



# Turn 1000 Clicks into 1 with python-jamf and jctl





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KDInfoTech



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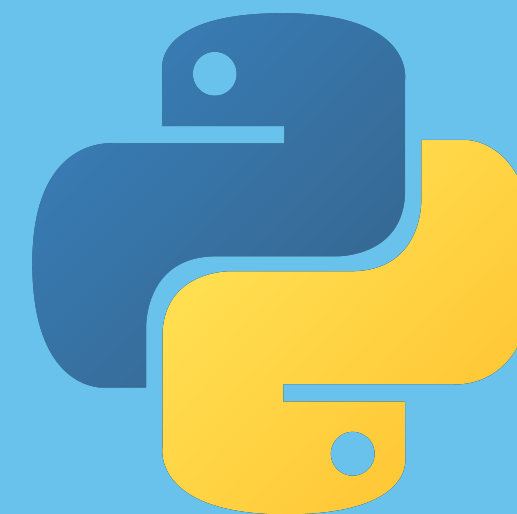
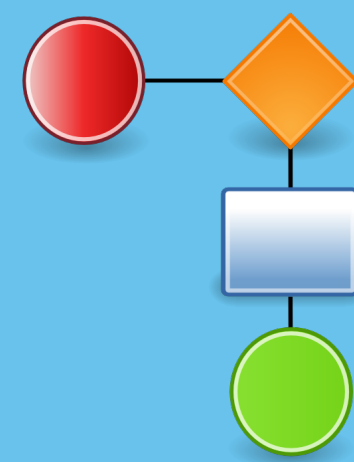
University of Utah, School of Biological Sciences



# Agenda

- Intro & Background of Tools & Development
- How it Works Internally
- Usage Examples of Workflows
- Advanced Usage & Package Management

# Intro & Background of Tools & Development





# Why?



# Why?

- Repetitive Workflows & Processes Defined
  - Web Interface Slow & Inefficient
  - Missing Features & Functionality of API
- Automation, Iterate & Repeat
  - Saves Time & Focus
  - Reduces Errors & Improves Consistency
  - Less Prone to Human Errors than Manual Processes
  - Scalability

# Background

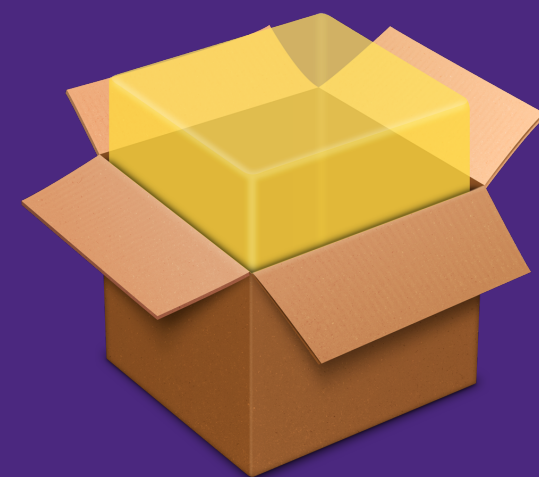


# Background

- Original Dev Focused on Patch Management

# Background

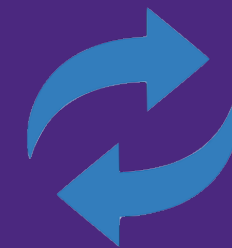
- Original Dev Focused on Patch Management
  - Package Management



upload



delete



replace



list



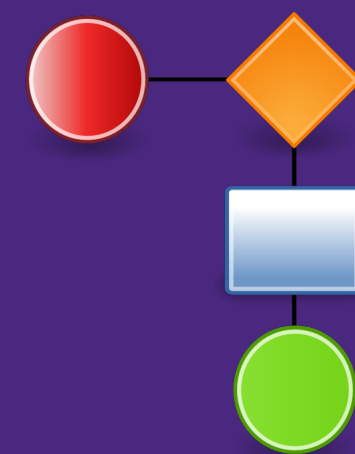
# Background

- Original Dev Focused on Patch Management
  - Package Management
  - Patch Management



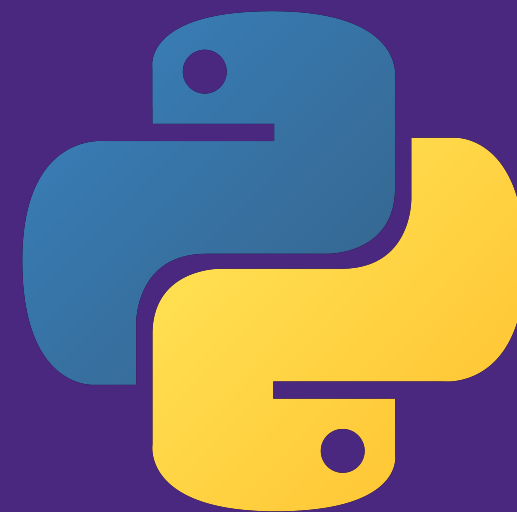
# Background

- Original Dev Focused on Patch Management
  - Package Management
  - Patch Management
  - Version Release Management

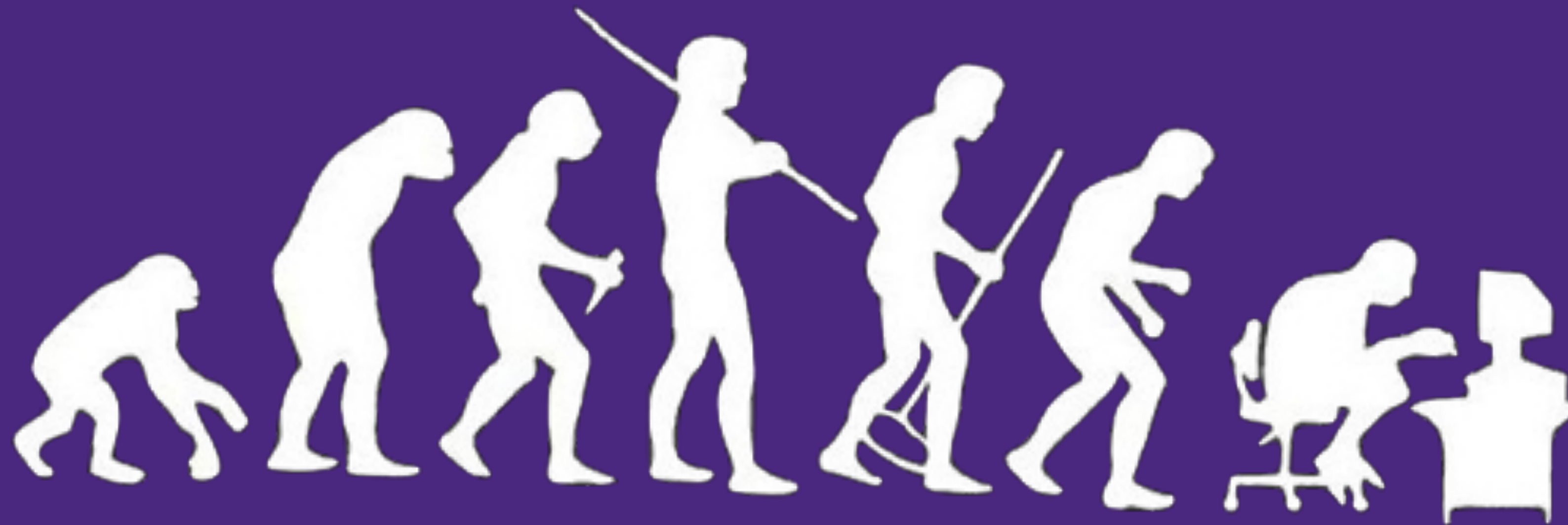


# Background

- Original Dev Focused on Patch Management
  - Package Management
  - Patch Management
  - Version Release Management
  - Support Scripting & Automation



