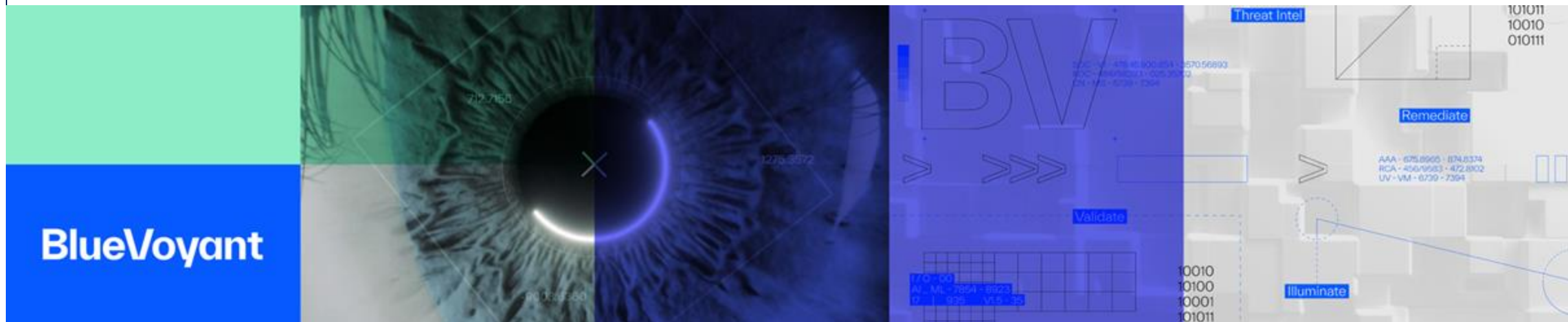




# Automate IT with Okta Workflows

PSU MacAdmins 2023



# About Us

## Evan Byrnes


IT Director, BlueVoyant

 byrnese on MacAdmins

 evanbyrnes-pit

## Ventura Torres

Systems Engineer, BlueVoyant

 VenturaT on MacAdmins

BlueVoyant

# Platform



Managed  
Detection &  
Response



Supply Chain  
Defense



Digital Risk  
Protection



Professional  
Services

Second Consecutive Year as Microsoft's US Security Partner of the Year

# What is Okta Workflows?

It is an Okta-provided service that is an interface-driven platform for the automation of business processes using a library of integrated third-party applications and functions.

Comparable to Microsoft PowerAutomate

Cost for uses can vary and can be found here: <https://www.okta.com/pricing>

## Workflows

<b>Starter</b> Up to 5 flows at no cost for Okta customers <small>*Service protection limits apply</small>		
<b>Light</b> Starting at <b>\$4</b> <small>per user per month up to 50 flows</small>	<b>Medium</b> Starting at <b>\$5</b> <small>per user per month up to 150 flows</small>	<b>Unlimited</b> Starting at <b>\$6</b> <small>per user per month unlimited flows</small>
<a href="#">Contact Us</a>	<a href="#">Contact Us</a>	<a href="#">Contact Us</a>

# Why Okta Workflows?

- Okta Workflows makes it easy to automate identity processes at scale – without writing code. Use if-this-then-that logic, Okta's pre-built connector library, and the ability to connect to any publicly available API to enable anyone to innovate with Okta.
- If Okta is your source of truth, it also helps to have all your points of provisioning and deprovisioning managed by the same system (when possible).



# When to use Okta Workflows?

Recommendations and best practices, ie if you can use Okta's provisioning and de-provisioning functions use those don't reinvent the wheel

- **Customize Employee or Partner User Lifecycle:** Manage complex group memberships during onboarding or moves
- **Simplify IT Tasks:** Identify inactive users and take action on their accounts, or generate audits and reports on a schedule basis
- **Improve Security Posture:** Take action on suspicious activity, lock a user's device upon offboarding, or configure flows to prevent account takeovers
- **Automate Time-Sensitive Use Cases:** Leverage Workflows low latency mode to power inline hooks during authentication, or automate tasks such as token enrichment or SAML assertion
- **Send Automated Communications + Alerts:** Send ad hoc or scheduled notifications through preferred communication channels

# Okta Workflows Requirements

- Access within Okta as well as accompanying systems
  - Admin Access within Okta
  - Access to Okta Workflows in addition to Okta Admin Access
  - API Permissions for systems to integrate
- Web-based so any OS can be used
- Dev Environments can be used for testing
  - Supports Exporting and Importing Workflows between environments

# Okta Workflow Limitations

- Web app limits functionality

  - Network Outages

  - Okta Outages

- No Scripts

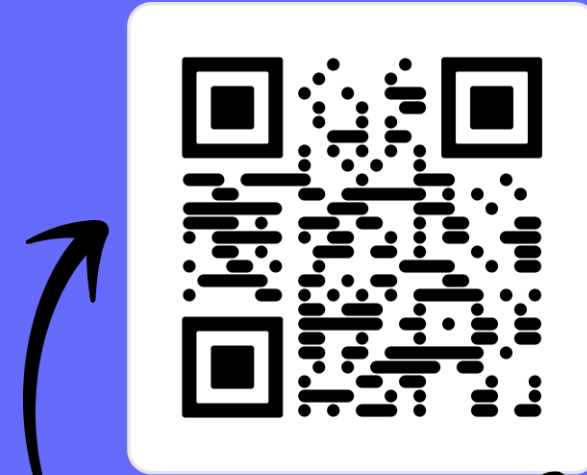
  - No console

  - No language support

  - No direct ability to execute a script\*

# Getting Started

- **Make a plan**
- **Check out templates at**  
<https://github.com/okta/workflows-templates>
- **Expect that plan will change**
- **Ensure it can be tested safely**
- **Ensure it can be tested safely**
- **Seriously...ensure it can be tested safely**
- **Use service accounts**



*SCAN ME*

**To view Okta  
Workflow  
Templates on  
GitHub**

# Getting Started - Things We Like

## Try Postman

**Give you direct test to ensure your API commands work and your account has appropriate access, ruling out any potential issues with Okta Workflows**

## Communication

**Alert your team that you've prepared an Okta Workflow and how it works. You don't want to create automation to replace manual tasks, and then have your team still complete them manual**

## Documentation

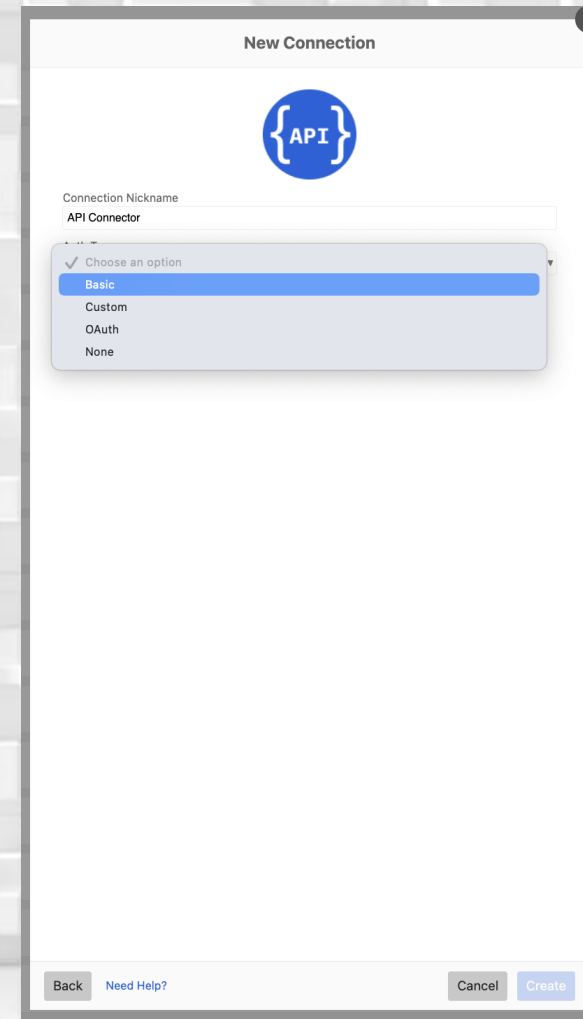
**We use Slack and Confluence. Slack for notifications and quick updates. Confluence to define the specifics, including a timeline of our scheduled tasks**

# Using native app connections

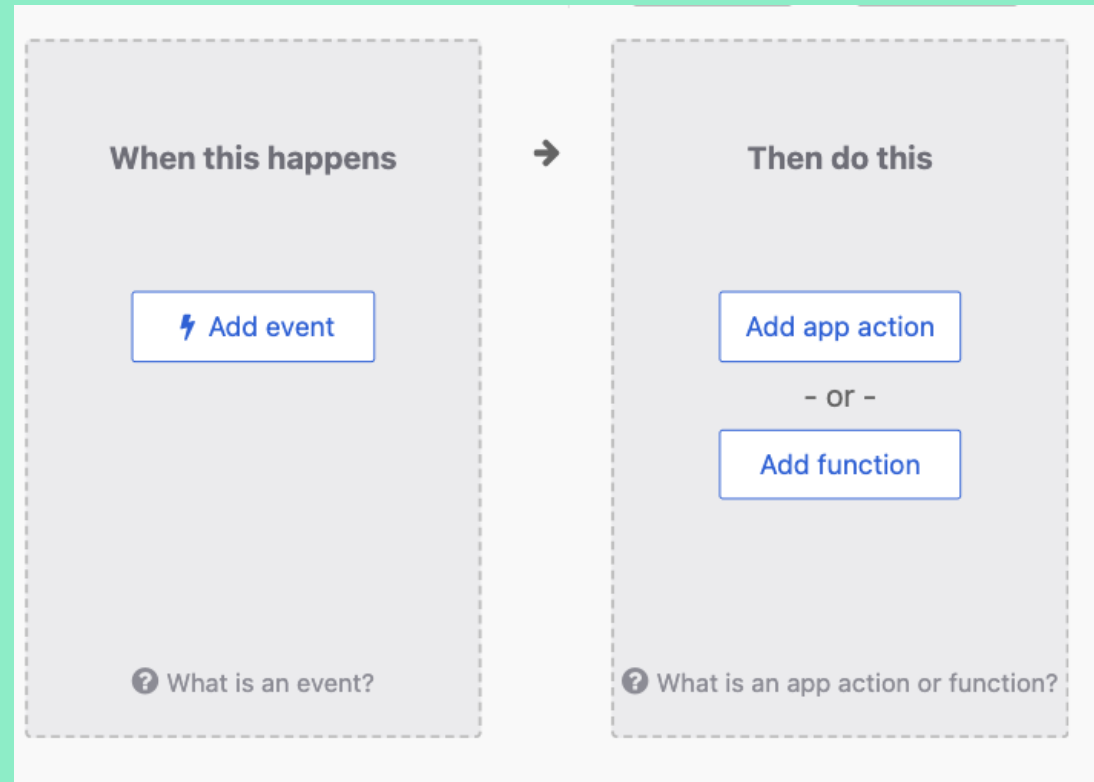
- **Currently 60 plus native Connections**
- **Each app varies in authentication but most offer guided setup**
- **More apps are added on a regular basis**
- **Okta Support will assist with configuring all native app connections**

# Using custom API connections

- None native apps can be connected via API
- Authentication Methods
  - Basic
    - Username and Password
  - Custom
    - Header Name and Header Value
  - OAuth
    - Authorize Path, Access Token Path, Scope, Client ID, Client Secret
  - None
    - Can be passed in the headers as part of an API Call



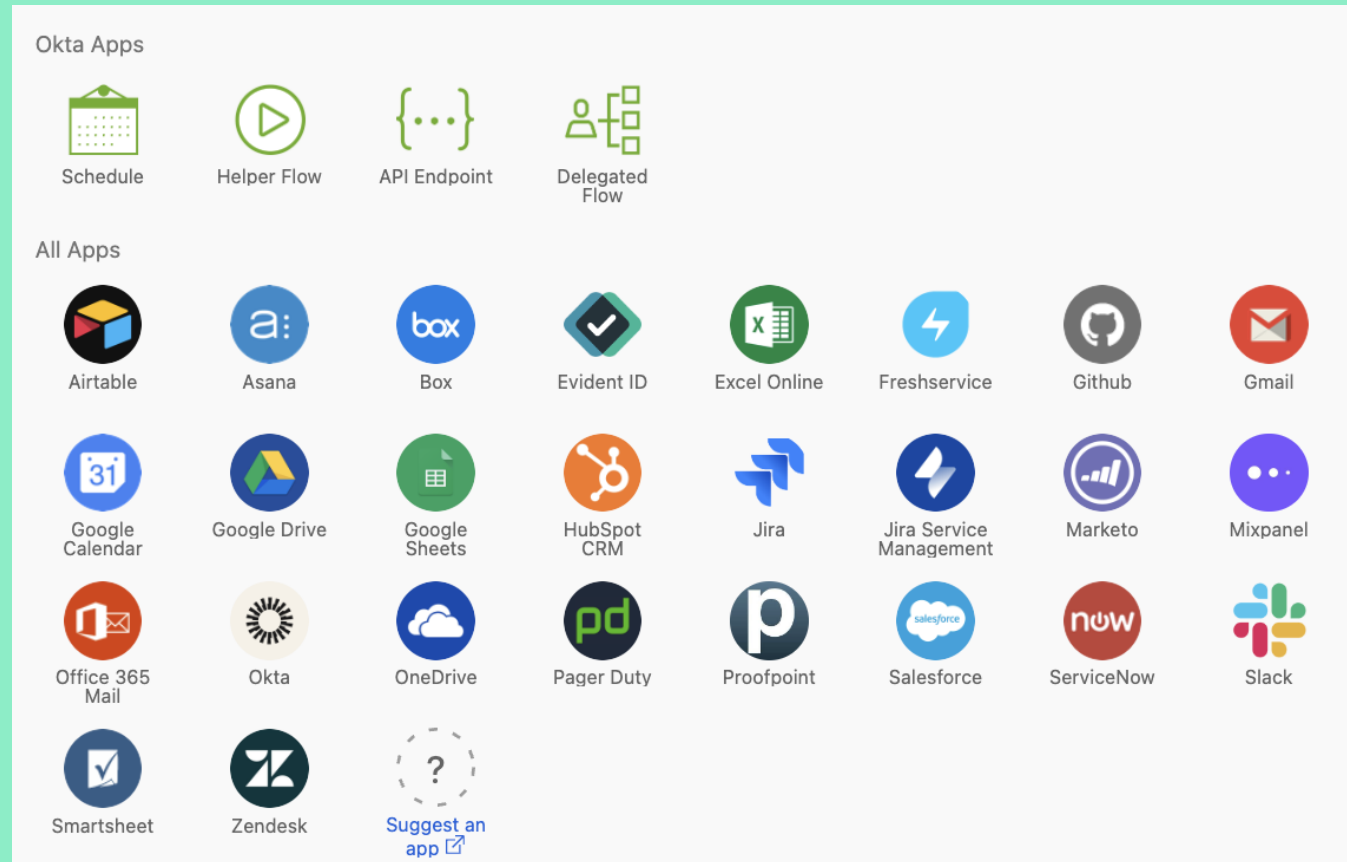
# Interface Overview



Events, App Actions, and Functions

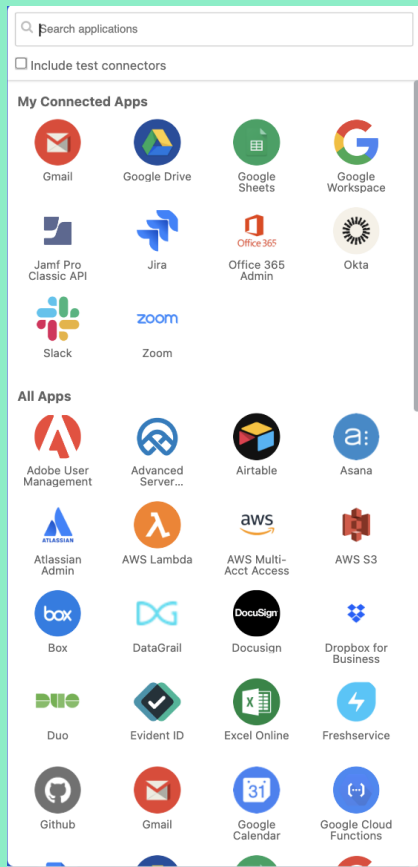


# Interface Overview

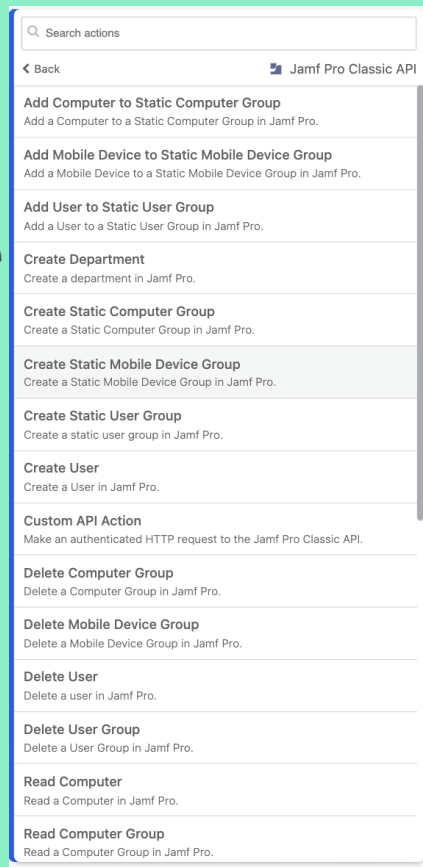


Action

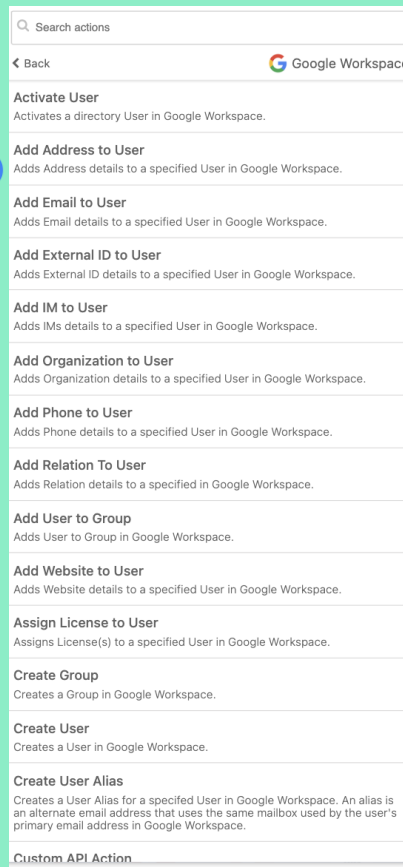
# Interface Overview



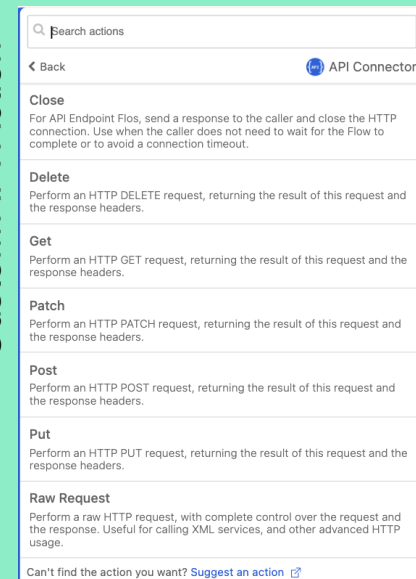
jamf



Google



Custom API Action



App Action

# Interface Overview

Search

Most Popular

Logic

Branching

Error Handling

Flow Control

Manipulation

Text

Number

True/False

Date & Time

Object

File

List

Elements

Flows

Folders

Tables

Advanced

API Connector (HTTP)

JSON

XML

URL

Encryption

JWT

Most Popular

Compose

Continue If

If/Else

Call Flow

Assign

Return

Assign If

For Each

At

Text

Branching

Branching

Flow Control

Flow Control

Flow Control

Branching

List

List

Text

At

Base64

Base64 Decode

Compose

Concatenate

Find

Return the single character at a specified position in a text, where 0 is the first position.

Return the base64 encoding of a text string.

Return the base64 decoding of a text string.

Enter free form text and optionally drag fields into your text like a mail merge.

Combine a list of text into a single text.

Search text for the first match. Returns the position, where 0 is the first position and -1 if not found.

Branching

Assign If

Continue If

If/Else

If/ElseIf

Lookup

Choose a value based on a true/false condition.

Stop the Flow if a condition isn't true.

Specify different actions to run based on whether or not a single condition is true.

Specify different actions to run based on multiple if and else conditions (similar to switch or case in some programming languages)

Convert one value to another using a lookup table

Date & Time

Add

Convert

Date to Text

Difference

Epoch

ISO

Add a multiple of some unit of time (e.g. seconds) to a starting date & time.

Convert a date & time to a variety of formats.

Format a date & time using a specified format (e.g. MM/DD/YYYY) and timezone.

Calculate the difference between two dates & times.

Generate the UNIX Epoch format for a date & time.

Generate the ISO 8601 format for a date & time.

JSON

Parse

Stringify

Parse a JSON string into an object or list.

Convert a JSON object to a string (text).

Encryption

AES

Decrypt

Encrypt

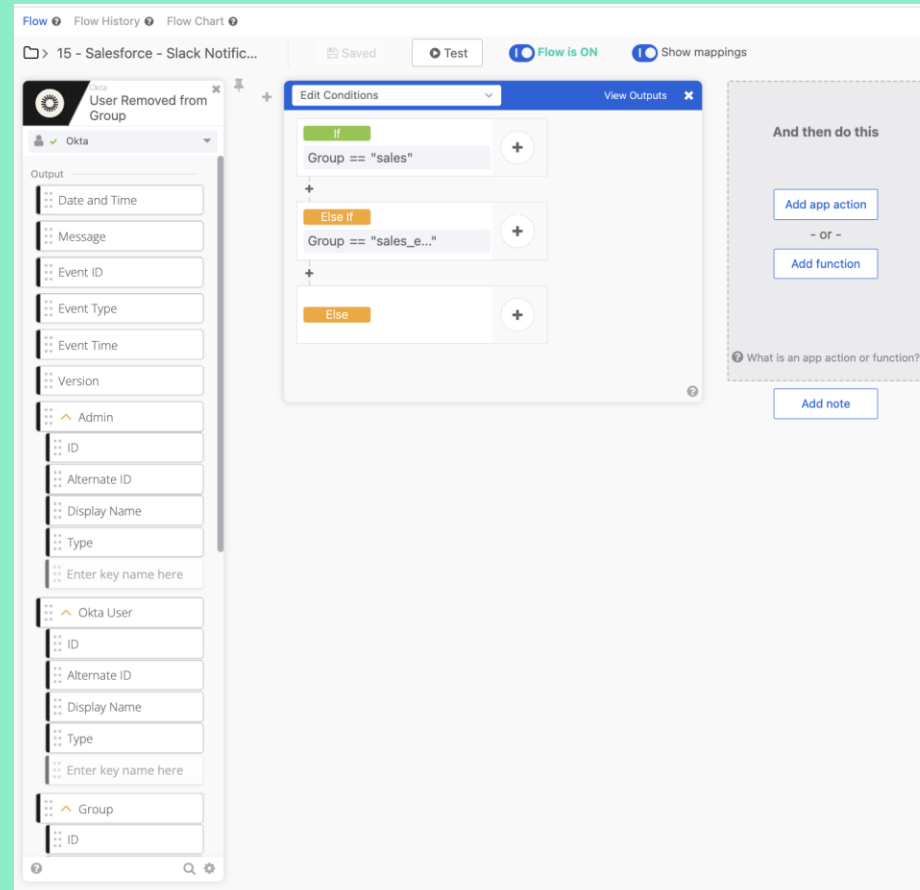
AES-encrypt text. Accepts any AES-based algorithm specified by OpenSSL.

