



# CONNECTIVITY GUIDE

## **HKEX Orion Market Data Platform OMD-D Connectivity Guide**

Version 2.0  
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## 1. Overview

The target readers of this document are the technical personnel of Market Data Vendors, End-Users, Application Service Providers (“ASPs”) and Independent Software Vendors (“ISVs”) of HKEX Orion Market Data Platform – Derivatives Market (“OMD-D”).

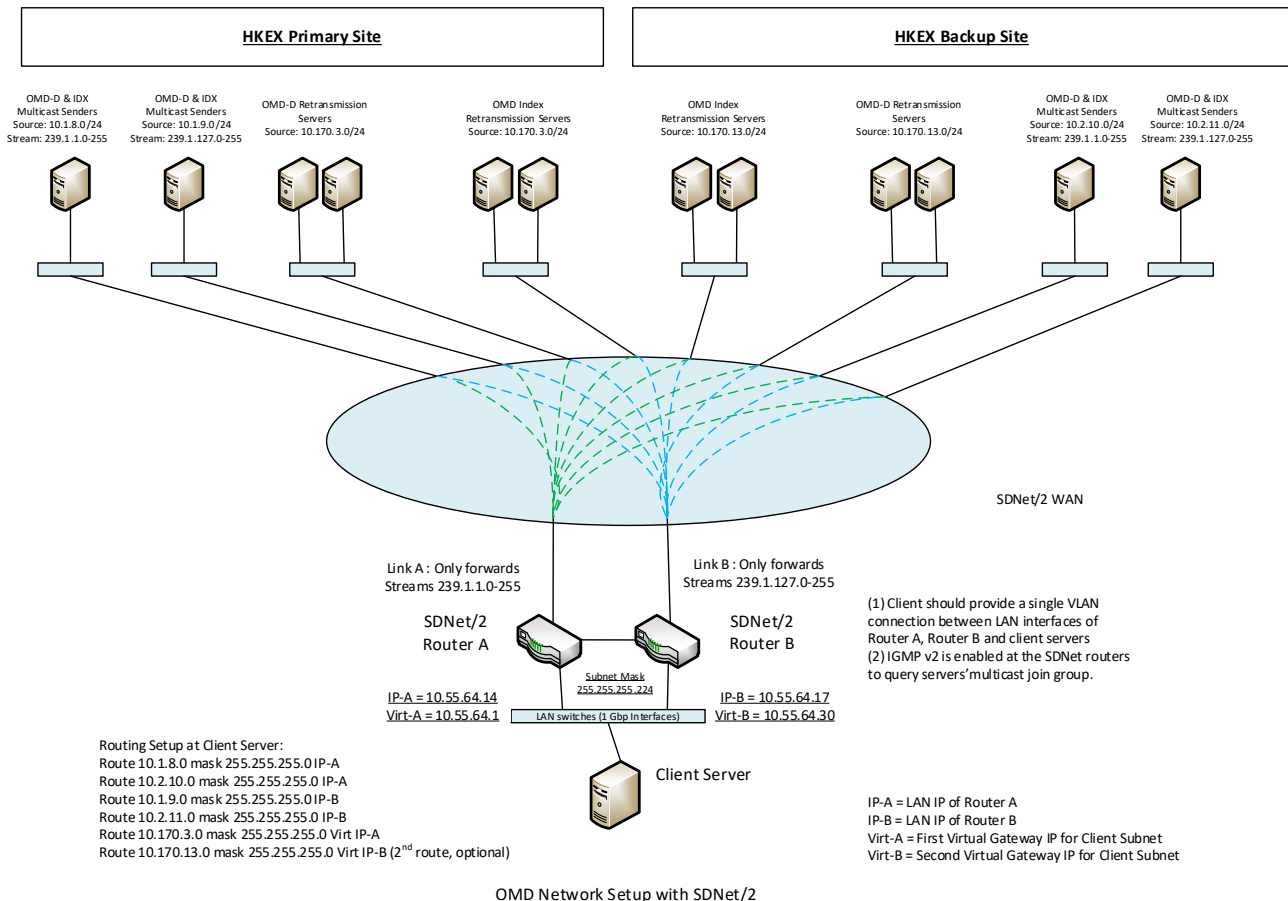
This document aims to provide network configuration information and guidance to assist clients in setting up their networks for making connection to OMD-D testing and production environments.

This document contains:

- Configuration information, i.e. IP addresses of the channels assigned for each of the OMD datafeed products in OMD Production environment and Test environment
- Guidelines / policies for SDNet/2 and HSN connection

## 2. Configuration Information

OMD adopts multicast transmission protocol for real-time data transmission with retransmission recovery service running on Unicast. Clients are required to set correct network configurations in order to establish proper connection to the corresponding OMD multicast server and retransmission server. Below is a sample connection diagram which provides an overview of SDNet/2 network connection to OMD for reference.



For OMD connection via SDNet/2, a client system has to set up routing to the HKEX host subnets as the diagram depicted. To receive multicast stream, IGMP version 2 is employed at the SDNet/2 routers to query the multicast groups which the client system subscribes. The client system should enable the IGMP function and issue join messages to the SDNet/2 routers for the entitled multicast groups.

For OMD connection by co-location at HKEX Host Data Centre (HDC), clients are required to provide their own routers to connect to the HKEX network. The protocols used in HDC network are BGP4 and Multicast PIM sparse mode. For details, please refer to the Interface Specification on Connectivity Services and Timing Service of HKEX Hosting or contact HKEX Hosting Services team via email [hostingservices@hkex.com.hk](mailto:hostingservices@hkex.com.hk).

Since the physical speed of an SDNet/2 circuit is 1Gbps, the interface of a client end LAN switch and the client end server has to be 1Gbps in order to prevent packet drops in case of multicast packet burst. To connect with SDNet/2 routers, interface of the LAN switch should be configured with speed as "auto-sense" and duplex mode as "auto-sense" and "auto-negotiation". Then, when the link comes up, the corresponding interface of the LAN switch should learn 1Gbps and full duplex.

## OMD-D Connectivity Guide

The client systems are required to subscribe to the multicast addresses and port IDs for the subscribed OMD products according to multicast channel subscriptions as listed in Section 2.1 for production environment or as listed in Section 2.2 for Test environment. Clients should not subscribe to other multicast addresses and port IDs not specified in this Connectivity Guide, otherwise it will result in receiving non-OMD packets.

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### 2.1 OMD-D Production Environment Connectivity Details

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Note 1 :

OMD-D assign an independent partition for each ODP matching engine. There are 6 matching engines at initial stage. More partitions may assign for market expansion.

The partition assignment will be provided in a later version in due course..

Note 2:

The below glossary applies to the following sections

SOM	Stock Option Market
Non-SOM	Non-Stock Option Market
COP	Calculated Opening Price

2.1.1 OMD Derivatives Lite (non-SOM) – Price Depth Feed (conflated)

Channel Names and Messages			Production (D-Lite Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1001	239.1.1.128	239.1.127.128	51101	1901	239.1.1.154	239.1.127.154
		2	2001	239.1.1.128	239.1.127.128	51201	2901	239.1.1.154	239.1.127.154
		3	3001	239.1.1.128	239.1.127.128	51301	3901	239.1.1.154	239.1.127.154
		4	4001	239.1.1.128	239.1.127.128	51401	4901	239.1.1.154	239.1.127.154
		5	5001	239.1.1.128	239.1.127.128	51501	5901	239.1.1.154	239.1.127.154
		6	6001	239.1.1.128	239.1.127.128	51601	6901	239.1.1.154	239.1.127.154
Open Interest	Open Interest (366)	1	1004	239.1.1.150	239.1.127.150	51100	1904	239.1.1.178	239.1.127.178
		2	2004	239.1.1.150	239.1.127.150	51200	2904	239.1.1.178	239.1.127.178
		3	3004	239.1.1.150	239.1.127.150	51300	3904	239.1.1.178	239.1.127.178
		4	4004	239.1.1.150	239.1.127.150	51400	4904	239.1.1.178	239.1.127.178
		5	5004	239.1.1.150	239.1.127.150	51500	5904	239.1.1.178	239.1.127.178
		6	6004	239.1.1.150	239.1.127.150	51600	6904	239.1.1.178	239.1.127.178
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1010	239.1.1.128	239.1.127.128	51102	1910	239.1.1.154	239.1.127.154
		2	2010	239.1.1.128	239.1.127.128	51202	2910	239.1.1.154	239.1.127.154
		3	3010	239.1.1.128	239.1.127.128	51302	3910	239.1.1.154	239.1.127.154
		4	4010	239.1.1.128	239.1.127.128	51402	4910	239.1.1.154	239.1.127.154
		5	5010	239.1.1.128	239.1.127.128	51502	5910	239.1.1.154	239.1.127.154
		6	6010	239.1.1.128	239.1.127.128	51602	6910	239.1.1.154	239.1.127.154
Quote Request	Quote Request (336)	1	1019	239.1.1.128	239.1.127.128	51104			
		2	2019	239.1.1.128	239.1.127.128	51204			
		3	3019	239.1.1.128	239.1.127.128	51304			
		4	4019	239.1.1.128	239.1.127.128	51404			
		5	5019	239.1.1.128	239.1.127.128	51504			

