

**INFORMATION
FOR
IT PROVIDERS
INTERESTED IN DEVELOPING
INTERFACE
TO THE SEE LINK**

**Connecting to the simulation environment of the SEE
Link, Testing Schedule prior go live**

December 2015

SCOPE

This document comprises information for IT companies which develop and support various systems of broker firms and investment service providers and plan to develop an interface to the SEE Link system. The intention of this document is to provide the interested companies with all necessary information about how to connect to the simulation environment SEE Link and the expected testing schedule of the SEE Link before go live.

Important: Please forward this document to the IT developers of the system which will connect to the SEE Link!

INTRODUCTION

The simulation environment of the SEE LINK system is ready for connectivity and basic testing. IT providers can start now building the connectivity between the systems as well as performing basic functional tests.

Eligible IT providers from Croatia, Bulgaria and Macedonia are kindly requested to follow the steps described in this document in order to establish a connection between their own developed systems (e.g. Order Management Systems) and the SEE Link. Eligible IT companies have already been selected by the exchanges (and their broker firms) of the three countries. If you are uncertain regarding whether your firm is eligible for such a connectivity or not please contact your local exchange or send an email to info@see-link.net.

Please note that the acceptance test of the whole system will start soon, so the exact date of the go-live has not been decided yet. It is expected that the SEE Link will go live after the successful acceptance test.

SEE LINK Environments

SEE Link will operate two environments:

- Simulation environment
- Production environment

The Simulation environment will be used for testing and new release rollout purposes. Access to the simulation environment will be provided to all IT developers working on interfaces for SEE Link, broker firms and investment service providers who are either already contractual partners of the SEE Link or are potential future partners of the SEE Link.

The Production environment will be used for running the production version of the SEE Link software.

The separation of the two environments will be provided and ensured by the SEE Link. However, all IT developers and broker firms must make sure that the separation of the two environments' usage is done properly within their internal systems, too, so no testing or inadequate trading activity will be performed in the production environment.

How to connect to the simulation environment of the SEE Link?

Please note that you can connect to the simulation environment of the SEE Link

- a) either using the **Front end software** of the SEE Link which will be available at the end of January 2016, or
- b) using the **program/API you develop** which communicates via FIX with the SEE Link system. An example of this way to connect is the SeeLink FIX demo client (already available for download with source code).

Steps to connect to the simulation environment are as follows:

1. Check out the FIX specification available at <http://www.see-link.net/publications/36> (Technical publications)
2. If your firm has already been registered as an “eligible” partner of the SEE Link, you shall have received from the SEE Link your user name, password and other connectivity details. If you have not received this kind of information yet, please check you eligibility immediately by dropping an email to info@see-link.net. Please indicate your contact details: firm name, person name, email address, phone number, country, and if possible the name(s) of the broker firms or investment service providers you are developing for.

Important: in order to properly prepare your application for the SEE Link you must be familiar with and understand the originating & executing broker concept of the SEE Link. You must receive test user names and passwords for both originating and executing broker roles in the simulation environment. If you haven't received these yet, please contact your SEE Link contact or drop an email to info@see-link.net.

3. Download the files available at <http://www.see-link.net/dev/>, use the username and password provided for download by your SEE Link contact in a separate email. At present the FIX Demo Client and its source code is available for download. At the end of January 2016 the Front End Application of the SEE Link will be made available, too.
4. Use internet connection, no VPN. Simulation environment is reachable on test.see-link.net port 5001
5. Use the login information received from the SEE Link (CompID, username, password) within the FIX API or the Front End Application. Follow the steps described in “Suggested testing approach”.

