

UBS ATS FAQs

October 2018

1. What is the UBS ATS?

Launched in 2008, the UBS ATS is an alternative trading system ("ATS") registered with the Securities and Exchange Commission ("SEC") that facilitates the matching of non-displayed orders in National Market System ("NMS") securities. The UBS ATS is wholly owned and operated by UBS Securities LLC ("UBS BD"), which is an SEC registered broker-dealer and member of FINRA, NYSE, SIPC and certain other self-regulatory organizations.

The UBS ATS operates during regular market hours and executions are reported in real-time to an authorized SRO trade reporting facility. The UBS ATS will not execute a cross in a given security until a trade in that security has occurred on at least one securities exchange, Limit Up Limit Down bands are present, and the UBS ATS has opened.

The UBS ATS is operated with the primary matching engines currently located in the Equinix NY5 data center in Secaucus, New Jersey and the highly available stand-by matching engines currently located in the Cyxtera NJ2 data center in Weehawken, New Jersey.

The UBS ATS BCP site is currently located at 350 E Cermak in Chicago, Illinois.

2. Where can I view the Form ATS for UBS ATS?

The Form ATS for UBS ATS is available at: www.ubs.com/ats. These FAQs are intended to provide helpful information in a summary format, but they are not a substitute for carefully reading the Form ATS. Capitalized terms used in these FAQs are given the same meaning and definition as provided in the Form ATS.

3. What is UBS PIN (US)?

The UBS Price Improvement Network in the US ("UBS PIN (US)") is a differentiated segment of liquidity operated within the UBS ATS. UBS PIN (US) facilitates interaction between any combination of UBS Retail Orders, UBS institutional algorithmic order flow, and UBS Principal Orders.

Executions resulting from the UBS PIN (US) crossing functionality are identified to clients using the MIC code of "UBSP". UBS ATS crosses that are not executed using the UBS PIN (US) segment will be identified as "UBSA".

UBS PIN (US) is available only for orders received from Source Categories 1 and 2.

4. Does the UBS ATS use tiering or segmentation?

UBS ATS does not support "tiering", but does segment incoming order flow into Source Categories. For more information on Source Categories, the grading process used when assigning Source Categories, and the way crossing restrictions use Source Categories, please refer to the UBS Form ATS.

5. What types of participants have access to the UBS ATS and how do they access the UBS ATS?

The UBS ATS is made available to the types of participants described in Exhibit A of the UBS Form ATS (collectively, "Order Originators"). UBS ATS facilitates interaction among equity orders received from a broad range of clients and market participants, including institutional clients using UBS algorithms, broker-dealers, UBS trading desks, market makers, retail brokers, and active traders (sometimes referred to as High Frequency Traders or "HFT"). Interaction among participants is subject to any crossing restrictions, as described in the UBS Form ATS as well as these FAQs.

Access is provided on a controlled basis and all participants must undergo formal onboarding and a customary Know Your Customer ("KYC") process.

Orders from clients of the UBS BD may be executed in the UBS ATS via client use of the algorithmic trading tools offered by UBS Electronic Trading.

Order Originators may access the UBS ATS in two ways, via the industry standard Financial Information eXchange ("FIX") protocol or via the UBS Binary Protocol ("UBP").

6. Do any UBS affiliates, internal trading desks, or internal market making desks act as principal or riskless principal to transactions executed within the UBS ATS?

UBS trading desks and affiliates have the ability to route agency and principal orders to UBS ATS through the UBS algorithms and Smart Order Router (SOR). Because of information barriers, UBS trading desks and affiliates are not provided with information about pending or executed client orders handled by UBS ATS. To avoid crossing with UBS principal order flow in UBS ATS, participants may send crossing restriction instructions as per the UBS ATS Rules of Engagement.

All flow routed to UBS PIN (US) is routed via UBS algorithms and/or the UBS Smart Order Router (SOR), or sourced from UBS's Retail Market Making (RMM) business.

7. How are orders matched in the UBS ATS and what order types are supported?

UBS ATS operates a price/time priority book after taking into account crossing restrictions (such as minimum fill sizes and participant segmentation in the ATS). Resident orders match at their limit price, or better subject to Regulation NMS (i.e., trades occur at or within the NBBO). UBS ATS does not price overlap split (for example, a buy midpoint resting order crossing against a full spread sell IOC will cross at midpoint or at the limit price of the midpoint order if the limit is priced below the mid).

UBS ATS accepts Market, Pegged and Limit orders¹. Market orders are treated equivalent to a Market Pegged Order. Pegged orders may be pegged to the bid, midpoint, or offer while Limit orders must be priced in allowable increments in compliance with SEC Regulation NMS Rule 612. Orders will match at the bid, mid, offer, or allowable price increments within the spread¹. Orders may have a Time In Force ("TIF") of Day or Immediate or Cancel ("IOC").

UBS ATS will not execute a transaction if the execution price would include a price increment smaller than 1/100th of a cent. Stated differently, UBS ATS will not execute a transaction if the fully expressed execution price would extend beyond four decimal places.

8. Does the UBS ATS offer Conditional Indications (CIs)? Can firm orders generate invites to CIs? Will I know when an execution occurs as a result of a conditional interaction?

