VaR Platform Familiarisation Programme – Simulation Functionalities and Default Fund

HKEX
香 港 交 易 所

Agenda

- Familiarisation Programme

- VaR Online

- VaR Platform Reports

- Checklist

- Coming Soon

- Important Information

Familiarisation Programme -Overview

To ensure a smooth transition from existing risk arrangement to new risk model supporting by VaR Platform (known as NextGen Risk Management (NGRM) previously), before the official launch of VaR Platform, HKSCC released a Familiarisation Programme to facilitate Clearing Participants (CPs) to:

Jan 2021
- Setup RAP account
- Retrieve margin reports

Feb 2021
Retrieve Initial Margin Impact Analysis Report

May 2021
Setup VaR Online DA account

Jul 2021
MR for SDC Setup

Aug 2021
Retrieve DF Contribution Analysis

Sep 2021
Practice Margin and Stress Testing Simulation via VaR Online

Oct 2021
Retrieve DF and other margin reports

We are here
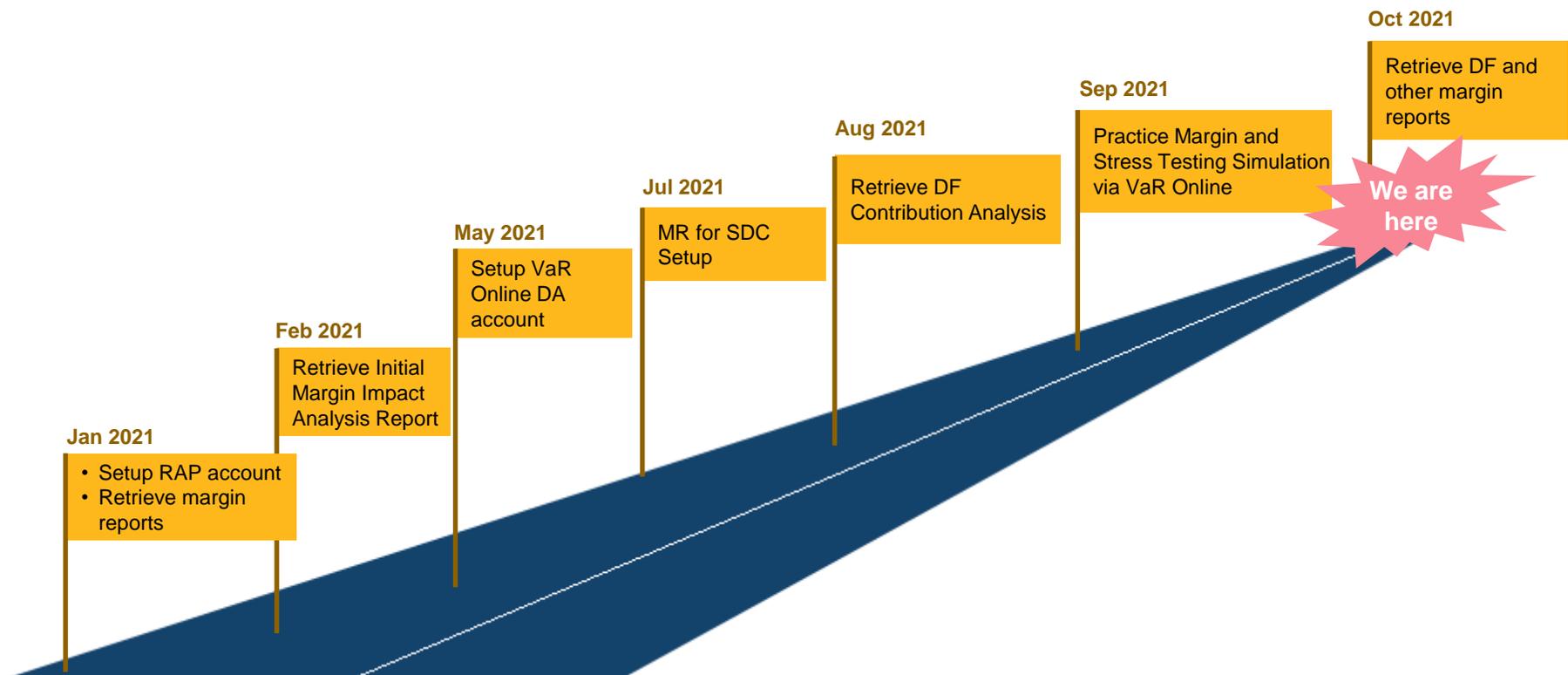
Familiarisation Programme (Cont'd)
- Two Phases

	Phase 1 (since Jan 2021) ✓	**Phase 2 (since Aug 2021)** NOW!
	Initial Margin	**Stress Test and Default Fund +**

Via Report Access Platform (RAP)

Phase 1:
- Retrieve margin related reports
- Retrieve one-off initial margin impact analysis

Please retrieve as soon as possible if CPs have yet to do so

Phase 2:
- Retrieve margin related reports and RPF
- Retrieve default fund related reports and RPF
- Retrieve northbound related reports
- Retrieve default fund contribution analysis

Via VaR Online

- Conduct margin and stress testing simulation

Details to be covered in the later slides

Familiarisation Programme (Cont'd) -Tentative Programme Schedule

Secondary Data Centre Connectivity Test

Familiarisation Programme (Phase 2) Briefing

VaR Platform Briefing

Regular Data Centre Rehearsal - 6/11

2021					
Jul	Aug	Sep	Oct	Nov	Dec

Phase 1

Study margin reports, retrieved via RAP

+ Enhanced margin reports and RPF

Study one-off initial margin impact analysis, retrieved via RAP

Last chance to download!

Phase 2

◆ RPF folder open for subscription via Client Connect (eService: TechS 8)

◇ Portfolio data of May to June 2021

◇ Portfolio data of May to Sep 2021

Study monthly default fund contribution analysis, retrieved via RAP

Last chance to download!

Perform margin and stress testing simulation via VaR Online

Study stress testing & default fund contribution reports, retrieved via RAP

Today

All VaR Platform reports & information obtained during the Familiarisation Programme are for reference only. CPs should continue to settle their risk related payments based on CCASS reports.

Familiarisation Programme (Cont'd)
-A Day of Familiarisation – Daily Schedule

A day in familiarisation in timeline view:

| | 7:00 | 10:00 | 12:00 | 14:00 | 19:15 19:30 | 21:00 | 24:00 |

RAP

Operation Hours: 7:00 – 00:00 each business day

Margin

- DWH0303 IPO Indicator
- DWH0305 Series Prices
- DWH0081C Daily Margin Multiplier

- DWH0229 CA Event

Margin estimation
- RMAMP01 Marginable Position
- RMAMR01 MTM and Margin Requirement
- RMAMR03 MTM and Margin Requirement (Summary)

- RPF01 Initial Margin RPF
  EOD Initial Margin
- RMAMP01 Marginable Position
- RMAMR01 MTM and Margin Requirement
- RMAMR03 MTM and Margin Requirement (Summary)

Default Fund and Stress Testing

- RMADF01 DF Requirement (first business day of each month/ ad hoc)

- RMAST01 Risk–Stress Testing Report
- RPF02, 03, 04 Stress Testing RPF

Northbound

- RMCNM03 Risk – Northbound MSCD Requirement (first business day of each month)

- RMCNM01Risk - Northbound MSTD Requirement

VaR Online

Operation Hours: 12:00 – 19:30 each business day

Enter trades to conduct margin and stress testing simulation

CPs should retrieve and study the reports every business day.

Familiarisation Programme (Cont'd) -Specific Activities

1. Data Centre failover rehearsal on 6 Nov 2021 (Sat)

   o an annual event for CPs to familiarise themselves with the contingency procedures on CCASS and VaR Platform.

   o for detailed schedule and timetable, please refer to the circular CD/CDCO/CCASS/032/2021 and the information package embedded.

2. Retrieve the following analysis dashboards via RAP (for Familiarisation Programme only)

   a) One-off Initial Margin Impact Analysis

   - calculated based on each CP's own historical CNS portfolio from the beginning of 2015 to the end of 2020

   Sample of one-off Initial Margin Impact Analysis
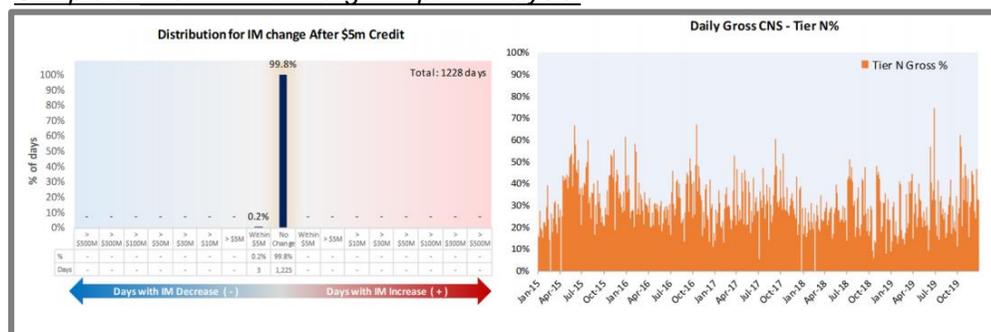
   b) Default Fund Contribution Analysis

   - calculated based on CPs' actual portfolios for the months of May and Sep 2021

   Sample of Default Fund Contribution Analysis

Total DF Size				CP's DF Contribution			
Month	NG HKD $M	Current HKD $M	Change HKD $M	Month	NG HKD $M	Current HKD $M	Change HKD $M
May	6,017.70	4,892.29	1,125.41	May	276.19	253.51	22.68
Jun	5,912.60	4,042.29	1,870.31	Jun	262.99	201.12	61.87
Jul	4,505.69	4,042.29	463.40	Jul	209.11	204.20	4.91
Aug	6,600.00	6,072.98	527.02	Aug	338.25	312.97	25.28
Sep	6,600.00	6,285.54	314.46	Sep	365.15	327.62	37.53

