Baikal MTF Service Guide

Baikal Order Book & Dark Liquidity Aggregation

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Contents

1 About Baikal

Baikal Global Ltd, a business launched by the London Stock Exchange, aims to help brokers overcome increasing market fragmentation and decreasing average trade sizes by providing a trusted and safe environment in which to execute larger trades and access liquidity efficiently.

The business will operate a Multilateral Trading Facility (MTF), offering services to approved investment firms in a non-discriminatory fashion and guaranteeing its participants a high standard of neutrality and transparency.

Separate to the MTF, Baikal already operates a series of brokerage services that are described in a separate service guide – the Baikal Liquidity Aggregation Service Guide, which covers liquidity aggregation and Direct Market Access for lit markets.

Baikal differentiates itself by;

- Focussing on the needs of both broker dealers and their institutional clients, designing and delivering services to brokers that improve their profitability, whilst helping them achieve superior execution quality for their clients.
- Delivering services that offer compelling benefits at competitive prices.
- Maintaining the highest standards of neutrality and integrity – providing brokers and their clients with clarity and confidence.

The Baikal MTF services will include;

- The Baikal Order Book, a pan-European non-display (dark) trading system with a unique market model designed to facilitate the trading of larger orders without information leakage, gaming or market impact.
- A Dark Liquidity Aggregation Service, also pan-European, which provides efficient and anonymous access to hidden and non-display liquidity across over 15 non-display services and liquidity pools.

2 About this document

The purpose of this document is to provide a detailed description of the functional, technical and operational features of the Baikal Order Book and the Dark Liquidity Aggregation service.

Related documents are also available for prospective participants including; detailed technical specifications for connectivity to TradElect native, the Baikal rulebook and the Baikal Participant Agreement.

This document will be updated on an on-going basis and new versions will be made available electronically on the Baikal Global Ltd web site at www.baikalglobal.com.

The services described in this guide will be available from launch in Q4 2009.There are some references looking ahead to features that will be included in subsequent releases.

3 Glossary and Acronyms

Term	Description
Applicant	A qualifying investment firm seeking to become a Baikal Participant
Baikal	The MTF operated by Baikal Global Ltd
Baikal Global Limited	The investment firm operating the Baikal Order Book and Dark Liquidity Aggregation services, and acting as an MTF participant
Best Bid	The Best Bid from the Primary Market for the instrument.
Best Offer	The Best Offer from the Primary Market for the instrument
Best Quote	The Best Bid for a Buy order, and the Best Offer for a Sell order
BOB	The Baikal Order Book, a system and service of Baikal
CC&G	Cassa di Compensazzione e Garanzia S.p.A., a Central Counterparty (CCP) which will provide clearing services for Baikal participants
Child order	Individual orders routed to external destinations by the SOR when executing a Parent order submitted by a participant. A one-to-many relationship exists between a parent order and child orders.
Continuous Match	The phase of the Baikal Order Book system during which IOC orders execute against eligible Resident orders
Day Order	GTT, GFD, GTD
Destination	A market (including RIEs and MTFs) or service (including broker algorithms, crossing networks and systematic internalisers) in/via which liquidity can be accessed
DLA	Dark Liquidity Aggregation, a service of Baikal
EMCF	European Multilateral Clearing Facility N.V., a Central Counterparty (CCP) which will provide clearing services for Baikal participants
Fill Or Kill (FOK)	Order (also known as 'all or none') that must either be filled immediately in its entirety or be cancelled without being posted
FSA	Financial Services Authority of the United Kingdom
Fungibility	For Baikal, any two or more 'listings' of an instrument sharing the same ISIN, currency and place of settlement
Good For Day (GFD)	Order that is valid until the markets have closed on the day of order transmission
Good Till Cancel (GTC)	Order that is valid until cancelled by the participant
Good Till Date/Time (GTD/GTT)	Order that is valid until a specified date and/or time
Immediate or Cancel (IOC)	Order where any quantity not immediately executed is automatically cancelled (i.e. is not posted)

Infolect	The market data distribution channel of LSEG, through which Baikal post-trade data and reference data will be disseminated
Lit destination	Trading destinations (exchanges, MTFs, etc) offering trading on a displayed order book
MES	Minimum Execution Size (also referred to as MAQ – Minimum Acceptable Quantity)
Market Quote	The Best Offer for a Buy order, and the Best Bid for a Sell order
Mid Price	The average of the Best Bid and Best Offer, rounded to four decimal places
MiFID	Markets in Financial Instruments Directive
MOV	Minimum Order Value specified in the instrument's trading currency
MTF	Multilateral Trading Facility as defined by MiFID
Native TradElect	A protocol for direct connectivity to the Baikal Order Book system
Non-display / Dark destination	A destination for non-display liquidity
Parent order	Each individual participant order received by Baikal and sliced into child orders for the purpose of trading
Participant	An investment firm having signed the Baikal MTF Participant Agreement and satisfied other conditions for being accepted as a Participant
Participant Agreement	The contract required for investment firms to utilise the Baikal MTF services
Periodic Match	The phase of the Baikal Order Book system during which Resident orders execute against one another
Primary exchange	The exchange on which an instrument is officially listed
Smart Order Routing or SOR	Process to route child orders across multiple execution destinations to maximise liquidity access and minimise cost of trading
Trading universe	List of stocks offered for trading
WFMC	Well Formed Market Checks

4 Introduction to these services

Baikal's MTF services are designed to allow market participants to reduce their trading costs whilst delivering superior execution quality to their clients.

