



香港交易所

Information Pack on On-boarding Activities of OMD Derivatives Market

21 June 2013

Contents

1. INTRODUCTION.....	2
2. IMPORTANT NOTES TO CLIENTS IN RELATION TO OMD-D IMPLEMENTATION ..	2
3. FEED ENROLMENT	4
4. FEES & CHARGES	5
5. OMD-D NETWORK & CONNECTIONS ISSUES	6
6. CLIENT INTERFACE DEVELOPMENT	7
7. TESTING PLAN AND TESTING ARRANGEMENTS.....	7
8. ROLLOUT ARRANGEMENT	10
9. ENQUIRY CONTACTS.....	11
10. REFERENCE MATERIALS.....	12
11. ACTION ITEMS & TIME TABLE.....	13



1. Introduction

Subsequent to the issuance of information paper and the interface specifications for OMD Derivatives Market Data (OMD-D), this information pack for the on-boarding activities of OMD-D is now published to assist clients to get familiar with the arrangements and activities required to prepare for the rollout of OMD-D Datafeed Products.

This document aims at providing the detailed arrangement of the on-boarding activities of OMD-D Datafeed Products to direct connection clients (including Licensed Vendors and End Users), indirect connection clients (Licensed Vendors) and new clients who plan to subscribe to the datafeed products.

2. Important Notes to Clients in relation to OMD-D Implementation

OMD-D is currently planned for rollout by Q2 2014. Prior to enrollment and preparation for joining the on-boarding activities, clients are advised to pay attention to the features and arrangements specific to OMD-D implementation described in this section:

2.1 OMD-D Product Positioning

OMD-D offers a suite of datafeed products for HKEx Derivatives Market in order to meet the diversified needs of the customers on market data latency, content as well as bandwidth consumption.

Datafeed Product	Content	Product Positioning
Derivatives Market		
1. OMD-D Derivatives Standard ("DS") <i>plus</i> Derivatives Trades ("DT")	Conflated update on: <ul style="list-style-type: none"> Level 1 (bid/ask quotations) Level 2 (market by price with 10 market depths) Trade statistics Streaming update on <ul style="list-style-type: none"> individual trades and trade amendments 	Standard datafeed service Replacement service for PRS with lower latency and deeper market depth
2. OMD-D Derivatives Premium ("DP")	Streaming update on: <ul style="list-style-type: none"> Level 1 (bid/ask quotations) Level 2 (market by price with 10 market depths + aggregated quantity for remaining book) Individual trades and trade amendments 	Low latency datafeed Fit for applications for automated and high frequency trading Replacement service for PRS-Plus without holdback and with aggregated full depth
3. OMD-D Derivatives FullTick ("DF")	Streaming update on: <ul style="list-style-type: none"> Market by order information Individual trades and trade amendments 	Low Latency datafeed Full information for building order book and compiling market statistics to fit client's



	<ul style="list-style-type: none"> Auction Session: no order information, but COP & equilibrium volume. 	business needs.
Optional Product		
1. Index Feed (OMD Index)	Streaming update (subject to the source) on: <ul style="list-style-type: none"> Two S&P/HKEx indices Selected indices from CESC, CSIC and HSIL. 	Offering third party indices

Note 1: The Index Feed will be provided as a complimentary feed but standalone subscription is not allowed.

Note 2: Please refer to the prevailing fees for Index Feed as stipulated in OMD Fees Schedule. Please note that standalone subscription of the Index Feed is not allowed.

2.2 PRS and PRS-Plus Roadmap

2.2.1 PRS and PRS-Plus will be decommissioned immediately or shortly after the rollout of OMD-D given the anticipation of significant increases in market transaction volume under the new HKATS platform in Q2 2014 and such anticipated market transaction volume would result in enormous increase in market data volume which PRS and PRS-Plus could no longer support due to their technical limits.

