Interface Specification

for

P.I. Works Business

Version 1.0 draft 1

Prepared by Dilara TOSUN

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**Table of Contents**

1. Introduction 1

1.1 Document Purpose 1

1.2 Product Overview 1

1.3 Assumptions 1

2. User Interfaces 2

Appendix: Issues and TBDs 4

# Introduction

## Document Purpose

This document functions as the official definition for the system's User Management interface. It specifies the standards for behaviors, requirements, and design elements that developers must follow while putting the User Management screen into practice. The interface has been intended to enable system administrators to effectively manage user accounts, which includes creating, editing, and viewing user details.

## Product Overview

One of the main tools in the administrative toolbox is the User Management System, which is intended to make managing user accounts in the company's software infrastructure easier. System administrators can create, edit, and manage user accounts with comfort and security due to this interface, which is designed with their needs in mind.

Key features of this system include:

* **User Creation and Management:** By providing the necessary information, including the username, display name, email address, and phone number, administrators can set up new user accounts. By enabling administrators to give specific roles like "Guest," "Admin," and "SuperAdmin" to every user, the system facilitates role-based access management.
* **User Status Monitoring:** Because the system changes in real time, managers can easily determine which user accounts are active and how to handle them. Administrators can concentrate on existing active accounts by using a filtering option that displays only active users.
* **Security and Validation:** Because of the system's strong security features, all user inputs are verified instantly to filter all mistakes and anomalies. Specific limitations on email addresses and usernames ensure that every account is unique, lowering the possibility of duplication or conflicts.
* **Scalability and Performance:** Thousands of users are handled by the User Management System, which has an interactive interface that enables speedy sorting, filtering, and navigation. This means that administrators can easily handle large user datasets.

## Assumptions

The following assumptions have been made with respect to the internal and external interfaces of the User Management System:

1. **Data Validity:** Until as stated otherwise, all information provided by the administrator is taken to be reliable and legitimate. When an ordinary data entry error occurs, the system will give real-time validation feedback.
2. **Access Control:** It is expected that the system has been designed with strong access control features. The User Management tool is only accessible by approved individuals who have the necessary roles.
3. **Role Management:** The system has predetermined user roles and access rights, which cannot be changed via the User Management interface. The system offers the following roles: "Guest," "Admin," and "SuperAdmin."
4. **System Availability:** It is planned that the system will be accessible during typical working hours, with little downtime for updates or maintenance. Users will be informed ahead of any downtime.

# User Interfaces

**1. Action Buttons**

**+ New User Button:**

* + **Purpose:** The administrator can start the procedure for adding a new user to the system by clicking this button.
  + **Location:** Positioned at the top-left.
  + **Behavior:** The administrator can type new user information because clicking removes the 'New User' form boxes.
* **Save User Button:**
  + **Purpose:** This button is used to save the data entered in the 'New User' form.
  + **Location:** Located at the top-right of the panel.
  + **Behavior:** The button starts data validation. If every field is filled out correctly, the form is reset, the user list is updated, and the data is stored. Error-prone fields are indicated when there are mistakes.

**2. Filters**

* **Hide Disabled User Checkbox:**
  + **Purpose:** This checkbox filters the user list to show only active users.
  + **Location:** Located on the right of the "+ New User" button.
  + **Behavior:** The table updates to show just those users who have the "enabled" status when the checkbox is marked. When the box is not checked, all users—disabled users included—are displayed.

**3. User List Table**

* **Columns:**
  + **ID:** Displays the user's ID. The column supports sorting in ascending or descending order.
  + **Username:** Displays the username that is connected to every account. The column can be also sorted.
  + **Email:** Displays the email address connected to each account. Supports sorting functionality.
  + **Enabled:** Indicates whether the user account is currently active or disabled. Supports sorting functionality.
* **Behavior:** Any column can be used to sort the table, and the display is updated in real-time according to modifications. To make it easier to navigate through a long list of users, paging is used.

**4. New User Form**

* **Form Fields:**
  + **Username:** A required text input field that must be unique within the system.
  + **Display Name:** An optional text field where the user's name can be entered.
  + **Phone:** An optional text input field for the user's phone number, which should be in a valid format.
  + **Email:** A required text input field that must be unique and valid.
  + **User Roles:** A required dropdown menu with multi-selects capabilities. The roles available are "Guest," "Admin," and "SuperAdmin."
* **Behavior:** Real-time validation starts automatically as the administrator completes the form. Errors are highlighted with specific messages. The form updates and a new entry is added to the user list when a new user is successfully saved.

