STREAMLINING TICKET ASSIGNMENT FOR EFFICIENT SUPPORT OPERATIONS

INTRODUCTION

Project Title: Rule-Based Ticket Assignment Automation System
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Team ID : LTVIP2026TMIDS24891

PROJECT OVERVIEW

Purpose: The purpose of this initiative is to enhance the efficiency, accuracy, and responsiveness of ABC Corporation's support operations by minimizing manual intervention in ticket assignment. This will lead to improved customer satisfaction, better workload distribution, and optimal use of support team resources.

Key Features:

- Automated Ticket Routing - Automatically assigns tickets based on predefined rules and categories.
- Priority-Based Assignment – Routes tickets based on urgency, impact, or SLA requirements.
- Team Skill Matching – Assigns tickets to agents or teams with the most relevant expertise.
- Real-Time Monitoring – Provides dashboards for live tracking of ticket status and workload.
- Rule Engine Configuration – Enables creation and modification of routing rules without coding.
- Integration with Support Tools – Seamlessly works with existing helpdesk or ITSM platforms.
- Load Balancing – Distributes tickets evenly to prevent overloading specific teams or agents.
- Audit Trail & Reporting – Maintains logs of routing decisions for transparency and analysis
- Scalability & Flexibility – Adapts easily to organizational growth or changes in support structure.

Architecture

Front-End (User Interface) : The front-end deals with the user interface and interaction, ensuring that the data entered by users is accurate and optimized for automated processing

- Client Scripts
  These are JavaScript scripts executed in the browser when users interact with the form (e.g., selecting a category).
- UI Policies
  UI Policies dynamically control the visibility, read-only status, or requirement of fields on the form.
- Form Layouts & Variables
  Custom fields and layouts guide users to provide the required information for ticket assignment.

Back-End (Server-Side) Components : The back-end is responsible for processing the ticket after submission and automatically assigning it using various logic and rules.

Business Rules
Server-side scripts that trigger before or after record insert/update.

Assignment Rules
Built-in ServiceNow feature that automatically assigns ticket based condition like category, priority, or caller.

Flow Designer / Workflows
No-code/low-code automation tools to route tickets, send notifications, or trigger approvals.

Script Includes
Custom reusable functions written in JavaScript for more complex assignment logic.

Database

The database stores all the ticket and assignment data. ServiceNow is built on a relational database model, where every ticket, group, and user is a record in a Table.

Key Tables Involved:

incident → Stores incident records (tickets).
sys_user → Stores user details (callers, agents).
sys_user_group → Stores assignment groups.
cmdb_ci → Stores configuration items, useful for impact-based assignment.
task (parent table) → Generic table for all task types (incident, change, etc.)

Setup instructions

- Set up clear assignment rules based on ticket fields like category, priority, or location.
- Create assignment groups and assign users to the right teams.
- Automate routing using Business Rules or Flow Designer for consistent and fast assignment.

Folder structure

```
Streamlined-Ticket-Assignment-ServiceNow/
└── API_Integration/
├── API_README.md
├── create_incident.py
├── get_incident_by_id.py
├── update_assignment.py
├── delete_ticket.py
└── API_Documentation.pdf
```

API Documentation

User:

```
import requests
from requests.auth import HTTPBasicAuth
url =” https://dev270972.service-now.com/$m.do#/home”
auth = HTTPBasicAuth("admin", "password")
payload = {
   "first_name": "Manne",
   "last_name": "Niranjan",
   "email": "niranjanreddymanne2507@gmail.com",
   "user_name": "manne.niranjan”,
   "password": "niranjan123",
}

headers = {"Content-Type": "application/json"}

res = requests.post(url, auth=auth, json=payload, headers=headers)
print(res.json())
```

Project:

```
url = "https://dev270972.service-now.com/$m.do#/home"
payload = {
```

```
    "short_description": "New College Project Support",
    "description": "Need technical support for Java assignment project",
    "category": "project",
    "assignment_group": "Project Support"
}
res = requests.post(url, auth=auth, json=payload, headers=headers)
print(res.json())
```

Application Issue:

```
payload = {
    "short_description": "Application not responding",
    "description": "App crashes during launch",
    "category": "application",
    "assignment_group": "Application Team",
    "priority": "2"

}
res = requests.post(url, auth=auth, json=payload, headers=headers)
print(res.json())
```

Chat:

```
chat_message = "Hi team, my laptop is overheating during calls."
payload = {
    "short_description": "Chat Submission: Laptop Heating",
    "description": chat_message,
    "category": "hardware",
    "assignment_group": "Hardware Team"

}
res = requests.post(url, auth=auth, json=payload, headers=headers)
print(res.json())
```

Assign Ticket:

```
def auto_assign(category):
    group = {
        "software": "Software Team",
        "hardware": "Hardware Team",
        "network": "Network Team",
        "project": "Project Support"
    }.get(category, "IT Helpdesk")

    payload = {
        "short_description": f"{category} ticket via API",
```

```
        "category": category,
        "assignment_group": group
    }
    res = requests.post(url, auth=auth, json=payload, headers=headers)
    print(res.json())

auto_assign("software")
```

Ticket status:

```
ticket_sys_id = "abcd1234567890"
url = f
"https://your_instance.service-now.com/api/now/table/incident/{ticket_sys_id}"
res = requests.get(url, auth=auth, headers=headers) print(res.json()['result']
['state'])
```

