HKATS and DCASS Upgrade

Market Rehearsal Test Information Package

for

HKCC / SEOCH Participants

Issue Date: Feb 2019

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1. Introduction

Hong Kong Exchanges and Clearing Limited ("HKEX") is committed in maintaining the stability and reliability of the market infrastructure, as well as enhancing the flexibility of Hong Kong Futures Automated Trading System ("HKATS") and Derivatives Clearing And Settlement System ("DCASS") to adopt the future market development in an on-going basis.

At the end of 2016, HKEX initiated an upgrade of its derivatives system, HKATS and DCASS i.e. the Upgrade, tentatively in May 2019. The Upgrade will bring the derivatives market a simplified infrastructure, with reduction of hardware footprints at Participant premises where Participants no longer required to maintain their Network Gateway ("NG") and instead all connections to HKATS & DCASS will be made via Central Gateway ("CG"). Furthermore, frontends for HKATS & DCASS, viz. CLICK and DCASS Terminals & Servers will no longer be offered in the Upgrade to further reduce Participant hardware footprint.

HKATS Online, a web based frontend application will be available to Exchange Participants (EP) for performing block trade facilities and as their backup arrangement during contingency. DCASS Online will be made available to Clearing Participants (CP) to support their clearing operations. Both frontends will be connected directly to CG at HKEX premises.

Also, as a prudent risk management measure, a "Fallback Plan for HKATS and DCASS Upgrade" (the "Fallback Plan") has been compiled by HKEX to cater for the unlikely situation where the upgraded applications may encounter major production incident at the initial rollout. The Fallback Plan will only be applicable in the first two weeks after the rollout of the Upgrade (the "Stabilisation Period"). Should the upgraded applications not be able to recover even after applying all necessary emergency fixes, HKEX would as a last resort trigger the Fallback Plan to revert to the existing Genium INET applications in order to resume the trading and clearing services for the derivatives market. For details, please refer to the Fallback Plan which is available at HKEX's designated Upgrade web corner (https://www.hkex.com.hk/Services/Trading/Derivatives/Infrastructure/HKATS/HKATS-and-DCASS-Upgrade?sc_lang=en).

The following scenarios will be covered in the Market Rehearsal ("MR"):

Connectivity Test on 2 March 2019

- For CP to verify the network configuration and connection in an end-to-end manner, including SDNet/2, Hosting Service Network ("HSN"), CG, DCASS Online, OMnet Application Programming Interface ("OAPI") Programs, Back Office System ("BOS") and any other in-house arrangement, where applicable.

MR Execution - Part (A) on 9 March 2019

- Simulate production environment at the launch of Upgrade, only existing products will be covered
- Normal sessions, to simulate the daily trading and clearing operations during T and T+1 Sessions;
- Volume sessions with both trading and clearing operations;

- Failover session for verification of HKATS & DCASS connection to HKEX's secondary data centre with both trading and clearing operations; and
- Fallback session for verification of DCASS & CCMS reports in Genium INET (Production Version) against Clearing Participants' internal records.

MR Execution - Part (B) on 16 March 2019

- Simulate production environment after the end of stabilization period of Upgrade, new initiatives – Extension of HKATS root symbol from 3 to 5 alpha-numeric characters and Weekly Index Options will be covered;
- Normal sessions, to simulate the daily trading and clearing operations during T and T+1 Sessions;

  Note: Scanning Based Intercommodity Spread will not be covered in MR for both Part (A) and Part (B) and subsequent format changes would not be appeared in RPF to be distributed during the test.

This Information Package is designed to assist CP in preparing the readiness of their internal operational processes and systems for the Upgrade. Detailed arrangement of MR for trading operations is provided to Exchange Participants via a separate information package.

CP should read this Information Package carefully and make all necessary preparation before participating in the MR. CP may also need to coordinate with their trading operations about the preparation and execution of MR. CP should pass a copy of this document to their IT support or system vendor to ensure the availability of proper technical support before and during MR.

Upon completion of the MR Connectivity Test and MR Execution, CP should complete and return the relevant confirmation forms to HKEX. Please refer to the summary table below:

Date	Time	Confirmation Form
MR Connectivity Test		
2 Mar 2019 (Sat)	13:00 – 16:00	Connectivity Test
	Before 17:00	Complete and submit HKATS & DCASS Upgrade MR Connectivity Test Confirmation Form (Appendix C1)
3 Mar 2019 (Sun)	9:00 – 11:00	(Optional) Production Verification
MR Execution – Part (A), simulating activities at launch		
9 Mar 2019 (Sat)	13:00 – 18:00	MR Part (A)
10 Mar 2019 (Sun)	9:00 – 11:00	(Optional) Production Verification
11 Mar 2019 (Mon)	–	Received and verify DCASS reports, for post-trade activities on Sat, before and after fallback

Date	Time	Confirmation Form
13 Mar 2019 (Wed)	Before 18:00	Complete and submit HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A) (Appendix C2)
MR Execution – Part (B), simulating activities after stabilisation period		
16 Mar 2019 (Sat)	13:00 – 17:00	MR Part (B)
17 Mar 2019 (Sun)	9:00 – 11:00	(Optional) Production Verification
18 Mar 2019 (Mon)	–	Received and verify DCASS reports, for post-trade activities on Sat
20 Mar 2019 (Wed)	Before 18:00	Complete and submit HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B) (Appendix C3)

2. Objectives and Scope

2.1 Test Objectives

The objectives of the test are to provide opportunity for CP to examine their readiness for the Upgrade, including internal operations, network and system connections in an end-to-end manner, with CG, BOS, OAPI Programs and any other in-house arrangement, where applicable by:

- confirming the infrastructure, configuration and hardware (e.g. CG) setup for connecting to DCASS;

    Note : **After completion of the MR, verified system configuration, hardware and/or OAPI Programs, if applicable, should be retained until HKEX announces the completion of the Stabilisation Period.**

- confirming the system performance and stability of DCASS during the volume test session;
- verifying the interface setup between the certified OAPI Programs, their BOS and DCASS;
- familiarizing themselves with the new frontend (DCASS Online) and the enhanced functionalities;
- verifying their configuration setup for DCASS connection to HKEX's secondary data centre under the Upgrade; and
- rehearsing their in-house fallback arrangement, including the report verification of the DCASS reports, which will be generated after simulating the fallback of DCASS from Upgraded Platform to Genium INET Platform, against their BOS or internal records.

2.2 Scope

The test will consist of four sections:

I. Normal Clearing Operations
II. Volume Test
III. Failover simulation from HKEX's primary date centre to the secondary data centre
IV. Fallback simulation from DCASS Upgraded to Genium INET platform for report verification

CP are required to complete ALL four sections of test. Please refer to Appendix B for the execution requirements, data setup and the list of DCASS reports to be available during and after the test.

I. Normal Clearing Operations

Two clearing sessions are available for CP to:

- perform post-trade activities (such as trade rectification, give-up / take-up, average price trade (APT) request, cross product netting and position transfer etc);
- perform various DCASS Online enquiry functions (such as enquiry via Trade

History Window, Holding Give-up Window, Account Position Window, Pending Exercise Window and Series Window etc); and

- **CCMS will NOT be available during the MR.**

For details of enhanced DCASS features, please refer to the Information Paper which is available at HKEX website via the web corner webpage (https://www.hkex.com.hk/Services/Trading/Derivatives/Infrastructure/HKATS/HKATS-and-DCASS-Upgrade?sc_lang=en).

Prior to the test, HKEX will pre-generate a set of day-end DCASS reports (please refer to Appendix B for the list of report) under Upgraded Platform, which will be dated as of one business day prior to the test (i.e. 8 March 2019 for Execution (Part A) and 15 March 2019 for Execution (Part B)).

II. *Volume Test*

To ensure the system stability when high transaction volume is recorded in HKATS & DCASS Upgrade, two volume rehearsal sessions will be conducted during the test where all CP (and Exchange Participants ("EP")) are required to input prescribed number of transactions into DCASS (and HKATS) respectively to simulate the clearing activities during the situation with high transaction volume, including orders, trades and post-trade transactions.

III. *Failover from HKEX's primary data centre to the secondary data centre*

To ensure that Participants can continue their trading and clearing operations by connecting to HKEX's secondary data centre of DCASS (and HKATS) after system failover, a post-failover session will be conducted during the test, where all CP are required to perform post-trade transactions and enquiry via DCASS upon DCASS services resumption after system failover.

IV. *Fallback – report verification*

Participants shall read and study the Fallback Plan carefully and prepare their internal fallback procedures (if applicable) before the test.