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Channel Names and Messages			Production (D-Lite Non-SOM)						
		6	6019	239.1.1.128	239.1.127.128	51604			
<b>Level 2 Price and COP</b>	COP (364) Aggregate OrderBook update (353)	1	1032	239.1.1.151	239.1.127.151	51100	1532	239.1.1.176	239.1.127.176
		2	2032	239.1.1.151	239.1.127.151	51200	2532	239.1.1.176	239.1.127.176
		3	3032	239.1.1.151	239.1.127.151	51300	3532	239.1.1.176	239.1.127.176
		4	4032	239.1.1.151	239.1.127.151	51400	3532	239.1.1.176	239.1.127.176
		5	5032	239.1.1.151	239.1.127.151	51500	3532	239.1.1.176	239.1.127.176
		6	6032	239.1.1.151	239.1.127.151	51600	3532	239.1.1.176	239.1.127.176
<b>Statistic</b>	Trade Statistic (360)	1	1044	239.1.1.151	239.1.127.151	51101	1544	239.1.1.176	239.1.127.176
		2	2044	239.1.1.151	239.1.127.151	51201	2544	239.1.1.176	239.1.127.176
		3	3044	239.1.1.151	239.1.127.151	51301	3544	239.1.1.176	239.1.127.176
		4	4044	239.1.1.151	239.1.127.151	51401	4544	239.1.1.176	239.1.127.176
		5	5044	239.1.1.151	239.1.127.151	51501	5544	239.1.1.176	239.1.127.176
		6	6044	239.1.1.151	239.1.127.151	51601	6544	239.1.1.176	239.1.127.176
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1047	239.1.1.128	239.1.127.128	51103	1947	239.1.1.154	239.1.127.154
		2	2047	239.1.1.128	239.1.127.128	51203	2947	239.1.1.154	239.1.127.154
		3	3047	239.1.1.128	239.1.127.128	51303	3947	239.1.1.154	239.1.127.154
		4	4047	239.1.1.128	239.1.127.128	51403	4947	239.1.1.154	239.1.127.154
		5	5047	239.1.1.128	239.1.127.128	51503	5947	239.1.1.154	239.1.127.154
		6	6047	239.1.1.128	239.1.127.128	51603	6947	239.1.1.154	239.1.127.154
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.2 OMD Derivatives Lite (SOM) – Price Depth Feed (conflated)

Channel Names and Messages			Production (D-Lite SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1002	239.1.1.133	239.1.127.133	51101	1902	239.1.1.159	239.1.127.159
		2	2002	239.1.1.133	239.1.127.133	51201	2902	239.1.1.159	239.1.127.159
		3	3002	239.1.1.133	239.1.127.133	51301	3902	239.1.1.159	239.1.127.159
		4	4002	239.1.1.133	239.1.127.133	51401	4902	239.1.1.159	239.1.127.159
		5	5002	239.1.1.133	239.1.127.133	51501	5902	239.1.1.159	239.1.127.159
		6	6002	239.1.1.133	239.1.127.133	51601	6902	239.1.1.159	239.1.127.159
Open Interest	Open Interest (366)	1	1005	239.1.1.149	239.1.127.149	51100	1905	239.1.1.179	239.1.127.179
		2	2005	239.1.1.149	239.1.127.149	51200	2905	239.1.1.179	239.1.127.179
		3	3005	239.1.1.149	239.1.127.149	51300	3905	239.1.1.179	239.1.127.179
		4	4005	239.1.1.149	239.1.127.149	51400	4905	239.1.1.179	239.1.127.179
		5	5005	239.1.1.149	239.1.127.149	51500	5905	239.1.1.179	239.1.127.179
		6	6005	239.1.1.149	239.1.127.149	51600	6905	239.1.1.179	239.1.127.179
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1011	239.1.1.133	239.1.127.133	51102	1911	239.1.1.159	239.1.127.159
		2	2011	239.1.1.133	239.1.127.133	51202	2911	239.1.1.159	239.1.127.159
		3	3011	239.1.1.133	239.1.127.133	51302	3911	239.1.1.159	239.1.127.159
		4	4011	239.1.1.133	239.1.127.133	51402	4911	239.1.1.159	239.1.127.159
		5	5011	239.1.1.133	239.1.127.133	51502	5911	239.1.1.159	239.1.127.159
		6	6011	239.1.1.133	239.1.127.133	51602	6911	239.1.1.159	239.1.127.159
Quote Request	Quote Request (336)	1	1020	239.1.1.133	239.1.127.133	51104			
		2	2020	239.1.1.133	239.1.127.133	51204			
		3	3020	239.1.1.133	239.1.127.133	51304			
		4	4020	239.1.1.133	239.1.127.133	51404			
		5	5020	239.1.1.133	239.1.127.133	51504			



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Channel Names and Messages			Production (D-Lite SOM)						
		6	6020	239.1.1.133	239.1.127.133	51604			
<b>Level 2 Price and COP</b>	COP (364) Aggregate OrderBook update (353)	1	1033	239.1.1.152	239.1.127.152	51100	1533	239.1.1.177	239.1.127.177
		2	2033	239.1.1.152	239.1.127.152	51200	2533	239.1.1.177	239.1.127.177
		3	3033	239.1.1.152	239.1.127.152	51300	3533	239.1.1.177	239.1.127.177
		4	4033	239.1.1.152	239.1.127.152	51400	4533	239.1.1.177	239.1.127.177
		5	5033	239.1.1.152	239.1.127.152	51500	5533	239.1.1.177	239.1.127.177
		6	6033	239.1.1.152	239.1.127.152	51600	6533	239.1.1.177	239.1.127.177
<b>Statistic</b>	Trade Statistic (360)	1	1045	239.1.1.152	239.1.127.152	51101	1545	239.1.1.177	239.1.127.177
		2	2045	239.1.1.152	239.1.127.152	51201	2545	239.1.1.177	239.1.127.177
		3	3045	239.1.1.152	239.1.127.152	51301	3545	239.1.1.177	239.1.127.177
		4	4045	239.1.1.152	239.1.127.152	51401	4545	239.1.1.177	239.1.127.177
		5	5045	239.1.1.152	239.1.127.152	51501	5545	239.1.1.177	239.1.127.177
		6	6045	239.1.1.152	239.1.127.152	51601	6545	239.1.1.177	239.1.127.177
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1048	239.1.1.133	239.1.127.133	51103	1948	239.1.1.159	239.1.127.159
		2	2048	239.1.1.133	239.1.127.133	51203	2948	239.1.1.159	239.1.127.159
		3	3048	239.1.1.133	239.1.127.133	51303	3948	239.1.1.159	239.1.127.159
		4	4048	239.1.1.133	239.1.127.133	51403	4948	239.1.1.159	239.1.127.159
		5	5048	239.1.1.133	239.1.127.133	51503	5948	239.1.1.159	239.1.127.159
		6	6048	239.1.1.133	239.1.127.133	51603	6948	239.1.1.159	239.1.127.159
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.3 OMD Derivatives Lite – Order Feed (snapshot)

Channel Names and Messages			Production (Order Feed Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Order Feed	Add Order (330)	1				51100	1949	239.1.1.180	239.1.127.180
		2				51200	2949	239.1.1.180	239.1.127.180
		3				51300	3949	239.1.1.180	239.1.127.180
		4				51400	4949	239.1.1.180	239.1.127.180
		5				51500	5949	239.1.1.180	239.1.127.180
		6				51600	6949	239.1.1.180	239.1.127.180