Please note that the files will only be available for retrieval from the "INBOX/YYYYMMDD" subfolder in RAP, where YYYYMMDD refers to every Monday during the familiarisation period (i.e. 11, 18 & 25 Oct 2021)

VaR Online
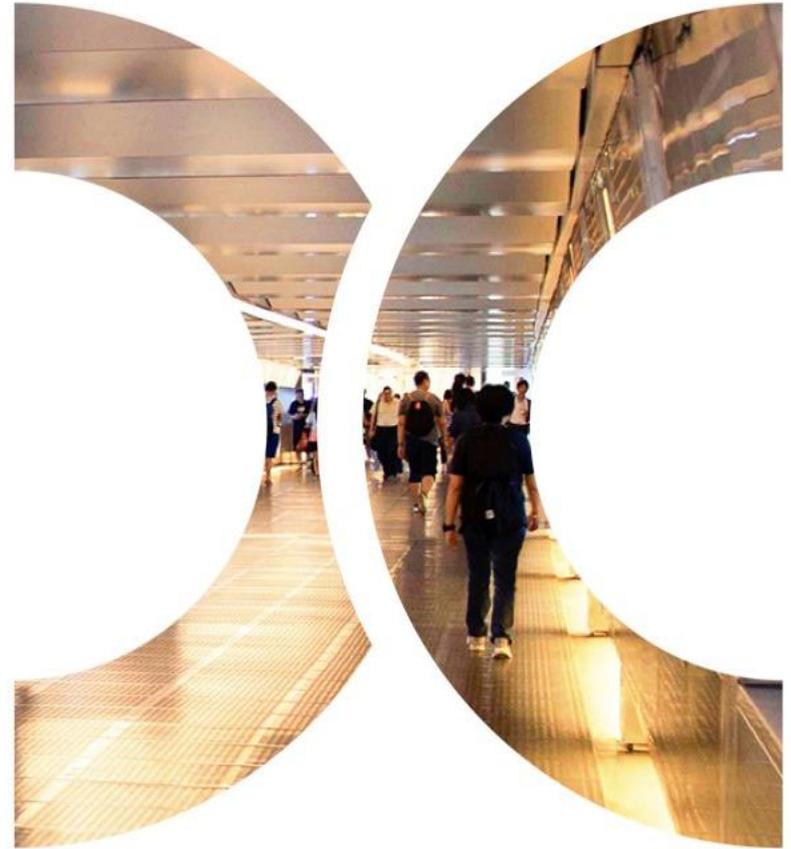
VaR Online
-Overview

VaR Online is a tool for CPs to conduct online margin and stress testing simulation.

To get started, CPs should <u>appoint at least two VaR Online Delegated Administrators (VaR DAs)</u>[1] to setup and maintain their designated business users for accessing VaR Online. Then, the VaR DAs can manage their business users via VaR DA platform.

Each VaR DA registered during the Familiarisation Programme will be granted with business user access.
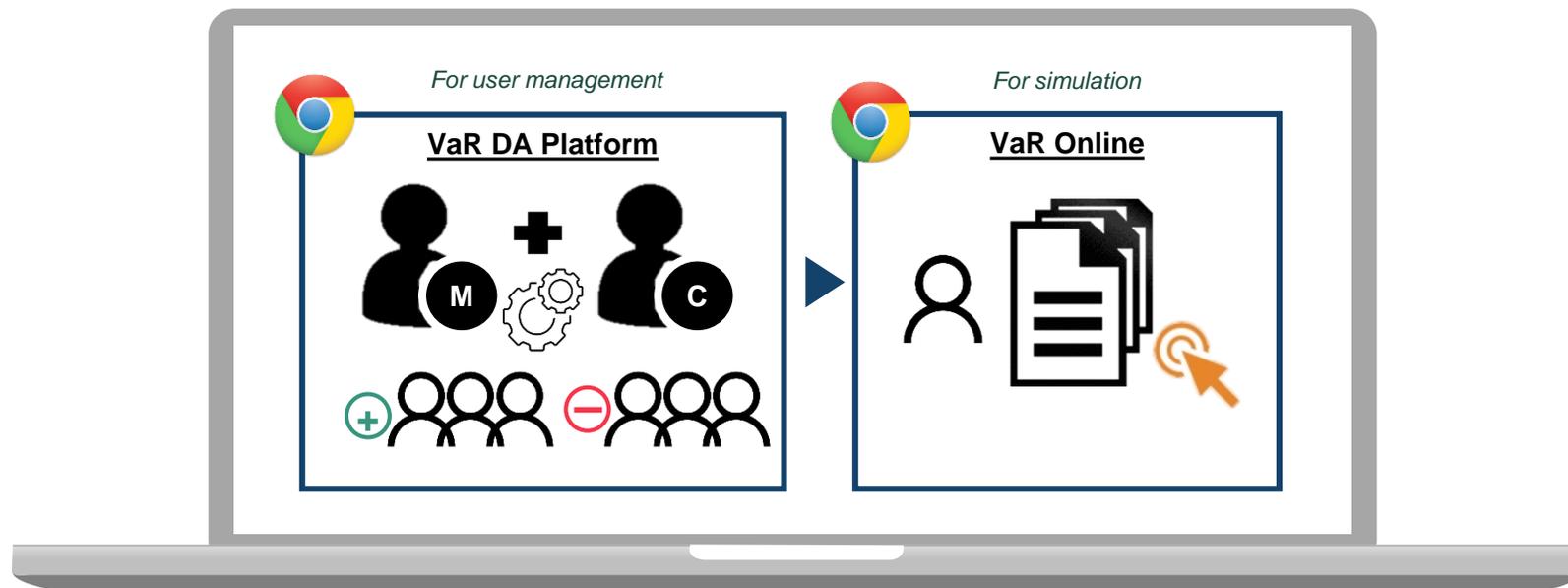
*Please note that both VaR DA platform and VaR Online are only accessible using **Google Chrome browser** from workstation with **SDNet** connection.*

Note: 1. To apply for a VaR DA User ID, CPs can submit VaR Online Delegated Administrator Rights Application / Maintenance Form (eService: DA 1) via <u>Client Connect</u>.

VaR Online (Cont'd)
-VaR DA Platform/ VaR Online Access

VaR DA/ business user should setup password immediately from the respective platform once they received the User ID.

VaR DA can access to VaR DA platform via:

➢ URL: https://idm.hkexposttrade.com.hk/user-management/

➢ Operation hours: available from 07:00 to 01:00 on Mondays to Saturdays, except for public holidays

VaR business user can access to VaR Online via:

➢ URL: https://rmcd.hkexposttrade.com.hk/

➢ Operation hours: during Familiarisation Programme, available from 12:00 to 19:30 on Mondays to Fridays,

except for public holidays

🔔 *Given each VaR DA registered during the Familiarisation Programme will be granted with business user access, VaR DA shall use the same User ID to access VaR Online.*

VaR Online (Cont'd)
-VaR DA Platform/ VaR Online Access

The login procedure of both VaR DA Platform and VaR Online are the same.

CPs who have successfully applied for VaR DA/ VaR business user should receive the below notification email with the User ID sent by the HKSCC System.

HKSCC System

Your account is ready

User ID

Dear Admin,

Welcome to HKSCC System. Your user ID is 999999_damaker.

Please follow instructions below to setup password:

1. On Login page click on "Forgot/Reset your password?"
2. Enter your user ID

HKEX

For enquiries, please contact us via link.

Please do not reply this e-mail as this is system generated.

Disclaimer
The information contained in this email is intended only for the use of the individual or entity named above and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this message in error, please immediately notify us and delete the email. Internet communication cannot be guaranteed to be timely, secure, error-free or virus-free. The sender does not accept liability for any errors or omissions. Thank you.

The system generated User ID is a combination of
(1) the company code, e.g. 999999
(2) the username provided by the applicant in the application form, e.g.damaker

VaR Online (Cont'd)
- How to Setup Password?

1

Welcome to VaR Online

User Login

User ID

Password

LOG IN

Forgot/Reset your password? ›

By clicking the 'LOG IN' button, I confirm that the individual(s) whose personal data is disclosed in my use of this application consent to the processing of their personal data.

Unauthorised access and use are prohibited, HKEX reserves the right to take actions against offenders.

Click <Forgot/Reset your password>.

2

HKEX 香港交易所

Welcome to VaR Online

Input User ID

User ID

SUBMIT

HKEX 香港交易所

© 2021 Hong Kong Exchanges and Clearing Limited. All rights reserved.

Enter your User ID, then click <SUBMIT>

3

HKSCC System: One Time Password

From   no-reply@openam.org   Date   Today 17:30

One Time Password (OTP) for HKSCC System: 27788148

OTP will be sent to your registered email.

Please Enter Your One Time Password, Or Request A New One

Enter OTP

SUBMIT OTP
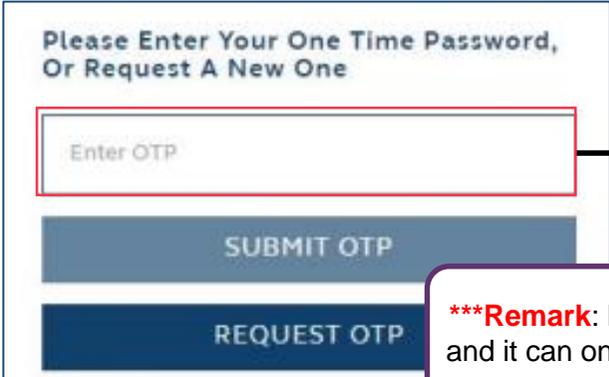
REQUEST OTP

Input OTP, then click <SUBMIT OTP>

***Remark**: Email OTP is valid for **5 minutes** and it can only be requested every 5 minutes.

VaR Online (Cont'd)
- How to Setup Password?

