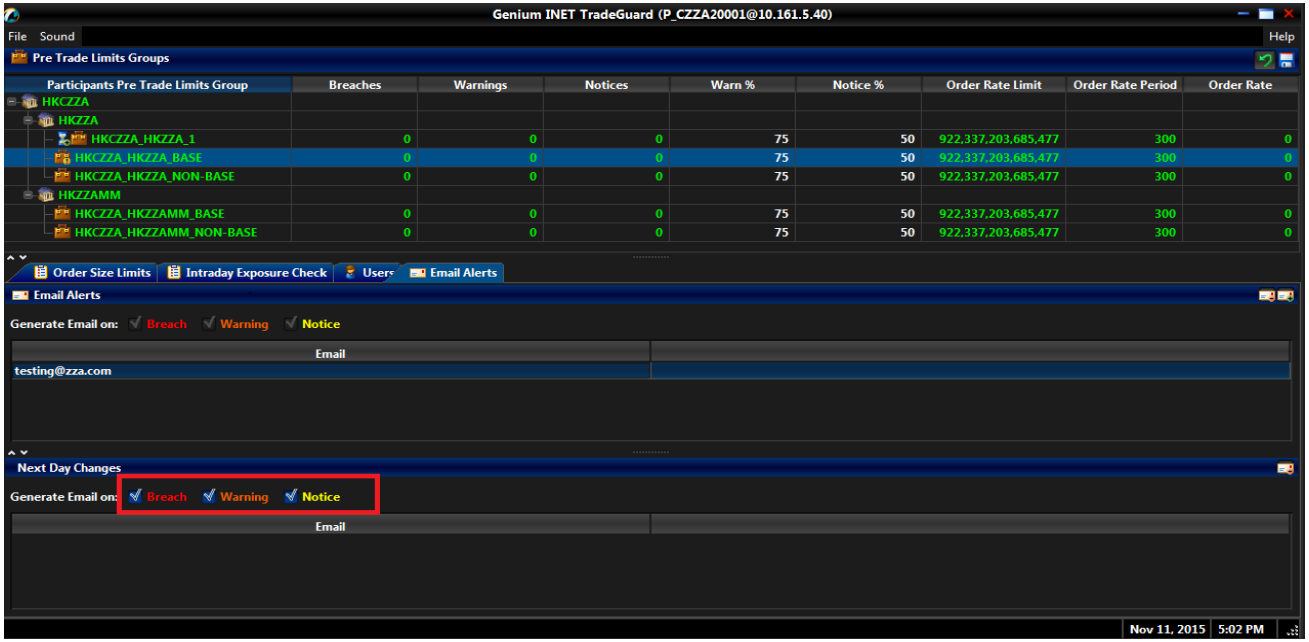
Email Notifications (cont'd)

- ***Remove*** *Email Alert Recipients (Next day change)*
  - ***Click Email Alerts Tab → Select email recipient(s)→ Delete Email Button → Confirm → Save***



Email Notifications (cont'd)

- ***Email Notice / Warning / Breach Configuration (Next Day Change)***
  - ***Check** the box of Breach / Warning / Notice to **enable** the email alerts function → Save*
  - ***Uncheck** the box of Breach / Warning / Notice to **disable** the email alerts function → Save*



Email Notifications (cont'd)

- ***Sample of Maximum Order Size breach email alert***

Subject: BREACH Breach Event - HKCZZA_HKZZA_BASE – ZZA1234
Breach Event
Group: HKCZZA_HKZZA_BASE **Instrument: HSI FUTURES**
User: ZZA1234
Risk Check: Max Order Size
Time: Mon 16 Nov 15:10:22 HKT 2015
Event Level: BREACH
Consumed: 0
Limit: 500

- ***Sample of Maximum Order Rate breach email alert***

Subject: BREACH Breach Event - HKCZZA_HKZZA_BASE – ZZA1234
Breach Event
Group: HKCZZA_HKZZA_BASE
User: ZZA1234
Risk Check: Order Rate
Time: Mon 16 Nov 15:10:22 HKT 2015
Event Level: BREACH
Consumed: 11
Limit: 10

Email Notifications (cont'd)

- ***Sample of Maximum Intraday Exposure (Warning) email alert***

Subject: WARN Breach Event - HKCZZA_HKZZA_BASE – ZZA1234
Breach Event
Group: HKCZZA_HKZZA_BASE
User: ZZA1234
Risk Check: Gross Futures Long
Time: Mon 16 Nov 15:10:22 HKT 2015
Event Level: WARN
Consumed: 70000
Limit: 80000

- ***Sample of Maximum Intraday Exposure (Notice) email alert***

Subject: NOTICE Breach Event - HKCZZA_HKZZA_BASE – ZZA1234
Breach Event
Group: HKCZZA_HKZZA_BASE
User: ZZA1234
Risk Check: Gross Futures Long
Time: Mon 16 Nov 15:10:24 HKT 2015
Event Level: NOTICE
Consumed: 50000
Limit: 80000

Email Notifications (cont'd)

- ***Sample of Maximum Intraday Exposure (Breach) email alert***

Subject: BREACH Breach Event - HKCZZA_HKZZA_BASE – ZZA1234
Breach Event
Group: HKCZZA_HKZZA_BASE
User: ZZA1234
Risk Check: Gross Futures Long
Time: Mon 16 Nov 15:10:22 HKT 2015
Event Level: BREACH
Consumed: 1147450
Limit: 80000

Email Notifications (cont'd)

- ***Sample of Emergency Button (Stop) email alert***

Subject: STOP BUTTON requested from RX GUI – HKCZZA_HKZZA_BASE
Group: HKCZZA_ZZA_BASE
Requested By: P_CZZA12345
Timestamp: Mon Nov 16 17:28:41 HKT2015

- ***Sample of Emergency Button (Unstop) email alert***

Subject: UNSTOP BUTTON requested from RX GUI – HKCZZA_HKZZA_BASE
Group: HKCZZA_ZZA_BASE
Requested By: P_CZZA12345
Timestamp: Mon Nov 16 17:29:40 HKT2015

Email Notifications (cont'd)

- ***Sample of Emergency Button (Mass Order Cancellation) email alert***

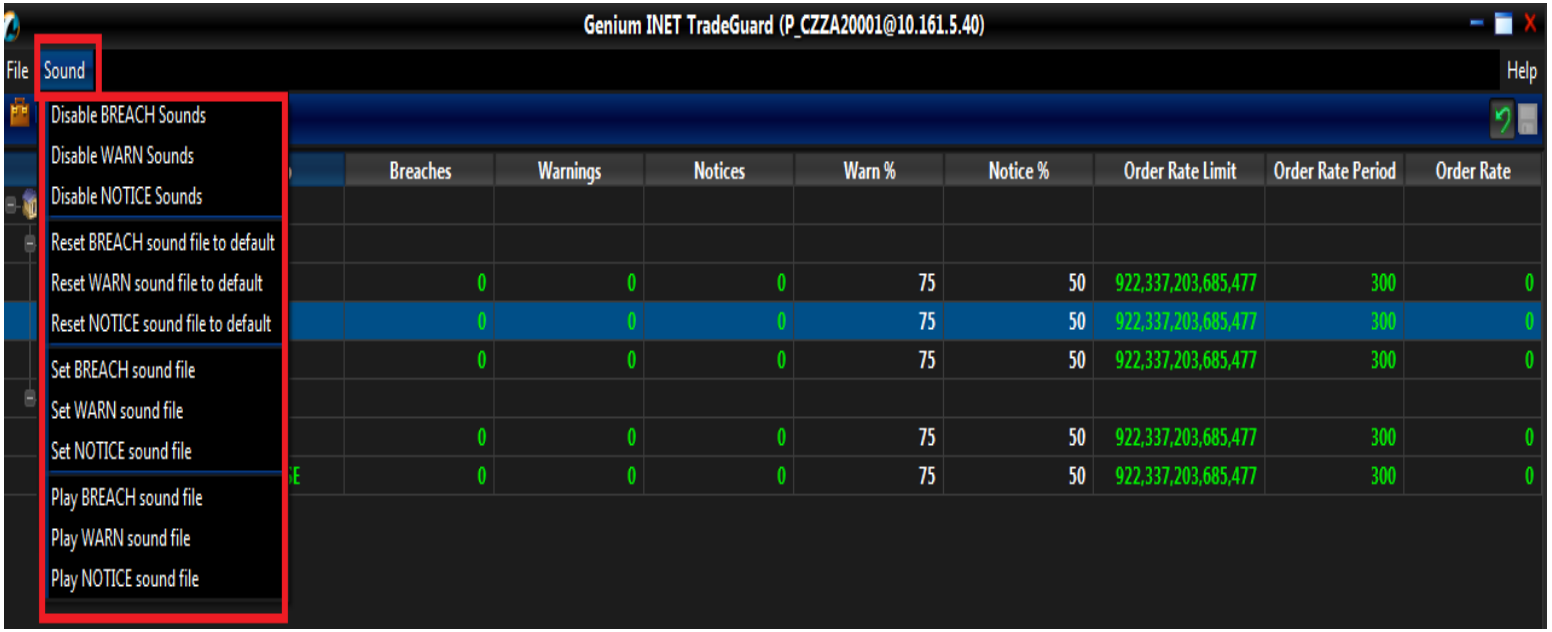
Subject: MASS CANCEL requested from RX GUI – HKCZZA_HKZZA_BASE
Group: HKCZZA_ZZA_BASE
Requested By: P_CZZA12345
Timestamp: Mon Nov 16 17:28:41 HKT2015

- ***Sample of Emergency Button (Kill Switch) email alert***

Subject: KILL SWITCH requested from RX GUI – HKCZZA_HKZZA_BASE
Group: HKCZZA_ZZA_BASE
Requested By: P_CZZA12345
Timestamp: Mon Nov 16 17:28:41 HKT2015

Audible Alerts

- *Click the Sound Button on the top left hand corner*
- *Set / Disable / Reset / Play sound files*
- *Sound file must be in wav format*



Maximum Order Size Check

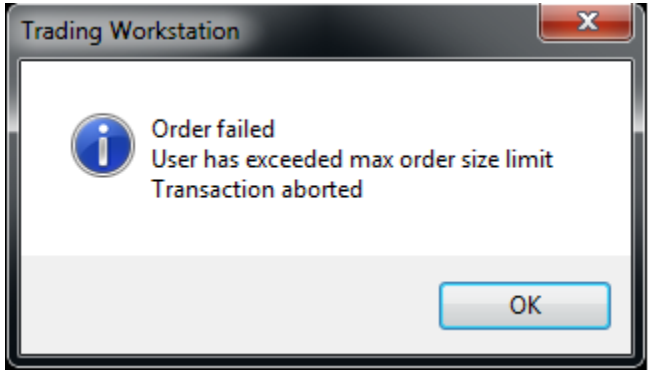
Points to note

- ***Pre-trade check***
- ***Maximum order quantity risk check is set per PTLG per Tradable (instrument class or type)***
- ***If the order quantity is greater than the maximum order quantity, the order will be rejected***
- ***The order or quote must pass the limit for both the instrument class and instrument type of the Tradable, otherwise it will be rejected***
- ***The smaller of the two limits will be the effective limit***
- ***If a Tradable is not configured for the instrument class or type, then the "Central Order Size Limit" will be applied***
- ***Breaching does not put the PTLG into a blocked state***
- ***Bait orders will not be validated against the maximum order size limit***
- ***Combination and TMC orders are excluded from the scope***
- ***Breach email notification will only send once during the day unless the limit is being reset***
- ***Supports file upload function***

Maximum Order Size Check (cont'd)

Rejection Message after breach:

"User has exceeded max order size limit. Transaction aborted" (-850008)



