STREAMLINING TICKET ASSIGNMENT FOR EFFICIENT SUPPORT OPERATIONS

INTRODUCTION

Project Title: Rule-Based Ticket Assignment Automation System

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ch.Rajkumar[Team Member]

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'])
```

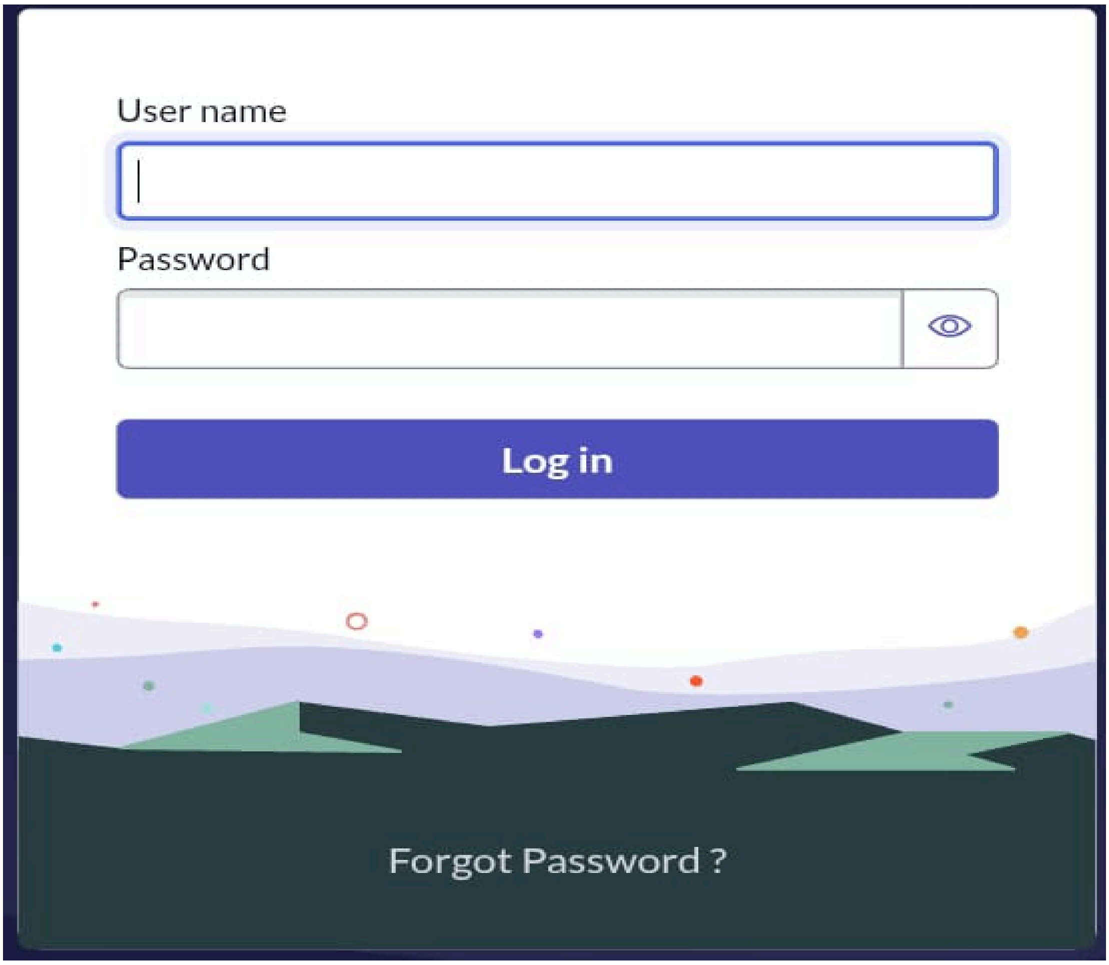
Authentication Flow

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

Testing

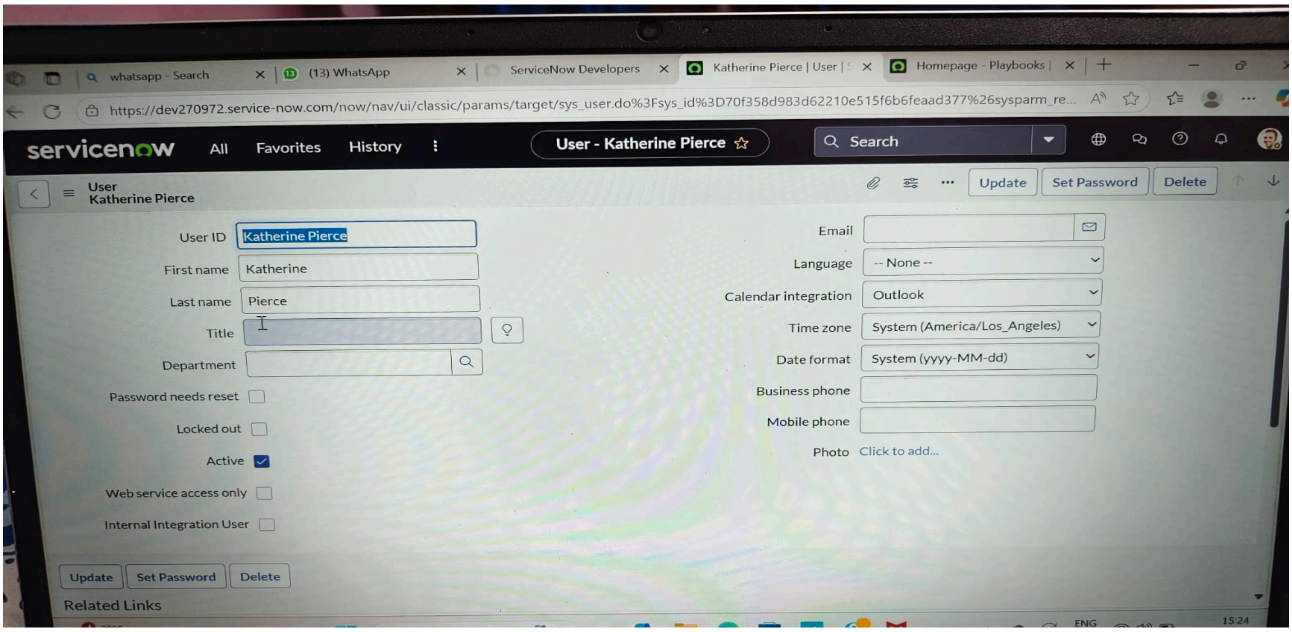
- Tested ticket creation via UI, Python scripts, and Postman (API).
- Checked Client Scripts and UI Policies for field visibility and resets.
