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Tutorial: The Best Reference Manager Setup (Zotero + ZotFile + Cloud Storage)

Method · June 2018

DOI: 10.13140/RG.2.2.33585.48488/3

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The Best Reference Manager Setup

(Zotero + ZotFile + Cloud Storage)

Introduction

I wrote this tutorial because after years of using Mendeley (and then Zotero with default settings) I figured out a system for reference management that is extremely smooth, efficient, and free. It has improved both my research and writing process so much that I wanted to share it with others.

The key is to use Zotero with Zotfile (an amazing plugin), and a cloud-based storage service, in addition to a few minor changes to Zotero's settings. By the end of this tutorial you'll be able to:

- Download, rename, and organize academic papers, news articles, web sites, and other reference material with one click.
- Have virtually unlimited storage for your PDFs with automatic back up.
- Extract highlighted text and annotations from PDFs and associate them with references
- Search and insert references within a Word document and automatically insert a reference list in the required formatting style of virtually any journal.
- Create multiple libraries that you can share with collaborators and/or the public

Why Zotero?

- Free and open source
- Powerful and flexible
- Active user community

PC/Mac

Although this tutorial is written from a Windows perspective, all the essential steps will work on a Mac. Some things in the screenshots and configuration options might be slightly different from what is pictured in the tutorial, but it shouldn't be too difficult to figure out.

A note for experienced Zotero users:

Although this tutorial is designed for people who are starting with Zotero from scratch, I promise that you will get something out of it even if you have been using Zotero as your reference manager for some time.

PART 0: Switching to Zotero

Many people may be in a situation where they have already invested a lot of time and money into a proprietary reference manager such as EndNote or Mendeley. I used Mendeley for a couple of years before it was [bought by Elsevier](#), who have since moved toward commercializing the software.

As far as I know, there are three options for migrating your existing reference library over to Zotero:

- 1) Exporting your **references** from EndNote or Mendeley into Zotero is very easy. There are instructions for exporting from EndNote ([here](#) and [here](#)) and Mendeley ([here](#) and [here](#)).
- 2) Exporting your **references + PDFs** might be a little more work, but shouldn't be too difficult.
- 3) Exporting your **references, PDFs, subfolders, and annotations** is more challenging, but definitely possible (I know because I did it myself!). I think [Menotexport](#) is probably the best way to do this from Mendeley, but there are other options out there as well.
 - a. Note that as of June 16, 2018, the Beta version of Zotero includes the ability to [import directly from Mendeley](#). However, Mendeley Desktop 1.19 has moved toward encrypting their database and PDFs, so if you have already updated, you will have to follow the workaround in the above link to revert to an older version. Even then, your PDFs may be "locked" for editing outside of Mendeley.
- 4) When doing a large import, Zotero may try to automatically find the associated metadata for each paper via Google Scholar. However, after a couple hundred of requests, Google will suspect you are a bot and automatically put up a CAPTCHA, which may slow or stop the import process. To avoid this, simply disable your internet connection during the bulk import; you can always go back and tell Zotero to look up citation information for specific files later.

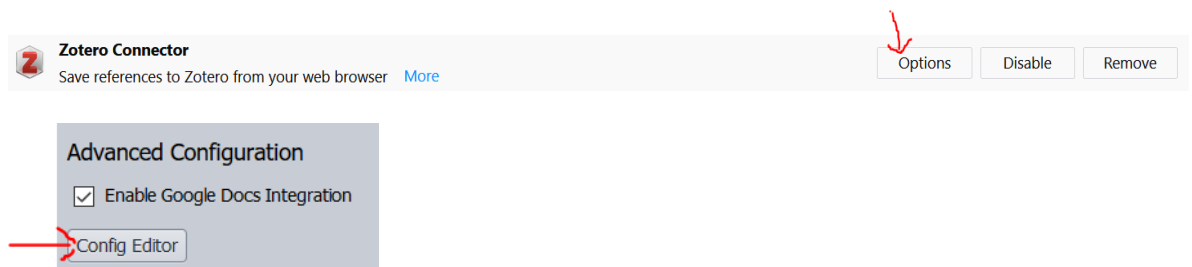
Finally, although I'm confident in this setup, I recommend going through the rest of the tutorial and trying out Zotero before doing any migrations, just to make sure you like it.

