

New Trading Platform Release Notes - Derivatives Release 7

INFORMATION CLASSIFICATION - PUBLIC



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1. Introduction

These release notes provide information on New Trading Platform functionality following Release 7 on the Customer Development Environment (CDE). It is an update of the New Trading Platform Release Notes for Release 6 as at 22 February 2016.

1.1. Release software version and client information

The following versions of software will be deployed to CDE on 22 February 2016. Please see the following table for software version number and participant action items.

Component	Software version	Participant action required
CDE	v0.8.0	None
ASX Trading Terminal	v0.8.0	Download new version (available from 9am Monday 22 February)
ASX Admin And Risk Terminal	V0.8.0	Download new version

1.2. Release Summary

The following upgrades will be included in Release 7 on the CDE from 22 February 2016:

- Availability of User Defined Combination's (UDC), including Packs and Bundles with implied-in functionality.
- Rectify FIX order entry and confirmation issues related to order modification messages.
- FIX Session states show correct status.
- Issues with Glance have been addressed. Intra-spread functionality is now included.
- Change to ITCH directory messages.
- Upgrade to Shared Order Groups (SOG) where customers can choose to add markets e.g. XSFE, NZFX.
- Inclusion of Price Bands for index products
- Spread executions show leg symbol information in FIX
- Ability to configure log directory for ASX Admin And Risk Terminal
- Reference Data updates



- Inclusion of the full list of tradable instruments with associated Classification of Financial Instruments (CFI) codes. List of CFI codes for current products can be found on the ASX website.
- Price bands will be configured for all Index products, i.e. AP, AM, AR, AF and AA. Applied to full product functionality including spreads and back month contracts.
- An additional session statistics message will be disseminated prior to pre-maintenance of each trading session.
- Some amendments to tradable instrument ID's, e.g., currency denominations corrected for NZ products.
- Renaming of product segments, e.g., AM_AR (previously listed as AR_AM) and XT_XS (previously listed as XS_XT).

1.3.Key Dates and Events

CDE is a futures end-to-end trading to clearing environment used by both futures trading and clearing customers. It is used to test the New Trading Platform as well as trade flow through to clearing in Genium. The following table lists upcoming release dates for the CDE.

Date	Environment	Description
22 February 2016	CDE	Pre-production release – Production environment available
22 February – 8 April 2016	CDE	Application Accreditation
29 February – 8 April 2016	Production	User Account Configuration
Mid-March 2016	CDE	Corrective release
9 April – 30 April 2016	CDE	Industry Wide Testing and NTP Production Environment Implementation Rehearsal
4 May 2016	Production	Production Readiness Attestations Due



1.4. Information for Clearing Participants

Note the following:

- ASX has an end to end Customer Development Environment (CDE) to facilitate clearer testing for the New Trading Platform
- The CDE environment is connected to the test instance of the New Trading Platform (NTP) using production mapping between trading and clearing participants.
- As in the existing external test environment clearing customers can access Genium on the CDE via API or a second instance of the Clearing Work Station (CWS)
- The CDE utilises the same clearing test servers as the existing ASX external test environment so there is no additional hardware required to connect.
- The ASX is requesting that all Clearing Participants confirm that they can connect to CDE Genium by end of February 2016.
- The ASX will require that all clearing participants attest that the implementation of the NTP will not have an adverse impact on their current clearing solution. All clearers will be provided with details on what this attestation will require.
- If you have any enquiries please email cts@asx.com.au

1.5. User Login Naming Convention

ASX has set up user logins or sessions for each customer who has submitted their CDE order form. Each customer's login uses the following naming convention:

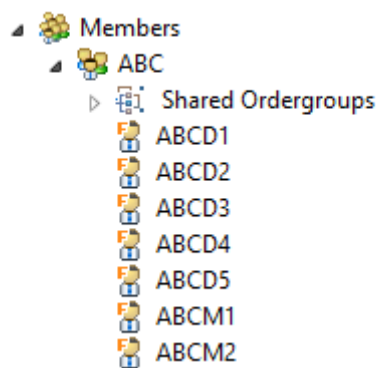
Character 1 – 3 = Firm ID

Character 4 = Type (D-FIX Drop Copy, M-FIX Market Data, O-FIX Order Entry, X-Market Data Protocol, R-Participant Admin, S-ASX Trading Terminal Super User, T-ASX Trading Terminal Trader)

Character 5 = Increments for each user. 1 to 9 then A-Z



The following example displays user logins for the firm ABC in the ASX Trading Terminal.