2.2.2 In view of this undesirable situation, HKEx has decided to decommission PRS and PRS-Plus shortly after OMD-D rollout with the following arrangements:

Feed	Decommissioning Plan
PRS	<ul style="list-style-type: none"> PRS will be terminated in <u>3 months upon OMD-D rollout</u>. Prior to PRS termination, the conflation interval of PRS may need to be prolonged beyond the current 500 milliseconds, to possibly up to 5 seconds, to avoid the risk of service disruption due to the high data volume from the new HKATS platform. The adjustment of conflation interval would be implemented when the new HKATS platform scales up to its installed capacity tentatively in Q2 2014 after OMD-D rollout. Market rehearsals would be arranged for PRS clients prior to the release. PRS clients are however strongly advised to switch your data source to OMD-D shortly after the OMD-D rollout so as to avoid such service degradation.
PRS- Plus	<ul style="list-style-type: none"> PRS Plus will be terminated within <u>one month upon OMD-D rollout</u>.

2.2.3 Given the above decommissioning plan, PRS and PRS-Plus clients should therefore plan for migration to OMD-D following the on-boarding schedule shown in this document.

2.3 Special Programs Highlights



2.3.1 CG* Interim Solution - For HKATS Central Gateway Exchange Participants ("EPs") with PRS/PRS-Plus

Upon the upgrade of HKATS to Genium INET platform, EPs may choose to migrate their trading connections to HKATS Central Gateway ("CG") which does not support market data dissemination. In order to address the need of such EPs for order depth data which is not currently available in PRS and PRS Plus, HKEx Derivatives Trading will offer a CG* interim solution to those EPs who plan to continue relying on PRS/PRS-Plus as market data solution upon their migration to CG. Currently, the order depth information is available in the MQ7 message via HKATS Network Gateway ("NG") only. The CG* interim solution will enable those EPs who have confirmed subscription of OMD-D Derivatives FullTick ("DF") access to the MQ7 message on their CG connection temporarily until OMD-D DF is in production. EPs who are interested in this CG* interim solution offered by HKEx Derivatives Trading should confirm their subscription to DF in the OMD-D enrollment.

2.3.2 Derivatives FullTick Incentive Programme – For Information Vendors ("IVs") serving Derivatives EPs

In order to facilitate access to full order depth information by Derivatives EPs with lesser bandwidth requirement, HKEx will introduce an incentive programme to encourage IVs to offer a lower bandwidth solution to Derivatives EPs in redistributing order depth information from the DF feed to them. For details, please refer to relevant [client notice](#) and circulars on this incentive programme.

2.3.3 OMD-D Test Service - For Independent Software Vendors ("ISV")

HKEx has introduced a Test Service for ISVs to test their feed handler interfacing with HKEx's market data system(s) and declare the readiness of the feed handler for their clients which include EPs. This Test Service is also applicable to the implementation of OMD-D. For details of ISV Test Service, please refer to [ISV corner](#) on the HKEx website.

3. Feed Enrolment

3.1 OMD-D Feed Enrolment

3.1.1 OMD-D Feed Enrollment will open from now until 31 July 2013. Clients who are interested to subscribe for direct connection to OMD-D should assess which OMD-D datafeed(s) best suit their business needs and confirm the feed enrollment by returning the OMD-D Feed Enrolment Form (enclosure 1) via email to OrionMarketData@hkex.com.hk before the deadline. Clients should observe the fees and charges applicable for their subscription as indicated in paragraph 4 below.

3.1.2 Feed-providing vendors are strongly advised to communicate with their indirect connection clients about their preferred OMD-D datafeed products. Indirect connection clients should also follow up with their feed providing vendors the choice of OMD-D datafeed products they will be providing so as to make their migration plan accordingly.

3.1.3 If an existing direct connection PRS/PRS-Plus client wishes to switch to indirect



connection and to receive OMD-D market data indirectly from feed-providing vendors, it is required to submit relevant application forms to HKEx-IS for changing its licence to an indirect connection licence.

3.2. Batch Enrolment

3.2.1 Given the decommissioning plan of PRS and PRS-Plus as per paragraph 2.2.2 above, only two Batches are planned for the OMD-D implementation:

Batch No.	Target Rollout	Remarks
First Batch	OMD-D initial rollout in Q2 2014	Available for all clients
Second Batch	3 months after initial rollout, i.e. about Q3 2014	Not Applicable for PRS-Plus Clients

3.2.2 Please note that Second Batch is NOT applicable to PRS-Plus clients as PRS-Plus will be retired shortly or immediately upon the lapse of the stabilisation period for the OMD-D initial rollout. All PRS-Plus clients are advised to join First Batch for migration to OMD-D should they wish to carry on direct connection to HKEx market data system.

