

October 2019



NEXTGEN PROGRAMME UPDATE

HKEX
香港交易所

AGENDA

1 NextGen Programme Overview

2 Rollout Approach

3 HKSCC New Risk Model

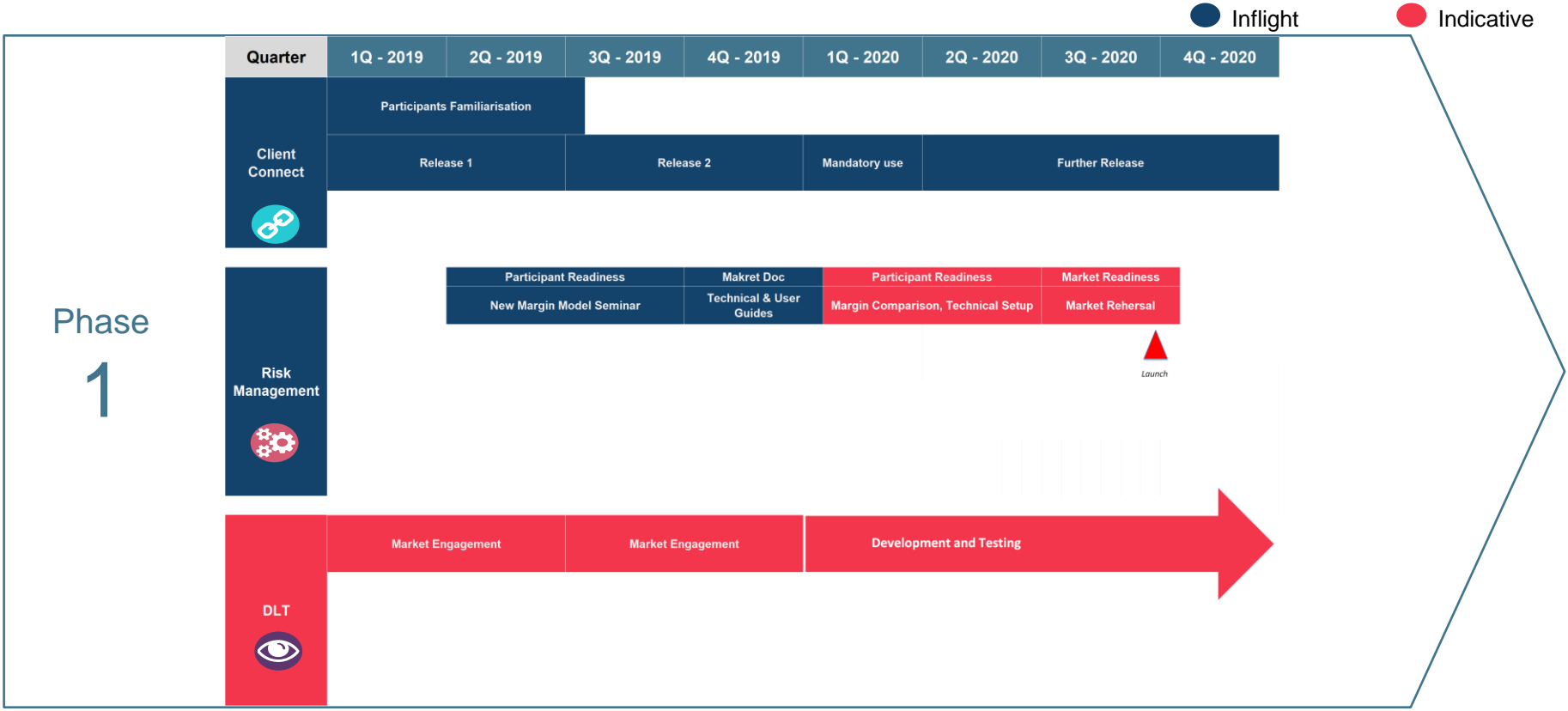
4 Risk GUI

5 Report Access Platform (RAP)

6 Getting Ready



RECAP – NextGen Programme – Phase One Overview



*All Indicative rollout dates and subject to change at HKEX discretion



Next Gen Risk Management

What is Next Gen Risk Management?

Risk-based margin approach

- Change in Margin methodology
- Better reflect the risk exposure of Clearing Participants' portfolio for HK market
- Reinforce the “defaulter-pays” principle

What has been done so far?

- NextGen Post Trade Programme Townhall (May 2019)
- New Risk Model – Initial Margin and Stress Testing Seminar (Aug 2019)
- On-going engagement with market participants on New Risk Models

What are new in today's update?