1.6.CDE Logins

Additional logins will be provided to each customer by CTS. Each customer will be provided with the following logins:

- 10 * FIX Order Entry
- 5 * FIX Market Data
- 5* FIX Drop Copy
- 5 * Market Data Protocol
- 1 * Participant Admin (PTRM)
- 1 * Super User (ASX Trading Terminal)
- 1 * Trader (ASX Trading Terminal)

The Target CompID for CDE is ASX.

For ASX derivatives market Tag 207 = XSFE.

For NZ derivatives market Tag 207 = NZFX.



Note:

Customers should note that each FIX Order Entry session is throttled to 15 TPS.

1.7. Password Policy

The following password policy is now enforced in CDE.

- Passwords must meet at least three of the following criteria:
 - Contain an English upper case character (A – Z)
 - Contain an English lower case letters (a-z)
 - Contain a Hindu Arabic numeral (0 – 9)
 - Contain one or more of the following non-alphanumeric special characters: [!@#\\$%^&*\(\)_+|~-=\`{}\[\]:~;'<>?.,./\)](#)
 - Contain any character that is categorised as an alphabetic character but is not uppercase or lowercase, this includes characters from Asian languages.
- Minimum password length of 8 characters
- Accounts will be locked out after six invalid logon attempts within 24 hours. This setting will require administrator to re-enable the account through the Admin Risk Terminal under the Member Admin function.
- Passwords will need to be reset every 90 days.
- Password must be different to the previous 12 passwords used.
- Customers will not be given prior warning in the days leading into password expiry that it will need to be changed.

1.8. Derivatives Functionality

The following table details the derivatives features that is available in CDE and current limitations.

Functionality	Available Functionality	Limitations	Additional Resources
FIX Order Entry	<ul style="list-style-type: none">• Order management (new, modify, cancel)• Password change in Logon (A)		See FIX Order Entry specification
FIX Market Data	<ul style="list-style-type: none">• Connectivity• Subscription to individual securities with		See FIX Market Data specification



Functionality	Available Functionality	Limitations	Additional Resources
	<ul style="list-style-type: none"> incremental refresh • ASX 24 specific tags and enumerations • Full refresh • DerivativeSecurity List (AA) for Options Series • Password change in Logon (A) 		
FIX Drop Copy	<ul style="list-style-type: none"> • Connectivity • Receive execution reports • Receive trade capture reports (for Clearing Participants) • PartyRiskLimits Report (CM) 		
Market Data Protocol	<ul style="list-style-type: none"> • Receive multi cast feed • Glance (snap shot) • System close message 		See Market Data Protocol specification
Account and Pre Trade Risk Management (PTRM)	<ul style="list-style-type: none"> • New admin GUI for account and limit maintenance • PTRM setting options for net long positions, net short positions and max order volume • Net Positions updating real time • Bulk account file upload 		See ASX Administration and Risk Terminal Guide



Functionality	Available Functionality	Limitations	Additional Resources
	<ul style="list-style-type: none"> Audit log available for admin users 		
Trading Protection Limit (TPL)	<ul style="list-style-type: none"> TPL available to set in all products 		See ASX Administration and Risk Terminal Guide
Shared Order Groups	<ul style="list-style-type: none"> Create shared order groups Shared order group users can view and act on orders in the same group Shared order groups set at a product level not by account 		See ASX Administration and Risk Terminal Guide
Intra-commodity Spreads	<ul style="list-style-type: none"> Available on all products (not all contract months listed) Implied price creation Spread to spread matching algorithm Leg and net price market data on both protocols 		See Section 4
Inter-commodity Spreads	<ul style="list-style-type: none"> Available on all products (not all 		See Section 4