Decrypt a base64 encoding using a specified cipher-based OpenSSL algorithm.

Encrypt text and return a base64 encoding using a specified cipher-based OpenSSL algorithm.

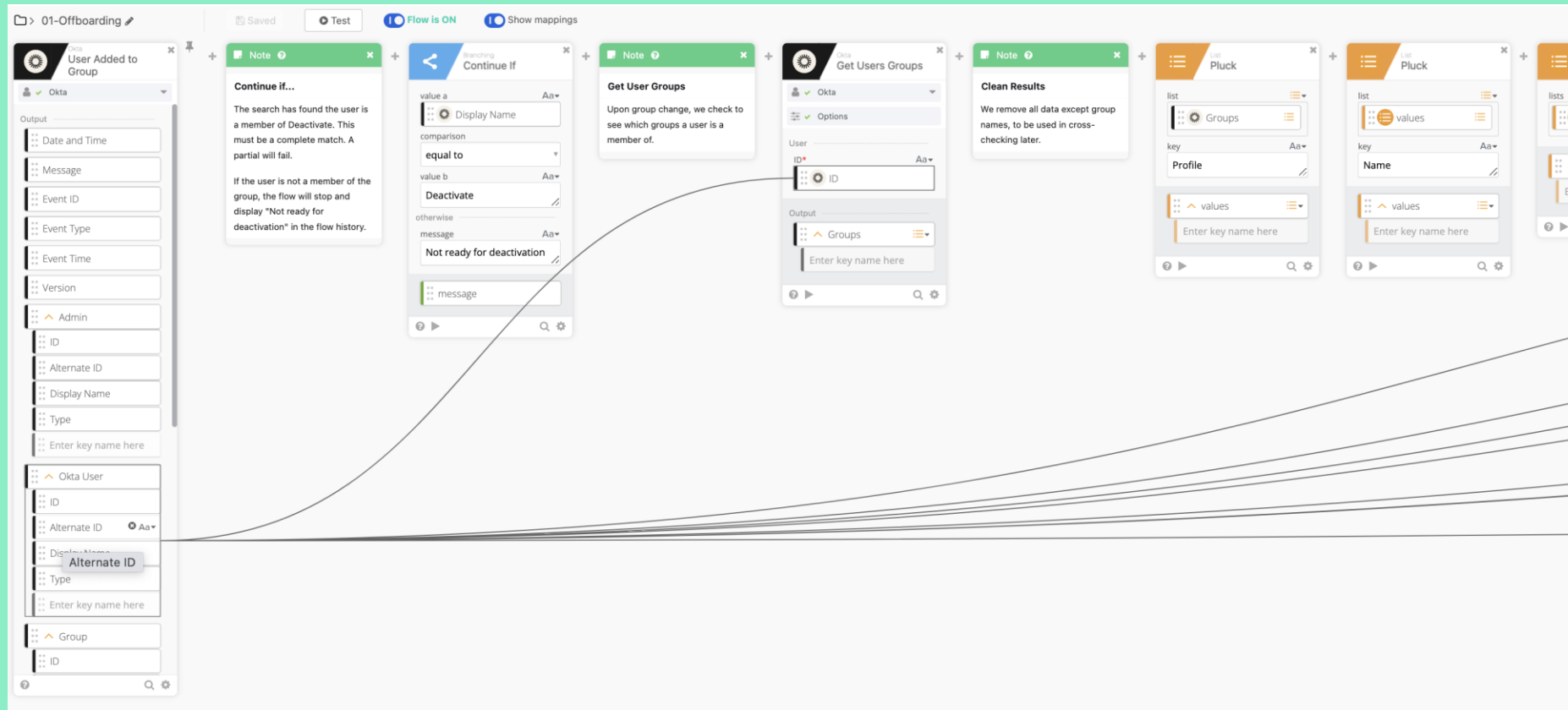
## Functions

# Interface Overview



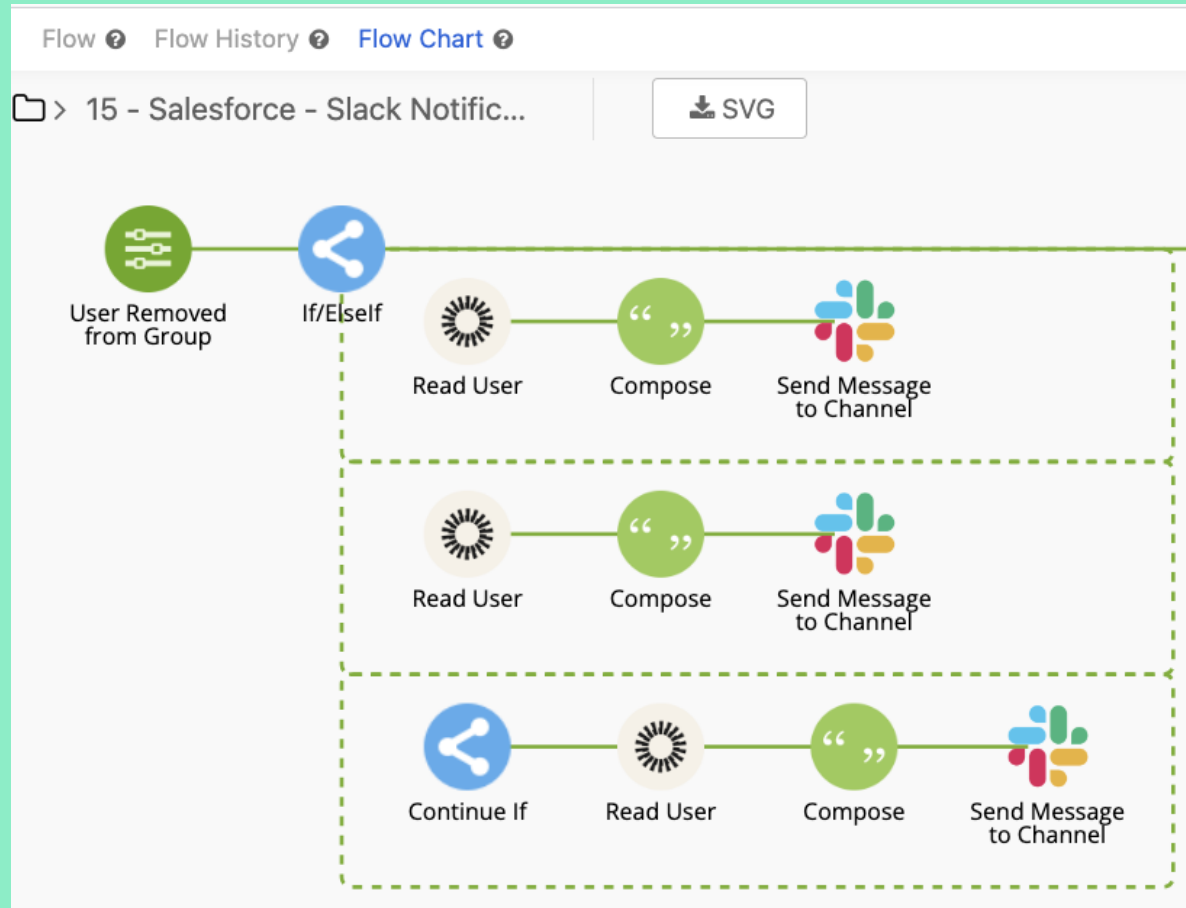
Flow View (Default View)

# Interface Overview



## Mappings

# Interface Overview



Flowchart View

# Interface Overview

Flow 01-Offboarding 01-Offboarding Saved Test Flow is ON Show mappings 07/15/2023 09:24:37 am Back to Flow

**Flow History** Save data Clear data

Search text within execution... All

Status	Start	Duration	Details
1 record returned	Jul 15 9:23:54 AM	43s	
Error	INVALID_ARGUMENT: input headers d...	43s	
1 record returned	Jul 14 2:28:14 PM	<0.1s	
Success	#1	<0.1s	
2 records returned	Jul 14 2:28:05 PM	<0.1s	
Success	#1	<0.1s	
Success	#2	<0.1s	
1 record returned	Jul 14 2:28:05 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:19:15 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:19:14 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:19:14 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:18:14 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:17:54 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:17:35 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:17:24 PM	<0.1s	
Success	#1	<0.1s	
1 record returned	Jul 14 2:17:15 PM	<0.1s	

**Flow History**

Output

Date and Time Aa

Message Aa

Event ID Aa

Event Type Aa

Event Time Aa

Version Aa

Admin

Okta User

Group

UUID

Event Details

**Note**

**Continue if...**

The search has found the user is a member of Deactivate. This must be a complete match. A partial will fail.

If the user is not a member of the group, the flow will stop and display "Not ready for deactivation" in the flow history.

**Branching**

**Continue If**

value a Aa

Deactivate

comparison Aa

value b Aa

Deactivate

otherwise

message Aa

Not ready for deactivation

**Note**

**Get User Groups**

Upon group change, we check to see which groups a user is a member of.

**Options**

User ID Aa

Output

Groups

**Note**

**Clean Results**

We remove all data except group names, to be used in cross-checking later.

**Pluck**

list

Profile

values

## Flow History

# Examples – Let's Create A Basic Workflow

- Alert a specific Slack channel of new onboards anytime a new user has been added to the 3 specific Okta groups.
- Alert everyone in the channel
- Display the name, email, and manager of the user added















# Check Okta Workflow Connections

- We will need the Slack connection and Okta connections established.

Workflows Home Flows **Connections** Templates [Connector Builder](#) BlueVoyant Help V. Torres

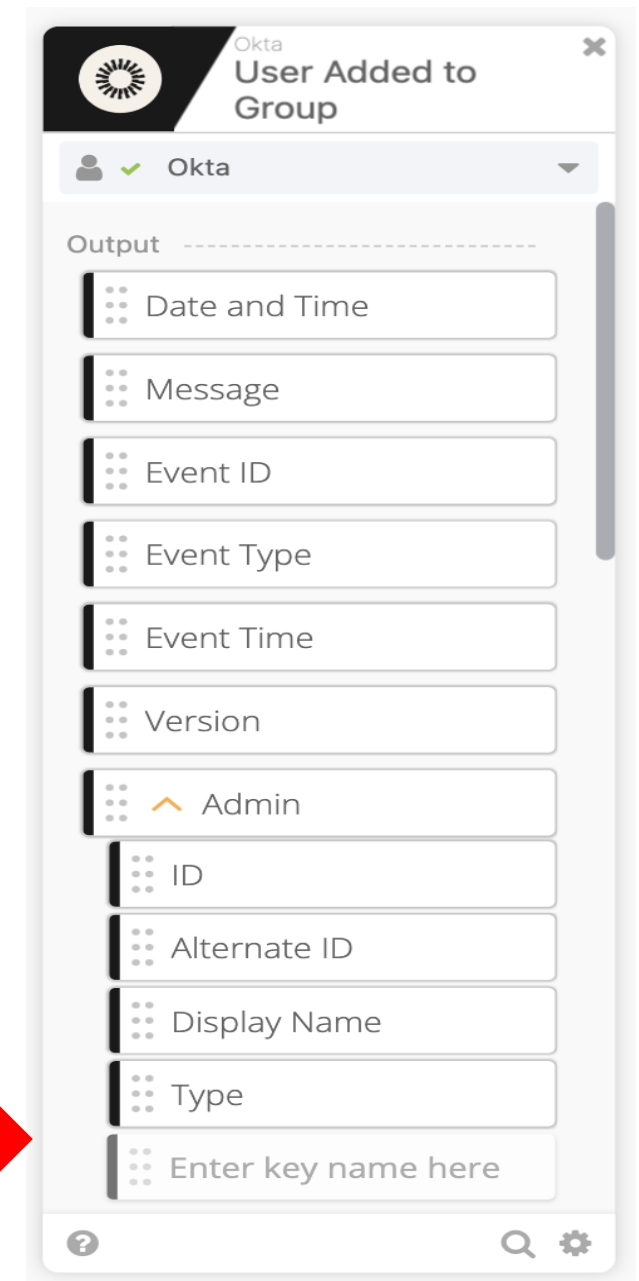
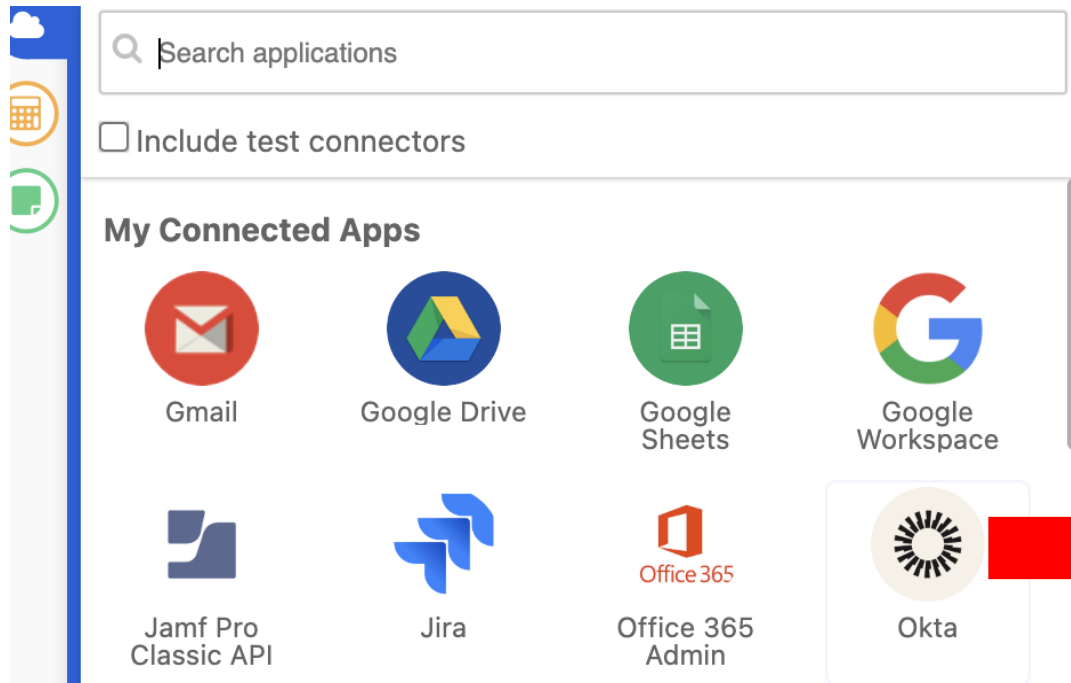
Connections

[+ New Connection](#)

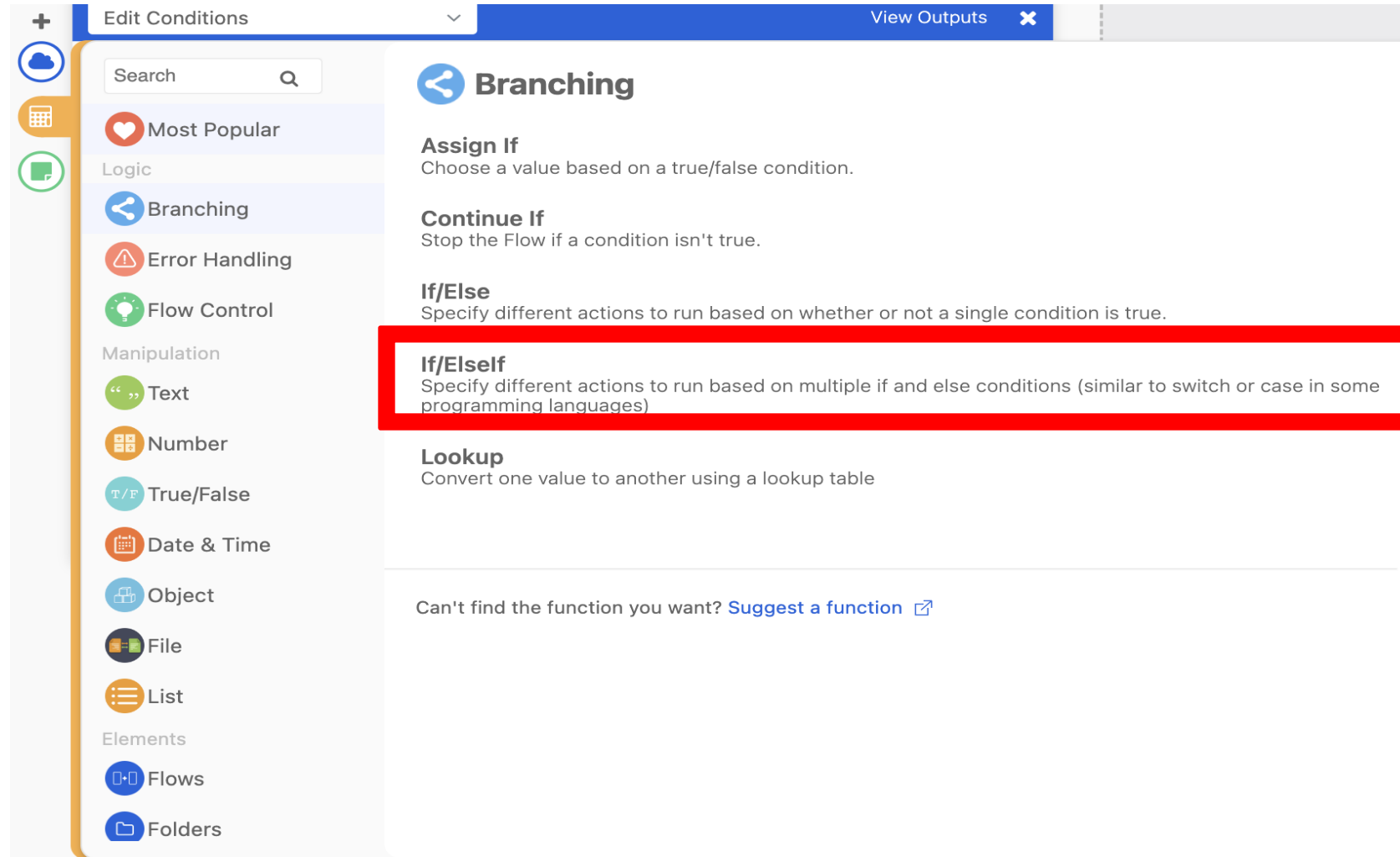
APPLICATION ↓	NAME	ADDED BY	CREATED ON	
 Slack	Slack	Okta Workflows	11/7/2022	    
 Okta	Okta		4/27/2022	    

# Set Up the Trigger

- Click on the "Flows" tab > select "New Flow" to start.
- We are selecting "User Added to Group" from the Okta application templates to be the trigger to start the workflow.



# Select If/Else Option from Okta's Pre-built Connector Library



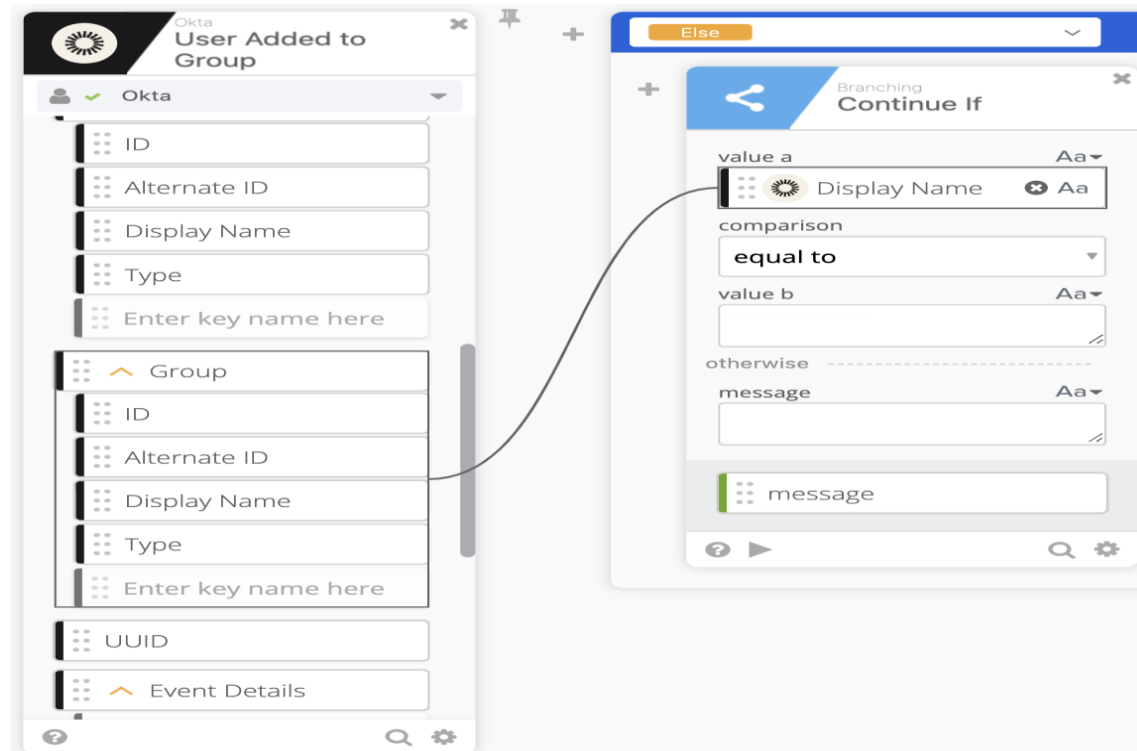
# Define the Conditions

- For every If or Else If condition slide the "Display Name" located under Groups / Display Name to the "value a" field.
- Change the operator value to "equals to".
- In the "value b" field, enter the name of 1 of the 3 Okta groups. Repeat these steps to define the conditions for the second Okta group within the "Else If" section.