- Rollout Approach
- Margin Comparison
- Risk GUI Access
- New Report Platform

Follow Next Gen documentation to prepare for the rollout

HKSCC New Risk Models – Key Features

NGRM
Overview

Rollout
Approach

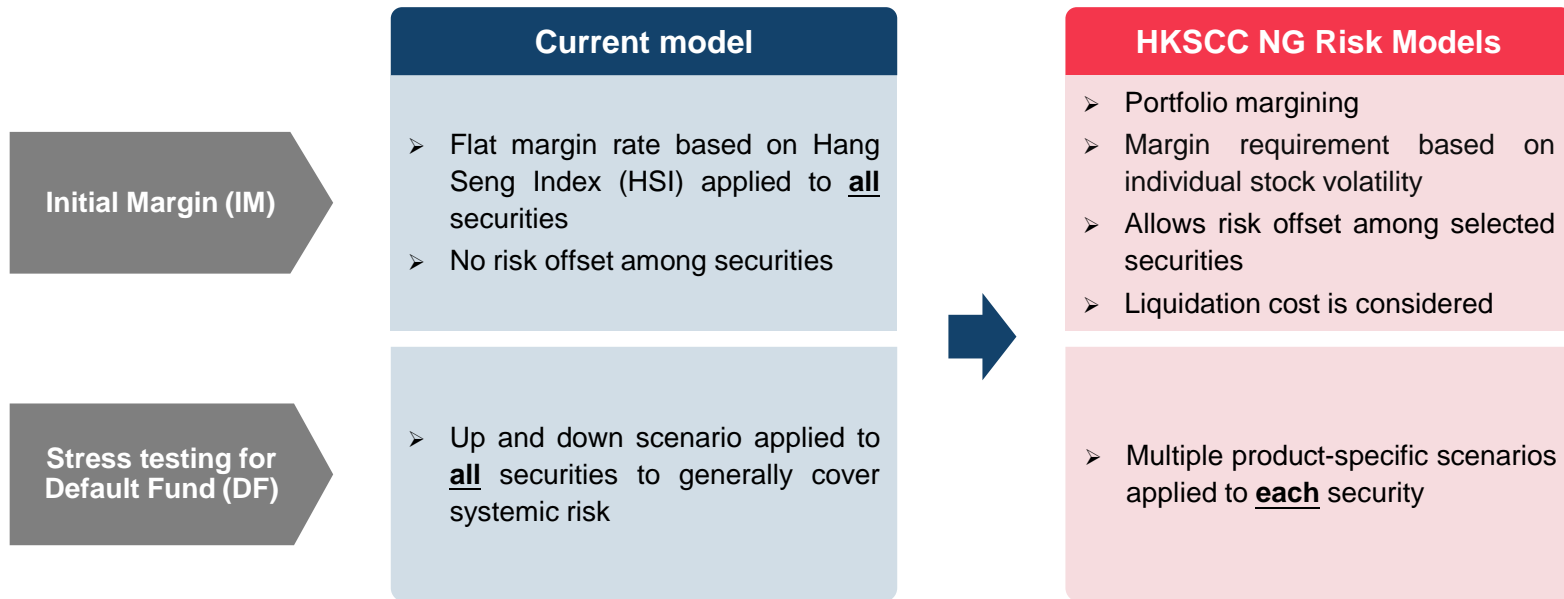
New Risk
Model

Risk GUI

RAP

Getting
Ready

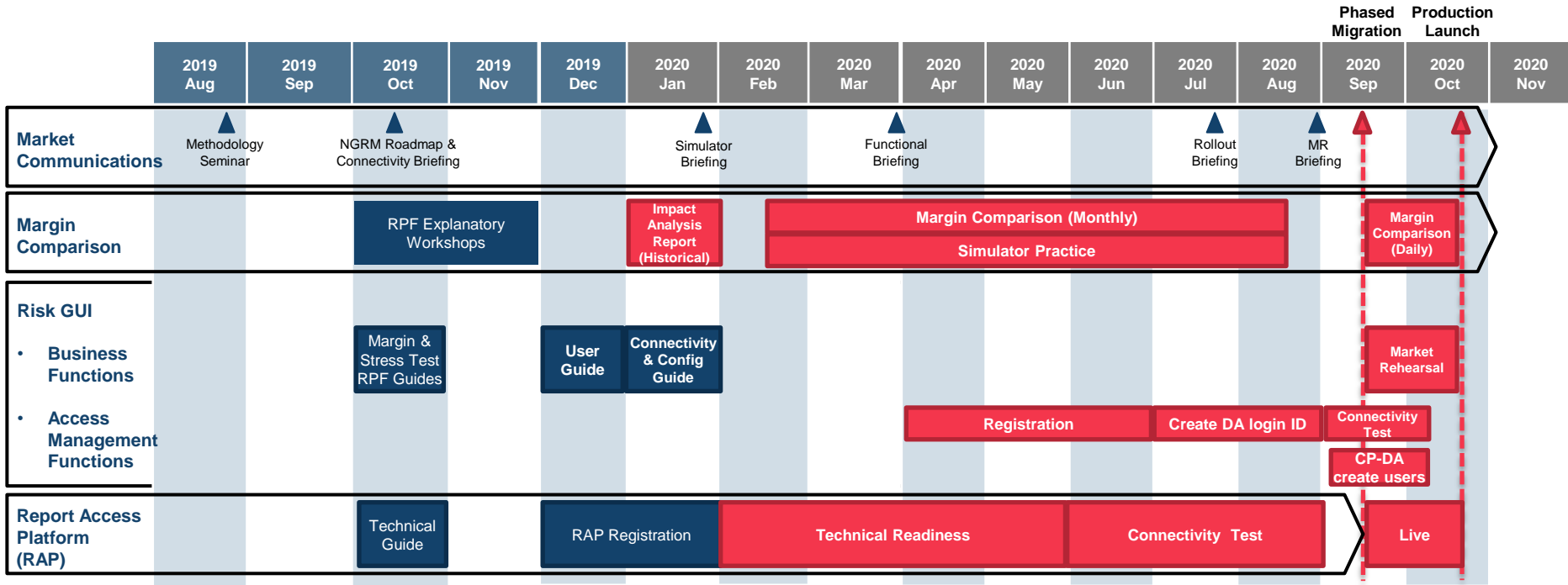
Applicable to Hong Kong securities in HKSCC only