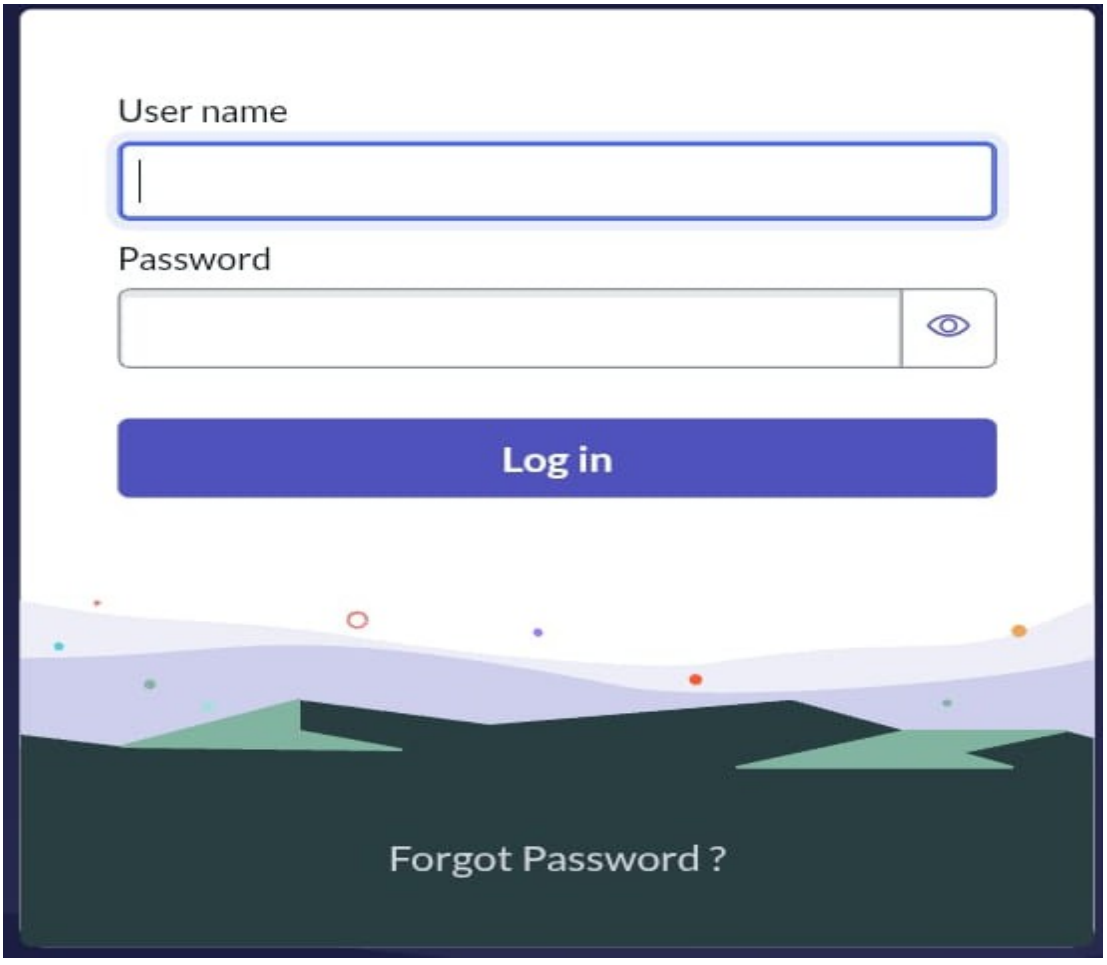
Authentication Flow

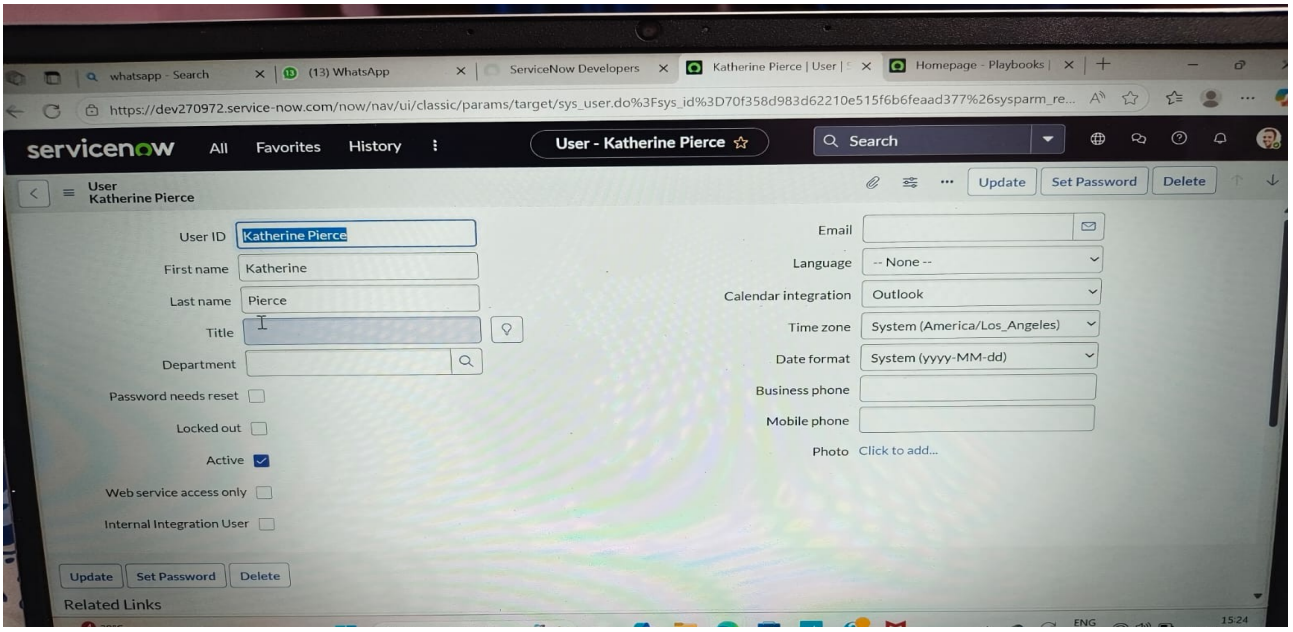
- REST APIs to create or assign incidents
- External integrations (chatbots, portals, mobile apps)
- Scripted APIs to automate ticket routing

Testing

- Tested ticket creation via UI, Python scripts, and Postman (API).
- Checked Client Scripts and UI Policies for field visibility and resets.
- Validated Business Rules and Assignment Rules on record creation.
- Performed negative testing with blank/invalid inputs.
- Ensured secure access using Basic Auth and role-based permissions.
- Confirmed expected outputs via response codes and assignment logs.

Screenshots/Demo


User name
Password
Log in
Forgot Password ?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History
User - Katherine Pierce
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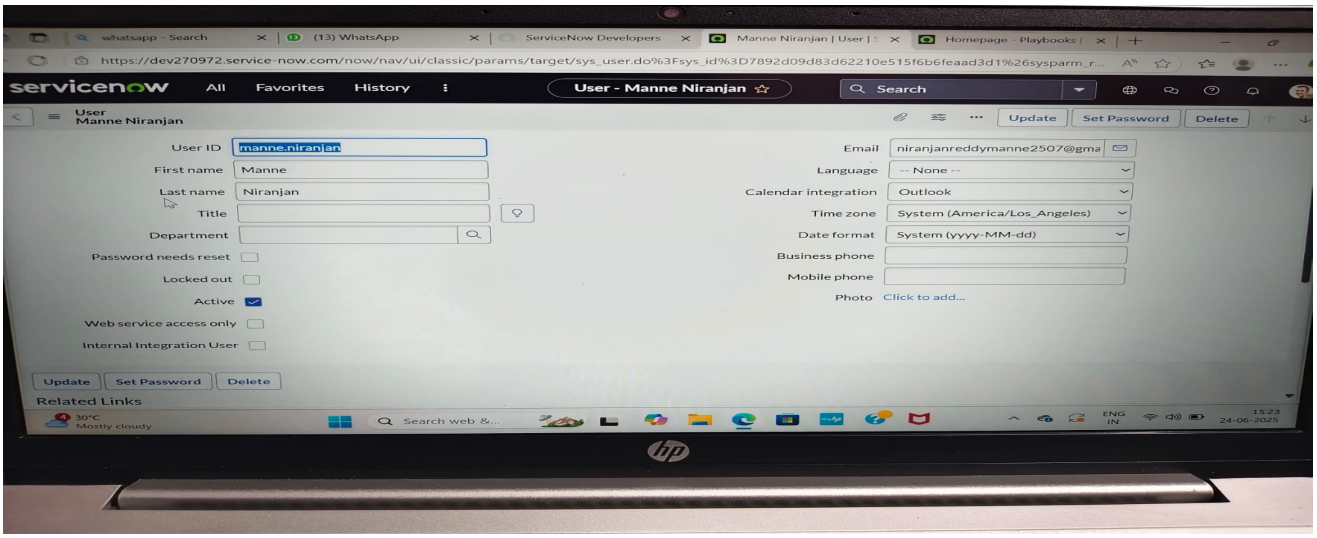
Katherine Pierce
First name
Katherine
Last name
Pierce
Title
Department
Password needs reset
Locked out
Active
Web service access only
Internal Integration User
Email
Language
-- None --
Calendar integration
Outlook
Time zone
System (America/Los_Angeles)
Date format
System (yyyy-MM-dd)
Business phone
Mobile phone
Photo
Click to add...
Related Links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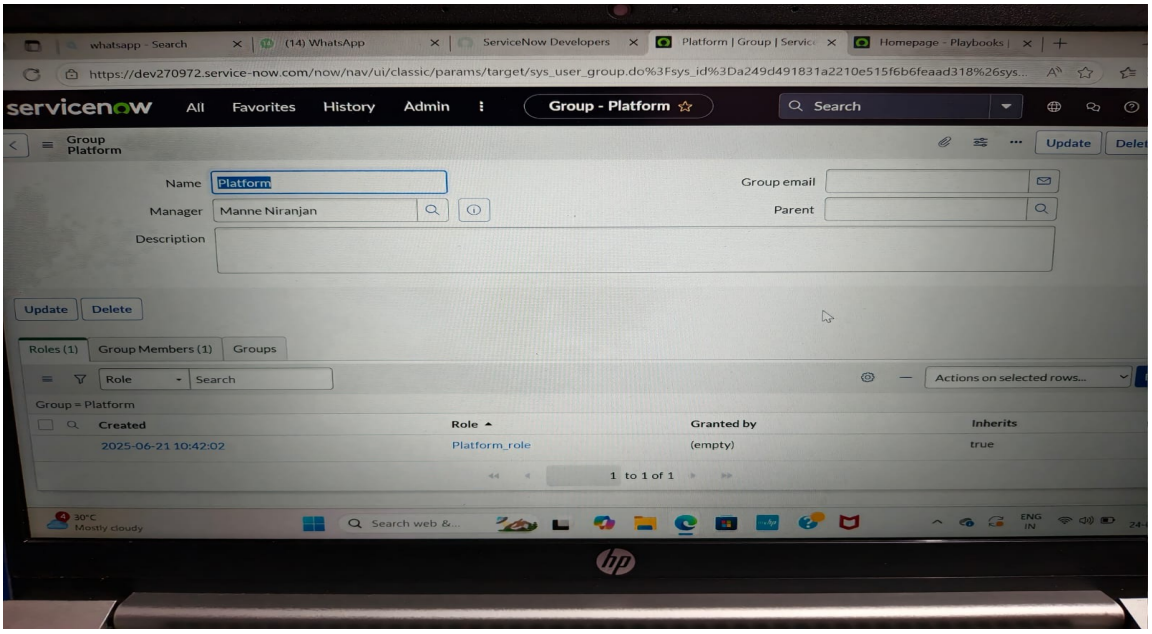
First name
Manne
Last name
Niranjan
Title
Department
Password needs reset
Locked out
Active
Web service access only
Internal Integration User
Email
Language
-- None --
Calendar integration
Outlook
Time zone
System (America/Los_Angeles)
Date format
System (yyyy-MM-dd)
Business phone
Mobile phone
Photo
Click to add...
Update
Set Password
Delete
Related Links


