# Compliance Automation

## Multichannel Video Streaming & Satellite Service Provider

Created an automation tool to certify & revoke user accesses across financial systems and applications

# Automation of User Access Certification Process for Audit and Compliance

## Situation

- Client has 20+ applications that have financial reporting implications. However, they did not have any existing process in place to certify and revoke user access across these applications, which is a critical requirement for annual SOX audits.
- Merilytics partnered with the client to develop an end-to-end automated process to extract user accesses from all applications, certify them from respective supervisors, and revoke inappropriate accesses wherever applicable

## Accordion Value Add

- Deployed a Python & UiPath based data extraction process to download user access list from Oracle RDS, dashboards' reports, emails, and SFTP server
- Automated the aggregation and rationalization of roles and access levels for 5,000+ users across 20 financial applications
- Enabled emailed-based trigger using Power Automate for timely follow-ups with non-compliant supervisors and administrators
- Generated division-level compliance summary automatically using MS Graph API for the audit team to escalate non-compliance events in a timely manner
- Streamlined and standardized user access certification and revocation process across 20 financial applications

## Impact

- Saved ~20 FTE days worth of manual effort (90% reduction) on quarterly basis to certify 5,000+ user accesses across 20 applications from 400+ supervisors
- Improved supervisor's response rate by streamlining and integrating response-easing automation over output emails
- Streamlined the process and reduced manual efforts quarterly required to log information as evidence for annual SOX audits

# Methodology / Approach

**1 — User Access Data Extraction**
- Automatic process to extract user access roles and user details from various source application
- Aggregation & rationalization of user access roles for certification

*Power Automate*

RPA tools (Power Automate & UI Path) and Python

**2 — User Access Certification**
- Automated emails to supervisors with list of user access for certifications
- Extraction process to download & aggregate supervisor responses from email
- Identification of in-appropriate user accesses across all applications based on certification response
- Identification of pending user access certifications

MS Graph API and Python

Graph API

**3 — User Access Revocation & Tracking**
- Automated emails to application administrators with inappropriate user access list for revocation
- Revocation Tracking process
- Identification of pending revocations and requesting administrators to take necessary actions

*Power Automate*

RPA tools (Power Automate & UI Path), MS Graph API and Python

Graph API

**4 — Process Summarization**
- Identification of pending user access revocations
- Summarization of the process in excel for audit team with pending/completed certifications and revocations

