



New Trading Platform Connectivity Guide



1. Version History

Date	Version	Change
28/08/15	V1.0	Initial version.
07/09/15	V1.1	IP and port tables updated. Addition of ASX Terminal connection information.
15/10/15	V1.2	Appendix 1 IP and Port tables updated for Market data and CDE+. New Target CompID for CDE added.
20/10/15	V1.3	Introduction updated to include CDE+ and remove PDE.
10/11/15	V1.4	Inclusion of the Rendezvous Point and change of Multicast Group IP addressing in appendix 1.
12/11/15	V1.5	Diagrams updated.
30/11/15	V1.6	Note on Active/Passive functionality and scheduled failover in appendix. Addition of DDE environment in appendix.
29/01/16	V1.7	Further failover scenarios for FIX Market Data and Multicast data described in appendix 1. Production IP addresses added to appendix 2.
08/02/16	V1.8	Added Note to appendix 2 to explain <i>For Colocation customers who are also ASX Participants requiring ASX Terminals should be aware that Terminals are only available in conjunction with a Gateway in Cabinet solution.</i>
01/03/16	V1.9	Updated to ASX Market Data Feeds.
14/03/16	V2.0	NTP Genium Clearing connectivity details inclusion. ASX Market Data - Unicast: amendment to Glance Port TCP & Blink Port UDP.

2. Introduction

ASX is currently building a New Trading Platform (NTP) to replace the ASX Trade (cash equities) and ASX Trade24 (futures) trading systems.

This guide summarises the technical connectivity details for the Customer Development Environment (CDE), the Customer Development Environment+ (CDE+) and the Dedicated Development Environment (DDE). It also details the IP addressing for both Development and Production environments in the appendix.

The CDE is the first externally available test environment in the NTP project for the Derivatives market. It is a shared environment utilising the current version of the NTP software and will also be connected to the Genium platform for End to End testing.

There will also be a CDE+ environment for the Cash Equities market which will be connected to the CHES platform for End to End testing.

The Dedicated Development Environment (DDE) provides an environment where participants can perform their own dedicated testing. The DDE is a standalone environment specific to each participant. Both ASX Trade and ASX Trade 24 markets are available on the DDE.

The CDE, CDE + and DDE will include FIX 5.0 for Order Entry and Market Data as well as the ASX Market Data Protocol (formerly ITCH). ASX will provide terminal products for both order management (basic order entry functions) and pre-trade risk management (PTRM). Please note that the ASX Terminal will not be available via VPN.

The test platform trading hours will match the production schedule for each market (ASX and ASX24), with limited support for the test environment outside of business hours (8am-6pm Mon-Fri).

The NTP Development Environments will be accessible via the same methods as the existing FTE environments on ASX Trade and Trade24 platforms. That is, customers can connect from an ALC cabinet directly (for a lower-latency, production-like connection), via ASX Net switch-in-cabinet or via Internet VPN. The Internet VPN option has been updated to a GRE-tunnelled hardware VPN (site-to-site). Customers who currently use the Cisco AnyConnect software client for establishing a remote-access type VPN can continue to connect in this way, however this solution is not available to customers who are establishing new connectivity to the test platform.

Each of these options will be looked at in detail in this guide.

3. Customer Development Environment Architecture

The CDE, CDE+ and DDE architecture is shown below. This diagram is a high level overview showing all of the different access methods to the environment.

