Introducing Munki 7

Yes, he's talking about Munki again 🤪



But first...

MacSysAdmin 2011

- European Macintosh System Administrators Meeting 2011 -

Pushing Packages with Munki

Greg Neagle
Walt Disney Animation Studios

















MacSysAdmin 2011

- European Macintosh System Administrators Meeting 2011 -

Pushing Packages with Munki

Greg Neagle
Walt Disney Animation Studios







MacSysAdmin 2012 - European Macintosh System Administrators Meeting 2012 -

More Management for Lion and Mountain Lion

Greg Neagle
Walt Disney Animation Studios



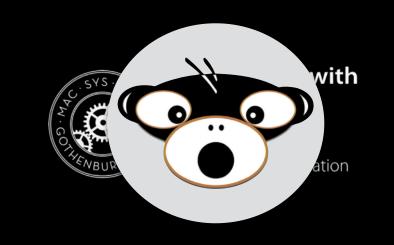
Brought to you by Apoic

F. 2020



Managing Updates
-The Next Level

Greg Neagle



Brought to you by **Apoio**



AutoPkg: Crowdsourcing Mac packaging and deployment

Greg Neagle
Walt Disney Animation

Studios *Tim Sutton*Concordia University



Preference Management with Profiles

Brought to you by Apoio

Greg NeagleWalt Disney Animation Studios



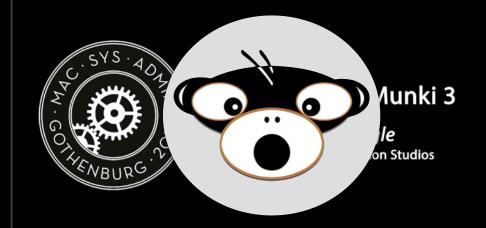
Scripting Opportunities for System Administrators

Greg NeagleWalt Disney Animation Studios



Command Line Programs All Mac Administrators Should Know

Greg Neagle
Walt Disney Animation Studios
Edward Marczak
Google





Imaging is Dead: What Now?

Greg Neagle
Walt Disney Animation Studios



Autopkg 2020

Greg Neagle





Greg Neagle, Walt Disney Animation



macOS versioning and Big Sur

Greg Neagle, Walt Disney Animation Studios



C.SYS

Munki 5

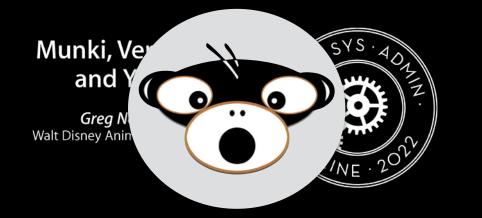
Changes for 2020

Greg Neagle, Walt Disney Animation Studios



Greg NeagleWalt Disney Animation Studios







MUNKI-ING AROUND WITH AI

Greg Neagle



Introducing Munki 7
Yes, he's talking about Munki again



SVS ASALUE SOTHENBURG

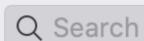
Greg Neagle, Oct 2025

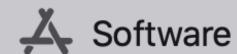
Introducing Munki 7

Yes, he's talking about Munki again 🤪

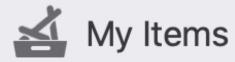












Updates

Managed Software Center Your source for software for your Mac.

Administration | Cloud Storage | Communication | Developer | Drivers | Editorial | Entertainment | File Sharing | Graphics | Internet | Media Production | Productivity | Remote Access | Story | Text Editing | Text Editors | Uncategorized | Utilities | Virtualization | drivers

All items



Adobe Acrobat Reader DC Productivity - Adobe

INSTALL



Amazon WorkSpaces Remote Access - Amazon

Installed

REMOVE



Aspera Connect Utilities - IBM Corp

INSTALL



Atom

Text Editors - GitHub, Inc.

INSTALL



Autodesk Maya 2018

Production - Autodesk

INSTALL



Autodesk Maya 2019

Production - Autodesk

INSTALL



Autodesk Meshmixer

Production - Autodesk

INSTALL



Blender

INSTALL

Production - The Blender Foun...

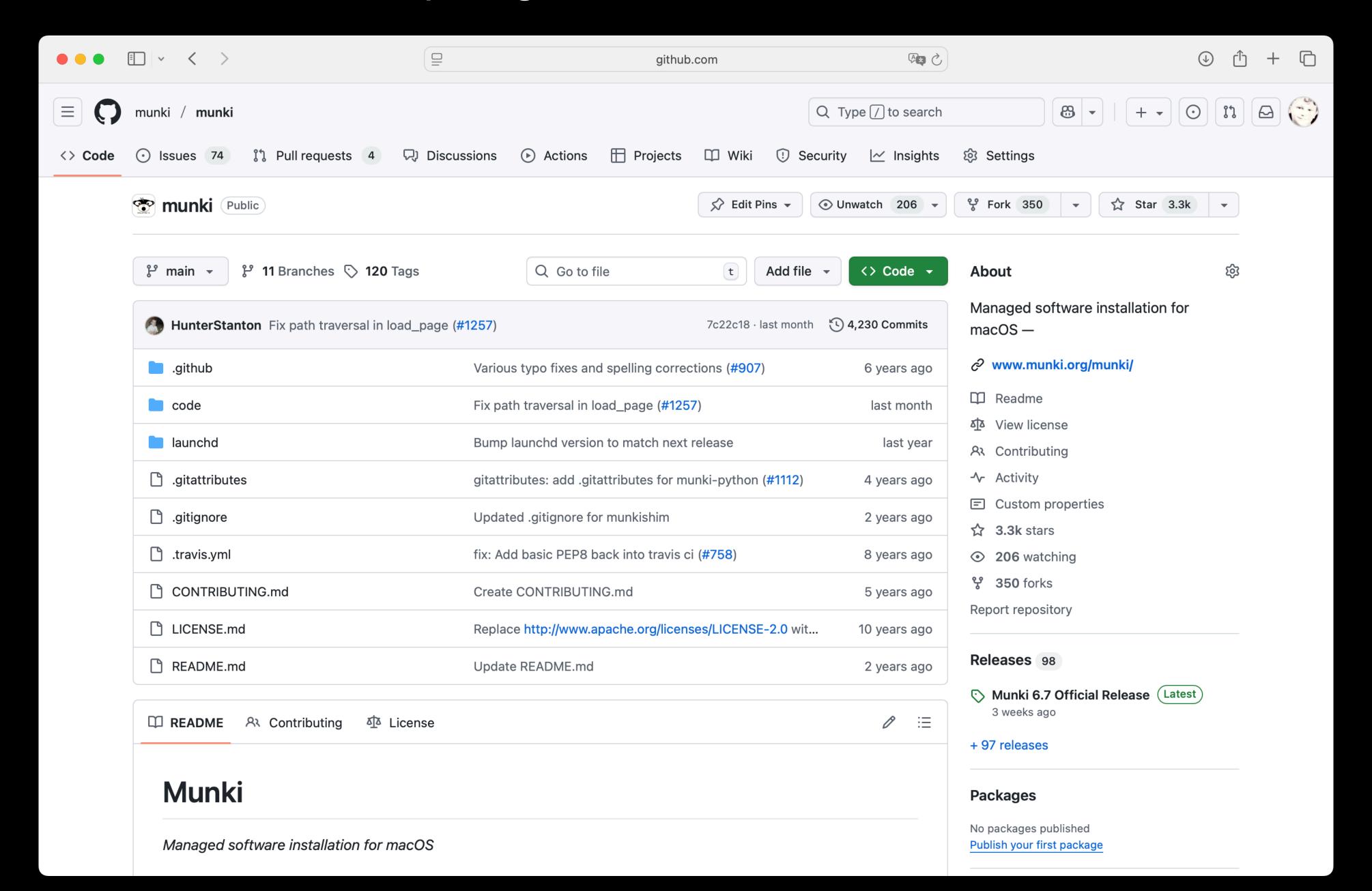


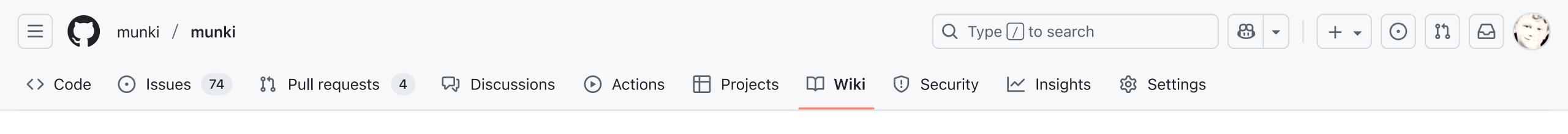
BlueJeans

Communication - Blue Jeans N... Installed

REMOVE

https://github.com/munki/munki





Who's using Munki

Adam Anklewicz edited this page on Apr 24, 2024 · 113 revisions

What does it mean if an organization is included in this list?

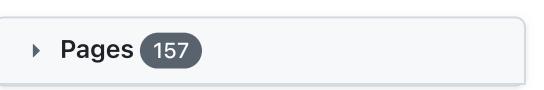
It means someone from the organization publicly at least once gave a presentation or made a blog post about using Munki in some capacity. Though probable, it doesn't necessarily mean the organization as a whole uses Munki or that Munki is used for the entire fleet at that organization. It's certainly possible (though highly unlikely) that someone, representating her or his own organization at a conference, gave an in-depth presentation on Munki but uses Munki only personally at home and not in a work context at all.

Guidelines for adding to the list

- Do not "out" organizations (companies/schools) you know are using Munki but who haven't publicly disclosed they are using Munki
- Post a link to the publicly available source along with the date of the source
- Keep the list alphabetical by organization name
- List first the name of the organization, the date of the link (or the full time period using Munki, if disclosed), and then the source

What do the years mean after an organization's name?

That's when the presentation was given or the blog post posted. Sometimes a range of years is evident based on the contents of the presentation/blog, in which case a range is listed. Organizations tend not to implement a solution like Munki



New page

macOS Sequoia info

macOS Sonoma info

macOS Ventura info

Introduction

- Getting Started
- Overview
- Discussion Group
- Demonstration Setup
- Glossary
- Frequently Asked Questions
- Contributing to Munki
- Release Notes

Future Plans

• Deprecation Notes

Munki 7 (in beta)

• Introduction

Walt Disney Animation Studios

2017 Introducing Munki 3

Washburn University

2017 Standard Software – Current as of 3/13/2017

Wheaton College

2017 Managed Software Center Available for College-Owned Macs

Willem de Kooning academy / Hogeschool Rotterdam, Netherlands

2020 munki-and-jamf-school

William Paterson University

2017 Mac OS Managed Software Center

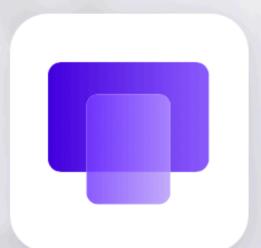
Yale School of Medicine, Department of Pathology

2017 Pathology ScopeCams

+ Add a custom footer







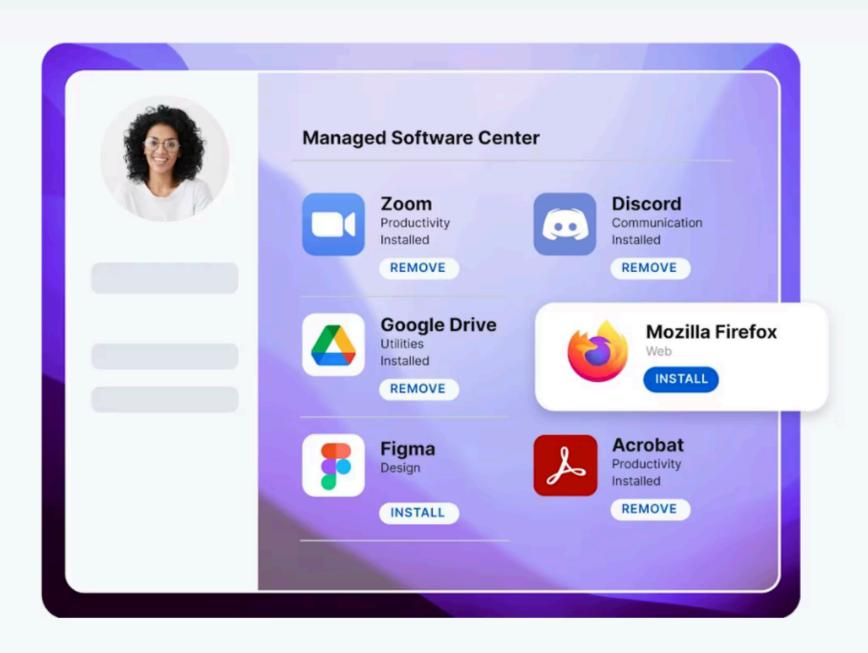
Workspace ONE UEM

Embrace a single, cloud-native product for unified endpoint management—for any device and any use case.



Robust Munki integration

With our <u>self-hosted Munki integration</u>, you can enable your macOS users to self-install software not available in the App Store or native MDM channel, freeing up your valuable time.



Shared apps

Easily add and distribute software (without additional work on your part) with our shared app directory of up-to-date macOS software.

Custom apps

Upload in-house applications or custom builds. We'll determine whether they can be distributed via MDM, Munki, or both.

Self-serve storefront

Create a self-serve storefront for macOS devices with preselected applications for users to install and uninstall for themselves.

NoPkg support

Run scripts automatically & continuously check for changes in the installed state to determine if they need to run again.

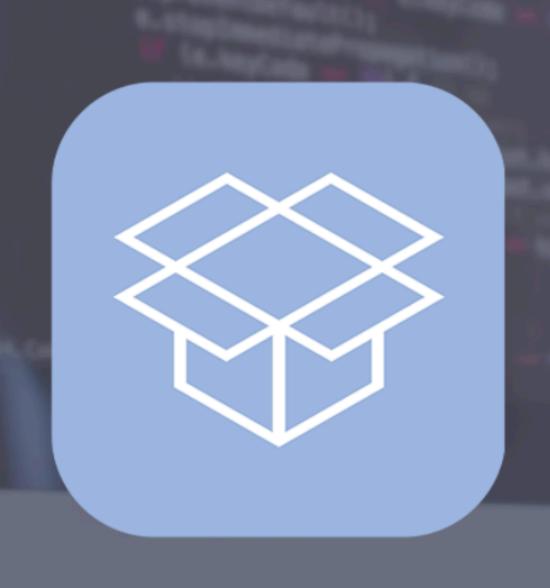
Version pinning

When distributing software, default to update with every new version or use version pinning to select a specific version.

Custom PkgInfo

Easily customize the PkgInfo files for your Munki apps. Upload your own PkgInfo file, or edit the existing file to fit your specific needs.





Jamf Auto Update

Automated application packaging and deployment service for Jamf Pro

Jamf Auto Update (previously named dataJAR Auto-Update for Jamf) is a cloud-based service for MSPs that integrates seamlessly with Jamf Pro to provide fully automated application packaging, deployment and updating capabilities for the management of macOS devices.



Munki 6.0 Official Release



gregneagle released this Oct 18, 2022 · 211 commits to Munki6dev since this release



∨ v6.0.0

-O- e739c66

This is the official release of Munki 6.0, a release adding new features to the Munki tools.

This is the exact same build as Munki 6.0 Release Candidate 1. There have been no changes since that releas

New features

- Munki 6 adds a feature to stage a macOS installer application and have Managed Software Center launc temporarily giving the user admin rights if needed. This enables Munki to assist with an upgrade of mac this feature can be used on Intel Macs as well.
- munkiimport and makepkginfo now support a new --installer-type option, which can be used wit macOS installers to indicate whether you want to build a startosinstall item, a stage_os_installer

Munki 6.7 Official Release



gregneagle released this last month 0 commits to main since this release



-0- 40364d2

This is the official release of Munki 6.7.0: a bug-fix and enhancement release of the Munki tools.

Fixes and enhancements

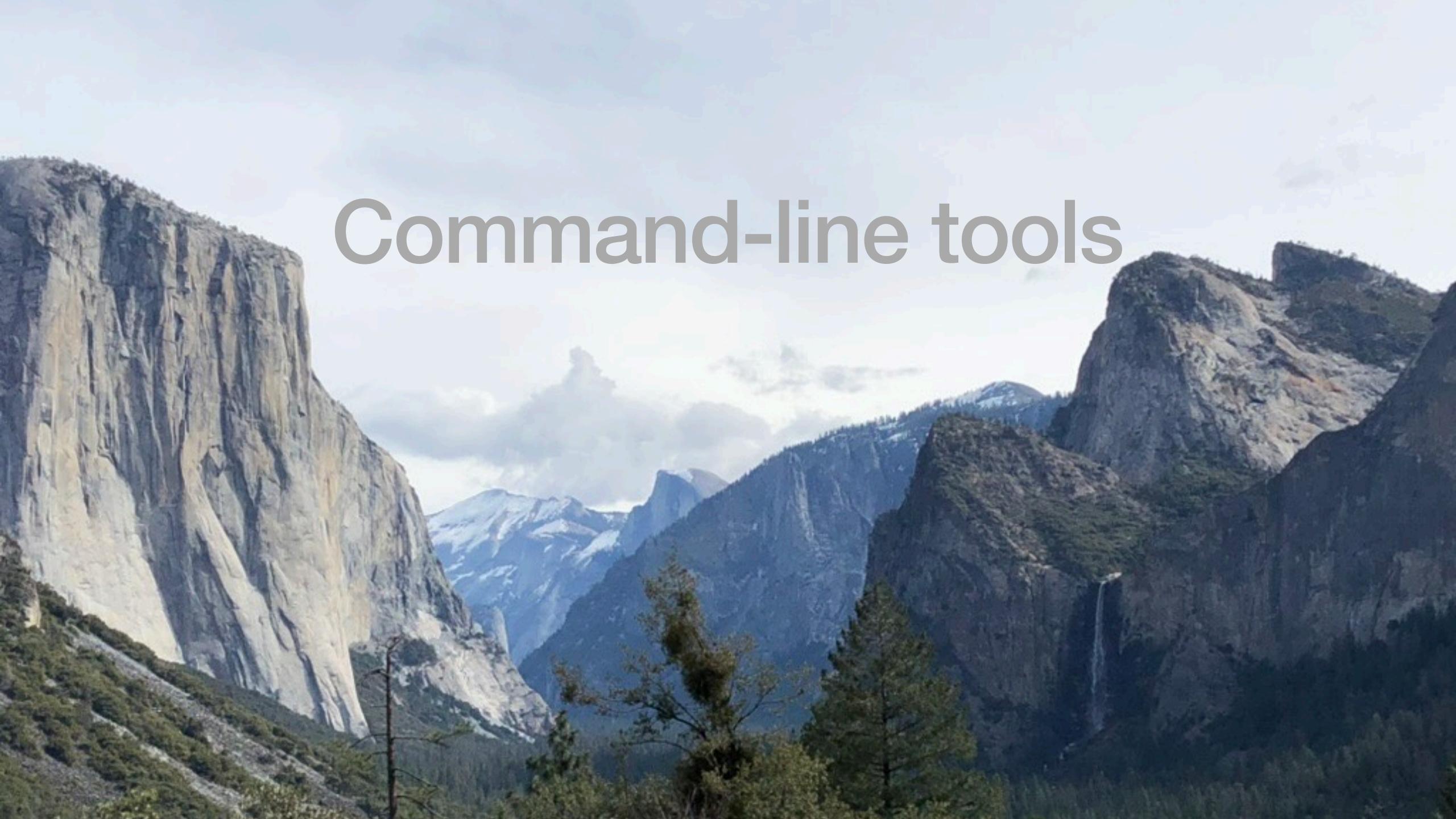
- If a process has made a display sleep assertion, skip notification of pending updates (unless a forced log meant to avoid a Munki notification if a user is "presenting". f88d10e 0a2cb3f
- During bootstrapping, if on A/C power or battery level is greater than 50% on Intel or greater than 30% or status app will prevent the display from going to sleep so that bootstrap progress is displayed. Thanks to #1215)
- Some fixes for the placement of the background-blurring windows at boot time: abb511e 7bda74b

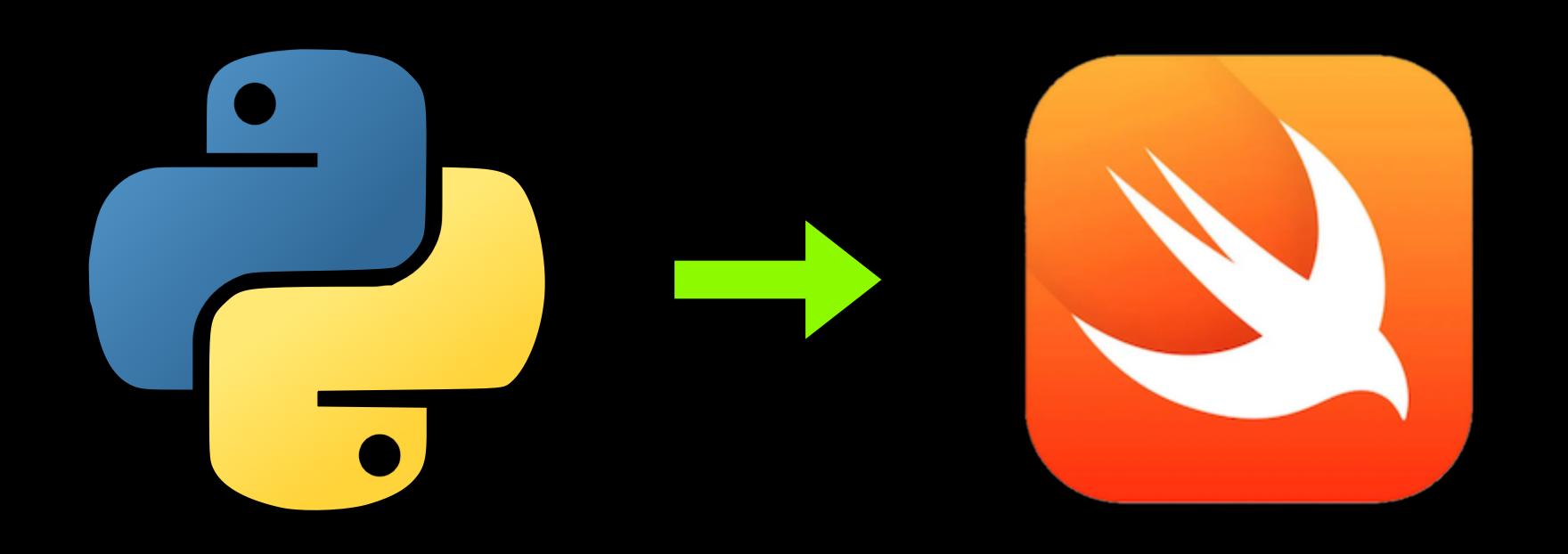


About one minute remaining...







