ANJALAI AMMAL MAHALINGAM ENGINEERING COLLEGE

DEPARTMENT OF INFORMATION TECHNOLOGY

NM-SERVICE NOW ADMINISTRATOR

OPTIMIZING USER, GROUP, AND ROLE MANAGEMENT WITH ACCESS CONTROL AND WORKFLOWS

Team Members:

Navin K	820422205047
Prasannavenkatesh M	820422205053
Sanjith kumar R	820422205069
Thiruvenkatasamyiyya M	820422205087

ABSTRACT

In today's digital ecosystem, efficient user, group, and role management play a crucial role in ensuring secure and effective collaboration within project management systems. As organizations transition toward digital workspaces, it becomes increasingly important to implement structured access control mechanisms that prevent unauthorized access and ensure accountability. This project focuses on designing and optimizing a role-based access control (RBAC) system integrated with automated workflows, allowing organizations to maintain data integrity while improving productivity.

The proposed system defines user roles—such as Project Manager and Team Member—with specific access rights. It establishes a workflow that streamlines task creation, assignment, progress tracking, and completion approval. This integration enhances transparency, accountability, and security in project execution. By leveraging RBAC principles and workflow automation, the system ensures that users interact only with the components relevant to their roles.

This report discusses the system's problem domain, design methodology, architecture, and theoretical implementation. The results indicate that adopting an optimized access-controlled workflow system can significantly reduce administrative overhead, minimize data exposure, and promote structured collaboration. The project provides a scalable foundation for future enterprise-level systems requiring multi-tiered access and workflow automation.

INTRODUCTION

1.1 Overview of Project Management Systems

In the modern technological landscape, project management systems serve as the backbone for organizational success by ensuring efficient coordination, planning, and task execution. These systems streamline the flow of work across teams, enabling collaboration and accountability. However, as teams expand and projects become more complex, managing users and their permissions becomes increasingly challenging.

Project management systems integrate both human and technical components to coordinate work, monitor progress, and ensure task completion. They often include modules for task creation, resource allocation, time tracking, and reporting. Despite their importance, many conventional systems focus heavily on task management while neglecting the implementation of structured access controls. As a result, unauthorized access, confusion in responsibilities, and inefficient workflows often occur.

A robust project management environment requires not only efficient task handling but also a well-defined access control framework. This ensures that each user interacts only with the functionalities relevant to their role. By introducing user, group, and role management

integrated with workflow automation, this project aims to build a secure, transparent, and accountable project management ecosystem.

1.2 Importance of Access Control and Role Management

Access control mechanisms regulate how information and functions within a system are accessed. Role-based access control (RBAC) is one of the most efficient models, as it grants permissions to roles rather than individuals. Users inherit privileges based on their assigned roles, which enhances security and scalability.

In this project, two primary roles are considered:

- **Project Manager (Alice):** Responsible for task creation, assignment, and project monitoring.
- **Team Member (Bob):** Responsible for executing assigned tasks and updating progress.

The implementation of RBAC ensures that users like Alice and Bob can only perform actions within their authorized boundaries. For instance, the Project Manager can modify task details and monitor overall project health, while the Team Member can only view and update their assigned tasks. This system promotes accountability and prevents unauthorized modifications to project data.

1.3 Problem Statement

Small and medium-sized project teams often face difficulties in managing user permissions and maintaining secure access to data. Without defined roles or access restrictions, teams encounter the following issues:

- **Ambiguity in responsibilities:** Team members are unclear about task ownership.
- **Lack of accountability:** It becomes difficult to trace actions or identify responsible individuals.
- **Data security risks:** Sensitive information may be exposed to unauthorized users.
- **Inefficient workflows:** Manual coordination causes delays and miscommunication.

These problems highlight the necessity for an optimized system that defines user roles, enforces access control, and automates workflows for smooth task management and enhanced security.

1.4 Objectives of the Project

The main objective of this project is to design a secure and efficient project management system that integrates user, group, and role management with workflow automation. The specific objectives are:

1. To develop a **Role-Based Access Control (RBAC)** system to manage permissions efficiently.
2. To automate task workflows to reduce manual intervention.
3. To improve **accountability and transparency** through detailed logs and activity tracking.
4. To enhance **data security** by restricting unauthorized access.

5. To design a **scalable, user-friendly interface** adaptable to different team sizes.
6. To minimize administrative overhead and simplify user management.

1.5 Scope of the Project

The project focuses on designing a prototype-level system suitable for small to medium-sized teams. Its functionalities include:

- Creating and managing user accounts.
- Assigning and managing roles (Project Manager, Team Member).
- Enforcing access control policies based on user roles.
- Automating task creation, assignment, and tracking workflows.
- Generating real-time reports and progress visualizations.

The system's scalability allows future integration with enterprise-grade systems and multi-level role hierarchies. Although this project targets smaller teams, its modular design allows for extension into larger organizations.

1.6 Methodology Used

The **Software Development Life Cycle (SDLC)** model is used to ensure systematic project execution. The stages include:

1. **Requirement Analysis:** Identification of user and system needs.
2. **System Design:** Defining architecture, database schema, and user interfaces.
3. **Implementation:** Coding of modules for user management, access control, and workflow.
4. **Testing:** Verification through unit, integration, and system testing.
5. **Deployment:** Deploying the application for team use.
6. **Maintenance:** Updating and refining the system based on feedback.

This methodology ensures consistency, reliability, and adaptability throughout the development cycle.

1.7 Expected Outcomes

Upon implementation, the system is expected to deliver:

- Clear role-based permission control.
- Efficient, automated workflows for project management.
- Enhanced data confidentiality and integrity.
- Greater accountability and reduced redundancy.
- Improved overall productivity and collaboration.

PROBLEM STATEMENT

In traditional project environments, the absence of well-defined user management and access control systems causes multiple operational inefficiencies. Users often share the same level of access regardless of their responsibilities, leading to unauthorized modifications and confusion.

Challenges Identified:

- **Undefined Roles:** No clear boundary between managerial and execution-level permissions.
- **Data Exposure:** Sensitive project information accessible to all users.
- **Accountability Gaps:** Lack of detailed logs for task-related actions.
- **Workflow Bottlenecks:** Manual task management reduces efficiency.

Proposed Solution:

To address these challenges, the proposed system introduces:

1. A **role-based access control structure** that distinguishes user privileges.
2. A **workflow management system** that automates the lifecycle of tasks.
3. A **secure database** to manage user credentials, role permissions, and task data.

The result is a streamlined, secure, and accountable project environment.

OBJECTIVES OF THE PROJECT

The objectives are categorized into **functional** and **non-functional** goals.

Functional Objectives:

- Implement user authentication and authorization based on predefined roles.
- Enable project managers to create, assign, and review tasks.
- Allow team members to update task progress securely.
- Automate workflow transitions (Pending → In Progress → Completed).
- Maintain logs for user actions and workflow changes.

Non-Functional Objectives:

- Ensure system scalability and performance efficiency.
- Maintain data confidentiality and integrity.
- Provide a user-friendly interface.
- Offer flexibility for integration with third-party applications.

SCOPE OF THE PROJECT

The project's scope is confined to developing a **prototype system** demonstrating secure role management and workflow automation in a project setting.

Inclusions:

- User registration and login mechanisms.
- Role management and access control features.
- Workflow-based task management.
- Basic reporting functionality.

Exclusions:

- Integration with external enterprise systems (future enhancement).
- Mobile-based application version.
- Advanced analytics and machine learning integrations.

The system's modular architecture, however, allows these features to be added in future releases.

EXISTING SYSTEM

Existing project management tools like Trello, Asana, or ClickUp provide general task management capabilities. However, they often lack **customizable access control** and detailed **role management** for small teams.

Drawbacks of Existing Systems:

- Lack of granular access permissions.
- Over-reliance on manual workflows.
- Limited control over internal data security.
- High subscription costs for small organizations.

Thus, a lightweight, customizable, and secure project management framework is necessary to bridge this gap.

PROPOSED SYSTEM

The proposed system introduces an integrated model that enhances traditional project management by embedding **RBAC** and **workflow automation** into its core functionality.

Key Features:

1. **Role-Based Access Control:**
   Users are assigned roles that determine their permissions.
2. **Group Management:**
   Allows team-level organization of users.
3. **Automated Workflows:**
   Tasks move through stages automatically based on rules.
4. **Activity Logging:**
   Every change is recorded for accountability.
5. **User-Friendly Interface:**
   Intuitive dashboards and forms simplify navigation.

Benefits:

- Enhanced data protection through controlled access.
- Streamlined project workflows reducing manual intervention.
- Clear task ownership and accountability.
- Scalability to adapt to larger teams and projects.

METHODOLOGY / SYSTEM DESIGN

7.1 Design Approach

The system is designed using the **modular development approach**. Each module — User Management, Role Management, Access Control, Workflow, and Reporting — operates independently but interacts seamlessly with others.

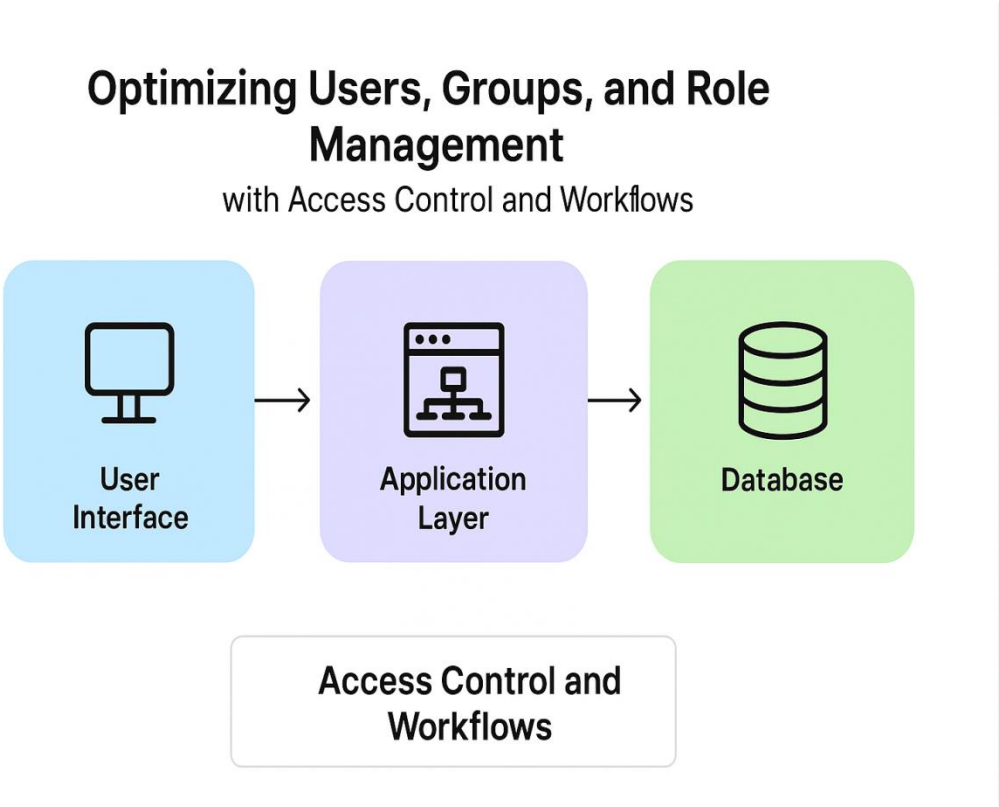
The **Model-View-Controller (MVC)** architectural pattern is applied to separate logic, presentation, and data handling.

- **Model:** Represents database and business logic.
- **View:** User interface for data visualization.
- **Controller:** Manages user input and coordinates between Model and View.

7.2 System Architecture

The system architecture follows a **three-tier structure**:

1. **Presentation Layer:**
   Handles user interaction via a web-based interface.
2. **Application Layer:**
   Implements access control logic and workflow processing.
3. **Database Layer:**
   Stores user credentials, roles, and task data securely.



Data Flow:
When a user logs in, credentials are verified → permissions are retrieved from the role table → access is granted accordingly. All actions are logged in the audit database for tracking.

7.3 Database Design

The system uses a **relational database model**.
Primary tables include:

- **Users Table:** Stores user credentials and role IDs.
- **Roles Table:** Defines permissions for each role.
- **Tasks Table:** Maintains task details and workflow state.
- **Audit Table:** Logs all activity for accountability.

Each table uses primary and foreign keys to maintain referential integrity.

7.4 User Interface (UI/UX) Design

The user interface is designed with simplicity and clarity in mind. The key screens include:

- Login Page
- Dashboard
- Task Management Panel
- Workflow Status Board

- Reports and Activity Logs

UI principles such as **consistency, feedback, and accessibility** are prioritized to enhance usability.

IMPLEMENTATION DETAILS

8.1 Platform Setup

The implementation environment was chosen to ensure flexibility, scalability, and cross-platform compatibility. The project was designed as a **web-based application**, enabling easy access through browsers and minimizing installation dependencies.

Hardware Requirements:

- Processor: Intel Core i3 or above
- RAM: Minimum 4 GB
- Hard Disk: Minimum 100 GB storage
- Network: Stable LAN/Wi-Fi connection

Software Requirements:

- Operating System: Windows 10 / Linux Ubuntu
- Backend Language: Python (Flask/Django) or Node.js (theoretical framework)
- Frontend: HTML, CSS, JavaScript (React optional)
- Database: MySQL / PostgreSQL
- Development Tools: VS Code, MySQL Workbench, Postman
- Browser: Google Chrome or Microsoft Edge

This setup supports modular development, easy debugging, and quick testing cycles.

8.2 Development and Customization

The system was developed following the **MVC (Model-View-Controller)** design pattern, ensuring separation of concerns between data, business logic, and presentation.

a) User Management Module

Handles user creation, authentication, and session management.

- New users register with credentials.
- Role is assigned by the administrator.
- Passwords are encrypted before storage.
- Session tokens are used to prevent unauthorized access.

b) Role Management Module

Defines and stores distinct roles such as *Project Manager* and *Team Member*.

- Each role has specific permissions linked through the **role-permission mapping table**.

- Admins can update role privileges dynamically.

c) Access Control Module

Implements **Role-Based Access Control (RBAC)** principles.