The screenshot displays the 'Okta User Added to Group' configuration window. On the left, a list of attributes is shown under the 'Okta' group, including ID, Alternate ID, Display Name, Type, and a field to 'Enter key name here'. The 'Display Name' attribute is highlighted. On the right, the 'Edit Conditions' panel is open, showing a conditional logic builder. The 'If' condition is currently active, with 'value a' set to 'Display Name' and the comparison operator set to 'equal to'. The 'value b' field is empty. Below the 'If' condition, there are sections for 'Else If' and 'Else', each with a plus sign to add a new condition. A blue 'Save' button is located at the bottom right of the 'Edit Conditions' panel.

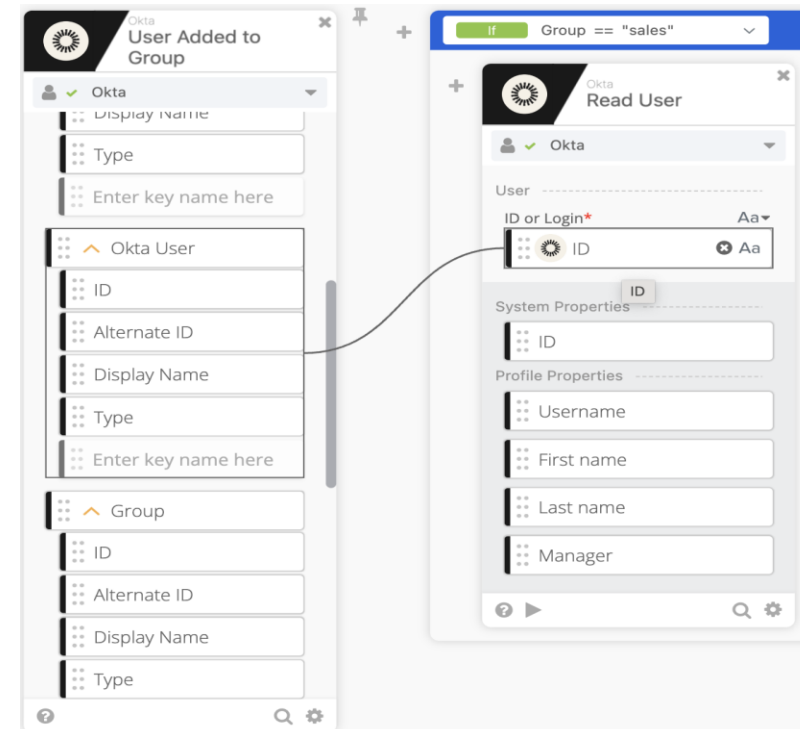
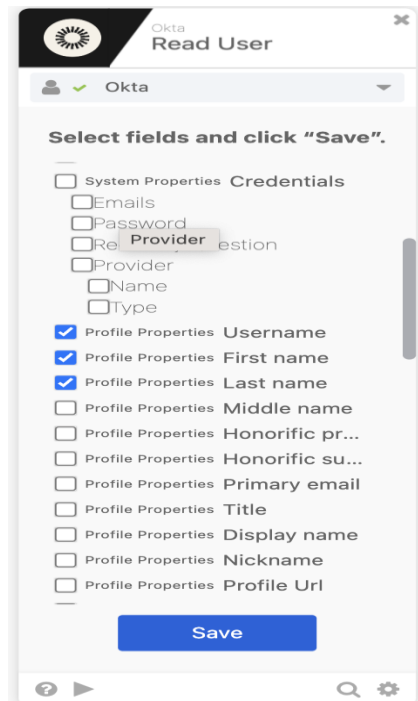
# Define the Else Condition

- The "Else" condition does not allow defining a specific condition like the "If" or "Else If" conditions.
- We remedy this by adding a "Continue If" card from the Okta connector library.
- Define "value a" with the same Display Name slide and "value b" with the final Okta group.



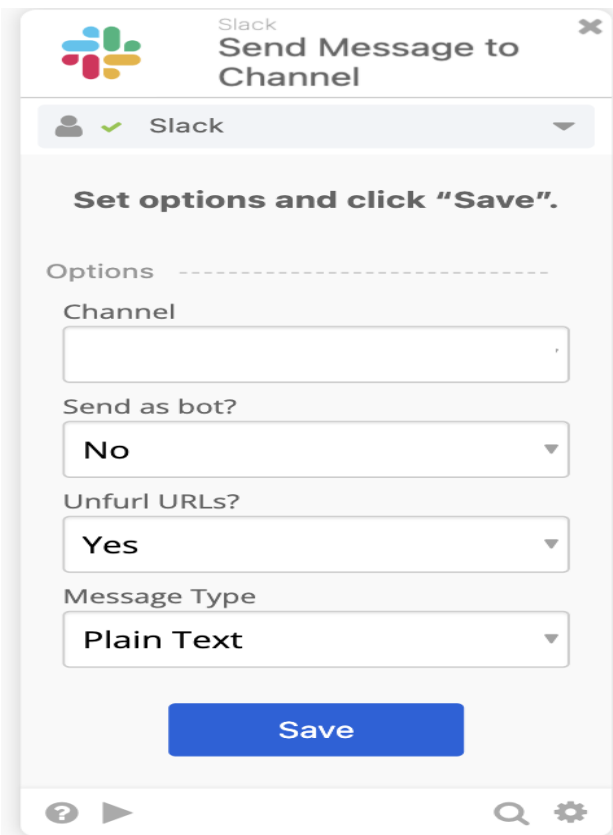
# Add Actions To Each Condition

- Under each condition select "Read User" from Okta Library.
- Select the First Name, Last Name, Email Address, and Manager to output under the list of outputs to select from and then click save.
- You will then be asked to enter a value for the "ID or Login" field. Slide the "ID" slide under Okta User / ID.



# Add Actions To Each Condition Continued...

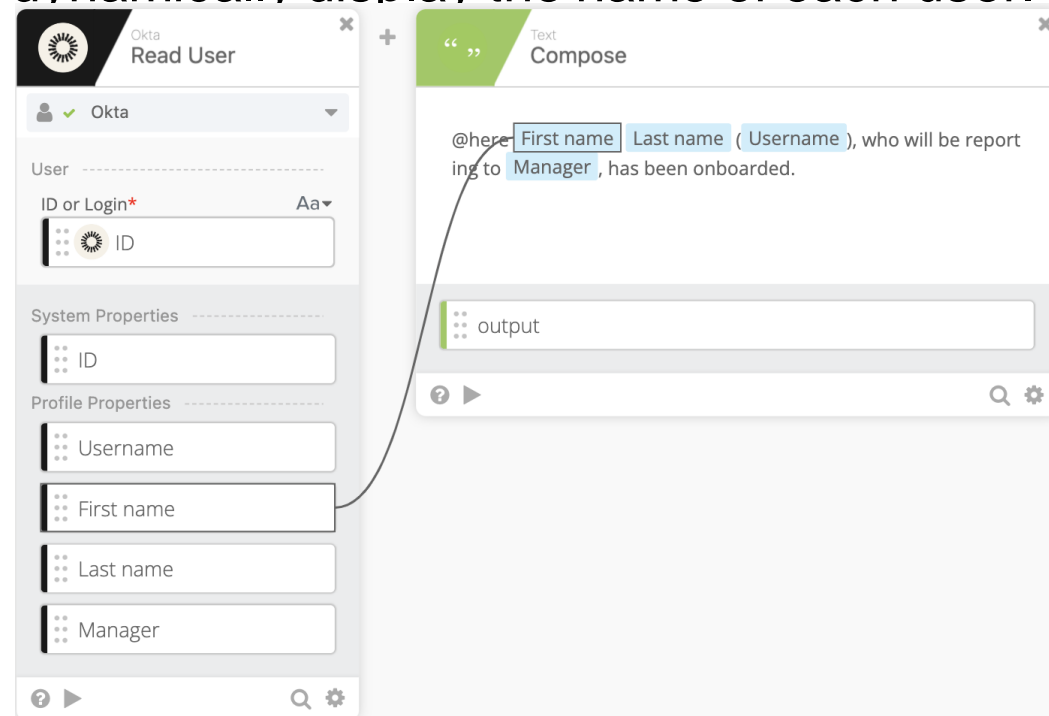
- Select "Send Message to Channel" and add the Slack card from the Okta Library to set up messages to a specific channel.
- On the "Channel" field, enter the name of the Slack channel you want to message.



The screenshot shows a configuration card titled "Slack Send Message to Channel". At the top, there is a Slack logo and a close button. Below the title, a dropdown menu shows "Slack" with a green checkmark. The card contains the instruction "Set options and click 'Save'." followed by a section titled "Options". Under "Options", there are four fields: "Channel" (a text input field), "Send as bot?" (a dropdown menu with "No" selected), "Unfurl URLs?" (a dropdown menu with "Yes" selected), and "Message Type" (a dropdown menu with "Plain Text" selected). At the bottom of the card is a blue "Save" button. The card is displayed on a mobile interface with a bottom navigation bar containing a question mark, a play button, a magnifying glass, and a gear icon.

# Add Actions To Each Condition Continued...

- Select "Compose" from the Okta connector library to start creating the message you would like to send to the slack channel.
- Start the message with "@here" to get everyone's attention from the channel.
- Drag and drop the First Name, Last Name, Username, and Manager slides onto the composed message to dynamically display the name of each user.





# Add Actions To Each Condition Continued...

- Drag and drop the "output" from the Compose card to the "Text" field for Slack.

The image displays two cards from a workflow builder interface. On the left is a 'Text Compose' card with a green header. Its text field contains the placeholder text: '@here First name Last name ( Username ), who will be reporting to Manager, has been onboarded.' Below the text field is a variable selection bar containing a green 'output' variable. On the right is a 'Slack Send Message to Channel' card with a white header and a Slack logo. It has a dropdown menu set to 'Slack' and an 'Options' section. The 'Message' section contains a 'Text\*' field with a dropdown menu set to 'Aa'. A green 'output' variable is being dragged from the 'Text Compose' card to this 'Text\*' field, as indicated by a curved arrow. Below the 'Text\*' field is a 'Thread Timestamp' field, also with a dropdown menu set to 'Aa'. At the bottom of the Slack card is another 'Message' section with a 'Timestamp' variable.


# Save The Workflow

- Click "Save" to save the workflow.
- Make sure to check the box for "Save all data that passes through the Flow?" to be able have logs for the workflow.

**Edit properties** ×

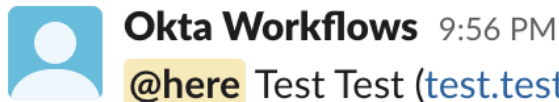
**Flow name**

**Description** Optional

☒ Save all data that passes through the Flow?  
Enables debugging, auditing, and replay [Learn More](#) 

# Test The Workflow – Check The Okta Workflows Output

- Test the workflow by adding a user to one of the groups in Okta.



Test Test ([test.test@bluevoyant.com](mailto:test.test@bluevoyant.com)), who will be reporting to Evan Byrnes, has been onboarded

The screenshot displays the Okta Workflows interface with four workflow steps visible:

- Okta User Added to Group** (0.001s): Shows output fields for Date and Time (2023-07-09T04:56:11.897Z), Message (Add user to group membership), Event ID (06503973-52a8-498b-a9f4-719149950cce), Event Type (group.user\_membership.add), Event Time (2023-07-09T04:56:14.186Z), Version (0), and Admin ({"ID": "00ues4p4prXrTTh692").
- Okta Read User** (0.364s): Shows output fields for User ID or Login (00un5bb0p8v38Tt282p7), System Properties (ID: 00un5bb0p8v38Tt282p7), Profile Properties (Username: test.test@bluevoyant.com, First name: Test, Last name: Test, Manager: Evan Byrnes).
- Text Compose** (0.001s): Shows output fields for \_text\_ (a message template), gRjJwGcl (Test), -yMfXvB2l (Test), N42VPB-Or (test.test@bluevoyant.com), and T-uWIHnyA (Evan Byrnes).
- Slack Send Message to Channel** (1.28s): Shows output fields for Message (a message template), Thread Timestamp, and Message Timestamp (1688878576.107629).

# Examples – More Advanced WorkFlow

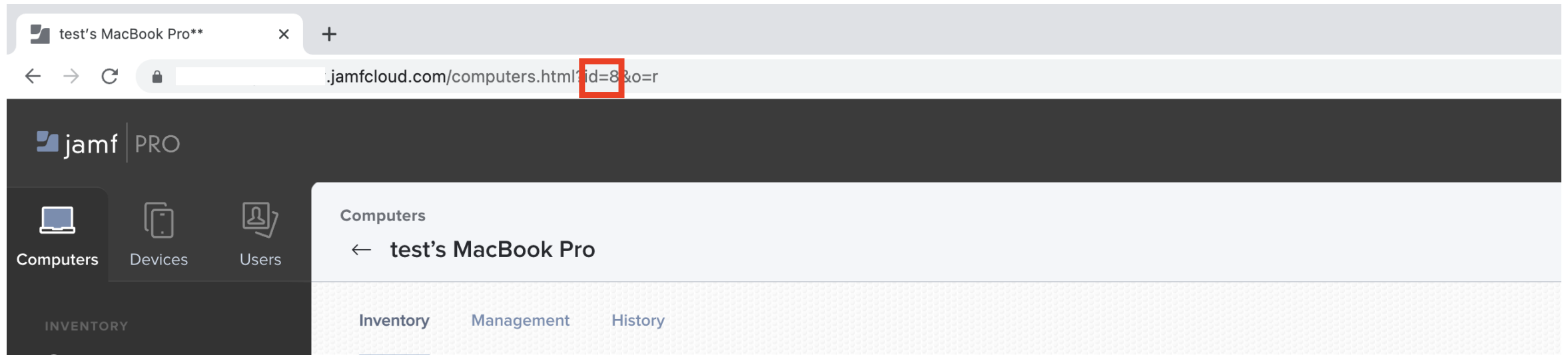
- Let's automate Jamf's self-heal
- Let's Put it on a schedule .
- Have a Jamf smart group in place to scope this task to.
- Place every computer in a static group to exclude it from being auto provisioned.
- Create a Jira ticket for every 'self-heal' push.

# What is Jamf's Self-Healing Functionality

- Using Jam Pro's API, you can redeploy the Jamf management framework to managed computers. If for some reason a computer stops checking in with Jamf Pro or running policies, this functionality allows you to remotely re-enroll the computer (as long as it is still receiving MDM commands).
- More information about Jamf's Self Heal available on Dr. K's blog: <https://www.modtitan.com/2022/02/jamf-binary-self-heal-with-jamf-api.html>

# Manually using Jamf's 'Self-Heal'

- Grab the computer's ID from Jamf Pro.



# Manually using Jamf's 'Self-Heal' Continued...

- Sign into the Jamf Pro API to authorize a bearer token

here. [Terms of service](#)'." data-bbox="44 322 936 741"/>

test's MacBook Pro\*\* x Swagger UI x +

← → ↻ 🔒 .jamfcloud.com/api/doc/#/jamf-management-framework/post\_v1\_jamf\_management\_framework\_redeploy\_\_id\_

## Jamf Pro API production OAS3

### Overview

The Jamf Pro API is a RESTful API for Jamf Pro built to enable consistent and efficient programmatic access to Jamf Pro.

The swagger schema can be found [here](#).

[Terms of service](#)

The Jamf Pro API uses a token-based authentication. Enter username and password to generate a token to be used with the 'Try it out!' feature.

# Manually using Jamf's 'Self-Heal' Continued...

- 1. Find the 'jamf-managment-framework' drop down.
- 2. Enter the computer ID in the proper field.
- 3. Click on 'Execute' to re-deploy the Jamf management framework.

The screenshot shows the Swagger UI for the Jamf Management Framework API. The browser address bar displays the URL: `jamfcloud.com/api/doc/#/jamf-management-framework/post_v1_jamf_management_framework_redeploy_id_`. The main content area is titled "jamf-management-framework" and shows a POST endpoint: `/v1/jamf-management-framework/redeploy/{id}` with the description "Redeploy Jamf Management Framework". Below the endpoint, there is a "Parameters" section with a table:

Name	Description
<code>id</code> * required string (path)	instance id of computer

The input field for the `id` parameter contains the value "8". Below the parameters, there is a blue "Execute" button and a "Clear" button. The "Responses" section is visible at the bottom, showing the "Curl" command and the "Request URL".

```
curl -X POST "https://[redacted]jamfcloud.com/api/v1/jamf-management-framework/redeploy/8" -H "accept: application/json" -H "Authorization: Bearer [object Object]"
```

Request URL: `https://[redacted]jamfcloud.com/api/v1/jamf-management-framework/redeploy/8`

Server response



# Time to Automate Using Okta Workflows

- Let's avoid doing this 20 times or more again.
- Okta Workflow will be composed of 2 flows.
- Parent workflow and a child ( or helper ) workflow.
- The child flow will contain most of the logic.
- Review of requirements:
  - Let's Put it on a schedule .
  - Have a Jamf smart group in place to scope this task to.
  - Place every computer in a static group to exclude it from being auto provisioned.
  - Create a Jira ticket for every 'self-heal' push.

# Parent Flow - Create a New Workflow and Schedule it

- Select 'Schedule Flow' from the Okta connector library and set it to run as often as you like. In this example we are setting it to run every Monday at 5 PM EST.

## Flow Schedule

Frequency

Run Flow every week at 5 : 00 PM

on

[Advanced Options >](#)

Timezone

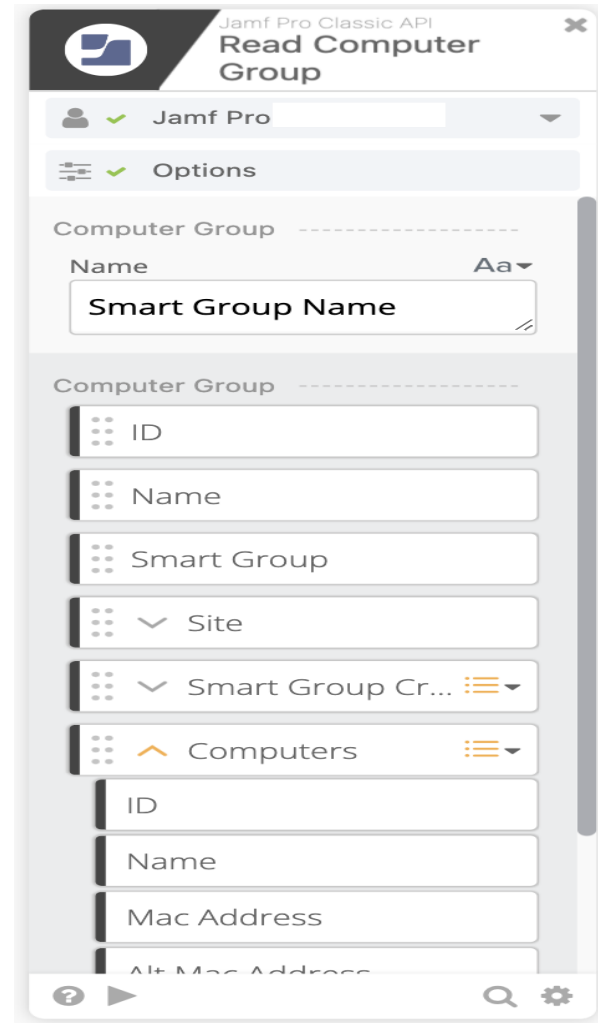
Summary **At 5:00 PM on every Monday**

Cancel

Save

# Parent Flow - Select 'Read Computer Group' From Jamf Template

- Enter the smart group name in the "Name" field of the template.

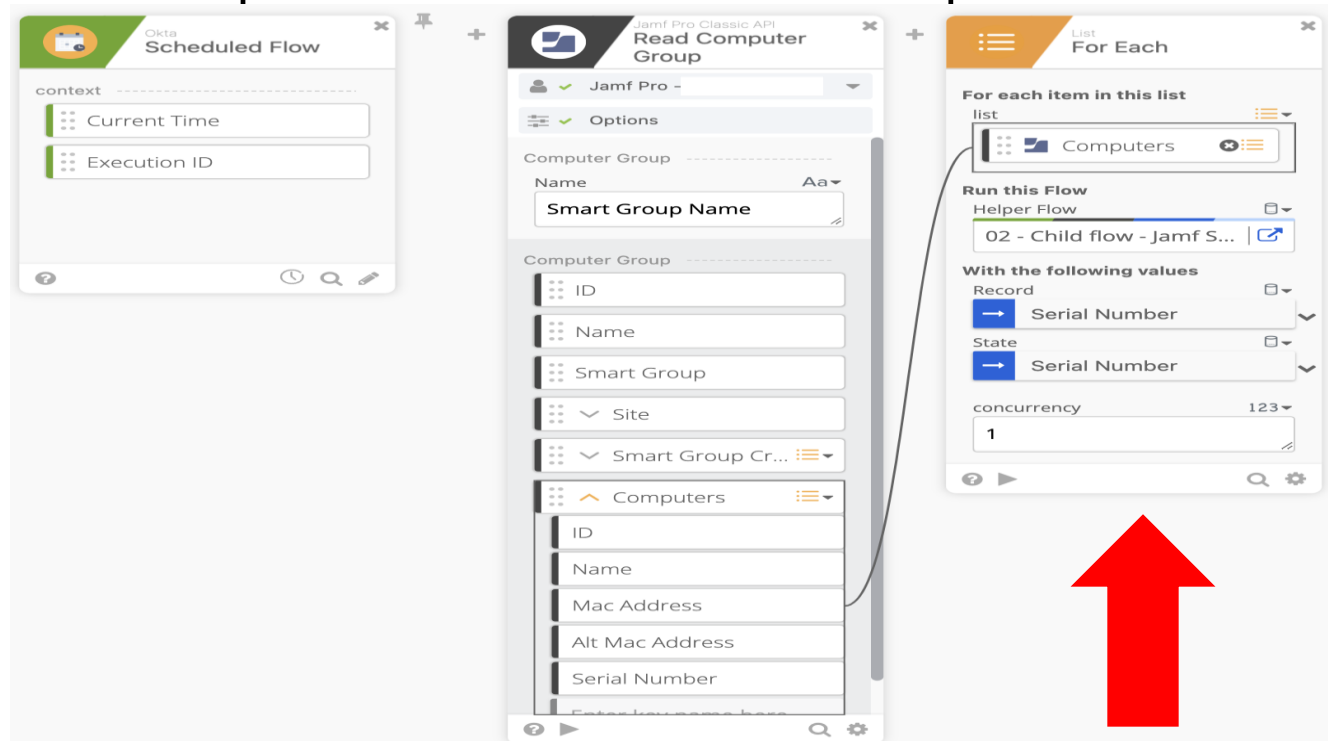


The screenshot shows the 'Read Computer Group' template configuration interface in Jamf Pro. At the top, the title bar reads 'Jamf Pro Classic API Read Computer Group'. Below this, there are two dropdown menus: 'Jamf Pro' and 'Options', both with green checkmarks. The main section is titled 'Computer Group' and contains a 'Name' field with a text input containing 'Smart Group Name' and a 'Aa' icon. Below this, there is a list of fields for the 'Computer Group' template, each with a three-dot menu icon on the left and a three-line menu icon on the right. The fields are: 'ID', 'Name', 'Smart Group', 'Site' (with a dropdown arrow), 'Smart Group Cr...' (with a dropdown arrow), 'Computers' (with a dropdown arrow), 'ID', 'Name', 'Mac Address', and 'Alt Mac Address'.