# Evolution



# Evolution

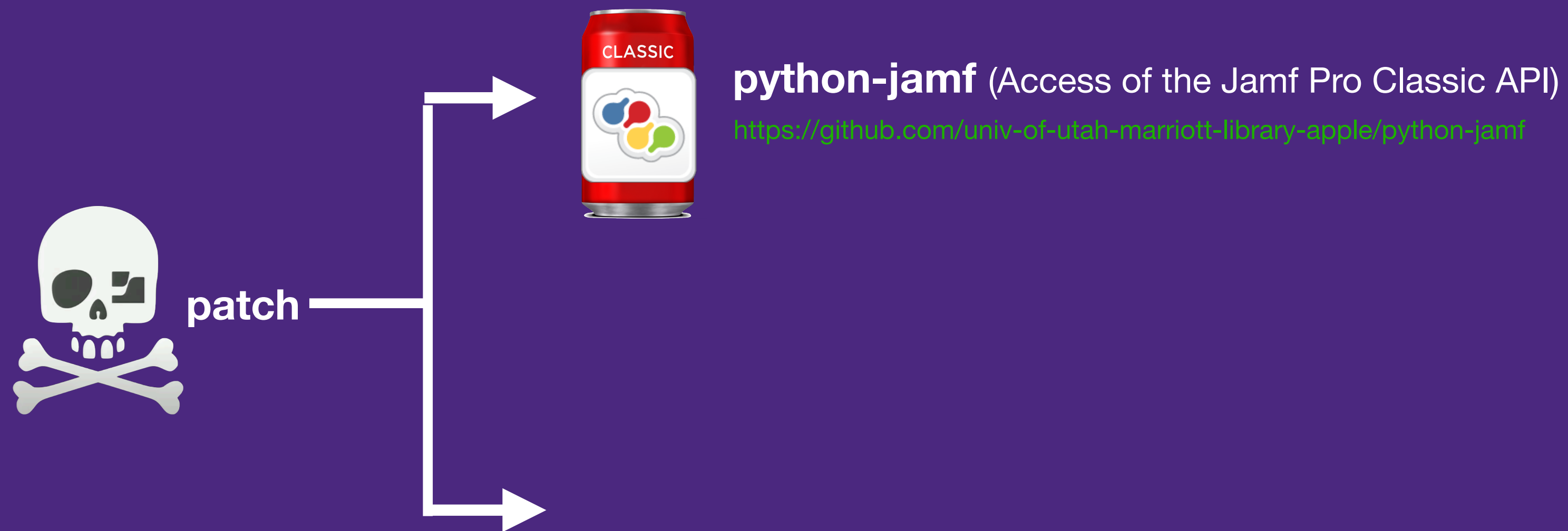
- Split into two separate projects





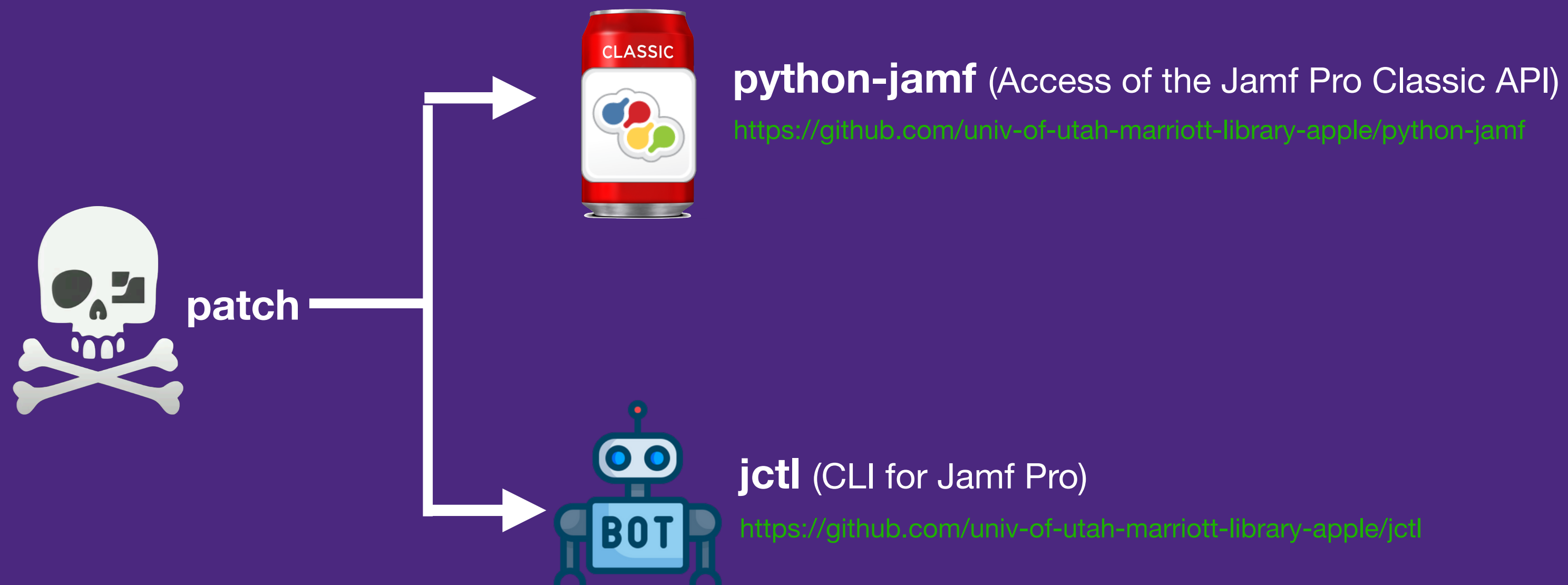
# Evolution

- Split into two separate projects



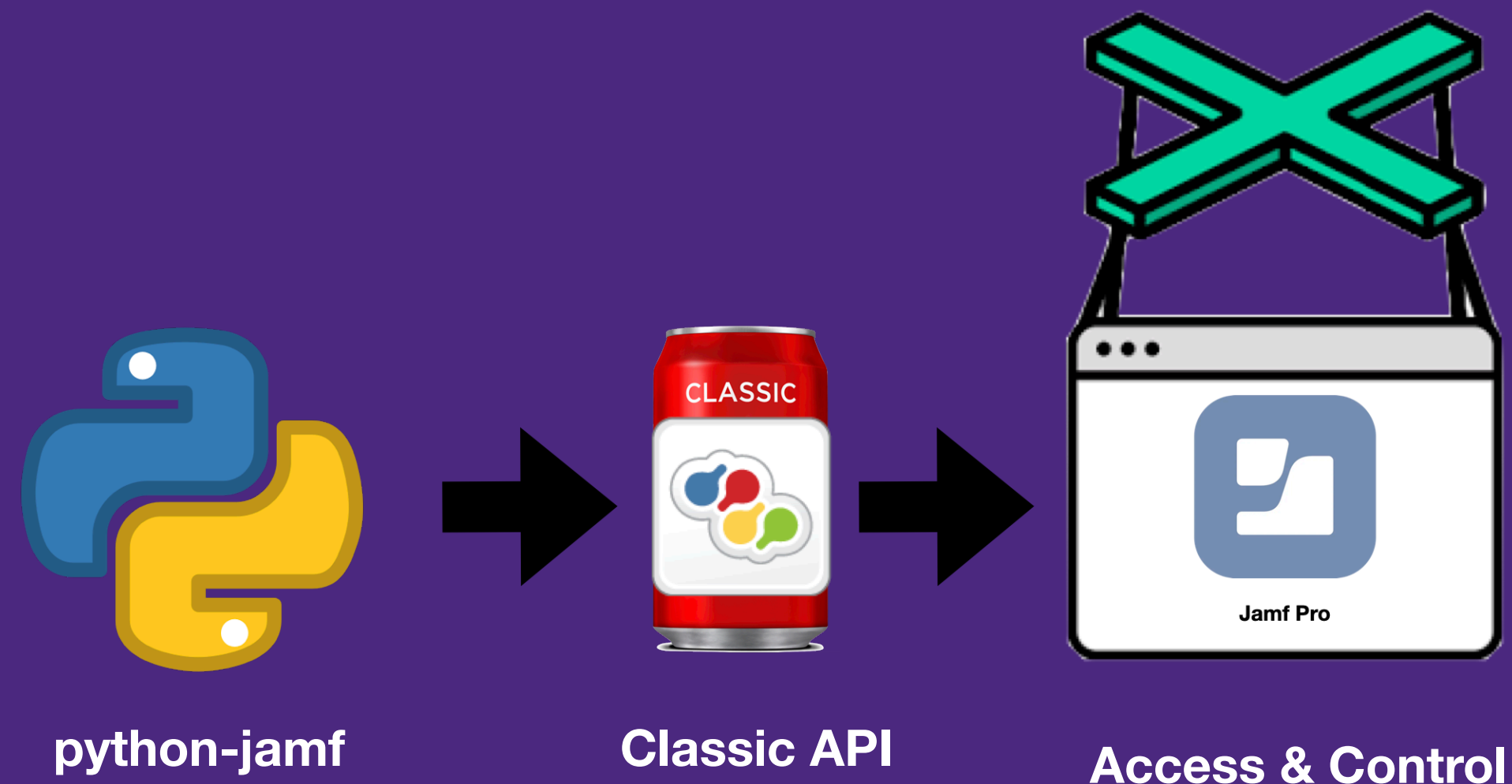
# Evolution

- Split into two separate projects



# Evolution

- python-jamf
  - Provides Access & Control of Jamf Pro



<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>

# Evolution

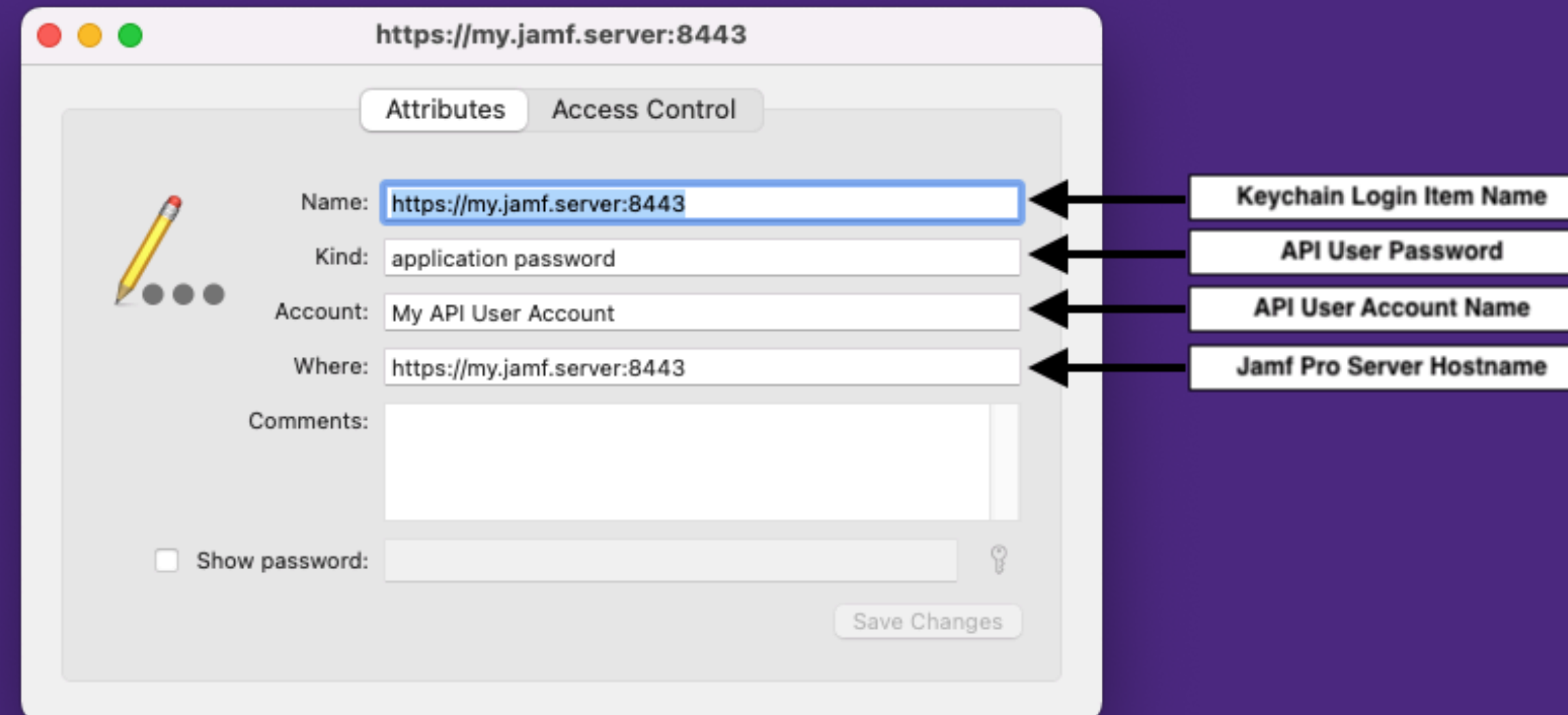
- python-jamf
  - Provides Access & Control of Jamf Pro
  - Jamf Pro Universal API (under construction)