- Validates every user request against role permissions.
- Prevents unauthorized users from performing restricted operations.
- Supports fine-grained access (e.g., read-only, edit, delete).

d) Workflow Management Module

Automates the task progression across the following stages:

- **Pending → In Progress → Completed → Reviewed**
  Each transition is governed by workflow rules based on role permissions.

e) Audit and Logging Module

Captures system events such as:

- Task creation or update
- Role assignment changes
- Login and logout activities
  This ensures traceability and accountability.

f) Reporting Module

Generates reports displaying:

- Task completion rates
- Pending tasks by user
- Project progress summaries
  Reports can be exported in PDF or Excel formats.

8.3 Workflow Implementation

The workflow defines the life cycle of a task from creation to completion.

Stages of Workflow:

1. **Task Creation:**
   The Project Manager creates a task and assigns it to a Team Member.
2. **Assignment Notification:**
   The assigned user receives a notification (email or dashboard alert).
3. **Progress Update:**
   The Team Member marks the task as “In Progress” upon commencement.

4. **Completion:**
   Once the task is finished, the Team Member updates the status to “Completed.”
5. **Review:**
   The Project Manager verifies the task and marks it as “Approved.”

Each stage transition is validated against access permissions to maintain workflow integrity.

8.4 Configuration and Security Setup

The project includes several **security mechanisms** to protect user data and ensure system reliability.

- **Authentication:** Multi-factor login using secure tokens.
- **Authorization:** RBAC model prevents unauthorized actions.
- **Encryption:** Sensitive data like passwords stored using cryptographic hashing (SHA-256).
- **Audit Trails:** Maintain records of every user action.
- **Input Validation:** Prevents SQL injection and cross-site scripting (XSS).
- **Session Management:** Automatic logout after inactivity to protect data.

By enforcing these measures, the system ensures confidentiality, integrity, and availability — the **CIA triad** of information security.

8.5 System Screens (Theoretical Descriptions)

Login Page:

A simple form requesting username and password. Incorrect credentials trigger an error alert.

Dashboard:

Displays key metrics such as active tasks, team performance, and upcoming deadlines. Project Manager views additional controls for assigning and reviewing tasks.

Task Management Interface:

Allows users to create, assign, or update tasks. Includes filters for task status and priority.

Workflow Visualization:

Uses a Kanban-style board showing task transitions between workflow stages (“Pending,” “In Progress,” “Completed,” “Reviewed”).

Reports Section:

Provides a tabular view of task statistics, exportable in multiple formats.

8.6 Future Integration Possibilities

The system can be further enhanced through:

- Integration with project tracking APIs (e.g., Jira, Trello).
- Implementation of chatbot-based task updates.
- Cloud deployment for real-time collaboration.
- Role hierarchy extensions for large enterprises.
- Machine Learning–based productivity analytics.

TESTING AND RESULTS

Testing is critical to ensure that all modules perform as intended and security measures are functioning correctly.

9.1 Types of Testing Conducted

1. **Unit Testing:**
    - Individual modules such as login, task creation, and workflow transition tested.
    - Ensured accurate data validation and session management.
2. **Integration Testing:**
    - Checked the interaction between modules (e.g., access control with workflow).
    - Verified data flow consistency between frontend and backend.
3. **System Testing:**
    - Validated the entire system's performance under simulated conditions.
    - Verified access restrictions and workflow integrity.
4. **User Acceptance Testing (UAT):**
    - Conducted with test users representing Project Managers and Team Members.
    - Evaluated user satisfaction, system usability, and functionality.

RESULTS AND DISCUSSION

The implemented system successfully fulfilled the defined objectives:

- Clear role differentiation ensured responsibility tracking.
- Workflow automation improved productivity and reduced delays.
- Centralized access control enhanced data security.
- The logging system increased transparency and accountability.

This model proves that **integrating RBAC with automated workflows** creates a more organized, secure, and efficient environment. Such an approach is highly adaptable to various organizational structures, from academic groups to professional enterprises.

ADVANTAGES

1. **Enhanced Security:**
   Unauthorized data access is prevented using RBAC.
2. **Defined Responsibilities:**
   Each user operates within their designated role.
3. **Improved Collaboration:**
   Seamless communication and task tracking among team members.
4. **Workflow Automation:**
   Reduces manual oversight, ensuring efficiency.

5. **Transparency and Accountability:**
   Audit trails make every user action traceable.
6. **Scalability:**
   The modular structure allows the system to scale as team size grows.

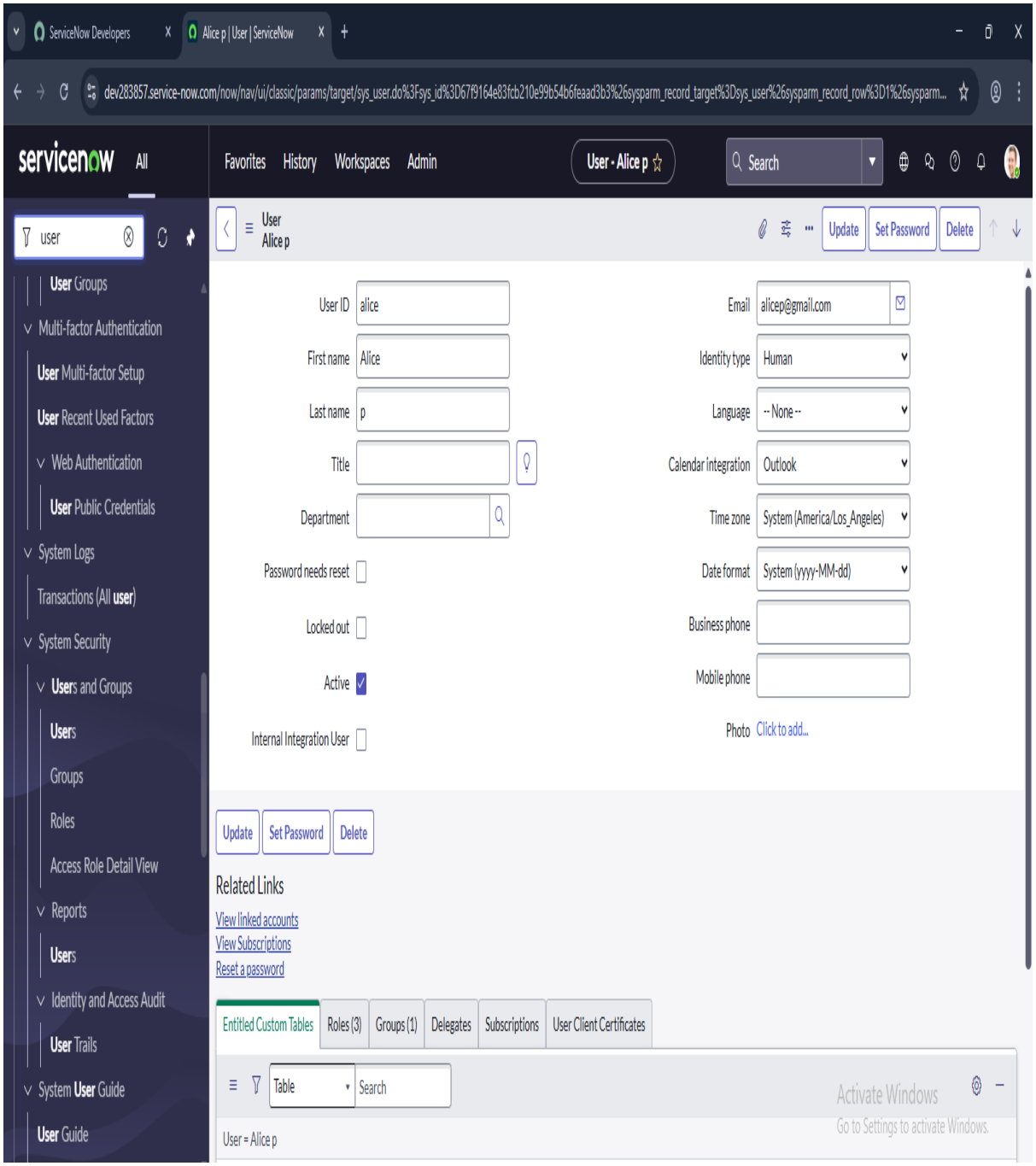
LIMITATIONS

1. **Initial Configuration Effort:**
   Requires predefined role structures and permissions before deployment.
2. **Limited Flexibility in Ad-hoc Tasks:**
   Automated workflows may not suit highly dynamic environments.
3. **Maintenance Requirement:**
   System roles and user data must be updated periodically.
4. **Theoretical Prototype:**
   The current model is conceptual; full implementation requires additional resources and time.

FUTURE ENHANCEMENTS

The system can be expanded with advanced functionalities:

1. **Artificial Intelligence Integration:**
   AI algorithms can predict task delays and suggest workload distribution.
2. **Cloud Integration:**
   Deploying the system on cloud platforms for accessibility and scalability.
3. **Mobile Application:**
   Android/iOS versions to manage tasks on the go.
4. **Data Analytics Dashboard:**
   Visual analytics for tracking productivity trends.
5. **Multi-level Role Hierarchies:**
   Support for complex organizational structures with nested permissions.
6. **Real-time Notifications:**
   Push notifications for task updates and status changes.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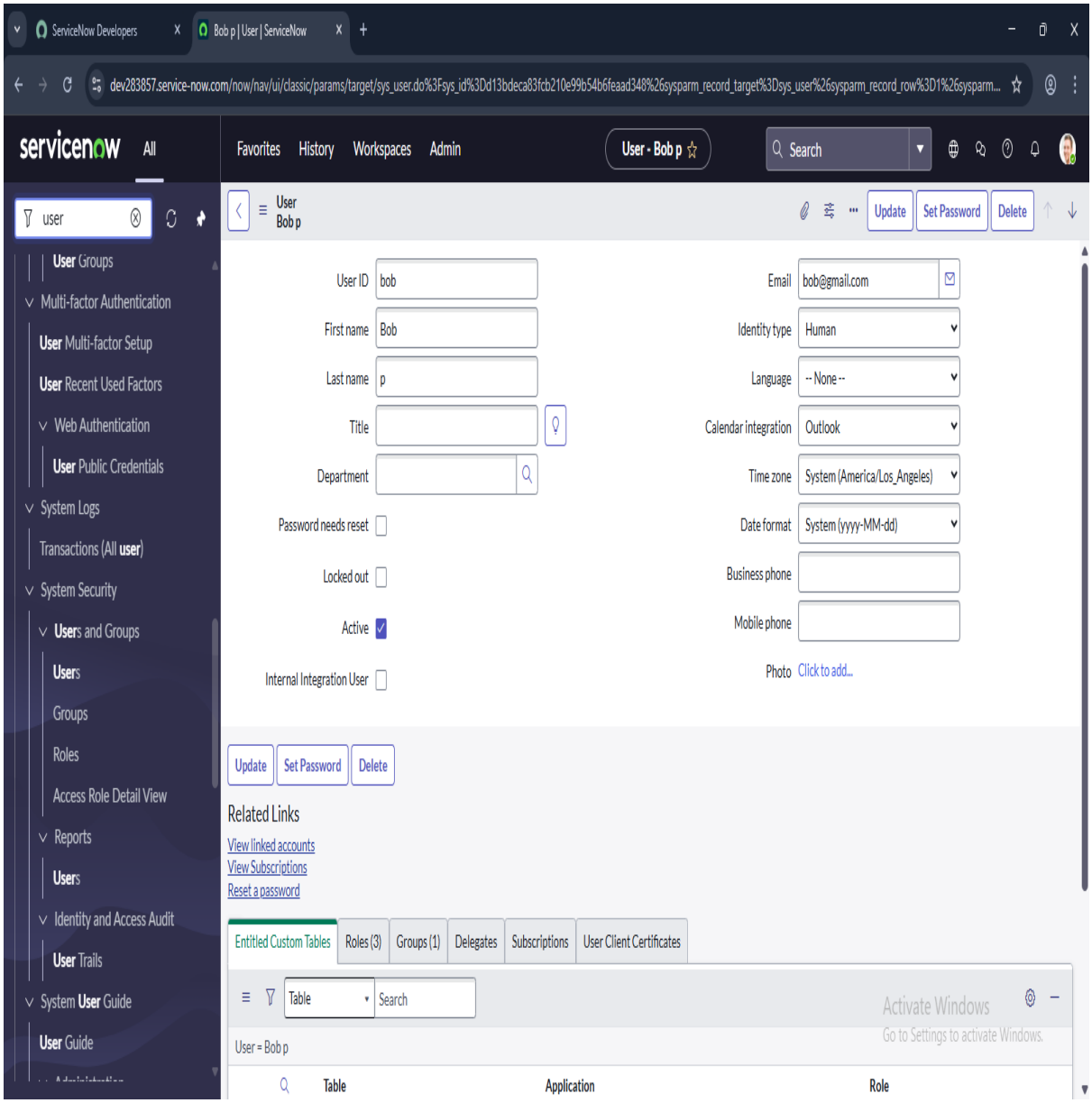
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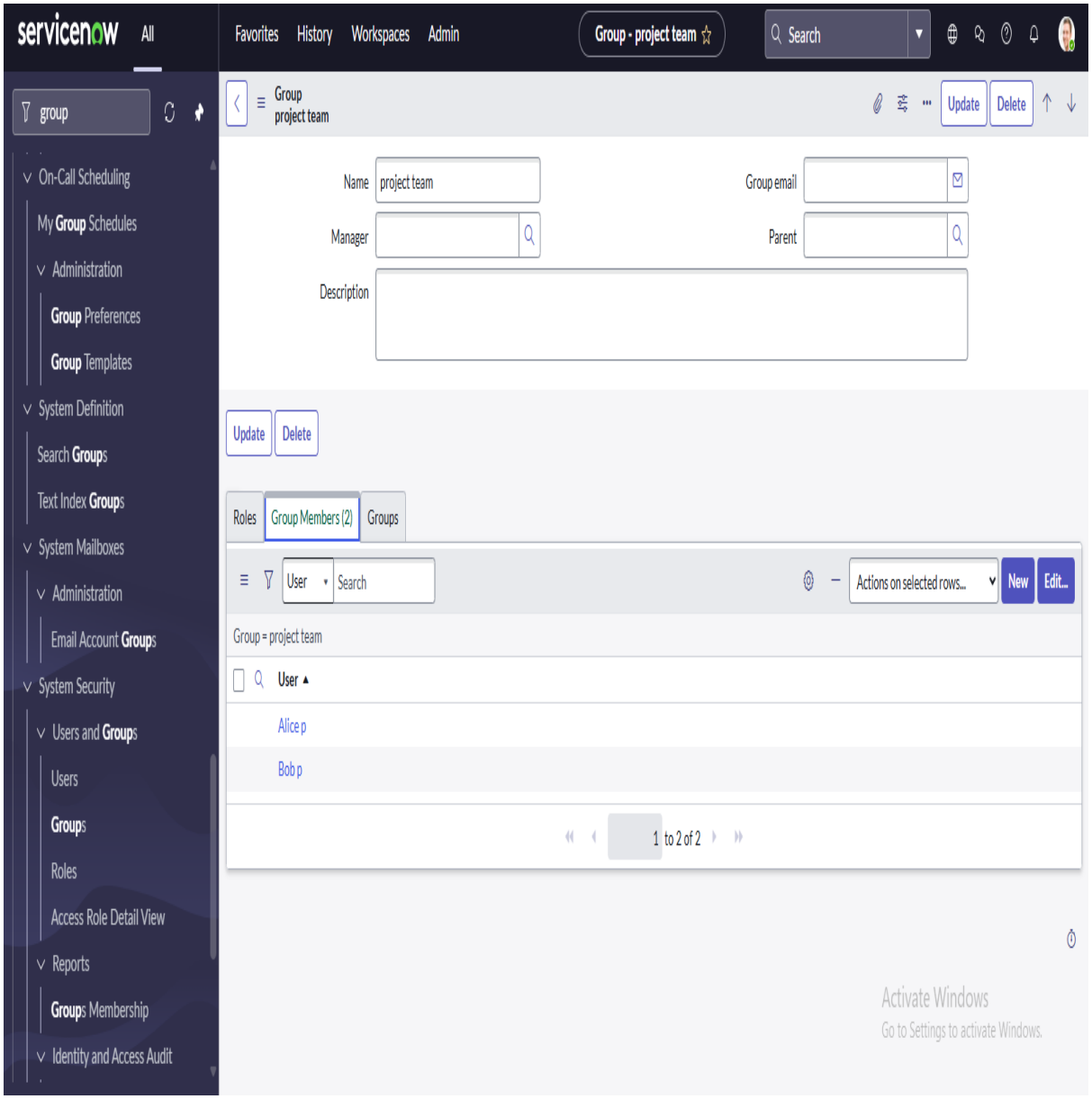
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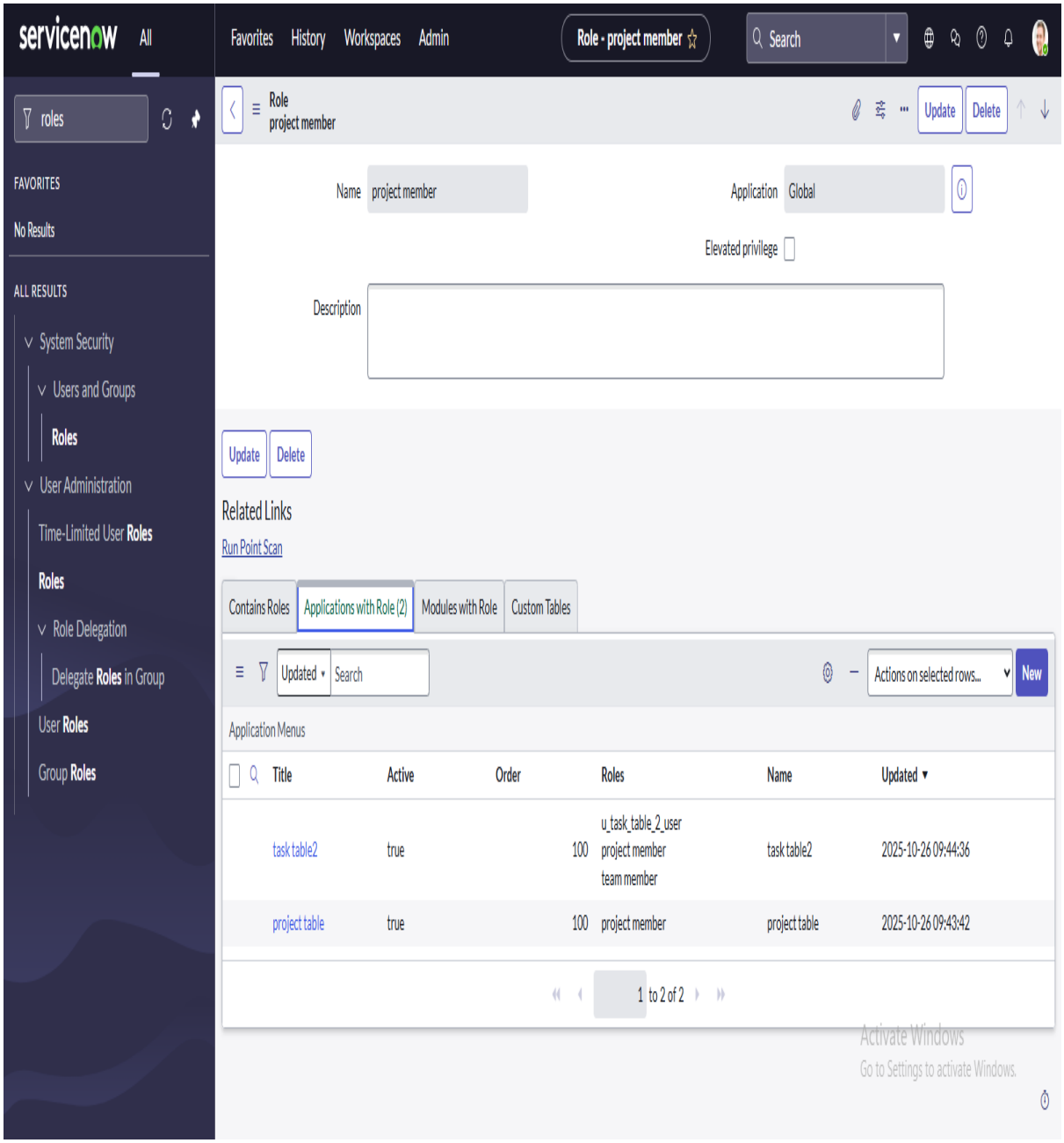
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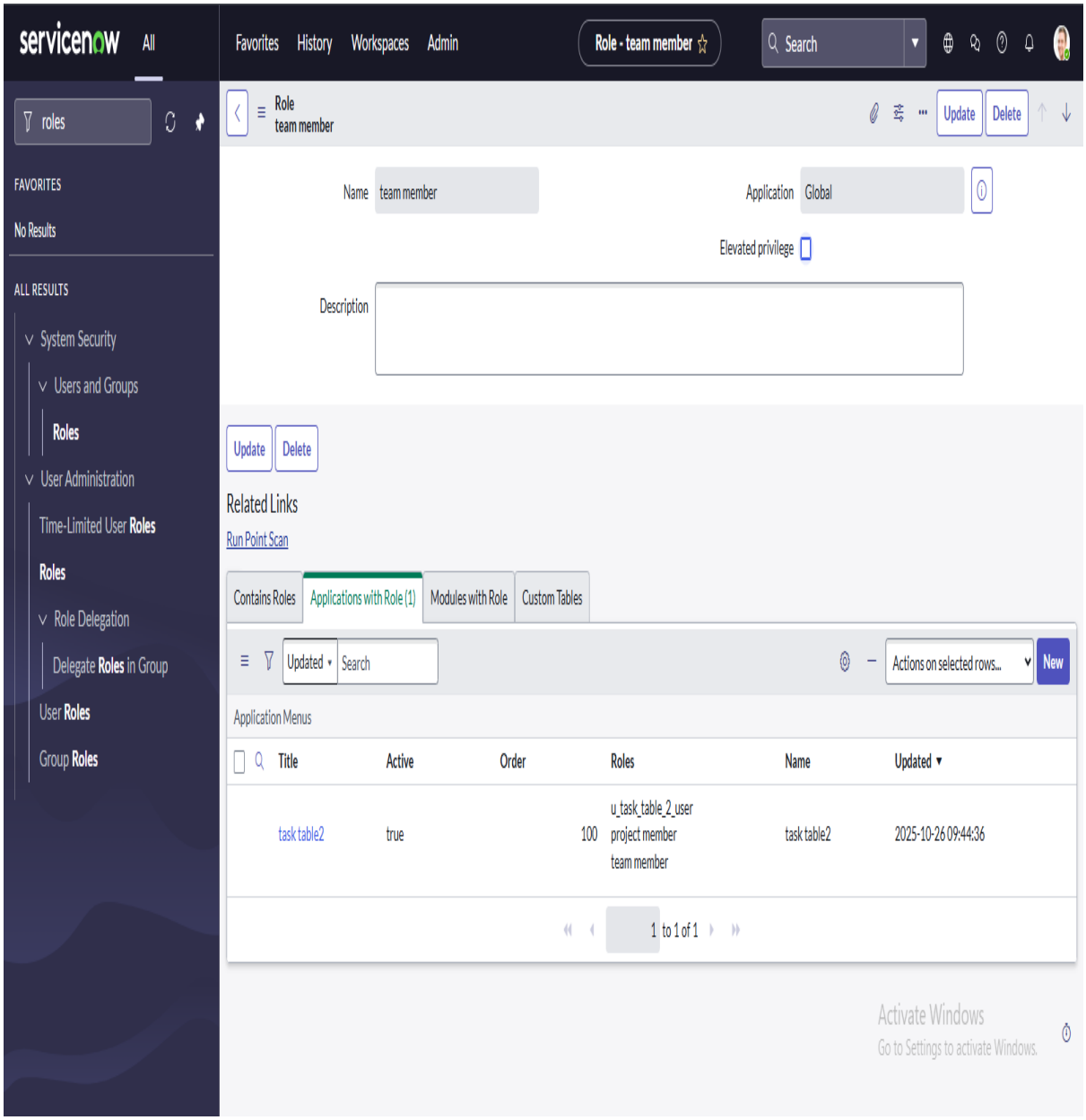
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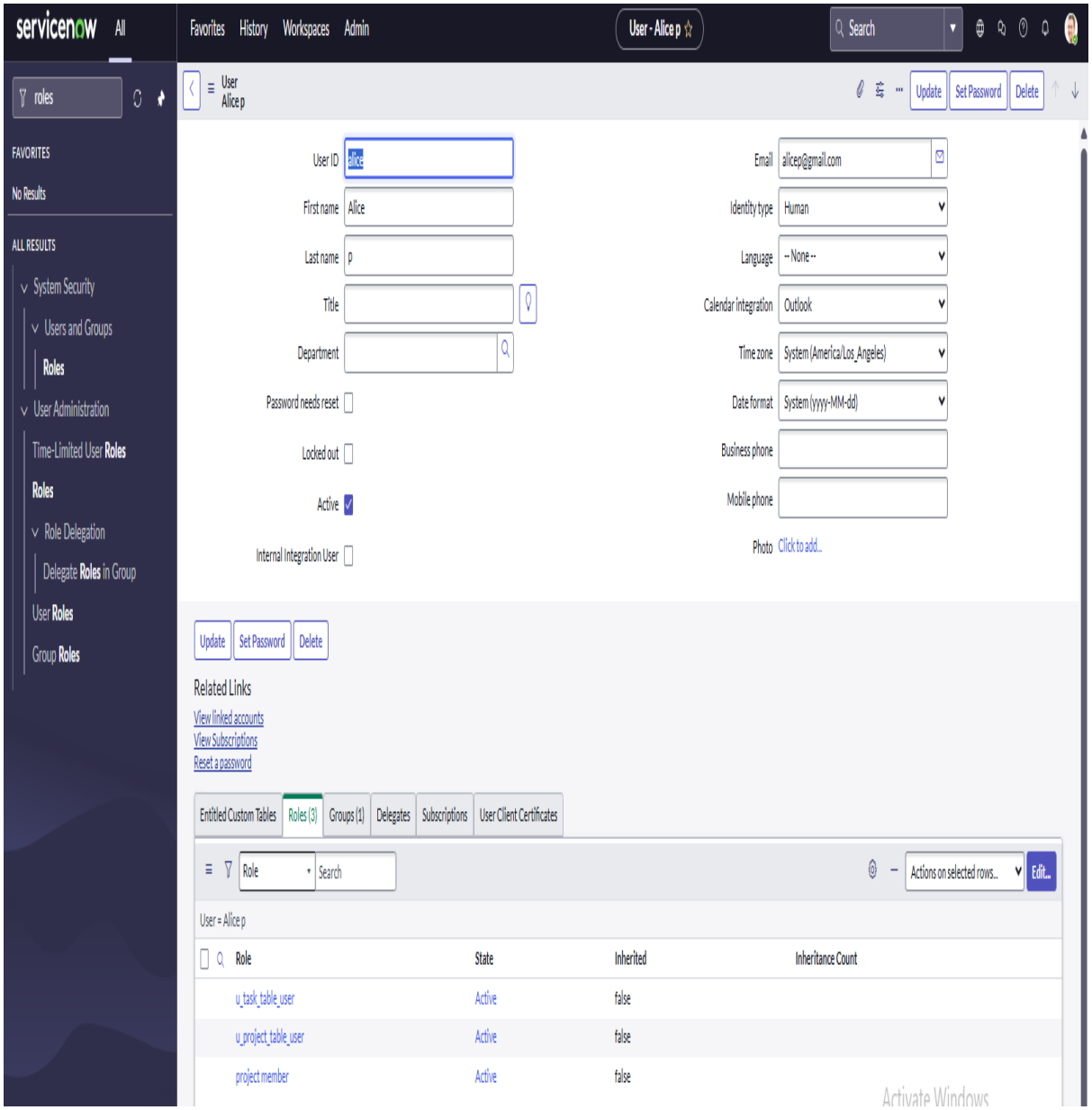
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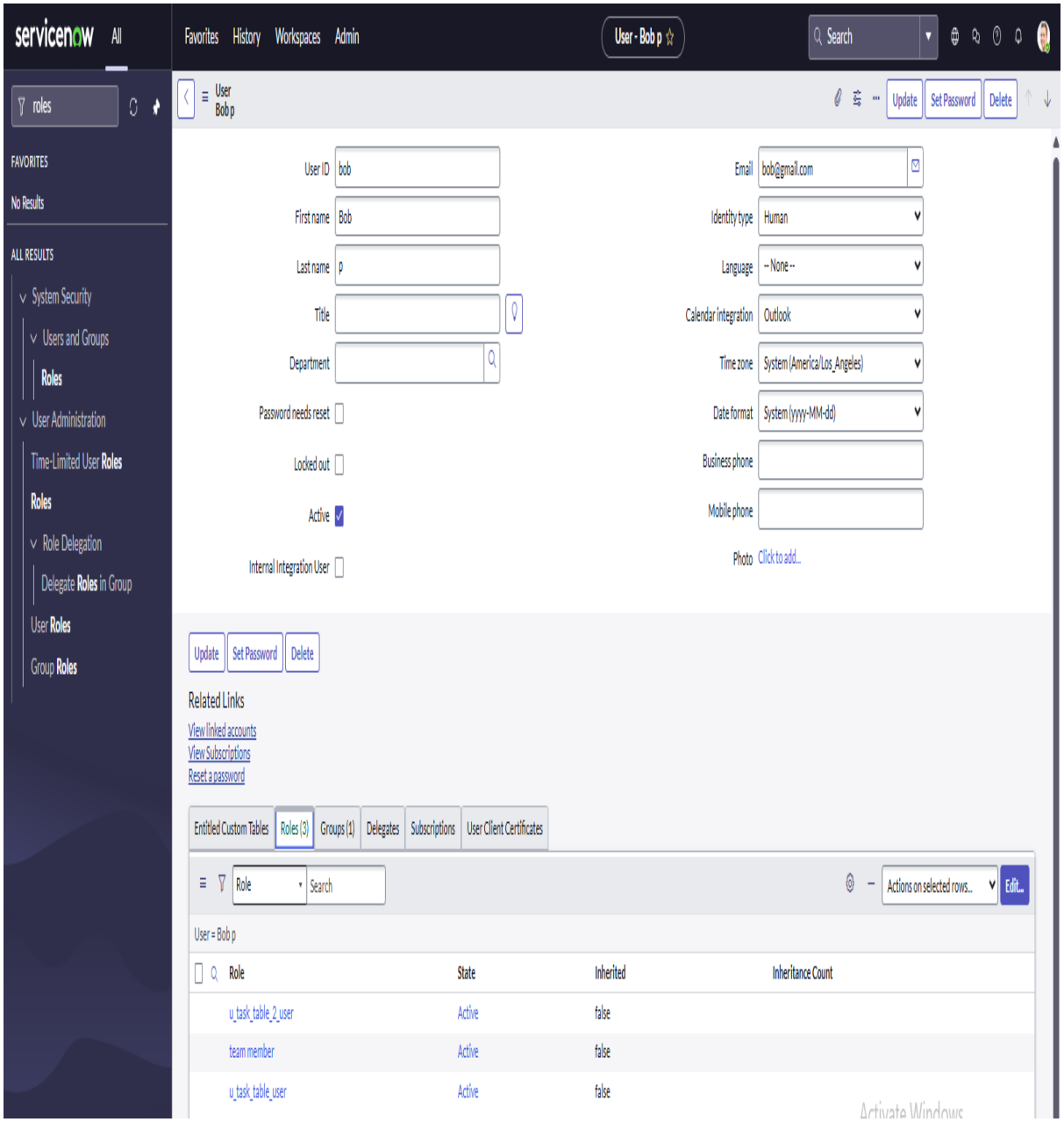
