Distributed Commodities OTC Electronic Trading System

Software Requirements Specification

Version 1.0

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Explanation** | **Author** |
| 08/06/2014 | 1.0 |  | Bi Jianshui |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Contents

1. Introduction 4

1.1 Purpose 4

1.2 Definitions, acronyms and abbreviations 4

1.3 Reference material 4

2. Overall description 4

3. Specific requirements 5

3.1 Function 5

3.1.1 Use case diagram 5

3.1.2 Manage broker info 5

3.1.3 Manage user 5

3.1.4 View market information 6

3.1.5 Submit Order 6

3.1.6 Revoke Order 7

3.1.7 View own orders status 7

3.1.8 View all traded orders 8

3.1.9 Manage trader info 8

3.1.10 Manage user 8

3.1.11 View market information 9

3.1.12 View all traded orders 9

3.1.13 Manage tradable commodity 10

3.2 Reliability 10

3.2.1 Mean time between failure（MTBF） 10

The mean time between failures of the system should be greater than 7 \* 24h 10

3.2.2 The percentage of available time 10

3.2.3 Mean time to repair（MTTR） 10

3.3 Performance 10

3.3.1 Transaction response time 10

3.4 Supportability 10

3.4.1 Platform adaptability 10

3.5 Design constraints 10

3.5.1 Programming language 10

Software Requirements Specification

# Introduction

## Purpose

This SRS document describes the functional requirements and non-functional requirements of Distributed Commodities OTC Electronic Trading System, with design constraints and other factors required software requirements specification.

## Definitions, acronyms and abbreviations

## Reference material

# Overall description

In traditional OTC trading, brokers in broker company need to matching transaction by telephone. For traders in trader company, they can not get the real-time market conditions to make the right decisions. DCETS is an electronic system designed to help commodities traders to find trading counterparty faster.

As a simplified implementation, we make the following assumptions：

·System users are no credit risk, so they can trade just like in exchange, and each trader are equivalent, so no need to select the transaction counterparties

·The system does not provide clearing module, clearing should be made by a bank or exchange with the message sent by the system

·There trading system access user is deemed to have authority to represent the company for the transaction

·Tradable commodities in different brokers can be different, but for the same commodity must have the same unique identifier in different brokers which should be prescribed by a committee

# Specific requirements

## Function

### Use case diagram



### Manage broker info

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC101 | Use Case Name | Manage broker info |
| Description | Trading company system administrators to manage information on brokers | | |
| Executor | Administrator in trader company | | |
| Preconditions | Administrator has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Administrator clicks on “Manage broker info”  2 Show broker information recorded in the current system  3 Administrator to modify the information on broker  4 Show the modified broker information. | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### Manage user

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC102 | Use Case Name | Manage user |
| Description | Trading company system administrators to manage user's permissions(to determine who have the permission to trade using the system on behalf the company) | | |
| Executor | Administrator in trader company | | |
| Preconditions | Administrator has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Administrator clicks on “Manage user”  2 Show user information recorded in the current system  3 Administrator to modify the information on user  4 Show the modified user information | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### View market information

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC201 | Use Case Name | View market information |
| Description | Traders in trading company view the real time market information from all brokers that have the business contracts, including price, quantity, recent traded price, and etc. | | |
| Executor | Trader in trader company | | |
| Preconditions | Trader has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “View market information”  2 The system displays information about the current tradable commodities  3 Trader select one commodity from the list  4 The system displays market information of the commodity | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### Submit Order

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC202 | Use Case Name | Submit Order |
| Description | Traders in trading company initialize an order or fill an exist order, and submit to the server in trader company which then will be sent to specific broker server. | | |
| Executor | Trader in trader company | | |
| Preconditions | Trader has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “initialize an order” or clicks on displayed market information entry  2 The system displays the form which needs to fill for a complete order  3 Trader fills in all content, clicks ”confirm” and finally clicks “submit order”  4 The system displays the status of orders submitted | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### Revoke Order

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC203 | Use Case Name | Revoke Order |
| Description | Traders in trading company can revoke the unfilled orders | | |
| Executor | Trader in trader company | | |
| Preconditions | Trader has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “View my order”  2 The system displays all orders belong to the trader  3 The trader selects one of the unfilled orders, and clicks on “revoke”  4 The system displays the status of orders revoke request | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules | 1 Traders can only revoke their own orders  2 Traders can only revoke orders not fully filled（or not filled） | | |

### View own orders status

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC204 | Use Case Name | View own orders status |
| Description | Traders in trading company can view all orders belong to the trader | | |
| Executor | Trader in trader company | | |
| Preconditions | Trader has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “View my order”  2 The system displays all orders belong to the trader | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### View all traded orders

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC205 | Use Case Name | View all traded orders |
| Description | Traders in trading company can view all traded orders | | |
| Executor | Trader in trader company | | |
| Preconditions | Trader has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “View all orders”  2 The system displays all orders that has been traded | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules | Orders shall not contain displays the counterparty | | |

### Manage trader info

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC301 | Use Case Name | Manage trader info |
| Description | Broker company system administrators to manage information on traders | | |
| Executor | Administrator in broker company | | |
| Preconditions | Administrator has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Administrator clicks on “Manage trader info”  2 Show trader information recorded in the current system  3 Administrator to modify the information on trader  4 Show the modified trader information. | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### Manage user

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC302 | Use Case Name | Manage user |
| Description | Broker company system administrators to manage user's permissions(to determine who have the permission to view the market information) | | |
| Executor | Administrator in broker company | | |
| Preconditions | Administrator has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Administrator clicks on “Manage user”  2 Show user information recorded in the current system  3 Administrator to modify the information on user  4 Show the modified user information | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### View market information

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC401 | Use Case Name | View market information |
| Description | Brokers in Broker company view the real time market information from all traders that have the business contracts, including price, quantity, recent traded price, and etc. | | |
| Executor | Brokers in broker company | | |
| Preconditions | Broker has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Broker clicks on “View market information”  2 The system displays information about the current tradable commodities  3 Broker select one commodity from the list  4 The system displays market information of the commodity | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### View all traded orders

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC402 | Use Case Name | View all traded orders |
| Description | Brokers in broker company can view all traded orders | | |
| Executor | Broker in broker company | | |
| Preconditions | Broker has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “View all orders”  2 The system displays all orders that has been traded | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

### Manage tradable commodity

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Number | UC403 | Use Case Name | Manage tradable commodity |
| Description | Brokers in broker company can manage tradable commodities | | |
| Executor | Broker in broker company | | |
| Preconditions | Broker has logged | | |
| Postconditions | The operation is recorded by system | | |
| Basic flow | 1 Trader clicks on “Manage tradable commodity”  2 The system displays all tradable commodities in current system  3 Broker to modify the tradable commodities information  4 Show the modified tradable commodities information | | |
| Alternative flow |  | | |
| Non-functional requirements |  | | |
| Business rules |  | | |

## Reliability

### Mean time between failure（MTBF）

### The mean time between failures of the system should be greater than 7 \* 24h

### The percentage of available time

The percentage of available time of the system should be greater than 99%

### Mean time to repair（MTTR）

Mean time to repair of the system should be less than 2h

## Performance

### Transaction response time

The average query response time of the transaction does not exceed 10 seconds, and trading through the browser on average transaction response time less than 3 seconds

## Supportability

### Platform adaptability

The system supports all major operating systems(including Windows, Mac OS, Android) accessed through a browser.

## Design constraints

### Programming language

The system uses Java as the primary language