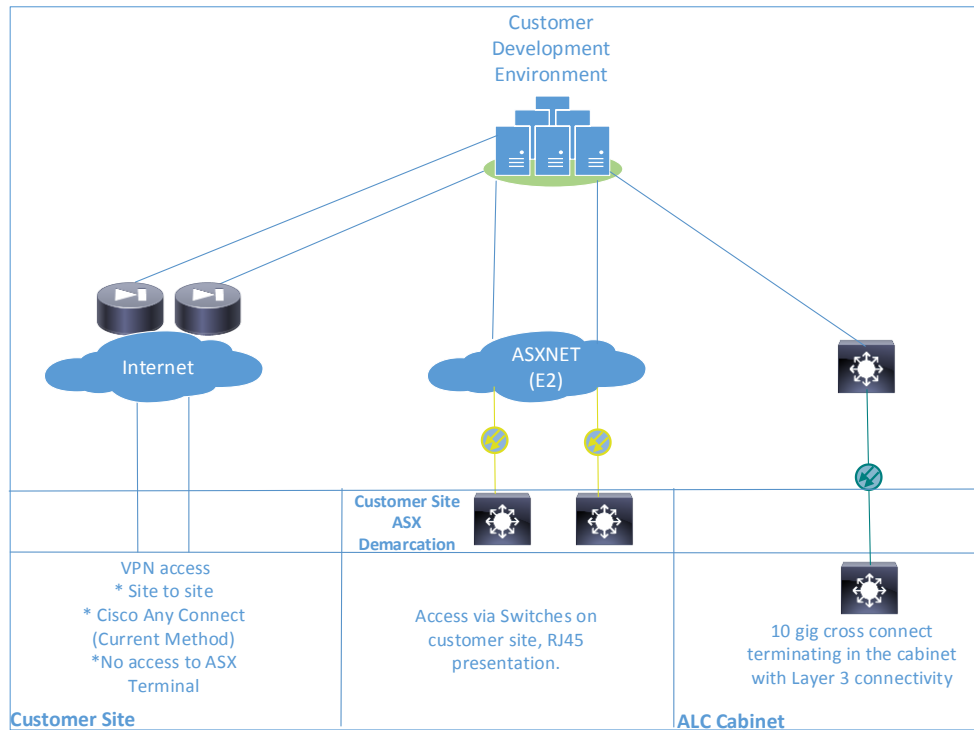


Figure 1. Customer Development Environment Architecture

Each of these connectivity options will be reviewed in further detail over the following pages of this guide.

3.1. Direct Connectivity from an ALC Cabinet

Customers can access the CDE, CDE+ and DDE from an Australian Liquidity Centre (ALC) cabinet directly. The direct connection closely mirrors the production connection in that it is delivered via a 10G multimode fibre cross connect into the customer cabinet. Copper connections via ALC Cabinets will no longer be supported for both Development and Production NTP environments.

Connectivity from any ALC cabinet allows access to both FIX and the ASX Market Data Protocol.

Where a customer connects to the CDE from an ALC cabinet directly, the IP addresses and ports will be the actual IP addresses and ports of the test environment gateways. The IP addresses and ports for connectivity using this method will be provided to the customer after a direct connection has been ordered.

This connection method is the same as the existing performance test access product that is available on ASX Trade today. This design is not currently available on the ASX 24 market.



Note:

The Development Environments are not a performance testing environment and should not be used for performance/load testing.