2.1.4 OMD Derivatives Standard (non-SOM) (conflated)

Channel Names and Messages			Production (DS Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1001	239.1.1.128	239.1.127.128	51101	1501	239.1.1.153	239.1.127.153
		2	2001	239.1.1.128	239.1.127.128	51201	2501	239.1.1.153	239.1.127.153
		3	3001	239.1.1.128	239.1.127.128	51301	3501	239.1.1.153	239.1.127.153
		4	4001	239.1.1.128	239.1.127.128	51401	4501	239.1.1.153	239.1.127.153
		5	5001	239.1.1.128	239.1.127.128	51501	5501	239.1.1.153	239.1.127.153
		6	6001	239.1.1.128	239.1.127.128	51601	6501	239.1.1.153	239.1.127.153
Open Interest	Open Interest (366)	1	1004	239.1.1.150	239.1.127.150	51100	1504	239.1.1.175	239.1.127.175
		2	2004	239.1.1.150	239.1.127.150	51200	2504	239.1.1.175	239.1.127.175
		3	3004	239.1.1.150	239.1.127.150	51300	3504	239.1.1.175	239.1.127.175
		4	4004	239.1.1.150	239.1.127.150	51400	4504	239.1.1.175	239.1.127.175
		5	5004	239.1.1.150	239.1.127.150	51500	5504	239.1.1.175	239.1.127.175
		6	6004	239.1.1.150	239.1.127.150	51600	6504	239.1.1.175	239.1.127.175
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1010	239.1.1.128	239.1.127.128	51102	1510	239.1.1.153	239.1.127.153
		2	2010	239.1.1.128	239.1.127.128	51202	2510	239.1.1.153	239.1.127.153
		3	3010	239.1.1.128	239.1.127.128	51302	3510	239.1.1.153	239.1.127.153
		4	4010	239.1.1.128	239.1.127.128	51402	4510	239.1.1.153	239.1.127.153
		5	5010	239.1.1.128	239.1.127.128	51502	5510	239.1.1.153	239.1.127.153
		6	6010	239.1.1.128	239.1.127.128	51602	6510	239.1.1.153	239.1.127.153
Quote Request	Quote Request (336)	1	1019	239.1.1.128	239.1.127.128	51104			
		2	2019	239.1.1.128	239.1.127.128	51204			
		3	3019	239.1.1.128	239.1.127.128	51304			
		4	4019	239.1.1.128	239.1.127.128	51404			
		5	5019	239.1.1.128	239.1.127.128	51504			

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Channel Names and Messages			Production (DS Non-SOM)						
		6	6019	239.1.1.128	239.1.127.128	51604			
<b>Level 2 Price and COP</b>	COP (364) Aggregate OrderBook update (353)	1	1029	239.1.1.132	239.1.127.132	51100	1529	239.1.1.157	239.1.127.157
		2	2029	239.1.1.132	239.1.127.132	51200	2529	239.1.1.157	239.1.127.157
		3	3029	239.1.1.132	239.1.127.132	51300	3529	239.1.1.157	239.1.127.157
		4	4029	239.1.1.132	239.1.127.132	51400	4529	239.1.1.157	239.1.127.157
		5	5029	239.1.1.132	239.1.127.132	51500	5529	239.1.1.157	239.1.127.157
		6	6029	239.1.1.132	239.1.127.132	51600	6529	239.1.1.157	239.1.127.157
<b>Statistic</b>	Trade Statistic (360)	1	1041	239.1.1.132	239.1.127.132	51101	1541	239.1.1.157	239.1.127.157
		2	2041	239.1.1.132	239.1.127.132	51201	2541	239.1.1.157	239.1.127.157
		3	3041	239.1.1.132	239.1.127.132	51301	3541	239.1.1.157	239.1.127.157
		4	4041	239.1.1.132	239.1.127.132	51401	4541	239.1.1.157	239.1.127.157
		5	5041	239.1.1.132	239.1.127.132	51501	5541	239.1.1.157	239.1.127.157
		6	6041	239.1.1.132	239.1.127.132	51601	6541	239.1.1.157	239.1.127.157
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1047	239.1.1.128	239.1.127.128	51103	1547	239.1.1.153	239.1.127.153
		2	2047	239.1.1.128	239.1.127.128	51203	2547	239.1.1.153	239.1.127.153
		3	3047	239.1.1.128	239.1.127.128	51303	3547	239.1.1.153	239.1.127.153
		4	4047	239.1.1.128	239.1.127.128	51403	4547	239.1.1.153	239.1.127.153
		5	5047	239.1.1.128	239.1.127.128	51503	5547	239.1.1.153	239.1.127.153
		6	6047	239.1.1.128	239.1.127.128	51603	6547	239.1.1.153	239.1.127.153
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.5 OMD Derivatives Standard (SOM) (conflated)

Channel Names and Messages			Production (DS SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1002	239.1.1.133	239.1.127.133	51101	1502	239.1.1.158	239.1.127.158
		2	2002	239.1.1.133	239.1.127.133	51201	2502	239.1.1.158	239.1.127.158
		3	3002	239.1.1.133	239.1.127.133	51301	3502	239.1.1.158	239.1.127.158
		4	4002	239.1.1.133	239.1.127.133	51401	4502	239.1.1.158	239.1.127.158
		5	5002	239.1.1.133	239.1.127.133	51501	5502	239.1.1.158	239.1.127.158
		6	6002	239.1.1.133	239.1.127.133	51601	6502	239.1.1.158	239.1.127.158
Open Interest	Open Interest (366)	1	1005	239.1.1.149	239.1.127.149	51100	1505	239.1.1.174	239.1.127.174
		2	2005	239.1.1.149	239.1.127.149	51200	2505	239.1.1.174	239.1.127.174
		3	3005	239.1.1.149	239.1.127.149	51300	3505	239.1.1.174	239.1.127.174
		4	4005	239.1.1.149	239.1.127.149	51400	4505	239.1.1.174	239.1.127.174
		5	5005	239.1.1.149	239.1.127.149	51500	5505	239.1.1.174	239.1.127.174
		6	6005	239.1.1.149	239.1.127.149	51600	6505	239.1.1.174	239.1.127.174
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1011	239.1.1.133	239.1.127.133	51102	1511	239.1.1.158	239.1.127.158
		2	2011	239.1.1.133	239.1.127.133	51202	2511	239.1.1.158	239.1.127.158
		3	3011	239.1.1.133	239.1.127.133	51302	3511	239.1.1.158	239.1.127.158
		4	4011	239.1.1.133	239.1.127.133	51402	4511	239.1.1.158	239.1.127.158
		5	5011	239.1.1.133	239.1.127.133	51502	5511	239.1.1.158	239.1.127.158
		6	6011	239.1.1.133	239.1.127.133	51602	6511	239.1.1.158	239.1.127.158
Quote Request	Quote Request (336)	1	1020	239.1.1.133	239.1.127.133	51104			
		2	2020	239.1.1.133	239.1.127.133	51204			
		3	3020	239.1.1.133	239.1.127.133	51304			
		4	4020	239.1.1.133	239.1.127.133	51404			
		5	5020	239.1.1.133	239.1.127.133	51504			

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Channel Names and Messages			Production (DS SOM)						
		6	6020	239.1.1.133	239.1.127.133	51604			
<b>Level 2 Price and COP</b>	COP (364) Aggregate OrderBook update (353)	1	1030	239.1.1.137	239.1.127.137	51100	1530	239.1.1.162	239.1.127.162
		2	2030	239.1.1.137	239.1.127.137	51200	2530	239.1.1.162	239.1.127.162
		3	3030	239.1.1.137	239.1.127.137	51300	3530	239.1.1.162	239.1.127.162
		4	4030	239.1.1.137	239.1.127.137	51400	4530	239.1.1.162	239.1.127.162
		5	5030	239.1.1.137	239.1.127.137	51500	5530	239.1.1.162	239.1.127.162
		6	6030	239.1.1.137	239.1.127.137	51600	6530	239.1.1.162	239.1.127.162
<b>Statistic</b>	Trade Statistic (360)	1	1042	239.1.1.137	239.1.127.137	51101	1542	239.1.1.162	239.1.127.162
		2	2042	239.1.1.137	239.1.127.137	51201	2542	239.1.1.162	239.1.127.162
		3	3042	239.1.1.137	239.1.127.137	51301	3542	239.1.1.162	239.1.127.162
		4	4042	239.1.1.137	239.1.127.137	51401	4542	239.1.1.162	239.1.127.162
		5	5042	239.1.1.137	239.1.127.137	51501	5542	239.1.1.162	239.1.127.162
		6	6042	239.1.1.137	239.1.127.137	51601	6542	239.1.1.162	239.1.127.162
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1048	239.1.1.133	239.1.127.133	51103	1548	239.1.1.158	239.1.127.158
		2	2048	239.1.1.133	239.1.127.133	51203	2548	239.1.1.158	239.1.127.158
		3	3048	239.1.1.133	239.1.127.133	51303	3548	239.1.1.158	239.1.127.158
		4	4048	239.1.1.133	239.1.127.133	51403	4548	239.1.1.158	239.1.127.158
		5	5048	239.1.1.133	239.1.127.133	51503	5548	239.1.1.158	239.1.127.158
		6	6048	239.1.1.133	239.1.127.133	51603	6548	239.1.1.158	239.1.127.158
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			