PART 1: Install Zotero Standalone and the Zotero Connector

- 1) [Download](#) and install Zotero Standalone AND the Zotero Connector



- 2) Turn off automatic screenshots (*optional*)
 - a. By default, Zotero will make a copy of the web page and attach it to the record in your Zotero library. Some people like this feature, but I prefer to only attach PDFs.
 - b. To turn this feature off, go to your add on manager and select:
Options → Advanced → Config Editor

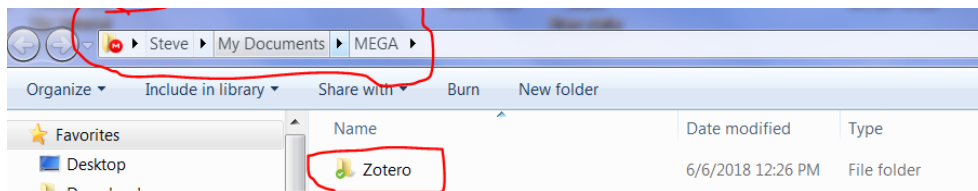


- c. Change the "Value" for automaticSnapshots to "false" (double click on it)

Filter	
Preference	Value
allowedInterceptHosts	["pubs.er.usgs.gov", "www.coldregions.org", "scholar.googleusercontent.com"]
automaticSnapshots	false
capitalizeTitles	false

PART 2: Install a cloud storage service

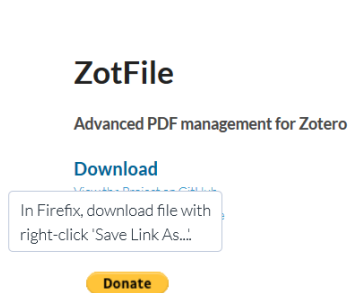
- 1) Choose your service
 - a. This could be Google Drive or Dropbox that you already have an account with.
 - b. If you're looking for a secure and private alternative to Google, I highly recommend [Sync](#).
 - c. If you want as much free space as possible, I recommend [MEGA](#). It's free, encrypted, and gives you 25GB of space (which is a LOT of PDFs).
- 2) Download the relevant desktop sync app (e.g., [MEGASync](#)).
- 3) Create a new folder in the syncing folder on your desktop. This is where your PDFs will be stored, so you might want to give it an appropriate name like "Zotero" or "Zotero_Library" (see below).



PART 3: Install and configure Zotfile

Zotfile is an excellent add-on for Zotero that helps to manage your PDFs. It can automatically rename, organize, and extract annotations.

- 1) Visit the [Zotfile](#) site and download the xpi file (save as...in a folder you can find)



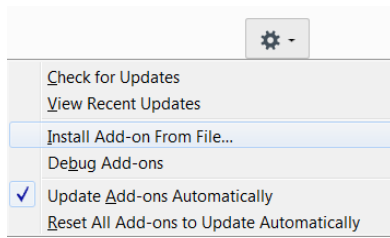
FEATURES

Zotfile is a Zotero plugin to manage your attachments: automatically rename, move, and attach PDFs (or other files) to Zotero items, sync PDFs from your Zotero library to your (mobile) PDF reader (e.g. an iPad, Android tablet, etc.) and extract annotations from PDF files.

★ Attach New Files to Zotero Items

ZotFile can rename and add the most recently modified file from the Firefox download or a user specified folder as a new attachment to the currently selected Zotero item. It renames the file using metadata from the selected Zotero item (user configurable), and stores the file as a Zotero attachment to this item (or alternatively, move it to a custom location).

- 2) In Zotero Standalone, go to Tools → Add-ons
- 3) Click the gear icon and click "Install add-on from file"

