

Intro to Pywikibot framework and installation workshop

Run as part of the “Small wiki toolkits” project



Upcoming SWT workshops on bots development

- Intro to Wikimedia Tools (PAWS, Quarry, WDQS) for running queries and scripts
- How to run a basic script via Pywikibot
- How to write a basic script via Pywikibot
- How to interact with Wikidata via Pywikibot
- How to run a popular bot on your wiki
- How to host a bot on Toolforge



Agenda

- Introduction to Pywikibot framework and its use
- Working with Pywikibot scripts
- Installation of Pywikibot on computer
- Running Pywikibot on PAWS
- Hands-on activity

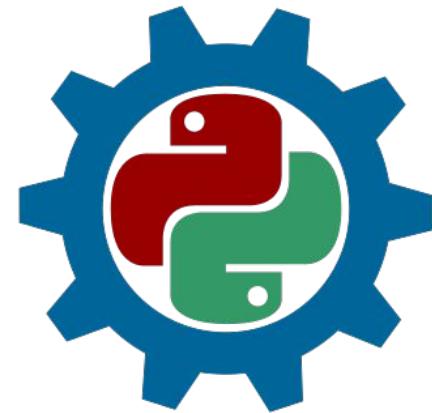
Introduction to Pywikibot framework and its use



Pywikibot framework

Overview

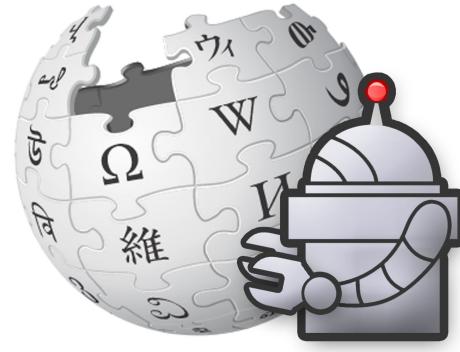
- Python library
- Collection of scripts that automate work on wiki sites
- Used for editing, content moderation, maintenance, etc.



Pywikibot framework

Overview

- Compatible with Microsoft Windows, MacOS and Linux
- Originally designed for Wikipedia, it can now be used for Wikimedia (e.g., Wikidata) as well as Non-wikimedia wikis (with additional configurations)



Pywikibot framework

Overview

- Super easy to use; require fewer lines of code

```
import pywikibot

site = pywikibot.Site('en', 'wikipedia') # The site we want to run our bot
on

page = pywikibot.Page(site, 'Wikipedia:Sandbox')

page.text = page.text.replace('foo', 'bar')

page.save('Replacing "foo" with "bar"') # Saves the page
```

Pywikibot framework

Interesting example

- AvicBot uses Pywikibot
- Performs a wide range of tasks such as fixing double redirects, maintaining interwiki links, tagging orphan pages, etc.

The screenshot shows the Wikipedia user page for 'User:AvicBot'. The page includes a sidebar with navigation links like 'Main page', 'Contributions', and 'Recent changes'. The main content area displays a summary of the bot's activity:

This user account is a bot that uses Pywikibot and AutoWikiBrowser, operated by Avicennias (talk). It is used to make repetitive automated or semi-automated edits that would be extremely tedious to do manually, in accordance with the bot policy. The bot is currently inactive but retains the approval of the global Wikimedia community.

This bot runs on Wikimedia Toolforge.

Emergency bot shutoff button

A large red button with a white power symbol is shown, with the text: "Administrators: Use this button if the bot is malfunctioning. (direct link) Non-administrators can report a malfunctioning bot to Wikipedia:Administrators' noticeboard/incidents."

Task Log

Task	BFR#	Code	Disable?
Category multiple merge targets	here	AWB	Stop [1]
Maintaining interwiki links	here	Pywikibot	*
Fixing Double Redirects	here	Pywikibot	Stop [2]
Tagging ((Uncategorized)) pages	here	AWB	Stop [1]
Maintaining [[CommonsCat]] templates	here	Pywikibot	Stop [2]
Maintaining inde-blocked categories	here	AWB	Stop [1]
Tagging (Orphan)) pages	here	Pywikibot	Stop [2]
Merging 3+ ((Multiple issues)) tags	here	Pywikibot	*
Assisting with WP-CFDNW	here	Pywikibot	Stop [2]
Maintain a list of some categories	—	Pywikibot	*
Maintaining CATUWCOI	here	AWB	Stop [1]

Information

Operator	Avicennias
Approved?	Yes
Flagged?	Yes
Task(s)	See userpage
Edit period(s)	As needed
Automatic or manual?	Automatic
Programming language(s)	AWB, Pywikibot
BotCompliant?	Yes
Source code published?	Yes/Yes
Emergency shutdown-compliant?	Yes