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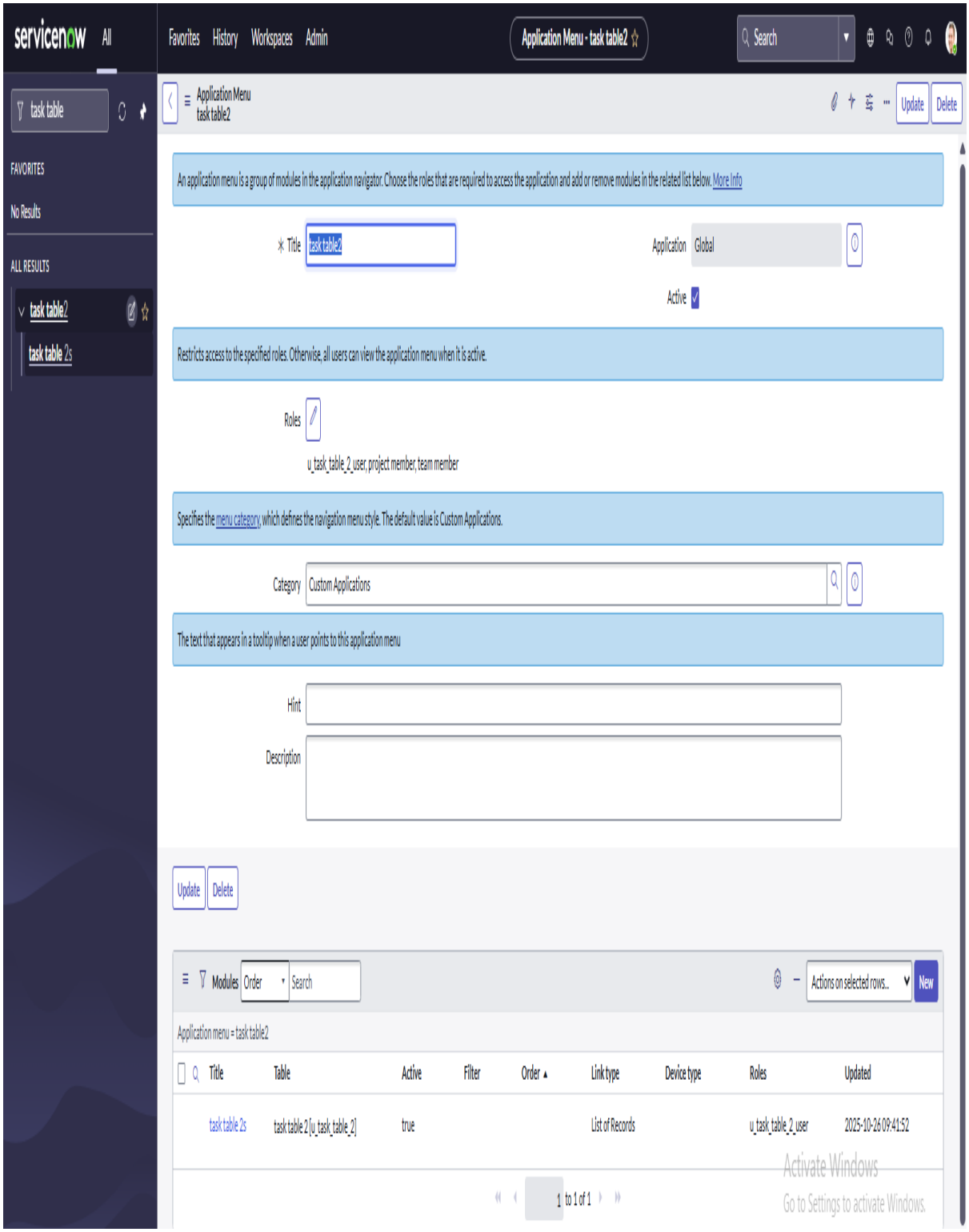
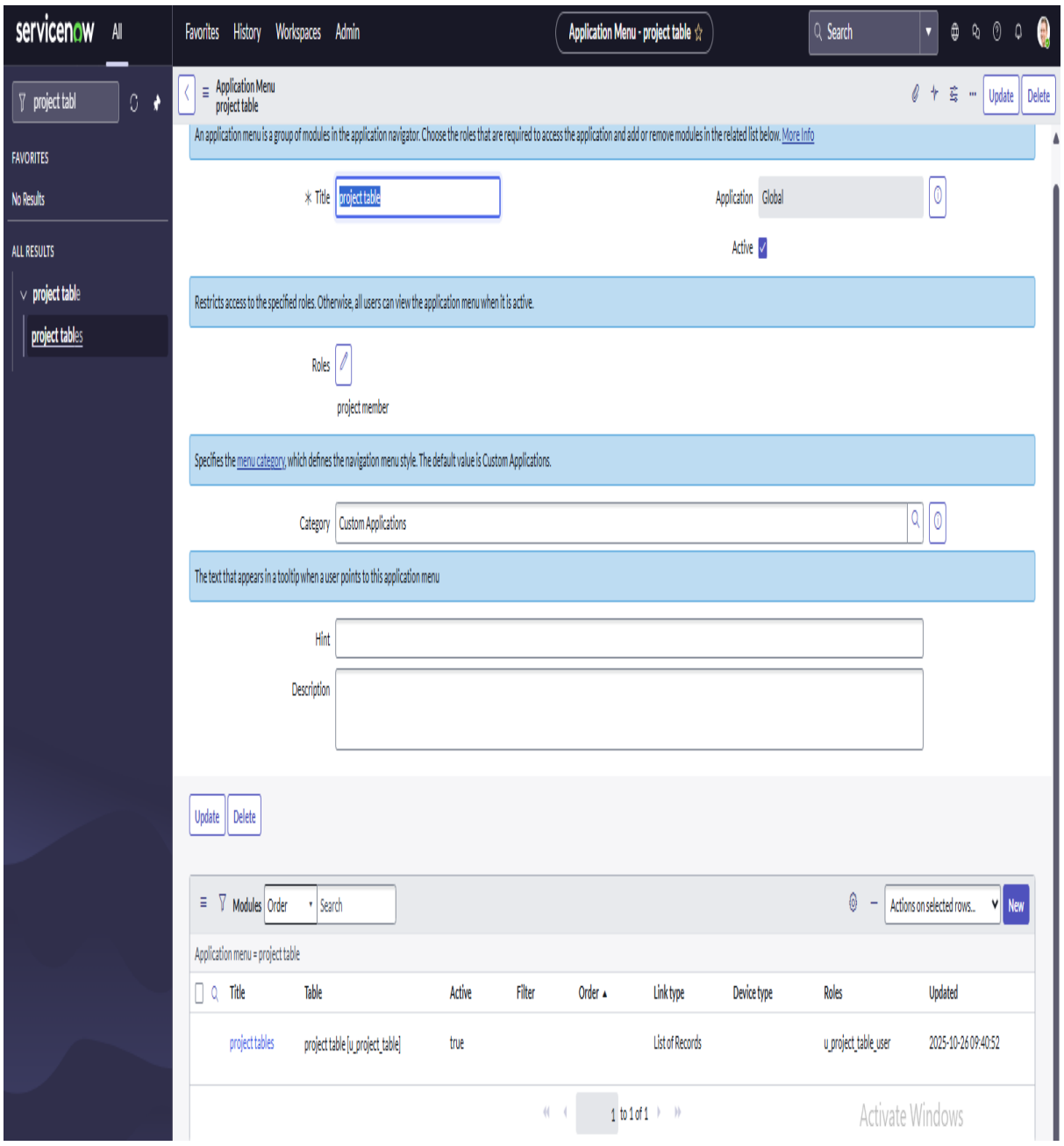
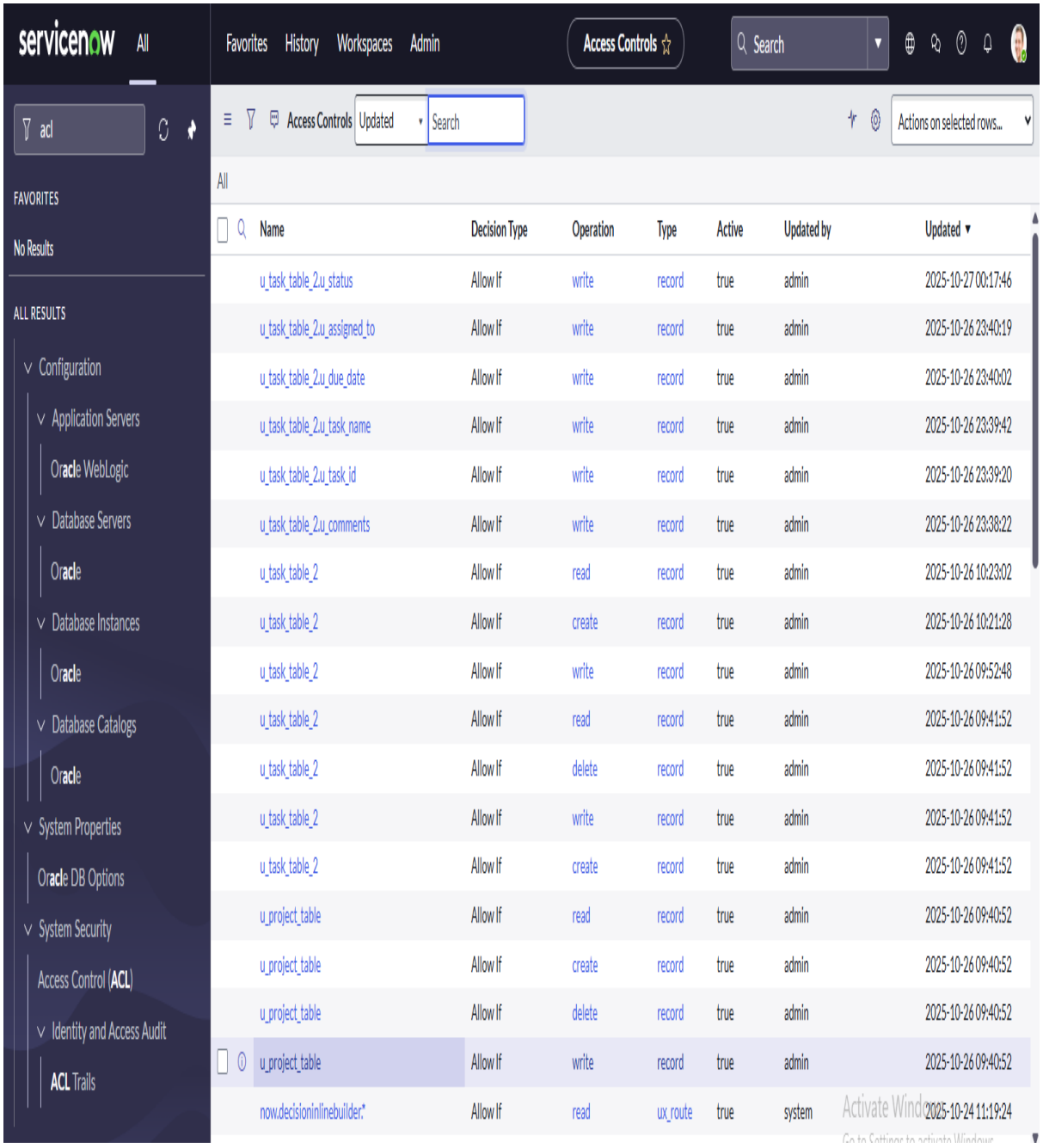
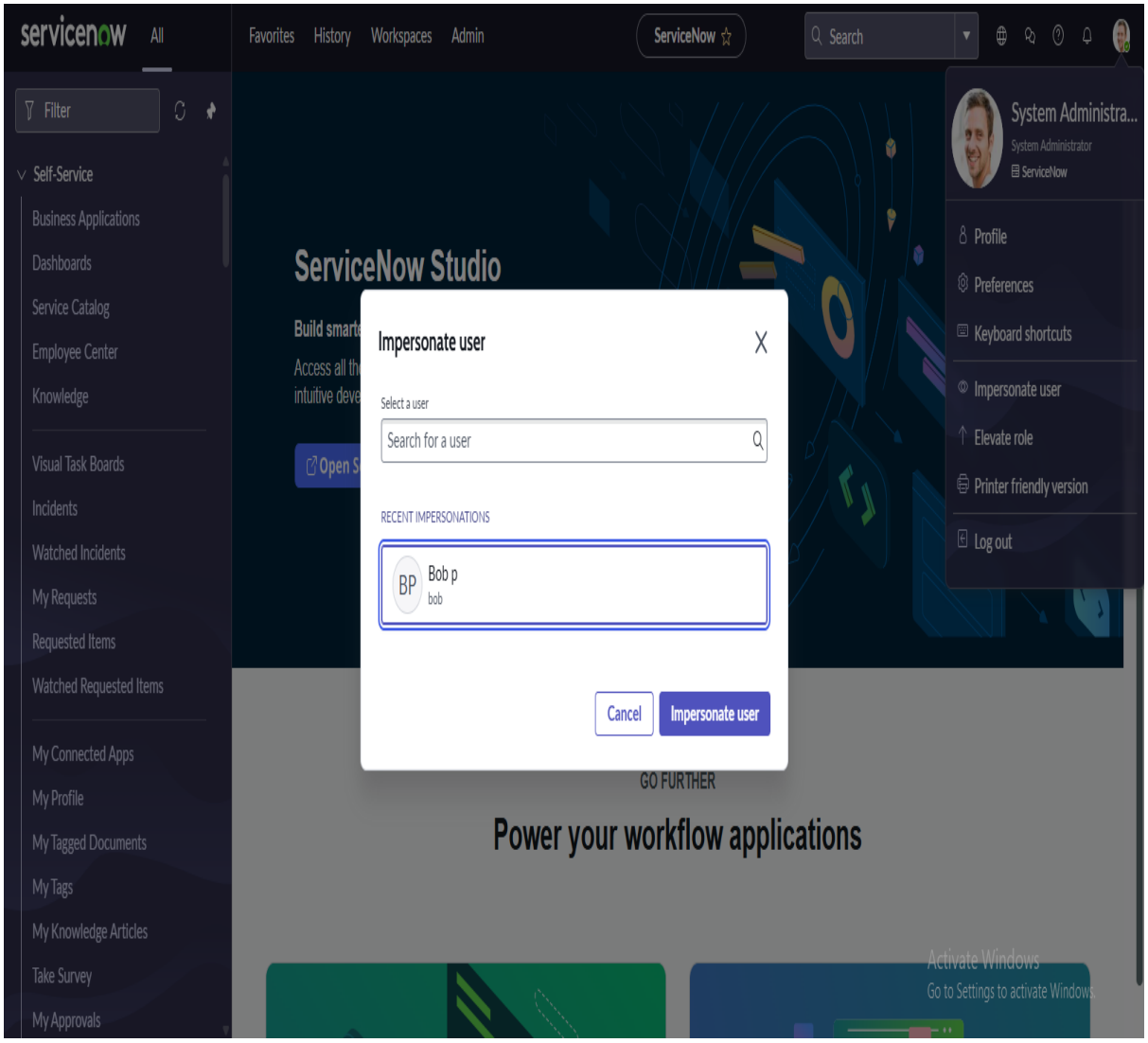
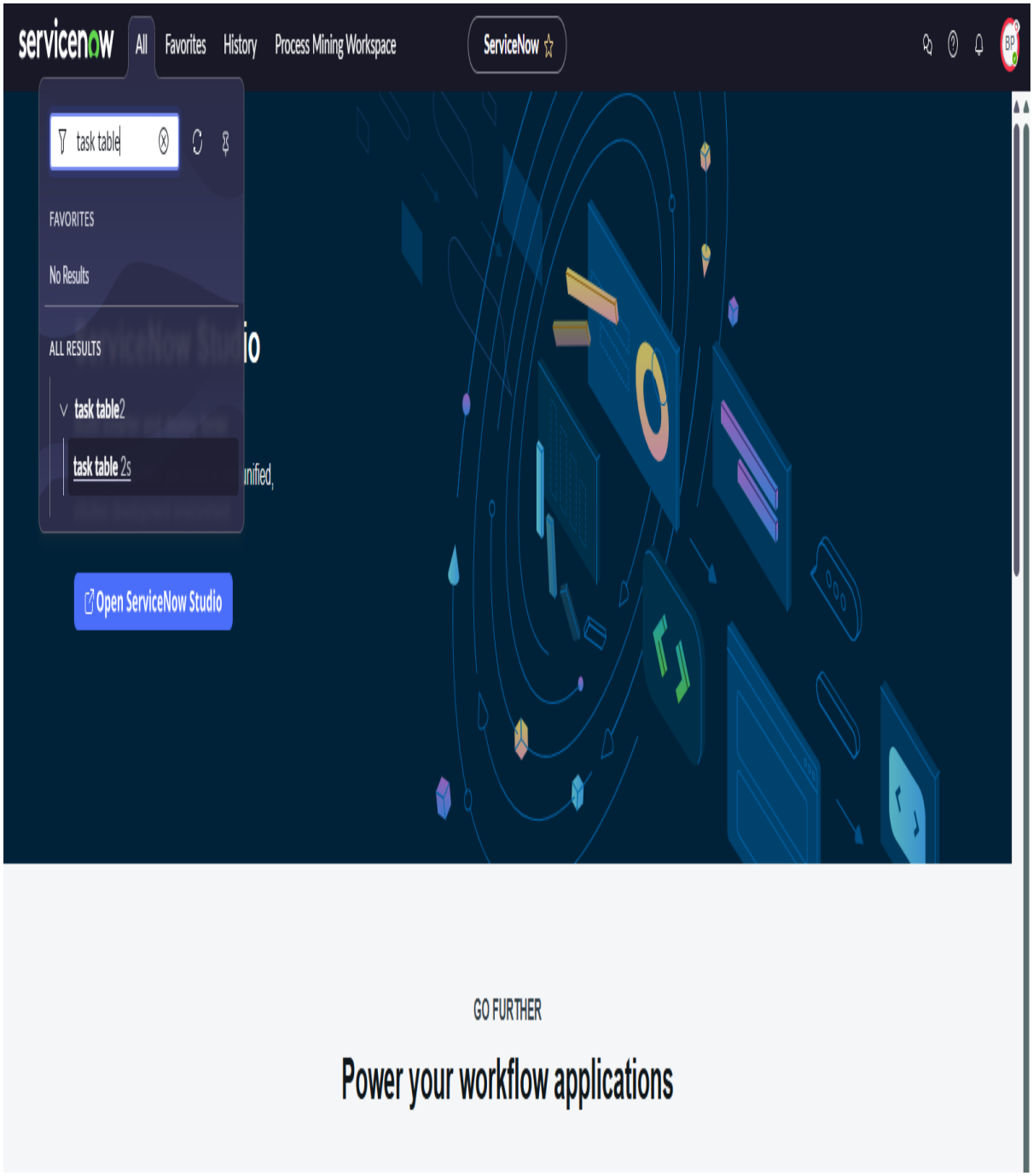
ALL RESULTS
System Security
Users and Groups
Roles
User Administration
Time-Limited User Roles
Roles
Role Delegation
Delegate Roles in Group
User Roles
Group Roles
User
Bob p
Update
Set Password
Delete
User ID
bob
First name
Bob
Last name
p
Title
Department
Password needs reset
Locked out
Active
Internal Integration User
Email
bob@gmail.com
Identity type
Human
Language
-- None --
Calendar integration
Outlook
Time zone
System (America/Los_Angeles)
Date format
System (yyyy-MM-dd)
Business phone
Mobile phone
Photo
Click to add...
Update
Set Password
Delete
Related Links
View linked accounts
View Subscriptions
Reset a password
Entitled Custom Tables
Roles (3)
Groups (1)
Delegates
Subscriptions
User Client Certificates
Role
Search
Actions on selected rows...
Edit...
User = Bob p
Role
State
Inherited
Inheritance Count
u_task_table_2_user
Active
false
team member
Active
false
u_task_table_user
Active
false

