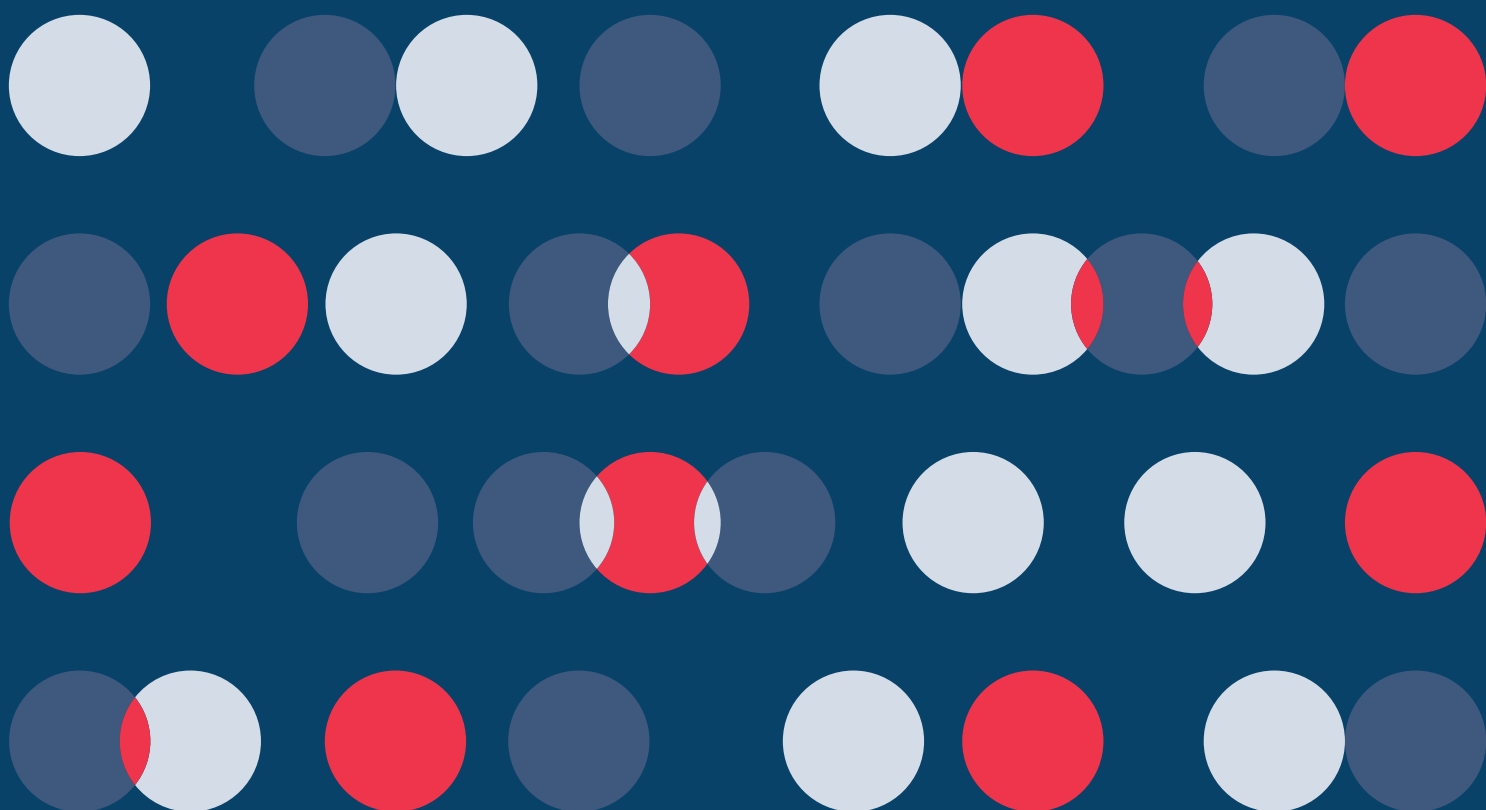


September 2018

INFORMATION PAPER

HKATS & DCASS UPGRADE



## AMENDMENT HISTORY

Version	Date	Changes
1.0	July 2017	Initial version
1.1	November 2017	Updated to incorporate the latest timeline and technical details, including the holiday trading arrangement and the setting of exercise limit for OCH Contracts by SEOCH Participants
1.2	February 2018	Incorporated the latest timeline
1.3	April 2018	Updated <ul style="list-style-type: none"> <li>- the launch of Market Data solution, OMDD D-Lite on 16 April 2018</li> <li>- the information on the NG to CG Promotion Program</li> <li>- Appendix D to enrich the details on RPF enhancement, relating to enhance margin offset support</li> </ul>
1.4	August 2018	Updated <ul style="list-style-type: none"> <li>- the latest timeline</li> <li>- Appendix D to enrich the Large Open Positions Report Template</li> </ul>
1.5	September 2018	Updated <ul style="list-style-type: none"> <li>- the naming convention of common reports/files to be retrieved via the Report Retrieval Solution</li> <li>- the latest project schedule</li> <li>- Self Trade Prevention in Section III</li> </ul>

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## SECTION I: INTRODUCTION

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1. 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.
2. In view of technology evolution and to respond to the needs from the markets, HKEX has decided to upgrade (Upgrade) its derivatives platform, HKATS and DCASS. The Upgrade will bring the derivatives market a simplified infrastructure, with reduction of hardware footprints at Participant premises. As planned and communicated during the previous system upgrade in 2013, the transitional access point, Network Gateway (NG), will be decommissioned along with this Upgrade. Furthermore, both Trading and Clearing Workstations, currently known as CLICK and DCASS Terminals (as well as DCASS Servers), connecting HKATS and DCASS respectively will also be terminated upon the Upgrade.
3. After the Upgrade in 2019, Central Gateway (CG) will be the only access point to HKATS and DCASS.
4. A new browser based frontend application, i.e. HKATS Online will be provided for block trade facilities and serving as a contingency access to HKATS. Similarly, a new browser based frontend application, namely DCASS Online will be provided to Clearing Participants (CP) replacing the existing DCASS Servers and DCASS Terminals.
5. Please see Appendix A for the changes in System Infrastructures and Section IV for the tentative implementation schedule, with a plan to rollout the Upgrade by May 2019.
6. This information paper presents an overview of the Upgrade for the derivatives market and highlights the market impact with a tentative project schedule, to assist Participants to plan and prepare for the Upgrade.

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## SECTION II: INFRASTRUCTURAL CHANGES

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### A. Central Gateway as the Only Access Point

7. CG was introduced in 2013, to allow Participants to access HKATS and DCASS by directly connecting to the HKEX host servers. As of May 2017, over 80% of HKATS and DCASS OAPI connections have been migrated to CG to enjoy the lower transaction latency.
8. Upon the launch of Upgrade, CG will be the only access point to HKATS and DCASS. HKEX will decommission the access to HKATS and DCASS via NG as planned.
9. To prepare for the decommissioning of NG, Exchange Participants (EP) and CP currently accessing HKATS and DCASS via NG are advised to migrate the concerned connection(s) to CG soonest possible. However, Participants who still maintain any of their NG connections after Market Rehearsal (MR) should maintain their NG, including those NG decommissioned subsequently, until the completion of the two-week stabilization period after the launch of the Upgrade.
10. For those EP who re-distributes the market data obtained from NG should seek alternative data source, such as via the HKEX Orion Market Data Platform for Derivatives Market (OMD-D) or other service providers. Effective from 16 April 2018, HKEX offers a new feed package under OMD-D as a market data solution to EP for the NG decommissioning. More details can be found in Section B.
11. MR, tentatively scheduled in Q1 2019, will only support and accept CG connections in order to simulate the upgraded infrastructure. Participants are advised to complete the migration of their OAPI programs from NG connections to CG prior to MR to avoid changing their network configurations back and forth between NG and CG during the MR period.