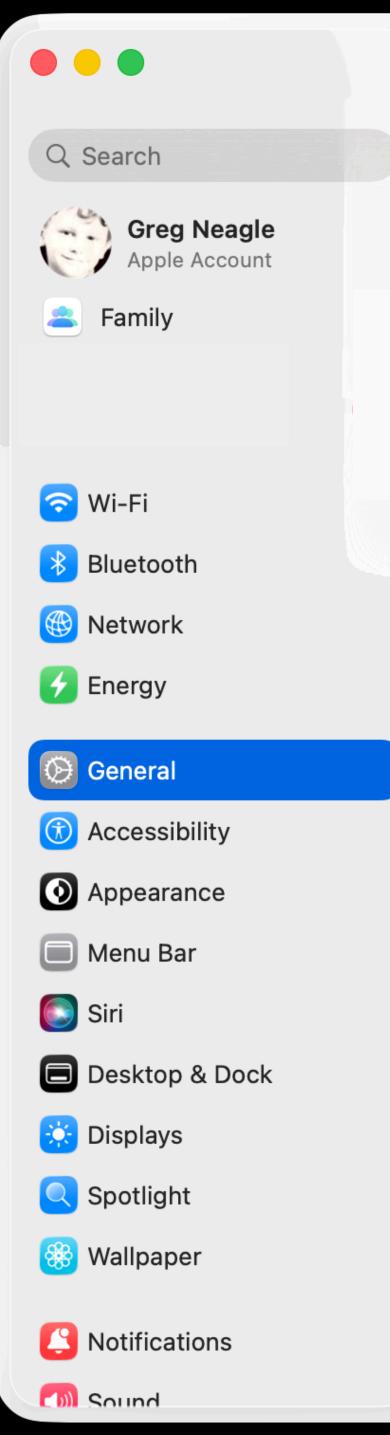


3

bash-3.2\$

bash-3.2\$

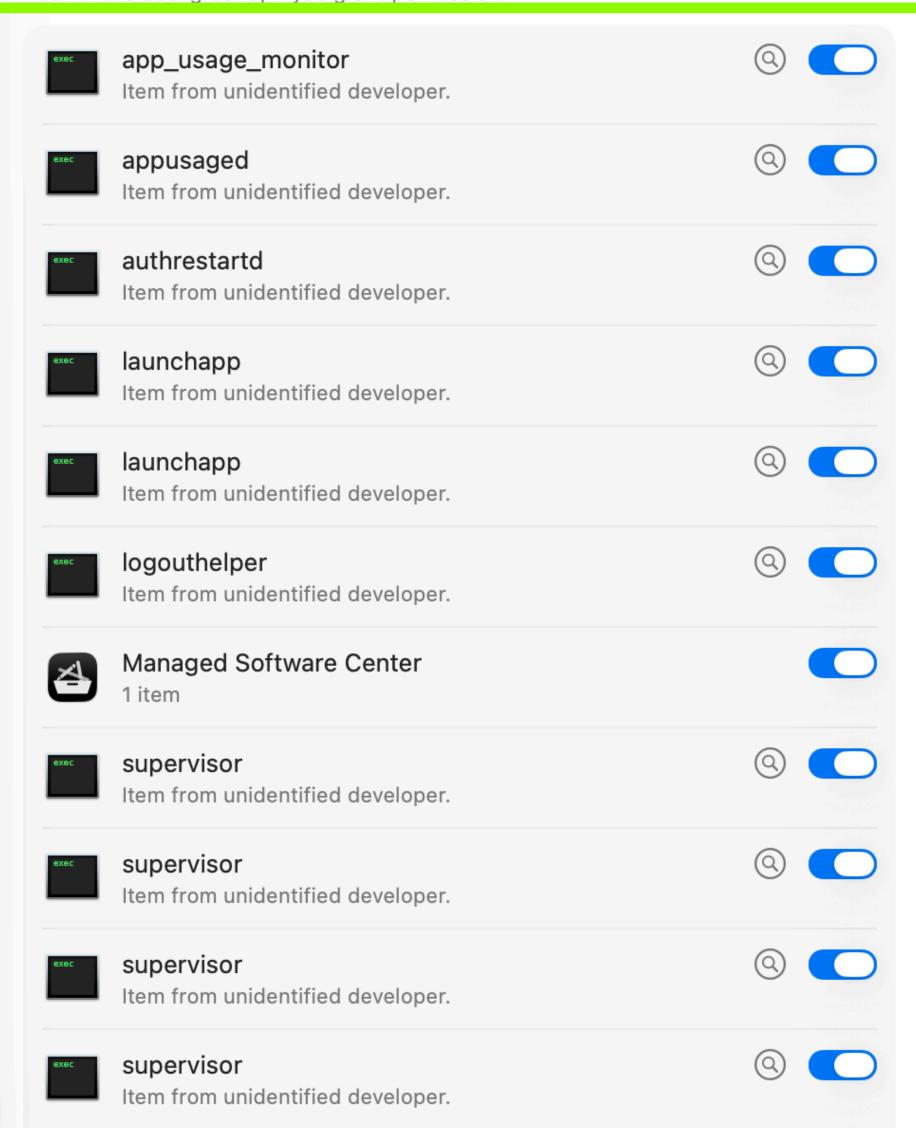
Side-effects

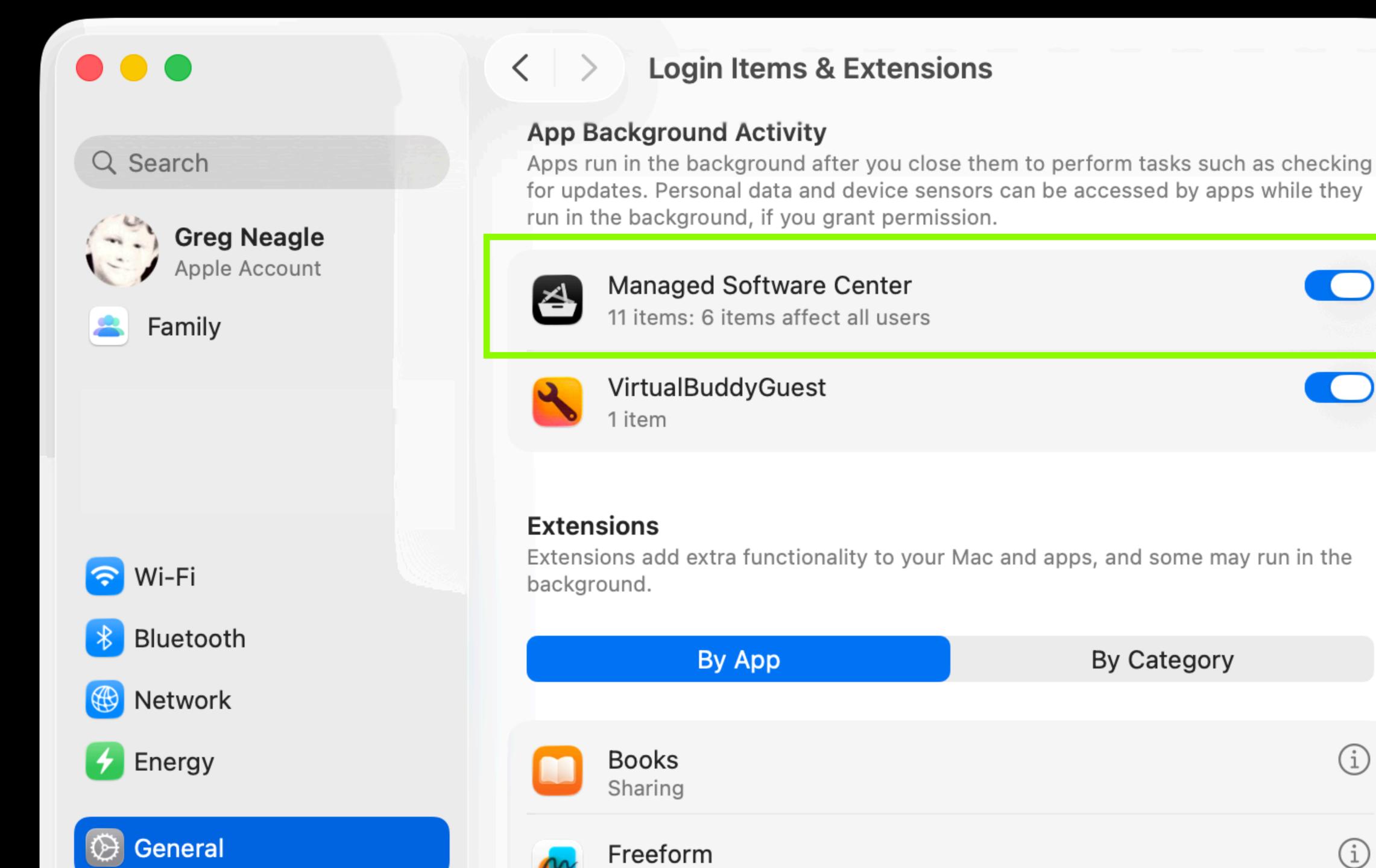


Login Items & Extensions

App Background Activity

Apps run in the background after you close them to perform tasks such as checking for updates. Personal data and device sensors can be accessed by apps while they run in the background, if you grant permission.







version_script

```
<key>installs</key>
    <array>
        <dict>
            <key>CFBundleIdentifier</key>
            <string>com google Chrome</string>
            <key>CFBundleName</key>
            <string>Chrome</string>
            <key>CFBundleShortVersionString</key>
            <string>140.0.7339.186
            <key>CFBundleVersion</key>
            <string>7339.186</string>
            <key>minosversion</key>
            <string>12.0</string>
            <key>path</key>
            <string>/Applications/Google Chrome.app</string>
            <key>type</key>
            <string>application</string>
            <key>version_comparison_key</key>
           <string>CFBundleShortVersionString/string>
       </dict>
   </array>
```

```
<key>name</key>
<string>hp-easy-scan</string>
<key>receipts</key>
<array>
    <dict>
        <key>installed_size</key>
        <integer>268041</integer>
        <key>packageid</key>
        <string>com.hp.EasyScanMac.pkg</string>
        <key>version</key>
        <string>1.11.0.210909</string>
    </dict>
</array>
```

```
<key>installcheck_script</key>
    <string>#!/bin/sh
# Grab current version of installed python module
version="$(python -c 'import
argparse; print(argparse.__version__)' 2>/dev/null)"
# Compare with the version we want to install
if [ ${version:-0} \< 1.2.1 ]; then
    exit 0
else
    exit 1
fi
    </string>
```

```
#!/bin/sh
read -p "Enter a version to compare: " VERSION
if [ "${VERSION}" \< "1.2.1" ]; then
    echo "YES, ${VERSION} is less than 1.2.1"
else
    echo "NO, ${VERSION} is not less than 1.2.1"
fi
```

% /tmp/test.sh Enter a version to compare: 1.1 YES, 1.1 is less than 1.2.1



```
#!/bin/sh
read -p "Enter a version to compare: " VERSION

if [ "${VERSION}" \< "1.2.1" ]; then
    echo "YES, ${VERSION} is less than 1.2.1"
else
    echo "NO, ${VERSION} is not less than 1.2.1"
fi</pre>
```

% /tmp/test.sh Enter a version to compare: 1.3 NO, 1.3 is not less than 1.2.1



```
#!/bin/sh
read -p "Enter a version to compare: " VERSION
if [ "${VERSION}" \< "1.2.1" ]; then
    echo "YES, ${VERSION} is less than 1.2.1"
else
    echo "NO, ${VERSION} is not less than 1.2.1"
fi
```

% /tmp/test.sh
Enter a version to compare: 1.10
YES, 1.10 is less than 1.2.1

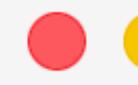
1.1

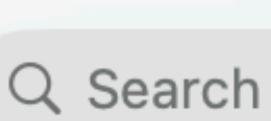
```
<pli><pli>t version="1.0">
    <dict>
        <sn1p>
        <key>version</key>
        <string>1.2.1
        <key>version_script</key>
        <string>#!/bin/sh
echo $(/usr/local/bin/python3 -c \
'import argparse; print(argparse__version__)' \
2&qt;/dev/null)
        </string>
</pli>t>
```