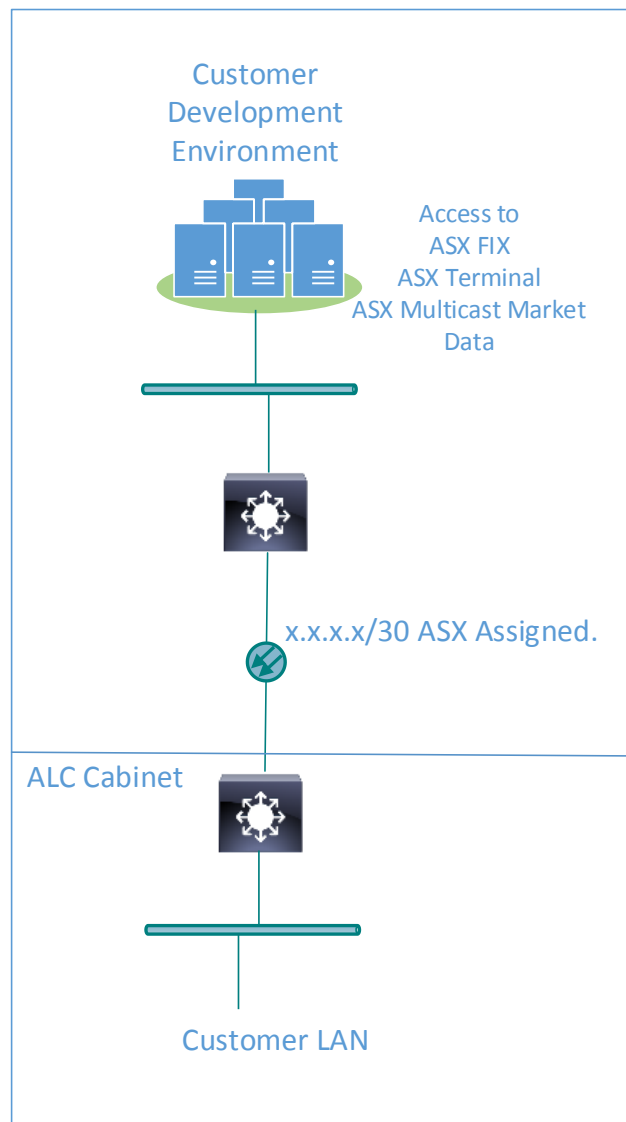


Figure 2. ALC Cabinet Direct Connection

3.2. Connection over ASX Net

Customers can connect to the customer development platform using ASX Net from their own data centre via the E2 switch stack installed at their site.

Connectivity over ASX Net allows access to both FIX and the ASX Market Data Protocol, although via separate interfaces on the E2 switch stack.

For FIX, the connection is routed across the ASX Net (E2) network across the E2 core and then into the CDE. Connectivity over ASX E2 is the same as that currently available today to access both the ASX Trade and ASX 24 market test platforms, although with a new public target IP address.

For ASX Multicast Market Data Protocol connectivity over ASX Net, ASX will utilise a separate interface on the E2 switch stack for customers to connect to the multicast data over.

See Appendix 1 for IP address and port details of the test environment when accessed via ASX Net

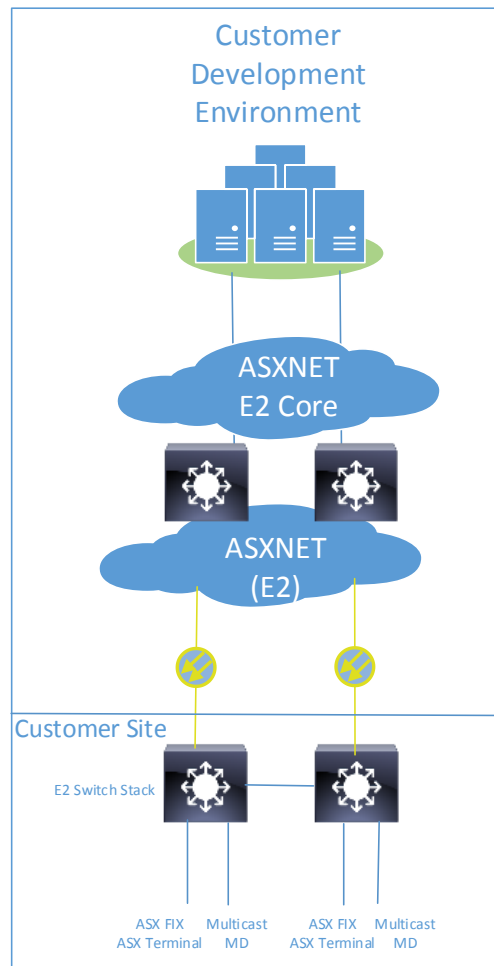


Figure 3. ASX Net Connection

3.3. Connection via Internet VPN

ASX offers a VPN solution based on secure Internet connectivity. As VPN tunnels are setup over the Internet any ISP can be utilised.