The fallback session simulates an unexpected situation where a major system error occurred on a day where trading session has been opened but it is unable to complete the relevant trading and clearing processes for the day. Subsequently, the Upgraded Platform will then be reverted to Genium INET Platform. Following that HKEX will convert and reload those trades executed (via HKATS) and post-trade transactions input (via DCASS) under upgraded system to Genium INET Platform HKATS and DCASS. Please refer to the Fallback Plan for details.

CP should take this opportunity to validate and practice their internal fallback procedures, if applicable, and verify the converted and reloaded data (by referencing to the DCASS & CCMS reports in Genium INET Platform format which to be received via email on the following Monday, 11 March 2019 against their testing BOS data or internal records.

3.   Important Notes to CP

3.1   Technical Setup for the Rehearsal

CP should note the following technical arrangements before and after MR Connectivity Test and the MR Execution.

A. *MR Connectivity Test*

Before MR Connectivity Test, i.e. 1 March 2019 (Friday)

a)   To facilitate MR Connectivity Test preparation, before MR Connectivity Test, i.e. 1 March 2019 (Friday), CP must ensure

- their DCASS Online workstation in place that meets the minimum configuration as communicated to CPs;
- Google Chrome browser version 68.0.3440.106 has been installed in the their DCASS Online workstations;
- their DCASS OAPI program(s) has/have been certified and tested if they wish to participate through their OAPI applications; and
- the following IP addresses and port numbers should be allowed by CP's host table and firewall, if applicable, for connections to the HKEX's CG under the Upgrade.

For DCASS Online connection:

HKEX's Data Centre	Gateway number	IP Address (Server Name)	Host Table Update	TCP / Port No.	URL of HKATS/ DCASS Online connection
Primary	1	10.151.14.155 (pgencdw001)	10.151.14.155 pgencdw001.hkex. com.hk	8082	https://pgencdw001.hkex.com.hk:8082/login
	2	10.151.14.156 (pgencdw002)	10.151.14.156 pgencdw002.hkex. com.hk		https://pgencdw002.hkex.com.hk:8082/login
	3	10.151.14.101 (pgenrgw001)	10.151.14.101 pgenrgw001.hkex. com.hk		https://pgenrgw001.hkex.com.hk:8082/login
	4	10.151.14.102 (pgenrgw002)	10.151.14.102 pgenrgw002.hkex. com.hk		https://pgenrgw002.hkex.com.hk:8082/login
Secondary	5	10.152.14.155 (sgencdw001)	10.152.14.155 sgencdw001.hkex. com.hk		https://sgencdw001.hkex.com.hk:8082/login
	6	10.152.14.156 (sgencdw002)	10.152.14.156 sgencdw002.hkex. com.hk		https://sgencdw002.hkex.com.hk:8082/login
	7	10.152.14.101 (sgenrgw001)	10.152.14.101 sgenrgw001.hkex. com.hk		https://sgenrgw001.hkex.com.hk:8082/login
	8	10.152.14.102 (sgenrgw002)	10.152.14.102 sgenrgw002.hkex. com.hk		https://sgenrgw002.hkex.com.hk:8082/login

For OAPI connection (same as current production setting):

HKEX's Data Centre	Gateway	IP Address Range
Primary	Primary CG	As assigned, 10.151.5.81 or 10.151.5.82
	Backup CG	10.151.5.83
Secondary	Primary CG	As assigned, 10.152.5.83 or 10.152.5.84
	Backup CG	10.152.5.85

CP are required to login from below authorized IP range:

Authorised IP Range	Purpose
xx.xx.xx. 1 to 5	HKATS & DCASS Online / OAPI
xx.xx.xx. 21 to 30	HKATS & DCASS Online / OAPI

CP are required to test their CG connections to both Primary **and** Secondary Data Centres. In other words, apart from testing the primary CG connections, CP are also required to test the Backup CGs where applicable. **The assigned primary/secondary CG connections are the same as current production setting.**

CP are reminded to have proper Default Gateway setting defined for their OAPI connections through CG.

Connections via	Default Gateway
SDNet	172.xxx.xxx.254 or 10.xxx.xxx.254
HSN	10.119.xxx.254

On 2 March 2019 (Saturday), after MR Connectivity Test

CP should receive the assigned IP addresses and port numbers for connecting DCASS via HKEX's CG under the Upgrade, which should be applicable to both normal situation and under contingency situation. For CP with firewall installed between their OAPI Programs and HKEX's CG, to ensure their firewall setup is valid and ready for the Upgrade, they should **connect and ensure their DCASS connection (include OAPI Programs) for ALL HKEX's CG connection assigned to them**.

B. *MR Execution (Part A) and (Part B)*

Before MR, on 8 March 2019 and 15 March 2019 (Friday)

a) To facilitate MR preparation, before the test, i.e. 8 March and 15 March 2019 (Friday), CP must ensure

- their DCASS Online workstation is in place that meets the minimum configuration as communicated to CPs;
- Google Chrome browser version 68.0.3440.106 has been installed in the CP's DCASS Online workstations;
- their DCASS OAPI program(s) has/have been certified and tested if they wish to participate through their OAPI applications; and
- the following IP addresses and port numbers should be allowed by CP's host table and firewall, if applicable, for connections to the HKEX's CG under the Upgrade

For DCASS Online connection (same details described under MR connectivity 3.1 A):

HKEX's Data Centre	Gateway number	IP Address (Server Name)	Host Table Update	TCP / Port No.	URL of HKATS/ DCASS Online connection
Primary	1	10.151.14.155 (pgencdw001)	10.151.14.155 pgencdw001.hkex.com.hk	8082	https://pgencdw001.hkex.com.hk:8082/login
	2	10.151.14.156 (pgencdw002)	10.151.14.156 pgencdw002.hkex.com.hk		https://pgencdw002.hkex.com.hk:8082/login
	3	10.151.14.101 (pgenrgw001)	10.151.14.101 pgenrgw001.hkex.com.hk		https://pgenrgw001.hkex.com.hk:8082/login
	4	10.151.14.102 (pgenrgw002)	10.151.14.102 pgenrgw002.hkex.com.hk		https://pgenrgw002.hkex.com.hk:8082/login
Secondary	5	10.152.14.155 (sgencdw001)	10.152.14.155 sgencdw001.hkex.com.hk		https://sgencdw001.hkex.com.hk:8082/login
	6	10.152.14.156 (sgencdw002)	10.152.14.156 sgencdw002.hkex.com.hk		https://sgencdw002.hkex.com.hk:8082/login
	7	10.152.14.101 (sgenrgw001)	10.152.14.101 sgenrgw001.hkex.com.hk		https://sgenrgw001.hkex.com.hk:8082/login
	8	10.152.14.102 (sgenrgw002)	10.152.14.102 sgenrgw002.hkex.com.hk		https://sgenrgw002.hkex.com.hk:8082/login

For OAPI connection (same as current production setting):

HKEX's Data Centre	Gateway	IP Address Range
Primary	Primary CG	As assigned, 10.151.5.81 or 10.151.5.82
	Backup CG	10.151.5.83
Secondary	Primary CG	As assigned, 10.152.5.83 or 10.152.5.84
	Backup CG	10.152.5.85

CP are required to login from below authorized IP range:

Authorised IP Range	Purpose
xx.xx.xx. 1 to 5	HKATS & DCASS Online / OAPI
xx.xx.xx. 21 to 30	HKATS & DCASS Online / OAPI

CP are required to test their CG connections to both Primary **and** Secondary Data Centres. In other words, apart from testing the primary CG connections, CP are also required to test the Backup CGs where applicable. **The assigned primary/secondary CG connections are the same as current production setting.**

CP are reminded to have proper Default Gateway setting defined for their OAPI connections through CG.

Connections via	Default Gateway
SDNet	172.xxx.xxx.254 or 10.xxx.xxx.254
HSN	10.119.xxx.254

Before MR on 9 March and 16 March 2019 (Saturday)

Prior to the test, HKEX will pre-generate a set of day-end DCASS reports (please refer to Appendix B for the list of report) under Upgraded Platform, which will be dated as of one business day prior to the test (i.e. 8 March and 15 March 2019). HKEX will provide these reports to CP via email before MR Execution. As part of the testing scope, each participating CP should verify the testing DCASS reports.

3.2   Preparation and Execution of MR

CP should note the following arrangements for the preparation and execution of MR

i)   CP shall use their DCASS Online to access DCASS during MR (i.e. both MR Connectivity Test and MR Execution).

In MR Execution (Part A), for report verification under normal and fallback scenario, HKEX will distribute 2 sets of DCASS and CCMS reports (one in Upgrade platform and one in Genium INET platform after fallback) to CP via email on 11 March 2019 (Monday).

In MR Execution (Part B), HKEX will distribute 1 set of DCASS and CCMS

reports in Upgrade platform to CPs via email on 18 March 2019 (Monday).