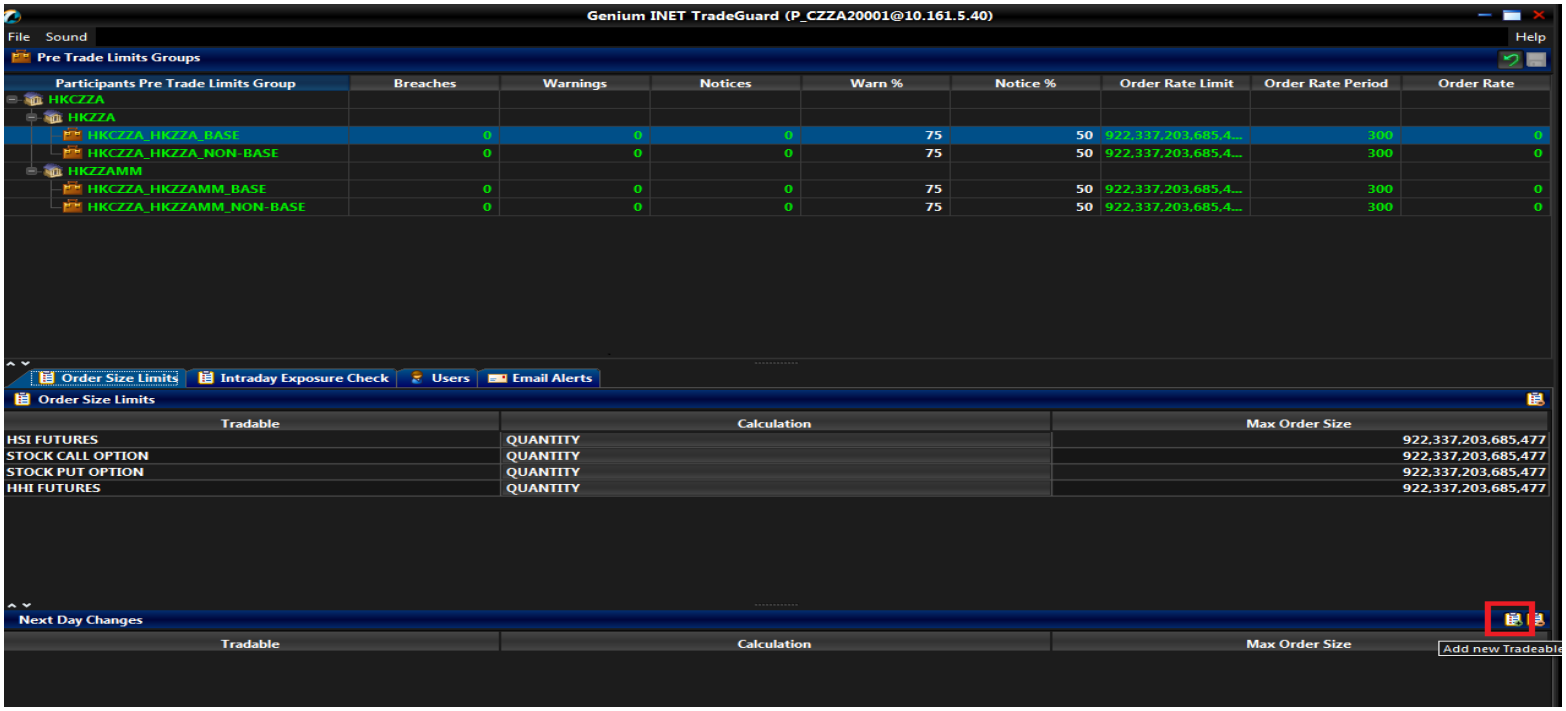
Maximum Order Size Check (cont'd)

- ***Add / Remove / Edit Tradable by Instrument Type or Instrument Class Level***
- ***Support File Upload Function***

	Add Tradable	Remove Tradable	Edit Existing Tradable
Intraday Change			√
Next Day Change	√	√	

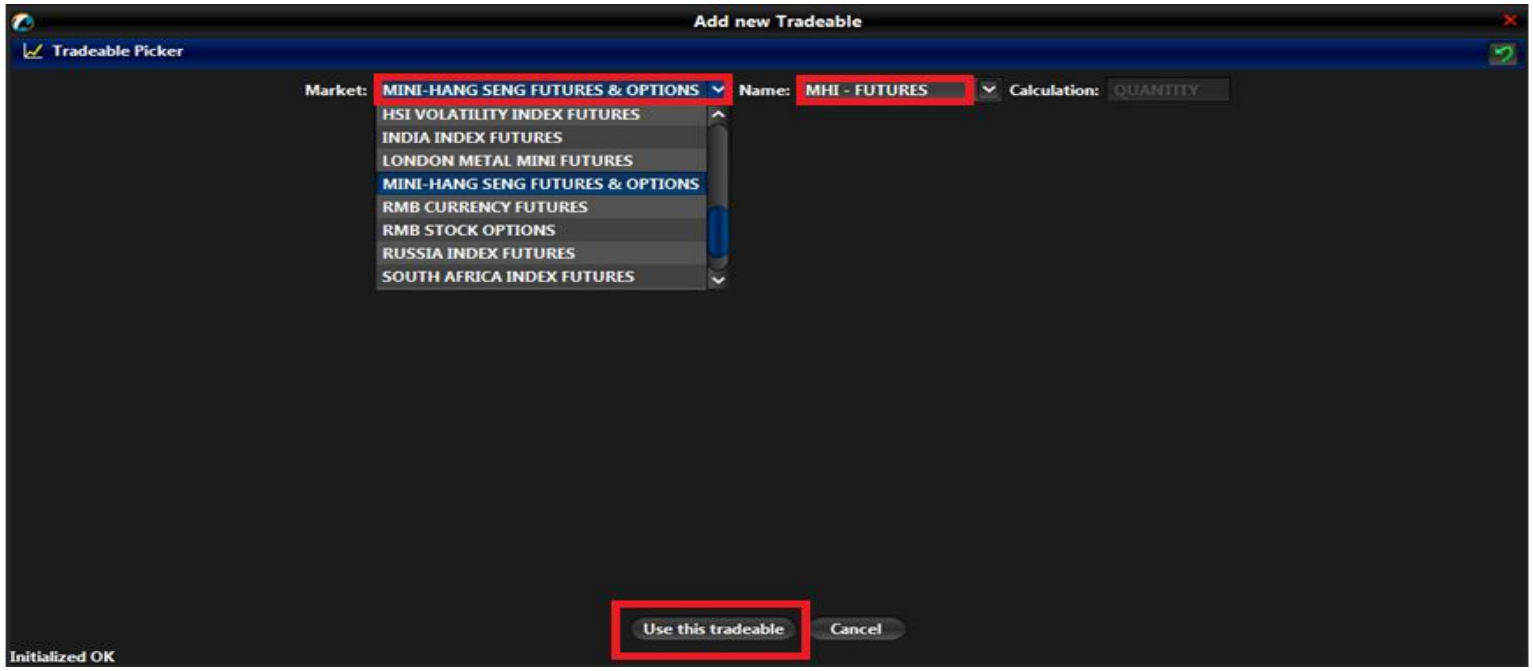
Maximum Order Size Check (cont'd)

- ***Add*** *new Tradable(s) (Next day change)*
  - ***Select Order Size Limits Tab → Click the Add Tradable Button → Choose Market → Select Instrument Type / Class in the Tradable drop-down menu → Use this Tradable → Save***



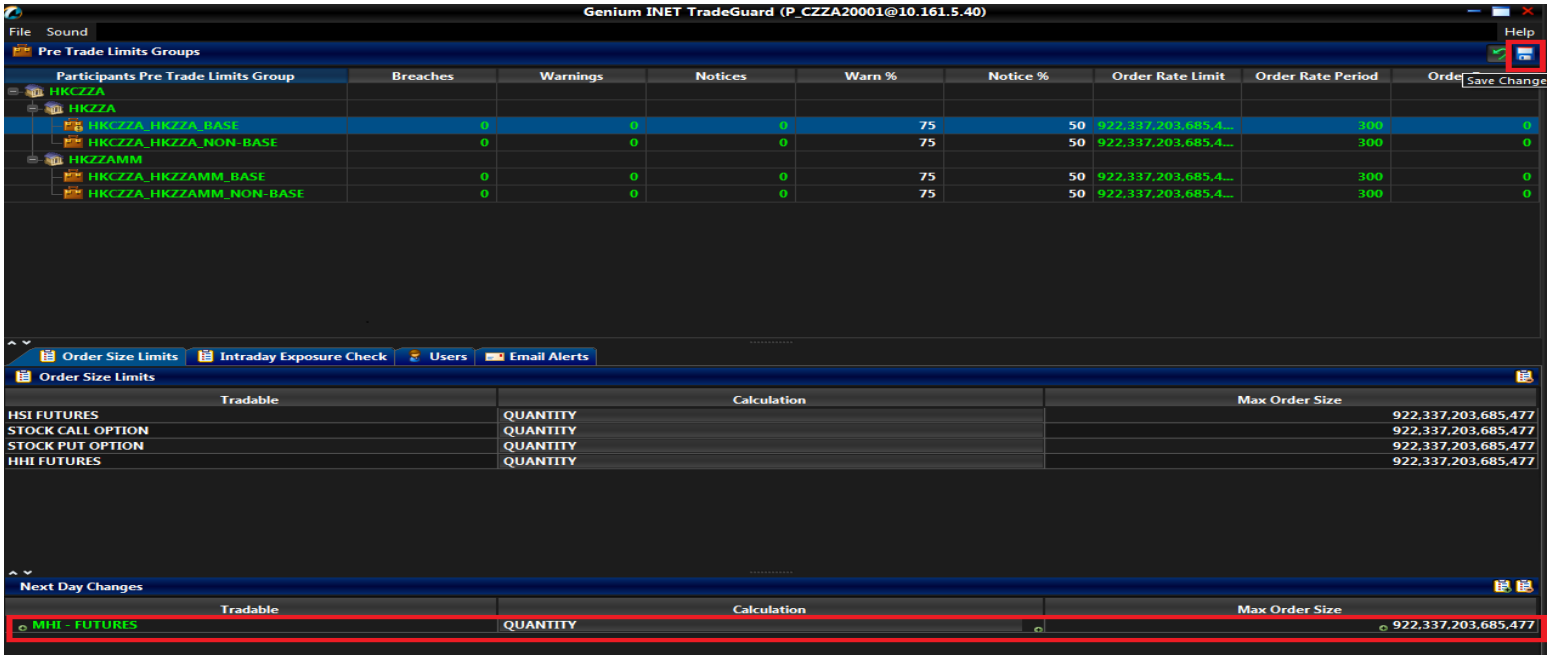
Maximum Order Size Check (cont'd)

- ***Add*** *new Tradable(s) (Next day change)*
  - ***Select Order Size Limits Tab → Click the Add Tradable Button → Choose Market*** *(MINI-HANG SENG FUTURES & OPTIONS)* **→ Select Instrument Type / Class in the Tradable drop-down menu** *(MHI-FUTURES)* **→ Use this Tradable → Save**



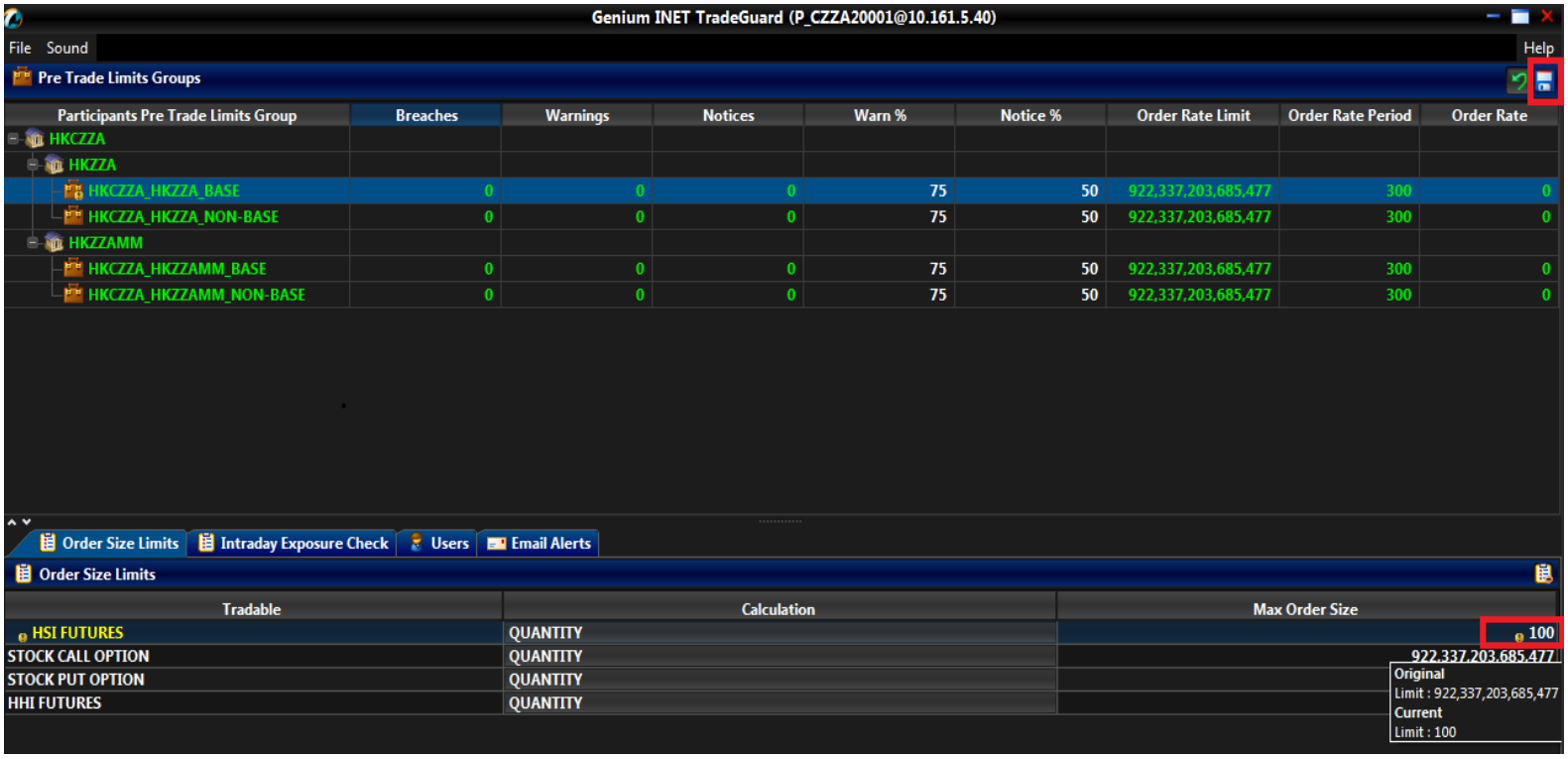
Maximum Order Size Check (cont'd)