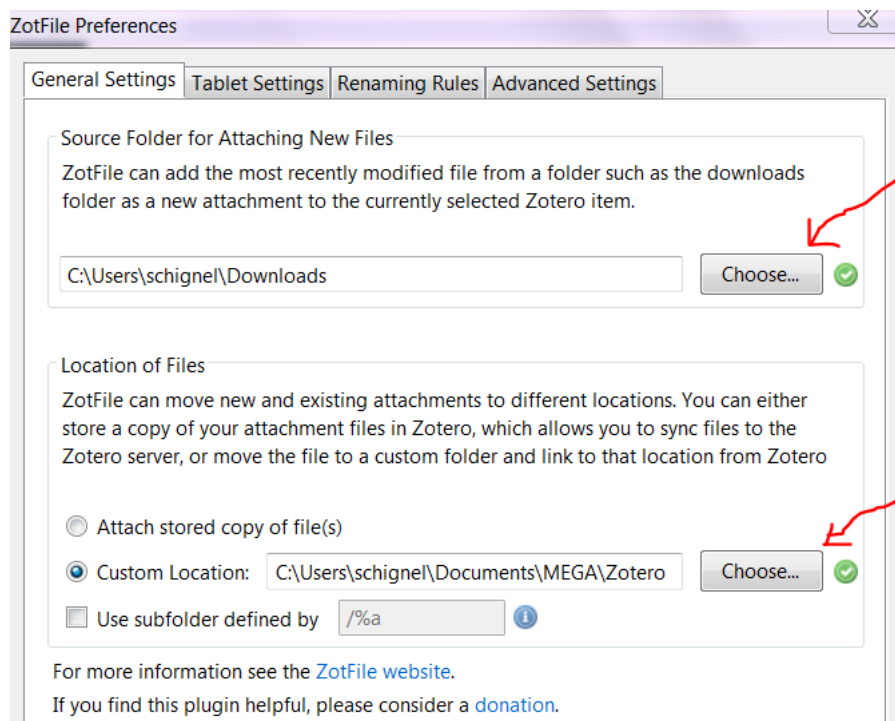


- 4) Navigate to and select the .xpi file for ZotFile that you downloaded
- 5) ZotFile should be installed, but you may need to restart Zotero

Setting up PDF syncing

Once Zotfile is installed, go into Zotero Standalone, select "Tools" from the top menu bar, and click *ZotFile preferences* (you may need to restart Zotero first).

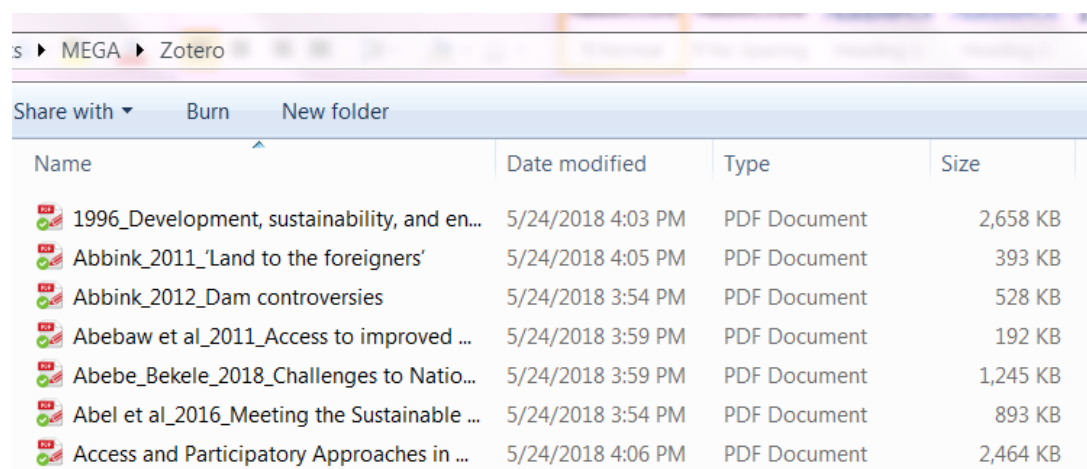
- 1) Go to the *General Settings* tab (see below)
- 2) Set *Source Folder for Attaching New Files* to a desired folder
 - a. When you add a reference to Zotero, Zotfile will look to this folder for new PDFs to associate it with
 - b. Your "Downloads" folder is a good option (this is what I use)
 - c. Some people might prefer to use a separate folder as holding tank (e.g. a folder on the desktop called "Papers for Zotero")
- 3) Set *Location of Files* to "Custom Location" and point it to the folder you created in your cloud syncing app in Part 2.



If you leave *Use subfolder defined by* unchecked, you will get a single folder on the sync drive with all of your PDFs in it.

Alternatively, you can check this box to instruct ZotFile to organize your PDFs into subfolders by author name, year, journal name, etc. (see the ZotFile website for more info).