12. To facilitate and encourage Participants to migrate their NG connections to CG earlier, HKEX will offer a promotion program from 3 April 2018 to the tentative launch date in May 2019. Only active NG connections in December 2017 will be eligible to the promotion program. The successful migrated CG connections will be charged at a concession rate of HK\$1,750 per connection per month temporality upon the decommissioning of Participants' NG connections for OAPI within the promotion program. Upon the launch of Upgrade, the charges for all CG connections will be resumed to the existing standard rate, i.e. HK\$2,600 according to the Exchange and Clearing Houses Rules and Procedures<sup>1</sup>. Please refer to the [circular](#) issued on 28 Feb 2018 for details and the enrollment form of the promotion program.

## **B. Market Data Solutions**

13. EP subscribing to any existing datafeed product (Derivatives Standard, Derivatives Premium or Derivatives FullTick) on OMD-D will be granted 20 free terminals, instead of the existing 2 terminals, for displaying "Level 2" market data (i.e. 10 price depth) for internal use from April 2018 upon the full migration of the EP's NG connections to CG, meaning that the EP will save the monthly subscription fee of HK\$75 per terminal for up to 20 terminals.
14. EP can have access to the "Level 2" market data through direct connection to OMD-D or through data services of Information Vendors.
15. In addition, the new feed package, namely Derivatives Lite (D-Lite) under OMD-D is available, from 16 April 2018, for EP to support their internal use including non-display usage and provision of trading facility such as internet trading to their clients, which are the major usage of the market data from NG nowadays.
16. The D-Lite comprises the following two new feeds, both with update interval of one second:
  - a. Conflated 5 price depth feed
  - b. Snapshot order feed for active series, which refer to the series eligible for the Volatility Control Mechanism (VCM) in the Derivatives Market.

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<sup>1</sup> HKFE:<http://www.hkex.com.hk/-/media/HKEX-Market/Services/Rules-and-Forms-and-Fees/Rules/HKFE/Rules/fe-app-b.pdf?la=en>  
HKCC:<http://www.hkex.com.hk/-/media/HKEX-Market/Services/Rules-and-Forms-and-Fees/Rule/s/HKCC/Rules/CC-AppA.pdf?la=en>  
SEOCH:<http://www.hkex.com.hk/-/media/HKEX-Market/Services/Rules-and-Forms-and-Fees/Rules/SEOCH/Operational-Procedures/app-g1.pdf?la=en>

17. Subscribers of the D-Lite can also opt to receive trade information from the existing streaming OMD-D Trade Feed without additional cost.
18. The subscription fee to the D-Lite will be HK\$2,000 per month (subject to approval), and this is a flat fee and there will not be charges for licence fee, end-user/subscriber usage fee, connection fee etc. EP shall enter into a Market Data End-User Licence Agreement for accessing the data of the new feed package for internal use. If EP are disseminating the data to their trading clients, a Market Data Vendor Licence Agreement is needed. Nonetheless, EP are only required to pay the flat fee of HK\$2,000 per month.
19. The D-Lite is effective from 16 April 2018. More details on the D-Lite implementation are available via designated [D-Lite](#) web corner.
20. The bandwidth requirements for the new feed package and the complimentary trade feed are as below:

Feed	5 Price Depth Feed		Order Feed	Trade Feed	
Product	Non SOM*	SOM	-	Non SOM	SOM
Bandwidth (Mbps)	6	8	3	2	1

\* SOM refers to Stock Options Market

21. Subscribers of D-Lite could also enjoy Redistribution Fee and Connection Fee waivers for OMD Derivatives Standard should they wish to provide deeper depths services to their trading clients.

### **C. Online for Trading and Clearing**

22. A new browser-based front-end application, namely HKATS Online, will be provided to EP for contingency purpose.
23. Block trade functions will also be available via HKTAS Online.
24. DCASS Online will be offered as a replacement to DCASS Servers and DCASS Terminals. CP are still required to maintain their DCASS Servers and DCASS Terminals during the two-week stabilization period after the launch of the Upgrade.

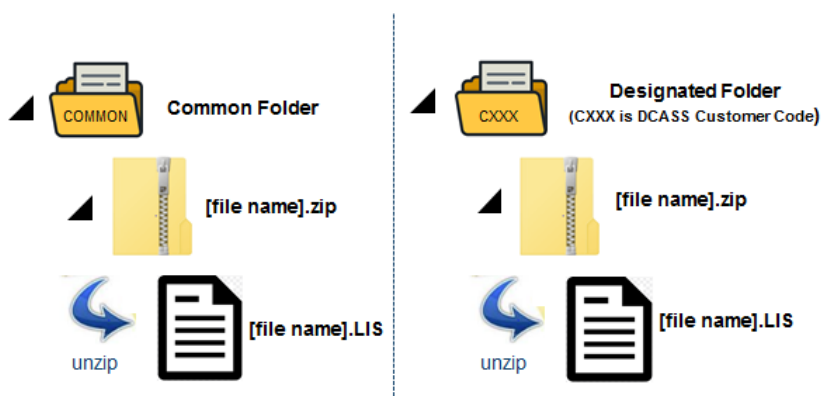
25. Both HKATS & DCASS Online will access HKATS and DCASS with CG connection via SDNet. Please refer to Appendix B for the web browser requirements of HKATS & DCASS Online, firewall whitelist and Report Retrieval Solution.

**D. Report Retrieval**

26. With the decommissioning of DCASS Servers and DCASS Terminals, DCASS and Pre-Trade Risk Management (PTRM) reports will no longer be downloaded to Participants' DCASS Servers; instead Participants should retrieve DCASS and PTRM reports directly from HKEX's Report Retrieval Solution according to their own schedule and operation needs. Same as today, Participants are recommended to make necessary planning and review on the capacity and security setting for local storage of the retrieved reports / data files. Please refer to Appendix B for report retrieval requirements.

- 27a. HKEX's Report Retrieval Solution will be implemented in Oct 2018 and available in parallel with existing DCASS Servers for report retrieval until the launch of the Upgrade. Technical guide for connecting to HKEX's Report Retrieval Solution is available via [HKATS & DCASS Upgrade web corner](#).

- 27b. Each Participant can access to a common and a designated folder which contains DCASS and PTRM reports. Reports & files will be compressed in zipped format. The unzipped file extension is LIS which are the same as existing naming conventions.



The file name of common reports/files available to all Clearing Participants will be standardised by removing the DCASS Customer Code "Cxxx", please see changes as follows (in bold):





30. Participants are required to have sufficient SDNet bandwidth installed prior to the MR tentatively scheduled in late Q1 2019 for HKATS & DCASS Upgrade.

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## SECTION III: FUNCTIONAL ENHANCEMENTS

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### A. Increase the length of HKATS Root Symbol

31. The length of HKATS root symbol<sup>2</sup> will be increased from 3 to 5 alpha-numeric characters. Participants are reminded to review their systems including but not limited to trading, clearing, market data and reports on the capability to receive, process and store the HKATS root symbol with 5 alpha-numeric spaces.
32. HKATS root symbols of existing derivatives products will remain unchanged; no data conversion will be required.
33. New derivatives products to be launched after the Upgrade may carry a HKATS root symbol up to 5 characters. It is expected that the length of HKATS root symbols will vary from 3 to 5 characters upon the Upgrade.
34. Layout and/or content of reports and data files retrieved for HKEX's derivatives market, including PTRM reports, DCASS reports and Risk Parameter File (RPF) will be modified accordingly. Please refer to Appendix D for a list of files and reports to be enhanced and Appendix E for a summary of enhancements to RPF. RPF Specifications and sample files are also available via [HKEX website](#).

