

EForT-EFWE

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Problem

- EFort is short for Empowered Forex Traders.
- Effort is a web application created for fictitious Forex MetaBroker company.
- The website aims to help individuals with no experience or knowledge about Foreign Exchange Market to trade like professionals by mimicking the actions of historically proven to be successful trading algorithms.
- The EFort-EFWE team is responsible for improving on and facilitating the exchange of information between the EFort database and Forex's servers and our VPS servers which take care of automatic trading on behalf of the clients who use the EFort product.

Current System

EForT Administrator

USER MANAGEMENT AUTO TRADE MANAGEMENT REPORT MANAGEMENT EMAIL TEMPLATE VPS MANAGEMENT SETTINGS

ACCOUNTS SETTINGS

VPS Management

ADMINISTRATOR HOME / VPS LIST

VPS List

Show 10 entries

Server Name	Address	Data Folder Path	Active	Edit	Delete	Status
VPS0	http://sprojectfort.cs.fiu.edu/vps-preprod	C:\Users\EforT\MyVPS-PreProdAppData\Roaming\MetaQuotes\Terminal\	✓			🟢

Terminal	Username	Forex Account	Expert Advisor	Script Name	EA Connection	Manage	Status	Errors
B871D5B40914646913C05CB492600C	null	null	null	N/A	▶ ■ ■	⚙️	🟢	
DFE2BF8261177834FACD6ADCDCA93422	trader	21521312	SyncExpert	Start Manage Terminal And Sync Expert	▶ ■ ■	⚙️	🔴	
F266B849F3159C0D9AE72C0A4852D5	trader	21521312	SyncExpert	Start Manage Terminal And Sync Expert	▶ ■ ■	⚙️	🟢	

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Administrator: C:\Windows\System32\cmd.exe

```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.
```

```
C:\Windows\system32>tasklist | findstr terminal
terminal64.exe           17500 RDP-Tcp#33          2      98,052 K
terminal64.exe           4736  RDP-Tcp#26          4      201,760 K
```

```
C:\Windows\system32>
```

21521312 - MetaQuotes-Demos: Demo Account - Hedge - USDCHF:H4

File View Insert Charts Tools Window Help

AutoTrading New Order

Market Watch: 01:19:08

Symbol Bid Ask

- EURUSD 1.29129 1.29137
- USDCHF 1.02019 1.02032
- USDJPY 109.507 109.514
- USDCHF 7.22714 7.22877
- USDJPY 64.26175 64.27065
- AUDUSD 0.67836 0.67844
- NZDUSD 0.64275 0.64288
- USDCAD 1.23551 1.23559
- USDSEK 9.56729 9.57121

Navigator

- MetaTrader 5
 - Accounts
 - 21521967 MetaTrader 5 C
 - 21521974 MetaTrader 5 C
 - 21521912 MetaTrader 5
 - ExpertMAMA - EURU
 - ManageTerminal - EL
 - ManageTerminal - EL
 - SyncExpert - EURUSD
 - 21521222 MetaTrader 5 C
 - VPS0
 - Favorites

Time Source Message

- 2018.12.01 18:18:30.995 ManageTerminal (EURUSD:H4) File not found
- 2018.12.01 18:18:31.315 SyncExpert (EURUSD:H4) Returned field = 2019-12-01T23:52:45
- 2018.12.01 18:18:31.400 SyncExpert (EURUSD:H4) ree la true
- 2018.12.01 18:18:31.400 SyncExpert (EURUSD:H4) ree la true
- 2018.12.01 18:18:31.413 SyncExpert (EURUSD:H4) Success for defForexLoginId
- 2018.12.01 18:18:31.426 SyncExpert (EURUSD:H4) Equity Logged!
- 2018.12.01 18:18:31.426 SyncExpert (EURUSD:H4) Equity "loginId"=5, "timeSlot"=2019-12-02 01:18:31, "value"=10000.580000000
- 2018.12.01 18:18:31.628 ManageTerminal (EURUSD:H4) File not found
- 2018.12.01 18:18:31.863 ManageTerminal (EURUSD:H4) File not found

Trade | Exposure | History | News | Mailbox | Calendar | Company | Market | Alerts | Signals | Articles | CodeBase | VPS | Experts | Journal