Functionality	Available Functionality	Limitations	Additional Resources
	<p>contract months listed).</p> <ul style="list-style-type: none"> Implied out prices for spreads with 1:1 ratio Shadow prices for ratio spreads 		
User Defined Combinations (UDC)	<ul style="list-style-type: none"> Create net price strategy orders up to 6 legs via FIX and ASX Terminal Enter, modify and cancel orders Fixed leg strategy orders (used for F&O strategies) Implied in pricing available for net price UDC 	<ul style="list-style-type: none"> Shadow implied out pricing 	See Section 5
Packs and Bundles and Electricity Strips	<ul style="list-style-type: none"> Order entry and trade execution Generation of leg prices by Trading System Implied in pricing available 	<ul style="list-style-type: none"> Shadow implied out pricing 	See Section 6

Functionality	Available Functionality	Limitations	Additional Resources
Market Open Event	<ul style="list-style-type: none"> Throttle set at 15 TPS per log in / FIX session 	<ul style="list-style-type: none"> Throttling delay functionality to change in release 8 	

1.9. Known Issues Log

Refer to the [ASX New Trading Platform Known Issues Log](#) on the ASX website for details on current bugs and functional limitations.



2. Trading Day Cycle

NTP Derivatives

The New Trading Platform for Derivatives will operate the XSFE and NZFX markets on a 24/6 basis, with the first product pre-opening at 6:20am Monday morning and last product close at 8am Saturday morning. A typical Trading Day Cycle consists of two trading sessions (Night and Day) forming a single Trading Day. The Night Session always precedes the Day Session such that the Night session for the Friday Trading Day starts Thursday afternoon. The Trading Day is consistent with the current ASX 24 production platform however, the session phases will be changing.

2.1. Trading Day Cycle Example

For a 90 Day Bank Accepted Bill Futures (IR) contract the Friday trading day for the SFE Markets starts at 4:58pm Thursday Night (Pre-Open) and will end at 4:30pm on Friday afternoon. Similarly, Monday trading starts at 4:58pm Friday Night (Pre-Open) and will end at 4:30pm on Monday afternoon.

Session State/Phase	Description	Day	Time (AEST)
Pre-Open	A period of 10 minutes prior to the Open in respect of a particular Futures Contract or Option Contract during which bids and offers may be entered into the system.	Thursday	4:58:00 PM
Open	Open Trading where orders on all contract types can be entered, overlapping orders from the Pre-Open (auction) will be matched at the equilibrium price. New orders can be matched and trades can be executed.	Thursday	5:08:00 PM
Close	End of first session, market is closed no orders can be entered or modified at this time.	Friday	7:00:00 AM
Maintenance	Relevant orders are purged.	Friday	8:00:00 AM
Pre-Open	A period of 10 minutes prior to the Open in respect of a particular Futures Contract or Option Contract during which bids and offers may be entered into the system.	Friday	8:18:00 AM
Open	Open Trading where orders on all contract types can be entered, overlapping orders from the Pre-Open (auction) will be matched at the	Friday	8:28:00 AM



	equilibrium price. New orders can be matched and trades can be executed.		
Close	Trading day is over and the Market is closed, no orders can be entered or modified at this time.	Friday	4:30:00 PM
Maintenance	Relevant orders are purged. Expired instruments are deleted (including day only UDC contracts), the trading business day is incremented and pre-trade risk limits are reset.	Friday	4:40:00 PM

Specific contract session timings follow the production times. These can be accessed via the below link – <http://www.asx.com.au/about/trading-hours.htm>

3. Order Types

3.1. Supported Order Types

The following order types are available when entering orders in the New Trading Platform:

- **Limit** – Requires the user to enter an order with a volume and limit price specified.



Note:

The behaviour of the limit order type differs from how it behaves in ASX Trade 24. The limit price can be priced aggressively to cross the spread at any price within the allowed user defined Trading Protection Limits (TPL) or (Anomalous Order Threshold) (AOT) limits. The Limit order type behaves as a sweep order type and will fill level by level adhering to the limit price.

- **Market-to-Limit** – Requires the user to enter an order with volume but without a price. Where there is volume on the opposing side of the order book, the order will fill immediately at the touch price, any remaining volume on the order will rest passively at the executed limit price in order book.