4.1 Service description overview

Baikal will operate the Baikal Order Book and a Dark Liquidity Aggregation service. All participant trading activity will be centrally cleared through a Baikal appointed Central Counterparty (CCP).

Firms wishing to access Baikal MTF services without being a Participant are able to contract and settle OTC with Baikal Global Limited or another Baikal participant. Such indirect access is described briefly in Section 10.

4.1.1 Overview of the Baikal Order Book (BOB)

BOB offers a trading environment in which information leakage, price impact and potential gaming/abuse are controlled, not only by virtue of the non-display character of the system, but more importantly because of its unique market model.

BOB segregates liquidity into 'patient' and 'immediacy-demanding' streams, and gives participants control over which streams to interact with. Patient flow trades in larger size on a periodic basis, whilst immediacy demanding flow trades continuously in smaller size. The patient trading of large orders is subject to a randomisation of the timetable which prevents gaming, ensuring that only natural buyers and sellers interact. Additional controls such as market-defined Minimum Order Values and customer-defined Minimum Execution Size further limit the potential for information leakage and price impact, and ensure that BOB will differentiate itself through above-average execution sizes.

BOB is a price-referencing system – meaning that all executions take place at the Mid price as referenced form the Primary Exchange, offering equal price improvement to both buyer and seller.

BOB offers:

- Low costs for Participants through competitive tariffs – favouring those posting resident orders, larger than average execution sizes (reducing clearing costs), pan-European clearing, offering efficient risk management, and efficient settlement through netting with executions on other platforms.
- Superior execution quality for Participants and their clients – achieved via a unique market model designed to limit information leakage, prevent gaming, and provide unprecedented control over the characteristics of liquidity with which an order interacts, and rewards for the underlying providers of liquidity.

4.1.2 Overview of Dark Liquidity Aggregation (DLA)

Baikal's DLA service is designed to provide a sophisticated, cost effective and anonymous means to interact with non-display and hidden liquidity outside of BOB (including participant-operated crossing and internalisation services and the non-display liquidity in MTFs and RIEs). This will enhance Participants' capacity to execute large orders efficiently without price impact and information leakage.

Baikal will offer a variety of easy-to-use order types that will apply intelligent algorithms to seek out non-displayed liquidity across Participant-selected categories of liquidity pool, including BOB.

Executions achieved via off-book routing to other destinations will be cleared via Baikal's CCP and netted with trades executed on BOB, irrespective of whether the executing destination is itself CCP-cleared. Thus, the Baikal DLA service will provide efficient post-trade processing, ensure end-to-end anonymity and help to reduce and manage counterparty risk, even when the executing destination is a broker-operated crossing/internalisation service.

5 Baikal Order Book (BOB)

5.1 Regulatory Framework

BOB is a non-display price-referencing system, relying on the “price-referencing waiver” in MiFID that allows pre-trade transparency requirements to be waived; meaning that

- There is no pre-trade transparency, no publication of orders available in the system
- All transactions take place at prices based upon a reference price from an external market
- There is no price formation or price discovery within BOB

In accordance with the waiver granted by the FSA, BOB will use the Mid price of the Primary Exchange of each instrument as its Reference Price.

BOB does not rely on the “large in scale” waiver, and consequently is not be constrained by regulation to only accept orders that are “large in scale”.

5.2 Products and Reference Data

5.2.1 Trading Universe

The instruments traded on BOB and supported for the DLA service include approximately 3,000 equities and from 14 European countries.

Please refer to section 7 (Baikal Trading Universe) for more details about the trading universe.

5.2.2 Currency

Each BOB instrument will trade in the same currency as the primary reference line for the instrument. As set out in 5.2.1 above, if there are different primary reference lines in different currencies for a single ISIN these will be separate instruments in BOB. Trading and Settlement will always occur in the same currency.

5.2.3 Tick Sizes

BOB mid-point matching will occur within the spread of the Primary Exchange of the stock, and can consequently trade at fractions of a Primary Exchange tick size. Execution Prices will be calculated to 4 decimal place accuracy and Limit Prices can also be specified to 4 decimal places.

5.2.4 Calendar / Hours of Operation

BOB will follow the calendar of each Primary Exchange; where the Primary Exchange of a security is closed on a business day, BOB will be closed for that market. When in doubt, members can contact the Client Service Desk for clarification.

As a reference price system, BOB needs to source a valid Mid price from the Primary Market. Therefore, the trading day will follow the trading hours of each open Primary Exchange's continuous trading periods, and where a Primary Market is not open, Baikal will not offer trading in that Primary Market's instruments. Primary Exchange after hour segments will not be a replicated by Baikal.

Orders can be received from 7.30am (UK time) and will queue for submission to BOB when the system opens for the instrument.

Market Phase	Time
Pre-Open	08.30.00 CET / 07.30.00 UK
Continuous Trading	09.00.00 CET / 08.00.00 UK
Market Close	17.30.00 CET / 16.30.00 UK

5.2.5 Dealing Capacity

BOB will accept orders flagged as either Principal or Agency. Participants will be able to specify their dealing capacity on a per order basis.

