



Automating User Creation with Survey123 and Python Notebooks in ArcGIS Online



Release Ready
Specialty



ArcGIS Marketplace
Provider





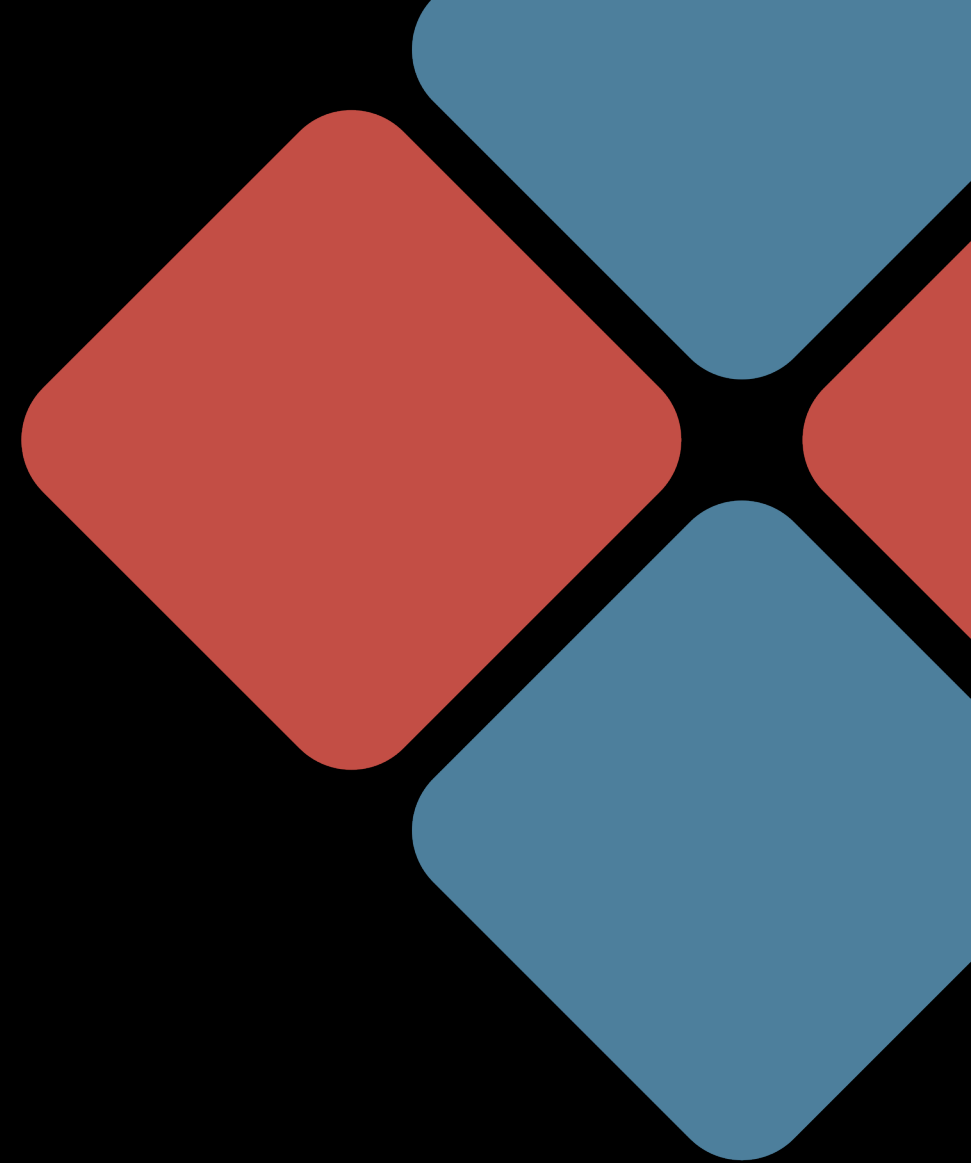
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CTO – Dymaptic