[https://en.wikipedia.org/wiki/Category:
Wikipedia_bots_using_Pywikibot](https://en.wikipedia.org/wiki/Category:Wikipedia_bots_using_Pywikibot)

Pywikibot framework

MediaWiki API

- Supports mostly all MediaWiki API features
https://www.mediawiki.org/wiki/API:Main_page
- Works with installation of MediaWiki 1.23 or higher



Pywikibot framework

Interesting facts

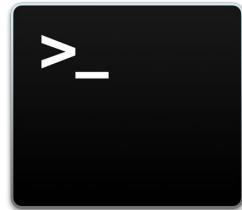
- Coolest Tool Award 2020 Winner under the developer category :-)
- Project started in 2003 and is currently on core version 6.6.5.
- Developer community is quite active with over 100 contributors



Pywikibot framework

Prerequisites and resources

- Basic familiarity with Python <https://www.python.org/>
- Using command line tools on
 - ◆ Linux
<https://ubuntu.com/tutorials/command-line-for-beginners>
 - ◆ MacOS
<https://support.apple.com/guide/terminal/welcome/mac>
 - ◆ Windows
<https://docs.microsoft.com/en-us/windows-server/administration/windows-commands/windows-commands>



Working with Pywikibot scripts



Pywikibot framework

Using ‘login’ script

- Logging into a wiki using the ‘login’ script

```
(venv)core:$ python pwb.py login # ensure you are in the ‘core’ directory  
(venv)core:$ Password for user Almoksey on wikipedia:en (no characters will be  
shown): # type your password  
  
(venv)core:$ python pwb.py login # check login status  
  
Logged in on wikipedia:en as Almoksey. #confirms you are logged in
```

Pywikibot framework

Using 'add_text' script to add heading

- An empty page

User page [Talk](#) Read Edit source View history More ▾ Search Wikipedia 

User:Almoksey/sandbox

From Wikipedia, the free encyclopedia

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Pywikibot framework

Using 'add_text' script to add heading

- Adding heading text to a page

```
(venv)core:$ python pwb.py add_text -page:User:Almoksey/sandbox -summary:"Bot:  
Editing via Pywikibot" -text:"==Working With Bots=="  
<You're prompted to confirm the operation>  
1 pages read #sample output  
1 pages written  
0 pages skipped  
Execution time: 10 seconds
```

Pywikibot framework

Using 'add_text' script to add heading

- A heading added to a page

User page [Talk](#)

[Read](#) [Edit source](#) [View history](#) More ▾ [Search Wikipedia](#)

User:Almoksey/sandbox

From Wikipedia, the free encyclopedia

Working With Bots [\[edit source\]](#)

Pywikibot framework

Using 'add_text' script to add template

- Adding template to a page

```
(venv)core:$ python pwb.py add_text -page:User:Almoksey/sandbox -summary:"Bot:  
Editing via Pywikibot - adding template" -text:"{{Wikipedia}}"
```

Pywikibot framework

Using 'add_text' script to add template

- Wikipedia navigation template added to page

User:Almoksey/sandbox

From Wikipedia, the free encyclopedia

Working With Bots [edit source]

V · T · E		Wikipedia articles	[hide]
Overview (outline)	Censorship · Citation needed · Conflict-of-interest editing · Criticism · Biases (gender · geographical · ideological · racial) · Deletion of articles (Deletionism and inclusionism · Notability) · Edit count · Fact-checking · "Ignore all rules" · MediaWiki · Predictions of the project's end · Reliability · Vandalism		
Community	Administrators · AfroCrowd · Arbitration Committee · Art+Feminism · Bots (Lsjbot) · Edit-a-thon · List of Wikipedias · <i>The Signpost</i> · Wiki Indaba · Wiki Loves Monuments · Wiki Loves Pride · Wiki Loves Earth · Wiki Loves Folklore · WikiConference India · WikiConference North America · Wikimania · Wikipedian in residence · WikiProject · Women in Red		
People	Florence Devouard · Sue Gardner · James Heilman · Maryana Iskander · Katherine Maher · Magnus Manske · Erik Möller · Ira Brad Matetsky · Larry Sanger · Maria Sifidari · Lila Tretikov · Jimmy Wales · Wikipedians · Wikimedian of the Year		
History	Bomis · First edit · Logo · Controversies (U.S. Congressional staff edits · Essjay controversy · Seigenthaler biography incident · Henryk Batuta hoax · Jar'Edo Wens hoax · Croatian Wikipedia administration) · Internet Watch Foundation · Scientology · CAMERA campaign · Italian Wikipedia blackout · English Wikipedia blackout · Hillsborough disaster Wikipedia posts · MyWikiBiz · VisualEditor · #1Lib1Ref · Coverage of American politics · Coverage of the COVID-19 pandemic · 2021 WMF actions on the Chinese Wikipedia		
Honors	2008 Quadriga award · <i>Wikipedia Monument</i> · 2015 Erasmus Prize · 2015 Princess of Asturias Award		
References and analysis	Cultural · Bibliography · Films · Academic studies · Listen to Wikipedia · Wiki-Watch · Wikipediocracy · WikiScanner · Wikipedia Review		
Mobile access	Apps · QRpedia · Wapedia · WikiNodes · Wikipedia Zero · Wikwand		
Content use	Books LLC · Boundless (company) · DBpedia · Deletionpedia · Kiwix · WikiReader · Science information · Health information		
Similar projects	Interpedia · Nupedia · Citizendium · Enciclopedia Libre Universal en Español · Everipedia · Veropedia · List of online encyclopedias · List of wikis		
Related	<i>The Iraq War: A Historiography of Wikipedia ChangeLogs</i> · Print Wikipedia · <i>Magna Carta (An Embroidery)</i> · Wiki rabbit hole · Wikiracing · 274301 Wikipedia · Wikipedia for World Heritage · Wikimedia Foundation (movement)		

