



**TRADING
TECHNOLOGIES**

EUREX ALGO LABELING

VERSION 7.X
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Updates in V7

1. Added TT Vendor Identifier section to Appendix A.
2. Updated RegulatoryID field name to ComplianceID field name throughout the document.
3. Updated ComplianceID field length to 8 bytes throughout the document.
4. Updated Eurex Gateway version to 7.17.65.
5. Updated question about TT application identifier in FAQ section.

Updates in V6

1. Updated the description of Autotrader behavior on page 5.
2. Updated the description of ADL and Autotrader behavior in Appendix A.
3. Updated step 3 in the Deployment Guide with the new X_TRADER version.
4. Updated steps 4 and 6 in the Deployment Guide, specifying that these steps are optional.
5. Added step 9 in the Deployment Guide describing **Avoid orders that cross** behavior.

Updates in V5

1. Updated #5 and #6 in Appendix B to clarify the configuration options for clients.
2. Clarified Autotrader behavior note on page 6.
3. Added a note to the FAQ section about Application Identifier.

Updates in V4

1. Detailed the RegulatoryID generation logic and removed the earlier example of AlgoID generation for synthetic orders.
2. Added Deployment guide.
3. Updated paragraph “TT API” to clarify that AlgoID is modified if an API order is further modified by a TT application.

Updates in V3

1. Added description of the configuration parameter for the AlgoID range.

Updates in V2

2. Updated TT applications to include FIX Adapter, X_TRADER® API and TT API applications.
3. Clarified that internally FFT3 field is used for algorithm identifier.
4. Clarified drop copy FIX Adapter behavior.
5. Clarified behavior for TT API orders that are modified by Synthetic SE or Autospreader® SE.
6. Added FAQ section.
7. Added TT applications versions.
8. Added Eurex Gateway section.
9. Removed optional *ExchangeInfo1* field configuration.

Summary

This document provides an overview of the TT system support for labeling requirements of trading algorithms on Eurex exchange.

For further information and the background of the initiative, refer directly to the exchange website: http://www.eurexchange.com/exchange-en/technology/high-frequency_trading/

TT Impact

TT applications that create different trading algorithms

- Autospreader®
- Autospreader® SE
- Autotrader™
- Synthetic SE
- Algo SE
- X_TRADER®: only the features below can be considered algorithmic strategies:
 - OCO orders
 - Trailing Stop orders

Additionally, custom made **FIX, X_TRADER® API**, and **TT API** – based applications can have algorithms that automatically submit orders to the exchange. These applications are also referred to as “API applications” throughout the document.

The TT system generates an algorithm identifier and passes it to the exchange in the field **ComplianceID (ETI tag 25029)**. Details of the generation logic are described in the Appendix A below.

Internally in the TT system, FFT3 field is used to pass the algorithm identifier between the Eurex Gateway and connected client applications.

AlgoID generation rules

- AlgoID is numeric and cannot exceed 8 bytes in length
 - 8 bytes is the exchange API field limitation.
- AlgoID is the same for all orders generated by the same algorithmic strategy.
- If a parameter on the algorithmic strategy is added or removed, a new AlgoID is created.
- If a parameter is updated in such a way that the algorithm does not change, the AlgoID will remain the same.
- AlgoID is the same if different users are running the same algorithmic strategy.
- AlgoID is unique for each new algorithm; it cannot ever repeat for an algorithm.

Algo SE, Autospreader® SE, Autospreader®, Synthetic SE

New versions of these applications (7.17.20) generate AlgoID automatically by adhering to the “AlgoID generation rules” and pass that AlgoID to the Eurex Gateway on all child orders. Additional details are described in the Appendix A.

FIX Adapter

FIX Adapter passes information in FFT3 (FIX tag 16103) field to the exchange as **ComplianceID** field. Some customers may already use this field for back office purposes; in

this case customers will have to re-map the information in FFT3 field to either FFT2 (FIX tag 16102), User Tag (FIX tag 16104) or Order Tag (FIX tag 16105) fields. Drop copy FIX Adapters receives ComplianceID field information directly in FFT3 field (FIX tag 16103).

TT API

These applications pass information in FFT3 to the exchange as **ComplianceID**. If an order submitted via a custom TT API application is further modified by the Synthetic SE or Autospreader® SE, original FFT3 field is updated, and new AlgoID is generated when passed to the exchange.

