

Problem

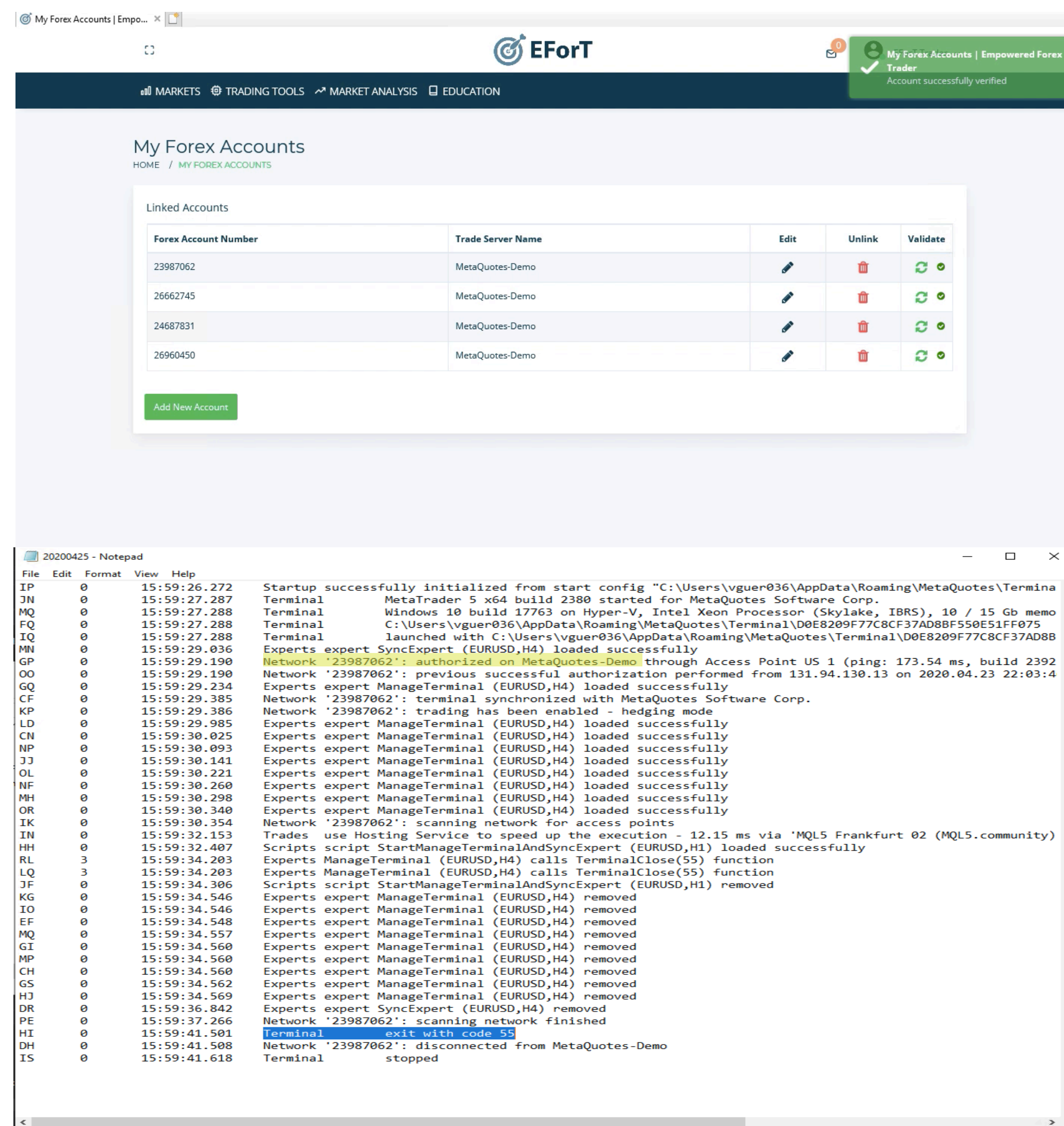
EForT is short for Empowered Forex Traders, which is a web application that was created for the fictional Forex MetaBroker company. EForT is meant to aid clients with little to no knowledge of the Foreign Exchange Market in successfully trading like a professional. This is achieved through advanced trading algorithms, carefully crafted by our developers, which mirror proven trading strategies. EForT clients pay a flat, monthly fee to access the automated trading benefits the site offers.

The EForT EFWE team is tasked with improving and supporting the exchange of data between the EForT database system, the Forex Servers that deploy expert advisors and trade without interruption, and the VPS servers that trade on behalf of the user of the EForT web application. The EForT EFWE team supports the exchange of data between the EForT database, Forex servers, and VPS servers that independently trade on behalf of the user.

