HKEX
香 港 交 易 所

香港交易及結算所有限公司是《證券及期貨條例》所述的認可控制人，亦為香港聯合交易所有限公司、香港期貨交易所有限公司、香港中央結算有限公司、香港聯合交易所期權結算所有限公司、香港期貨結算有限公司及香港場外結算有限公司的控制人。

Hong Kong Exchanges and Clearing Limited is a recognized exchange controller under the Securities and Futures Ordinance which is the controller of The Stock Exchange of Hong Kong Limited, Hong Kong Futures Exchange Limited, Hong Kong Securities Clearing Company Limited, The SEHK Options Clearing House Limited, HKFE Clearing Corporation Limited and OTC Clearing Hong Kong Limited.

通告 CIRCULAR

事項：	**2019 年 10 月 19 日 DCASS / CCMS 系統數據中心復原常規演習**
查詢：	**DCASS 熱線 2979 7222 / 電郵 clearingpsd@hkex.com.hk**

香港交易及結算所有限公司（香港交易所）將於 2019 年 10 月 19 日（星期六）舉行 DCASS / CCMS 系統數據中心復原常規演習（演習）。

演習之目的為讓結算所參與者及有關人士能於 DCASS / CCMS 系統數據中心復原期間熟習其應變程序。是次演習亦會涵蓋香港交易所其他系統包括領航星交易平台－證券市場（OTP-C）、中華證券通（CSC）、HKATS 電子交易系統、中央結算系統（CCASS）、場外交易結算及交收系統（OCASS）、結算門戶網站（OASIS）及香港交易所領航星市場數據平台（OMD）。

香港交易所現誠邀結算所參與者透過其CCMS終端機、DCASS Online 及 DCASS OAPI 程式（如適用）參加是次演習。結算所參與者如有意參加，請於 **2019年 10 月 4 日或以前**透過 Client Connect「活動」登記。

尚未成為 Client Connect 用戶的市場參與者請儘快填妥及遞交 Client Connect 管理人士權限申請／維護表格，香港交易所將分批設立管理人士帳戶，獲委任的管理人士將會在其帳戶成功建立後收到電郵通知。

結算所參與者可參閱附件（只提供英文版）了解有關是次演習之程序表及指引，香港交易所建議結算所參與者細讀資料文件及於當天跟從指示進行演習。參加於同日進行的 HKATS 系統數據中心復原常規演習需另行登記。

香港交易所強烈建議將會參加演習的結算所參與者須確保於演習期內有足夠的運作員工、資訊科技部門或承辦商提供支援。

如有任何查詢，請致電 DCASS 查詢熱線 2979 7222 或電郵 clearingpsd@hkex.com.hk。

結算業務
董事總經理
劉希靖 謹啟

本通告已以英文及另以中文譯本刊發。如本通告中文本的字義或詞義與英文本有所出入，概以英文本為準。

DCASS / CCMS Data Centre Failover Rehearsal

(19 October 2019)

Information Package

for

HKCC / SEOCH Participants

Issue Date: 20 September 2019

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1. Introduction

As a market operator, Hong Kong Exchanges and Clearing Limited ("HKEX") has its own contingency plan in place for possible scenarios that would cause interruption to its operations. One of the scenarios is the failure of primary data centre which would trigger a failover to the secondary data centre. To enable HKCC / SEOCH Participants ("CPs") and related parties to familiarize themselves with the contingency procedures for the failover of DCASS / CCMS data centre, HKEX will conduct a regular DCASS / CCMS data centre failover rehearsal ("the Rehearsal") on **Saturday, 19 October 2019**.

CPs are cordially invited to participate in the Rehearsal. During the Rehearsal, CPs will be requested to perform post-trade transactions before and after the failover is triggered.

This Information Package is designed to assist CPs in planning and preparing for the Rehearsal. CPs should read this Information Package carefully and make necessary preparation before participating in the Rehearsal. CPs should also pass a copy of this document to their IT support teams or system vendors to ensure proper technical support is available before and during the Rehearsal.

2. Objective and Scope

2.1 Objective

The objective of the Rehearsal is to enable CPs and related parties to familiarize themselves with the contingency procedures for the failover of DCASS / CCMS data centres.

CPs holding CCASS Participantship may also participate in the CCASS data centre failover rehearsal. As CCMS shares the same infrastructure and failover arrangement of CCASS, it is optional for CPs to participate separately in the CCMS data centre failover rehearsal. For details about the CCMS data centre failover rehearsal, please refer to Appendix D.