Customers can choose the method for connecting to the internet. Options may include:

- ADSL
- Cable Modem
- Ethernet
- Corporate

ASX offers connectivity over an Internet VPN into the CDE, CDE+ and DDE via the E2 network. Any customers who are connecting to the test environment for the first time via Internet VPN must configure a site-to-site VPN.

For customers who have an existing connection to the test platform via the Cisco AnyConnect software-based remote-access type VPN, this method of connectivity will still be allowed.

See Appendix 1 for IP address and port details of the test environment when accessed via Internet VPN.

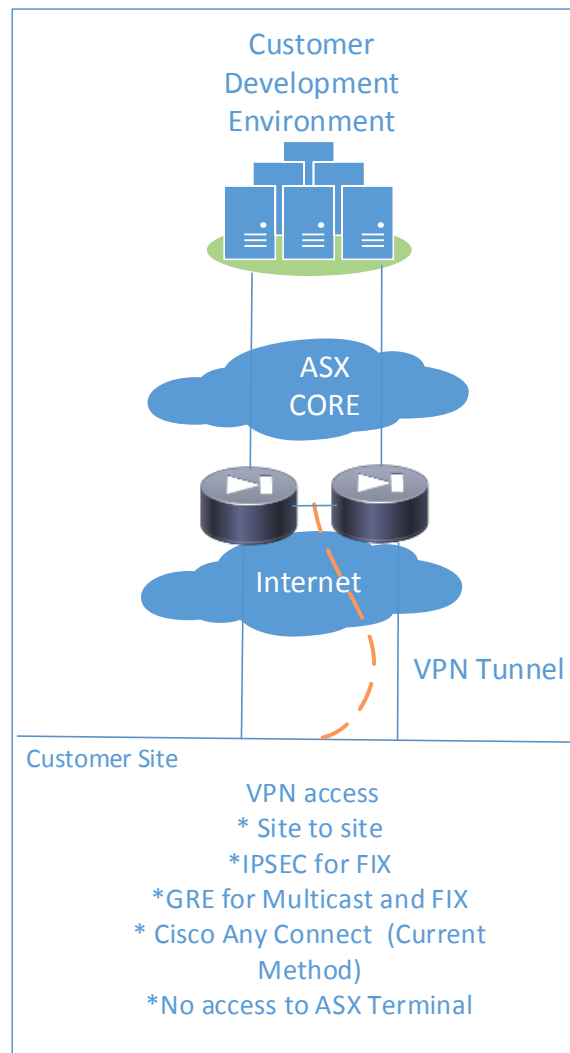


Figure 4. Internet VPN Connection

All VPN connections using this method are secured via triple DES encryption. ASX employs redundant VPN Concentrators and ISP links to ensure high availability within its delivery environment.

For further information regarding Internet VPN access to ASX services, contact Customer Technical Support either via phone: 1800 663 053 or email: cts@asx.com.au.

3.3.1. Site to Site VPN

Site to site VPN will be delivered over IPsec tunnel for FIX connectivity however if Multicast Market data is required via VPN GRE ASX will need to be setup to deliver the multicast data.

VPN endpoint IP and source NAT will be supplied by ASX. Alternatively a unique public IP source can be supplied by the customer.

If a VPN is required ASX will be in contact with customers to work out the details for the setup.

See Appendix 1 for service destination addresses.

3.3.2. Remote Access VPN

This connection method is only available to customers who currently connect to the test platforms in this way. It requires the use of the Cisco AnyConnect VPN client running on a host computer. Current Windows and Red Hat Enterprise Linux platforms are supported.



Note:

New users of the CDE must connect using a site-to-site VPN.

Appendix 1 – Test IP Address and Port Information

Below are the details of the External Port and IP Addresses for CDE, CDE+ and DDE.