- ***Add*** *new Tradable(s) (Next day change)*
  - ***Select Order Size Limits Tab → Click the Add Tradable Button → Choose Market*** *(MINI-HANG SENG FUTURES & OPTIONS)* ***→ Select Instrument Type / Class in the Tradable drop-down menu*** *(MHI-FUTURES)* ***→ Use this Tradable → Save***



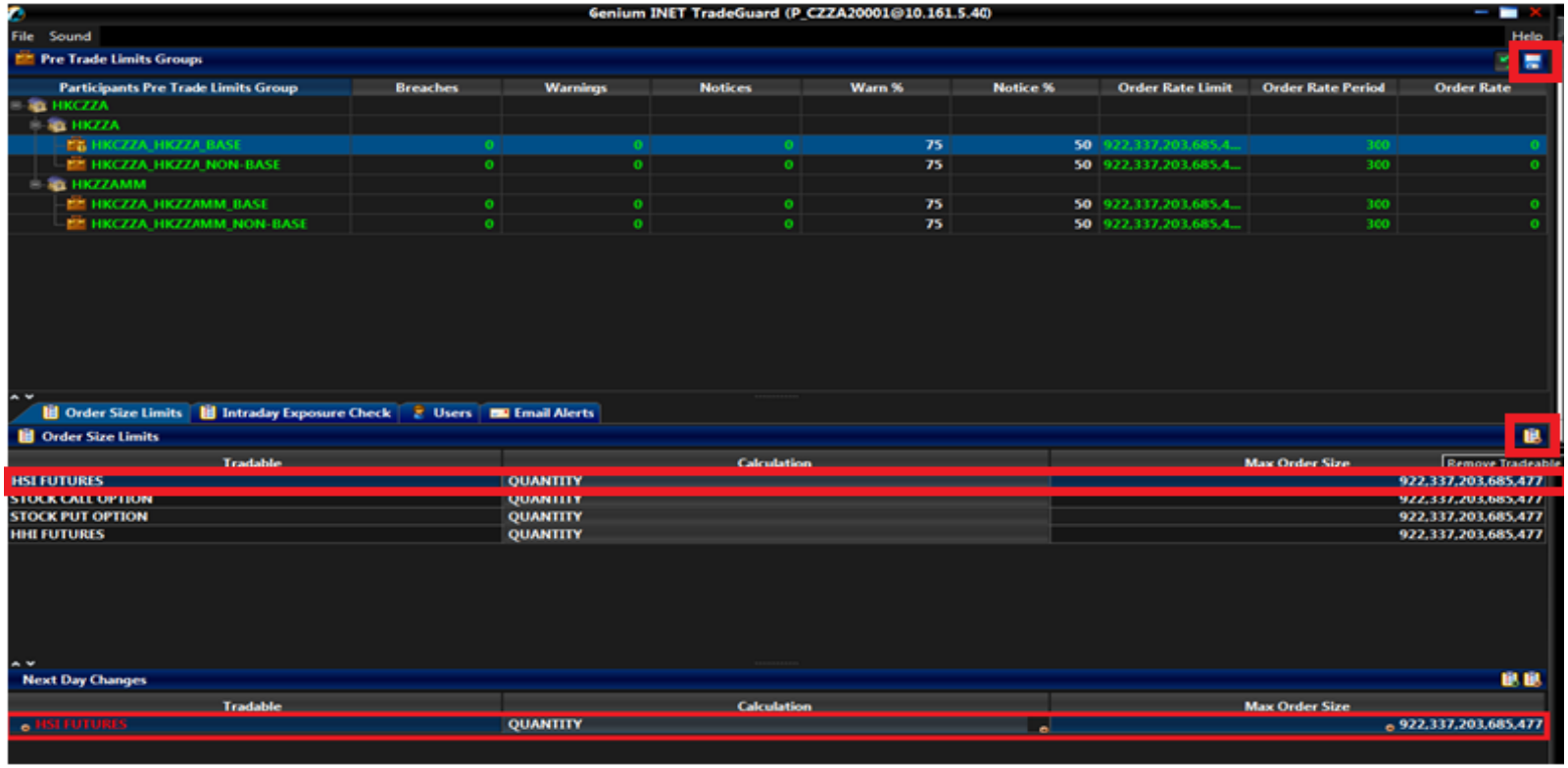
Maximum Order Size Check (cont'd)

- ***Edit*** *existing Tradable limit(s) (Intraday change)*
  - ***Select Order Size Limits Tab → Double Click to edit the value of the Max Order Size → Save***



Maximum Order Size Check (cont'd)

- ***Remove*** *Tradable (Next day change)*
  - ***Select Order Size Limits Tab → Select the Tradable that you want to remove → Click Remove Tradable Button → Save***



Maximum Order Size Check (cont'd)

- ***File Format for upload function***
  - ***File format must be in CSV format***
- ***Add Tradable by file upload function (Next day change)***
  - ***Click the File Button on the top left hand corner → Choose*** **Import Next Day Limits**
- ***Example:***

HKCZZA_HKZZA_BASE,MAX_SIZE,900,N,MHIF
HKCZZA_HKZZA_BASE,MAX_SIZE,500,N,HEXCALL

Clearing Participant	Exchange Participant	PTLG	Function	Maximum Order Size Limit	Add / Delete Tradable (N=Add, Y=Delete)	Tradable (Instrument Class / Type level)
HKCZZA	HKZZA	BASE	MAX_SIZE	900 lots	N	MHIF
HKCZZA	HKZZA	BASE	MAX_SIZE	500 lots	N	HEXCALL

Maximum Order Size Check (cont'd)

- ***Edit existing Tradable by file upload function (Intraday change)***
  - ***Click the File Button on the top left hand corner → Choose Import Intraday Limits → Select file.csv → Accept***
- ***Example:***

HKCZZA_HKZZA_BASE,MAX_SIZE,500,N,HSIF
HKCZZA_HKZZA_BASE,MAX_SIZE,500,N,SOMC

Clearing Participant	Exchange Participant	PTLG	Function	Maximum Order Size Limit	Add / Delete Tradable (N=Add, Y=Delete)	Tradable (Instrument Class / Type level)
HKCZZA	HKZZA	BASE	MAX_SIZE	500 lots	N	HSIF
HKCZZA	HKZZA	BASE	MAX_SIZE	500 lots	N	SOMC

Maximum Order Size Check (cont'd)

- ***Remove Tradable by file upload function (Next day change)***
  - ***Click the File Button on the top left hand corner → → Choose Import Next Day Limits→ Select file.csv → Accept***
  - ***Example:***

HKCZZA_HKZZA_BASE,MAX_SIZE,500,Y,HHIF
HKCZZA_HKZZA_BASE,MAX_SIZE,500,Y,SOMC

Clearing Participant	Exchange Participant	PTLG	Function	Maximum Order Size Limit	Add / Delete Tradable (N=Add, Y=Delete)	Tradable (Instrument Class / Type level)
HKCZAA	HKZZA	BASE	MAX_SIZE	500 lots	Y	HHIF
HKCZAA	HKZZA	BASE	MAX_SIZE	500 lots	Y	SOMC

Maximum Order Size Check (cont'd)

Example 1:

- ***Base PTLG (HKCZZA_HKZZA_BASE)***
- ***Base PTLG users (ZZA1234)***
- ***Tradable: Instrument type: HSIF; Instrument class: HSIFUT***
- ***Maximum Order Size Limit: Type Level: 1,000; Class Level: 800***
- ***Central Order Size Limit: 1,000***

Using MO31 to place order (Single sided Order)

1. User ZZA1234 place Buy order HSIZ5 20000 x 799 lots → Order accepted
2. User ZZA1234 place Buy order HSIZ5 20000 x 800 lots → Order accepted
*3. User ZZA1234 place Buy order HSIZ5 20000 x 801 lots → Order *rejected*
4. User ZZA1234 place Combo order HSIZ5/H6 HSI 1 x 900 lots → Order accepted
5. User ZZA1234 place Combo order HSIZ5/H6 HSI 1 x 1,001 lots → Order #rejected

As the order quantity is greater than the maximum order quantity, the order is rejected

 # Combo order is rejected as it exceeds the Central Order Size Limit

Maximum Order Size Check (cont'd)

Example 2:

- *Base PTLG (HKCZZA_HKZZA_BASE)*
- *Base PTLG users (ZZA1234)*
- *Tradable: Instrument type: HSIF; Instrument class: HSIFUT*
- *Maximum Order Size Limit: Type Level: 1,000; Class Level: 800*
- *Central Order Size Limit: 1,000*

Using MO37 to place order (Double-Sided quote)

1. User ZZA1234 place order HSIZ5 Buy 20000 x 799 lots & Sell 20010 x 799 lots → Order accepted

2. User ZZA1234 place order HSIZ5 Buy20000 x 800 lots & Sell 20010 x 800 lots → Order accepted

*3. User ZZA1234 place order HSIZ5 Buy 20000 x 800 lots & Sell 20010 x 801 lots → *Order rejected*

**Order rejected as one of the bid/offer order size is higher than the pre-set limit 800*

**Whole pair of quote will be rejected*

Maximum Order Size Check (cont'd)

Example 3:

- ***Base PTLG (HKCZZA_HKZZA_BASE)***
- ***Base PTLG users (ZZA1234)***
- ***Tradable: Instrument type: SOMC, Instrument class: HKB***
- ***Maximum Order Size Limit: Type Level: 1,000; Class Level: 1,000***

Using MO96 to place order (Mass Quote)

1. User ZZA1234 place order HKB60.00L5 Buy 100 x 999 lots & Sell 138 x 999 lots → Order accepted

2. User ZZA1234 place order HKB62.50L5 Buy 77 x 1,000 lots & Sell 99 x 1,000 lots → Order accepted

3. User ZZA1234 place order HKB65.00L5 Buy 50 x 1,001 lots & Sell 88 x 1,000 lots → *Order rejected

4. User ZZA1234 place order HKB67.50L5 Sell 55 x 1,001 lots → *Order rejected

5. User ZZA1234 place order HKB70.00L5 Buy 28 x 1,001 lots → *Order rejected

6. User ZZA1234 place order HKB72.50L5 Buy 1 x 800 lots & Sell 5 x 800 lots → Order accepted

Orders (Quotes) (3-5) were rejected (other orders can still be accepted in the market), as one of the bid/offer order size is higher than the pre-set limit 1,000

3rd – 5th pair of quotes will be rejected, 6th quote can still be sent to the HKATS system

Maximum Order Rate Check

Points to note

- ***At-trade check***
- ***Order Rate Limit Consumption is aggregated across all users in the PTLG***
- ***MO37 (double-sided quote) will be counted as 2 orders***
- ***MO96 (mass quotes) will not be counted***
- ***FOK / FAK will be counted ONLY when orders are executed***
- ***Combination orders are counted in the same way as normal orders***
- ***A breach will occur when the order rate counter of the PTLG exceeds the pre-set limit. The PTLG will subsequently be blocked***
- ***During a blocked state, only order cancellation is allowed by the users in the PTLG***
- ***Alteration (MO33) will not be counted***
- ***Supports file upload function***

Maximum Order Rate Check (cont'd)

