

# **ASX 24 Connectivity Guide**

Version 3.11 | July 2023



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## 1. Introduction

This guide details the technical connectivity requirements for the ASX 24 Platform.

This document describes the connectivity methods for the ASX 24 production and test environments. Information is provided down to the IP and port level, as this document aims to be a one-stop shop for customers wishing to connect to ASX 24.

### 1.1. Audience

The information contained in this guide is intended to be used by network architects, software developers, business analysts, and project managers, in fact, anyone interested in connecting to the ASX 24.

### 1.2. Outline

The document has these sections:

- Production describes the available methods for connecting to the ASX 24, the issues the customer must consider when setting up a connection, and network design and services available.
- Test describes the test services available on ASX 24, and the networking options for connectivity to these services.
- Technical readiness testing suggests test cases for connectivity to the ASX 24 production system.

## 2. ASX 24 Production Services

### 2.1. Connection Methods

The connectivity methods are broadly divided into:

- Australian Liquidity Centre (ALC) co-location via cross-connects
- ALC Gateway-in-Cabinet (GiC)
- ASX Net, from within Australia
- International via ASX Net Global.

This section has specific connectivity details for production services in the various categories, including IP addresses, ports, and topology diagrams.

### 2.2. Genium Clearing

#### 2.2.1. OMNet API

Connectivity details for establishing an OMNet API connection to the production ASX 24 Genium Clearing service remain unchanged. These TCP/IP details are included for your reference:

Service Name Destination	Address	Ports
Genium Clearing ASX 24 Production	203.4.179.237	32024 and 32025

#### 2.2.2. Client Workstation (CWS)

Client workstations connect to a local ASX Client Workstation Server (CWS).

This CWS service has a local interface on the client network and clients connect to this service via the following TCP ports:

Market name	Available ports
Sydney Market	2121
New Zealand Market	2122



## 2.3. ASX Co-location Services

### 2.3.1. FIX Services

Service	Primary IP range (ALC)	Secondary IP range (ALC)	Tertiary IP range (SDC)	Priority	TCP port
FIX Order Entry	203.18.165.16-23	203.18.165.24-31	203.18.165.144-159	Primary Secondary Tertiary	tcp 6980

Service	Primary IP range (ALC)	Secondary IP range (SDC)	Priority	TCP port
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

Specific IP addresses are assigned to participants during the FIX user setup process.

### 2.3.2. Terminal Services ART and ATT

For ALC-only customers, who are also ASX participants, services for ASX terminal products — ASX 24 Trading Terminal (ATT) and Admin and Risk Terminal (ART) — are only available via a GiC service. For customers who are not co-located, the ASX Terminal services are available via ASX Net gateways.

### 2.3.3. Network Configuration

#### Liquidity Cross Connect (LCC)

The LCC service is a cross-connect that carries all ASX 24 traffic, apart from ART and ATT, as the active, primary path during normal operation.

#### Redundant Teamed Connection (RTC)

The RTC service is a secondary, passive path used as backup in the event that the LCC is down or degraded.

- Under normal operation, customer devices on the LCC and RTC paths must be able to listen to and accept ASX traffic.



- Customer edge devices should be setup to detect and trigger failover to the RTC in the event the LCC service fails and vice-versa, in scenarios such as link failure and customer hardware failure.
- There are certain failure scenarios where there will be asymmetric traffic between primary and secondary paths, which means customers are able to use the LCC path and can receive an ASX reply through the RTC path.

## Routing

ASX offers static and eBGP routing options for LCC and RTC routing configuration. eBGP is recommended over the static routing option.

- An MD5 BGP key (encryption level 7) will be required for BGP peering with a minimum of 15 alphanumeric characters.
- Existing and agreed customer prefixes will be accepted.
- The maximum number of BGP prefixes accepted from customers is set to 120. Exceeding this limit will cause the BGP session to go into IDLE state. It is recommended that the number of BGP prefixes advertised to be less than or equal to 100.
- The recommended BGP neighbour peering parameters are:  
Keepalive 3s  
Hold 6s
- ASX will accept a customer's public BGP ASN or an ASX-assigned private BGP ASN.
- For equal treatment for all customers, no QoS DSCP/CoS value will be preserved.
- Customer edge devices must be configured to enable BGP peering metric for preferred link selection as ASX edge nodes have active/active redundancy.

Section 5 provides sample BGP configuration which may be used as a guide.



### 2.3.4. ASX Market Data Protocol (MDP)

#### Multicast

Aggregate Address	203.18.165.64/28	233.71.185.64/29	
Feed - Derivatives	Multicast Source IP	Multicast Group	Multicast Destination Port
Feed A - ALC Co-lo	203.18.165.64	233.71.185.65	udp 17510
Feed B - ALC Co-lo	203.18.165.66	233.71.185.68	udp 17510

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

### Unicast

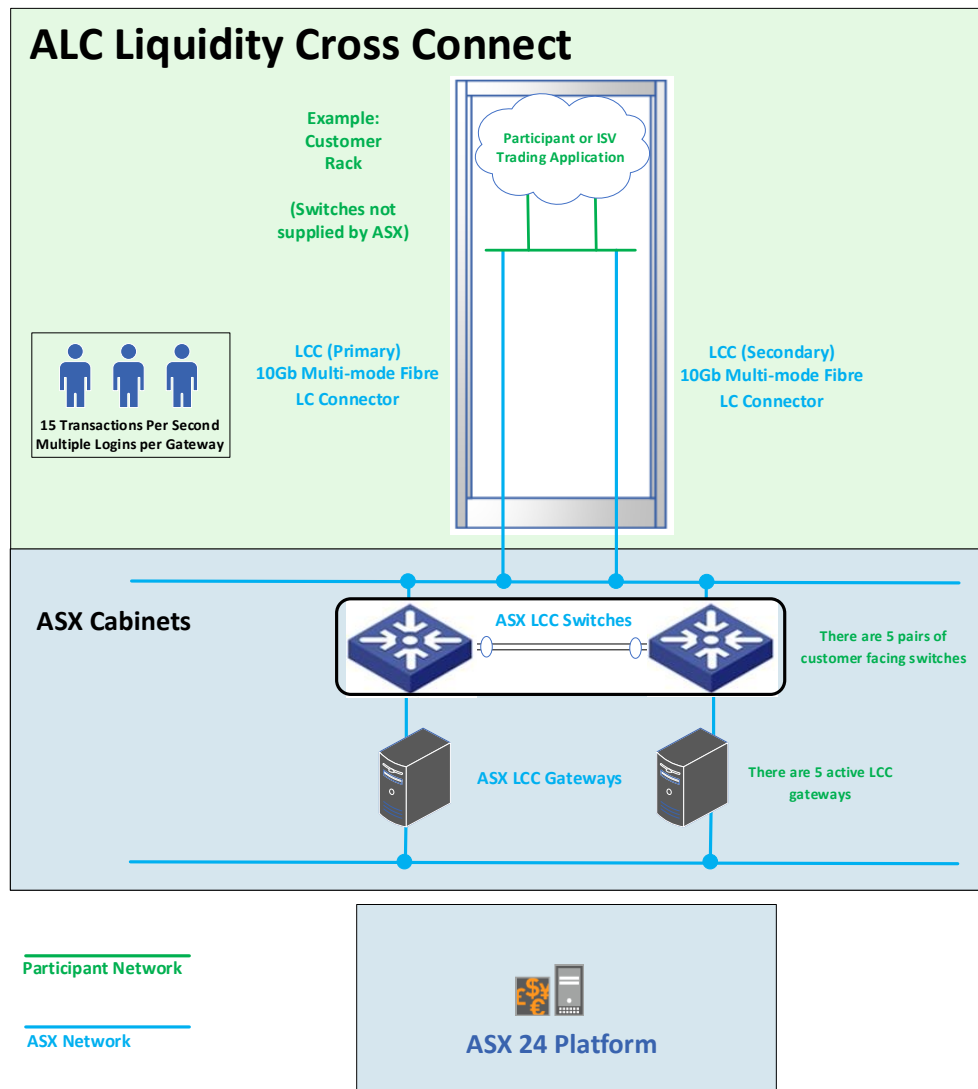
Feed - Derivatives	Glance address	Glance port TCP	Blink address	Blink port UDP
Feed A - ALC Co-lo	203.18.165.65	tcp 17810	203.18.165.65	udp 17910
Feed B - ALC Co-lo	203.18.165.67	tcp 17810	203.18.165.67	udp 17910
Feed C - SDC Co-lo	203.18.165.192	tcp 17810	203.18.165.192	udp 17910
Feed D - SDC Co-lo	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 - SDC)	203.4.178.34

# ALC Liquidity Cross Connect Overview

The diagram below outlines the connectivity topology regarding the ASX 24 Platform for Liquidity Cross Connect (LCC) at the ASX ALC Data centre.