2.2 Scope

The Rehearsal will consist of two parts:

Before failover
- 1st T Session

After failover
- 2nd T Session
- T+1 Session

CPs are required to complete BOTH the 1st and 2nd T Sessions. T+1 Session is optional and only applicable for those HKCC Participants who support clearing activities during that period.

3.   Important Notes to CPs

3.1   Technical Setup for the Rehearsal

To facilitate the preparation of the Rehearsal, after CPs have completed their DCASS operations on Friday, 18 October 2019, until the day end of Saturday, 19 October 2019, CPs must ensure the followings:

i)   their DCASS Online workstation is in place that meets the minimum configuration as communicated to CPs;

ii)   correct Google Chrome browser (75.0.3770.80) has been installed in the CP's DCASS Online workstations;

iii)   production URL is ready to logon DCASS Online;

iv)   for CPs using DCASS OAPI program(s): Certified and tested OAPI programs are in place;

v)   The connectivity of HKEX SFTP Facility (Report Retrieval Solution) to both primary (10.151.14.121 or 10.151.14.122, port 10022) and secondary data centre (10.152.14.121 or 10.152.14.122, port 10022), the relevant network configuration (e.g. firewall) is ready

CPs will be notified via email when their production DCASS Online are ready for verification. CPs should perform connectivity verification as follows:

i)   Login their DCASS Online

ii)   Verify the availability of production reports / files

iii)   Verify Friday's trade history against their production records

iv)   Send email to HKEX for connectivity confirmation

3.2   Preparation and Execution for the Rehearsal

CPs should note the following arrangements for the preparation and execution of the Rehearsal:

i)   CPs are required to login DCASS via their DCASS Online / OAPI programs, where applicable, at 11:00 a.m. promptly to start the Rehearsal on time.

ii)   Staff of CPs must have experience in conducting DCASS related activities for their daily business operations, and shall use the **production user ID as of 20 September 2019 with the testing password "hkextesting"[1]   to access DCASS during the Rehearsal**. Besides, CPs should ensure their participating staff members have appropriate user function access right to perform the required clearing activities at DCASS during the Rehearsal. **CPs' DCASS Administrators are not encouraged to change the users function access during the Rehearsal because it will take time to be effective.**

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[1] This testing password will only be applicable for testing during the Rehearsal

iii) CPs should ensure that they have access to the emails of the designated contact persons for the Rehearsal and the contact no. of these designated contact persons are reachable in order to receive emergency messages from HKEX during the Rehearsal.

iv) **For those CPs who are using vendor-developed OAPI programs, please communicate with the system vendor** to ensure that their OAPI programs will be available during the Rehearsal.

v) CPs should refer to the "**Checklist for DCASS Data Centre Failover Rehearsal**" set forth in Appendix A for the action items to be performed before, during and after the Rehearsal. In order to achieve the testing objectives, participating users should familiarize themselves with the requirements and procedures prior to the Rehearsal.

vi) CPs should have the system administrator ID(s) and password(s) of their internal systems ready throughout the Rehearsal in case technical trouble-shooting is required.

vii) CPs are recommended to maintain a proper audit trail in respect of each transaction input during the Rehearsal in accordance with the policy currently adopted by them. The responsible officer or his/her designate of each participating CP should be present during the Rehearsal to supervise the testing process and to be responsible for relaying any issues arising during the Rehearsal to HKEX. CPs should execute post-trade transactions via DCASS Online / OAPI programs during the Rehearsal with the "**Data Setup and Execution Requirements**" set forth in Appendix B.

viii) CPs shall fill in and return the "**DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form**" as set forth in Appendix C to HKEX via email **at or before 6:00 p.m. on Saturday, 19 October 2019**.

4. Schedule and Arrangements

4.1 Overview

The Rehearsal will be conducted on Saturday, 19 October 2019. During the Rehearsal, trades executed via HKATS and pre-defined trades provided by HKEX will be transmitted to and captured by DCASS, which will be available for CPs to perform post-trade activities.

4.2 Schedule and Timetable

CPs are requested to ensure their DCASS Online / OAPI programs, where applicable, will be available during the Rehearsal.