CP should <u>NOT</u> use these testing reports/files for production use. These reports shall be handled separately, so as to avoid misusing these reports/files for their normal business on the following business day.

ii) CP staff must have experience in conducting DCASS related activities for their daily business operations, and shall use the **production** user IDs with the testing password "**hkextesting**"[1] to access DCASS via DCASS Online and/or OAPI Programs during MR. Besides, CP should ensure the participating staff members have appropriate user function access to perform the required DCASS activities during MR. **CP's DCASS Administrators are not encouraged to change the user function access during MR because it will take time to take effect.**

iii) CP should ensure that they have access to the email of the designated contact persons for MR in order to receive reports/files and obtain emergency messages from HKEX for the purpose MR.

iv) CP should refer to the Checklist in Appendix A for the action items to be performed before, during and after MR for the preparation and execution of MR. In order to achieve the testing objectives, participating users should familiarise themselves with the requirements and procedures prior to MR.

v) CP should have their system administrator ID(s) and password(s) of their internal systems ready throughout MR, in case technical trouble-shooting is required.

vi) CP shall log into their DCASS Online and / or OAPI Programs at 1:00 p.m. promptly, to start MR Connectivity Test and MR Execution on time.

vii) In addition, CP are recommended to maintain a proper audit trail in respect of each transaction input during MR in accordance with the policy currently adopted by the CP. The Responsible Officer or his/her designate of each participating CP should be present during MR to supervise the testing process and to be responsible for relaying any issues arising during MR to HKEX. CP should execute post-trade transactions via DCASS Online and/or OAPI Programs during MR with the data set up and execution set forth in Appendix B.

viii) On 2 March 2019 after completion of the MR Connectivity Test, CP shall complete and return the HKATS & DCASS Upgrade MR Connectivity Test Confirmation Form in Appendix C1 to HKEX via email **at or before 17:00 on 2 March 2019 (Saturday).**

ix) After completion of the MR Execution (Part A), CP shall complete and return the HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A) in Appendix C2 to HKEX via email **at or before 18:00 on 13 March 2019 (Wednesday)**.

x) After completion of the MR Execution (Part B), CP shall complete and return the HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B) in Appendix C3 to HKEX via email **at or before 18:00 on 20 March 2019 (Wednesday)**.

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[1] This testing password will only be applicable for testing during MR.

4. Schedule and Arrangements

4.1 Overview

MR Connectivity Test will be conducted on 2 March 2019, while MR Execution with clearing sessions will be conducted on 9 March 2019, following with the fallback scenario.

4.2 Schedule and Timetable

Part A: *MR Connectivity Test*, 2 March 2019 (Saturday)

CP are requested to ensure their DCASS Online, OAPI Programs and firewall setup, where applicable, will be available during MR Connectivity Test.

Execution Date: **2 March 2019 (Saturday)**
System Date: **2 March 2019**

TESTING TIME FROM TO		DCASS PROCESSING	REMARKS
2 March 2019 (Saturday)			
DCASS Connectivity Test (CT)			
13:00	**16:00**	• Perform DCASS connection	• CP to verify the DCASS connection by login DCASS Online and OAPI Programs by using production user ID with the testing password "hkextesting" • CP to verify and ensure their DCASS connection via both HKEX's **primary** and **secondary** data centres.
End of CT			
Before 17:00		• Complete and submit the duly signed MR Connectivity Test Confirmation Form to HKEX via email	• Refer to Appendix C1 for the MR Connectivity Test Confirmation Form
Restoration to Production Genium INET platform			
17:00	**21:00**	• HKEX restore DCASS to Production Genium INET version	• DCASS login is not allowed during restoration
3 March 2019 (Sunday)			
Production Connectivity – Optional to CP			
09:00	**11:00**	• CP to perform production connectivity to DCASS	CP to login and verify their production connection to DCASS Production Genium INET platform.

Part B: <u>MR Execution (Part A)</u>, 9 March 2019 (Saturday)

(1) DCASS Online

MR will be conducted on 9 March 2019 (Saturday), to simulate production environment at the launch of Upgrade, only existing products will be covered. CP are requested to ensure their DCASS Online, OAPI Programs and firewall setup, where applicable, will be available during the test. During the test, trades executed via HKATS will be transmitted to and captured by DCASS, which will be available for CP to perform post-trade activities.

Execution Date: **9 March 2019 (Saturday)**
System Date: **9 March 2019**

TESTING TIME FROM	TO	DCASS PROCESSING	REMARKS
		9 March 2019 (Saturday)	
		DCASS on-line session – normal clearing / trading (T) session	
13:00	**13:45**	• Perform DCASS connectivity	• CP to login DCASS Online and OAPI Programs by using production user ID with the testing password "hkextesting". • CPs receive Risk parameters File (RPF) via email before market open
		• DCASS clearing session ready	• CP to perform post-trade activities on the pre-defined trades executed on 8 March 2019.
13:45	**14:00**	• Pre-Open / Pre-Market Activities	• HKEX captures CP positions as of 13:45 for the mandatory intra-day variation adjustment and margin call (for AHT products only).
14:00	**14:30**	• Mandatory intra-day variation adjustment and margin call (for AHT products only)	• HKEX to trigger mandatory intra-day variation adjustment and margin call based on the position snapshot at 13:45. • CP receive the RPF for the mandatory intra-day variation adjustment and margin call via email (please refer to Appendix B for the availability of full set of mandatory intra-day variation adjustment and margin call reports)
		• Market (T Session) open at 14:00	• CP should referred to Appendix B : Execution Requirements for suggested post-trade activities and trades / give-up trades created by HKEX for MR testing purpose.

TESTING TIME FROM TO		DCASS PROCESSING	REMARKS
9 March 2019 (Saturday)			
1st Volume Test session			
14:30	14:45	• Volume Test session	• CP are required to input specific number of post-trade transactions as per Appendix B.
Normal trading / clearing session			
14:45	15:00	• Normal Trading / Clearing session	• CP should referred to Appendix B : Execution Requirements for testing purpose.
Failover session			
15:00	15:40	• DCASS (and HKATS) failover from HKEX's primary data centre to the secondary data centre	• CP should logout from DCASS.
15:40	16:15	• Perform DCASS connectivity • DCASS clearing session ready • Pre-Market and Auction Activities	• CP to login DCASS Online (by invoking Upgraded version) and/or OAPI Programs by using production user ID with the testing password "hkextesting" to connect to HKEX's CG at the secondary data centre.
16:15	16:30	• Market (T Session) open	• CP should refer to Appendix B Execution Requirements for testing purpose.
2nd Volume Test session			
16:30	16:45	• Volume Test session	• CP are required to input specific number of post-trade transactions as per Appendix B.
16:40	17:10	• Ad-hoc intra-day variation adjustment/margin call (for HKCC and SEOCH)	• HKEx to trigger ad-hoc intra-day variation adjustment/margin call call at 16:40. • CP receive the RPF for the ad hoc intraday variation adjustment/margin call via email (please refer to Appendix B for the availability of full set of intraday variation adjustment/margin call reports)
Normal trading / clearing session			
16:45	17:00	• Normal Trading session • Market (T Session) close at 17:00	• CP continue to perform post-trade transactions for T trades until close of clearing (T) session at 17:30, with reference to Appendix B.
17:00	17:30	• Clearing (T) session continue until 17:30	

TESTING TIME FROM TO		DCASS PROCESSING	REMARKS
9 March 2019 (Saturday)			
Normal clearing / trading (T+1) session – only applicable to CP participating in AHT (For CP who do not clear for AHT session, they can logout DCASS and end the MR execution at 17:30 after Clearing (T) session closed)			
17:15	**17:45**	• AHT Market (T+1 Session) open till 17:45	• CP can input post-trade transactions for both T trades and T+1 trades during this period.
17:15	**17:30**	• Clearing (T+1) session start from 17:15 • Clearing (T) session close at 17:30	
17:30	**18:00**	• Intra-day CBPL monitoring during T+1 session (for HKCC only)	• HKEX triggers Intra-day CBPL monitoring during T+1 session at 17:30 • CP receive the RPF for the intra-day CBPL monitoring via email (please refer to Appendix B for the availability of full set of Intra-day CBPL monitoring reports)
		• Clearing (T+1) session continue until 18:00	• CP can only input post-trade transactions for T+1 trades during this period until 18:00. *Please note that position adjustment on T+1 positions will NOT be available.*
End of MR Execution			
18:00		• DCASS online (T+1 Session) close	• CP should logout from DCASS.
Restoration to Production Genium INET platform			
18:00	**22:00**	• HKEX restore DCASS to Production Genium INET version	• DCASS login is not allowed during restoration
10 March 2019 (Sunday)			
Production Connectivity – Optional to CP			
09:00	**11:00**	• CP to perform production connectivity to DCASS	• **(Optional)** CP to verify their production connection to DCASS Production Genium INET version.
11 March 2019 (Monday)			
Report Verification – Normal and Fallback Scenarios			

TESTING TIME FROM TO	DCASS PROCESSING	REMARKS
Before 19:00	• Receive 2 sets of DCASS reports from HKEX via email: **(i)** generated in Upgraded under normal scenario; **(ii)** generated in Genium INET Platform under fallback scenario	• CP to verify the DCASS reports received from HKEX via email* against the post-trades activities performed during the test. **CP should ensure their mailbox can receive large size of zip file (~20MB) from HKEX*

13 March 2019 (Wednesday)
Submission of HKATS & DCASS Upgrade MR Confirmation Form

Before 18:00	• Complete and submit the duly signed HKATS & DCASS Upgrade MR Confirmation Form – MR Execution (Part A) to HKEX via email	• Refer to Appendix C2 for the HKATS & DCASS Upgrade MR Confirmation Form.

