IML and ETI Comparison

Version 1.0

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1 Introduction

The BSE ETI is the high-performance, low-latency trading interface designed for Participants that require optimal performance and customization. This interface supports full trading functionality, drop copy and risk alerts. The communication supported in this interface is in binary format.

The ETI is an asynchronous message-based interface. A connection between participants and exchange is established via a TCP/IP connection. The interface is session-oriented. A session is established between the participants' machine and ETI gateway. **The ETI protocol supports only interactive trading and no support for market data.**

There are several similarities and few dissimilarities between ETI and IML. The scope of this document is to highlight the differentiating features of ETI and IML. The difference in ETI and IML in terms of connection mechanism and associated aspects is covered in this document.

The audience of this document are the developers and analysts who are aware about the IML functionalities and framework and are involved in the migration process of IML to ETI.

The document is a quick reference guide to know differences however it is strongly recommended that the API manual of ETI should be thoroughly assimilated to implement ETI properly.

Following are the key differentiating features and few new concepts w.r.t ETI

2 Connection Parameters

Like IML, the connection in ETI is also a TCP/IP connection and the communication on socket takes place in binary format.

The Connection parameters for ETI are same as IML connection parameters. The production and Simulation (Test) market parameters for both IML and ETI are same. The parameters are same for both the interactive and broadcast. Also, the existing test market credentials (member ID and Trader ID) can be used to login in ETI also(explained below).

Since there are no change in any parameters of connection to exchange, there are no explicit changes required in the member network to enable trading on ETI. Still if you need details of the connectivity parameters then the details of network level configurations are available in the document **BOLTPLUS Connectivity Manual version 1.0.**

(Send a mail to user.trdops@bseindia.com to get the copy of the Manual.)

3 Concept of Session ID versus IML ID

The ETI protocol allows login using a session ID only and the session ID has a specific format. In current scenario, the IML application also connect to BOLTPLUS system in ETI format only. It accepts the login request from member application in IML format and converts the IML ID into Session ID format and sends the login request to Exchange.

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ETI protocol supports only Session IDs for login and the format of session ID for existing IML ID is as follows

Session ID = <Member ID><00><IML ID>

Since the IML application will be discontinued, the member can either seek new session IDs from exchange or convert the existing IML ID to ETI format and use.

In case the member application wants to use the existing IML ID then the conversion needs to be done by your application. You can use your existing IML ID to login through ETI by converting your IML ID in the session ID format as depicted above.

For example: If your member ID is 123 and IML ID is 205 then the corresponding session ID will be

<123><00><205> which is 12300205. Thus, while login the member must send 12300205 as session ID and the current password which is used for IML ID 205.

All the following attributes of the IML ID continue to remain the same

- ✓ The password
- ✓ Persistent or non-persistent type
- ✓ Throttle limits
- ✓ Location ID

All reports or files (intraday/ End of day) related to IML ID will continue to be presented in IML ID format only.

4 Session Types

In IML, the IML ID is classified as either persistent or non-persistent which the member can opt at the time of seeking new IML ID. Similar concept in ETI is termed with different terminology i.e. Low Frequency Session (LF) or High Frequency Session (HF) which the member can opt at the time of seeking new session ID.

Persistent ID = Low Frequency Session (Orders will not be cancelled on disconnect)

Non-Persistent = High Frequency Session (Orders will be cancelled on disconnect)

If the member is using the existing IML ID on ETI then the session continues to remain the same as that of IML ID.

For example, an IML ID 201 belonging to member 123 is a persistent ID. The same ID when login through ETI mode will continue to remain persistent i.e. Low Frequency Session

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5 Concept of User ID/ Trader ID

In addition to Session ID, the ETI also supports concept of user ID/ Trader ID which is required to be logged in.

While in IML, you are required to login only IML ID, in ETI, the login of both session ID and user ID is necessary. On a TCP socket, it is mandatory to login both a session ID and the user ID using different login messages as described in ETI API.

For each session ID, the exchange by defaults creates the user ID and the user ID and the password is kept same as the Session ID.

For e.g. A session ID 12300201 will also have a corresponding user ID 12300201 created in the system. In the login process, the member application will require to login session ID 12300201 and user ID 12300201 also using different messages. The password by default is kept same for user and session but the member application can change the password if required.

Exchange also support multiple user login on same TCP socket. If you need to explore the functionality kindly refer ETI API for more details.

6 Login Process

The login process in IML is single step process where the member application makes a socket with IML and send the User registration request followed by IML D login message.

In ETI, the login process is 3 step process and needs to be done as per below

In order to establish a session with a trading gateway, a TCP/IP connection to a connection gateway must be established first. The connection gateway provides the connection parameters for the assigned primary and secondary gateway to be used for trading purposes. The connectivity to exchange is a 3-step process and the process is described below