Execution Date: **19 October 2019 (Saturday)**
System Date: **19 October 2019 (Saturday)**

TESTING TIME FROM	TO	DCASS PROCESSING	REMARKS
11:00 a.m.		**Start of 1st T Session – Primary Data Centre**	
11:00 a.m.	**11:30 a.m.**	Perform DCASS connectivity • CPs are required to login via either of the below URLs: **https://pgencdw001.hkex.com.hk:8082/login** **https://pgencdw002.hkex.com.hk:8082/login** **https://pgenrgw001.hkex.com.hk:8082/login** **https://pgenrgw002.hkex.com.hk:8082/login** For OAPI connection (same as current production setting): _see sub-table below_	CPs login DCASS Online / OAPI programs by using production user IDs as of 20 September 2019 with the testing password "hkextesting".
11:30 a.m.	**12:30 p.m.**	• DCASS on-line session ready • CPs perform post-trade transactions	Please refer to Appendix B for execution requirements
12:30 p.m.		**Close of 1st T Session**	
12:30 p.m. to 1:10 p.m.		**Simulate contingency situation occurred at HKEX's Primary Data Centre** **Failover to HKEX's Secondary Data Centre**	
1:10 p.m.		- **Before Start of 2nd T Session, CPs close all windows that being kicked out before failover and re-logon DCASS** - **Start of 2nd T Session – Secondary Data Centre**	

HKEX's Data Centre	Gateway	IP Address Range
Primary	Primary	As assigned, 10.151.5.81 or 10.151.5.82
	Backup	10.151.5.83

TESTING TIME FROM	TO	DCASS PROCESSING	REMARKS
1:10 p.m.	1:45 p.m.	• DCASS is ready for CPs to re-login via DCASS Online / OAPI programs • CPs are required to login via either of the below URLs: **https://sgencdw001.hkex.com.hk:8082/login** **https://sgencdw002.hkex.com.hk:8082/login** **https://sgenrgw001.hkex.com.hk:8082/login** **https://sgenrgw002.hkex.com.hk:8082/login** For OAPI connection (same as current production setting): _(see table below)_ • CPs to verify the post-trade transactions input before failover • Report Retrieval Solution at secondary data centre is ready for CPs to re-login via their SFTP facility • CPs are required to login via below IPs and check the availability of production reports **10.152.14.121 port 10022** **10.152.14.122 port 10022**	• CPs do **NOT** need to perform post-trade transactions during verification
1:45 p.m.	3:15 p.m.	CPs perform post-trade transactions	Please refer to Appendix B for execution requirements
3:15 p.m.		**Close of 2nd T Session**	
		• CPs logout from DCASS if they opt not to proceed to T+1 Session • CPs complete the "**DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form**" via email to HKEX **at or before 6:00 p.m. on 19 October 2019**	Please refer to Appendix C for the DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form
3:30 p.m.		**Start of T+1 Session**	

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

TESTING TIME FROM	TO	DCASS PROCESSING	REMARKS
3:30 p.m.	**4:00 p.m.**	CPs perform post-trade transactions (*Note: Position related post-trade transactions are not allowed*)	Please refer to Appendix B for execution requirements
4:00 p.m.		**Close of T+1 Session**	
4:15 p.m.		**End of Rehearsal**	
Before 4:15 p.m.		• CPs logout from DCASS	• Clean all testing data in OAPI programs • Reset OAPI login password, where necessary, for the coming business day on 21 October 2019
Before 6:00 p.m.		• CPs complete and submit the "**DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form**" via email to HKEX **at or before 6:00 p.m. on 19 October 2019**	• Please refer to Appendix C for the DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form
After 9:30 p.m.		**Post Rehearsal Health Check (CPs are highly recommended to join)**	
9:30 p.m.	**11:30 p.m.**	• DCASS on-line is ready for CPs to perform connectivity verification to production network via DCASS Online • CPs should login DCASS Online via either of the below URLs: **https://pgencdw001.hkex.com.hk:8082/login** **https://pgencdw002.hkex.com.hk:8082/login** **https://sgenrgw001.hkex.com.hk:8082/login** **https://sgenrgw002.hkex.com.hk:8082/login** • Report Retrieval Solution is ready for CPs to perform connectivity verification to production network • CPs should login via below IPs and check the availability of production reports **10.151.14.121 port 10022** **10.151.14.122 port 10022**	HKEX re-connects DCASS and Report Retrieval Solution to production network *Note: HKEX will notify CPs via email the time to perform the connectivity verification individually*

4.3   User ID and Login Password

CPs should use their **production user IDs as of 20 September 2019** and testing password "**hkextesting**" to access DCASS via DCASS Online / OAPI programs during the Rehearsal.

4.4   Rehearsal Environment

When CPs login to DCASS, they will be simulating production operation as if 19 October 2019 is a normal business day. HKEX will prepare pre-defined trades dated 19 October 2019 will be generated for each CP.