Part C: <u>MR Execution (Part B)</u>, 16 March 2019 (Saturday)

(2)   DCASS Online

MR will be conducted on 16 March 2019 (Saturday), to simulate production environment after the end of stabilization period of Upgrade, new initiatives – Extension of HKATS root symbol from 3 to 5 alpha-numeric characters and Weekly Index Options will be covered. CP are requested to ensure their DCASS Online, OAPI Programs and firewall setup, where applicable, will be available during the test. During the test, trades executed via HKATS will be transmitted to and captured by DCASS, which will be available for CP to perform post-trade activities.

Execution Date: **16 March 2019 (Saturday)**
System Date: **16 March 2019**

TESTING TIME FROM TO		DCASS PROCESSING	REMARKS
16 March 2019 (Saturday)			
DCASS on-line session – normal clearing / trading (T) session			
13:00	**13:45**	• Perform DCASS connectivity	• CP to login DCASS Online and OAPI Programs by using production user ID with the testing password "hkextesting". • CPs receive Risk parameters File (RPF) via email before market open
		• DCASS clearing session ready	• CP to perform post-trade activities on the pre-defined trades executed on 15 March 2019.
13:45	**14:00**	• Pre-Open / Pre-Market Activities	• HKEX captures CP positions as of 13:45 for the mandatory intra-day variation adjustment and margin call (for AHT products only).
14:00	**14:30**	• Mandatory intra-day variation adjustment and margin call (for AHT products only)	• HKEX to trigger mandatory intra-day variation adjustment and margin call based on the position snapshot at 13:45. • CP receive the RPF for the mandatory intra-day variation adjustment and margin call via email (please refer to Appendix B for the availability of full set of mandatory intra-day variation adjustment and margin call reports)
14:00	**15:30**	• Market (T Session) open at 14:00	• CP should refer to Appendix B: Execution Requirements for suggested post-trade activities and trades / give-up trades created by HKEX for MR testing purpose.

TESTING TIME FROM TO		DCASS PROCESSING	REMARKS
15:00	**15:30**	• Ad-hoc intra-day variation adjustment/margin call (for HKCC and SEOCH)	• HKEX to trigger ad-hoc intra-day variation adjustment/margin call at 15:00 • CP receive the RPF for the ad hoc intraday variation adjustment/margin call via email (please refer to Appendix B for the availability of full set of intraday variation adjustment/margin call reports)
15:30	**16:00**	• Market (T Session) close at 15:30 • Clearing (T) session continue until 16:00	• CP continue to perform post-trade transactions for T trades until close of clearing (T) session at 16:00, with reference to Appendix B.
Normal clearing / trading (T+1) session – only applicable to CPs participating in AHT **(For CP who do not clear for AHT session, they can logout DCASS and end the MR execution at 16:00 after Clearing (T) session closed)**
15:45	**16:30**	• AHT Market (T+1 Session) open till 16:30	• CP can input post-trade transactions for both T trades and T+1 trades during this period.
15:45	**16:00**	• Clearing (T+1) session start from 15:45 • Clearing (T) session close at 16:00	
16:00	**16:30**	• Intra-day CBPL monitoring during T+1 session (for HKCC only)	• HKEX triggers Intra-day CBPL monitoring during T+1 session at 16:00 • CP receive the RPF for the Intra-day CBPL monitoring via email (please refer to Appendix B for the availability of full set of Intra-day CBPL monitoring reports)
16:30	**17:00**	• Clearing (T+1) session continue until 17:00	• CP can only input post-trade transactions for T+1 trades during this period until 17:00. *Please note that position adjustment on T+1 positions will NOT be available.*
End of MR Execution
	17:00	• DCASS online (T+1 Session) close	• CP should logout from DCASS.
Restoration to Production Genium INET platform
17:00	**22:00**	• HKEX restore DCASS to Production Genium INET version	• DCASS login is not allowed during restoration
17 March 2019 (Sunday)
Production Connectivity – Optional to CP
09:00	**11:00**	• CP to perform production connectivity to DCASS	CP to login and verify their production connection to DCASS Production Genium INET platform.

TESTING TIME FROM TO	DCASS PROCESSING	REMARKS
18 March 2019 (Monday)		
Report Verification		
Before 19:00	• Receive a set of Upgraded DCASS reports from HKEX via email	• CP to verify the DCASS reports received from HKEX via email* against the post-trades activities performed during the test. **CP should ensure their mailbox can receive large size of zip file (~20MB) from HKEX*
20 March 2019 (Wednesday)		
Submission of HKATS & DCASS Upgrade MR Confirmation Form		
Before 18:00	• Complete and submit the duly signed HKATS & DCASS Upgrade MR Confirmation Form - (Part B) to HKEX via email	• Refer to Appendix C3 for the HKATS & DCASS Upgrade MR Confirmation Form.

(2) Report Verifications

i) **DCASS reports:**

Before MR Execution Parts (A) and (B), a set of previous day DCASS day-end reports in Upgraded version (i.e. clearing date = 8 March and 15 March 2019 respectively) containing HKEX pre-set data will be sent to CP via email for verification.

In MR Execution Part (A), for report verification under normal and fallback scenario, HKEX will distribute 2 sets of day-end DCASS reports (one in Upgrade platform and one in Genium INET platform after fallback) (i.e. clearing date = 9 and 11 March 2019) to CP via email on 11 March 2019 (Monday).

In MR Execution Part (B), for report verification, HKEX will distribute 1 set of day-end DCASS reports in Upgrade platform (i.e. clearing date = 16 and 18 March 2019) to CP via email on 18 March 2019 (Monday).

ii) **CCMS reports:**

After the MR Execution Parts (A) and (B), on Monday, 11 March and 18 March 2019, intra-day/day-end CCMS testing reports containing the below will be sent to each participating CP via email:

- collateralisation results for the mandatory intra-day variation adjustment/margin call and ad-hoc intra-day variation adjustment/margin call during the T Session on 9 March and 16 March 2019 of the MR Execution Parts (A) and (B) respectively;
- the day-end processing results of the two clearing days of the MR Execution Parts (A) and (B) respectively (i.e. 9 and 11 March, 16 and 18 March 2019); and
- the related collateral account movements and collateral account balances of the two clearing days of the MR.

CP should verify the DCASS and CCMS reports by reconciling them against HKEX's pre-set activities and their own activities performed during MR (please refer to Appendix B for details).

*CP should ensure their mailbox can receive large size of zip file (~20MB) from HKEX

4.3   User ID and Login Password

CP should use their **DCASS production user IDs** and testing passwords "**hkextesting**" to access DCASS Online and/or OAPI Programs during MR.

4.4   Test Environment

When CP login DCASS, they will be simulating production operation as if 9 March and 16 March 2019 are normal business day.   HKEX will prepare a clean environment for DCASS.   CP should refer to Appendix B for the details of ***pre-defined trades and post-trades*** to facilitate CP to perform post-trade activities during the test.

4.5   Transactions to be Executed

CP should execute post-trade transactions via DCASS Online and/or DCASS OAPI Programs during MR. CP should refer to Appendix B for the detailed execution script during clearing of T and T+1 Sessions.

CP please note that Covered Call will NOT be available during the test.

4.6   Pre-MR Arrangement

CP should ensure their SDNet/2 (if applicable), OAPI Programs (if applicable), and BOS are ready for the Upgraded DCASS.

If CP would use their production BOS to perform the test, they should ensure their production BOS data are properly backed up before start of the test. Data restoring procedures should also be prepared beforehand so that production data can be restored to their production BOS upon completion of the test. CP should arrange where appropriate data backup arrangement with their IT support or BOS vendor before participating in the test, if such procedures required.

4.7   Post-MR Arrangement

CP are reminded **to keep their** Genium INET Network Gateways **SWITCHED ON** after completion of the test.