X_TRADER® API

These applications pass information in FFT3 to the exchange as **ComplianceID**.

Autotrader™

New versions of these applications (7.17.23) generate AlgoID automatically by adhering to the “AlgoID generation rules” and pass that AlgoID to the Eurex Gateway on all child orders. Additional details are described in the Appendix A.

Reporting

ComplianceID information is logged in the audit log files located on the gateway server box.

AlgoIDs Range Configuration

Customers can specify the range of algorithmic identifiers that TT system should use. The configuration parameter resides in the Hostinfo.cfg file on the gateway server box, and allows specifying different range per each ETI session configured. When algo range parameter is specified, TT system will use this value in the first significant byte of the AlgoID.

If algo range is specified, the FFT3 field passed through by an API application will also be updated to a new ComplianceID value that belongs to the configured range.

FAQs

How can I pass algorithm identifier to the exchange if I do not upgrade my client application? - Eurex Gateway has to be upgraded to version 7.17.65 to pass the information to the exchange. You can insert a custom identifier in the FFT3 field; only numeric characters can be used. FFT3 field is available on all TT’s trading applications.

Is TT compliant with the exchange rules? - While TT strives to provide all the necessary tools to facilitate our customers' compliance with the exchange rules, customers are expected to have their own policies in place that ensure the compliance.

How will I ensure that algo identifiers I create via my custom API applications do not collide with the identifiers that TT system generates automatically? - Algo identifiers that are in the range between 0 and 1,048,575 will not collide with TT-generated ones. Additionally, you can define a specific range to use by TT system.

I trade EEX products. Do I need to label EEX orders as well? - No, EEX does not require trading members to label their algorithmically generated orders.

How do I ensure I have all the necessary software and configuration in place to be compliant? Refer to the Appendix B, which contains suggested deployment path for TT software. Contact your TAM if you have any further questions.

Does TT have a registered Application Identifier that can be used to distinguish the algorithmic identifiers between vendors? Yes, TT has registered and certified the Application Identifier with the exchange. It is passed in tag 1605(ETI interface) on all orders routed through TT system. However, as of November 24, 2014, the exchange will no longer accept this field as a vendor identifier. TT released Eurex Gateway 7.17.65 which automatically adds vendor identifier into the ComplianceID field.

Minimum Required TT Software Versions

- Eurex Gateway 7.17.65
- X_TRADER® 7.17.20
- Autospreader® SE 7.17.20*
- Synthetic SE 7.17.20*
- Algo SE 7.17.20*

*As a reminder, all Server Engines 7.17 require Windows 2008 R2 64-bit as per the Hardware and Software Requirements.

Timelines

January 27-31

- Communicate initial details of the labeling approach
- Communicate the timelines

February 3-7

- Communicate impacted software and new versions that support algorithms labeling
- Provide examples of AlgoIDs generated by various TT client applications

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- Communicate software deployment plan
 - Collect and incorporate customers' feedback

February 10-21

- Production releases of impacted software

February 24-March 31

- Deployment at customer sites

April 1, 2014

- Deadline for compliance with German HFT bill

November 24, 2014

- Release Eurex 7.17.65 to support Eurex 2.5 upgrade and new vendor identifier requirements.

TT Contact

Pending further feedback from customers and exchange, the functionality described above is subject to change. For any further inquiries, contact TT team directly via email EurexAlgos@tradingtechnologies.com.

Appendix A: ComplianceID Generation Logic

The first 4 bytes of the field are used for TT Application identifier, **545447**.

The remaining 4 bytes of the **ComplianceID** field is constructed by adding multiple pieces of information together: AlgoID Range + SourceID + AlgoID.

For avoidance of doubt the full **ComplianceID** field is constructed as follows:

ComplianceID = TT Identifier + AlgoID Range + SourceID + AlgoID

TT Vendor Identifier

TT system will automatically add TT's vendor identifier to all automatically generated orders. TT's vendor identifier is **TTG** that translates to **545447** in hexadecimal format, which is sent to the exchange.