2.1.6 OMD Derivatives Premium (non-SOM) (streaming)

Channel Names and Messages			Production (DP Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1001	239.1.1.128	239.1.127.128	51101	1501	239.1.1.153	239.1.127.153
		2	2001	239.1.1.128	239.1.127.128	51201	2501	239.1.1.153	239.1.127.153
		3	3001	239.1.1.128	239.1.127.128	51301	3501	239.1.1.153	239.1.127.153
		4	4001	239.1.1.128	239.1.127.128	51401	4501	239.1.1.153	239.1.127.153
		5	5001	239.1.1.128	239.1.127.128	51501	5501	239.1.1.153	239.1.127.153
		6	6001	239.1.1.128	239.1.127.128	51601	6501	239.1.1.153	239.1.127.153
Open Interest	Open Interest (366)	1	1004	239.1.1.150	239.1.127.150	51100	1504	239.1.1.175	239.1.127.175
		2	2004	239.1.1.150	239.1.127.150	51200	2504	239.1.1.175	239.1.127.175
		3	3004	239.1.1.150	239.1.127.150	51300	3504	239.1.1.175	239.1.127.175
		4	4004	239.1.1.150	239.1.127.150	51400	4504	239.1.1.175	239.1.127.175
		5	5004	239.1.1.150	239.1.127.150	51500	5504	239.1.1.175	239.1.127.175
		6	6004	239.1.1.150	239.1.127.150	51600	6504	239.1.1.175	239.1.127.175
Implied Volatility	Implied Volatility (367)	1	1007	239.1.1.141	239.1.127.141	51100	1507	239.1.1.166	239.1.127.166
		2	2007	239.1.1.141	239.1.127.141	51200	2507	239.1.1.166	239.1.127.166
		3	3007	239.1.1.141	239.1.127.141	51300	3507	239.1.1.166	239.1.127.166
		4	4007	239.1.1.141	239.1.127.141	51400	4507	239.1.1.166	239.1.127.166
		5	5007	239.1.1.141	239.1.127.141	51500	5507	239.1.1.166	239.1.127.166
		6	6007	239.1.1.141	239.1.127.141	51600	6507	239.1.1.166	239.1.127.166
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1010	239.1.1.128	239.1.127.128	51102	1510	239.1.1.153	239.1.127.153
		2	2010	239.1.1.128	239.1.127.128	51202	2510	239.1.1.153	239.1.127.153
		3	3010	239.1.1.128	239.1.127.128	51302	3510	239.1.1.153	239.1.127.153
		4	4010	239.1.1.128	239.1.127.128	51402	4510	239.1.1.153	239.1.127.153

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Channel Names and Messages			Production (DP Non-SOM)						
		5	5010	239.1.1.128	239.1.127.128	51502	5510	239.1.1.153	239.1.127.153
		6	6010	239.1.1.128	239.1.127.128	51602	6510	239.1.1.153	239.1.127.153
Quote Request	Quote Request (336)	1	1019	239.1.1.128	239.1.127.128	51104			
		2	2019	239.1.1.128	239.1.127.128	51204			
		3	3019	239.1.1.128	239.1.127.128	51304			
		4	4019	239.1.1.128	239.1.127.128	51404			
		5	5019	239.1.1.128	239.1.127.128	51504			
		6	6019	239.1.1.128	239.1.127.128	51604			
Level 2 Price, COP and Trade	Aggregate OrderBook update (353) COP (364) Trade (350)	1	1026	239.1.1.131	239.1.127.131	51100	1526	239.1.1.156	239.1.127.156
		2	2026	239.1.1.131	239.1.127.131	51200	2526	239.1.1.156	239.1.127.156
		3	3026	239.1.1.131	239.1.127.131	51300	3526	239.1.1.156	239.1.127.156
		4	4026	239.1.1.131	239.1.127.131	51400	4526	239.1.1.156	239.1.127.156
		5	5026	239.1.1.131	239.1.127.131	51500	5526	239.1.1.156	239.1.127.156
		6	6026	239.1.1.131	239.1.127.131	51600	6526	239.1.1.156	239.1.127.156
Statistic	Trade Statistic (360)	1	1038	239.1.1.131	239.1.127.131	51101	1538	239.1.1.156	239.1.127.156
		2	2038	239.1.1.131	239.1.127.131	51201	2538	239.1.1.156	239.1.127.156
		3	3038	239.1.1.131	239.1.127.131	51301	3538	239.1.1.156	239.1.127.156
		4	4038	239.1.1.131	239.1.127.131	51401	4538	239.1.1.156	239.1.127.156
		5	5038	239.1.1.131	239.1.127.131	51501	5538	239.1.1.156	239.1.127.156
		6	6038	239.1.1.131	239.1.127.131	51601	6538	239.1.1.156	239.1.127.156
Market & Instrument Status	Market Status (320) Instrument Status (321)	1	1047	239.1.1.128	239.1.127.128	51103	1547	239.1.1.153	239.1.127.153
		2	2047	239.1.1.128	239.1.127.128	51203	2547	239.1.1.153	239.1.127.153
		3	3047	239.1.1.128	239.1.127.128	51303	3547	239.1.1.153	239.1.127.153
		4	4047	239.1.1.128	239.1.127.128	51403	4547	239.1.1.153	239.1.127.153
		5	5047	239.1.1.128	239.1.127.128	51503	5547	239.1.1.153	239.1.127.153
		6	6047	239.1.1.128	239.1.127.128	51603	6547	239.1.1.153	239.1.127.153
Market Alert	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169



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Channel Names and Messages			Production (DP Non-SOM)						
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>Trade Amend and Block Trade</b>	Trade (350) Trade Amendment (356)	1	1051	239.1.1.139	239.1.127.139	51100			
		2	2051	239.1.1.139	239.1.127.139	51200			
		3	3051	239.1.1.139	239.1.127.139	51300			
		4	4051	239.1.1.139	239.1.127.139	51400			
		5	5051	239.1.1.139	239.1.127.139	51500			
		6	6051	239.1.1.139	239.1.127.139	51600			
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.7 OMD Derivatives Premium (SOM) (streaming)

Channel Names and Messages			Production (DP SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1002	239.1.1.133	239.1.127.133	51101	1502	239.1.1.158	239.1.127.158
		2	2002	239.1.1.133	239.1.127.133	51201	2502	239.1.1.158	239.1.127.158
		3	3002	239.1.1.133	239.1.127.133	51301	3502	239.1.1.158	239.1.127.158
		4	4002	239.1.1.133	239.1.127.133	51401	4502	239.1.1.158	239.1.127.158
		5	5002	239.1.1.133	239.1.127.133	51501	5502	239.1.1.158	239.1.127.158
		6	6002	239.1.1.133	239.1.127.133	51601	6502	239.1.1.158	239.1.127.158
Open Interest	Open Interest (366)	1	1005	239.1.1.149	239.1.127.149	51100	1505	239.1.1.174	239.1.127.174
		2	2005	239.1.1.149	239.1.127.149	51200	2505	239.1.1.174	239.1.127.174
		3	3005	239.1.1.149	239.1.127.149	51300	3505	239.1.1.174	239.1.127.174
		4	4005	239.1.1.149	239.1.127.149	51400	4505	239.1.1.174	239.1.127.174
		5	5005	239.1.1.149	239.1.127.149	51500	5505	239.1.1.174	239.1.127.174
		6	6005	239.1.1.149	239.1.127.149	51600	6505	239.1.1.174	239.1.127.174
Implied Volatility	Implied Volatility (367)	1	1008	239.1.1.142	239.1.127.142	51100	1508	239.1.1.167	239.1.127.167
		2	2008	239.1.1.142	239.1.127.142	51200	2508	239.1.1.167	239.1.127.167
		3	3008	239.1.1.142	239.1.127.142	51300	3508	239.1.1.167	239.1.127.167
		4	4008	239.1.1.142	239.1.127.142	51400	4508	239.1.1.167	239.1.127.167
		5	5008	239.1.1.142	239.1.127.142	51500	5508	239.1.1.167	239.1.127.167
		6	6008	239.1.1.142	239.1.127.142	51600	6508	239.1.1.167	239.1.127.167
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1011	239.1.1.133	239.1.127.133	51102	1511	239.1.1.158	239.1.127.158
		2	2011	239.1.1.133	239.1.127.133	51202	2511	239.1.1.158	239.1.127.158
		3	3011	239.1.1.133	239.1.127.133	51302	3511	239.1.1.158	239.1.127.158
		4	4011	239.1.1.133	239.1.127.133	51402	4511	239.1.1.158	239.1.127.158