4.5   Transactions to be Executed

CPs should execute post-trade transactions via DCASS Online / OAPI programs, where applicable, during the Rehearsal. CPs should refer to the "**Data Setup & Execution Requirements**" as set forth in Appendix B for details.

4.6   Pre-Rehearsal Arrangement

If CPs would use their production Back Office System ("BOS") to perform the Rehearsal, they should ensure that their production BOS data are properly backed up before the Rehearsal. Data restore procedures should also be prepared before the Rehearsal so that production data can be restored to their production BOS after the on-line session of the Rehearsal. CPs should discuss the issue with their in- house IT team or BOS vendor before the Rehearsal if such procedures are required.

CPs using OAPI during the Rehearsal should make sure that their OAPI applications are **NOT** connected to their production environment. Besides, CPs are requested to ensure their back-up and restore procedures are readily in place to clean-up and resume their system back to production image after the Rehearsal.

4.7   Post-Rehearsal Arrangement

CPs with OAPI are reminded to do clean-up and make sure that their corresponding OAPI used in the Rehearsal has been resumed to production image and ready for normal business activities on the next business day, Monday, 21 October 2019.

4.8   Rehearsal Confirmation

CPs are requested to complete the "**DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form**" in Appendix C and return to HKEX via email **at or before 6:00 p.m. on Saturday, 19 October 2019**.

5. Typhoon, Extreme Conditions and Black Rainstorm Arrangements

In case Typhoon Signal No. 8 (or above) or Extreme Conditions or Black Rainstorm Warning is issued or continues to be issued after 7:00 a.m. and before 11:00 a.m. on the day of Rehearsal, the Rehearsal will be cancelled and will not be resumed for the rest of the day.

In case Typhoon Signal No. 8 (or above) or Extreme Conditions is issued on or after 11:00 a.m. on the day of Rehearsal, the Rehearsal will be terminated 15 minutes thereafter.

In case Black Rainstorm Warning is issued on or after 11:00 a.m. on the day of Rehearsal, the Rehearsal will continue until completion.

6. Communication Channels

Before the Rehearsal, i.e. approximately 2 hours (i.e. 9:00 a.m. on 19 October 2019), CPs can call DCASS Hotline at 2979-7222 to check whether the Rehearsal will be held according to schedule.

Under normal situation, HKEX will communicate with the designated contact persons of the CPs 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. **9:00 a.m. on Saturday, 19 October 2019**) due to unexpected situations, HKEX will inform CPs 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 Rehearsal, CPs can contact DCASS Hotline at **2979-7222** for assistance.

APPENDIX A: Checklist for DCASS Data Centre Failover Rehearsal

	ITEMS TO BE CHECKED	✓
(A) Before the Rehearsal		
1	Have you read and understood this document ("DCASS / CCMS Data Centre Failover Rehearsal - Information Package for HKCC/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 the Rehearsal?	
4	**If you are using vendor-developed OAPI programs**, have you communicated with the system vendor to ensure that their OAPI programs will be available during the Rehearsal?	
5	For connecting your OAPI in the Rehearsal, have you ensured that proper procedures are in place to switch to testing environment without affecting the existing production OAPI, and that restore procedures are in place?	
6	Have you established appropriate procedures to restore your production version of internal system / OAPI (if applicable) upon completion of the Rehearsal and verification control to ensure system readiness for normal business operations on the following business day after the Rehearsal (i.e. Monday, 21 October 2019)?	
7	Have you discussed with your trading operation team about the coordination in preparation and execution of the Rehearsal if they would also participate in the Rehearsal?	
8	Have you arranged IT and/ or system vendor support with appropriate system administration ID during the Rehearsal in case there is any technical problem?	
(B) On 19 October 2019, before executing test cases		
1	Have your designated contact person(s) of the Rehearsal already logged on their email accounts to obtain announcement during the Rehearsal?	
2	Have you performed all required post-trade activities?	
(C) After the Rehearsal		
1	Have you cleaned up all testing data in your OAPI and BOS, if applicable?	
2	Have you ensured that your OAPI has been restored to production after completing the Rehearsal?	
3	Have you reset your OAPI login password for normal business activities on Monday, 21 October 2019, if applicable?	
4	Have you submitted the "**DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form**" (Appendix C) at or before 6:00 p.m. on Saturday, 19 October 2019?	