3.2. Time in Force

Time in Force (TIF) specifies how long the order remains in effect and can be applied to both Limit and Market-To-Limit order types. The following TIF conditions are supported:

- **Day (GFD)** – Order is valid for current session.
- **Good Till Cancel (GTC)** – Order remains live until contract expiry
- **Fill Or Kill (FOK)** – Order is filled immediately if the order can be fully filled if not the order is cancelled.
- **Immediate Or Cancel (IOC)** – Order fills against available quantity any remaining unfilled volume is subsequently cancelled
- **Good Till Date** – Order remains in the Order Book until a specified date where applicable
- **Good Till Time** – Order remains in the Order book until a user specified time in the current session



Note:

In the absence of a TIF condition being specified the order is defaulted to Day.



3.3. Order Type Behaviour Matrix

Order Type/TIF	Futures	Options	Spreads	UDC's
Limit	✓	✓	✓	✓
Market-To-Limit ¹	✓	✓	✓	✓
GFD	✓	✓	✓	✓
GTC	✓	✓	X	X
FOK ¹	✓	✓	✓	✓
IOC (FAK) ¹	✓	✓	✓	✓
GTD (Good Till Date)	✓	✓	X	X
GTT (Good Till Time)	✓ ²	✓ ²	X	X

¹. Not permitted during auctions

². Orders purged on change of session state

3.4. Unintentional Crossing Prevention

The unintentional crossing prevention is an optional service that allows Trading Participants to assign a unique crossing key to orders. In the event that two opposing orders with the same crossing key for the same member firm are entered, the resulting trade creates an internal booking report to the trading firm. These trades are not reported to the market through the FIX and Market Data protocols and does not affect, open, high or low prices or market volume. The internal booking reports support Participants administrative activities including accounting and back office processes. All internal booking trades are reported through to Genium. The crossing key is a 4 byte integer and can be applied to outright, spread and UDC orders.



4. Spread Functionality

The following spread functionality is contained in Release 3:

- Exchange defined spreads
- Naming conventions for intra-commodity and inter-commodity spreads
- Trading intra-commodity spreads
- Pricing of intra-commodity spreads
- Implied prices for intra-commodity spreads
- intra-commodity spreads order management

4.1. Exchange Defined Spreads

Release 3 supports the following contracts for Intra and Inter Commodity spreads:

Intra-commodity Spreads

The following contracts are supported:

- 30 Day Interbank Cash Rate Futures (Commodity code IB)
- 90 Day Bank Bill Futures (Commodity code IR)
- 90 Day New Zealand Bank Bill Futures (Commodity code BB)
- 3 Year Treasury Bond Futures (Commodity code YT)
- 10 Year Treasury Bond Futures (Commodity code XT)
- SPI Futures (Commodity code AP)
- Grain Futures.

Inter-commodity Spreads

The following contracts are supported:

- 3 year vs 10 year Treasury Bond Spread
- 90 day Bank bill vs 3 Year Bond Spread
- Electricity regional spreads.



4.2.Naming Conventions for Intra- commodity and Inter-commodity Spreads

Intra-commodity spreads will be displayed on the New Trading Platform with the nearest expiring contract first. This is consistent with ASX Trade24 functionality.

For example, the 3 year calendar spread is listed as YTH6M6

There is a change to the inter-commodity spreads display on the New Trading Platform.

For example the 3 year – 10 year spread will be listed as follows: YTmyXTmy3210



Note:

This differs from how the inter-commodity spread is represented on ASX Trade24 where the 10 year contract (XT) was listed first in the spread display name. The order and trade management for inter-commodity spreads is consistent with current market behaviour. For example, if you buy the spread you buy the YT and sell the XT contract.

4.3.Trading Intra-commodity Spreads

On the new trading platform there are no changes to the trading behaviour for intra-commodity spreads. Examples of trading intra-commodity spreads are:

- Buy the YTH6YTM6 spread means you are buying the near month YTH6 and selling the far month YTM6.
- Sell the APU6Z6 spread means you are selling the near month APU6 and buying the far month APZ6.

4.4.Pricing of Intra-commodity Spreads

The price differential is calculated by taking the far month price from the near month price. For example, Near – Far = Price differential.

The near month of an intra-spread is defined as the month with the closest expiry date.

Example 1: IRH6 futures market price 97500 and IRM6 futures market price 97300. The IRH6M6 intra spread market price differential is +200 points.

Example 2: IRH6 futures market price 97000 and IRM6 futures market price 97230 IRH6M6 intra spread market price differential is -230 points.