4

Set up the password based on password requirements:

1. 8-15 characters
2. At least 1 number
3. At least 1 lower letter
4. At least 1 capital letter
5. At least 1 special character from !@#$%^&*()

5

Navigate back to the login page and enter User ID and Password

6

ForgeRock Authenticator [4+]
Forgerock
Designed for iPad

★★★★★ 4.6 • 17 Ratings

Free
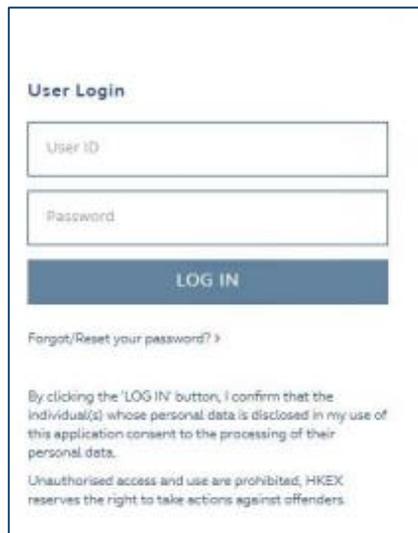
Install the App in your mobile device from Google Play/ App Store

VaR Online (Cont'd)
- How to Setup Password?

7

Register A Device

Scan the barcode image below with the ForgeRock Authenticator App. Once registered click the button to enter your verification code and login.

1

[QR code image]

2

LOGIN USING VERIFICATION CODE

Scan the QR code using the App **BEFORE** clicking <LOGIN USING VERIFICATION CODE>

***Remark**. The QR code will only display **ONCE**.

8

all CMHK 上午11:01 71%

\+ **My Accounts** Edit

ForgeRock
999999_damaker
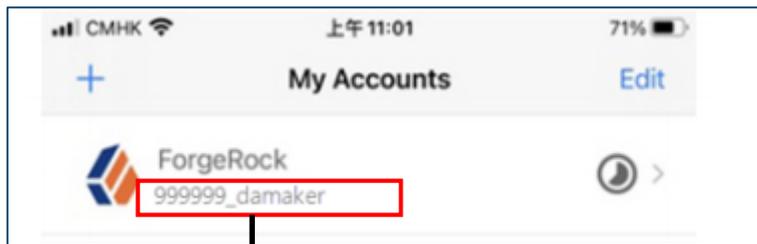
Your account is registered in your App with your User ID

9

all CMHK 上午11:01 71%

< My Accounts Edit

ForgeRock
999999_damaker

One-time Password

814 929

Generate OTP

10

ForgeRock Authenticator (OATH)

One-time verification code

SUBMIT

14

Input OTP and click <SUBMIT>

11

\+ My Accounts Edit
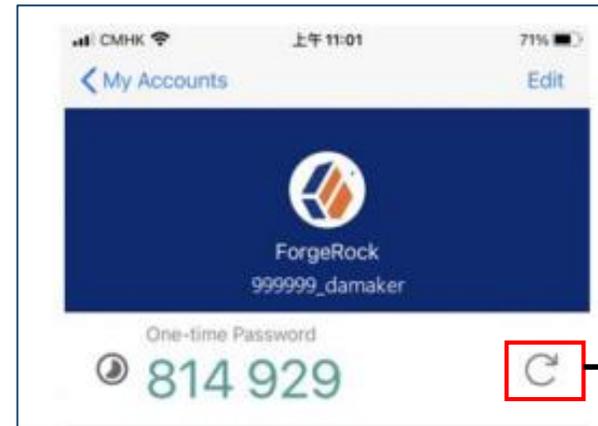
Forgerock
test@test.com
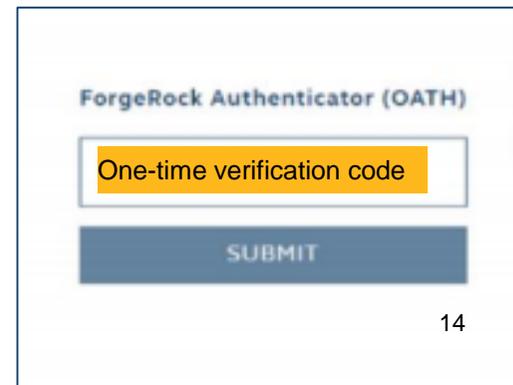
Forgerock
999999_damaker
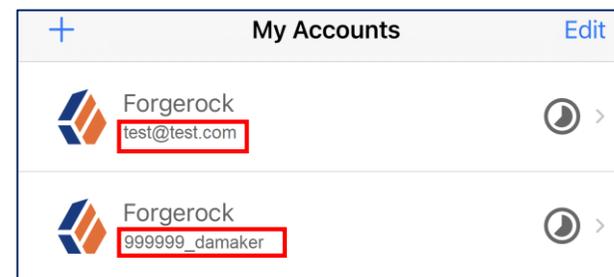
Forgerock accounts can be distinguished by User IDs:

Client Connect – email address as User ID

VaR Online – company code_(self-assigned User ID)

VaR Online (Cont'd)
- VaR DA Platform Access (User Management)

DA Maker--- Submit requests to CREATE Business User

1
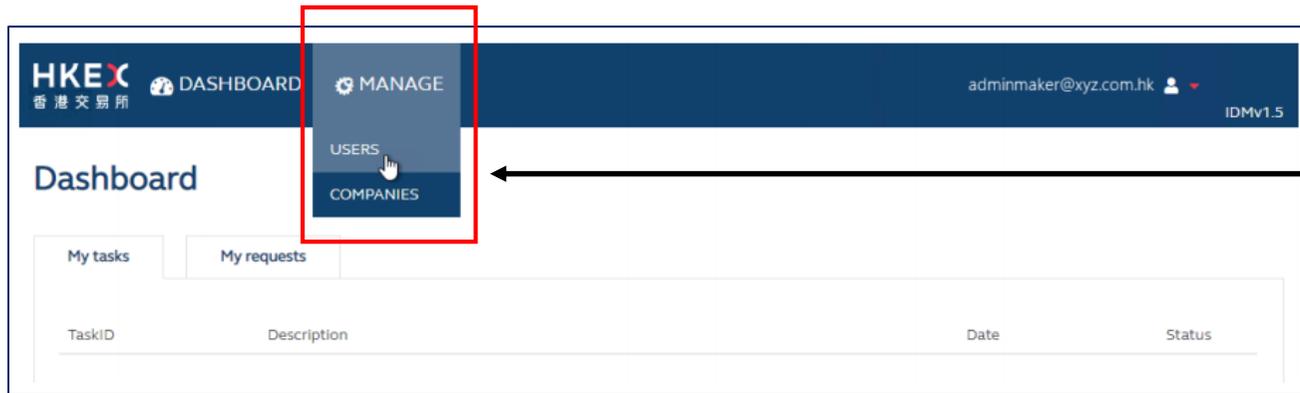
Click <USERS> to access manage user related functions

2
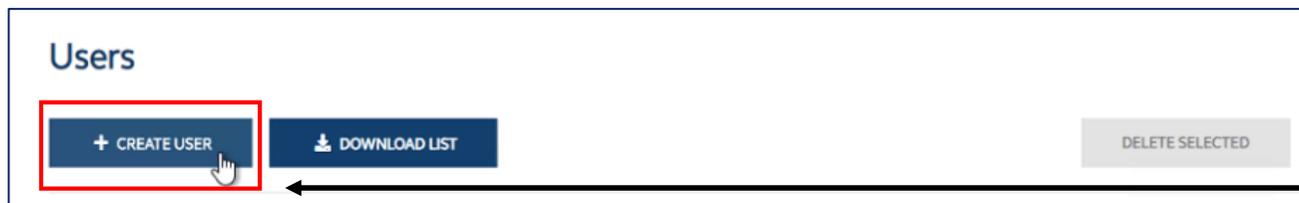
Click <+ CREATE USER> to start fill in the user details

VaR Online (Cont'd)
- VaR DA Platform Access (User Management)

DA Maker--- Submit requests to CREATE Business User

3

User
Create User

Details | Roles

⭐ User ID

First Name

Last Name

Company | XYZ Company Limited x

Title (optional)

Email

Team Email (optional)

Contact Number (optional)

Business Application Name | ☑ VaR Online

User Type | ☐ Admin | ☑ Business

Internal/External | ○ Internal | ● External

⭐ User Status | ● Active | ○ Inactive

Fill in the details and note below:
1. User ID: Alphanumeric and NO special character is allowed

2. User Status: If changed to INACTIVE, created business user would not be able to access VaR Online

4

User
Create User

1
Details | Roles

ADD MORE COMPANIES

XYZ Company Limited — **2** ☑ EU_ORP_EXTERNALCOREDESKTOP

HKSCC Participant —

VaR Online

Click <Roles> and click on the role
EU_ORP_EXTERNALCOREDESKTOP

Please note that there is no maker/ checker role for Business User

5

CANCEL | **CREATE**

Click <CREATE> to confirm and DA(checker) will receive a notification email for follow-up action

16

VaR Online (Cont'd)
- VaR DA Platform Access (User Management)

C

DA Checker--- Approval Request

1

Go to <DASHBOARD> and <My Tasks>, all requests pending for action are listed here

2

3

Review the details and click <APPROVE>

For more details on the DA functions, please refer to VaR DA user guide - section 2 available in HKEX website.