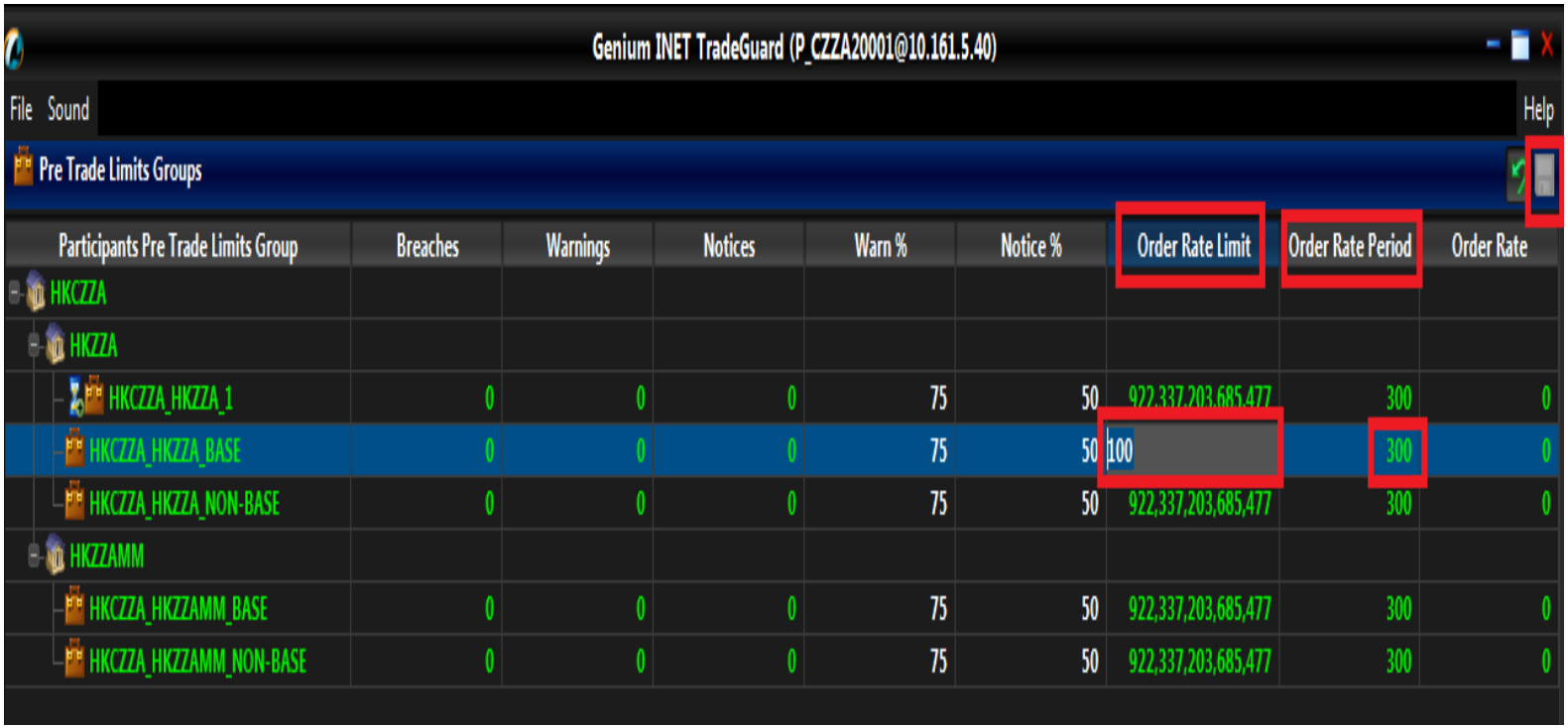
- ***Edit Order Rate Limit (Intraday Change)***
  - ***Select Order Rate Limits → Double click to edit the value → Save***
- ***Edit Order Rate Period (Intraday Change)***
  - ***Select Order Rate Period Limits → Double click to edit the value → Save***

Parameters	Permissible Value
Order Rate Limit	0 to Maximum Limit (2^63 / 10,000 = 922,337,203,685,477) *Caution: Setting 0 will trigger the blocked state immediately*
Order Rate Period	1 to 300 seconds

A new limit applied on the Order Rate Limit WILL NOT reset the Order Rate Counter
A new limit applied on the Order Rate Period WILL reset the Order Rate Counter

Maximum Order Rate Check (cont'd)

- ***Edit Order Rate Limit & Order Rate Period (Intraday Change)***

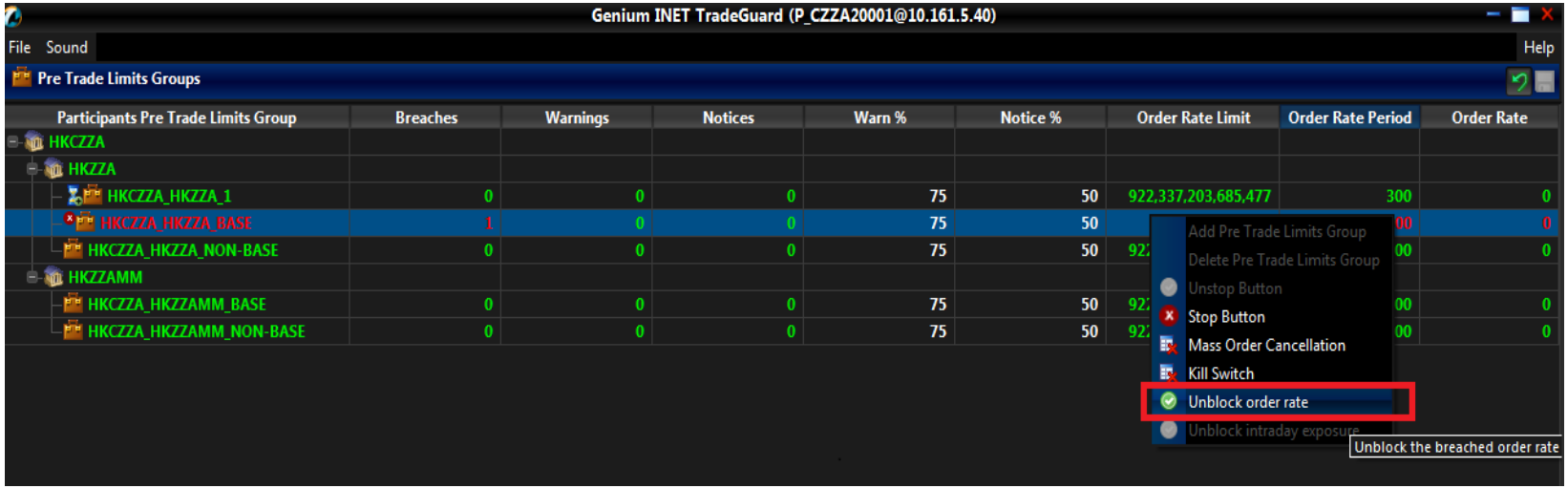


Maximum Order Rate Check (cont'd)

- ***Unblock Order Rate Check (Intraday Change)***
  - ***Select Order Rate Limits → Double click to edit the value into one that is higher than the Order rate → Save → <u>Right click and choose Unblock order rate</u>***

  Or

  - ***Select Order Rate Period Limits → Double click to edit the value → Save → <u>Right click and choose Unblock order rate</u>***



Maximum Order Rate Check (cont'd)

- ***File Format for upload function***
  - ***File format must be CSV***
- ***Edit Order Rate / Period by file upload (Intraday change)***
  - ***Click the File Button on the top left hand corner → Choose Import Intraday Limits***
- ***Example:***

HKCZZA_HKZZA_BASE,ORDER_RATE,50
HKCZZA_HKZZA_BASE,ORDER_RATE_PERIOD,300

Clearing Participant	Exchange Participant	PTLG	Order Rate Limit / Period	Value
HKCZZA	HKZZA	BASE	ORDER_RATE	50 orders
HKCZZA	HKZZA	BASE	ORDER_RATE_PERIOD	300 seconds

Maximum Order Rate Check (cont'd)

Example 4:

- ***Base PTLG (HKCZZA_HKZZA_BASE)***
- ***Base PTLG users (ZZA1234)***
- ***Order Rate Limit: 3***
- ***Order Rate Period: 100***

Using MO31 to place order

1st second: User ZZA1234 place buy order HSIZ5 20000 x 1 lot → Order accepted (Order rate = 1)

2nd second: User ZZA1234 place buy order HSIZ5 20000 x 10 lots → Order accepted (Order rate = 2)

3rd second: User ZZA1234 place buy order HSIZ5 20000 x 15 lots → Order accepted (Order rate = 3)

4th second: User ZZA1234 place buy order HSIZ5 20000 x 22 lots → *Order accepted and breached (Order rate = 4)

5th second: User ZZA1234 place buy order HSIZ5 20000 x 22 lots → #Order rejected (Order rate = 4)

**** PTLG is in a blocked state as the order rate counts exceed the limit***

 # Order rejected as the PTLG is in a blocked state

Maximum Order Rate Check (cont'd)

Example 5:

- ***Base PTLG (HKCZZA_HKZZA_BASE)***
- ***Base PTLG users (ZZA1234)***
- ***Order Rate Limit: 3***
- ***Order Rate Period: 100***

Using MO37 to place order

1st second: User ZZA1234 place order (quotes) HSIZ5 bid 20000 x 1 lot & offer 20010 x 100 lots → Order accepted (order rate = 2)

2nd second: User ZZA1234 place buy order HSIZ5 20000 x 10 lots → Order accepted (order rate = 3)

3rd second: User ZZA1234 place order (quotes) HSIZ5 bid 20000 x 1 lot & offer 20010 x 100 lots → *Order accepted and Base PTLG breached (order rate = 5)

4th second: User ZZA1234 place order (quotes) HSIZ5 bid 20000 x 1 lot & offer 20010 x 100 lots → Order rejected (order rate = 5)

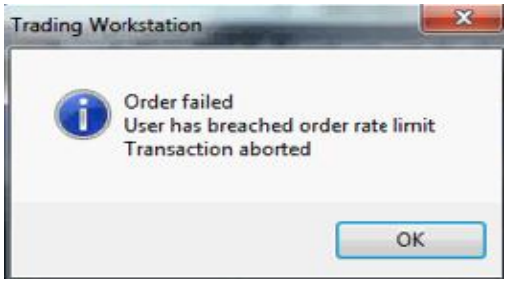
**** PTLG is in a blocked state as the order rate counts exceed the limit***

 # Order rejected as the PTLG is in a blocked state

Maximum Order Rate Check (cont'd)

Rejection Message after Breach:

"User has breached order rate limit. Transaction aborted" (-850004)



Genium INET TradeGuard (P_CZZA20001@10.161.5.40)

File Sound Help

Pre Trade Limits Groups

Participants Pre Trade Limits Group	Breaches	Warnings	Notices	Warn %	Notice %	Order Rate Limit	Order Rate Period	Order Rate
HKCZZA								
HKZZA								
HKCZZA_HKZZA_1	0	0	0	75	50	922,337,203,685,477	300	0
HKCZZA_HKZZA_BASE	1	0	0	75	50	0	300	0
HKCZZA_HKZZA_NON-BASE	0	0	0	75	50	922,337,203,685,477	300	0
HKZZAMM								
HKCZZA_HKZZAMM_BASE	0	0	0	75	50	922,337,203,685,477	300	0
HKCZZA_HKZZAMM_NON-BASE	0	0	0	75	50	922,337,203,685,477	300	0

Maximum Intraday Exposure Check

Points to note

- ***At-trade Check***
- ***Edit Risk Limit: 0 - Maximum Limit (Intraday change)***
- ***Edit Order Coefficient: 0 - 100 (Next day change)***
- ***The PTLG will be blocked upon a breach on any one of the Maximum Intraday Exposure Risk Counters***
- ***GTC / GTD orders will contribute to the credit consumption everyday***
- ***If a breach occurs during reloading of GTC / GTD orders in the morning, subsequent GTC / GTD orders will still be accepted while subsequent Day Orders will be rejected***
- ***Raising the limit without performing an unblock action will not release the block***
- ***Combo legs will be counted separately***
- ***Support file upload function***

Maximum Intraday Exposure Check (cont'd)

Points to note

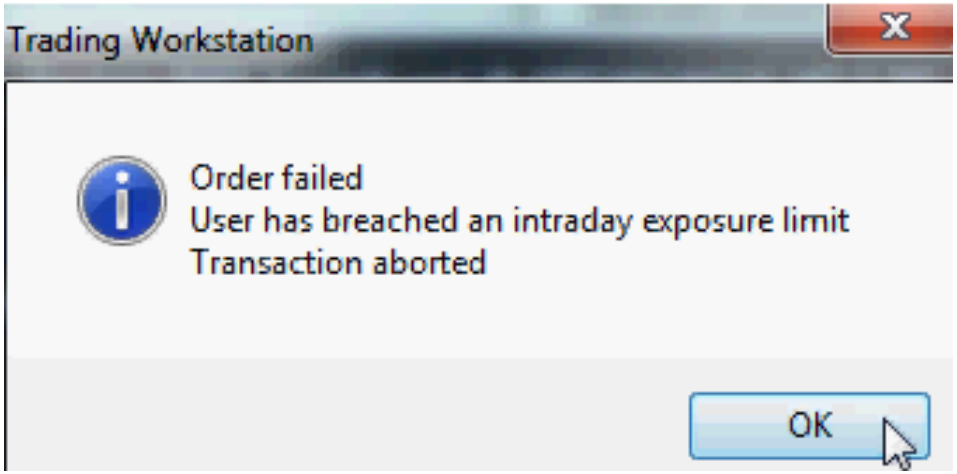
- ***Risk Consumptions of Block Trades will be counted towards the Base PTLG***
- ***Once the Base PTLG is breached, no block trades (T1 / T2 / T4) can be subsequently sent to the market by PTLGs that contain the same HKATS Customer Code. However, outstanding orders and unmatched block trades (including T4) can still be executed***

PTLG State	PTLG	Normal Order Placement	Block Trade Entry
Blocked	Base PTLG	No	No
Normal	Non-Base PTLG	Yes	No

Maximum Intraday Exposure Check (cont'd)

Rejection Message after breach:

"User has breached an intraday exposure limit. Transaction aborted" (-850006)



Maximum Intraday Exposure Check (cont'd)

- ***8 Risk Checks with 4 Inputs:***

Net Futures *Long and Short*; Gross Futures *Long and Short*

Net Options *Long and Short*; Gross Options *Long and Short*

Intraday Exposure	Risk Limit (HKD Equivalent)	Long Exposure	Utilization %	Short Exposure	Utilization %
Gross Futures	1000	400	40.0%	250	25.0%
Net Futures	500	200	40.0%	100	20.0%
Gross Options	1200	455	37.9%	566	47.2%
Net Options	600	120	20.0%	200	33.3%

Maximum Intraday Exposure Check (cont'd)