APPENDIX B: Data Setup and Execution Requirements

(1) Post-trade Transactions in DCASS

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

DCASS Customer Code: CCCC   **Company Name: CCC Company Limited**

(2) Pre-defined Trades in DCASS

HKCC

- Pre-defined trades for HSI and MHI series of Trade Date Friday, 18 October 2019, Series and Free Text will be available in DCASS **Omnibus Client** account for each HKCC CP

- Pre-defined **Give-up** trades of HSI and MHI series of Trade Date Saturday, 19 October 2019 will be available for HKCC Participants to proceed for **Take-up** or **Reject**

Trade Date	Session	Series	Buy/Sell (no. of lots)	Free Text
18 October 2019	T+1 Session	HSIZ9	Buy (100)	NTDTRADE1
		HSIZ9	Sell (100)	NTDTRADE1
		MHIZ9	Buy (100)	NTDTRADE1
		MHIZ9	Sell (100)	NTDTRADE1
19 October 2019	1st T Session	HSIZ9	Buy (20)	B4FAILOVER
		HSIZ9	Sell (20)	B4FAILOVER
		MHIZ9	Buy (20)	B4FAILOVER
		MHIZ9	Sell (20)	B4FAILOVER
	2nd T Session	HSIZ9	Buy (20)	AFTERFAILOVER
		HSIZ9	Sell (20)	AFTERFAILOVER
		MHIZ9	Buy (20)	AFTERFAILOVER
		MHIZ9	Sell (20)	AFTERFAILOVER
	T+1 Session	HSIZ9	Buy (20)	NTDTRADE2
		HSIZ9	Sell (20)	NTDTRADE2
		MHIZ9	Buy (20)	NTDTRADE2
		MHIZ9	Sell (20)	NTDTRADE2

SEOCH

- Pre-defined **Give-up** trades of stock options series of Trade Date 19 October 2019 will be available for SEOCH Participant to proceed for **Take-up** or **Reject**

Trade Date	Session	Series	Buy/Sell (no. of lots)	Free Text
19 October 2019	1st T Session	HEX200.00L9	Buy (200)	B4FAILOVER
		HEX200.00L9	Sell (200)	B4FAILOVER
		HEX200.00X9	Buy (100)	B4FAILOVER
		HEX200.00X9	Sell (100)	B4FAILOVER
	2nd T Session	HEX200.00L9	Buy (200)	AFTERFAILOVER
		HEX200.00L9	Sell (200)	AFTERFAILOVER
		HEX200.00X9	Buy (100)	AFTERFAILOVER
		HEX200.00X9	Sell (100)	AFTERFAILOVER

(3) Execution Requirements

Execution Date	19 October 2019
System Date	19 October 2019
DCASS	**Clearing Operation:** At least 1 transaction of each post-trade types below has to be input by the CPs during (i) 1st T Session; (ii) 2nd T Session; and (iii) T+1 Session *(only applicable for those HKCC Participants who support clearing activities during T+1 Session)*: • Give-up • Rectify trade • Internal position transfer *(only applicable for 1st and 2nd T Sessions)* • Cross product netting *(only applicable for 1st and 2nd T Sessions)*
Success Criteria	1. CPs can successfully invoke and perform DCASS functions before and after failover; and 2. CPs have verified that after failover, those post-trade transactions previously input before failover are correct and complete.

APPENDIX C: DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form

Form submission deadline: 6:00 p.m. 19 October 2019

To: Hong Kong Exchanges and Clearing Limited   Email: Clearingpsd@hkex.com.hk
                                                      DCASS Hotline: 2979-7222

From: (Full Name of * HKCC / SEOCH / Both HKCC & SEOCH Participant)
        * Please delete where appropriate

DCASS Customer Code: |___|___|___|___| Contact Person:_____ Tel No.:_____

The form should be completed by the individual who took part in the Rehearsal and signed off by a responsible officer.

1. Did you encounter any problem on DCASS Online / CCMS Terminal/ OAPI program/ Report Retrieval Solution when performing post-trade transactions during the Rehearsal?

    ☐ No

    ☐ Yes, please provide details.
    _____
    _____

2. After failover, did you encounter any discrepancy for those post-trades input before failover?

    ☐ No

    ☐ Yes, please provide details.
    _____
    _____

3. Did you encounter any problem when perform the necessary clean-up and resume your CCMS Terminal/ OAPI/ BOS back to production environment for normal business activities on the coming Monday?

    ☐ No

    ☐ Yes, please provide details.
    _____
    _____

(S.V.)