# Parent Flow - Select "For Each" Function From The Okta Connector Library

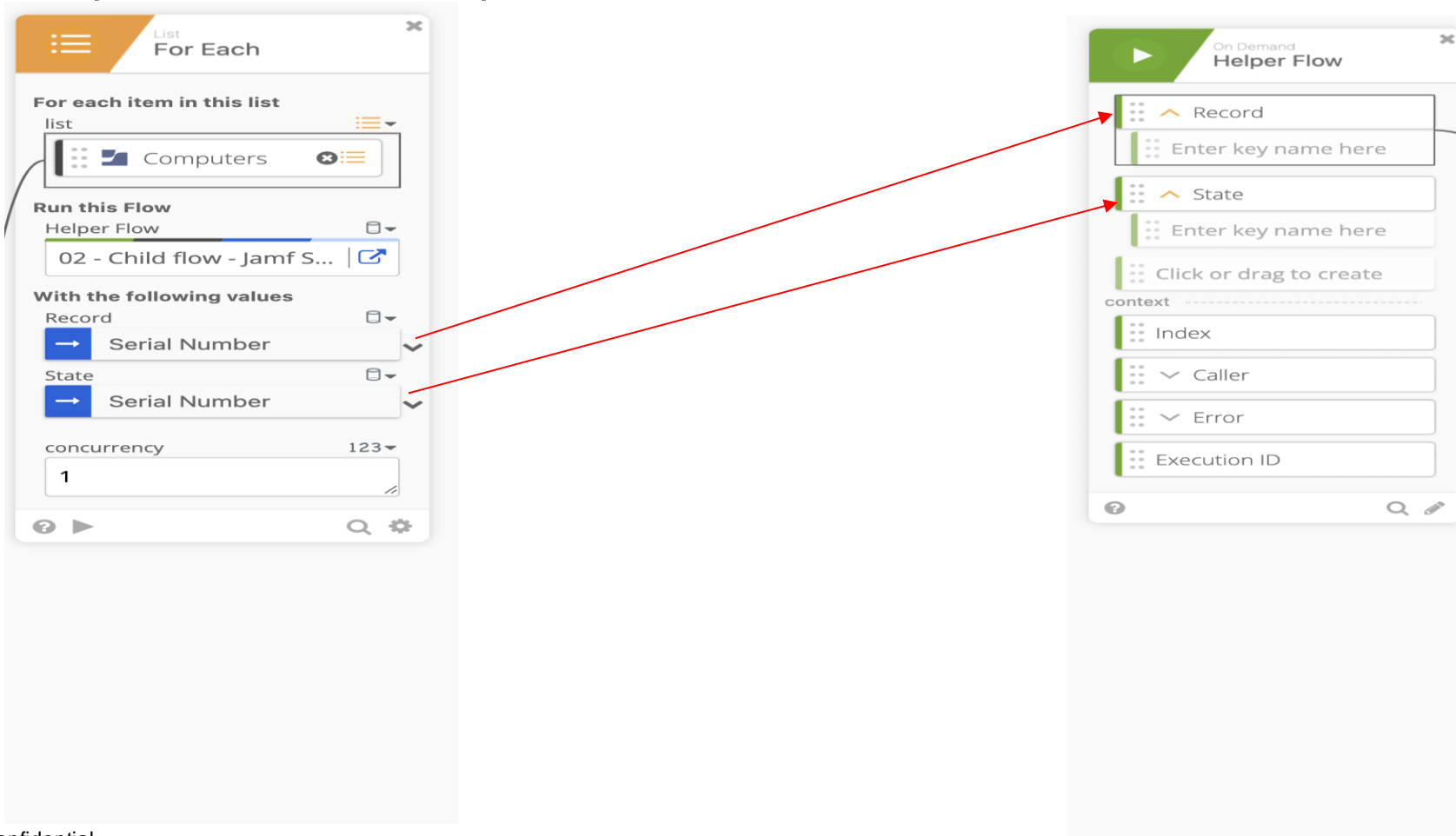
- Drag and drop "Computers" to the list field.
- Move over the "Serial Number" slide to the "Record" and "State" value fields.
- Select a Helper Flow.

Note: You can create the Helper Flow from the select a Helper Flow menu.



# Child Flow – Set Up The Helper Flow As The Trigger

- Helper flow is used to process each record from the list.



# Child Flow – Obtain Computer ID For The Record In Jamf



# Child Flow – Add To Static Group That Will Be Used To Exclude From Auto Provisioning



# Child Flow – Obtain The Bearer Token

The screenshot displays the Jamf Cloud API interface for configuring a 'Post' connector. A red arrow points from the 'Obtain Bearer Token' note to the 'Request URL' field, which contains the URL: `https://[redacted].jamfcloud.com/api/v1/auth/token`. The 'Response' section shows fields for 'Status Code', 'Headers', and 'Body'. Below the configuration panel, the 'POST /v1/auth/token' endpoint is selected, with a description: 'Create a token based on other authentication details (basic, etc.)'. The 'Parameters' section is empty, and the 'Responses' section shows the 'Curl' command: `curl -X POST "https://[redacted].jamfcloud.com/api/v1/auth/token" -H "accept: application/json"`. The 'Request URL' field at the bottom is also populated with the same URL.

**Note: Obtain Bearer Token**  
Here you can write comments and descriptions about your Flow.

**Request**  
URL: `https://[redacted].jamfcloud.com/api/v1/auth/token`  
Query: `{}`  
Headers: `{}`  
Body: `{}`

**Response**  
Status Code  
Headers  
Enter key name here  
Body

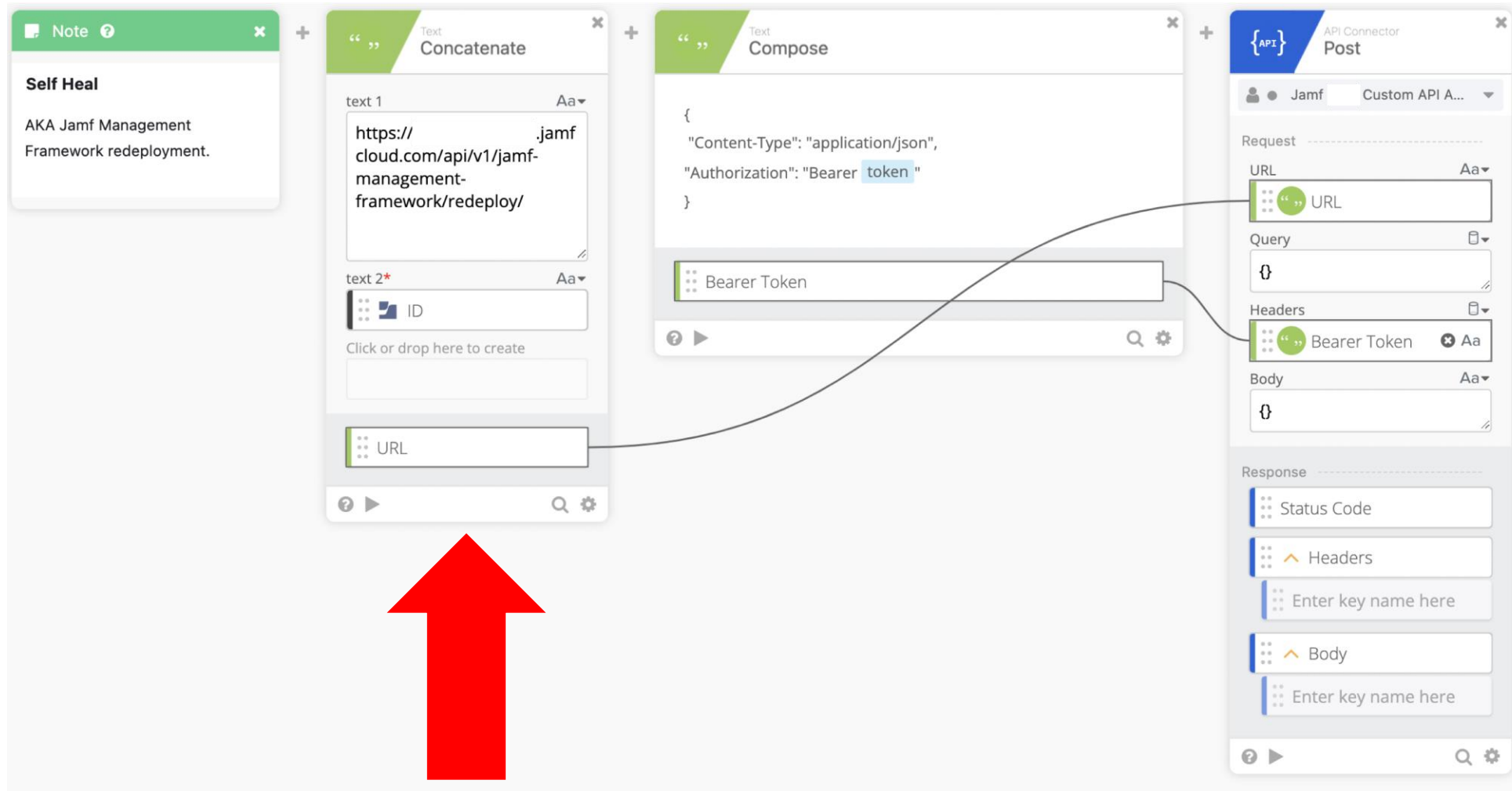
**POST /v1/auth/token** Create a token based on other authentication details (basic, etc.)  
Create a token based on other authentication details (basic, etc.)

**Parameters**  
No parameters

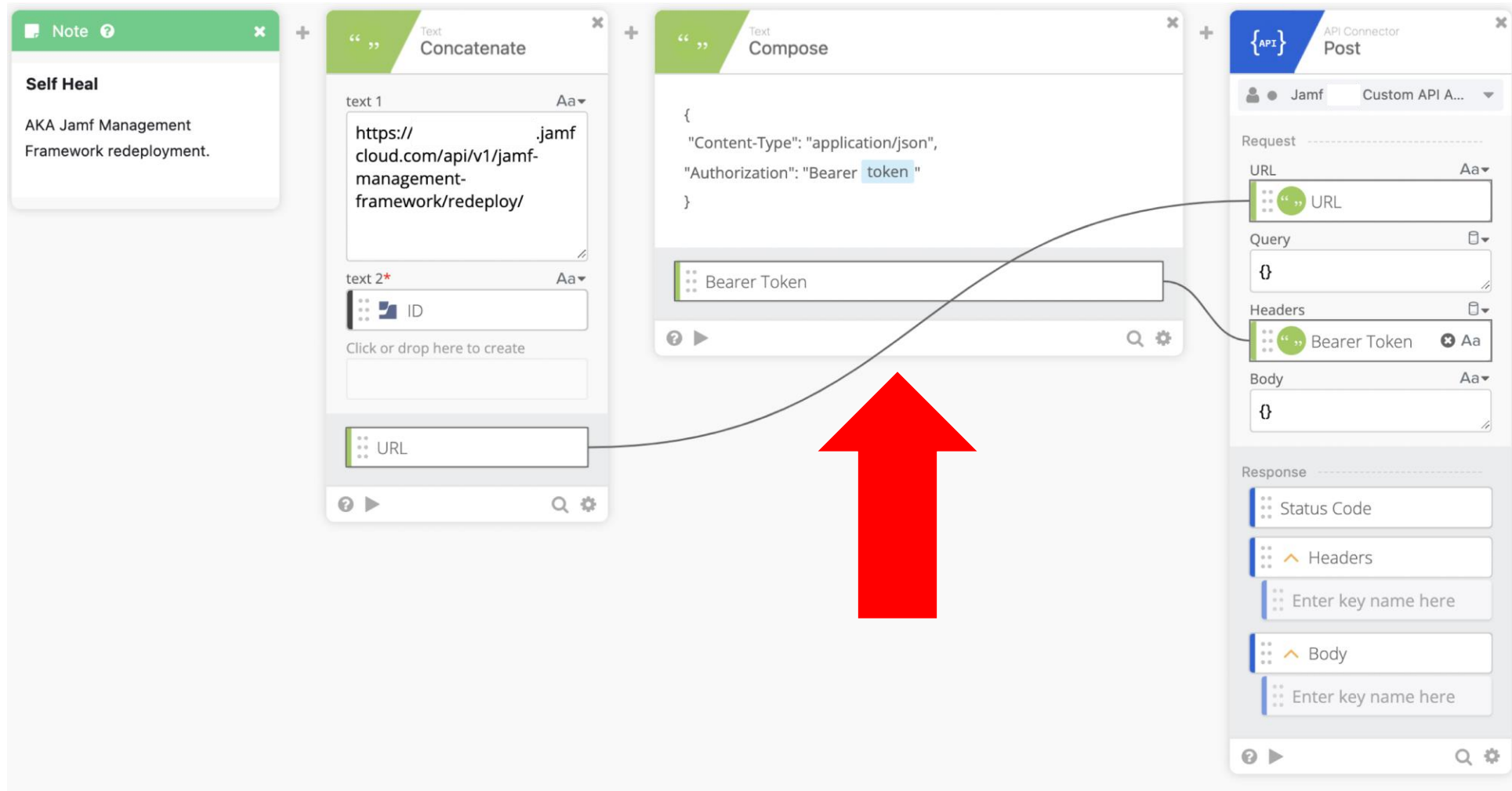
**Responses**  
Curl  
`curl -X POST "https://[redacted].jamfcloud.com/api/v1/auth/token" -H "accept: application/json"`  
Request URL  
`https://[redacted].jamfcloud.com/api/v1/auth/token`



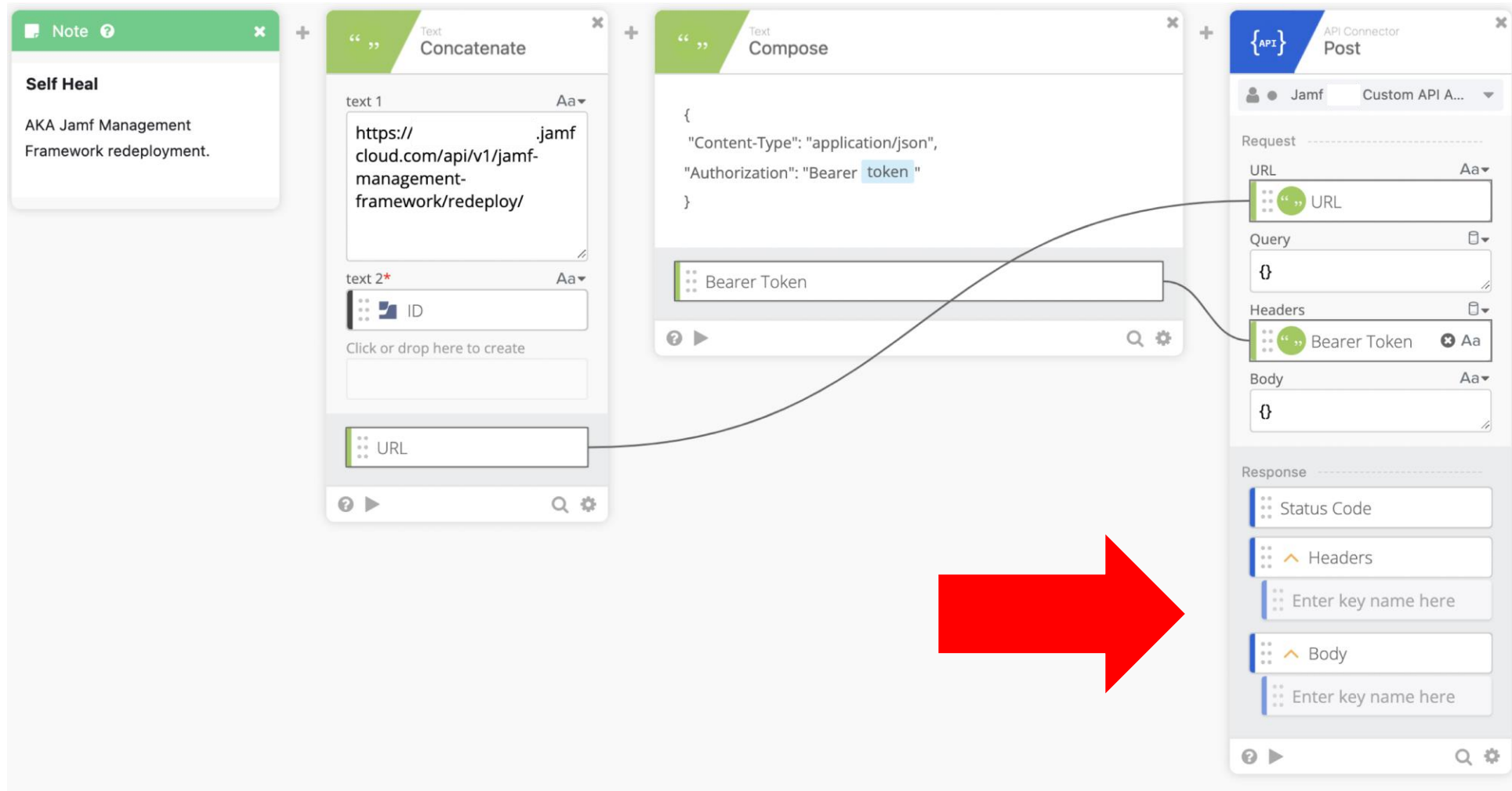
# Child Flow – Concatenate The URL



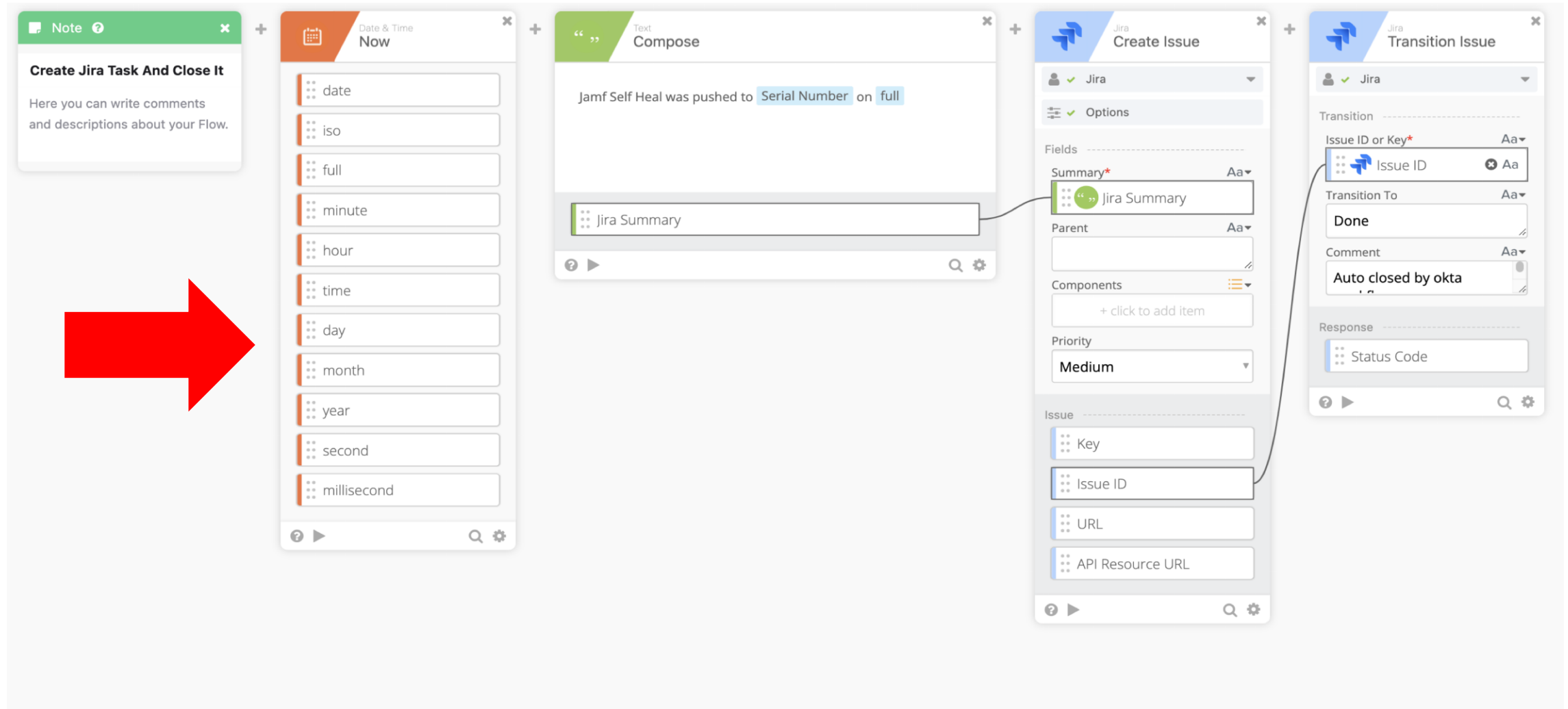
# Child Flow – Put The Header Together



# Child Flow – Push The 'Self Heal' Command



# Child Flow – Capture Date For Jira Ticket



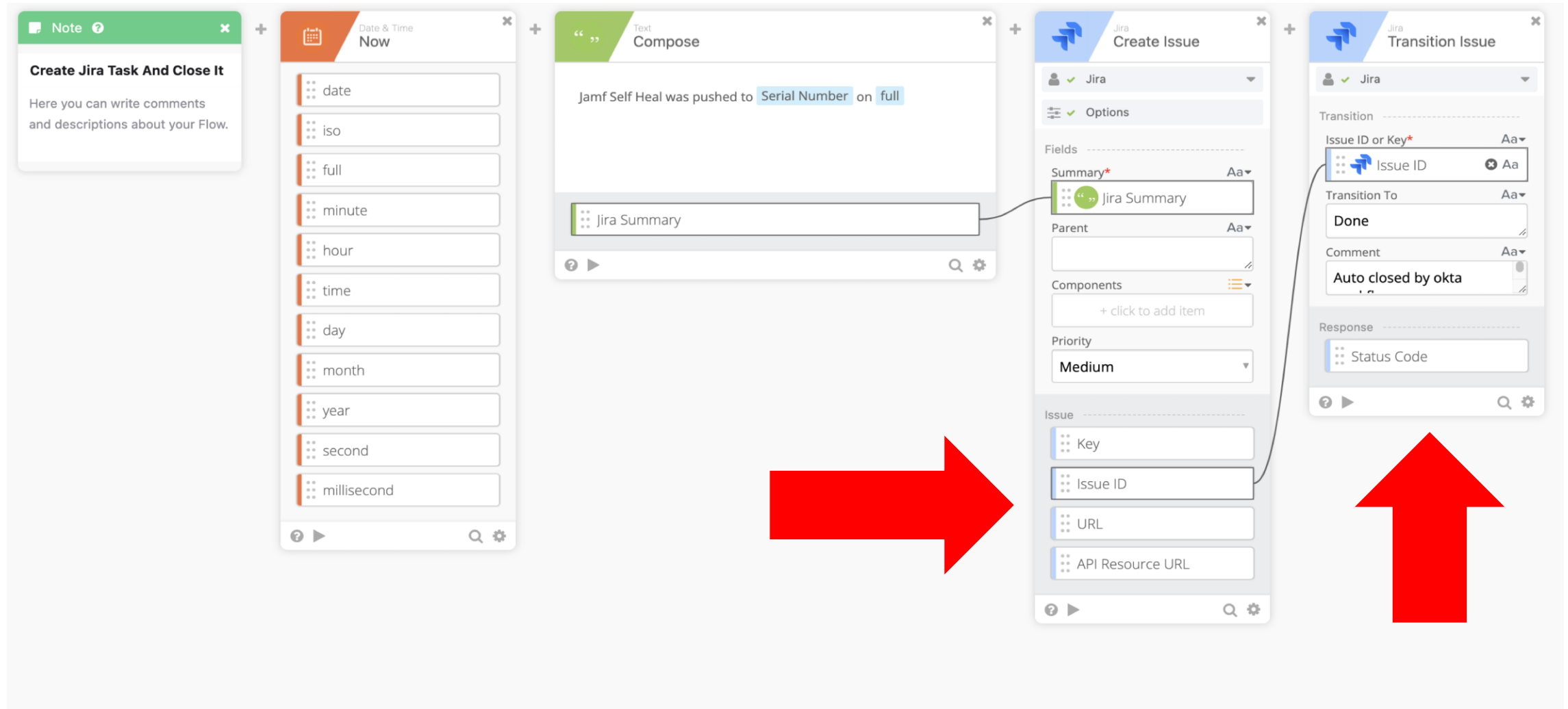
# Child Flow – Compose Subject Line For Jira Ticket

The image displays a child flow interface with five panels:

- Note:** A green panel titled "Create Jira Task And Close It" with a description: "Here you can write comments and descriptions about your Flow."
- Date & Time:** An orange panel titled "Date & Time Now" with a list of time units: date, iso, full, minute, hour, time, day, month, year, second, and millisecond.
- Text Compose:** A green panel titled "Compose" showing a text field with the value "Jamf Self Heal was pushed to Serial Number on full". Below it is a field labeled "Jira Summary".
- Jira Create Issue:** A blue panel titled "Create Issue" with fields for "Summary" (containing "Jira Summary"), "Parent", "Components", "Priority" (set to "Medium"), and "Issue" (containing "Key", "Issue ID", "URL", and "API Resource URL").
- Jira Transition Issue:** A blue panel titled "Transition Issue" with fields for "Issue ID or Key" (containing "Issue ID"), "Transition To" (set to "Done"), "Comment" (containing "Auto closed by okta"), and "Response" (containing "Status Code").

