

Orion Risk Platform (ORP) Briefing

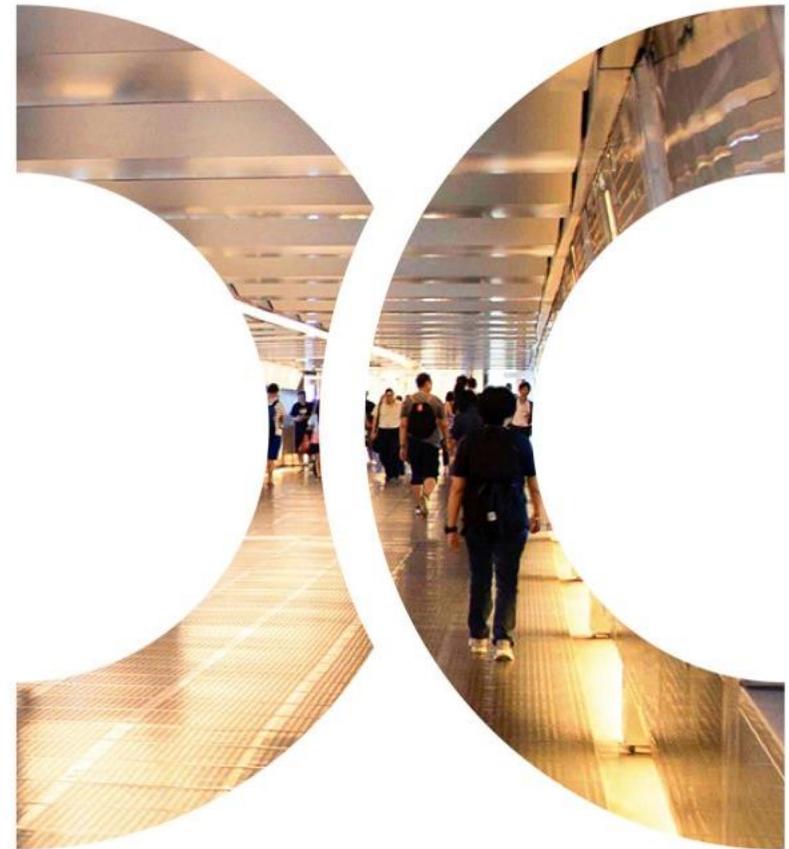


25 & 26 February 2021

HKEX
香港交易所

Agenda

1. ORP Refresh
2. Familiarisation Programme
3. Further Market Readiness Activities
4. New Risk Model Refresh
5. Important Information
6. Appendix



ORP Refresh

-What is ORP?

Orion Risk Platform (ORP, previously known as Next Generation Risk Management Platform (NGRM)), a new single risk engine with new risk model, to be applied to HKSCC's Hong Kong market and is mandatory for **all HKSCC Clearing Participants (CPs)**. ORP will take up risk functions from CCASS, with a new infrastructure:

New Infrastructure

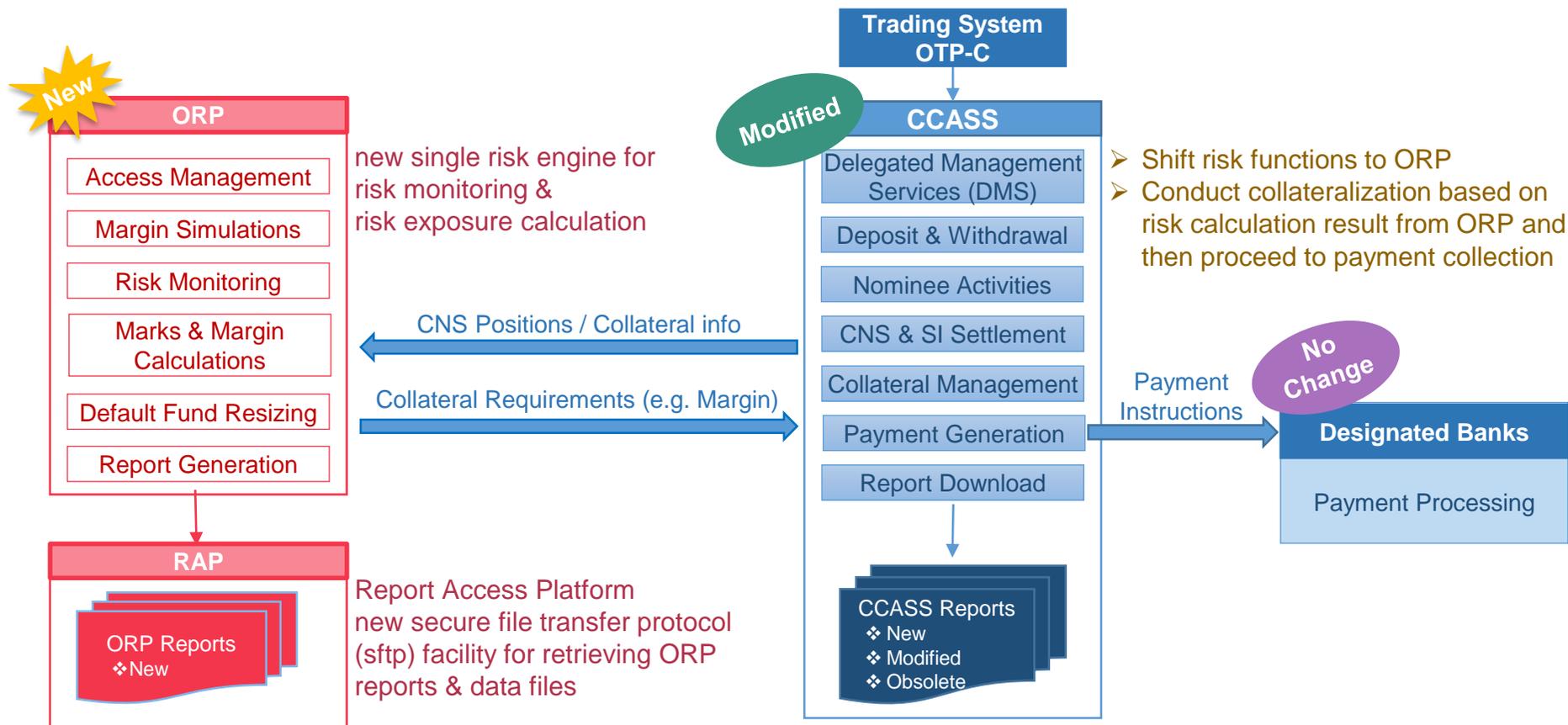
CCASS	Decommission risk functions ¹ to ORP
 ORP	<ul style="list-style-type: none"> • Single risk engine for risk monitoring & calculation for Hong Kong, Shanghai & Shenzhen markets • Initial Margin, <i>applicable to Hong Kong securities market only</i> : flat margin rate → portfolio margining • Stress Testing for Default Fund (DF), <i>applicable to Hong Kong securities market only</i> : same scenarios for ALL → multiple product-specific scenarios per security
 Report Access Platform (RAP)	Centralised report platform for retrieval of ORP reports & data files

Noted: 1. Including margin, marks and stress testing calculation and relevant reporting.