servicenow
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Group email
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Description
Update
Delete
Roles (1)
Group Members (1)
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Role
Search
Actions on selected rows...
Group = Platform
Created
Role
Granted by
Inherits
2025-06-21 10:42:02
Platform_role
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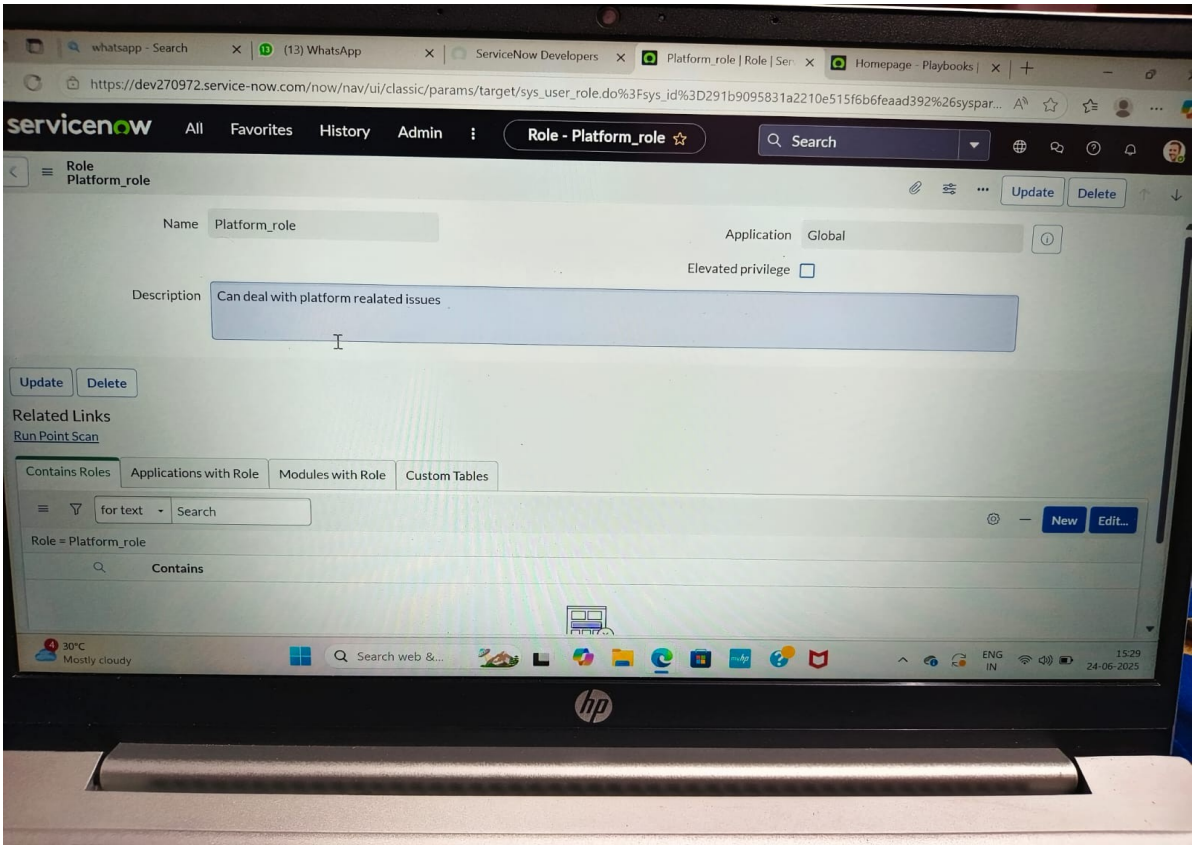
true
1 to 1 of 1