_____   Date _____
Authorized Signature(s)
(with company chop, ONLY applicable if it forms part of your signing instruction)
(Name of Signatories:)

Thank you for completing the Confirmation Form

DCASS / CCMS Data Centre Failover Rehearsal (19 October 2019)
Information Package for HKCC / SEOCH Participants
Appendix C

Appendix C

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APPENDIX D: Rehearsal Arrangement for CCMS Data Centre Failover

(1) Important Notes to CPs

CPs should note the following arrangements before, during and after the CCMS data centre failover rehearsal ("the CCMS Rehearsal"):

a) CPs should logon their CCMS Terminals **at 11:30 a.m. promptly to start the CCMS Rehearsal** on 19 October 2019.

b) CPs should use their production CCMS Terminals.

c) Due to the CCMS Rehearsal, CCMS services including on-line enquiries and report download for production will be suspended on 19 October 2019.

d) The staff of CPs who will participate in the CCMS Rehearsal must have experience in using CCMS in their daily business activities, and have the production smartcards and passwords for accessing to CCMS during the CCMS Rehearsal. Besides, CPs should ensure that the participating staff will be able to perform or access the required CCMS functions. The Delegated Administrators (DA) of CPs are encouraged <u>NOT</u> to change any user function access during the CCMS Rehearsal as it will take time to take effect.

e) The CCMS reports/data files available in the CCMS Rehearsal are for reference only. CPs should not rely on such CCMS reports/data files for production use.

f) **CPs are reminded to remove ALL their testing data and downloaded CCMS reports/data files used in the CCMS Rehearsal from their production CCMS Terminals to avoid any mis-use during normal CCMS operations on next business day, i.e. 21 October 2019.**

g) If CPs would use their production Back Office System (BOS) to perform the CCMS Rehearsal, they should ensure that their production BOS data are properly backed up before the CCMS Rehearsal. A data restore procedure should also be in place before the CCMS Rehearsal so that production data can be restored to their production BOS after the on-line sessions of the CCMS Rehearsal. CPs should discuss the issue with their in-house IT team or BOS vendor before the CCMS Rehearsal if such procedures are required.

h) **CPs who use BOS in the CCMS Rehearsal are reminded to do clean-up and make sure that their corresponding BOS used in the CCMS Rehearsal has been resumed to production image and ready for normal business activities on the next business day, i.e. 21 October 2019.**

i) CPs should also ensure network equipment is powered up and connected at all times before and after the CCMS Rehearsal.

j) CPs should refer to the Checklist in Section (6) and the Schedule and Timetable listed in Section (2) for the action items to be performed before, during and after the CCMS Rehearsal for preparation and execution. In order to achieve the objectives, it is imperative that CPs follow the CCMS Rehearsal checklist and rundown. CPs should ensure their participating staff is familiar with the requirements and procedures prior to participating in the CCMS Rehearsal.

k) **In addition, CPs are recommended to maintain a proper audit trail in respect of each transaction performed during the CCMS Rehearsal. A responsible officer or his/her designate of each participating CP is advised to be present during the CCMS Rehearsal to supervise the testing process and to be responsible for relaying any issues arising during the CCMS Rehearsal to HKEX.** In any event, it is recommended that an internal briefing should be held by each CP prior to the CCMS Rehearsal to ensure that (i) staff involved fully understand all requirements and procedures and (ii) proper arrangements have been put in place by the CP to comply with the CCMS Rehearsal requirements.

l) CPs should ensure that they have access to the emails of the designated contact persons for the CCMS Rehearsal and the contact no. of these designated contact persons are reachable in order to receive emergency messages from HKEX during the CCMS Rehearsal.

(2) Schedule and Arrangements

(2.1) Schedule and Timetable

During the CCMS Rehearsal, CPs should follow the schedule and timetable as follows:

Execution Date: 19 October 2019 (Saturday)
Logical Date: 19 October 2019 (Saturday)

TIME		CCMS PROCESSING	REMARKS
FROM	TO		
19 October 2019 (Saturday) **Before Failover – On-line Session at Primary Data Centre (Session 1)**			
11:30 a.m.	12:00 noon	• **Logon to CCMS** by using the production Smartcard and password via the hyperlink: **https://www.ccass.com**	• CPs are advised to report duty no later than 11:00 a.m. on the CCMS Rehearsal day.
12:00 noon	12:30 p.m.	• CPs are recommended to perform the following: **1. On-line enquiry and maintenance:** • Enquire Collateral Account Balance • Add Pending Cash Collateral Deposit Order	• Only on-line maintenance, including enquiry and report download are available • NO batch processing will be available. • NO payment instruction will be generated for cash deposit. • CPs can also try other enquiry transactions if they have