MS Graph API and Python

Graph API

# Access Validation & Revocation Flow

**Stage 1 : Data Extraction**

**Stage 2 : Segregation & Email Sharing**
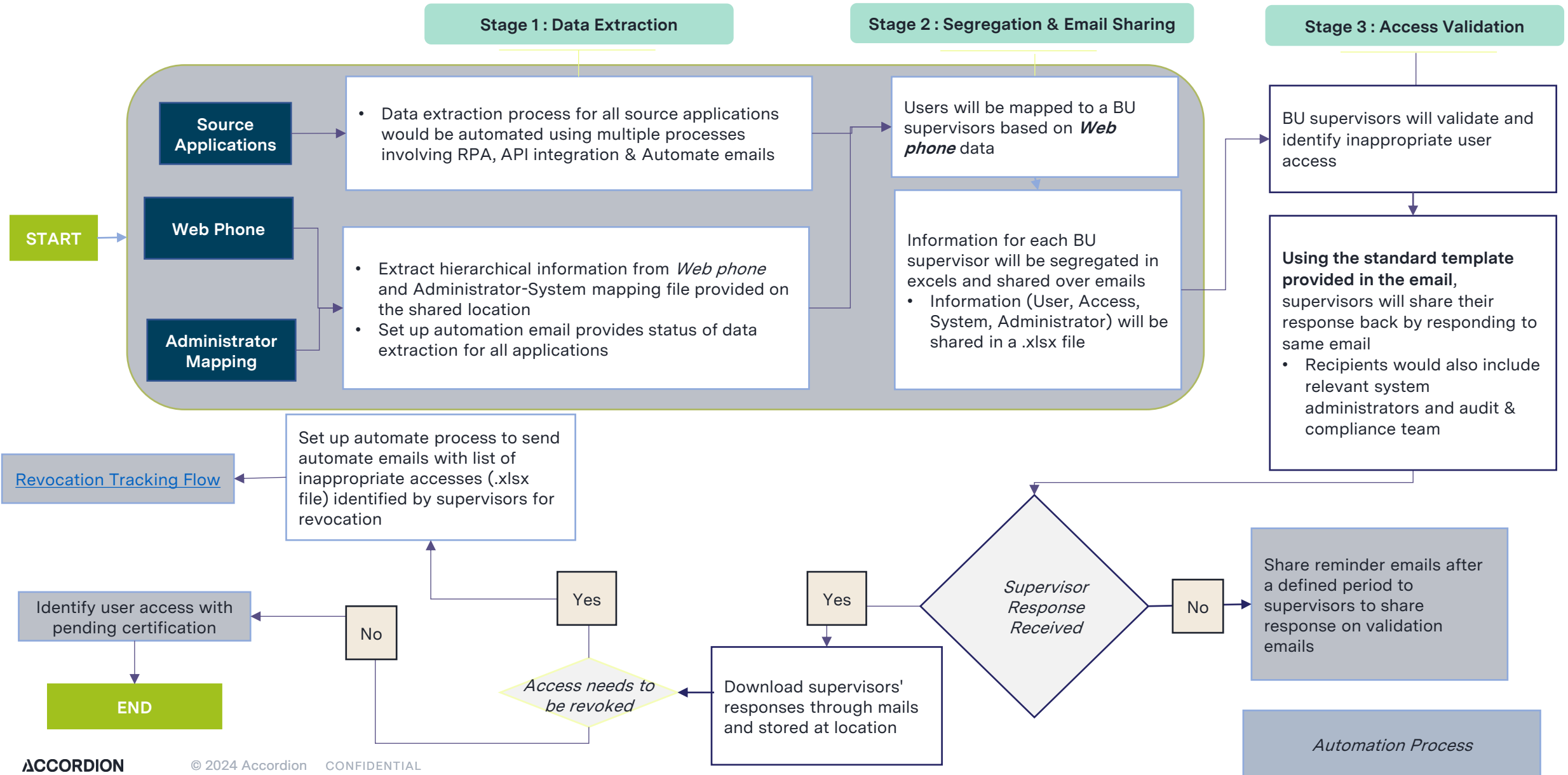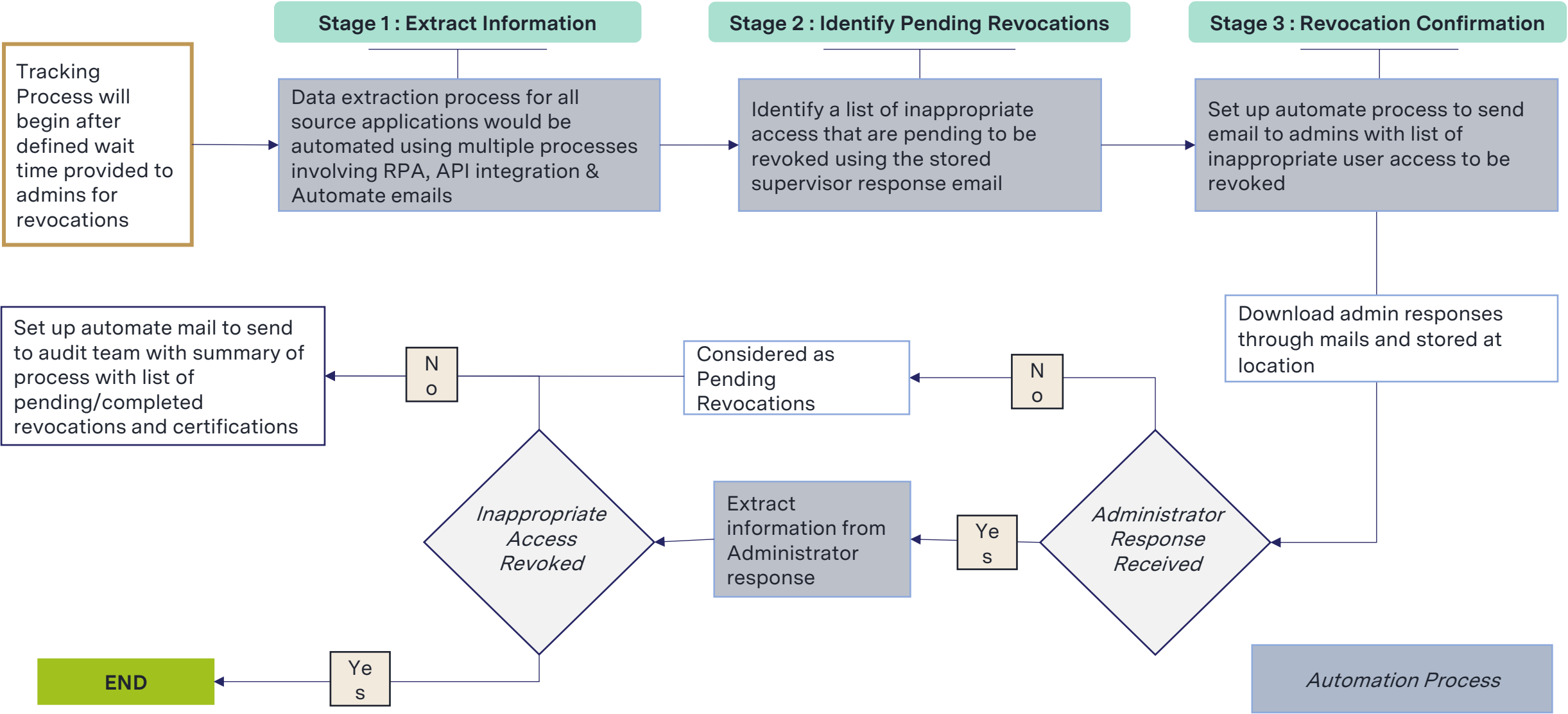
**Stage 3 : Access Validation**