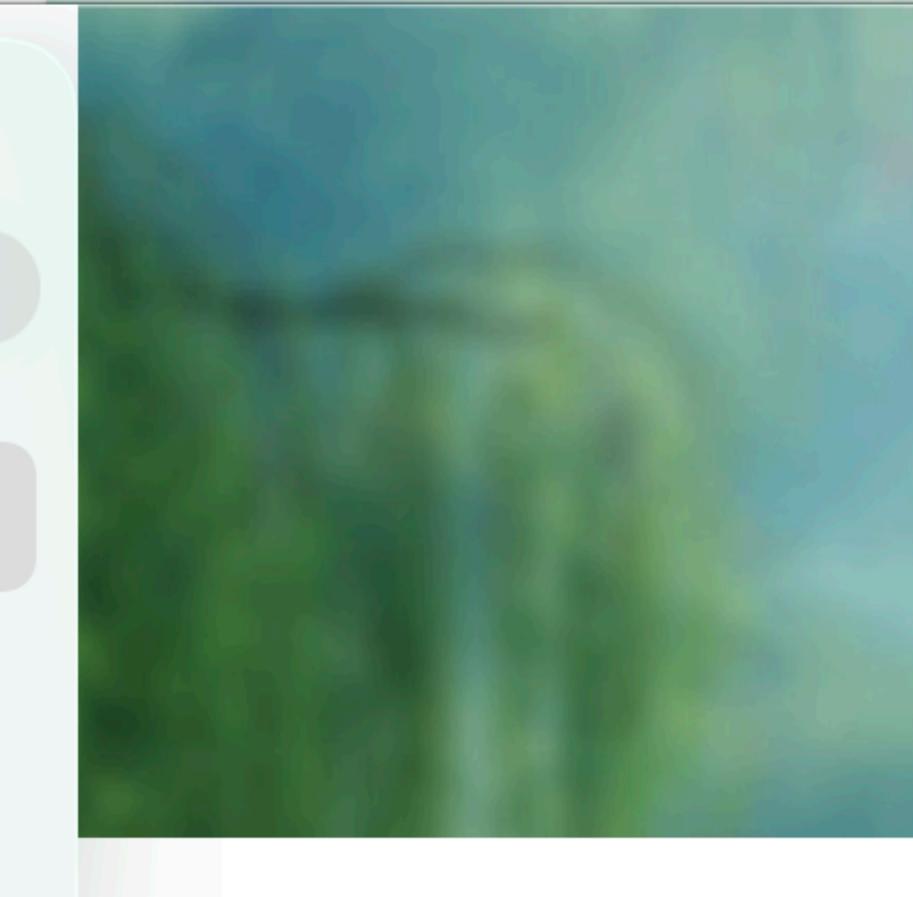


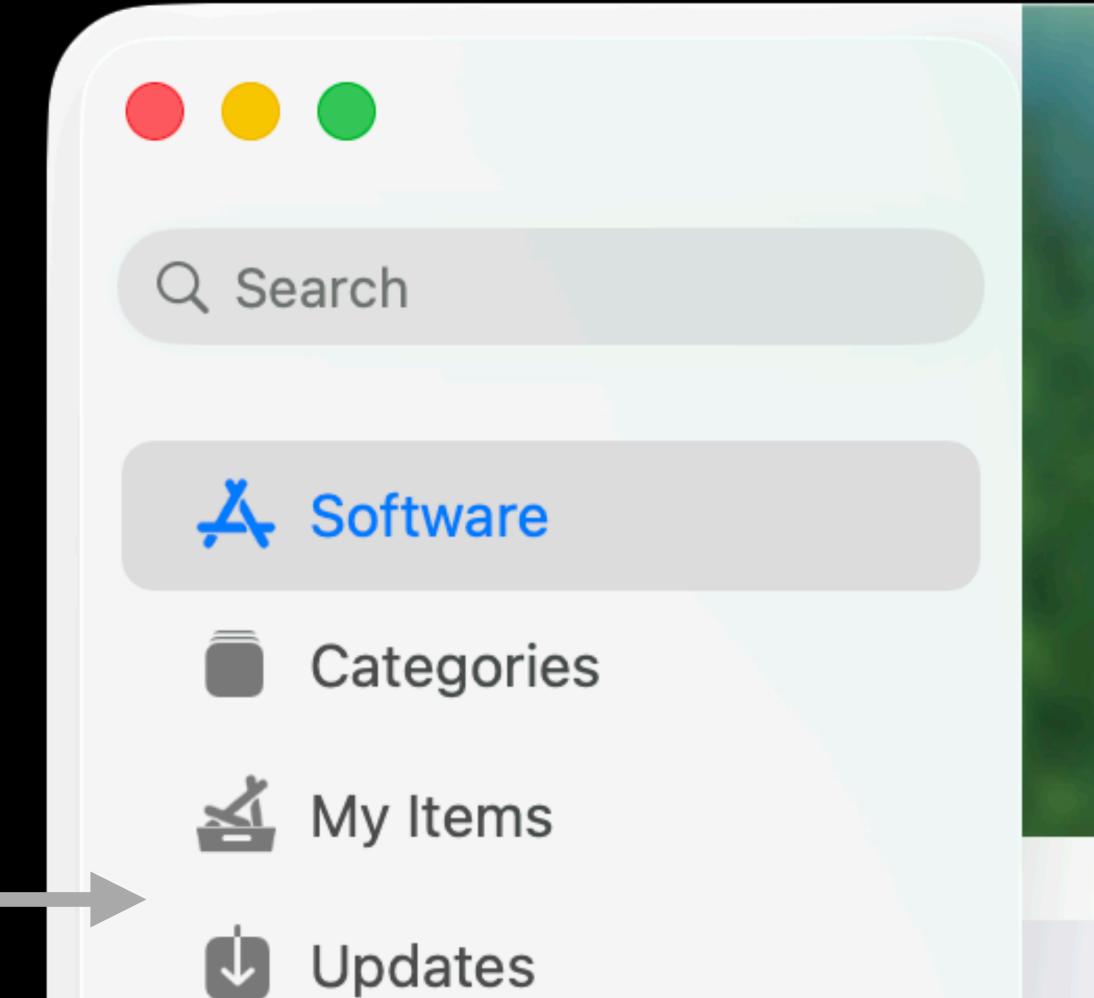




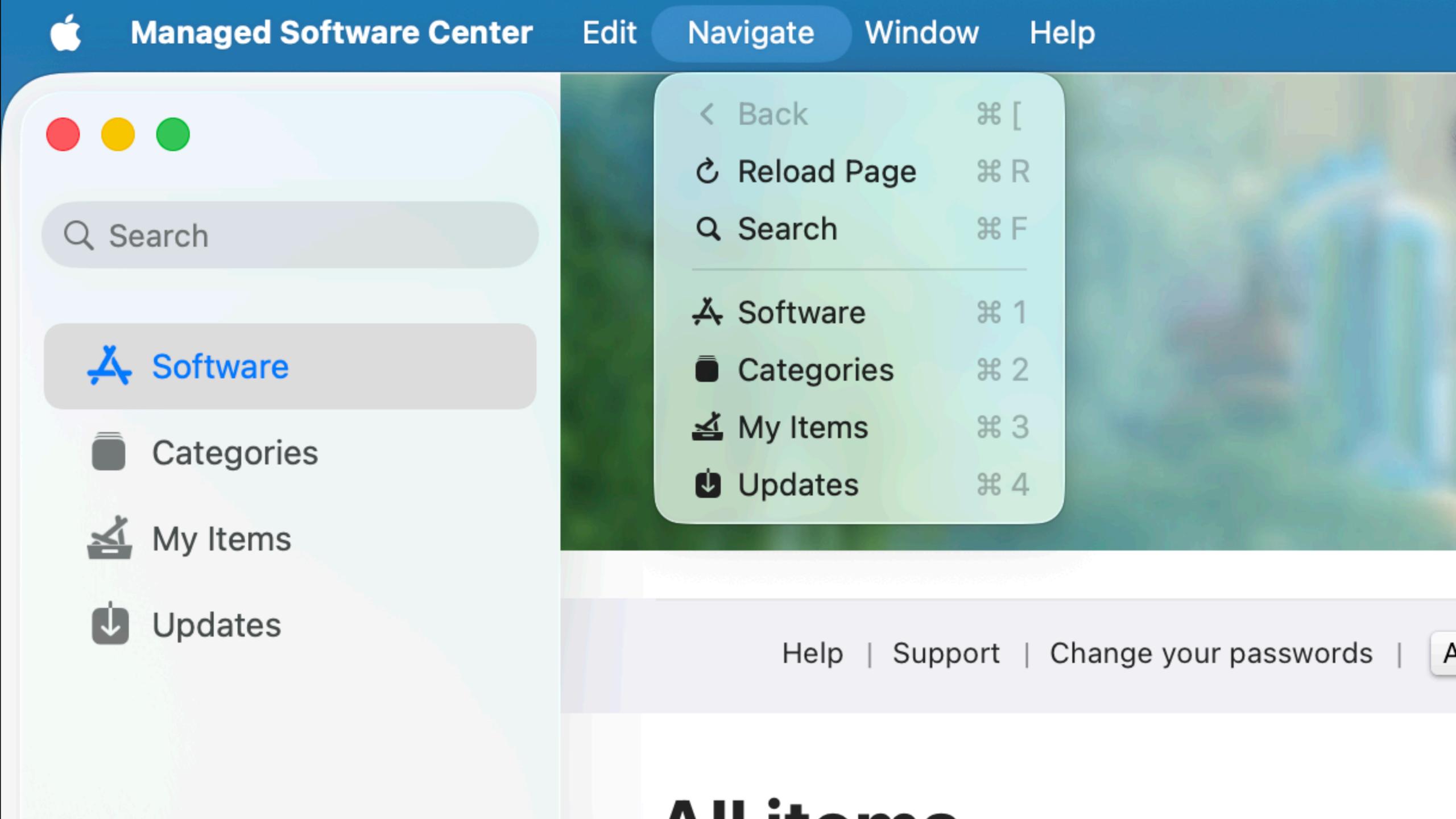








I guess that looks like a sheet of glass?