Risk-based margin methodology to be adopted in HKSCC



Rollout Approach – Tentative Timeline



Sep 2019
Impact Analysis Reports

Oct-Nov 2019
RPF Workshops

Jan - Jun 2020
Margin Comparison Reports

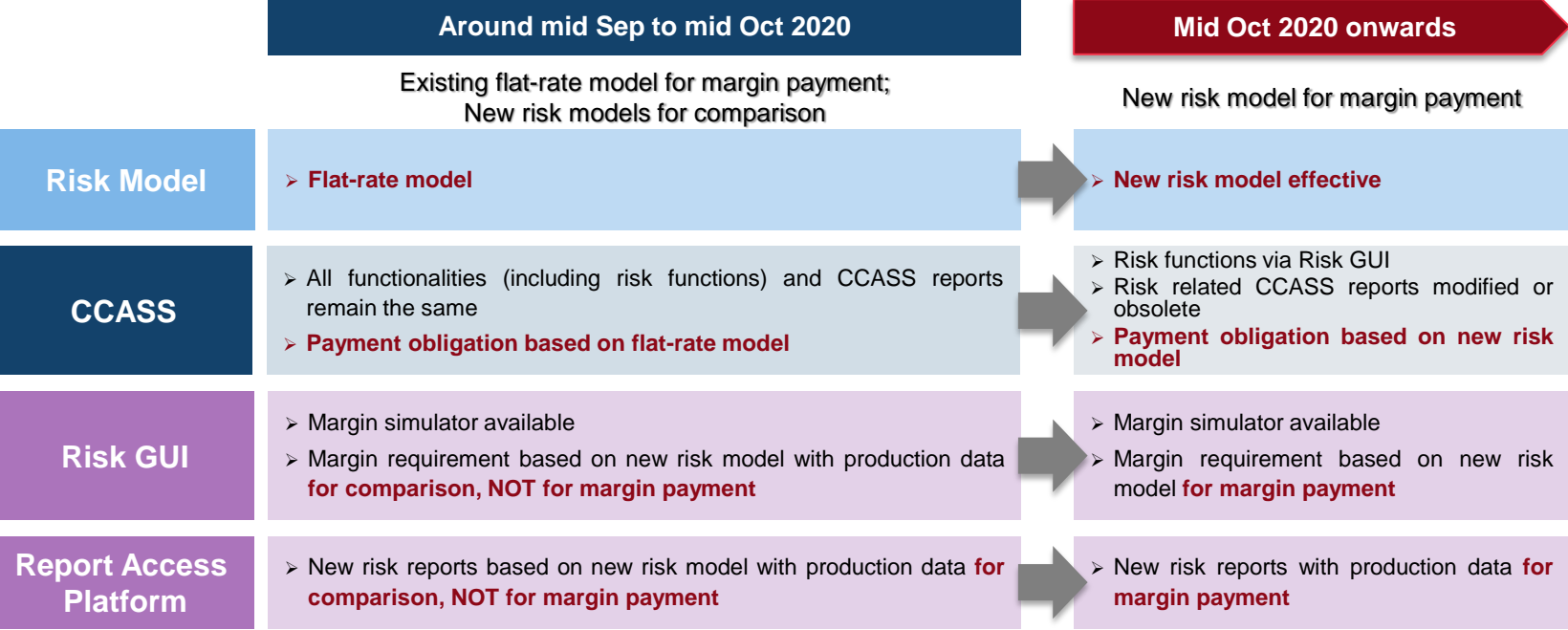
Feb - Aug 2020 (6 months)
Margin Simulator Testing

Sep - Oct 2020 (1 month)
Planned Phased migration



Rollout Approach – Planned Phased Migration

- Allow Clearing Participants (CPs) to familiarise with the new margin requirements, workflow & system features
- Reduce operational risk



HKSCC New Risk Model – Margin Simulation

Margin Simulator and Reports

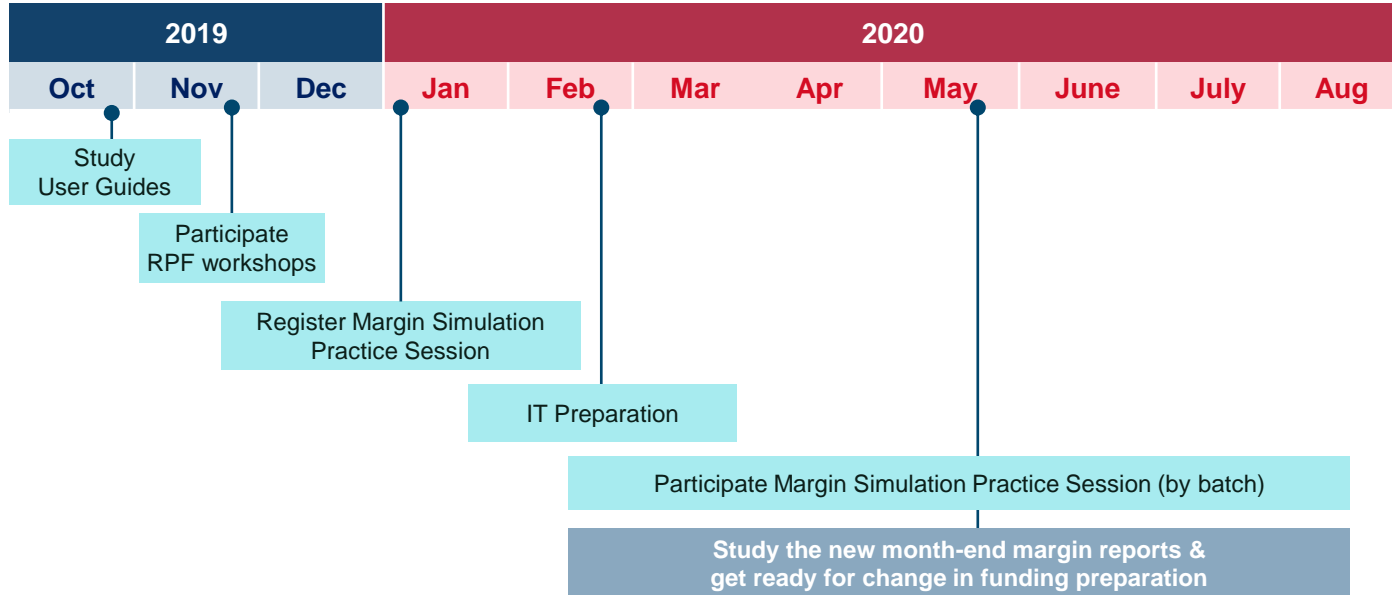
For CPs to estimate margin requirement of their production / hypothetical portfolio