## Participant provides:

- Equipment to terminate 10Gb connections
- 2x 10G SR SFP for LCC Primary and LCC Secondary
- 2x Multi-mode Fibre patch cables for each connection

## ASX provides:

- 2x LCC Cross Connects (ASX will supply the cross connect cables)
- Vendors hosting both their own market and a third party market service for Participants they will have 4 cross connects
- ASX COLO Access switched 10Gb connections
- Fibre patch panel
- IP Information is assigned by ASX with the following requirements:
  - ASX LCC Gateway IP's /30 range
  - Source Address Range /24 range

## Gateway firewall port requirement (Derivatives)

See ASX Connectivity Guide for Derivatives for more information



## 2.4. ASX Net Gateway and Gateway in Cabinet (GiC)

These are the details of the external Port and IP Addresses for the production ASX 24 market for ASX Net Gateway and Gateway in Cabinet (GiC).

### 2.4.1. FIX Services

ASX Gateway	Primary Gateway IP	Secondary Gateway IP (Participant Assigned)	Priority	TCP port range
FIX Order Entry	<Broker ASX gateway IP>	<Broker ASX gateway IP>	Primary (ALC) Secondary (SDC)	tcp 25001 to 25016 tcp 26001 to 26016
FIX Market Data	<Broker ASX gateway IP>	<Broker ASX gateway IP>	Concurrent	tcp 25101 to 25116 tcp 26101 to 26116
FIX Drop Copy	<Broker ASX gateway IP>	<Broker ASX gateway IP>	Primary (ALC) Secondary (SDC)	tcp 25201 to 25216 tcp 26201 to 26216
ASX Terminal	<Broker ASX gateway IP>	<Broker ASX gateway IP>	Concurrent	tcp 25301 to 25316 tcp 26301 to 26316

Specific tcp ports are assigned to individual participants during the user setup process.

Please provide one IP address per gateway. In practice, this means that if you are accessing FIX Order Entry and FIX Market Data on the same gateway, the primary IP is the same for both services.

### 2.4.2. ASX Market Data Protocol (ASX Net Only)

The ASX MDP feed is only available via ASX Net, not Gateway in Cabinet. It is supplied to ASX Net customers via the Secondary Data Centre (SDC) DR site, via Feeds C and D. These feeds are a backup service complementing the primary service supplied via the ALC, via Feeds A and B. Customers also have the option of taking an SDC feed from within the SDC data centre, please consult your Info and Technical Service representative to explore this option.

#### Multicast

Feed - Derivatives	Multicast source IP	Multicast group	Multicast destination port
Feed C	203.18.165.192	233.71.185.81	udp 17510
Feed D	203.18.165.193	233.71.185.84	udp 17510

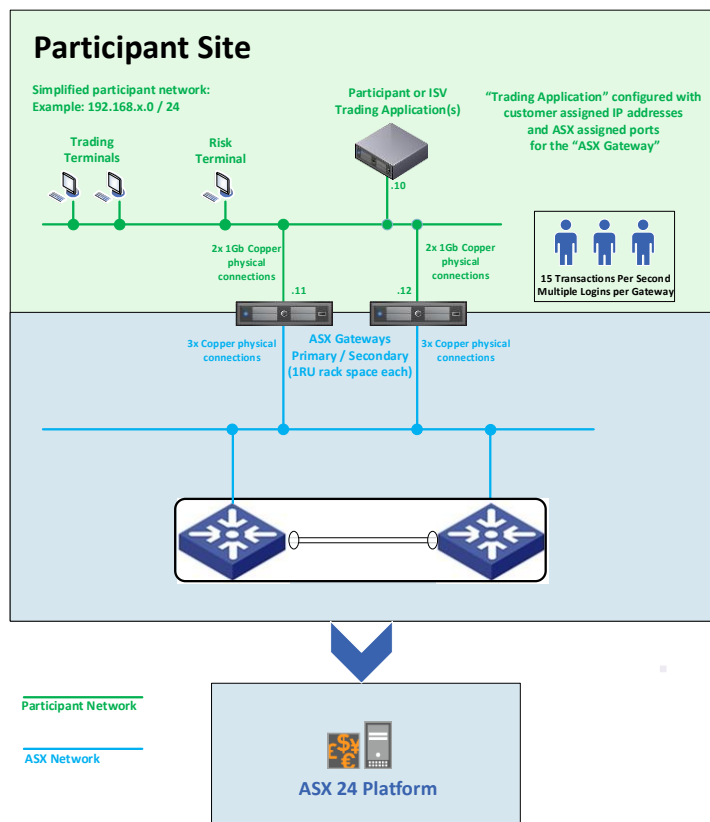
**Note:** Gateways will only accept IGMPv2 group membership reports with the listed Multicast Groups subscribed. Gateways do not run PIM SM.

#### Unicast

Feed - Derivatives	Glance Unicast IP address (Participant assigned)	Glance port TCP	Blink IP address (Participant assigned)	Blink port UDP
Feed C	<Broker ASX gateway IP>	tcp 26401	<Broker ASX gateway IP>	udp 26501
Feed D	<Broker ASX gateway IP>	tcp 26402	<Broker ASX gateway IP>	udp 26502

## ASX Net Gateway Overview

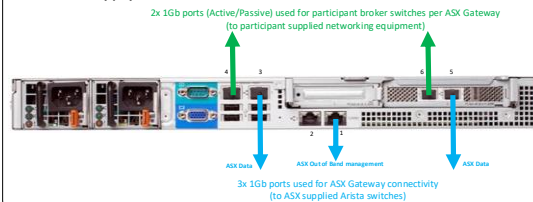
The diagram below outlines the connectivity topology for the ASX 24 Platform for ASX Net sites.



### Participant provides:

- Rack space 1 RU (rack space) per ASX Gateway
- 2 RU for 2x Arista Switches (1 RU per switch)
- 2x power outlets per gateway (2x IEC independent power outlets recommended)
- 2x Cat6 Ethernet copper networking cables per ASX Gateway
- 2x customer facing 1Gb switch port per gateway (for bonded connection)
- 1x customer facing IP address per ASX Gateway
- 1x next hop interface into the customer network

### ASX Gateway physical connections:



### ASX provides:

- ASX Gateway (ASX will supply minimum 2 per market per Participant) with rack mount kit. For Vendors hosting both their own market data connections as well as providing ASP service for Participants they will have 4 gateways minimum per market.
- 3x Cat6 Ethernet copper networking cables for ASX switch connectivity per gateway
- 2x power cables per ASX Gateway
- Onsite deployment and configuration service based on customer IP addresses

### Additional information:

- Customer Gateway connection configured at 1Gb AUTO (By default)
- ASX Gateway naming example (NSW123A-ADG01):
  - NSW = the region
  - 123A = is the participant number
  - ADG = is ASX Gateway
  - 01 = Device number