VaR Online (Cont'd)
-VaR Online Access for Business Users

Business User should see the main view below once they have logged in.
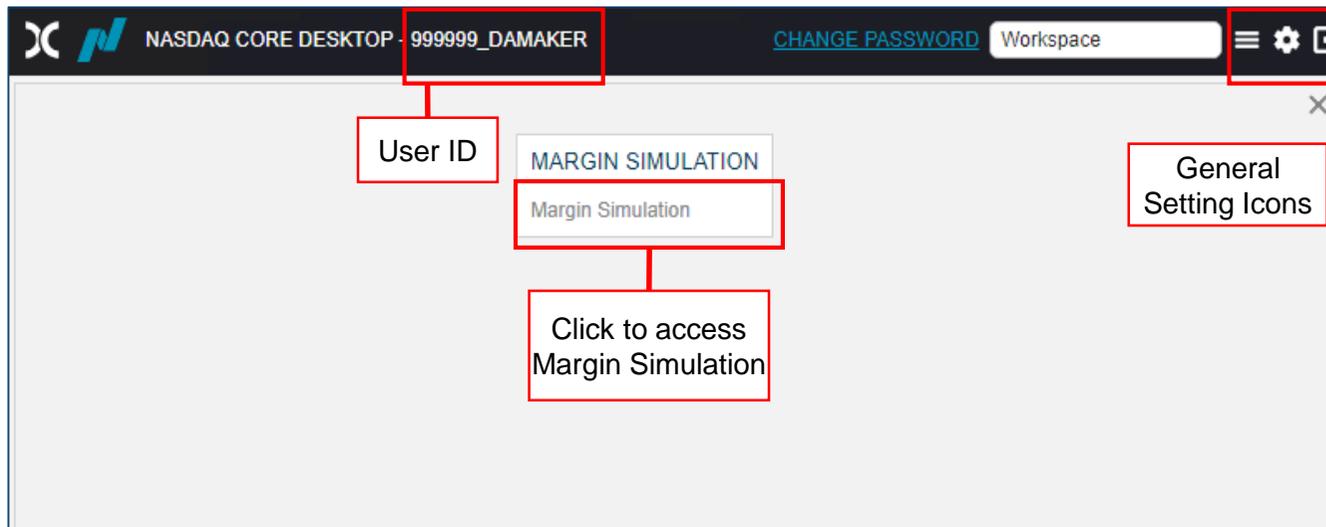
VaR Online (Cont'd)
-VaR Online Access for Business Users

- Business User can adjust the settings of the VaR Online view.

- Or start simulation directly

(Default view)

VaR Online (Cont'd)
- Simulation Flow

Following is the simulation workflow of different scenarios in VaR Online:

Please note the following:

- *Simulation is applicable to HK market only, results for SH and SZ markets are reserved for future use.*
- *All simulations result are for reference only, CPs should refer to the respective CCASS report for their risk obligations during the Familiarisation Programme.*

To conduct **margin and/or stress test simulation** for the entered trades:

1 SETTINGS	2 ENTER TRADES	3 SIMULATION RESULTS

• To set simulation criteria	1. To input OR import trades
	2. To select the simulation type
	  ➢ Margin
	  ➢ Margin and stress test
	  ➢ Stress test
		Margin: SIMULATION RESULTS / SIMULATION RESULTS – DETAILS
		Stress Test: STRESS TEST RESULTS
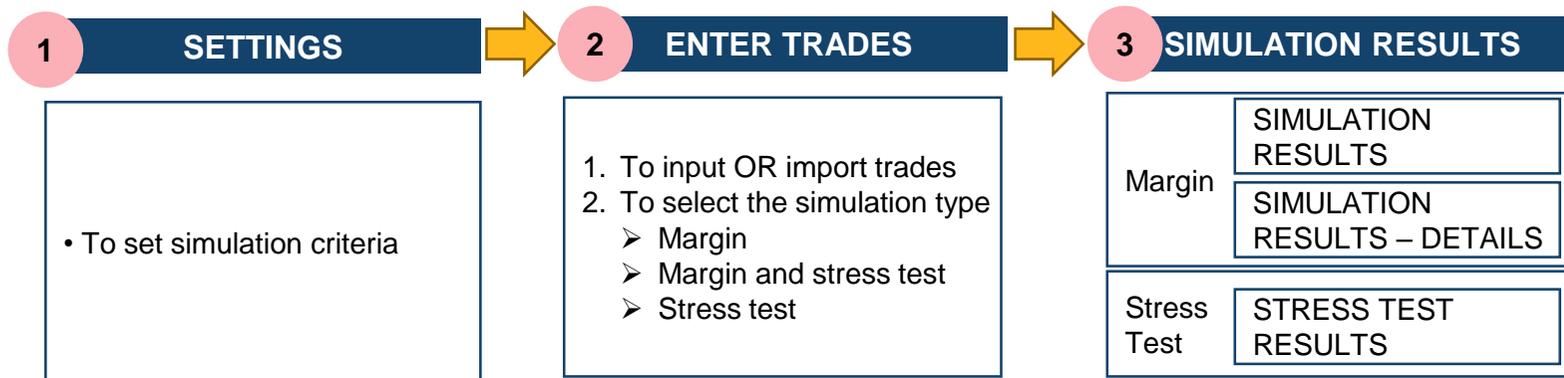
VaR Online (Cont'd)
- Simulation with Input/Imported trades

To conduct margin and/or stress test simulation for input or imported trades

1 **SETTINGS**

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION

Simulation account   HK B40071 MA1   Used prices   Real-time

Saved Settings   [ ]   **Save**   **Delete**

Simulation account *   HK B40071 MA1

Used positions *   [ ]

Used prices *   Real-time

Include greeks   ✓

Stressed scenario set definition   [ ]

"HK" – Exchange Location
"B40071" – Participant ID

Dropdown menu available:

- "MA1" – Main Account in which the marginable positions are captured for MTM and margin calculation[1]

- "HSE0001" - collateral "HOUSE" account is NOT applicable for simulation, please ignore

HK B40071 HSE0001
HK B40071 MA1

Applicable to General Clearing Participant (GCP)
Main account captures marginable positions of GCP its own and its Non-clearing Participants (NCP)

Dropdown menu available:

- "nnnnn+" – capturing marginable positions o Non-Clearing Participant (NCP)[2]

- "H1" - Main Account capturing marginable positions of GCP

▲
HK B40071 37108+
HK B40071 37109+
HK B40071 H1
HK B40071 HSE0001
HK B40071 MA1

Note:
1. The production data of marginable positions shall be available for simulation at later stage of the Familiarisation Programme Phase 2
2. During the Familiarisation Programme Phase 2, simulation of NCP's account is only available in end of day.

VaR Online (Cont'd)
- Simulation with Input/Imported trades

1 **SETTINGS (CONT'D)**

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION

Simulation account	HK B40071 MA1	Used prices	Real-time
Saved Settings		**Save**	**Delete**
Simulation account *	HK B40071 MA1		
Used positions *			
Used prices *	Real-time		
Include greeks	☑		
Stressed scenario set definition			

Please select:

- "None – empty portfolio" - hypothetical trade

None - empty portfolio

Default "Real-time" – the latest available prices in VaR Online

Reserved for future use

For business user who wish to conduct simulation on stress test

Please select:

- "Standard" - Stress Test or Margin and Stress Test simulation

Id	Description
STANDARD	Stress set for EUL and STV model

VaR Online (Cont'd)
- Simulation with Input/Imported trades

1 **SETTINGS (CONT'D)**

Once the setting is done, click "ENTER TRADES" to input trades

Frequently used settings such as different simulation account can be saved in "Saved Settings" with a customised name, maximum 50 settings can be saved per user

To retrieve a saved setting for simulation, select the respective setting from the drop menu by double clicking the field

VaR Online (Cont'd)
-Simulation with Input/Imported trades

2.1 **MARGIN AND/ OR STRESS TEST SIMULATION - ENTER TRADES**

Trades can be entered by the following methods:

a. Manual Input (up to 20 trades)

b. File import (up to 500 trades)

Both methods are applicable to GCP and DCP and the simulation will be conducted based on the entered trades, whereas the risk scenario used for calculation will be the previous EOD scenarios

During Familiarisation Period Phase 2, please only input or import trades in HKD trading currency

a **MANUAL INPUT**

User can enter trades by clicking the respective data field, <u>maximum 20 trades are allowed to be inputted</u>

INSTRUMENT CODE can be selected from dropdown menu or input direct in the field
(Strike price and Expiration date for warrants are for information only, simulation will be based on the entered SETTLEMENT PRICE)

Instrument	Market	Underlying	Instrument group	Strike price	Expiration date
1	1		STOCK		
10001		BSK10001MB	BASKET DW CALL	100.0000	1/3/19
10002		BSK10002MB	BASKET DW CALL	100.0000	1/3/19
10003		BSK10003MB	BASKET DW CALL	100.0000	1/3/19
10004		BSK10004MB	BASKET DW CALL	100.0000	1/3/19

Margin Simulation   SETTINGS   ENTER TRADES   SIMULATION RESULTS

Simulation account   HK B40071 MA1   Used prices   **Real-time**   Used pos

Margin   **Simulate**

Import   20 rows

INSTRUMENT CODE	BOUGHT/SOLD	QUANTITY	SETTLEMENT PRICE	ERROR REASON
		[Enter]	[Enter]	

BOUGHT/SOLD can be selected from the dropdown menu:

Bought

Sold

QUANTITY and SETTLEMENT PRICE requires input directly in the fields, SETTLEMENT PRICE – can be up to 3 decimal places

ERROR REASON will be displayed for invalid input i.e. excess decimal input

INSTRUMENT CODE	BOUGHT/SOLD	QUANTITY	SETTLEMENT PRICE	ERROR REASON
1	Bought	50,000	51.2355	Rounding necessary

24

VaR Online (Cont'd)
-Simulation with Input/Imported trades

b **FILE IMPORT**

User can enter trades by importing a Comma Separated Values (CSV) file, maximum 500 trades are allowed to be imported

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION RESI

Simulation account   HK B40071 MA1   Used prices   Real-time

Margin | **Simulate**

Import | 20 rows

INSTRUMENT CODE	BOUGHT/SOLD	QUANTITY	SETTLEMENT PRICE	ERROR REASON

User can import a CSV file, maximum 500 trades are allowed to be imported

- *The CSV file must come with the correct headers (not case sensitive) for identifying the corresponding required fields:*
  - ➢ *Instrument code*
  - ➢ *Bought/Sold*
  - ➢ *Quantity*
  - ➢ *Settlement Price*

Sample CSV file:

