Software Requirements Specification

For

Integrated Information Systems Inventory Tracking System

Version 1.0

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CARICOM Secretariat

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Software Requirements Specification Authorization Memorandum

I have carefully assessed the Software Requirements Specification for the IIS Inventory Tracking System. This document has been completed in accordance with all requirements.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

_____ The document is accepted.

_____ The document is accepted pending the changes noted.

_____ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation for development of this system is authorized.

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Table of Contents

Table of Contents ..... **ii**
1. Introduction **4**
1.1 Purpose 4
1.2 Intended Audience and Reading Suggestions 4
2. Overall Description **5**
2.1 Product Perspective 5
2.2 Product Functions 5
2.3 User Classes and Characteristics 5
2.4 Assumptions and Dependencies 5
3. System Features **6**
3.1 User accesses login screen 6
3.2 Logging in of users 6
3.3 Logging out of users 7
3.4 Add/ Remove users to/ from the application 7
3.5 Log all action performed by users 7
3.6 Add an item to the inventory database 8
3.7 Remove an item from the inventory database 8
3.8 Transfer an item from one location to the next 9
3.9 Administrator's approval 9
3.10 Generate Reports 9
3.11 Backup Data 10
4. Use Case Specifications **10**
4.1 Use Cases 11
4.2 Use Case Diagram 11
5. Entity Relationship Diagram **12**
5.1 Table of Physiscal Design of ERD 12
6. Other Nonfunctional Requirements **13**
6.1 Performance Requirements 13
6.2 Safety Requirements 13
6.3 Security Requirements 13
6.4 Software Quality Attributes 14
6.5 Business Rules 14

1. Introduction

1.1 Purpose

The Integrated Information Systems (I.I.S.) department of the CARICOM Secretariat is essential for the efficient operations of the Secretariat. As the name would indicate the department plays an integral part in Secretariats daily operations. The IIS department maintains all software and hardware that is considered as assets of CARICOM.

However, due to the size of the organization, it proves very difficult for I.I.S. staff to keep track of and maintain accountability of all the hardware and software belonging to the CARICOM Secretariat.

Therefore, to improve accountability and tracking of assets allocated to the responsibility of I.I.S. department of CARICOM, an Inventory Tracking System (I.T.S.) would be most appropriate. With the development of an Inventory Tracking System for the I.I.S. department, managing and tracking of hardware and software would be easier and increase the department's efficiency in this area.

Moreover, the Inventory Tracking System would only be useful if it possesses important data. Such as, Date & Time, Names, Locations, Models, Descriptions, Serial Numbers, and other important information.

With the data provided the I.T.S. would then be able to provide the following advantages:

- Improved recording of information on assets assigned to I.I.S.
- Quick access to database of assets for staff of I.I.S.
- Elimination of issues faced by staff of I.I.S.
- Improved accountability of assets
- Can generate and export reports easily

1.2 Intended Audience and Reading Suggestions

Due to the type of development, this document provides a sequential approach to the product outline and specifications of the software solution to be implemented.

Following is a series of information outlined by parts: The Overall Description which gives a detailed introduction to the product and its specifications (functions, perspectives and constraints), System Features which describes the overall functionality and attributes of the system being developed and the Non-Functional Requirements which cover topics such as performance, safety and security requirements and the software quality attributes and business rules associated with the project.

This document will be of great relevance to any current and future developer, tester and users of all levels within the staff community.

2. Overall Description

2.1 Product Perspective

The Inventory Tracking System is new web application that will be implemented for use in the Integrated Information Systems Department and will keep track of all their assets in and out of the department. The application will be very easy to maintain and will be available to all users simultaneously, thereby improving the speed of the workflow within the department.