### Gateway firewall port requirement (Derivatives ports):

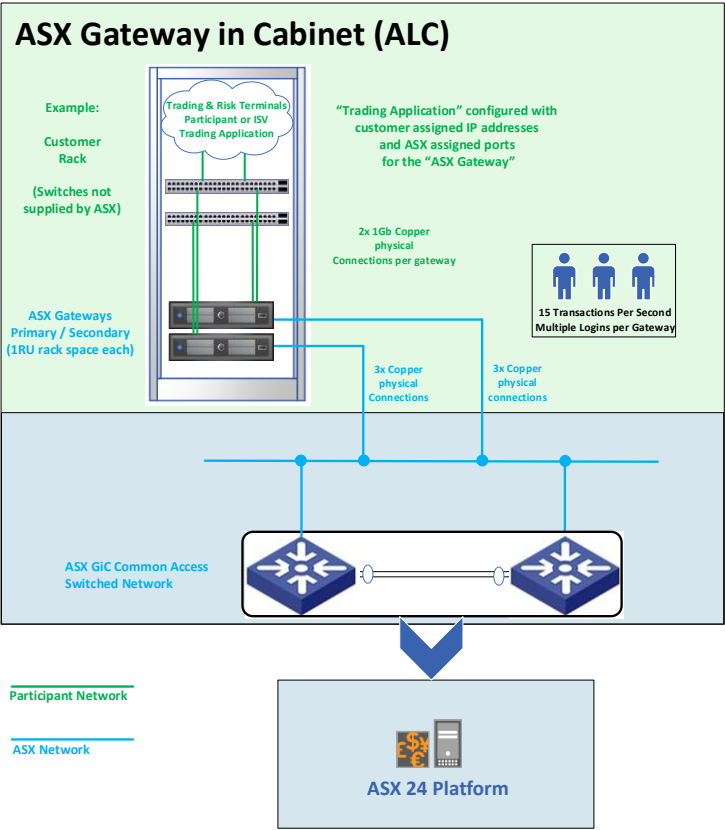
See ASX Connectivity Guide for Derivatives destination IP and port information

### Gateway environments:

Power	Dual Redundant Power 460W
Depth (mm)	576
Height (mm)	43
Width (mm)	435
Weight (kg)	8.6
Rack Space	1 RU per gateway

# ALC Gateway-in-Cabinet Overview

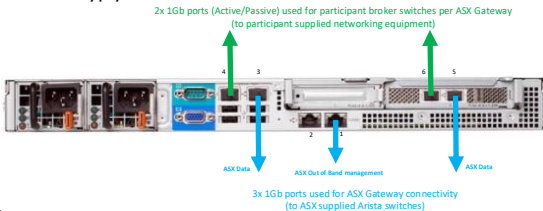
The diagram below outlines the connectivity topology regarding the ASX 24 Platform for Gateway-in-Cabinet at the ALC.



## Participant provides:

- 2x Cat6 Ethernet copper networking cables per ASX Gateway
- 2x gateway facing 1Gb switch ports per gateway (for bonded connection)
- 1x customer facing IP address per ASX Gateway
- 1x next hop interface into the customer network

## ASX Gateway physical connections:



## ASX provides:

- ASX Gateway (ASX will supply minimum 2 per market per Participant) with rack mount kit. For Vendors hosting both their own market data connections as well as providing ASP service for Participants they will have 4 gateways minimum per market.
- 3x Cat6 Ethernet copper networking cables for ASX switch connectivity per gateway
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## Additional information:

- Customer Gateway connection configured at 1Gb AUTO (By default)
- ASX Gateway naming example (NSW123A-ADG01):
  - NSW = the region
  - 123A = is the participant number
  - ADG = is ASX Gateway
  - 01 = Device number

## Gateway firewall port requirement (Derivatives ports):

See ASX Connectivity Guide for Derivatives destination IP and port information

## Gateway environmental:

Power	Dual Redundant Power 460W
Depth (mm)	576
Height (mm)	43
Width (mm)	435
Weight (kg)	8.6
Rack Space	1 RU per gateway



## 2.5. International

### 2.5.1. FIX Services

Service	Primary IP range (ALC)	Secondary IP range (ALC)	Tertiary IP range (SDC)	Priority	TCP port
FIX Order Entry	203.18.165.16-23	203.18.165.24-31	203.18.165.144-159	Primary / Secondary / Tertiary	tcp 6980

Service	Primary IP range (ALC)	Secondary IP range (SDC)	Priority	TCP port
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

Specific IP addresses are assigned to participants during the FIX user setup process.

### 2.5.2. ASX Market Data Protocol

#### Multicast

Aggregate address - Derivatives	203.18.165.64/28	233.71.185.72/29	
Feed - Derivatives	Multicast Source IP	Multicast group	Multicast destination port
Feed J – International ALC	203.18.165.68	233.71.185.73	udp 17510



Aggregate address - Derivatives		203.18.165.192/28	233.71.185.88/29
Feed – Derivatives	Multicast Source IP	Multicast group	Multicast destination port
Feed K – International SDC	203.18.165.194	233.71.185.89	udp 17510

## Unicast

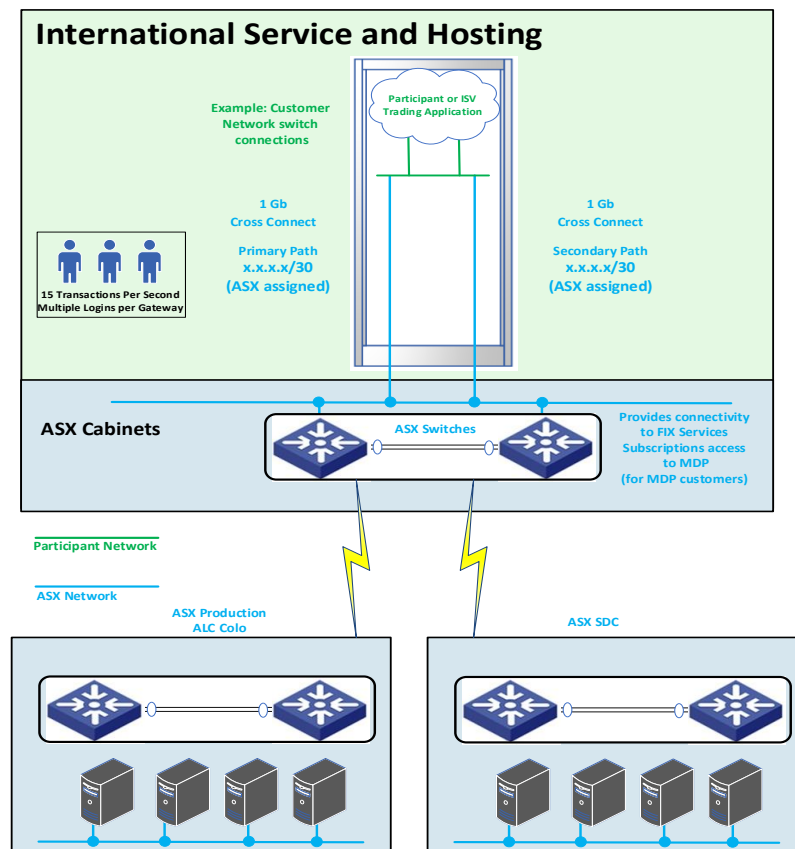
Feed - Derivatives	Glance address	Glance port TCP	Blink address	Blink port UDP
Feed J – International WAN ALC	203.18.165.68	tcp 17810	203.18.165.68	udp 17910
Feed K – International WAN SDC	203.18.165.194	tcp 17810	203.18.165.194	udp 17910

## Multicast PIM Rendezvous Point

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

## ASX 24 International Service and Hosting Overview

The diagram below outlines the ASX 24 connectivity topology regarding ASX 24 for the international hubs in Singapore and Chicago