5.3 Market Model

BOB will operate two distinct market phases in parallel; periodic matching and continuous trading. Each phase having its own characteristics including eligible order types and minimum order value thresholds.

Day orders can be sent to one or other phase, as determined by the 'matching instruction' parameter on the order. If this parameter is not provided the order is defaulted to both continuous trading and periodic matching, such that should the resident order not match during continuous trading it will automatically become eligible for the periodic matching phase.

5.3.1 Periodic Matches

5.3.1.1 Timetable and Frequency for Periodic Matches

Within the applicable hours of operation, the frequency of periodic matches can vary by instrument, with matches typically taking place between 1 and 30 seconds apart.

The precise timing of periodic matches will be randomised (around an instrument-specific frequency) and will be independent by security.

This randomised timing is intended to prevent gaming, and to ensure that participating orders must be 'patient' in nature.

5.3.1.2 Order Time if Force (TIF) Accepted for Periodic Matches

Order TIF/ Matching Instruction	Order Handling
DAY/Periodic Resident (P)	Eligible to match against other Periodic Resident orders, according to strict time priority (subject to Limit Price and Minimum-Execution-Size constraints).

DAY/Both (blank)	Eligible to match against other Periodic Resident orders, according to strict time priority (subject to Limit Price and Minimum-Execution-Size constraints).
IOC/FOK	Not eligible to participate.
DAY/Continuous Resident (A)	Not eligible to participate.

5.3.1.3 Execution Reference Prices for Periodic Matches

Transactions during Periodic Matches will take place at the Mid Price.

5.3.2 Continuous Trading

5.3.2.1 Timetable and Frequency for Continuous Trading

Within the applicable hours of operation, Continuous Trading will be available, allowing IOC orders to interact with one or more Continuous Resident orders.

5.3.2.2 Order Time in Force (TIF) Accepted for Continuous Trading

Order TIF/ Matching Instruction	Order Handling
IOC/FOK	A single IOC or FOK order will match against one or more Continuous Resident orders according to strict time priority (subject to Limit Price and Minimum-Execution-Size constraints).
DAY/Continuous Resident (A)	Will only be matched against incoming IOC or FOK orders, according to strict time priority (subject to Limit Price and Minimum-Execution-Size constraints).
DAY/Both (blank)	Will only be matched against incoming IOC or FOK orders, according to strict time priority (subject to Limit Price and Minimum-Execution-Size constraints).
DAY/ Periodic Resident (P)	Not eligible to participate.

5.4 BOB Matching Process

The Matching phases adhere to the following process:

- A match is triggered upon
  - Arrival of an IOC order where one or more potential contra-side Continuous Resident orders exist, or
  - Randomised Periodic Mid-Point Match time in a stock begins, only if both buy and sell Periodic Resident orders are sitting on BOB
- The Primary Exchange (source of the reference price) is assessed with “Well Formed Market Checks” (please see section 5.5.3 for details).
- If the Primary Exchange fails the checks the match process is not executed:
  - IOC orders will be cancelled, with no indication as to the cause
  - Resident orders will not receive notification that a match process was attempted

- If the Primary Exchange passes the checks, the process continues
- The applicable Reference Price is taken from the Primary Exchange
- The list of eligible orders is determined
    - Orders with no Limit Price, and
    - Orders with Limit price equal to or more aggressive than the applicable Reference Price
- The match proceeds, with orders matched in strict time priority (subject to Minimum Execution Sizes specified on each order). The Limit Price or absence thereof has no impact whatsoever on the matching priority of an order
- Executions (if any) are returned against orders, and any unexecuted IOC quantity is cancelled
- Trade reports of executions are published

5.4.1 Order Modification and Impact on Order Book Priority

The time priority of an order in BOB will be affected by the modification of some of its properties.

- Modification of the Limit Price: Results in loss of time priority
- Modification by increasing the size of an order: Results in loss of time priority
- Modification by decreasing the size of an order: Does not affect the order's time priority.

Other allowable modifications (e.g. change of the order's Minimum Execution Size) will not affect the time priority of the order

5.5 Market Integrity Features

BOB has been designed with a range of features which offer superior levels of protection and control for participants orders which, taken together, deliver a trusted and safe environment to execute larger sizes.

5.5.1 Order Quantity Validation at the Point of Order Entry

Incoming orders will be validated against a Minimum Order Value (MOV) threshold. Orders failing the validation will be rejected.

This feature prevents 'fishing' for information using small-sized orders.

The MOVs will be set independently for Continuous Trading and for Periodic Matches.

MOV values are specified according to historic traded volumes. For this purpose instruments have been banded into 'liquidity sectors' with MOV values set per sector. The sectors list with the MOV values applicable is available to download from the Baikal web site.

5.5.2 Minimum Execution Size

Participants may optionally add further protection to their orders by applying a Minimum Execution Size (MES) and this will prevent any match from executing where the execution quantity would be less that this value.

Following successive matches/executions when the residual quantity of the order becomes less that the MES value the order is treated as an ‘all or nothing’ order for that remaining quantity.

5.5.3 “Well Formed Market” Checks

These checks are designed to ensure that transactions only take place when both parties will be satisfied that the Reference Price used is fair. Executions will not take place unless the series of tests relating to the spread, order values, book depth and trading range are passed. Whilst these may limit trading in unusually volatile or thin markets, the purpose of BOB is to facilitate block trading in a trusted environment.