2.2 Product Functions

The Inventory Tracking System must provide its users with the functions listed below:

- **Add**
  The I.T.S. must be able to add a new asset to its list of inventory
- **Remove**
  The I.T.S. must be able to remove an existing asset from its list of inventory
- **Transfer**
  The I.T.S. must be able to improve the process of transferring an asset from one location to the other.
- **Dispose**
  The I.T.S. must be able to account for the disposal of an asset
- **Adjust**
  The I.T.S. must be able to adjust the current status of an asset

2.3 User Classes and Characteristics

There are two groups of users that will use the I.T.S.:

1. **Administrator** – This is the first group of users and will comprise of a maximum of two members. This group of users will have the authority to backup or archive data, create and remove other users, change passwords, read and write data, approve transfer and disposal of assets in the system.

2. **Standard** – This group of users will be most frequently accessing and using the system. Standard Users will have the authority to add and remove assets, adjust the status of an asset, request a transfer of an asset from one location to the other pending an Administrators' approval, likewise for the disposal of an asset. However, Standard user will not have the permission to create or remove users and edit users account.

2.4 Assumptions and Dependencies

<List any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. These could include third-party or commercial components that you plan to use, issues around the development or operating environment, or constraints. The project could be affected if these assumptions are incorrect, are not shared, or change. Also identify any dependencies the project has on external factors, such as software components that you intend to reuse from another project, unless they are already documented elsewhere (for example, in the vision and scope document or the project plan).>

3. System Features

System features describes the functional requirements for the I.T.S. mentioned in the previous document. Throughout this chapter the requirements will be referred to by the number assigned to them on the list. For further referencing the document will be attached to the SRS.

The features will be assigned a priority. Moreover, a priority rated high means it is an absolute must for the system to work, one rated medium means that the system needs that feature to make things simple or intuitive for the users, any priority rated low means that the system can function without it, but it is not recommended the users do so.

3.1 Users accesses login screen

3.1.1 Description and Priority

The user accesses the login screen after selecting login via the applications URL

Priority: Medium (Set as medium because the feature is necessary to use the system)

3.1.2 Stimulus/Response Sequences

Precondition: User clicks login tab on the startup page

Post condition: Login screen is displayed, and username and password fields are shown

3.1.3 Functional Requirements

Includes Requirement 1 of the Software Requirements Document.

3.2 Logging in of users

3.2.1 Description and Priority

The user enters username and password into the required fields

Priority: High (Set as high because system cannot be used without valid credentials)

3.2.2 Stimulus/Response Sequences

Precondition: User enters username, User enters password, User clicks login button

Post condition: The application verifies the username and password entered before allowing access to the system. Then sends user home page to their web browser.

3.2.3 Functional Requirements

Includes requirements 2 of the Software Requirements Document

3.3 Logging out of users

3.3.1 Description and Priority

The user clicks logout button to exit application.

Priority: Medium (Set as medium because user has the option to commit this action)

3.3.2 Stimulus/Response Sequences

Precondition: The user clicks the logout button on the application

Post condition: The application processes the request, ends the user session and sends the user back to login page.

3.3.3 Functional Requirements

Includes Requirements 1 and 2 of the Software Requirements Document.

3.4 Add/ Remove users to/ from the application

3.4.1 Description and Priority

The Administrator selects add user or remove user button

Priority: Medium (Set at medium because the Administrator decides whether to remove or add a user)

3.4.2 Stimulus/Response Sequences

Precondition: The administrator selects either to add or remove a user.

Post condition: The application either adds a user if the user does not exist in the system or removes a user if the user exists in the system respectively. The application then displays a message notifying the user whether the action was successful or not.

3.4.3 Functional Requirements (more specific functions)

Includes Requirement 3 of the Software Requirements Document.

3.5 Log all actions performed by users

3.5.1 Description and Priority

The application logs all processes and actions taken by users as well as, any changes made to data.

Priority: High (Set to high because this feature maintains accountability and transparency of assets)

3.5.2 Stimulus/Response Sequences

Precondition: User logs on – edits data – logs out

Post condition: The application maintains a log of all users' actions from the time of login until log out.