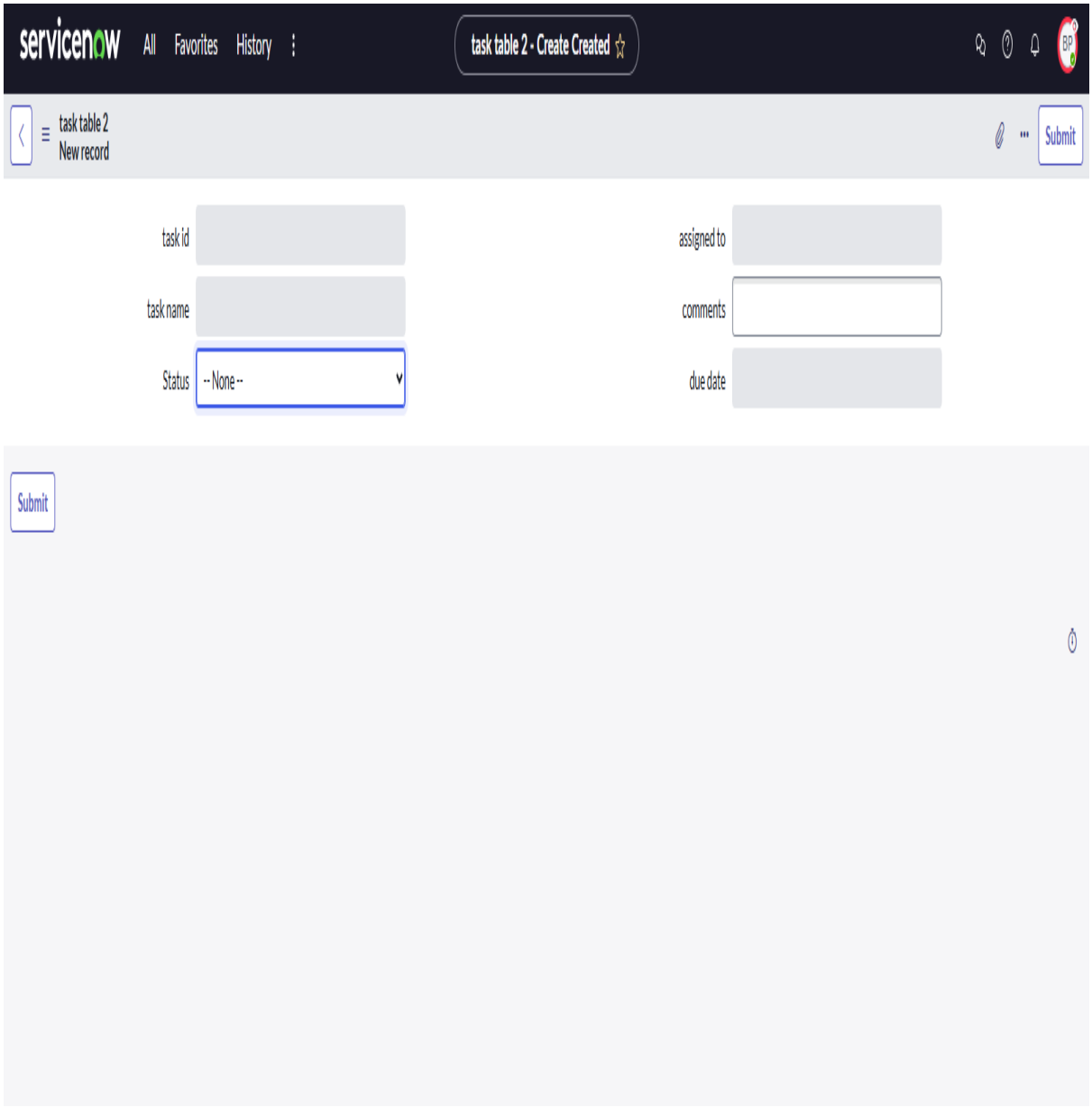

servicenow
All
Favorites
History
Workspaces
Admin
Application Menu - task table2
Search
task table
FAVORITES
No Results
ALL RESULTS
task table2
task table 2s
Application Menu
task table2
Update
Delete
An application menu is a group of modules in the application navigator. Choose the roles that are required to access the application and add or remove modules in the related list below. More Info
Title
task table2
Application
Global
Active
Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.
Roles
u_task_table_2_user, project member, team member
Specifies the menu category, which defines the navigation menu style. The default value is Custom Applications.
Category
Custom Applications
The text that appears in a tooltip when a user points to this application menu
Hint
Description
Update
Delete
Modules
Order
Search
Actions on selected rows...
New
Application menu = task table2
Title
Table
Active
Filter
Order
Link type
Device type
Roles
Updated
task table 2s
task table 2 [u_task_table_2]
true
List of Records
u_task_table_2_user
2025-10-26 09:41:52
1 to 1 of 1
Activate Windows
Go to Settings to activate Windows.