5.5.4 Anti-Timing and Anti-Pinging

The random Mid-point Match timing is designed to make the periodic match phase unattractive to immediacy demanding orders and to high-frequency traders who typically will not leave an order for execution at an as-yet undetermined price and time.

The random timing, combined with the non-displayed nature of BOB, also prevents gaming of the Reference Price – since Participants cannot know when to attempt to do so.

5.6 Surveillance

Baikal will deploy a sophisticated surveillance system to further maintain the integrity of BOB. This system will monitor the performance of the well-formed market checks, and identify any behaviour which creates a disorderly market or indicates market abuse.

5.7 Trade Reporting

BOB trades (and applicable DLA trades) will be trade reported in real-time, in accordance with MiFID post trade transparency requirements. Baikal will disseminate trade reports via LSE’s Infolect platform through Baikal specific service channels which provides wide market data dissemination to data vendors. Baikal trade reporting data will be included in existing LSE data packages.

Baikal trade reports will be identified by the ‘BAIK’ Baikal Market Identifier Code. There will be no indication as to whether the trade resulted from a periodic matching or continuous trading phase.

5.8 Clearing and Settlement

All BOB and DLA trade executions will be cleared by Baikal’s appointed CCPs, European Multilateral Clearing Facility (EMCF) and Cassa di Compensazione e Garanzia (CC&G).

At launch of Baikal’s BOB and DLA services, EMCF will be the sole Baikal CCP. CC&G will offer CCP services to Baikal participants following interoperability arrangements which are planned post launch. Once CCP interoperability is established, participants will have choice of where they would like to clear business executed via Baikal.

Further information on post trade arrangements is given in Section 10.

5.9 Tariff Structure and Billing

Baikal will publish a tariff schedule applicable to all Participants for BOB and DLA trading.

Participants will be invoiced, in Euros, monthly in arrears by Baikal for tariffs incurred, with a single invoice for BOB and DLA activity.

6 Liquidity Aggregation

6.1 Introduction

Baikal will offer Participants access to order types that seek liquidity in other destinations in addition to liquidity on BOB. This is particularly necessary owing to the range of non-display liquidity destinations now available in Europe and the consequent fragmentation of non-displayed liquidity.

Trades achieved by seeking liquidity outside of BOB will be governed as off-book executions between two Baikal participants and subject to Baikal MTF rules; and therefore will be aggregated with trades on BOB for the purposes of clearing and settlement.

6.2 Destinations

Baikal anticipates aggregating non-display liquidity across the widest range of destinations with up to fifteen destinations available at launch and more to be added shortly thereafter. The types of destination will include:

- Broker operated Crossing Networks
- Brokers acting in an SI (systematic internaliser) capacity
- Brokers acting as market counterparties without relying upon either the Crossing Network or SI frameworks
- Broker algorithms designed to seek non-displayed liquidity
- Non display facilities of exchanges and MTFs

The list of destinations will be published ahead of launch (where permitted by the destination operators).

Participants may choose to exclude specific destinations from the list that their orders may be routed to interact with. .Also, certain destinations are not appropriate for certain strategies and hence strategies may use a sub-set of the full set of destinations available.

6.3 Dark Liquidity Aggregation Strategies

6.3.1 Strategies Specifically for Non-Displayed Liquidity

Strategy	Mandatory Attributes	Optional Attributes	Order Handling
IOC Dark Only	Instrument Side Quantity	Limit Price MES	Will generate an IOC order to BOB. If not immediately executed, will then perform a single sweep to seek liquidity in other non-display destinations.
Dark Only with Ping	Instrument Side	Limit Price MES	Subject to the Limit Price, will post a Mid-point Periodic order into BOB whilst periodically seeking liquidity in other non-display destinations.

	Quantity		
Dark Only with Post	Instrument Side Quantity	Limit Price MES	Subject to the Limit Price, will post a Mid-point Periodic order into BOB whilst concurrently seeking liquidity in other non-display destinations by posting orders. This strategy is not available at launch.

6.3.2 Strategies Combining Non-Displayed Liquidity with Access to Lit Markets

The introduction of these order types is subject to further regulatory approval.

Order Type	Mandatory Attributes	Optional Attributes	Order Handling
IOC Aggressive Dark & Lit -	Instrument Side Quantity	Limit Price MES	Will generate an IOC order first to BOB then the other non-display destinations at the more passive of the Limit Price and the opposite side of the BBO. Will then perform a sweep of the unexecuted quantity across lit markets using the Limit Price.
Resident Aggressive Dark & Lit	Instrument Side Quantity	Limit Price MES	Will generate an IOC order first to BOB then the other non-display destinations at the more passive of the Limit Price and the opposite side of the BBO. Will then sweep the unexecuted quantity across lit markets using the Limit Price and post any residual at the Limit Price to the most liquid lit market for the instrument.
Resident Dark & Lit	Instrument Side Quantity	Limit Price MES	Will post an order to BOB for 30 seconds at the more passive of the Limit Price and the Mid Point. Any portion not executed will be swept across both non-display and lit destinations using the Limit Price, and then posted to the most liquid lit market for the instrument. This strategy is not available at launch.
Resident Iceberg Dark & Lit	Instrument Side Quantity	Limit Price MES Display Quantity	Will post the Display Quantity to the most liquid Lit Market joining the best Bid/Offer and the remaining/reserve quantity to BOB as a Mid-point Periodic order. Once the display quantity is fully executed, it will be refreshed from the reserve quantity. This strategy is not available at launch.