ORP Refresh (cont'd)

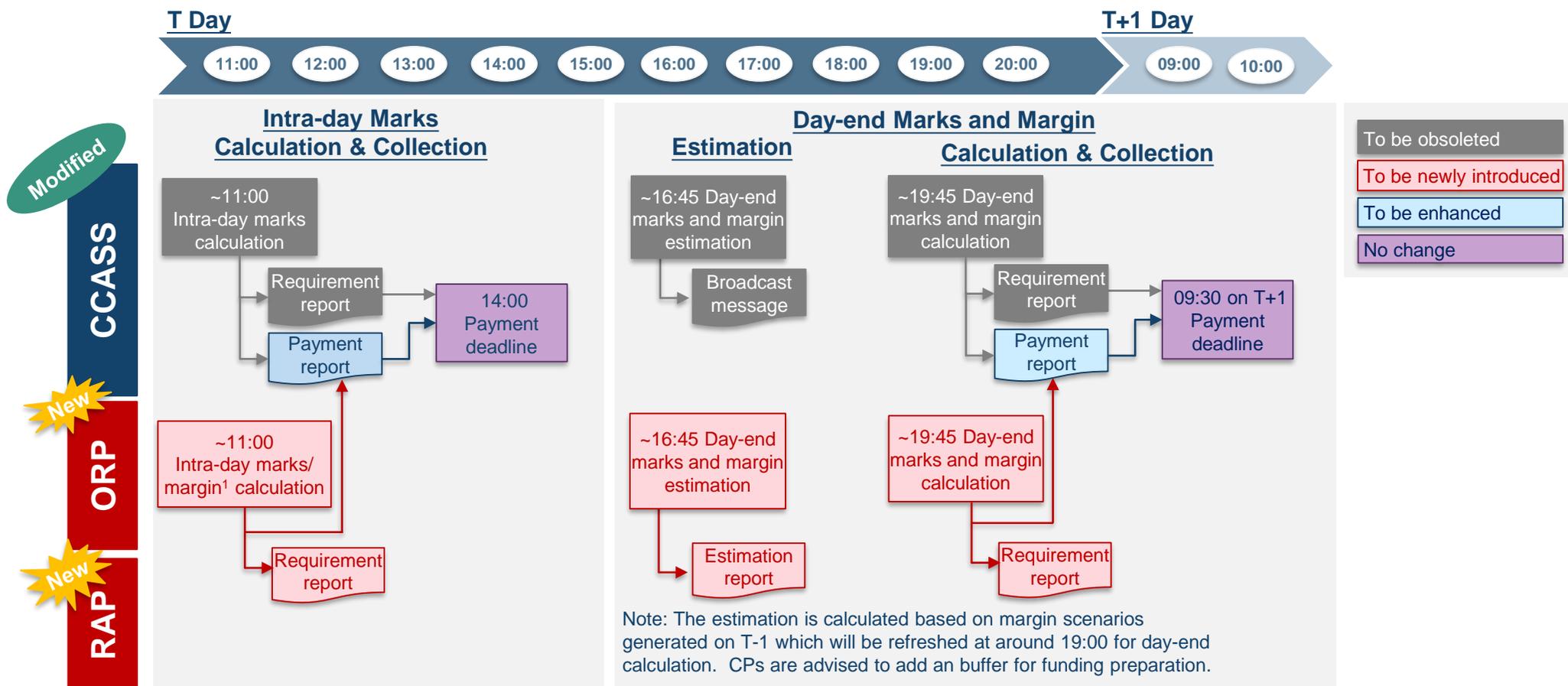
-What operational change is expected?



ORP Refresh (cont'd)

-What operational change is expected?

Tentative Daily Flow – Marks & Margin in Hong Kong Market



Risk calculation and risk specific reports migrate to ORP and RAP respectively but payment reports and processing remain unchanged in CCASS

Noted: 1. for calculation of intraday margin during holiday period.



ORP Refresh (cont'd)

-Operational highlight under ORP

Funding Projection

CPs' IM and DF requirements can fluctuate as they are calculated based on the risk of CPs' portfolios

Mitigating measures provided by HKSCC

- 1 **Margin simulation tools**
 - Facilitate CPs' internal processes related to risk control and margin estimation
 - Allow CPs to replicate and simulate margin requirement for existing portfolios and hypothetical trades
 - CPs can refer ORP Online for basic simulation, or develop own risk management tool* for advance setup.
- 2 **Specific Stock Collateral (SSC) and Specific Cash Collateral (SCC)**
 - CNS stock positions covered by SSC or SCC are exempted from margin calculation
- 3 **Margin and DF credit will continue**
 - No change in current **HK\$5 million** margin credit and **HK\$1 million** DF credit

Other operational processes remain the same

- Relevant settlement reports (based on new margin requirement) will still be available via existing CCASS
- Timing of most existing operations remain unchanged
- Excess margin is refunded at day-end when exposure is reduced (i.e. upon settlement)

*CPs who opt to develop their own risk management tool should have started already. For development and result verification, please refer to [Initial Margin Calculation Guide](#) and [Stress Test Value Calculation Guide](#).



ORP Refresh (cont'd)

-Technical requirement under ORP

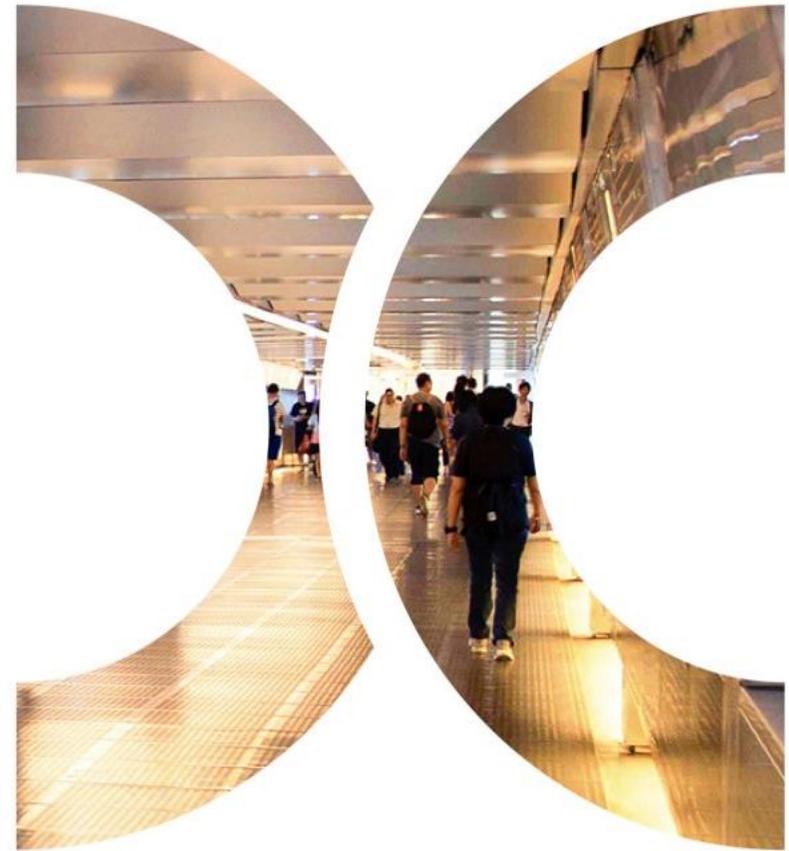
Upon Official Launch of ORP, in addition to existing CCASS (via C3T or PG), CPs should also gain access to RAP and ORP Online to retrieve risk related reports and information. More details on RAP & ORP Online will be covered in the later slides.