- Validated Business Rules and Assignment Rules on record creation.
- Performed negative testing with blank/invalid inputs.
- Ensured secure access using Basic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

Screenshots/Demo



User name

Password



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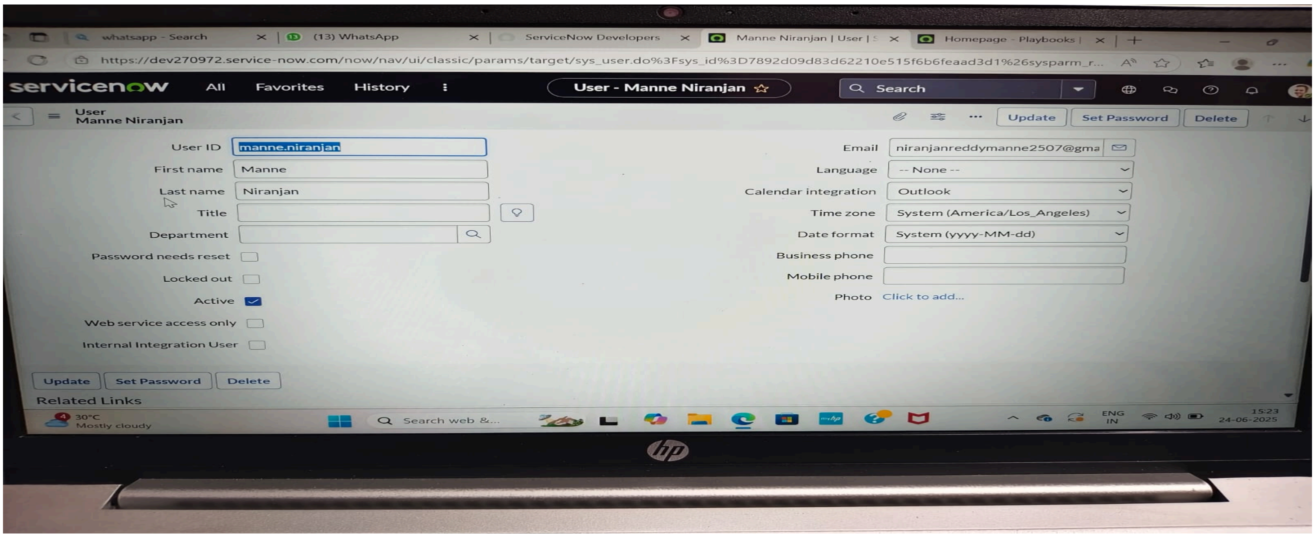
User
Katherine Pierce

User ID	Katherine Pierce	Email	
First name	Katherine	Language	-- None --
Last name	Pierce	Calendar integration	Outlook
Title		Time zone	System (America/Los_Angeles)
Department		Date format	System (yyyy-MM-dd)
Password needs reset	□	Business phone	
Locked out	□	Mobile phone	
Active	☑	Photo	Click to add...
Web service access only	□		
Internal Integration User	□		



whatsapp - Search
(13) WhatsApp
ServiceNow Developers
Manne Niranjan | User | S
Homepage - Playbooks |
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servicenow
All
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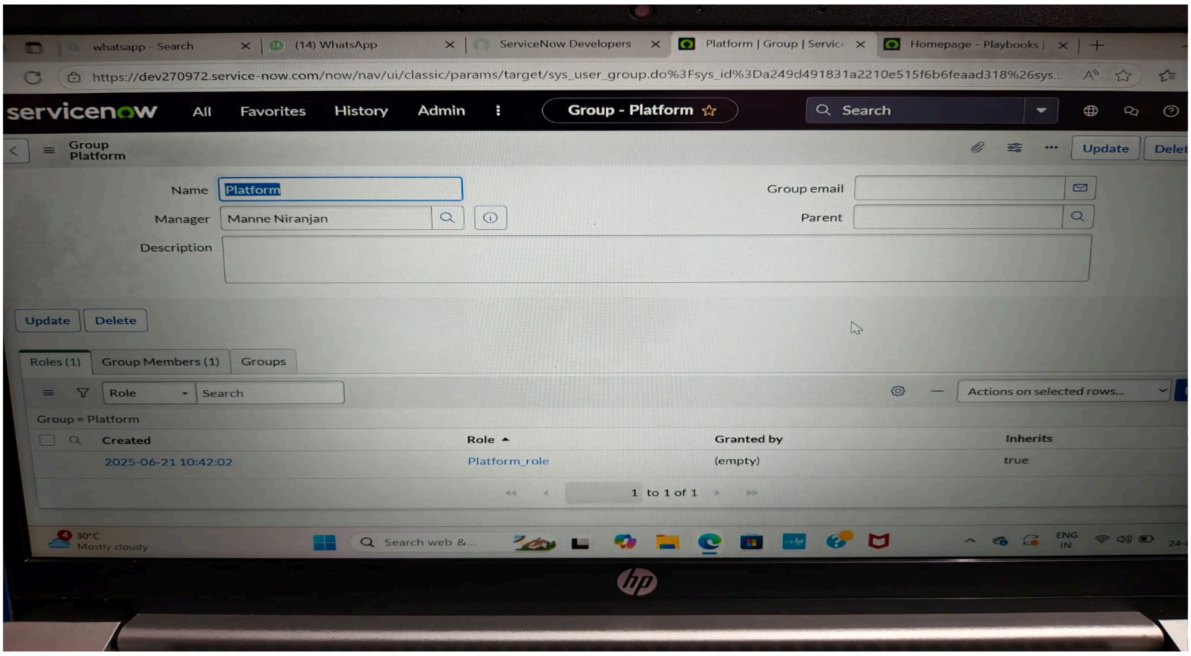
User - Manne Niranjan ☆
Search
Update
Set Password
Delete

User
Manne Niranjan

User ID	manne.niranjan	Email	niranjanreddymanne2507@gma
First name	Manne	Language	-- None --
Last name	Niranjan	Calendar integration	Outlook
Title		Time zone	System (America/Los_Angeles)
Department		Date format	System (yyyy-MM-dd)
Password needs reset	□	Business phone	
Locked out	□	Mobile phone	
Active	☑	Photo	Click to add...
Web service access only	□		
Internal Integration User	□		



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Platform | Group | Servic
Homepage - Playbooks |
https://dev270972.service-now.com/now/nav/ui/classic/params/target/sys_user_group.do%3Fsys_id%3Da249d491831a2210e515f6b6feaad318%26sys...