<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>

# Evolution

- python-jamf
  - Keychain Support via Keyring to Secure Credentials

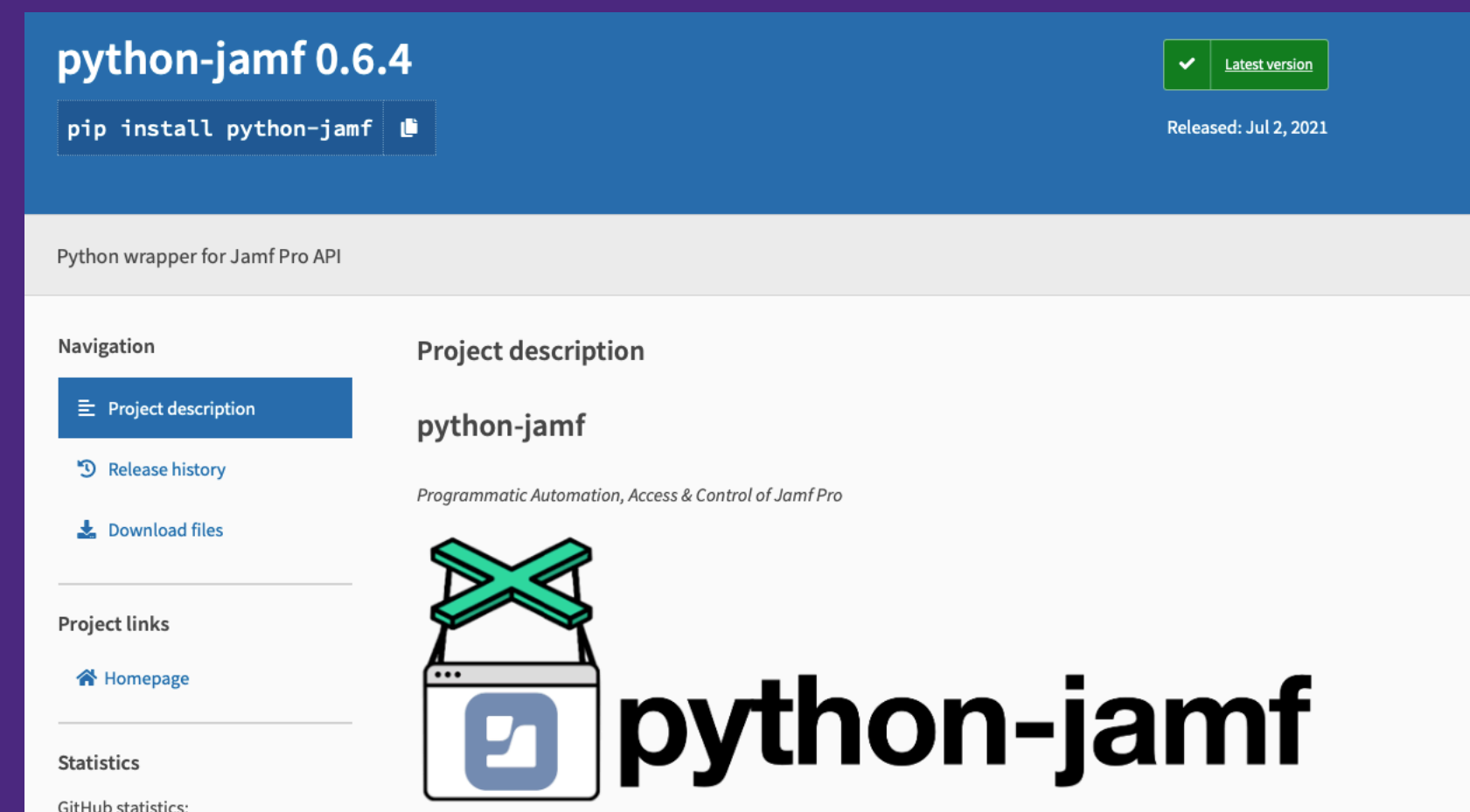


<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>



# Evolution

- python-jamf
  - Added support for PyPi to support pip Installation



<https://pypi.org/project/python-jamf/>

# Evolution

- python-jamf
  - Currently, supports 56 Jamf Pro Record Types



Computers



Buildings



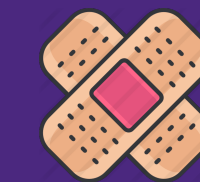
Policies



Categories



Configuration Profiles

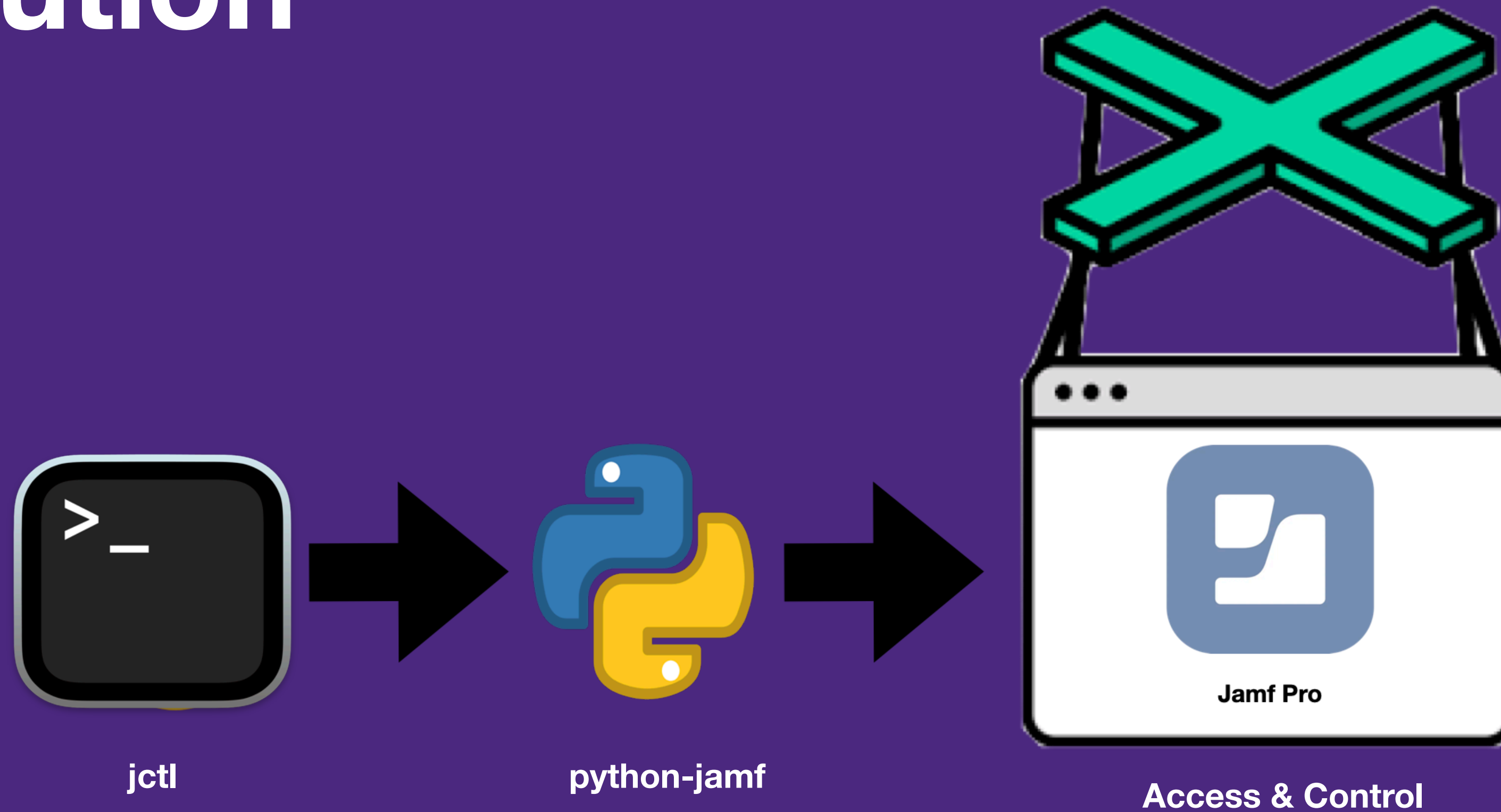


Patch  
Definition

<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>

# Evolution

- jctl



<https://github.com/univ-of-utah-marriott-library-apple/jctl>

# Evolution

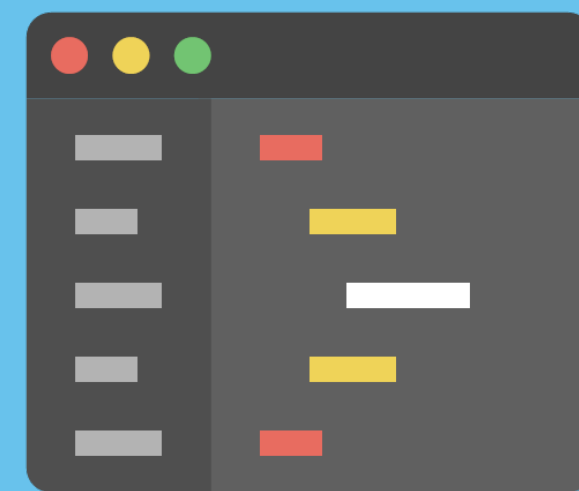
- jctl
  - Command Line Tool Uses python-jamf Library
  - Select Objects to Create, Delete, Print & Update
  - Allows Performing Repetitive Tasks Quickly
  - Provides Options not Available in Web GUI
  - Similar to SQL Statements - Less Complex

<https://github.com/univ-of-utah-marriott-library-apple/jctl>





# How it Works Internally



# Under the Hood

A Simple Alternative to cURL

Configure and Go

Some Examples

Something Pragmatic

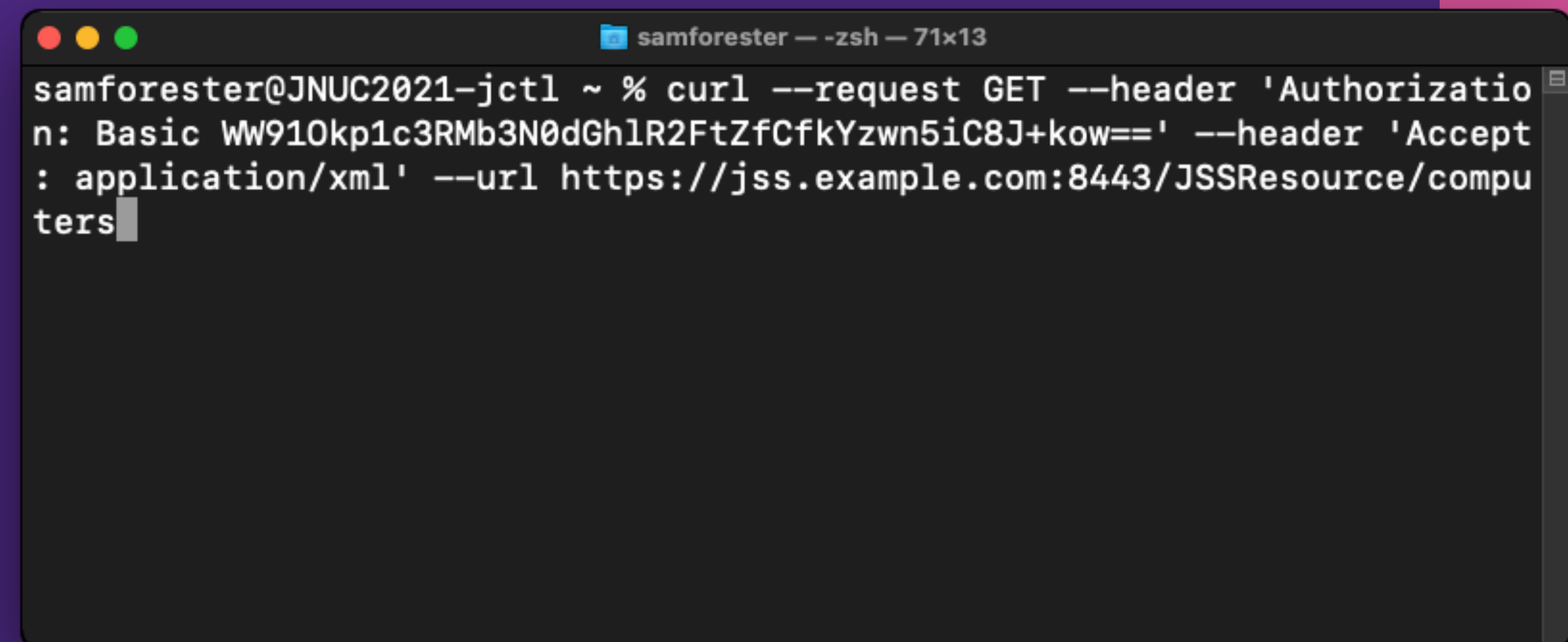


# Sure you can cURL...

cURL calls get very cumbersome, very quickly.

Then what? Parse the data? ... In Shell?!

... No thank you.

A terminal window with a dark background and light text. The window title is "samforester - zsh - 71x13". The prompt is "samforester@JNUC2021-jctl ~". The command entered is "curl --request GET --header 'Authorization: Basic WW910kp1c3RMb3N0dGhlR2FtZfCfkYzwn5iC8J+kow==' --header 'Accept: application/xml' --url https://jss.example.com:8443/JSSResource/computers".

```
samforester@JNUC2021-jctl ~ % curl --request GET --header 'Authorization: Basic WW910kp1c3RMb3N0dGhlR2FtZfCfkYzwn5iC8J+kow==' --header 'Accept: application/xml' --url https://jss.example.com:8443/JSSResource/computers
```



# Something Better

Handling the API in Python3

requests

xml.etree

plistlib

keyring

jamf.records

It doesn't take much.

```
simple_api.py — ~/Desktop/JNUC-2021/scripts
simple_api.py
1  """
2  Jamf API, simplified
3  """
4
5  import jamf
6
7  api = jamf.API()
8  computers = api.get('computers')
9
~/Desktop/JNUC-2021/scripts/simple_api.py 9:1 LF UTF-8 Python GitHub Git (0)
```



# Simple Yet Powerful

Update Jamf records in <15 lines  
converts XML to Python (and visa versa)  
Supports all Legacy API calls