	Option 1 Minimum Setup use existing C3T for RAP ¹	Option 2 Basic Setup use existing C3T for RAP ¹ & ORP Online	Option 3 Advance Setup acquire new PC for RAP ¹ & ORP Online
Feature	Existing CCASS access + (NEW) RAP	Existing CCASS access + (NEW) RAP & ORP Online	
Hardware	Existing C3T		Existing C3T + NEW PC
Software	<ul style="list-style-type: none"> • Upgrade existing C3T to Win10 & associated JRE version • Update PC Domain Name Server (DNS) Setting • Install SFTP client for RAP¹ & Chrome for ORP Online 		
Network	Reconfigure existing SDNet to access new DNS, RAP & ORP Online		

Note : 1. Please refer to [HKSCC Report Access Platform \(RAP\) Technical Guide](#)



Familiarisation Programme



Familiarisation Programme

-Overview

To ensure a smooth transition from existing risk arrangement to new risk model supporting by ORP, before the official launch of ORP, HKSCC released a Familiarisation Programme with a **phased approach** to facilitate CPs to:

Phase 1:

- Verify RAP connectivity
- Retrieve and study margin reports via RAP

Phase 2:

- Retrieve and study stress testing and Default Fund contribution reports via RAP
- Perform margin simulation via ORP Online

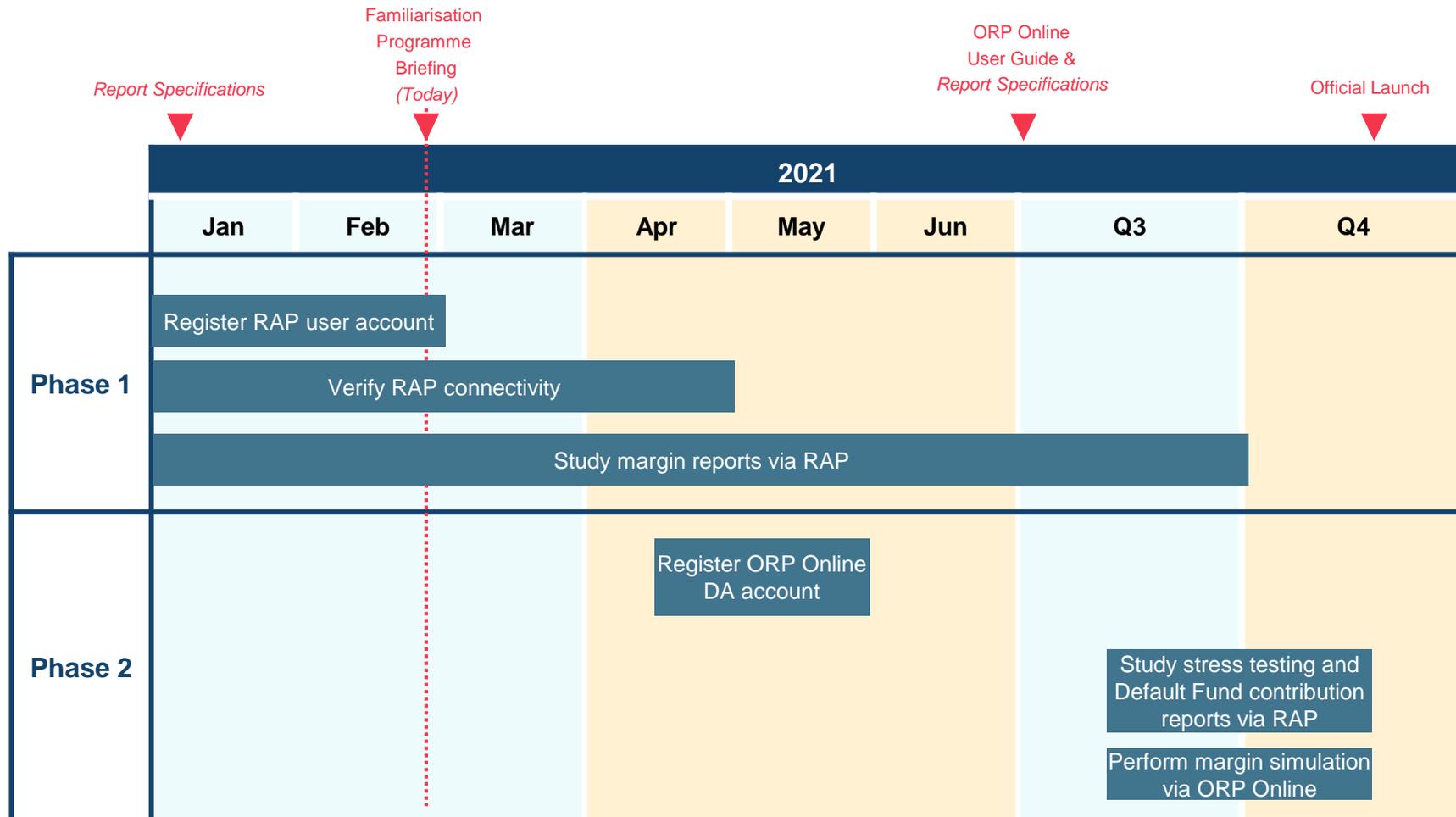


CPs are strongly encouraged to participate in the Familiarisation Programme, study the new risk reports and understand the margin impact, then evaluate and modify any internal operational flow if needed.



Familiarisation Programme (cont'd)

-Tentative Programme Schedule



All ORP 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)

-Phase 1

Phase 1 has launched on 11 January 2021 with the key objectives below, and CPs should have completed step 1 and 2 below by now.



1. Setup RAP User account ✓

- Register for RAP User account by submitting a duly signed [RAP Registration Form](#) to HKSCC via email, **one User account can apply to 2 workstations.**
- Receive the RAP User account from HKSCC for RAP access.

2. Verify RAP connectivity ✓

- Ensure SFTP client software be adhered to the SFTP standard, refer details to [RAP Technical Guide](#).
- Login RAP and verify the connectivity during its operating hours, **from 07:00 to 00:00 every business day.**
- Each RAP account contains 3 main folders covering the ORP related supporting documents. 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)
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 *****

For CPs who haven't done so, please submit a duly signed [RAP Registration Form](#) to HKSCC as soon as possible.



Familiarisation Programme (cont'd)

-Phase 1



3. Retrieve and study the ORP margin reports

- ❑ Retrieve and study margin reports calculated based on the new risk models via RAP, including:

Reports	Availability
a. Day-end Margin Reports¹	
<ul style="list-style-type: none"> • Marginable Position Report (RMAMP01) • MTM and Margin Requirement Report (RMAMR01) • MTM and Margin Requirement Report (Summary Version) (RMAMR03) <p><i>Each report is available in csv format with a corresponding control file</i></p>	Daily
b. Margin Analysis Report	
<p>Based on each CP's own historical CNS portfolio from the beginning of 2015 to the end of 2020, covering:</p> <ul style="list-style-type: none"> • Daily Gross CNS % for Tier N positions • Distribution in the form of histogram for IM Change (with the new flat rate margin multiplier after HKD5 million IM credit), with reference to new risk models vs current risk model – entire portfolio. 	<p>One-off report, the same file will be placed INBOX by 12:00 noon every Monday² <u>from now till end-Apr 2021</u></p>



Note: 1. reports and control files will be available for download within 10 calendar days after transmission.