Hypethotical Trades Impot Sample.csv - Notepad   — ☐ ✕

File   Edit   Format   View   Help

```
INSTRUMENT CODE,BOUGHT/SOLD,QUANTITY,SETTLEMENT PRICE
5,SOLD,1000,43.523
388,BOUGHT,5000,481.323
700,SOLD,1000,460.121
1211,SOLD,122,232.232
1299,BOUGHT,666,87.124
```

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION RE

Simulation account   HK B40071 MA1   Used prices   Real-time

Margin | **Simulate**

Import | 5 rows

INSTRUMENT CODE	BOUGHT/SOLD	QUANTITY	SETTLEMENT PRICE	ERROR REASON
5	Sold	1,000	43.523	
388	Bought	5,000	481.323	
700	Sold	1,000	460.121	
1211	Sold	122	232.232	
1299	Bought	666	87.124	

Once the trades are imported, manual input trades will be overridden and no new trades can be added but can be updated

VaR Online (Cont'd)
-Simulation with Input/Imported trades

2.2 **MARGIN AND/ OR STRESS TEST SIMULATION – SIMULATION TYPES**

To select the simulation from the dropdown menu:
- "Margin" - margin simulation only **(default setting)**
- "Margin and Stress Test" - both margin and stress test simulation
- "Stress Test" - stress test simulation only

Margin Simulation   SETTINGS   ENTER TRADES   SIMULATION RESULTS   SIM

Simulation account   HK B40071 MA1   Used prices   Real-time   Used positions

Margin		**Simulate**

Margin
Margin and stress test
Stress test

	UGHT/SOLD	QUANTITY	SETTLEMENT PRICE	ERROR REASON	
	d	1,000	43.523		
	ught	5,000	481.323		
700	Sold	1,000	460.121		
1211	Sold	122	232.232		
1299	Bought	666	87.124		

Results are available in the respective tabs

Margin Simulation   SETTINGS   ENTER TRADES   SIMULATION RESULTS   SIMULATION RESULTS - DETAILS   STRESS TEST RESULTS

Simulation account   HK B40071 MA1   Used prices   Real-time   Used positions   None - empty portfolio   Simulation triggered

Margin

Stress Test

Margin and Stress Test

VaR Online (Cont'd)
-Simulation with Input/Imported trades

2.2 **MARGIN AND/ OR STRESS TEST SIMULATION - SIMULATION TYPES (CONT'D)**

Once trades are imported/ inputted and simulation type is selected, user can start the simulation

VaR Online (Cont'd)
-Simulation with Input/Imported trades

3 **SIMULATION RESULTS**

Results for the entered trades are available in "SIMULATION RESULTS", "SIMULATION RESULTS – DETAILS"

and STRESS TEST RESULTS" tabs

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION RESULTS	SIMULATION RESULTS - DETAILS	STRESS TEST RESULTS
Simulation account	HK B40071 MA1	Used prices Real-time	Used positions None - empty portfolio	Simulation triggered	

To review the MTM and Margin Requirement

To review the Marginable Positions

To review the STV and EUL value
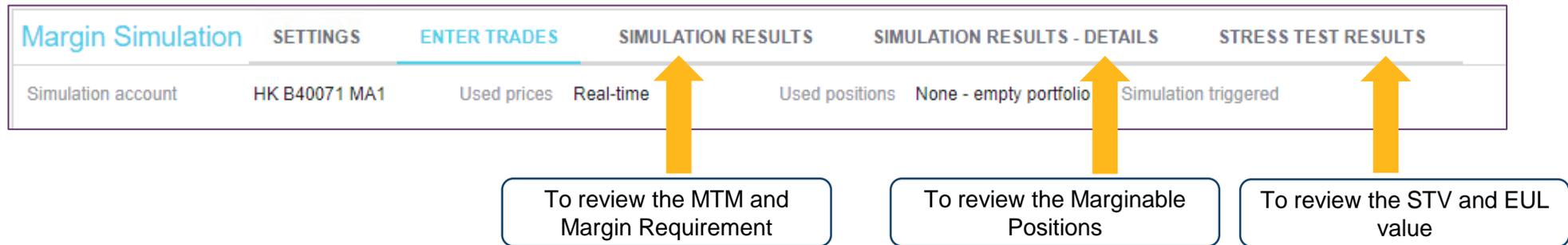
VaR Online (Cont'd)
-Simulation with Input/Imported trades

3.1 **"SIMULATION RESULTS" Tab**

Given the simulation is conducted based on input/ imported trades, there will be only 1 row of results (Simulated portfolio) shown:

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION RESULTS	SIMULATION RESULTS - DETAILS	STRESS TEST RESULTS

Simulation account   HK B40071 MA1   Used prices Real-time   Used positions None - empty portfolio   Simulation triggered 10

Simulation results on portfolio per product area, market and currency

1 rows

PORTFOLIO	PRODUCT AREA	MARKET	CURRENCY	P&L	INITIAL MARGIN	FLAT RATE MARGIN MULTIPLIER	MARGIN CREDIT	TOTAL ADD-ONS	TOTAL MTM AND MARGIN REQUIREMENT
Simulated portfolio	HK	HKMK	HKD	1,700,807	22,780	1.0000	5,000,000.00	34,811	1,731,810

> Mark-to-market (MTM) in HKD equivalent
> • +ve value: unfavorable MTM
> • -ve value: favorable MTM

> **Total requirement**
> ⓘ Estimation reference only. The actual requirement should reference to the end of day margin calculation and CCASS report for payment

0/13/2021 11:52:14 AM

> Default Fund Add-on (if any) will be collected separately from Total MTM and Margin Requirement

AD-HOC ADD-ON	LIQUIDATION RISK ADD-ON	HOLIDAY ADD-ON	CREDIT RISK ADD-ON	DEFAULT FUND ADD-ON	POSITION LIMIT ADD-ON	STRUCTURED PRODUCT ADD-ON
0	3,808	0	0	0	31,003	0

Click the "Export" button to download the simulation results in CSV file

VaR Online (Cont'd)
-Simulation with Input/Imported trades

3.2 **"SIMULATION RESULTS - DETAILS" Tab**

Results of the entered trades will be available

| Margin Simulation | SETTINGS | ENTER TRADES | SIMULATION RESULTS | SIMULATION RESULTS - DETAILS | STRESS TEST RESULTS |

Simulation account: HK B40071 MA1 — Used prices: Real-time — Used positions: None - empty portfolio — Simulation tri...

Simulation results per instrument in instrument currency

5 rows ⬇

To view the long/ short quantity of the entered trades

Original portfolio is reserved for future use

MAIN / **ORIGINAL PORTFOLIO**

INSTRUMENT CODE	INSTRUMENT NAME	LONG QUANTITY	SHORT QUANTITY	CURRENCY	P&L	LIQUIDATION RISK ADD-ON	STRUCTURED PRODUCT ADD-ON
1299	AIA	666	0	HKD	0	0	0
388	HKEX	5,000	0	HKD	0	0	0
5	HSBC HOLDINGS	0	1,000	HKD	0	0	0
700	TENCENT	0	1,000	HKD	0	0	0
1211	BYD COMPANY	0	122	HKD	0	0	0

Results based on the entered trades should be viewed under Simulated Portfolio

❌ *Greeks calculation is reserved for future use*

SIMULATED PORTFOLIO / **GREEKS**

P&L	LIQUIDATION RISK ADD-ON	STRUCTURED PRODUCT ADD-ON	CASH DELTA	CASH GAMMA (1%)	VEGA	THETA
-6,586	1,809	0	97.01300	0.00000	0.0000000000	0.0000000000
2,081,615	1,365	0	65.00000	0.00000	0.0000000000	0.0000000000
26,623	295	0	70.14600	0.00000	0.0000000000	0.0000000000
-379,521	339	0	80.60000	0.00000	0.0000000000	0.0000000000
-21,324	0	0	57.44700	0.00000	0.0000000000	0.0000000000

After netting and FX, the sum of the P&L in HKD will be the P&L in "SIMULATION RESULTS" tab

30

VaR Online (Cont'd)
-Simulation with Input/Imported trades

3.3 **SIMULATION RESULTS**

Margin Simulation	SETTINGS	ENTER TRADES	SIMULATION RESULTS	SIMULATION RESULTS - DETAILS	STRESS TEST RESULTS

Simulation account	HK B40071 MA1	Used prices	Real-time	Used positions	None - empty portfolio	Simulation triggered	10/13/2021 11:52:14 AM
Total STV	325,000						

1 rows ⬇

❌ EUL is reserved for later stage of Familiarisation Programme Phase 2

PRODUCT AREA	MARKET	SCENARIO ID	CURRENCY	STV	EUL
HK	HKMK	IDIO	HKD	325,000	302,856,732

Stress Test Value (STV) is calculated based the scenarios as of previous EOD and the worst case scenario will be displayed

For more details on the simulation functions, please refer to VaR Online user guide - section 4 available in HKEX website.