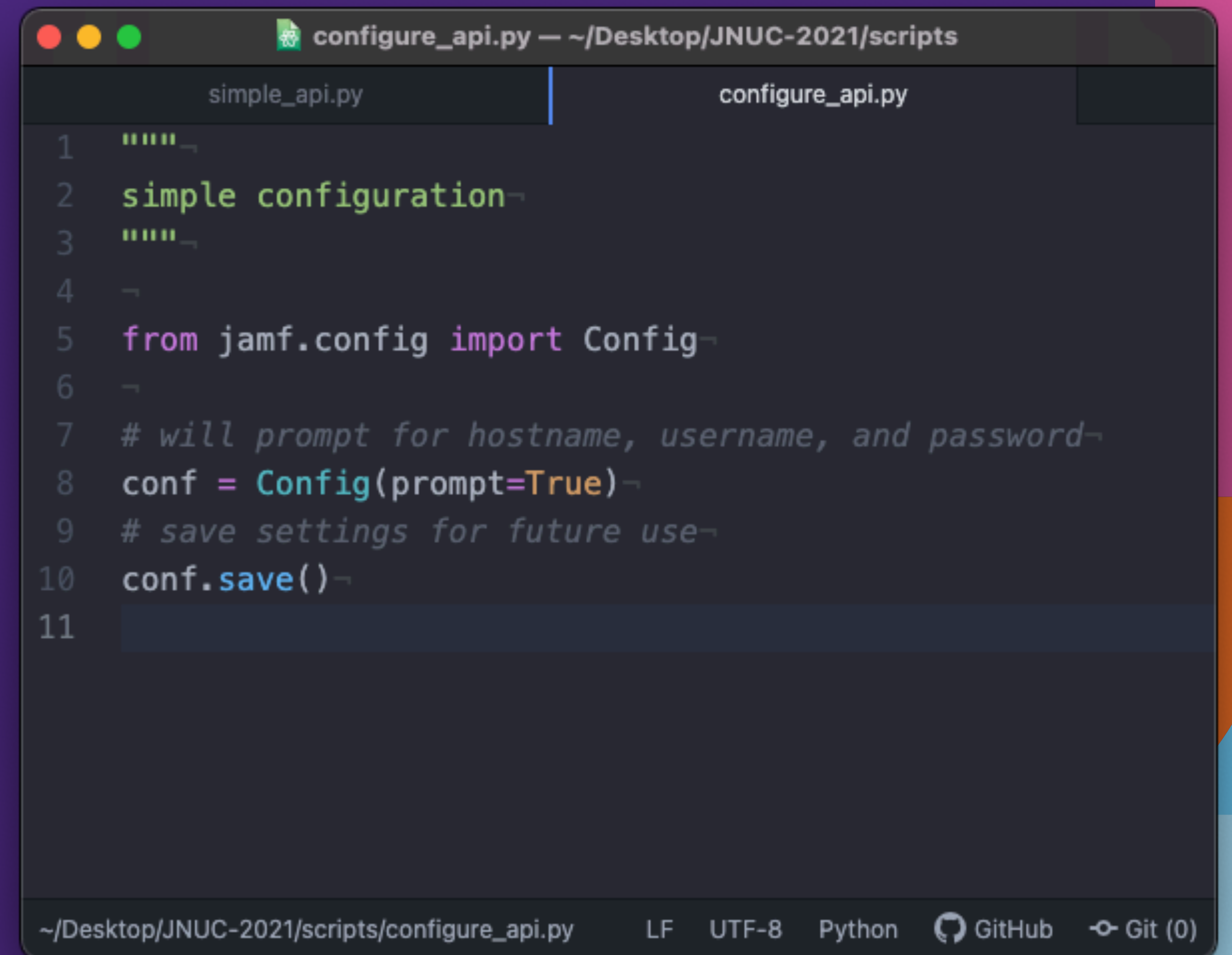
```
simple_api.py — ~/Desktop/JNUC-2021/scripts
simple_api.py
1  """
2  Jamf API, simplified
3  """
4
5  import jamf
6
7  api = jamf.API()
8
9  data = api.get('computers/name/MacBook Pro')
10 jss_id = data['computer']['general']['id']
11 # modify the data
12 data['computer']['general']['name'] = "Sam's MacBook"
13 # update the record in Jamf
14 api.put(f"computers/id/{jss_id}", data)
15

~/Desktop/JNUC-2021/scripts/simple_api.py 13: LF UTF-8 Python GitHub Git (0)
```

# Configuration

By default, API will prompt for hostname, username, and password each run.

However, this configuration can be easily saved for later use.



```
configure_api.py — ~/Desktop/JNUC-2021/scripts
simple_api.py | configure_api.py
1  """
2  simple configuration
3  """
4
5  from jamf.config import Config
6
7  # will prompt for hostname, username, and password
8  conf = Config(prompt=True)
9  # save settings for future use
10 conf.save()
11
```

~/Desktop/JNUC-2021/scripts/configure\_api.py LF UTF-8 Python GitHub Git (0)



# jamf.records

Additional object support added for various  
Jamf server objects:

Computers

Packages

PatchSoftwareTitles

etc.

```
records_examples.py — ~/Desktop/JNUC-2021
records_examples.py
1  """
2  jamf.records examples
3  """
4
5  import jamf
6
7  for computer in jamf.Computers():
8      print(f"{computer.id}: {computer.name}")
9      # do something amazing
10
11  packages = jamf.Packages()
12  # NOTE: be careful with .delete()
13  for package in packages.recordsWithRegex("^Firefox"):
14      if 'v90' not in package.name:
15          package.delete()
16
~/Desktop/JNUC-2021/records_examples.py 16: LF UTF-8 Python GitHub Git (0)
```



# Something Pragmatic

A script updating ALL computer asset tags fields in Jamf in <33 lines.

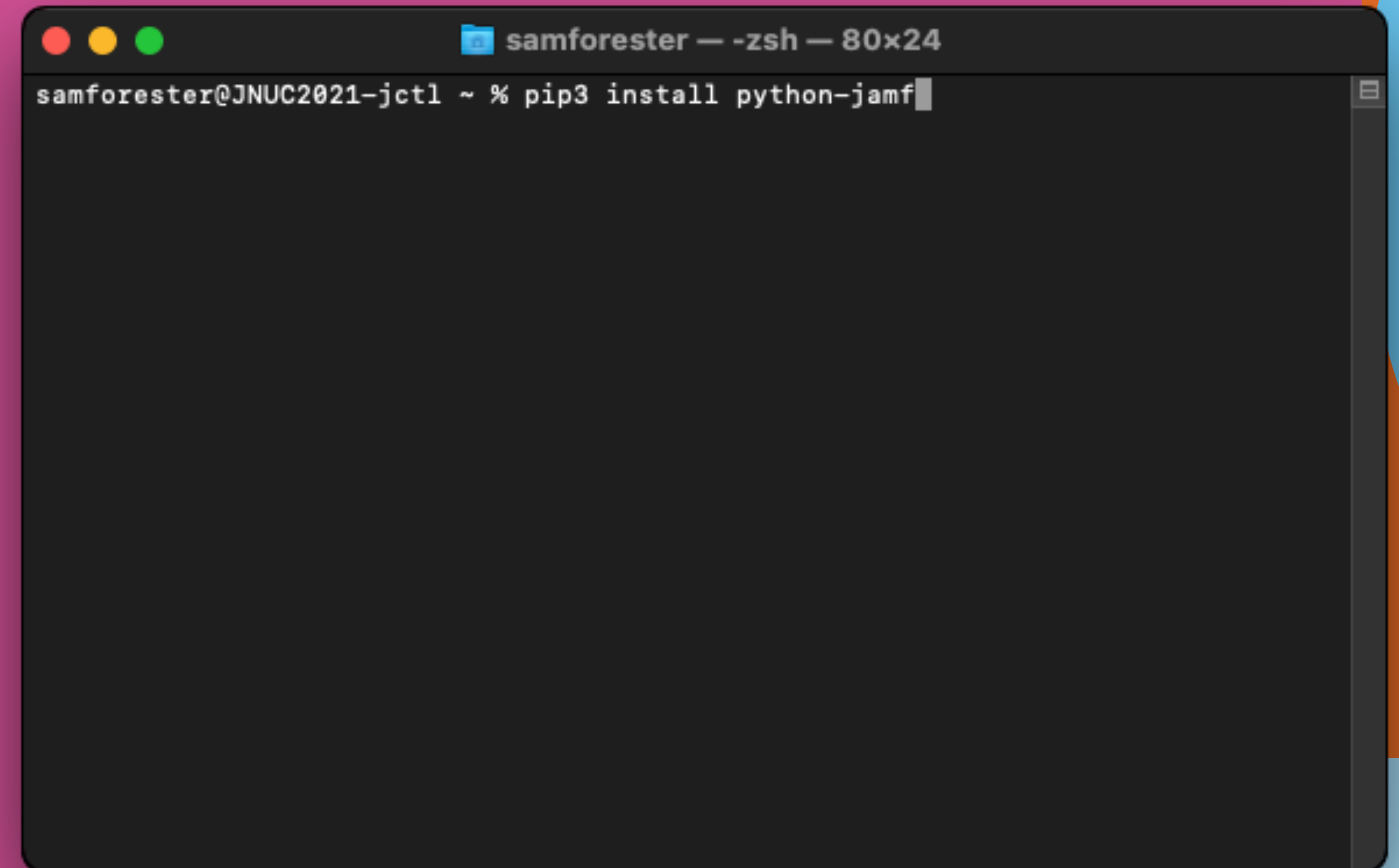
Serial numbers and asset tags loaded from asset\_inventory.csv

Updates all asset tag fields that differ or are missing in Jamf.

```
update_asset_tags.py
1 #!/usr/bin/env python3
2 # -*- coding: utf-8 -*-
3
4 """
5 update asset tag field for ALL Jamf computers from CSV
6 """
7
8 __author__ = "Sam Forester"
9 __license__ = "MIT"
10
11 import csv
12 import logging
13 import jamf
14
15 # create inventory lookup for each asset tag by serial number
16 with open('asset_inventory.csv', 'r') as f:
17     inventory = {r['SERIAL_NUMBER']:r['ASSET_TAG'] for r in csv.DictReader(f)}
18
19 # iterate all Jamf computer records
20 for computer in jamf.Computers():
21     # get serial number from Jamf computer record
22     serial_number = computer.data['general']['serial_number']
23     try:
24         # lookup asset tag from inventory using serial number
25         asset_tag = inventory[serial_number]
26     except KeyError:
27         # serial number not recorded in csv file (skip Jamf computer record)
28         logging.error(f"{computer}: {serial_number}: no asset information")
29         continue
30     # check Jamf computer record asset tag, update if blank/incorrect
31     if asset_tag != computer.data['general']['asset_tag']:
32         computer.data['general']['asset_tag'] = asset_tag
33         computer.save()
34
```

# Summary

Simple and Powerful API  
Foundation Used by jctl  
Easily Adapted  
Available on PyPi

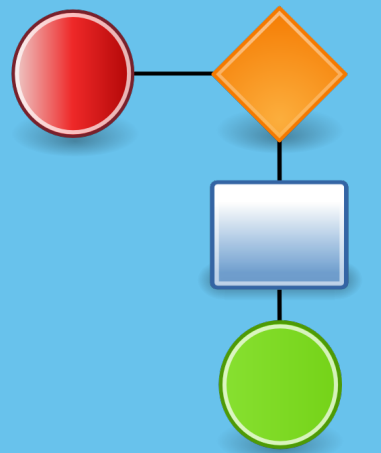
A terminal window with a dark background and light text. The window title bar shows 'samforester — -zsh — 80x24'. The terminal content shows the command 'samforester@JNUC2021-jctl ~ % pip3 install python-jamf' followed by a cursor.

```
samforester@JNUC2021-jctl ~ % pip3 install python-jamf
```





# Usage Examples of Workflows



# jctl Functions

Simple tool to perform actions that would take many actions to perform.

- Any GUI based search and more
- Modifying Policies, Scopes, or Computer groups
- Updating Patch Policies
- Remove Unnecessary Junk



# Listing All Computers

How many clicks?