MARKETS TRADING TOOLS MARKET ANALYSIS EDUCATION

Empowered Forex Trader

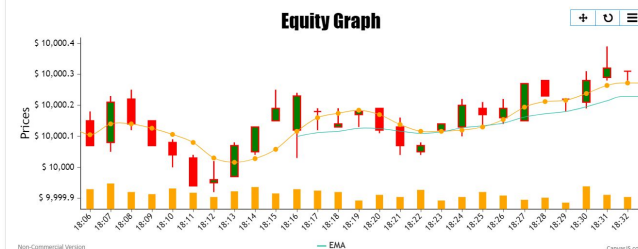
TRADER HOME / HOME

ACCOUNT EQUITY

Candlestick Bar Line M1 M5 M15 H1 H4 W1 MN1

Exponential Moving Average Moving Average Volume Crossover

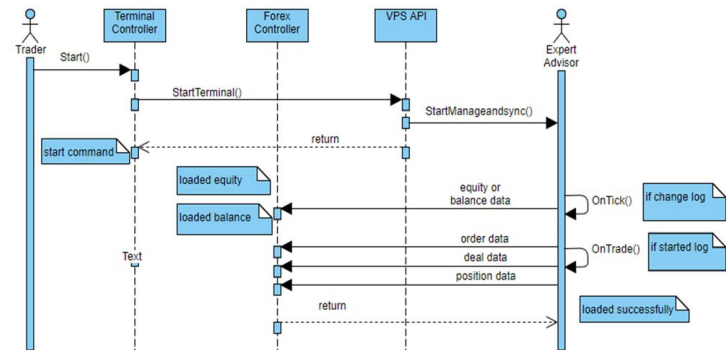
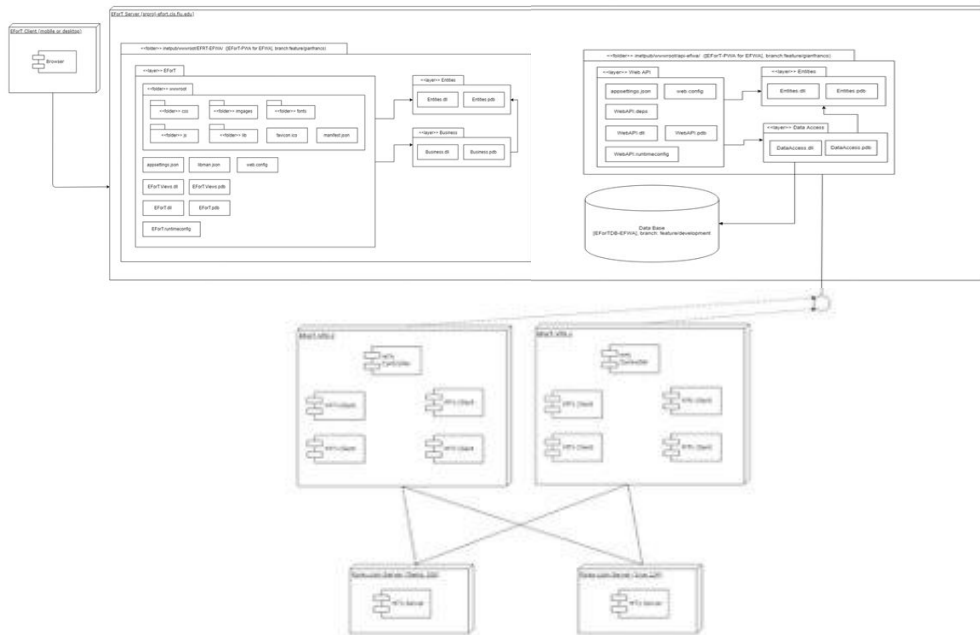
21521312 2152122



Requirements

- The website should be able to start a MetaTrader terminal on any of the three VPS servers (Virtual Private Server) set up with a trader's FOREX account so that automated trading can take place.
- The terminal that is started should be able to be paused, resumed, and stopped at any point via the VPS management page on the website.
- The website should be able to run simultaneously on a VPS server.
- Real data should be generated by an expert advisor running on a MetaTrader terminal and sent to the EFort Web API to be logged in the EFort DB.
- Changes in the value of the equity or balance of a user's FOREX account should be sent to the EFort Web PI and recorded.
- The deals, orders and changes in position a FOREX user does on their account should also be sent and recorded.
- The website Web API and VPS API should have tested functions to GET data for the Forex account information and the user account information.