2. where a Monday falls on a holiday, the sample file will be available in the date folder of the following business day.

Familiarisation Programme (cont'd)

-Phase 1

4. Study the ORP margin reports



- ❑ CPs should study the new reports in order to understand and assess the potential change in funding and liquidity requirements based on the new portfolio margining model.

- ❑ [Report Specification](#) and [Report Guidelines](#) are also available in HKEX website for detailed description of each report and the comparison view between the ORP and the existing CCASS reports.



- ❑ CPs should note that :
 - The same margin credit will be applicable to both the current risk model in CCASS, as well as the new risk models in ORP.
 - The margin multiplier specific for the new risk models will be shown as “Flat Rate Margin Multiplier” in the MTM and Margin Requirement Report (RMAMR01); which may be different to the one use in CCASS.



Familiarisation Programme (cont'd)

-Phase 2

ORP will also perform stress testing calculations and default fund allocations based on the new risk-based approach. Phase 2 is planned to be launched in mid-2021 tentatively with key objectives below:

1. Retrieve and study the ORP margin and default fund reports

- Retrieve and study margin and default fund reports calculated based on the new risk models via RAP, including:



Day-end Reports ¹	Availability
a. Margin Reports	
<ul style="list-style-type: none">Initial Margin Risk Parameter File (RPF01)Corporate Action Event Report (DWH0229)Series Price Report (DWH0305)IPO indicator (DWH0303)	Daily
b. Default Fund Reports	
<ul style="list-style-type: none">Risk – Stress Testing Report (RMAST01)Stress Testing Risk Parameter Files (RPF02, RPF03, RPF04)Default Fund Requirement Report (RMADF01)	Daily
<ul style="list-style-type: none">Default fund calculation results	Monthly

- Make reference to the corresponding CCASS reports in order to understand the potential change in their default fund requirement. Report specifications will be made available in the later stage.



Note: 1. reports and control files will be available for download within 10 calendar days after transmission.

Familiarisation Programme (cont'd)

-Phase 2



2. Setup Delegated Administrator (DA) account to access ORP Online

- CPs are required to appoint at least 2 DA users to setup and maintain CPs' designated user for accessing ORP Online.
 - *For DA accounts created during the Familiarisation Programme, user access will also be granted by default.*
- Application for DA to access ORP Online and respective DA user guide will be available in Apr-2021.

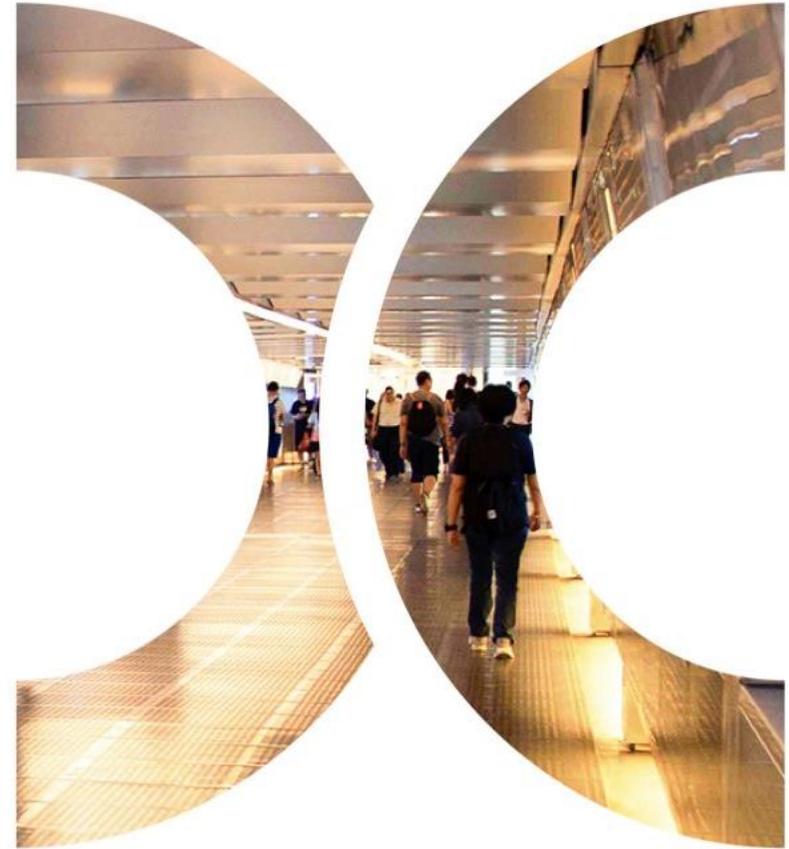


3. Practice Margin and Stress Testing Simulation via ORP Online

- CPs conduct margin and stress testing simulation based on production portfolios together with hypothetical trades via ORP Online.
- ORP Online user guide will be available in third quarter of 2021.



Further Market Readiness Activities



Further Market Readiness Activities

-Market Rehearsal (MR)

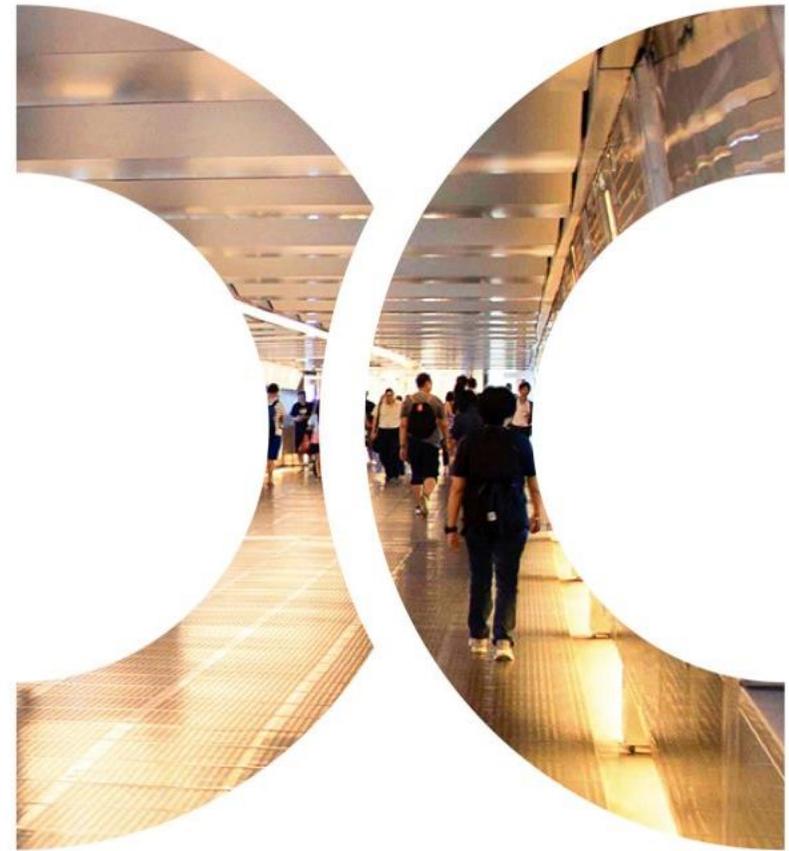
Upon completion of the Familiarisation Programme, CPs should be familiarised with ORP day-end reports, ORP Online; as well as modified internal operation flow/system, if applicable.

