

# Intro to Windows Powershell and Command Prompt

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*This document was created as part of the project Harnessing Technology to End the Illegal Trade in Succulent Plants, conducted by Royal Botanic Gardens, Kew and the University of Southampton between 2022 and 2025, funded by the UK Government through the Illegal Wildlife Trade Challenge Fund.*

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# 1 Intro to Powershell

PowerShell is a command-line interface (CLI) built into Windows. While similar in purpose to the older Command Prompt, PowerShell is more powerful and modern. Its syntax is closer to the Terminal on macOS or the shell on Linux.

We have chosen to use powershell for the crawler, as mentioned above, due to its similarity to the terminal and shell in terms of commands.

We will look at how to open power shell and the commands we will mainly use as part of the usage of the crawler. This is intended for non-expert users and users with no prior experience with command line interfaces.

## 2 Launch Powershell

### 2.1 Search bar / Start menu

This is one of the easiest and straight forward ways to open powershell:

1. Click on the search bar or start menu
2. Search for “powershell”
3. Double click or right click open (You can open as administrator by right clicking)

**TL;DR:**

Start > Search "PowerShell" > Right-click > Open as administrator

### 2.2 ‘Run’ Dialog box

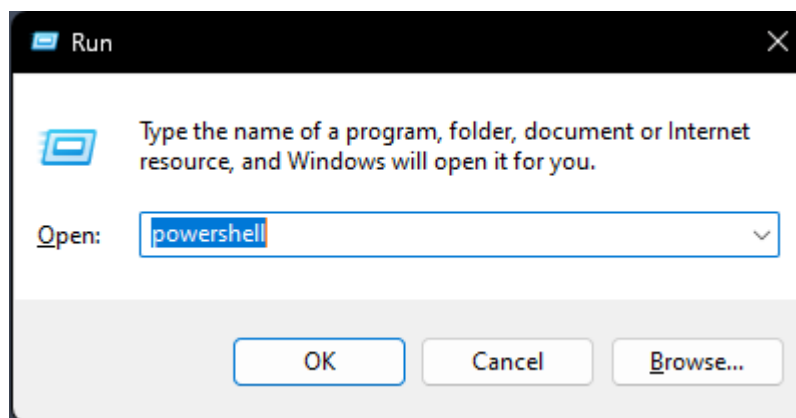


Figure 1: Run dialog

1. Press Windows key + R to open the ‘Run’ dialog box
2. Type in “powershell”
3. click OK or Enter

**TL;DR:**

Windows + R → powershell → Enter

### 3 Shell based commands

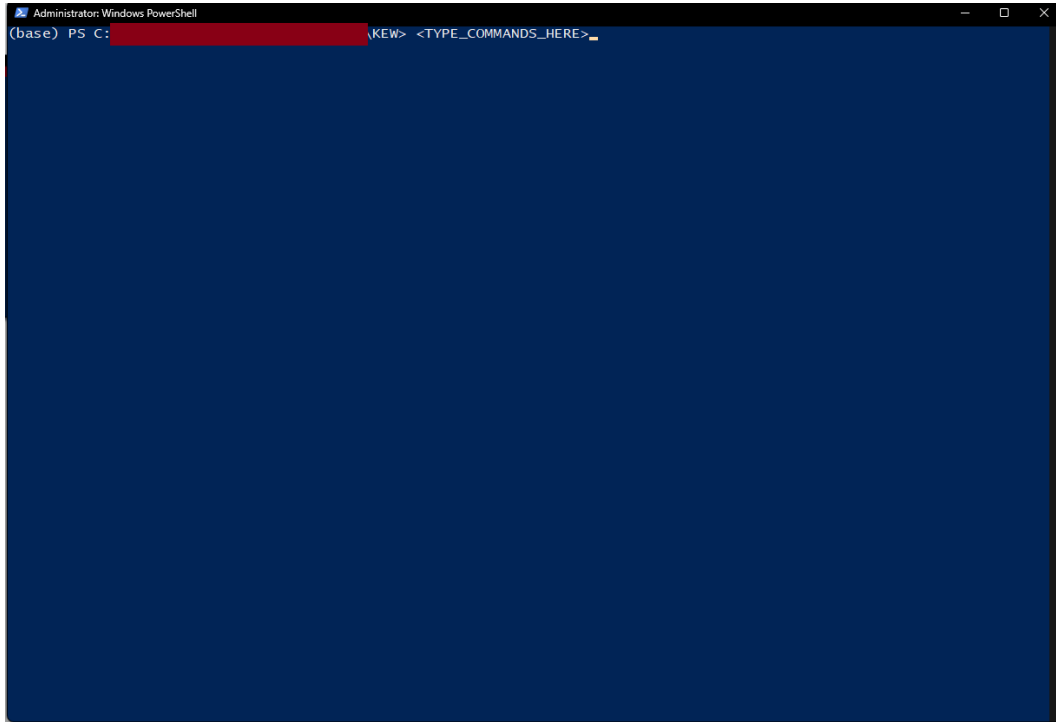


Figure 2: Initial prompt