The EFWE team works on interpreting actions by the user, the scheduling of VPS servers and their terminals, MQL5 scripts that interact with the MetaTrader terminal, and database management.

Our main issues to be solved were to solve issues with the servers and terminals not working properly, as well as Forex account credentials not validating. Without the login of a user's trade account being validated, Expert Advisors (a type of trading bot) cannot run.

Current System



Requirements

The EForT application should be able to start a MetaTrader terminal on a VPS server so that automated trading can take place.

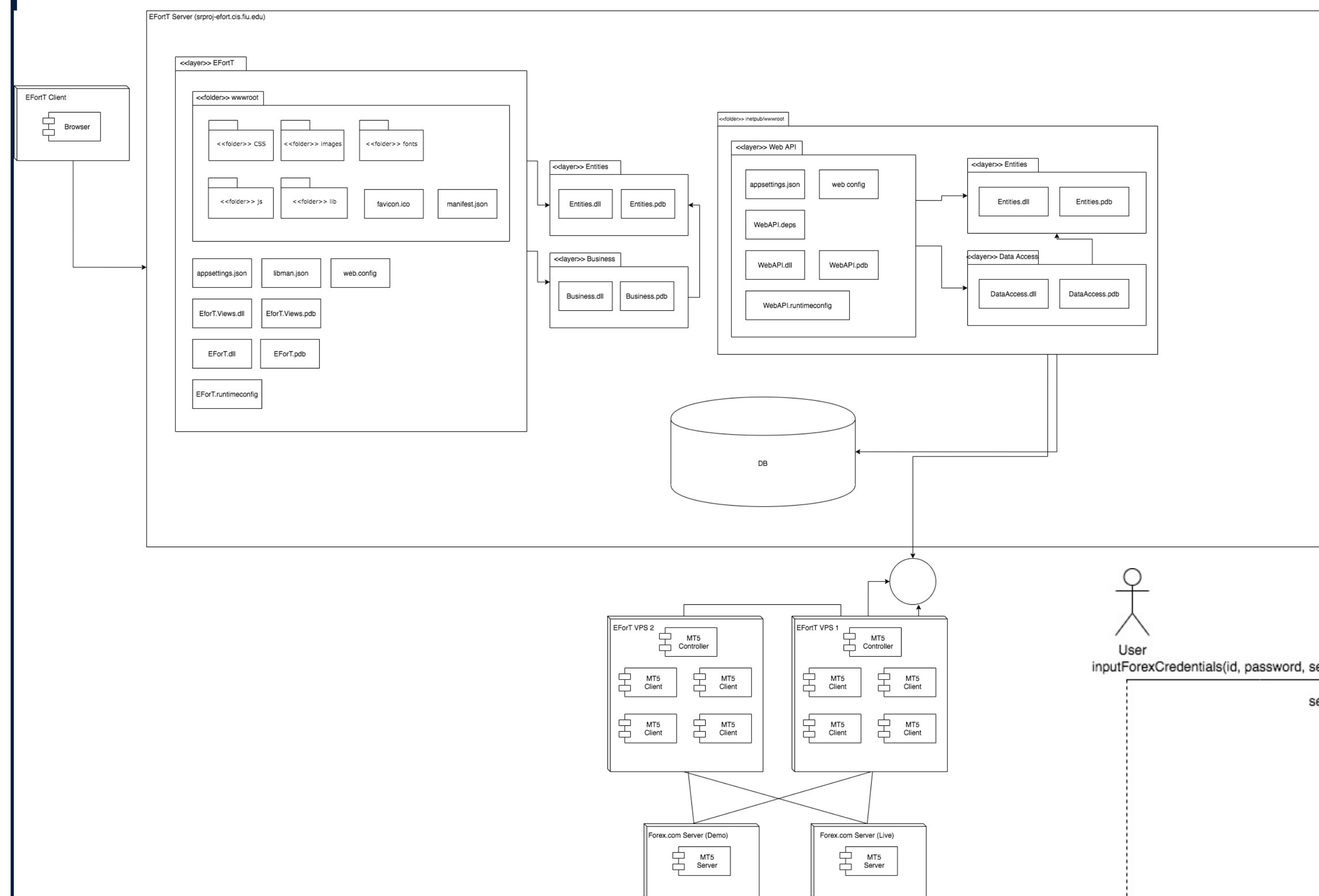
- Any terminal that is started should be able to be paused, resumed, and stopped at any point via the VPS management page on the website

- A basic trader should be able to validate their account with proper credentials through the EForT My Forex Accounts page so that their account can trade in the future.

