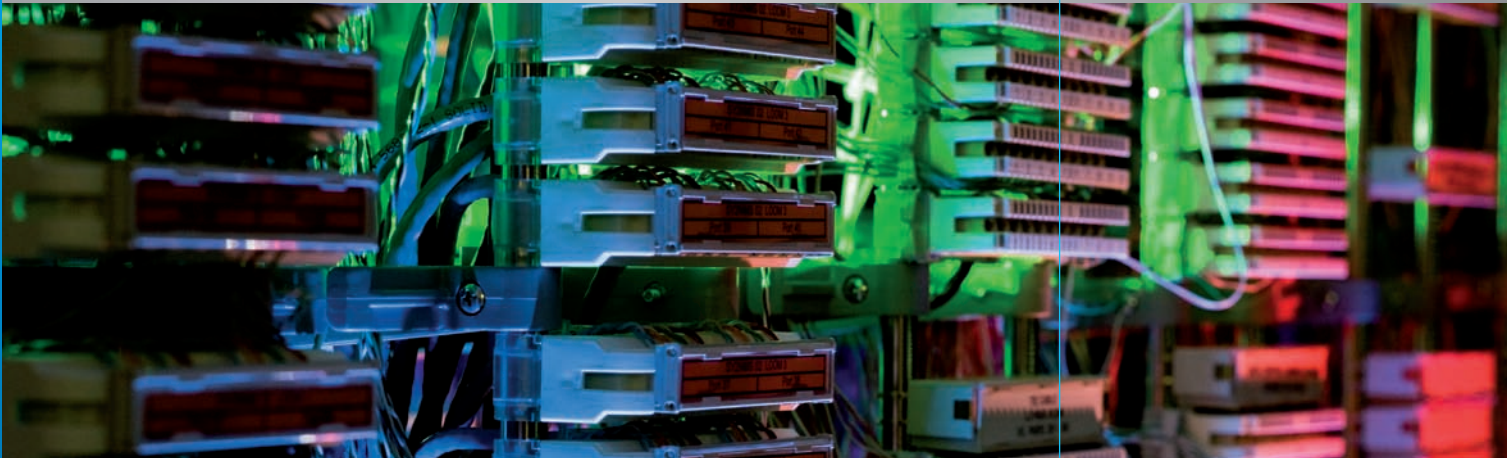


ASX Australian Liquidity Centre Business Services Guide



ASX

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The ASX Australian Liquidity Centre

The ASX Australian Liquidity Centre (“the Facility”) is located in Gore Hill and is exclusively operated by the ASX Group. The Facility is 5km North-West of the Sydney CBD and 1.1km North-West of the ASX Business Continuity Site in Bondi Junction. It is carrier neutral, comprises all three floors of a Tier 3 designed data centre, and supports up to 6 kW of power delivery to each Cabinet. The Facility is permanently staffed and monitored by video surveillance.

Cabinet space is available within the Facility for all Market Participants, Service Providers, and the Clients of either. Organisations taking Cabinet space in the Facility are known as “Users”.

Hosting

ASX offers all Users electronically lockable Cabinet space with an initial 2 kW of power. The facility supports up to 6 kW of peak power in each Cabinet. Users are able to cage their allocated Cabinets should their particular operations require.

ASX will accommodate all reasonable requests for Cabinets, and offers Users the ability to reserve concurrent Cabinets to support their future growth.

Large scale Cabinet allocation for the purpose of hosting is currently available to Users with an existing customer base of financial market users.

Community of Service Providers

The Facility not only provides access to ASX trading liquidity, but also to a range of third-party Service Providers and additional ASX Services. The Community of Service Providers includes the following businesses:

- ASX Trading, Clearing, and Settlement Participants
- Market Information Vendors (MIV)
- Application Service Providers (ASP)
- Broker Service Providers (BSP)
- Network Service Providers (NSP) and
- Independent Software Vendors (ISV)

The Facility hosts all ASX clearing, settlement, market information and development systems. Users may connect to and access the Community of Service Providers and ASX Services via ASX supplied networks and connections.