A red arrow points to the "Jira Summary" field in the "Text Compose" panel, which is connected by a line to the "Issue ID" field in the "Jira Create Issue" panel.

# Child Flow – Create Jira Ticket

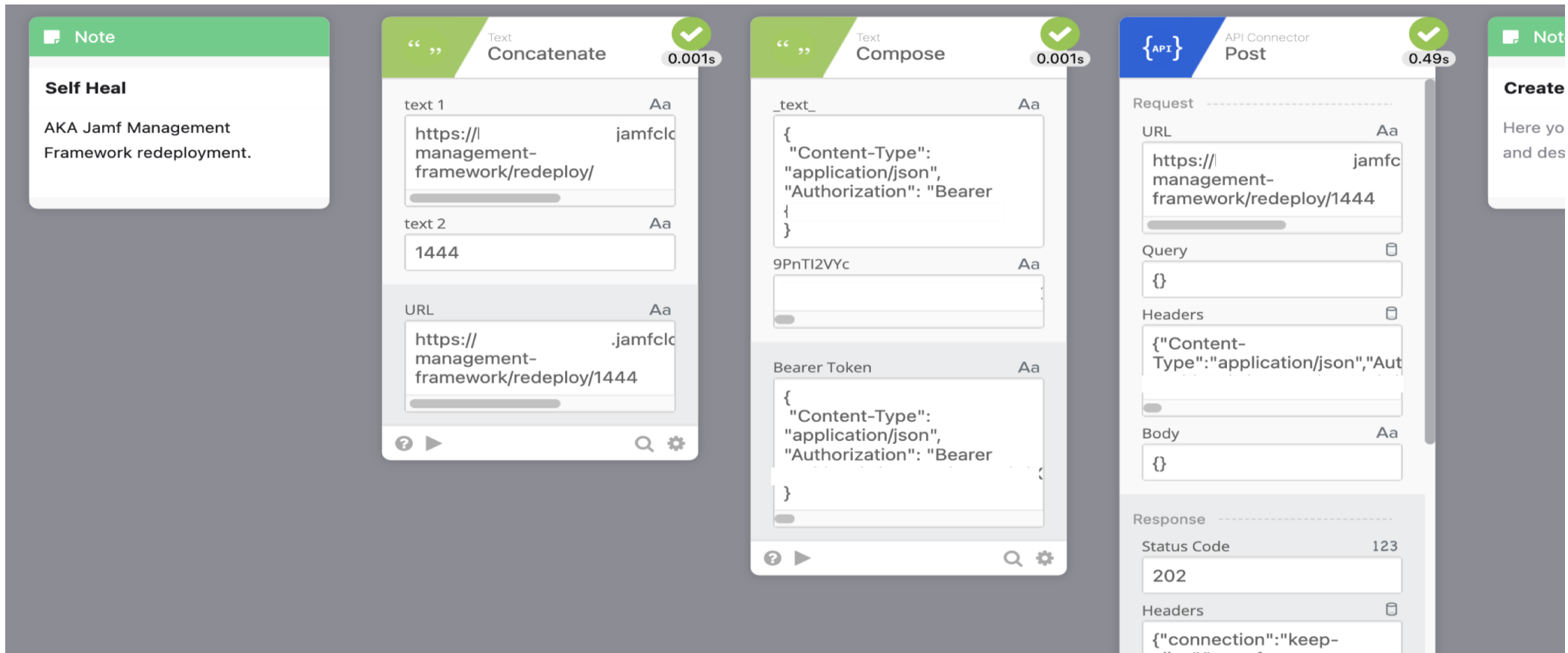


# Workflow Output

Projects /  | / 

Jamf Self Heal was pushed to C02

on December 26, 2022 23:10:19.091



The screenshot displays a workflow execution interface with four steps, each with a green checkmark and a timer.

- Note:** A green header with a document icon. The content is titled "Self Heal" and contains the text "AKA Jamf Management Framework redeployment."
- Text Concatenate:** A green header with a quote icon. It shows two text inputs: "text 1" with the value "https://management-framework/redeploy/" and "text 2" with the value "1444". The output field shows the concatenated URL "https://management-framework/redeploy/1444". The timer is 0.001s.
- Text Compose:** A green header with a quote icon. It shows a JSON object being composed: 

```
{
  "Content-Type": "application/json",
  "Authorization": "Bearer 9PnTI2VYc"
}
```

. The timer is 0.001s.
- API Connector Post:** A blue header with an API icon. It shows a POST request to the URL "https://management-framework/redeploy/1444". The request body is empty. The response status code is 202. The timer is 0.49s.

On the far right, a partial view of a "Create" step is visible, with the text "Here yo and des".

# Examples – Offboarding Automation

- Consistent result for a complex process
- Integrates Okta with
  - Jamf
  - Google Workspace Admin Console
  - Google Sheets
  - Microsoft Admin
  - Slack
- Stores backup data



# Examples – Offboarding Automation

- Consistent result for a complex process
- Integrates Okta with
  - Jamf
  - Google Workspace Admin Console
  - Google Sheets
  - Microsoft Admin
  - Slack
- Stores backup data
- Notifies required individuals

# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow > Flow History > Flow Chart

01-Offboarding

Flow is OFF

Get User Groups

Output

Okta

Get Users Groups

Output

Pluck

Pluck

Flatten

Get User Groups

Upon group change, we check to see which groups a user is a member of.

Clean Results

We remove all data except group names, to be used in cross-checking later.

Pluck

list

Groups

key

Profile

values

Enter key name here

Pluck

list

values

key

Name

values

Enter key name here

Flatten

lists

values

list

Enter key name here

# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow > 01-Offboarding

Flow History > Flow Chart

Flow is OFF

Test

Show mappings

Okta User Added to Group

Output

- Date and Time
- Message
- Event ID
- Event Type
- Event Time
- Version
- Admin
  - ID
  - Alternate ID
  - Display Name
  - Type
  - Enter key name here
- Okta User
  - ID
  - Alternate ID
  - Display Name
  - Type
  - Enter key name here

Get User Groups

Options

User

ID \*

Output

Groups

Enter key name here

Clean Results

We remove all data except group names, to be used in cross-checking later.

List Pluck

list

Groups

key

Profile

values

Enter key name here

List Pluck

list

values

key

Name

values

Enter key name here

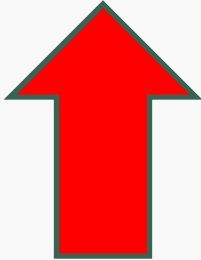
List Flatten

lists

values

list

Enter key name here



# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow > 01-Offboarding

Flow History > Flow Chart >

Flow is OFF

Show mappings

Okta User Added to Group

Output

- Date and Time
- Message
- Event ID
- Event Type
- Event Time
- Version
- Admin
  - ID
  - Alternate ID
  - Display Name
  - Type
  - Enter key name here
- Okta User
  - ID
  - Alternate ID
  - Display Name
  - Type
  - Enter key name here

Get User Groups

Options

User

ID

Output

Groups

Enter key name here

Clean Results

We remove all data except group names, to be used in cross-checking later.

List Pluck

list

Groups

key

Profile

values

Enter key name here

List Pluck

list

values

key

Name

values

Enter key name here


List Flatten

lists

values

list

Enter key name here



# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow History Flow Chart

01-Offboarding

Flow is OFF Show mappings

Convert to text for later

Stringify the text to be used in the final notification.

JSON Stringify

object

list

OktaGroups

Final Cross-check

Look for Deactivate Group

List Find

list

list

operator

equal to

path

comparison

Deactivate

item

Enter key name here

index

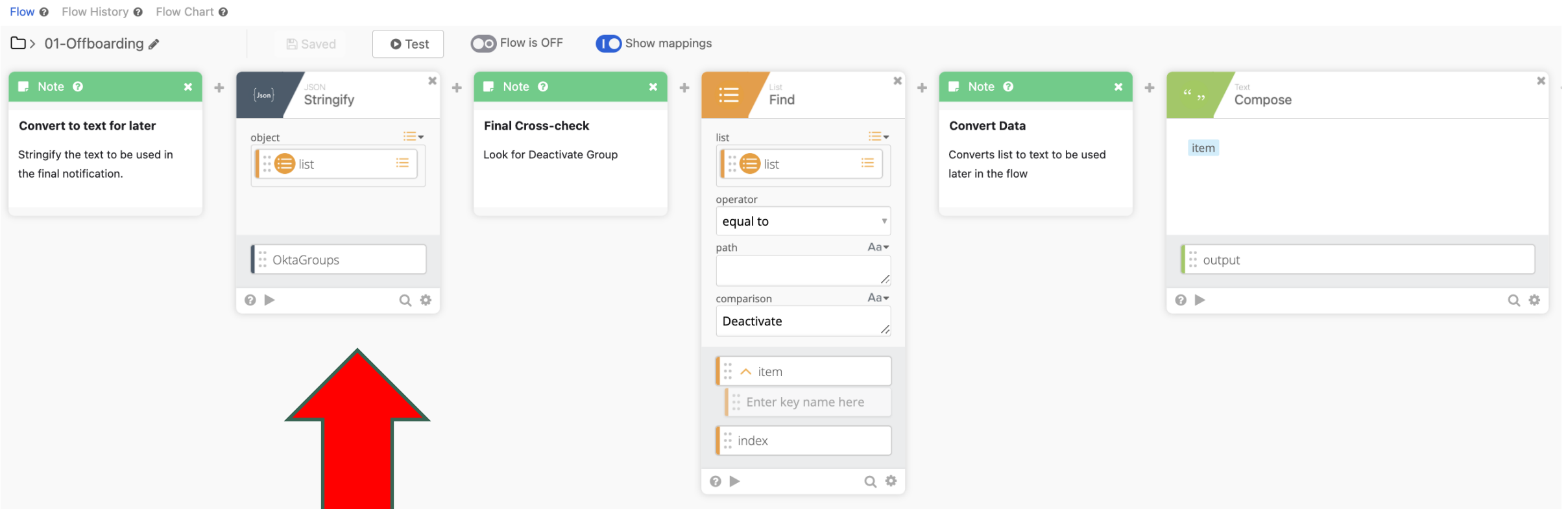
Convert Data

Converts list to text to be used later in the flow

Text Compose

item

output



The screenshot displays a workflow editor with a sequence of steps connected by plus signs. The steps are: 1. A green 'Note' card titled 'Convert to text for later' with the description 'Stringify the text to be used in the final notification.' 2. A 'JSON Stringify' card with an 'object' field containing a 'list' and a text field containing 'OktaGroups'. 3. A green 'Note' card titled 'Final Cross-check' with the description 'Look for Deactivate Group'. 4. A 'List Find' card with a 'list' field containing 'list', an 'operator' set to 'equal to', an empty 'path' field, a 'comparison' set to 'Deactivate', and three output fields: 'item', 'Enter key name here', and 'index'. 5. A green 'Note' card titled 'Convert Data' with the description 'Converts list to text to be used later in the flow'. 6. A 'Text Compose' card with a text field containing 'item' and an 'output' field. A large red arrow points to the 'JSON Stringify' step.

# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

**Note** Convert to text for later  
Stringify the text to be used in the final notification.

**JSON Stringify**  
object  
list  
OktaGroups

**Note** Final Cross-check  
Look for Deactivate Group

**List Find**  
list  
list  
operator  
equal to  
path  
comparison  
Deactivate  
item  
Enter key name here  
index

**Note** Convert Data  
Converts list to text to be used later in the flow

**Text Compose**  
item  
output

# Set Up the Trigger

- Move the user's account into Deactivate group in Okta

Flow History Flow Chart

01-Offboarding

Flow is OFF Show mappings

Convert to text for later

Stringify the text to be used in the final notification.

JSON Stringify

object

list

OktaGroups

Final Cross-check

Look for Deactivate Group

List Find

list

list

operator

equal to

path

comparison

Deactivate

item

Enter key name here

index

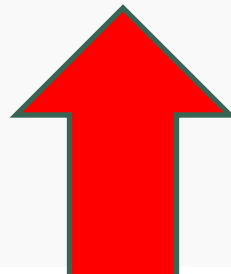
Convert Data

Converts list to text to be used later in the flow

Text Compose

item

output



# Set Up the Trigger and Beginning the Flow

Flow Flow History Flow Chart

01-Offboarding Saved Flow is OFF

**Note**

**Continue if...**

The search has found the user is a member of Deactivate. This must be a complete match. A partial will fail.

If the user is not a member of the group, the flow will stop and display "Not ready for deactivation" in the flow history.

**Branching Continue If**

value a Aa

output

comparison

equal to

value b Aa

Deactivate

otherwise

message Aa

Not ready for deactivation

message

**Get List of User Applications**

Here you can write comments and descriptions about your Flow.

**Okta List Applications Assigned to User**

Okta

Options

User Aa

ID\* ID

Result

Applications

ID

Name

Label

Status

Last Updated

Created

Accessibility

Error Redirect U...

Login Redirect ...

Self Service

Enter key name here

Visibility

App Links

Enter key name h...

Auto Launch

Auto Submit To...

**Note**

**Send Salesforce Offboard ...**

Here you can write comments and descriptions about your Flow.

**Note**

**Remove User from All Okta ...**

Removes user from all Okta Groups

**Okta Get Users Groups**

Okta

Options

User Aa

ID\* ID

Streaming

Flow

02-Remove User from ...

userid Aa

ID

Click or drop here to create

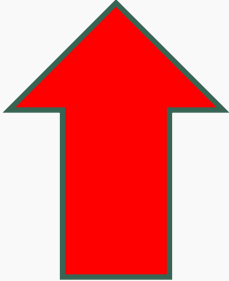
List Criteria

Record Limit 123

10000000

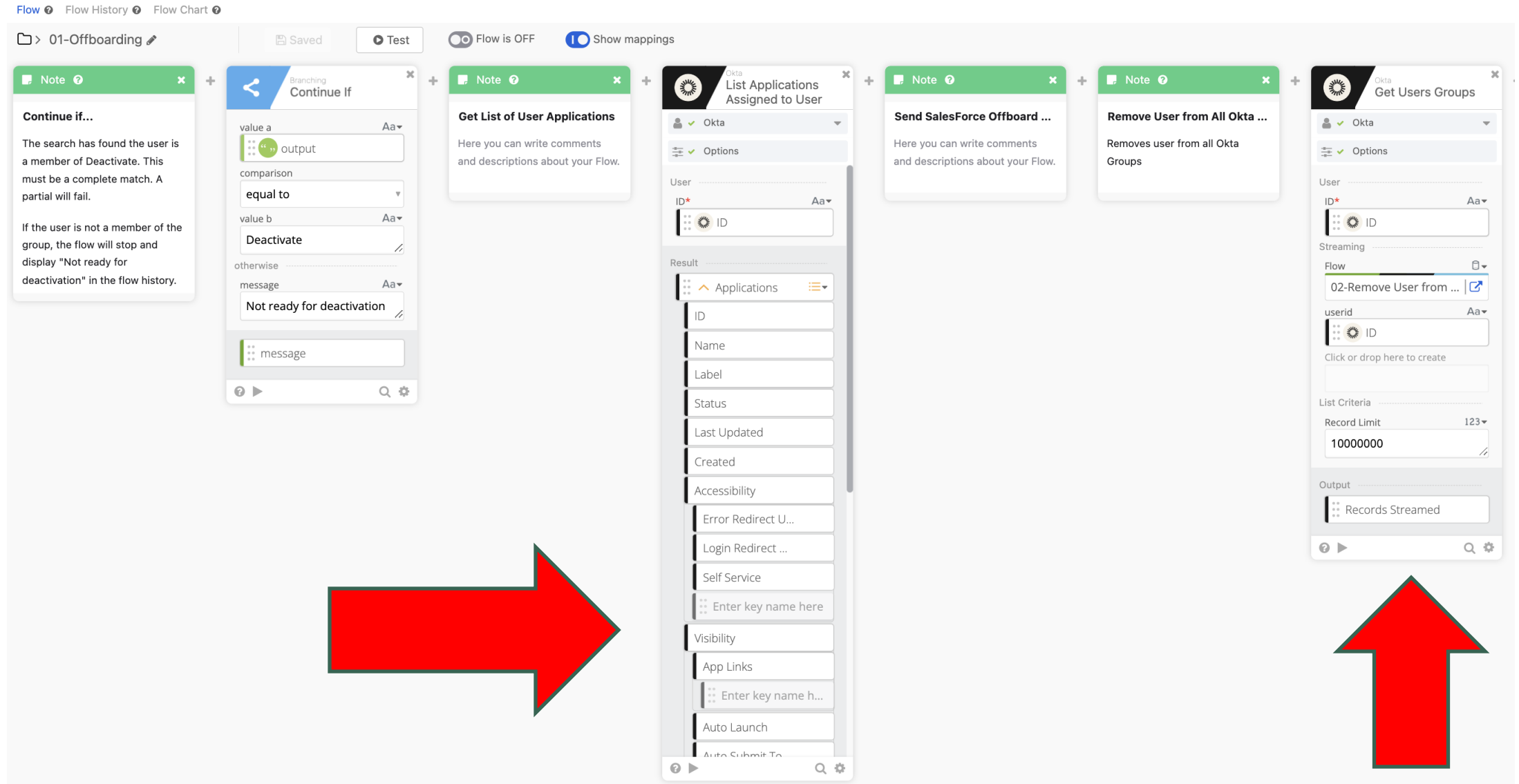
Output

Records Streamed





# Offboarding – Okta Auditing



# Offboarding – Okta Auditing & Jamf Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding

Saved Test Flow is OFF Show mappings

Note ?

**Gathers more information**

Used to determine if user is an Independent Contractor

Okta Read User

Okta

User

ID or Login\* Aa

ID

Profile Properties

Username

Primary email

User type

Department

Note ?

**Generate Random Number**

Creates random number between 10000 and 999999 to be used as a Jamf device lock code.