### Participant provides:

- Equipment to terminate 1Gb Cross Connects
- 2x 1G SFPs for Primary and Secondary connections (customer termination)
- 2x Patch cables for above connection in customer rack

### ASX provides:

- 2x Cross Connects (ASX will supply minimum 2 per market per Participant). For Vendors hosting both their own market data connections as well as providing ASP service for Participants they will have 4 cross connects minimum per market.
- Switched 1Gb connections terminated in Customer Cabinet via Fibre patch panel
- IP Information is assigned by ASX with customer choosing presented ranges:
  - ASX Gateway IP's /30 range
  - Source Address Range /24 range

### Gateway firewall port requirement (Derivatives ports):

See ASX Connectivity Guide for Derivatives destination IP and port information



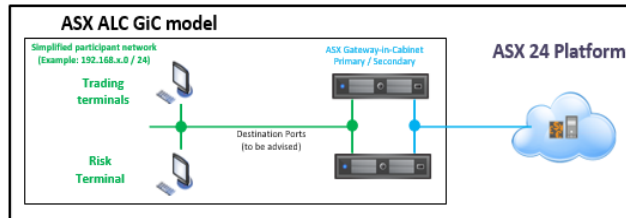
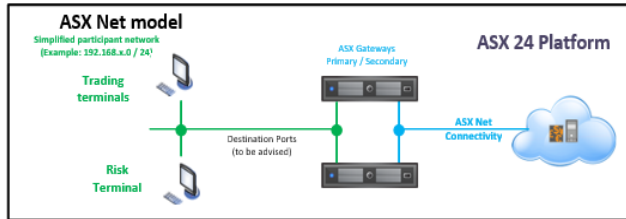
ASX 24 Platform

## 2.6. ASX Terminal Services

### ASX Trading and Risk Terminal Connectivity Overview

Once installed, the ASX client software is configured with an IP and Port. During the provisioning process, IP and PORT information will be confirmed for individual participants by ASX CTS. See ASX Connectivity Guide for Derivatives destination IP and port information.

#### Connectivity Models:



#### ASX VPN:

The ASX Trading and Risk Terminals are not available through ASX VPN.

#### Participant provides:

ASX Trading and Risk Terminals requires the following PC hardware / Operating System:

Operating System: Microsoft Windows  
Version: 7 or higher (64 bit)  
Hardware: X86 or 64-bit  
JRE Requirements: Oracle Java 8u60  
System: Win32 or Win64

ASXnet Participants with ASX New Trading Platform Gateways will also need to assign Participant facing IP addresses to ASX gateways.

#### ASX provides:

The terminal clients are available from ASX Online. Depending on OS/Hardware download the following:

ASX Trading terminal:  
- ASX\_Trading\_Terminal 32BIT.zip  
- ASX\_Trading\_Terminal 64BIT.zip

The "Asxterminal.exe" program is the executable to start the client software. Refer to the "ASX Trading Terminal Installation Guide" for installation details.

ASX Administration and Risk terminal:

- ASX\_Admin\_Risk\_Terminal 32BIT.zip  
- ASX\_Admin\_Risk\_Terminal 64BIT.zip

Where the "Memberadmin.exe" program is the executable to start the client software. Refer to the "ASX Administration and Risk Terminal Installation Guide" for installation details.

### 3. Testing Services

ASX offers these services for testing ASX 24:

- **Customer Development Environment (CDE) for the ASX 24 Derivatives market.**

CDE is a communal test environment for the ASX 24 Derivatives market. The CDE uses the current production version of the ASX 24 software components. CDE connects to the Genium Clearing test system, facilitating end-to-end testing.

- **Customer Development Environment Plus (CDE+) for the ASX 24 Derivatives market.**

CDE+ is another communal test environment for the ASX 24 Derivatives market. CDE+ contains the future state version of the ASX 24 software components, containing bug fixes and new features which will be part of the next maintenance release or service release of ASX 24. CDE+ connects to another instance of the Genium Clearing test system, facilitating end-to-end testing.

CDE and CDE+ each include:

- FIX 5.0 (Service Pack 2) interface services for order entry, drop copy and market data
- ASX Market Data Protocol (MDP).
- Terminal products for order management and risk check management (Pre-Trade Risk Management (PTRM) and Trading Protection Limits (TPL)). The ASX Terminal is not available via VPN.

The test environments are not configured for performance testing and therefore should not be used for load/stress testing. The test platform trading hours match the production schedule for the ASX 24 market with limited support for the test environment outside of business hours (8am–6pm, Monday to Friday).

ASX 24 test systems are accessible via the following methods:

- ALC cross-connect for a lower-latency, production-like connection.
- ASX Net switch-in-cabinet.
- Internet VPN — this 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.

For more information about ASX 24 test services, please refer to the guide to ASX testing services.



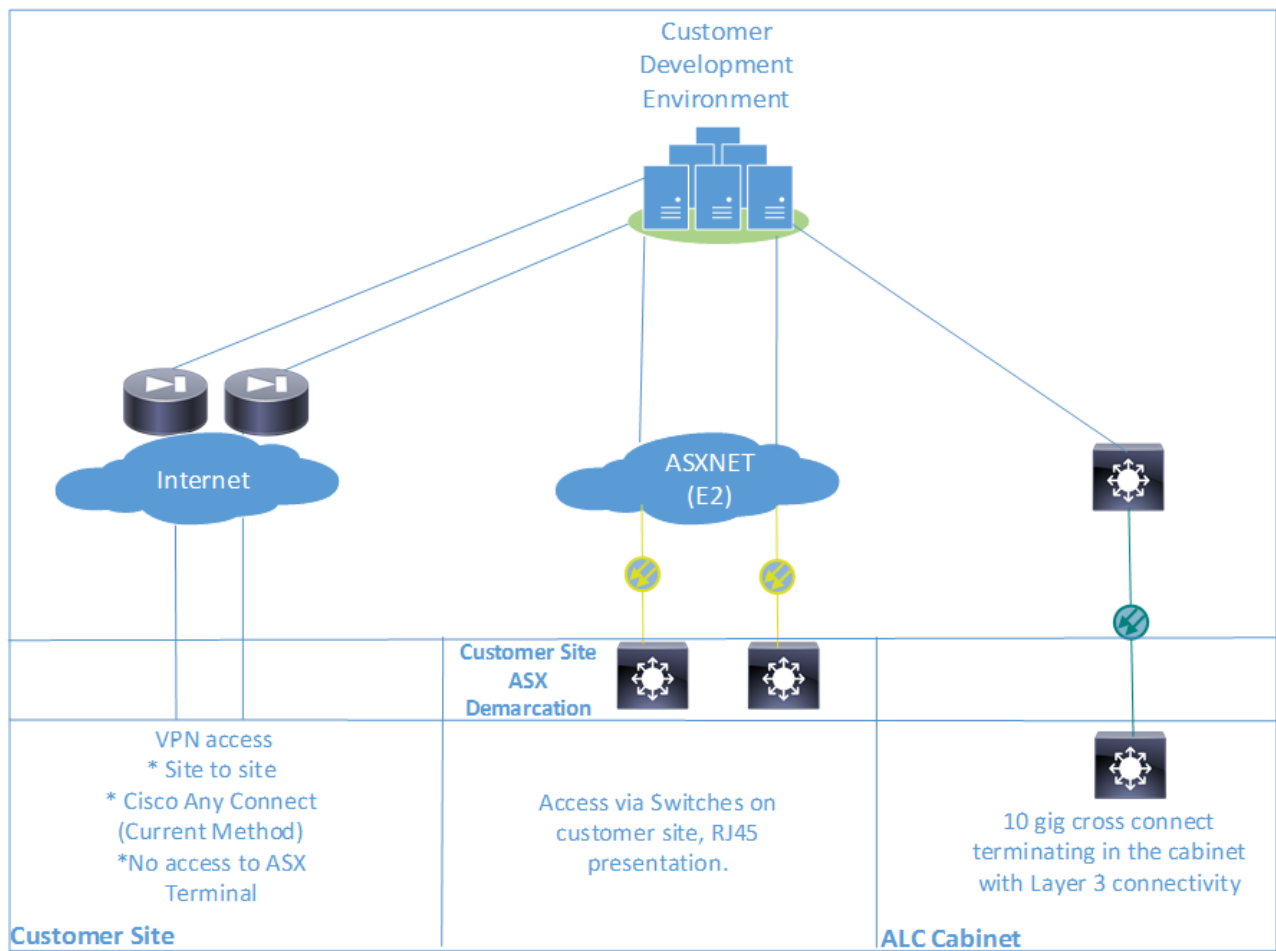
### 3.1. Customer Development Environments – CDE and CDE+

#### 3.1.1. Overview

The test markets CDE and CDE+ are for customers wanting to test the functionality for ASX 24. The hardware is setup to support functional end-to-end testing. Load and stress testing is not possible and not permitted, due these hardware specifications.