31

VaR Online (Cont'd)
-Demo Video

CPs can make reference to the demo video for the general settings and the simulation procedure in VaR Online, the demo will be available in **HKEX website** on 22 Oct 2021.
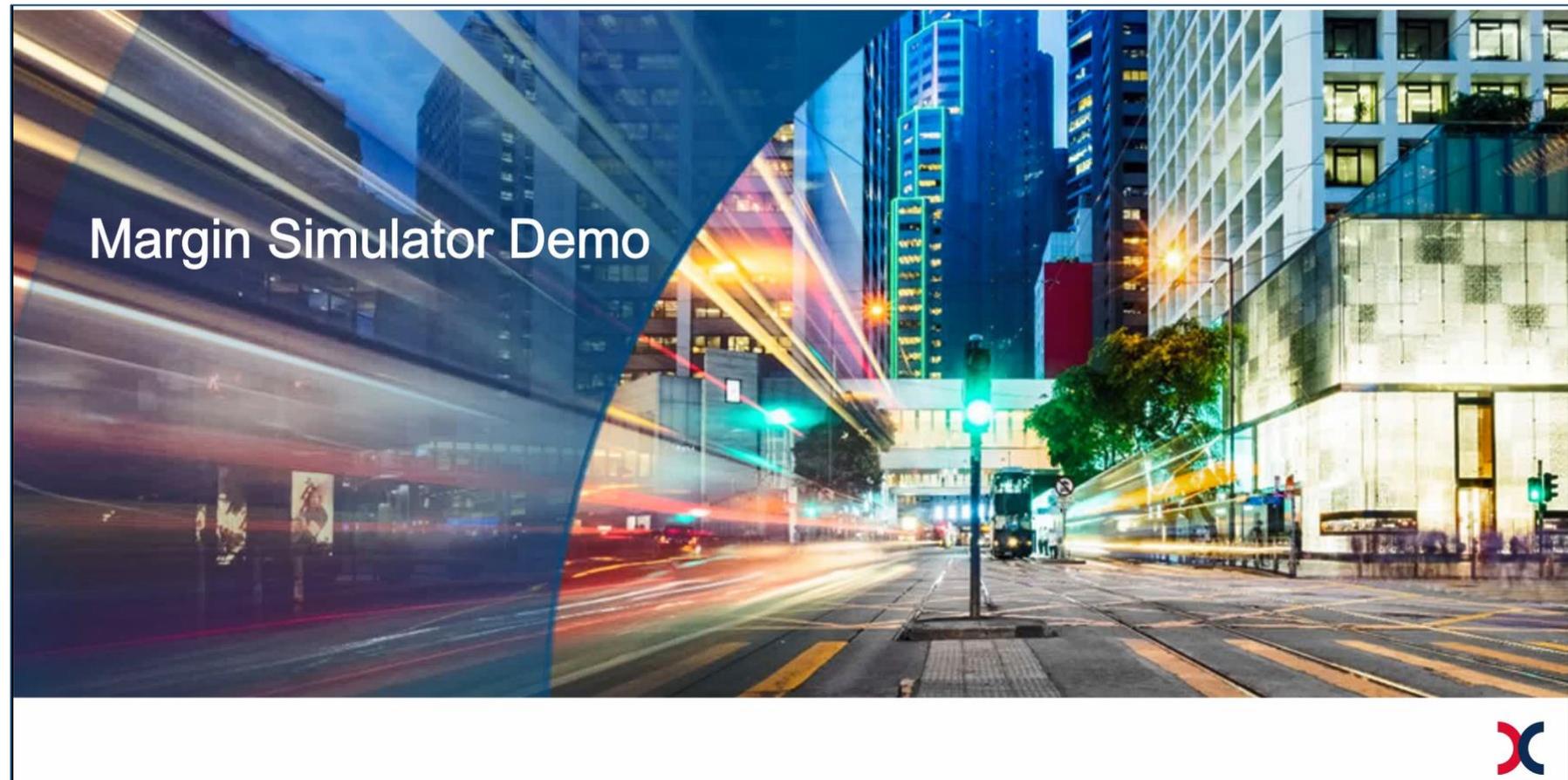
VaR Platform Reports
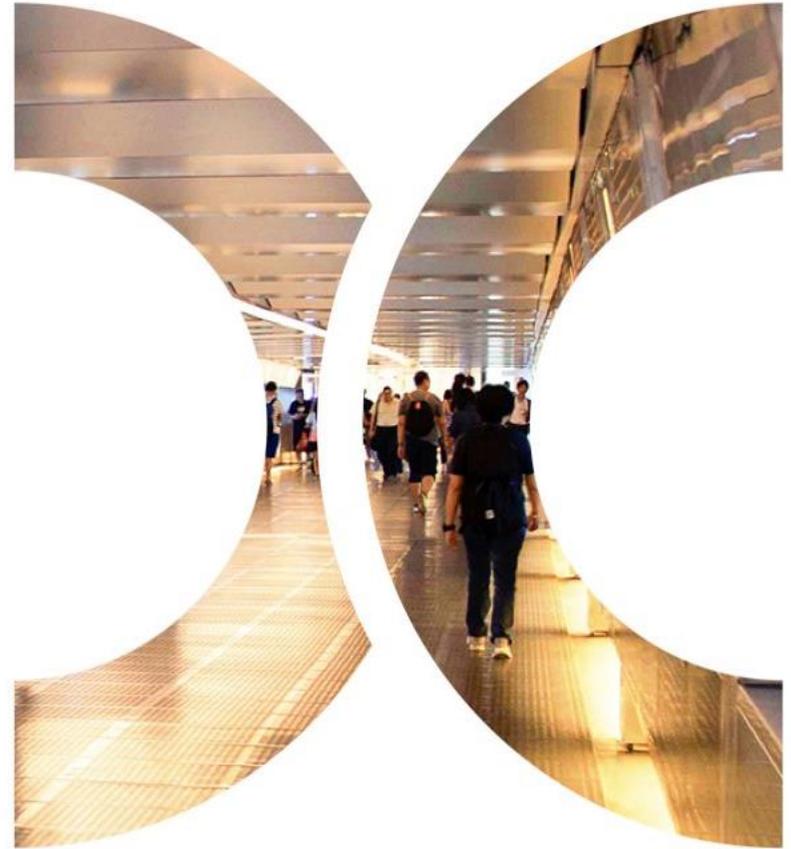
VaR Platform Reports

CPs can retrieve VaR Platform Reports from RAP, which can be accessed via a secure file transfer protocol (SFTP) facility provided by HKSCC.

➢ Connectivity: by Domain Name System (DNS) or IP Address (Refer to section 6 of Technical Guide)

Once CPs have setup a RAP account[1], they can login RAP with RAP User ID together with the SSH private key generated during the account creation.

➢ RAP User ID = xxxxxx001 (where xxxxxx is CCASS participant ID)

➢ Each RAP account contains 3 main folders covering the VaR Platform related supporting documents, while 1 folder is available upon subscription. CPs should check if the folders are accessible.

RAP Folder	Description
COMMON	Contains reports common to all CPs (e.g. report specifications)
INBOX	Contains reports specific to each individual CP only (e.g. margin reports)
RPF[2]	*(Optional and by subscription only)* contains Risk Parameter Files (RPF) to each individual CP only
KEY_MANAGEMENT	For CPs to submit public keys for renewal

The files will be available for retrieval from the "YYYYMMDD" subfolder, where YYYYMMDD refers to the calendar day when RAP received the files.
*** Reports & files will be housekept from RAP every 10 calendar days ****

🔔 *Please note that RAP is only accessible from registered workstation with **SDNet** connection.*

Note: 1. For CPs who haven't to apply RAP User ID, please submit RAP Registration and Maintenance Form (eService: TechS 8) via Client Connect as soon as possible.
2. Due to the large file size, CPs should assess and evaluate the need to upgrade their existing SDNet before subscribing for the RPF folder. Please refer to section 7 of RAP Technical Guide for details.

VaR Platform Reports (Cont'd)
-Reports Available Via RAP

Additional VaR Platform reports are available to retrieve via RAP starting 4 October, including:

Margin Reports:

RAP Folder	Report	Time Available during Familiarisation Programme	Description	Corresponding reports in CCASS
Inbox	Marginable Position Report (RMAMP01)		Marginable positions incorporated in the corresponding margin calculation, and supplementary information at position level	**[To be obsoleted]** • Marks and Collateral Collection Report (CFIPM01) • Margin Payable Report (CRMMG02)
Inbox	MTM and Margin Requirement Report (RMAMR01)	~19:15 & ~21:00 (available since Phase 1) each business day	MTM and margin requirement together with the margin component details	**[To be obsoleted]** • Marks and Collateral Collection Report (CFIPM01) • Intra-day Marks and Collateral Collection Report (CRMIM01) • Margin Payable Report (CRMMG02) • Intra-day Margin Payable Report (CRMMG01) • Guarantee Fund Risk Collateral Requirement Report (GFR806) • Additional Cash Collateral Payable Report (CRMAC01) • NCP Marks Projection Report (intra-day) (CRMNP01) • NCP Marks Projection Report (day-end) (CRMNP02) • NCP Margin Projection Report (intra-day) (CRMNP03) • NCP Margin Projection Report (day-end) (CRMNP04) **[To be modified]** • Posting / Collateralisation result Report (intra-day) (CCMPY01) • Posting / Collateralisation result Report (day-end) (CCMPY02)
Inbox	MTM and Margin Requirement Report (Summary Version) (RMAMR03)		A summary version of RMAMR01	

VaR Platform Reports (Cont'd) -How To Read Margin Estimation (19:15) vs Margin Requirement Report (21:00)

During the Familiarisation Programme Stage 2:
- Ad-hoc margin calculation will be triggered at 18:30 to generate a mock up margin estimation report at around 19:15.
- End-of-day margin requirement report will be available at around 21:00.

Total MTM and Margin Requirement (TMR)
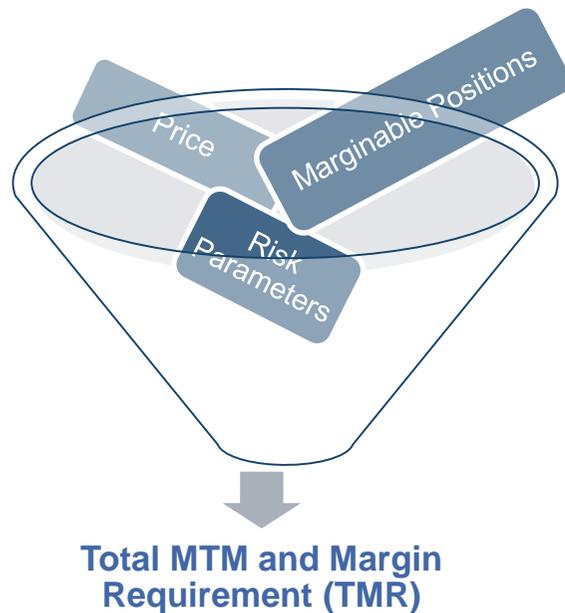
Expected Differences between Actual and Estimated TMR

Same as Day-end TMR after business rollout	Simulated margin estimated reports as at 15:00 and 16:45
Official Day-end TMR	**Estimated TMR as of 18:30**
All marginable Positions	- All marginable Positions assuming all due and overdue settled - Focus on Main account - EOT excluded
Official mark-to-market price	Closing Price
Risk Parameters updated for the day	Risk Parameters of Previous Day

CPs can make reference to the estimated TMR and Day-end TMR for funding projection after Business Rollout.