4.5. Implied Prices for Intra-commodity Spreads

Implied prices generated, implied in or implied out, will maintain FIFO priority for the volume based on the underlying real orders that imply the price. Implied in and out prices will be grouped in the order book at the top priority of the oldest order irrespective of the path by which the order originated. When the order that created the implied price in the order book is traded, the remaining implied orders will continue to be grouped and will inherit the queue order priority of the next oldest order. The following example shows how implied orders are grouped:

The following orders for the IR contract and IR spreads are in the matching engine. The priority number is based on time of order entry. Implied orders inherit queue priority from the real order that resulted in the implied being created.

Order A: Buy 100 IRH6Z6 @0.11 IRH6 Queue Priority=1

Order B: Buy 100 IRH6U6 @0.10 IRH6 Queue Priority=2

Order C: Buy 100 IRH6M6 @0.0 IRH6 Queue Priority=3

Order D: Buy 15 IRM6 @97.25 IRH6 Queue Priority=4

Combination of Order C and Order D creates an Implied Order in IRH6:

Buy 15 @97.25 . IRH6 Queue Priority=4

Order E: Buy 5 IRH6 @97.25 IRH6 Queue Priority=5

Order F: Buy 3 IRU6 @97.15 IRH6 Queue Priority=6

Combination of Order B and Order F creates an Implied Order in IRH6:

Buy 3@97.25 IRH6 Queue Priority=6.

The volume from the two implied orders will show in order book as a single volume number of 18 as the implied prices from different paths (with priority = 4 and priority = 6) bundled. This differs from the current platform where implied prices generated from different paths are bundled together per path and shown in the top of book as separate orders.

4.6. Intra-commodity Spreads Order Management

The following order management rules apply to intra-commodity spreads:

- As per normal order entry, intra spread orders can be set to retain or purge, shared or non-shared
- Intra spread orders cannot be entered during Pre-Open
- Intra spread orders do not support a GTC order type



- Intra spread orders support all other order types
- The ratio on intra spread orders will always be 1:1
- Spread orders will maintain the same FIFO priority as outright futures orders.

4.7.Trading Inter-commodity Spreads

Inter commodity spreads allow trading between separate instruments listed on ASX Trade24 using spread differential pricing. To trade inter-commodity spreads the dominate leg of the spread needs to be established to determine which leg you are buying or selling. On the New Trading Platform the inter-commodity spreads will be listed with the dominant leg first.

When trading the inter-commodity spread:

- Buying the spread means buying the first leg (dominant contract) and selling the second leg.
- Selling the spread means selling the first leg (dominant contract) and buying the second leg.

For inter-commodity spreads there is no change to the calculation methodology for the determination of the ratios. The ratio assigned to the second leg of the spread will be static, that is, it will not change on a daily basis. The ratio for the first leg may change on a daily basis. This rule does not apply to the XT-XX spread, with the XT leg having a static ratio of 10 and the XX leg having a variable ratio.

4.8.Pricing Inter-commodity Spreads

The inter-spread market uses spread differential pricing. Differential pricing is based on the dominant (or first leg) contract price minus the price of the second leg. The price differential can be a positive or a negative figure. A positive spread price indicates the dominant contract is priced higher than the second leg and vice versa.

For example:

- XTM6 outright futures are offered at 97.055 and YTM6 outright futures are bid at 97.720. The YTM6XTM63310 spread would be trading at a positive (+) price differential of 0.665. The price 0.665 is the difference between YTM6 97.720 and XTM6 97.055.
- XTM6 outright futures are bid at 97.450 and YTM6 outright futures are offered at 97.200. The YTM6XTM63310 spread would be trading at a negative (-) price differential of 0.250. The price -0.250 is the difference between YTM6 97.200 and XTM6 97.450.



4.9. Implied Prices in Inter-commodity Spreads

Prices in the outright contract will create implied prices into the inter-commodity spread when volume conditions are met. For spreads with a ratio other than 1: 1, shadow or dark spread prices will imply into the outright contracts. These prices are not visible in the order book but can trade if the volume and price conditions are met. For inter-commodity spreads with a ratio of 1:1 spread prices will imply out and be visible in the outright contracts.