Liquidity

The primary matching engines of ASX Trade and ASX Trade24 are physically located on the “Trading Floor” of the Facility, ensuring Participants in the Facility have exclusive access to the lowest latency ASX trading and market data available. Data path lengths are the same for all Facility connections to a given Trading Platform.

The following markets are available:

- ASX TradeMatch
- ASX VolumeMatch
- ASX PureMatch
- ASX 24

The ASX Australian Liquidity Centre

ASX offers two tiers of latency access to its markets to meet the needs of different Users. The premium and fastest connection is provided by "Liquidity Cross Connects" (LCC) implemented on 10 Gbit/s high speed LAN for ASX Trade, and 1 Gbit/s direct cable connection for ASX Trade24.

The standard connection, which remains faster than any connection from outside the Facility is achieved by installation of ASX and ASX 24 Gateway and switch infrastructure in User Cabinets.

Technical and Support Services

In addition to ensuring the smooth operation of the Facility, ASX also offers Technical and Support Services to Users. "ASX Smart Hands" provides level-one technical assistance (e.g. equipment inventory and power cycling, carrier circuit testing, etc), and "ASX Specialist Hands" provides expert level-two technical assistance in the areas of network and server technology.

Full details of Technical and Support Services are available in the Technical Services Guide.

Facility Infrastructure and Physical Access

Users are able to access the Facility at any time by prior arrangement. The Facility's electrical and mechanical infrastructure is managed from the Facility by automated systems and on site support staff.

Key features of the Facility infrastructure include:

- VESDA (Very Early Smoke Detection Apparatus) fire control system
- Gas fire suppression systems
- Dry pipe pre-action sprinkler system
- Standby power DRUPS (Diesel Rotary Un-interruptible Power Supply)
- Redundant air conditioning
- Underfloor water detection systems
- Fully monitored and automated environmental control
- Redundant Meet-Me Rooms for carrier and path resilience
- 24/7 Security Surveillance and
- On-site 24/7 Operator and Technical Support coverage

Hosting Services

Hosting services are offered to all Users. Users, excluding NSPs (see NSP section below) are hosted on the Trading Floor of the Facility while NSPs are offered Cabinet space in the Facility Meet Me Rooms (MMR).

Cabinets

Cabinets located on the Facility's Trading Floor provide standard 800 mm equipment mounting racks with 47 "Rack Units" (RU) for hosting User and ASX equipment.

Cabinets are locked electronically and are accessible via front and rear doors. All Cabinet access is monitored and video recorded.

ASX will meet all reasonable requests for Cabinets and determine the final allocation and location of those Cabinets. To accommodate future growth, Users are able to reserve Cabinets concurrent with those currently allocated to them. Users are allowed to reserve, in periods of six months, up to the same number of Cabinets for which they pay full fees.

The initial presentation of a Cabinet includes optical fibre and UTP patch panel ports to support connectivity to Service Providers and ASX Services and Liquidity.

Cabinet Power

Each Cabinet includes an allocation of 2 kW peak power delivered from two independent feeds to two independent power rails. Additional power is available in 2 kW blocks up to a maximum of 6 kW peak power per Cabinet.

Power use and charges are calculated as summed across all a given User's Cabinets. Usage beyond the allocated and contracted additional amount is charged at the "Excess Power" rate. For example, if a User has five Cabinets, each with 2 kW allocated power, then their total allocation is $5 \times 2 \text{ kW} = 10 \text{ kW}$. If ASX records show that the maximum power use when summed across all five Cabinets peaked at 11.3 kW in a given month then the User will incur one 2 kW Excess Power unit in addition to their normal charges. If the User's power consumption had peaked at 12.7 kW, then they would incur two 2 kW Excess Power units.

Cabinet Use

Users may utilise space in their allocated Cabinets to host other parties (see the "Hoster section on page 7). Users wishing to do so are required to inform ASX of the identity of the parties involved and gain ASX approval before proceeding.

ASX exclusively provisions, manages and operates all networks supporting the distribution of Service Provider Services (excluding distribution of ASP or Participant Services to hosted customers – see "Application Service Provider" in the Glossary for more detail). No wireless networks or wireless devices are to be hosted in User Cabinets.