6.3.3 Strategies Combining Non-Displayed Liquidity with Access to Lit Markets indirectly though Algorithms

Order Type	Mandatory Attributes	Optional Attributes	Order Handling
Dark with PoV	Instrument Side Quantity Display Quantity	Limit Price	Will post the Display Quantity to a Percentage of Volume algorithm and a 15% threshold. The algorithm will also be configured to trade more quickly if non-display liquidity becomes available at the Mid Point. The remaining (reserve) quantity will be posted to BOB as a Mid-Point order (subject to the Limit Price). Once the display quantity is fully executed, it will be refreshed from the reserve quantity. This strategy is not available at launch.

6.4 Trade Reporting

Trade reporting will be full in accordance with latest FSA guidance, where Baikal reports trades, these will carry the MIC code "BAIK".

6.5 Clearing and Settlement

DLA trades will be combined with BOB trades for clearing and settlement via the Baikal CCP. Clearing and settlement arrangements will therefore be the same as described in section 10 below.

6.6 Tariff Structure and Billing

Baikal will publish a tariff schedule applicable to all Participants for BOB and DLA trading.

Participants will be invoiced monthly, in Euros, in arrears by Baikal for tariffs incurred, with a single invoice for BOB and DLA activity.

6.7 Products and Reference Data

6.7.1 Trading Universe

The instruments available for DLA will be the same as those available for BOB trading.

Please refer to section 7 (Baikal Trading Universe) for more details about the trading universe.

6.7.2 Currency

Since the trading universe is the same as for BOB trading, the trading currency for each instrument will be the same as BOB. Trading and settlement will occur in the same currency.

6.7.3 Tick Sizes

DLA may execute orders within the spread of the Primary Exchange of the stock, and can consequently trade at fractions of a Primary Exchange tick size. Execution Prices will be calculated to 4 decimal place accuracy and Limit Prices can also be specified to 4 decimal places.

6.7.4 Calendar / Hours of Operation

DLA will follow the calendar of each Primary Exchange and so will operate some country coverage on days when not all of the markets are open.

The trading day will follow the trading hours of each open Primary Exchange, including opening, intra-day and closing auctions.

Orders can be received from 7.30am (UK time) and will queue these for processing when the destination(s) open.

Baikal will cancel all outstanding orders after the markets close each day.

6.7.5 Dealing Capacity

Baikal will accept orders flagged as Principal, Agency or Riskless Principal. Participants will be able to specify their dealing capacity on a per order basis.

7 Trading universe

7.1 Country Coverage

BOB and DLA service will trade equities and ETFs listed on the exchanges of 14 European countries:

Austria	Germany	Portugal
Belgium	Ireland	Sweden
Denmark	Italy	Switzerland[1]
Finland	Netherland	United Kingdom
France	Norway	

Instruments that are in-scope are essentially the most liquid names in Europe and all of the instruments that are components of the main recognised stock indices. There are approximately 3,000 instruments supported – these include mid-cap names for which non-display liquidity seeking techniques are attractive. Baikal is supporting wider instrument universes than other pan European MTFs.

BOB and DLA instruments are uniquely defined as a combination of ISIN, currency, and place of settlement. BOB and DLA may have multiple listings for a single ISIN if there are distinct primary reference exchange instruments which trade in different currencies and/or settle in different locations.

Liquidity segments are used to set the value of the minimum order values (MOV) for order acceptance and criteria that are used for the well formed market checks (WFMC)

7.2 Market Sectors

Within the instrument universe, instruments are grouped by country into sectors according to the official place of listing and into banded liquidity segments.

- BOB will contain one segment for each country of listing listed in the table in section 7.1.
- Liquidity sectors are used to set the value of the minimum order values (MOV) for order acceptance and criteria that are used for the well formed market checks (WFMC).

7.3 Currency

Each instrument will trade in the same currency as the primary reference line for the instrument. If there are different primary reference lines in different currencies for a single ISIN, these will be separate instruments in BOB/DLA. Trading and Settlement will occur in the same currency.

[1] Subject to regulatory approval by FINMA

7.4 Reference data Distribution

Instrument reference data will be published daily over the LSE’s Infolect feed, and will also be made available via FTP from the Baikal web site.

8 Implementation

8.1 On-boarding Process

Section 4 contains the overview of the available services and respective connectivity methods.

The applicable on-boarding process will be determined by the connectivity method that is chosen; it is important that there is regular contact between the participant and the Baikal client relationship team to establish whether the chosen method meets the participant's commercial, functional, legal and operational requirements. This will typically include discussions involving the management, trading, operations and compliance staff of the participant.

Irrespective of the connectivity method, Baikal participants need to have in place a clearing relationship with EMCF (either directly, or indirectly through a General Clearing Participant).

Firms that are unwilling or unable to establish such a relationship with EMCF may access Baikal indirectly via Baikal's brokerage service; more information can be found in the Baikal Liquidity Service Guide on the website.