### B. Increase the field length of the “exchange info” field at order level

35. The length of “Exchange Info” field at order level will be extended from 32 bytes to 40 bytes. Upon the Upgrade, Participants should only use the leftmost 15 bytes of the data field. The remaining rightmost 25 bytes of the data field will be reserved for HKEX's future use. Participants are not allowed to input any information to this portion of “Exchange Info” field.
36. The corresponding “Pass Through” data field in Position Movement Details Report (TP003) for CP will be extended from 32 to 40 characters accordingly.

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<sup>2</sup> For example, HSI and HKB are the HKATS root symbols for Hang Seng Index and HSBC Holdings Plc. respectively.

37. A full list of affected OAPI(s)<sup>3</sup> is available via [HKEX website](#). Participants should ensure and confirm their OAPI programs and Back Office Systems (BOS) are able to support the extended “Exchange Info” and “Pass Through” fields.

**C. Allow SEOCH Participant to input an exercise parameter for OCH Contracts<sup>4</sup>**

38. Currently, the in-the-money (ITM) triggering percentage for automatic generation of stock options exercise limit is prescribed by SEOCH as 1.5% of the strike. If needed, SEOCH Participants may choose to input their exercise requests through DCASS Terminals in respect of those OCH Contracts that they wish to exercise. With the Upgrade, instead of following SEOCH’s prescribed limit, SEOCH Participants will be able to configure their own automatic generation exercise limit per Instrument Type via DCASS Online.
39. SEOCH Participants can set their own ITM limits for all spot month contracts on or before expiry; such limit can be entered as a percentage or at a fixed value. Please refer to Appendix F for illustrations on setting of ITM limit.
40. The existing Automatic Exercise Information for Stock Options Report (TP013) will remain the same i.e. only showing those spot month series to be automatically exercised by the SEOCH, based on the 1.5% triggering limit prescribed by SEOCH. SEOCH Participants who choose to use the new function should verify their input by using the Automatic Exercise Limits Window. SEOCH Participants are reminded to have proper internal control in the maintenance of ITM limits. Report specifications and samples are available via [HKEX website](#).

**D. Support new business initiatives**

41. The Upgrade will also enhance the capability to support the following new business initiatives:
- a. contracts with flexible expiry dates for HKFE products (namely weekly / daily expiry contracts)
    - ability to trade and clear contracts in addition to the existing contracts with monthly expiry dates
  - b. holiday trading of HKFE products
    - ability to trade and clear contracts during Hong Kong holidays, such as Easter and Christmas holidays

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<sup>3</sup> HKATS related OAPI can be found in [HKATS OAPI Specifications](#); DCASS related OAPI can be found in [DCASS OAPI Specifications](#).

<sup>4</sup> OCH Contract means a contract between SEOCH and SEOCH Participant pursuant to a novation in accordance to Options Clearing Rules of SEOCH.

- Holiday Product (H Product) and non-Holiday Product (Non-H Product) will have different trading calendars
- c. Summary of arrangements during Hong Kong holidays is highlighted below. Please refer to Appendix G for more details.

	During a HK Holiday (H)	
	Holiday Product(H Product)	Non-Holiday Product (Non-H Product)
<b>Holiday Participant</b>	<ul style="list-style-type: none"> <li>• Settle H-1 day-end obligations on <b>H day</b></li> <li>• Conduct Trading/Clearing/Post trade activities during H day</li> <li>• Settle H intra-day obligation settle during H day</li> <li>• Settle H day-end obligation settle on H+1 day</li> </ul>	<ul style="list-style-type: none"> <li>• <b>NO</b> Trading/Clearing/Post trade activities</li> <li>• Settle H-1 day-end obligation settle on H+1 day</li> </ul>
<b>Non-Holiday Participant</b>	<b>NO</b> activity during H day	

42. Reports and data files will be enhanced to support these new initiatives. Please refer to Appendix D for details and [HKEX website](#) for report specifications and samples. Participants interested in the above new business initiatives should get their Trading Systems, BOS and OAPI programs, if applicable, ready together with the Upgrade. However, all Participants should take note of the enhanced system behavior and ensure it will not impact their existing system processing.
- For DCASS reports, there is no change to the report layouts due to this initiative. Only H Product related activities will be shown on DCASS reports generated during Hong Kong holidays, if applicable.
  - For CCMS reports, only CCMPY02 will be modified by adding a new section showing Holiday Participants' day-end obligations in relation to Non-H Products to be settled on the day after holidays.
  - All DCASS and CCMS reports for that particular Clearing House will be available if the Clearing House is opened for clearing on the day.
  - For Daily Market Report, availability of reports for the concerned products will follow their own trading calendar.
43. Furthermore, to prepare for the launch of the Upgrade, HKEX will include flexible expiry dates contracts for HKFE products and holiday trading of HKFE products in the MR. Readiness and verification in supporting these initiatives will be optional. However, Participants who do not intend to support the relevant new initiatives should also verify

and ensure that the enhancement/modification do not impact their existing system processing. Please refer to [technical briefing material](#) for more details.

**E. Enhance margin offset support**

- 44. To support new business initiatives and to enhance margin offset capability, enhancements will be made to the RPF. Please refer to Appendix E for details.

**F. Self Trade Prevention**

- 45. Self Trade Prevention function is applicable to market open sessions in HKATS as an optional functionality for Exchange Participants to prevent any self-trade<sup>5</sup>. When Self Trade Prevention function is enabled for a particular user, his/ her order and quotes will not match against other orders and quotes inputted by all users of the same participant. If the self-trade situation happens, the aggressive order or quote<sup>6</sup> will be deleted.

The screenshot displays a trading interface with three main panels: 'Enter Order', 'Order Depth', and 'Order Book'. Below these is an 'Order History' table. The 'Order History' table contains the following data:

ACTION	TIME	ID	B QTY	A QTY	R QTY	LMT	PRC	TYPE	VALID	TRD	T+1	INFO	RP	ORDER NO	O CAT	REPLY	DEL REASON
New	9/12/18 9:18:18 AM	HSIU8	10	10	28,001	LMT	Day	1091						61833703.000027B6	EMP	All in OB	
New	9/12/18 9:18:47 AM	HSIU8	10	10	28,001	LMT	Day	1091						61833703.000027B8	EMP	None closed, none in OB	
Delete	9/12/18 9:18:47 AM	HSIU8	10		28,001	LMT	Day	1091						61833703.000027B8	EMP		Order deleted because trader is not allowed to trade with himself

- 46. In the example provided above, Self Trade Prevention function has been enabled for the user “1091” of participant “ICM” and the market best ask order (10 lots at 28001) is placed by this user ICM1091. Once a bid order (10 lots at 28001 or above) is placed by any user of ICM (in this example the same user ICM1091), instead of executing a trade, Self Trade Prevention function will take action and the aggressive bid order will be deleted. And the user will receive messages of “None closed and none in OB”

<sup>5</sup> Combo vs combo, combo vs outright (bait) order matching and trade reports are not covered by Self-trade Prevention function.

<sup>6</sup> According to the design of mass quote transaction (MO96), the aggressive (new) mass quotes will replace the passive (original) mass quotes also for the self-trade situation.