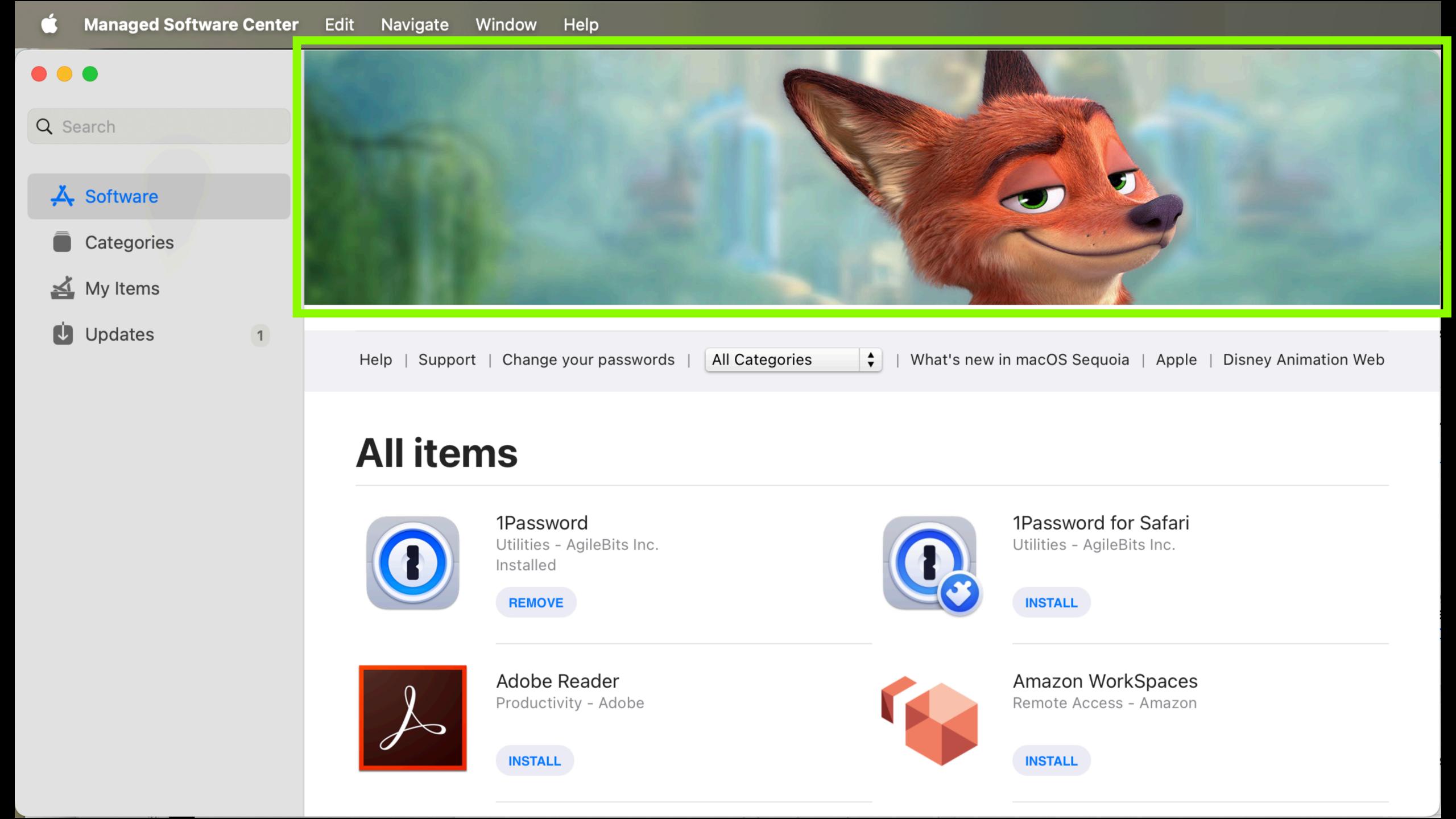


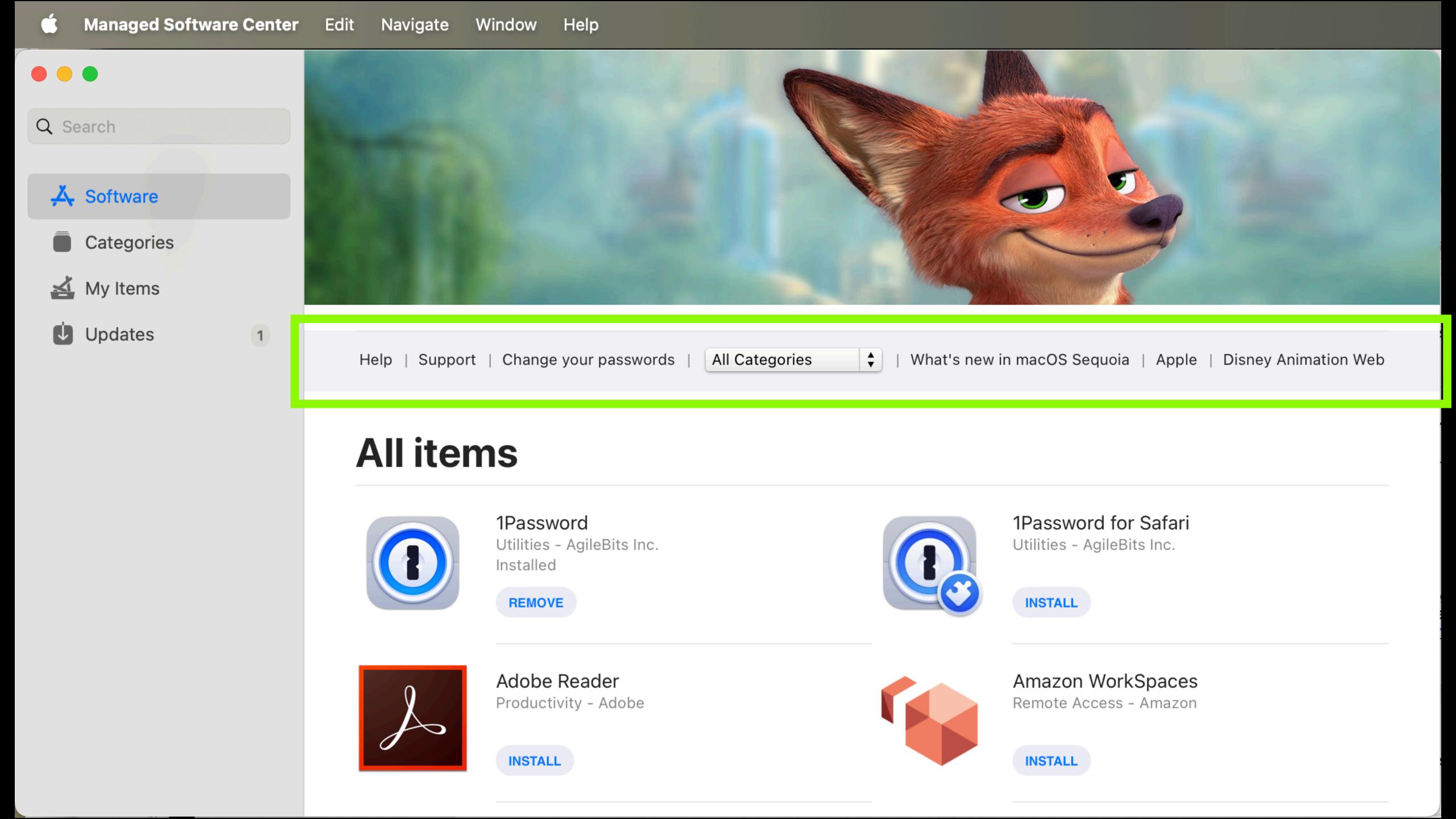


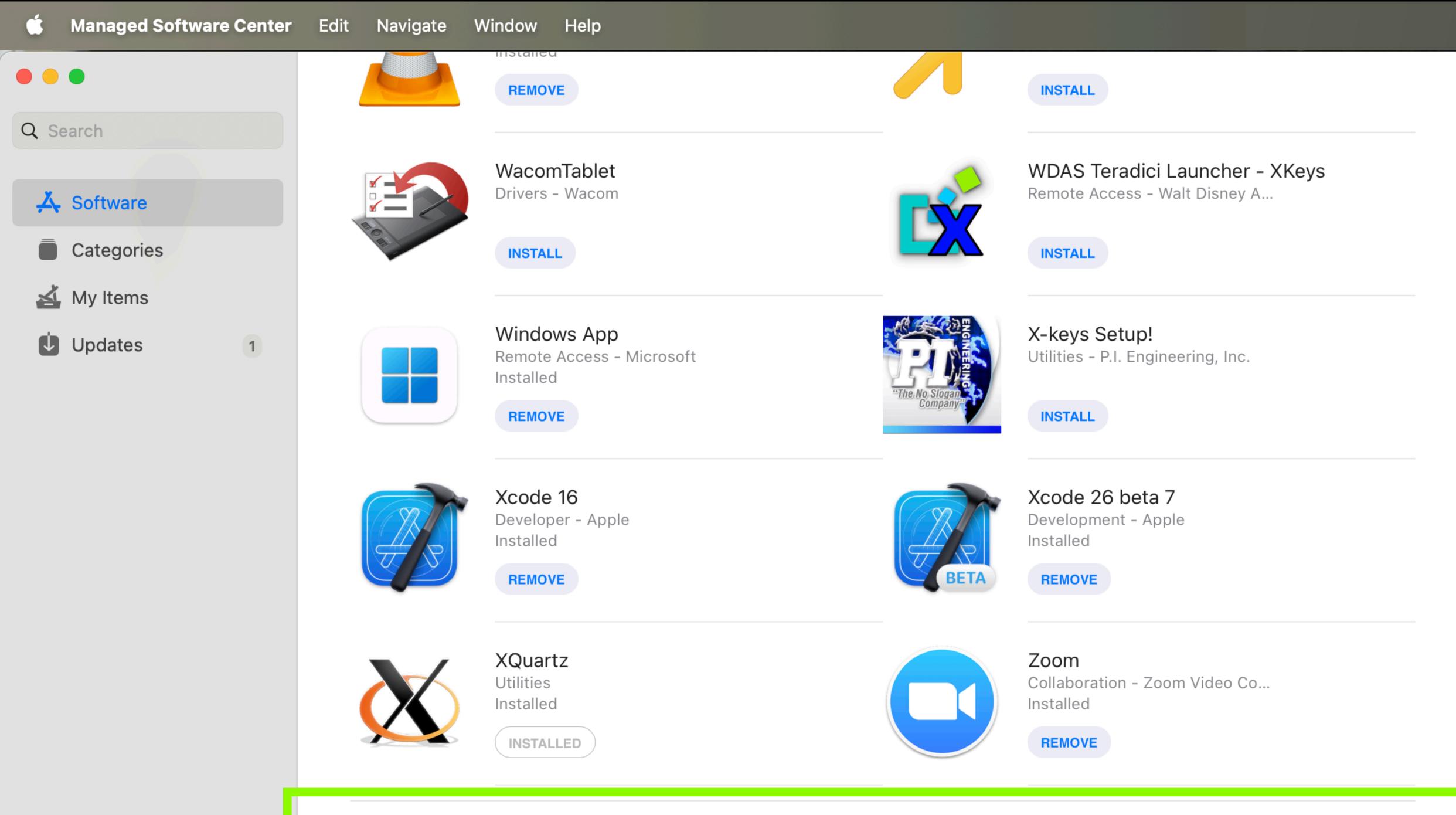


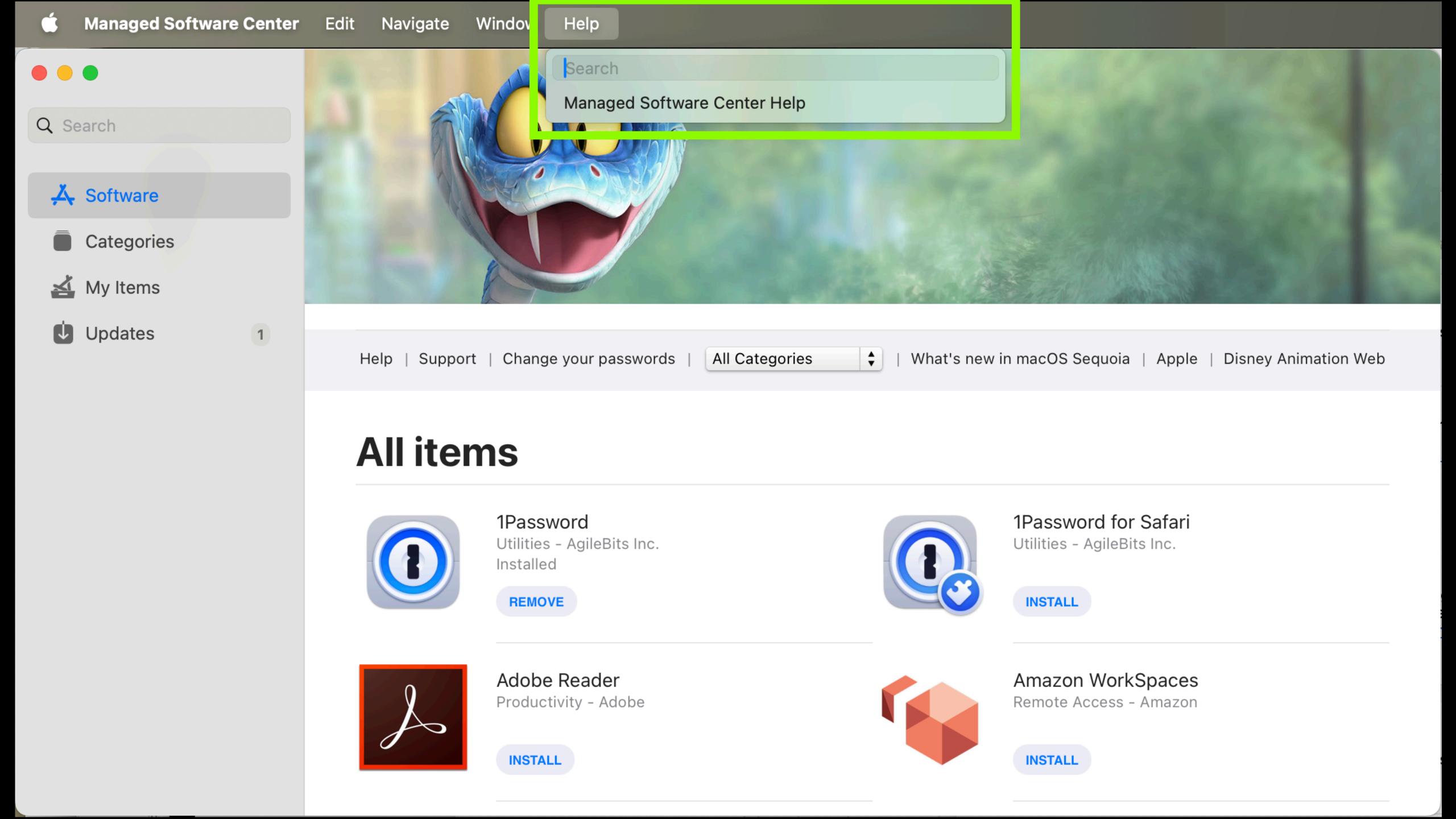


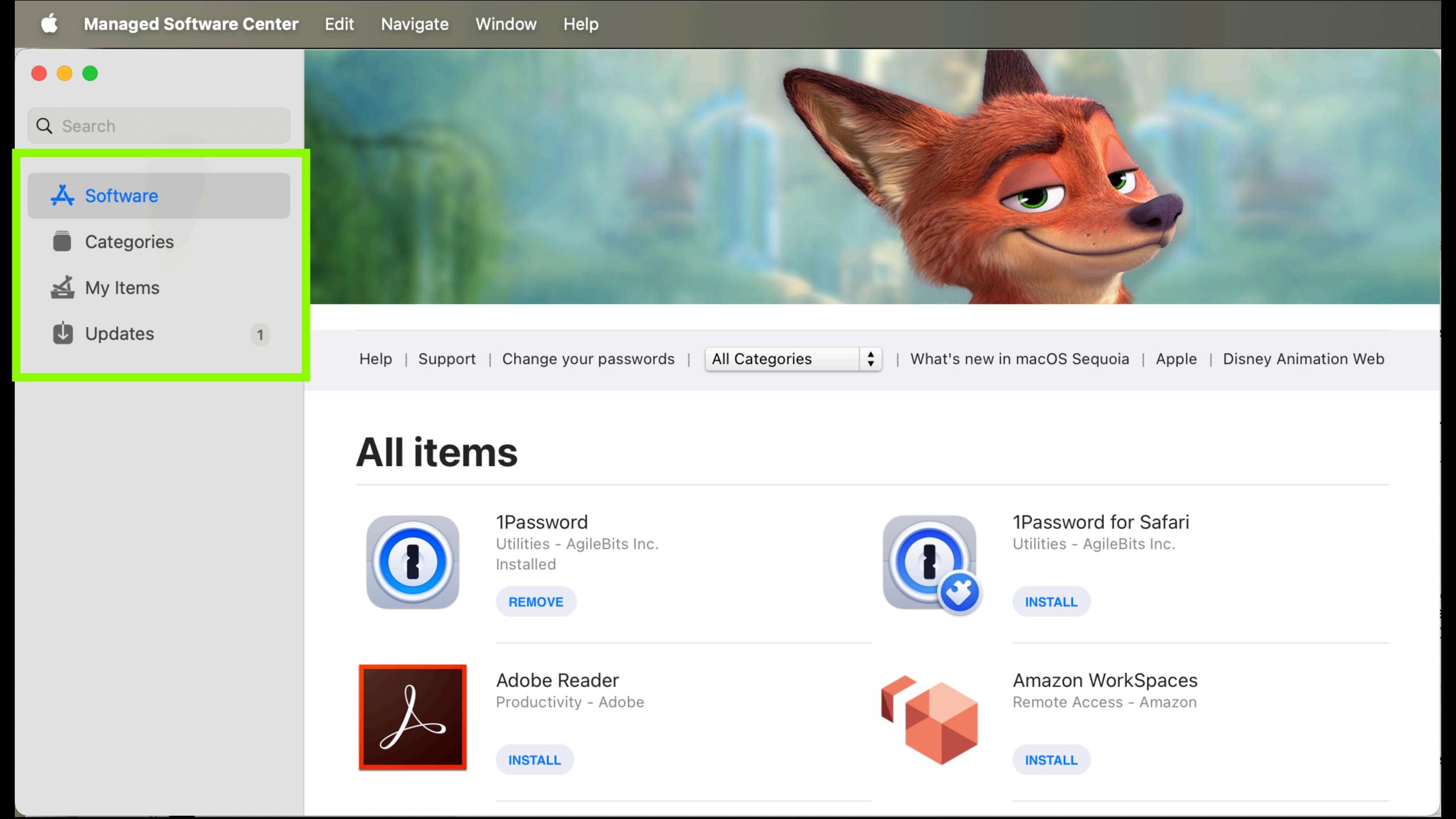








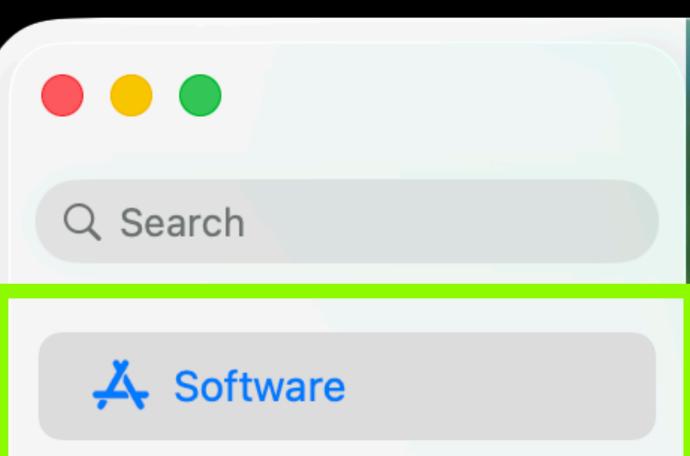




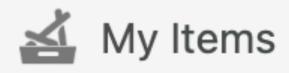
Customizable sidebar



Steve Küng Zürich, Switzerland











All Categories

Disney Animation Web



Support |



Help

1Password Utilities - AgileBits Inc.

Change your passwords

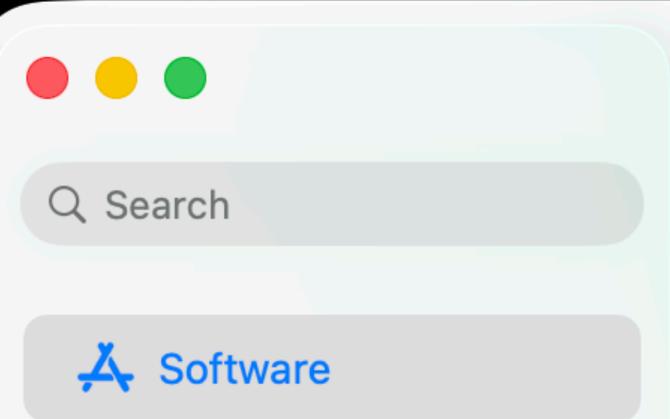


1Password f Utilities - Agile

What's new in

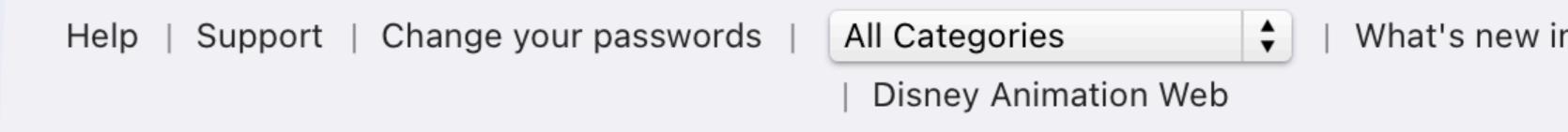
INSTALL

INSTALL



- Categories
- My Items
- **Updates**
- ? Helpdesk





All items



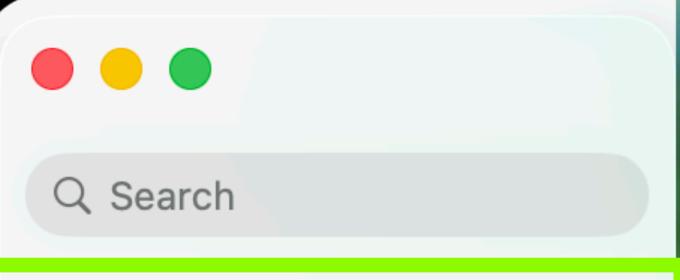
1Password Utilities - AgileBits Inc.



1Password f Utilities - Agile

INSTALL

INSTALL





- My Device
- ? Helpdesk
- My Homepage
- Clean my Mac



Help | Support | Change your passwords | All Categories | What's new in | Disney Animation Web

All items



1Password Utilities - AgileBits Inc.



1Password f Utilities - Agile

INSTALL

INSTALL

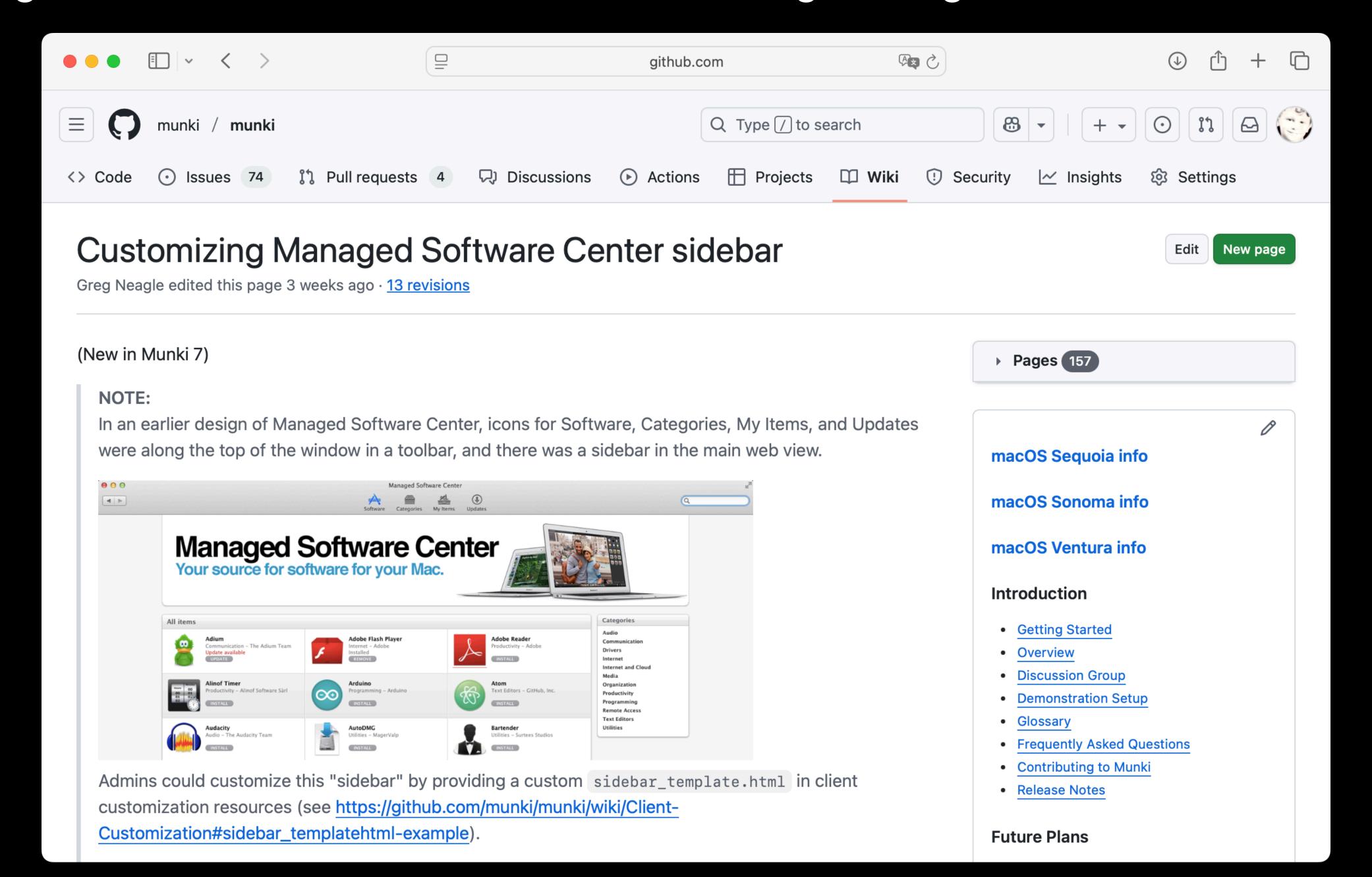


Configuring the sidebar

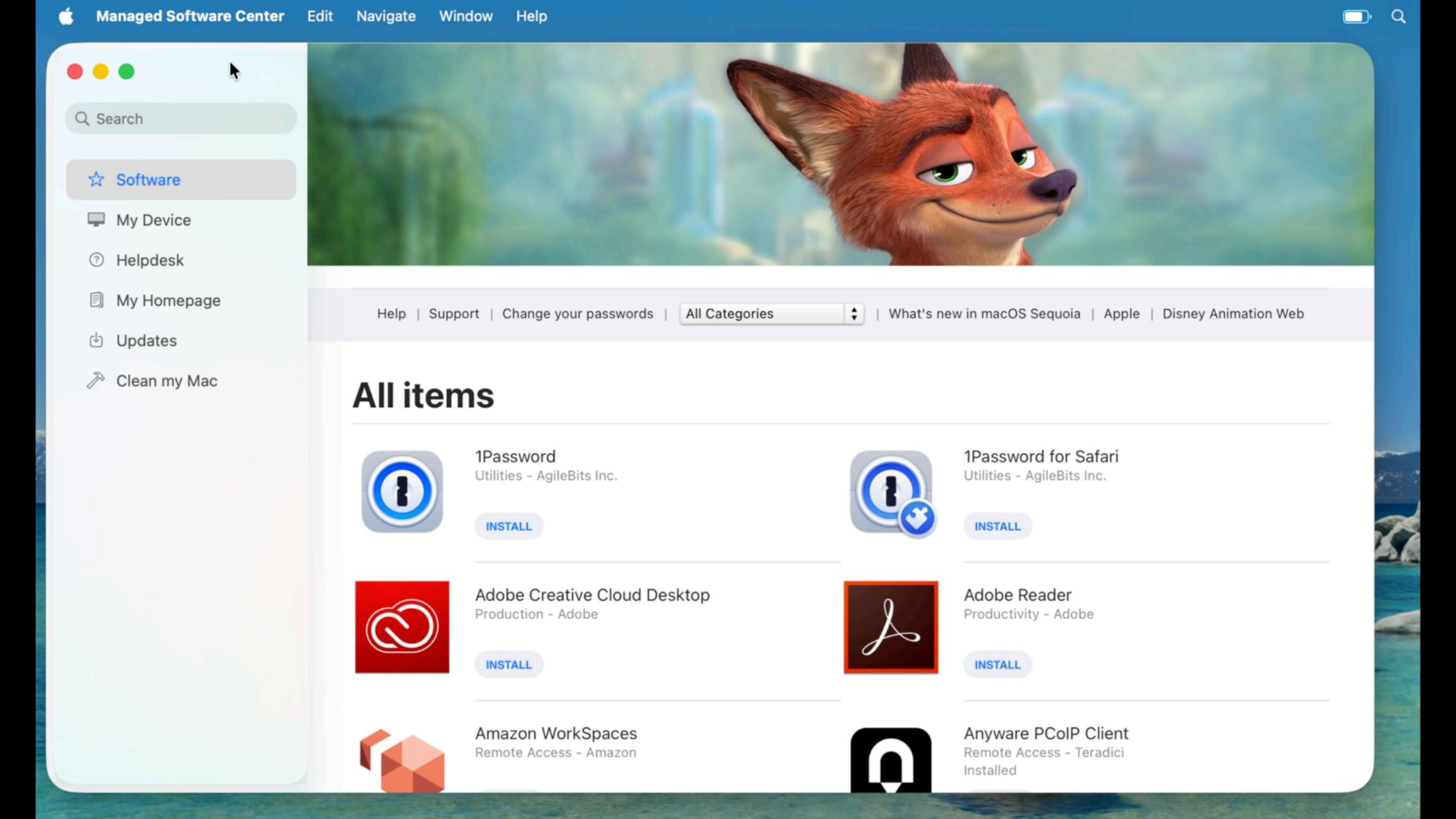
CustomSidebarItems

- Munki's preferences
 (includes preferences delivered via configuration profile)
- A client customization archive file in the Munki repo (https://github.com/munki/munki/wiki/Client-Customization)

https://github.com/munki/munki/wiki/Customizing-Managed-Software-Center-sidebar



Demo time!





Munki 6.7



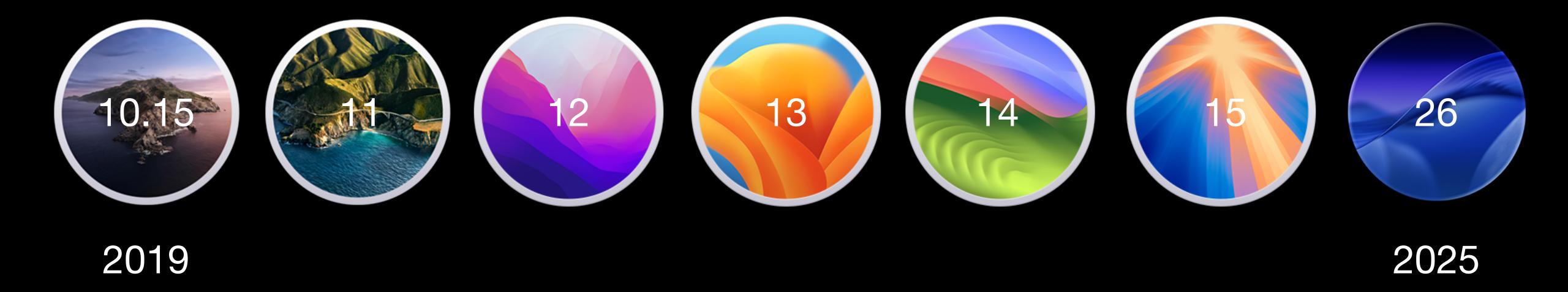
2017

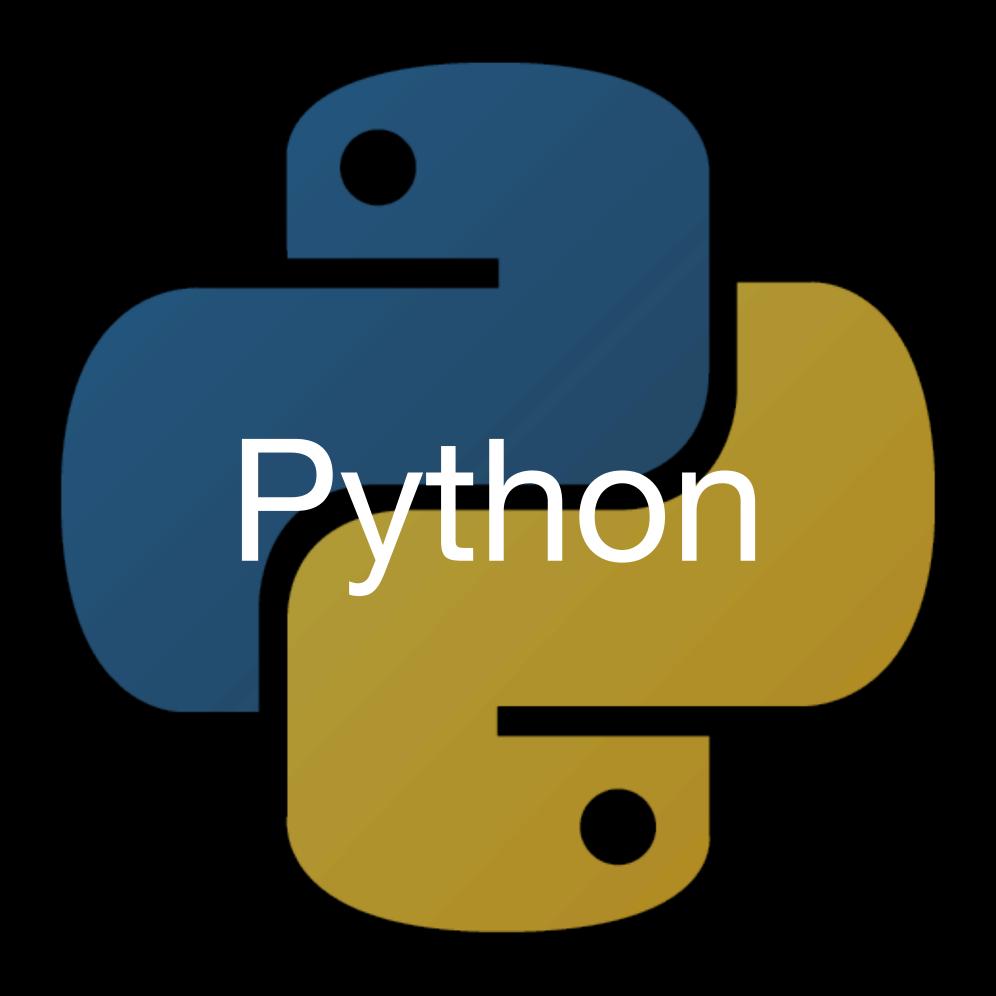
Munki 7.0



2025

Munki 7.0





X /usr/local/munki/munki-python

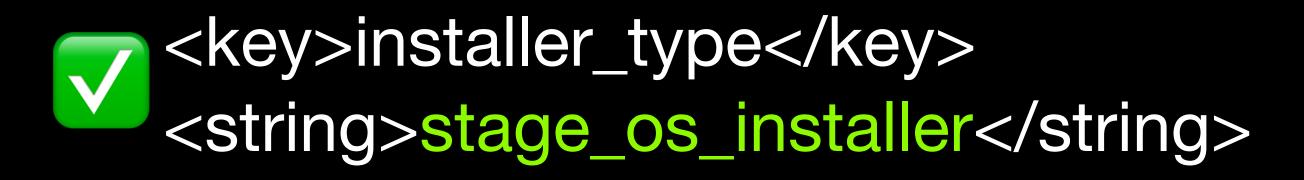
// /usr/local/munki/Python.framework

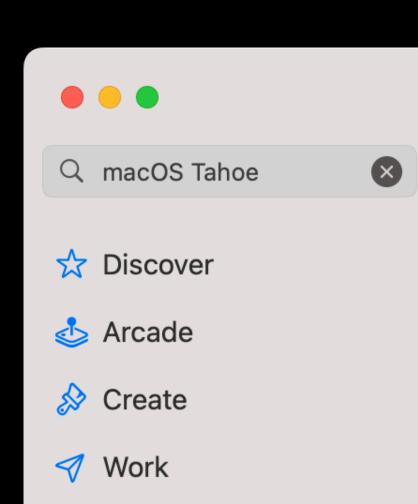
munki-facts

```
#!/usr/local/munki/munki-python
'''Processes python modules in the facts directory and adds the info they
return to our ConditionalItems.plist'''
from __future__ import absolute_import, print_function
import importlib_util
import os
import plistlib
import sys
from xml.parsers.expat import ExpatError
# pylint: disable=no-name-in-module
from CoreFoundation import CFPreferencesCopyAppValue
# pylint: enable=no-name-in-module
def main():
    # pylint: disable=too-many-locals
    '''Run all our fact plugins and collect their data'''
    module_dir = os.path.join(os.path.dirname(__file__), 'facts')
    facts = {}
```



<key>installer_type</key>
<string>startosinstall</string>





Develop

Play

- **Categories**
- Updates

Results for "macOS Tahoe"

Mac Apps iPhone & iPad Apps



Get



Mactracker

Reference ★★★★ 606 Get

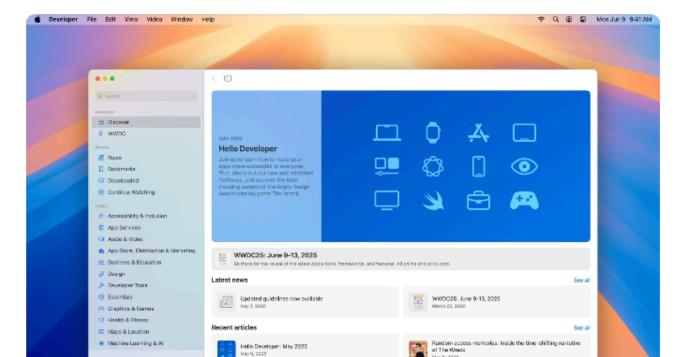


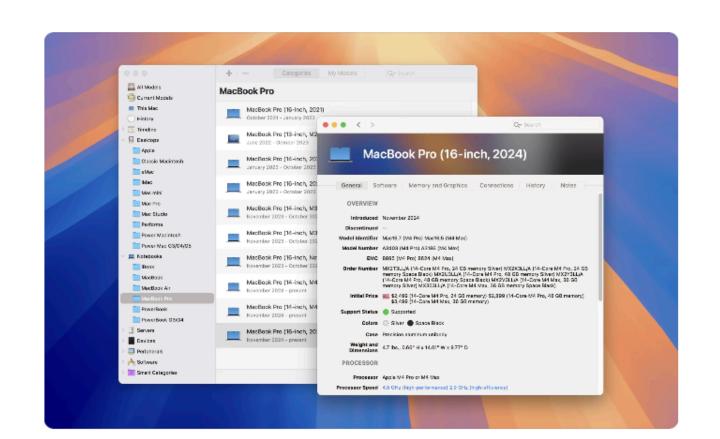
Apple Developer

Developer Tools



★★★☆☆ 444







CleanMyMac

Clean & protect your computer

★★★★ 14K





Amphetamine



Get tidy with CleanMyMac

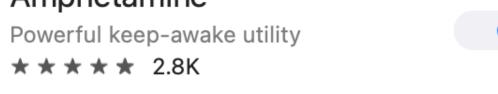
Smart Care

Cleanup

Protection







X Installing Apple software updates

Updates

2 pending updates Restart Required





macOS Sequoia 15.7
Apple
Version 15.7 • 0.0 KB
Restart Required



Command Line Tools for Xcode 26.0 Apple Version 26.0 • 4.6 GB

The Command Line Tools enable UNIX-style development via Terminal by installing command line...