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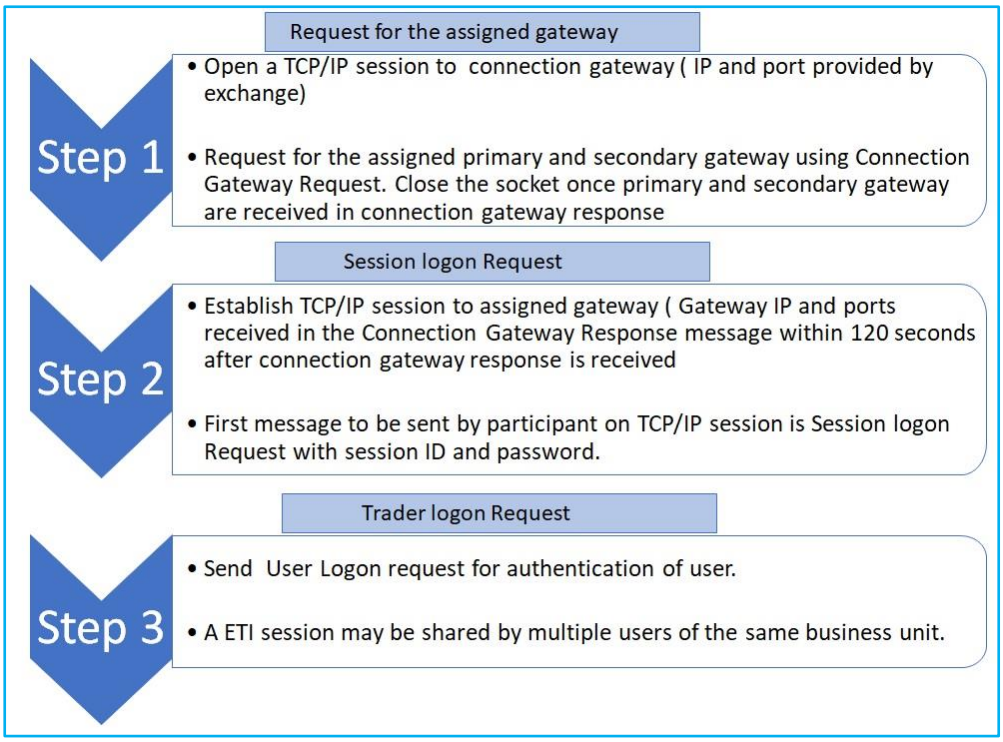

For each Session ID a pair of primary and secondary gateway is provided, and the connection can be made of either of them. Exchange hosts a range of gateways and IP address of any of the gateway can be provided in the response. The first connection is mandatorily required to be made to the connection gateway IP published by the exchange.

7 Concept of throttle versus slots

In IML there was throttle and slot concept too which was required to be managed. There exists a throttle limit for each session ID/ IML ID which is provided along with logon response message, the IML also had the concept of slots where in there were dedicated no. of slots for order messages and dedicated number for other messages.

In ETI, there is no concept of slots. The member application must manage only the throttle limits defined for that session and no management of slots is required. The throttle limits must to be manged using the sliding window protocol as explained in the ETI API.

8 Concept of Retransmission versus Personal Download

While in IML there was a provision to download the pending orders directly, the ETI supports the retransmission of activity log which must be used by member application to build the pending order books.

While IML supports the download based on time, ETI supports the download based on sequence number

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9 Concept of Product ID or Market-Segment-ID.

The BOLTPLUS trading system supports trading and other trading related features is managed at product level. A product is defined as a group having stocks exhibiting common properties. All the stocks which are traded in BSE are grouped under certain products based on its certain common characteristics. The Product ID is also referred as Market Segment ID in ETI API. There are several functions in ETI where the scope is at product level. Features such as mass cancellation is effective at product level. Thus, it is important for member applications to be aware about the product IDs. The mapping of instrument to product is provided in the master files. Against each stock, the applicable product ID is mentioned Refer the master files for more details on product ID.

10 Concept of Partition ID

Exchange host trading of a set of products in one partition. Depending on the segment there may be single or multiple partitions. In IML context the member application was agnostic about the partitions because the IML application was handling the partitions internally.

In ETI, the member applications has to be aware about the number of partitions as the reconciliation or retransmission of orders and trades are supported at partition level and it is important to know how many partitions are hosted in exchange so that reconciliation or retransmission request can be sent to those many partitions. The information about the number of partitions is provided in the session logon response message. Refer ET API for more details. For certain features in ETI it is also required to know which products are hosted in which partitions. This information is provided in the master file of the respective segment.

11 Executions and Trade Notifications

The ETI protocols provides you trades in 2 forms i.e. executions and trade notifications. Executions are meant for faster decision making and used prominently in algorithmic trading. The executions are generated by matcher and sent to member application and it is further persisted in records. Thus, executions are provided through memory even before persisting them in database while trade notification are the persisted execution which is sent after it is persisted. Thus, rarely but in case of an issue if the executions fail to get persisted and are lost before it is converted to trade notification then the member application may have got the executions but The Trade notifications are legitimate copy and are sent to members only after it is persisted in database thus it is not lost in any case. The IML provides trade notification only. The member can either take only trade notification or both executions and trade notification and build reconciliation between them.

12 NFCAST Broadcast

As mentioned earlier the ETI protocol does not support market data. The market data can be availed directly from exchange. The member applications can directly subscribe to exchange multicast stream. The member application can make a UDP socket with exchange and perform a multicast subscription to receive the same NFCAST data. There are few differences in reading

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the broadcast data from exchange against reading it from IML. The specific differences are tabled in the change log section of market data API “BSE Direct NFCAST version 1.0”.

In order to ease the development, exchange is also providing a sample code for socket creation, reading a packet and decompression as well. The sample code developed in C# is available for reference. The sample code is available on request. Send a mail to iml.techsupport@bseindia.com for the sample code if required.

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