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Channel Names and Messages			Production (DP SOM)						
		5	5011	239.1.1.133	239.1.127.133	51502	5511	239.1.1.158	239.1.127.158
		6	6011	239.1.1.133	239.1.127.133	51602	6511	239.1.1.158	239.1.127.158
Quote Request	Quote Request (336)	1	1020	239.1.1.133	239.1.127.133	51104			
		2	2020	239.1.1.133	239.1.127.133	51204			
		3	3020	239.1.1.133	239.1.127.133	51304			
		4	4020	239.1.1.133	239.1.127.133	51404			
		5	5020	239.1.1.133	239.1.127.133	51504			
		6	6020	239.1.1.133	239.1.127.133	51604			
Level 2 Price, COP and Trade	Aggregate OrderBook update (353) COP (364) Trade (350)	1	1027	239.1.1.136	239.1.127.136	51100	1527	239.1.1.161	239.1.127.161
		2	2027	239.1.1.136	239.1.127.136	51200	2527	239.1.1.161	239.1.127.161
		3	3027	239.1.1.136	239.1.127.136	51300	3527	239.1.1.161	239.1.127.161
		4	4027	239.1.1.136	239.1.127.136	51400	4527	239.1.1.161	239.1.127.161
		5	5027	239.1.1.136	239.1.127.136	51500	5527	239.1.1.161	239.1.127.161
		6	6027	239.1.1.136	239.1.127.136	51600	6527	239.1.1.161	239.1.127.161
Statistic	Trade Statistic (360)	1	1039	239.1.1.136	239.1.127.136	51101	1539	239.1.1.161	239.1.127.161
		2	2039	239.1.1.136	239.1.127.136	51201	2539	239.1.1.161	239.1.127.161
		3	3039	239.1.1.136	239.1.127.136	51301	3539	239.1.1.161	239.1.127.161
		4	4039	239.1.1.136	239.1.127.136	51401	4539	239.1.1.161	239.1.127.161
		5	5039	239.1.1.136	239.1.127.136	51501	5539	239.1.1.161	239.1.127.161
		6	6039	239.1.1.136	239.1.127.136	51601	6539	239.1.1.161	239.1.127.161
Market & Instrument Status	Market Status (320) Instrument Status (321)	1	1048	239.1.1.133	239.1.127.133	51103	1548	239.1.1.158	239.1.127.158
		2	2048	239.1.1.133	239.1.127.133	51203	2548	239.1.1.158	239.1.127.158
		3	3048	239.1.1.133	239.1.127.133	51303	3548	239.1.1.158	239.1.127.158
		4	4048	239.1.1.133	239.1.127.133	51403	4548	239.1.1.158	239.1.127.158
		5	5048	239.1.1.133	239.1.127.133	51503	5548	239.1.1.158	239.1.127.158
		6	6048	239.1.1.133	239.1.127.133	51603	6548	239.1.1.158	239.1.127.158
Market Alert	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169

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Channel Names and Messages			Production (DP SOM)						
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>Trade Amend and Block Trade</b>	Trade (350) Trade Amendment (356)	1	1052	239.1.1.140	239.1.127.140	51100			
		2	2052	239.1.1.140	239.1.127.140	51200			
		3	3052	239.1.1.140	239.1.127.140	51300			
		4	4052	239.1.1.140	239.1.127.140	51400			
		5	5052	239.1.1.140	239.1.127.140	51500			
		6	6052	239.1.1.140	239.1.127.140	51600			
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.8 OMD Derivatives Full Tick (non-SOM) (streaming)

Channel Names and Messages			Production (DF Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1001	239.1.1.128	239.1.127.128	51101	1501	239.1.1.153	239.1.127.153
		2	2001	239.1.1.128	239.1.127.128	51201	2501	239.1.1.153	239.1.127.153
		3	3001	239.1.1.128	239.1.127.128	51301	3501	239.1.1.153	239.1.127.153
		4	4001	239.1.1.128	239.1.127.128	51401	4501	239.1.1.153	239.1.127.153
		5	5001	239.1.1.128	239.1.127.128	51501	5501	239.1.1.153	239.1.127.153
		6	6001	239.1.1.128	239.1.127.128	51601	6501	239.1.1.153	239.1.127.153
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1010	239.1.1.128	239.1.127.128	51102	1510	239.1.1.153	239.1.127.153
		2	2010	239.1.1.128	239.1.127.128	51202	2510	239.1.1.153	239.1.127.153
		3	3010	239.1.1.128	239.1.127.128	51302	3510	239.1.1.153	239.1.127.153
		4	4010	239.1.1.128	239.1.127.128	51402	4510	239.1.1.153	239.1.127.153
		5	5010	239.1.1.128	239.1.127.128	51502	5510	239.1.1.153	239.1.127.153
		6	6010	239.1.1.128	239.1.127.128	51602	6510	239.1.1.153	239.1.127.153
Order, COP and Trade	Add Order (330) Modify Order (331) Delete Order (332) OrderBook Clear (335) Aggregate Implied Quantity (337) COP (364) Trade (350)	1	1013	239.1.1.130	239.1.127.130	51100	1513	239.1.1.155	239.1.127.155
		2	2013	239.1.1.130	239.1.127.130	51200	2513	239.1.1.155	239.1.127.155
		3	3013	239.1.1.130	239.1.127.130	51300	3513	239.1.1.155	239.1.127.155
		4	4013	239.1.1.130	239.1.127.130	51400	4513	239.1.1.155	239.1.127.155
		5	5013	239.1.1.130	239.1.127.130	51500	5513	239.1.1.155	239.1.127.155
		6	6013	239.1.1.130	239.1.127.130	51600	6513	239.1.1.155	239.1.127.155
Quote Request	Quote Request (336)	1	1019	239.1.1.128	239.1.127.128	51104			
		2	2019	239.1.1.128	239.1.127.128	51204			
		3	3019	239.1.1.128	239.1.127.128	51304			
		4	4019	239.1.1.128	239.1.127.128	51404			

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Channel Names and Messages			Production (DF Non-SOM)						
		5	5019	239.1.1.128	239.1.127.128	51504			
		6	6019	239.1.1.128	239.1.127.128	51604			
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1047	239.1.1.128	239.1.127.128	51103	1547	239.1.1.153	239.1.127.153
		2	2047	239.1.1.128	239.1.127.128	51203	2547	239.1.1.153	239.1.127.153
		3	3047	239.1.1.128	239.1.127.128	51303	3547	239.1.1.153	239.1.127.153
		4	4047	239.1.1.128	239.1.127.128	51403	4547	239.1.1.153	239.1.127.153
		5	5047	239.1.1.128	239.1.127.128	51503	5547	239.1.1.153	239.1.127.153
		6	6047	239.1.1.128	239.1.127.128	51603	6547	239.1.1.153	239.1.127.153
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>Trade Amend and Block Trade</b>	Trade (350) Trade Amendment (356)	1	1051	239.1.1.139	239.1.127.139	51100			
		2	2051	239.1.1.139	239.1.127.139	51200			
		3	3051	239.1.1.139	239.1.127.139	51300			
		4	4051	239.1.1.139	239.1.127.139	51400			
		5	5051	239.1.1.139	239.1.127.139	51500			
		6	6051	239.1.1.139	239.1.127.139	51600			
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