The **CDE** environment is purposed for **Derivatives** and will be connected to the **Genium** platform for End to End testing.
Target ComplID for CDE = ASX

The **CDE+** environment is purposed for **Equities** and will be connected to the **CHESS** platform for End to End testing.
Target ComplID for CDE+ = ASX

The **DDE** environment is purposed for both Derivatives and Equities and will NOT be connected to the clearing platforms for End to End testing
Target ComplID for DDE = ASX



Note on Recovery: The Primary and Standby services run as Active/Passive so Standby IP:Port cannot be connected to unless Primary has failed over.

ASX will fail over FIX Order Entry and FIX Drop Copy primary gateways to their Standby gateways on CDE and CDE+ every Friday at 15:00 AEST. Gateways will remain failed over until the restart on Sunday where the Primary instance of each FIX service will resume. The FIX Market gateway with the lower IP address will also be failed and Multicast data will have a stop /start implemented to simulate dropped data packets and allow customers to test automatic Blink/Glance testing.

CDE Environment Derivatives			
ALC Access (Colocation)			
CDE	IP address	Priority	TCP Port
FIX and TAX			
FIX Order Entry	103.239.128.66	Primary	6980
	103.239.128.67	Secondary	6980
FIX Market Data	103.239.128.70	Concurrent	7980
	103.239.128.71	Concurrent	7980
FIX Drop Copy	103.239.128.68	Primary	7990
	103.239.128.69	Secondary	7990
ASX Terminal	103.239.128.66	Concurrent	6971
	103.239.128.67	Concurrent	6971
ASX NET and VPN access			
CDE	IP address	Priority	TCP Port
FIX and TAX			
FIX Order Entry	203.4.179.96	Primary	6980
	203.4.179.97	Secondary	6980
FIX Market Data	203.4.179.100	Concurrent	7980
	203.4.179.101	Concurrent	7980
FIX Drop Copy	203.4.179.98	Primary	7990
	203.4.179.99	Secondary	7990
ASX Terminal	203.4.179.96	Concurrent	6971
	203.4.179.97	Concurrent	6971

Multicast Market data for all access methods							
Aggregate Address Derivatives	233.71.185.176/29						
Aggregate Address Equities	233.71.185.192/29						
CDE Feed A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives	103.239.128.102	233.71.185.177	17510	103.239.128.102	17810	103.239.128.102	17910
Partition 2 Equities (Reserved not in use)	103.239.128.102	233.71.185.193	17520	103.239.128.102	17820	103.239.128.102	17920
Partition 3 Equities (Reserved not in use)	103.239.128.102	233.71.185.194	17530	103.239.128.102	17830	103.239.128.102	17930
Partition 4 Equities (Reserved not in use)	103.239.128.102	233.71.185.195	17540	103.239.128.102	17840	103.239.128.102	17940
Aggregate Address Derivatives	233.71.185.184/29						
Aggregate Address Equities	233.71.185.200/29						
CDE Feed B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives	103.239.128.103	233.71.185.185	17510	103.239.128.103	17810	103.239.128.103	17910
Partition 2 Equities (Reserved not in use)	103.239.128.103	233.71.185.201	17520	103.239.128.103	17820	103.239.128.103	17920
Partition 3 Equities (Reserved not in use)	103.239.128.103	233.71.185.202	17530	103.239.128.103	17830	103.239.128.103	17930
Partition 4 Equities (Reserved not in use)	103.239.128.103	233.71.185.203	17540	103.239.128.103	17840	103.239.128.103	17940
RP Address	103.239.128.241						