More



installer_type:

- AdobeSetup
- AdobeUberInstaller
- X AdobeAcrobatUpdater
- X AdobeCS5AAMEEPackage
- X AdobeCS5PatchInstaller
- **X** AdobeCCPInstaller

uninstall_method:

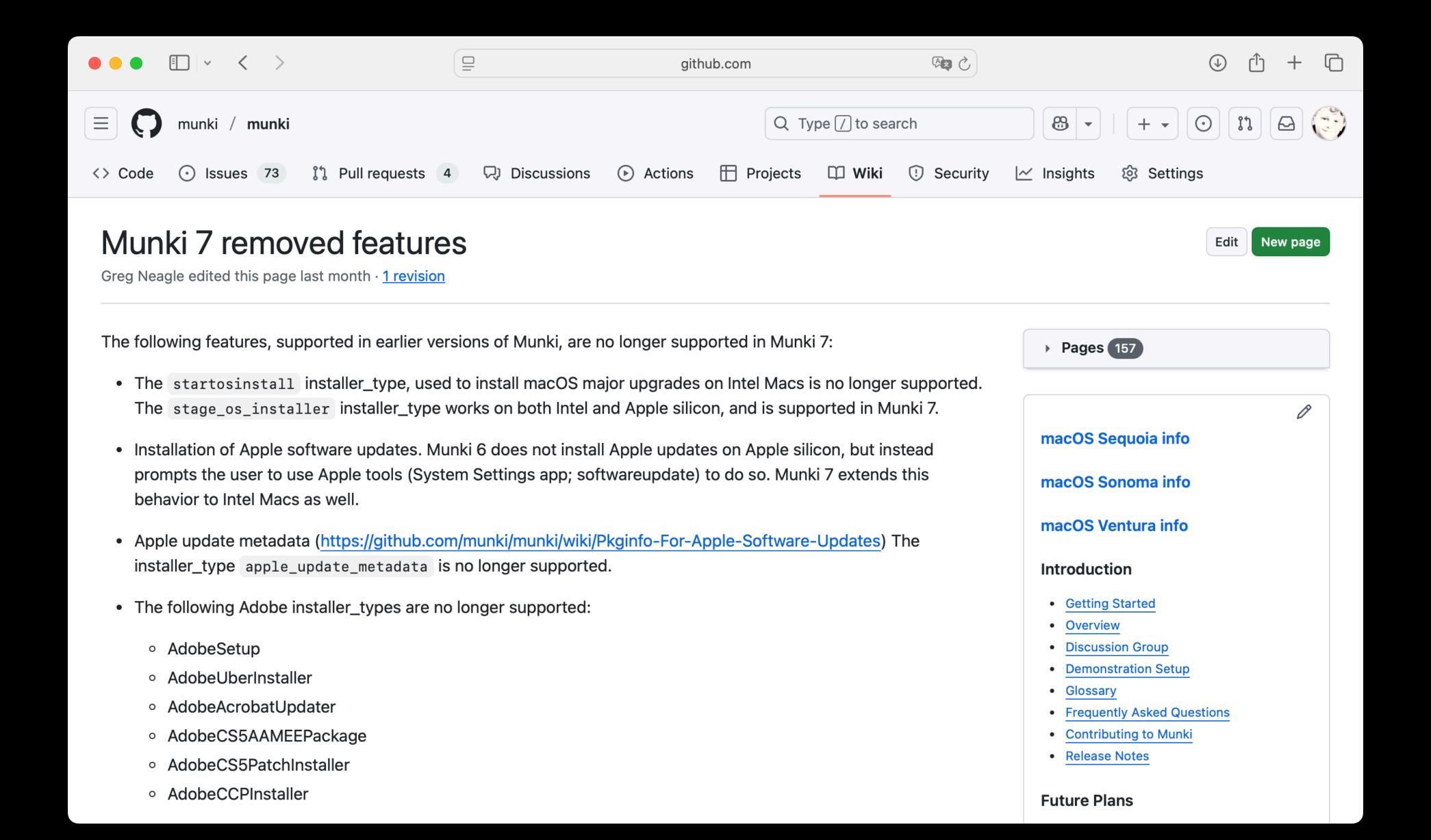
- X AdobeSetup
- AdobeUberUninstaller
- X AdobeCS5AAMEEPackage
- **X** AdobeCCPUninstaller

Configuration Profiles



<key>installer_type</key>
<string>profile</string>

https://github.com/munki/munki/wiki/munki-7-removed-features



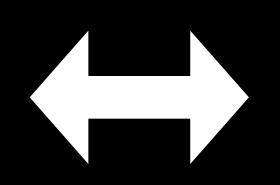


Munki 7 adoption tasks

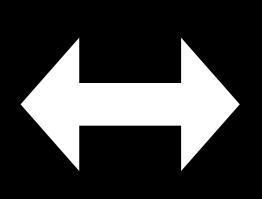
- Deploy updated middleware
- ☐ Update TCC profile
- Deal with munki-python removal
- Audit for munkilib usage
- ☐ Check for items using removed features

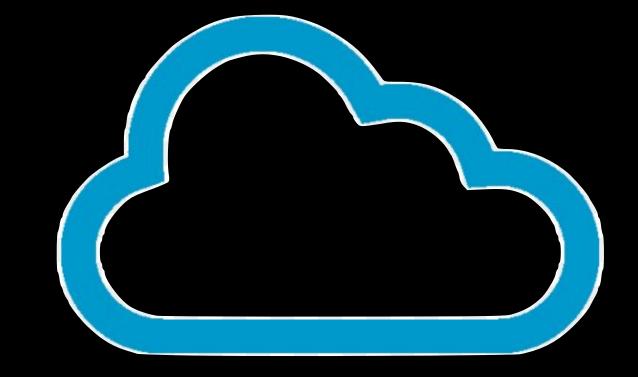
Middleware











Available (Swift) middleware

https://github.com/munki/AzureStorageMiddleware

https://github.com/munki/BunnyNetMiddleware

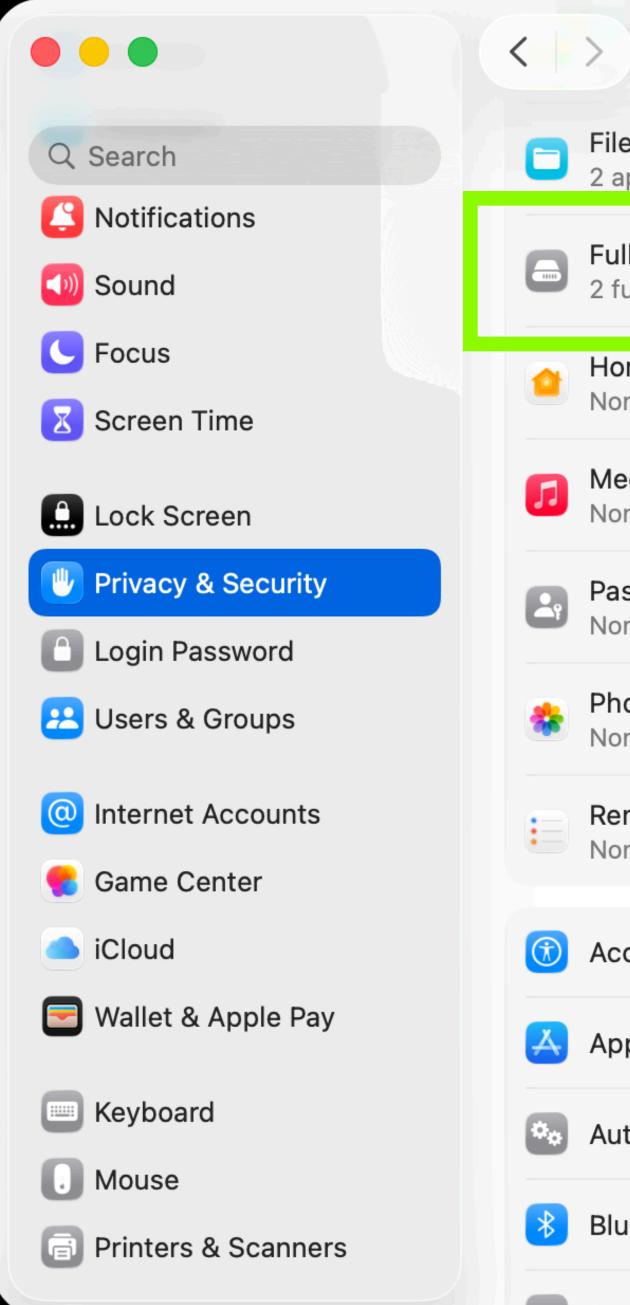
https://github.com/munki/CloudFrontMiddleware

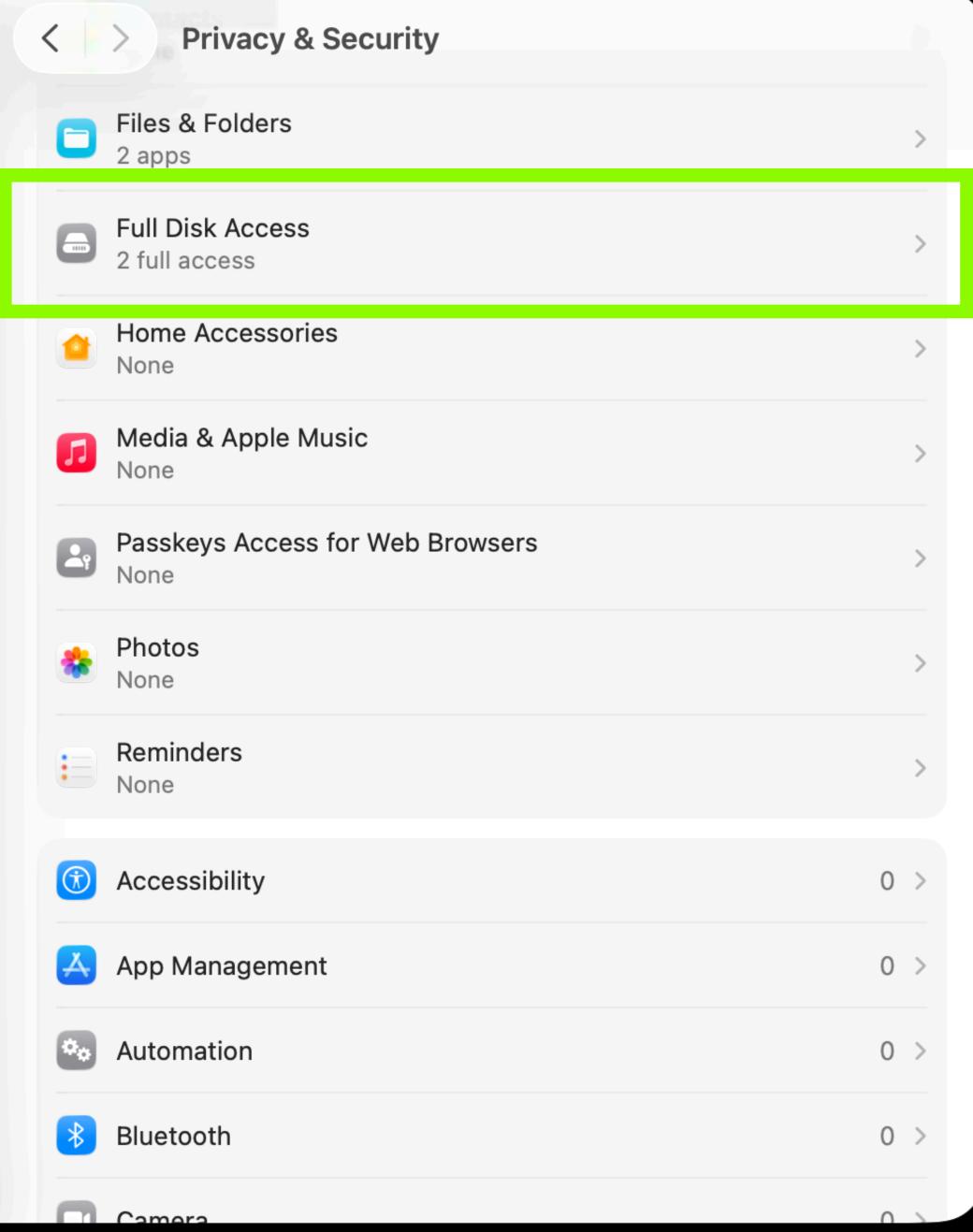
https://github.com/munki/GCSMiddleware

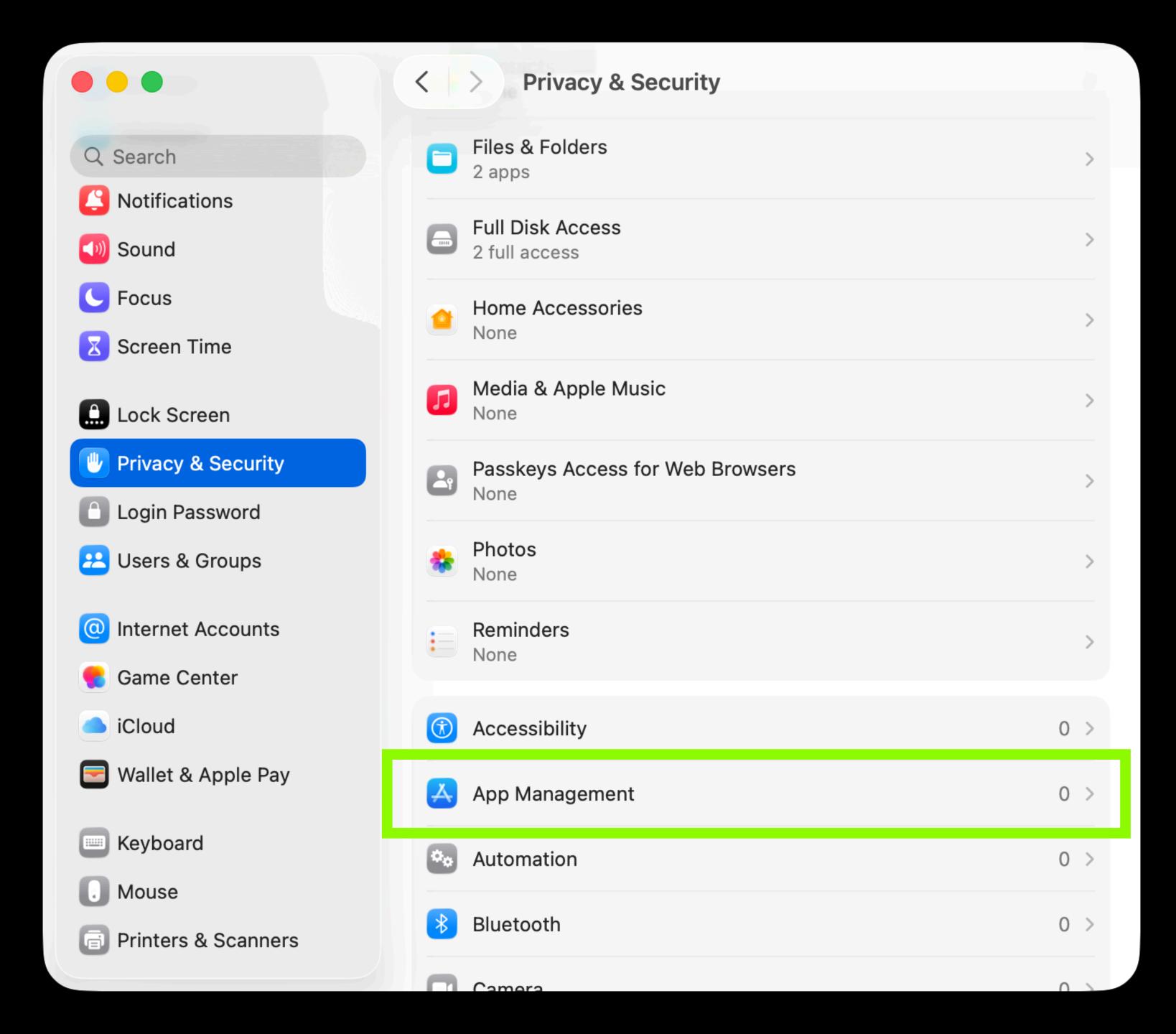
https://github.com/munki/S3Middleware

Privacy Preferences Policy Control

PPPC/TCC changes







CodeRequirement

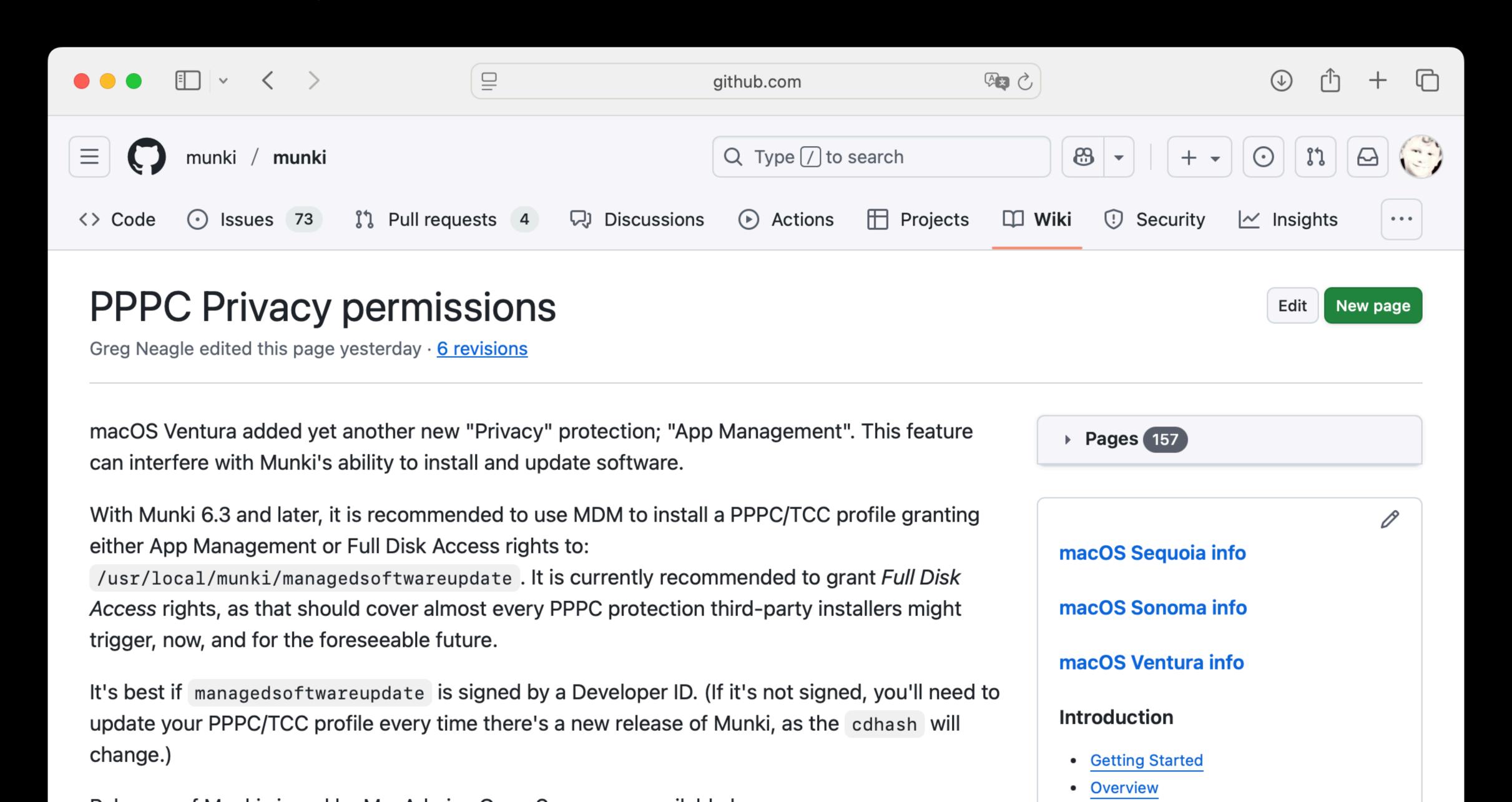
From:

```
<key>CodeRequirement</key>
<string>identifier munkishim and anchor apple generic and certificate
1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate
leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and certificate
leaf[subject.0U] = T4SK8ZXCXG</string>
```