Before the official launch of ORP, HKSCC will arrange the following market rehearsals to ensure the market is also ready for the intra-day operations of ORP :

MR Scope	Description	Schedule
Site Failover	RAP & ORP Online connectivity during ORP System failover from production data centre to secondary data centre.	Tentatively late Jun / early Jul 2021
Intraday Operation	Retrieve intra-day ORP reports from RAP; rehearse the intra-day operation with ORP Online as well as CPs' internal operations	Tentatively Q4 2021

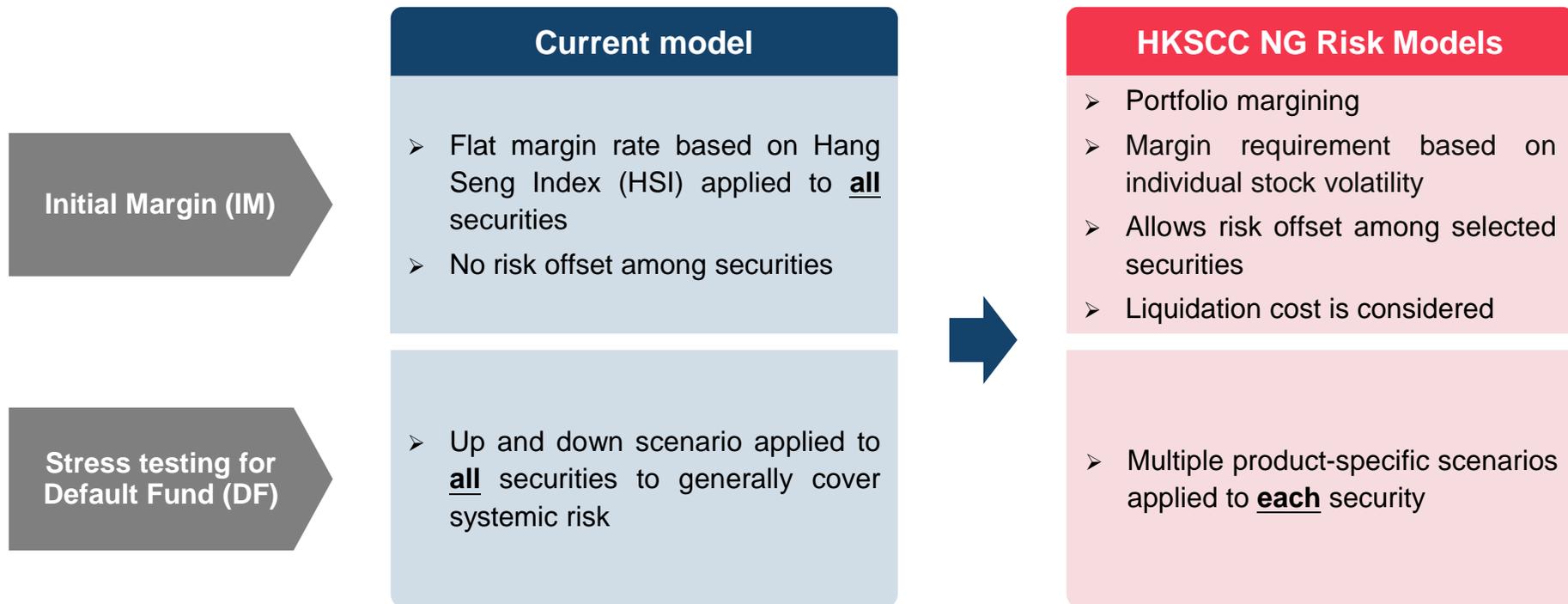


New Risk Model Refresh



New Risk Model Refresh

ORP is applicable to Hong Kong securities in HKSCC only



Risk-based margin methodology to be adopted in HKSCC



New Risk Model Refresh (cont'd)

- Initial Margin Model

Operations-related arrangement:

	Current model	Next Generation Risk Models*
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 <i>No change</i>
4 Favourable Marks-IM offset	■ Available	■ Available <i>No change</i>
5 Intraday Margin for Holiday	■ Applicable to holiday periods > one business day	■ Applicable to holiday periods > one business day <i>No change</i>
6 Intraday and Day-end Marks	■ ~11:00 and ~19:30	■ ~11:00 and ~19:30 <i>No change</i>
7 IM refund for offset cash prepayment	■ Available	■ Not available ²
8 Periodic Margin projection / report	■ 14:45, 15:45, 16:45, 20:00	■ 16:45, 20:00 + flexibility to simulate IM requirement intra-day
9 Margin rounding	■ Not applicable	■ Round up to the nearest ten thousand dollar