4.10. Inter Spreads Order Management

The following order management rules apply to inter-commodity spreads:

- As per normal order entry, inter spread orders can be set to retain or purge, shared or non-shared
- Inter-commodity spread orders cannot be entered during Pre-Open
- Inter-commodity spread orders do not support GTC order type
- Inter-commodity spread orders will maintain the same FIFO priority as outright futures orders.

4.11. Spread to Spread Trades

When a spread order trades against other spread orders, the following rule is used to generate the resultant leg prices based on an anchor price:

The anchor price is the last traded price for the leg of the strategy that traded most recently, provided the price is within the accepted Spread. If there is no last trade price for any of the legs, then the anchor leg and its price will be based on AOT Reference Price, Adjusted Closing Price or Prior Settlement Price, within the accepted spread.

The Leg Reference Price is defined as:

- Last Trade Price
- If AOT is set, use AOT reference price
- Adjusted closing price.
- Prior settlement price.

For spread to spread trades the following rules are used to determine the leg prices:

The preliminary leg prices for each of the remaining legs (except the anchor leg) is set according to the following steps:



1. If the Leg Reference Price is within the Spread, the preliminary price is set to this Leg Reference Price.
2. If the Leg Reference Price is outside of the Spread, the preliminary price is set to closest bid or offer of the Spread.
3. If the Leg Reference Price and a bid (or ask) exists but no Spread is available, the preliminary price is set to the bid (or ask) if it improves market, otherwise it is set at the Leg Reference Price.
4. If the Leg Reference Price exists but no Spread is available, the preliminary price is set at the Leg Reference Price.

The Spread is defined as is the tightest interval of Price bands (AOT) and Best Bid and Offer (BBO). BBO includes both orders and visible implied prices).

Once the preliminary price has been determined for each leg, it is (if needed) adjusted until they add up to the correct net price. System has a defined steps to make the adjustment and is not random.

For Spread to Spread trades involving more than two strategy trades, the trading platform uses the anchor leg price and the traded spread differentials to determine the leg prices.



5. User Defined Combinations

ASX's New Trading Platform will support two types of User Defined Combinations (UDCs):

- Net price
- Fixed leg price.

UDCs replace the ASX Trade24 Custom Market for trading multiple leg strategies. UDCs cannot be created where there exists an Exchange Defined Strategy.

5.1. Creating User Defined Combinations

UDCs can be created via FIX or through ASX's Trading Terminal. UDCs can be created with up to six legs of any combination of futures and options. For net and fixed leg price UDCs each unique combination will create one order book per strategy. Fixed leg UDCs are used for Futures and Options strategies (F&Os). Where the option component of the F&O strategy has multiple option strikes, the price will be a net price.

The trading platform will not permit the creation of the same unique UDC. Should a specific UDC already exist, an attempt to create the same UDC will result in the user receiving a reject message and the existing strategies ID. Users should note that a net price UDC and a fixed leg price UDC can be created for the same strategy. UDCs created via the ASX Trading Terminal allow the user to create and place an order in the UDC before releasing the UDC to the market.

All UDCs created must be traded at the lowest common denominator.

5.2. Implied Pricing for Net Price UDCs

Orders in the outright or leg contracts will imply prices into the net price UDCs once the strategy has been created. Implied out prices (shadow or lit) will not be supported.

UDCs will have continuous interaction with the outright markets.

5.3. Implied Pricing for Fixed Leg UDC

Fixed leg UDCs will have shadow prices only. Implied in prices are not visible in the order books but are executable if the volume and price conditions are met. Implied out prices are not supported.

UDCs will have continuous interaction with the outright markets.



5.4.UDCs Order Management

The following order management rules apply to UDCs:

- UDCs maintain FIFO position. Consistent with outright and spread orders, order modification (volume increase) will result in a loss of queue position.
- For fixed leg UDCs the net price component determines queue position.

5.5.Combination to Combination Trades

When a spread order trades against other spread orders, the following rule is used to generate the resultant leg prices based on an anchor price:

The anchor price is the last traded price for the leg of the strategy that traded most recently, provided the price is within the accepted Spread. If there is no last trade price for any of the legs, then the anchor leg and its price will be based on AOT Reference Price, Adjusted Closing Price or Prior Settlement Price, within the accepted spread.