AlgoID Range

Top most byte is used for IDs range configuration. Customers can specify the range of identifiers that TT system should use. The configuration parameter "AlgoRange" resides in the Hostinfo.cfg file on the gateway server box, and allows specifying different range per each ETI session configured. When algo range parameter is specified, TT system will use this value in the fifth byte of the ComplianceID.

When AlgoRange is configured, the gateway calculates the ID by adding the first byte of the algo identifier as follows: **AlgoRange * 2²⁴ + FFT3**

For example, if FFT3 is received from a client trading application as "2014" and AlgoRange=5, then the resulting ID can be derived as:

$$5 * 2^{24} + 2014 = 83,888,094.$$

If value of the algo range parameter is set to x, the range of the generated ComplianceIDs will be as follows:

$$\text{Min} = x * 2^{24}$$

$$\text{Max} = (x+1) * 2^{24} - 1$$

Possible values for x are between 0 and 255.

For example, Broker A allocates "100" as the fifth byte value of the ComplianceID for algorithms generated by the TT trading system. An end user (U) uses Autospreader to create a custom strategy (S). Autospreader sets the strategy's AlgoID equal to 200 and passes this AlgoID to the Eurex Gateway for all orders generated by the strategy (S). The Eurex Gateway modifies the number to account for the customized range as follows:

$$\text{ComplianceID} = 545447 * 10^{10} + 100 * 2^{24} + 200 = 1,677,721,800$$

Range of IDs is:

$$\text{Min} = 100 * 2^{24} = 1,677,721,600$$

$$\text{Max} = 101 * 2^{24} - 1 = 1,694,498,815$$

If algo range is specified, the FFT3 field passed through by an API application is also updated to a new ID value that belongs to the configured range.

SourceID

SourceID is embedded as part of the algorithm identifier that TT system generates. Each TT client application is assigned a unique identifier to easily distinguish the source of the algorithm.

Bits 22-24 of the ComplianceID field identify the TT application that generated the AlgoID.

Bit	Flag
22-24	Tool

The values are assigned to a specific tool.

Value	Tool
1	ADL®
2	Autospreader®
3	Synthetic SE
4	Autotrader™
5	TT API

The 21st bit will identify whether or not the automated order was placed by TT API.

Bit	Flag
21	Placed by TT API

AlgoID

Each application fills in the remaining 20 bits of the algorithm identifier in its own way.

ADL®

Each ADL strategy is given a unique algorithm identifier. Orders generated by this strategy are labeled with this identifier.

Synthetic SE

Each order type and attribute is flagged by turning the specific bit on/off. The possible values are listed in the tables below.

Bit	Flag
16-19	Trigger
12-15	Slicer
6 - 11	Open
5	OCO
4	Start Time
3	End Time
2	With A Tick (WAT)
1	Relative Price
0	Go To Market

Values for Trigger

Value	Slicer type
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Values for Slicer

Value	Trigger type
1	Stop
2	If touched
3	Trailing stop

1	Iceberg
2	Time slicer
3	Time duration
4	Volume slicer
5	Volume duration

Autospreader®

Bit	Flag
8-20	Leg configuration hash
7	LTP mode (0 = LastToLast, 1 = BidToBid)
6	AONLeanMode (if used on a quoting leg 1 otherwise 0)
5	DILeanMode (if used on a quoting leg 1 otherwise 0)
4	YieldToMaturity (if used at all 1 otherwise 0)
0 - 3	Spread mode

Values for Spread Mode

Value	Spread mode
1	Implied Pricing

2	NetChange
3	Ratio
4	Yield
5	Custom

The leg configuration hash is a hash of a string containing the following leg parameters for each leg that are hashed in bits 8-20 of the identifier:

Ratio
Multiplier
Active Quoting On=1 Off=0
ISQ
Hedge Round On=1 Off=not included
PreHedge Rule (remove if, else and blanks)
PostHedge Rule (remove if, else and blanks)

For example,

For a 10x-3 spread, with 1x-1 multipliers, quoting both legs, ISQ 5 & 3, no hedge round or rules, the string would be:

10115-3-114

For a 2x-3 spread, with 1x-0.45 multipliers, quoting back leg, ISQ 5 & 3 and a prehedge rule on leg1, the string would be:

214opposityqty>5payup1repeat2-3-0.4513

Additionally, if the spread is a custom formula spread, the formula is added at the end of the leg configuration hash (blanks are removed).