#### 3.1.2. Topology

The test service architecture is shown below. This diagram is a high-level overview showing all the possible access methods to the environment.



Customer Development Environment Architecture

## 3.2. ALC Cross Connect

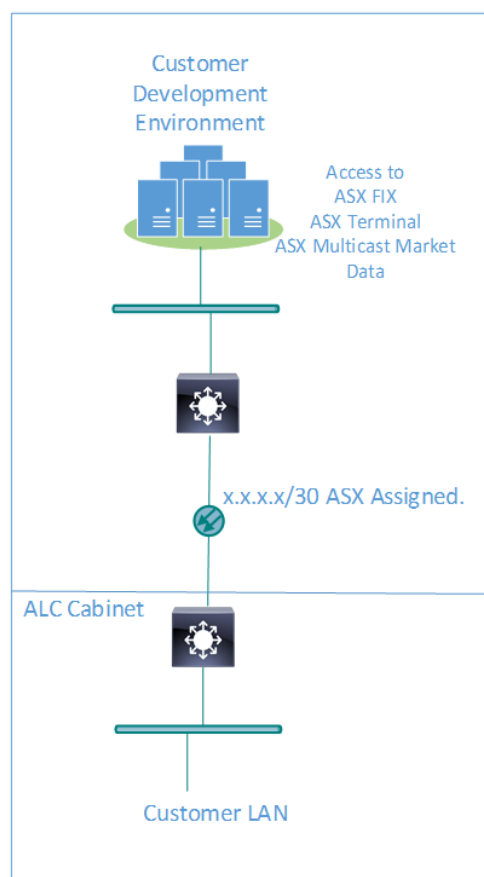
### 3.2.1. Overview

The ALC cross connect method allows the customer to connect directly into the CDE and/or CDE+ systems from their ALC cabinet(s). The direct connection closely mirrors the production connection in that it is delivered via a 10G multimode fibre cross-connect into the customer cabinet. Note that copper connections via ALC cabinets are not supported for either test or production ASX 24 services.

Connectivity from an ALC cabinet allows access to all three types of test services: FIX services, ASX MDP (multicast), and the ASX Terminal services.

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

### 3.2.2. Topology



ALC Cross Connect to CDE

### 3.2.3. Connection Details

Environment	Service	IP address	Port	Priority
CDE	FIX Order Entry (Group 1)	103.239.128.66	6980	Primary
		103.239.128.67	6980	Secondary
		103.239.128.72	6980	Tertiary
	FIX Order Entry (Group 2)	103.239.128.83	6980	Primary
		103.239.128.82	6980	Secondary
		103.239.128.74	6980	Tertiary
	FIX Market Data	103.239.128.70	7980	Concurrent
		103.239.128.71	7980	Concurrent
	FIX Drop Copy	103.239.128.68	7990	Primary
		103.239.128.69	7990	Secondary
	ASX Terminal	103.239.128.66	6971	Concurrent
		103.239.128.67	6971	Concurrent
CDE+	FIX Order Entry (Group 1)	103.239.128.76	6980	Primary
		103.239.128.77	6980	Secondary
		103.239.128.84	6980	Tertiary
	FIX Order Entry (Group 2)	103.239.128.86	6980	Primary
		103.239.128.85	6980	Secondary
		103.239.128.87	6980	Tertiary
	FIX Market Data	103.239.128.80	7980	Concurrent
		103.239.128.81	7980	Concurrent
	FIX Drop Copy	103.239.128.78	7990	Primary
		103.239.128.79	7990	Secondary
	ASX Terminal	103.239.128.76	6971	Concurrent
		103.239.128.77	6971	Concurrent

### 3.3. ASX Net

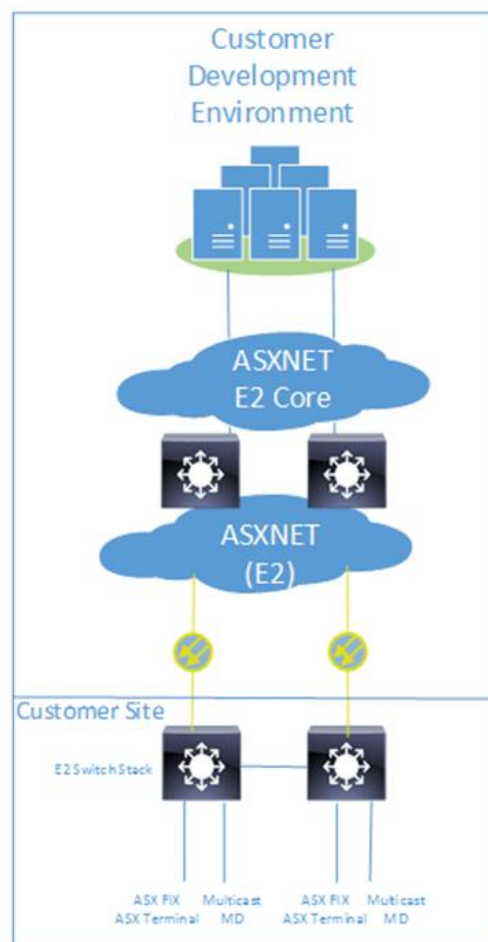
#### 3.3.1. Overview

Customers connect to the CDE platform using ASX Net from their own data centres via an E2 switch stack installed at their site.

Connectivity over ASX Net allows access to both FIX and MDP 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. For ASX MDP connectivity over ASX Net, ASX will utilise a separate interface on the E2 switch stack for customers to connect to receive multicast data.

#### 3.3.2. Topology



ASX Net to CDE



### 3.3.3. Connection Details

Environment	Service	IP address	Port	Priority
CDE	FIX Order Entry (Group 1)	203.4.179.96	6980	Primary
		203.4.179.97	6980	Secondary
	FIX Order Entry (Group 2)	203.4.179.204	6980	Primary
		203.4.179.102	6980	Secondary
		203.4.179.205	6980	Tertiary
	FIX Market Data	203.4.179.100	7980	Concurrent
		203.4.179.101	7980	Concurrent
	FIX Drop Copy	203.4.179.98	7990	Primary
		203.4.179.99	7990	Secondary
	ASX Terminal	203.4.179.96	6971	Concurrent
		203.4.179.97	6971	Concurrent
CDE+	FIX Order Entry (Group 1)	203.4.179.104	6980	Primary
		203.4.179.105	6980	Secondary
	FIX Order Entry (Group 2)	203.4.179.110	6980	Primary
		203.4.179.111	6980	Secondary
		203.4.179.112	6980	Tertiary
	FIX Market Data	203.4.179.108	7980	Concurrent
		203.4.179.109	7980	Concurrent
	FIX Drop Copy	203.4.179.106	7990	Primary
		203.4.179.107	7990	Secondary
	ASX Terminal	203.4.179.104	6971	Concurrent
		203.4.179.105	6971	Concurrent