(indicated in blue) as well as the delete reason of “Order deleted because trader is not allowed to trade with himself” (indicated in red) respectively in the “New” and “Delete” records in Order History window.

47. For more information on the application procedure, please contact the Exchange via [hkatssupport@hkex.com.hk](mailto:hkatssupport@hkex.com.hk).

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## SECTION IV: TO-DO LIST FOR PARTICIPANTS

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### A. **Project Initiation** *[Completed]*

48. **Reserve resources for the Upgrade:** Participants are encouraged to assess, evaluate and reserve sufficient resources, in manpower, technical and financial aspects for the Upgrade. Including the procurement of hardware & software, as well as bandwidth requirement, in order to support the migration of NG connection to CG, subscription of market datafeed from OMD-D, browser-based requirements for HKATS & DCASS Online as well as report retrieval via Report Retrieval Solution.
49. **Engage IT or vendors:** Participants should liaise with your internal IT teams and/or system vendors to assess and identify potential system modifications including but not limited to Trading System, BOS and/or OAPI programs, if applicable.
50. **Source of market data:** With the decommissioning of NG, Participants currently using OAPI to retrieve market data via NG should assess, seek and determine the alternative sources of market data that can meet your business needs.

### B. **Development Stage** - *from September 2017 to Q3 2018*

51. **Technical briefing:** [Material](#) for the technical briefing can be found on the HKATS and DCASS web corner.
52. **System Modifications:** Both [HKATS](#) and [DCASS](#) OAPI specifications are available via HKEX website. Participants should review the OAPI specification, assess and plan for the modification of their BOS/OAPI programs.
53. **Migration of NG connection to CG:** To avoid unnecessary interruption due to condensing all migration within a short period of time, Participants are encouraged to migrate their NG connections to CG earlier. To facilitate and encourage Participants to migrate their NG connections to CG earlier, HKEX offers a promotion program effective from 3 April 2018 to the tentative launch date in May 2019. Only active NG connections in December 2017 will be eligible to the promotion program. Please refer to the [circular](#) issued on 28 Feb 2018 for details and the enrollment form of the promotion program.

### C. **Getting Ready** - *from Q3 2018*



54. End-to-End Testing: To facilitate Participants' verification of their self-developed systems, a testing environment is available from May 2018. Participants can connect to the testing environment to verify the compatibility among interface system, BOS, HKATS and DCASS host servers.
55. Certification Test: Tentatively, OAPI certification testing environment will be available for Participants from August to December 2018. Participants are encouraged to conduct OAPI certification test earlier to allow sufficient buffer to cater for bug fixing and retest, if applicable.
56. Procurement of Hardware & Software: Participants should assess the need to redeploy the existing hardware & software, such as NG, DCASS Servers/Terminals upon the completion of the 2-week stabilisation after launch, if applicable, and/or procure new equipment to cater for the upgraded infrastructure. Please refer to Appendix B for technical requirements details for HKATS & DCASS Online and Report Retrieval Solution.
57. SDNet requirement: Participants should review and assess their existing SDNet bandwidth and setup; and engage the accredited vendors to make necessary upgrade and adjustment, if needed. Please refer to Appendix C for bandwidth requirement information.
58. HKATS & DCASS Online: Participants should nominate their operation staff to attend the HKATS & DCASS Online briefing to learn and get familiar with the navigation and workflow of the new browser-based front-end applications for both Trading and Clearing, in August/September 2018. Moreover, Participants should use their existing User IDs to access HKATS & DCASS Online under the Upgrade. Details will be announced separately in due course.
59. HKATS & DCASS Online Practice Session: Participants are recommended to join the practice session to get familiarized with the new user interface, features and functionalities of the DCASS Online before Market Rehearsal. Details will be announced separately in due course.

**D. Rollout Activities – Q1 2019**

60. Connectivity Test: Before the execution of the MR, Participants should participate in the connectivity test to ensure they can connect to HKATS & DCASS Online, Report Retrieval Solution, HKATS and DCASS hosts via CG under the upgraded infrastructure.

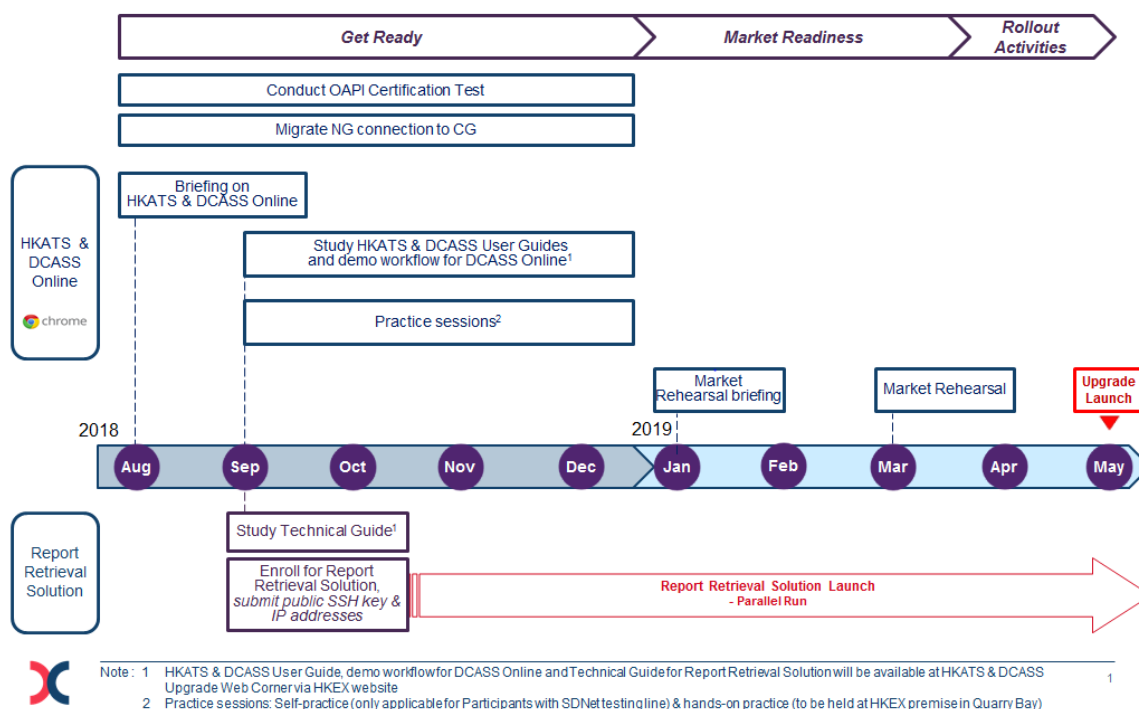
61. Market Rehearsal (MR): As the final preparation and verification of readiness before the Upgrade rollout, all Participants have to participate in the MR, tentatively in Q1 2019; and provide confirmation and declaration of their readiness. Participants are recommended to ensure their operations and systems support the enhanced system features, including extension of HKATS root symbols field, setting their own ITM limits for OCH Contracts (if applicable), modified RPF and report download from HKEX's Report Retrieval Solution. Participants who intend to participate in the new business initiatives, including contracts with flexible expiry dates and holiday trading of HKFE products should also ensure their system able to support the relevant enhanced system features. Participants should allow sufficient time to test the newly updated version of OAPI and BOS programs before market rehearsal.

**E. Communication**

62. HKEX will post the Upgrade information and the latest update to the designated "[HKATS and DCASS Upgrade](#)" web corner. Participants are encouraged to visit the designated web corner for the latest progress of Upgrade.