When you first open powershell with a prompt like above (Figure 2). The default format for the command-line follows the following format:

```
(base) PS <current working directory>
```

where the `<current working directory>` is the absolute path to the current working directory. In a file based system, each file is stored under a certain directory, the absolute path shows the way to get to the current folder of interest.

- Absolute path is the path from the root file of the system.  
Absolute path example: `C:\Users\YourName\Documents\project`
- Relative path is the path from the current directory.  
Relative path example: `.\project`

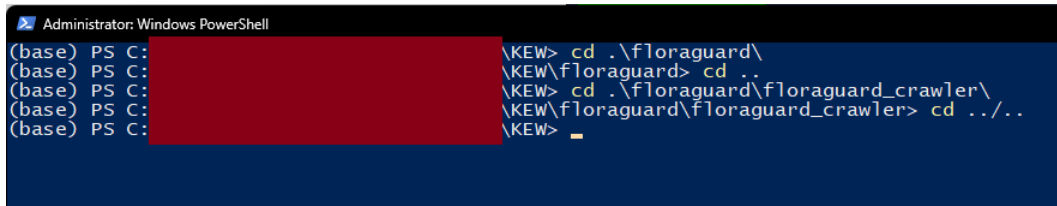
In the case of Figure 2 that is `floraguard_crawler`. The path is a cascading join of parent folder names by an OS specific delimiter (in the case of windows that is a `\`).

The `(base)` part denotes the environment of anaconda that is currently activated. More on this can be found in Section 4. `base` denotes the Base environment.

Powershell allows the use of the **tab** key to automatically complete to shift between available choices given a similar character to command or file name.

As part of this section we will look at navigating a shell based command line interface.

### 3.1 Changing directory



```
Administrator: Windows PowerShell
(base) PS C:\[redacted]\KEW> cd .\floraguard\
(base) PS C:\[redacted]\KEW\floraguard> cd ..
(base) PS C:\[redacted]\KEW> cd .\floraguard\floraguard_crawler\
(base) PS C:\[redacted]\KEW\floraguard\floraguard_crawler> cd ../../
(base) PS C:\[redacted]\KEW> █
```

Figure 3: change directory

**Command:** `cd <path>`

This command allows changing between working directories. Navigation between parent and child directory is also possible.

