

AnyChange	
System-Wide Requirements Specification	Date: 07/04/2023

IMTSquare Company

AnyChange Software

**System-Wide Requirements Specification
v1.1**

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Revision History

Date	Version	Type	Description	Prepared by	Checked by
02/04/2023	1.0	IFC	Preliminary draft	IMT2 Dev	IMT2 QA/QC
07/04/2023	1.1	IFD	Used for design	IMT2 Dev	IMT2 QA/QC

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System-Wide Requirements Specification

1. Introduction

This document is aimed to supply system-wide requirements that are not described as use cases for the project “AnyChange Software”.

2. System-Wide Functional Requirements

- 2.1 Customers will be able to switch to premium accounts.
- 2.2 Customers will be able to manage personal information and request deletion of their account and all data related to their account.
- 2.3 Users will be authenticated (via OAuth 2.0 protocol).
- 2.4 Notification settings will be managed by the users.
- 2.5 Monitoring, searching and managing products will be performed.
- 2.6 Customers will be able to raise queries, give feedback and request support.
- 2.7 Users will automatically logout the user after idling.
- 2.8 Users will be able to use features based on dependencies that are expected to be explicitly licensed as open source which allows commercial usage.
- 2.9 All data, hence the database applications and clients are expected to be secure.
- 2.10 The database instances will only be accessible by the application servers.
- 2.11 Servers that run the database engines will reject all connections sourcing from the public internet.

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3. System Qualities

3.1 Usability

3.1.1 Users will be able to use the software/platform without a specific need for a separate training.

3.1.2 The system will use email addresses as usernames.

3.1.3 The system will require email and passwords for account creation and login.

3.1.4 The system will verify only e-mail upon account creation.

3.1.5 The system will resemble the existing systems to familiarize the users and reduce the learning curve.

3.1.6 The system will provide step back functionality to allow users to edit their products of interest-related information.

3.1.7 System messages shown to the user will include the current state of the process as well as next actions that can be performed.

3.2 Reliability

3.2.1 System will be available 7/24.

3.2.2 Functional uptime of the system will be 166 hours per week (99%).

3.2.3 Maintenance window for the system will be 2 hours per week.

3.2.4 System will be subject to a general health check mechanism that checks the status of all system components every 30 seconds.

3.2.5 System will only support payment via credit/debit card to prevent accounting errors.

3.2.6 System will run on multiple instances in isolated environments for redundancy.

3.2.7 Upon significant service availability issues, mean time to repair shall be 1 hours.

3.2.8 Upon detection of minor defects such as GUI glitches, mean time to repair shall be 24 hours.

3.2.9 Upon detection of critical errors resulting with the general operation of the system is degrading, system will only allow idempotent operations.

3.2.10 System shall have restore points for databases to allow rollback to a previous deployment for each release.

3.2.11 System shall store read replicas for all databases up to 14 days for data integrity.

3.2.12 In case of an unforeseen error where repair time cannot be estimated, system will serve a static maintenance page to the users.

3.3 Performance

3.3.1 System will allow 100 concurrent users performing any operation on the system for the initial release.

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3.3.2 System will respond within 10 seconds assuming that the client meets the required conditions.

3.3.3 System will respond within 5 seconds on a user input including communication overhead.

3.3.4 A new instance for any system module shall startup in 15 seconds.

3.4 Supportability

3.4.1 System will run on Linux based environments.

3.4.2 Principal development and operations shall be performed on Ubuntu Server LTS.

3.4.3 System shall support containerization with Docker.

3.4.4 User interface will be available on all major browsers.

3.4.5 User interface will support different resolutions.

3.4.6 All system modules shall support external configuration via variables or files.

3.4.7 System shall scale up to support 10000 concurrent transactions.

3.4.8 System will scale up by increasing the number of running servers upon reaching a total computational load of 70% to prevent throttling.

3.4.9 System will scale down by shutting down servers that are under 20% load (i.e. idle servers).

3.4.10 System will provide FAQs for the customers.

3.4.11 Every software component developed will have step by step documentation packaged with its source code to define the overall functionality and how to build the executable artifact from it.

3.4.12 Software build process will be automated where applicable.

3.4.13 System shall provide feedback functionality.

3.4.14 Maintenance and fix releases will be provided whenever necessary.

4. System Interfaces

4.1 User Interfaces

4.1.1 Look & Feel

4.1.1.1 The system will have a GUI for all users.

4.1.1.2 Users will be able to select and deselect products.

4.1.1.3 Premium Users will be able to access special features while regular users won't.

4.1.1.4 The product lists will be designed with a responsive layout that adapts to different screen sizes and devices.

4.1.1.5 All planes and panels within the UI will have round-tipped corners to create a visually pleasing and modern design.