2.1.9 OMD Derivatives Full Tick (SOM) (streaming)

Channel Names and Messages			Production (DF SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Reference Data	Commodity Definition (301) Class Definition (302) Instrument Definition (303) Combination Definition (305)	1	1002	239.1.1.133	239.1.127.133	51101	1502	239.1.1.158	239.1.127.158
		2	2002	239.1.1.133	239.1.127.133	51201	2502	239.1.1.158	239.1.127.158
		3	3002	239.1.1.133	239.1.127.133	51301	3502	239.1.1.158	239.1.127.158
		4	4002	239.1.1.133	239.1.127.133	51401	4502	239.1.1.158	239.1.127.158
		5	5002	239.1.1.133	239.1.127.133	51501	5502	239.1.1.158	239.1.127.158
		6	6002	239.1.1.133	239.1.127.133	51601	6502	239.1.1.158	239.1.127.158
Commodity & Class Status and Trigger	Commodity & Class Status (322) VCM Trigger (324) THM Trigger (325)	1	1011	239.1.1.133	239.1.127.133	51102	1511	239.1.1.158	239.1.127.158
		2	2011	239.1.1.133	239.1.127.133	51202	2511	239.1.1.158	239.1.127.158
		3	3011	239.1.1.133	239.1.127.133	51302	3511	239.1.1.158	239.1.127.158
		4	4011	239.1.1.133	239.1.127.133	51402	4511	239.1.1.158	239.1.127.158
		5	5011	239.1.1.133	239.1.127.133	51502	5511	239.1.1.158	239.1.127.158
		6	6011	239.1.1.133	239.1.127.133	51602	6511	239.1.1.158	239.1.127.158
Order, COP and Trade	Add Order (330) Modify Order (331) Delete Order (332) OrderBook Clear (335) Aggregate Implied Quantity (337) COP (364) Trade (350)	1	1014	239.1.1.135	239.1.127.135	51100	1514	239.1.1.160	239.1.127.160
		2	2014	239.1.1.135	239.1.127.135	51200	2514	239.1.1.160	239.1.127.160
		3	3014	239.1.1.135	239.1.127.135	51300	3514	239.1.1.160	239.1.127.160
		4	4014	239.1.1.135	239.1.127.135	51400	4514	239.1.1.160	239.1.127.160
		5	5014	239.1.1.135	239.1.127.135	51500	5514	239.1.1.160	239.1.127.160
		6	6014	239.1.1.135	239.1.127.135	51600	6514	239.1.1.160	239.1.127.160
Quote Request	Quote Request (336)	1	1020	239.1.1.133	239.1.127.133	51104			
		2	2020	239.1.1.133	239.1.127.133	51204			
		3	3020	239.1.1.133	239.1.127.133	51304			
		4	4020	239.1.1.133	239.1.127.133	51404			



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Channel Names and Messages			Production (DF SOM)						
		5	5020	239.1.1.133	239.1.127.133	51504			
		6	6020	239.1.1.133	239.1.127.133	51604			
<b>Market &amp; Instrument Status</b>	Market Status (320) Instrument Status (321)	1	1048	239.1.1.133	239.1.127.133	51103	1548	239.1.1.158	239.1.127.158
		2	2048	239.1.1.133	239.1.127.133	51203	2548	239.1.1.158	239.1.127.158
		3	3048	239.1.1.133	239.1.127.133	51303	3548	239.1.1.158	239.1.127.158
		4	4048	239.1.1.133	239.1.127.133	51403	4548	239.1.1.158	239.1.127.158
		5	5048	239.1.1.133	239.1.127.133	51503	5548	239.1.1.158	239.1.127.158
		6	6048	239.1.1.133	239.1.127.133	51603	6548	239.1.1.158	239.1.127.158
<b>Market Alert</b>	Market Alert (323)	1	1049	239.1.1.144	239.1.127.144	51100	1549	239.1.1.169	239.1.127.169
		2	2049	239.1.1.144	239.1.127.144	51200	2549	239.1.1.169	239.1.127.169
		3	3049	239.1.1.144	239.1.127.144	51300	3549	239.1.1.169	239.1.127.169
		4	4049	239.1.1.144	239.1.127.144	51400	4549	239.1.1.169	239.1.127.169
		5	5049	239.1.1.144	239.1.127.144	51500	5549	239.1.1.169	239.1.127.169
		6	6049	239.1.1.144	239.1.127.144	51600	6549	239.1.1.169	239.1.127.169
<b>Trade Amend and Block Trade</b>	Trade (350) Trade Amendment (356)	1	1052	239.1.1.140	239.1.127.140	51100			
		2	2052	239.1.1.140	239.1.127.140	51200			
		3	3052	239.1.1.140	239.1.127.140	51300			
		4	4052	239.1.1.140	239.1.127.140	51400			
		5	5052	239.1.1.140	239.1.127.140	51500			
		6	6052	239.1.1.140	239.1.127.140	51600			
<b>DR Signal</b>	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			



2.1.10 OMD Derivatives Trade (non-SOM) (streaming)

Channel Names and Messages			Production (DT Non-SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Trade	Trade (350)	1	1016	239.1.1.129	239.1.127.129	51100			
		2	2016	239.1.1.129	239.1.127.129	51200			
		3	3016	239.1.1.129	239.1.127.129	51300			
		4	4016	239.1.1.129	239.1.127.129	51400			
		5	5016	239.1.1.129	239.1.127.129	51500			
		6	6016	239.1.1.129	239.1.127.129	51600			
Trade Amend and Block Trade	Trade (350) Trade Amendment (356)	1	1051	239.1.1.139	239.1.127.139	51100			
		2	2051	239.1.1.139	239.1.127.139	51200			
		3	3051	239.1.1.139	239.1.127.139	51300			
		4	4051	239.1.1.139	239.1.127.139	51400			
		5	5051	239.1.1.139	239.1.127.139	51500			
		6	6051	239.1.1.139	239.1.127.139	51600			

2.1.11 OMD Derivatives Trade (SOM) (streaming)

Channel Names and Messages			Production (DT SOM)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Trade	Trade (350)	1	1017	239.1.1.134	239.1.127.134	51100			
		2	2017	239.1.1.134	239.1.127.134	51200			
		3	3017	239.1.1.134	239.1.127.134	51300			
		4	4017	239.1.1.134	239.1.127.134	51400			
		5	5017	239.1.1.134	239.1.127.134	51500			
		6	6017	239.1.1.134	239.1.127.134	51600			
Trade Amend and Block Trade	Trade (350) Trade Amendment (356)	1	1052	239.1.1.140	239.1.127.140	51100			
		2	2052	239.1.1.140	239.1.127.140	51200			
		3	3052	239.1.1.140	239.1.127.140	51300			
		4	4052	239.1.1.140	239.1.127.140	51400			
		5	5052	239.1.1.140	239.1.127.140	51500			
		6	6052	239.1.1.140	239.1.127.140	51600			

2.1.12 OMD Index (Streaming)

Channel Names and Messages			Production (Index)						
Multicast Channel Category	OMD-D Messages	Partition #	Channel ID	Real Time Channels		Common Ports	Channel ID	Refresh Channels	
				Line A Multicast Address	Line B Multicast Address			Line A Multicast Address	Line B Multicast Address
Index	Index Definition (70) Index Data (71)	HSI	41	239.1.1.5	239.1.127.5	51000	541	239.1.1.15	239.1.127.15
		CSI	42	239.1.1.6	239.1.127.6	51000	542	239.1.1.16	239.1.127.16
		S&P	43	239.1.1.7	239.1.127.7	51000	543	239.1.1.17	239.1.127.17
Index DR Signal	Disaster Recovery Signal (105)	-	1088	239.1.1.144	239.1.127.144	51000			

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### 2.1.13 HKEX OMD Retransmission Unicast Connectivity (For All Non-Index Channels)

A Retransmission Service is provided to recover multicast packet loss in all Non-Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-D production environment**.

Retransmission Server	IP Unicast Address
Primary server in primary site	10.170.3.121:55455
Secondary server in primary site	10.170.3.122:55455
Primary server in DR site *	10.170.13.121:55455
Secondary server in DR site *	10.170.13.122:55455

\* Two servers located in DR site are also active and available for connection. Clients may connect any one of those four retransmission servers, but not concurrently.

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### 2.1.14 HKEX OMD Index Retransmission Unicast Connectivity (For All Index Channels)

A Retransmission Service for Index is provided to recover multicast packet loss in all Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-Index Production Environment**.

Retransmission Server	IP Unicast Address
Primary server in primary site	10.170.3.61:55455
Secondary server in primary site	10.170.3.62:55455
Primary server in DR site*	10.170.13.61:55455
Secondary server in DR site*	10.170.13.62:55455

\* Two servers located in DR site are also active and available for connection. Clients may connect any one of those four retransmission servers, but not concurrently.

## **2.2 OMD-D Test Environment Connectivity Details**

Details of this section will be provided in a later version in due course.

### 3. Guidelines on SDNet/2 lines / HSN connection

#### 3.1 Mode of OMD connection

- For resilience purpose, at least 2 SDNet/2 or HSN lines are required for OMD connection either for individual OMD datafeed product or sharing among different OMD datafeed products.
- The set of 2 SDNet/2 lines is required to locate in the same location. If clients require receiving OMD data in multiple locations, 1 set of 2 SDNet/2 lines is required to install in each location.

#### 3.2 Bandwidth Requirement

Full suite of OMD datafeed products for Derivatives Market data and respective estimated bandwidth requirements are as follows.