whatsapp - Search
(13) WhatsApp
ServiceNow Developers
Platform_role | Role | Ser
Homepage - Playbooks |
https://dev270972.service-now.com/now/nav/ui/classic/params/target/sys_user_role.do%3Fsys_id%3D291b9095831a2210e515f6b6feaad392%26syspar...
servicenow
All
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Role - Platform_role
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Role
Platform_role
Update
Delete
Name
Platform_role
Application
Global
Elevated privilege
Description
Can deal with platform realated issues
Update
Delete
Related Links
Run Point Scan
Contains Roles
Applications with Role
Modules with Role
Custom Tables
for text
Search
New
Edit...
Role = Platform_role
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Mostly cloudy
Search web &...
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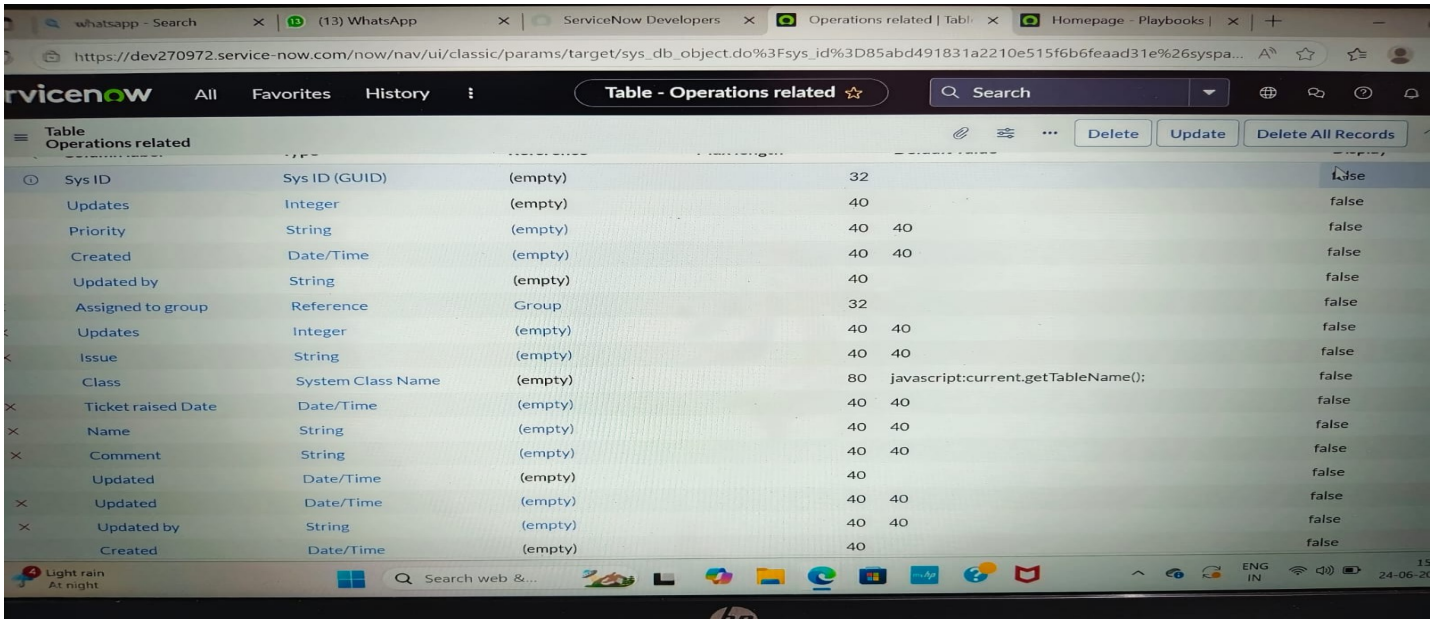
whatsapp - Search
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ServiceNow Developers
Operations related | Tabl
Homepage - Playbooks |
https://dev270972.service-now.com/now/nav/ui/classic/params/target/sys_db_object.do%3Fsys_id%3D85abd491831a2210e515f6b6feaad31e%26syspa...
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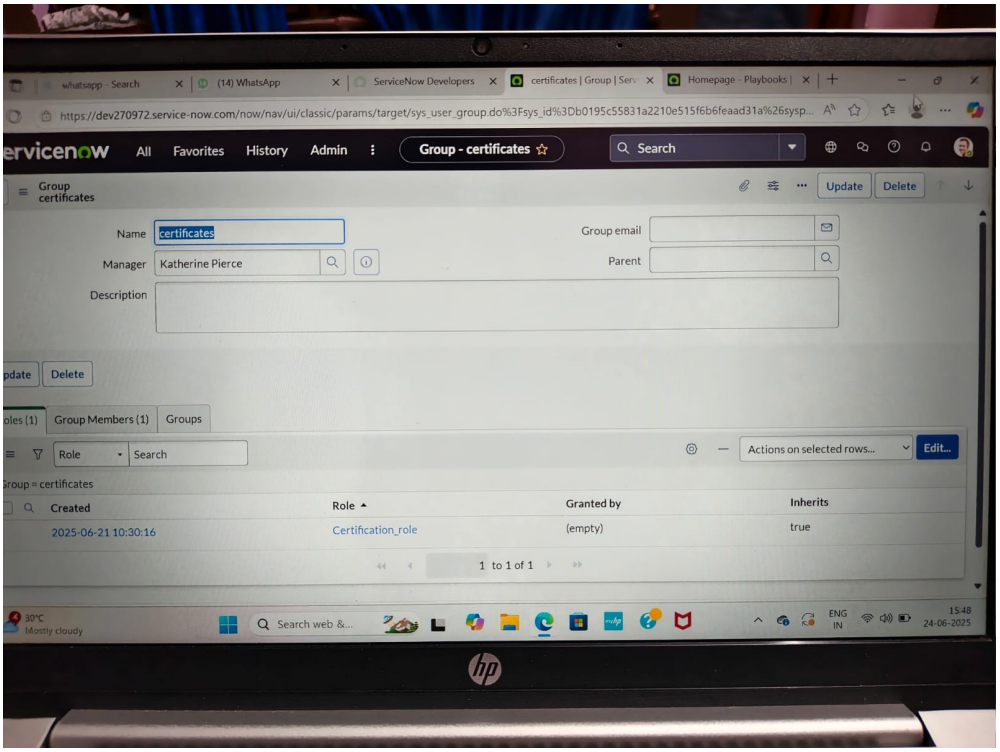
Operations related
Delete
Update
Delete All Records
Sys ID Sys ID (GUID) (empty) 32 false
Updates Integer (empty) 40 false
Priority String (empty) 40 40 false
Created Date/Time (empty) 40 40 false
Updated by String (empty) 40 false
Assigned to group Reference Group 32 false
Updates Integer (empty) 40 40 false
Issue String (empty) 40 40 false
Class System Class Name (empty) 80 javascript:current.getTableName(); false
Ticket raised Date Date/Time (empty) 40 40 false
Name String (empty) 40 40 false
Comment String (empty) 40 40 false
Updated Date/Time (empty) 40 false
Updated Date/Time (empty) 40 40 false
Updated by String (empty) 40 40 false
Created Date/Time (empty) 40 false
Light rain
At night
Search web &...
ENG
IN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Group Members (1)
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Actions on selected rows...
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Group = certificates
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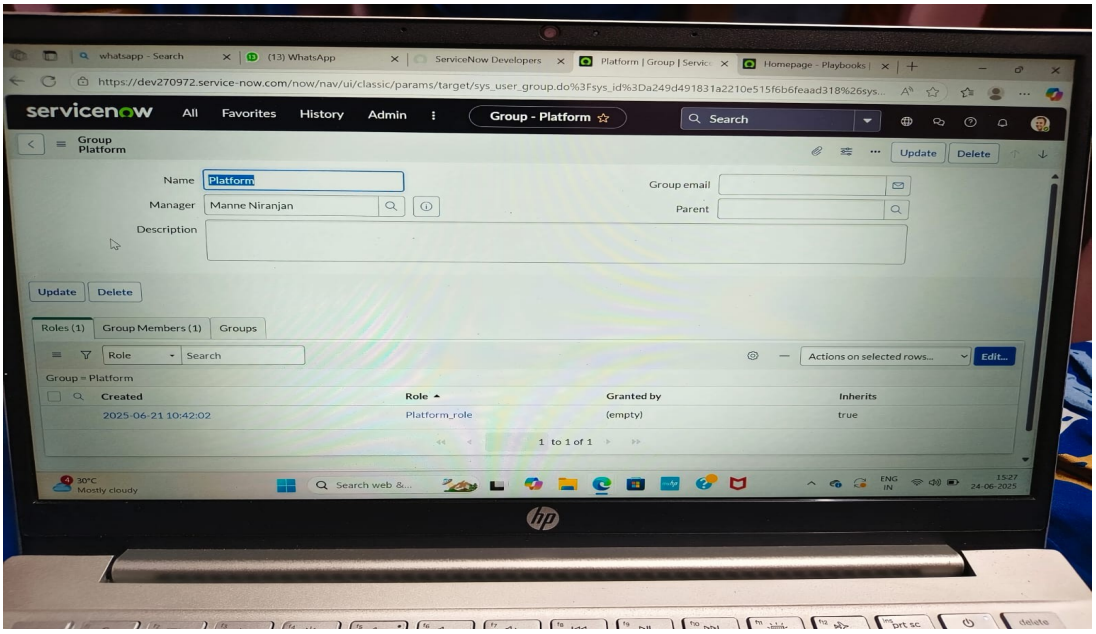
1 to 1 of 1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Group email
Parent
Description
Roles (1)
Group Members (1)
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Actions on selected rows...
Edit...
Group = Platform
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Granted by
Inherits
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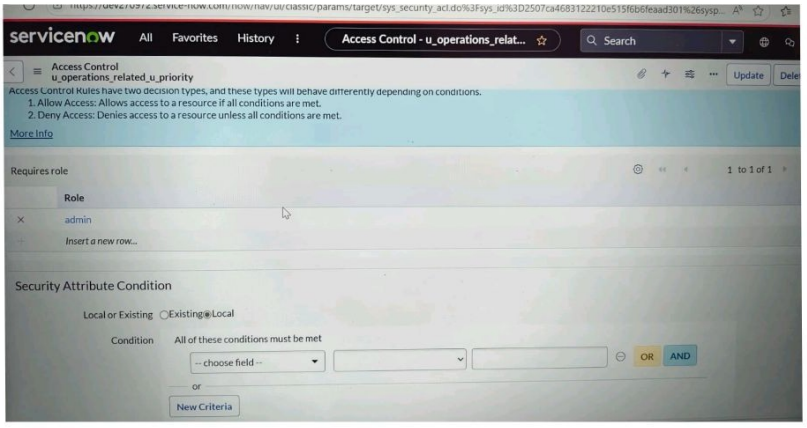
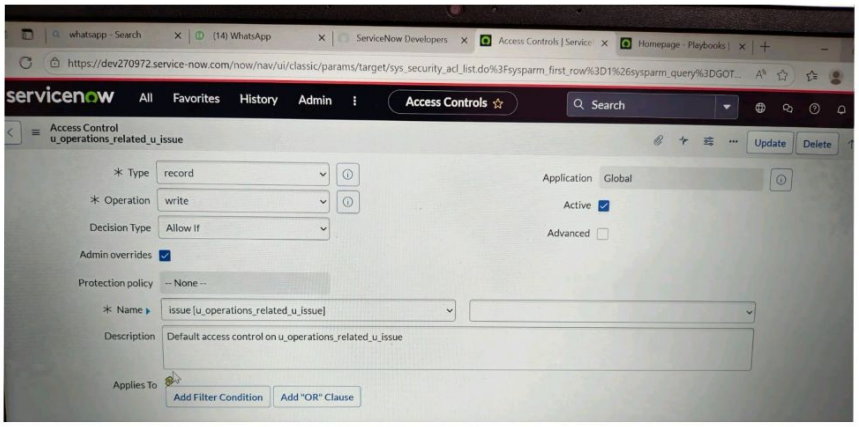
1 to 1 of 1