3.5.3 Functional Requirements (more specific functions)

Includes Requirement 4 and 15 of the Software Requirements Document

3.6 Add an item to the Inventory database

3.6.1 Description and Priority

The User adds a new item to the database of existing items

Priority: Medium (Set to medium because an item will only be added if it exist as an asset)

3.6.2 Stimulus/Response Sequences

Precondition: The user selects the add button. Then proceeds to enter the manufacture name, type, description, serial number, location and who has the item.

Post condition: The application automatically fills in the date and time the device was added and who added the device to the inventory database.

3.6.3 Functional Requirements

Includes Requirements 5, 6, 7 and 8 of the Software Requirements Document

3.7 Remove an item from the Inventory database

3.7.1 Description and Priority

The Standard user can remove an item from the database by making a request to the Administrator. However, the system would remove the item only with the approval of the Administrator.

Priority: High (Set to high because the system would not be functional if an item is mistakenly removed)

3.7.2 Stimulus/Response Sequences

Precondition: The user selects the remove button. Then search for the item to remove and selects that item.

Post condition: The application processes the request after a verification by the user. The request is then sent to the Administrator. Upon the Administrators approval the item is removed from the Inventory database.

3.7.3 Functional Requirements

Includes Requirement 5, 6 and 8 of the Software Requirements Document.

3.8 Transfer an item from one location to the next

3.8.1 Description and Priority

The user selects the transfer button to transfer an item from one location to the next. The transfer is processed as a request to the Administrator. Upon the Administrator's approval the location of the item as well as who has the item is updated in the Inventory database.

Priority: High (Set to high because this is the main purpose of the I.T.S.)

3.8.2 Stimulus/Response Sequences

Precondition: The Standard user clicks on transfer. Then selects the items to be transferred, the new location and sends a request to the administrator for approval.

Post condition: The application waits for the approval by the Administrator and then updates the location of the item and who has the item.

3.8.3 Functional Requirements

Include Requirements 8 and 9 of the Software Requirements Document

3.9 Administrator's approval

3.9.1 Description and Priority

The Administrator after login will be able to see all transferal requests and removal request and select which options he/ she would like to view. After selecting an option the Administrator can either approve or decline a request for transferal or removal.

Priority: High (Set to high because the Approval of an administrator is important to maintaining accountability of assets)

3.9.2 Stimulus/Response Sequences

Precondition: The administrator selects either Transfer request or Removal Request and decides to either approve or decline a request after reviewing the details displayed.

Post condition: The application updates the inventory database if the administrator approves a transfer or removal request. However, if the administrator declines a request the application notifies the standard user that his/ her request was declined.

3.9.3 Functional Requirements

Includes Requirement 9 of the Software Requirements Document

3.10 Generate Reports

3.10.1 Description and Priority

Users can generate reports within a given time period to track all assets.

Priority: Medium

3.10.2 Stimulus/Response Sequences

Precondition: User clicks Report button and selects the device type/ name or/and person's name or/ and location or/ and date and time to generate the report. Then clicks generate.

Post condition: The application generates the report that can be downloaded as a file.

3.10.3 Functional Requirements

Includes Requirements 13 of the Software Requirements Document.

3.11 Backup data

3.11.1 Description and Priority

The application inventory database can be set to automatic backup or manual backup by the administrator.

Priority: High (Set to high because if data is to be loss it can easily be recovered from a backup)

3.11.2 Stimulus/Response Sequences

Precondition: The administrator can select via checkbox to backup data automatically. Then selects the intervals or time period for the system to back up. However, if the checkbox is left uncheck the administrator can backup data manually.

Post condition: The application will then create a backup file at each backup. The file can be used for recovery of data.

3.11.3 Functional Requirements

Include Requirements 14 of the Software Requirements Document.