As stated in paragraph 2.2.2, the service level of PRS in terms of latency may be largely degraded after the OMD-D rollout, PRS clients are also strongly advised to join the First Batch to avoid such service degradation.

3.3 License Updates for OMD-D Subscription

3.3.1 For existing PRS/PRS-Plus clients, Schedule 3 and Schedule 4 of the Market Data Vendor Licence Agreement and Market Data End-User Licence Agreement will be updated upon their successful completion of the Post-Release Test for entering into the OMD-D production environment and migration of their services to OMD-D.

3.3.2 For new clients, our Sales & Marketing team will be contacting them for the licensing application upon receipt of their Feed Enrollment Form.

4. Fees & Charges

4.1 Fees Schedule: Different fees will be applied to depending on the OMD-D datafeed products subscription. OMD-D Fees Schedule has been published and clients may refer to the Fees Schedule section in the OMD project corner of HKEx website (www.hkex.com.hk/marketdata/).

4.2 Parallel Run: A grace period will be granted to the existing PRS and PRS-Plus clients respectively who plan to enrol for the corresponding batch:

Grace Period	PRS	PRS-Plus
First Batch	3 months	1 month
Second Batch	2 weeks	Not applicable

During the grace period, Redistribution Fee/End-User Licence Fee and Connection Fee of PRS/PRS-Plus will be waived. There will be no extension of parallel run for both PRS and PRS-Plus as mentioned paragraph 2.2.2 that PRS and PRS/PRS-Plus will be terminated shortly after the OMD-D rollout.

5. OMD-D Network & Connections Issues

- 5.1 With the OMD-D multicast transmission, clients are required to receive live data concurrently via Line A and Line B for line arbitration to avoid data loss. Each set of standard connections comprises two SDNet lines with both concurrently receiving OMD-D multicast transmission. The two lines of the same set should be provided by the same network service provider ("Accredited Vendor").
- 5.2 Should clients wish to receive an additional set of connections, they need to install additional two SDNet lines.
- 5.3 Direct connection clients should contact their SDNet/2 service provider directly to install the SDNet/2 circuits with sufficient bandwidth for supporting the data transmission under OMD-D.
- 5.4 The minimum bandwidth requirement for the corresponding OMD-D datafeed products is preliminarily estimated as follows. A range of products are provided catering for the varying needs of OMD-D subscribers.

Datafeed Product		Message Rate	Estimated Bandwidth		Estimated Total
			Non-Stock Options Markets	Stock Options Markets	
1.	Derivatives Standard ("DS") - plus Derivatives Trades (DT)	80,000 messages per second	4Mbps	19Mbps	23Mbps
2.	Derivatives Premium ("DP")	130,000 messages per second	7Mbps	40Mbps	47Mbps
3.	Derivatives FullTick ("DF")	130,000 messages per second	6Mbps	34Mbps	40Mbps
4.	OMD - Index Feed*	<100 messages per second	-	-	1Mbps

Remarks: *Clients who would subscribe to Index Feed in addition to DS, DP or DF could determine if they would subscribe SDNet lines with an upper bandwidth range provided by the Accredited Vendors.

- 5.5 Each of the above datafeeds, except OMD-Index, is available by splitting into two separate sets of multicast group channels for the Stock Options Market¹ and the Non-Stock Options Markets² to better serve OMD clients on bandwidth

¹ Stock Options Market ("SOM") refer to the market for trading the stock option that is a financial contract based on a single underlying stock which is traded on SEHK and cleared through the SEHK Options Clearing House Limited (SEOCH).

² Non-Stock Options Markets ("Non-SOM") refer to the markets of trading HKEx derivatives products on HKFE and cleared through HKFE Clearing Corporation Limited. For the latest list of derivatives products on HKFE, please refer to the HKEx website.



consumption planning. Whilst the commercial package of the above datafeeds remains unchanged, clients may decide to subscribe the appropriate bandwidth for the set of multicast group channels for the particular market(s) that they need.