## 3.4. Internet VPN

### 3.4.1. Overview

ASX offers a VPN solution based on secure Internet connectivity. As VPN tunnels are setup over the Internet, any ISP can be utilised. Customers choose the method for connecting to the Internet. Options may include:

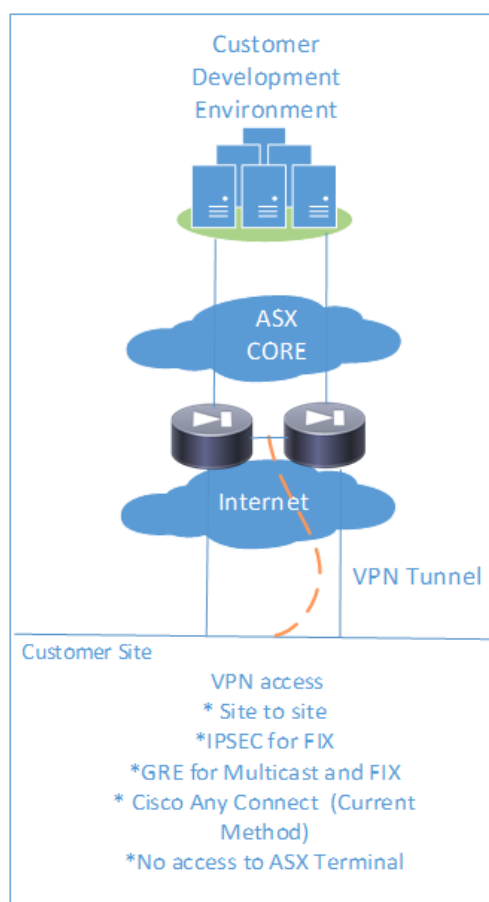
- ADSL
- Cable Modem
- Ethernet
- Corporate.

### 3.4.2. Topology

ASX offers connectivity over an Internet VPN into CDE and CDE+ via the E2 network. Customers who connect 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, they may maintain this method of connectivity.





#### Internet VPN to CDE

All VPN connections 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 (CTS) via phone: 1800 663 053 or email: [cts@asx.com.au](mailto:cts@asx.com.au).

### **3.4.3. Site-to-Site VPN**

Site-to-site VPN will be delivered over an IPsec tunnel for FIX connectivity. If the ASX MDP feed is required via VPN, a GRE-tunnelled hardware VPN is required 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 contact customers to work out the details for the setup.

### **3.4.4. Remote Access VPN**

This connection method is only available to customers who currently connect to the test platforms in this way. New customers wanting to access testing services must use the site-to-site VPN method.

Remote Access VPN requires the use of the “Cisco AnyConnect” VPN client running on a host computer. Latest Windows and Red Hat Enterprise Linux platforms are supported.

### 3.4.5. Connection Details: DMVPN and IPSEC with GRE Tunnel

Environment	Service	IP address	Port	Priority
CDE	FIX Order Entry (Group 1)	103.239.128.66	6980	Primary
		103.239.128.67	6980	Secondary
		103.239.128.72	6980	Tertiary
	FIX Order Entry (Group 2)	103.239.128.83	6980	Primary
		103.239.128.82	6980	Secondary
		103.239.128.74	6980	Tertiary
	FIX Market Data	103.239.128.70	7980	Concurrent
		103.239.128.71	7980	Concurrent
	FIX Drop Copy	103.239.128.68	7990	Primary
		103.239.128.69	7990	Secondary
CDE+	FIX Order Entry (Group 1)	103.239.128.76	6980	Primary
		103.239.128.77	6980	Secondary
		103.239.128.84	6980	Tertiary
	FIX Order Entry (Group 2)	103.239.128.86	6980	Primary
		103.239.128.85	6980	Secondary
		103.239.128.87	6980	Tertiary
	FIX Market Data	103.239.128.80	7980	Concurrent
		103.239.128.81	7980	Concurrent
	FIX Drop Copy	103.239.128.78	7990	Primary
		103.239.128.79	7990	Secondary

### 3.4.6. Connection Details: iVPN, Any Connect, and IPsec Site-to-Site

Environment	Service	IP address	Port	Priority
CDE	FIX Order Entry (Group 1)	203.4.179.96	6980	Primary
		203.4.179.97	6980	Secondary
	FIX Order Entry (Group 2)	203.4.179.204	6980	Primary
		203.4.179.102	6980	Secondary
		203.4.179.205	6980	Tertiary
	FIX Market Data	203.4.179.100	7980	Concurrent
		203.4.179.101	7980	Concurrent
	FIX Drop Copy	203.4.179.98	7990	Primary
		203.4.179.99	7990	Secondary
CDE+	FIX Order Entry (Group 1)	203.4.179.104	6980	Primary
		203.4.179.105	6980	Secondary
	FIX Order Entry (Group 2)	203.4.179.110	6980	Primary
		203.4.179.111	6980	Secondary
		203.4.179.112	6980	Tertiary
	FIX Market Data	203.4.179.108	7980	Concurrent
		203.4.179.109	7980	Concurrent
	FIX Drop Copy	203.4.179.106	7990	Primary
		203.4.179.107	7990	Secondary

### 3.5. ASX Market Data Protocol (MDP) Connectivity

#### 3.5.1. CDE

Aggregate address	233.71.185.176/29	233.71.185.184/29
Feed	Feed A	Feed B
Multicast source IP	103.239.128.102	103.239.128.103
Multicast group	233.71.185.177	233.71.185.185
Multicast port	17510	17510
Glance address	103.239.128.102	103.239.128.103
Glance port TCP	17810	17810
Blink address	103.239.128.102	103.239.128.103
Blink port UDP	17910	17910
RP address	103.239.128.241	

#### 3.5.2. CDE+

Aggregate address	233.71.185.208/29	233.71.185.216/29
Feed	Feed A	Feed B
Multicast source IP	103.239.128.110	103.239.128.111
Multicast group	233.71.185.209	233.71.185.217
Multicast port	17510	17510
Glance address	103.239.128.110	103.239.128.111
Glance port TCP	17810	17810
Blink address	103.239.128.110	103.239.128.111
Blink port UDP	17910	17910
RP address	103.239.128.241	

### 3.6. Failover Testing

For more information on failover activities in both the CDE and CDE+ test environments please refer to the [Guide to ASX Testing Services](#).



### 3.7. Genium Clearing

#### 3.7.1. OMNet API

ASX offers a Genium Clearing system for testing the ASX 24 futures CDE test market. By connecting to this system, customers can perform end-to-end testing with their executions in the CDE. Please reference the Considerations for Clearing Participants for the scope of operational and functional Genium Clearing changes on ASX 24.

Service Name Destination	Address	Ports
Genium Clearing CDE	203.4.179.227	32024 and 32025
Genium Clearing CDE Plus	203.4.179.234	32024 and 32025

#### 3.7.2. Client Workstation (CWS)

Client workstations connect to a local ASX Client Workstation Server (CWS). The CWS service has a local interface on the client network, the connectivity details are:

Platform	Market name	Available ports
CDE	Sydney Market	2131
CDE	New Zealand Market	2132
CDE Plus	Sydney Market	2121
CDE Plus	New Zealand Market	2122

These are the 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_SY_TB7_3
Genium NZ	2132	32-0-1-4-1-10-10141032	D:\CWS\XYZ_Genium_NZ_TB7_4

These are the CW1 license keys for Genium Clearing SY and NZ CWS servers on CDE Plus.