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Group - Platform ☆
Search
Update
Delet

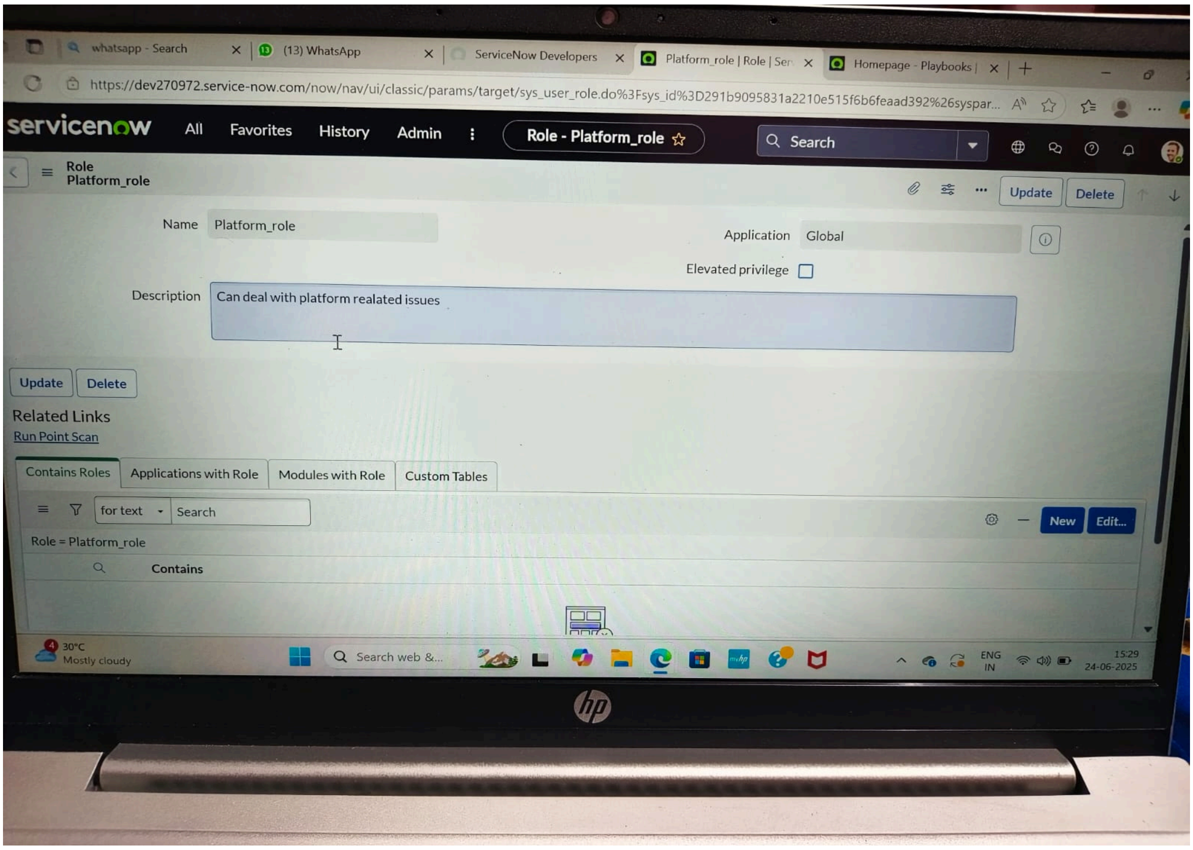
Group
Platform

Name	Platform	Group email	
Manager	Manne Niranjan	Parent	
Description			

Group = Platform

Created	Role ▲	Granted by	Inherits
2025-06-21 10:42:02	Platform_role	(empty)	true

1 to 1 of 1



Role
Platform_role

Name: Platform_role

Application: Global

Elevated privilege ☐

Description: Can deal with platform realated issues

Related Links
Run Point Scan

Contains Roles | Applications with Role | Modules with Role | Custom Tables

Role = Platform_role

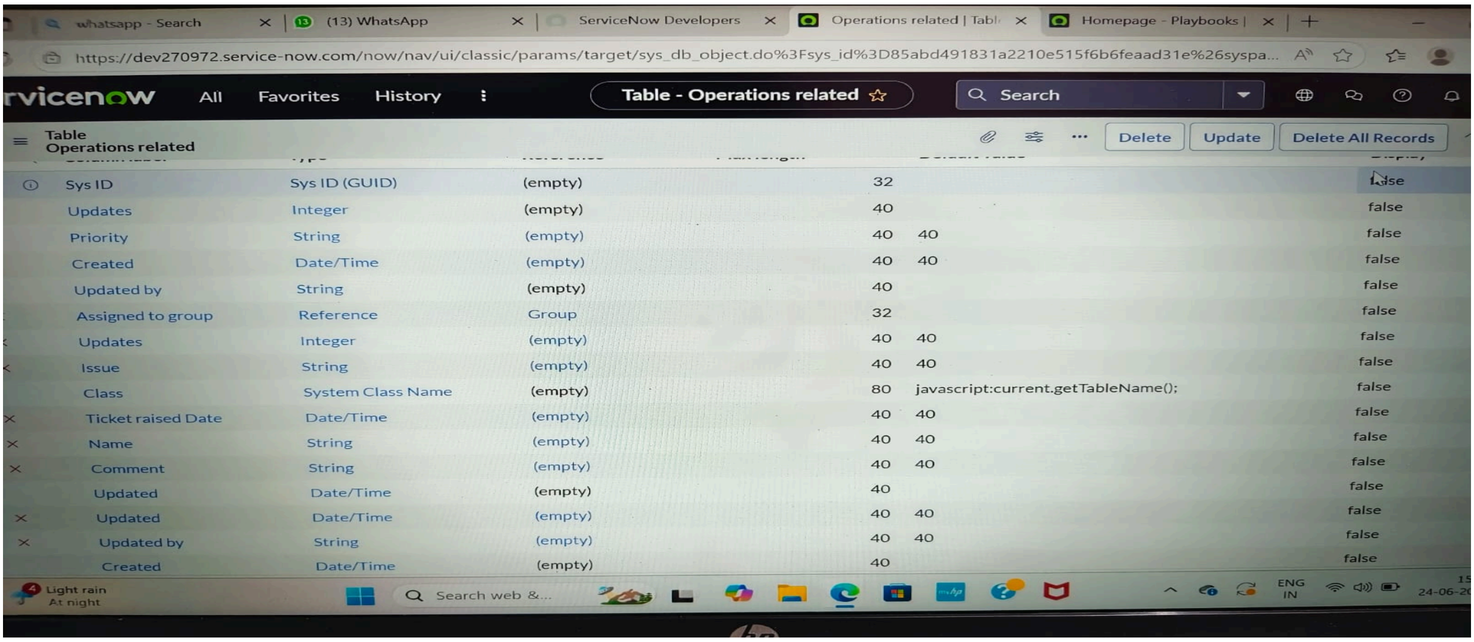


Table
Operations related

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

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ServiceNow Developers
Operations related | Tabl
Homepage - Playbooks |
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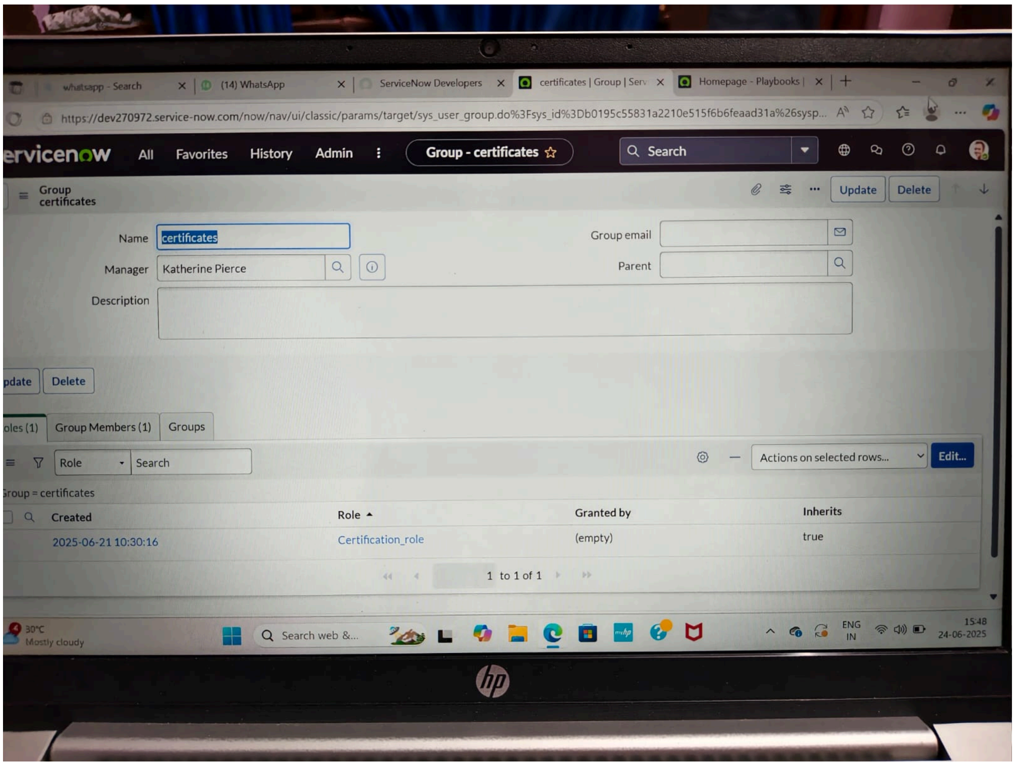

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Group - certificates

Group
certificates

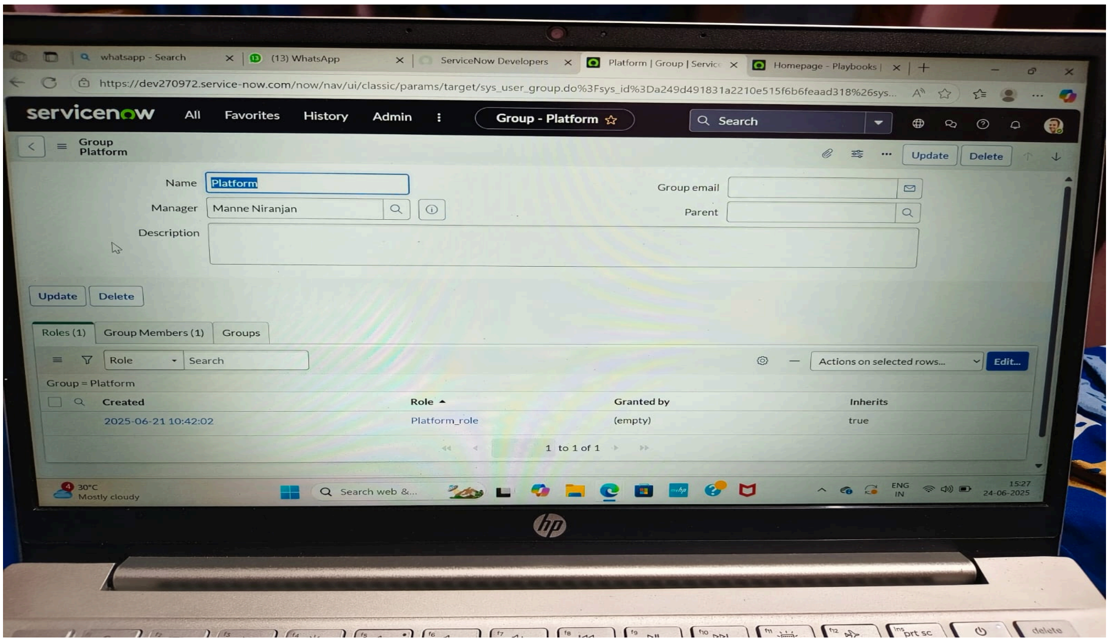
Name	certificates
Manager	Katherine Pierce
Description	
Group email	
Parent	