	Pre Launch	Post Launch
	Through cloud based environment	Through SDNet as Risk GUI online function
Purpose	<ul style="list-style-type: none"> For familiarization with new risk models 	<ul style="list-style-type: none"> For margin estimation and clients' portfolio management
Duration	<ul style="list-style-type: none"> 6 months – mid-Feb to mid-Aug 2020 	<ul style="list-style-type: none"> Phased Migration Full Launch
Details	<ol style="list-style-type: none"> Production data of selected days is available for margin simulation. Impact analysis reports, month-end margin reports based on historical production data for comparison. 	<ol style="list-style-type: none"> Margin simulator based on their production positions and appending the hypothetical positions for simulation. Daily margin reports based on production data for comparison during phased migration.



HKSCC New Risk Model – Margin Comparison Preparation

Pre Launch



Note : Please refer to designated NextGen corner at HKEX website & upcoming circulars for most up-to-date information, including the publish of User & Technical Guide, registration details etc.



Access to NGRM – Risk GUI

Business Functions

What is Risk GUI ?

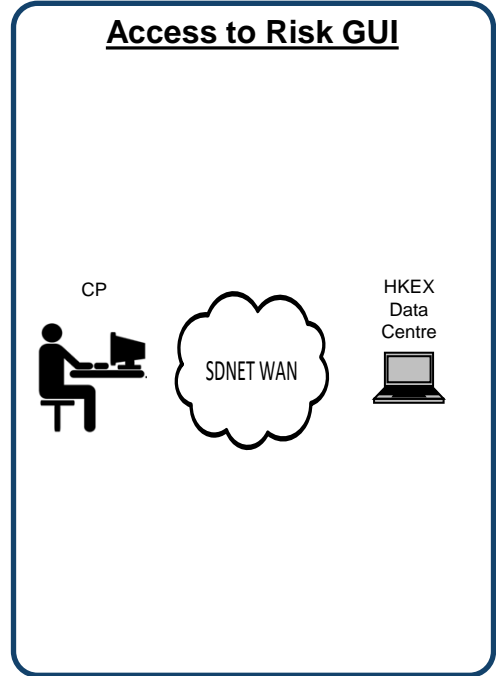
- Offers Margin Simulation, Position data & Margin data

How does it work?

- CPs input (or csv upload) for margin simulation
- Enquiry of position data & margin data is also available

What's next?

- CP to study User Guide, Configuration Guide
- CP to conduct Connectivity Test



Access to NGRM – Risk GUI

Access Management Functions

What is Access Management Tool ?

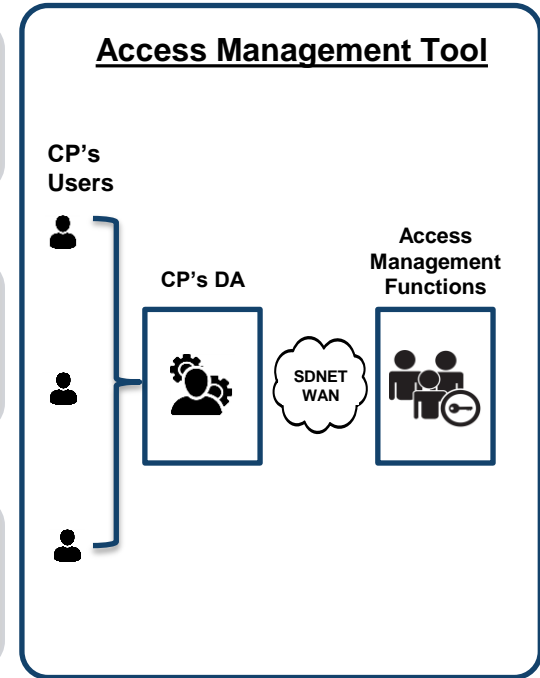
- For CPs to set up and maintain user access control for Risk GUI

How does it work?