**START**

**Source Applications**

- Data extraction process for all source applications would be automated using multiple processes involving RPA, API integration & Automate emails

**Web Phone**

**Administrator Mapping**

- Extract hierarchical information from *Web phone* and Administrator-System mapping file provided on the shared location
- Set up automation email provides status of data extraction for all applications

Users will be mapped to a BU supervisors based on **Web phone** data

Information for each BU supervisor will be segregated in excels and shared over emails
- Information (User, Access, System, Administrator) will be shared in a .xlsx file

BU supervisors will validate and identify inappropriate user access

**Using the standard template provided in the email**, supervisors will share their response back by responding to same email
- Recipients would also include relevant system administrators and audit & compliance team

[Revocation Tracking Flow](#)

Set up automate process to send automate emails with list of inappropriate accesses (.xlsx file) identified by supervisors for revocation

Identify user access with pending certification

**END**

No

Yes

*Access needs to be revoked*

Download supervisors' responses through mails and stored at location

Yes

*Supervisor Response Received*

No

Share reminder emails after a defined period to supervisors to share response on validation emails

*Automation Process*

# Revocation Tracking Process



**Stage 1 : Extract Information**

**Stage 2 : Identify Pending Revocations**

**Stage 3 : Revocation Confirmation**

Tracking Process will begin after defined wait time provided to admins for revocations

Data extraction process for all source applications would be automated using multiple processes involving RPA, API integration & Automate emails

Identify a list of inappropriate access that are pending to be revoked using the stored supervisor response email

Set up automate process to send email to admins with list of inappropriate user access to be revoked

Set up automate mail to send to audit team with summary of process with list of pending/completed revocations and certifications