CP with DCASS OAPI Programs are reminded to do clean-up and make sure that their DCASS OAPI Programs used in the test has been resumed to production image and ready for normal business activities on the next business day (i.e. 11 March and 18 March 2019, Monday).

4.8   Test Confirmation

All participating CP are requested to complete and return

Date	Time	Confirmation Form
2 Mar 2019 (Sat)	Before 17:00	Complete and submit HKATS & DCASS Upgrade MR Connectivity Test Confirmation Form (Appendix C1)
13 Mar 2019 (Wed)	Before 18:00	Complete and submit HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A) (Appendix C2)
20 Mar 2019 (Wed)	Before 18:00	Complete and submit HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B) (Appendix C3)

5. Typhoon and Rainstorm Arrangements

5.1 Typhoon Arrangement

If Typhoon Signal No. 8 or above is remained hoisted before 11:00 or the HK Observatory pre-announced at or before 11:00 that Typhoon Signal No. 8 or above will be hoisted at or before 13:00 on 2, 9 or 16 March 2019, Saturday, the Test will be cancelled. HKEX will notify CPs the revised schedule at a later stage.

If Typhoon Signal No. 8 or above is issued at or after 13:00, all activities related to the Rehearsal will be terminated 15 minutes after the issuance of Typhoon Signal No. 8.

5.2 Black Rainstorm Arrangement

If Black Rainstorm Warning is remained in effect at 11:00 on 2, 9 or 16 March 2019, Saturday, the Test will be cancelled and will not be resumed for the rest of the day.

If Black Rainstorm Warning is issued during the Rehearsal, all activities will continue as normal.

6. Communication Channels

Under normal situation, HKEX will communicate with the designated contact persons of the CP during the Rehearsal via email and/or phone calls.

In the event of cancellation or postponement of the Rehearsal if contingency happened two hours before the Rehearsal starts (i.e. **11:00 on 2, 9 and 16 March 2019**) due to unexpected situations, HKEX will inform CP of the ad-hoc arrangements via emails and/or phone calls.

CPs should ensure that their designated contact persons for the Rehearsal are reachable during the prescribed time and the relevant emails and mobile phone numbers submitted to HKEX must be accurate.

7. Help Desk

For any queries during the preparation and execution of the MR, CP can contact **DCASS Hotline at 2979-7222** for assistance.

APPENDIX A: HKATS & DCASS Upgrade MR Checklist

	ITEMS TO BE CHECKED	✓
(A)	**Before MR**	
1	Have you read and understood this document ("Market Rehearsal Test for HKATS & DCASS Upgrade Information Package for HKCC and SEOCH Participants")?	
2	Have you (if necessary) passed this document to your internal IT support team or system vendor and ensured that they would make follow-up action?	
3	Have you ensured that the participating users have appropriate user function access to perform the required activities in DCASS and/or your internal systems during MR?	
4	For connecting your DCASS OAPI Programs in MR, have you ensured that proper procedures are in place to switch to testing environment without affecting the existing production DCASS OAPI Programs, and that restore procedures are in place?	
5	Have you established appropriate procedures to restore your production version of internal system / OAPI upon completion of the test and verification control to ensure system readiness for normal business operations on the following Business Day, i.e. 11 and 18 March 2019?	
6	Have you arranged IT and/ or system vendor support with appropriate system administration ID during MR in case there is any technical problem?	
7	Have you communicated with your trading department to input trades via HKATS for your testing during the T and T+1 Sessions (if applicable) on 9 and 16 March 2019?	
8	Have you communicated with your IT/vendors to set 9 and 16 March 2019 as a valid business date and clearing date for the BOS and / or DCASS OAPI which will be used for MR?	
9.	Have you set valid Clearing Days for the BOS and/or DCASS OAPI which will be used for the test i.e. 9 and 16 March 2019 for trades/post-trades processed during Clearing (T) session and 11 and 18 March 2019 for trades/post-trades processed during Clearing (T+1) session?	
10	Since MR schedule is very tight and there is no buffer for extension, have you reminded your responsible staff participating in MR should perform connectivity promptly at **13:00 on 2, 9 and 16 March 2019**?	
11	*For CP with internal firewall* Have you ensured your firewall setting can allow connection to HKEX's CG, located at HKEX's primary and secondary data centres?	
(B)	**On 2 March 2019, during MR Connectivity Test**	
1	Have you performed the connectivity to DCASS as stated in Appendix B during the MR connectivity session?	
2	Have you submitted the HKATS & DCASS Upgrade MR Connectivity Test Confirmation Form (Appendix C1) **before 17:00 on Saturday, 2 March 2019**?	
3	Have you ensured that your DCASS OAPI Programs have been restored to production after completing MR Connectivity Test?	

	ITEMS TO BE CHECKED	✔
4	*For CP with internal firewall* If there is firewall installed between your OAPI Programs and HKEX's CG, have you verified and ensured you can connect to DCASS via **ALL** your assigned HKEX's CG?	
(C) On 9 and 16 March 2019, before executing test cases and during MR Execution		
1	Have your designated contact persons of MR already logged in their email accounts to obtain announcement during MR?	
2	Have you performed all required testing activities?	
3	Have you successfully tested your internal operation procedures and back office system?	
(D) After MR execution Part (A) & (B), 9 and 16 March 2019		
1	Have you cleaned up all testing data in your DCASS OAPI Programs, if applicable?	
2	Have you ensured that your DCASS OAPI Programs have been restored to production after completing MR, if applicable?	
3	Have you restored your DCASS OAPI login password for normal business activities on the following business day, i.e. 11 and 18 March 2019?	
4	Have you cleaned up or separately stored the testing reports to ensure such reports will **NOT** be mixed up with your production reports?	
5	Have you recorded all your firewall changes and/or setting to prepare for the launch of HKATS & DCASS Upgrade as part of the cut-over arrangement, if applicable?	
6	Have you submitted the HKATS & DCASS Upgrade MR Confirmation Forms (Appendices C2 and C3) **before 18:00 on 13 and 20 March 2019** (Wednesday)?	

APPENDIX B: Data Set up and Execution Requirements

1. Testing data created by HKEX for CP to perform post-trades during the test

(1) Post-trade Transactions in DCASS

The following dummy CP will act as the counterparty of the post-trade transactions executed by CP.

DCASS Customer Code: CCCC   Company Name: CCC Company Limited

(2) Pre-defined Trades in DCASS

Each CP will have the following trades pre-defined in their DCASS Accounts upon the start of MR:

(i)   For MR Execution – Part (A), 9 March 2019

HKCC

For each CP, **110 Long and 100 Short** open positions for each of the following series will be available in their **DCASS Omnibus Client** account.

Trade Date	Trading Session	Clearing Date	Series	Free Text
8 Mar 2019	T	8 Mar 2019	HSIH9	ST_D1
			MHIH9	ST_D2
			HHIH9	ST_D3
			MCHH9	ST_D4
8 Mar 2019	T+1	9 Mar 2019	HSIH9	ST_N1
			MHIH9	ST_N2
			HHIH9	ST_N3
			MCHH9	ST_N4

SEOCH

For each CP, **110 Long and 100 Short** open positions for each of the following series will be available in their **DCASS Omnibus Client** account.

Trade Date	Trading Session	Clearing Date	Series	Free Text
8 Mar 2019	T	8 Mar 2019	HKB65.00C9	ST_D5
			HKB65.00O9	ST_D6

Pre-defined Give-up trades in DCASS

Pre-defined **Give-up** trades for CPs to proceed **Take-up** or **Reject,** the pre-defined position of each Give-up trade is **120.** Please note that in the event of Trading Halt during T+1 Session, some pre-defined trades will not be able to be given up to CPs:

HKCC

Trade Date	Trading Session	Clearing Date	Series	Free Text
9 Mar 2019	T	9 Mar 2019	HSIH9	STGU1
			MHIH9	STGU2
			HHIH9	STGU3
			MCHH9	STGU4
9 Mar 2019	T+1	11 Mar 2019	HSIH9	STGU5
			MHIH9	STGU6
			HHIH9	STGU7
			MCHH9	STGU8

SEOCH

Trade Date	Trading Session	Clearing Date	Series	Free Text
9 Mar 2019	T	9 Mar 2019	HKB65.00C9	STGU9
			HKB65.00O9	STGU10

(ii) **For MR Execution – Part (B), 16 March 2019**

HKCC

For each CP, **110 Long and 100 Short** open positions for each of the following series will be available in their **DCASS Omnibus Client** account.

Trade Date	Trading Session	Clearing Date	Series	Free Text
15 Mar 2019	T	15 Mar 2019	HSIH9	ST_D1
			HK388H9	ST_D2
			HSI27000C9W22*	ST_D3
			HSI27000O9W22*	ST_D4
15 Mar 2019	T+1	16 Mar 2019	HSIH9	ST_N1
			MHIH9	ST_N2
			HSI27000C9W22*	ST_N3
			HSI27000O9W22*	ST_N4

*Only available for CP who plan to clear Weekly Index Options

SEOCH

For each CP, **110 Long and 100 Short** open positions for each of the following series will be available in their **DCASS Omnibus Client** account.