CWS Server	Port	License key	Folder
Genium SY	2121	32-0-1-1-1-10-10111032	D:\CWS\XYZ_SY_1
Genium NZ	2122	32-0-1-2-1-10-10121032	D:\CWS\XYZ_NZ_2



## 4. Technical Readiness Testing

### 4.1. ALC Co-location / Liquidity Cross Connect (LCC)

#### 4.1.1. What can I do via the LCC path?

Connect to terminals?	No, the applications Admin and Risk Terminal (ART) and ASX Trading Terminal (ATT) are only available via ASX Net or GiC paths.
Connect to FIX order entry?	Yes, primary service only; secondary is only available when primary has failed over.
Connect to FIX market data?	Yes, concurrent connections to both primary and secondary FIX market data services.
Connect to FIX drop copy?	Yes, primary service only, secondary is only available when primary has failed over.
Connect to ASX Market Data Feeds A and B?	Yes, ALC LCC connections only.
Connect to ASX Market Data Feeds C and D?	Yes, SDC LCC connections only.

#### 4.1.2. What basic tests are suggested to confirm connectivity?

Operation	Test Example	Expected result	Actual result
FIX Order Entry connection (primary / secondary / tertiary)	telnet 203.18.165.16 6980 telnet 203.18.165.17 6980 telnet 203.18.165.18 6980 telnet 203.18.165.19 6980 telnet 203.18.165.20 6980 telnet 203.18.165.24 6980 telnet 203.18.165.25 6980 telnet 203.18.165.26 6980 telnet 203.18.165.27 6980 telnet 203.18.165.28 6980 telnet 203.18.165.144 6980 telnet 203.18.165.145 6980 telnet 203.18.165.146 6980 telnet 203.18.165.147 6980 telnet 203.18.165.148 6980	Valid connection Valid connection Valid connection Valid connection Valid connection Connection Refused Connection Refused Connection Refused Connection Refused Connection Refused Connection Refused Connection Refused Connection Refused Connection Refused	
FIX Drop Copy connection (primary / secondary)	telnet 203.18.165.32 7990 telnet 203.18.165.33 7990 telnet 203.18.165.160 7990 telnet 203.18.165.161 7990	Valid connection Valid connection Connection Refused Connection Refused	
FIX Market Data connection (concurrent)	telnet 203.18.165.48 7980 telnet 203.18.165.49 7980 telnet 203.18.165.176 7980 telnet 203.18.165.177 7980	Valid connection Valid connection Valid connection Valid connection	
ASX MDP connection: Glance Feeds A and B	telnet 203.18.165.65 17810 (Feed A) telnet 203.18.165.67 17810 (Feed B)	Valid connection – ALC LCC participants only Valid connection – ALC LCC participants only	
ASX MDP connection: Glance Feeds C and D	telnet 203.18.165.192 17810 (Feed C) telnet 203.18.165.193 17810 (Feed D)	Valid connection – SDC LCC participants only Valid connection – SDC LCC participants only	

## 4.2. ASX Net Gateways and Gateway in Cabinet (GiC)

### 4.2.1. *What can I do via the ASX Gateways?*

Connect to terminals?	Yes, the GUI client applications Admin and Risk Terminal (ART) and ASX Trading Terminal (ATT).
Connect to FIX order entry?	Yes, primary service only; secondary is only available when primary has failed over.
Connect to FIX market data?	Yes, concurrent connections to both primary and secondary FIX market data services.
Connect to FIX drop copy?	Yes, primary service only; secondary is only available when primary has failed over.
Connect to ASX Market Data Feeds C and D?	Yes.

### 4.2.2. *What basic tests are suggested to confirm connectivity?*

The following telnet tests will confirm TCP/IP connectivity. Tests are performed to the broker IP of ASX gateway #1 (for example, NSWxxxx-ADG01) and #2 (NSWxxxx-ADG02). The broker IP, xx.xx.xx.xx, is the participant facing IP address supplied to ASX by the participant during the gateway provisioning process.

In the cases where “Connection Refused” is the expected result, this means that the TCP/IP path is available, but the ASX-side process is not available due to it being a secondary or tertiary process.

Operation	Test Example	Expected result	Actual result
FIX Order Entry connection (primary / secondary)	telnet xx.xx.xx.xx 25001 telnet xx.xx.xx.xx 25002 telnet xx.xx.xx.xx 25003 telnet xx.xx.xx.xx 26001 telnet xx.xx.xx.xx 26002 telnet xx.xx.xx.xx 26003	Valid connection Valid connection Valid connection Connection refused Connection refused Connection refused	
FIX Drop Copy connection (primary / secondary)	telnet xx.xx.xx.xx 25201 telnet xx.xx.xx.xx 25202 telnet xx.xx.xx.xx 26201 telnet xx.xx.xx.xx 26202	Valid connection Valid connection Connection refused Connection refused	
FIX Market Data connection (concurrent)	telnet xx.xx.xx.xx 25101 telnet xx.xx.xx.xx 25102 telnet xx.xx.xx.xx 26101 telnet xx.xx.xx.xx 26102	Valid connection Valid connection Valid connection Valid connection	
ART and ATT terminal login (concurrent)	telnet xx.xx.xx.xx 25301 telnet xx.xx.xx.xx 26301	Valid connection Valid connection	
ASX MDP connection: Glance Feeds C and D	telnet xx.xx.xx.xx 26401 (Feed C) telnet xx.xx.xx.xx 26402 (Feed D)	Valid connection Valid connection	

## 4.3. International

### 4.3.1. What can I do via the International POPs?

Customers can connect to the following services via an ASX International POP connection.

Connect to terminals?	No, the applications Admin and Risk Terminal (ART) and ASX Trading Terminal (ATT) are only available via ASX Net or GiC paths located within Australia.
Connect to FIX order entry?	Yes, primary service only; secondary is only available when primary has failed over.
Connect to FIX market data?	Yes, concurrent connections to both primary and secondary FIX market data services.
Connect to FIX drop copy?	Yes, primary service only; secondary is only available when primary has failed over.
Connect to ASX Market Data Feeds J and K?	Yes, feeds J and K are only available via international connections.

#### 4.3.2. What basic tests are suggested to confirm connectivity?

Operation	Test Example	Expected result	Actual result
FIX Order Entry connection (primary / secondary)	telnet 203.18.165.16 6980 telnet 203.18.165.17 6980 telnet 203.18.165.18 6980 telnet 203.18.165.144 6980 telnet 203.18.165.145 6980 telnet 203.18.165.146 6980	Valid connection Valid connection Valid connection Connection refused Connection refused Connection refused	
FIX Drop Copy connection (primary / secondary)	telnet 203.18.165.32 7990 telnet 203.18.165.33 7990 telnet 203.18.165.160 7990 telnet 203.18.165.161 7990	Valid connection Valid connection Connection refused Connection refused	
FIX Market Data connection (concurrent)	telnet 203.18.165.48 7980 telnet 203.18.165.49 7980 telnet 203.18.165.176 7980 telnet 203.18.165.177 7980	Valid connection Valid connection Valid connection Valid connection	
ASX MDP connection: Glance Feeds J and K	telnet 203.18.165.68 17810 (Feed J)  telnet 203.18.165.194 17810 (Feed K)	Valid connection – International participants only  Valid connection – International participants only	

## 4.4. Further Technical Readiness Testing

### 4.4.1. *After telnet testing, what's the next step?*

Login to the production trading platform is possible using Trading Applications. The ability to login to a service on a specific port may be restricted based on the login ID. Login IDs are communicated by the ASX Customer Technical Support (CTS) team.

For example, a participant may be able to telnet to a specific port, however when they attempt to use their trading application, the connection is refused based on the user's role. Please refer to CTS login information to confirm the services assigned to a specific logged in user.

Following a successful login, TR testing on production will be possible for the full range of services: FIX order entry, FIX drop copy, FIX market data, GUI login, and ASX MDP feeds.

### 4.4.2. *When can I test secondary connections for FIX Order Entry and FIX Drop Copy?*

Periodically, ASX runs coordinated failover testing on the production system. Customers will be notified in advance of these dates, including instructions on how to participate.



## 5. Sample BGP Configuration

ASX offers the following switch configuration as a guide only, to indicate how BGP could be configured on a customer's network equipment. It must not be used in production systems without verification and testing.