No

Considered as Pending Revocations

No

Download admin responses through mails and stored at location

Inappropriate Access Revoked

Extract information from Administrator response
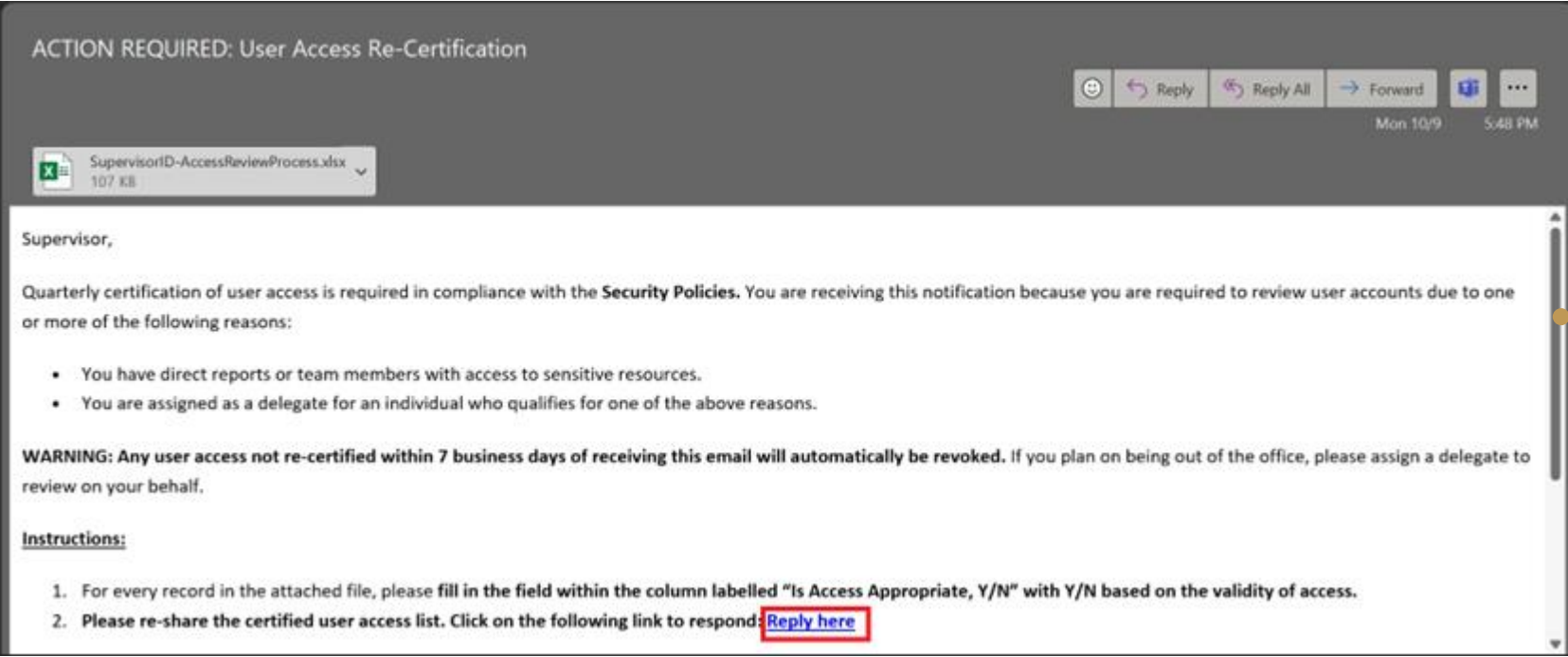
Yes

Administrator Response Received

Yes

END

*Automation Process*

# Recertification Email and Report

**Email Received by Supervisors:**
"*Reply here*" link is used by the supervisors to send in the recertified data

**Recertification File:**
Supervisors need to select *"Y or N"* from the dropdown present in *"Is Access Appropriate, Y/N"*

# Summary Email and Report

Summary of 2023 Q2 Quarterly User Access and Role Audit

Reply    Reply All    Forward

Mon 10/9    5:12 PM

Quarterly_Audit_Summary.xlsx
1 MB

Quarterly_Application_Summary.xlsx
98 KB

Audit team,

At the conclusion of the **User Access and Role Revalidations** audit process, the following table gives a summary of the Applications and the user access review status for these Applications. Summary Table Columns Description:

- **Application:** The Application Name
- **Total Users:** Count of total users in the System eg. 100
- **Total Completed Certifications:** Total certifications completed by the user's Supervisors eg. 90
- **Total Inappropriate Accesses:** Total inappropriate access certified by Supervisors eg. 40
- **Total Completed Revocations:** Total inappropriate access revoked by Application Administrators eg. 30
- **Total Pending Revocations:** Total pending inappropriate accesses to be revoked eg. 10

| Application | Total Users | Total Completed Certifications | Total Pending Certifications | Total Inappropriate Accesses | Total Completed Revocations | Total Pending Revocations |
|---|---|---|---|---|---|---|
| App1 | 2 | 2 | 0 | 0 | 0 | 0 |
| App2 | 37 | 37 | 0 | 4 | 4 | 0 |

**Email Received by Audit Team:**
The email contains the user access count for all applications and the summary report file sent at the end of the automation process.

**Summary Report:**
The Excel file contains the consolidated list of the certifications and revocations processed during the quarterly audit process.

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Application | User ID | User First Name | User Last Name | Role Name | Supervisor ID | Supervisor First Name | Supervisor Last Name | Supervisor Mail ID | Is access appropriate, Y/N | |
| 2 | App1 | User01 | User | One | Access to App | Sup001 | Supervisor | One | supervisor01@abc.com | Y | |
| 3 | App1 | User02 | User | Two | Elevated Access to App | Sup002 | Supervisor | Two | supervisor02@abc.com | N | |
| 4 | App2 | User02 | User | Two | Elevated Access to App | Sup002 | Supervisor | Two | supervisor02@abc.com | Y | |

Description-Certifications    Total_Certifications_Completed    Pending_Certifications    Description-Revo...

# Learnings

- Extraction and Transformation of data from Oracle RDS, SFTP Servers and UI of Applications

- Leverage of MS Graph API to access Microsoft services i.e., MS Outlook without access to Microsoft account

- Unattended process execution with AWS VM

- Event based trigger of UiPath process using automated email through Power Automate