Number Random Integer

Greater than or equal to 123

100000

Less than 123

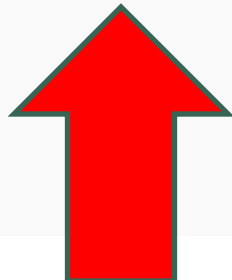
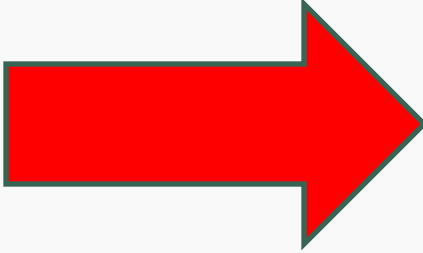
999999

LockCode

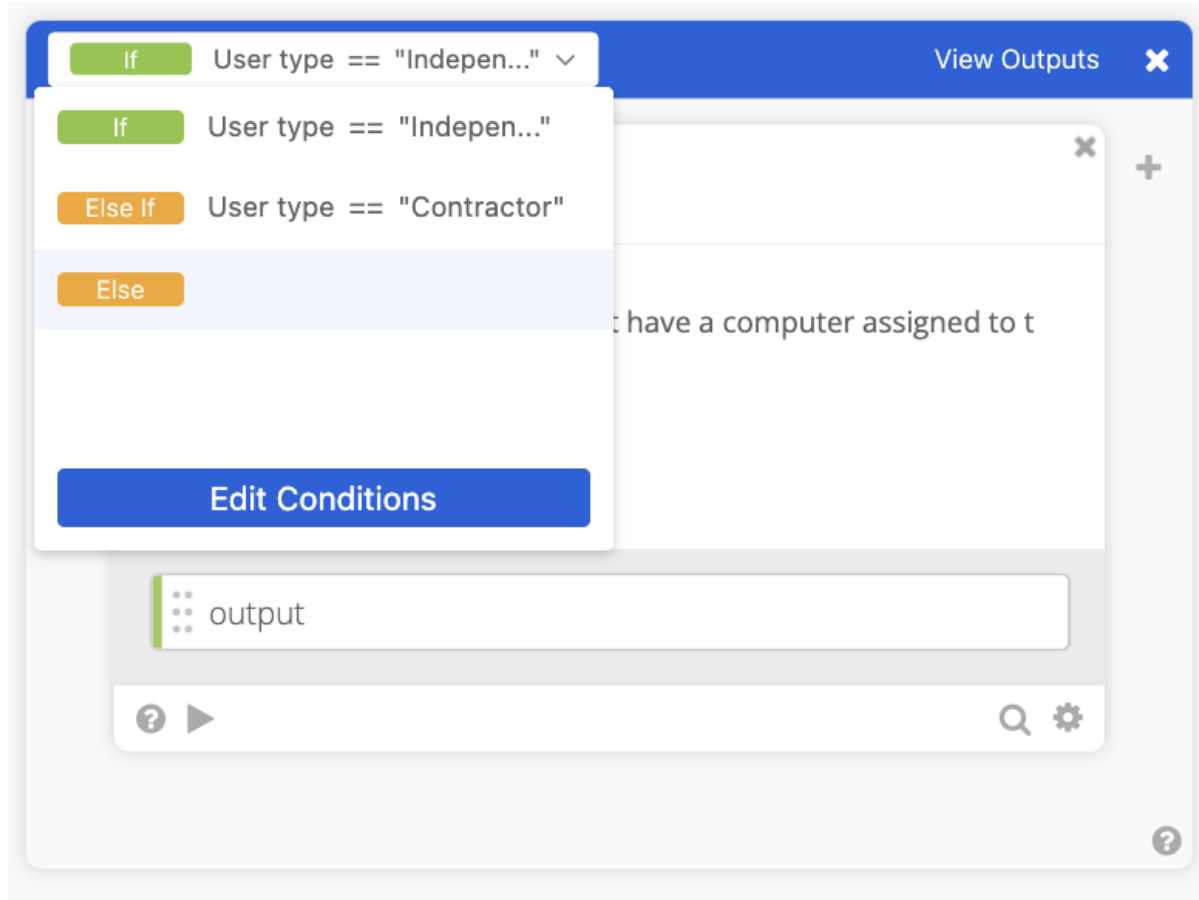
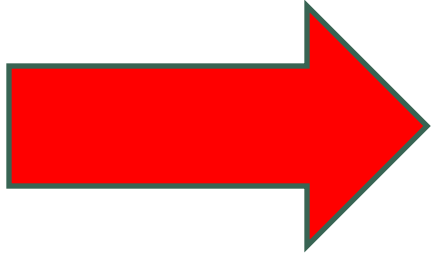
Note ?

**Jamf Offboarding**

Logic is used to determine if the user is a contractor or not. If they are not, their Jamf offboarding is completed. If they are, the Jamf steps are bypassed and the workflow continues.



# Offboarding – Jamf Offboarding & If/Else



# Offboarding – Jamf Offboarding & If/Else

Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

Else

**Compose**  
User is not a contractor..  
output

**Note**  
**Read Jamf User**  
Gets Jamf User information to be used later in the workflow.

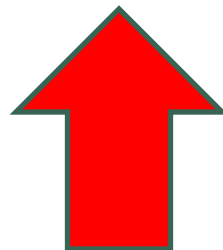
**Jamf Pro Classic API**  
**Read User**  
Options  
User  
Username\* Aa  
Primary email  
Click or drop here to create  
User  
ID  
Name  
Full Name  
Links  
Computers  
Enter key name here

**Note**  
**Extract Serial Numbers**  
Grabs Serial Numbers for the Slack Notification upon the completion of the workflow.

**List**  
**Pluck**  
list  
Computers  
key  
name  
MacNames

**Note**  
**Stringify MacNames**  
Converts all Macs for use in final notification

**JSON**  
**Stringify**  
object  
MacNames  
JamfNames



# Offboarding – Jamf Offboarding & If/Else

Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

Else

**Compose**  
User is not a contractor..  
output

**Note**  
**Read Jamf User**  
Gets Jamf User information to be used later in the workflow.

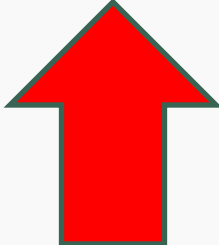
**Jamf Pro Classic API**  
**Read User**  
Options  
User  
Username\* Aa  
Primary email  
Click or drop here to create  
User  
ID  
Name  
Full Name  
Links  
Computers  
Enter key name here

**Note**  
**Extract Serial Numbers**  
Grabs Serial Numbers for the Slack Notification upon the completion of the workflow.

**List**  
**Pluck**  
list  
Computers  
key  
name  
MacNames

**Note**  
**Stringify MacNames**  
Converts all Macs for use in final notification

**JSON**  
**Stringify**  
object  
MacNames  
JamfNames



# Offboarding – Jamf Offboarding

Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

Eise

**Compose**  
User is not a contractor..  
output

**Note**  
**Read Jamf User**  
Gets Jamf User information to be used later in the workflow.

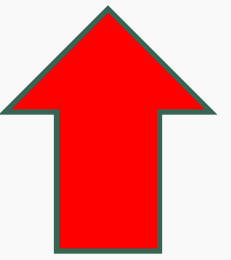
**Jamf Pro Classic API**  
**Read User**  
Options  
User  
Username\* Aa  
Primary email  
Click or drop here to create  
User  
ID  
Name  
Full Name  
Links  
Computers  
Enter key name here

**Note**  
**Extract Serial Numbers**  
Grabs Serial Numbers for the Slack Notification upon the completion of the workflow.

**List**  
**Pluck**  
list  
Computers  
key  
name  
MacNames

**Note**  
**Stringify MacNames**  
Converts all Macs for use in final notification

**JSON**  
**Stringify**  
object  
MacNames  
JamfNames



# Offboarding – Jamf Offboarding

Flow ? Flow History ? Flow Chart ?

> 01-Offboarding Saved Test Flow is OFF Show mappings View Outputs

Note ?

**Save Pass Code for Later**

Google Sheets Only accepts text, and not numbers.

Flow Control Assign

input 123

LockCode

Click or drop here to create

input

Note ?

**Lock Device**

Lock the device using the helper flow.

List For Each - Ignore Errors

For each item in this list

list Computers

Run this Flow

Helper Flow

03-Offboarding-Jamf L...

With these options

concurrency 123

1

With the following values

ComputerID Aa

id

LockCode Aa

LockCode

Note ?

**Add Computer to Static Gro...**

Adds computer to 'Macs out of Production'

List For Each

For each item in this list

list Computers

Run this Flow

Helper Flow

04-Offboard-Jamf-Add ...

With these options

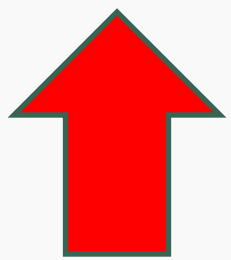
concurrency 123

1

With the following values

ComputerIDs Aa

id



# Offboarding – Jamf Offboarding

Flow ? Flow History ? Flow Chart ?

> 01-Offboarding Saved Test Flow is OFF Show mappings View Outputs

Note ?

**Save Pass Code for Later**

Google Sheets Only accepts text, and not numbers.

Flow Control Assign

input 123

LockCode

Click or drop here to create

input

Note ?

**Lock Device**

Lock the device using the helper flow.

List For Each - Ignore Errors

For each item in this list

list Computers

Run this Flow

Helper Flow

03-Offboarding-Jamf L...

With these options

concurrency 123

1

With the following values

ComputerID Aa

id

LockCode Aa

LockCode

Note ?

**Add Computer to Static Gro...**

Adds computer to 'Macs out of Production'

List For Each

For each item in this list

list Computers

Run this Flow

Helper Flow

04-Offboard-Jamf-Add ...

With these options

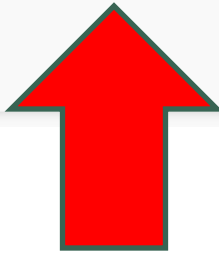
concurrency 123

1

With the following values

ComputerIDs Aa

id





# Offboarding – Jamf Offboarding & Helper Flows



Flow ? Flow History ? Flow Chart ?

03-Offboarding-Jamf Lock

Saved Test

On Demand  
Helper Flow

ComputerID

LockCode

Click or drag to create

context

Index

Caller

Error

Execution ID

Jamf Pro Classic API

Send Computer MDM Command

Jamf Pro Classic API

Options

Computer

ID 123

ComputerID

Command Info

Passcode\* Aa

LockCode

Click or drop here to create

Response

Status Code

# Offboarding – Jamf Offboarding

Flow ? Flow History ? Flow Chart ?

> 01-Offboarding Saved Test Flow is OFF Show mappings

View Outputs

Note ?

**Save Pass Code for Later**

Google Sheets Only accepts text, and not numbers.

Flow Control Assign

input 123

LockCode

Click or drop here to create

input

Note ?

**Lock Device**

Lock the device using the helper flow.

List For Each - Ignore Errors

For each item in this list

list

Computers

Run this Flow

Helper Flow

03-Offboarding-Jamf L...

With these options

concurrency 123

1

With the following values

ComputerID Aa

id

LockCode Aa

LockCode

Note ?

**Add Computer to Static Gro...**

Adds computer to 'Macs out of Production'

List For Each

For each item in this list

list

Computers

Run this Flow

Helper Flow

04-Offboard-Jamf-Add ...

With these options

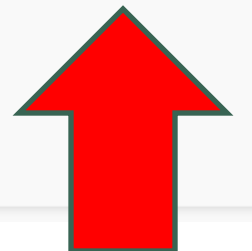
concurrency 123

1

With the following values

ComputerIDs Aa

id



# Offboarding – Jamf Offboarding & Helper Flows



Flow ? Flow History ? Flow Chart ?

04-Offboard-Jamf-Add to M...

Saved Test

On Demand  
Helper Flow

ComputerIDs

Click or drag to create

context

Index

Caller

Error

Execution ID

Jamf Pro Classic API  
Add Computer to  
Static Computer...

Jamf Pro Classic API

Options

Computer Group

ID 123▼  
404

Computer

ID 123▼  
ComputerIDs

Click or drop here to create

Response

Status Code

# Offboarding – Okta Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

**Note** Begins Okta Offboarding  
Clears User sessions and revokes oauthTokens

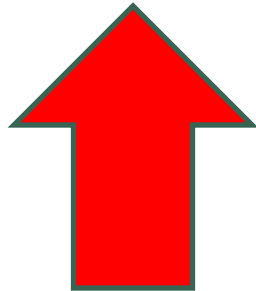
**Okta Clear User Sessions**  
User: ID  
Revoke oauthTokens?: True  
Output: Status Code

**Note** Reset Password  
This must be done while the account is still active, but does not send a reset email.

**Okta Reset Password**  
User: ID or Username  
Reset Password: URL

**Note** Compose  
Creates the realativeURL for the API in order to reset the users secondary email address. This must be done while the account is still active.

**Text Compose**  
/api/v1/users/ID  
RelativeURL



# Offboarding – Okta Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

**Note** Begins Okta Offboarding  
Clears User sessions and revokes oauthTokens

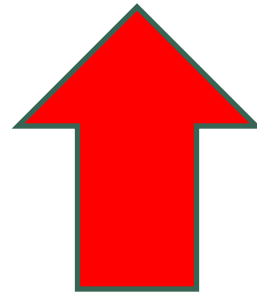
**Okta Clear User Sessions**  
User: ID  
Revoke oauthTokens?: True  
Output: Status Code

**Note** Reset Password  
This must be done while the account is still active, but does not send a reset email.

**Okta Reset Password**  
User: ID or Username  
Reset Password: URL

**Note** Compose  
Creates the realativeURL for the API in order to reset the users secondary email address. This must be done while the account is still active.

**Compose**  
/api/v1/users/ID  
RelativeURL



# Offboarding – Okta Offboarding

Flow Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

**Note**

**Begin Okta Offboarding**

Clears User sessions and revokes oauthTokens

**Okta Clear User Sessions**

Okta

User

ID\* Aa

Revoke oauthTokens? T/F

True

Output

Status Code

**Note**

**Reset Password**

This must be done while the account is still active, but does not send a reset email.

**Okta Reset Password**

Okta

Options

User

ID or Username\* Aa

ID

Reset Password

URL

**Note**

**Compose**

Creates the realativeURL for the API in order to reset the users secondary email address. This must be done while the account is still active.

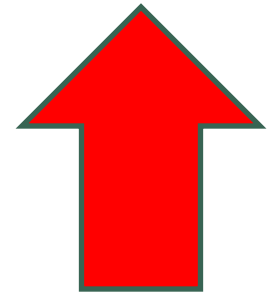
“ ” Text

Compose

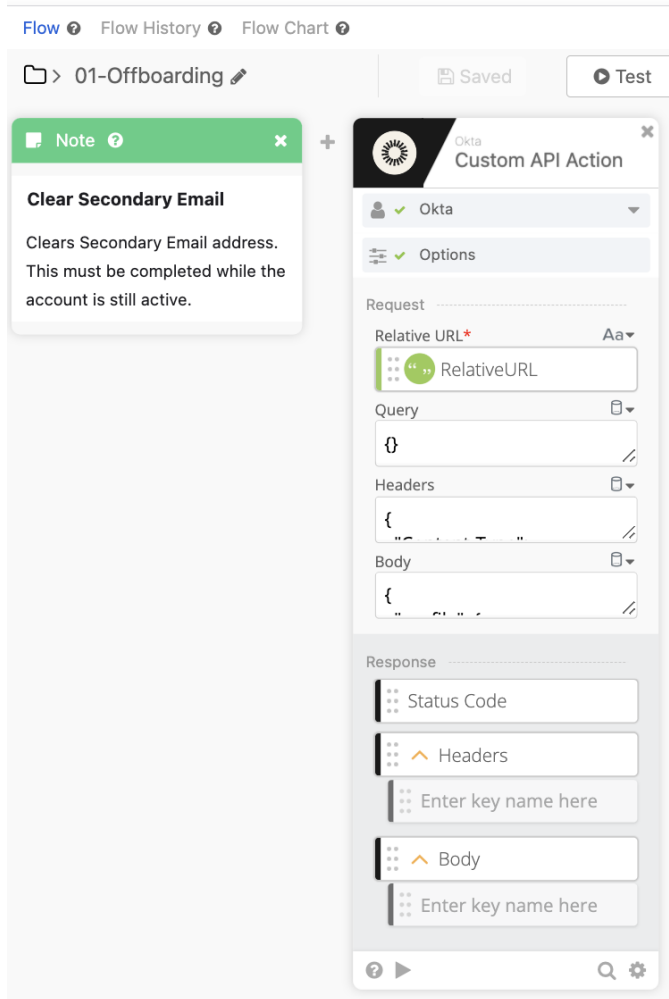
/api/v1/users/ID

RelativeURL

Okta Workflows supports most functions, but not all. However, custom API calls provide additional functionality.



# Offboarding – Okta Offboarding



RelativeURL created in previous step. Headers and Body are manually populated

Headers:

```
{
  "Content-Type": "application/json"
}
```

Body:

```
{
  "profile": {
    "secondEmail": "null@null.com"
  }
}
```

# Offboarding – Google Offboarding

Flow Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

**Note**

**Begin Google Offboard**

Google offboard using starting with pulling Google account information.

**Google Workspace Read User**

Google Workspace

Read By

User ID\* Aa

Username

User

Id

Full Name

Emails

Email Address

Primary?

Enter key name here

**Note**

**Sign Out User**

Signs user out of all Google sessions

**Note**

**Generate Random Password**

Creates a 22 character Password

**Text Random**

length 123

22

RandomGooglePW

**Note**

**Pause For 10 Seconds**

At this stage the process can freeze if the account is not in the expected state (409 Error). The pause allows the account to return to the correct condition.

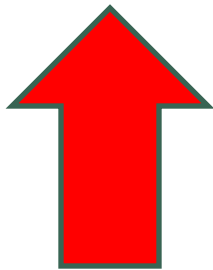
**Flow Control Wait For**

delay 123

10

unit

second





# Offboarding – Google Offboarding

Flow ⓘ Flow History ⓘ Flow Chart ⓘ

01-Offboarding ⓘ

Saved Test

Flow is OFF Show mappings

Note ⓘ

Begin Google Offboard

Google offboard using starting with pulling Google account information.

+

Google Workspace

Read User

Google Workspace

Read By

User ID\* Aa

Username

User

Id

Full Name

Emails

Email Address

Primary?

Enter key name here

+

Note ⓘ

Sign Out User

Signs user out of all Google sessions

+

Note ⓘ

Generate Random Password

Creates a 22 character Password

+

Text

Random

length 123

22

RandomGooglePW

+

Note ⓘ

Pause For 10 Seconds

At this stage the process can freeze if the account is not in the expected state (409 Error). The pause allows the account to return to the correct condition.

+

Flow Control

Wait For

delay 123

10

unitsecond

Highly Confidential

BlueVoyant

# Offboarding – Google Offboarding

Flow Flow History Flow Chart

01-Offboarding Saved Test Flow is OFF Show mappings

**Note**

**Begin Google Offboard**

Google offboard using starting with pulling Google account information.

**Google Workspace Read User**

Google Workspace

Read By

User ID\* Aa

Username

User

Id

Full Name

Emails

Email Address

Primary?

Enter key name here

**Note**

**Sign Out User**

Signs user out of all Google sessions

**Note**

**Generate Random Password**

Creates a 22 character Password

**Text Random**

length 123

22

RandomGooglePW

**Note**

**Pause For 10 Seconds**

At this stage the process can freeze if the account is not in the expected state (409 Error). The pause allows the account to return to the correct condition.

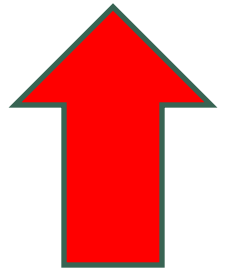
**Flow Control Wait For**

delay 123

10

unit

second



# Offboarding – Google Offboarding

Flow > 01-Offboarding

Flow is OFF Show mappings

Reset Password

Resets Google Password while account is still active.

Update User

Google Workspace

Update By

User ID\* Aa

Id

User

First Name Aa

Last Name Aa

Notes Aa

Included in Global Address List T/F

False

Password Aa

RandomGoogle...

Hash Format

Choose an option

Change Password At Next Login T/F

False

IP Allow Listed? T/F

False

Organizational Unit Path Aa

Custom Schema Name Aa

Custom Fields

Create RelativeURI for Google API calls

Used for Google API calls

Text Compose

/v1/users/ Id

RelativeURI

Clear Secondary Information

Here you can write comments and descriptions about your Flow.

Custom API Action

Google Workspace

Options

Request

Relative URL\* Aa

RelativeURI

Query

Headers

Body

Response

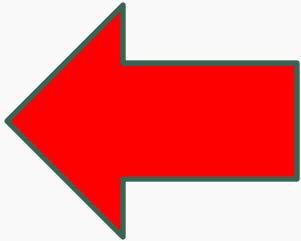
Status Code

Headers

Enter key name here

Body

Enter key name here



# Offboarding – Google Offboarding

Flow History Flow Chart

01-Offboarding

Flow is OFF Show mappings

Note: Reset Password  
Resets Google Password while account is still active.

Google Workspace Update User

User ID\* Aa  
Id

User

First Name Aa  
Last Name Aa  
Notes Aa  
Included in Global Address List T/F  
False  
Password Aa  
RandomGoogle...  
Hash Format  
Choose an option  
Change Password At Next Login T/F  
False  
IP Allow Listed? T/F  
False  
Organizational Unit Path Aa  
Custom Schema Name Aa  
Custom Fields

Note: Create RelativeURI for Google API calls  
Used for Google API calls

Text Compose

/v1/users/ Id

RelativeURI

Note: Clear Secondary Information  
Here you can write comments and descriptions about your Flow.

Google Workspace Custom API Action

Options

Request

Relative URL\* Aa  
RelativeURI


Query  
{ }

Headers  
{ }

Body  
{ }

Response

Status Code  
Headers  
Enter key name here  
Body  
Enter key name here



# Offboarding – Google Offboarding

Flow > 01-Offboarding

Flow is OFF

Test

Show mappings

Note: Reset Password  
Resets Google Password while account is still active.

Google Workspace Update User

User ID\* Aa  
Id

User

First Name Aa

Last Name Aa

Notes Aa

Included in Global Address List T/F  
False

Password Aa  
RandomGoogle...

Hash Format  
Choose an option

Change Password At Next Login T/F  
False

IP Allow Listed? T/F  
False

Organizational Unit Path Aa

Custom Schema Name Aa

Custom Fields

Note: Create RelativeURI for Google API calls  
Used for Google API calls

Text Compose

/v1/users/{Id}

RelativeURI

Note: Clear Secondary Information  
Here you can write comments and descriptions about your Flow.

Google Workspace Custom API Action

Options

Request

Relative URL\* Aa  
RelativeURI

Query

Headers

Body

Response

Status Code

Headers  
Enter key name here

Body  
Enter key name here

# Offboarding – Google Offboarding

Note

**Clear Secondary Information**  
 Here you can write comments and descriptions about your Flow.

Google Workspace  
 Custom API Action

Google Workspace

Options

Request

Relative URL\*

RelativeURI

Query

{

Headers

{

Body

{

Response

Status Code

Headers

Enter key name here

Body

Enter key name here

## Body:

```

{
  "emails": [
    {
      "address": "null",
      "type": "home"
    }
  ],
  "phones": [
    {
      "value": "null",
      "type": "home"
    }
  ]
}

```

# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

**Note** **Read All Google Groups**  
Collects a list of Google Groups

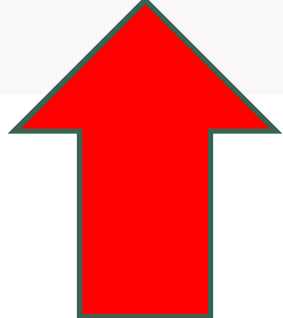
**Google Workspace**  
**Read All User Groups**  
User: Google Workspace  
User Key\*: Id  
Results: Groups  
ID  
Enter key name here

**Note** **Convert List to String**  
Changes the list to a string for the output records

**JSON Stringify**  
object: Groups  
GoogleGroups

**Note** **Removes User from Google ...**  
Using a helper flow, the user is removed from all groups.

**List** **For Each - Ignore Errors**  
For each item in this list: Groups  
Run this Flow: Helper Flow  
05-Google Groups Re...  
With these options: concurrency 123, 1  
With the following values: EmailAddress, Username, GroupKey ID



# Offboarding – Google Offboarding

Flow Flow History Flow Chart

01-Offboarding

Saved Test Flow is OFF Show mappings

**Note**

**Read All Google Groups**

Collects a list of Google Groups

**Google Workspace**

Google Workspace

User

User Key\* Aa

Id

Results

Groups

ID

Enter key name here

**Note**

**Convert List to String**

Changes the list to a string for the output records

**JSON Stringify**

object

Groups

GoogleGroups

**Note**

**Removes User from Google ...**

Using a helper flow, the user is removed from all groups.