servicenow
All
Favorites
History
Access Control - u_operations_relat...
Search
Access Control
u_operations_related_u_priority
Update
Access Control Rules have two decision types, and these types will behave differently depending on conditions.
1. Allow Access: Allows access to a resource if all conditions are met.
2. Deny Access: Denies access to a resource unless all conditions are met.
More Info
Requires role
1 to 1 of 1
Role
admin
Insert a new row...
Security Attribute Condition
Local or Existing
Existing
Local
Condition
All of these conditions must be met
-- choose field --
OR
AND
or
New Criteria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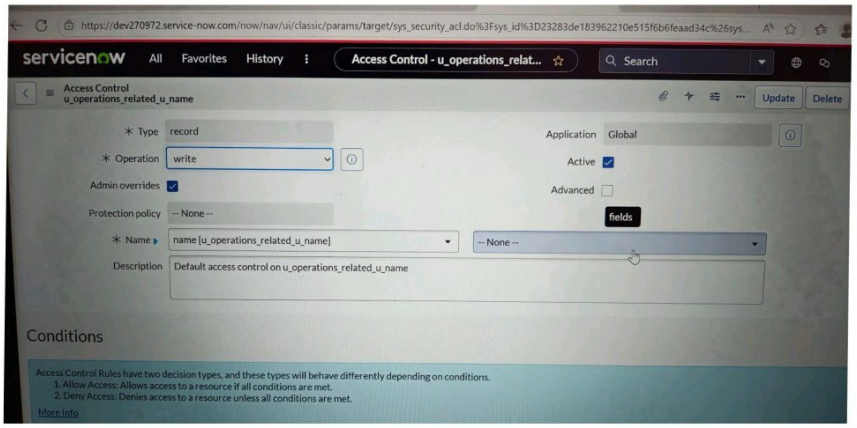
Admin
Access Controls
Search
Access Control
u_operations_related_u_issue
Update
Delete
Type
record
Operation
write
Decision Type
Allow If
Admin overrides
Protection policy
-- None --
Name
issue [u_operations_related_u_issue]
Description
Default access control on u_operations_related_u_issue
Application
Global
Active
Advanced
Applies To
Add Filter Condition
Add "OR" Clause