oles (1) | Group Members (1) | Groups

roup = certificates

Created	Role	Granted by	Inherits
2025-06-21 10:30:16	Certification_role	(empty)	true

1 to 1 of 1



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Group - Platform

Group
Platform

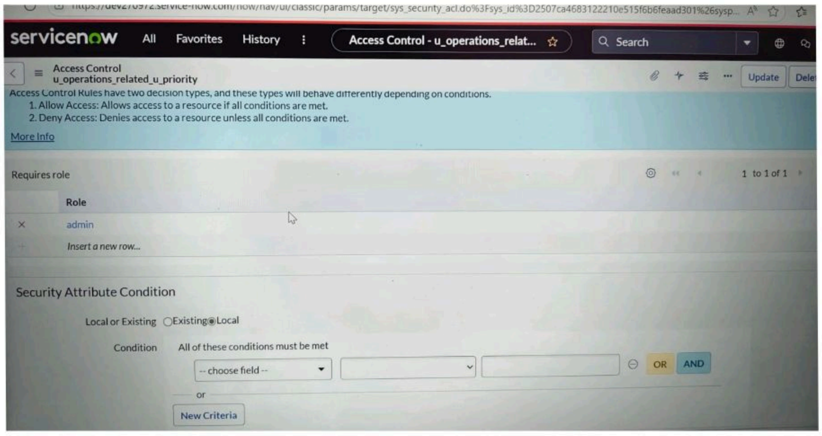
Name	Platform
Manager	Manne Niranjan
Description	
Group email	
Parent	

Roles (1) | Group Members (1) | Groups

Group = Platform

Created	Role	Granted by	Inherits
2025-06-21 10:42:02	Platform_role	(empty)	true

1 to 1 of 1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Access Control
u_operations_related_u_priority

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

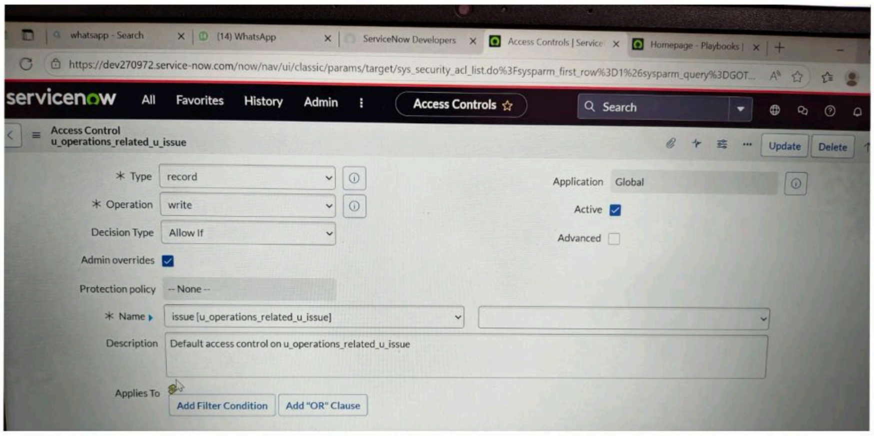
Local or Existing ○Existing ●Local

Condition All of these conditions must be met

-- choose field -- OR AND

or

New Criteria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All
Favorites
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Access Controls
Search
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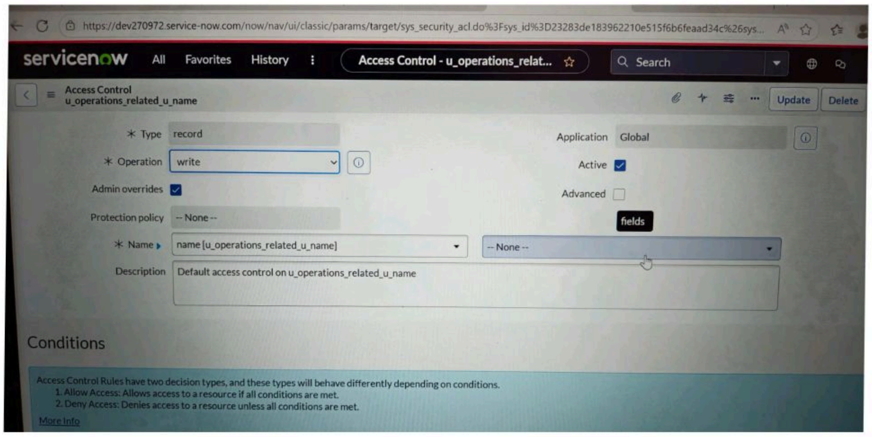
Access Control
u_operations_related_u_issue

* Type	record	Application	Global
* Operation	write	Active	☑