**List For Each - Ignore Errors**

For each item in this list

list

Groups

Run this Flow

Helper Flow

05-Google Groups Re...

With these options

concurrency 123

1

With the following values

EmailAddress Aa

Username

GroupKey Aa

ID





# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

**Note** **Read All Google Groups**  
Collects a list of Google Groups

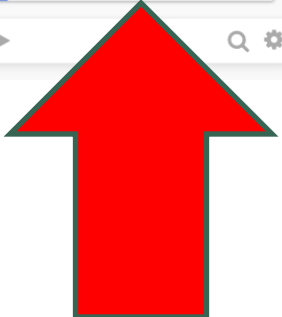
**Google Workspace**  
**Read All User Groups**  
User: Google Workspace  
User Key\*: Id  
Results: Groups  
ID  
Enter key name here

**Note** **Convert List to String**  
Changes the list to a string for the output records

**JSON Stringify**  
object: Groups  
GoogleGroups

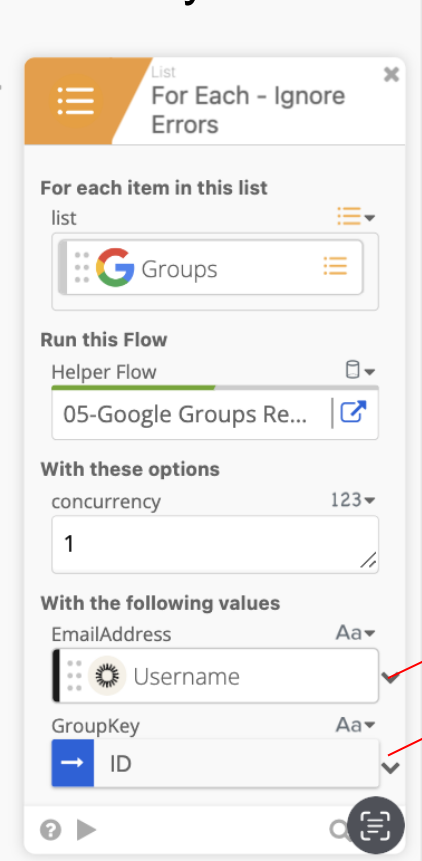
**Note** **Removes User from Google ...**  
Using a helper flow, the user is removed from all groups.

**List** **For Each - Ignore Errors**  
For each item in this list  
list: Groups  
Run this Flow  
Helper Flow: 05-Google Groups Re...  
With these options  
concurrency: 123  
1  
With the following values  
EmailAddress: Username  
GroupKey: ID

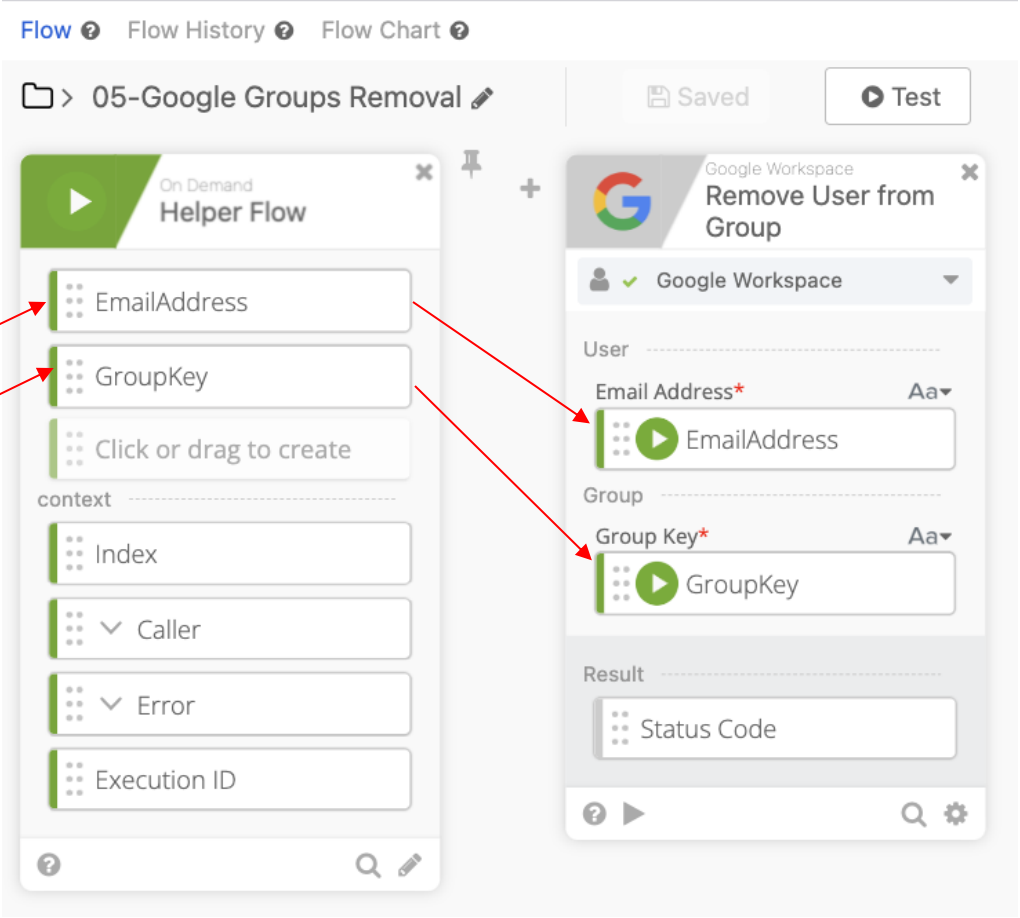


# Offboarding – Google Offboarding

Primary Workflow



Helper Flow



# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

Note ? Read App Specific Passwords

Here you can write comments and descriptions about your Flow.

Google Workspace Read All User ASPs

Google Workspace

Read By

User ID\* Aa

Id

Results

ASPs

Code ID

Name

Creation Time

Last Time Used

User Key

Kind

Etag

Enter key name here

Note ? Revoke App Specific Passw...

Here you can write comments and descriptions about your Flow.

List For Each - Ignore Errors

For each item in this list

list

ASPs

Run this Flow

Helper Flow

07-Google-Revoke App...

With these options

concurrency 123

1

With the following values

GoogleID Aa

Username

ASPID Aa

Code ID

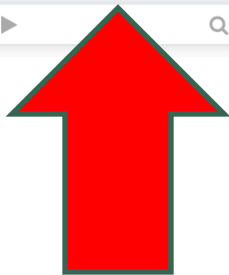
Note ? Create URI to Revoke Googl...

Combines previous RelativeURI and /makeAdmin

Text Compose

RelativeURI /makeAdmin

MakeAdminURI



# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

Note ? Read App Specific Passwords

Here you can write comments and descriptions about your Flow.

Note ? Google Workspace Read All User ASPs

Google Workspace

Read By

User ID\* Aa

Id

Results

ASPs

Code ID

Name

Creation Time

Last Time Used

User Key

Kind

Etag

Enter key name here

Note ? Revoke App Specific Passw...

Here you can write comments and descriptions about your Flow.

List For Each - Ignore Errors

For each item in this list

list

ASPs

Run this Flow

Helper Flow

07-Google-Revoke App...

With these options

concurrency 123

1

With the following values

GoogleID Aa

Username

ASPID Aa

Code ID

Note ? Create URI to Revoke Googl...

Combines previous RelativeURI and /makeAdmin

Text Compose

RelativeURI /makeAdmin

MakeAdminURI



# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

01-Offboarding Saved Test Flow is OFF Show mappings

Note ? Read App Specific Passwords

Here you can write comments and descriptions about your Flow.

Note ? Google Workspace Read All User ASPs

Google Workspace

Read By

User ID\* Aa

Id

Results

ASPs

Code ID

Name

Creation Time

Last Time Used

User Key

Kind

Etag

Enter key name here

Note ? Revoke App Specific Passw...

Here you can write comments and descriptions about your Flow.

List For Each - Ignore Errors

For each item in this list

list

ASPs

Run this Flow

Helper Flow

07-Google-Revoke App...

With these options

concurrency 123

1

With the following values

GoogleID Aa

Username

ASPID Aa

Code ID

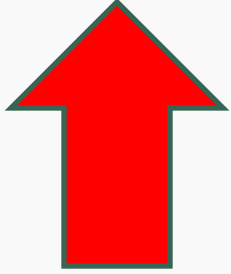
Note ? Create URI to Revoke Googl...

Combines previous RelativeURI and /makeAdmin

Text Compose

RelativeURI /makeAdmin

MakeAdminURI



# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

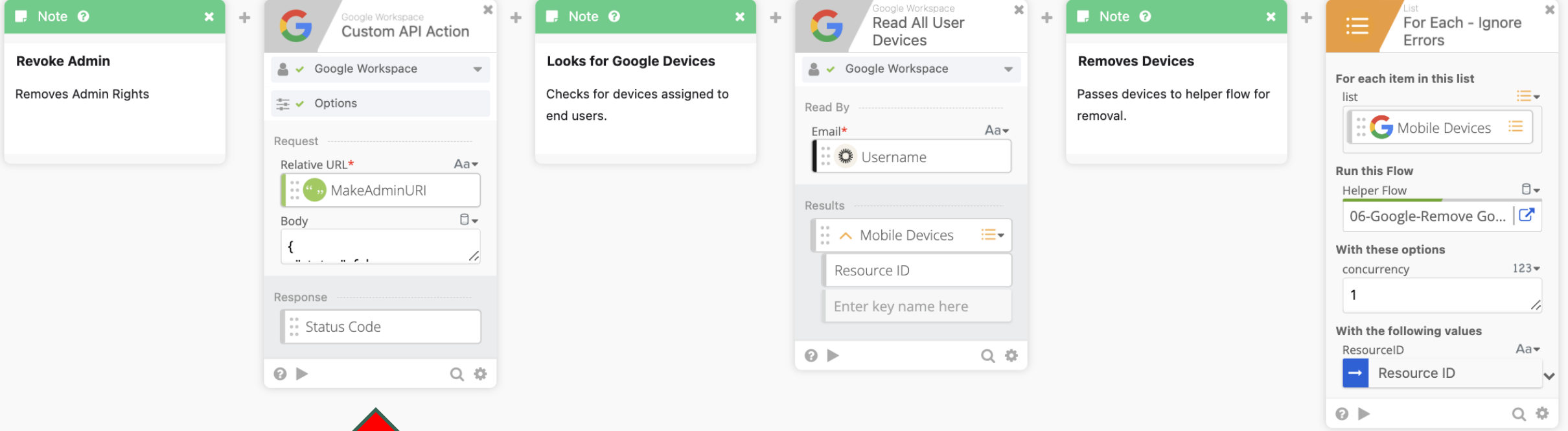
01-Offboarding

Saved

Test

Flow is OFF

Show mappings



# Offboarding – Google Offboarding

Flow [?](#) Flow History [?](#) Flow Chart [?](#)

01-Offboarding [?](#) Saved Test Flow is OFF Show mappings

**Note** [?](#) **Revoke Admin**  
Removes Admin Rights

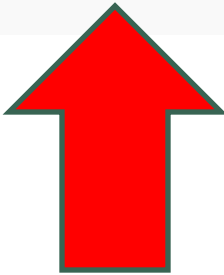
**Google Workspace Custom API Action**  
Google Workspace  
Options  
Request  
Relative URL\*  
MakeAdminURI  
Body  
{  
Response  
Status Code

**Note** [?](#) **Looks for Google Devices**  
Checks for devices assigned to end users.

**Google Workspace Read All User Devices**  
Google Workspace  
Read By  
Email\*  
Username  
Results  
Mobile Devices  
Resource ID  
Enter key name here

**Note** [?](#) **Removes Devices**  
Passes devices to helper flow for removal.

**List For Each - Ignore Errors**  
For each item in this list  
list  
Mobile Devices  
Run this Flow  
Helper Flow  
06-Google-Remove Go...  
With these options  
concurrency 123  
1  
With the following values  
ResourceID  
Resource ID



# Offboarding – Google Offboarding

Flow ? Flow History ? Flow Chart ?

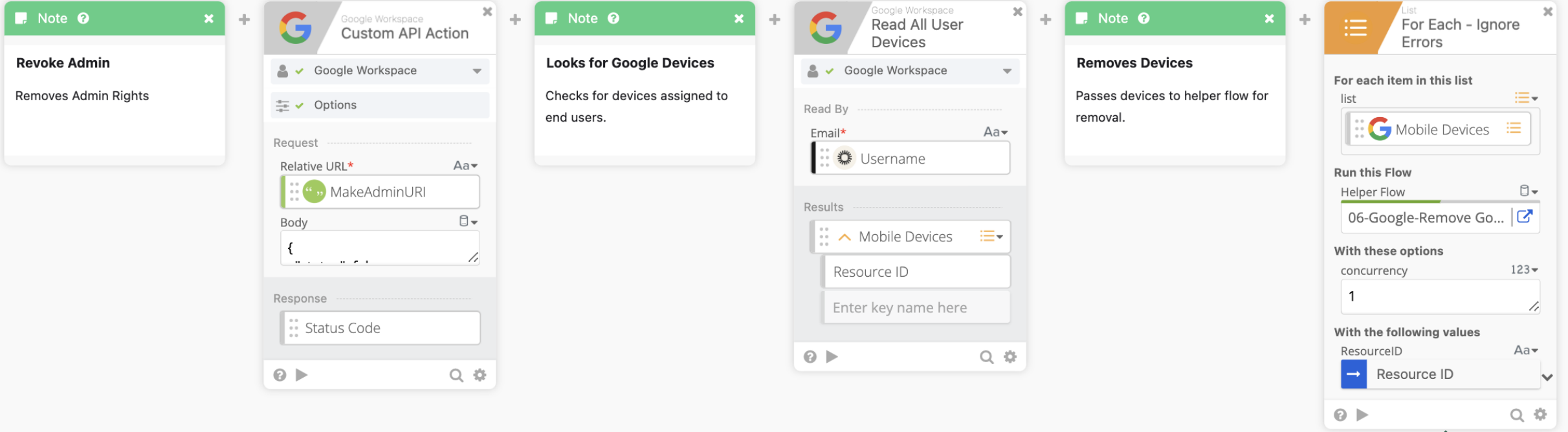
01-Offboarding

Saved

Test

Flow is OFF

Show mappings





# Offboarding – Google Offboarding

[Flow](#) ? [Flow History](#) ? [Flow Chart](#) ?

01-Offboarding

Saved

Test

Flow is OFF

Show mappings

Note

## Deactivate User in Google

Here you can write comments and descriptions about your Flow.

## Google Workspace Deactivate User

Google Workspace

User

ID\*

Aa

Google Id

Result

Status Code

Note

## Deactivate Okta Account

Deactivates user's Okta account.

## Okta Deactivate User

Okta

User

ID or Login\*

Aa

Okta ID

Response

Status Code



# Offboarding – Google Offboarding & Okta Deactivation

Flow ? Flow History ? Flow Chart ?

01-Offboarding

Saved

Test

Flow is OFF

Show mappings

Note ?

## Deactivate User in Google

Here you can write comments and descriptions about your Flow.

**Google Workspace Deactivate User**

Google Workspace

User

ID\* Aa

Id

Result

Status Code

Note ?

## Deactivate Okta Account

Deactivates user's Okta account.

**Okta Deactivate User**

Okta

Options

User

ID or Login\* Aa

ID

Response

Status Code

# Offboarding – Maintenance & Logging

Flow ? Flow History ? Flow Chart ?

> 01-Offboarding Save Test Flow is OFF Show mappings

**Note ?** **Get Current Time**  
Used in offboard sheet to identify time of offboarding

**Date & Time Now**

- date
- iso
- full
- minute
- hour
- time
- day
- month
- year
- second
- millisecond

**Note ?** **Narrow List**  
Condenses Previously Generated Okta App List

**List Pluck**

list: Applications

key: Label

ListUserAppsOkta

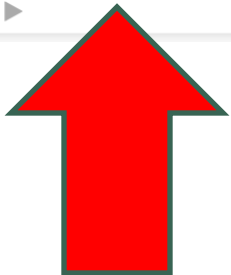
Enter key name here

**Note ?** **Convert List to Text**  
Objects aren't supported ahead, so it must be converted to text

**JSON Stringify**

object: ListUserAppsO...

OktaApps



# Offboarding – Maintenance & Logging

Flow ? Flow History ? Flow Chart ?

01-Offboarding

Save

Test

Flow is OFF

Show mappings

The screenshot displays a workflow editor interface with a sequence of six steps connected by plus signs. The steps are:

- Note**: Titled "Get Current Time", with the description "Used in offboard sheet to identify time of offboarding".
- Date & Time**: Titled "Now", with a list of time units: date, iso, full, minute, hour, time, day, month, year, second, and millisecond.
- Note**: Titled "Narrow List", with the description "Condenses Previously Generated Okta App List".
- List Pluck**: A list operation step. The "list" field is set to "Applications". The "key" field is set to "Label". Below, there is a dropdown menu showing "ListUserAppsOkta" and a text input field labeled "Enter key name here".
- Note**: Titled "Convert List to Text", with the description "Objects aren't supported ahead, so it must be converted to text".
- JSON Stringify**: A JSON operation step. The "object" field is set to "ListUserAppsO...". The output field is labeled "OktaApps".

A large red arrow points upwards towards the "List Pluck" step.

# Offboarding – Maintenance & Logging

Flow ? Flow History ? Flow Chart ?

01-Offboarding

Save

Test

Flow is OFF

Show mappings

The screenshot displays a workflow editor interface with a sequence of steps connected by plus signs. The steps are:

- Note**: **Get Current Time**  
Used in offboard sheet to identify time of offboarding
- Date & Time**: **Now**  
Fields: date, iso, full, minute, hour, time, day, month, year, second, millisecond
- Note**: **Narrow List**  
Condenses Previously Generated Okta App List
- List**: **Pluck**  
list: Applications  
key: Label  
ListUserAppsOkta  
Enter key name here
- Note**: **Convert List to Text**  
Objects aren't supported ahead, so it must be converted to text
- JSON**: **Stringify**  
object: ListUserAppsO...  
OktaApps

A large red arrow points upwards towards the bottom right of the workflow sequence.

# Offboarding – Maintenance & Logging

Flow ? Flow History ? Flow Chart ?

> 01-Offboarding ✎

Save • Test

Note ? ✕

**Dump List of Apps to Sheet**

Adds list of Okta User's Apps to a Google Sheet

Google Sheets  
Create Row ✕

Google Sheets-ITSupport...

Options

Columns

0-Date of Offboarding Aa▼  
iso

1-User Aa▼  
Full Name

2-Email Address Aa▼  
Username

3-Okta Applications Aa▼  
OktaApps

Click or drop here to create

Output

Updated Range

Row Number

? ▶ 🔍 ⚙

- Time of Offboarding
- Offboarded User's Full Name
- Offboarded User's Username
- Complete List of Applications that were assigned to the user

# Offboarding – Additional Logging & Notification

The screenshot displays a workflow editor interface for a process named "01-Offboarding". The workflow is structured as follows:

- Step 1: Read User** (Jamf Pro Classic API)
  - Options: User
  - Input: Username (Aa)
  - Links: Computers (Aa)
- Step 2: Stringify** (JSON)
  - Input: object
  - Output: SerialNumbers
- Step 3: Create Row** (Google Sheets)
  - Options: Columns
  - Input: 0-Date of Offboarding (Aa), 1-User (Aa), 2-Email Address (Aa), 3-Google Groups (Aa), 4-Okta Groups (Aa), 5-Serial Numbers (Aa), 6-Passcode (Aa)
  - Output: Updated Range, Row Number
- Step 4: Compose** (Text)
  - Input: Full Name 's( Username ) offboard has been completed. Their c omputer(s) serial numbers and lock codes have been stored with the full details in the Offboarded Users and Groups Google Shee t.
  - Output: SlackMessage
- Step 5: Send Message to Channel** (Slack)
  - Options: Message
  - Input: Text\* (Aa), Thread Timestamp (Aa)
  - Output: Timestamp

The interface includes a top navigation bar with "Flow", "Flow History", and "Flow Chart" tabs. Below the workflow steps, there are buttons for "Save", "Test", "Flow is OFF", and "Show mappings". The workflow is currently in "Flow is OFF" state.