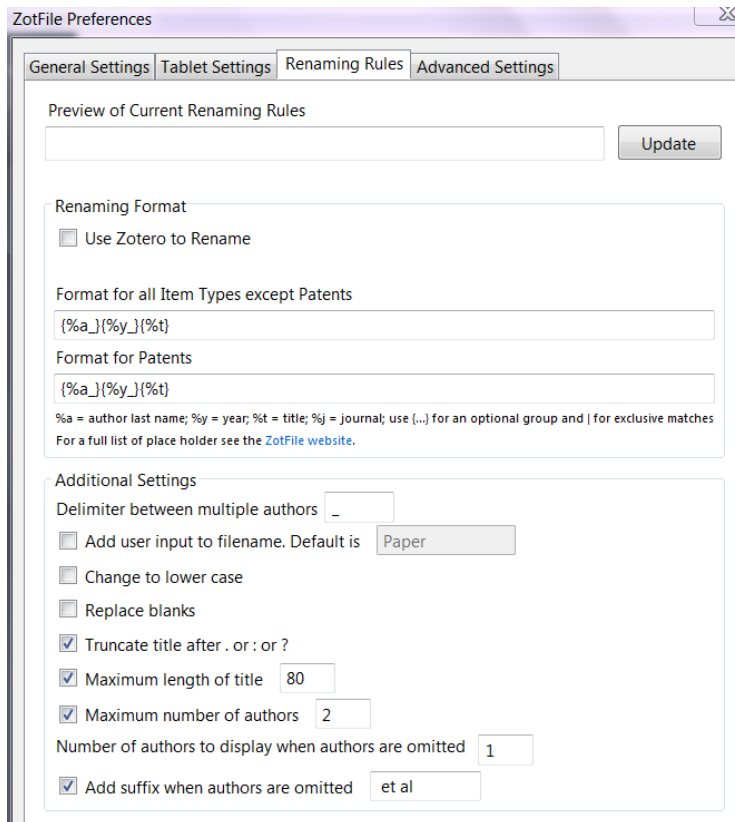
Personally, I find it more useful to leave it unchecked so all of my PDFs are put in one big folder on the sync drive (below).



I then make subfolders within Zotero Standalone, since this is where I spend most of my time navigating. Note: If you like subfolders, you may want to review the "Other Tips" part of this tutorial for instructions on setting up *Recursive Folders*.

Set up renaming rules

I strongly recommend instructing ZotFile to automatically rename your PDFs. There are many options for this, but here are the settings I use as an example:



The screenshot shows the 'ZotFile Preferences' window with the 'Renaming Rules' tab selected. The 'Preview of Current Renaming Rules' section is empty. Below it, the 'Renaming Format' section has a checkbox for 'Use Zotero to Rename' which is unchecked. Two text boxes for formatting are present: 'Format for all Item Types except Patents' and 'Format for Patents', both containing the placeholder string '{%a_}{%y_}{%t}'. A legend below these boxes explains the placeholders: '%a = author last name; %y = year; %t = title; %j = journal; use (...) for an optional group and | for exclusive matches'. For a full list of place holder see the [ZotFile website](#). The 'Additional Settings' section contains several options: 'Delimiter between multiple authors' is set to '_'; 'Add user input to filename. Default is' is set to 'Paper'; 'Change to lower case' is unchecked; 'Replace blanks' is unchecked; 'Truncate title after . or : or ?' is checked; 'Maximum length of title' is set to 80; 'Maximum number of authors' is set to 2; 'Number of authors to display when authors are omitted' is set to 1; and 'Add suffix when authors are omitted' is checked with 'et al' as the suffix.

ZotFile Preferences

General Settings | Tablet Settings | Renaming Rules | Advanced Settings

Preview of Current Renaming Rules

Update

Renaming Format

☐ Use Zotero to Rename

Format for all Item Types except Patents

{%a_}{%y_}{%t}

Format for Patents

{%a_}{%y_}{%t}

%a = author last name; %y = year; %t = title; %j = journal; use (...) for an optional group and | for exclusive matches
For a full list of place holder see the [ZotFile website](#).

Additional Settings

Delimiter between multiple authors _

☐ Add user input to filename. Default is Paper

☐ Change to lower case

☐ Replace blanks

☒ Truncate title after . or : or ?