- ***Formulas:***

Gross Futures Long:

(Traded Futures Long x Long Margin) + (Outstanding Futures Long x Long Margin x Futures Coefficient)

Gross Futures Short:

(Traded Futures Short x Short Margin) + (Outstanding Futures Short x Short Margin x Futures Coefficient)

Net Futures Long:

(Traded Futures Long x Long Margin) – (Traded Futures Short x Short Margin) + (Outstanding Futures Long x Long Margin x Futures Coefficient)

Net Futures Short:

(Traded Futures Short x Short Margin) – (Traded Futures Long x Long Margin) + (Outstanding Futures Short x Short Margin x Futures Coefficient)

Maximum Intraday Exposure Check (cont'd)

- ***Formulas:***

Gross Options Long:

(Bought Calls x Long Margin) + (Sold Puts x Short Margin) +(Outstanding Buy Calls x Options Coefficient x Long Margin) + (Outstanding Short Puts x Options Coefficient x Short Margin)

Gross Options Short:

(Sold Calls x Short Margin) + (Bought Put x Long Margin) + (Outstanding Sell Calls x Options Coefficient x Short Margin) + (Outstanding Buy Puts x Options Coefficient x Long Margin)

Net Options Long:

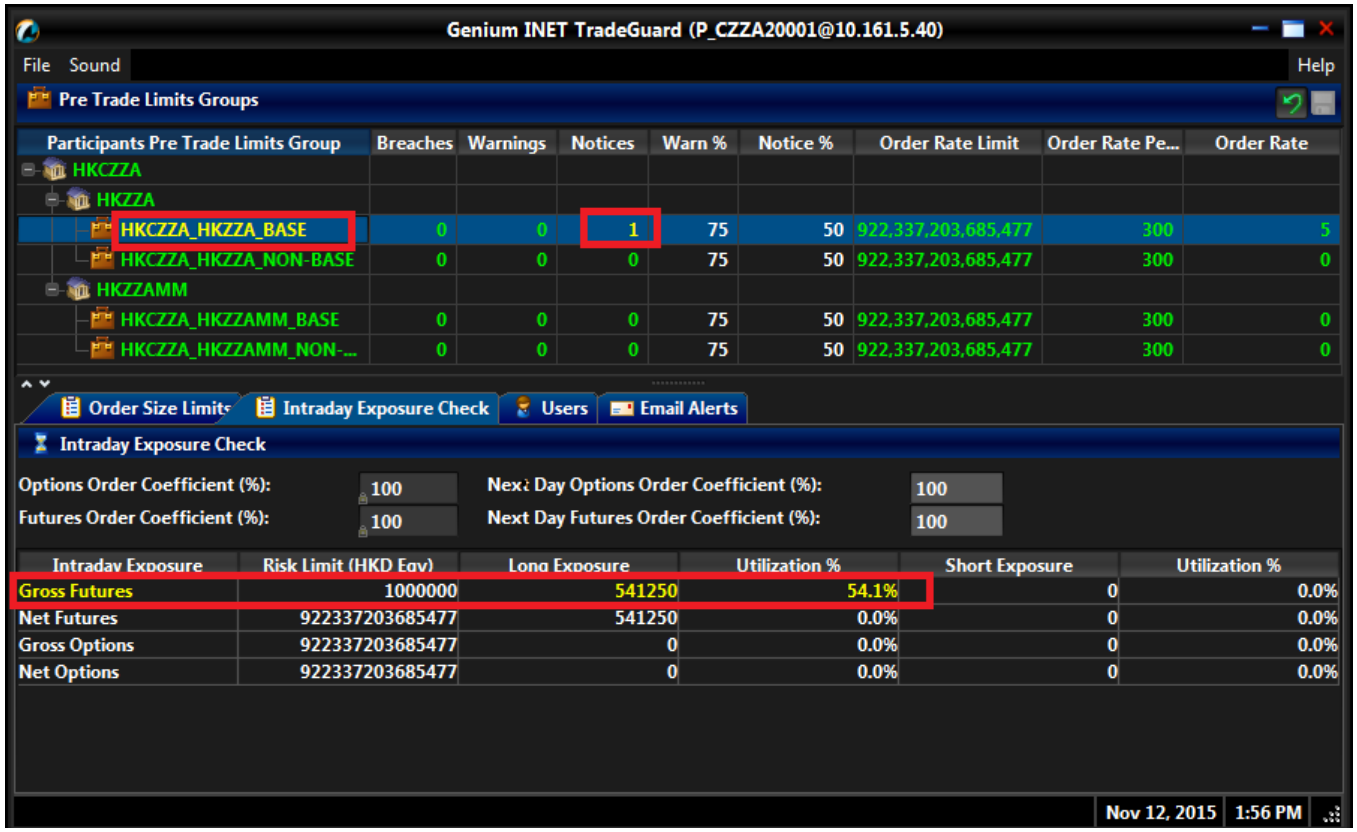
(Bought Calls x Long Margin) – (Sold calls x Short Margin) + (Sold Puts x Short Margin) – (Bought Puts x Long Margin) + (Outstanding Buy Calls x Options Coefficient x Long Margin) + (Outstanding Sell Puts x Options Coefficient x Short Margin)

Net Options Short:

(Sold Calls x Short Margin) – (Bought Calls x Long Margin) + (Bought Puts x Long Margin) – (Sold Puts x Short Margin) + (Outstanding Sell Calls x Options Coefficient x Short Margin) + (Outstanding Buy Puts x Options Coefficient x Long Margin)

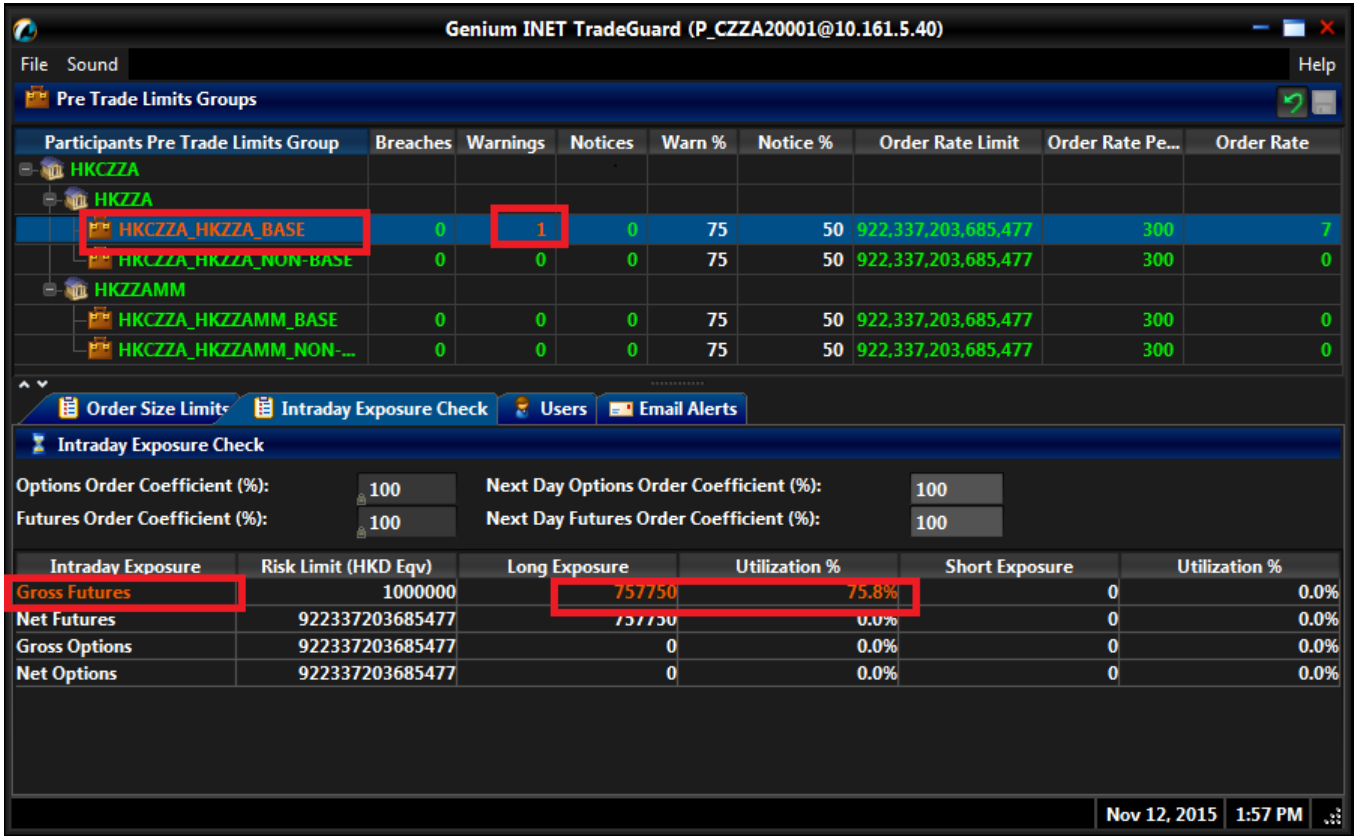
Maximum Intraday Exposure Check (cont'd)

- ***Notice Level Visual Alert – Yellow***
  - ***Edit Notice Level (Intraday Change) → Double Click the Notice column → Enter value (%)***



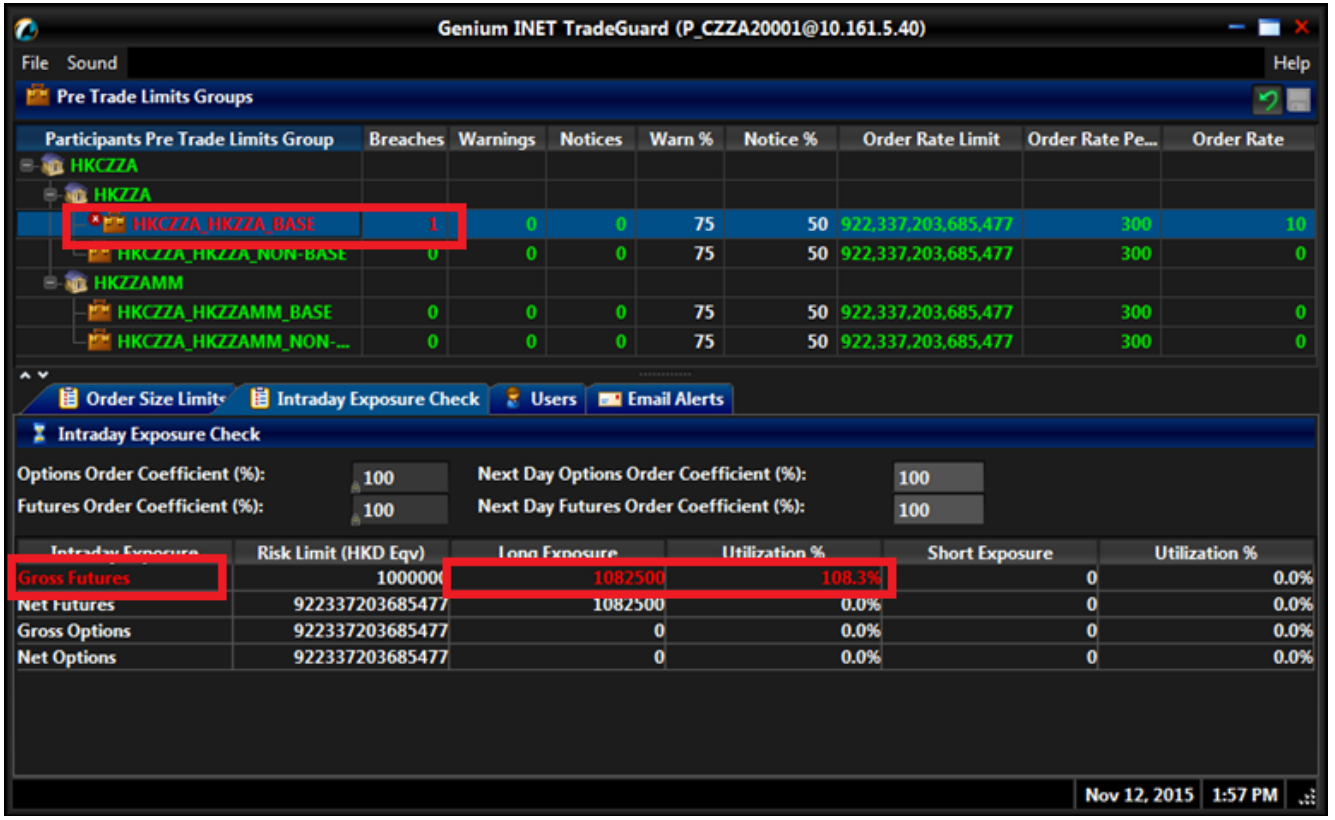
Maximum Intraday Exposure Check (cont'd)

- ***Warning Level Visual Alert – Orange***
  - ***Edit Warning Level (Intraday Change) → Double Click the Notice column → Enter value (%)***



Maximum Intraday Exposure Check (cont'd)

- ***Breach Level Visual Alert – Red***
  - ***Breach Level value cannot be edited;***
  - ***Once Exposure > 100% → PTLG will be blocked***