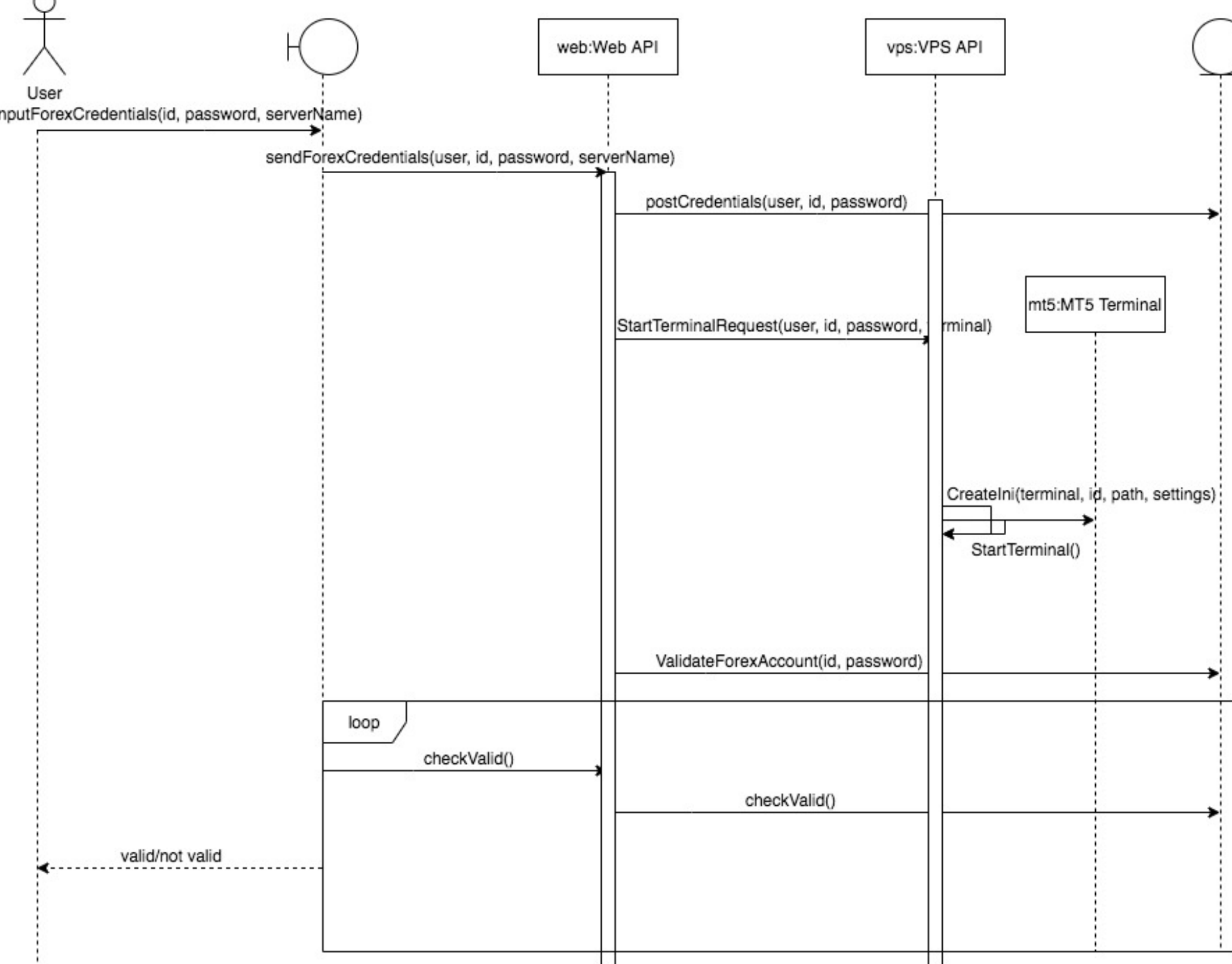
- The EForT application should be able to choose an available terminal and VPS server for account validation.

- The VPS solution should be able to populate the Common.ini file with the assigned settings and credentials so that the MT5 terminal may run with that information.