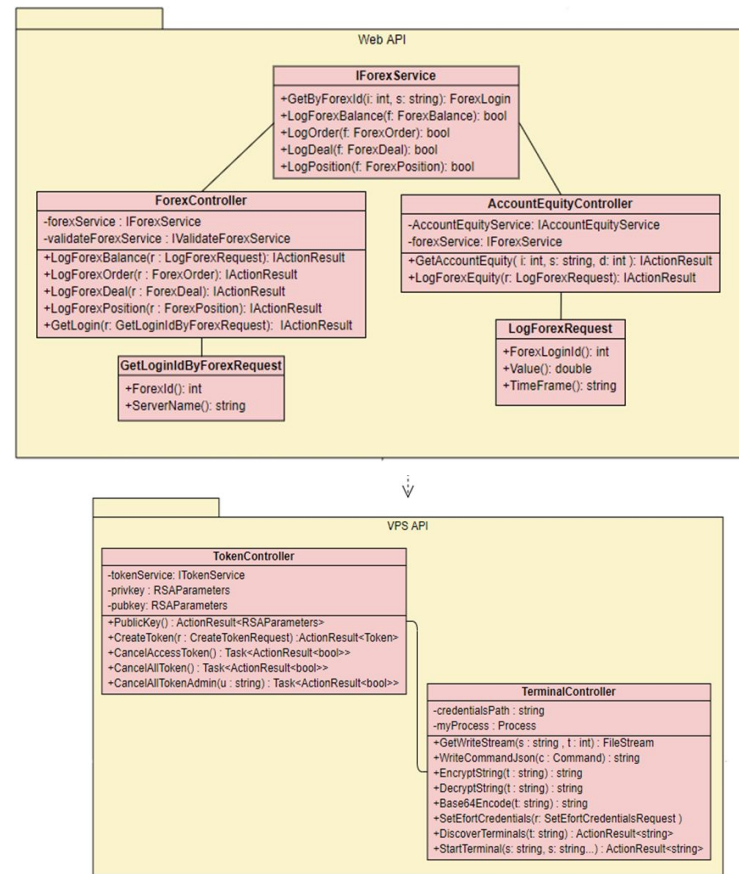
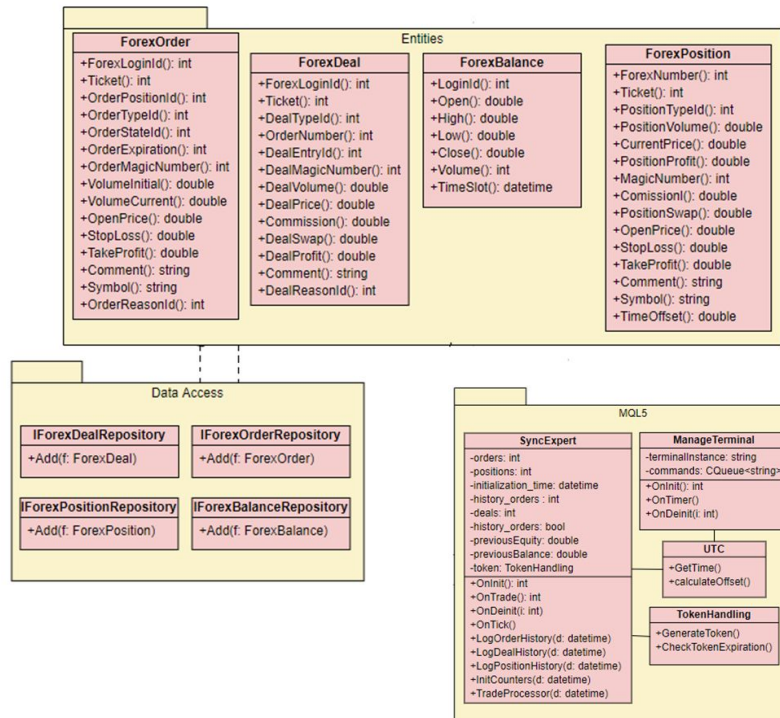
System Design



Implementation

- Edited an existing command to start a terminal to include the session it should be started on.
- Edited a sync expert advisor and other helper classes in MetaTrader to be able to make Get and Post requests to the Efort Web API.
- Created an onTick function on this expert advisor that monitors any change in a user's balance or on the equity value of an order. When a change occurs the new values would be logged.
- Edited existing log deal, position and order functions to work with the new EFort Web API structure.
- Created the tables in the EForT DB balance, deal, order and position.
- Created several functions in the EForT Web API that receive the data from the sync expert advisor.

Object Design



Verification

- We used Postman to test the existing API functions in both the Web API and the VPS API.
- To test that the implementation of Start Terminal was working correctly, we ran the start terminal on a remote desktop used as the VPS server and watched its behavior.
- To test that terminals could be started on the same VPS, we started terminals with different session ID's and then checked the task list on the corresponding VPS server.
- To test the expert advisor, sync expert, we used a local demo MetaTrader demo account and a local database.

Summary

Our project was divided into three main sections.

- The first section consisted of testing and editing existing EFort and VPS API functions.
- The second section revolved around the feature Start terminal. We implemented changes to the API function and added a functionality that allowed terminals to open in different sessions.
- The third section consisted of gathering data for the front end of the trader's accounts. We created functions on an expert advisor that checked if the equity or balance for a FOREX account had changed. When this occurred, the data would be sent and consequently stored in the project's DB. This data would be displayed for the user graphically on their home page. Additional API functions, expert advisor functions and tables were created to keep track of other trading information.

References

- Visual Studio - IDE for Web API and VPS API solutions.
- SQL Server Management Studio - Database Manager
- MetaTrader 5 - Everything to do with MQL5
- Postman - Testing API's developed
- Senior Project YouTube channel
- Summer 2019 EFWE Team's Jira Confluence page and video playlist
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