### 5.1. Sample Configuration

```
! Connectivity to ASX 24 Primary Link
interface Ethernet48
description connectivity_asx_lcc
no switchport
ip address 10.1.1.1/30

! Input Prefix list for Primary link
ip prefix-list pl_connectivity_asx seq 10 permit 203.4.178.33/32
    seq 20 permit 203.4.178.34/32
    seq 30 permit 203.18.165.0/25
    seq 40 permit 203.18.165.128/25

! Output Prefix list for Primary link
ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24

! Input Route-map for Primary link
route-map rm_connectivity_lcc_in permit 10
match ip address prefix-list pl_connectivity_asx

! Output Route-map for Primary link
route-map rm_connectivity_lcc_out permit 10
match ip address prefix-list pl_connectivity_customer

! BGP Peering
router bgp 64500
    bgp log-neighbor-changes
    neighbor 10.1.1.2 remote-as 65300
    neighbor 10.1.1.2 timers 3 9
    neighbor 10.1.1.2 description connectivity_asx
    neighbor 10.1.1.2 route-map rm_connectivity_lcc_in in
    neighbor 10.1.1.2 route-map rm_connectivity_lcc_out out
    neighbor 10.1.1.2 password XXXXXXXX
    neighbor 10.1.1.2 maximum-routes 120
    redistribute connected route-map redis_conn
    redistribute static route-map redis_static
-----

! Connectivity to ASX 24 Backup Link
interface Ethernet49
description connectivity_asx_rtc
no switchport
ip address 10.1.1.5/30

! Input Prefix list for Backup link
```



```

ip prefix-list pl_connectivity_asx seq 10 permit 203.4.178.33/32
    seq 20 permit 203.4.178.34/32
    seq 30 permit 203.18.165.0/25
    seq 40 permit 203.18.165.128/25

! Output Prefix list for Backup link
ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24

! Input Route-map for Backup link
route-map rm_connectivity_rtc_in permit 10
match ip address prefix-list pl_connectivity_asx

! Output Route-map for Backup link
route-map rm_connectivity_rtc_out permit 10
match ip address prefix-list pl_connectivity_customer

! BGP Peering
router bgp 64500
    bgp log-neighbor-changes
    neighbor 10.1.1.6 remote-as 65300
    neighbor 10.1.1.6 timers 3 9
    neighbor 10.1.1.6 description connectivity_asx
    neighbor 10.1.1.6 route-map rm_connectivity_rtc_in in
    neighbor 10.1.1.6 route-map rm_connectivity_rtc_out out
    neighbor 10.1.1.6 password XXXXXX
    neighbor 10.1.1.6 maximum-routes 120
redistribute connected route-map redis_conn
redistribute static route-map redis_static

```

## 5.2.Configuration Items

Section	Configuration Item	Description
! Connectivity to ASX 24 Primary Link	interface Ethernet48	Configuration section label
	description connectivity_asx_lcc	ASX LCC connectivity description
	no switchport	Convert L2 to L3 interface
	ip address 10.1.1.1/30	Cross-connect IP
! Input Prefix list for Primary link	ip prefix-list pl_connectivity_asx seq 10 permit <b>203.4.178.33/32</b>	Target subnet
	seq 20 permit <b>203.4.178.34/32</b>	Target subnet
	seq 30 permit <b>203.18.165.0/25</b>	Target subnet
	seq 40 permit <b>203.18.165.128/25</b>	Target subnet
! Output Prefix list for Primary link	ip prefix-list <b>pl_connectivity_customer</b> seq 10 permit <b>172.30.1.0/24</b>	Target subnet
! Input Route-map for Primary link	route-map <b>rm_connectivity_lcc_in</b> permit 10	Route map profile name for inbound traffic
	match ip address <b>prefix-list pl_connectivity_asx</b>	Associate prefix-list profile name with route map



! Output Route-map for Primary link	route-map <b>rm_connectivity_lcc_out</b> permit 10	Route map profile name for outbound traffic
	match ip address prefix-list <b>pl_connectivity_customer</b>	Associate prefix list profile name with route map
! BGP Peering	router bgp <b>64500</b>	BGP ASN on customer side
	bgp log-neighbor-changes	Enable logging messages when BGP neighbor status changes
	neighbor <b>10.1.1.2 remote-as 65300</b>	BGP peering with neighbor 10.1.1.2 (ASX side) with ASN 65300 (ASX side)
	neighbor 10.1.1.2 <b>timers 3 9</b>	BGP keepalive every 3s and hold timer 9s
	neighbor 10.1.1.2 description <b>connectivity_asx</b>	BGP peering neighbor description
	neighbor 10.1.1.2 route-map <b>rm_connectivity_lcc_in</b> in	BGP peering route-map profile for incoming traffic
	neighbor 10.1.1.2 route-map <b>rm_connectivity_lcc_out</b> out	BGP peering route-map profile for outgoing traffic
	neighbor 10.1.1.2 password <b>XXXXXXX</b>	MD5 authentication password
	neighbor 10.1.1.2 <b>maximum-routes 120</b>	Max BGP routes of 120 received from adjacent neighbor
	<b>redistribute connected</b> route-map <b>redis_conn</b>	BGP to redistribute directly connected routes with specified route-map
	<b>redistribute static</b> route-map <b>redis_static</b>	BGP to redistribute static routes with specified route-map
! Connectivity to ASX 24 Backup Link	interface Ethernet49	Configuration section label
	description connectivity_asx_rtc	ASX RTC connectivity description
	no switchport	Convert L2 to L3 interface
	ip address <b>10.1.1.5/30</b>	Cross-connect IP
! Input Prefix list for Backup link	ip prefix-list <b>pl_connectivity_asx</b> seq 10 permit <b>203.4.178.33/32</b>	Target subnet
	seq 20 permit <b>203.4.178.34/32</b>	Target subnet
	seq 30 permit <b>203.18.165.0/25</b>	Target subnet
	seq 40 permit <b>203.18.165.128/25</b>	Target subnet
! Output Prefix list for Backup link	ip prefix-list <b>pl_connectivity_customer</b> seq 10 permit <b>172.30.1.0/24</b>	Target subnet
! Input Route-map for Backup link	route-map <b>rm_connectivity_rtc_in</b> permit 10	Route-map profile name for inbound traffic
	match ip address prefix-list <b>pl_connectivity_asx</b>	Associate prefix list profile name with route map
! Output Route-map for Backup link	route-map <b>rm_connectivity_rtc_out</b> permit 10	Route map profile name for outbound traffic
	match ip address prefix-list <b>pl_connectivity_customer</b>	Associate prefix list profile name with route map
! BGP Peering	router bgp <b>64500</b>	BGP ASN on customer side
	<b>bgp log-neighbor-changes</b>	Enable logging messages when BGP neighbor status changes

neighbor <b>10.1.1.6</b> remote-as <b>65300</b>	BGP peering with neighbor 10.1.1.6 (ASX side) with ASN 65300 (ASX side)
neighbor 10.1.1.6 <b>timers 3 9</b>	BGP keepalive every 3s and hold timer 9s
neighbor 10.1.1.6 description <b>connectivity_asx</b>	BGP peering neighbor description
neighbor 10.1.1.6 route-map <b>rm_connectivity_rtc_in in</b>	BGP peering route map profile for incoming traffic
neighbor 10.1.1.6 route-map <b>rm_connectivity_rtc_out out</b>	BGP peering route map profile for outgoing traffic
neighbor 10.1.1.6 password <b>XXXXXX</b>	MD5 authentication password
neighbor 10.1.1.6 <b>maximum-routes 120</b>	Max BGP routes of 120 received from adjacent neighbor
<b>redistribute connected</b> route-map <b>redis_conn</b>	BGP to redistribute directly connected routes with specified route-map
<b>redistribute static</b> route-map <b>redis_static</b>	BGP to redistribute static routes with specified route-map

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