- My Company: Dymaptic
- My Product: Infomaptic



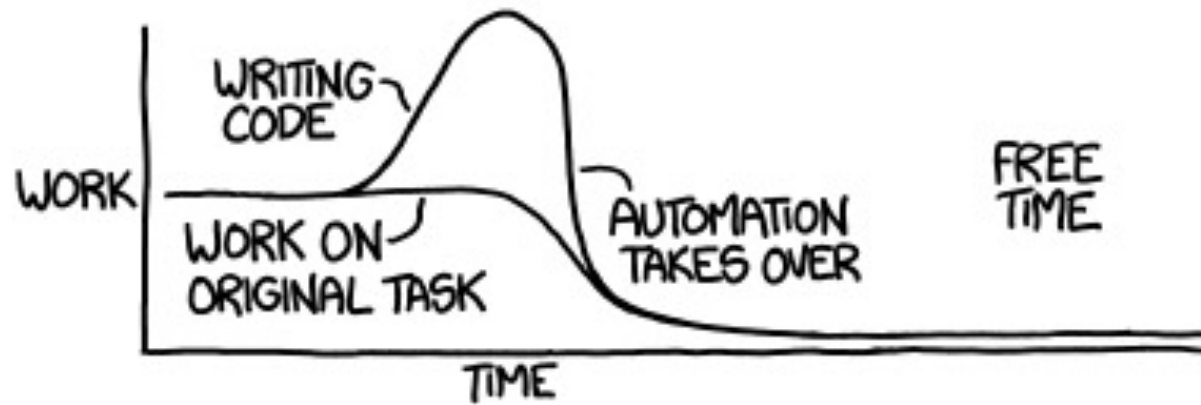
Automation

- One of my favorite things!
- Reduces overhead
- Speeds up processes
- Simplify processes

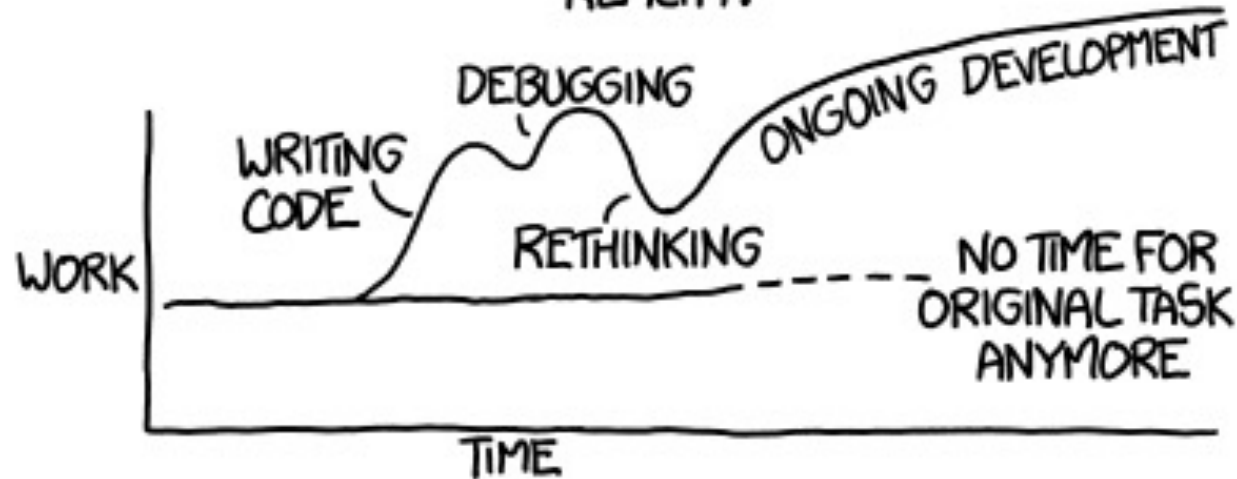


"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"

THEORY:



REALITY:



The Cost of Automation

Python Automation

- More moving parts
- More to maintain
- The Script, External Python Libs, Scheduled Tasks



The Problem

- External Contractors
- Access to ArcGIS Online
- Sign an acknowledgement form
- Currently done manually via email

The Solution



Survey123



ArcGIS API for Python



Hosted Notebooks with
Scheduling

The Process

1. Add a new user to ArcGIS Online
2. Ensure this user is in the “New User” Group
3. The user logs in and sees the Survey123 Form
4. User Signs the form
5. Script runs, adds the user to the correct group, send notifications

Demo

ArcGIS Online Groups

Create a New User

New member

First name

Last name

Email address

Username

User type Compatible with all roles and licenses

Role

Temporary password

Password strength: Strong

[Next, add another](#)

Add them to the Initial Group

Add-on licenses

[Manage](#)

Groups

[Manage](#)

E Energy Demo Group Form

Content of the Initial or Form Group

The screenshot shows a web application interface for a group named "Energy Demo Group Form". The top navigation bar includes tabs for "Overview", "Content" (which is active), "Members", and "Settings". Below the navigation bar, there is a search bar labeled "Search group content" and a button "Add items to group". To the right of the search bar are view options: "List", "Title", and "Filter".

On the left side, there is a "Filters" section with two expandable categories:

- Group categories:** This section is currently collapsed and shows the text "No group categories yet" and "Categories allow group members to organize items consistently and provide a simple way to browse content in the group." Below this is a button labeled "Set up group categories".
- Item type:** This section is also collapsed and lists several item types: "Maps", "Layers", "Scenes", "Apps", "Tools", "Files", and "Insights".

The main content area displays two items, with a pagination indicator "1 - 2, total: 2".