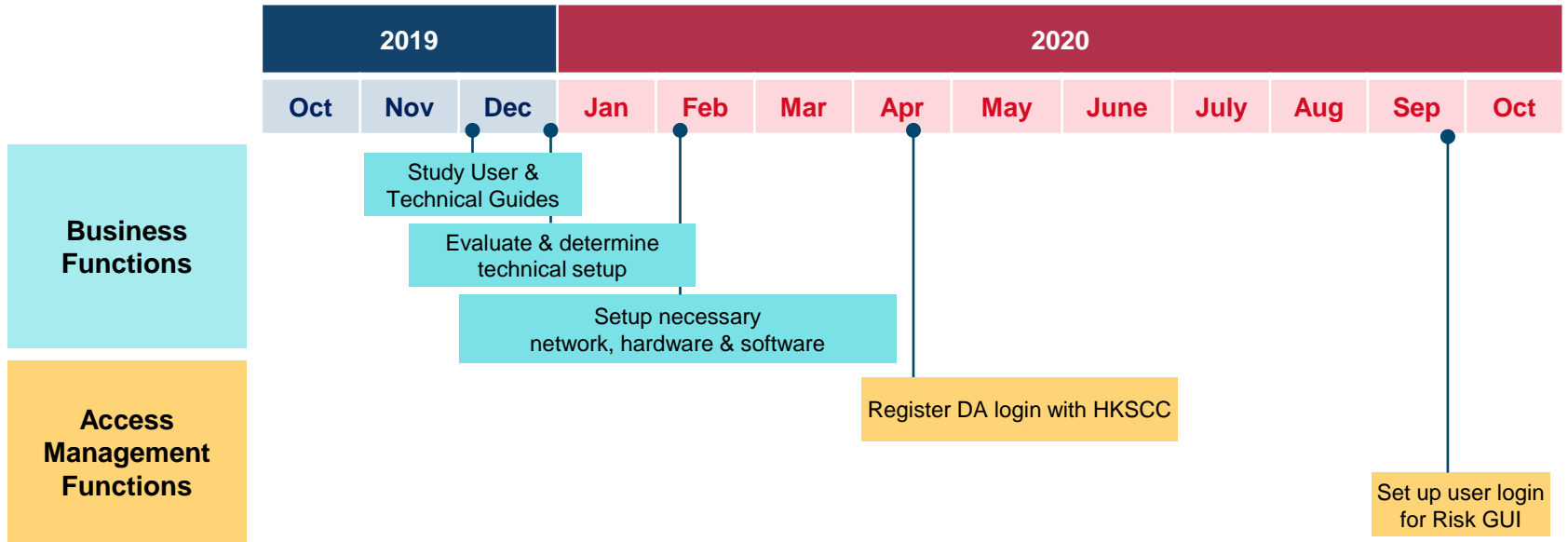
- CP to appoint Delegated Administrator (DA)
- CP's DA to setup user login for Risk GUI access

What's next?

- CP applies for NGRM DA login ID
- CP's DA sets up user login for Risk GUI access



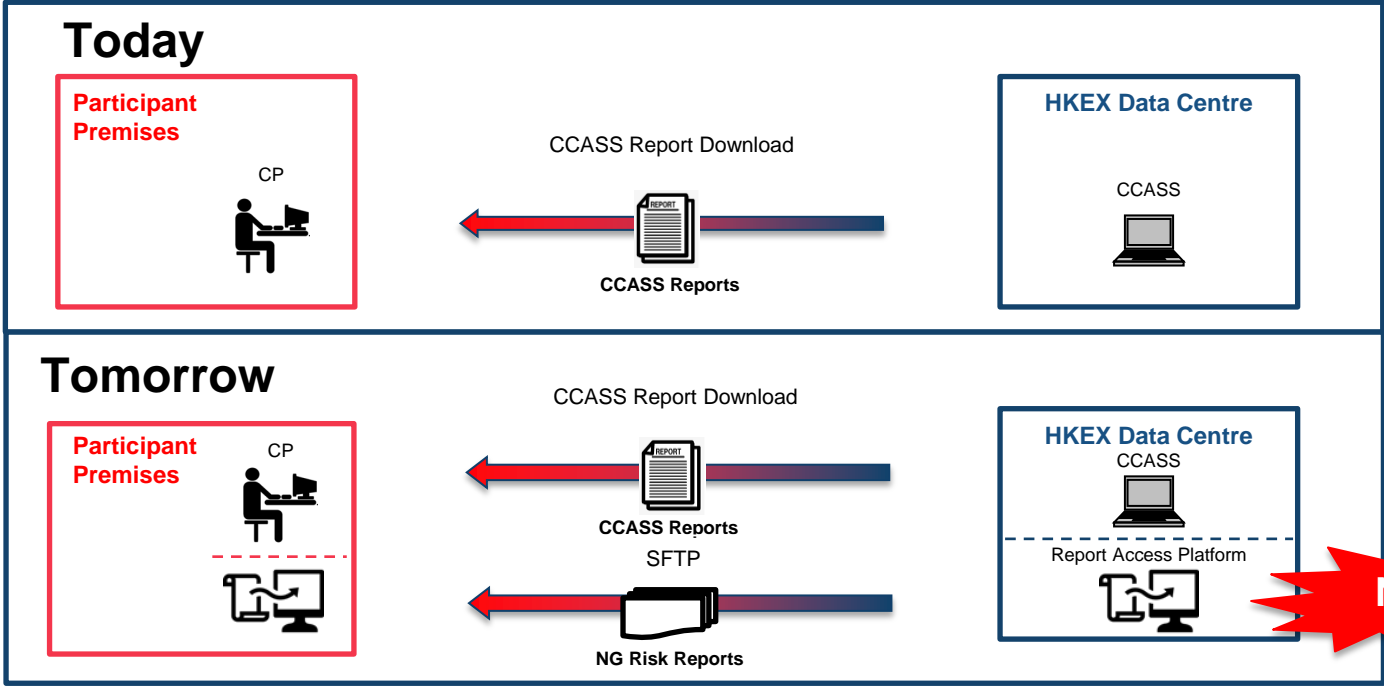
Risk GUI - Preparation



Note : Please refer to designated NextGen corner at HKEX website & upcoming circulars for most up-to-date information, including the publish of Technical Guide, registration details etc.