4. Use Case Specifications

User Groups

User Type	Users
Administrators	• *Deputy Programme Manager* • *Senior Computer Technician* • *Senior Project Officer*

Standard	• *Computer Technician* • *System and Network Administrator*

4.1 Use Cases

Administrators:-

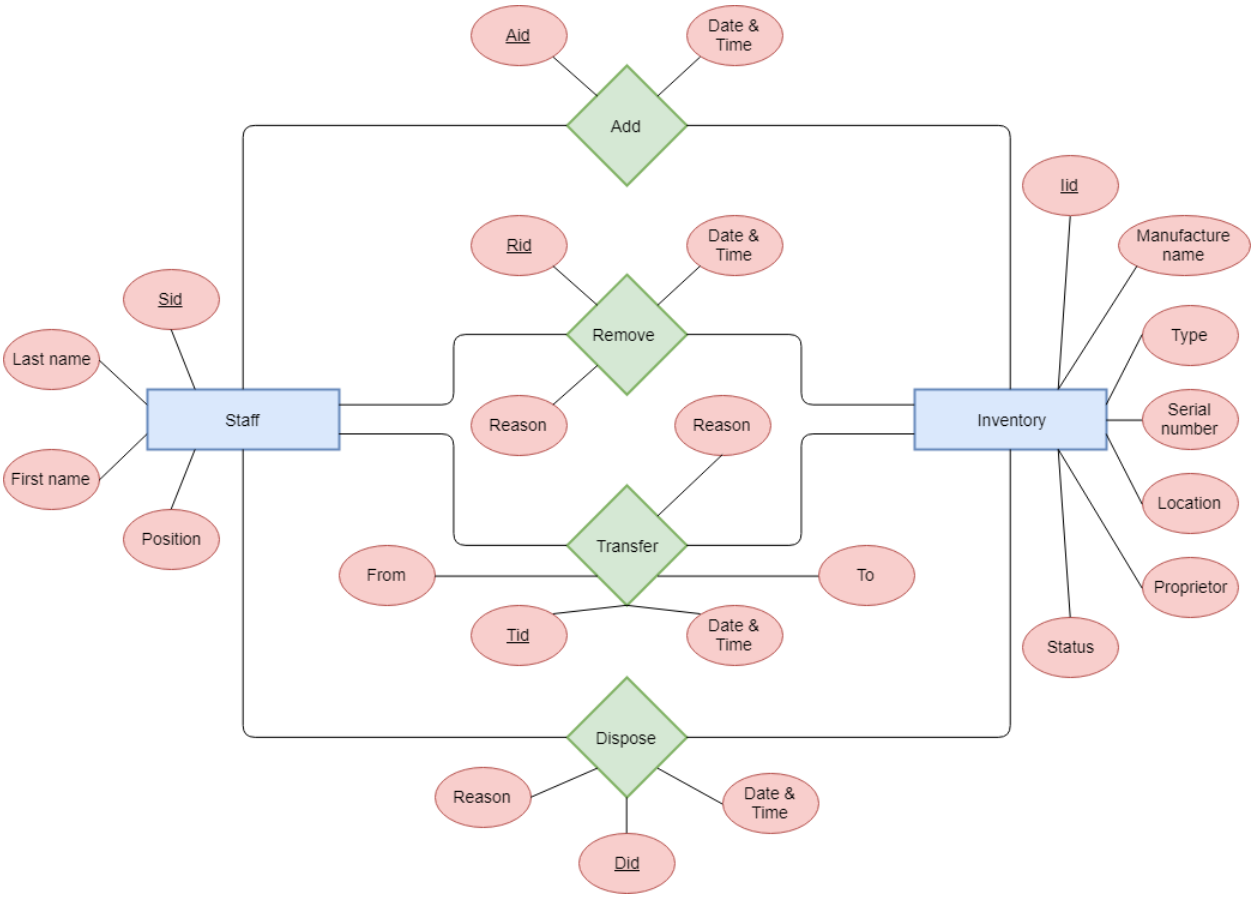
- Create a new user account
- Remove existing user account
- Reset other user password or allow user to reset password
- Add an asset to the Inventory database
- Edit an asset in the Inventory database
- Remove an asset from the Inventory database
- Update an asset (location, owner, etc.)
- Generate Reports
- Create a Backup