Decision Type	Allow If	Advanced	□
Admin overrides	☑		
Protection policy	-- None --		
* Name	issue [u_operations_related_u_issue]		
Description	Default access control on u_operations_related_u_issue		

Applies To Add Filter Condition Add "OR" Clause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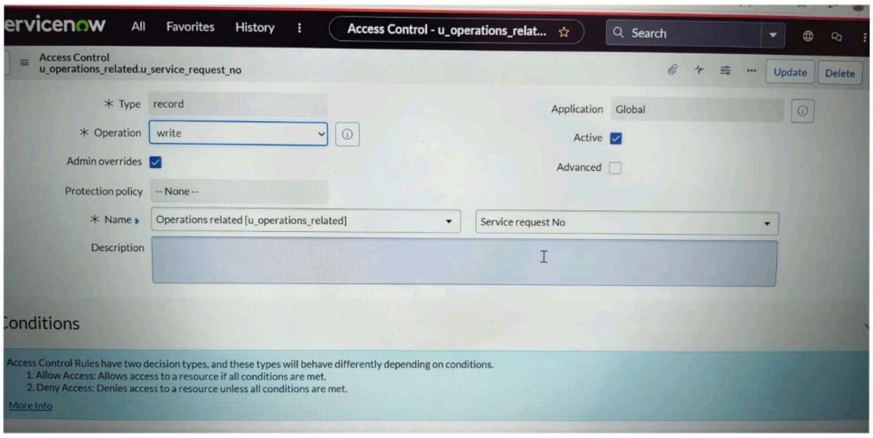
Access Control
u_operations_related_u_name

* Type	record	Application	Global
* Operation	write	Active	☑
Admin overrides	☑	Advanced	□
Protection policy	-- None --		
* Name	name [u_operations_related_u_name]	-- None --	
Description	Default access control on u_operations_related_u_name		

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



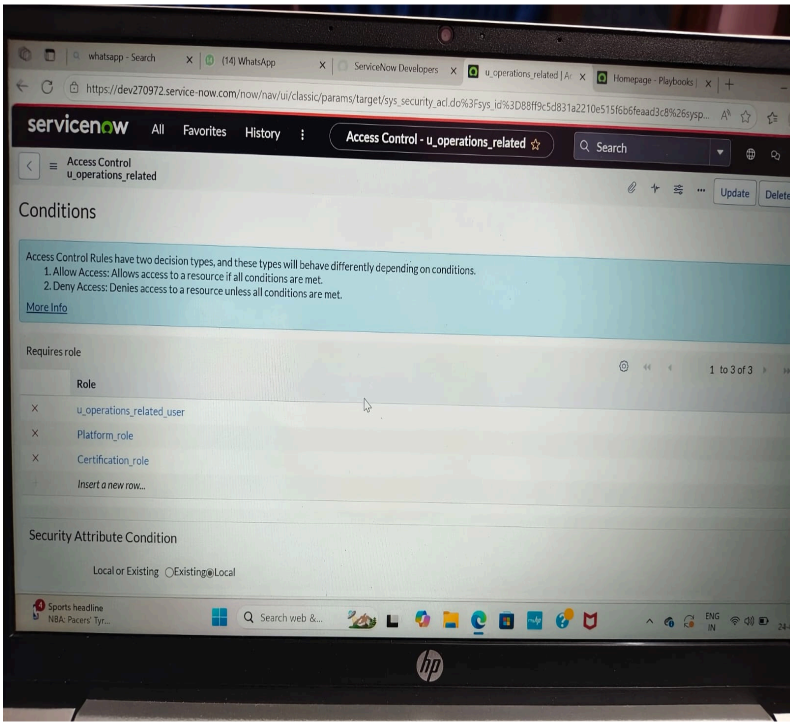
Access Control
u_operations_related.u_service_request_no

* Type	record	Application	Global
* Operation	write	Active	☑
Admin overrides	☑	Advanced	□
Protection policy	-- None --		
* Name	Operations related [u_operations_related]	Service request No	
Description			

onditions

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



Access Control
u_operations_related

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.