4.1.2 Layout and Navigation Requirements

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4.1.2.1 The products shall be grouped together with their respective categories to provide easy navigation for customers to find the products they are looking for.

4.1.2.2 Users will be shown that the product is selected or deselected due to different coloring.

4.1.2.3 Users will be able to navigate through product pages and profile pages by GUI.

4.1.2.4 Users will be able to expand and collapse categories for better visibility.

4.1.3 Consistency

4.1.3.1 System will show only prices of selected products.

4.1.3.2 System will present the prices in the same order and layout.

4.1.3.3 System will show a loading prompt to the user during getting the prices.

4.1.3.4 System will prompt a warning when any required information is wrong or missing.

4.1.3.5 All interactions will prompt a temporary success/failure message to the user.

4.1.4 User Personalization & Customization Requirements

4.1.4.1 Only the Premium Users will be able to see notification settings while others won't.

4.1.4.2 Only the Sellers will be able to see product settings while others won't

4.2 Interfaces to External Systems or Devices

4.3 Software Interfaces

4.3.1.1 The system should support multiple web scraping APIs or frameworks, with built-in integration that allows users to easily select and use their preferred tools.

4.3.1.2 The system should have clear documentation and user guides, providing users with the necessary information and instructions to effectively use the software.

4.3.1.3 The system should have built-in security features, such as authentication and authorization mechanisms, to protect sensitive data and prevent unauthorized access.

4.3.2 Hardware Interfaces

4.3.2.1 The system should be compatible with common hardware devices such as desktops, laptops, tablets, and mobile devices, with a responsive design that adapts to different screen sizes and resolutions.

4.3.2.2 The system should be able to connect to the internet securely and reliably, with support for common network protocols such as HTTPS and SSL.

4.3.2.3 Hardware specs rules will apply to the system.

4.3.3 Communications Interfaces

4.3.3.1 The system should be able to interface with external systems or services using web-based APIs such as REST or SOAP, allowing it to exchange data and perform tasks with other software applications.

4.3.3.2 The system should be able to transfer files to and from external systems using standard file transfer protocols such as FTP or SFTP.

4.3.3.3 The system should be able to interface with cloud-based services such as Amazon Web Services or Microsoft Azure, allowing it to access cloud-based data storage, processing, and analysis capabilities.

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5. Business Rules

Account management administrators: Along with regular administrators, there will be customer support and maintenance personnel assigned to designated sellers and e-commerce platforms a.k.a “enterprise customers”, whose authorities shall cover specific tasks for relevant sellers and e-commerce platforms. In that regard, these authorities may be extended for some cases and limited for other cases as required. AI validation and verification (V&V) tests shall be distributed to interested sellers and e-commerce platforms only with a mutual non-disclosure agreement. Relevant customer support and maintenance personnel shall be able to see the NDA in place or not.

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5.2 AI validation and verification (V&V) tests

AI validation and verification (V&V) tests shall be distributed to interested sellers and e-commerce platforms only with a mutual non-disclosure agreement. Relevant customer support and maintenance personnel shall be able to see the NDA in place or not. The relevant sellers and e-commerce platforms shall be able to access these V&V documentation online via application.

5.3 Rating based promo

Any seller with a rating 4.9 over 5.0 with more than 1000 user reviews shall earn a special promo for advertised content, to be activated or not at their own discretion.

6. System Constraints

6.1 System will be written using microservice architecture to allow for horizontal scalability in the future.

6.2 The backend of the system will be written using Java 17.

6.3 Spring Boot Framework will be used in the backend applications.

6.4 System will use PostgreSQL 15.2 as the database.

6.5 The data collection module will be developed separately and will be written in Python 3.11.2. The backend will interface with the data collection module using Jython 2.7.3.

6.6 The frontend will be written using Vue.js.

6.7 Frontend will work on Chrome, Firefox, Safari, Edge, Opera browsers on both Windows and Linux.

7. System Compliance

7.1 Licensing Requirements

There is no licensing requirement.

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7.2 Legal, Copyright, and Other Notices

All relevant legal information per GDPR and ICTA rules shall be provided.

7.3 Applicable Standards

Please see section 7.2 above and Vision document for relevant specifications.

8. System Documentation

8.1 Online FAQ will be created by the development team until transition phase, after which it will be contributed by the customer support team and modified and maintained by maintenance team.

8.2 Online Help will be created by the development team until transition phase, after which it will be contributed by the customer support team and modified and maintained by maintenance team.