To:

```
<key>CodeRequirement</key>
<string>(identifier munkishim or identifier managedsoftwareupdate) and anchor apple generic and certificate 1[field.1.2.840.113635.100.6.2.6]
/* exists */ and certificate leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and certificate leaf[subject.OU] = T4SK8ZXCXG</string>
```

https://github.com/munki/munki/wiki/PPPC-Privacy-permissions



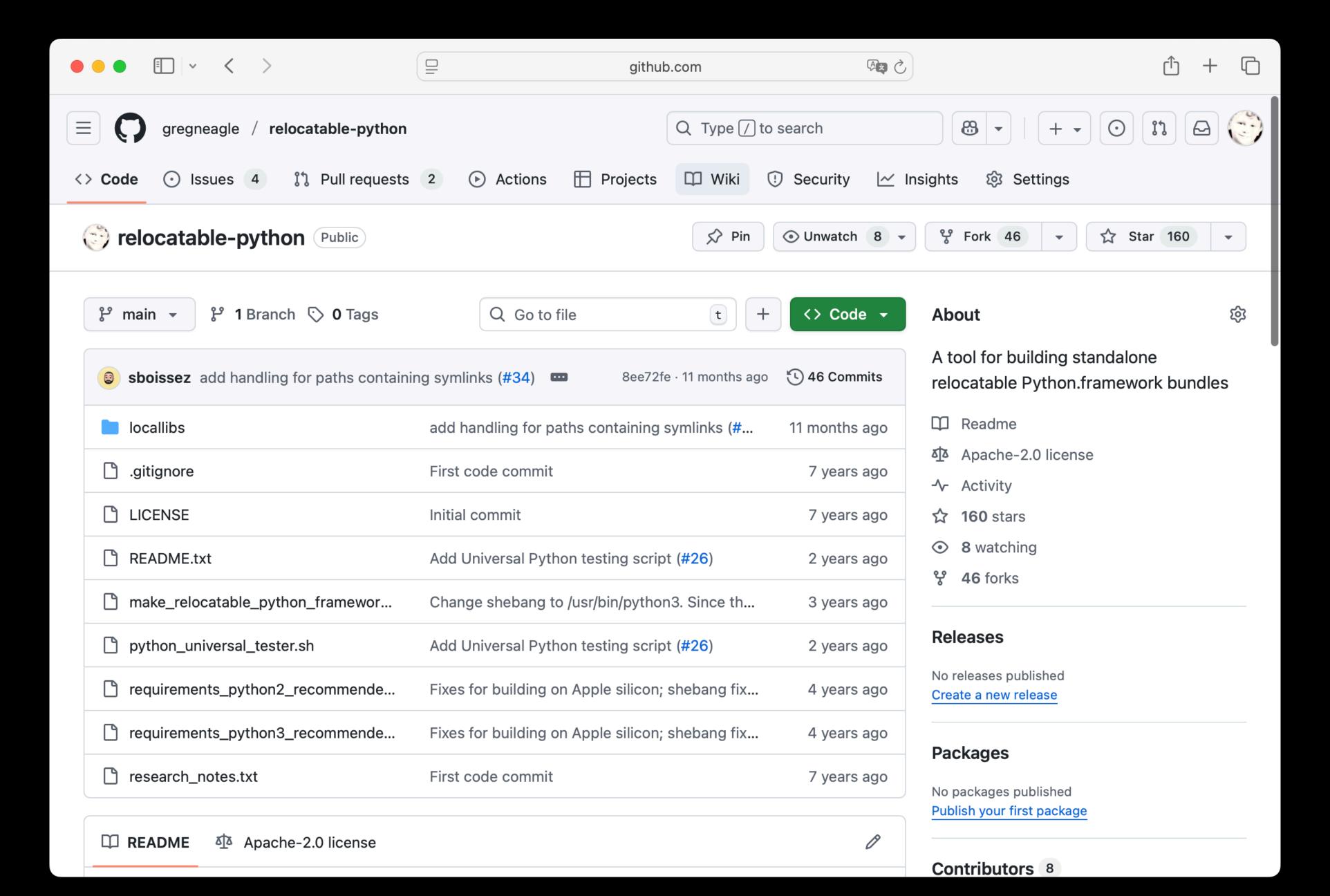


Two main strategies:

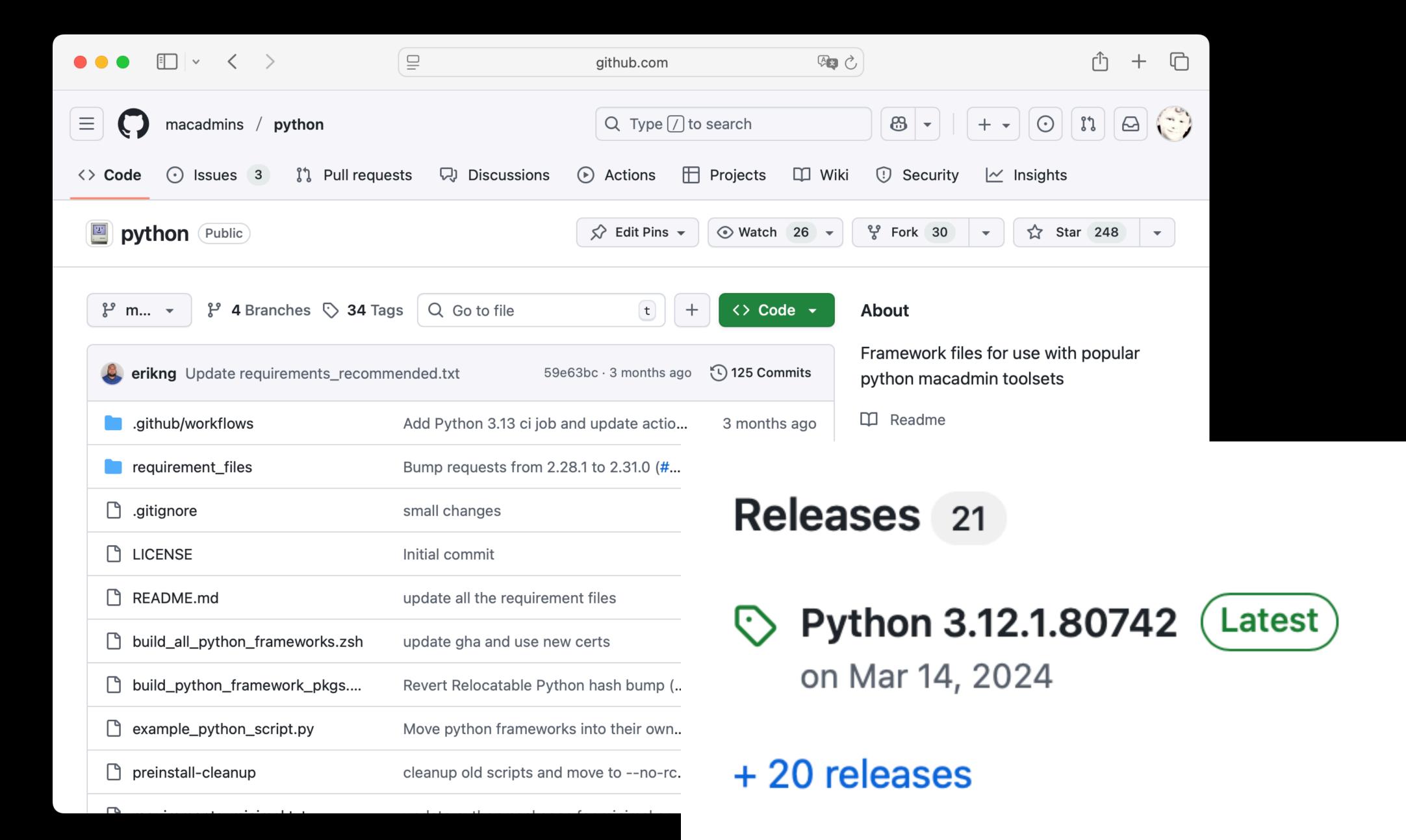
- Provide a replacement Python
- Remove/replace/update everything that depends on munki-python

Python replacements

https://github.com/gregneagle/relocatable-python



https://github.com/macadmins/python



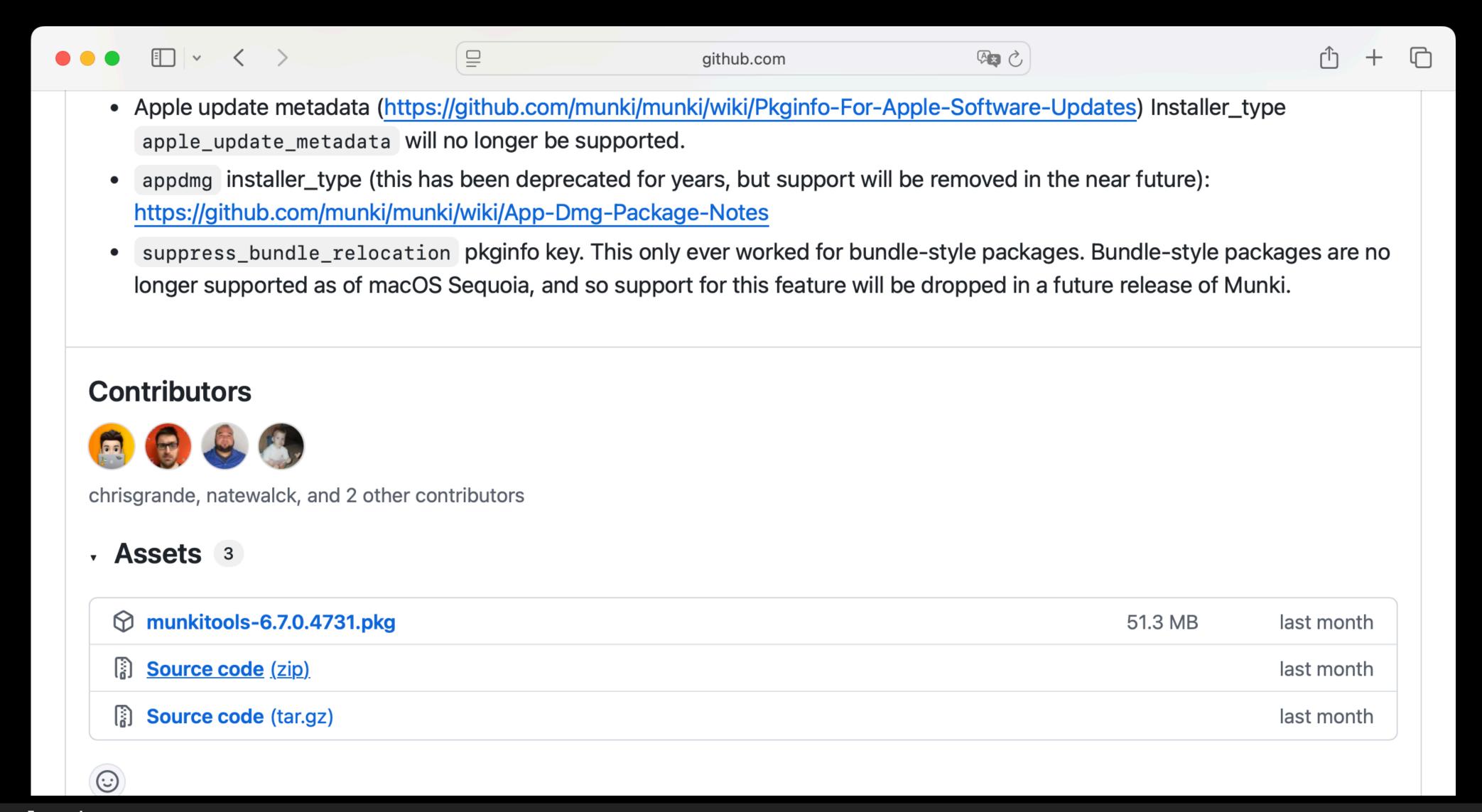
% sudo ln -s /Library/ManagedFrameworks/Python/Python3.framework/
Versions/Current/Resources/Python.app/Contents/MacOS/Python \
/usr/local/munki/munki-python

% sudo ln s /usr/bin/python3 /usr/local/munki/munki-python

just steal the Python from Munki 6

Here's the basic idea:

- Download the Munki 6.7 installer package
- Expand the contents
- Flatten the python component package into a standalone package
- Profit!



% cd ~/Downloads

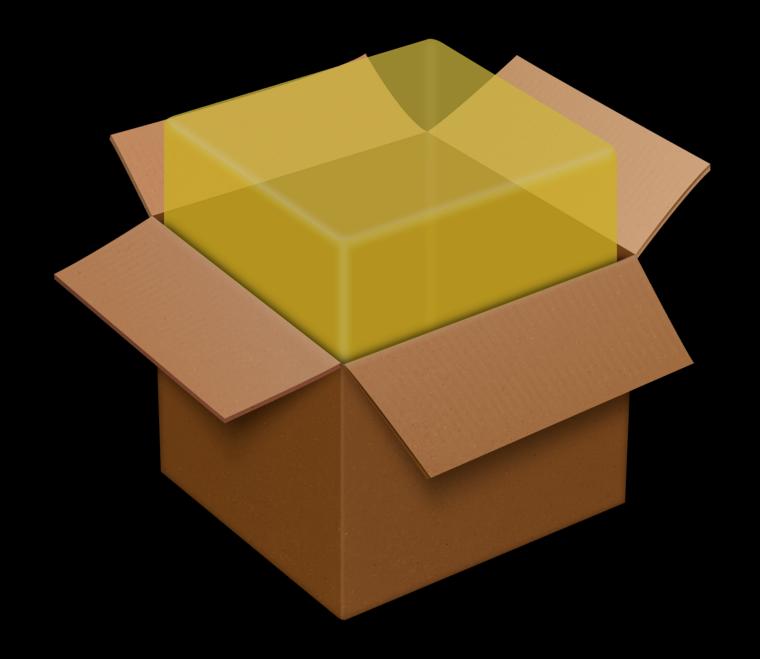
% curl -L https://github.com/munki/munki/releases/download/v6.7.0/munkitools-6.7.0.4731.pkg > munkitools-6.7.0.4731.pkg

```
% cd ~/Downloads/
% pkgutil ——expand munkitools—6.7.0.4731.pkg munkitools_expanded
```

% ls munkitools_expanded Distribution munkitools_python.pkg munkitools_core.pkg.munkitools_launchd.pkg

munkitools_app.pkg
munkitools_admin.pkg
munkitools_app_usage.pkg

```
% pkgutil --flatten \
munkitools_expanded/munkitools_python.pkg munkitools_python.pkg
```

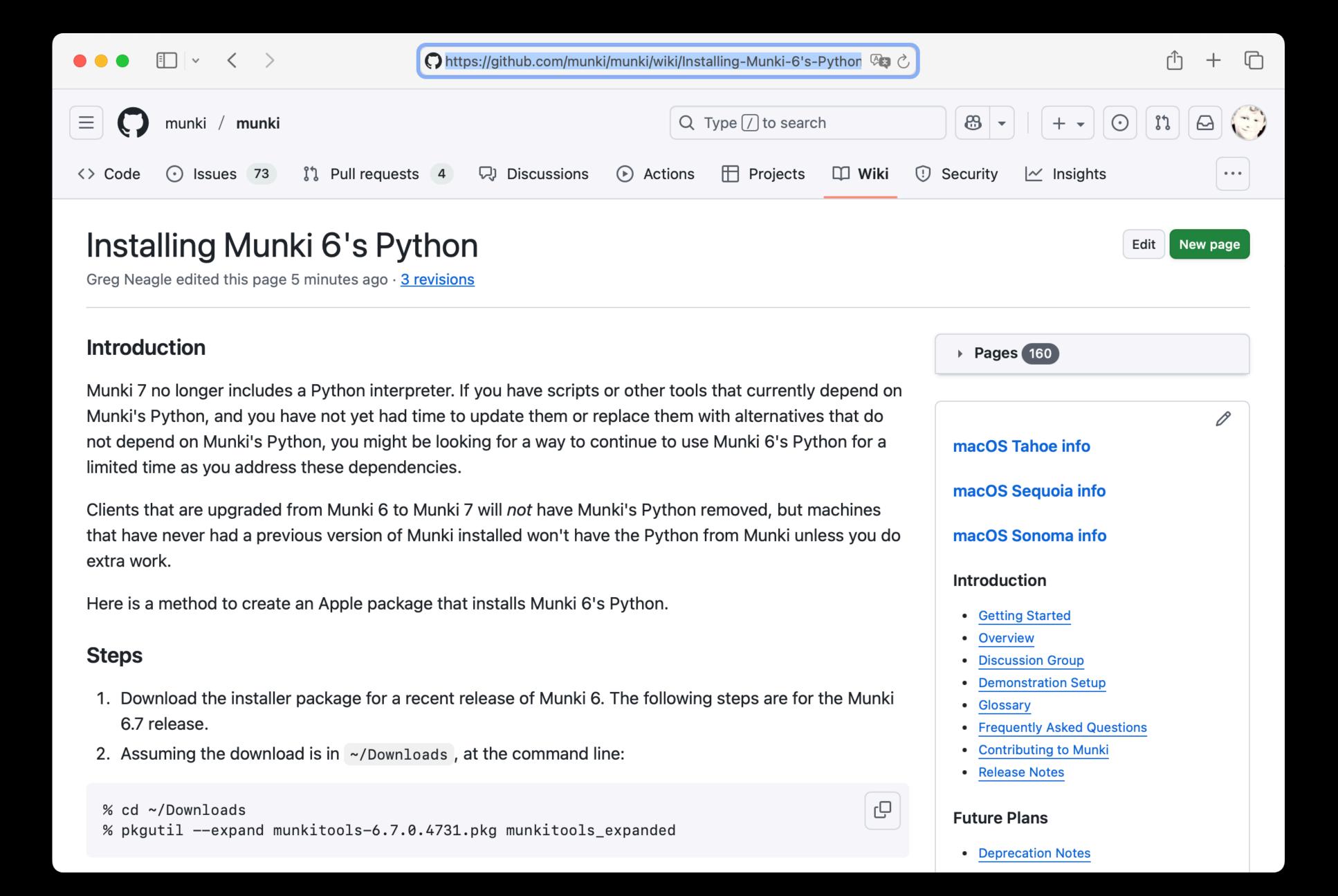


% munkiimport munkitools_python.pkg

You should know:

- Python package will not be signed or notarized
- If you start with the signed package, the Python package you create with this method will install a signed Python interpreter
- munki-python will (probably) never be updated past 3.12.2

https://github.com/munki/munki/wiki/Installing-Munki-6's-Python

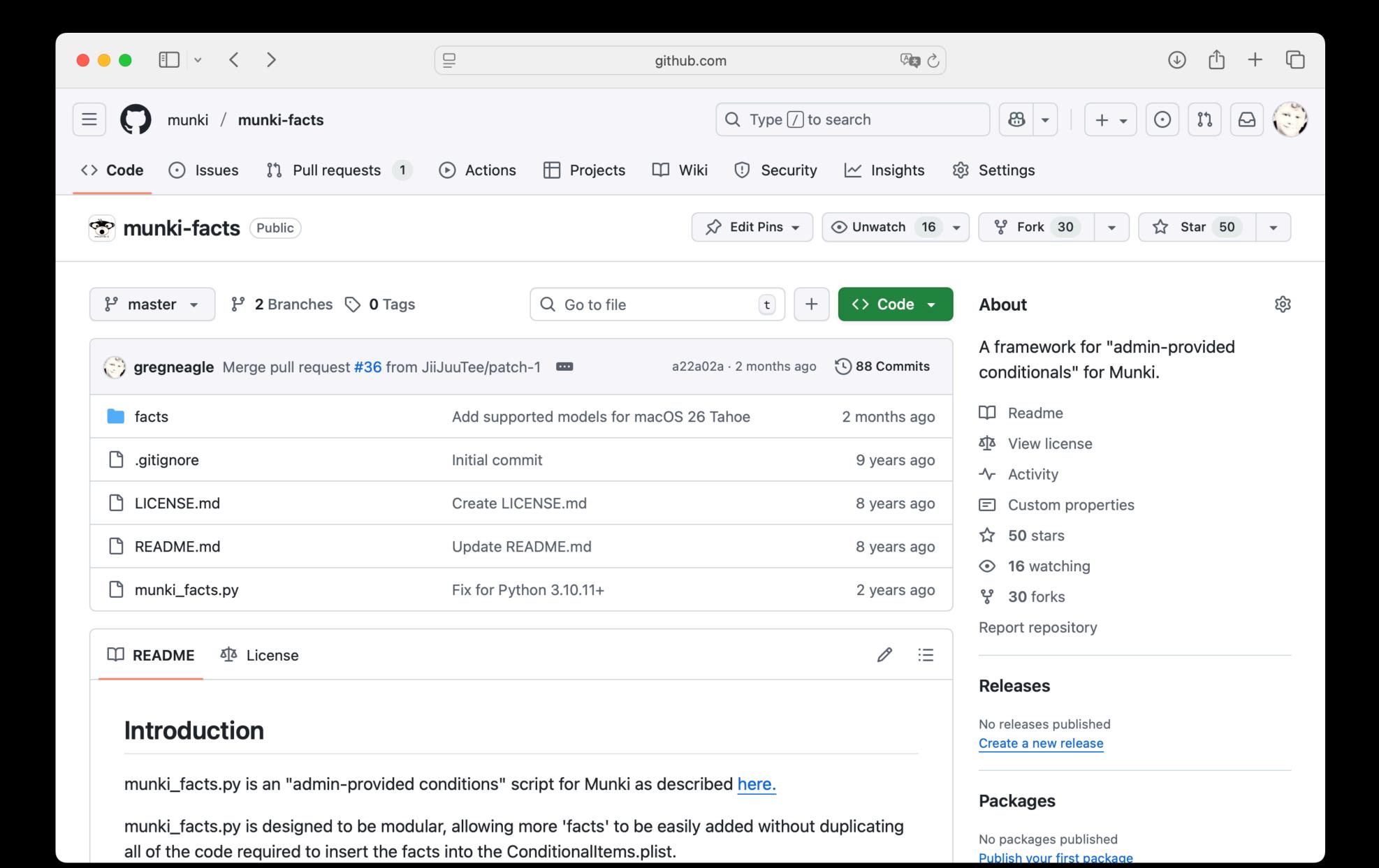




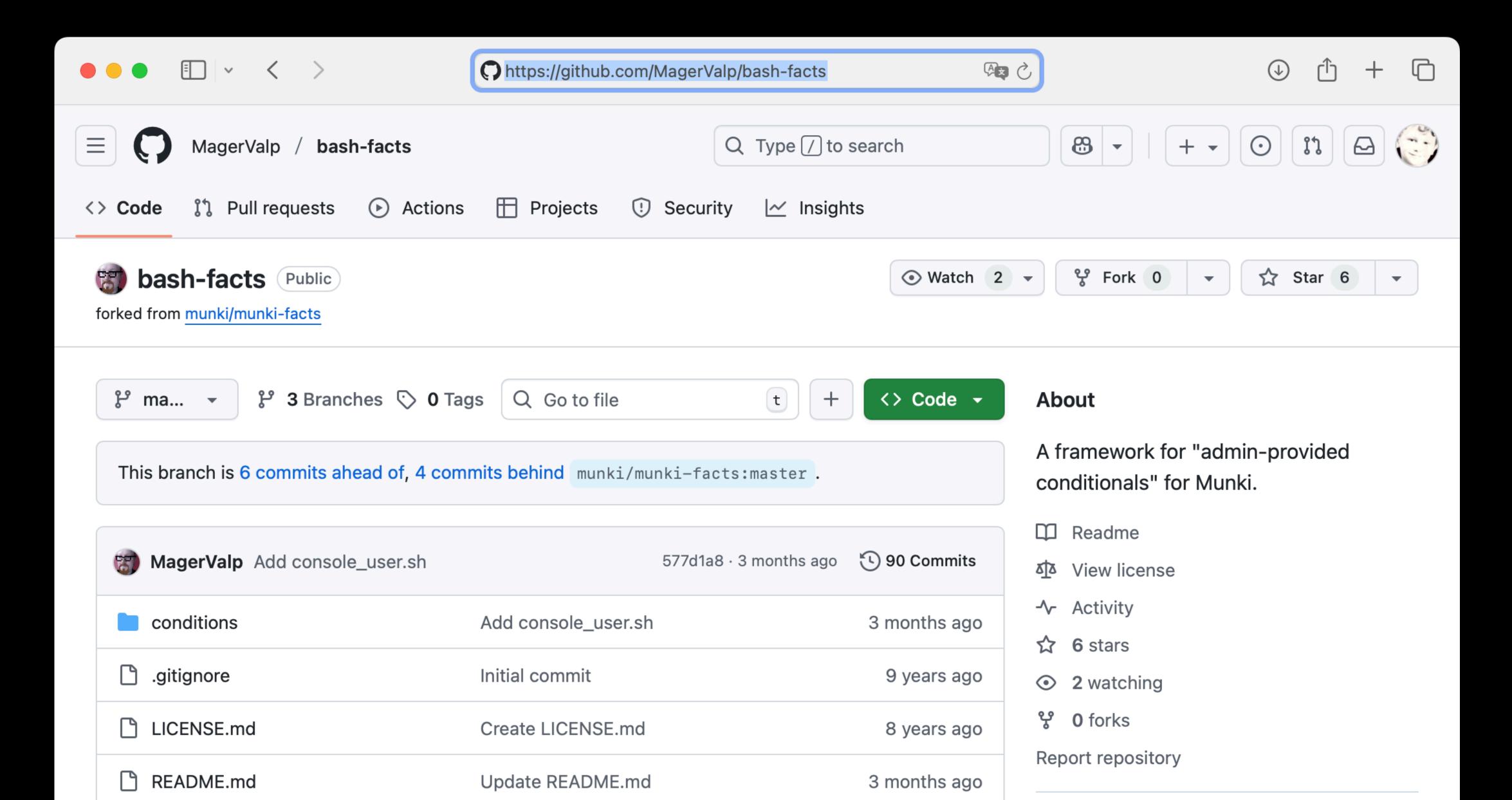
/usr/local/munki/conditions/

```
% grep -R munki-python /usr/local/munki/conditions/
/usr/local/munki/conditions/munki_facts.py:
    #!/usr/local/munki/munki-python
```

https://github.com/munki/munki-facts



https://github.com/MagerValp/bash-facts



scripts in pkginfo items



apps/Adobe/AdobeReaderDC-25.001.20693.plist

Basics

Details

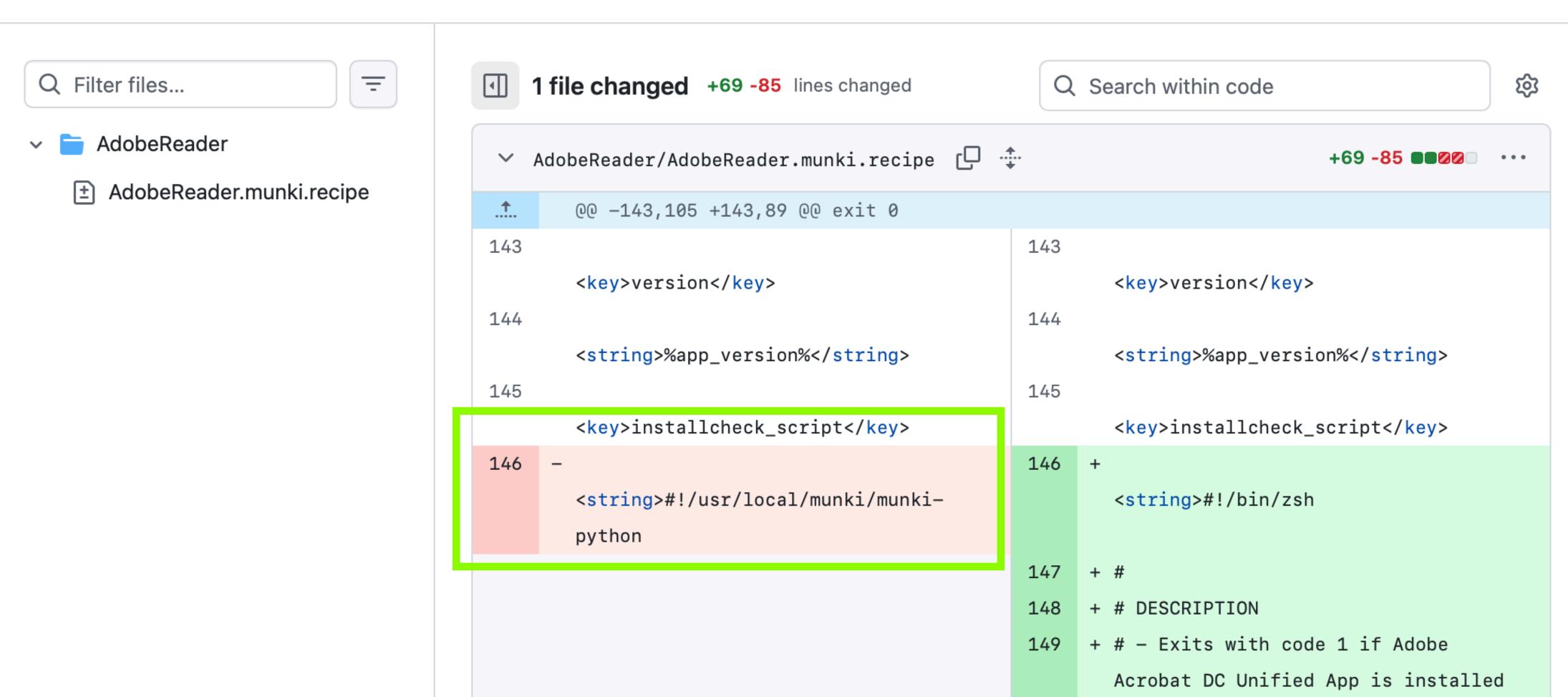
plist

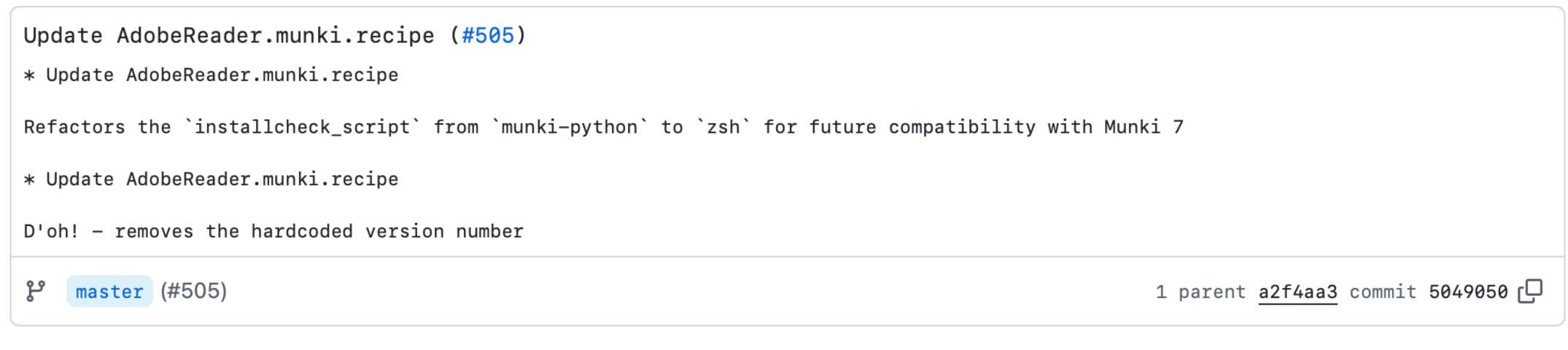
installcheck_script

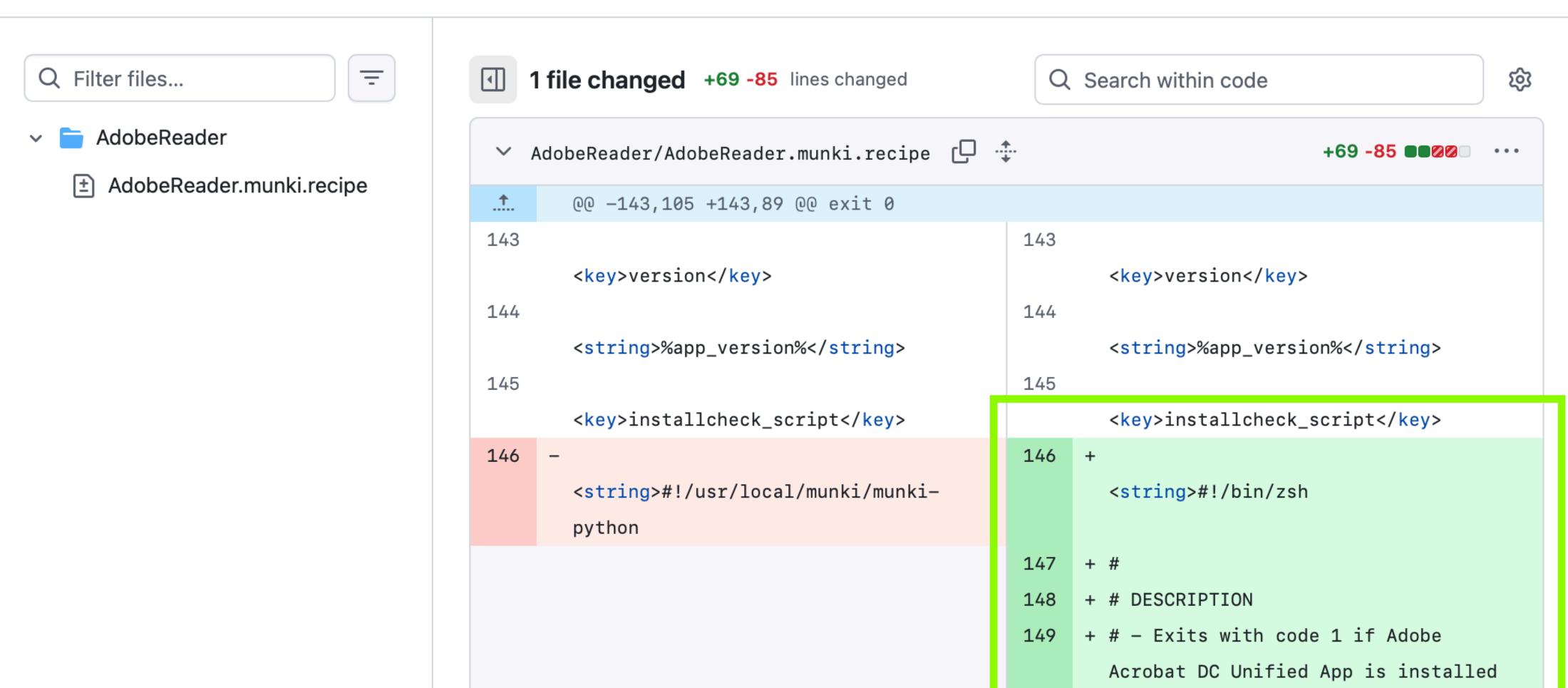
```
#!/usr/local/munki/munki-python
```

```
import os
import plistlib
import sys
sys.path.insert(0, '/usr/local/munki')
from munkilib.pkgutils import MunkiLooseVersion as LooseVersion
def read plist(plist path):
        """Reads a plist file and returns its contents as a
dictionary."""
        print(f"Reading plist from: {plist path}")
        if os.path.exists(plist path):
                with open(plist_path, 'rb') as plist_file:
                        return plistlib.load(plist file)
        else:
                print(f"Plist not found: {plist path}")
                return None
```









munki-python: some more places to look

```
/usr/local/munki/conditions/
/usr/local/munki/postflight
/usr/local/munki/preflight
/usr/local/munki/preflight
/usr/local/munki/preflight.d/
/Library/ManagementScripts/ (or whatever)
/Library/YourOrganization/ (or whatever)
```



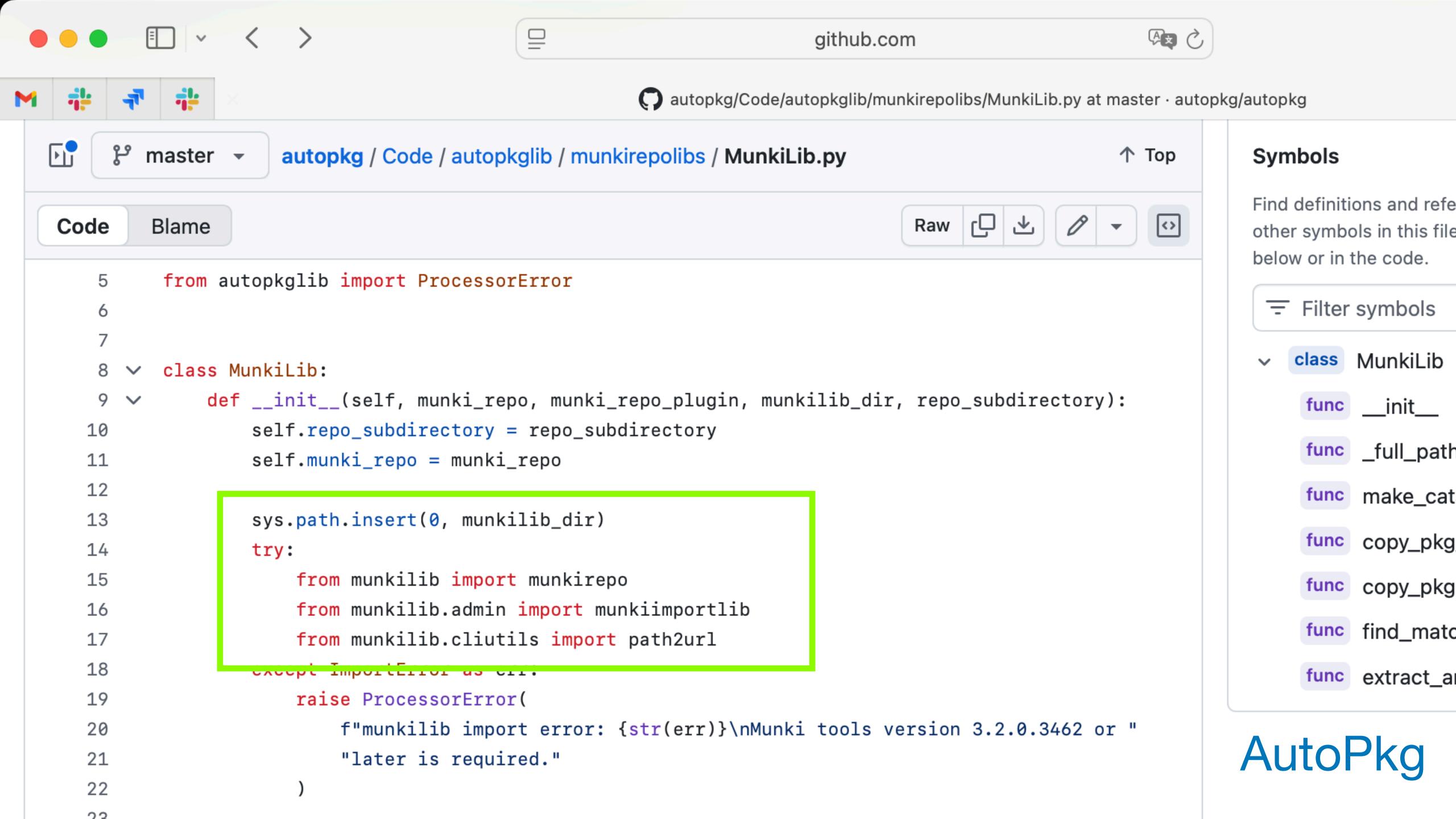
% ls /usr/local/munki/munkilib/ init___py ___pycache___ admin adobeutils app_usage.py appleupdates authrestart bootstrapping.py cliutils.py constants.py dateutils.py display.py dmgutils.py fetch.py