Maximum Intraday Exposure Check (cont'd)

- ***File Format for upload function***
  - ***File format must be CSV***
- ***Edit Exposure Limit by file upload (Intraday change)***
  - ***Click the File Button on the top left hand corner → Choose Import Intraday Limits***
- ***Example:***

```
HKCZZA_HKZZA_BASE,NET_FUTURES,1000000
HKCZZA_HKZZA_BASE,NET_OPTIONS,1000000
HKCZZA_HKZZA_BASE,GROSS_FUTURES,1000000
HKCZZA_HKZZA_BASE,GROSS_OPTIONS,1000000
```

Clearing Participant	Exchange Participant	PTLG	Counter	Risk Limit
HKCZZA	HKZZA	BASE	NET_FUTURES	1,000,000
HKCZZA	HKZZA	BASE	NET_OPTIONS	1,000,000
HKCZZA	HKZZA	BASE	GROSS_FUTURES	1,000,000
HKCZZA	HKZZA	BASE	GROSS_OPTIONS	1,000,000

Maximum Intraday Exposure Check (cont'd)

- ***File Format for upload function***
  - ***File format must be CSV***
- ***Edit Order Coefficient by file upload (Next day change)***
  - ***Click the File Button on the top left hand corner → Choose Import Next Day Limits***
- ***Example:***

HKCZZA_HKZZA_BASE,FUTURES_COEFFICIENT,75
HKCZZA_HKZZA_BASE,OPTIONS_COEFFICIENT,75

Clearing Participant	Exchange Participant	PTLG	Coefficient	Value
HKCZZA	HKZZA	BASE	FUTURES_COEFFICIENT	75 (%)
HKCZZA	HKZZA	BASE	OPTIONS_COEFFICIENT	75 (%)

Maximum Intraday Exposure Check (cont'd)

Example 6:

- ***Base PTLG (HKCZZA_HKZZA_BASE)***
- ***Base PTLG users (ZZA1234)***
- ***Gross Futures: 180,000 / Gross Options: 800,000***
- ***Net Futures: 100,000 / Net Options: 400,000***
- ***Order Coefficient: 100 (%)***
- ***Margin rate (HSI Futures): HK$100,000***

1. User ZZA1234 place order HSIZ5 23000 x 1 lot → Order accepted (Gross Futures margin = 100,000; Net Futures = 100,000)

2. User ZZA1234 place order HSIZ5 22000 x 1 lot → Order accepted and PTLG breached (2 Breaches : Gross Futures = 200,000 > 180,000 ; Net Futures = 200,000 > 100,000)

3. User ZZA1234 place order HSIZ5 21000 x 1 lot → *Order rejected

4. User ZZA1234 place order HSI22000L6 100 x 1 lot → *Order rejected

**** PTLG is in a blocked state as the exposures (Gross Futures / Net Futures) exceed the limit***

Emergency Buttons

Emergency Buttons:

- ***Stop*** – Block all new orders and modifications, but user can still cancel outstanding orders
- ***Unstop*** – Unblock the PTLG
- ***Mass Order Cancellation*** – Cancel all outstanding orders (including T4 block trades) or quotes of a PTLG
- ***Kill Switch*** – Stop and then execute Mass Order Cancellation (Always check order book after executing kill switch so as to confirm no outstanding orders exist for that PTLG)

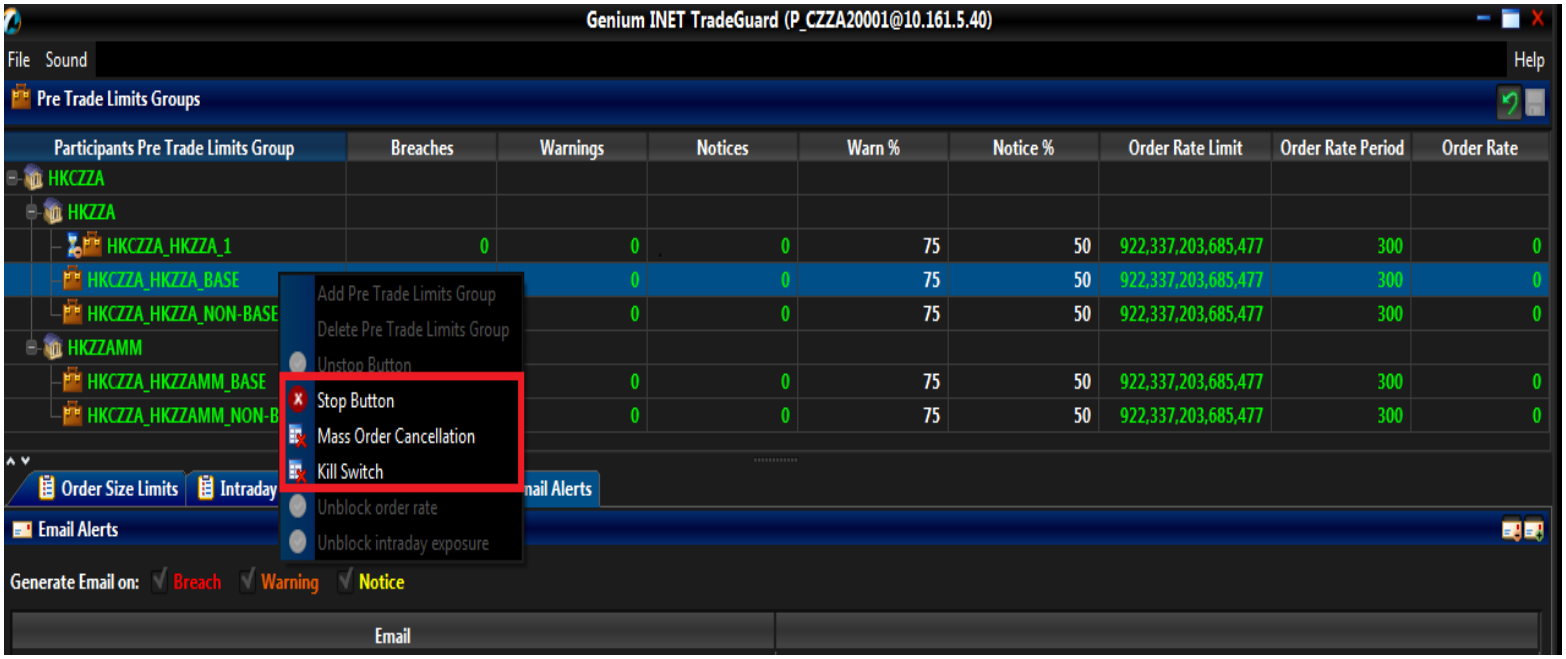
Emergency Buttons (cont'd)

Points to note

- ***Emergency Buttons can invoked on either a single PTLG or all PTLGs of a Participant***
- ***After executing Stop / Kill Switch button on a particular PTLG, no order or quote can be sent by the user(s) assigned to that particular PTLG***
- ***Once Base PTLG was blocked by Stop / Kill Switch button, no Block Trades (T1 / T2 /T4) can be sent to the market. However, outstanding orders and unmatched block trades (including T4) can still be executed***
- ***Not every trading session supports Mass Order Cancellation***
- ***No warning dialog for Unstop button***
- ***Email notification will be sent to the email recipients after executing Emergency Buttons***

Emergency Buttons (cont'd)

- ***Stop / Unstop / Mass Order Cancellation / Kill Switch***
  - ***Select Exchange Participant → Right Click → Click the Stop / Unstop (no confirmation) / Mass Order Cancellation / Kill Switch → Confirmation***

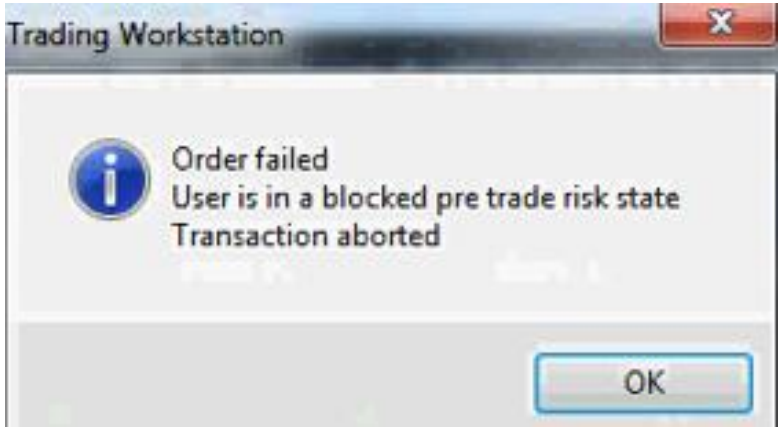


Emergency Buttons (cont'd)

Rejection Message after Stop:

"User is in a blocked pre-trade risk state. Transaction aborted " (-850002)

Participants Pre Trade Limits Group	Breaches	Warnings	Notices	Warn %	Notice %	Order Rate Limit	Order Rate Period	Order Rate
HKCZZA								
HK77A								
HKCZZA_HKZZA_BASE	0	0	0	75	50	922,337,203,685,477	300	0
HKCZZA_HKZZA_NON-BASE	0	0	0	75	50	922,337,203,685,477	300	0
HKZZAMM								
HKCZZA_HKZZAMM_BASE	0	0	0	75	50	922,337,203,685,477	300	0
HKCZZA_HKZZAMM_NON-BASE	0	0	0	75	50	922,337,203,685,477	300	0



Emergency Buttons (cont'd)

	Stop	Unstop	Mass Order Cancellation	Kill Switch
Risk Limit Mangers	√	√	√	√
Trading Units	√	X	√	√

NCPs and GCPs are advised to arrange efficient communication channels for HKATS Risk Functions events such as

- ***Regular limit reviews***
- ***Emergency contacts***
- ***Request for change of settings***

Contingency

- ***Disable HKATS Risk Functions***
  - ***HKEx may <u>disable all HKATS Risk Functions</u> (all risk checks and emergency buttons)***

- ***Failover***
  - ***If failover, users are required to switch the login from Primary Gateway to the <u>Secondary Gateway manually</u>***
  - ***If failover, all risk exposure consumption or status of the PTLGs should be the same as the image before failover. However, after failover, orders in order book will be removed and therefore risk exposure may be varied***

Market Rehearsal and Implementation

- ***Points to note for Connectivity Test and Market Rehearsal***
  - ***<u>Mandatory</u> for <u>All</u> Participants (GCP / DCP / NCP) to participate***
  - ***Date of Connectivity Test: 16 Jan 16 & 23 Jan 16***
  - ***Date of Market Rehearsal: 30 Jan 16***

- ***Tentative production setup***
  - ***Tentative schedule for production: Quarter 2 in 2016***
  - ***Only Base PTLG will be created***
  - ***All trading users will be assigned to User Picker List***
  - ***All risk checks will be set at maximum value***
  - ***Setting of Order Coefficients for Maximum Intraday Exposure will be announced in due course***

Summary

- ***User Picker List***
  - ***Unassigned trading user(s) can be found in User Picker List and risk associated with those users will be counted towards the Base PTLG***
  - ***Newly created trading user(s) can be found in the User Picker List on the effective day***

- ***Characteristics of Base PTLG***
  - ***Base PTLG will count all block trades for that participants***

- ***Block Trade Behaviour***
  - ***Block trades will consume Base PTLG intraday risk exposure***
  - ***Once Base PTLG was Breached or Blocked by Stop / Kill Switch button, no Block Trades (T1 / T2 / T4) can be sent to the market. However, outstanding orders and unmatched block trades (including T4) can still be executed***

Summary (cont'd)

Risk Checks	PTLG status after breach
Maximum Order Size	*Breach Maximum Order Size Check will not put the PTLG into blocked state*
Maximum Order Rate	*Breach Maximum Order Rate Check will put the PTLG into blocked state*
Maximum Intraday Exposure	*Breach Maximum Intraday Exposure Check will put the PTLG into blocked state*

Summary (cont'd)

Risk Checks	Notification / Warning	Alert
Maximum Order Size	*Breach Email*	*Audible alert for breach*
Maximum Order Rate	*Breach Email*	*Audible alert for breach* *Visual alert for breach*
Maximum Intraday Exposure	*Notice, Warning and Breach Emails*	*Audible alert for notice, warning and breach* *Visual alert for notice, warning and breach*
Emergency Button	*Email Notification*	***No** Audible alert for execution for execution of emergency button* *Visual alert after execute Stop / Unstop / Kill Switch button*

Summary (cont'd)

Functions	Intraday Change	Next Day Change
Create / Delete PTLG(s)		√
Add new email recipient(s) to an existing PTLG	√	
Remove existing email Recipient(s)		√
Edit Breach / Warning / Notice email notification		√
Adding new tradable		√
Edit / Delete existing tradable		√
Edit Maximum Order Size Limit	√	
Edit Maximum Order Rate Limit / Period	√	
Edit Maximum Intraday Exposure Limit	√	
Edit order coefficient (Futures / Options)		√

Summary (cont'd)