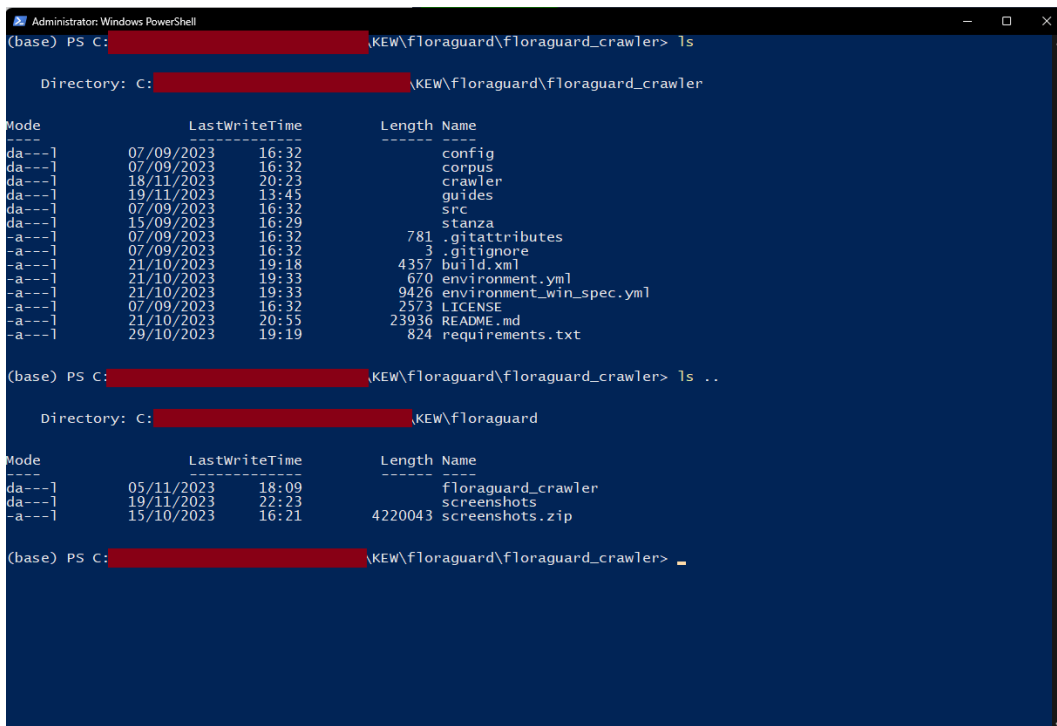
As shown in figure 3 we can move to child directory “floraguard\_crawler” by using the command “cd floraguard\_crawler”. More on the command “ls” can be found in sub-section 3.2.

To change to the parent directory, you have to use the following syntax “..”, for example “cd ..” will bring us back to the floraguard directory.

You can also give a relative path such as the following to move between multiple folders at a time, this includes the “..”. Unlike an absolute path, relative path is the path to a directory of interest relative to the current working directory.

Finally, the following syntax “.” denotes current directory.

### 3.2 List directory



```
Administrator: Windows PowerShell
(base) PS C:\[redacted]\KEW\floraguard\floraguard_crawler> ls

Directory: C:\[redacted]\KEW\floraguard\floraguard_crawler

Mode                LastWriteTime         Length Name
----                -
da---l            07/09/2023    16:32             config
da---l            07/09/2023    16:32             corpus
da---l            18/11/2023    20:23             crawler
da---l            19/11/2023    13:45             guides
da---l            07/09/2023    16:32             src
da---l            15/09/2023    16:29             stanza
-a---l            07/09/2023    16:32             781 .gitattributes
-a---l            07/09/2023    16:32             3 .gitignore
-a---l            21/10/2023    19:18            4357 build.xml
-a---l            21/10/2023    19:33             670 environment.yml
-a---l            21/10/2023    19:33            9426 environment_win_spec.yml
-a---l            07/09/2023    16:32            2573 LICENSE
-a---l            21/10/2023    20:55           23936 README.md
-a---l            29/10/2023    19:19             824 requirements.txt

(base) PS C:\[redacted]\KEW\floraguard\floraguard_crawler> ls ..

Directory: C:\[redacted]\KEW\floraguard

Mode                LastWriteTime         Length Name
----                -
da---l            05/11/2023    18:09             floraguard_crawler
da---l            19/11/2023    22:23             screenshots
-a---l            15/10/2023    16:21           4220043 screenshots.zip

(base) PS C:\[redacted]\KEW\floraguard\floraguard_crawler> █
```

Figure 4: list directory

**Command:** `ls [Optional relative path of a directory]`

In the case of this command, by just using the command “`ls`”, we can list all the files and folders under a directory.