Pywikibot framework

Using ‘replace’ script

- Replacing text on page using ‘replace’ script

```
(venv)core:$ python pwb.py replace -page:User:Almoksey/sandbox "Bots" "Pywikibot  
Scripts" -summary:"Bot: Replacing Bot with Pywikibot Scripts"  
# Replacing ‘Bots’ with ‘Pywikibot Script’
```

Pywikibot framework

Using ‘replace’ script

- Replaced ‘Bots’ with ‘Pywikibot Scripts’

User page [Talk](#)

Read

[Edit source](#)

[View history](#)

[More](#) ▾

Search Wikipedia

User:Almoksey/sandbox

From Wikipedia, the free encyclopedia

Working With Pywikibot Scripts [\[edit source\]](#)

V · T · E	Wikipedia articles
Overview (outline)	Censorship · <i>Citation needed</i> · Conflict-of-interest editing · Criticism · Biases (gender · geographical · ideological · racial) · Deletion of articles (Deletionism and inclusionism · Notability) · Edit count · "Ignore all rules" · MediaWiki · Predictions of the project's end · Reliability · Vandalism
Community	Administrators · AfroCrowd · Arbitration Committee · Art+Feminism · Bots (Lsjbot) · Edit-a-thon · List of Wikipedias · <i>The Signpost</i> · Wiki Indaba · Wiki Loves Monuments · Wiki Loves Pride · Wiki Loves Folklore · WikiConference India · WikiConference North America · Wikimania · Wikipedian in residence · WikiProject · Women in Red

Pywikibot framework

Using ‘image’ script

- Replacing an image on a wiki

```
(venv)core:$ python pwb.py image 'Wikipedia-logo-test-almoksey-black.jpg'  
'Wikipedia-yin-yang-logo-test-almoksey.jpg'
```

#The first image in the command line will be replaced by the second one on all pages that reference it.

Pywikibot installation on computer



Pywikibot framework

Check installed python version

- Python **3.5.3** or higher is currently required

```
:$ python3 --version # check your installed python version  
>>> Python 3.8.10
```

Pywikibot framework

Installation in an isolated environment

- Using virtualenv

```
:$ mkdir pywikibot # create a directory for your isolated environment  
:$ cd pywikibot  
:$ python3 -m venv venv # create your virtualenv  
:$ source venv/bin/activate # activate virtualenv  
(venv):$ python3 --version # confirm python version  
>>> Python 3.8.10
```

Pywikibot framework

Install dependencies

- Pywikibot requires requests >=2.20.1

```
(venv):$ pip install "requests>=2.20.1"
```

Pywikibot framework

Installation on a computer

- Downloading stable version of Pywikibot

```
(venv):$ wget https://pywikibot.toolforge.org/core\_stable.tar.gz
(venv):$ tar -xvf core_stable.tar.gz
>>> mv core_stable core # optional. rename directory to 'core'
(venv):$ cd core # change directory into the 'core' directory
```

Pywikibot framework

Configuring using a script

- Configure Pywikibot using a helper script

```
(venv)core:$ python pwb.py generate_user_files  
Select family of site(eg. wikipedia, wikihow, wikibooks, wikidata etc)  
Select language(en,fr,es etc)  
Enter your site username
```

Pywikibot framework

Testing the installation

- Test your installation by running your first Pywikibot script

```
(venv)core:$ python pwb.py scripts/version.py
```