Standard:-

- Add an asset to the Inventory database
- Request the removal of an asset
- Request the transferal of an asset
- Generate Reports

4.2 Use Case Diagram

5. Entity Relationship Diagram



Entity Relationship Diagram of the Inventory Tracking System

5.1 Table of Physical Design of ERD

Tables	Attributes	Data type
Staff	Sid (Staff ID, Primary key) Last name (Staff last name) First name (Staff first name) Position (Staff job title)	Int (4) VarChar (15) VarChar (15) Enum
Add	Aid (Add ID, Primary key) Date & Time (Date and time item was added)	Int (10) Date/Time (dd/mm/yy)
Remove	Rid (Remove ID, Primary key) Date & Time Reason (Why item was removed)	Int (10) Date/Time (dd/mm/yy) Text (200)

Transfer	Tid (Transfer ID, Primary key) From (Current location of item) To (New Location of item) Date & Time Reason (Why item is transferred)	Int (10) VarChar (100) VarChar (100) Date/Time (dd/mm/yy) Text (200)
Dispose	Did (Dispose ID, Primary key) Date & Time Reason (Why item is disposed)	Int (10) Date/Time (dd/mm/yy) Text (200)
Inventory	Iid (Inventory ID, Primary key) Manufacture name Type (Monitor, CPU, Printer, etc.) Serial number Location (Current location of item) Proprietor (Who is holder of the item) Status (Active, Dormant, Disposed)	Int (10) VarChar (20) Enum Int (20) VarChar (100) VarChar (45) Enum

6. Other Nonfunctional Requirements

6.1 Performance Requirements

The Inventory Tracking System should have excellent performance capability. Every action-response of the I.T.S. should have little or no delays to commit. When a user is adding, removing, adjusting or transferring an asset there should be no more than 3 seconds delay to perform these operations and receive a response of either an error or what the user expects.

6.2 Safety Requirements

The I.T.S. should be able to recover from sudden loss or damage of data due to unexpected shutdowns or malicious actions by authorized or unauthorized users. To recover from sudden harm to the system and its data, a log will be generated at every completed action of a user in the system, however, if any harm should occur to the system during input or modifying of data, the user will have to restart the application. To prevent any malicious activity with the data the Administrator will have the privilege of undoing actions committed by any user of application.

6.3 Security Requirements

The data stored by the I.T.S. application is private and confidential. Therefore, the system will be encrypted and protected by password access, also each user will have privileges based on a user type. The I.T.S. will require a user to enter their username that consist of any characters except white space and a password that must be at least 6 characters long and consist of a number. This data will be stored and encrypted by the application. To maintain transparency an audit log will be generated by the application that logs information on user activities on the application. The audit log will only be readable by the Administrator.

6.4 Software Quality Attributes

Maintainability
The application will be easy to maintain as it coded to avoid code entropy, it is easily comprehensible to fellow developers and can be easily improved.

Correctness
The application will support correctness because it is coded in specific languages similar to other applications in the working environment.

Availability
The application will be hosted on the local server and will be readily available to its users for use. Users will be able to use the application once successfully connected to the server.

Efficiency
The main purpose of the application is to keep track of all assets of CARICOM assigned to the I.I.S. department and also indicate who holds the asset at a specific time. The application will be able to fulfill the main purpose and improve efficiency of the workforce in I.I.S. The fact that data will be easily maintained and accessed, it will reduce the time needed to sign up forms and the time needed for unnecessary phone calls to other users to confirm assets.

6.5 Business Rules

- Each user type will be assigned different access level
- Administrators are the only users to create backup and edit data
- No staff outside of I.I.S. is allowed to access the application
- Administrators must approve all transfers and removal of assets.