Once a participant is clear which connectivity method(s) are most suitable, Baikal will provide the appropriate on-boarding pack. The participant on-boarding process follows the steps described below:

- Application phase: Applicants must complete the Baikal participation agreement, including acceptance of the Baikal Rulebook.
- CCP relationship: Applicants must provide confirmation of clearing membership with Baikal's CCP.
- Conformance testing: Applicants must demonstrate their ability to comply with the technical requirements of Baikal.
- Approvals: Subject to completion of technical and contractual requirements, the applicant will be accepted as a Participant.
- Production test: Validate that the end-to-end service (trading, reporting, post trade, etc) operates as expected in the production environment.
- Go live: Participant authorised to commence trading with Baikal.

9 Interfaces and Connectivity Options

9.1 Summary of Connectivity Options

Baikal offers two connectivity interfaces to meet the needs and preferences of Participants.

The first interface, FIX 4.2, is designed for Participants who wish to access a variety of Baikal services, including BOB and the DLA service. Participants selecting the FIX 4.2 interface can connect directly to the Baikal FIX engine, via their existing LSE connectivity, via the London Stock Exchange FIX Gateway or, through one of many other supported third party gateways and connectivity providers.

The second interface, the native TradElect protocol, is for Participants wanting the lowest possible latency to the Baikal Order Book. This interface does not allow access to DLA or other planned services.

Baikal's client service team are available to discuss the options with Participants and assist them in choosing the most appropriate solution to meet their needs.

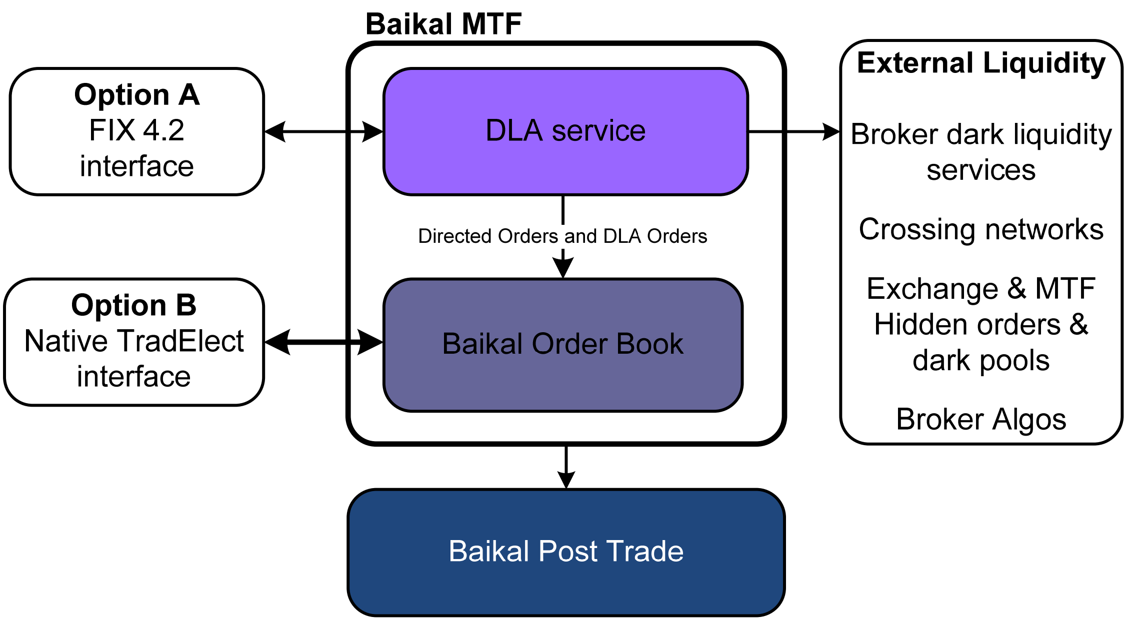

Figure 1: Choice of Interface Level – Option A or B

9.1.1 Option A (FIX 4.2)

The FIX 4.2 interface is very much a 'standard' FIX as used widely in the industry for orders and execution reports. The specific technical nuances of this interface are described in section 9.2.

The key features of this interface are;

- Industry standard protocol which is widely used and supported.
- The ability to access both BOB and DLA services via a single session.
- The ability to route orders to BOB without using the DLA service
- Access to additional planned services in the future.
- For UK equities, the facility to have orders check for hidden liquidity before being routed to SETS in the participant's own name.
- For all equities, the facility to have orders check for hidden liquidity before being routed to the most competitive lit markets

However, for orders destined for BOB, this interface has lower performance characteristics than the native TradElect interface, and might not be suitable for participants generating high volumes of orders and requiring the lowest possible latency per order.

9.1.1.1 Target Audience for FIX Interface

- Participants who prefer to implement a FIX gateway rather than implementing an LSEG-specific protocol.
- Participants wishing to access the DLA service
- Participants who do not have the specific need for a very high capacity and very lowest latency interface.

This FIX 4.2 interface is the preferred recommended interface for customers using the DLA **and** BOB services.

9.1.2 Option B (Native TradElect)

The TradElect native interface to BOB is an adaptation of the existing native interface to the TradElect platform for SETS. Baikal is an additional market on the TradElect platform and the interface to it is very similar to the other markets e.g. London, Borsa Italiana and JSE. A small number of changes in messages are needed to address the specifics of BOB as detailed in the document 'Baikal Order Book – Native Interface to TradElect'. A separate session is needed to connect to BOB, but this can operate over the same Extranex connections as for the existing markets.