Cabinet Cages

A User may request that its Cabinets be housed within a wire mesh cage with lockable entry. Data path lengths from cages to the Trading Platforms are the same as those from un-caged Cabinets.

ASX will provide Users with a price and timeframe quote for construction, decommission and on-going costs of a cage when an order is placed.

Hosting for Network Service Providers

The Facility is carrier neutral. NSPs may access Cabinets in either or both of the Facility's MMRs. Whole Cabinets or one-third Cabinets are available as required by the NSP.

Hosting Services

Hoster

ASX allows Users to utilise their allocation of Cabinet space and power for the purpose of providing Hosting services to its customers.

Hosting services include the User hosting and supporting its customers' equipment, and retailing space and power for a customer to manage its own equipment.

Should a customer of a Hoster, or the Hoster itself wish to sell services within the Facility, then they will be regarded as either a Service Provider or an Application Service Provider (please see the Glossary for more information).

Hosted Service Providers must utilise the Service Provider LAN for distribution of their services.

Facility Connections

External Connectivity to the Facility

The Facility is carrier neutral, allowing Facility connectivity via any connected domestic or international NSP, including ASX Net.

ASX Net

In addition to external connection to the Facility, ASX Net can provide a connection directly to a User's Cabinet and / or to a Participant's presence in an ASP Cabinet. This ALC connection does not require a Network Cross Connect from an MMR.

NSP

An NSP maintains a presence in one or both of the Facility's MMRs. Network Cross Connects to the User Cabinets are installed and maintained by ASX.

Connectivity within the Facility

All connectivity to ASX and between Users within the Facility is facilitated by ASX. ASX connections provide Users with managed connectivity to any of the products or services offered in the Facility, and are implemented via one of the following connection methods:

- High-speed fibre Local Area Network (**LAN**)
- Point-to-point physical Direct Cable (**DC**) network
- ASX Switch in Cabinet (**SIC**) or
- Gateway in Cabinet (**GIC**)

Please refer to the "Liquidity Services" & "Community Connections" sections for the list of services available via each connection method.

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All connection methods are available with an optional Redundant Teamed Connection (RTC) that provides active standby backup for the associated primary connection.

Users are able to install and manage connections between their own concurrent Cabinets for their own use. Users, including Hosters, may not install connections with third parties, unless it is for the purpose of distributing ASP or Participant Services to customers housed within the User's allocated ASP or Participant Cabinet Space.

Connections between a User's non-concurrent Cabinets are installed and managed by ASX. (Please see the Technical and Support Services section for more detail).

Liquidity Services

Liquidity Access

There are two methods available to Users for order entry and management on ASX Trading Platforms: a **Liquidity Cross Connect (LCC)** for lowest latency connection; and a **GiC solution** for standard latency connection.

Participants that access an ASX Trading Platform via an ASP are required to maintain their own independent LCC or GiC connections from the ASP Cabinet.

Liquidity Connection

LCCs provide the fastest available connection to ASX Liquidity. ASX Trade LLCs are implemented on the ASX Trade LAN, while ASX Trade24 LCCs are implemented via ASX Trade24 DC connections. Both types of LCC present to the User as a patched port in the Cabinet patch panel, taking up no additional Cabinet space or power.

The communication path lengths of all LCCs for a given Trading Platform are the same in order to facilitate **location neutrality within the Facility**.

The GiC connections available for ASX Trade and ASX Trade24 provide standard connections with lower message latency than external ASX Net sites, but higher than an LCC. This connection method requires space and power to be available in a User's Cabinet in order to host the appropriate ASX Gateway and one or two switches. Please refer to the Technical Services Guide for further details.

A **FIX Protocol** connection to ASX Trade is also available, This is implemented via a GiC connection with a FIX-enabled ASX Trade Gateway housed in the User's Cabinet.

Optional **Redundant Teamed Connections (RTC)** are available for all connection types. RTCs provide active standby backup for the associated connection. Should the primary connection fail, the RTC will automatically and seamlessly become the primary connection.