Trade Date	Trading Session	Clearing Date	Series	Free Text
15 Mar 2019	T	15 Mar 2019	HK388350.00C9	ST_D5
			HK388350.00O9	ST_D6

Pre-defined Give-up trades in DCASS

Pre-defined **Give-up** trades for CPs to proceed **Take-up** or **Reject,** the pre-defined position of each Give-up trade is **120. Please note that in the event of Trading Halt during T+1 Session, some pre-defined trades will not be able to be given up to CP**:

HKCC

Trade Date	Trading Session	Clearing Date	Series	Free Text
16 Mar 2019	T	16 Mar 2019	HSIH9	STGU1
			HK388H9	STGU2
			HSI27000C9W22*	STGU3
			HSI27000O9W22*	STGU4
16 Mar 2019	T+1	18 Mar 2019	HSIH9	STGU5
			MHIH9	STGU6
			HSI27000C9W22*	STGU7
			HSI27000O9W22*	STGU8

*Only available for CP who plan to clear Weekly Index Options

SEOCH

Trade Date	Trading Session	Clearing Date	Series	Free Text
16 Mar 2019	T	16 Mar 2019	HK388350.00C9	STGU9
			HK388350.00O9	STGU10

(3) **Execution Requirements – MR Execution (Part A)**

Execution Date	9 March 2019
Logical Date	9 March 2019

<table>
<tr><td colspan="2">Normal Clearing Operations, during
(i)   Clearing (T) Session, start from 13:00 to 17:30;
(ii)   Clearing (T+1) Session, start from 17:15 to 18:00</td></tr>
<tr>
<td>Description</td>
<td>Able to perform at least 1 transaction of the following post-trades activities during Clearing (T) Session :
-    Give up
-    Take-up
-    Average priced trade (APT)
-    Position transfer
-    Trade rectification

Able to perform the following general functions :
-    Enquiry via Trade History window / Account Position window</td>
</tr>
<tr>
<td>Success Criteria</td>
<td>CP can successfully invoke and perform post-trade transactions and general enquiry via DCASS Online and/or DCASS OAPI Programs during the test.</td>
</tr>
<tr><td colspan="2" align="center">Failover Session, from 15:40 to 16:30</td></tr>
<tr>
<td>Description</td>
<td>● Able to re-connect to DCASS successfully after HKEX has announced resumption of services upon system failover to secondary data centre
● Able to perform post-trades activities and other clearing operations during the Failover Session.</td>
</tr>
<tr>
<td>Success Criteria</td>
<td>CP can successfully perform post-trade transactions and other clearing operations during the failover session</td>
</tr>
<tr><td colspan="2" align="center">Volume Test Sessions, (i) from 14:30 to 14:45; (ii) from 16:30 to 16:45</td></tr>
<tr>
<td>Description</td>
<td>Able to perform a minimum of 10 post-trade transactions during each of the Volume Test Session.</td>
</tr>
<tr>
<td>Success Criteria</td>
<td>CP can successfully perform post-trade transactions during the volume test sessions</td>
</tr>
<tr><td colspan="2" align="center">Report Verification
receive 2 sets of DCASS & CCMS reports from HKEX via email before 19:00 on 11 March 2019 (Monday)</td></tr>
<tr>
<td>Description</td>
<td>(I)   Normal Scenario: Verify the Upgraded DCASS reports against CP's BOS and/or internal records in regards to those post-trade transactions executed during the test.

(II)   Fallback Scenario: Verify the Genium INET DCASS reports against CP's BOS and/or internal records in regards to those post-trade transactions executed during the test.</td>
</tr>
<tr>
<td>Success Criteria</td>
<td>No abnormality being identified during report/data verification.</td>
</tr>
</table>

(4) Execution Requirements – MR Execution (Part B)

Execution Date	16 March 2019
Logical Date	16 March 2019
Normal Clearing Operations, during **(i) Clearing (T) Session, start from 13:00 to 16:00** **(ii) Clearing (T+1) Session, start from 15:45 to 17:00**	
Description	Able to perform at least 1 transaction of the following post-trades activities during Clearing (T) Session : - Give up - Take-up - Average priced trade (APT) - Position transfer - Trade rectification Able to perform the following general functions : - Enquiry via Trade History window / Account Position window
Success Criteria	CP can successfully invoke and perform post-trade transactions and general enquiry via DCASS Online and/or DCASS OAPI Programs during the test.
Report Verification **receive 1 set of DCASS & CCMS reports from HKEX via email before 19:00 on 18 March 2019 (Monday)**	
Description	Verify the Upgraded DCASS reports against CP's BOS and/or internal records in regards to those post-trade transactions executed during the test.
Success Criteria	No abnormality being identified during report/data verification.

(5) Collateral Balances in CCMS

The following pre-defined cash collateral balances (opening balances as of 9 March and 16 March 2019) will be available in each participating CP's account:

CCMS Account	Type of Collateral		Collateral Balance
CLT 0001	Total General Cash	HKD	50,000
		RMB[2]	10,000
		USD[2]	10,000
HSE 0001	Total General Cash	HKD	50,000
		RMB[2]	10,000
		USD[2]	10,000

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[2] For those CP without USD and RMB bank accounts set up in CCMS, a dummy bank account in the aforesaid currency will be assigned to facilitate the RT. Also, CP will have the aforesaid collateral balances in both RMB and USD.

(6) Exchange rate and exchange rate haircut set in CCMS

For MR only, the following exchange rate will be applied:

From CCY	To CCY	Exchange Rate
USD	HKD	7.83090
RMB	HKD	1.13900

Exchange rate haircuts of USD and RMB are 0.7% and 3.3% respectively. Besides, at least 50% of margin requirement must be covered by cash in the Settlement Currency except for RMB-denominated contracts. For RMB-denominated contracts, margin requirement can be satisfied by collateral other than cash in RMB subject to a fixed limit (currently RMB 1 billion) on each HKCC CP

Suggested Reports / Files Verifications

(a) In MR Execution Parts (A) and (B), HKEX will send the following day-end reports / data files to CP via email before the MR Test on Saturday, 9 March and 16 March 2019 respectively.

DCASS Report		Report	Data File
Clearing Reports and Data Files (Clearing Date: 8 March/ 15 March 2019)			
TP001	Position Details	√	√
TP002	Position Summary	√	
TP003	Position Movement Details		√
TP004	Daily Trading Statement	√	√
TP005	Fees & Variation	√	
TP006	Transaction Fee Summary	√	√
TP008	Premium Summary *(applicable to SEOCH Participants only)*	√	
TP009	Exercise and Assign Summary	√	√
TP010	Deliveries Details		√
TP012	Give-up / Take-up Summary	√	√
Risk Management Reports and Data Files (Clearing Date: 8 March/ 15 March 2019)			
RP001	Mark-to-Market Margin *(applicable to SEOCH Participants only)*	√	
RP003	Margin Summary	√	
RP004	Greeks	√	
RP005	Theoretical Options Pricing Parameters	√	
RP006	Series Prices	√	√
RP007	Position Data File		√
RP009	Series Greeks Data File		√
RP010	Net Margin Summary	√	
RP011	Net Position Data File		√
RPF	Risk Parameters File		√

(b) In MR Execution **Parts (A) and (B)**, CP will receive the intra-day RPF via email after the mandatory intra-day variation adjustment and margin call (for HKCC only), the ad-hoc intra-day variation adjustment/margin call (for HKCC and SEOCH) and intraday CBPL monitoring of T+1 Session (for HKCC only) on 9 March 2019 and 16 March 2019 respectively.

DCASS Report		Report	Data File
Risk Management Reports and Data Files *MR Execution Part (A) - (Clearing Date: 9 March 2019)* *MR Execution Part (B) - (Clearing Date: 16 March 2019)*			
Via e-mail on 9 March 2019 and 16 March 2019			
RPF	Risk Parameters File		√

(c) In MR Execution **Parts (A) and (B)**, CP will receive the intra-day reports / data files via email after the mandatory intra-day variation adjustment and margin call (for HKCC only), the ad-hoc intra-day variation adjustment/margin call (for HKCC and SEOCH) and intraday CBPL monitoring of T+1 session (for HKCC only) on 11 March 2019.