☒ Maximum length of title 80

☒ Maximum number of authors 2

Number of authors to display when authors are omitted 1

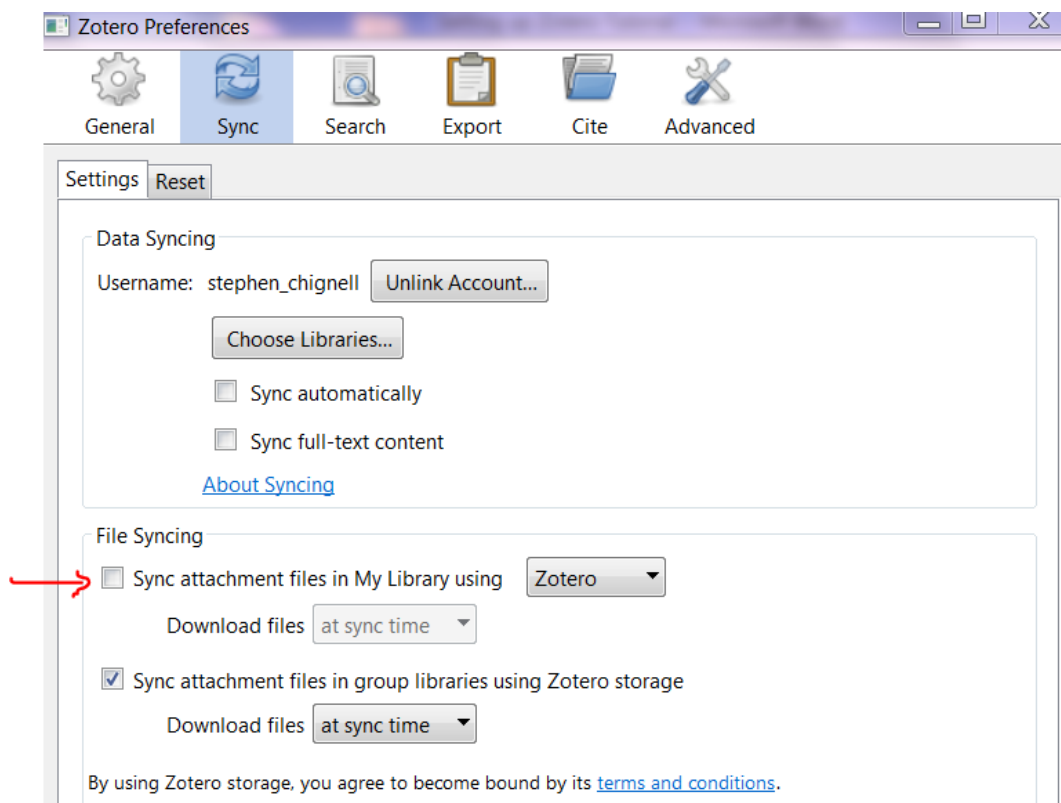
☒ Add suffix when authors are omitted et al

Stopping automatic syncing to Zotero Cloud

When you make a Zotero account on Zotero.org and start to sync your Zotero Standalone library with the Zotero cloud, it will default to uploading your PDFs along with your references.

However, we want to store the PDFs in "My Library" to a separate cloud service using ZotFile, so we need to change some settings before starting to sync:

- 1) Open the *Zotero Preferences*
- 2) Navigate to the *Sync* tab
- 3) Under *File Syncing*, uncheck "Sync attachment files in My Library using Zotero"



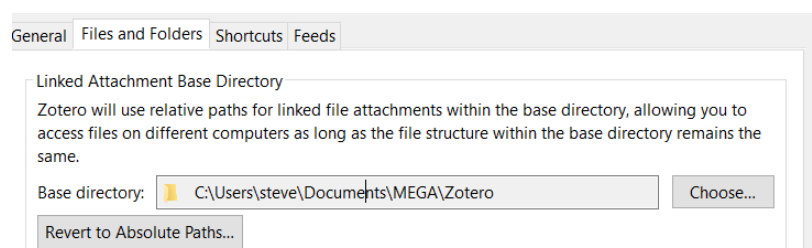
This is the primary setting that you need to change in order to have your *references* sync to the Zotero cloud, while your *PDF attachments* sync to your personal cloud service.

As you can see from the screenshot, there are a number of other sync options that you can adjust. To learn more about syncing with Zotero, I suggest reading the documentation ([here](#)).

Relative paths (optional)

If you intend to sync across multiple devices, such as a work computer and a home laptop, you will need to set up relative paths in the "Linked Attachment Base Directory".

Go to Zotero preferences → Advanced → Files and Folders and set *Base Directory*: to the folder you created in your cloud syncing app in Part 2. You will have to do this on each of the computers you use.



Make sure to keep everything else in this window at default settings. In other words, keep the “Data Directory Location” as the Default.