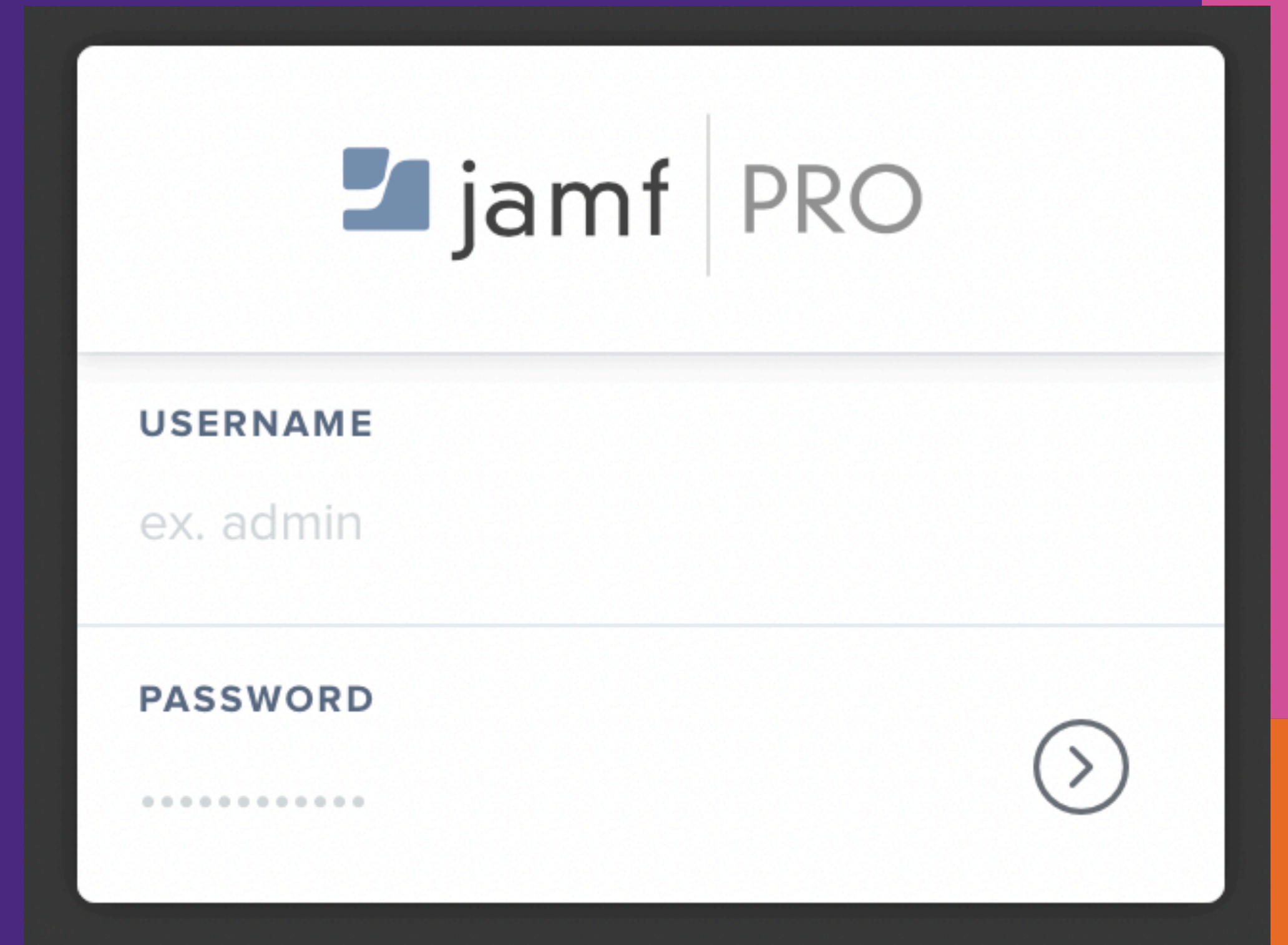
Vs





# Listing All Computers

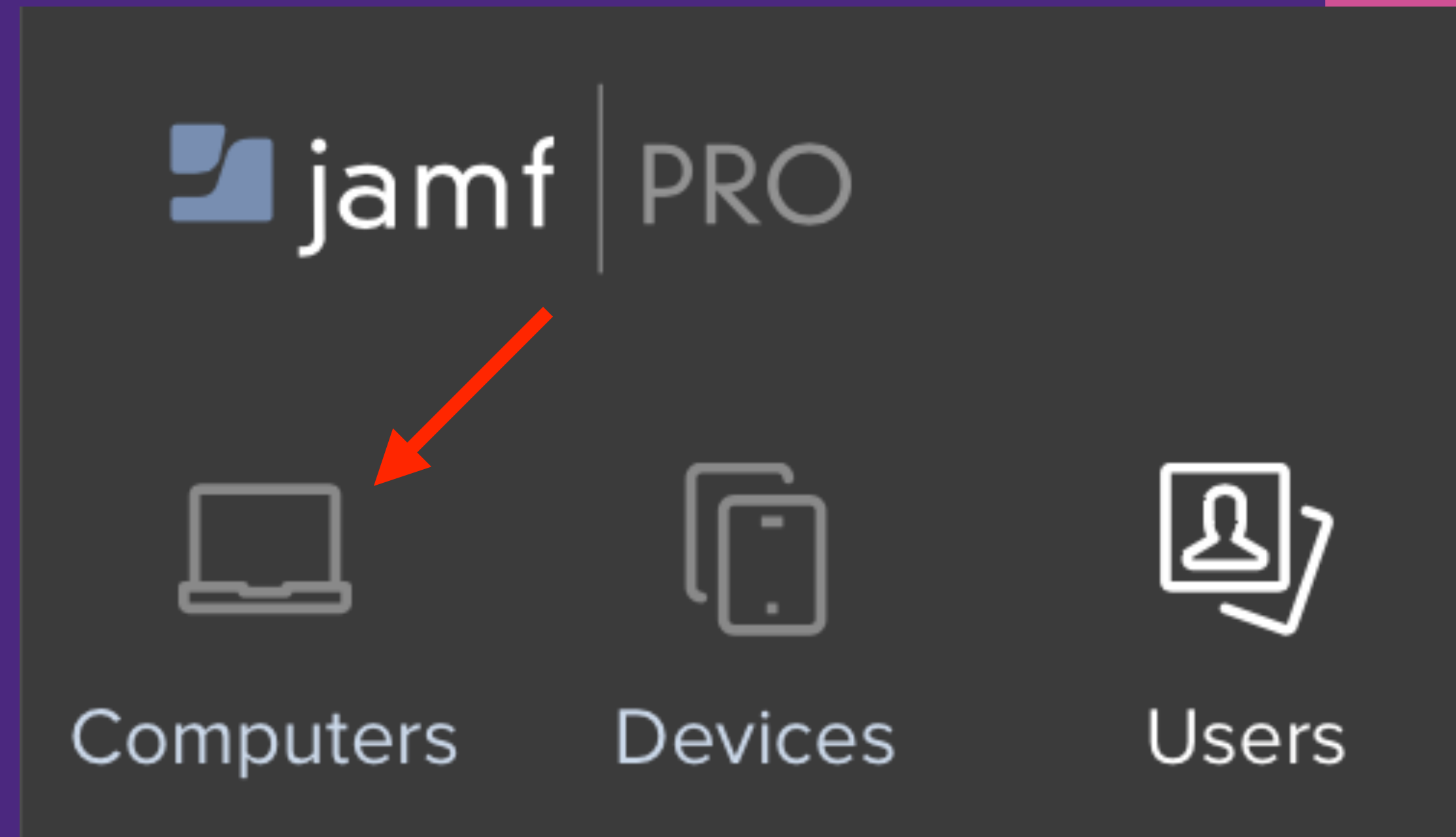
With the website it takes 3 clicks for 1000





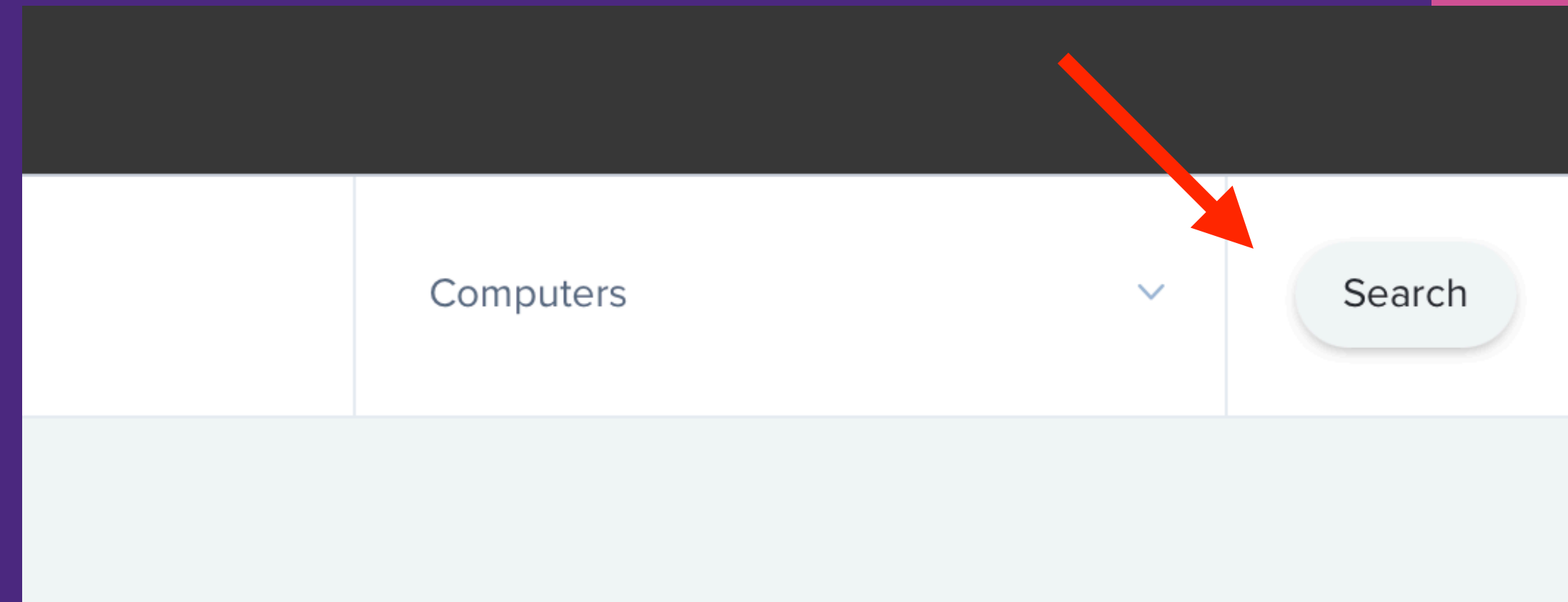
# Listing All Computers

With the website it takes 3 clicks for 1000



# Listing All Computers

With the website it takes 3 clicks for 1000



# Listing All Computers

With the website it takes 3 clicks for 1000

Computers  
All Computers (3694)

Filter Re 1 - 1,000 of 3,694

NAME

kcmac-105

kcmac-104

1110-mac-16

kcmac-013

buscmac-1

kcmac-111

Show: 1,000

# Listing All Computers

jctl command takes 1 for all

```
jctl -- -zsh -- 80x24
[cnadauld@topher-M1MBP jctl % ./jctl computers
1008-mac-podium
1110-mac-01
1110-mac-02
1110-mac-03
1110-mac-04
1110-mac-05
1110-mac-06
1110-mac-08
1110-mac-09
1110-mac-10
1110-mac-11
wrtg-ctr-mlib2-mac-03
wrtg-ctr-mlib2-mac-04
wrtg-ctr-mlib2-mac-05
wrtg-ctr-mlib2-mac-06
Count: 3694
```