Please note:

- a) In order to properly test your application (which will be used in a role of an **executing broker**) you will need to test the situation when an originating broker sends orders to your system. For this purpose, the SEE Link provides each IT developer with an additional set of connectivity information (CompID, username, password) of a **test originating broker** linked to your company. If you need more information on this concept, please read the information listed in the “Useful information” part.
- b) The execution of an order is always done on the local exchange. The executing broker has two options to report the execution back to the originating broker: via front end software (manually) or via FIX API. In both cases the executing broker feeds the execution information back into the SEE Link system (either automatically via API or manually with the front end application).
- c) In the simulation environment the securities available for testing may be different from the production environment. The list of securities available in the system can be acquired by using SecurityList FIX message.
- d) The SEE Link may decide to feed into the simulation environment the live market datafeeds from the three exchanges in order to have market data messages in the simulation even if there is no testing activity. As a result the market datafeed may not reflect the testing activity & status of the system. All IT Vendors will be informed in due time about these kind of actions in the simulation environment.

Will there be any difference between how to connect to the simulation and production environment of the SEE Link?

It is important to mention that in order to properly separate the simulation and test environment there will be differences in how to connect to the production and simulation environment.

1. Only executing brokers or originating brokers can connect to the production environment of the SEE Link. IT providers or potential future partners are allowed to connect only to the simulation environment.
2. The communication to the production environment will be private, safe and encrypted using site to site VPN connectivity.

Suggested testing approach

Please be informed that the acceptance test of the whole system will start soon, so the current system available in the simulation environment may contain bugs and errors. The

SEE Link opens up the simulation environment and makes it available for IT vendors in order to let IT developers prepare their interfaces as soon as possible to the system.

As soon as you managed to download the FIX demo client, to develop the first version of your interface, to establish connectivity to the SEE Link's simulation environment, **we suggest that you perform the following steps:**

1. Login into the FIX demo client as **originating broker**
 - a. Request list of securities by submitting SecurityListRequest message
 - b. Check out received results
2. Login simultaneously as **executing** and **originating** broker using two FIX demo clients and two usernames and passwords.
 - a. Subscribe to market data as originating broker sending MarketDataRequest with executing broker's exchange code in field ExDestination
 - b. Check out received results
 - c. Enter order manually as originating broker using NewOrderSingle
 - d. Check out if executing broker received NewOrderSingle from SEE Link
 - e. As executing broker respond with ExecutionReport
 - f. Check out if originating broker received ExecutionReport from SEE Link
3. Repeat steps 1,2 with the FIX API application developed by you.

As soon as the SEE Link Front End Application is available for download:

4. Login into the Front-End application as **originating broker**
 - a. Enter order manually. This order will be routed by the SEE Link to the related executing broker.
5. Login into the Front-End application as **executing broker**
 - a. Enter execution report manually for the originating broker's order
6. Login into the Front-End application as **originating broker**
 - a. Check out order and execution report data

What should be avoided?

It is important to mention that the simulation environment is for testing purposes only. The following activities must be specially avoided:

- Testing in special, dedicated securities: Since the SEE Link acceptance tests will be performed in parallel with having IT developers already connected to the simulation environment, the SEE Link will communicate in due time which securities will be used during acceptance testing. All participants connected to the simulation environment

are kindly requested NOT TO use these securities during their testing in order to avoid testing confusion and conflicts.

- Performance tests, heavy load tests
- Denial of Services attacks (DOS)
- Hacking activities (password hacking, database hacking, etc.)

Expected testing schedule

Based on the plans the following tests will be performed:

- SEE Link internal integration test: between December 21 2015 and January 31 2016
- SEE Link internal functional test: between February 1 and February 10
- SEE Link Acceptance test: between February 11 and 17

It is expected that a Dress Rehearsal (controlled and driven test) with market participants will be performed after the Acceptance test depending on the results of the tests.

Go live of the SEE Link

Go live date of the SEE Link will be decided upon the results of the tests and market readiness. A decision regarding the exact date of the go live will be communicated with the market in due time.

Useful information

User guide of the SEE Link front end application will be published by the beginning of January.

Please check out the information available on our website <http://www.see-link.net/publications/36>.

CONTACT INFORMATION

Should you have any questions please visit our website or send an email to: info@see-link.net or contact your local exchange.

This file can be found at the SEE Link original web-site, please visit <http://www.see-link.net/>.