##### 3.2.1 Production SDNet/2 / HSN and Testing SDNet/2 / HSN for OMD-D Readiness Test

###### Minimum Bandwidth Allocation Between Multicast and Unicast in Each Datafeed

Datafeed	Minimum Multicast Allocation (i.e. Real Time & Refresh) with / without the Index Feed (INDEX) <sup>1</sup>	Minimum Unicast Allocation <sup>2</sup> (i.e. Retransmission)
Derivatives Lite (D-Lite) – Non-SOM	5.5 Mbps	0.5 Mbps
D-Lite – Non-SOM + Derivatives Trade (DT) <sup>3</sup>	7.5 Mbps	0.5 Mbps
D-Lite – SOM	7.5 Mbps	0.5 Mbps
D-Lite – SOM + DT	9.5 Mbps	0.5 Mbps
D-Lite – Order Feed	3 Mbps	Not applicable
Derivatives Standard (DS) – Non-SOM	13 Mbps	1 Mbps
DS – Non-SOM + DT	15 Mbps	1 Mbps
DS – SOM	13 Mbps	1 Mbps
DS – SOM + DT	15 Mbps	1 Mbps
Derivatives Premium (DP) – Non-SOM <sup>4</sup>	49 Mbps	1 Mbps
DP – SOM <sup>4</sup>	129 Mbps	1 Mbps

<sup>1</sup> Update rate of individual index depends on respective index providers

<sup>2</sup> If more than 1 datafeed are subscribed in Production or Readiness Test Environment, the minimum bandwidth for unicast is 1 Mbps (0.5Mbps for D-Lite only)

<sup>3</sup> DT is only applicable to D-Lite and DS subscribers

<sup>4</sup> DP and DF Clients have to subscribe to lines with High Performance Option (HPO) to avoid potential data loss in the event of bursty traffic that could happen in the production environment.

<b>Derivatives Full Tick (DF) – Non-SOM<sup>4</sup></b>	49 Mbps	1 Mbps
<b>DF – SOM<sup>4</sup></b>	129 Mbps	1 Mbps

### 3.2.2 Testing SDNet/2 / HSN for other Testing Environment

#### Minimum Bandwidth Allocation Between Multicast and Unicast in Each Datafeed

<b>Datafeed</b>	<b>Minimum Multicast Allocation</b> (i.e. Real Time & Refresh) with Any Combination / All of the following Complimentary Datafeed(s) a) INDEX b) DT	<b>Minimum Unicast Allocation<sup>1</sup></b> (i.e. Retransmission)
<b>D-Lite – Non-SOM</b>	1 Mbps	0.5 Mbps
<b>D-Lite – SOM</b>	2.5 Mbps	0.5 Mbps
<b>D-Lite – Order Feed</b>	3 Mbps	Not applicable
<b>DS – Non-SOM</b>	1 Mbps	0.5 Mbps
<b>DS – SOM</b>	4.5 Mbps	0.5 Mbps
<b>DP – Non-SOM</b>	1.5 Mbps	0.5 Mbps
<b>DP – SOM</b>	6.5 Mbps	0.5 Mbps
<b>DF – Non-SOM</b>	1 Mbps	0.5 Mbps
<b>DF – SOM</b>	3.5 Mbps	0.5 Mbps

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### 3.3 Sharing of SDNet/2 lines or HSN port set

Clients may opt to use separated sets or same set of SDNet/2 lines/ HSN ports for receiving data of different OMD datafeed products and other systems, e.g. derivatives trading system, subject to certain limitations.

Under the current multicast transmission protocol of OMD, clients are required to establish live-live connections regardless of whether they are connecting through SDNet/2 or HSN Port in HKEX's Hosting site.

Sharing of SDNet/2 lines for different OMD datafeed products and other applications, e.g. derivatives trading system, is allowed and clients are required to make sure the bandwidth of the SDNet/2 lines is sufficient to support the multiple applications sharing the lines and they are aware of the potential issues for sharing of lines.

Under the Hosting setup, 1 HSN Port Set contains 2 ports which can serve the live-live connections for OMD (multicast application) and live-backup connection for other unicast application, e.g. derivatives trading system.

Clients who would like to establish new HSN connection for other unicast applications which are in live-live mode may need to apply for an additional set of HSN circuits, or consider another solution that meets the same resilience requirement.

In addition, clients should note the following policies on sharing of SDNet/2 or HSN lines for OMD datafeed products:

- Sharing of same set of production SDNet/2 / HSN circuits for **more than 1 OMD datafeed products of different markets** (i.e. securities market datafeed and derivatives market datafeed) **is allowed**.
- Sharing of the same SDNet/2 / HSN circuits for both product and testing purposes is **NOT ALLOWED**.
- **Exchange Participants** 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 DS, OMD-Index and derivatives trading system.
- Clients should note and consider the followings if they are going to adopt shared line mode:
  - i) In case of failure/interruption of the shared circuits, all datafeed products using this set of circuits will be affected.
  - ii) Troubleshooting for network related issues (e.g. performance, latency or packet loss etc.) will be much more difficult and time consuming and assistance from network carriers and HKEX will be limited in such troubleshooting. Clients must accept this risk in making the line sharing decision.
  - iii) Due to the difference in operating hours and testing windows between securities and derivatives markets, clients should make sure any maintenance/testing of one of the systems does not affect the rest of the systems sharing the same set of circuits.

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### 3.4 Bandwidth for shared SDNet/2 lines or HSN port set

- i) Shared SDNet/2 / HSN circuits must have sufficient bandwidth to support the data transmission of multiple products/devices. Please see below examples for reference:



Example 1: Sharing of a set of SDNet/2 lines for DS (SOM + Non-SOM) and DF (SOM) in Production Environment:

The minimum bandwidth requirements for multicast of DS (Non-SOM), DS (SOM) and DF (SOM) are 13 Mbps, 13 Mbps and 129 Mbps respectively while the minimum bandwidth requirement for unicast of multiple datafeeds is 1 Mbps, a set of SDNet/2 lines with 1 Gbps will be required. (Actual bandwidth requirement is 156 Mbps and minimum incremental bandwidth threshold over 100Mbps for SDNet/2 lines is 1Gbps)

Example 2: Sharing of a set of SDNet/2 lines for DS (SOM + Non-SOM) and OMD D-Lite (SOM + Non-SOM) + D-Lite Order feed in Production Environment:

The minimum bandwidth requirements for multicast of DS (SOM + Non-SOM) and D-Lite (SOM + Non-SOM) are 26 Mbps and 16 Mbps respectively while the , minimum bandwidth requirement for unicast of multiple datafeeds is 1 Mbps, a set of SDNet/2 lines with 50 Mbps will be required. (Actual bandwidth requirement is 43 Mbps and minimum incremental bandwidth threshold is 10 Mbps for SDNet/2 lines of 10 Mbps-100 Mbps)

Example 3: Sharing of a set of SDNet/2 lines for DF (SOM + Non-SOM) and SS in OMD-C<sup>1</sup> in Production Environment:

The minimum bandwidth requirements for multicast of DF (SOM + Non-SOM) and SS in OMD-C are 178 Mbps and 15 Mbps respectively. Whereas the minimum bandwidth requirement for unicast of multiple datafeeds of OMD-D and SS in OMD-C are 1Mbps and 0.2 Mbps respectively. Therefore, a common set of SDNet/2 lines with 1 Gbps will be required.

(Actual bandwidth requirement is 194.2 Mbps and minimum incremental bandwidth threshold over 100Mbps for SDNet/2 lines is 1Gbps)

- ii) Clients can allocate bandwidth of the shared lines to different products as they wish as long as the bandwidth allocated to each datafeed product meets the estimated bandwidth requirement specified.

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### 3.5 SDNet/2 High Performance Option

Clients who are required to install circuits with a bandwidth of 30 Mbps or above for connecting to HKEX systems have to subscribe to lines with High Performance Option (HPO) to avoid potential data loss in the event of bursty traffic that could happen in the production environment.

High Performance Option of SDNet/2 which transmits data in relatively high packet rates is required for clients who subscribe to OMD streaming feeds, i.e. DP and DF. OMD DS provides conflated price level information, and the message rate sent for the conflation period is relatively not high, so HPO is not necessary.

Please refer to Appendix A for details on high performance options provided by different SDNet/2 providers.

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<sup>1</sup> For OMD-C connectivity information, please refer to the Connectivity Guide for OMD Securities Market and Index Datafeed Products (OMD-C).

## 4. Other Guidelines on OMD Connections

### 4.1 Additional Login IDs/Client IP addresses for Unicast Retransmission Service

Direct connection clients will get one set of login ID with two IP addresses for retransmission service per OMD-D datafeed subscription. That means, clients subscribing to one set of DP feed and one set of DF feed will get two login IDs each with two IP addresses. These login IDs would be generic ID where each ID can be used to recover either the DP and DF missing data rather than tied to the respective datafeed product associated with that login ID provided that the same pair of SDNet/2 or HSN circuits is used for receiving the data from both DP and DF.