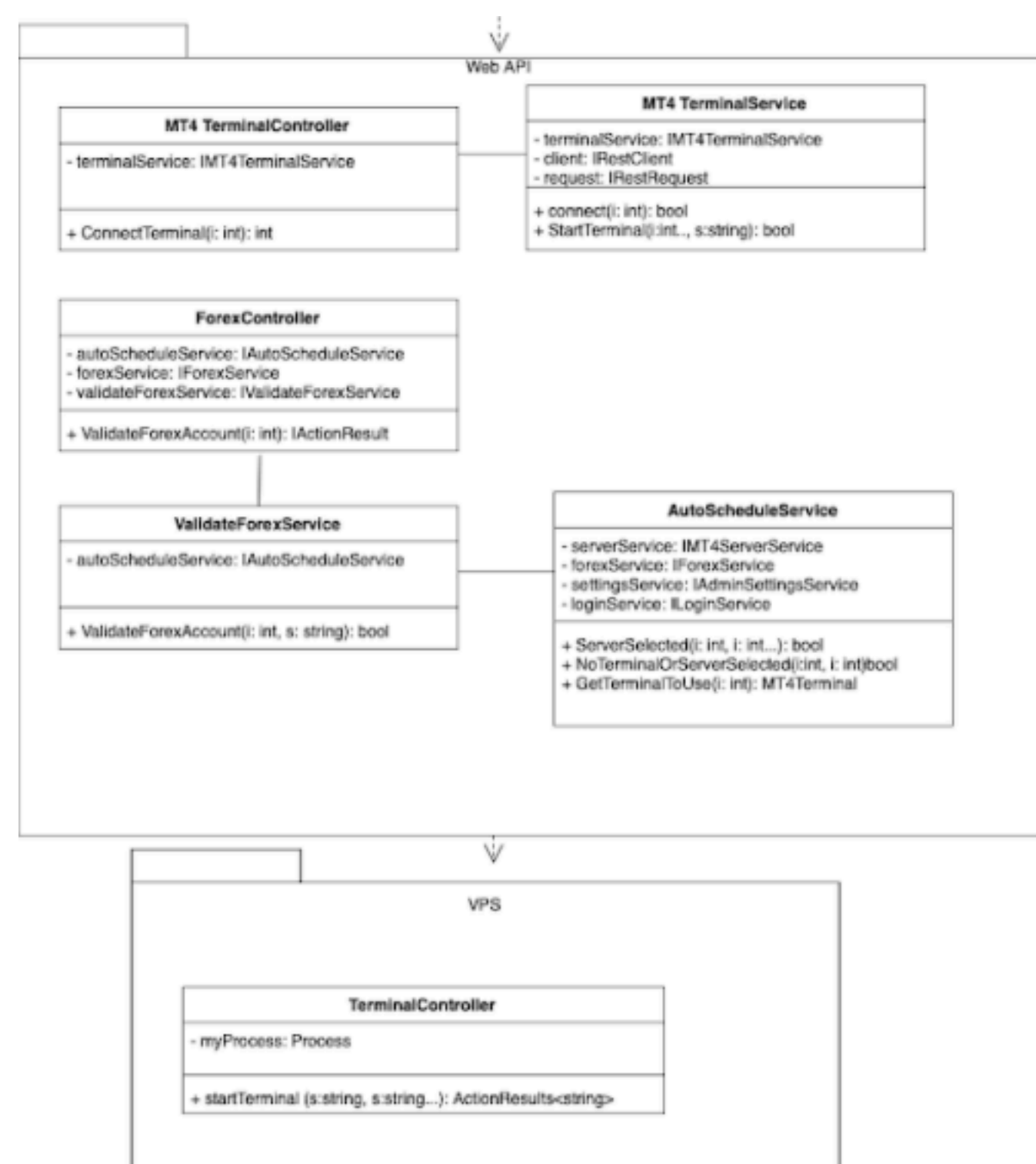
System Design



Sequence Diagram



Class Diagram



Implementation

- Edited existing MQL5 scripts to return separate exit codes for valid and invalid credentials.

- Edited existing functions in EForT VPS to create an MT5 Terminal window.

- Edited existing functions in EForT VPS to find the MT5 Terminal window.

- Edited existing functions in EForT Web API to accurately find available servers and terminals.

- Edited existing functions in EForT Web API to fully populate the Common.ini file.

- Populated several database tables that were left empty.

- Edited several database tables so that the EForT Web API solution would receive accurate data.

Verification

- We used Postman to initially test all of the API functions and locate issues.
- To test updates to StartTerminal, we manipulated the servers and terminals to make sure they behaved properly and verified this behavior in the database.
- To test updates to AutoScheduler, we used both our local server as well as VPS0 to verify that terminals were available and being chosen properly.
- To test updated to Forex Validation, we executed validation with both correct and incorrect credentials and checked the logs for their exit codes.

Summary

- We initially tested all functionality in the EForT application, learning where the issues existed.
- After much testing, we learned that the validation issues were widespread and began far before the actual validation of the Forex account.
- We slowly began to chip away at the issue, working on the EForT VPS solution, EForT Web App solution, MQL5 code, and the database.
- We worked on issues regarding the terminal; not starting and stopping properly, not scheduling a new account to a terminal properly.
- We worked on issues regarding the MT5 terminal itself; not spawning at all, then spawning using the wrong terminal, then fixing the Common.ini population so it would use the given EA/script and credentials.
- We worked on issues regarding the MQL5 scripts; the same exit code was sent for every account regardless of valid credentials.

Acknowledgement

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