Retrieve New Risk Reports via Report Access Platform (RAP)



A new centralized report platform for retrieval of reports/data files via SFTP without the need of manual download; follow HKEX enterprise design of report access as in HKATS and DCASS upgrade



RAP - How to Access?

What is RAP ?

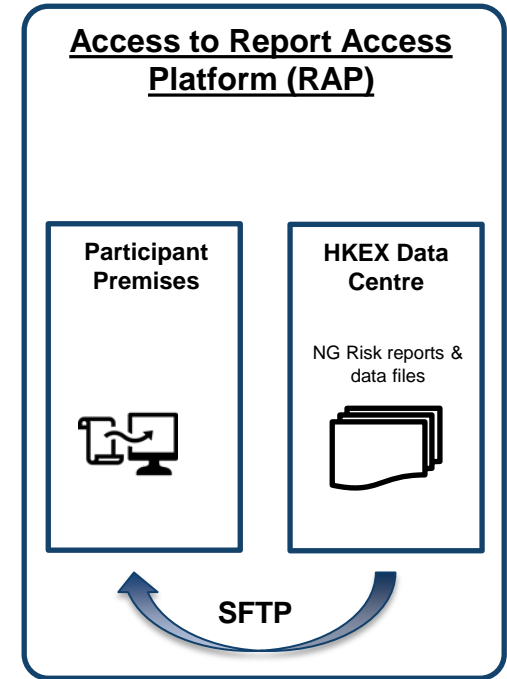
- A secure ftp platform for CPs to retrieve NG Risk reports & data files

How does it work?

- Connect through SDNet with a new SFTP client software

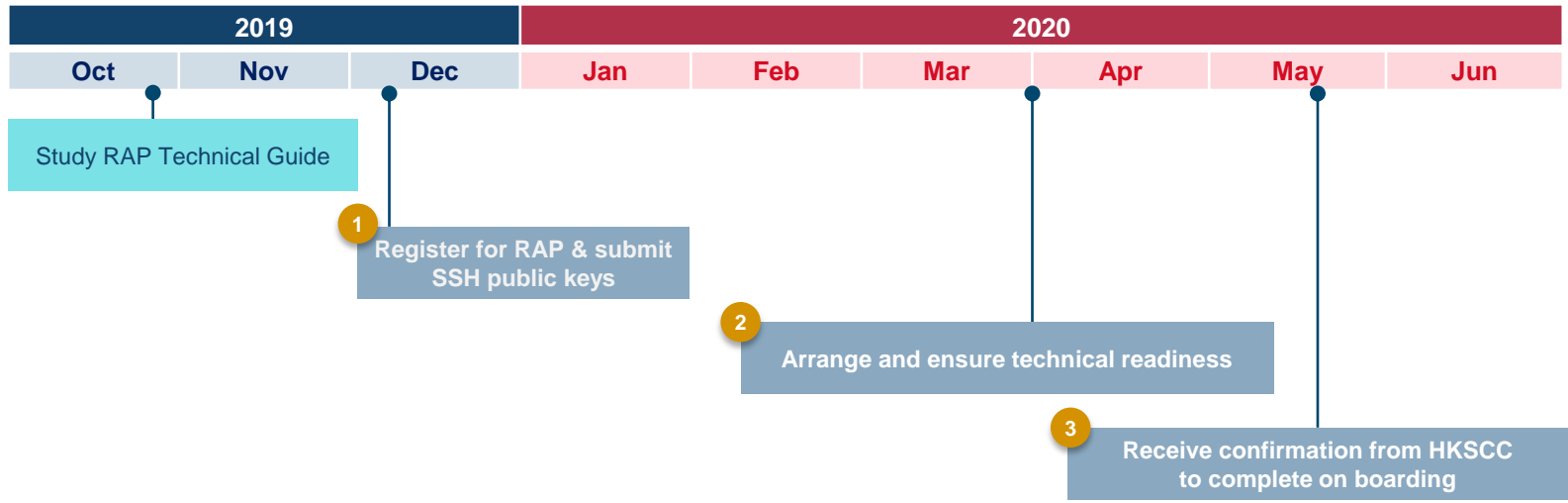
What's next?

- Study Technical Guides for Report Access Platform (RAP)
- Arrange & ensure technical readiness
- Conduct connectivity test



RAP - Preparation

- For Clearing Participants to download Risk reports and data files in zipped format
- **Reports and data files will be kept on the platform available for download for 10 calendar days after their generation**



Note : Please refer to Appendix & Technical Guide for details



NGRM Documentation for CP

User Manuals & Technical Specifications	Publication Date	Location
Initial Margin Risk Parameter File Guide	18 Oct 2019	User Guide & Technical Guide 
Stress Testing Risk Parameter File Guide		
HKSCC Report Access Platform (RAP) Technical Guide		
PC and Network Requirements		
NGRM User Guide for Participants (including Margin Simulator function)	2019 Dec	To be advised
List of Report and Data File, with samples	Q1 2020	To be advised
HKSCC Connectivity & Configuration Guide	Q1 2020	To be advised



*The above timeline serves for indicative purpose & is subject to changes at HKEX discretion. Clearing Participants shall always refer to the latest announcements from HKEX.