- 5.6 Clients who consider subscribing to more than one OMD datafeed products may share the same set of SDNet/2 circuits with multiple OMD datafeeds as long as the total bandwidth required for all subscribed feeds are accommodated. EPs who would like to share the same SDNet/2 circuits with trading traffic (orders and trades) and market data traffic are however only allowed to do so if all the traffic on the circuits belongs to the same market (i.e. either securities market or derivatives market). OMD-Index, which is market neutral, can be carried on the same circuits with securities market or derivatives market. For example, Exchange Participants of derivatives market may use the same SDNet/2 circuits for their access to OMD-D DP, OMD-Index and HKATS Central Gateways. Clients who plan to share SDNet/2 circuits should, however, make a thorough technical assessment of the possible operational risks and complexity in troubleshooting (latency, connectivity, etc.) associated with such an approach. Troubleshooting support from HKEx will be limited under such circuit sharing given the increased complexity.
- 5.7 Clients are required to note that High Performance Option on SDNet/2 is essential for supporting the OMD-D datafeed products with higher throughput due to the streaming feature. Clients should discuss with their network providers to ensure the corresponding service provision can provide the solution as required if they choose to subscribe to OMD-D streaming feeds. The SDNet/2 Accredited Vendors Information with their indicative charges for different bandwidth is enclosed in Enclosure 2 for your reference.
- 5.8 For further details about network arrangement, please refer to OMD-D Connectivity Guide.

6 Client Interface Development

- 6.5 Clients are required to make reference to the following technical documents and start development of their interface programme with OMD-D as early as possible.
- OMD-D Interface Specifications
 - OMD-D Developer's Guide
 - OMD-D Connectivity Guide

7 Testing Plan and Testing Arrangements

7.1 On-boarding tools with canned data (for direct connection clients only)

OMD-D on-boarding tools are provided to direct connection clients in order to facilitate the development, enhancement and testing of the clients' systems which receive and process data from OMD-D. A DVD containing the on-boarding tool user guide and the following components of on-boarding tools will be distributed to direct connection clients



Component	Description
RTS Simulator	Facilitates testing of client's software on OMD-D retransmission services
Multicast (MC) Injector	Broadcasts OMD-D canned data via multicast over the network
Canned Data	Separate files with fictitious trading data for different testing purpose (volume test or functional test)
XDP Dump	Decodes data into a readable ASCII format

Note: Refresh service is not included in the on-boarding tools, clients should expect the test on their systems' capability in handling refresh messages to be available in OMD-D End-to-end Open Test and verified in OMD-D Readiness Test.

The OMD-D on-boarding tools are intended to help clients ensure their readiness for the implementation before joining the Open Test, Practice Session, Readiness Test and Market Rehearsal (MR) as required by HKEx.

OMD-D on-boarding tools support clients' capacity and performance tests via allowing canned data to be replayed at various fixed rates. Clients can also make use of the OMD-D on-boarding tools for testing their own system development and enhancements.

Clients should however note that the first version of the OMD-D on-boarding tools (including the canned data) aims to provide clients basic ideas of how OMD-D works and enable them to start the development and testing of their OMD-D feed handler earlier if they wish to. Since the development of OMD-D is still in progress, the on-boarding tools will be further enhanced upon the completion of the OMD-D development. The enhanced on-boarding tools will be distributed to clients once available.

[Note to indirect connection clients:](#) The on-boarding tools with canned data can also be provided to indirect connection vendors on request. Indirect connection vendors are recommended to check with their feed providing vendors whether the OMD-D on-boarding tools are suitable for their use.

7.2 End-to-end Test Sessions (for direct connection clients only)

Prior to joining the Market Rehearsals, clients are required to successfully complete the Readiness Test. Open Test and Practice Session are provided to help clients prepare for the Readiness Test:

7.2.1 Open Test

Open Test will be provided to enable clients who are also EPs to conduct the loop test between HKATS test environment and OMD-D test environment with full functionalities covering all trading sessions in normal full trading days.

OMD-D Open Test environment will be available in specified timeslots



tentatively from Q4 2013 to early Q1 2014 for direct connection clients to conduct thorough tests for their systems.

The OMD-D Open Test environment will facilitate functional test and performance/capacity Test to be performed by clients. A functional session will provide market data concurrently generated by the test trading activities performed by the EPs in the same session with some load generation data. A performance/capacity session will provide high volume market data to enable clients to ensure the ability of their feed handler to meet the capacity requirements. Submission of Test Results for Open Test is not required.