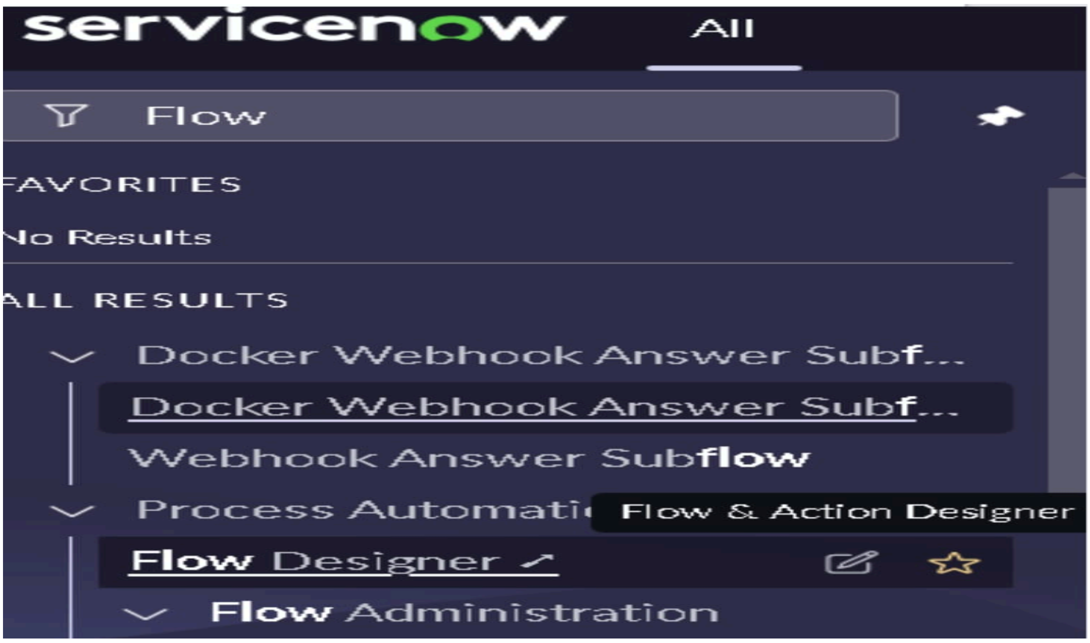
More Info

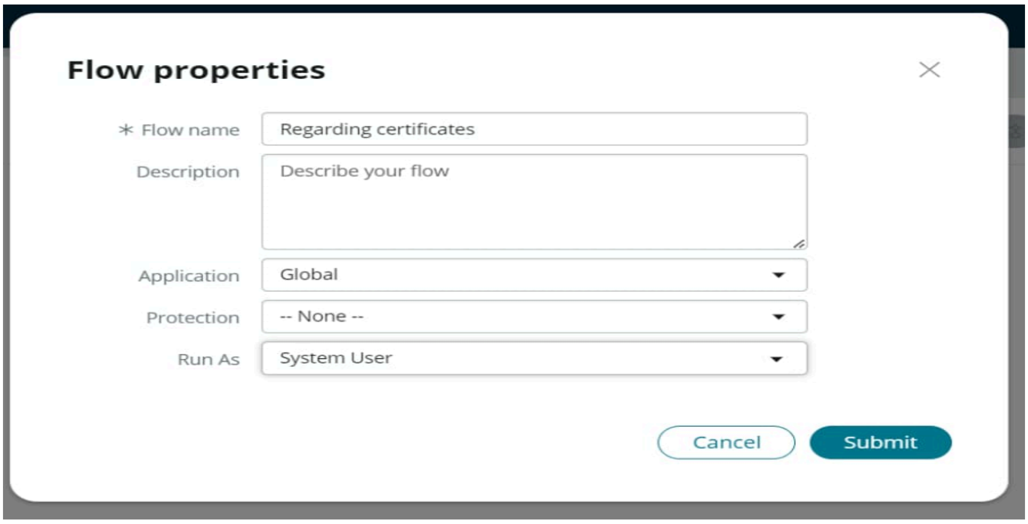
Requires role

	Role
×	u_operations_related_user
×	Platform_role
×	Certification_role
	Insert a new row...