DCASS Report		Report	Data File
Risk Management Reports and Data Files *MR Execution Part (A) - (Clearing Date: 9 March 2019)* *MR Execution Part (B) - (Clearing Date: 16 March 2019)*			
Via e-mail on 11 March 2019 and 18 March 2019			
RPI03	Margin Summary	√	
RPI07	Position Data File		√
RPI10	Net Margin Summary	√	
RPI11	Net Position Data File		√

(d) In MR Execution **Part (A)**, CP will receive 2 sets of the following reports / data files via email after the test on Monday, 11 March 2019, one is generated under Upgrade Platform in normal situation, and the other one is generated under Genium INET after HKEX fallback.

In MR Execution **Part (B)**, CP will receive 1 set of the following reports / data files via email after the test on Monday, 18 March 2019 under Upgrade Platform.

CCMS Report		Report	Data File
Clearing Reports and Data Files *MR Execution Part (A) - (Clearing Date: 9 & 11 March 2019)* *MR Execution Part (B) - (Clearing Date: 16 & 18 March 2019)*			
CCMPY01 / CCMPY02	Posting/Collateralisation Result Report	√	
CCMMV01	Participant Collateral Account Movement Report	√	
CCMCA02	Collateral Account Balance Report	√	
CCMDS01	Statement of Collateral Account	√	√
CCMIR02	Collateral Parameters Information List	√	
DCASS Report		**Report**	**Data File**
Clearing Reports and Data Files *MR Execution Part (A) - (Clearing Date: 9 & 11 March 2019)* *MR Execution Part (B) - (Clearing Date: 16 & 18 March 2019)*			
TP001	Position Details	√	√
TP002	Position Summary	√	
TP003	Position Movement Details		√
TP004	Daily Trading Statement	√	√
TP005	Fees & Variation	√	
TP006	Transaction Fee Summary	√	√

TP008	Premium Summary *(applicable to SEOCH Participants only)*	√	
TP009	Exercise and Assign Summary	√	√
TP010	Deliveries Details		√
TP012	Give-up / Take-up Summary	√	√
Risk Management Reports and Data Files *MR Execution Part (A) - (Clearing Date: 9 & 11 March 2019)* *MR Execution Part (B) - (Clearing Date: 16 & 18 March 2019)*			
RP003	Margin Summary	√	
RP004	Greeks	√	
RP005	Theoretical Options Pricing Parameters	√	
RP006	Series Prices	√	√
RP007	Position Data File		√
RP009	Series Greeks Data File		√
RP010	Net Margin Summary	√	
RP011	Net Position Data File		√
RPF	Risk Parameters File		√

APPENDIX C1: HKATS & DCASS Upgrade MR Connectivity Test Confirmation Form

To: Clearing Operations – Cash & Derivatives Clearing   Email: clearingpsd@hkex.com.hk
  Hong Kong Exchanges and Clearing Limited   DCASS Hotline: 2979-7222

Participant Information		
Participant Full Name [* HKCC / SEOCH / Both HKCC & SEOCH] Participant) ** Please circle where appropriate*		DCASS Customer Code
Contact Person for Clearing (*Primary*)	Phone No.	Email Address
Contact Person for Clearing (*Alternate, if applicable*)	Phone No.	Email Address

Clearing Participants are requested to complete and return this Form to HKEX by email _at or before 17:00, 2 March 2019 after MR Connectivity Test_. The Form should be completed by the staff who participated in the MR Connectivity Test and signed by authorised signor(s). Clearing Participants who are holding participantship with both HKCC and SEOCH can submit one Confirmation Form by circling "Both".

(I) For DCASS Online connection

1. Did you successfully login to all the Gateways in Primary Data Centre (Section 3.1- (i))?

  ☐ Yes   ☐ No

  If No, please provide your reasons.

2. Did you successfully login to all the Gateways in Secondary Data Centre (Section 3.1- (i))?

  ☐ Yes   ☐ No

  If No, please provide your reasons.

(II) **For DCASS OAPI Online connection (Only for CP who use DCASS OAPI program)**

2. Did you successfully login to all the Gateways in Primary Data Centre (Section 3.1- (ii))?

     ☐ Yes   ☐ No

     If No, please provide your reasons.

     _____

     _____

3. Did you successfully login to all the Gateways in Secondary Data Centre (Section 3.1- (ii))?

     ☐ Yes   ☐ No

     If No, please provide your reasons.

     _____

     _____

Authorised Signature(s)   :   Date :

(with company chop, ONLY applicable if it forms part of your signing instruction)   _____   _____

Name of Authorised Signatories   :   _____

Thank you for completing the Confirmation Form.

APPENDIX C2: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A)

To: Clearing Operations – Cash & Derivatives Clearing   Email: clearingpsd@hkex.com.hk
    Hong Kong Exchanges and Clearing Limited   DCASS Hotline: 2979-7222

Participant Information		
Participant Full Name [* HKCC / SEOCH / Both HKCC & SEOCH] Participant) ** Please circle where appropriate*	DCASS Customer Code	
Contact Person for Clearing (*Primary*)	Phone No.	Email Address
Contact Person for Clearing (*Alternate, if applicable*)	Phone No.	Email Address

Clearing Participants who have completed the test are required to complete and return this form to HKEX by email at or before 18:00 on 13 March 2019 (Wednesday). The form should be completed by the staff who participated in the test and signed by authorised signor(s). Clearing Participants who are holding participantship with both HKCC and SEOCH can submit one Confirmation Form by circling "Both".

1. Have you performed the DCASS functions as per Appendix B?

    ☐ Yes   ☐ No

    If No, please provide details.

2. Have you performed the DCASS functions as per Appendix B during the volume test sessions?

    ☐ Yes   ☐ No

    If No, please provide details.

3. Have you performed the DCASS functions as per Appendix B during the failover session from HKEX's primary to secondary data centre?

    ☐ Yes   ☐ No

    If No, please provide details.

APPENDIX C2: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A) (Cont'd)

4. Did you encounter any problem during DCASS/CCMS reports verification in normal or fallback scenarios?

    ☐ Yes   ☐ No

    If Yes, please provide details.

    _____

    _____

    _____

5. Please tick in the appropriate check box below:

    ☐ We confirm that our company is ready to continue the clearing operations in case of Fallback, i.e. to Genium INET Platform.

    or

    ☐ We confirm that our company is not ready to continue the clearing operations in case of Fallback, i.e. to Genium INET Platform and would like to explain or suggest as follows:

    _____

    _____

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APPENDIX C2: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (A) (Cont'd)

6. Please tick in the appropriate check box below:

    ☐ We confirm that we are operational ready for the upgrade of DCASS Platform

    or

    ☐ We confirm that we are not operational ready for the upgrade of DCASS Platform and would like to explain or suggest as follows:

    _____

    _____

Authorised Signature(s)   :   Date :

_____   _____

(with company chop, ONLY
applicable if it forms part of
your signing instruction)

Name of Authorised   :
Signatories
_____

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Thank you for completing the Confirmation Form.

By returning this form, we consent to the processing of personal data in accordance with the Privacy Policy Statement included in this form.

APPENDIX C3: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B)

To: Clearing Operations – Cash & Derivatives Clearing   Email: clearingpsd@hkex.com.hk
    Hong Kong Exchanges and Clearing Limited   DCASS Hotline: 2979-7222

Participant Information		
Participant Full Name [* HKCC / SEOCH / Both HKCC & SEOCH] Participant) *Please circle where appropriate*		DCASS Customer Code
Contact Person for Clearing (*Primary*)	Phone No.	Email Address
Contact Person for Clearing (*Alternate, if applicable*)	Phone No.	Email Address

Clearing Participants who have completed the test are required to complete and return this form to HKEX by email at or before 18:00 on 20 March 2019 (Wednesday). The form should be completed by the staff who participated in the test and signed by authorised signor(s). Clearing Participants who are holding participantship with both HKCC and SEOCH can submit one Confirmation Form by circling "Both".

1. We confirm that our systems (including back office systems) are ready for clearing listed derivatives products with 5 characters of HKATS root symbol.

   ☐ Yes   ☐ No

If No, please provide details.

_____

_____

2. Please tick in the appropriate check box below:

☐ We confirm that we are operational ready for clearing listed derivatives products with 5 characters of HKATS root symbol in the upgrade of DCASS Platform

or

☐ We confirm that we are not operational ready for clearing listed derivatives products with 5 characters of HKATS root symbol in the upgrade of DCASS Platform and would like to explain or suggest as follows:

_____

_____

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APPENDIX C3: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B) (Cont'd)

Please answer questions 3 and 4 if you plan to clear Weekly Index Options product or questions 5 and 6 if you not plan to clear.

3. **(For CP who plan to clear Weekly Index Options only)**
   We confirm that our systems (including back office systems) are ready to clear Weekly Index Options.

   ☐ Yes   ☐ No

   If No, please provide details.