servicenow
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Access Control - u_operations_relat...
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Access Control
u_operations_related_u_name
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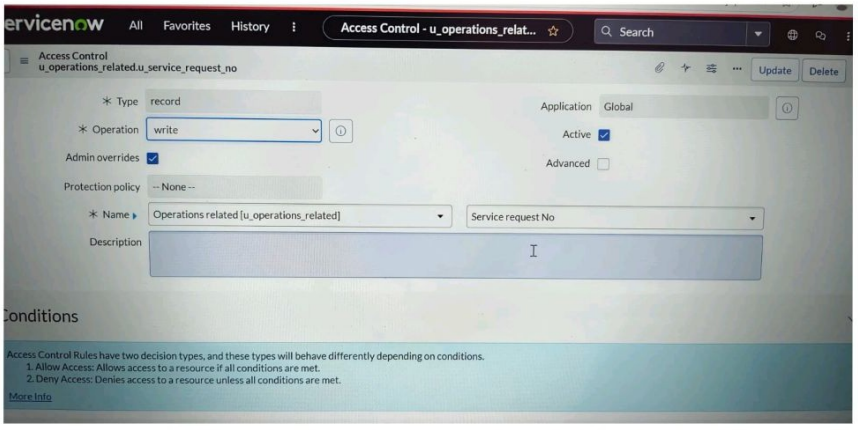
Type
record
Operation
write
Admin overrides
Protection policy
-- None --
Name
name [u_operations_related_u_name]
-- None --
Description
Default access control on u_operations_related_u_name
Application
Global
Active
Advanced
fields
Conditions
Access Control Rules have two decision types, and these types will behave differently depending on conditions.
1. Allow Access: Allows access to a resource if all conditions are met.
2. Deny Access: Denies access to a resource unless all conditions are met.
More Info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Access Control - u_operations_relat...
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Access Control
u_operations_related.u_service_request_no
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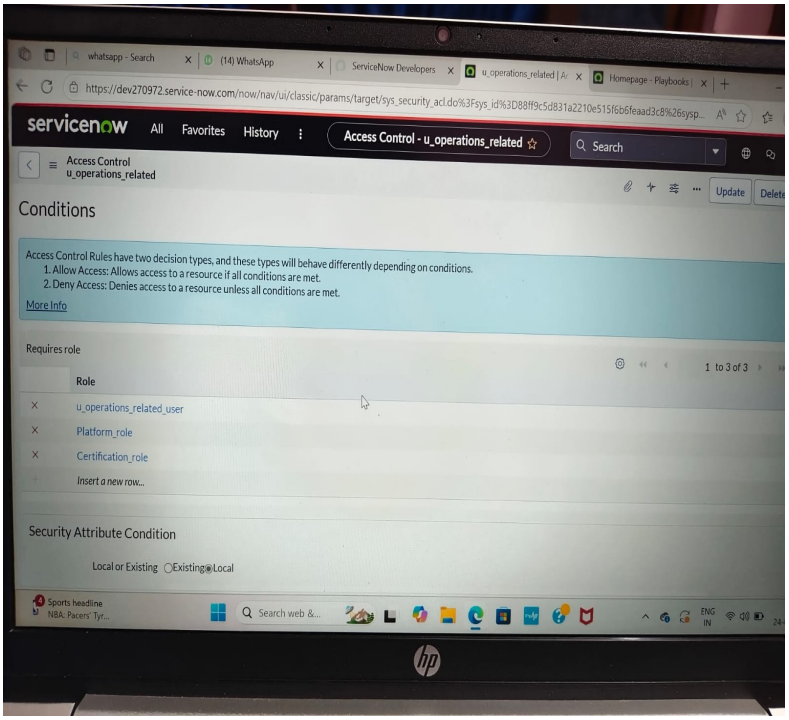
Delete
Type
record
Operation
write
Admin overrides
Protection policy
-- None --
Name
Operations related [u_operations_related]
Service request No
Description
Application
Global
Active
Advanced
Conditions
Access Control Rules have two decision types, and these types will behave differently depending on conditions.
1. Allow Access: Allows access to a resource if all conditions are met.
2. Deny Access: Denies access to a resource unless all conditions are met.
More Info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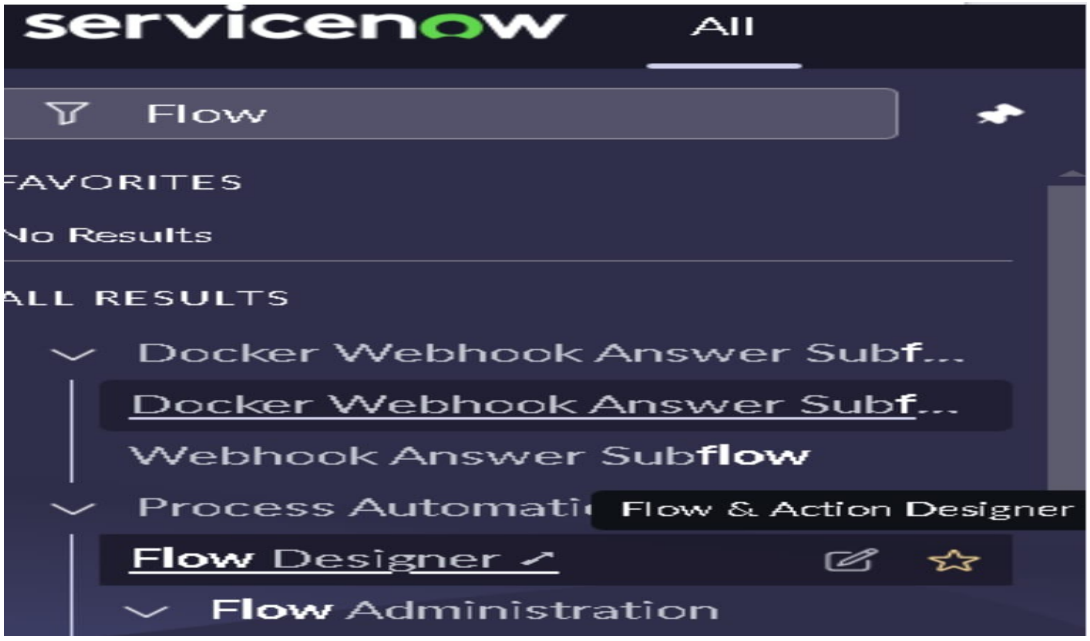
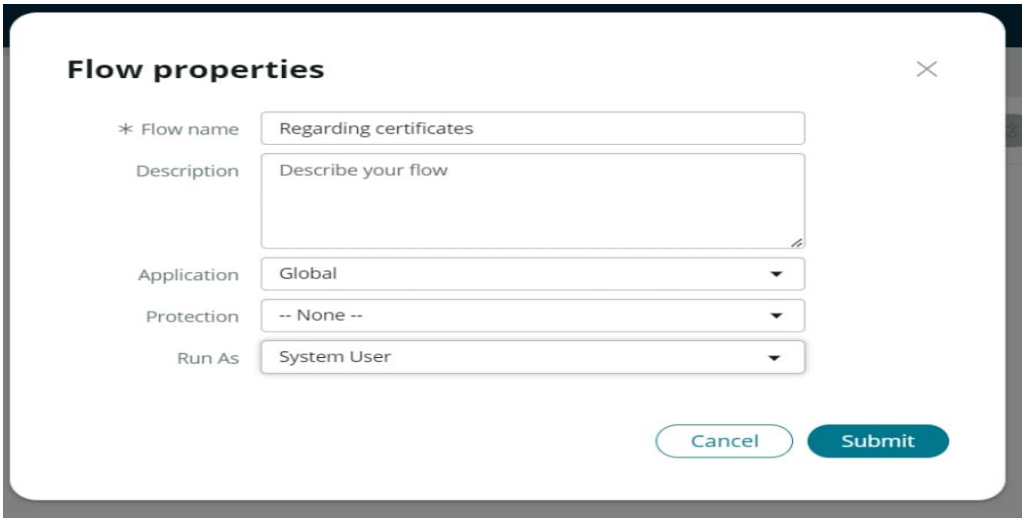
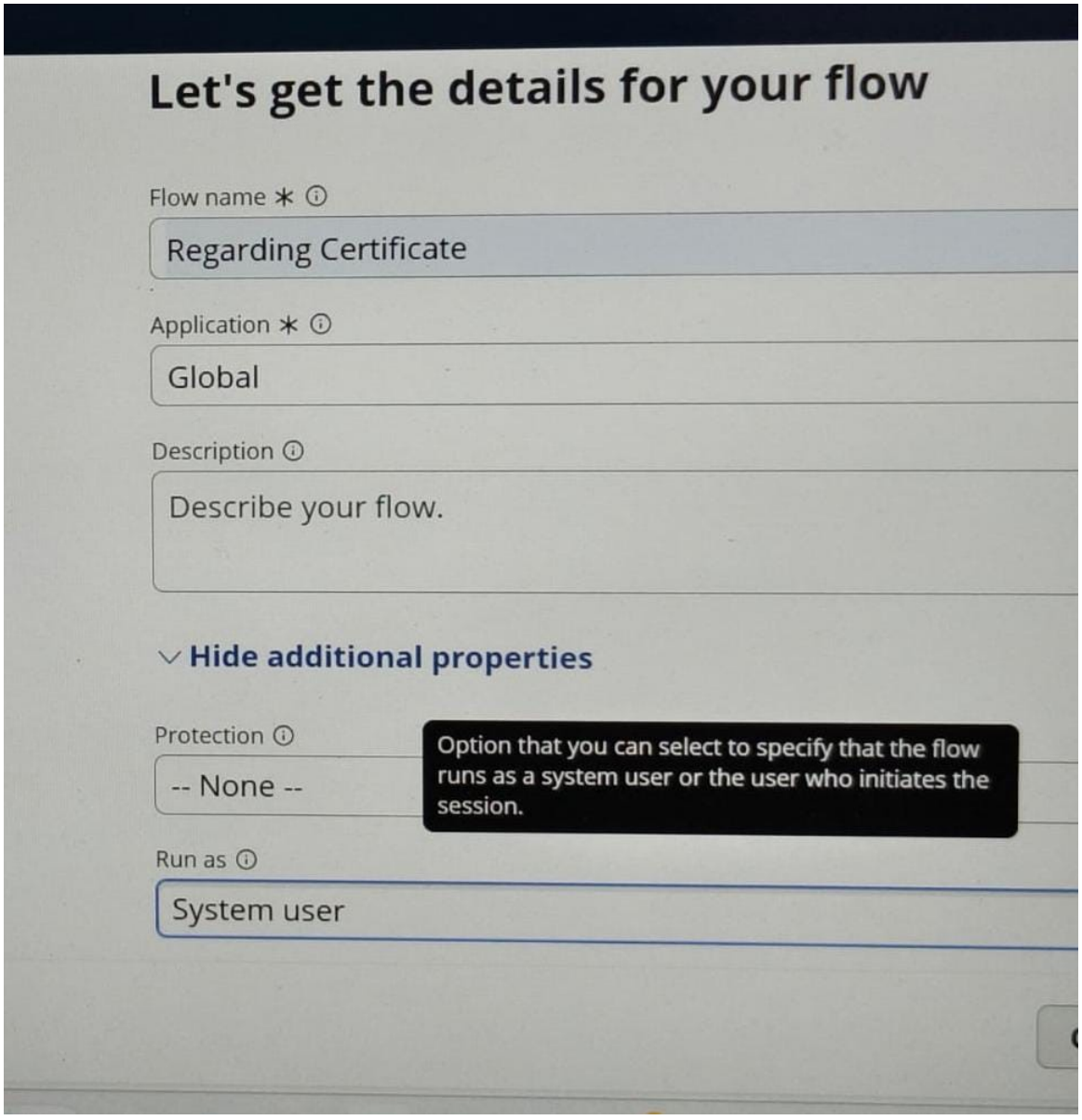
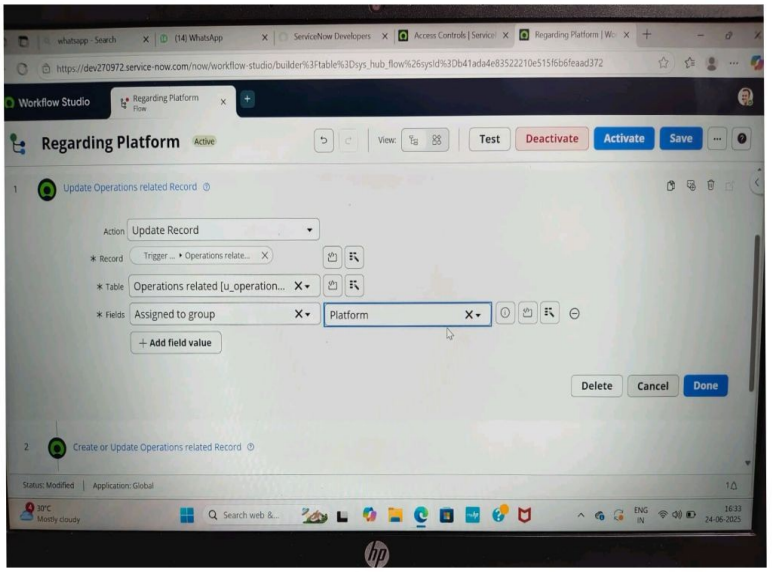
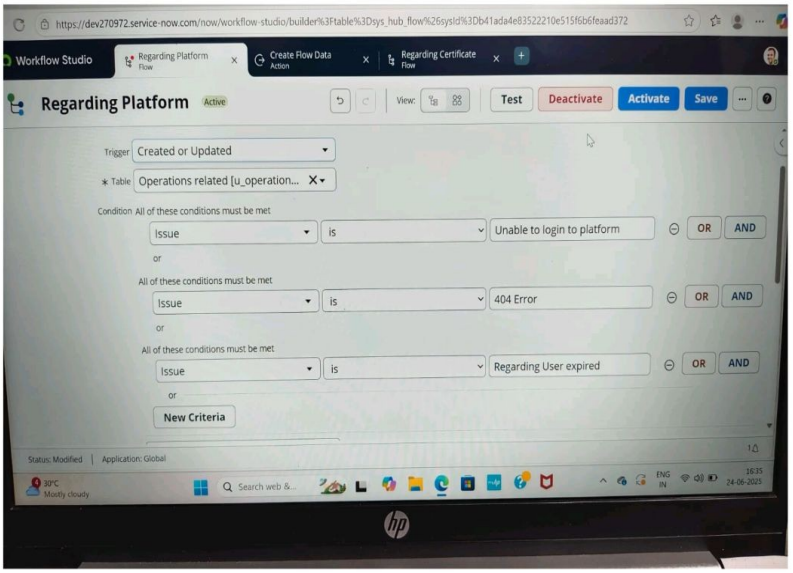
Access Control - u_operations_related
Search
Access Control
u_operations_related
Update
Conditions
Access Control Rules have two decision types, and these types will behave differently depending on conditions.
1. Allow Access: Allows access to a resource if all conditions are met.
2. Deny Access: Denies access to a resource unless all conditions are met.
More Info
Requires role
1 to 3 of 3
Role
u_operations_related_user
Platform_role
Certification_role
Insert a new row...
Security Attribute Condition
Local or Existing
Existing
Local