List Computers with a specific name

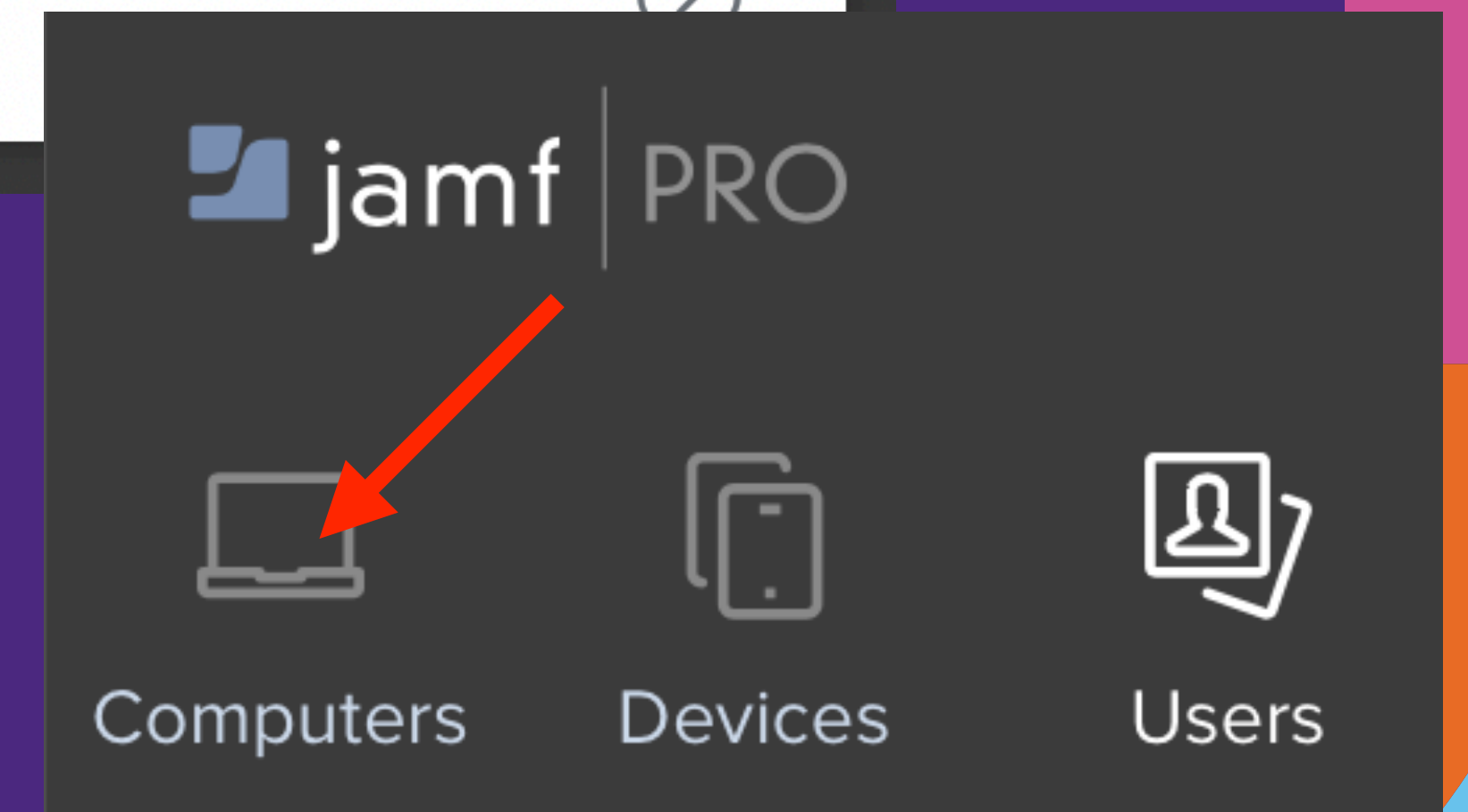
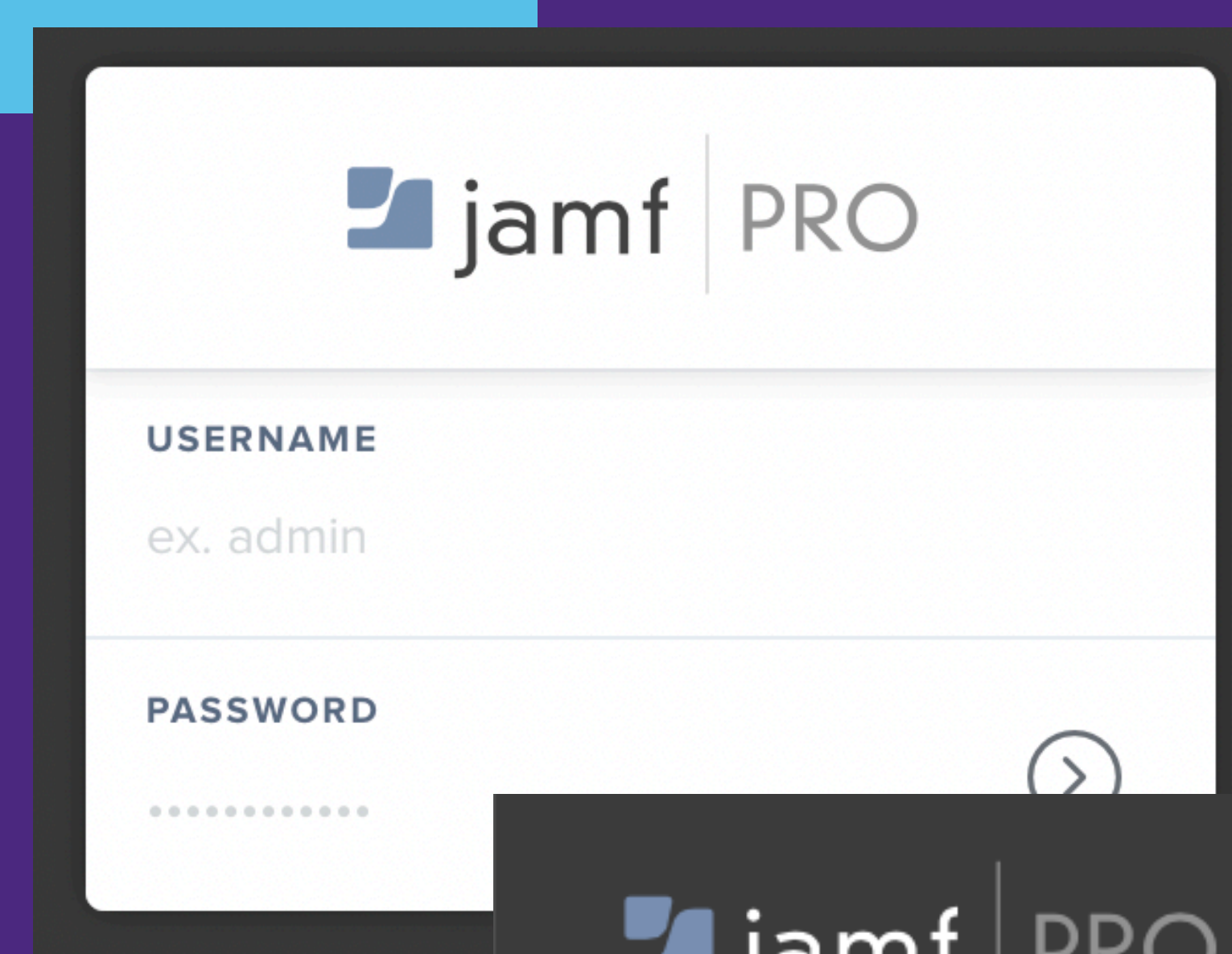
How many clicks?

Vs



# List Computers with a specific name

With the website it takes 12 clicks for 1000



# List Computers with a specific name

With the website it takes 12 clicks for 1000

Advanced Computer Searches + New

Search Criteria Display Reports

**Display Name** Display name for the advanced computer search

Find 1110 Computers|

**Site** Site to add the advanced computer search to

None ▼

Save this search



# List Computers with a specific name

With the website it takes 12 clicks for 1000

| AND/OR | CRITERIA | OPERATOR | VALUE |
|--------|----------|----------|-------|
|        |          |          |       |

+ Add

Computer Name Choose

| AND/OR | CRITERIA      | OPERATOR | VALUE |
|--------|---------------|----------|-------|
|        | Computer Name | like     | 1110  |

# List Computers with a specific name

With the website it takes 12 clicks for 1000



Computers

44 Computers in "Find 1110 Computers"

Filter Re 1 - 44 of 44

| NAME               | IP ADDRESS |
|--------------------|------------|
| [SALV]-H01110WTEUH |            |
| 1110-mac-01        |            |
| 1110-mac-02        |            |
| 1110-mac-03        |            |
| 1110-mac-04        |            |
| 1110-mac-05        |            |

# List Computers with a specific name

jctl command it takes 1 for all

```
jctl — -zsh — 80x24
cnadauld@topher-M1MBP jctl % ./jctl computers -r 1110
1110-mac-01
1110-mac-02
1110-mac-03
1110-mac-04
1110-mac-05
1110-mac-06
1110-mac-43
1110-mac-44
1110-mac-45
1110-mac-podium
[SALV]-H01110WTEUH
Count: 44
```



# Policies with Logout Trigger

How many clicks?


Vs





# Policies with Logout Trigger

With the website it takes 4 clicks and visually inspect every policy

CONTENT MANAGEMENT

 Policies

  1 - 686 of 686

|   |  |         |                            |                     |
|---|--|---------|----------------------------|---------------------|
|  | <input type="radio"/> Tablet Uninstaller | Ongoing | Logout, tablet_uninstaller | 1 computer, All Lab |
|---|--|---------|----------------------------|---------------------|

# Policies with Logout Trigger

jctl command it takes 1

```
jctl --zsh -- 80x24
cnadauld@topher-M1MBP jctl % ./jctl policies -s general/trigger_logout==true
00-uexdeferralservice-jss - Checkin and Logout
1 Configure Loginwindow Background
1 Configure Loginwindow Background 10.14+
1 Logout
Login Test
MLIB - Knowledge Commons M806 Test
Parameters Test
Remove Preferred Wireless Network -- UConnect
Remove Preferred Wireless Network -- UGuest
Tablet Uninstaller
Test - Keychain Cleanup
zMLIB - Knowledge Commons Test
Count: 12
```



# Review all Self Service Descriptions

How many clicks?

Vs





# Review all Self Service Descriptions

With the website it would take 1200 clicks

CONTENT MANAGEMENT

 Policies

← iMovie - Self Service

Options Scope **Self Service** User Interaction

**Self Service Display Name** Display name for the policy in Self Service (

iMovie

**Button Name Before Initiation** Name for the button that users click to

Install

**Button Name After Initiation** Name for the button that users click to re

Reinstall

**Description** Description to display for the policy in Self Service

## iMovie  
Version 10.2.5

iMovie is a video editing software application developed by Apple for Mac OS X and iOS devices. It was originally released in 1999 as a Mac OS 8 application. It was later ported to FireWire-enabled consumer Mac model – the iMac DV. Since ve