CDE+ Environment Equities	IP address	Priority	TCP Port
ALC Access (Colocation)			
CDE+	IP address	Priority	TCP Port
FIX and TAX			
FIX Order Entry	103.239.128.76	Primary	7100
	103.239.128.77	Secondary	7100
FIX Market Data	103.239.128.80	Concurrent	7210
	103.239.128.81	Concurrent	7210
FIX Drop Copy	103.239.128.78	Primary	7320
	103.239.128.79	Secondary	7320
ASX Terminal	103.239.128.76	Concurrent	7430
	103.239.128.77	Concurrent	7430
ASX NET and VPN access			
CDE+	IP address	Priority	TCP Port
FIX and TAX			
FIX Order Entry	203.4.179.104	Primary	7100
	203.4.179.105	Secondary	7100
FIX Market Data	203.4.179.108	Concurrent	7210
	203.4.179.109	Concurrent	7210
FIX Drop Copy	203.4.179.106	Primary	7320
	203.4.179.107	Secondary	7320
ASX Terminal	203.4.179.104	Concurrent	7430
	203.4.179.105	Concurrent	7430

Multicast Market data for all access methods							
Aggregate Address Derivatives	233.71.185.208/29						
Aggregate Address Equities	233.71.185.0/29						
CDE + Feed A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives (Reserved not in use)	103.239.128.110	233.71.185.209	17510	103.239.128.110	17810	103.239.128.110	17910
Partition 2 Equities	103.239.128.110	233.71.185.1	17520	103.239.128.110	17820	103.239.128.110	17920
Partition 3 Equities	103.239.128.110	233.71.185.2	17530	103.239.128.110	17830	103.239.128.110	17930
Partition 4 Equities	103.239.128.110	233.71.185.3	17540	103.239.128.110	17840	103.239.128.110	17940
Aggregate Address Derivatives	233.71.185.216/29						
Aggregate Address Equities	233.71.185.32/29						
CDE + Feed B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives (Reserved not in use)	103.239.128.111	233.71.185.217	17510	103.239.128.111	17810	103.239.128.111	17910
Partition 2 Equities	103.239.128.111	233.71.185.33	17520	103.239.128.111	17820	103.239.128.111	17920
Partition 3 Equities	103.239.128.111	233.71.185.34	17530	103.239.128.111	17830	103.239.128.111	17930
Partition 4 Equities	103.239.128.111	233.71.185.35	17540	103.239.128.111	17840	103.239.128.111	17940
RP Address	103.239.128.241						

DDE Environment Derivatives & Equities (future)				
ALC Access (Colocation) & ASX NET				
DDE	IP address	Priority	TCP Port (Derivatives)	TCP Port (Equities) reserved
FIX and TAX				
Fix Order Entry	203.4.177.2	Primary	6980	7100
	203.4.177.3	Secondary	6980	7100
FIX Market Data	203.4.177.2	Concurrent	7980	7210
	203.4.177.3	Concurrent	7980	7210
FIX Drop Copy	203.4.177.2	Primary	7990	7320
	203.4.177.3	Secondary	7990	7320
ASX Terminal	203.4.177.2	Concurrent	6971	7430
	203.4.177.3	Concurrent	6971	7430

Multicast Market data for all access methods							
Aggregate Address Derivatives	239.5.161.0/29						
Aggregate Address Equities	239.5.161.8/29						
DDE Feed A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives	203.4.177.2	239.5.161.1	17510	203.4.177.2	17810	203.4.177.2	17910
Partition 2 Equities (Reserved not in use)	203.4.177.2	239.5.161.9	17520	203.4.177.2	17820	203.4.177.2	17920
Partition 3 Equities (Reserved not in use)	203.4.177.2	239.5.161.10	17530	203.4.177.2	17830	203.4.177.2	17930
Partition 4 Equities (Reserved not in use)	203.4.177.2	239.5.161.11	17540	203.4.177.2	17840	203.4.177.2	17940
Aggregate Address Derivatives	239.6.161.0/29						
Aggregate Address Equities	239.6.161.8/29						
DDE Feed B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Partition 1 Derivatives	203.4.177.3	239.6.161.1	17510	203.4.177.3	17810	203.4.177.3	17910
Partition 2 Equities (Reserved not in use)	203.4.177.3	239.6.161.9	17520	203.4.177.3	17820	203.4.177.3	17920
Partition 3 Equities (Reserved not in use)	203.4.177.3	239.6.161.10	17530	203.4.177.3	17830	203.4.177.3	17930
Partition 4 Equities (Reserved not in use)	203.4.177.3	239.6.161.11	17540	203.4.177.3	17840	203.4.177.3	17940
RP Address	n/a customer to create on their side if required						