Security Attribute Condition

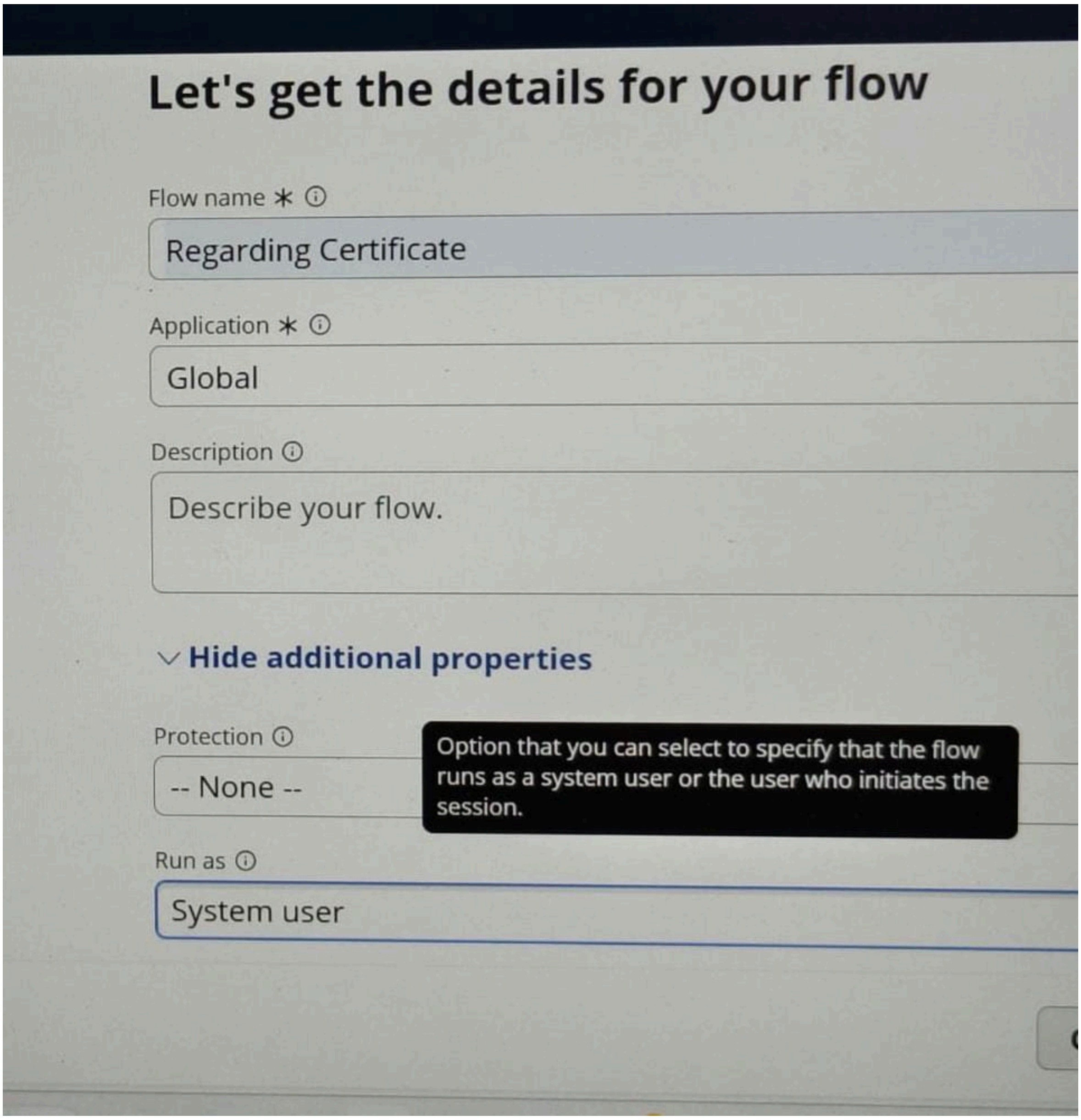
Local or Existing ○Existing ●Local





Flow properties

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

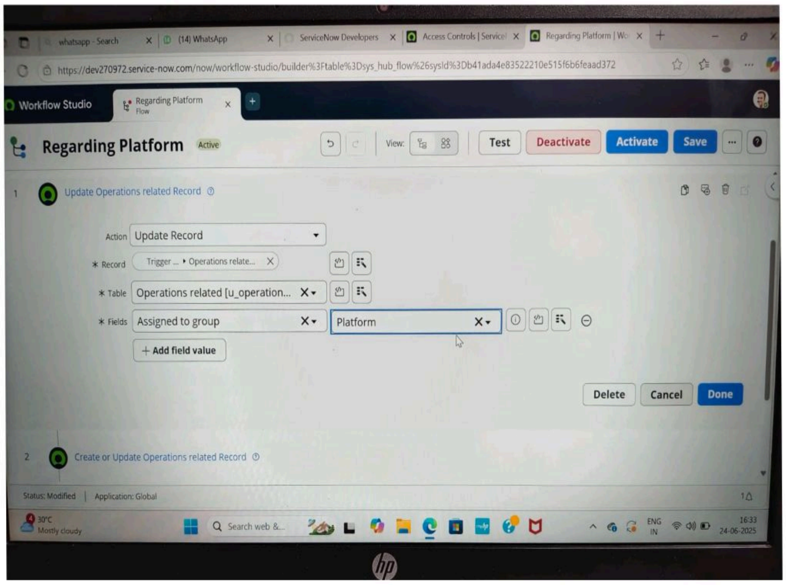


Let's get the details for your flow

Flow name * ⓘ	Regarding Certificate
Application * ⓘ	Global
Description ⓘ	Describe your flow.

Protection ⓘ	-- None --
Run as ⓘ	System user

Option that you can select to specify that the flow runs as a system user or the user who initiates the session.



https://dev270972.service-now.com/now/workflow-studio/builder%3Ftable%3Dsys_hub_flow%26sysId%3Db41ada4e83522210e515f6b6feaad372

Workflow Studio | Regarding Platform Flow

Regarding Platform Active

1 Update Operations related Record

Action: Update Record

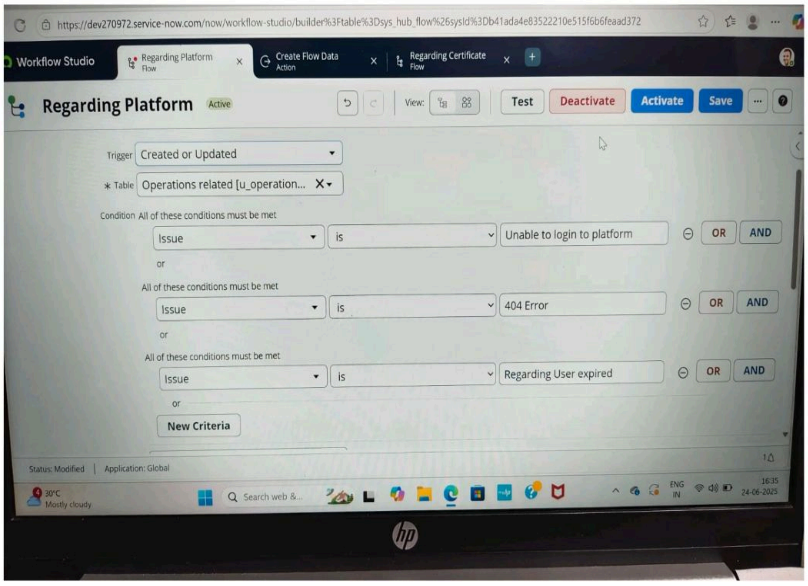
* Record: Trigger ... › Operations relate...

* Table: Operations related [u_operation...