Exchange Participants who are entitled to receive two sets of complimentary DS feed via two different pairs of circuits when migrating to derivatives trading system would also be entitled to one complimentary login ID per set of DS feed which is also a generic ID.

To facilitate different clients' internal setup or operational requirement, an additional set of login ID and with/without IP addresses for retransmission service can be offered to clients at a cost on a per request basis.

### 4.2 Installation of SDNet/2 and HSN lines

#### 4.2.1 SDNet/2 lines

Clients are required to contact the SDNet/2 Accredited Vendors for installation of SDNet/2 lines for OMD connection. Details of the SDNet/2 Accredited Vendors and reference costs charged by different SDNet/2 Accredited Vendors can be found in Appendix A.

#### 4.2.2 HSN lines

Clients who will use HKEX's Hosting Service for OMD connection should contact our Hosting Service team directly for details on the HSN lines.

## Appendix A – SDNet/2 Accredited Vendors Information

SDNet/2 services are provided by Accredited Vendors for the provision of circuits from EP/CP/IV locations to HKEX's data centres.

To become an Accredited Vendor, the Vendor's SDNet/2 service must comply with the technical requirements set out by HKEX. The compliance of these technical requirements ensures the Accredited Vendor will deliver a stable, reliable and high quality networking services to the EPs/CPs/IVs.

Two Accredited Vendors have been selected and accredited to provide SDNet/2 network services. These vendors are (in alphabetical order):

- Hong Kong Telecommunications (HKT) Limited (also known as PCCW)
- HKBN Enterprise Solutions HK Limited (HKBNES)

For details of SDNet/2 circuit price information / technical specification / service level, please refer to [Price Information / Technical Specification / Service Level of SDNet/2](#) posted on HKEX website.

## Appendix B Sample Client Configuration Information

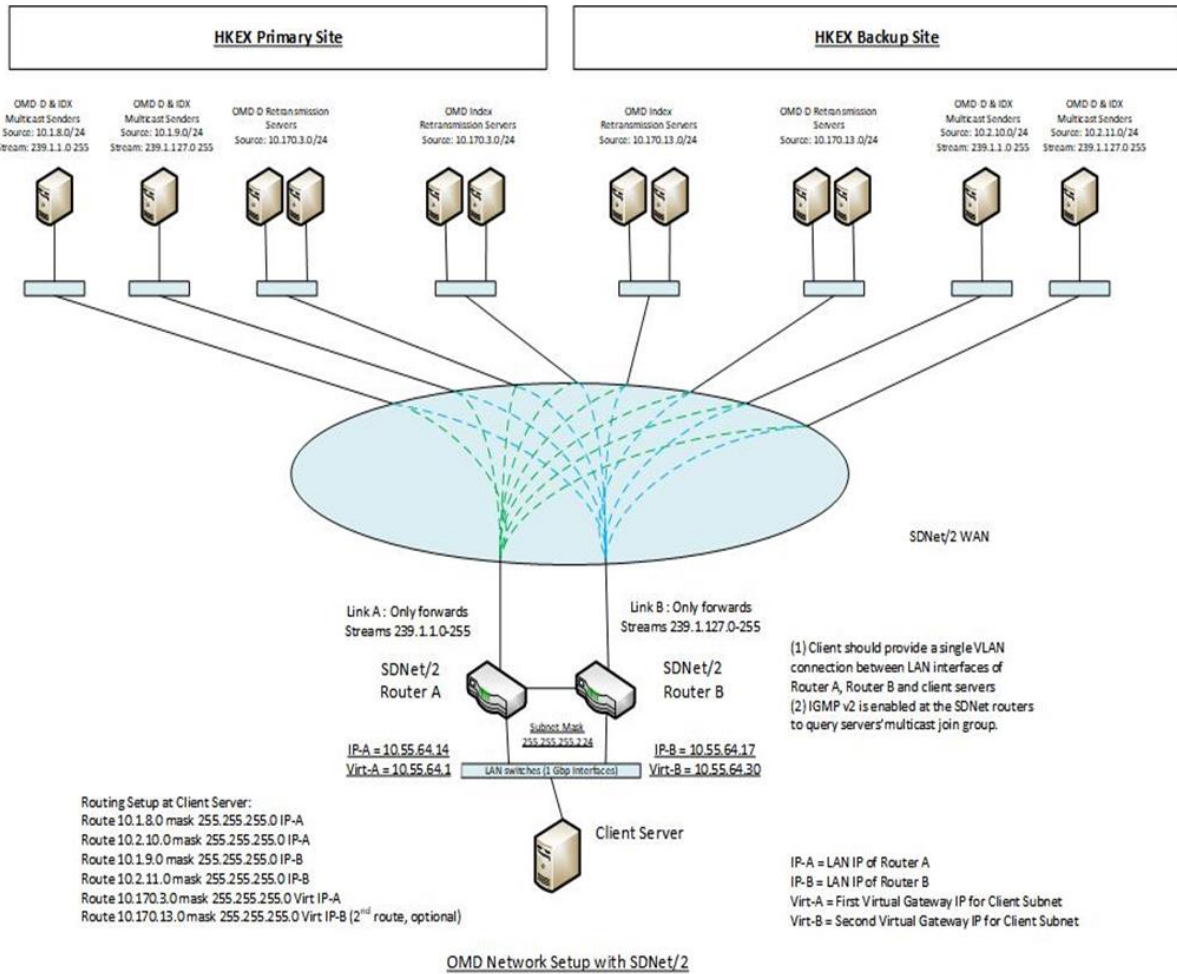
### Client End Network Information (Sample):

1	Network	SDNet/2
2	Client Name	CLIENT1
3	OMDD LAN Subnet	10.55.64.0
4	OMDD LAN Subnet Mask	255.255.255.224
5	Client Allowable IP Address 1 for retransmission	10.55.64.2
6	Client Allowable IP Address 2 for retransmission	10.55.64.29
7	Primary Circuit Number	808311
8	Subscriber Router A LAN IP Address (IP-A)	10.55.64.14
9	Secondary Circuit Number	808312
10	Subscriber Router B LAN IP Address (IP-B)	10.55.64.17
11	Subscriber OMDD LAN 1 <sup>st</sup> Virtual Gateway IP Address (Virt-A)	10.55.64.1
12	HSRP Group Number used by SDNet/2 Router for Virt-A	14
13	Subscriber OMDD LAN 2 <sup>nd</sup> Virtual Gateway IP Address (Virt-B)	10.55.64.30
14	HSRP Group Number used by SDNet/2 Router for Virt-B	17
15	Multicast Protocol used by SDNet/2 Routers	IGMPv2
16	SDNet/2 Router Physical Interface for OMDD	Please refer to the port assignment provided by the network carrier
17	SDNet/2 Router Port Speed for OMDD	Auto Sense up to 1Gbps
18	SDNet/2 Router Port Duplex Mode for OMDD	Auto Negotiation
19	IP address ranges usable by Clients for Multicast transmission (IP addresses outside these ranges reserved)	10.55.64.2, 10.55.64.9-13 10.55.64.29, 10.55.64.18-22
	Note: Clients can use same set of addresses for Unicast retransmission for the multicast transmission)	

### Host End Network Information-(non-IDX and IDX source) (Sample):

1	Multicast Source Segment of Stream A in Primary Site forwarded by Client SDNet/2 Router A	10.1.8.0/24
2	Multicast Source Segment of Stream A in Backup Site forwarded by Client SDNet/2 Router A	10.2.10.0/24
3	Multicast Source Segment for multicast stream B in Primary Site forwarded by Client SDNet/2 Router B	10.1.9.0/24
4	Multicast Source Segment for multicast stream B in Backup Site forwarded by Client SDNet/2 Router B	10.2.11.0/24
5	Primary Site Primary Retransmission Server IP Address	Please refer to the latest OMD-D Connectivity Guide for the information
6	Primary Site Primary Retransmission Server TCP Port Number	
7	Primary Site Secondary Retransmission Server IP Address	
8	Primary Site Secondary Retransmission Server TCP Port Number	
9	Backup Site Primary Retransmission Server IP Address	
10	Backup Site Primary Retransmission Server TCP Port Number	
11	Backup Site Secondary Retransmission Server IP Address	
12	Backup Site Secondary Retransmission Server TCP Port Number	

# OMD-D Connectivity Guide



## DOCUMENT HISTORY

Document Version	Date	Change Description
V1.0	2 Aug 2013	First Distribution Issue under the Derivatives Trading system, HKATS
V2.0	11 Feb 2026	First Version under Orion Derivatives Platform (ODP)