Key Takeaway

1. Participant Readiness

- The following guidance and support will be provided for better preparation of the rollout
 - Historical Impact Analysis reports, 6 months of margin comparison reports, 6 months of Margin Simulator Practice, around 1 month planned phased migration
 - Multiple Workshops and Briefing sessions, briefing pack documentation
- Provide designated contact to HKSCC for NGRM implementation preparation, circular will be issued soon

2. IT Preparation

- Start scheduling the SDNet configuration and prepare the necessary hardware and software for the rollout
- Please refer to the technical readiness information in the appendices

Visit HKEX website NextGen Post Trade Programme for further info:

- Email enquiries : NG_PostTrade@hkex.com.hk
- NGRM Hotline: 2211 6828
- NG Post Trade Programme RSS Feed: https://www.hkex.com.hk/Services/RSS-Feeds/NextGen-Post-Trade-Programme?sc_lang=en



Clearing Participants' online survey

1. Do you anticipate the Margin Simulator will be a benefit to you?

- a. Yes, I see a benefit and will use the Margin simulator on a daily basis
- b. Yes, I anticipate that I will use it on an ad-hoc basis since I will rely on the new NG Risk reports to support my business operation
- c. No, I see limited use for the margin simulator

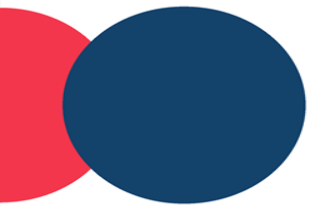
2. What information provided has been most useful for your company's preparations? (you can choose more than one answer)

- a. Margin Comparison
- b. Margin simulator practice section
- c. Details of changes on reports format and timing for NG Risk reports & data files via Report Access Platform (RAP)
- d. Documentation list update in HKEX website

3. From IT perspectives, is there any area where you need more information from HKEX?

- a. Everything, hardware upgrade, software installation and network changes
- b. Some, my IT team will take care of it, I just need vendor on SDNet configurations
- c. None. I have the information I need for now
- d. Not sure, we need more details

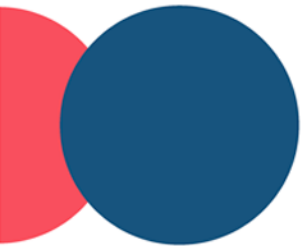




THANK YOU FOR COMING

Contact us at NG_PostTrade@hkex.com.hk for questions





APPENDIX

Appendix 1. Initial Margin Model

Operations-related arrangement

	Current model	Next Generation Risk Models
1 Tolerance limit (intraday)	<ul style="list-style-type: none"> HK\$5 million (applicable to Marks only) 	<ul style="list-style-type: none"> HK\$5 million (available to both Marks and Margin)
2 Marks credit limit	<ul style="list-style-type: none"> Same as DF Basic Contribution 	<ul style="list-style-type: none"> Not available¹
3 IM credit	<ul style="list-style-type: none"> HK\$5 million 	<ul style="list-style-type: none"> HK\$5 million <p>No change</p>
4 Favourable Marks-IM offset	<ul style="list-style-type: none"> Available 	<ul style="list-style-type: none"> Available <p>No change</p>
5 Intraday Margin for Holiday	<ul style="list-style-type: none"> Applicable to holiday periods > one business day 	<ul style="list-style-type: none"> Applicable to holiday periods > one business day <p>No change</p>
6 Intraday and Dayend Marks	<ul style="list-style-type: none"> ~11:00 and ~19:30 	<ul style="list-style-type: none"> ~11:00 and ~19:30 <p>No change</p>
7 IM refund for offset cash prepayment	<ul style="list-style-type: none"> Available 	<ul style="list-style-type: none"> Not available²
8 Periodic Margin projection / report	<ul style="list-style-type: none"> 14:45, 15:45, 16:45, 20:00 	<ul style="list-style-type: none"> 16:45, 20:00 + flexibility to simulate IM requirement intra-day
9 Margin rounding	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Round up to the nearest ten thousand dollar

1) Enhance default capital adequacy by isolation of DF resources

2) Advance IM refund will create potential exposure for unsettled short positions



Appendix 2. Stress testing and Default Fund (DF)

Methodology

Stress Testing

1 Scenarios

Current Model

- 2 hypothetical systemic risk scenarios (proxy of HSI movement) applied to all securities
 - Market up scenario
 - Market down scenario



Next Generation Risk Models

- >200 product-specific scenarios applied to each security
 - Historical, Hypothetical, Theoretical, Idiosyncratic

2 Position risk aggregation

- Higher of long / short CNS positions

- Portfolio based

DF

3 CP allocation

- CNS based

4 DF sizing

- 1st + 5th largest CPs' exposure
- 60-day lookback period

- Risk based (Stress test value net of CP's collateral)