Functions	Risk Limit Manager	Trading Units
Create / Delete PTLG(s)	√	
Add new email recipient(s) to an existing PTLG	√	
Remove existing email Recipient(s)	√	
Edit Breach / Warning / Notice email notification	√	
Adding new tradable	√	
Edit / Delete existing tradable	√	
Edit Maximum Order Size Limit	√	
Edit Maximum Order Rate Limit / Period	√	
Edit Maximum Intraday Exposure Limit	√	
Edit order coefficient (Futures / Options)	√	

Summary (cont'd)

	Stop	Unstop	Mass Order Cancellation	Kill Switch
Risk Limit Mangers	√	√	√	√
Trading Units	√	X	√	√

NCPs and GCPs are advised to arrange efficient communication channels for HKATS Risk Functions events such as

- ***Regular limit reviews***
- ***Emergency contacts***
- ***Request for change of settings***

Summary (cont'd)

	Maximum Order Size Check	Maximum Order Rate Check	Maximum Intraday Exposure Check
MO31 (Outright)	√	√	√
MO31 (Combo)	***Not in scope***	√	√
MO33 (Alternation)	√	***Not in scope***	√
MO37 (Double Sided Quote)	√	√	√
MO74 (Block Trade – T4)	***Not in scope***	***Not in scope***	√
MO75 (Block Trade – T1)	***Not in scope***	***Not in scope***	√
MO76 (Block Trade – T2)	***Not in scope***	***Not in scope***	√
MO96 (Mass Quote)	√	***Not in scope***	√

Summary (cont'd)

	Edit Existing Maximum Order Size Parameters	Edit Maximum Order Rate & Order Rate Period Parameters	Edit Maximum Intraday Exposure Limit Parameters	Edit Order Coefficient
File Upload	√	√	√	√
Intraday Change	√	√	√	

Summary (cont'd)

Rejection Message	Remark
(-850002) ***User is in a blocked pre-trade risk state. Transaction aborted***	*User is in a blocked Pre-Trade Risk State and is currently not allowed to trade*
(-850004) ***User has breached order rate limit. Transaction aborted***	*User has breached Max. Order Rate Limit and the transaction is rejected*
(-850006) ***User has breached an intraday exposure limit. Transaction aborted***	*User has breached a Max. Intraday Exposure limit and the transaction is rejected*
(-850008) ***User has exceeded max order size limit. Transaction aborted***	*User has exceeded Max. Order Size limit and the transaction is rejected*

Best Practices

DO'S

- ***Contact HKEx after any breach or Emergency Button execution***
- ***Always check the relevant order book after execute Kill Switch or Mass Order Cancellation Button***
- ***Separate save changes for intraday changes & next day changes***
- ***Review the Risk Limits regularly with the help of Utilization Reports***
- ***Trading Units to have proper communication channels and arrangements with their corresponding Risk Limit Managers for any change in PTLG settings and request for unblock***
- ***Read the HKATS Risk Functions User Guide that will be posted in the PTRM Webpage in due course and subject to updates regularly***

DON'TS

- ***Do not edit the same PTLG with different GUIs at the same time***

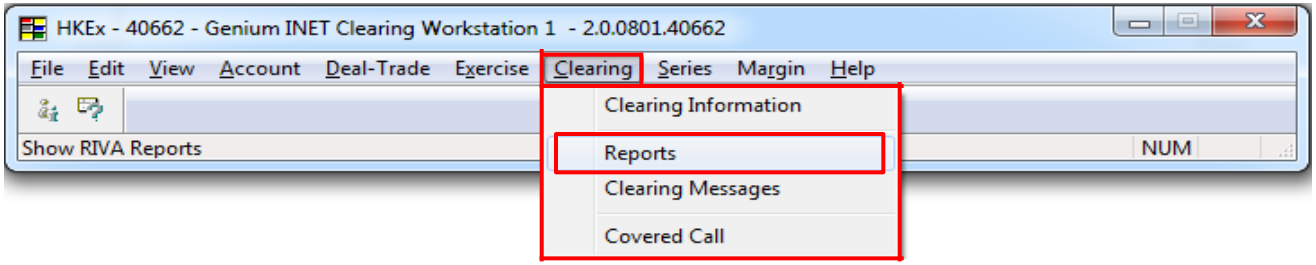
PTRM – Reports

- ***There are two reports recording changes made in HKATS Risk Functions, namely Audit and Utilization Reports***
- ***The audit report shows the whole day activities of PTLG managed by the Risk Limit Manager***
- ***The utilization report shows the maximum utilization of each type of limit, e.g., order size, order rate, unit margin for each PTLG***
- ***Both reports are available and can be downloaded via DCASS Terminal using existing procedure***

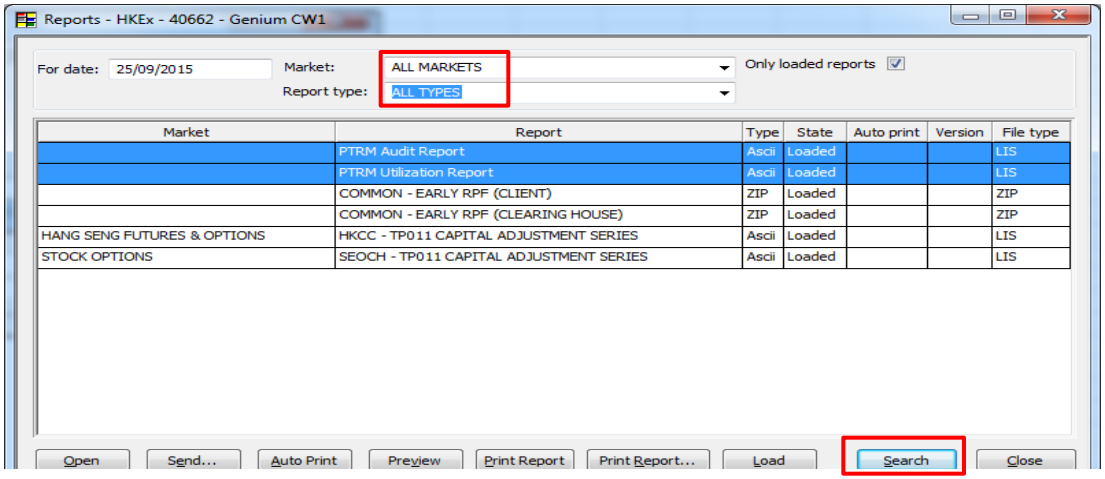
PTRM – Reports (cont'd)

Reports Window

- Login DCASS Terminal and select **Reports** from the drop down menu under **Clearing** tab



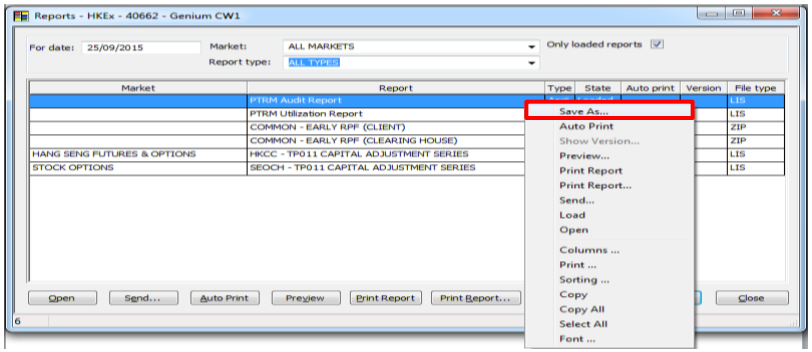
- Choose **ALL MARKETS** and **ALL TYPES** for market and report type, Click **Search**

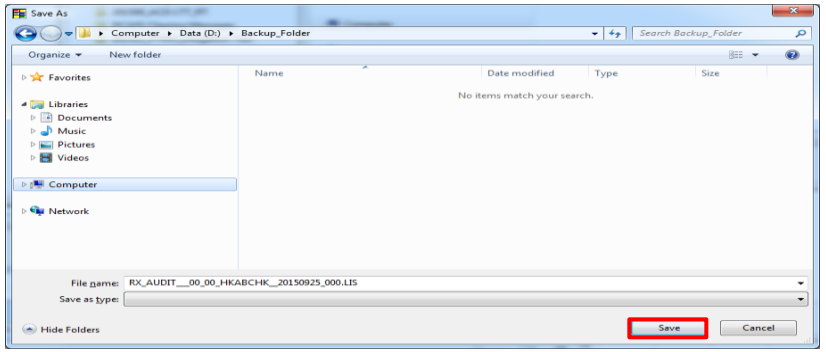


PTRM – Reports (cont'd)

Saving Reports

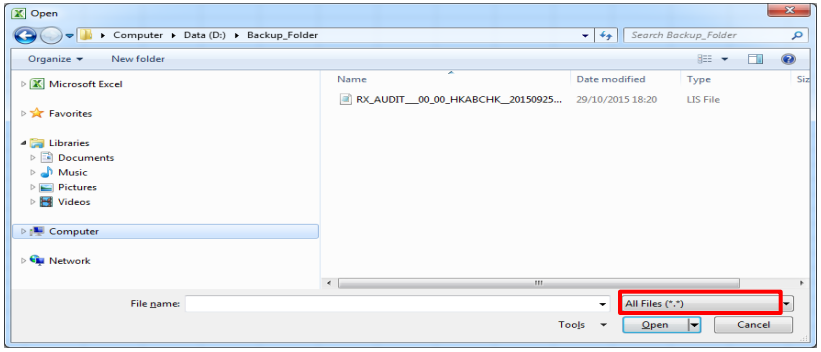
- Right Click the report and select **Save As** to a designated location



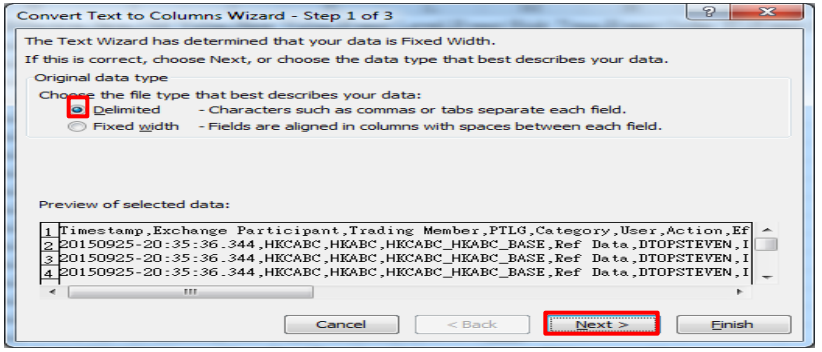


VIEWING REPORTS

- Open the file with **Microsoft Excel**
- Select all files to list the report

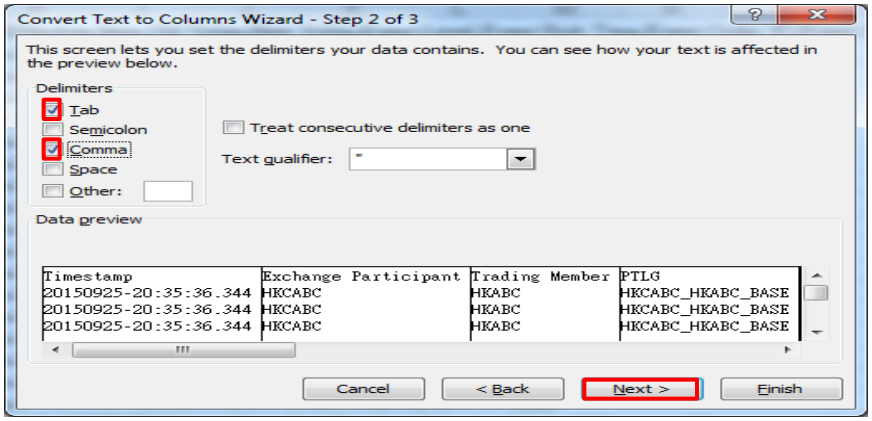


- Click on the **Delimited** option then press **Next**

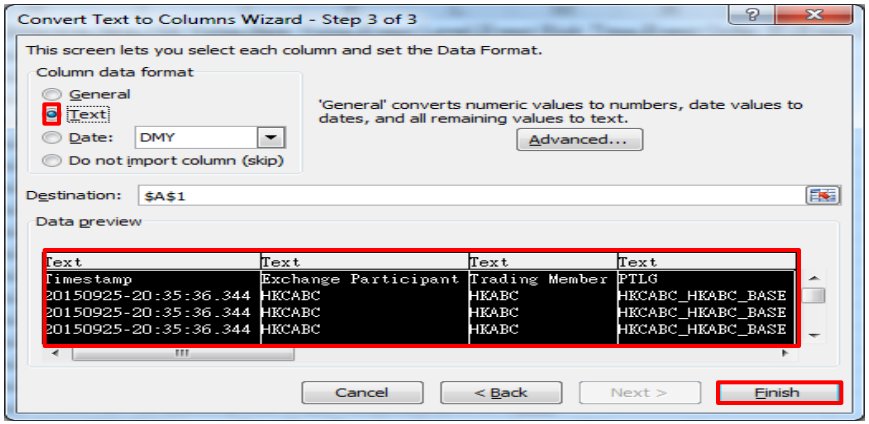


PTRM – Reports (cont'd)

- Click on the **Tab** and **Comma** options under **Delimiters** and press **Next**



- **Highlight** all columns of the data preview and click on the **Text** option, then press **Finish**