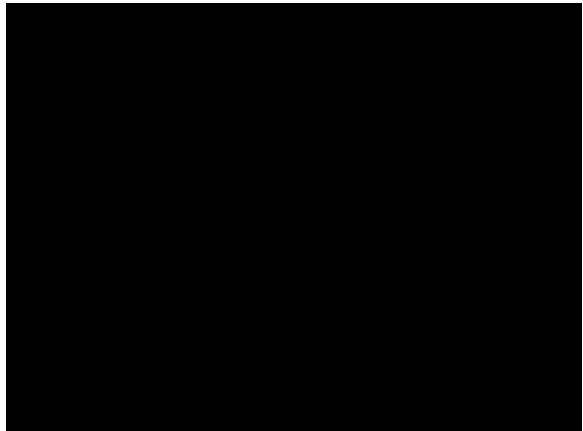
```
>>> Release version: 6.6.5 ... # shows pywikibot version with a list of  
libraries..
```

Running Pywikibot on PAWS



PAWS Overview

- PAWS, a Jupyter notebook deployment hosted by Wikimedia
- Allows creating and sharing documents that contain live code
- Use PAWS to run Pywikibot scripts
- Doesn't require installing any additional software or uploading files

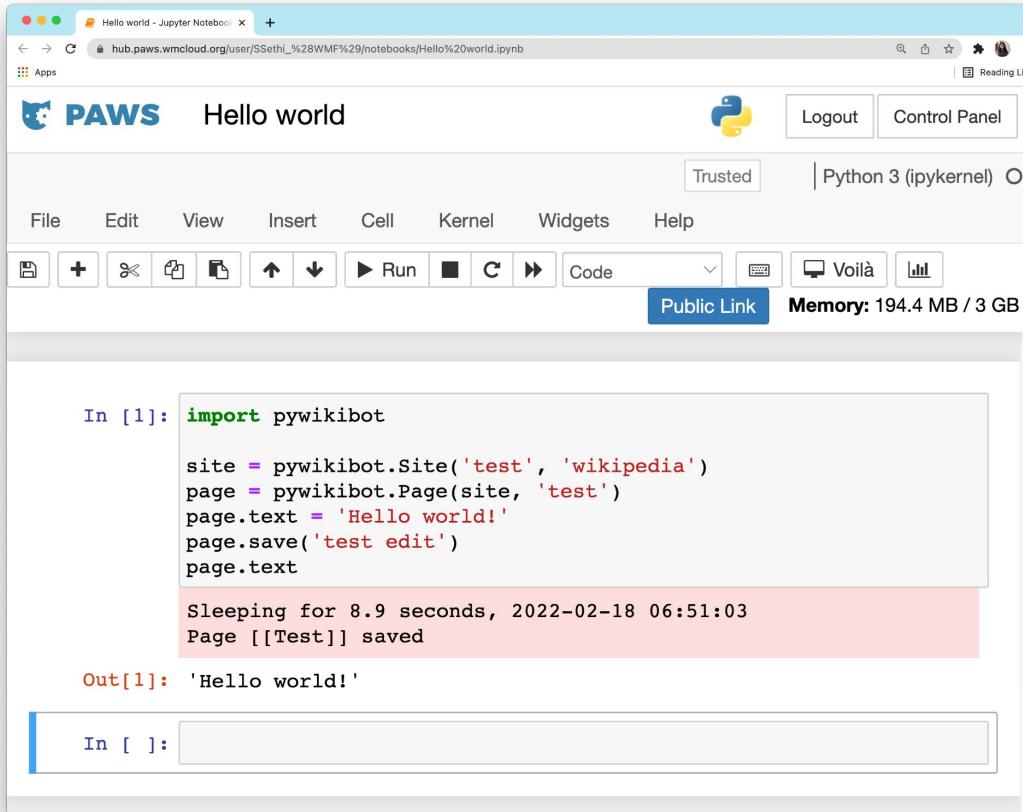


When to use PAWS

- Running scripts and bots for automated tasks
- For less intensive or non-periodic operations
- For exploration, not production
- Keeping notes on your work and sharing it with others
- Working with smaller wikis or datasets
- You don't need to collaborate with others on our code



How to use Pywikibot in PAWS



Hands-on activity



WIKIMEDIA

FOUNDATION

Hands-on activity

- Move a page to another title on test or your wiki following instructions here
<https://www.mediawiki.org/wiki/Manual:Pywikibot/movepages.py>
- Access the bot account's watchlist following instructions here
<https://www.mediawiki.org/wiki/Manual:Pywikibot/watchlist.py>

Group photo



WIKIMEDIA

FOUNDATION

THANK YOU

Seyram Komla Sapaty, Srishti Sethi

 ssapaty@wikimedia.org, ssethi@wikimedia.org

 [@komlasapaty](https://twitter.com/komlasapaty), [@srish_aka_tux](https://twitter.com/srish_aka_tux)



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