TIME		CCMS PROCESSING	REMARKS
FROM	TO		
		2. **Report retrieval:** • Collateral Account Balance Report (CCMCA02) as of 18 October 2019	completed the required transactions. • CCMS transactions performed during Session 1 will be available for enquiry during Session 2
12:30 p.m.		**Simulate contingency situation occurred at HKEX's Primary Data Centre**	
12:30 p.m.	**2:30 p.m.**	**Failover to HKEX's Secondary Data Centre**	
After Failover – CCMS On-line Session at Secondary Data Centre (Session 2)			
2:30 p.m.	**4:00 p.m.**	**Connectivity to secondary data centre** • **Re-logon to CCMS** by using the production Smartcard and password via the hyperlink: **https://www.ccass.com** 1. **On-line enquiry and maintenance:** • Enquire Collateral Account Balance • Add Pending Cash Collateral Deposit Order 2. **Report retrieval:** Collateral Account Balance Report (CCMCA02) as of 18 October 2019 3. **Data verification:** • Enquire Deposit/Withdrawal Order • Verify if the pending cash collateral deposit order inputted during Session 1 is available for enquiry • Verify if the collateral account balance after the failover is the same as the balance before the failover Note: - *The reports retrieved during Session 2 would be the same as those retrieved during Session 1*	• Only on-line maintenance, including enquiry and report download are available • NO batch processing will be available. • NO payment instruction will be generated for cash deposit. • CPs can also try other enquiry transactions if they have completed the required transactions. • CCMS transactions performed during Session 1 will be available for enquiry during Session 2
4:00 p.m.		**CCMS On-line Session closes** • CPs complete the "**DCASS / CCMS Data**	• The Rehearsal is completed. • Perform the necessary clean-up and restoration of data / reports to production image.

TIME		CCMS PROCESSING	REMARKS
FROM	TO		
		Centre Failover Rehearsal Confirmation Form" via email to HKEX **at or before 6:00 p.m. on 19 October 2019**	• Please refer to Appendix C for the DCASS / CCMS Data Centre Failover Rehearsal Confirmation Form.
4:00 p.m.	8:00 p.m.	**Break: Re-connect to HKEX's Primary Data Centre**	
Production Verification Session at Primary Data Centre			
8:00 p.m.	10:00 p.m.	**The session is OPTIONAL but CPs are highly recommended to join.** • **Logon to CCMS** by using the production Smartcard and password via the hyperlink: **https://www.ccass.com** • The error message "Function not available" will be displayed via Enquire Broadcast Message • Logout from CCMS by clicking the "Logout" hyperlink at top right corner	

(2.2)   User ID and Login Password

The CPs' user profiles are based on the latest production image prior to the CCMS Rehearsal, i.e. 19 October 2019 (Saturday).

During the CCMS Rehearsal, CPs' DAs are responsible for resetting user passwords in case any user's smartcard password is revoked. If password reset is performed during the CCMS Rehearsal, the users concerned should use the *latest* password (i.e. after password reset in the CCMS Rehearsal) for production use on the following business day, i.e. 21 October 2019 (Monday).

In case the DA's smartcard password is revoked during the CCMS Rehearsal, CPs should request for password reset by presenting the smartcard to HKEX in person. In case the CCMS Authorised Signatories of CPs will not join the CCMS Rehearsal, CPs can arrange the Authorised Signatories to grant authority to the co-ordinator, by signing the "Special Authorisation Form" in Section (7), prior to the CCMS Rehearsal. In such case, the co-ordinator is authorised to sign the "Smartcard User Password Reset Form for Data Centre Failover Rehearsal" in Section (8) on the CCMS Rehearsal day.

Please be reminded to submit both the "Special Authorisation Form" and the "Smartcard User Password Reset Form for Data Centre Failover Rehearsal", together with the relevant smartcard(s) when requesting for the password reset.

(2.3)   Rehearsal Environment

The CCMS Rehearsal will be conducted based on the production image as of 19 October 2019. When CPs logon CCMS during the CCMS Rehearsal, they will be simulating production operation during 19 October 2019. For rehearsal purpose, 19 October 2019 will be set as a business day in CCMS.

(2.4)   Transactions to be Executed

CCMS on-line sessions will be available in the CCMS Rehearsal. CPs are required to perform the recommended CCMS functions and logon during <u>ALL</u> two on-line sessions. CPs should refer to Section (2.1) for the detailed execution script before and after the failover.