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The ASX Liquidity Services available via the different connection methods are as follows:

| ASX Service | Connection Method | Bandwidth |
|---|-------------------|------------|
| ASX TradeMatch ASX PureMatch ASX VolumeMatch | ASX Trade LAN | 10 Gbit/s |
| ASX TradeMatch ASX PureMatch ASX VolumeMatch | GiC connection | 1 Gbit/s |
| ASX Trade FIX | GiC connection | 1 Gbit/s |
| ASX 24 | ASX Trade24 DC | 1 Gbit/s |
| ASX 24 | GiC connection | 100 Mbit/s |

Community Connections

Users are able to be connected within the Facility to Service Providers and ASX Services in order to access a wide variety of services. These include ASX clearing and settlement systems, Service Provider services, ASX market information feeds, external networks, pre-trade and post-trade services, and all available ASX test environments.

A Service Provider can offer its services to any Facility User. ASX will facilitate delivery of the service.

Users seeking to share a Network Cross Connect amongst multiple Users must seek ASX approval to do so.

Service Provider Service Connection

Service Provider Connections are made via the Service Provider LAN, and provide connectivity to:

- Market Data and Information products (via MIV)
- Third party software applications and connectivity (via ASP)
- Post-trade services (via BSP)
- External domestic and international network connection (via NSP)
- Alternate sources of Liquidity
- Other Services (eg. risk management, latency measurement)

ASX Market Information sourced within the Facility may be externally distributed via ASX Net or an NSP.

ASX Service Connection

The complete suite of ASX services are available within the Facility. These include the following.

| | Service | Connection | Test Environment Connection |
|-----------------------|------------------------------|---|---|
| Market Information | ASX – ITCH | ASX ITCH LAN | Performance: Services LAN. Functional: SiC |
| | ASX – OMnet | ASX Trade LAN | Performance: Services LAN. Functional: SiC |
| | ASX – FIX | GiC | SiC connection. |
| | ASX 24 – ASX 24 FIX | ASX 24 DC | Functional: SiC |
| | ASX 24 – ASX 24 ITC | SiC | Not available. |
| | ComNews® | SiC | Not available. |
| Clearing & Settlement | Signal B | SiC | Not available. |
| | ASX Settlement (CHESS) | SiC | SiC |
| | ASX Clear | ASX Services DC connection to an ASX DCS Gateway. | SiC |
| | ASX Clear (Futures) | ASX Services DC connection to an ASX SECUR Gateway. | SiC |
| Test Environment | ASX Trade Test Environments | Services LAN (performance) SiC (functional) | 10 Gbit/s 1 Gbit/s |
| | ASX Trade24 Test Environment | SiC (functional) | 1 Gbit/s |

Technical and Support Services

The Facility is continually staffed by first level support technicians and Facility management staff and has network and server specialists available for scheduled assistance.

The following Technical Support Services are offered to Facility Users. Users may provide their own technical support.

Goods Receiving

Managing receipt of User goods delivered to the Facility. This service includes acceptance of the delivery and storage for up to 24 hours. This service requires 24 hours notice.

Goods Storage

The Facility has space to accommodate the storage of User equipment for extended periods, subject to available capacity. Users are able to collect the stored items at any time with assistance from ASX. Please note that pallets are not able to be stored. ASX requires 24 hours notice for equipment storage or retrieval.

Packaging Disposal

ASX Facility staff can dispose of packaging from User installations or deliveries.

Equipment Installation

ASX can unpack and install equipment into a User's Cabinet(s). Users will be required to complete a work request form providing detailed instructions regarding where the equipment should be installed and whether power and network connectivity testing is required.

Equipment installation includes:

- Equipment installation into Cabinets
- Component installations (memory and interface cards, hard drives)
- Relocating equipment within or between a User's Cabinet space
- Cabling installation and
- Packaging disposal

ASX will install the equipment within two business days of the request being made and the infrastructure becoming available. Users can request an installation date and time outside standard business hours.

Connection Installation

ASX technicians are responsible for the installation and maintenance of all connections outside Cabinets. Each connection will be installed within two business days of the receipt of an order.