- 1st + 5th largest CPs' exposure
- 60-day lookback period

No change

5 Review Frequency

- Monthly at start-of-month
- Ad-hoc

- Monthly at start-of-month
- Ad-hoc

No change

6 Collection

- 1 business day after review

- 1 business day after review

No change

7 DF credit

- HK\$1 million

- HK\$1 million

No change

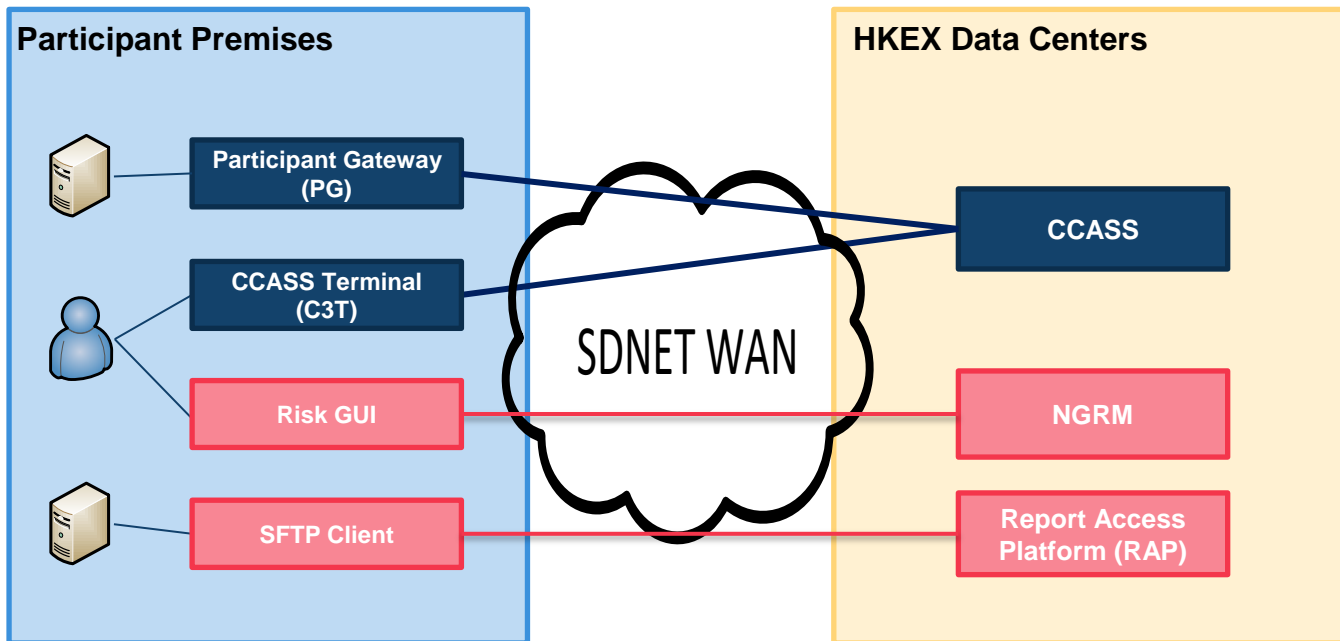
8 Report

- Available for DCP and GCP (with NCP projection) after review

- Available for DCP and GCP (with NCP projection) after review



Appendix 3. NEW Infrastructure after NGRM



Existing Setup

NG Phase 1 Setup

Appendix 4: HKSCC Risk Models – Operational Highlights under NGRM

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 (see later slides)**
 - 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
 - Practice Session will be provided for CPs before official launch
- 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)



Appendix 5. NGRM - Set Up Options

	<u>Option 1</u> Minimum Setup use existing C3T for RAP ¹	<u>Option 2</u> Basic Setup use existing C3T for RAP ¹ & NGRM	<u>Option 3</u> Advance Setup acquire new PC for RAP ¹ & NGRM
Feature	Existing CCASS access + (NEW) RAP	Existing CCASS access + (NEW) RAP & NGRM	
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 for RAP & NGRM • Install SFTP client for RAP¹ & Chrome for NGRM 		
Network	Reconfigure existing SDNet to access new DNS, RAP & NGRM		

Detail requirement will be provided in HKSCC Connectivity & Configuration Guide in Q1 2020



1. Please refer to HKSCC Report Access Platform (RAP) Technical Guide

Appendix 6. PC Requirement for C3T & NGRM

	<u>Option 1</u> Use Existing C3T ¹ for RAP	<u>Option 2</u> Use Existing C3T ¹ for RAP & NGRM	<u>Option 3</u> Acquire new PC for RAP & NGRM
CPU	1GHz	2.4GHz or faster	
Memory	2GB	4GB	
HardDisk	20GB	22GB	
Operating System	Windows 10 Pro (64 bit)		
Browser	IE11	IE11 (for C3T) & Chrome (for NGRM)	
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 7. Key Set Up Requirements & Timeline

#	REF	Key Set Up Requirements	<u>Option 1</u> Use Existing C3T	<u>Option 2</u> Use Existing C3T for ALL	<u>Option 3</u> Acquire new PC for NGRM	Action by
1	N	Reconfigure SDNet routing to access NGRM functions & reports	Required & by Jan 2020*			Network Vendors
2	SW	Install SFTP client for NGRM report download (follow Report Access Platform Technical Guide)	Required & by Jan 2020*			Participants
3	SW	Update PC Domain Name Server (DNS) Setting to access NGRM functions & reports	Required & by Jan 2020*		New PC (follow latest DNS setting)	PC Vendors/ Participants
4	SW/HW	Upgrade existing C3T to Win10 & associated JRE version <ul style="list-style-type: none"> Win7 end of support in mid Jan 2020 NGRM GUI supports Win 10 only 	Required & by Dec 2019		New PC (running on Win10)	PC Vendors/ Participants
5	SW	Install Chrome to access NGRM functions	N/A	Required & by Jan 2020*		

Report Access Platform Connectivity Test will commence in May~June 2020



N: Network related; **SW:** PC Software related; **HW:** PC Hardware related

*Dates are indicative only and yet to be finalized

Appendix 8. 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 NGRM 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
RMASP01	Series Prices Report
RPF01	Initial Margin Risk Parameter File
DWH0081C	Daily Participant Margin Multiplier Report



Appendix 9. 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 NGRM 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	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 10. 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 11. 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 NGRM Reports available via Report Access Platform (RAP)



Report ID	Report Name
RMCNM01	Northbound MSTD Requirement Report



Report ID	Report Name
RMCNM03	Northbound MSCD Requirement Report



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