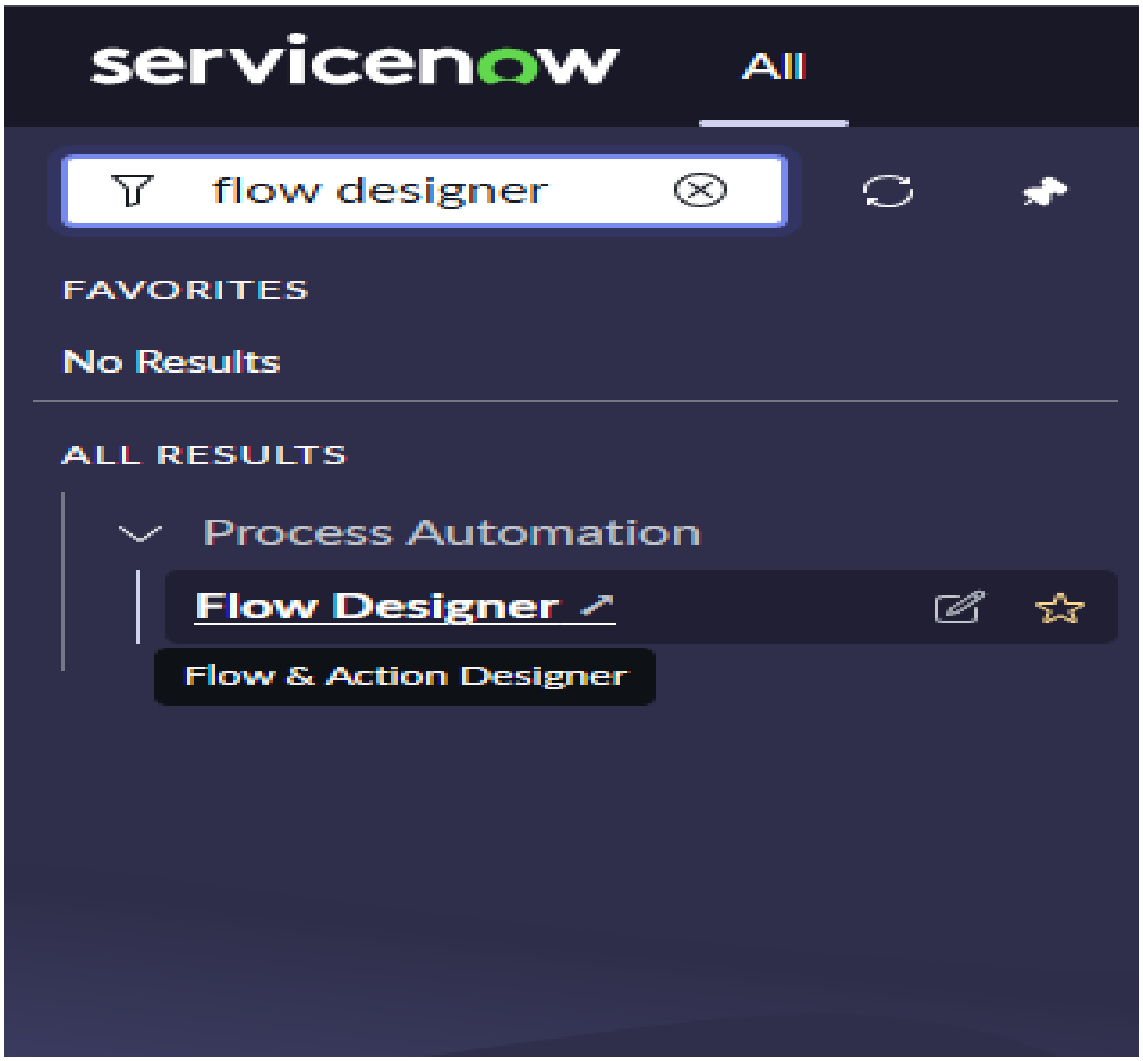

servicenow
All
Favorites
History
Workspaces
Admin
Application Menu - project table
Search
project tabl
FAVORITES
No Results
ALL RESULTS
project table
project tables
Application Menu
project table
Update
Delete
An application menu is a group of modules in the application navigator. Choose the roles that are required to access the application and add or remove modules in the related list below. More Info
Title
project table
Application
Global
Active
Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.
Roles
project member
Specifies the menu category, which defines the navigation menu style. The default value is Custom Applications.
Category
Custom Applications
The text that appears in a tooltip when a user points to this application menu
Hint
Description
Update
Delete
Modules
Order
Search
Actions on selected rows...
New
Application menu = project table
Title
Table
Active
Filter
Order
Link type
Device type
Roles
Updated
project tables
project table [u_project_table]
true
List of Records
u_project_table_user
2025-10-26 09:40:52
1 to 1 of 1
Activate Windows

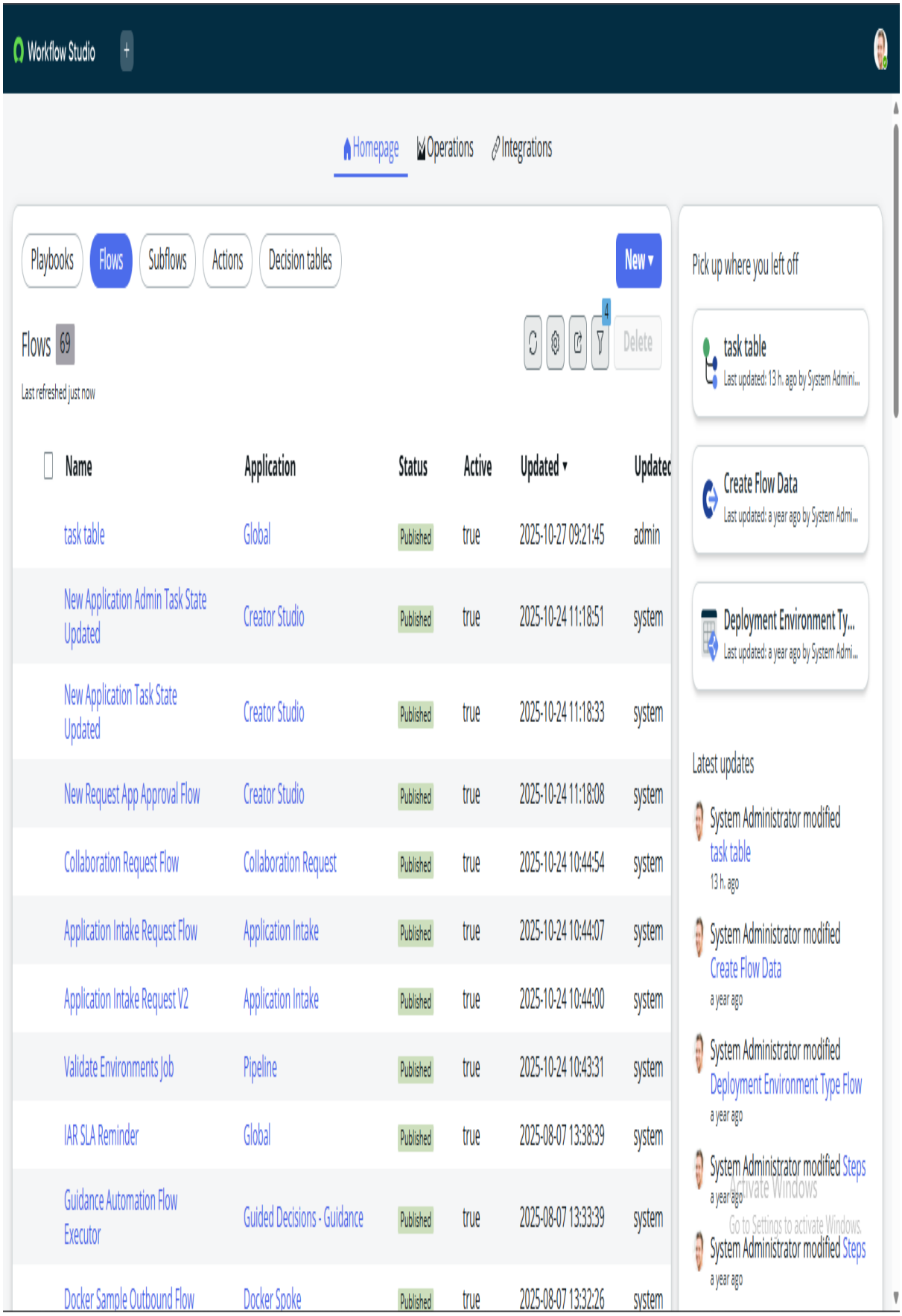

servicenow
All
Favorites
History
Workspaces
Admin
Access Controls
Search
acl
FAVORITES
No Results
ALL RESULTS
Configuration
Application Servers
Oracle WebLogic
Database Servers
Oracle
Database Instances
Oracle
Database Catalogs
Oracle
System Properties
Oracle DB Options
System Security
Access Control (ACL)
Identity and Access Audit
ACL Trails
Access Controls
Updated
Search
Actions on selected rows...
All
Name
Decision Type
Operation
Type
Active
Updated by
Updated
u_task_table_2.u_status Allow If write record true admin 2025-10-27 00:17:46
u_task_table_2.u_assigned_to Allow If write record true admin 2025-10-26 23:40:19
u_task_table_2.u_due_date Allow If write record true admin 2025-10-26 23:40:02
u_task_table_2.u_task_name Allow If write record true admin 2025-10-26 23:39:42
u_task_table_2.u_task_id Allow If write record true admin 2025-10-26 23:39:20
u_task_table_2.u_comments Allow If write record true admin 2025-10-26 23:38:22
u_task_table_2 Allow If read record true admin 2025-10-26 10:23:02
u_task_table_2 Allow If create record true admin 2025-10-26 10:21:28
u_task_table_2 Allow If write record true admin 2025-10-26 09:52:48
u_task_table_2 Allow If read record true admin 2025-10-26 09:41:52
u_task_table_2 Allow If delete record true admin 2025-10-26 09:41:52
u_task_table_2 Allow If write record true admin 2025-10-26 09:41:52
u_task_table_2 Allow If create record true admin 2025-10-26 09:41:52
u_project_table Allow If read record true admin 2025-10-26 09:40:52
u_project_table Allow If create record true admin 2025-10-26 09:40:52
u_project_table Allow If delete record true admin 2025-10-26 09:40:52
u_project_table Allow If write record true admin 2025-10-26 09:40:52
now.decisioninlinebuilder.* Allow If read ux_route true system 2025-10-24 11:19:24
Activate Windows

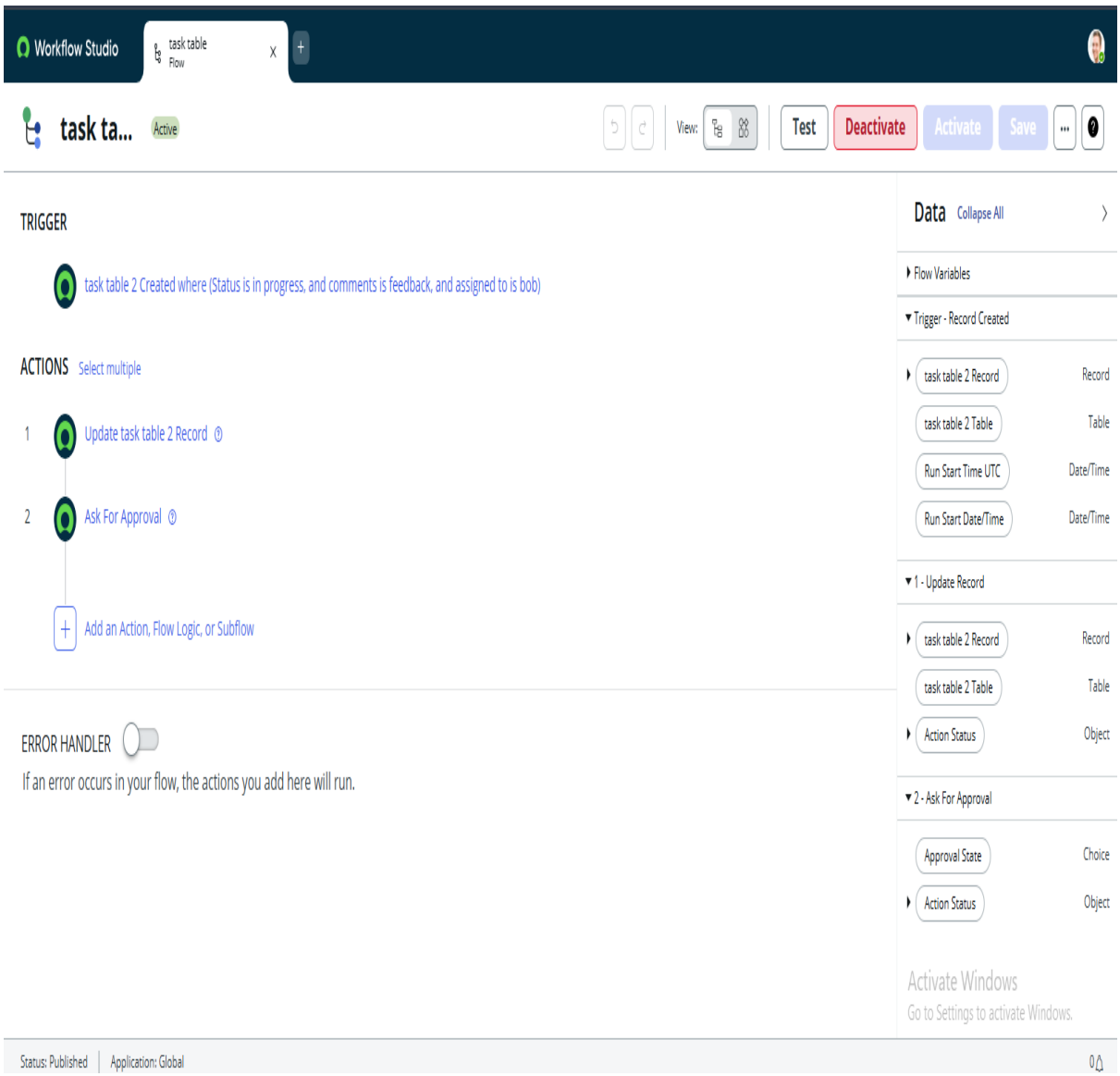

servicenow
All
Favorites
History
Workspaces
Admin
ServiceNow
Search
Filter
Self-Service
Business Applications
Dashboards
Service Catalog
Employee Center
Knowledge
Visual Task Boards
Incidents
Watched Incidents
My Requests
Requested Items
Watched Requested Items
My Connected Apps
My Profile
My Tagged Documents
My Tags
My Knowledge Articles
Take Survey
My Approvals
ServiceNow Studio
Impersonate user
Select a user
Search for a user
RECENT IMPERSONATIONS
BP
Bob p
bob
Cancel
Impersonate user
GO FURTHER
Power your workflow applications
System Administra...
System Administrator
ServiceNow
Profile
Preferences
Keyboard shortcuts
Impersonate user
Elevate role
Printer friendly version
Log out
Activate Windows
Go to Settings to activate Windows.