Direct access via this interface offers the highest performance for both capacity and latency to BOB, however this interface only offers a SINGLE DESTINATION therefore there is no possibility of accessing liquidity on other markets within the TradElect platform or ROUTING to other destination through this interface.

9.1.2.1 Target Audience for Native TradElect Interface

- This interface should be used by customers who want the fastest possible high capacity connection to BOB and have their own in house sophisticated processing capability for sweeping and posting to other non-display destinations and direct connectivity to a wide range of non-display (and lit) destinations.
- Customers who wish to reuse/leverage existing connections to the TradElect platform.

Please contact Baikal for further details and technical specification for the native interface.

9.2 FIX Connectivity Solutions

The following sections detail the FIX requirement for client wishing to connect via Option A accessing BOB and DLA services of Baikal.

9.2.1 Services Available to Participants Connecting via FIX

- Baikal Order Book (the subject of this service guide)
- Dark Liquidity Aggregation (also the subject of this service guide)
- Liquidity Aggregation to LIT markets (currently this is available as a brokerage service and is described in Baikal Liquidity Aggregation Service Guide)

9.2.2 Connectivity and Routing

The following connectivity networks are supported:

- Extranex
- Others on request

The following FIX 4.2 routing networks are supported:

- London Stock Exchange FIX Gateway
- Fidessa Express
- Proquote
- Bloomberg
- ULNET
- Others on request

9.3 FIX Connectivity Requirements

9.3.1 FIX version

FIX Version	Description
4.2	http://www.fixprotocol.org/documents/373/fix-42-with_errata_20010501.zip

9.3.2 Message Types

The following inbound FIX messages are supported:

FIX message	Description
0	Heartbeat
1	Test Request
2	Resend Request
3	Session Level Reject
4	Sequence Reset
5	Logout
A	Logon
D	New Order – Single
F	Order Cancel Request
G	Order Cancel/Replace Request
Q	Don't Know Trade
J	Business Message Reject

The following outbound FIX messages are produced:

FIX message	Description
0	Heartbeat
1	Test Request
2	Resend Request
3	Reject
4	Sequence Reset
5	Logout
8	Execution Report
9	Order Cancel Reject
A	Logon

9.3.3 FIX Tags

The following tags and values are supported:

Instrument	DLA	BOB	Behaviour
55 = Symbol	✓	✓	FIX mandatory – Rejected if not supplied
48 = SecurityID	✓	✓	Rejected if not supplied
22 = 2 (Sedol) or 4 (ISIN)	✓	✓	Rejected if not supplied
15 = Currency	✓	✓	Used to ensure a unique instrument match
100 = ExDestination	✓	✓	Used to ensure a unique instrument match and indicate the DMA destination e.g.. the value BKL indicates direct access to BOB only
207 = SecurityExchange	✓	✓	Used to identify the particular line of stock where Tag 100 is being used to direct to an MTF such as BOB.

Order Routing	DLA	BOB	Behaviour
7116 = S (Strategy) or D (DMA)	✓	✓	Used to indicate a Strategy or DMA order. Where this tag is absent Baikal will default to S
7111 = Aggregation Strategy	✓	×	**DO** - Dark Only **LO** – Lit Only **ADL** - Aggressive Dark + Lit

Minimum Execution Size	DLA	BOB	Behaviour
110 = MinQty	×	✓	Indicates the minimum size of any execution in BOB

Time In Force (tag 59)	DLA	BOB	Behaviour
0 = Day (GFD)	✓	✓	By default all Baikal orders are Day only
3 = Immediate or Cancel (IOC)	✓	✓	
4 = Fill or Kill (FOK)	✓	✓	
6 = Good Till Date (GTD)	✓	✓	Only supported for current date, used in conjunction with tag 126 for Good Till Time orders
126 = ExpireTime	✓	✓	Expiry time of GTD orders for current trading day only

Display Quantity	DLA	BOB	Behaviour
111 = Maxfloor > 0	✓	✗	Value > 0 indicates the display quantity where supported by the venue. Only used in conjunction with strategies including access to Lit markets that support iceberg/concealed orders

BOB Matching Phase	DLA	BOB	Behaviour
7125 = Matching Instruction	✗	✓	Only valid for BOB (Day) resident orders **XA -** Only match against Aggressive (IOC/FOK) orders during continuous trading **XP -** Only match against Passive (Day) orders during periodic matching **Blank** – match in both continuous and periodic matching phases – this is the default behaviour

Order Types (tag 40)	DLA	BOB	Behaviour
1 = Market	✓	✓	
2 = Limit	✓	✓	

Order Capacity (Tag 47)	DLA	BOB	Behaviour
A = Agency	✓	✓	
P = Principal	✓	✓	
S = Riskless Principal	✓	✓	

9.4 TradElect Native API Connectivity Requirements

For full details on Option B - connecting directly to BOB, please refer to the separate specification document ‘Baikal Order Book – Native Interface to TradElect.