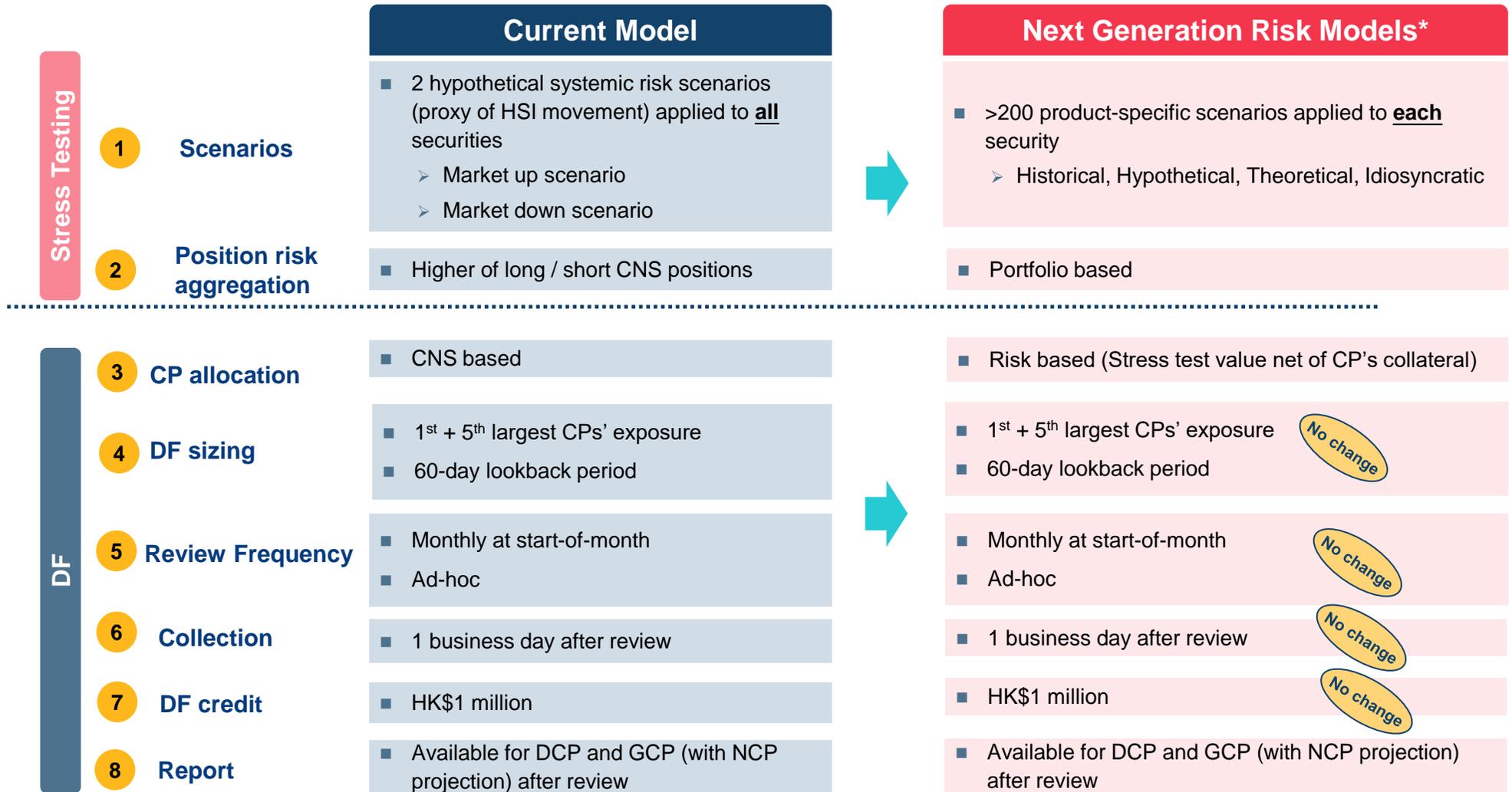
*Subject to SFC approval

- 1) Enhance default capital adequacy by isolation of DF resources
- 2) Advance IM refund will create potential exposure for unsettled short positions

New Risk Model Refresh (cont'd)

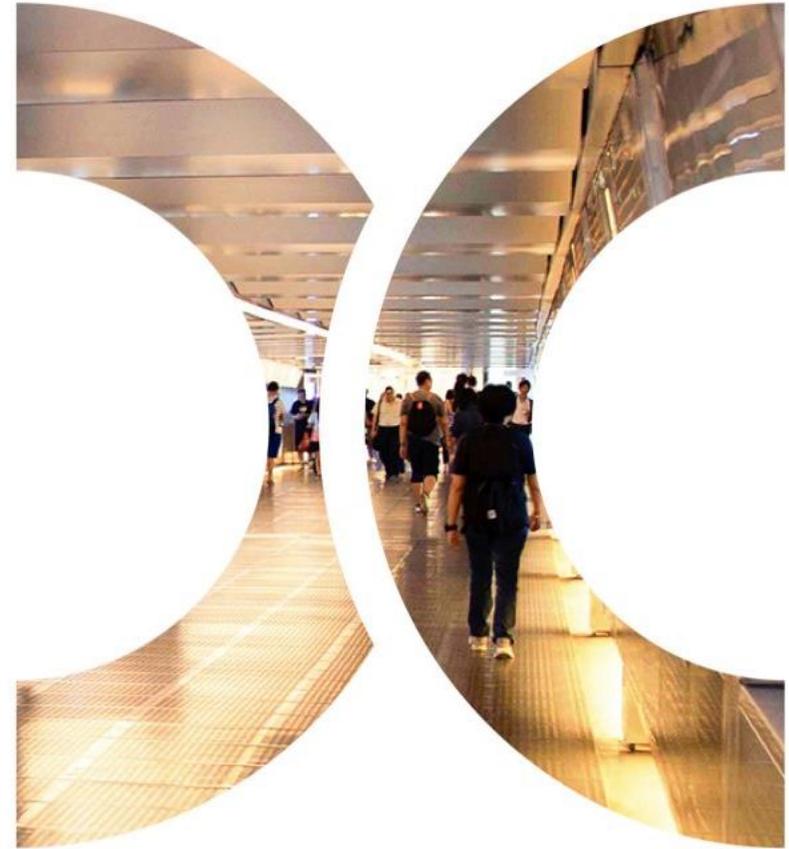
- Stress Testing and Default Fund (DF)

Methodology:



*Subject to SFC approval

Important Information



Important Information

To-do List for CP

- 1 Ensure PC configuration meet the minimum requirement of RAP and ORP Online
- 2 Setup RAP and verify connectivity
- 3 Study the following available in [HKEX website](#):
 - [ORP Familiarisation Programme Information Package for Clearing Participants](#)
 - margin related report specifications
 - report comparison guidelines
 - other ORP related information
- 4 Retrieve and study ORP margin reports, and compare with existing CCASS reports
- 5 Retrieve and study one-off margin analysis report



Important Information (cont'd)

INFORMATION

The ORP 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/Next-Generation-Post-Trade-Programme/NextGen-Risk-Management?sc_lang=en



CONTACT

For ORP related enquiries, please contact us via:

- Email: NG_PostTrade@hkex.com.hk
- ORP Hotline: 2211 6828

ORP Familiarisation Programme

CPs should note that during the Familiarisation Programme, the ORP is not in commercial operation and should not be used in any commercial context or form. As such, the ORP and any output that can be obtained from such platform including without limitation the new set of margin reports are, during the Familiarisation Programme, provided for familiarisation purposes only. CPs therefore should not rely on the ORP or any output from such platform in any way and should continue their normal risk management measures, prepare funding and make payments according to existing CCASS reports and schedule until the business implementation of the ORP and the new risk models.

Information Package

[ORP Familiarisation Programme Information Package \(Feb 2021\)](#)

Report Specification

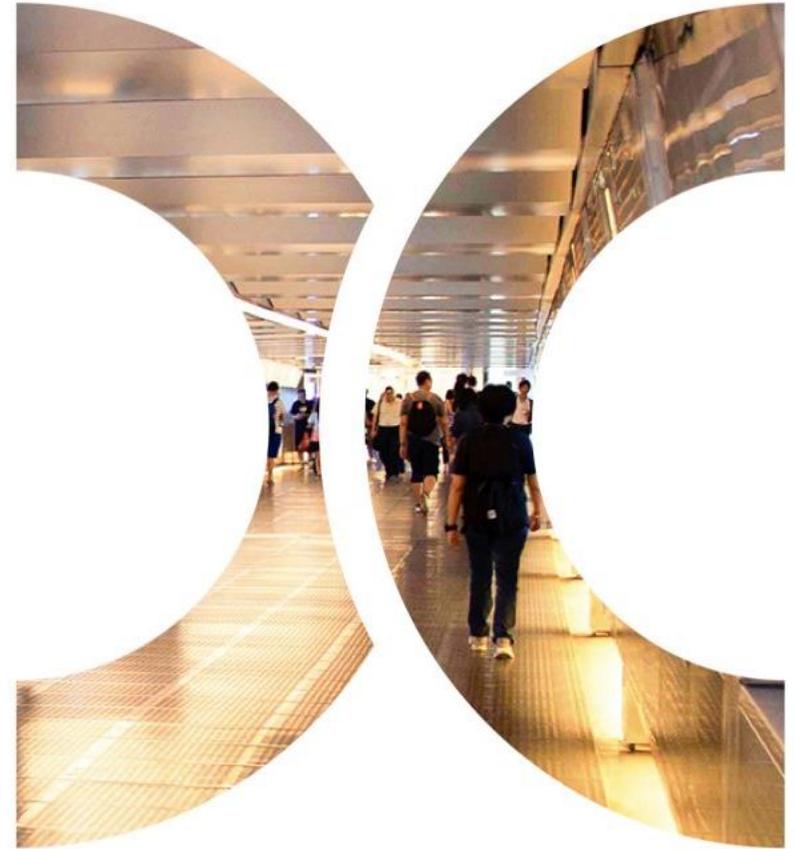
1. **Marginable Position Report (RMAMP01) (Jan 2021)**
 - Sample file for CP: data file / control file
 - Sample file for GCP: data file / control file
2. **MTM and Margin Requirement Report (RMAMR01) (Jan 2021)**
 - Sample file for CP: data file / control file
 - Sample file for GCP: data file / control file
3. **MTM and Margin Requirement Report (Summary Version) (RMAMR03) (Jan 2021)**
 - Sample file for CP: data file / control file
 - Sample file for GCP: data file / control file