VaR Platform Reports (Cont'd) -Reports Available Via RAP

Additional VaR Platform reports are available to retrieve via RAP starting 4 October, including:

New Reports (additional information for margin requirement):

RAP Folder	Report	Time Available during Familiarisation Programme	Description
Common	Corporate Action Event Report (DWH0229)	~10:00 each business day	Corporate action events of Hong Kong market that may lead to marginable position adjustment
Common	Series Price Report (DWH0305)	Next business day	Instrument prices and exchange rates for Hong Kong market's margin calculation
Common	IPO Indicator (DWH0303)		IPO stocks that are newly listed that will impact the margin calculation
Inbox	Daily Participant Margin Multiplier Report (DWH0081C)		Current and to-be effective multiplier
RPF	Initial Margin Risk Parameter File (RPF01)[1]	~21:00 each business day	Contains key risk parameters required for calculation of MTM and margin requirement for Hong Kong market

Noted: 1. Only applicable for CPs who have subscribed for RPF folder. Due to the file size of the RPF, CPs should assess and evaluate the need to upgrade their existing SDNet before subscribing for the new RPF folder. Please refer to section 7 of the RAP Technical Guide for details.

37

VaR Platform Reports (Cont'd) -Reports Available Via RAP

Default Fund Reports:

RAP Folder	Report	Time Available during Familiarisation Programme	Description		Corresponding reports in CCASS
Inbox	Risk – Stress Testing Report (RMAST01)	~21:00 each business day	STV calculated based on the returns of stress scenarios defined by HKEX for Hong Kong market		N/A
Inbox	Default Fund Requirement Report (RMADF01)	Before 14:00 first business day of each month / ad hoc[2]	Monthly or ad hoc default fund requirement	→	*[New report – available after official launch]* • Statement of Default Fund Contributions (CCMFD02) *[To be obsoleted]* • Statement of Guarantee Fund Contributions (GFR608) • NCP(s) Guarantee Fund Contribution Projection By Position (GFR616) • Guarantee Fund Risk Collateral Requirement Report (GFR806)
RPF	Stress Testing Risk Parameter Files (RPF02, RPF03, RPF04)[1]	~21:00 each business day	Contains key risk parameters for calculation of STV for Hong Kong market		N/A

Noted: 1. Only applicable for CPs who have subscribed for RPF folder. Due to the file size of the RPF, CPs should assess and evaluate the need to upgrade their existing SDNet before subscribing for the new RPF folder. Please refer to section 7 of the RAP Technical Guide for details.
2. In case there is ad hoc review, HKSCC will send an email notification to inform VaR Platform project coordinator.

VaR Platform Reports (Cont'd) -Reports Available Via RAP

Northbound Reports: *(Only applicable to the China Connect Clearing Participants (CCCP))*

RAP Folder	Report	Time Available during Familiarisation Programme	Description	Corresponding reports in CCASS
Inbox	Risk – Northbound MSTD Requirement Report (RMCNM01)	~21:00 each business day	MSTD requirement of CCCP for Northbound China Connect markets	*[To be modified]* • Mainland Settlement Deposit Payable Report (Shanghai) (CRMSD01) • Mainland Settlement Deposit Payable Report (Shenzhen) (CRMSD04) • Intra-day Mainland Settlement Deposit Payable Report (Shanghai) (CRMSD07) • Intra-day Mainland Settlement Deposit Payable Report (Shenzhen) (CRMSD09)
Inbox	Risk – Northbound MSCD Requirement Report (RMCNM03)	~14:00 on the first business day of each month	MSCD requirement of CCCP for Northbound China Connect markets	*[To be modified]* • Mainland Security Deposit Payable Report (Shanghai) (CRMGF01) • Mainland Security Deposit Payable Report (Shenzhen) (CRMGF03)

CPs can make reference to the Comparison Guidelines, Calculation Guides and Report Specifications available in HKEX website for more details.

Points to Note
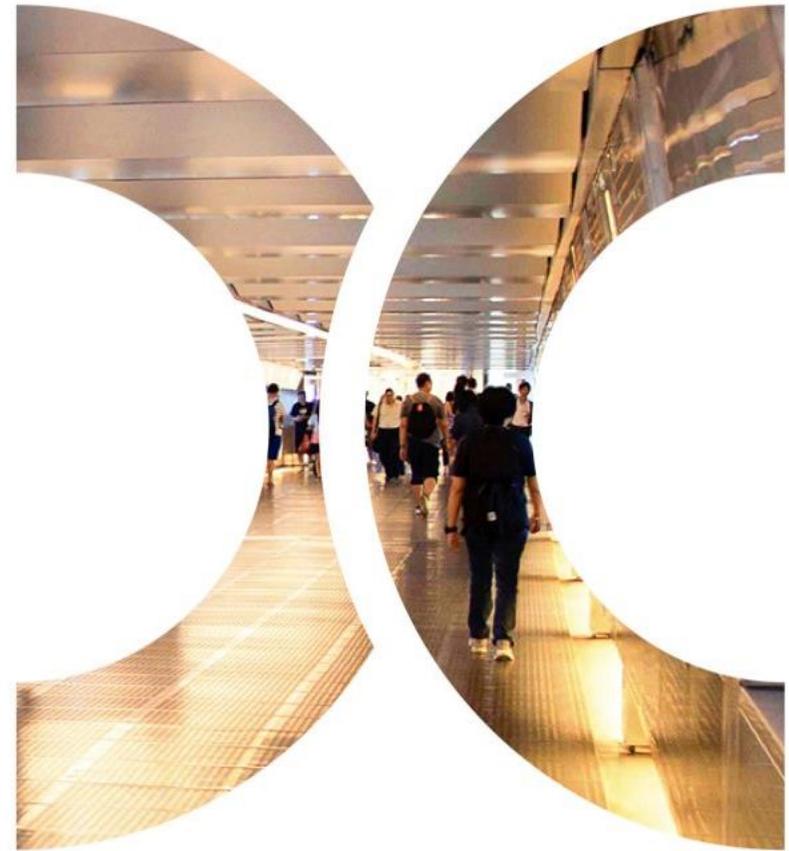
Checklist

CPs should have already done:
1   Setup RAP and verified connectivity
2   Retrieved and studied the one-off Initial Margin Analysis and Default Fund Contribution Analysis via RAP
3   Setup VaR Online DA and VaR Online Business User and verified connectivity
4   Studied the VaR Platform report specifications
5   Studied the Familiarisation Programme related materials available in HKEX website (https://www.hkex.com.hk/Services/Platform-Services/VaR-Platform?sc_lang=en)

Check List for CPs:
1   To retrieve and study margin, default fund and northbound (if applicable) related report via RAP *in every business day*
2   Conduct margin and stress testing simulation via VaR Online
3   Do you know payment obligation during famliarisation program is relied on CCASS reports?
4   Do you know the data used in familiarisation program is your real portfolio on a daily basis?
5   Have you retrieved the reports on a daily basis via RAP?
6   Do you know the one-off IM analysis and DF Comparison will be offloaded from RAP on 29 October 2021?
7   Have you studied the VaR reports in RAP with your existing CCASS reports for understanding the impact on the new risk model?
8   Do you know the list of reports to be obsoleted after VaR Online?
9   Do you know the difference between VaR reports and CCASS reports on the specification and layout?
10   Do you know the generation time of the VaR reports in the future?

Coming Soon

VaR Online

- Simulation will further be enriched with simulation with CPs' production portfolio (i.e. latest available marginable positions in VaR Online) convergence with hypothetical trades in November 2021 tentatively.

Practice Session

- A practice session for production rehearsal with intra-day operation will be held in mid-Jan 2022. Details will be announced in circular and HKEX website (https://www.hkex.com.hk/Services/Platform-Services/VaR-Platform?sc_lang=en)

Refresh on new risk models in HKSCC

Clearing Risk Management

HKEX

香 港 交 易 所

Agenda

Key Enhancements

Initial Margin ("IM")

Current Model	New Model
➤ Single margin rate based on Hang Seng Index ("HSI") applied to **all** securities ➤ No risk offset among securities	➤ 2-tier hybrid model ➤ Margin requirement based on individual stock volatility ➤ Allows risk offset among selected securities ➤ Liquidation cost is considered

Stress testing for Default Fund ("DF")