- Energy Demo Survey:** This item is a "Form" by "MoravecLabsOnline". It was created on 2022 M05 2 and updated on 2022 M05 3. It has a view count of 2. The thumbnail image shows a stylized industrial or energy facility with a location pin.
- Energy Demo Survey_fieldworker:** This item is a "Feature Layer" by "MoravecLabsOnline". It was created on 2022 M05 2 and updated on 2022 M05 2. It has a view count of 0. The thumbnail image shows a world map.

Each item card includes a set of action icons at the bottom right: a lock icon, a plus sign, a group icon, a star icon, and a three-dot menu icon.

Content of the Final Group

Energy Demo Final Group Overview **Content** Members Settings

[+ Add items to group](#) | | List Title **Filter**

Filters 1 - 1, total: 1

Group categories



No group categories yet

Categories allow group members to organize items consistently and provide a simple way to browse content in the group.


[Set up group categories](#)

Item type





- Maps
- Layers
- Scenes
- Apps
- Tools
- Files
- Insights

Super Secret Report

 Web Mapping Application by [MoravecLabsOnline](#)

Created: 2022 M05 3 Updated: 2022 M05 3 View Count: 8

 +   

Content of Gallery Group

group for main page everyone

Overview Content Members Settings

+ Add items to group

Search group content

List Title Filter

Filters

1 - 2, total: 2

Group categories

No group categories yet

Categories allow group members to organize items consistently and provide a simple way to browse content in the group.