Direct connection clients who plan to join the First Batch of OMD-D rollout should complete installation of SDNet lines (or HKEx Service Network (HSN) connectivity at HKEx Hosting Data Centre) to OMD-D testing environment about 2 weeks prior to the commencement of the Open Test.

A separate notice will be served in late Q3 2013 to provide details of the test and the exact schedule of the Open Test when it is confirmed.

7.2.2 Practice Session

Practice Session will be available in specified timeslots tentatively from Q4 2013 to early Q1 2014 for direct connection clients. It will serve as a light version of Readiness Test to enable clients to verify their system functionalities under the controlled environment. Clients can verify their test results against the expected data values and transmission behaviors provided in the Practice Session Answer Book. Submission of the test results for Practice Session is not required

A separate notice will be served in late Q3 2013 to provide details of the test and the exact schedule of the Practice Session when it is confirmed.

7.2.3 Readiness Test

(Mandatory for direct connection clients)

Clients can join the Readiness Test once they consider their system ready and, upon their completion of all test cases in Readiness Test, will need to declare their readiness test result. Materials on the Readiness Test will be available in the OMD project corner in due course. Clients are advised to refer to the OMD project corner for the latest version of Readiness Test materials for details.

All direct connection clients are required to perform and complete the Readiness Test as required by HKEx tentatively from Q4 2013 to early Q1 2014. Readiness Test will be conducted in the controlled environment.

The Readiness Test aims to facilitate clients' verification of the technical readiness of their feed handlers for receiving and processing OMD-D messages with the ability to receive and process the OMD-D market data properly and perform all necessary recovery function, including line arbitration, retransmission service and refresh service.

Before the commencement of the Readiness Test, HKEx will distribute an Answer Book to the clients which covers details of messages and conditions



to be checked in the Readiness Test sessions and the expected results. By comparing the test results with the HKEx provided expected answers, clients can verify their systems' readiness and declare to HKEx their successful completion of the Readiness Test should their results match the expected results in the Answer Book without discrepancy.

Only direct connection clients who have successfully completed the Readiness Test and declared their readiness are allowed to proceed to the Market Rehearsals.

Feed-providing vendors should provide testing facility to their indirect connection clients to enable them to fully verify the capability of their system of handling the OMD-D data. Feed-providing vendors should declare the readiness of the indirect connection clients to HKEx.

HKEx will issue the Readiness Test Document to direct connection clients tentatively by Q3 2013.

Note to indirect connection clients: Indirect connection clients who will receive the market data in OMD-D original format from the feed-providing vendors are advised to complete the same set of Readiness Test cases as per the direct connection clients to order to ensure their readiness to received OMD-D production data. Indirect connection clients are advised to consult their direct connection vendors and seek their assistance on the necessary readiness tests.

7.3 Market Rehearsals & Post Release Test (Mandatory for direct connection clients)

Other than the above preparatory tests, direct connection clients are also expected to take part in the market rehearsals and the post release test tentatively in late Q1 2014 (Saturdays) under the production environment before target launch day. Volume test session will be conducted in Market Rehearsals. Feed-providing vendors are advised to offer adequate environment to their indirect connection clients to perform the Market Rehearsals and declare their Market Rehearsals accordingly. Details of the market rehearsals and post release test will be further announced.

Note to indirect connection clients: Indirect connection clients are advised to conduct the Market Rehearsals as far as possible to ensure their readiness for OMD-D production. They should consult their feed-providing vendors about the environment setup.

8 Rollout Arrangement

8.1 Stabilization Period

Upon the successful completion of the Post-Release Test on a dedicated Saturday tentatively in late Q1 2014, the OMD-D will be rolled out for production use. As the contingency measure for OMD-D rollout, there will be a 2-week stabilization period to ensure OMD-D clients' systems interfacing with OMD-D and their associated downstream services are operating smoothly. During the stabilization period, existing clients will be required to ensure that their systems are able to connect to



both PRS and/or PRS-Plus datafeeds and their subscribed OMD-D feed(s) concurrently. Since the transmission protocol and network setup for OMD-D will be different from those for PRS/PRS-Plus, clients are strongly advised to maintain two sets of systems and lines connecting to both PRS/PRS-Plus and OMD-D during the stabilization period so that clients can be able to switch back to receive data from PRS/PRS-Plus when necessary.