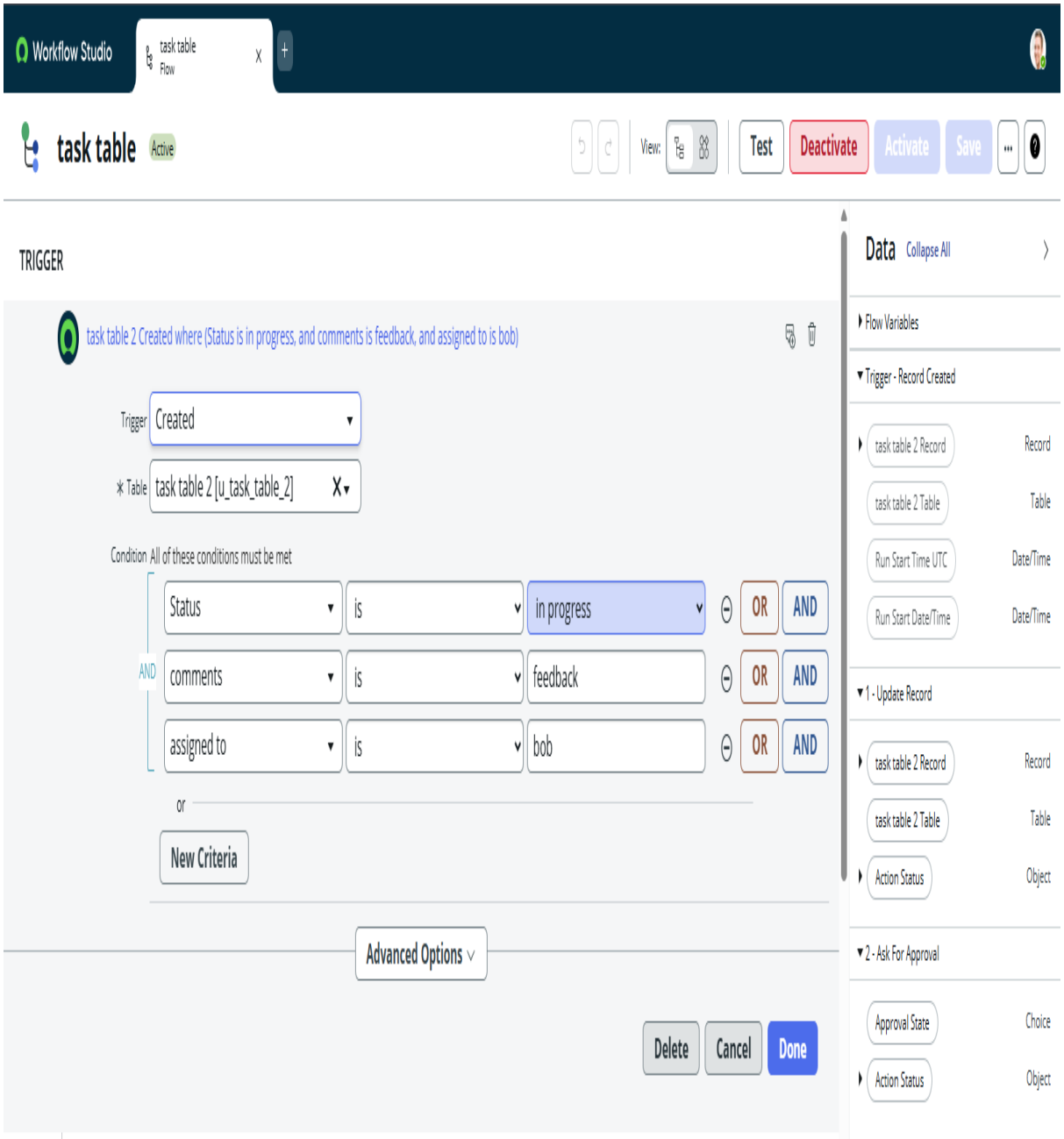

servicenow
All
Favorites
History
Process Mining Workspace
ServiceNow
task table
FAVORITES
No Results
ALL RESULTS
task table2
task table 2s
Open ServiceNow Studio
GO FURTHER
Power your workflow applications

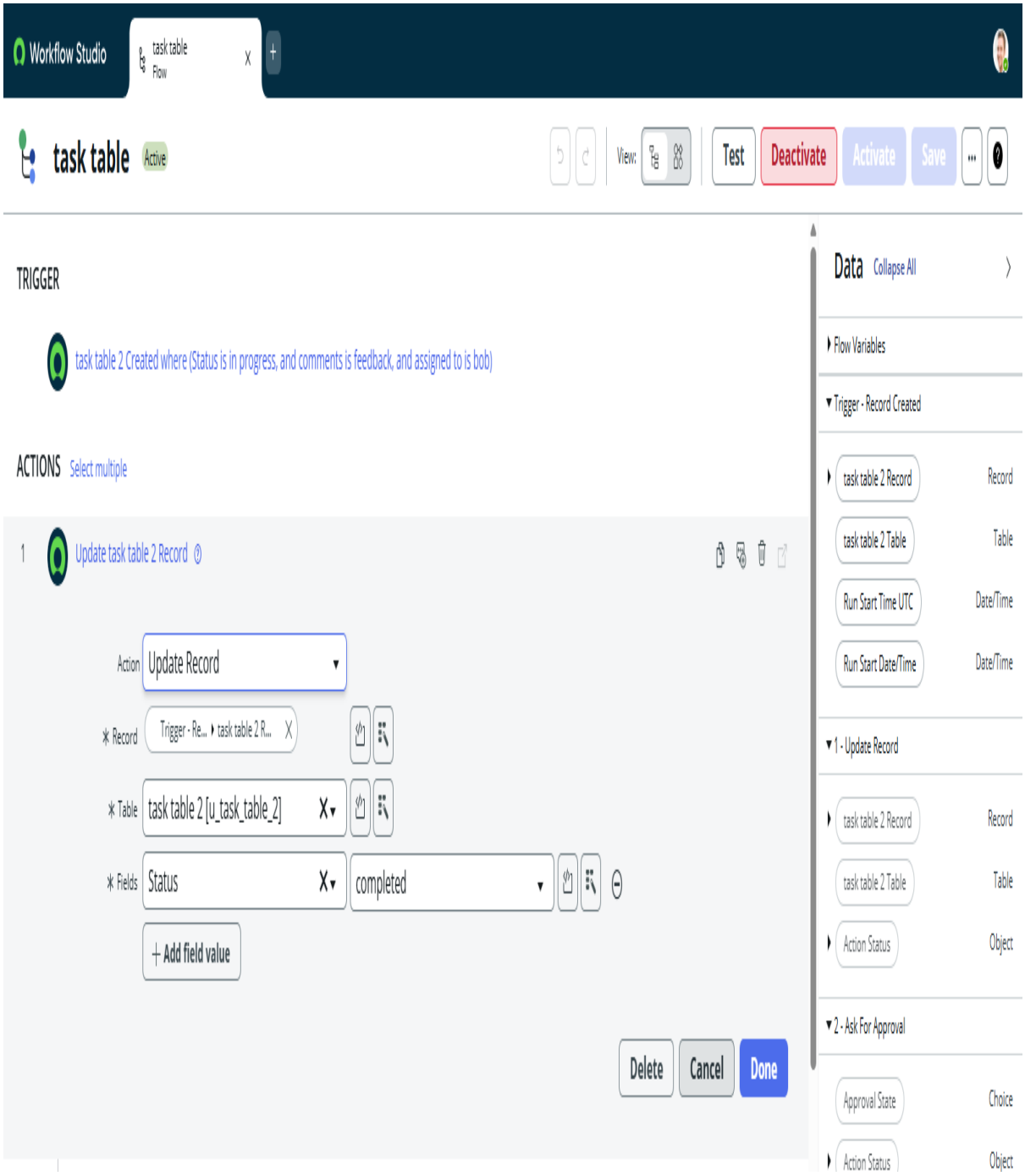

servicenow
All
Favorites
History
task table 2 - Create Created
task table 2
New record
Submit
task id
task name
Status
-- None --
assigned to
comments
due date
Submit

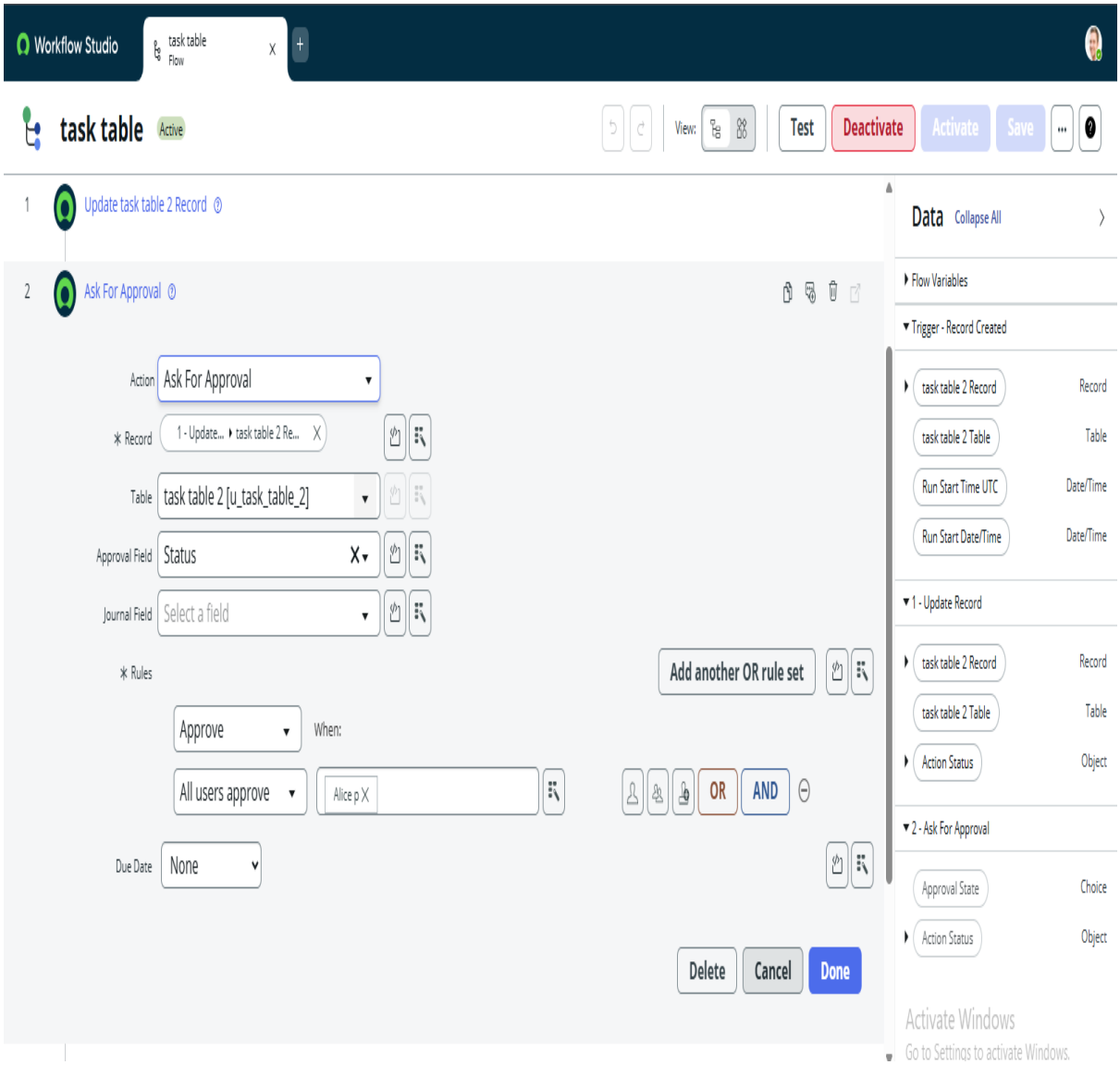

servicenow
All
flow designer
FAVORITES
No Results
ALL RESULTS
Process Automation
Flow Designer
Flow & Action Designer