## SECTION V: TENTATIVE IMPLEMENTATION SCHEDULE

63. The tentative implementation schedule for HKATS and DCASS Upgrade is summarized as follows:



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## SECTION VI: ENQUIRIES

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64. For enquiries and further clarification on the Upgrade, please contact us by email to [hkatssupport@hkex.com.hk](mailto:hkatssupport@hkex.com.hk) and [clearingpsd@hkex.com.hk](mailto:clearingpsd@hkex.com.hk) or call our hotlines<sup>7</sup>:

(+852) 2211 6360 (Trading)

(+852) 2979 7222 (Clearing)

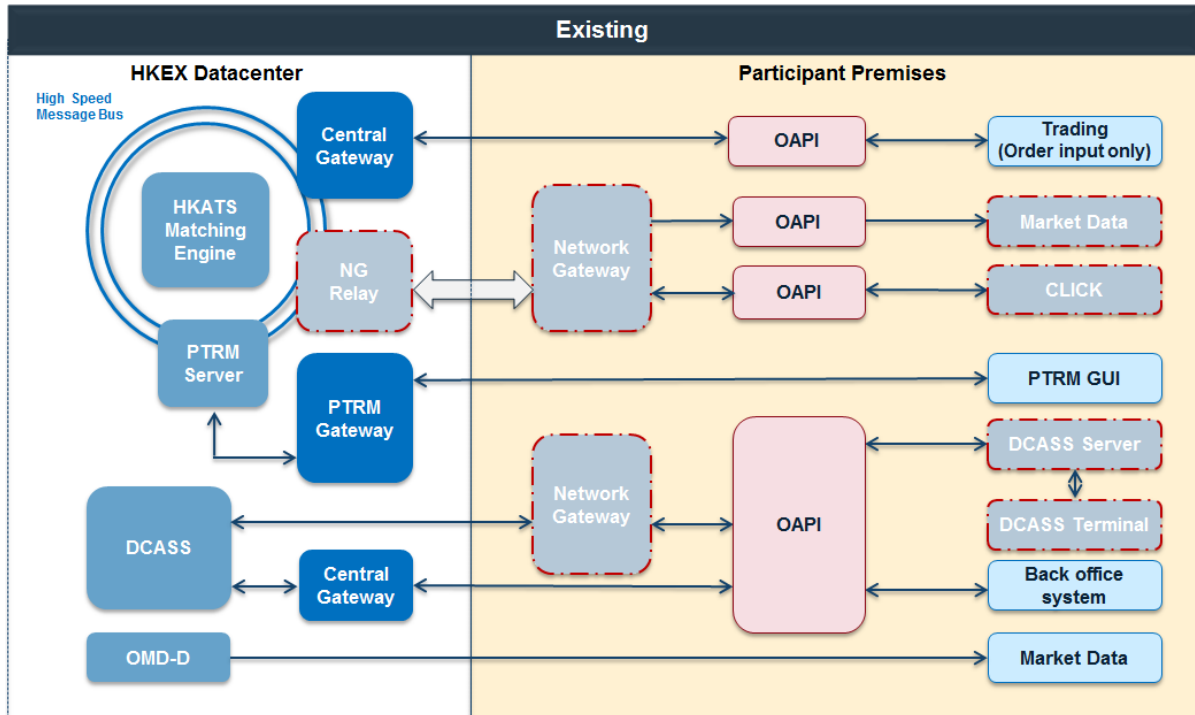
65. A designated web corner has been set up at the HKEX website for all Upgrade related information. Participants should refer to the "[HKATS and DCASS Upgrade](#)" web corner for most up-to-date information.

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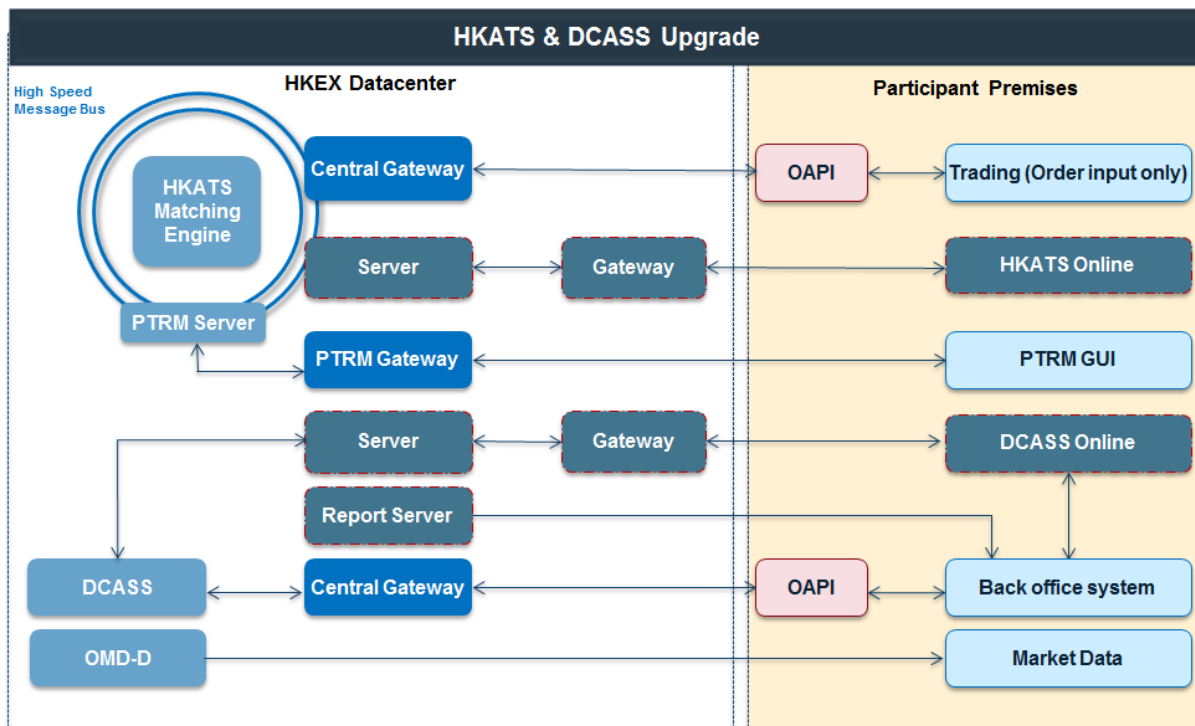
<sup>7</sup> All calls to our HKATS and DCASS hotlines would be recorded. Please refer to the following link for HKEX privacy policy statement: [http://www.hkex.com.hk/Global/Exchange/Privacy-Policy?sc\\_lang=en](http://www.hkex.com.hk/Global/Exchange/Privacy-Policy?sc_lang=en)

# Appendix A: Changes in System Infrastructure

## Existing Infrastructure



## New Infrastructure after HKATS & DCASS Upgrade



Legend :   infrastructure changes upon the Upgrade

## Appendix B: Requirements for HKATS & DCASS Online, Firewall Whitelist and Report Retrieval Solution

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HKATS & DCASS Online	Minimum Requirement
Processor	Intel Core i3-550 3.2GHz or higher
RAM	4GB
Storage	3GB
Network adapter	100Mbps full-duplex
Monitor	21" with 1280 x 1024 resolution
Operating System	Microsoft Windows 7 (64 bit)
Layered software	Anti-virus software
Supported Browser	Google Chrome <sup>8</sup>
Network Circuit	<ul style="list-style-type: none"> <li>- via SDNet connection</li> <li>- Firewall/Services Ports configuration, if necessary</li> </ul>

Report Retrieval Solution	Recommended Installation Requirement
Operating System	<i>Secure File Transfer Protocol compliance platform</i>
Software for Report Download	<i>Secure File Transfer Protocol compliance software</i>
Network Circuit	<ul style="list-style-type: none"> <li>- via SDNet connection</li> <li>- Firewall/Services Ports configuration, if necessary</li> </ul>

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<sup>8</sup> Google Chrome will be the supported browser for PTRM as well.