The Leg Reference Price is defined as:

- Last Trade Price
- If AOT is set, use AOT reference price.
- Adjusted closing price.
- Prior settlement price.

For spread to spread trades the following rules are used to determine the leg prices:

The preliminary leg prices for each of the remaining legs (except the anchor leg) is set according to the following steps:

1. If the Leg Reference Price is within the Spread, the preliminary price is set to this Leg Reference Price.
2. If the Leg Reference Price is outside of the Spread, the preliminary price is set to closest bid or offer of the Spread.
3. If the Leg Reference Price and a bid (or ask) exists but no Spread is available, the preliminary price is set to the bid (or ask) if it improves market, otherwise it is set at the Leg Reference Price.
4. If the Leg Reference Price exists but no Spread is available, the preliminary price is set at the Leg Reference Price.



The Spread is defined as the tightest interval of Price bands (AOT) and Best Bid and Offer (BBO). BBO includes both orders and visible implied prices).

Once the preliminary price has been determined for each leg, it is (if needed) adjusted until they add up to the correct net price. The system has defined steps to make the adjustment and is not random.

For spread to spread trades involving more than two strategy trades, the trading platform uses the anchor leg price and the traded spread differentials to determine the leg prices.



6. Packs and Bundles and Electricity Strips

Packs and Bundles on 90 Day Bank Accepted Bill futures allow trading of multiple consecutive 90 Day Bank Accepted Bill futures contracts in a single transaction at an average price of the underlying futures legs. Packs apply to trading four consecutive underlying futures legs, while Bundles apply to either eight or twelve underlying futures legs.

Similarly, Electricity strip futures allow the trading of multiple consecutive underlying futures contracts at an average price while adjusting for differing contract sizes. Electricity Strips are listed over the Australian Quarterly Base Load futures, Australian Peak Load futures and Australian Quarterly Base Load \$300 Cap futures.

Packs and Bundles and electricity strips are listed as separate contracts under a unique contract codes. Upon trade execution, individual leg prices for the underlying contracts are determined and subsequently cleared.

Upon execution of a Pack, Bundle or Electricity Strip, underlying futures prices will be determined using the following algorithm:

1. A reference price for each individual futures leg will be determined.

For Packs and Bundles the reference prices for the underlying futures contracts will be the adjusted daily settlement price (DSP). For Packs and Bundles executed during the day session, the adjusted DSP will be the closing night session prices of each individual futures leg. For Packs and Bundles executed during the night session, the adjusted DSP will be the closing day session prices of each individual futures leg.

For Electricity strips the reference price for each individual futures leg will be determined. The reference price for the individual futures legs will be the preceding DSP from the prior trading date.

2. A price adjustment factor is determined using the following formula:

$$(\text{Traded Pack/Bundle/Strip price} - \text{Average of the leg reference price}) / \text{Average of the leg reference price.}$$

Where the average of the leg reference price is calculated as follows:

$$((\text{Leg 1 reference price} \times \text{Leg 1 contract size}) + (\text{Leg 2 reference price} \times \text{Leg 2 contract size}) + (\text{Leg 3 reference price} \times \text{Leg 3 contracts size}) + \dots + (\text{Leg N reference price} \times \text{Leg N contracts size})) / (\text{sum of contract sizes})$$

3. The leg prices are allocated using the following formula:



Allocated Leg 1 price = Leg 1 reference price x (1 + Adjustment factor)

For the 90 day Bank Bill Futures the allocated leg prices are rounded to the nearest 0.5 basis point increment.

For the electricity futures the allocated leg prices are rounded to nearest \$0.01.

4. If the traded Pack/Bundle/Electricity Strip traded price does not equate to the average of the allocated futures legs prices, the longest dated allocated futures price is adjusted to satisfy the condition that Traded Pack/Bundle/Electricity strip price equates to average allocated futures legs.
5. Participants are notified of the futures leg prices through a single trade execution report which details the trade price of the Pack, Bundle or Electricity Strip as well as the prices of the individual legs.

6.1. Implied Prices in Packs and Bundles

Prices in the outright 90 Day Bank Bill futures contract will create implied average prices into the Packs and Bundles. Implied out prices between the Packs and Bundles and outright 90 Day Bank Bill futures will not be supported.



Information Classification - Public

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