# Review all Self Service Descriptions

jctl command it takes 1

```
jctl --zsh -- 178x35
cnadauld@topher-M1MBP jctl % ./jctl policies -p general/name -p self_service/self_service_description -j
[
  [{"00-PleaseWaitUpdater-jss - Trigger"},null],
  [{"00-uex_inventory_update_agent-jss - Trigger"},null],
  [{"00-uexblockagent-jss - Trigger"},null],
  [{"00-uexdeferralservice-jss - Checkin and Logout"},null],
  [{"00-uexdeferralservice-jss - Trigger"},null],
  [{"00-uexlogoutagent-jss - Trigger"},null],
  [{"00-uexresources-jss - Trigger"},null],
  [{"00-uexrestartagent-jss - Trigger"},null],
  [{"1 Configure Loginwindow Background"},null],
  [{"1 Configure Loginwindow Background 10.14+"},null],
  [{"1 Install Rosetta 2"},null],
  [{"1 Kiosk Auto Login User"},null],
  [{"1 Login"},null],
  [{"1 Login 10.13"},null],
  [{"1 Logout"},null],
  [{"1Password 7"},["## 1Password 7\r\nVersion 7.5\r\n\r\n1Password is a password manager developed by AgileBits Inc.
ftware licenses, and other sensitive information in a virtual vault that is locked with a PBKDF2-guarded master passwo
ed through Dropbox (all platforms), local Wi-Fi, and iCloud, and through 1Password.com, a paid subscription-based serv
d iCloud sync are only available on iOS and macOS. 1Password integrates with desktop web browsers including Safari, Ch
ogins for websites, fill in website logins automatically, and generate random passwords for new websites.\r\n\r\n**Mor
wing web site:\r\n\thttps://1password.com"]],
  [{"1Password 7 - Self Service"},["## 1Password 7\r\nVersion 7.8.6\r\n\r\n1Password is a password manager developed b
ous passwords, software licenses, and other sensitive information in a virtual vault that is locked with a PBKDF2-guar
es are synchronized through Dropbox (all platforms), local Wi-Fi, and iCloud, and through 1Password.com, a paid subscr
s. Local Wi-Fi and iCloud sync are only available on iOS and macOS. 1Password integrates with desktop web browsers inc
on can remember logins for websites, fill in website logins automatically, and generate random passwords for new websi
on, see the following web site:\r\n\thttps://1password.com"]],

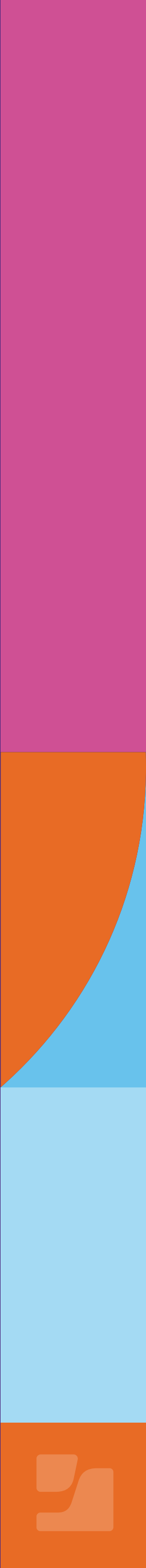
```



Remove computers that  
haven't checked in since 2020

How many clicks?

Vs



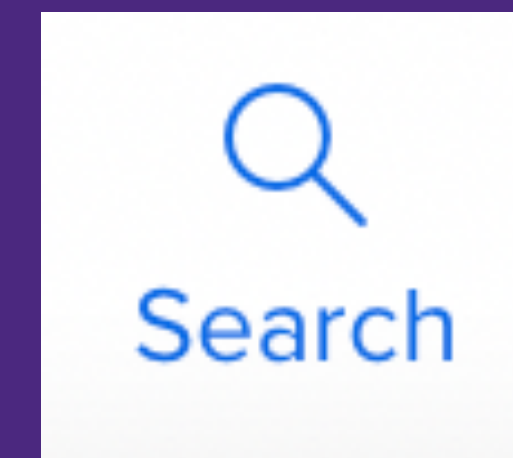
# Remove computers that haven't checked in since 2020

With the website it would take 12 clicks

Advanced Computer Searches + New

Last Check-in Choose

| CRITERIA      | OPERATOR           | VALUE      |
|---------------|--------------------|------------|
| Last Check-in | before (yyyy-mm ▾) | 2020-01-01 |



# Remove computers that haven't checked in since 2020

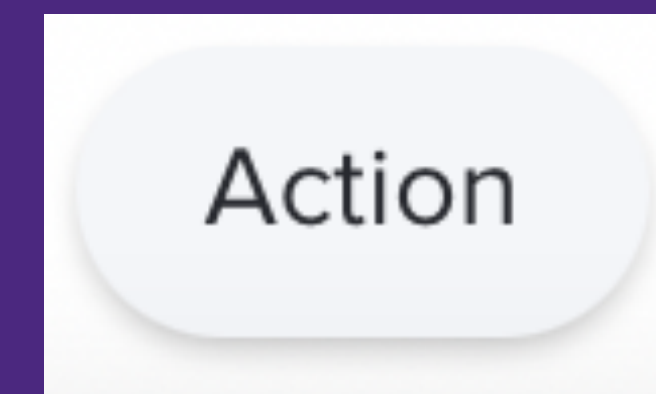
With the website it would take 12 clicks

Computers

69 Computers

Filter Re 1 - 69 of 69

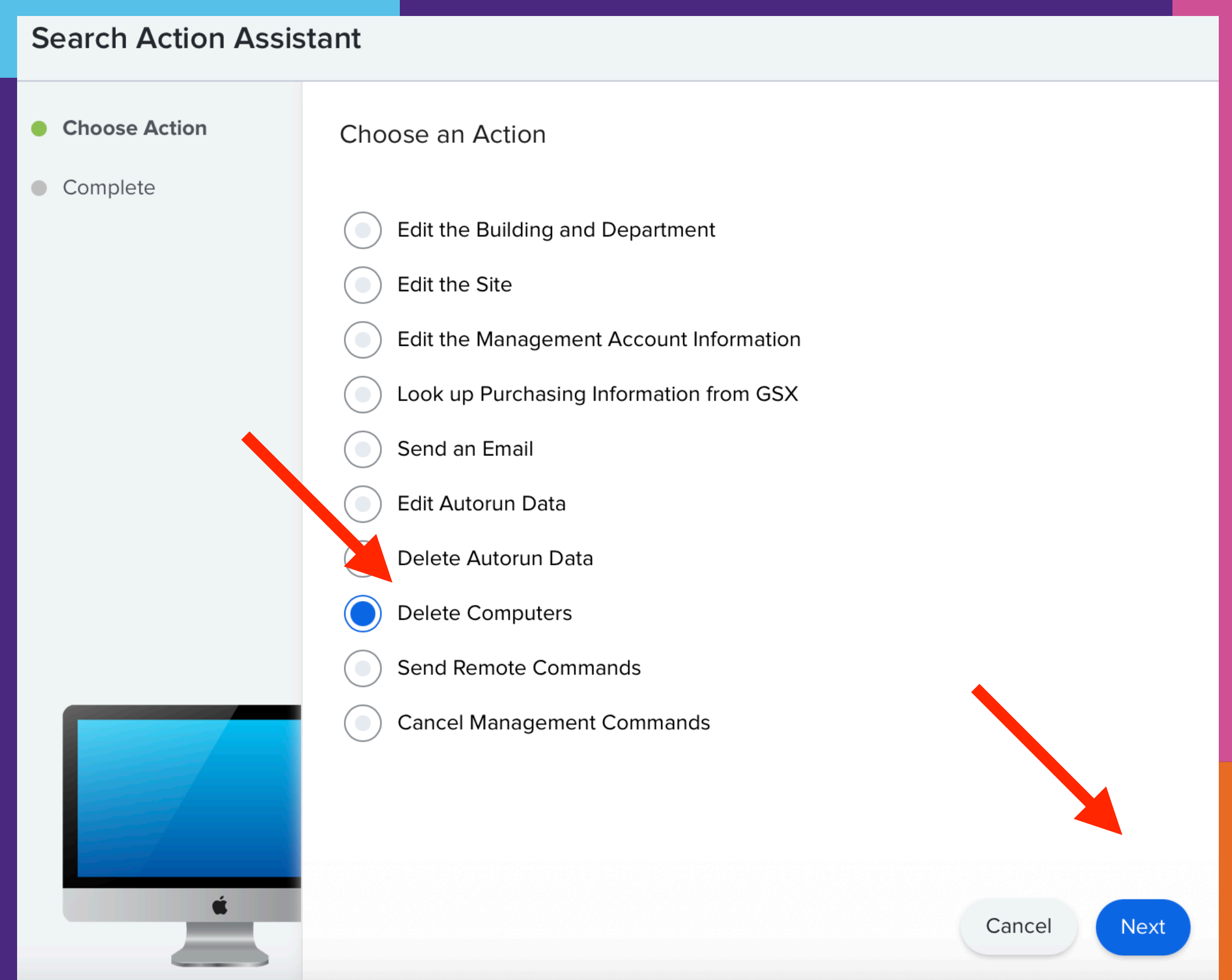
| NAME                    | IP | JSS ID | LAST CHECK-IN          |
|-------------------------|----|--------|------------------------|
| [MISS]-bu-mac-laptop-23 |    |        | 12/12/2019 at 6:12 PM  |
| [SALV]-C02J5392DV35     |    |        | 09/05/2019 at 4:52 PM  |
| [SALV]-C07HQ1LXDJD1     |    |        | 08/30/2019 at 2:18 PM  |
| [SALV]-C07L101KF4MC     |    |        | 05/08/2019 at 4:18 PM  |
| [SALV]-CMVJ20U4F4MG     |    |        | 06/14/2019 at 1:44 PM  |
| [SALV]-CMVJ20U7F4MG     |    |        | 06/14/2019 at 10:40 AM |





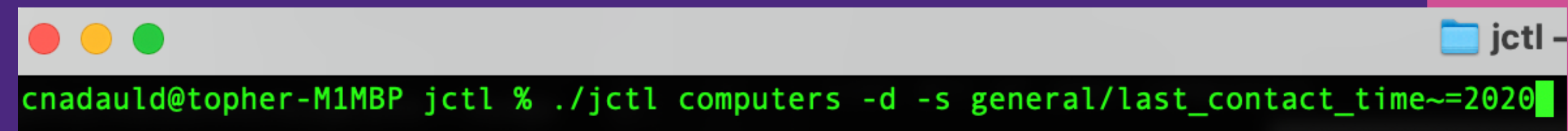
# Remove computers that haven't checked in since 2020

With the website it would take 12 clicks



# Remove computers that haven't checked in since 2020

jctl command it takes 2

A terminal window with a title bar containing three colored circles (red, yellow, green) and a folder icon labeled 'jctl'. The terminal text is green on a black background, showing the command: 'cnadauld@topher-M1MBP jctl % ./jctl computers -d -s general/last\_contact\_time~=2020'.

```
cnadauld@topher-M1MBP jctl % ./jctl computers -d -s general/last_contact_time~=2020
```



# Summary

Jctl is a fast and useful tool

Reduce the amount of clicks to 1

Easy to automate

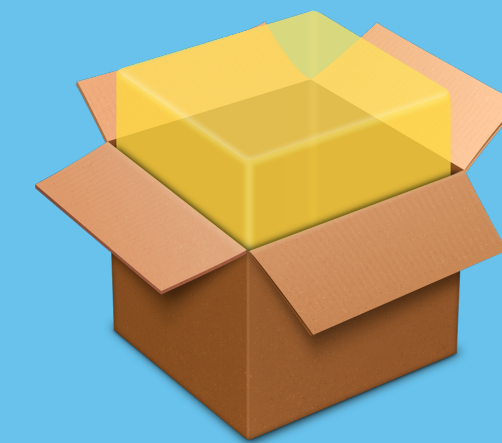
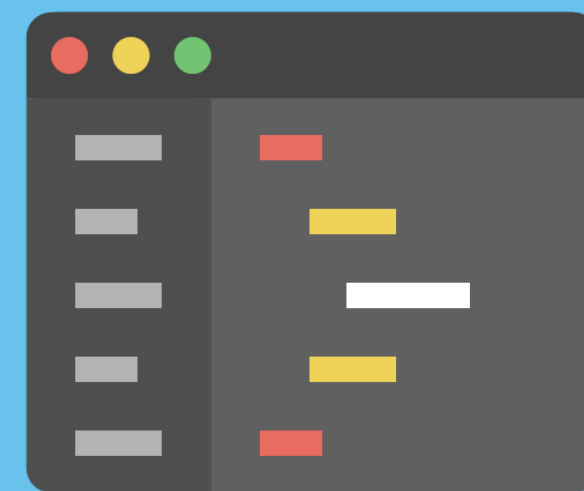