8.2 Extended Period for Parallel Run

Feed providing vendors are required to extend the above stabilization period for another two weeks after the end of it with the same arrangement. Other clients are highly recommended to adopt the same approach for risk mitigation.

8.3 Subsequent Batches

Clients are strongly advised to join the OMD-D first batch rollout tentatively in early Q2 2014. Any clients who fail to complete the above Readiness Test and Market Rehearsals of First Batch will be arranged to join the Second Batch. PRS-Plus clients are however advised to plan for their contingency say switching their source to feed-providing vendors in case they are not able to join the initial rollout of OMD-D.

9 **Enquiry Contacts**

Clients who have questions over the implementation activities of OMD Derivatives & Index can email your enquiries to OrionMarketData@hkex.com.hk or contact the following colleagues:

OMD-D – On-boarding Support & Activities

- Vendor Support & Data Management
 - Mr. Elvis You Tel : (852) 2840 3491
 - Mr. Adam Kou Tel : (852) 2840 3498

OMD-D Fees and Licensing Issues

- Sales & Marketing
 - Ms. Yvette Ying Tel : (852) 2840 3009
 - Ms. Ada Lee Tel : (852) 2840 3520

OMD-D Project Issues

- Business Development
 - Mr. Evan Chan Tel : (852) 2840 3058
 - Ms. Winnie Leung Tel : (852) 2840 3611



10 Reference Materials

In addition to this information package, clients should also make reference to the following documents that enclosed separately.

For all Clients	
OMD Derivatives & Index Feed Enrolment Form	Enclosure 1
OMD Derivatives Market Datafeed Products Interface Specifications – Binary Protocol (latest version)	HKEx website
OMD Securities Market & Index Products Interface Specification – Binary Protocol (latest version) – corresponding sections for Index Feed	HKEx website
Information Paper on OMD Derivatives Market Implementation	HKEx website

For Direct Connected Clients ONLY	
SDNet/2 Accredited Vendors Information	Enclosure 2
OMD-D - Developer's Guide	To be delivered separately
OMD-C – Developer's Guide – corresponding sections for Index Feed	HKEx website
OMD-D - Connectivity Guide	To be delivered separately
OMD-D – Connectivity Guide – corresponding sections for Index Feed	HKEx website
OMD-D: On-boarding Tools Package (User guide, Tools & Canned Data for both OMD-D & Index Feed) in DVD	To be delivered separately



11 Action Items & Time Table

To facilitate clients' preparation for first batch of OMD-D on-boarding, please find below the tentative schedule for the initial roll-out:

Action Items	Activities	Tentative Dates	2013			2014	
			Q2	Q3	Q4	Q1	Q2
1. OMD-D On-boarding tools Testing	Dispatch of OMD-D on-boarding tools packages	Jun- Jul 2013		■			
	Clients to develop their system and perform on-boarding tools testing on their system.	Q2 2013 – early Q4 2013	■	■	■		
2. OMD-D Feed Enrolment	Direct connected & indirect connected clients to complete and return OMD-D Feed Enrolment Form to HKEx-IS.	Jun - Jul 2013	■	■			
3. Line Application/ Installation	Direct connected clients to install SDNet/2 or HSN testing lines at HDC	Q3 2013 – early Q4 2013		■	■		
	Direct connected clients to install SDNet/2 production lines	Q1 2014				■	
4. OMD-D End-to-end Open Test /Practice Session	Direct connected clients to test their system in the OMD-D open end-to-end test environment	Q4 2013 – early Q1 2014				■	
5. Readiness Test (Mandatory)	Direct connected clients to participate the Readiness Test and declared their readiness.	Q4 2013 – early Q1 2014				■	
6. Market Rehearsals (Mandatory)	Direct connected clients to participate and confirm results of the market rehearsals.	Q1 2014					■
7. Post Release Test (Mandatory)	Direct connected clients to participate and confirm results of the post release test.	Q2 2014					■
8. First Batch Rollout of OMD-D	OMD-D goes live after successful completion of post-release test.	Q2 2014					■

- End -