Set up group categories

Item type

- Maps
- Layers
- Scenes
- Apps
- Tools
- Files
- Insights

Energy Demo Survey

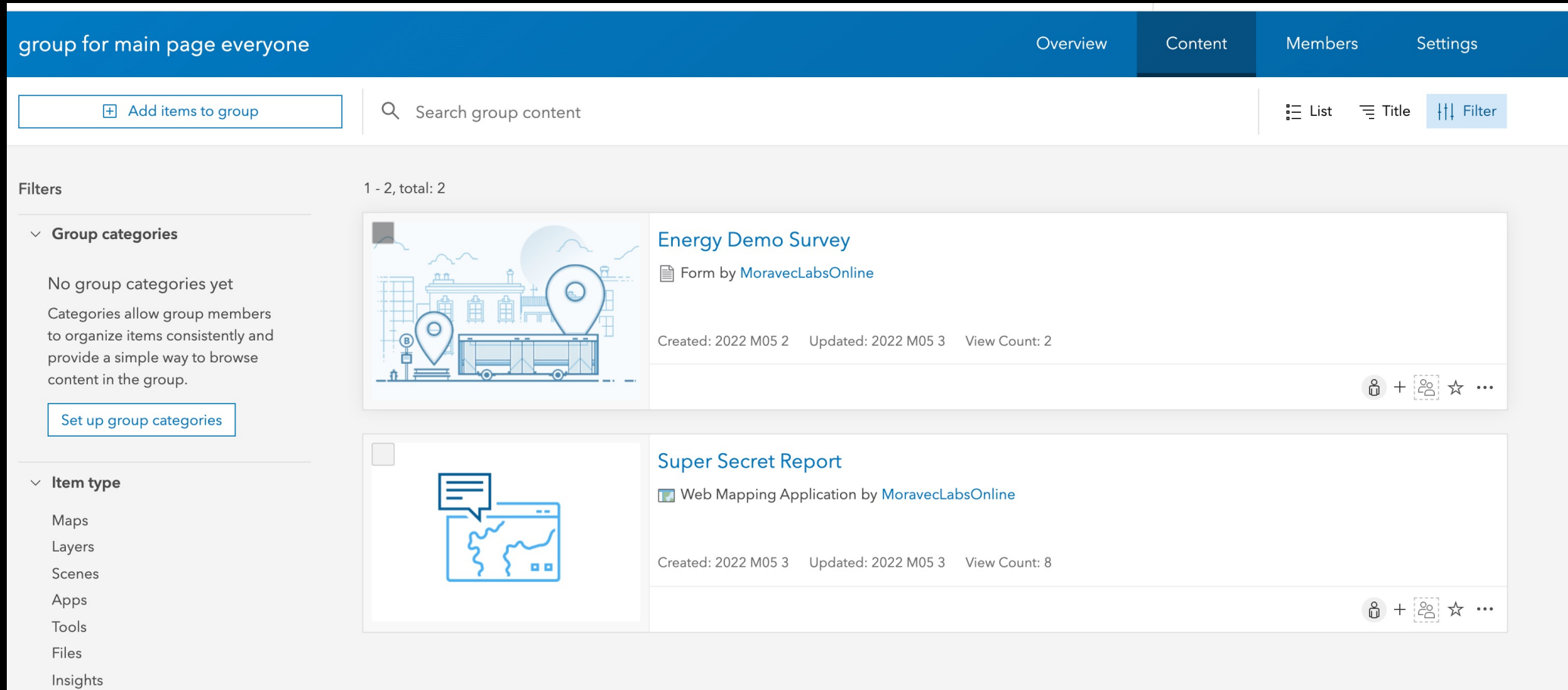
Form by MoravecLabsOnline

Created: 2022 M05 2 Updated: 2022 M05 3 View Count: 2

Super Secret Report

Web Mapping Application by MoravecLabsOnline

Created: 2022 M05 3 Updated: 2022 M05 3 View Count: 8

The image shows a screenshot of a gallery group interface. At the top, there is a blue navigation bar with the group name 'group for main page everyone' on the left and navigation tabs 'Overview', 'Content', 'Members', and 'Settings' on the right. Below the navigation bar, there is a search bar with the text 'Search group content' and a button '+ Add items to group'. To the right of the search bar are three view options: 'List', 'Title', and 'Filter'. The main content area is divided into two columns. The left column contains a 'Filters' section with two expandable categories: 'Group categories' and 'Item type'. Under 'Group categories', it says 'No group categories yet' and provides a 'Set up group categories' button. Under 'Item type', there is a list of categories: Maps, Layers, Scenes, Apps, Tools, Files, and Insights. The right column displays two items. The first item is 'Energy Demo Survey', a 'Form by MoravecLabsOnline', with a creation date of '2022 M05 2', an update date of '2022 M05 3', and a view count of 2. The second item is 'Super Secret Report', a 'Web Mapping Application by MoravecLabsOnline', with a creation date of '2022 M05 3', an update date of '2022 M05 3', and a view count of 8. Each item has a small icon on the left and a set of action icons (lock, share, star, etc.) on the right.

Code Review

Variables and Imports

▼ New User Onboarding

▼ Settings

1. `survey_layer_id` - The ID of the layer in ArcGIS Online that contains the results of the Survey123 form. This must be the base layer, not the stakeholder or fieldworker view
2. `initial_group_id` - The ID of the group that new users start out in.
3. `final_group_id` - The ID of the group that new users end up in.
4. `notify_these_users` - The list of usernames that should be notified when someone signs the form

```
In [1]: survey_layer_id = "ad5f4b6ae1ac4acbb16c8ae64a97bfab"  
initial_group_id = "1000c04a8e314bcd93f378d46ffc345b"  
final_group_id = "48c065d9a80344eebc534c145ffca997"  
notify_these_users = ["MoravecLabsOnline"]
```

▼ Imports and Setup

```
In [2]: from arcgis.gis import GIS  
from arcgis.features import FeatureLayer  
gis = GIS("home")
```

```
/opt/conda/lib/python3.7/site-packages/arcgis/gis/__init__.py:575: UserWarning:
```

```
You are logged on as MoravecLabsOnline with an administrator role, proceed with caution.
```

Main Logic

Functions

```
In [3]: notify_users = [gis.users.get(i) for i in notify_these_users]

def register_user(user):
    # Remove the user from initial_group
    initial_group = gis.groups.get(initial_group_id)
    initial_group.remove_users([user.username])

    # Add the user to final_group
    final_group = gis.groups.get(final_group_id)
    final_group.add_users([user.username])

    # Send the user a notification
    subject = "You now have access to the XYZ ArcGIS Online"
    msg = "Thank you for signing the form, you {uname} now have access to ArcGIS Online".format(uname=user.username)

    gis.users.send_notification([user], subject, msg, "email")

    # Notify Admins that a user has signed the form
    subject = "The user {uname} has signed the form".format(uname=user.username)
    msg = "The user {uname} has signed the form and now has access to the system".format(uname=user.username)

    gis.users.send_notification(notify_users, subject, msg, "email")
    return True

def process_submissions():
    submission_item = gis.content.get(survey_layer_id)
    submission_layer = FeatureLayer.fromitem(submission_item)
    features = submission_layer.query(where="processed is null or processed = 'No'")
    print("Found "+ str(len(features)) + " To process")
    for f in features:
        creator = f.get_value("Creator")
        print(" Processing: "+ str(creator))
        creator_user = gis.users.get(creator)
        if register_user(creator_user):
            f.set_value("Processed", "Yes")

    else:
        f.set_value("Processed", "Error")
    submission_layer.edit_features(updates=[f])
    print(" Complete.")
```

Main Process

▼ **Main Process**

```
In [7]: process_submissions()
```

```
Found 0 To process
```

What Else?

- Weekly Summary Emails
- Deploy Layers (Views)
- Deploy Maps and Apps
- New User Registration
- Managing your Budget



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<https://discord.gg/wZA4X9yTfq>