Report Guidelines

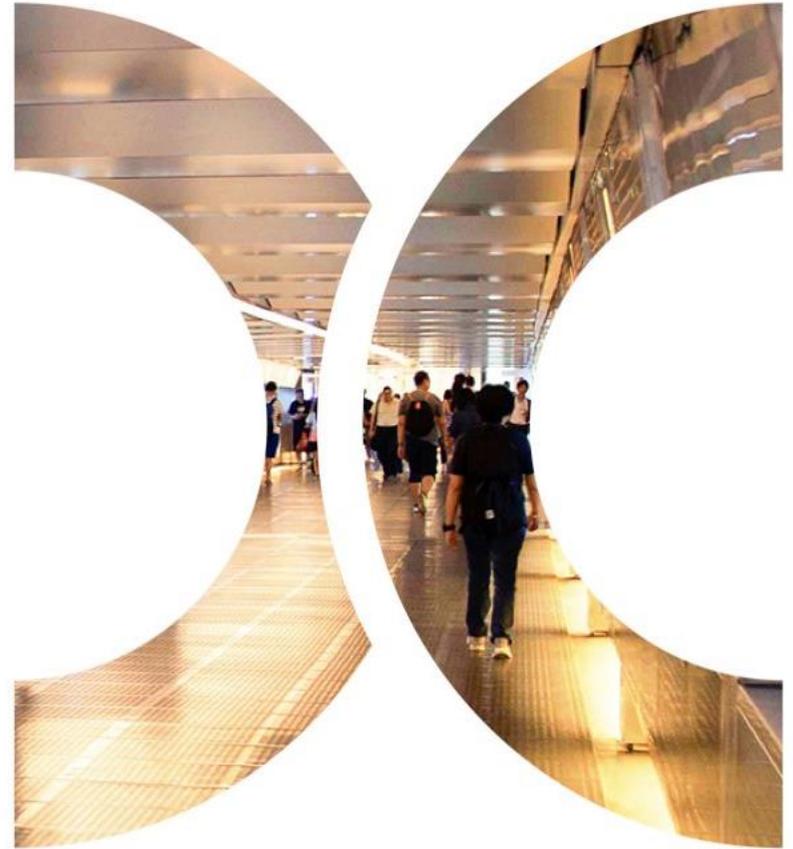
[MTM & Margin Report Comparison Guidelines \(Jan 2021\)](#)



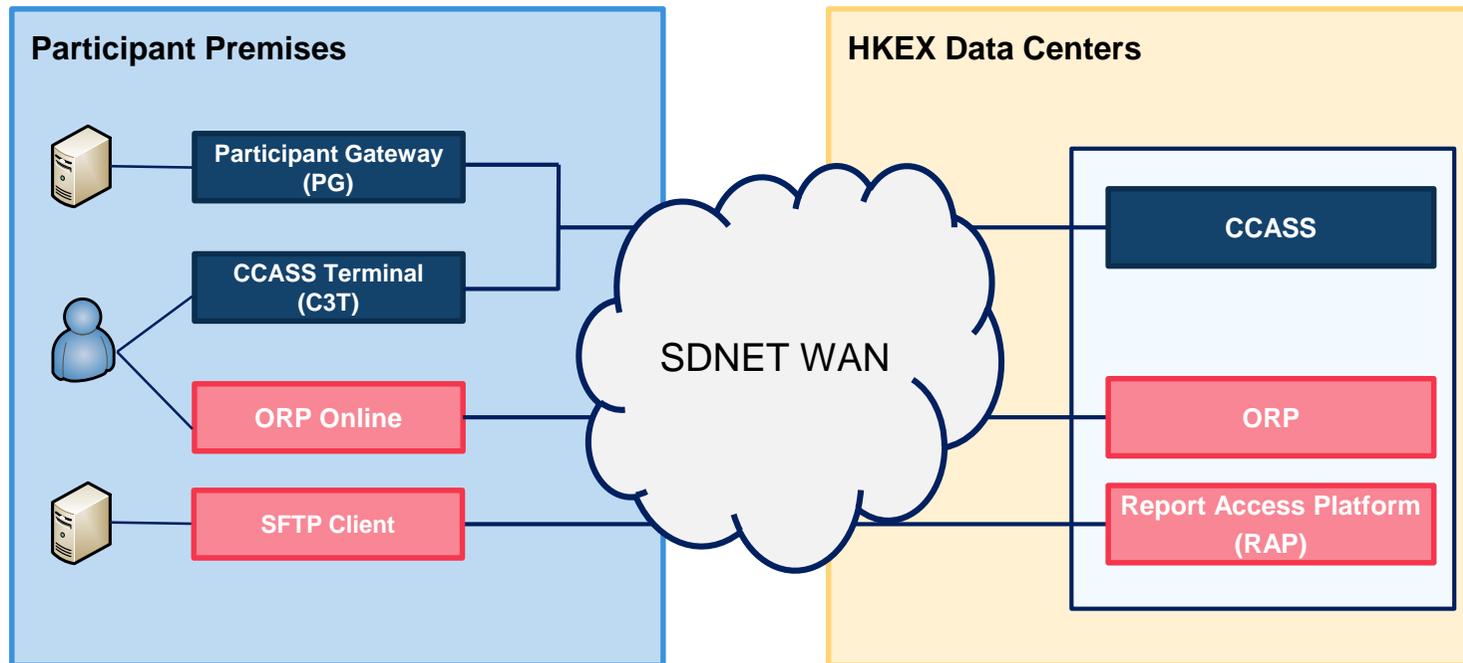
Q & A



Appendix



Appendix 1. Infrastructure under ORP



Existing Setup

ORP Setup



Appendix 2. Setup Options

	<u>Option 1</u> Use Existing C3T ¹ for RAP	<u>Option 2</u> Use Existing C3T ¹ for RAP & ORP Online	<u>Option 3</u> Acquire new PC for RAP & ORP Online
CPU	1GHz	2.4GHz or faster	
Memory	2GB	8GB	
Hard Disk	20GB	22GB	
Operating System	Windows 10 Pro (64 bit)		
Browser	IE11	IE11 (for C3T) & Chrome (for ORP Online)	
JRE	Java 8 update 211		N/A
Layered Software	Anti-virus software		
Bandwidth	1M	1M ²	