UBS ATS supports the use of Conditional Indications (CIs), which represent an intent, but not an obligation, to trade if contra-side interest satisfies the specified price, minimum quantity, and other crossing restrictions. By default, Subscriber firm orders directed to the UBS ATS do not generate invites to CIs. Subscribers may, however, override this behavior on an order-by-order basis to enable firm orders to generate invites to CIs. For more information please refer to the UBS Form ATS and UBS ATS Specifications.

Two (2) new liquidity codes have been implemented to indicate whether a UBS ATS execution resulted from a CI interaction. For more information, please refer to the UBS ATS Specifications.

9. Does the UBS ATS send out Indications of Interest (IOIs)?

The UBS ATS does not send out traditional IOIs, however, as described above, the UBS ATS sends invite messages in connection with Conditional Indications.

10. Does the UBS ATS route orders externally or to any trading desks at UBS?

No.

11. Does the UBS ATS aggregate minimum quantities or "bunch" orders on the book to satisfy a minimum quantity?

No.

12. What type of risk controls / trading limits exist in the UBS ATS?

The UBS ATS applies per order share and notional limits as well as aggregate trading notional limits for firm orders directed to the UBS ATS by Subscribers and Sponsored Participants.

¹ As allowed by SEC Regulation NMS Rule 612.

13. How does UBS monitor execution quality and prevent gaming or adverse selection of client orders in the UBS ATS?

The UBS ATS is monitored for execution quality to help ensure it is operated in an efficient and orderly manner, and that risks of signaling or negative selection are minimized. External participants are carefully vetted and provided access to the UBS ATS on a controlled basis. UBS conducts a monthly review of activity and makes changes to participant categorization in accordance with our regular review process.

14. Can all participants of the UBS ATS opt out of executing during a locked market?

Yes, any participant may instruct UBS to prevent the execution of its pegged orders in the UBS ATS during a locked market.

15. Does the UBS ATS maintain direct market data feeds?

The UBS ATS executes transactions based on market data comprised of direct feeds from all US equity exchanges and other protected venues. If issues occur with the direct feeds, the UBS ATS reserves the right to execute transactions based on market data comprised of the Securities Information Processor (SIP) for any (or all) market center(s).

The UBS ATS consumes three sources of market data for Nasdaq, NYSE, and NYSE ARCA where, weather permitting, the third source uses a faster transport layer over wireless technology.

16. Please provide information on the roles of individuals who have access to UBS ATS electronic order information. How does UBS monitor these individuals for the purpose of preventing their misuse of such information?

Client electronic order information is made available to UBS ATS front office and support personnel (e.g., Technology, Operations, Risk and Compliance) with a legitimate and bona fide need to know such information. Electronic order information is appropriately safeguarded to avoid information leakage to other sales and trading businesses within UBS.

Employee training, as well as policies and procedures, prohibit the improper sharing of confidential information - both outside the Firm and to other areas of UBS. Compliance with information handling policies is monitored through standard supervisory channels.

17. Does UBS ATS support "contra blocking?"

The UBS ATS does not permit the individual blocking of Subscribers.

Subscribers, like all other UBS ATS participants, may instruct UBS to prevent the execution of their orders against their own order flow or UBS Principal order flow. All Participants in the UBS ATS may opt out of crossing with contras in Source Category 5. Clients of the UBS BD also may use additional crossing restrictions as described in the UBS Form ATS.

18. What post-trade information is available on UBS ATS executions?

UBS makes certain UBS ATS execution information available to users upon affirmative request. In particular:

- For individual executions, UBS will provide the self-calculated NBBO known by the UBS ATS at the time of the execution.
- For senders of Conditional Indications, UBS will provide (on or after T+1) an analysis of Conditional Indications sent (including the related invitations and firm up orders). Such analysis typically includes information regarding timeliness, hit rate, and intervening changes to the NBBO.
- For a more comprehensive view, UBS will provide on request an aggregate summary that indicates whether UBS ATS executions occurred within the UBS PIN (US) segment or versus Source Categories 3, 4 or 5. The summary typically includes quantity traded, notional traded, short term reversions segmented by source category, time of execution, and peg type. UBS utilizes a default template for ease of production, although certain customizations may be available upon request.

19. Which activity is observed and analyzed when determining whether an ATS Subscriber's order flow is treated as Source Category 3, Source Category 4 or Source Category 5?

Each Subscriber Flow is assigned to either Source Category 3, 4 or 5 after UBS analyzes on a monthly basis the short-term post-trade reversion observed when such order flow trades versus: (i) UBS algorithms, and (ii) all contras.

Subscribers are notified in writing if their Source Category changes.

20. Can a Subscriber Flow be suspended from executing in the ATS?

Yes. UBS will suspend access to UBS ATS for a Subscriber Flow if the associated reversion metric exceeds for three consecutive calendar months a predetermined level specified by the UBS ATS. For more information, please refer to the UBS Form ATS.

21. What is the typical latency for UBS ATS to acknowledge a new order?

As of September 2018, the median time it took the UBS ATS to send an acknowledgment of a new order was as follows: (i) 85 microseconds when using the UBP protocol, and (ii) 111 microseconds when using the FIX protocol. Latency varies from time-to-time due to conditions, and the latency experienced for any individual order may materially differ from the median times.

22. Does the UBS ATS advertise trades/executed shares?

The UBS ATS advertises executed shares – aggregated per symbol – on an end-of-day basis through various advertising channels. Upon request, clients may opt out so that their UBS ATS trading activity is excluded from the executed share volume advertised.

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