© copyright 2002-2021 Jamf



# Advanced Usage & Package Management



# Advanced jctl

- Subcommands for specific object types

jctl patchsoftwaretitles -S patchpolicies

jctl packages -S usage

jctl policies -S spreadsheet

jctl computers -S apps

```
> jctl patchsoftwaretitles -S patchpolicies
1Password 7
  1Password 7 SS
Apple GarageBand 10
  GarageBand Auto
  GarageBand SS
Apple Keynote
  Keynote Auto
  Keynote SS
Bare Bones BBEdit
  BBEdit Auto
  BBEdit SS
...
```

```
> jctl packages -S usage
Arduino-1.8.15.pkg
  Policies
    Install Arduino IDE
  PatchPolicies
    Arduino Auto
    Arduino SS

Arq-7.6.pkg [no patch defined]
  Policies
    Install Arq
  ComputerGroups
    02 - Needs Arq-7.6.pkg
...
```

```
> jctl policies -S spreadsheet > policies.txt
```

| Name                         | Category             | Frequency         | Trigger | Scope                       | Packages                            | Printers                        | Scripts                      |
|------------------------------|----------------------|-------------------|---------|-----------------------------|-------------------------------------|---------------------------------|------------------------------|
| Biol 083 - HP LaserJet 4000N | Printers             | Ongoing           |         | Staff                       |                                     | pr-biol83.biology.utah.edu1     |                              |
| Biol 201 - HP LaserJet M604  | Printers             | Ongoing           |         | Staff                       |                                     | pr-mainoffice.biology.utah.edu1 |                              |
| Create admin account         | Support              | Ongoing           |         | Staff, Student, Opt-In      |                                     |                                 |                              |
| Enable Xcode debugging       | Support              | Ongoing           |         | Staff, Student, Opt-In      |                                     |                                 | util bash.pl                 |
| FileVault, PRK, IRK          | Support              | Ongoing           |         | FileVault Eligible          |                                     |                                 |                              |
| Install 1Password 7          | Utilities            | Once per computer | staff   | Staff, Opt-In               | 1Password-7.8.6.pkg                 |                                 |                              |
| Install Anaconda3 (10.14)    | Programming          | Ongoing           | student | Needs Anaconda3-2020.11.pkg | Anaconda3-2018.12-MacOSX-x86_64.pkg |                                 | util delete_args_if_exist.pl |
| Install Anaconda3 (10.15)    | Programming          | Once per computer | student | Staff, Student, Opt-In      | Anaconda3-2020.11.pkg               |                                 | util delete_args_if_exist.pl |
| Install Apple GarageBand 10  | Audio, Photo, Video  | Once per computer | student | Staff, Student, Opt-In      | GarageBand-10.3.5.pkg               |                                 |                              |
| Install Apple Keynote        | General Productivity | Once per computer | student | Staff, Student, Opt-In      | Keynote-10.1.pkg                    |                                 |                              |
| Install Apple Numbers        | General Productivity | Once per computer | student | Staff, Student, Opt-In      | Numbers-10.1.pkg                    |                                 |                              |



```
> jctl computers -S apps
```

| application                       | version       | biol106-01 | biol106-03 | biol106-04 | biol106-05 | biol140-01 | biol140-02 | biol140-03 | biol140-04 |
|-----------------------------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|
| /Applications/CoRD.app            | 0.5.7         | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Dashboard.app       | 1.8           | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Dictionary.app      | 2.3.0         | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Dropbox.app         | 103.4.383     |            | X          | X          | X          |            |            |            |            |
| /Applications/Dropbox.app         | 104.4.175     |            |            |            |            | X          | X          | X          | X          |
| /Applications/Dropbox.app         | 78.4.119      | X          |            |            |            |            |            |            |            |
| /Applications/DYMO Label.app      | 8.5.1.1879    |            |            |            |            |            |            |            |            |
| /Applications/FaceTime.app        | 5.0           | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/FigTree/FigTree.app | 1.4.4         | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Firefox.app         | 79.0          |            | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Firefox.app         | 68.0.1        | X          |            |            |            |            |            |            |            |
| /Applications/Firefox.app         | 72.0.1        |            |            |            |            |            |            |            |            |
| /Applications/Font Book.app       | 9.0           | X          | X          | X          | X          | X          | X          | X          | X          |
| /Applications/GaitSym2017.app     | n/a           | X          |            |            |            |            |            |            |            |
| /Applications/GaitSym2019.app     | n/a           |            | X          | X          | X          | X          | X          | X          | X          |
| /Applications/GarageBand.app      | 10.3.2        | X          |            |            |            |            |            |            |            |
| /Applications/GarageBand.app      | 10.3.5        |            | X          | X          | X          | X          | X          | X          | X          |
| /Applications/Google Chrome.app   | 76.0.3809.100 | X          |            |            |            |            |            |            |            |
| /Applications/Google Chrome.app   | 79.0.3945.88  |            |            |            |            |            |            |            |            |
| /Applications/Google Chrome.app   | 84.0.4147.125 |            |            |            |            | X          |            |            |            |

# Advanced jctl

- Subcommands can be filtered

```
jctl computers -S apps
```

```
jctl computers -n James-MBA -S apps
```

```
jctl computers -s general/ip_address~="123.123.1" -S apps
```

# Jump starting with jctl

- Brand new server
- License code entered
- First user created
- Accepted the Patch Management agreement
- jctl hostname, username, password are set

# Naming conventions

- Packages: name-version.pkg
- Names are based on AutoPkg names
- Versions must be exact

# Add Zoom Patch Title

```
> jctl patchsoftwaretitles -c 0F9  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a PatchSoftwareTitle named "0F9" [y/n]? y
```

# View Zoom Versions

```
> jctl patchsoftwaretitles -c 0F9
Server: http://localhost:8080/JSSResource
Are you sure you want to create a PatchSoftwareTitle named "0F9" [y/n]? y
> jctl patchsoftwaretitles -r Zoom -p versions/version
Zoom Client for Meetings
[{'package': None, 'software_version': '5.7.3 (809)'},
 {'package': None, 'software_version': '5.7.1 (499)'},
 {'package': None, 'software_version': '5.7.0 (446)'},
 {'package': None, 'software_version': '5.6.7 (1020)'},
 ...]
```

# Add Zoom Packages

```
> jctl packages -c "Zoom-5.7.3 (809).pkg"  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a Package named "Zoom-5.7.3 (809).pkg" [y/n]? y  
  
> jctl packages -c "Zoom-5.7.1 (499).pkg"  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a Package named "Zoom-5.7.1 (499).pkg" [y/n]? y  
  
> jctl packages -c "Zoom-5.7.0 (446).pkg"  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a Package named "Zoom-5.7.0 (446).pkg" [y/n]? y
```



# Verify Everything

```
> jctl packages  
Zoom-5.7.0 (446).pkg  
Zoom-5.7.1 (499).pkg  
Zoom-5.7.3 (809).pkg  
Count: 3  
  
> jctl patchsoftwaretitles  
Zoom Client for Meetings
```

# Match Definitions

```
> pkgctl -d  
Updating patch definitions...  
Matched Zoom-5.7.3 (809).pkg  
Matched Zoom-5.7.1 (499).pkg  
Matched Zoom-5.7.0 (446).pkg
```

# View Zoom Definitions

```
> jctl patchsoftwaretitles -r Zoom -p versions/version
```

Zoom Client for Meetings

```
[{'package': {'id': '15', 'name': 'Zoom-5.7.3 (809).pkg'},  
  'software_version': '5.7.3 (809)'},  
 {'package': {'id': '16', 'name': 'Zoom-5.7.1 (499).pkg'},  
  'software_version': '5.7.1 (499)'},  
 {'package': {'id': '17', 'name': 'Zoom-5.7.0 (446).pkg'},  
  'software_version': '5.7.0 (446)'},  
 ...
```

# The Web Interface

| VERSION     | RELEASE DATE           | INCREMENTAL UPDATE | ^ | REBOOT REQUIRED | DEPENDENCIES | MINIMUM OS | APPS THAT MUST QUIT | PACKAGE              |
|-------------|------------------------|--------------------|---|-----------------|--------------|------------|---------------------|----------------------|
| 5.7.3 (809) | 07/19/2021 at 11:00 AM | Not Required       |   | No              |              | 10.9       | zoom.us             | Zoom-5.7.3 (809).pkg |
| 5.7.1 (499) | 06/28/2021 at 8:00 AM  | Not Required       |   | No              |              | 10.9       | zoom.us             | Zoom-5.7.1 (499).pkg |
| 5.7.0 (446) | 06/21/2021 at 11:00 AM | Not Required       |   | No              |              | 10.9       | zoom.us             | Zoom-5.7.0 (446).pkg |

# How many clicks?

- 7 clicks for 1 package for 1 patch software title
- 143 patch software titles, 1000+ clicks
- `pkgctl -d` turns those 1000 clicks into 1

# Get Zoom Details

```
> jctl patchsoftwaretitles -r Zoom -l
{'category': {'id': '-1', 'name': 'No category assigned'},
 'id': '1',
 'name': 'Zoom Client for Meetings',
 'name_id': '0F9',
 'notifications': {'email_notification': 'true', 'web_notification': 'true'},
 'source_id': '1',
 'versions': {'version': [{'package': None, 'software_version': '5.7.4 (898)'},
                          {'package': {'id': '15',
                                        'name': 'Zoom-5.7.3 (809).pkg'}},
                          ...

```

# Create Patch Policies

```
> jctl patchpolicies -c "Auto" 1 "5.7.0 (446)"  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a PatchPolicy named "Auto" [y/n]? y  
  
> jctl patchpolicies -c "SS" 1 "5.7.1 (499)"  
Server: http://localhost:8080/JSSResource  
Are you sure you want to create a PatchPolicy named "SS" [y/n]? y
```



# Promote Packages

```
> pkgctl
Analyzing Jamf data...
Zoom
Zoom-5.7.3 (809).pkg
  [1] Zoom-5.7.0 (446).pkg
      PatchPolicies
      [2] Auto
  [3] Zoom-5.7.1 (499).pkg
      PatchPolicies
      [4] SS
  [5] Zoom-5.7.3 (809).pkg
Number, [n]ext group, or e[x]it/[q]uit:
```

# Select 2 (5.7.0 “Auto” )

```
> pkgctl
Analyzing Jamf data...
Zoom
Zoom-5.7.3 (809).pkg
  [1] Zoom-5.7.0 (446).pkg
      PatchPolicies
        [2] Auto
  [3] Zoom-5.7.1 (499).pkg
      PatchPolicies
        [4] SS
  [5] Zoom-5.7.3 (809).pkg
Number, [n]ext group, or e[x]it/[q]uit: 2
```

# Select Promote

Number, [n]ext group, or e[x]it/[q]uit: 2

Auto (PatchPolicies)

[d]isassociate from package, [p]romote, [b]ack, e[x]it/[q]uit: p

# Select 3 (v 5.7.3)

Number, [n]ext group, or e[x]it/[q]uit: 2

Auto (PatchPolicies)

[d]isassociate from package, [p]romote, [b]ack, e[x]it/[q]uit:

Promote Auto (PatchPolicies) to which package?

[1] Zoom-5.7.0 (446).pkg

[2] Zoom-5.7.1 (499).pkg

[3] Zoom-5.7.3 (809).pkg

Number, [b]ack, or e[x]it/[q]uit: 3

# Auto now uses 5.7.3

```
Zoom-5.7.3 (809).pkg
[1] Zoom-5.7.0 (446).pkg
[2] Zoom-5.7.1 (499).pkg
    PatchPolicies
    [3] SS
[4] Zoom-5.7.3 (809).pkg
    PatchPolicies
    [5] Auto
```

# Summary

- python-jamf makes interacting with the API easy
- jctl is a command line tool using python-jamf
- jctl contains basic & generic CRUD functionality
- jctl subcommands add object functionality
- pkgctl works specifically with packages



# Status: Alpha

- Almost all of the features we want are in place
- Internals might change
- We are just getting started using it ourselves
- For new people, we need to improve the docs and especially the testing







# python-jamf

<https://github.com/univ-of-utah-marriott-library-apple/python-jamf>



# jctl

<https://github.com/univ-of-utah-marriott-library-apple/jctl>

## MacAdmin Slack



jctl - <https://macadmins.slack.com/archives/C01C8KVV2UD>



**Thank you for  
listening!**