# Offboarding – Notification

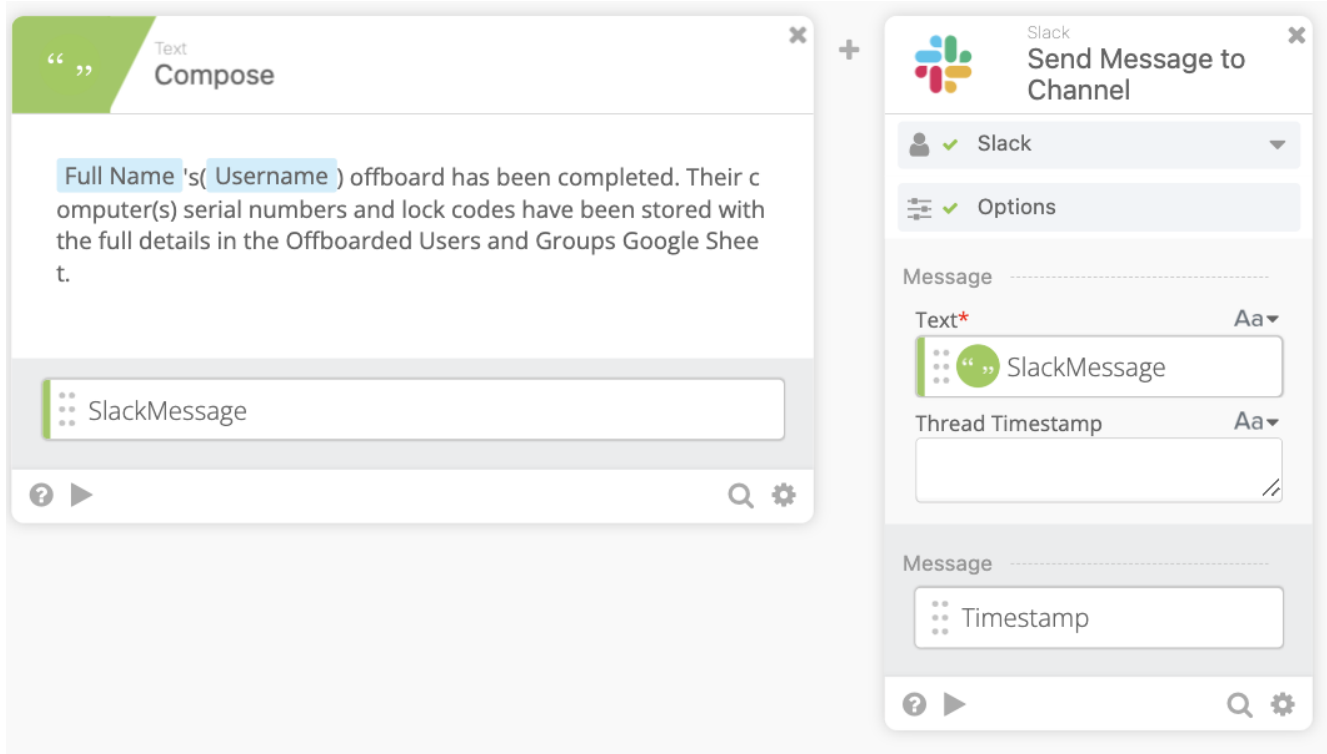
The screenshot displays a workflow automation interface with three steps:

- Step 1: Jamf Pro Classic API Read User**
  - Options: User (Username\*)
  - Links: Computers
- Step 2: JSON Stringify**
  - object: Computers
  - SerialNumbers
- Step 3: Google Sheets Create Row**
  - Columns:
    - 0-Date of Offboarding: full
    - 1-User: Full Name
    - 2-Email Address: Username
    - 3-Google Groups: GoogleGroups
    - 4-Okta Groups: OktaGroups
    - 5-Serial Numbers: SerialNumbers
    - 6-Passcode: LockCode
  - Output:
    - Updated Range
    - Row Number

- Date of Offboarding
- Offboarded User's Full Name
- Offboarded User's Username
- List of Offboarded User's Google Groups
- List of Offboarded User's Okta Groups
- List of Serial Numbers from the Offboarded User's Computers in Jamf
- The Random Lock Code used to lock their device



# Offboarding – Notification



- Full Name's (Username) offboard has been completed. Their computer(s) serial numbers and lock code(s) have been stored with the full details in the Offboarded Users and Groups Google Sheet.

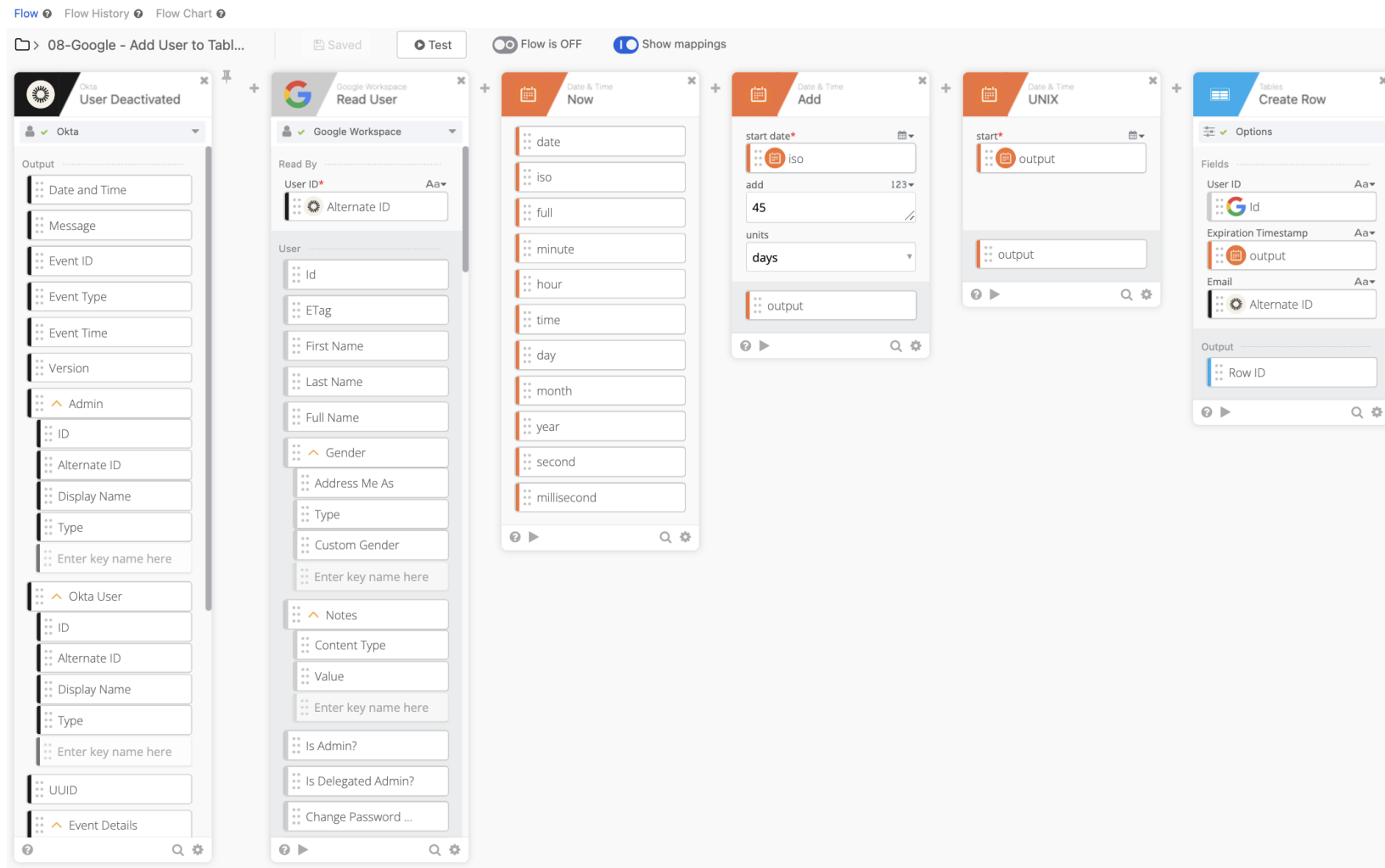


**Okta Workflows** 8:53 PM

Bruce Wayne's([bruce.wayne@bluevoyant.com](mailto:bruce.wayne@bluevoyant.com)) offboard has been completed. Their computer(s) serial numbers and lock codes have been stored with the full details in the Offboarded Users and Groups Google Sheet.

# Offboarding – Bonus Workflows

Workflows can run simultaneously, and their events can be triggers for other workflows



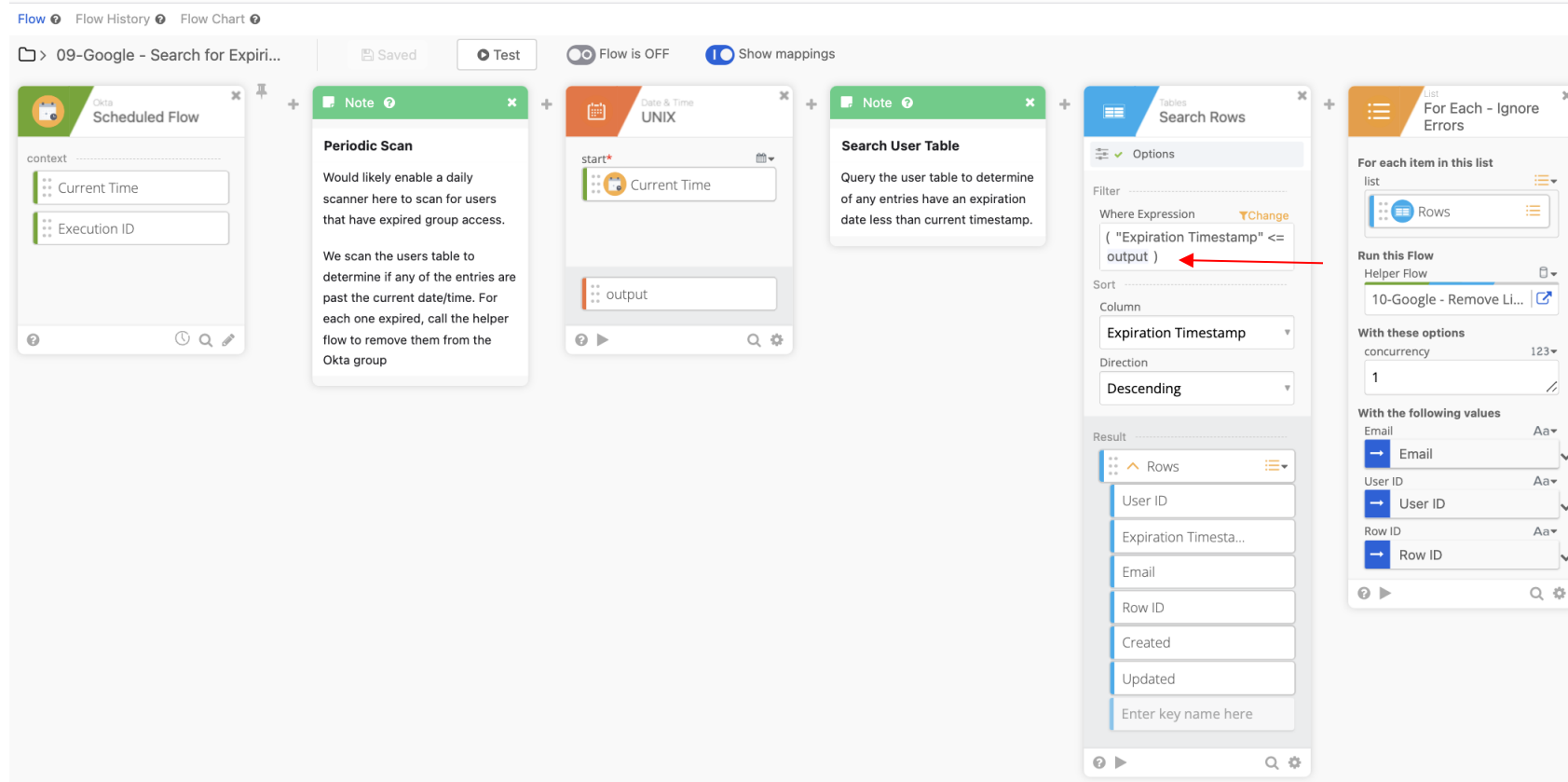
Schedules Google License Removal by writing user offboard information to a table.

A scheduled flow reviews the table, compares the time in the table to current date and time before taking action.

Schedules Removal

# Offboarding – Bonus Workflows

Workflows can run simultaneously, and their events can be triggers for other workflows



Schedules Google License Removal by writing user offboard information to a table.

A scheduled flow reviews the table, compares the time in the table to current date and time before taking action.

Searches for Expired Entries and Triggers Removal

# Offboarding – Bonus Workflows

Workflows can run simultaneously, and their events can be triggers for other workflows

The screenshot displays a workflow builder interface with the following components:

- Flow Header:** Includes tabs for 'Flow', 'Flow History', and 'Flow Chart'. Below these are buttons for 'Saved', 'Test', and a toggle for 'Flow is OFF'. A 'Show mappings' button is also present.
- Flow Steps:**
  - On Demand Helper Flow:** A green step with a play icon. It contains a list of fields: Email, User ID, Row ID, and a 'Click or drag to create' button. Below this is a 'context' section with fields for Index, Caller, Error, and Execution ID.
  - Note:** A green step with a document icon. It contains the text: 'remove user from group', 'take user and group ids passed in and call okta to remove the user from the group'.
  - Google Workspace Unassign License from User:** A step with the Google logo. It includes a dropdown for 'Google Workspace', a 'Product' field, a 'licenses' dropdown, a 'User' field, and a 'Primary Email\*' dropdown. Below these is a 'Results' section with fields for 'Results', 'License Name', 'Status Code', and 'Enter key name here'.
  - Tables Delete Row:** A blue step with a table icon. It includes a 'Delete By' dropdown, a 'Row ID\*' field, and a 'Row ID' dropdown.

Schedules Google License Removal by writing user offboard information to a table.

A scheduled flow reviews the table, compares the time in the table to current date and time before taking action.

Remove License and Table Entry

# Offboarding – Bonus Workflows

Workflows can run simultaneously, and their events can be triggers for other workflows

The screenshot displays a workflow builder interface with five parallel workflow steps, each with its own configuration panel:

- Okta User Deactivated:** Includes a search bar, a list of properties (Date and Time, Message, Event ID, Event Type, Event Time, Version, Admin, ID, Alternate ID, Display Name, Type, Enter key name here, UUID, Event Details), and a search icon.
- Okta Read User:** Includes a search bar, a list of properties (ID or Login, ID, System Properties, Profile Properties, Username), and a search icon.
- Office 365 Admin Read User:** Includes a search bar, a list of properties (Id or Username, Username, About Me, Assigned Licenses, Employee Id, Id, User Principal Name), and a search icon.
- For Each - Ignore Errors (Assigned Licenses):** Includes a search bar, a list of properties (Assigned Licenses), and a search icon.
- Office 365 Admin Read User Roles:** Includes a search bar, a list of properties (Id or Username, Username, User Roles, Id, Display Name, Description, Role Template Id, Enter key name here), and a search icon.
- For Each - Ignore Errors (User Roles):** Includes a search bar, a list of properties (User Roles, Id, Display Name, Description, Role Template Id, Enter key name here), and a search icon.

Removes  
Microsoft Licenses and  
any Microsoft roles the  
user may  
have using two Helper  
Workflows

# Offboarding – Bonus Workflows

Workflows can run simultaneously, and their events can be triggers for other workflows

The image displays two screenshots of Microsoft Power Automate workflows, both titled 'On Demand Helper Flow'.

**Workflow 12: 12-Microsoft License Remova...**

- Flow Name:** Office 365 Admin Remove License from User
- Trigger:** Username
- Inputs:** Username, Licenses
- Context:** Index, Caller, Error, Execution ID
- License Input:** SKU Id\*
- User Input:** About Me

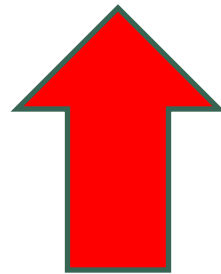
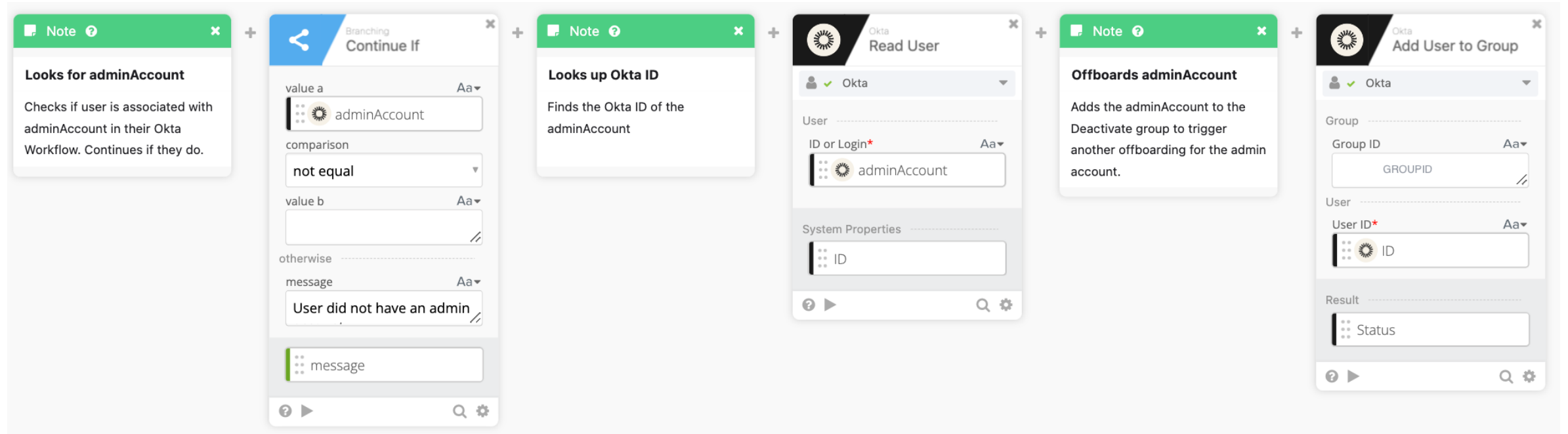
**Workflow 13: 13-Microsoft Office-Remove ...**

- Flow Name:** Office 365 Admin Unassign Role from User
- Trigger:** Username
- Inputs:** Username, Id
- Context:** Index, Caller, Error, Execution ID
- Role Input:** Id\*
- Output:** Status Code

Removes Microsoft Licenses and any Microsoft roles the user may have using two Helper Workflows

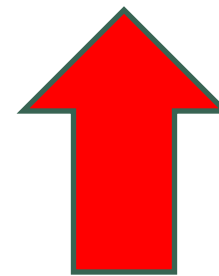
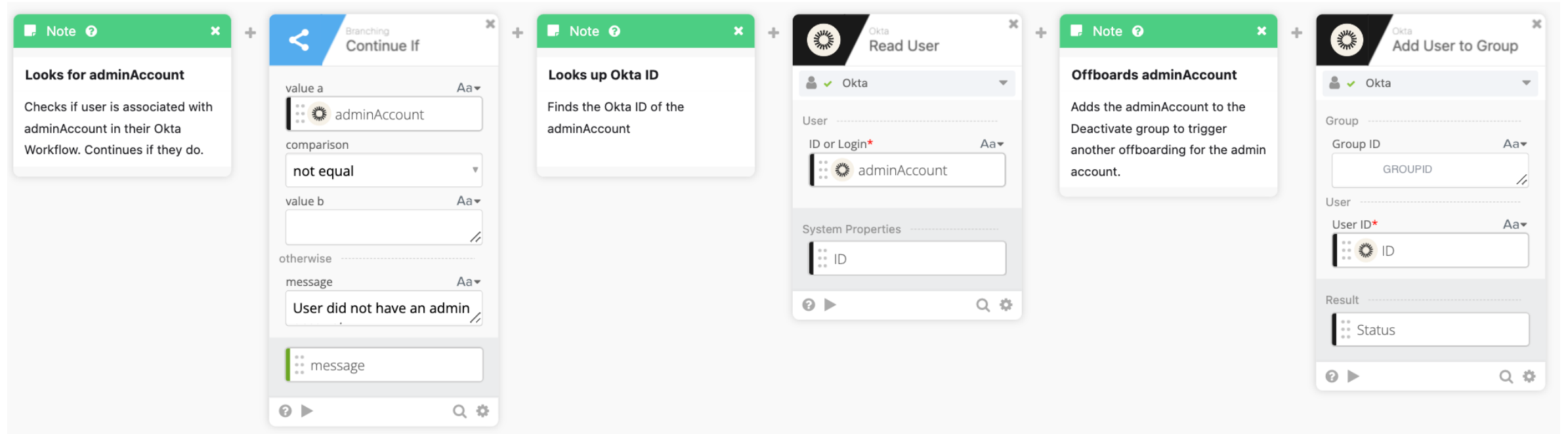
# Offboarding – Final Steps

Workflows can run simultaneously, and their events can be triggers for other workflows



# Offboarding – Final Steps

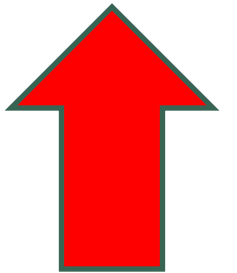
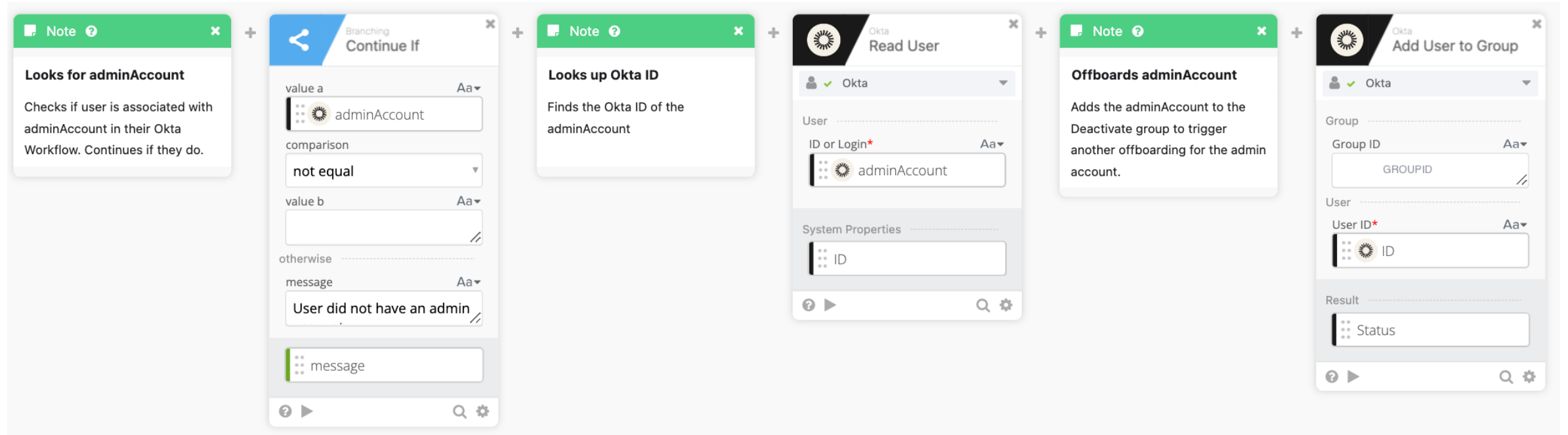
Workflows can run simultaneously, and their events can be triggers for other workflows





# Offboarding – Final Steps

Workflows can run simultaneously, and their events can be triggers for other workflows



# Resources

- Okta Workflows: <https://help.okta.com/wf/en-us/Content/Topics/Workflows/workflows-main.htm>
- Okta Workflows Pricing: <https://www.okta.com/pricing/>
- Jamf 'Self Heal' : [https://docs.jamf.com/10.36.0/jamf-pro/release-notes/New\\_Features\\_and\\_Enhancements.html](https://docs.jamf.com/10.36.0/jamf-pro/release-notes/New_Features_and_Enhancements.html)
- Jam Pro API Documentation: <https://developer.jamf.com/jamf-pro/docs/jamf-pro-api-overview>

# Questions?



# Thank You

The BlueVoyant logo is positioned on the left side of the slide. It consists of a light blue square above a darker blue square. The word "BlueVoyant" is written in white, sans-serif font across the bottom of the darker blue square.

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