**Firewall whitelist as Pass-Through for HKATS & DCASS Online:**

TCP / Port No.	Site	IP Address (Server Name)	URL of HKATS & DCASS Online	Host Table Update
8082	Primary	10.151.14.101 (pgenrgw001)	<a href="https://pgenrgw001.hkex.com.hk:8082/login">https://pgenrgw001.hkex.com.hk:8082/login</a>	10.151.14.101 pgenrgw001.hkex.com.hk
		10.151.14.102 (pgenrgw002)	<a href="https://pgenrgw002.hkex.com.hk:8082/login">https://pgenrgw002.hkex.com.hk:8082/login</a>	10.151.14.102 pgenrgw002.hkex.com.hk
		10.151.14.155 (pgencdw001)	<a href="https://pgencdw001.hkex.com.hk:8082/login">https://pgencdw001.hkex.com.hk:8082/login</a>	10.151.14.155 pgencdw001.hkex.com.hk
		10.151.14.156 (pgencdw002)	<a href="https://pgencdw002.hkex.com.hk:8082/login">https://pgencdw002.hkex.com.hk:8082/login</a>	10.151.14.156 pgencdw002.hkex.com.hk
	Secondary	10.152.14.101 (sgenrgw001)	<a href="https://sgenrgw001.hkex.com.hk:8082/login">https://sgenrgw001.hkex.com.hk:8082/login</a>	10.152.14.101 sgenrgw001.hkex.com.hk
		10.152.14.102 (sgenrgw002)	<a href="https://sgenrgw002.hkex.com.hk:8082/login">https://sgenrgw002.hkex.com.hk:8082/login</a>	10.152.14.102 sgenrgw002.hkex.com.hk
		10.152.14.155 (sgencdw001)	<a href="https://sgencdw001.hkex.com.hk:8082/login">https://sgencdw001.hkex.com.hk:8082/login</a>	10.152.14.155 sgencdw001.hkex.com.hk
		10.152.14.156 (sgencdw002)	<a href="https://sgencdw002.hkex.com.hk:8082/login">https://sgencdw002.hkex.com.hk:8082/login</a>	10.152.14.156 sgencdw002.hkex.com.hk

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## Appendix C: Bandwidth Requirements

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To ensure smooth operations under Upgrade and support the anticipated growth in the derivatives market volumes, the minimum requirements for the SDNet bandwidth are listed in the table below.

Per Connection		Bandwidth Requirement	
		HKATS only	DCASS only
Central Gateway	OAPI	3 Mbps <sup>9</sup>	3 Mbps
	HKATS & DCASS Online	0.4 Mbps	0.4 Mbps
	Report Retrieval	N/A	1 Mbps
PTRM Gateway		1 Mbps	

Please note that subject to market conditions, HKEX may consider revising the bandwidth requirements from time-to-time and Participants may need to upgrade their SDNet accordingly. HKEX will issue separate circulars to notify Participants of the updated requirements when needed.

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<sup>9</sup> 3 Mbps is optimal for support up to 250 TPS with 2 copies of firm based broadcast (BO5).



## Appendix D: List of Files and Reports to be enhanced

Functional enhancement	Enhanced file and report	Related enhancement
A. Increase the length of HKATS Root Symbol	TP001, TP002, TP003, TP004, TP009, TP010, TP011, TP012	Extend the “Series” field length from 15 to <b>20</b> characters to incorporate <ul style="list-style-type: none"> <li>- the extension of HKATS Root Symbol from 3 to <b>5</b> characters</li> <li>- the contract date code for flexible expiry date</li> </ul>
	TP014	Extend the “Series Security ID” field length from 4 to <b>5</b> characters to incorporate the extension of HKATS Root Symbol from 3 to <b>5</b> characters.
	RP001, RP004, RP005, RP006, RPI07/RP007, RP009, RPI11/RP011, RPF <sup>10</sup> , UMR <sup>11</sup>	Extend the “Commodity” field length to incorporate the extension of HKATS Root Symbol from 3 to <b>5</b> characters.  For RPF, rearrange the “Combined Commodity Code” field to cater for the extension of HKATS Root Symbol from 3 to <b>5</b> characters
	Daily Market Report, PTRM Audit report, Utilization report and Limit file	Extension of HKATS Root Symbol from 3 to <b>5</b> characters for new product initiatives.

<sup>10</sup> RPF refers to Risk Parameter File

<sup>11</sup> UMR refers to Unit Margin Rate File

Functional enhancement	Enhanced file and report	Related enhancement
	Large Open Positions Report Template for Futures Market	Extend the “Product Code” field length from 4 to <u>6</u> to incorporate the extension of HKATS Root Symbol from 3 to <u>5</u> characters.
	Large Open Positions Report Template for Stock Options market	Extend the “Option Class” field length from 3 to <u>5</u> to incorporate the extension of HKATS Root Symbol from 3 to <u>5</u> characters.
B. Increase the field length of the “exchange info” field at order level	TP003	Extend the “Pass Through” field length from 32 to <u>40</u> characters
C. Contracts with flexible expiry dates	TP001, TP002, TP003, TP004, TP009, TP010, TP011, TP012	Extend the “Series” field length from 15 to <u>20</u> characters to incorporate <ul style="list-style-type: none"> <li>- the extension of HKATS Root Symbol from 3 to <u>5</u> characters</li> <li>- the contract date code for flexible expiry date</li> </ul>
	RPF, RP004, RPI07/RP007, RPI11/RP011, MERT <sup>12</sup>	All products under the same Combined Commodity with flexible expiry contracts will display <b>contract date code</b> after the existing contract month code.  <i>For enhancement to RPF, please refer to Appendix E.</i>
	Daily Market Report	New daily market report format to be introduced with further granularity to identify the expiry date down to daily and weekly level.

<sup>12</sup> MERT refers to Client Margin Estimate Reference Table

Functional enhancement	Enhanced file and report	Related enhancement
	Large Open Positions Report Template for Futures Market	<p>Extend the “Contract Month” field length from 6 to <b>9</b> characters to incorporate the contract date code for flexible expiry date.</p> <p>Format for Monthly contract remains unchanged with 6 characters in “YYYYMM”; where format for Weekly contract will be extended to 9 characters in “YYYYMM<b><u>WDD</u></b>”</p>
D. Holiday Trading <sup>13</sup>	TP001, TP002, TP003, TP004, TP005, TP006, TP007, TP008, TP010, TP012	Report date will be displayed as current day if that particular market has been opened for trading for the day; otherwise the report date will be displayed as previous business day.
	RPI03/RP003, RP004, RP005, RP006, RPI07/RP007, RP008, RP009, RP010, RPI11/RP011, RP012, UMR, MERT	For Risk Reports, the report time will be displayed as "DAY END" for day end report if that particular market has been opened; Report time will be displayed as "***.***" if particular market has been closed for trading for the day; Otherwise the report time will be displayed as current time.
	CCMS report: CCMPY01/02	Report layout will be changed to cater for holiday trading
	Daily Market Report	Availability of the report for concerned products will follow their own trading calendar

<sup>13</sup> All DCASS and CCMS reports for that particular Clearing House will be available if the Clearing House is opened for clearing on the day.