(2.5)   Report Download

CPs can retrieve CCMS reports via "Report Download" function during the CCMS Rehearsal.

(3) Typhoon and Rainstorm Arrangements

The typhoon and rainstorm arrangements will be same as these of DCASS data centre failover rehearsal.

(4) Communication Channels

The communication channels will be same as these of DCASS data centre failover rehearsal.

(5) Help Desk

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

(6)   Checklist for CCMS Data Centre Failover Rehearsal

	ITEMS TO BE CHECKED	✓
(A)	***Before the CCMS Rehearsal***	
1	Have you read and understood this Appendix ("Rehearsal Arrangement for CCMS Data Centre Failover ")?	
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 actions?	
3	Have you ensured that the participating users have appropriate user function access to perform the required activities in CCMS and/or your internal systems during the CCMS Rehearsal?	
4	If you would use your BOS in the CCMS Rehearsal, have you established appropriate procedures to switch your BOS for testing purpose and prepared a data restore procedure in place to restore production data after the CCMS Rehearsal?	
5	Should the Co-ordinator(s) be changed, have you submitted the updated contact details to HKEX?	
6	Have you arranged access for your Co-ordinator(s) to receive HKEX's communication via email before and during the CCMS Rehearsal?	
7	Have you arranged the execution of the "Special Authorisation Form" in Section (7) by the Authorised Signatories to grant authority to the co-ordinator as temporary Authorised Signatory to sign the "Smartcard User Password Reset Form for Data Centre Failover Rehearsal" in Section (8) for password reset during the CCMS Rehearsal, in case they would not be present on the CCMS Rehearsal day?	
(B)	***On 19 October 2019, before executing test cases***	
1	Have your designated contact person(s) of the CCMS Rehearsal already logged on their email accounts to obtain announcements during the CCMS Rehearsal?	
(C)	***After the CCMS Rehearsal***	
1	Have you cleaned up or removed the testing data or/and downloaded reports/data files from the production CCMS Terminal after the CCMS Rehearsal?	
2	Have you restored the BOS to production image and ensured they are ready for production use on the next business day, 21 October 2019?	

(7) Special Authorisation Form

**APPOINTMENT OF THE CO-ORDINATOR AS THE AUTHORISED SIGNATORY
DURING THE DATA CENTRE FAILOVER REHEARSAL**

CPs who wish to delegate the power of re-setting smartcard user password to their co-ordinator during the Data Centre Failover Rehearsal on 19 October 2019 should sign this Authorisation Form prior to the Rehearsal. In case of need, the co-ordinator should complete and submit the Smartcard User Password Reset Form for the Rehearsal together with the relevant smartcards in person to HKEX at the below address during the Rehearsal.

Date: _____

I/We hereby appoint the undersigned co-ordinator _____ for my /

our company as the authorised signatory for resetting the smartcard user password during the Data Centre Failover Rehearsal on 19 October 2019.

Yours faithfully,
For and on behalf of

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

Part ID: _____

Name: _____

Title: _____

Specimen Signature of the co-ordinator

_____

Name: _____

Please submit the forms (both the Special Authorisation Form and Smartcard User Password Reset Form for Data Centre Failover Rehearsal) together with the smartcard(s) to:

Clearing Operations,
Hong Kong Exchanges and Clearing Limited,
30/F, One Exchange Square, 8 Connaught Place, Central, Hong Kong.

Note: Hong Kong Exchanges and Clearing Limited will only accept the ORIGINAL copies of the "Special Authorisation Form" and "Smartcard User Password Reset Form for Data Centre Failover Rehearsal".

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(8) Smartcard User Password Reset Form

Smartcard User Password Reset Form
for Data Centre Failover Rehearsal

Date: _____

I hereby request to reset the smartcard user password for the following Users during the Data Centre Failover Rehearsal on 19 October 2019.

User Name   *User ID*

_____   _____

_____   _____

_____   _____

_____   _____

For and on behalf of

_____
Signed by the co-ordinator of the Rehearsal

Part ID: _____

Name: _____

Title: _____

Please submit the forms (both the Special Authorisation Form and Smartcard User Password Reset Form for Date Centre Failover Rehearsal) together with the smartcard(s) to:

Clearing Operations,
Hong Kong Exchanges and Clearing Limited,
30/F, One Exchange Square, 8 Connaught Place, Central, Hong Kong
Note: Hong Kong Exchanges and Clearing Limited will only accept the ORIGINAL copies of the "Special Authorisation Form" and "Smartcard User Password Reset Form for Data Centre Failover Rehearsal".