Appendix 2 – Production IP Address and Port Information for the 24 Market

Below are the details of the External Port and IP Addresses for the Production 24 market for both Colocation and International clients. *This information is being provided for advance firewall changes and are subject to testing and final signoff.*

ALC COLO or International:

	Primary IP Range (ALC)	Secondary IP Range (Bondi)	Priority	TCP Port
FIX Order Entry	203.18.165.16-31	203.18.165.144-159	Primary / Secondary	tcp 6980
FIX Market Data	203.18.165.48-63	203.18.165.176-191	Concurrent	tcp 7980
FIX Drop Copy	203.18.165.32-47	203.18.165.160-175	Primary / Secondary	tcp 7990

*Note 1: For Colocation customers who are also ASX Participants, **ASX Terminals** are only available in conjunction with a Gateway in Cabinet solution.*

Note 2: Specific IP addresses will be confirmed for individual participants during the provisioning process.

ASX Market Data - COLO Multicast:

Aggregate Address - Derivatives	203.18.165.64/28	233.71.185.64/29	
Feed A - COLO ALC	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed A - Derivatives	203.18.165.64	233.71.185.65	udp 17510
Aggregate Address - Derivatives	203.18.165.64/28	233.71.185.64/29	
Feed B - COLO ALC	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed B - Derivatives	203.18.165.66	233.71.185.68	udp 17510
Aggregate Address - Derivatives	203.18.165.192/28	233.71.185.80/29	
Feed C - COLO Bondi	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed C - Derivatives	203.18.165.192	233.71.185.81	udp 17510
Aggregate Address - Derivatives	203.18.165.192/28	233.71.185.80/29	
Feed D - COLO Bondi	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed D - Derivatives	203.18.165.193	233.71.185.84	udp 17510

ASX Market Data - COLO Unicast:

Aggregate Address - Derivatives				
Feed A - COLO ALC	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed A - Derivatives	203.18.165.65	tcp 17810	203.18.165.65	udp 17910
Aggregate Address - Derivatives				
Feed B - COLO ALC	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed B - Derivatives	203.18.165.67	tcp 17810	203.18.165.67	udp 17910
Aggregate Address - Derivatives				
Feed C - COLO Bondi	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed C - Derivatives	203.18.165.192	tcp 17810	203.18.165.192	udp 17910
Aggregate Address - Derivatives				
Feed D - COLO Bondi	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed D - Derivatives	203.18.165.193	tcp 17810	203.18.165.193	udp 17910

Multicast PIM Rendezvous Point:

RP Address (Feed A, B - ALC)	203.4.178.33
RP Address (Feed C, D - Bondi)	203.4.178.34

ASX Market Data - International Multicast:

Aggregate Address - Derivatives	203.18.165.64/28	233.71.185.72/29	
Feed J - International ALC	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed J – Derivatives	203.18.165.68	233.71.185.73	udp 17510
Aggregate Address - Derivatives	203.18.165.192/28	233.71.185.88/29	
Feed K - International Bondi	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed K - Derivatives	203.18.165.194	233.71.185.89	udp 17510

ASX Market Data - International Unicast:

Aggregate Address - Derivatives				
Feed J - International WAN ALC	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed J - Derivatives	203.18.165.68	tcp 17810	203.18.165.68	udp 17910

Aggregate Address - Derivatives				
Feed K - International WAN Bondi	Glance Address	Glance Port TCP	Blink Address	Blink Port UDP
Feed K - Derivatives	203.18.165.194	tcp 17810	203.18.165.194	udp 17910

Multicast PIM Rendezvous Point:

RP Address (Feed J - ALC)	203.4.178.33
RP Address (Feed K - Bondi)	203.4.178.34

Below are the details of the External Port and IP Addresses for the Production 24 market for ASXnet Gateway or Gateway in Cabinet (GiC).