PTRM – Reports (cont'd)

Audit Report

- **Timestamp**: Action date & time e.g. order breach / reject , change a risk limit, etc.
- **Exchange Participant, Trading Members, PTLG, User**: Identity of PTRM / GUI / trading users
- **Category:** Category of action e.g. Ref Data / Notice / Warning / Breach / Supervisory Action
- **Actions**: Type of action e.g. Insert / Remove / Update / Blank if Category is not Ref Data
- **Effective**: Effective date of the action e.g. Next Day / IntraDay
- **Items**: Type of parameter change or supervisory action
- **Old value & new value**: Parameter record before and after the change
- **Event level**: Notification event e.g. Notice / Warn / Breach
- **Event Risk Type**: Type of "at trade" risk check e.g. Gross Futures Long / Net Options Short , etc.
- **Event Order ID**: Order number which trigger the risk check event
- **Event Side**: Order side of the order which trigger the risk check event, e.g. Buy / Sell
- **Event OrderBookID**: System generated ID
- **Reject Code**: Reason for order rejection

PTRM – Reports (cont'd)

Audit Report

Example 1 - Changed the Order Rate Limit from 300 to 15 with immediate effective

Before

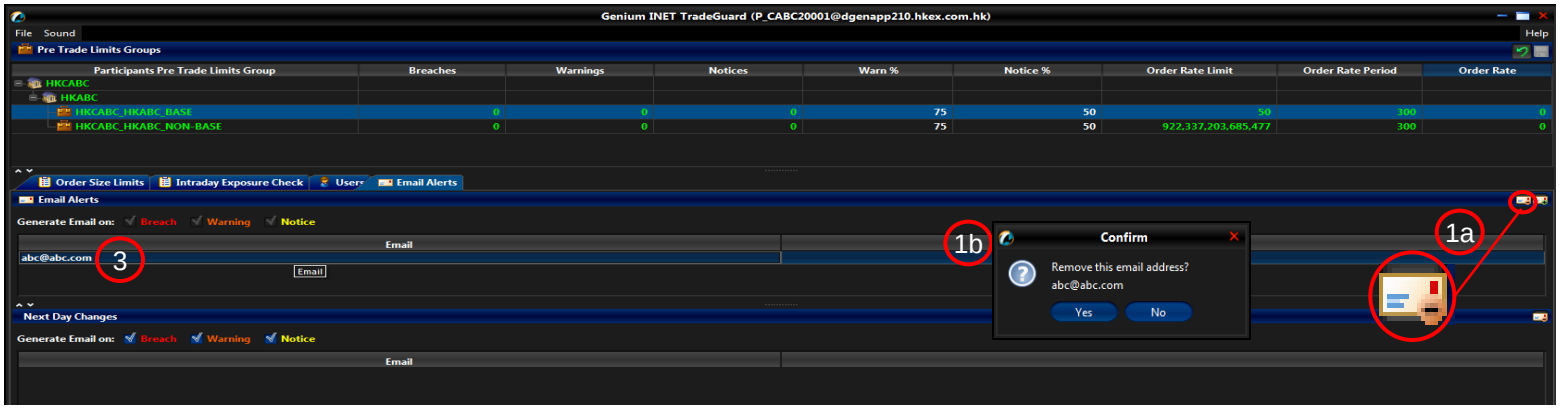
After

Timestamp	Exchange Participant	Trading Member	PTLG (2)	Category	User	Action	Effective	Item (3)	Old Value	New Value
20150620-00:52:36.191	HKCABC (1)	HKABC	HKCABC_HKABC_BASE	Ref Data	P_CABC20001	Update	Intraday	Order Rate Limit	(4) 300	(5) 15

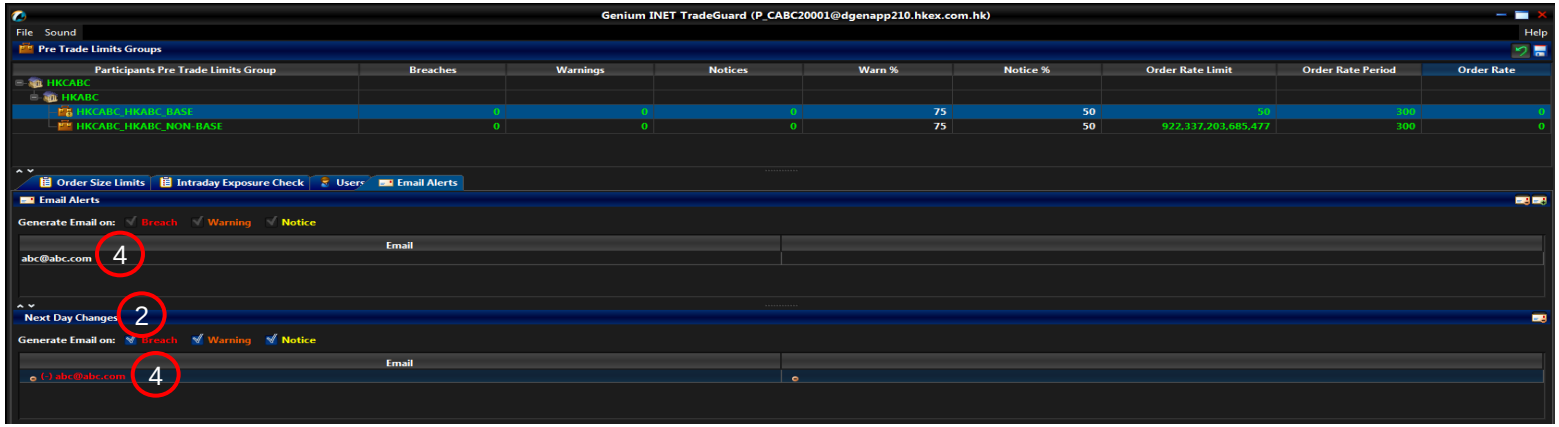
PTRM – Reports (cont'd)

Example 2 - Removed the notification email address with effective Next Day

Before



After



						1	2		3	4
Timestamp	Exchange Participant	Trading Member	PTLG	Category	User	Action	Effective	Item	Old Value	New Value
20150620-00:52:36.191	HKCABC	HKABC	HKCABC_HKABC_BASE	Ref Data	P_CABC20001	Remove	Next Day	Email	abc@abc.com	null

PTRM – Reports (cont'd)

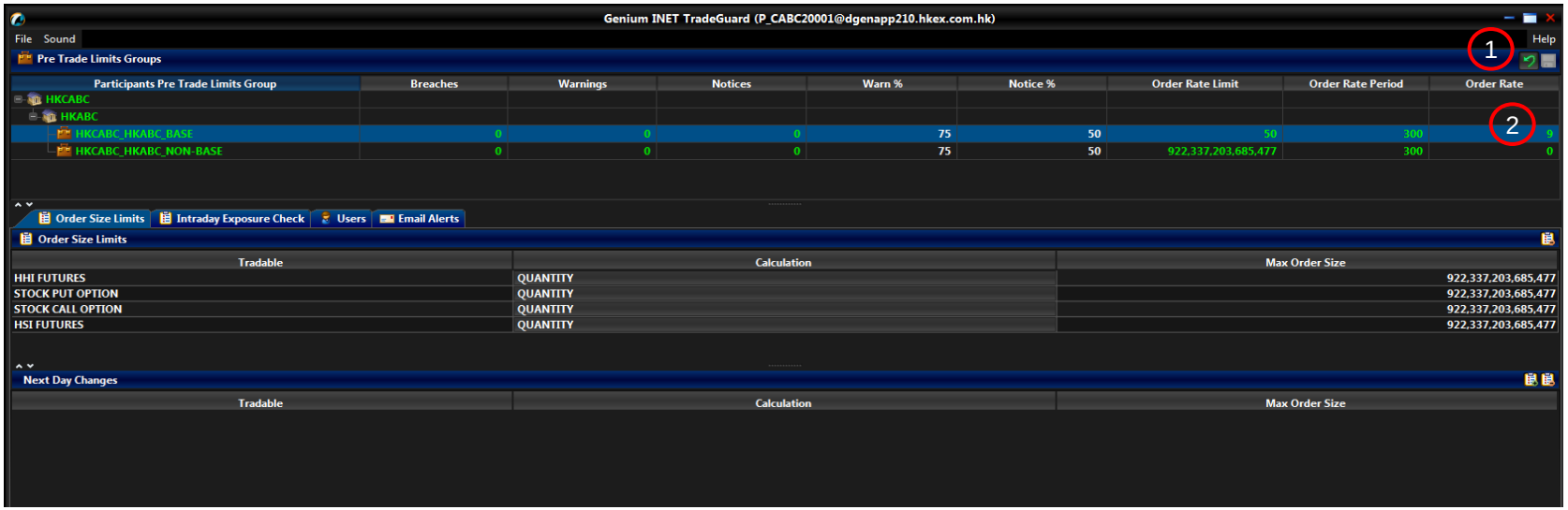
Utilization Report

- **Timestamp:** Date and time of the Dayend batch
- **Exchange Participant, Trading Members, PTLG:** Identity of PTLG
- **Tradable/RiskGroup:** Instrument Type e.g. HSIF, Instrument Class e.g. A50FUT / Group
- **Risk Type:** Type of risk checks e.g. Maximum order side / Order Rate Limit
- **Max Utilization:** Maximum utilization value of a Tradable or risk group
- **Max Utilization %:** Maximum utilization % of that preset limit
- **Max Utilization Time:** Time of the order input that triggers the maximum utilization

PTRM – Reports (cont'd)

Utilization Report

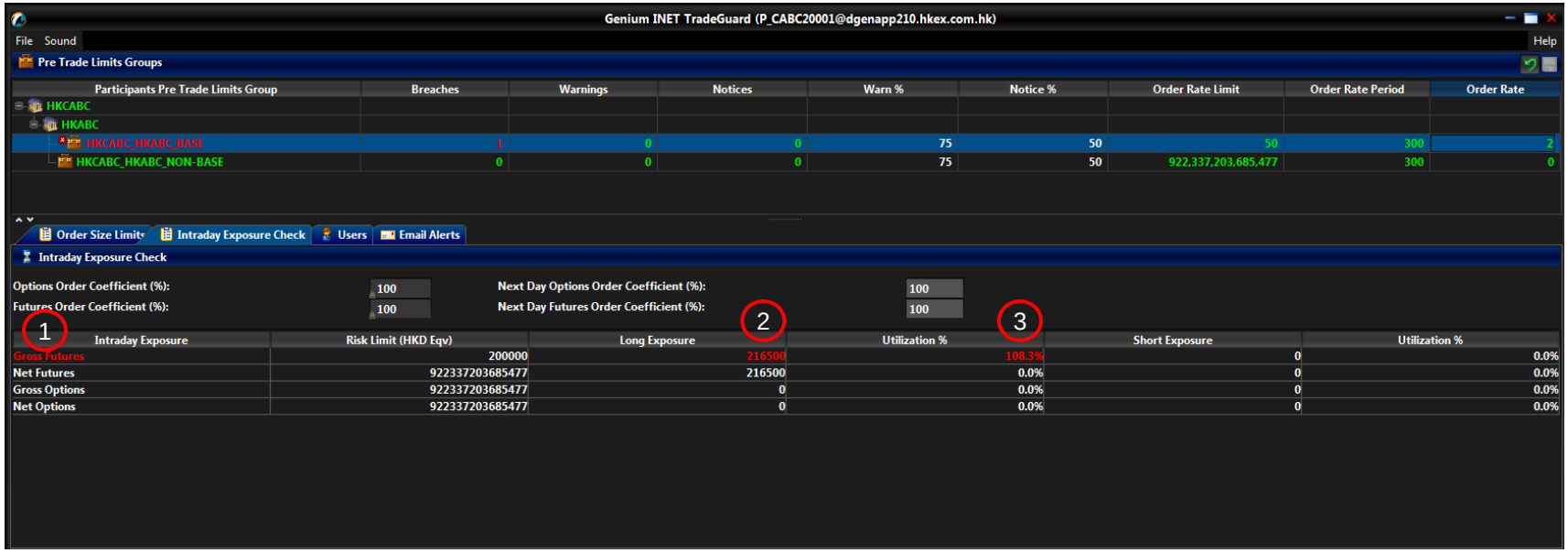
Example 1 – Maximum Utilization of the Order Rate



Timestamp	Exchange Participar	Trading Member	PTLG	Tradable/RiskGroup	RiskType	Max Utilization (1)	Max Utilization % (2)	Max Utilization Time
20150623-07:02:34.661	HKCABC	HKABC	HKCABC_HKABC_BASE	GROUP	ORDER_RATE	9	18%	20150623-07:02:34.647

PTRM – Reports (cont'd)

Example 2 – Maximum Utilization of the Gross Futures Long



Timestamp	Exchange Participant	Trading Member	PTLG	Tradable/RiskGroup	RiskType (1)	Max Utilization (2)	Max Utilization % (3)	Max Utilization Time
20150623-07:02:34.898	HKCABC	HKCABC	HKCABC_HKABC_BASE	GROUP	GROSS_FUTURES_LONG	216500	108.30%	20150622-20:35:21.440

Questions & Answers