By providing an relative path to any directory of interest after the command, we can also view the files and folders under that directory.

### **3.3 Print working directory**

**Command:** `pwd`

This is a simple command, that prints the absolute path to the current working directory.

Think of the command as a short form for “Print Working Directory”.

## 4 Conda specific commands

The following commands are specific to Anaconda; ways to create, activate and check packages within an environment.

Anaconda, is a package manager that allows for creation of an environment specific for an intended task. This allows us to load the environment whilst making sure any changes to the environment is controllable and allows version management of packages easily.

### Important:

Never install packages into the base environment. Always use a dedicated environment to avoid package version conflicts.

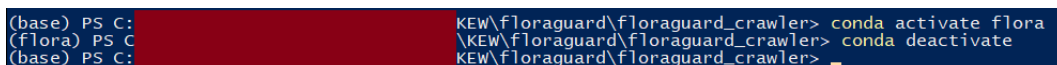
### 4.1 Creating environment from yaml file

#### Command:

```
conda env create --name <Name for environment> --file <path to yaml file>
```

where the name of the environment must be unique. This lets us create a working environment from a yaml file (Available in the floraguard crawler repository). Following this step, you have to activate the environment before performing any actions as part of the crawler.

### 4.2 Activate and Deactivate environment



```
(base) PS C:\KEW\floraguard\floraguard_crawler> conda activate flora
(flora) PS C:\KEW\floraguard\floraguard_crawler> conda deactivate
(base) PS C:\KEW\floraguard\floraguard_crawler>
```

Figure 5: conda activate and deactivate

**Command:** `conda activate <Name of environment>`

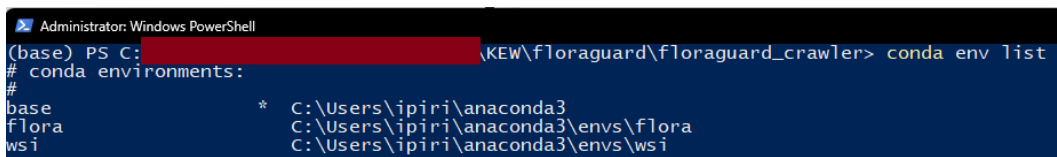
By running this code, you can activate an already created environment given you know the name. This is the one of the most common commands you would use whilst using the conda.

On the other hand, to deactivate the current activated environment, you can run the following command. It is good practice to deactivate your environment before closing powershell.

**Command:** `conda deactivate`

In order to list the current available environment, look at subsection 4.3

### 4.3 List available conda environment



```
Administrator: Windows PowerShell
(base) PS C:\KEW\floraguard\floraguard_crawler> conda env list
# conda environments:
#
base          * C:\Users\ipiri\anaconda3
flora         C:\Users\ipiri\anaconda3\envs\flora
wsi           C:\Users\ipiri\anaconda3\envs\wsi
```