ASXnet Gateway or Gateway in Cabinet (GiC):

ASX Gateway	Primary Gateway IP	Secondary Gateway IP	Priority	TCP Port Range
FIX and TAX				
FIX Order Entry	<Broker ASX gateway IP - participant assigned>	<Broker ASX gateway IP - participant assigned>	Primary (ALC) Secondary (Bondi)	tcp 25001 to 25016 tcp 26001 to 26016
FIX Market Data	<Broker ASX gateway IP - participant assigned>	<Broker ASX gateway IP - participant assigned>	Concurrent	tcp 25101 to 25116 tcp 26101 to 26116
FIX Drop Copy	<Broker ASX gateway IP - participant assigned>	<Broker ASX gateway IP - participant assigned>	Primary (ALC) Secondary (Bondi)	tcp 25201 to 25216 tcp 26201 to 26216
ASX Terminal	<Broker ASX gateway IP - participant assigned>	<Broker ASX gateway IP - participant assigned>	Concurrent	tcp 25301 to 25316 tcp 26301 to 26316

Note: Specific tcp ports above will be confirmed for individual participants during the provisioning process.

****provide one IP address per gateway (E.g. if you are accessing FIX Order Entry and FIX Market Data on the same gateway - the Primary IP will be the same for both)*

ASX Market Data - Multicast:

Aggregate Address - Derivatives	203.18.165.192/28	233.71.185.80/29	
Feed C	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed C - Derivatives	203.18.165.192	233.71.185.81	udp 17510
Aggregate Address - Derivatives	203.18.165.192/28	233.71.185.80/29	
Feed D	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed D - Derivatives	203.18.165.193	233.71.185.84	udp 17510

ASX Market Data - Unicast:

Aggregate Address - Derivatives			
Feed C	Unicast IP Address	Glance Port TCP	Blink Port UDP
Feed C - Derivatives	<Broker ASX gateway IP - participant assigned>	tcp 26401	udp 26501
Aggregate Address - Derivatives			
Feed D	Unicast IP Address	Glance Port TCP	Blink Port UDP
Feed D - Derivatives	<Broker ASX gateway IP - participant assigned>	tcp 26402	udp 26502

Multicast PIM Rendezvous Point:

RP Address (Feed C, D - Bondi)	203.4.178.34
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Note: Backup ASX Market Data feed designated on ASX Gateway. Backup only available to COLO customers.

Genium Clearing Connectivity on NTP

Reference the [Considerations for Clearing Participants](#) for the scope of operational and functional Genium Clearing changes on NTP.

Below are the details for OMNet API connections to connect to NTP Genium Clearing service via the following address and TCP Ports:

Service Name Destination	Address	Available Ports
Genium Clearing NTP CDE	203.4.179.227	32024/32025
Genium Clearing NTP Prod (no change from current ASX24)	203.4.179.237	32024/32025

Client workstation connected to a local ASX Client Workstation Server (CWS).

This service will have a local interface on the client network and Clients will connect to this service via the following TCP Ports:

Market Name	Available Ports
Sydney Market	2131
New Zealand Market	2132

CW1 license keys for Genium Clearing SY and NZ CWS servers on CDE.

CWS Server	Port	License Key	Folder
Genium SY	2131	32-0-1-3-1-10-10131032	D:\CWS\XYZ_Genium_NZ_TB7_3
Genium NZ	2132	32-0-1-4-1-10-10141032	D:\CWS\XYZ_Genium_NZ_TB7_4

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