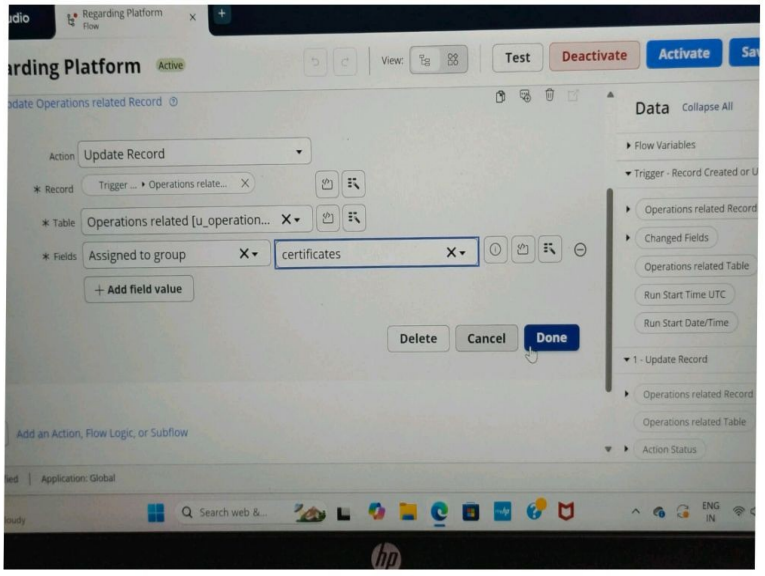

servicenow
All
Flow
FAVORITES
No Results
ALL RESULTS
Docker Webhook Answer Subf...
Docker Webhook Answer Subf...
Webhook Answer Subflow
Process Automati
Flow & Action Designer
Flow Designer
Flow Administration