10 Post Trade

10.1 Baikal Post-trade Infrastructure

Baikal's post-trade services are built around a CCP providing risk management and settlement netting services, which, at the launch of BOB and DLA services, will be provided by at launch by EMCF. For clarification, EMCF will act as Baikal's CCP for all business executed:

- on BOB; and,
- via Baikal's DLA service (whether executed on BOB or on other destinations)

The Baikal post-trade arrangements for Participants are identical for business executed on BOB and executions at external destinations via DLA.

All Participant business executed through Baikal is immediately transmitted to EMCF following execution. EMCF will subject all open positions to the EMCF risk management process and enable trades to be netted for settlement. EMCF also provides clearing members with cross market margining and, cross market netted settlement.

Settlement will occur in each country's domestic CSD for the line of stock traded. Settlement dates and holiday calendars will be in line with the primary markets. For clarification, settlement will occur:

- Germany: T+2
- All other markets: T+3

10.2 Post-Trade Requirements for Participants

In order to trade via Baikal at launch, participants will need to have in place a clearing relationship with EMCF. This relationship can be directly as either a General Clearing Party (GCP) or a Direct Clearing Party (DCP); or indirectly as a Non Clearing Party where a GCP clears on the NCP's behalf.

EMCF clearing participants will be able to use their existing interface to EMCF to support the clearing of BOB and DLA executions. EMCF Clearing Participants can also elect for their trades executed via Baikal to be combined with any other business they have cleared by EMCF for margin calculation and settlement netting purposes.

All Participants must also fulfil their settlement obligations. If a Participant does not possess the appropriate settlement arrangements, it can appoint a settlement agent to settle its trading activity on its behalf.

The post-trade arrangements for Participants (including in their capacity as a destination for DLA activity) are summarised in the diagram below.

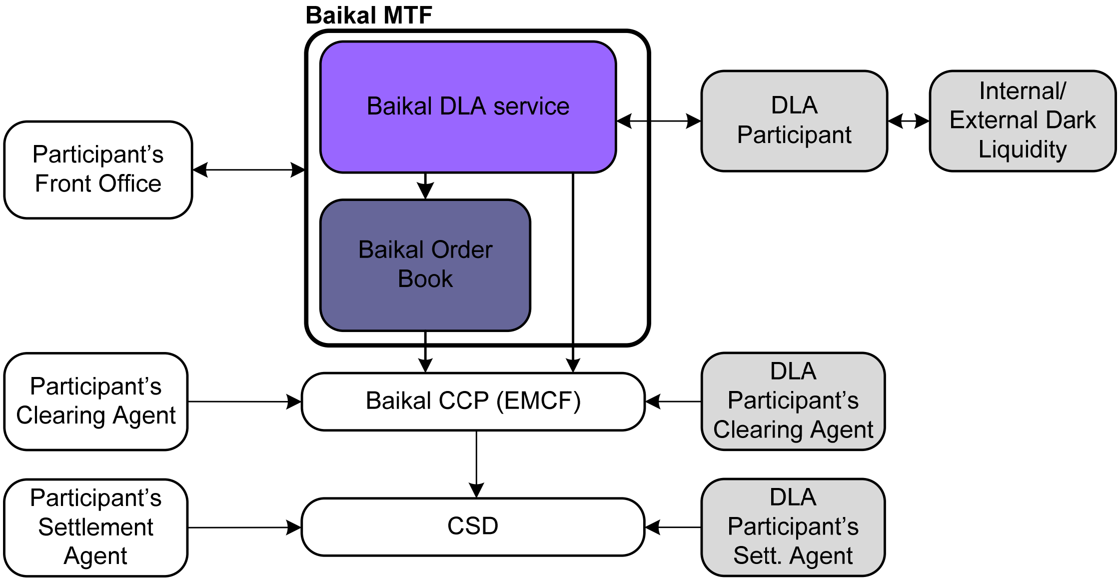

Figure 2: Consolidation of BOB and DLA executions at EMCF

For more information on the EMCF CCP services, Participants are referred to the EMCF website www.euromcf.com.

10.3 Indirect Access with OTC Settlement

Broker dealers that wish to utilise BOB and DLA services but who do not wish to take on the clearing obligations associated with direct participation can access Baikal services indirectly as a client of Baikal Global Ltd. In this case Baikal Global Ltd acts as a participant on the Baikal MTF and manages the relationship with the appointed CCP (through the services of Baikal's clearing agent), and the client settles OTC with Baikal Global Ltd.

For more information, please review the Baikal Broker Services guide on the Baikal website www.baikalglobal.com.

Brokers and investment management firms can also access BOB and DLA services via the brokerage services (whether direct market access, smart routing, or algorithmic trading) of other Baikal participants.

10.4 Post-trade Obligations for Participants Vs. Indirect Access

The table below sets out the post-trade options associated with the two participation types.

	Participants *Clearing in own names and settling with CCP*	**Indirect Access via Baikal Global Ltd (with OTC Settlement)** *Settling OTC with Baikal Global Ltd*
Participants' Clearing relationship	Clearing Participant of EMCF (DCP), or Non-clearing participant (NCP) with a clearing relationship with a General Clearing Participant (GCP) of EMCF	None. Baikal Global Ltd manages the clearing relationship with EMCF (via an appointed GCP)
Participants' Settlement relationship	DCP participants (or their settlement agent) settles obligations with EMCF NCP participants (or their settlement agent) settles with/ via GCP	Participant settles trading obligations with Baikal Global Ltd (via an appointed settlement agent)

11 Important notice

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