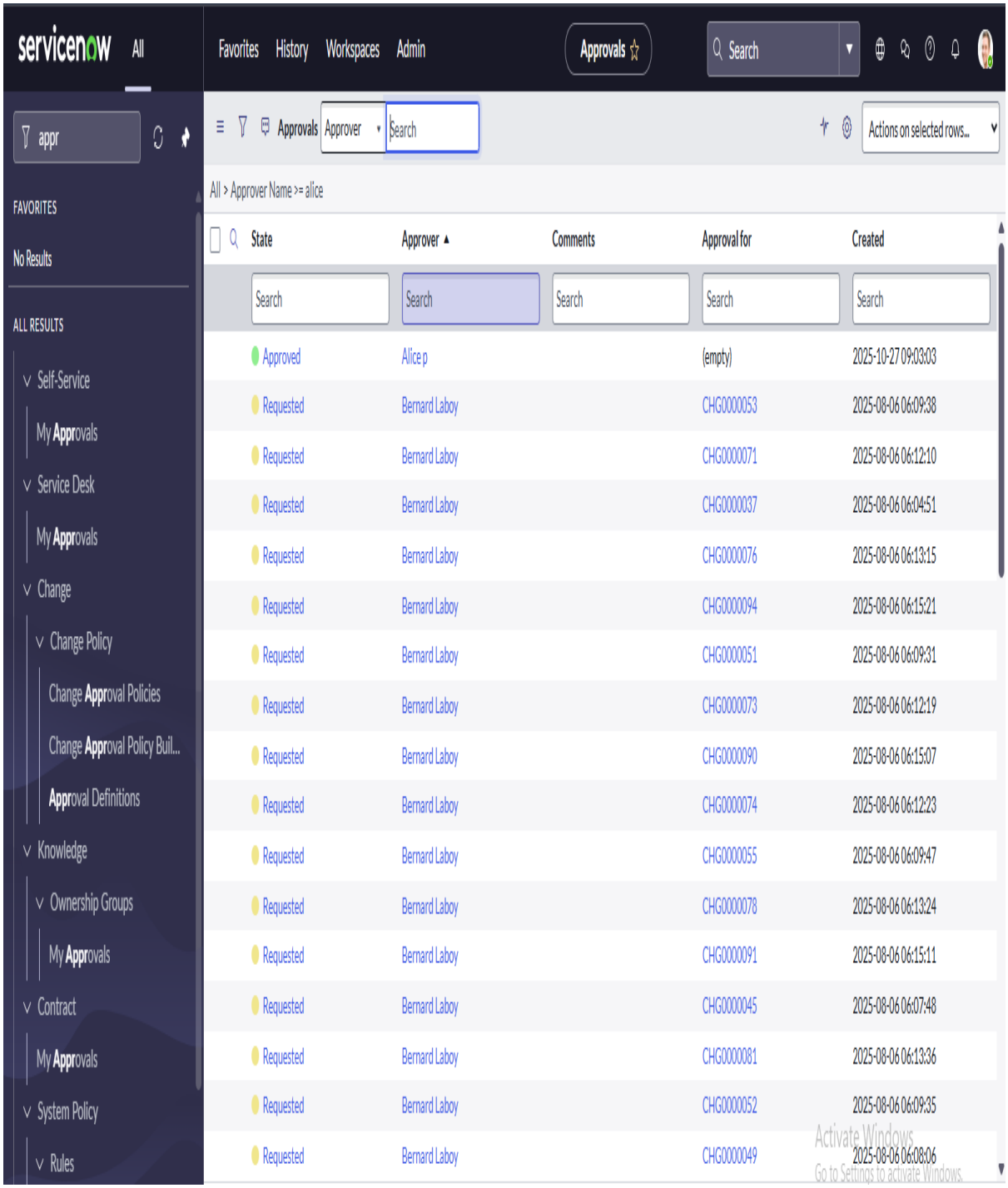

Workflow Studio
Homepage
Operations
Integrations
Playbooks
Flows
Subflows
Actions
Decision tables
New
Flows 69
Last refreshed just now
Delete
Name
Application
Status
Active
Updated
Updatec
task table
Global
Published
true
2025-10-27 09:21:45
admin
New Application Admin Task State Updated
Creator Studio
Published
true
2025-10-24 11:18:51
system
New Application Task State Updated
Creator Studio
Published
true
2025-10-24 11:18:33
system
New Request App Approval Flow
Creator Studio
Published
true
2025-10-24 11:18:08
system
Collaboration Request Flow
Collaboration Request
Published
true
2025-10-24 10:44:54
system
Application Intake Request Flow
Application Intake
Published
true
2025-10-24 10:44:07
system
Application Intake Request V2
Application Intake
Published
true
2025-10-24 10:44:00
system
Validate Environments Job
Pipeline
Published
true
2025-10-24 10:43:31
system
IAR SLA Reminder
Global
Published
true
2025-08-07 13:38:39
system
Guidance Automation Flow Executor
Guided Decisions - Guidance
Published
true
2025-08-07 13:33:39
system
Docker Sample Outbound Flow
Docker Spoke
Published
true
2025-08-07 13:32:26
system
Pick up where you left off
task table
Last updated: 13 h. ago by System Admini...
Create Flow Data
Last updated: a year ago by System Admi...
Deployment Environment Ty...
Last updated: a year ago by System Admi...
Latest updates
System Administrator modified task table
13 h. ago
System Administrator modified Create Flow Data
a year ago
System Administrator modified Deployment Environment Type Flow
a year ago
System Administrator modified Steps
a year ago
System Administrator modified Steps
a year ago
Activate Windows
Go to Settings to activate Windows.

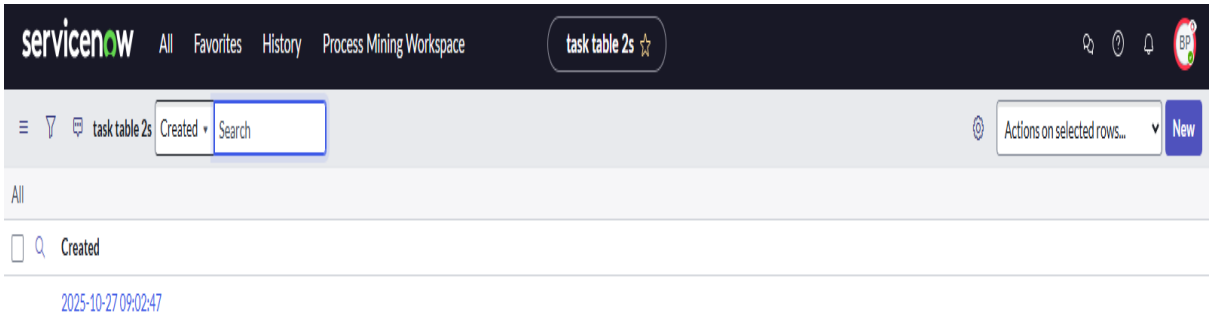

Workflow Studio
task table
Flow
task ta...
Active
View:
Test
Deactivate
Activate
Save
TRIGGER
task table 2 Created where (Status is in progress, and comments is feedback, and assigned to is bob)
ACTIONS
Select multiple
1
Update task table 2 Record
2
Ask For Approval
Add an Action, Flow Logic, or Subflow
ERROR HANDLER
If an error occurs in your flow, the actions you add here will run.
Data
Collapse All
Flow Variables
Trigger - Record Created
task table 2 Record
Record
task table 2 Table
Table
Run Start Time UTC
Date/Time
Run Start Date/Time
Date/Time
1 - Update Record
task table 2 Record
Record
task table 2 Table
Table
Action Status
Object
2 - Ask For Approval
Approval State
Choice
Action Status
Object
Activate Windows
Go to Settings to activate Windows.
Status: Published
Application: Global
0

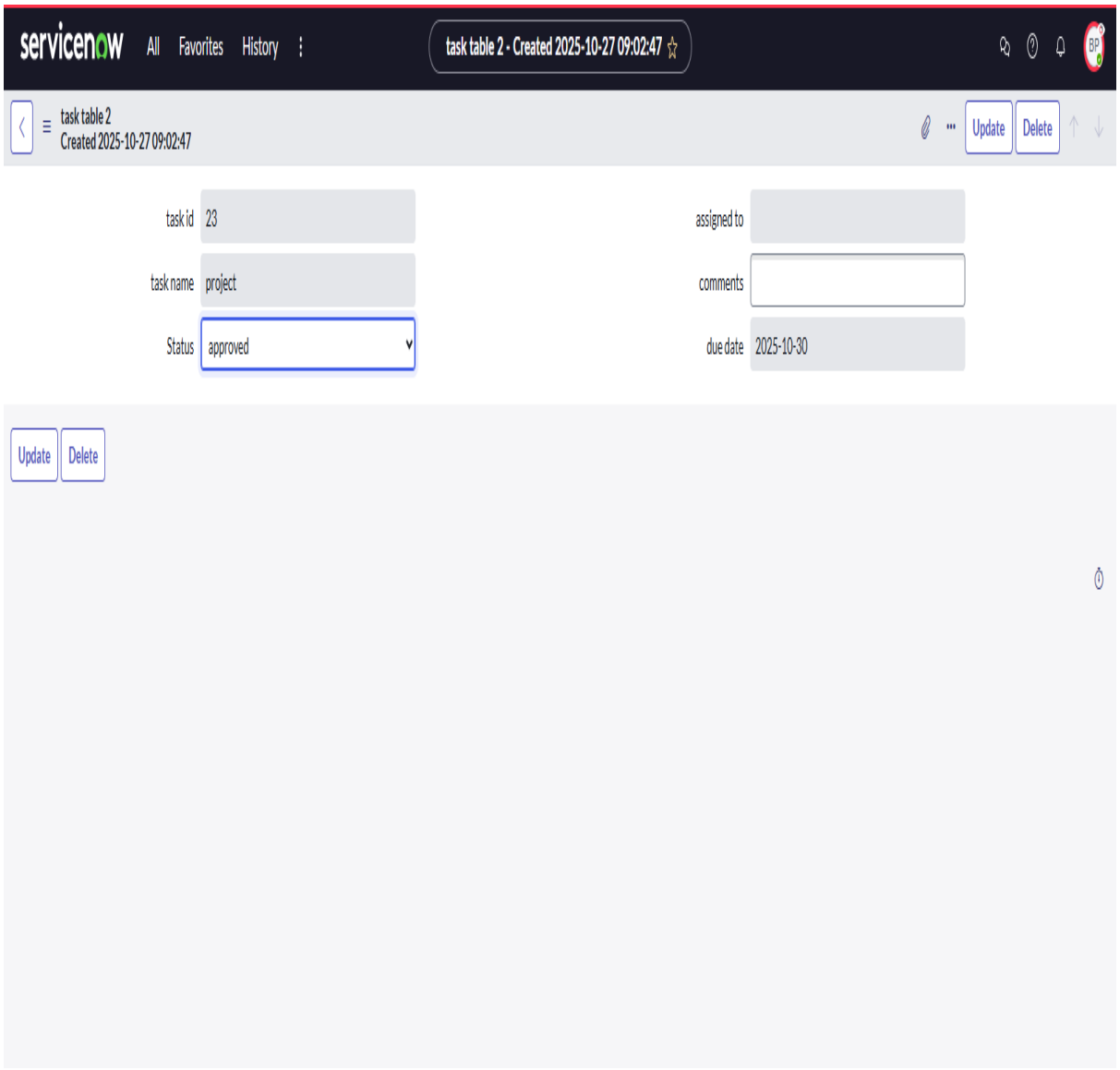

Workflow Studio
task table
Flow
task table
Active
View:
Test
Deactivate
Activate
Save
TRIGGER
task table 2 Created where (Status is in progress, and comments is feedback, and assigned to is bob)
Trigger
Created
* Table
task table 2 [u_task_table_2]
Condition
All of these conditions must be met
Status
is
in progress
OR
AND
AND
comments
is
feedback
OR
AND
assigned to
is
bob
OR
AND
or
New Criteria
Advanced Options
Delete
Cancel
Done
Data
Collapse All
Flow Variables
Trigger - Record Created
task table 2 Record
Record
task table 2 Table
Table
Run Start Time UTC
Date/Time
Run Start Date/Time
Date/Time
1 - Update Record
task table 2 Record
Record
task table 2 Table
Table
Action Status
Object
2 - Ask For Approval
Approval State
Choice
Action Status
Object


Workflow Studio
task table
Flow
task table
Active
View:
Test
Deactivate
Activate
Save
TRIGGER
task table 2 Created where (Status is in progress, and comments is feedback, and assigned to is bob)
ACTIONS
Select multiple
1
Update task table 2 Record
Action
Update Record
* Record
Trigger - Re... ‣ task table 2 R...
* Table
task table 2 [u_task_table_2]
* Fields
Status
completed
+ Add field value
Delete
Cancel
Done
Data
Collapse All
Flow Variables
Trigger - Record Created
task table 2 Record
Record
task table 2 Table
Table
Run Start Time UTC
Date/Time
Run Start Date/Time
Date/Time
1 - Update Record
task table 2 Record
Record
task table 2 Table
Table
Action Status
Object
2 - Ask For Approval
Approval State
Choice
Action Status
Object


Workflow Studio
task table
Flow
task table
Active
View:
Test
Deactivate
Activate
Save
1
Update task table 2 Record
2
Ask For Approval
Action
Ask For Approval
Record
1 - Update... task table 2 Re...
Table
task table 2 [u_task_table_2]
Approval Field
Status
Journal Field
Select a field
Rules
Add another OR rule set
Approve
When:
All users approve
Alice p
OR
AND
Due Date
None
Delete
Cancel
Done
Data
Collapse All
Flow Variables
Trigger - Record Created
task table 2 Record
Record
task table 2 Table
Table
Run Start Time UTC
Date/Time
Run Start Date/Time
Date/Time
1 - Update Record
task table 2 Record
Record
task table 2 Table
Table
Action Status
Object
2 - Ask For Approval
Approval State
Choice
Action Status
Object
Activate Windows
Go to Settings to activate Windows.


servicenow
All
Favorites
History
Workspaces
Admin
Approvals
Search
appr
FAVORITES
No Results
ALL RESULTS
Self-Service
My Approvals
Service Desk
My Approvals
Change
Change Policy
Change Approval Policies
Change Approval Policy Buil...
Approval Definitions
Knowledge
Ownership Groups
My Approvals
Contract
My Approvals
System Policy
Rules
Approvals
Approver
Search
Actions on selected rows...
All > Approver Name >= alice
State
Approver
Comments
Approval for
Created
Search
Approved
Alice p
(empty)
2025-10-27 09:03:03
Requested
Bernard Laboy
CHG0000053
2025-08-06 06:09:38
CHG0000071
2025-08-06 06:12:10
CHG0000037
2025-08-06 06:04:51
CHG0000076
2025-08-06 06:13:15
CHG0000094
2025-08-06 06:15:21
CHG0000051
2025-08-06 06:09:31
CHG0000073
2025-08-06 06:12:19
CHG0000090
2025-08-06 06:15:07
CHG0000074
2025-08-06 06:12:23
CHG0000055
2025-08-06 06:09:47
CHG0000078
2025-08-06 06:13:24
CHG0000091
2025-08-06 06:15:11
CHG0000045
2025-08-06 06:07:48
CHG0000081
2025-08-06 06:13:36
CHG0000052
2025-08-06 06:09:35
CHG0000049
2025-08-06 06:08:06
Activate Windows
Go to Settings to activate Windows.




servicenow
All
Favorites
History
task table 2 - Created 2025-10-27 09:02:47
task table 2
Created 2025-10-27 09:02:47
Update
Delete
task id
23
task name
project
Status
approved
assigned to
comments
due date
2025-10-30
Update
Delete

CONCLUSION

This project demonstrates the necessity of structured user, group, and role management integrated with access control and automated workflows. Through the implementation of **Role-Based Access Control (RBAC)**, the system ensures that users perform only the operations permitted by their role, maintaining security and accountability.

Automated workflows streamline task management, reducing manual dependency and enhancing team coordination. The modular design ensures scalability and adaptability, making the system suitable for various organizational sizes.

In conclusion, “Optimizing User, Group, and Role Management with Access Control and Workflows” provides a theoretical foundation for developing secure, efficient, and transparent project management systems. It addresses core challenges such as unauthorized access, unclear responsibilities, and workflow inefficiencies — paving the way for intelligent, access-controlled collaboration environments in the future.