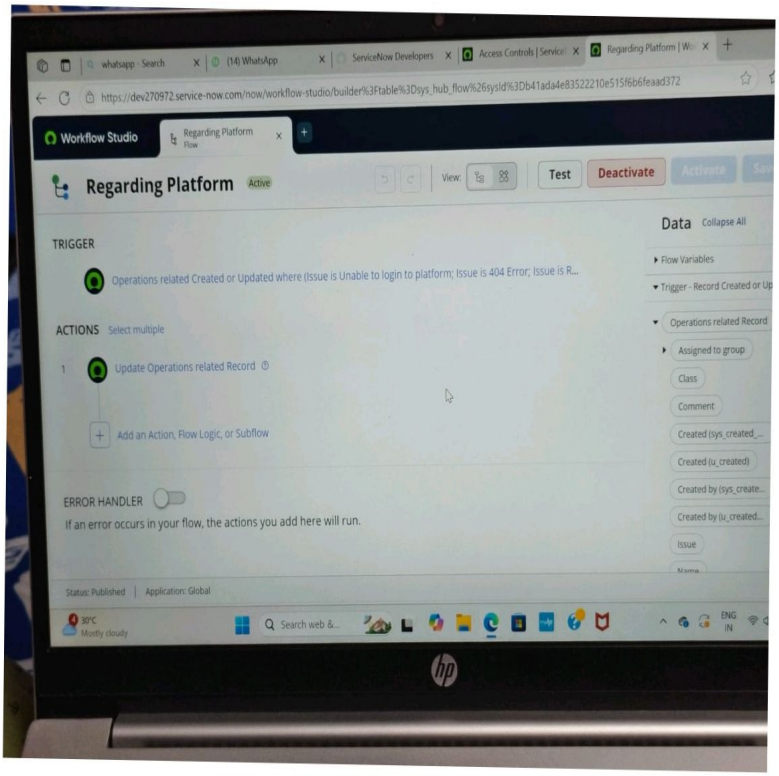

Flow properties
* Flow name
Regarding certificates
Description
Describe your flow
Application
Global
Protection
-- None --
Run As
System User
Cancel
Submit

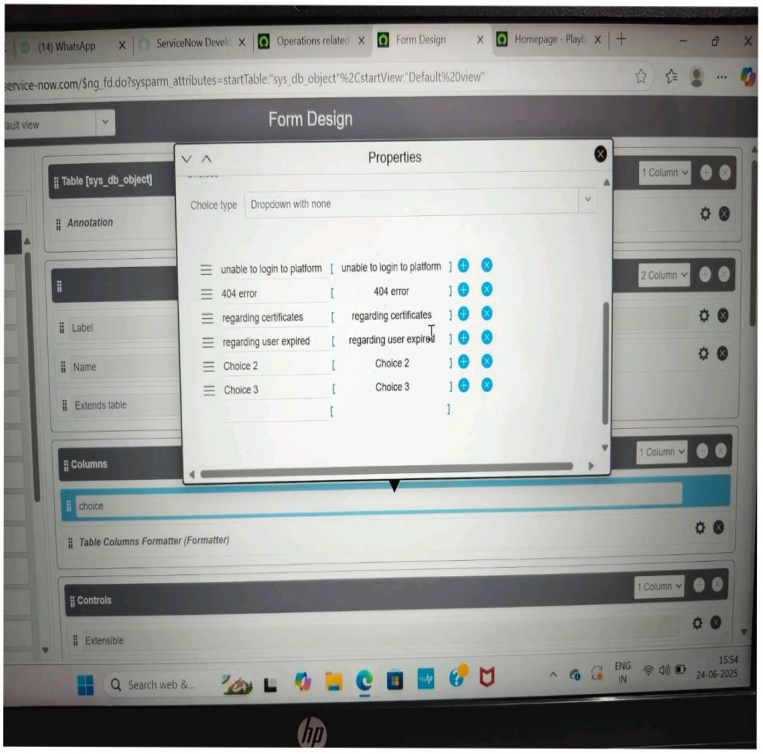

Let's get the details for your flow
Flow name *
Regarding Certificate
Application *
Global
Description
Describe your flow.
Hide additional properties
Protection
-- None --
Option that you can select to specify that the flow runs as a system user or the user who initiates the session.
Run as
System user


Workflow Studio
Regarding Platform
Flow
Regarding Platform
Active
View:
Test
Deactivate
Activate
Save
1
Update Operations related Record
Action
Update Record
* Record
Trigger ... • Operations relate...
* Table
Operations related [u_operation...
* Fields
Assigned to group
Platform
+ Add field value
Delete
Cancel
Done
2
Create or Update Operations related Record
Status: Modified
Application: Global
Search web &...


https://dev270972.service-now.com/now/workflow-studio/builder%3Ftable%3Dsys_hub_flow%26sysId%3Db41ada4e83522210e515f6b6feaad372
Workflow Studio
Regarding Platform
Flow
Create Flow Data
Action
Regarding Certificate
Flow
Regarding Platform
Active
View:
Test
Deactivate
Activate
Save
Trigger
Created or Updated
* Table
Operations related [u_operation...
Condition
All of these conditions must be met
Issue
is
Unable to login to platform
OR
AND
or
All of these conditions must be met
Issue
is
404 Error
OR
AND
or
All of these conditions must be met
Issue
is
Regarding User expired
OR
AND
or
New Criteria
Status: Modified
Application: Global
Search web &...


Regarding Platform
Flow
Regarding Platform
Active
View:
Test
Deactivate
Activate
Data
Collapse All
Flow Variables
Trigger - Record Created or U
Operations related Record
Changed Fields
Operations related Table
Run Start Time UTC
Run Start Date/Time
1 - Update Record
Operations related Record
Operations related Table
Action Status
Action
Update Record
* Record
Trigger ... • Operations relate...
* Table
Operations related [u_operation...
* Fields
Assigned to group
certificates
+ Add field value
Delete
Cancel
Done
Add an Action, Flow Logic, or Subflow
Application: Global
Search web &...


Workflow Studio
Regarding Platform
Flow
Regarding Platform
Active
View:
Test
Deactivate
Activate
Data
Collapse All
TRIGGER
Operations related Created or Updated where (Issue is Unable to login to platform; Issue is 404 Error; Issue is R...
ACTIONS
Select multiple
1
Update Operations related Record
Add an Action, Flow Logic, or Subflow
ERROR HANDLER
If an error occurs in your flow, the actions you add here will run.
Flow Variables
Trigger - Record Created or Up
Operations related Record
Assigned to group
Class
Comment
Created (sys_created_...
Created (u_created)
Created by (sys_create...
Created by (u_created...
Issue
Status: Published
Application: Global
Search web &...
ENG
IN


Form Design
Properties
Choice type
Dropdown with none
unable to login to platform
404 error
regarding certificates
regarding user expired
Choice 2
Choice 3
Table [sys_db_object]
Annotation
Label
Name
Extends table
Columns
choice
Table Columns Formatter (Formatter)
Controls
Extensible
1 Column
2 Column
Search web &...
ENG
IN
15:54
24-06-2025

Known Issues

- Hardcoded Assignment Mapping
  Assignment groups are mapped based on static category values; dynamic or custom categories may not route correctly.
- Basic Authentication in Scripts
  Current API programs use Basic Auth, which is not secure for production use without HTTPS or token-based auth.
- No Real-Time Chat Integration
  Chat submissions are simulated; real-time integration with Virtual Agent or MS Teams is not yet implemented.

Future Enhancements

- Integrate AI-based Assignment
  Use ServiceNow Predictive Intelligence to auto-assign tickets based on historical patterns and agent performance.
- Switch to OAuth 2.0 Authentication
  Replace Basic Auth in APIs with secure, token-based OAuth for better security in production environments.
- Real-Time Chatbot Integration
  Connect with Virtual Agent, MS Teams, or WhatsApp to allow real-time ticket submission and updates via chat.
- Custom Assignment Rules for Location & Priority
  Enhance assignment logic to include location, impact, and urgency for more accurate ticket routing.
- Add Retry and Logging in API Scripts
  Improve API resilience by adding retry logic, logging failed requests, and sending alerts on failure.