Functional enhancement	Enhanced file and report	Related enhancement																																						
E. Enhance margin offset support	RPF, RPI03/RP003, RPI10/RP010	<p>Align the name of Product Area with the Combined Commodity Group Code to be displayed in RPF.</p> <table border="1" data-bbox="943 454 1402 1715"> <thead> <tr> <th data-bbox="943 454 1179 517">Before Upgrade</th> <th data-bbox="1179 454 1402 517">After Upgrade</th> </tr> </thead> <tbody> <tr><td data-bbox="943 517 1179 584">3</td><td data-bbox="1179 517 1402 584">SEC</td></tr> <tr><td data-bbox="943 584 1179 651">B</td><td data-bbox="1179 584 1402 651">BOV</td></tr> <tr><td data-bbox="943 651 1179 719">D</td><td data-bbox="1179 651 1402 719">DJI</td></tr> <tr><td data-bbox="943 719 1179 786">E</td><td data-bbox="1179 719 1402 786">HKE</td></tr> <tr><td data-bbox="943 786 1179 853">F</td><td data-bbox="1179 786 1402 853">HKF</td></tr> <tr><td data-bbox="943 853 1179 920">G</td><td data-bbox="1179 853 1402 920">BSE</td></tr> <tr><td data-bbox="943 920 1179 987">H</td><td data-bbox="1179 920 1402 987">HSI</td></tr> <tr><td data-bbox="943 987 1179 1055">L</td><td data-bbox="1179 987 1402 1055">SAF</td></tr> <tr><td data-bbox="943 1055 1179 1122">M</td><td data-bbox="1179 1055 1402 1122">HKM</td></tr> <tr><td data-bbox="943 1122 1179 1189">N</td><td data-bbox="1179 1122 1402 1189">MCX</td></tr> <tr><td data-bbox="943 1189 1179 1256">O</td><td data-bbox="1179 1189 1402 1256">GLD</td></tr> <tr><td data-bbox="943 1256 1179 1323">Q</td><td data-bbox="1179 1256 1402 1323">MSC</td></tr> <tr><td data-bbox="943 1323 1179 1391">R</td><td data-bbox="1179 1323 1402 1391">RMB</td></tr> <tr><td data-bbox="943 1391 1179 1458">S</td><td data-bbox="1179 1391 1402 1458">HKS</td></tr> <tr><td data-bbox="943 1458 1179 1525">T</td><td data-bbox="1179 1458 1402 1525">VHS</td></tr> <tr><td data-bbox="943 1525 1179 1592">V</td><td data-bbox="1179 1525 1402 1592">PD4</td></tr> <tr><td data-bbox="943 1592 1179 1659">X</td><td data-bbox="1179 1592 1402 1659">PD3</td></tr> <tr><td data-bbox="943 1659 1179 1715">Y</td><td data-bbox="1179 1659 1402 1715">GDX</td></tr> </tbody> </table> <p data-bbox="943 1753 1378 1834"><i>For enhancement to RPF, please refer to Appendix E.</i></p>	Before Upgrade	After Upgrade	3	SEC	B	BOV	D	DJI	E	HKE	F	HKF	G	BSE	H	HSI	L	SAF	M	HKM	N	MCX	O	GLD	Q	MSC	R	RMB	S	HKS	T	VHS	V	PD4	X	PD3	Y	GDX
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## Appendix E: Enhancements to the Risk Parameter File (RPF)<sup>14</sup>

To support new business initiatives and to enhance margin offset capability, the following enhancements will be made to the Risk Parameter File:

Functional enhancement	Modified record type	Related enhancement
Increase the length of HKATS Root Symbol	2, 3, C, 4, 5, 6	Rename of Combined Commodity Code: - FEXXX or SEXXX to <b><u>FXXX or SXXX</u></b>
Contracts with flexible expiry dates	3	- Initial to Maintenance Ratio (fields 69-80) - Tier with Day Code (fields 81-96) - Applicable for all contracts in the same Combined Commodity (e.g. FHSI which comprises of HSI, MHI & XHS) with the flexible expiry date contracts
	B, 81, 82	- Add Day Code (Rec Type B: fields 25-26 & 34-35; Rec Type 8: fields 36-37 & 45-46) - Applicable for all contracts in the same Combined Commodity with the flexible expiry date contracts
Regroup of Combined Commodity Group "CCG"	5	- Map Combined Commodity <FDHH> and <FDHS> to CCG < <b><u>DJI</u></b> > and remove CCG <DHH> and <DHS> - Map Combined Commodity <SRKB>To CCG <HKE> and remove CCG <RSO> - Map Combined Commodity <FFEM> and <FFEQ> to CCG <PD4> and remove CCG <FEX>

<sup>14</sup> Please refer to file specification available in CME website for details.  
Risk Parameter sample file will be available for download in Q1 2018.

Functional enhancement	Modified record type	Related enhancement
Enhance margin offset support	6	Scanning Based ICS with Intercommodity Spread Method Code "04" (fields 89-90) will be introduced, with the following RPF changes: <ul style="list-style-type: none"> <li>- Non target leg X Required Flag (fields 20-20, 38-38, 56-56, 74-74) and target leg Required flag (field 94-94)</li> <li>- Combined Commodity Code for non-target legs X (fields 21-26, 39-44, 57-62, 75-80) and for target leg (fields 95-100)</li> <li>- Delta/Spread Ratio for non-target leg X (fields 27-33, 45-51, 63-69, 81-87) and for target leg (fields 111-117) which are always set to 0010000</li> <li>- Min number of legs Required (fields 118-121)</li> </ul>
	82	Composite Delta (currently 3 <sup>rd</sup> and 4 <sup>th</sup> decimals filled with zero) will be filled with four decimal places (Rec Type 8: fields 97-101)
	T	Additional rows for exchange rate on the reverse currency pairs

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## Appendix F: Setting Own In-the-money (“ITM”) Exercise Limit for OCH Contracts

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### Setting Participants’ Own In-the-money (“ITM”) Exercise Limit for OCH Contracts via “Create Automatic Exercise Limit”

- SEOCH Participants should take extra cautious when setting up their own exercise limit in DCASS. Exercise limit will take effect immediately upon confirmation.
- SEOCH Participants can input their own exercise limit as
  - a percentage of the strike; or
  - a fixed value,at Participant level or account level. Please refer to the examples below on the application of the preset limit on the expiration day.
- For preset exercise limit at Participant level, the limit will be applicable to **ALL** accounts. If the exercise limit is set at account level, such limit only applicable to that particular account.
- The preset exercise limit will
  - apply to **ALL** series within the same instrument type, i.e. either stock call option or stock put option;
  - override SEOCH’s prescribed exercise limit i.e. at 1.5% of the strike.
- DCASS will conduct automatic exercise process based on the latest preset exercise limit. For example, if a Participant set its exercise limit at Participant level as 1.1000%, then set another exercise limit at account level as 1.2000% for its house account. On expiration date, DCASS will apply 1.2000% to its house account and 1.1000% for the rest of the accounts.