* Fields: Assigned to group — Platform

2 Create or Update Operations related Record

Status: Modified | Application: Global



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

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

All of these conditions must be met

Issue is 404 Error

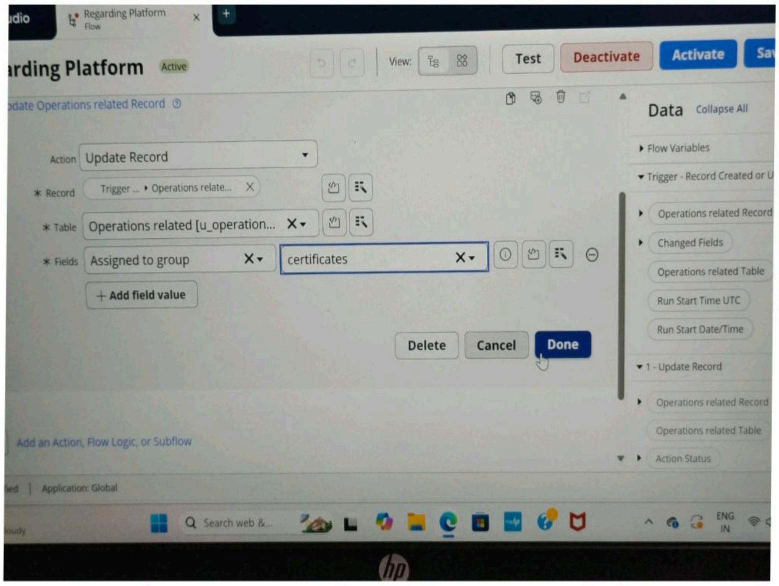
or

All of these conditions must be met

Issue is Regarding User expired

or

Status: Modified | Application: Global



Regarding Platform Flow

rding Platform Active

pdate Operations related Record

Action: Update Record

* Record: Trigger ... › Operations relate...

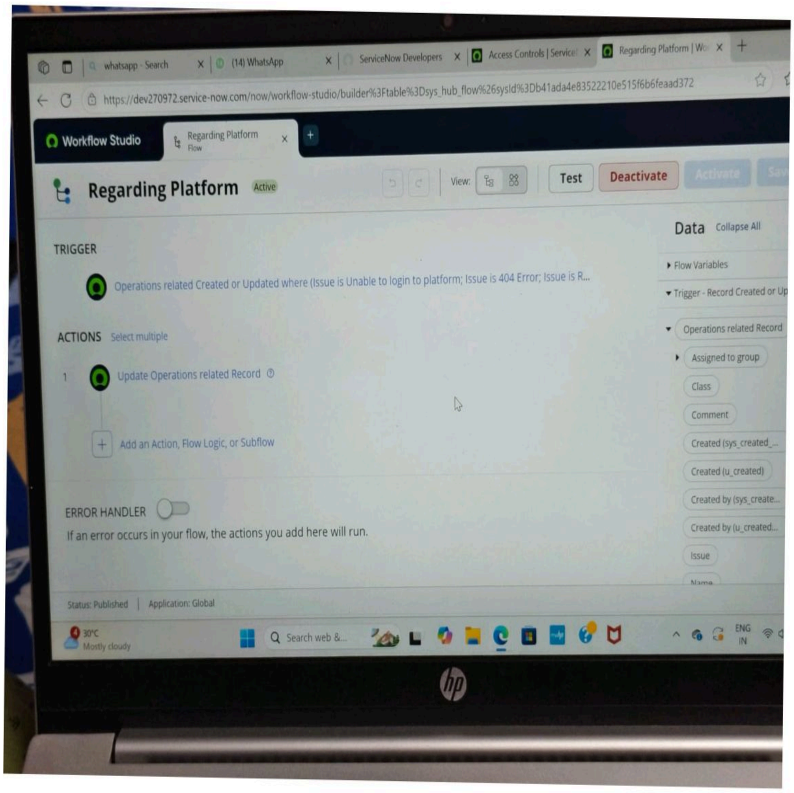
* Table: Operations related [u_operation...

* Fields: Assigned to group — certificates

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

Application: Global



https://dev270972.service-now.com/now/workflow-studio/builder%3Ftable%3Dsys_hub_flow%26sysId%3Db41ada4e83522210e515f6b6feaad372

Workflow Studio

Regarding Platform
Flow

Regarding Platform Active

TRIGGER

Operations related Created or Updated where (Issue is Unable to login to platform; Issue is 404 Error; Issue is R...

ACTIONS Select multiple

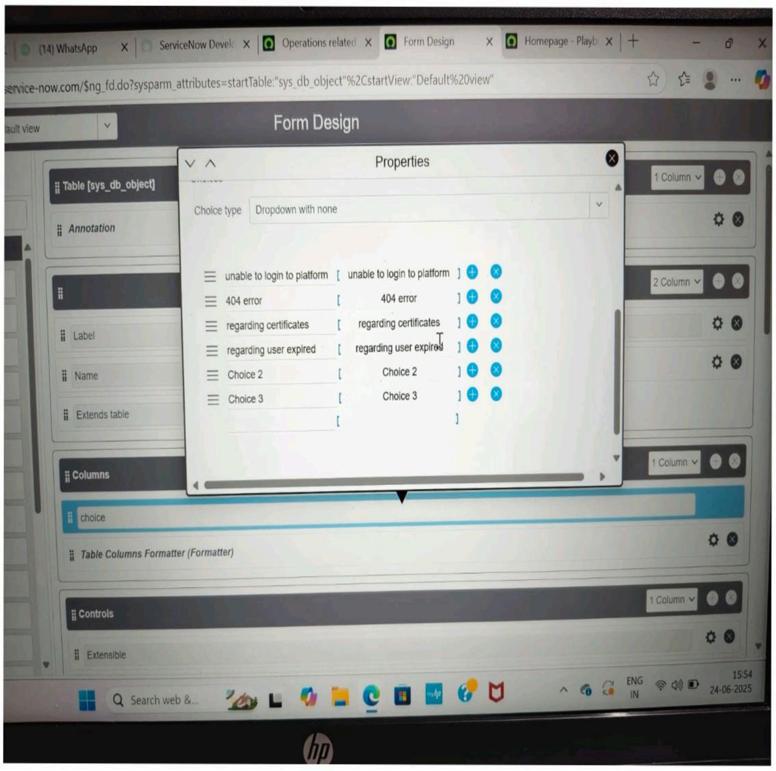
1 Update Operations related Record

Add an Action, Flow Logic, or Subflow

ERROR HANDLER

If an error occurs in your flow, the actions you add here will run.

Status: Published | Application: Global



ervice-now.com/$ng_fd.do?sysparm_attributes=startTable:"sys_db_object"%2CstartView:"Default%20view"

Form Design

Properties

Choice type: Dropdown with none

unable to login to platform	[unable to login to platform]
404 error	[404 error]
regarding certificates	[regarding certificates]
regarding user expired	[regarding user expired]
Choice 2	[Choice 2]
Choice 3	[Choice 3]

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.