Technical and Support Services

ASX Smart Hands – First Level Technical Support

Users have access to first-level technical support at all times with 30 minutes notice via email and telephone.

ASX Smart Hands services are charged per hour or part thereof, and include:

- Equipment power cycling (router, server, switch)
- Checking server LEDs for activity
- Visual inspections of equipment
- Inventory of equipment and or serial numbers
- Loading and unloading of tapes, and preparation for pick-up by an offsite storage company

Support of ASX provided equipment is managed under the existing support agreement.

ASX Specialist – Second Level Technical Support

ASX Specialist services are available on a scheduled basis requiring email notification at least 24 hours in advance, and on an Emergency basis for response within 30 minutes during Standard Business Hours.

Specialist Network Engineers and Server Engineers are available to assist with all elements of User-side network environment or server troubleshooting, including all testing equipment. Please consult the Technical Services Guide for details of the specific environments and operating systems supported.

ASX Specialist services are charged per hour or part thereof.

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Facility Roof Space for Antennae

Users are allowed, with ASX approval, to have certain passive receiving devices installed on the roof of the Facility. ASX will install, maintain and decommission this equipment in accordance with the User requirements.

Internet Access

ASX provides a WiFi internet connection for use by visitors to the Facility. This connection is opened for 24 hours at a time on an as-needed basis.

Non-Standard Solutions

ASX will consider on a case-by-case basis User requests for non-standard equipment or services. For such requests to be considered, Users should provide ASX a "Scope of Works" document for approval. The User will be responsible for any costs incurred by ASX in the provisioning of the new services.

Glossary

Application Service Provider (ASP)

A User providing an integrated hosting, trading application, and connectivity service to ASX Participants is regarded as an Application Service Provider (ASP). An ASP may deliver its services directly to its hosted Participants. ASX will determine whether a Service Provider qualifies as an ASP.

ASX

ASX Operations Pty Ltd (ABN 42 004 523 782).

ASX 24 ITC

ASX 24 Real Time market information transmitted in accordance with the Inter-exchange Technical Committee ("ITC") format.

ASX Trading Venues

TradeMatch, PureMatch, VolumeMatch, CentrePoint and ASX 24.

Client

A Client of a Participant, Service Provider, or ASP.

Facility

The ASX Australian Liquidity Centre Facility located in Gore Hill.

GiC

Gateway in Cabinet.

Hoster

A User providing Hosting services to their Clients.

Hosting

The provision of Cabinet space and power for the purpose of physically locating technology in the Facility.

Independent Software Vendor (ISV)

A Vendor that provides and supports software and/or hardware to facilitate a technical connection to ASX Trading Venues.

Liquidity Cross Connect

A network connection used to directly access ASX liquidity. Each LCC is attributable to an individual ASX Participant.

Glossary

Market Information Vendor (MIV)

A Service Provider that sells raw or enriched market data and /or market information.

MMR

Meet Me Room – where telecommunications providers terminate their services for User access.

Network Cross Connect

A network connection between an NSP in a Meet Me Room and a User within the Facility. Each NCC is exclusively provisioned by ASX.

Network Service Provider (NSP)

Any provider of network connectivity outside the Facility that maintains a presence in the Facility Meet Me Room(s).

Non Concurrent Cabinet Connection

A network connection between the non concurrent cabinets of a User.

Participant

A Trading, Clearing or Settlement Participant of ASX or ASX 24. A Participant may deliver Participant Services directly to its hosted Clients.

Participant Services

Routing of Client orders to ASX order books.

Service Provider

A User offering services within the Facility. All services, excluding ASP services, must be delivered and consumed exclusively via the Service Provider LAN.

SiC

Switch in Cabinet.

Trading Floor

The main data centre space within the Facility where Users are centrally located with the ASX Trading Platforms.

User

A User is any party that provides or consumes services within the Facility. This includes Participants, Service Providers, ASPs, Hosters and their clients.

Contact and Ordering Information

To order any of the products or services described above, please use the ASX Australian Liquidity Centre order form available from your ASX Account Manager.

For more information on the ASX Australian Liquidity Centre, please contact:

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Disclaimer

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