A screenshot of the 'Data Directory Location' settings window in Zotero. It features two radio buttons: 'Default (C:\Users\steve\Zotero)' which is selected, and 'Custom:' which is unselected. To the right of the 'Custom:' label is a text input field and a 'Choose...' button. At the bottom left of the window is a 'Show Data Directory' button.

If you need it, you can find more information about this [here](#) and [here](#).

PART 4: Install other add-ons to Zotero Standalone

I highly recommend installing a [Zotero Word Processor plugin](#) (either for MS Word or Libre Office).

The following plugins are not required for the overarching setup to work but they will make your life easier and improve the overall experience.

- Zotero Storage Scanner
- Google Scholar Citations for Zotero
- Zutilo
- FireTray
- Zotero QuickLook
 - This should work automatically with Mac
 - On Windows, you will have to install [QuickLook](#) beforehand

For any of these, just visit the [plugins](#) page and follow the steps to download and install the respective .xpi files like you did for ZotFile.

There are many other plugins that I have yet to try, including ones that enable integration with Google Docs and LaTeX.

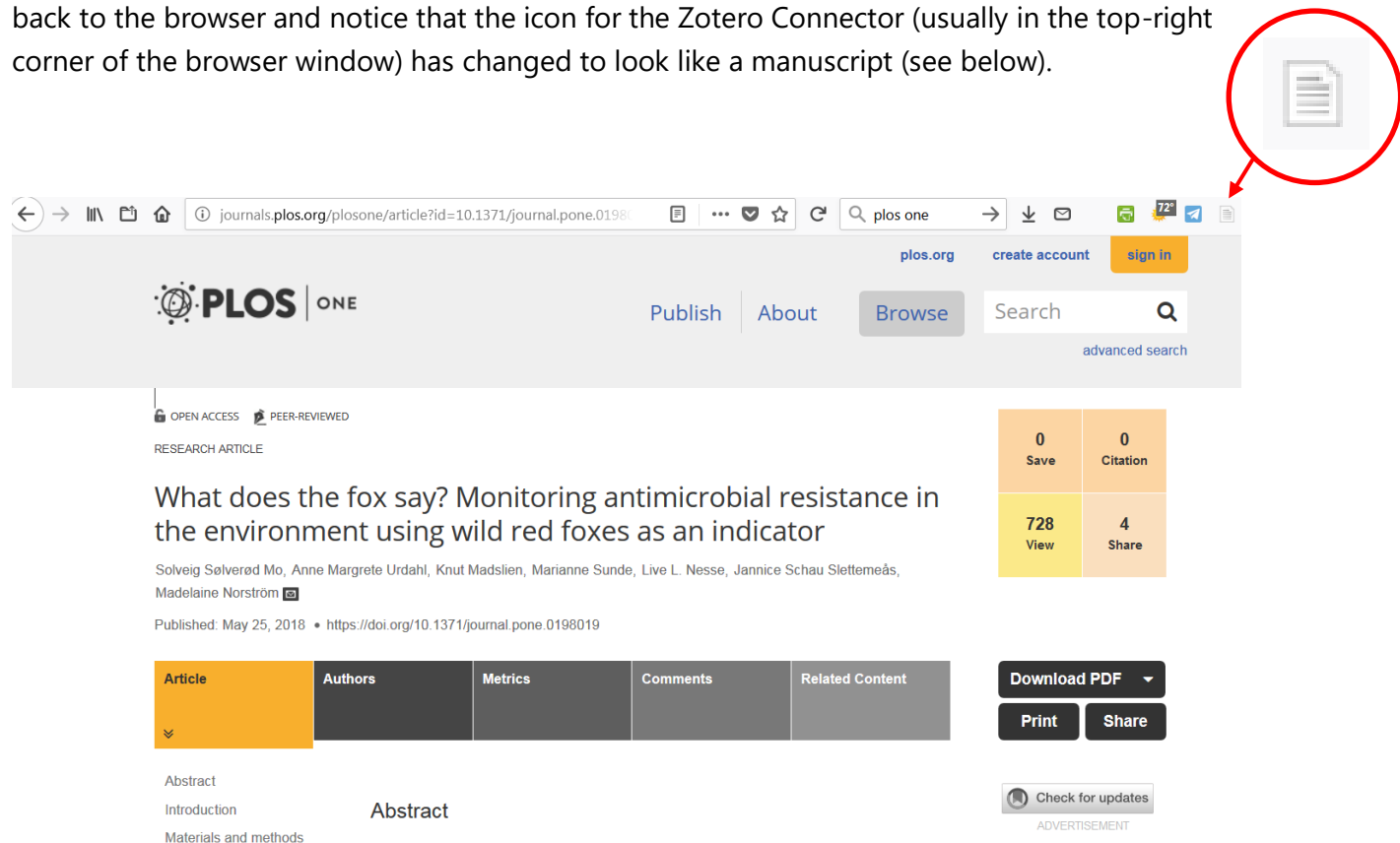
I also highly recommend [Unpaywall](#). This is not a Zotero plugin, but is added to your browser and will automatically search for open access PDFs on every journal web page you visit. If it finds an open access PDF, Zotero will usually grab it when you click the button.