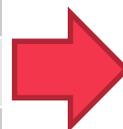
1. Clearing Participants (CP) should review their existing C3T setting to ensure it meets the minimum PC requirement

2. Minimum requirement, CP should assess and evaluate its own bandwidth requirement based on their business needs



Appendix 3. To be Obsolete CCASS Reports – Marks & Margin

To be Obsolete CCASS Reports	
Report ID	Report Name
CFIPM01	Marks and Collateral Collection Report
CRMIM01	Intra-day Marks and Collateral Collection Report
CRMMG01	Intra-day Margin Payable Report
CRMMG02	Margin Payable Report
CRMAC01	Additional Cash Collateral Payable Report
CRMNP01	NCP Marks Projection Report (intra-day)
CRMNP02	NCP Marks Projection Report (day-end)
CRMNP03	NCP Margin Projection Report (intra-day)
CRMNP04	NCP Margin Projection Report (day-end)



New ORP Reports available via Report Access Platform (RAP)	
Report ID	Report Name
RMAMP01	Marginable Position Report
RMAMR01	MTM and Margin Requirement Report
RMAMR03	MTM and Margin Requirement Report (Summary Version)
RPF01	Initial Margin Risk Parameter File
DWH0081C	Daily Participant Margin Multiplier Report
DWH0229	Corporate Action Event Report
DWH0303	IPO Indicator
DWH0305	Series Prices Report



Appendix 4. To be Obsolete CCASS Reports – Guarantee Fund

To be Obsolete CCASS Reports	
Report ID	Report Name
GFR608	Statement of Guarantee Fund Contributions
GFR616	NCP(s) Guarantee Fund Contribution Projection By Position
GFR806	Guarantee Fund Risk Collateral Requirement Report



New CCASS Reports available via CCASS	
Report ID	Report Name
CCMDF02	Statement of Default Fund Contributions

New ORP Reports available via Report Access Platform (RAP)	
Report ID	Report Name
RMADF01	Default Fund Requirement Report
RMAMR01	MTM and Margin Requirement Report*
RMAMR03	MTM and Margin Requirement Report (Summary Version)*
RMAST01	Risk - Stress Testing Report
RPF02, RPF03 & RPF04	Stress Testing Risk Parameter Files



*Refer to “Default Fund Add-on” of the last report generated at around 20:30.

Appendix 5. To be modified CCASS Reports

To be modified CCASS Reports		
Report ID	Report Name	Description of Modification
CSEMA08 (intra-day)	Statement of Money Ledger	<ul style="list-style-type: none"> • Rename 'MARGIN & PENDING MARKS' account to 'MARKS & MARGIN' account • Remove 'OVERDUE POSITION MARKS' account • Modify the following money ledger descriptions <ul style="list-style-type: none"> - CL CCMS Marks & Margin SH for intra-day - CM CCMS Marks & Margin SH - XI Marks & Mgn Collection for Chinaclear SB - XJ Marks & Mgn Refund for Chinaclear SB - 81 Collection of Default Fund Contribution - 82 Refund of Default Fund Contribution - 92 Transfer from/to Marks & Margin A/C
CSEMS08 (day-end)		
CCMPY01 (intra-day)	Posting / Collateralisation Result Report	<ul style="list-style-type: none"> • Lists the ledger / obligations request, postings result and payment generation for each ledger / obligations activity • New section 'Preferred Single Settlement Currency Conversion Result' for conversion of contract currency to preferred single currency for payment collection, if applicable
CCMPY02 (day-end)		

No impact to
data file format



Appendix 6. To be modified CCASS Reports (Cont'd)

To be modified CCASS Reports		
Report ID	Report Name	Description of Modification
CRMSD01	Mainland Settlement Deposit Payable Report (Shanghai)	<ul style="list-style-type: none"> Removed the following info: <ul style="list-style-type: none"> - Buy Turnover in SH/SZ Securities - Overdue Short Position in SH/SZ Securities - SPSA Sell Turnover in SH/SZ Securities - Settlement Deposit Rate (SH/SZ) (%) - Minimum Amount - Monthly MSTD Requirement per last Monthly Review
CRMSD04	Mainland Settlement Deposit Payable Report (Shenzhen)	
CRMSD07	Intra-day Mainland Settlement Deposit Payable Report (Shanghai)	
CRMSD09	Intra-day Mainland Settlement Deposit Payable Report (Shenzhen)	
CRMGF01	Mainland Security Deposit Payable Report (Shanghai)	<ul style="list-style-type: none"> Removed the following info: <ul style="list-style-type: none"> - Daily average net settlement amount in SH/SZ Securities of previous 6 months - Mainland Security Deposit Rate (SH/SZ)(%) - Minimum Amount
CRMGF03	Mainland Security Deposit Payable Report (Shenzhen)	

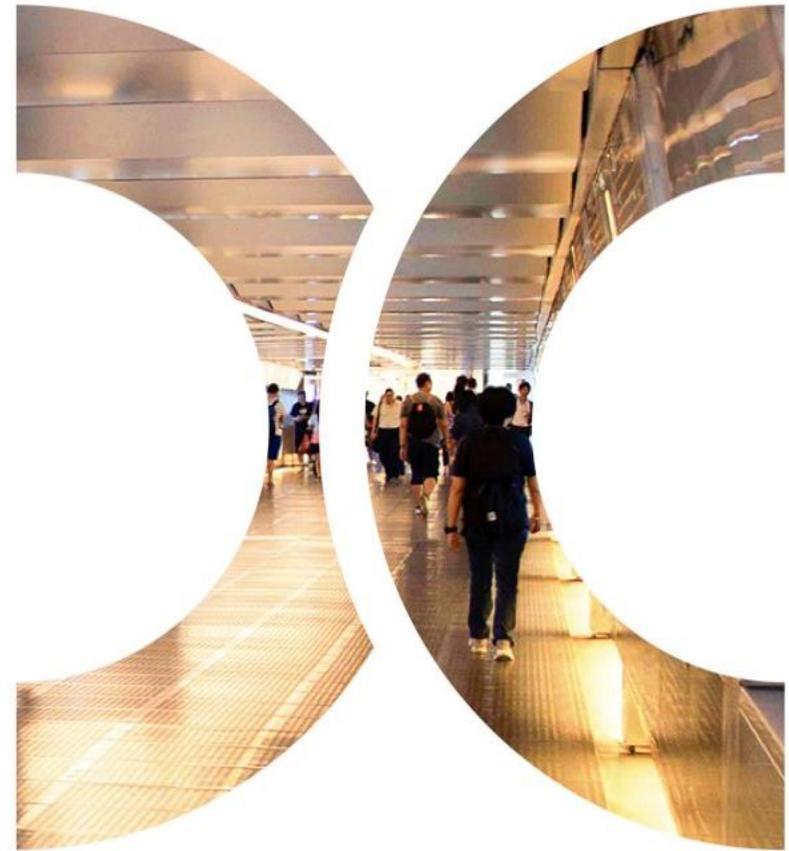
New ORP Reports available via Report Access Platform (RAP)

Report ID	Report Name
RMCNM01	Risk - Northbound MSTD Requirement Report

Report ID	Report Name
RMCNM03	Risk - Northbound MSCD Requirement Report



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