Current Model	New Model
➤ Up and down scenarios applied to **all** securities to generally cover systemic risk	➤ Multiple product-specific scenarios applied to **each** security
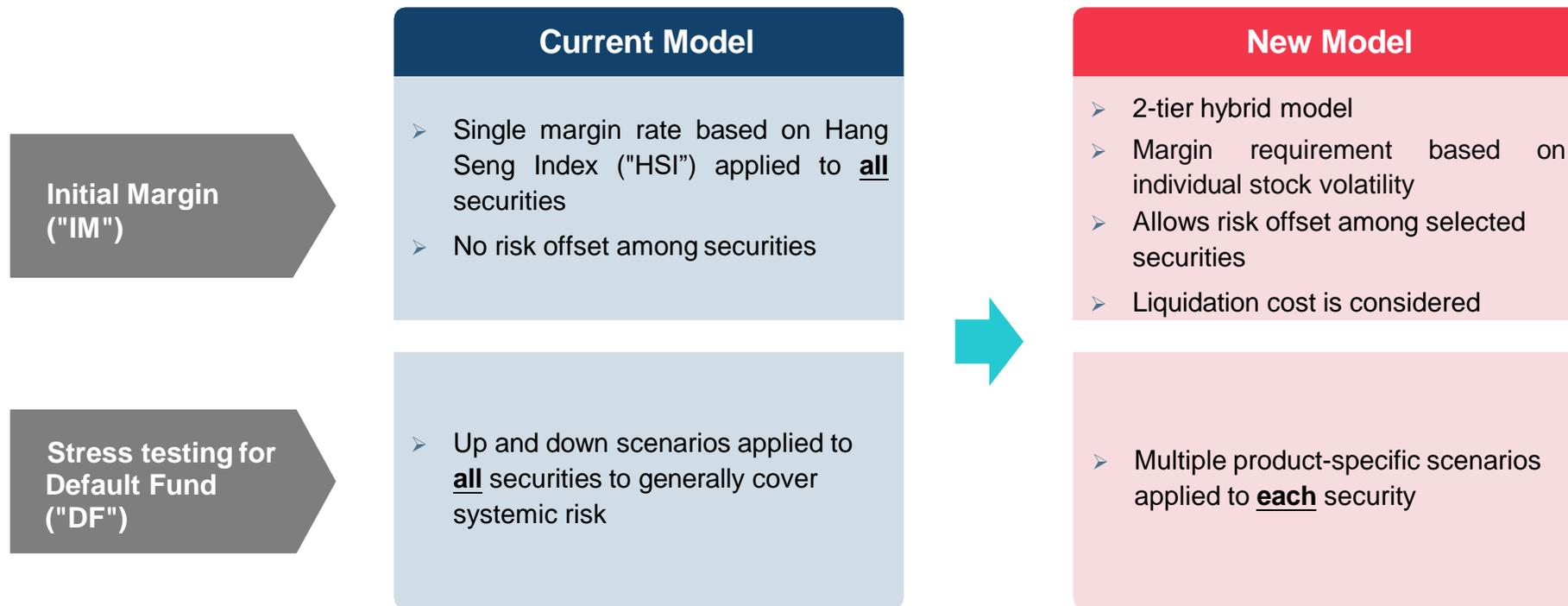
HKSCC adopts methodology-centric enhancements in the new model

Initial Margin ("IM") Model

Initial Margin Model

Portfolio margin requirement

Portfolio IM[1] = **Tier P Portfolio IM** + **Tier N Portfolio IM** + **Add-ons**

		Tier P	Tier N
1	**Constituents**	▪ Hang Seng Composite Index ("HSCI") LargeCap and MidCap constituent stocks and related DW / CBBC ▪ All equity indices ETFs and related DW / CBBC	▪ All non-Tier P instruments (e.g. GEM stocks, SmallCap / MicroCap stocks)
2	**Methodology**	▪ VaR-based Portfolio Margining, subject to minimum margin level	▪ Flat rate margin, subject to margin multiplier (where appropriate)

A hybrid approach consists of portfolio margining (Tier P) and flat rate (Tier N)

(1) Overall IM will round up to the nearest ten thousand dollars (e.g. 7,821,555 will be rounded up to 7,830,000).

Initial Margin Model

Add-ons

IM Add-on

1. **Corporate Action Add-on**[1]
2. **Liquidation Risk Add-on**
3. **Structured Product Add-on**

Existing

4. **Position Limit Add-on**
5. **Default Fund Add-on**
6. **Ad-hoc Add-on**[3]

Current Model	New Model	
	Tier P	**Tier N**
■ Covered under the single margin rate e.g. 7% and concentration collateral	■ Rights / open offer / Distribution in specie	■ Rights / open offer / Distribution in specie
	■ Portfolio level ■ Instrument level	■ ~2% higher of Long / Short
	■ Applicable to long positions	■ Not applicable

Current Model	New Model	
■ Overall CNS exceeds 4 x Liquid Capital	■ Overall CNS exceeds 4 x Liquid Capital	*No change*
■ CP's Net Projected Loss exceeds 50% DF threshold[2]	■ CP's Net Projected Loss exceeds 50% DF threshold	*No change*
■ Ad-hoc risk component related to individual CP	■ Ad-hoc risk component related to individual CP	*No change*

(1) Also known as "Corporate Action Position Margin"
(2) DF Threshold is the maximum DF size(s) prescribed by the clearing house(s) with reference to the highest DF size in the past 10 years, subject to review from time to time.
(3) Also known as "Upfront Cash Collateral"

Initial Margin Model
Operation-related arrangements

		Current Model	New Model
1	**Tolerance limit (intraday)**	■ HK$5 million (applicable to Marks only)	■ HK$5 million (available to both Marks and Margin)
2	**Marks credit limit**	■ Same as DF Basic Contribution	■ Not available[1]
3	**IM credit**	■ HK$5 million	■ HK$5 million *(No change)*
4	**Favourable Marks-IM offset**	■ Available	■ Available *(No change)*
5	**Intraday Margin for holidays**	■ Applicable to holiday periods > one business day	■ Applicable to holiday periods > one business day *(No change)*
6	**Intraday and day-end Marks report[2]**	■ ~11:45 and ~20:15	■ ~11:30 and ~21:00
7	**IM refund to offset cash prepayment**	■ Available	■ Not available[3]
8	**Intraday collateral transfer from CCMS to CCASS money ledger**	■ Available	■ Not available[4]
9	**Periodic Margin projection report[2] / broadcast message[5]**	■ ~14:45, ~15:45, ~16:45, ~20:15	■ ~15:45, ~17:00, ~21:00 ■ Flexibility to simulate IM requirement intra-day
10	**Margin report information**	■ Available for DCP and GCP (with NCP projection at ~20:15)	■ Available for DCP and GCP (with NCP projection at ~15:45, ~17:00, ~21:00)
11	**Margin Multiplier**	■ Notice CPs by letters	■ Notice CPs by Daily Participant Margin Multiplier Report

(1) Enhance default capital adequacy by isolation of DF resources
(2) Report available time subject to system finalisation
(3) Advance IM refund will create potential exposure for unsettled short positions.
(4) Mitigate potential under-collateralisation risk if an adverse mark-to-market change is observed after the IDM call.
(5) Margin projection at ~14:45, ~15:45 and ~16:45 under current model are in form of broadcast messages; while margin projection at ~20:15 under current model, and all 3 rounds under new model are in form of reports.

Stress Testing for Default Fund ("DF")

Stress Testing for Default Fund ("DF")

DF sizing and allocation

Expected Uncollateralised Loss ("EUL")	=	Stress Test Value ("STV")	−	Collateral

		Current Model	New Model
1	**EUL**	■ 2 hypothetical systemic risk scenarios (proxy of HSI movement) applied to **all** securities 　➢ Market up scenario 　➢ Market down scenario	■ > 200 product-specific scenarios applied to **each** security 　➢ Historical, Hypothetical, Theoretical, Idiosyncratic
2	**DF size**	■ 1st + 5th largest CP exposure ■ 60-day look-back period	■ 1st + 5th largest CP exposure ■ 60-day look-back period *No change*
3	**Pro-rata % of each CP for DF allocation**	■ **CNS** position based	■ **Risk** based i.e. stress test value net of its own collateral (EUL)

DF size is determined and allocated based on a more risk based approach in the new model

Stress Testing for Default Fund ("DF")

Operation-related arrangements

		Current Model	New Model
1	**Review frequency**	■ Monthly at start-of-month ■ Ad-hoc	■ Monthly at start-of-month ■ Ad-hoc *(No change)*
2	**Collection**	■ 1 business day after review	■ 1 business day after review *(No change)*
3	**DF credit**	■ HK$1 million	■ HK$1 million *(No change)*
4	**Periodic DF projection / report**[1]	■ ~12:00 noon during monthly DF review and ad-hoc DF review	■ ~10:30 am during monthly DF review and ad-hoc DF review ■ Flexibility to simulate Stress Test Value ("STV") intra-day
5	**DF report information**	■ Available for DCP and GCP (with NCP projection)	■ Available for DCP and GCP (with NCP projection) *(No change)*

Most existing operational arrangements remain unchanged in the new model

(1)   Report available time subject to system finalisation

Important Information

INFORMATION

The VaR Platform Familiarisation Programme and related materials are available on the HKEX website, please visit the website regularly for the latest information:

https://www.hkex.com.hk/Services/Platform-Services/VaR-Platform?sc_lang=en

CONTACT

For VaR Platform related enquiries, please contact us via:

- Email: NG_PostTrade@hkex.com.hk

- VaR Platform Hotline: 2211 6828

Disclaimer

The information contained in this presentation is for general informational purposes only and does not constitute an offer, solicitation, invitation or recommendation to subscribe for or purchase any securities or other products or to provide any investment advice of any kind. This presentation is not directed at, and is not intended for distribution to or use by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to law or regulation or which would subject Hong Kong Exchanges and Clearing Limited ("HKEX") to any registration requirement within such jurisdiction or country.

This presentation contains forward-looking statements which are based on the current expectations, estimates, projections, beliefs and assumptions of HKEX about the businesses and the markets in which it and its subsidiaries operate or aspires to operate in. These forward-looking statements are not guarantees of future performance and are subject to market risk, uncertainties and factors beyond the control of HKEX. Therefore, actual outcomes and returns may differ materially from the assumptions made and the statements contained in this presentation. The implementation of these initiatives is subject to a number of external factors, including government policy, regulatory approval, the behaviour of market participants, competitive developments and, where relevant, the identification of and successful entry into agreements with potential business partners. As such, there is no guarantee that the initiatives described herein will be implemented, or that they will be implemented in the form and timeframe described herein.

Although the information contained in this presentation is obtained or compiled from sources believed to be reliable, HKEX does not guarantee the accuracy, validity, timeliness or completeness of the information or data for any particular purpose, and shall not accept any responsibility for, or be liable for, errors, omissions or other inaccuracies in the information or for the consequences thereof. The information set out in this presentation is provided on an "as is" and "as available" basis and may be amended or changed. It is not a substitute for professional advice which takes account of your specific circumstances and nothing in this document constitutes legal advice. HKEX shall not be responsible or liable for any loss or damage, directly or indirectly, arising from the use of or reliance upon any information provided in this presentation.