Figure 6: conda environment list

**Command:** `conda env list`

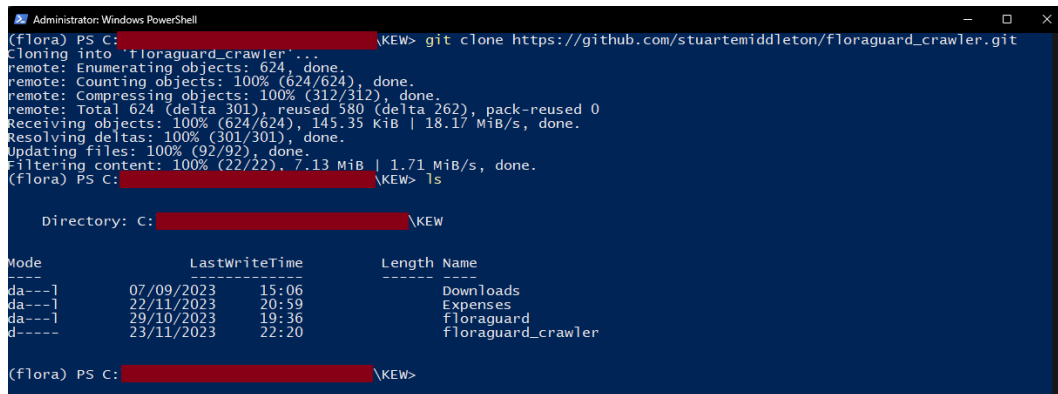
This command, lets you know what environment we have created so far on the system and what is currently active. Initially the only available environment is **base**.

In Figure 6, the asterisk (\*) denotes the currently activated environment. This is by default the **base** environment.

## 5 Git specific commands

Git is a version control system. We store our crawler code in a repository in GitHub. Git is used to access, manage changes and updates made to the crawler. The following subsections will look at some commonplace git commands you will encounter. Commands that let you add changes are not added as part of this guide.

### 5.1 Clone repository



```
(Flora) PS C:\[redacted]\KEW> git clone https://github.com/stuartemiddleton/floraguard_crawler.git
Cloning into 'floraguard_crawler'...
remote: Enumerating objects: 624, done.
remote: Counting objects: 100% (624/624), done.
remote: Compressing objects: 100% (312/312), done.
remote: Total 624 (delta 301), reused 580 (delta 262), pack-reused 0
Receiving objects: 100% (624/624), 145.35 KiB | 18.17 MiB/s, done.
Resolving deltas: 100% (301/301), done.
Updating files: 100% (92/92), done.
Filtering content: 100% (22/22), 7.13 MiB | 1.71 MiB/s, done.
(Flora) PS C:\[redacted]\KEW> ls

Directory: C:\[redacted]\KEW

Mode                LastWriteTime         Length Name
----                -
da--l             07/09/2023   15:06             Downloads
da--l             22/11/2023   20:59             Expenses
da--l             29/10/2023   19:36             floraguard
d-----          23/11/2023   22:20             floraguard_crawler

(Flora) PS C:\[redacted]\KEW>
```

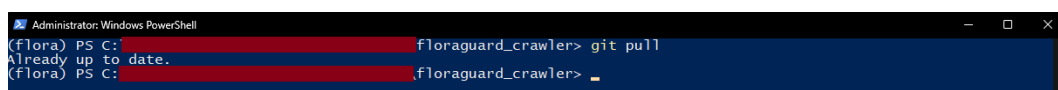
Figure 7: Cloning repository

Cloning the repository means downloading the code from the storage in GitHub into your local computer. To do this, follow the steps below.

1. First `cd` (Section 3.1) to your preferred directory
2. Run `git clone https://github.com/stuartemiddleton/floraguard_crawler.git`
3. `cd floraguard_crawler`

Running the command, will give you an output such as in Figure 7 with a newly created directory named the `floraguard_crawler`. The crawler would be inside this directory.

### 5.2 Pull new changes



```
(Flora) PS C:\[redacted]\floraguard_crawler> git pull
Already up to date.
(Flora) PS C:\[redacted]\floraguard_crawler>
```

Figure 8: Download new changes

Since the repository would be updated with new updates, it is important to know how to pull or download the new changes. This can be done by running the following command inside the `floraguard_crawler` directory.

**Command:** `git pull`

When the above command is run, the new changes will be downloaded. If there have been no noticeable changes, a message (like in Figure 8) “Already up to date” would be printed.

Use this regularly to ensure your local code is up to date with the latest changes from the remote GitHub repository.