   _____
   _____
   _____

4. **(For CP who plan to clear Weekly Index Options only)**
   Please tick in the appropriate check box below:

   ☐ We confirm that we are operational ready to clear Weekly Index Options in the upgrade of DCASS Platform

   or

   ☐ We confirm that we are not operational ready to clear Weekly Index Options in the upgrade of DCASS Platform and would like to explain or suggest as follows:

   _____
   _____

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APPENDIX C3: HKATS & DCASS Upgrade MR Confirmation Form – MR Execution Part (B) (Cont'd)

5. **(For CP who plan <u>not</u> to clear Weekly Index Options only)**

    We confirm that our systems (including back office systems) are not affected by the Weekly Index Options.

    ☐ Yes   ☐ No

    If No, please provide details.

    _____

    _____

    _____

6. **(For CP who plan <u>not</u> to clear Weekly Index Options only)**
    Please tick in the appropriate check box below:

    ☐ We confirm that we are operational ready for the upgrade of DCASS Platform without clearing of Weekly Index Options.

    or

    ☐ We confirm that we are not operational ready for the upgrade of DCASS Platform without clearing Weekly Index Options and would like to explain or suggest as follows:

    _____

    _____

Authorised Signature(s)   :   Date   :

(with company chop, ONLY   _____   _____
applicable if it forms part of
your signing instruction)

Name of Authorised   :
Signatories   _____

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Thank you for completing the Confirmation Form.

By returning this form, we consent to the processing of personal data in accordance with the Privacy Policy Statement included in this form.

Privacy Policy Statement

Hong Kong Exchanges and Clearing Limited, and from time to time, its subsidiaries (together the "**Group**") (and each being "**HKEX**", "**we**", "**us**" or "**member of the Group**" for the purposes of this Privacy Policy Statement as appropriate) recognise their responsibilities in relation to the collection, holding, processing, use and/or transfer of personal data under the Personal Data (Privacy) Ordinance (Cap. 486) ("**PDPO**"). Personal data will be collected only for lawful and relevant purposes and all practicable steps will be taken to ensure that personal data held by us is accurate. We will use your personal data which we may from time to time collect in accordance with this Privacy Policy Statement.

We regularly review this Privacy Policy Statement and may from time to time revise it or add specific instructions, policies and terms. Where any changes to this Privacy Policy Statement are material, we will notify you using the contact details you have provided us with and, where required by the PDPO, give you the opportunity to opt out of these changes by means notified to you at that time. Otherwise, in relation to personal data supplied to us through the HKEX website or otherwise, continued use by you of the HKEX website or your continued relationship with us shall be deemed to be your acceptance of and consent to this Privacy Policy Statement, as amended from time to time.

If you have any questions about this Privacy Policy Statement or how we use your personal data, please contact us through one of the communication channels set out in the "Contact Us" section below.

We will take all practicable steps to ensure the security of the personal data and to avoid unauthorised or accidental access, erasure or other use. This includes physical, technical and procedural security methods, where appropriate, to ensure that the personal data may only be accessed by authorised personnel.

Please note that if you do not provide us with your personal data (or relevant personal data relating to persons appointed by you to act on your behalf) we may not be able to provide the information, products or services you have asked for or process your requests, applications, subscriptions or registrations, and may not be able to perform or discharge the Regulatory Functions (defined below).

Purpose

From time to time we may collect your personal data including but not limited to your name, mailing address, telephone number, email address, date of birth and login name for the following purposes:

1. to process your applications, subscriptions and registration for our products and services;
2. to perform or discharge the functions of HKEX and any company of which HKEX is the recognised exchange controller (as defined in the Securities and Futures Ordinance (Cap. 571)) ("Regulatory Functions");
3. to provide you with our products and services and administer your account in relation to such products and services;
4. to conduct research and statistical analysis;
5. to process your application for employment or engagement within HKEX to assess your suitability as a candidate for such position and to conduct reference checks with your previous employers; and
6. other purposes directly relating to any of the above.

Direct marketing

Where you have given your consent and have not subsequently opted out, we may also use your name, mailing address, telephone number and email address to send promotional materials to you and conduct direct marketing activities in relation to HKEX financial services and information services, and financial services and information services offered by other members of the Group.

If you do not wish to receive any promotional and direct marketing materials from us or do not wish to receive particular types of promotional and direct marketing materials or do not wish to receive such materials through any particular means of communication, please contact us through one of the communication channels set out in the "Contact Us" section below. To ensure that your request can be processed quickly please provide your full name, email address, log in name and details of the product and/or service you have subscribed.

Identity Card Number

We may also collect your identity card number and process this as required under applicable law or regulation, as required by any regulator having authority over us and, subject to the PDPO, for the purpose of identifying you where it is reasonable for your identity card number to be used for this purpose.

Transfers of personal data for direct marketing purposes

Except to the extent you have already opted out we may transfer your name, mailing address, telephone number and email address to other members of the Group for the purpose of enabling those members of the Group to send promotional materials to you and conduct direct marketing activities in relation to their financial services and information services.

Other transfers of your personal data

For one or more of the purposes specified above, your personal data may be:

1. transferred to other members of the Group and made available to appropriate persons in the Group, in Hong Kong or elsewhere and in this regard you consent to the transfer of your data outside of Hong Kong;
2. supplied to any agent, contractor or third party who provides administrative, telecommunications, computer, payment, debt collection, data processing or other services to HKEX and/or any of other member of the Group in Hong Kong or elsewhere; and
3. other parties as notified to you at the time of collection.

How we use cookies

If you access our information or services through the HKEX website, you should be aware that cookies are used. Cookies are data files stored on your browser. The HKEX website automatically installs and uses cookies on your browser when you access it. Two kinds of cookies are used on the HKEX website:

Session Cookies: temporary cookies that only remain in your browser until the time you leave the HKEX website, which are used to obtain and store configuration information and administer the HKEX website, including carrying information from one page to another as you browse the site so as to, for example, avoid you having to re-enter information on each page that you visit. Session cookies are also used to compile anonymous statistics about the use of the HKEX website.

Persistent Cookies: cookies that remain in your browser for a longer period of time for the purpose of compiling anonymous statistics about the use of the HKEX website or to track and record user preferences.

The cookies used in connection with the HKEX website do not contain personal data. You may refuse to accept cookies on your browser by modifying the settings in your browser or internet security software. However, if you do so you may not be able to utilise or activate certain functions available on the HKEX website.

Compliance with laws and regulations

HKEX and other members of the Group may be required to retain, process and/or disclose your personal data in order to comply with applicable laws and regulations or in order to comply with a court order, subpoena or other legal process (whether in Hong Kong or elsewhere), or to comply with a request by a government authority, law enforcement agency or similar body (whether situated in Hong Kong or elsewhere) or to perform or discharge the Regulatory Functions. HKEX and other members of the Group may need to disclose your personal data in order to enforce any agreement with you, protect our rights, property or safety, or the rights, property or safety of our employees, or to perform or discharge the Regulatory Functions.

Corporate reorganisation

As we continue to develop our business, we may reorganise our group structure, undergo a change of control or business combination. In these circumstances it may be the case that your personal data is transferred to a third party who will continue to operate our business or a similar service under either this Privacy Policy Statement or a different privacy policy statement which will be notified to you. Such a third party may be located, and use of your personal data may be made, outside of Hong Kong in connection with such acquisition or reorganisation.

Access and correction of personal data

Under the PDPO, you have the right to ascertain whether we hold your personal data, to obtain a copy of the data, and to correct any data that is inaccurate. You may also request us to inform you of the type of personal data held by us. All data access requests shall be made using the form prescribed by the Privacy Commissioner for Personal Data ("**Privacy Commissioner**") which may be found on the official website of the Office of the Privacy Commissioner or via this link
https://www.pcpd.org.hk/english/publications/files/Dforme.pdf

Requests for access and correction of personal data or for information regarding policies and practices and kinds of data held by us should be addressed in writing and sent by post to us (see the "Contact Us" section below).

A reasonable fee may be charged to offset our administrative and actual costs incurred in complying with your data access requests.

Termination or cancellation

Should your account or relationship with us be cancelled or terminated at any time, we shall cease processing your personal data as soon as reasonably practicable following such cancellation or termination, provided that we may keep copies of your data as is reasonably required for archival purposes, for use in relation to any actual or potential dispute, for the purpose of compliance with applicable laws and regulations and for the purpose of enforcing any agreement we have with you, for protecting our rights, property or safety, or the rights, property or safety of our employees, and for performing or discharging our functions, obligations and responsibilities.

General

If there is any inconsistency or conflict between the English and Chinese versions of this Privacy Policy Statement, the English version shall prevail.

Contact us

By Post:
Personal Data Privacy Officer
Hong Kong Exchanges and Clearing Limited
8/F, Two Exchange Square
8 Connaught Place
Central
Hong Kong

By Email:
DataPrivacy@HKEX.COM.HK