Autotrader™

Each Autotrader strategy is given a unique algorithm identifier. Orders generated by this strategy are labeled with this identifier.

Appendix B: TT Software Deployment Tasks

The actions below describe the tasks customers need to take to ensure their TT platform is prepared to send **ComplianceID** to the Eurex exchange.

1. Upgrade Eurex Gateways to version 7.17.65.

Eurex Gateway 7.17.65 has support for ComplianceID field, and passes this field to the exchange. Upon Eurex Gateway upgrade to version 7.17.65, information in FFT3 field will be treated as ComplianceID. Once all the necessary system components are upgraded and re-configured, the gateway can be re-configured to start sending the identifier to the exchange.

Important: Customers who use TT's client applications that do not generate AlgoID automatically (versions prior to 7.17.20) need to ensure that FFT3 field is either blank or manually populated with the custom algorithm identifier.

2. Upgrade Algo SE to version 7.17.23, Autospreader® SE, Synthetic SE to version 7.17.20.

These applications versions are able to automatically generate AlgoIDs. Review the client implications section below for additional details.

3. Upgrade X_TRADER.

If Autospreader®, OCO and/or Trailing Stop orders are used, customers need to upgrade to X_TRADER 7.17.20.

If Autotrader is used, customers need to upgrade to X_TRADER 7.17.23. Customers should also review the client implications section below for additional details.

4. Configure the desired AlgoID range.

This step can be skipped depending on customer's specific compliance requirements. Once all client and server applications are upgraded to the necessary versions, configure the desired AlgoID range. The configuration is done by setting up the top most byte of the AlgoID for each ETI session configured on the Eurex Gateway. For details, refer to the Eurex Gateway Help Library page on the [TT website](#).

5. Configure impacted users and their AlgoID ranges.

This step can be skipped depending on customer's specific compliance requirements. For each TT user, who is not required to send AlgoID to the exchange, configure the OperatorID parameter in TT User Setup to append "|NM". This parameter indicates that this user is treated as a non-direct exchange participant, and does not need to flag algorithmically generated orders. Orders of this user will not have **ComplianceID** populated when sent to the exchange.

Additionally, configure end users (clients) with their custom AlgoID ranges by appending their OperatorID parameter with the *AlgoRange* value. For details, refer to the Eurex Gateway Help Library page on the [TT website](#).

7. Review AlgoID generation logic.

Autospreader®, Autospreader® SE, Synthetic SE, Autotrader™ and Algo SE applications version 7.17.20 and higher generate AlgoID automatically. Users creating automated strategies via X_TRADER® API, TT API, or FIX Adapter must populate FFT3 field with the AlgoID. For further details about AlgoID generation logic, refer to the Appendix A of this document.

8. Enable ComplianceID parameter.

Once all the configuration updates are complete, customers should set *SendRegulatoryID=1* parameter for each ETI session where it is expected that some (or all) of the users connected on this session need to flag their algo strategies. Once this parameter is set, orders, when applicable, will have ComplianceID (ETI tag 25029) populated by TT system. . For more details on the configuration parameter, refer to the Eurex Gateway Help Library page on the [TT website](#).

9. Review Avoid orders that cross setting In TT User Setup.

If **Avoid orders that cross** setting that is set to "Cancel resting", per exchange guidelines the order cancellations must be labeled with the algorithm identifier. At this moment TT system does not label these order messages. Customers are recommended to use an alternative option of "Reject New", this option does not require labeling.

Client Implications

Autospreader®, Autospreader® SE, Synthetic SE, and Algo SE*

After the upgrade to version 7.17.20, the applications will override any custom FFT3 information with the generated AlgoID. Prior to the upgrade, customers should ensure that they do not use FFT3 field on Eurex market, for example, to pass the information for the reference at the back office.

*As a reminder, all Server Engines 7.17.x require Windows 2008 R2 64-bit as per the [Hardware and Software Requirements](#).

X TRADER® 7.17.20

Upon upgrade to this version, trailing stops and one cancels other synthetic orders are supported via Synthetic SE only.

X TRADER API, TT API, and FIX Adapter

No upgrades are required to pass FFT3 field to the exchange as ComplianceID.