**5. Initial State**

* **User List Table:** All enabled users are pre-loaded into the table and are arranged in ascending order by their ID.
* **New User Form:** The form is initially empty, ready for administrator to fill it with new input.
* **Hide Disabled User Checkbox:** Initially, this checkbox is unchecked. Because of that, enabled and disabled users are displayed.

**6. Error Handling**

* **Field Errors:** The appropriate fields are marked, and a detailed error notification is shown if the administrator enters incorrect data.
* **Save Errors:** If there is an issue during the save operation, such as a network failure, an error notification is displayed at the top of the screen.

**7. Detailed Descriptions of Error Messages**

**Field Errors**:

* **Username Field**: "The username must be unique and cannot contain special characters."
* **Email Field**: "Please enter a valid email address in the format user@example.com."
* **Phone Field**: "The phone number must follow the international format, e.g., +1-202-555-0173."

**Save Errors**:

* **Network Error**: "Unable to save user data. Please check your network connection and try again."
* **Validation Error**: "One or more fields contain invalid data. Please review and correct the highlighted fields."

**8. User Role Definitions**

* **Guest**:

**Permissions**: View-only access to user lists. Cannot create, edit, or delete users.

* **Admin**:

**Permissions**: Full access to create, edit, and delete user accounts. Can manage role assignments for users but cannot delete other Admins or SuperAdmins.

* **SuperAdmin**:

**Permissions**: Unrestricted access to all features, including managing Admins and system-wide settings.

A screenshot of a login screen

Description automatically generated

# Appendix: Issues and TBDs

The following issues and tasks have been identified during the development and review process of the User Management System interface:

**Open Issues**

1. **Role Assignment Logic Validation**
   * **Description:** To make sure that role permissions are correctly implemented, more validation is needed for the role assignment implementation. It is necessary to test the assignment of several roles to a single user to ensure that permissions and role hierarchy are implemented correctly.
   * **Impact:** Without proper validation, Inconsistencies in user access levels could result in restricted or unauthorized access.
   * **Current Status:** This issue is under investigation by the development team.
   * **Action Required:** Comprehensive testing of role assignment functionality, including edge cases and simultaneous role assignments.
   * **Responsible Team:** Development Team
   * **Resolution Timeline:** Expected to be resolved in the next software release cycle.
2. **User Input Validation for Phone Number Field**
   * **Description:** There have been complaints about different validation when entering phone numbers, especially when using foreign forms. Standardizing the validation logic is necessary to reject invalid submissions and allow a variety of valid foreign phone formats.
   * **Impact:** Inaccurate or missing user data could result from inconsistent validation, which could affect contact and communication between users.
   * **Current Status:** This issue is under investigation by the development team and QA team.
   * **Action Required:** Update and standardize the phone number validation logic to international formats.
   * **Responsible Team:** QA Team and Development Team
   * **Resolution Timeline:** To be covered in the next small update.

**TBDs (To Be Determined)**

1. **Localization and Language Support**
   * **Description:** The current interface is only available in English. To support users worldwide, the interface must be localized for many languages.
   * **Impact:** Insufficient localization could make the system less useful for administrators who don't understand English, which could decrease its overall effectiveness and accessibility.
   * **Action Required:** Create a strategy for the User Management interface's localization, which should include translating the UI's elements, error messages, and user manuals.
   * **Responsible Team:** Product Management and Development Teams

**Estimated Start Date:** requiring stakeholder approval; anticipated to launch in the upcoming quarter.

1. **Enhanced Reporting Features**
   * **Description:** To enable administrators to provide comprehensive reports on user activity, account statuses, and role assignments, more reporting tools have been requested.
   * **Impact:** Administrators will be able to watch and monitor user management operations thanks to enhanced reporting, which will also offer insightful information.
   * **Action Required:** Construct the specifications needed for the reporting features, then create an implementation document.
   * **Responsible Team:** Product Management Team
   * **Estimated Start Date:** TBD based on priority and resource availability.