**Examples:**

Case 1: A Participant defined its own exercise limit, in percentage (%), for its house account only, i.e. at account level, as follows:

For CGA1 House Account		Other Accounts																																																																																																																																					
<i>On or before Expiration Day</i>																																																																																																																																							
Stock Call Option Set Limit As 1.0000%	Stock Put Option Set Limit As 2.0000%	*** No Action Taken ***																																																																																																																																					
<div style="border: 1px solid #ccc; padding: 5px;"> <p>Create Automatic Exercise Limit ×</p> <p>Account * <input type="text" value="HKCGA1 H"/></p> <p>Instrument Type * <input type="text" value="STOCK CALL OPTION"/></p> <p>Limit Unit * <input type="text" value="Percentage"/></p> <p>Exercise Limit * <input type="text" value="1.0000"/></p> <p><input type="button" value="Create"/> <input type="button" value="Clear"/></p> </div>	<div style="border: 1px solid #ccc; padding: 5px;"> <p>Create Automatic Exercise Limit ×</p> <p>Account * <input type="text" value="HKCGA1 H"/></p> <p>Instrument Type * <input type="text" value="STOCK PUT OPTION"/></p> <p>Limit Unit * <input type="text" value="Percentage"/></p> <p>Exercise Limit * <input type="text" value="2.0000"/></p> <p><input type="button" value="Create"/> <input type="button" value="Clear"/></p> </div>																																																																																																																																						
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Apply preset limit to <b>ALL</b> series in house account		Apply SEOCH predefined exercise limit, i.e. 1.5000% to <b>ALL</b> series in other accounts																																																																																																																																					
<p>Series X Final Settlement Price = 100.00</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Stock Call Option</th> <th>Stock Put Option</th> </tr> </thead> <tbody> <tr> <td>ITM Limit</td> <td>1.0000%</td> <td>2.0000%</td> </tr> <tr> <th colspan="3" style="text-align: center;">Auto-Exercise</th> </tr> <tr> <th>Strike</th> <th>Call</th> <th>Put</th> </tr> <tr><td>106.00</td><td style="text-align: center;">x</td><td style="text-align: center;">✓</td></tr> <tr><td>104.00</td><td style="text-align: center;">x</td><td style="text-align: center;">✓</td></tr> <tr><td>102.00</td><td style="text-align: center;">x</td><td style="text-align: center;">x</td></tr> <tr><td>100.00</td><td style="text-align: center;">x</td><td style="text-align: center;">x</td></tr> <tr><td>98.00</td><td style="text-align: center;">✓</td><td style="text-align: center;">x</td></tr> <tr><td>96.00</td><td style="text-align: center;">✓</td><td style="text-align: center;">x</td></tr> <tr><td>94.00</td><td style="text-align: center;">✓</td><td style="text-align: center;">x</td></tr> </tbody> </table>		Stock Call Option	Stock Put Option	ITM Limit	1.0000%	2.0000%	Auto-Exercise			Strike	Call	Put	106.00	x	✓	104.00	x	✓	102.00	x	x	100.00	x	x	98.00	✓	x	96.00	✓	x	94.00	✓	x	<p>Series Y Final Settlement Price = 3.00</p> <table border="1" style="width: 100%; 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A series will be auto-exercised:

- Call options: if the Final Settlement Price  $\geq$  (strike \* (1 + ITM limit in %))
- Put options: if the Final Settlement Price  $\leq$  (strike \* (1 – ITM limit in %))

Legend:

- ✓ The series will be automatically exercised
- x The series will not be automatically exercised
- The limit preset for house account by the Participant overridden SEOCH's predefined exercise limit. For strike at 102.00, the put options for series X in house account will NOT be auto-exercised, with the preset limit at 2.0000%; while the put options in other accounts will auto-exercise by applying SEOCH's prescribed limit at 1.5000%.



Case 2: A Participant defined its own exercise limit, in fixed value (\$), for its omnibus client account only, i.e. at account level, as follows:

For CGA1 Omnibus Client Account		Other Accounts																																																																																																																																
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**A series will be auto-exercised:**

- Call options: if the Final Settlement Price  $\geq$  (strike + ITM limit at fixed value)
- Put options: if the Final Settlement Price  $\leq$  (strike – ITM limit at fixed value)

**Legend:**

- ✓ The series will be automatically exercised
- ✗ The series will not be automatically exercised
- The limit preset for omnibus client account by the Participant overridden SEOCH's predefined exercise limit. Hence, both call & put options for series X and series Y have different auto-exercise results as compared those in other accounts applying SEOCH's prescribed limit at 1.5000%.

## Appendix G: Collateralisation Arrangement under the Holiday Trading of HKFE Products Initiative

### A. Collateralisation Arrangement

The table below summarized the collateralisation arrangement under holidays trading.

	HK Business Day	HK Holiday (H)		HK Business Day
	H-1 (22 Dec 2017)	H1 (25 Dec 2017)	H2 (26 Dec 2017)	H+1 (27 Dec 2017)

#### *Holiday Trading Participant*

Collateral Deposit & Withdrawal		Normal	<ul style="list-style-type: none"> <li>▪ Cash collateral deposit only</li> <li>▪ Collateral withdrawal <b>not</b> allowed</li> </ul>		Normal
Day-end Collateralisation & Payment for DDI	Holiday Trading Product	DDI to be collected on H1 (25-Dec)	DDI to be collected on H2 (26-Dec)	DDI to be collected on H+1 (27-Dec)	Normal
	Non-holiday Trading Product	<ul style="list-style-type: none"> <li>▪ Set aside outstanding debit</li> <li>▪ Not include shortfall amount</li> </ul>	N/A	Re-post of H-1 (22-Dec) day-end margin and outstanding debit set aside	
Day-end DCI standing withdrawal instruction		No DCI generated	No DCI generated	DCI to be released on H+1 (27-Dec)	Normal
Intra-day Collateralisation		Normal	To be collected on same day	To be collected on same day	Normal
Holiday Collateralisation	Holiday Trading Product	N/A	N/A	N/A	N/A
	Non-holiday Trading Product	Apply	N/A	N/A	N/A

#### *Non-Holiday Trading Participant*

Collateral Deposit and Withdrawal		Normal	N/A		Normal
Day-end Collateralisation & Payment for DDI		DDI to be collected on H+1 (27-Dec)	N/A		Normal
Day-end DCI standing withdrawal instruction		DCI to be released on H+1 (27-Dec)	N/A		Normal
Intra-day Collateralisation		Normal	N/A		Normal
Holiday Collateralisation		Apply	N/A		N/A

## B. Reporting Arrangement

- For Holiday Trading Participant

- reports available during holidays are same as those available during normal days, i.e. including NTD activities on previous day, together with CTD activities on current day;
- no change to DCASS reports;
- new sections will be added to CCMS report, CCMPY02 to provide summaries on the shortfall/outstanding debit of Non-Holiday Trading Products, please refer to the [technical briefing material](#) for more details.

	H-1 22 Dec 2017	H1 25 Dec 2017	H2 26 Dec 2017	H+1 26 Dec 2017
CTD Activities	H-1	H1	H2	H+1
NTD Activities	H-1	H1	H2	H+1
Reports	H-2 H-1	H-1 H1	H1 H2	H2 H+1

Legend :

Normal Day Activities

Holiday Activities

- For Non-Holiday Trading Participant

- reports available during normal days remain unchanged;
- if a particular Clearing House is opened for trading and/or clearing on holidays, reports will be generated and available during holidays, showing only the day end of day position records as of previous Business Day.

	H-1 22 Dec 2017	H1 25 Dec 2017	H2 26 Dec 2017	H+1 26 Dec 2017
CTD Activities	H-1	No activities		H+1
NTD Activities	H-1	No activities		H+1
Reports	H-2 H-1	Report dates as of H1 & H2 with position record of previous business day, i.e.		H-1 H+1

- Please refer to Appendix D for more information on enhanced files and reports; and Appendix E for enhanced Risk Parameter File (RPF).