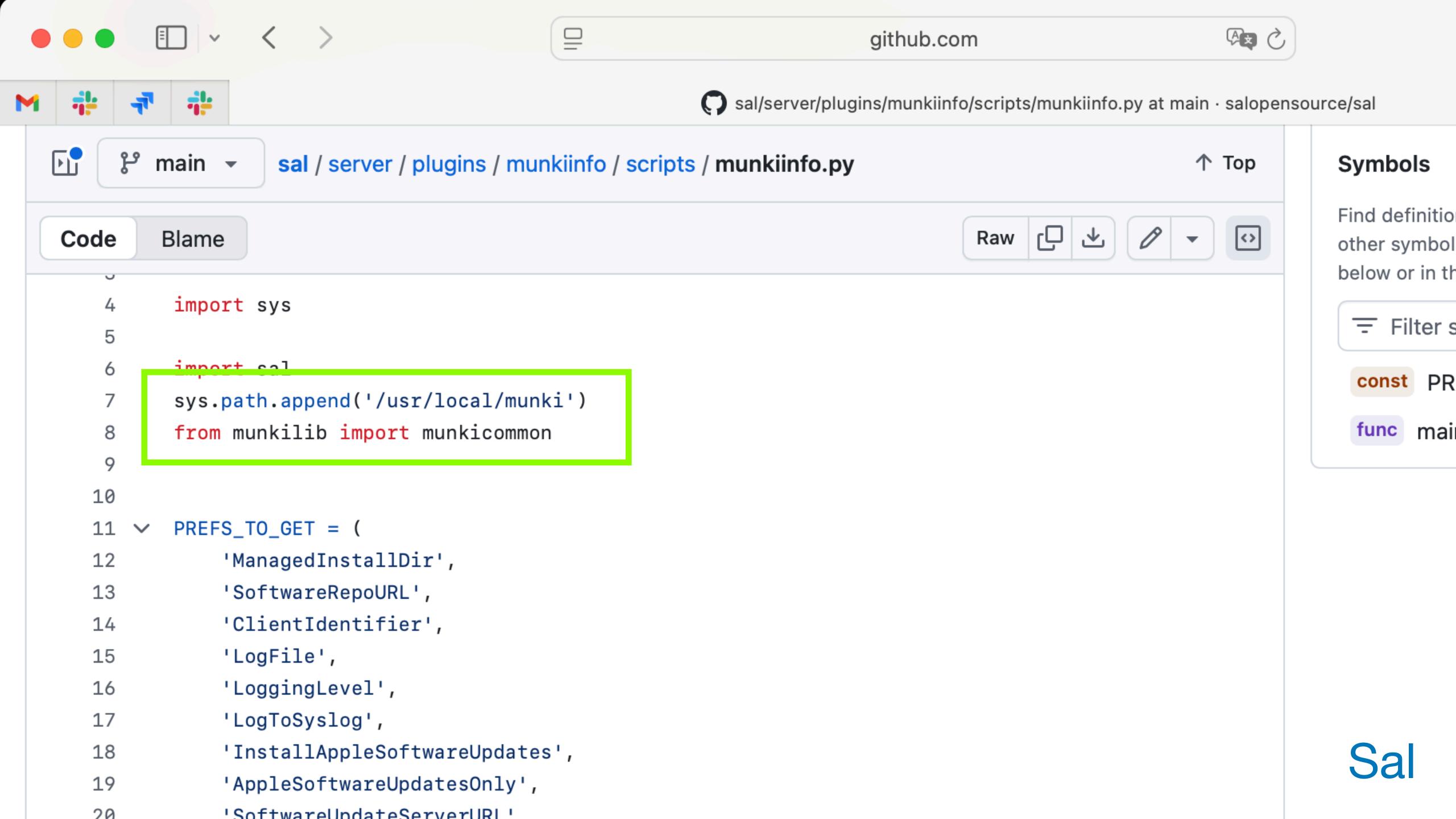
```
FoundationPlist.py
gurl.py
iconutils.py
info.py
installer
installinfo.py
keychain.py
launchd
munkicommon.py
munkihash.py
munkilog.py
munkirepo
munkistatus.py
osinstaller.py
```

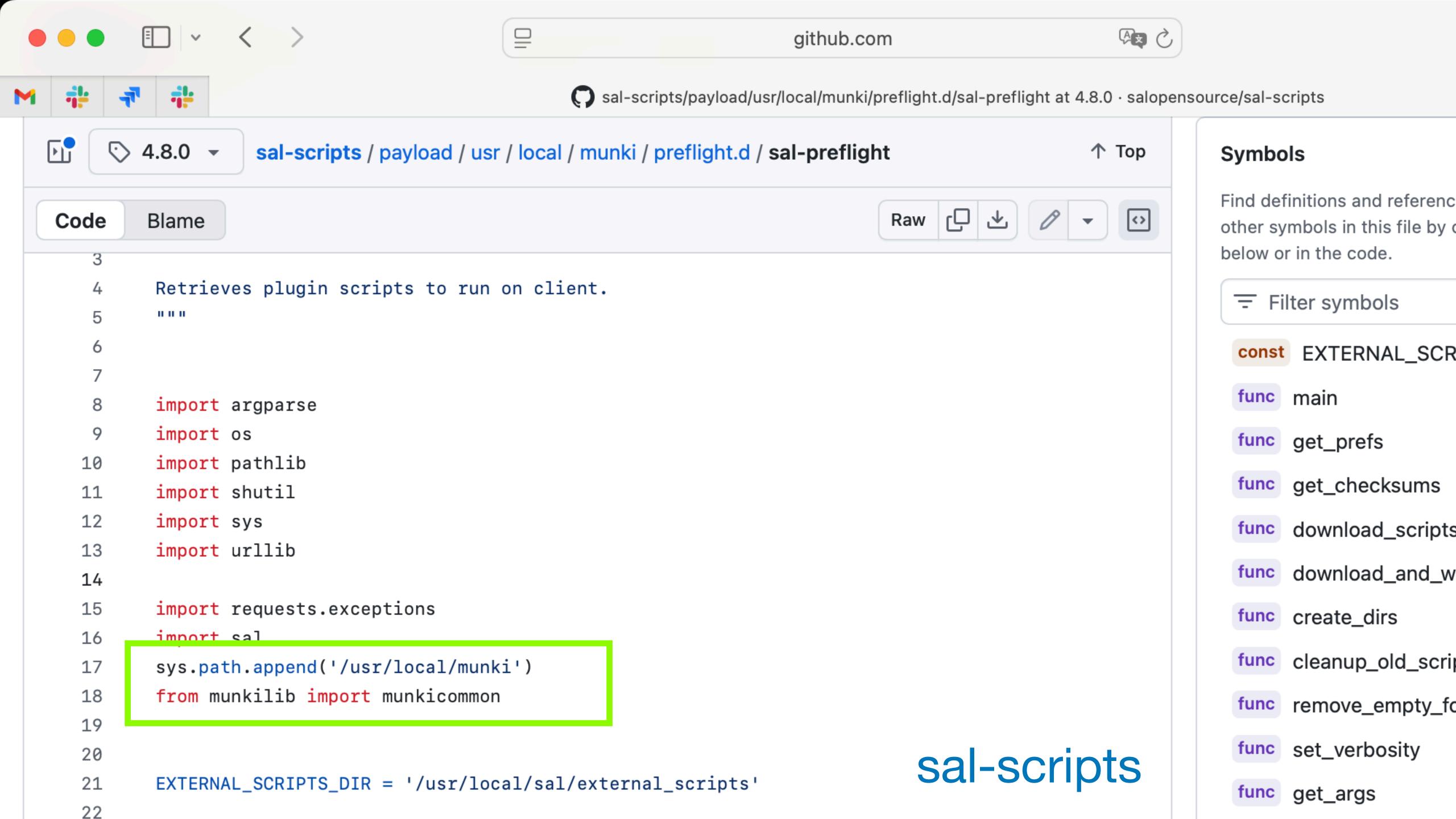
osutils.py pkgutils.py powermgr.py prefs.py processes.py profiles removepackages.py reports.py scriptutils.py svnversion updatecheck utils.py version.plist wrappers.py

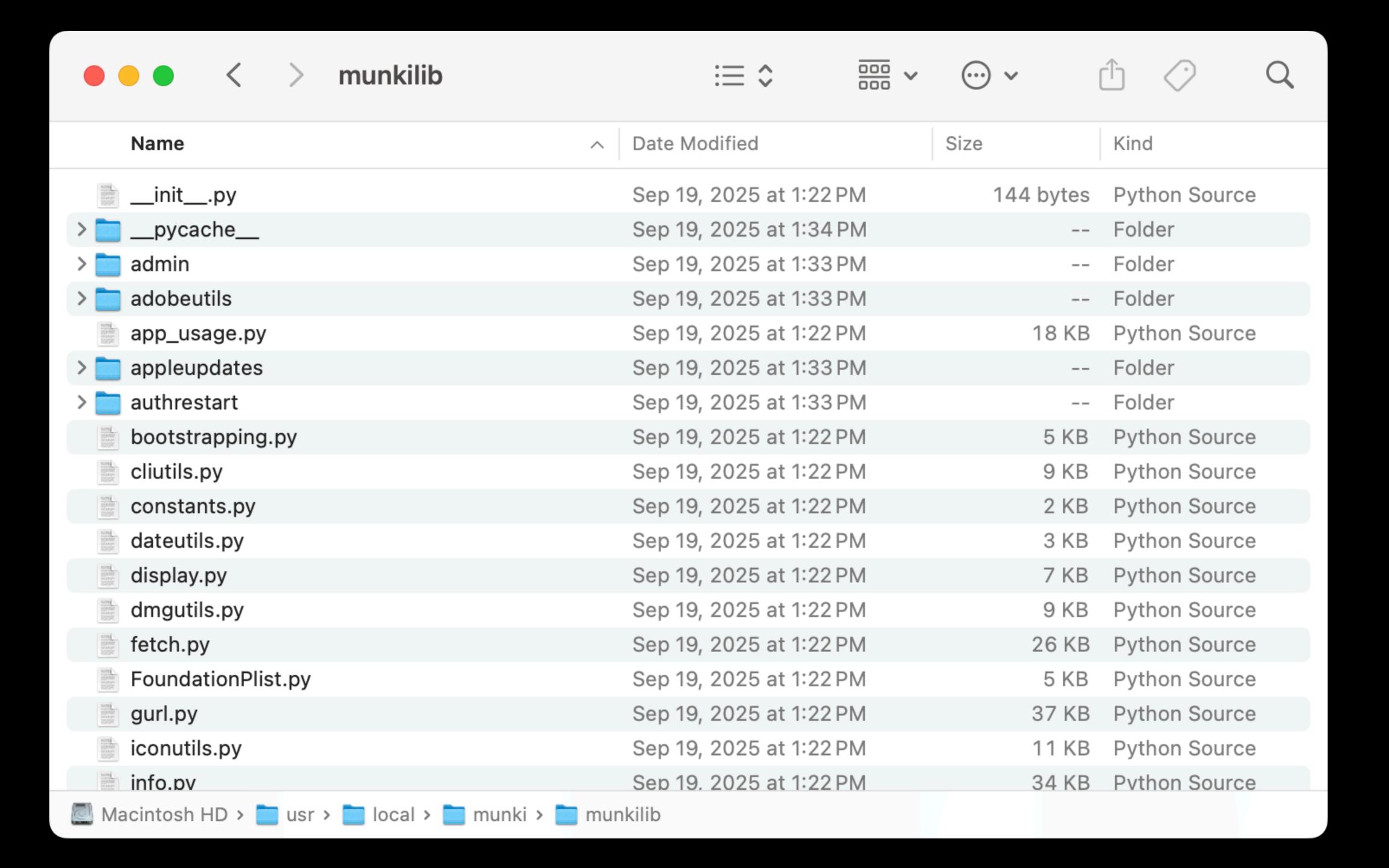
#!/usr/local/munki-python

from munkilib import appleupdates from munkilib import authrestart from munkilib import bootstrapping from munkilib import constants from munkilib import dateutils from munkilib import display from munkilib import info from munkilib import installer from munkilib import installinfo from munkilib import munkilog from munkilib import munkistatus from munkilib import osinstaller from munkilib import osutils from munkilib import powermgr from munkilib import prefs from munkilib import processes



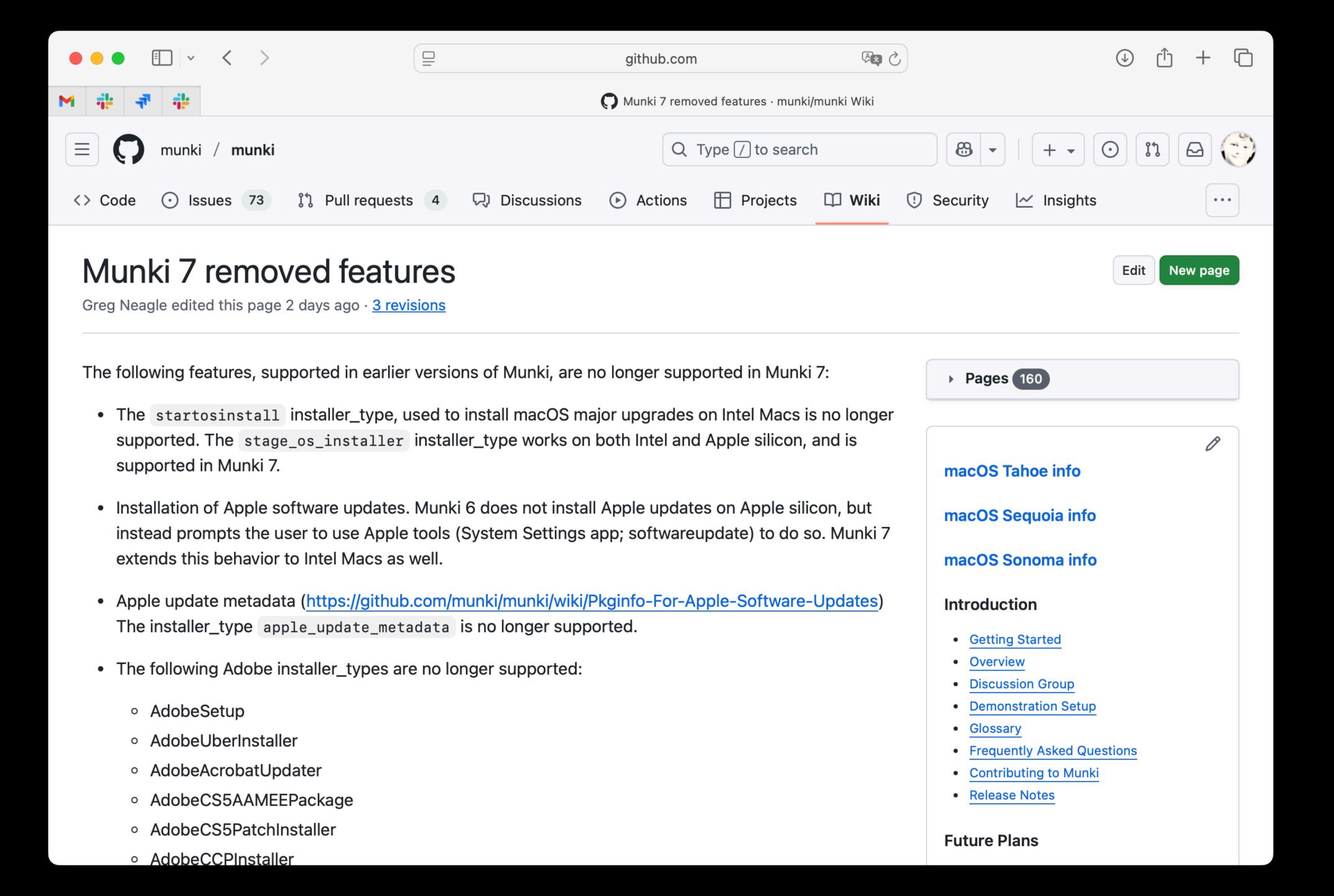






Munki 7 adoption tasks

- Deploy updated middleware
- Update TCC profile
- Deal with munki-python removal
- Madit for munkilib usage
- ☐ Check for items using removed features



```
munki
                 repocheck ) _ My Mac
                                                                    Finished running repocheck
                                                                                         Munki7dev
                                                                                         \langle A \rangle \Longrightarrow \blacksquare \Box \Box \Box
       🔼 munki 🕽 💳 repocheck 🕽 🔌 main.swift 🕽 🗲 main()
        main.swift
        repocheck
        Created by Greg Neagle on 9/30/25.
    import Foundation
    func getPkgsinfoList(repo: Repo) async throws -> [String] {
        do {
            return try await repo.list("pkgsinfo")
        } catch is MunkiError {
13
            throw MunkiError("Error getting list of pkgsinfo items")
14
15
16
17
    func installerTypeIsSupportedInMunki7(_ installerType: String) -> Bool {
        if ["appdmg", "apple_update_metadata", "startosinstall",
19
             "profile"].contains(installerType) {
            return false
20
        if installerType.hasPrefix("Adobe") {
            return false
23
24
        return true
26
27
    func uninstallMethodIsSupportedInMunki7(_ uninstallMethod: String) -> Bool {
        return !uninstallMethod.hasPrefix("Adobe")
29
30 }
```

```
% repocheck
os updates/InstallBigSur-11.7.10-x86 64.plist:
         Unsupported installer_type: startosinstall
os_updates/InstallMonterey-12.7.6-x86_64:
        Unsupported installer_type: startosinstall
os_updates/InstallBigSur-11.7.9.plist:
         Unsupported installer_type: startosinstall
os updates/InstallMonterey-12.7.5-x86 64:
        Unsupported installer_type: startosinstall
os_updates/InstallCatalina-10.15.7.15.plist:
         Unsupported installer type: startosinstall
os_updates/InstallVentura-13.7.8-x86_64:
        Unsupported installer_type: startosinstall
os_updates/InstallSequoia-15.6.1-x86_64:
         Unsupported installer_type: startosinstall
os updates/InstallSonoma-14.8-x86 64:
        Unsupported installer_type: startosinstall
```

```
% repocheck
os updates/InstallBigSur-11.7.10-x86 64.plist:
         Unsupported installer_type: startosinstall
os_updates/InstallMonterey-12.7.6-x86_64:
        Unsupported installer_type: startosinstall
os_updates/InstallBigSur-11.7.9.plist:
         Unsupported installer_type: startosinstall
os updates/InstallMonterey-12.7.5-x86 64:
        Unsupported installer_type: startosinstall
os_updates/InstallCatalina-10.15.7.15.plist:
         Unsupported installer type: startosinstall
os_updates/InstallVentura-13.7.8-x86_64:
        Unsupported installer_type: startosinstall
os_updates/InstallSequoia-15.6.1-x86_64:
         Unsupported installer_type: startosinstall
os updates/InstallSonoma-14.8-x86 64:
        Unsupported installer_type: startosinstall
```

- Unsupported installer_type: AdobeCCPInstaller
 Unsupported uninstall_method: AdobeCCPUninstaller
- apps/Adobe/CC2019/AdobeMediaEncoderCC2019-13.1.5.35.plist:
 Unsupported installer_type: AdobeCCPInstaller
 Unsupported uninstall_method: AdobeCCPUninstaller
- apps/Adobe/CC2019/AdobePhotoshopCC2019-20.0.10.plist:
 Unsupported installer_type: AdobeCCPInstaller
 Unsupported uninstall_method: AdobeCCPUninstaller

- 100/2977 pkginfos have issues

Munki

- Monat's new
- Month Statistics of the state o
- MHow to get ready



- 15 betas starting late May 2025
- 3 Release Candidates over the last week

Right now