PART 5: Using Zotero

You now have everything you need to start managing your references with Zotero. Zotero has many built-in features and there are many resources online for learning about these. I'm therefore going to focus on some of the particularities of this specific setup. Let's start with an example.


Suppose you come across a paper that you would like to download. Let's use this [PLOS ONE paper](#) on antimicrobial resistance in foxes as an example.

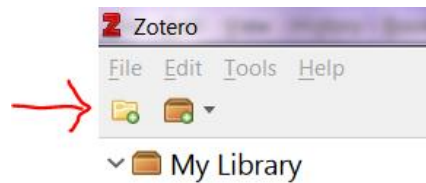
The first step is to open the Zotero Standalone application. Once Zotero is open, we can go back to the browser and notice that the icon for the Zotero Connector (usually in the top-right corner of the browser window) has changed to look like a manuscript (see below).



This indicates that Zotero recognizes that there is a reference on the web page, and that it is a journal article.

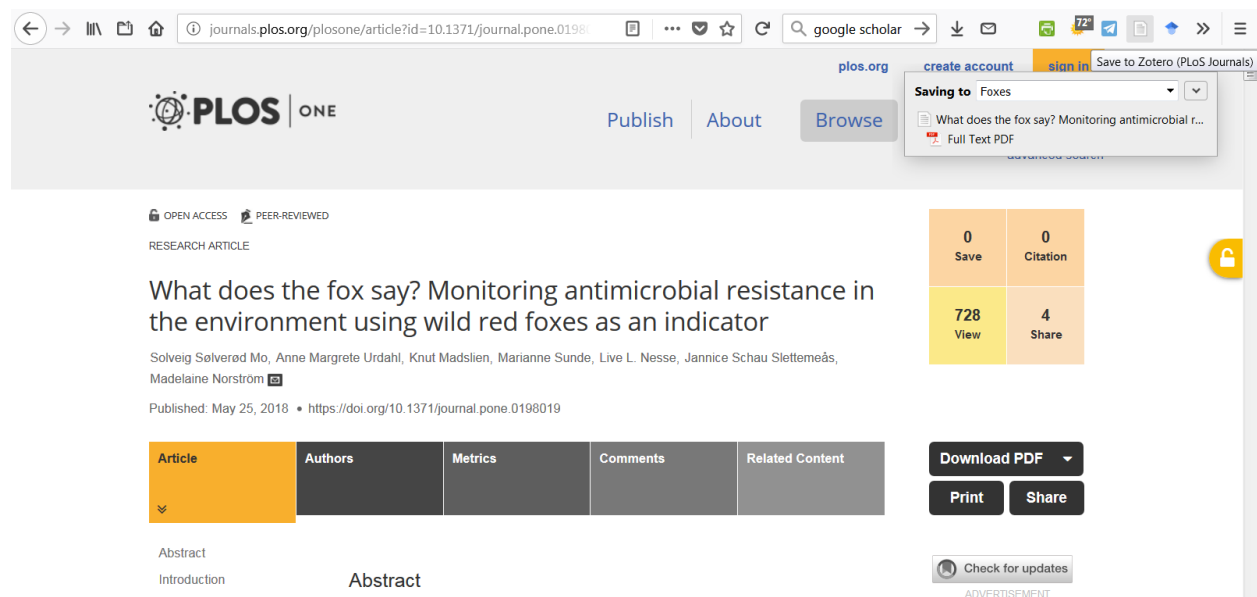
If we were to click this button, Zotero would go to work grabbing the reference information from the page and looking for an open access PDF to download. It would then appear in our library.

However, I want to be more organized and direct this reference to a subfolder (or "Collection"), not just my general library. So before I click the button, I'm going to go back to Zotero Standalone and click the  button to create a new Collection. I'll name it "Foxes".

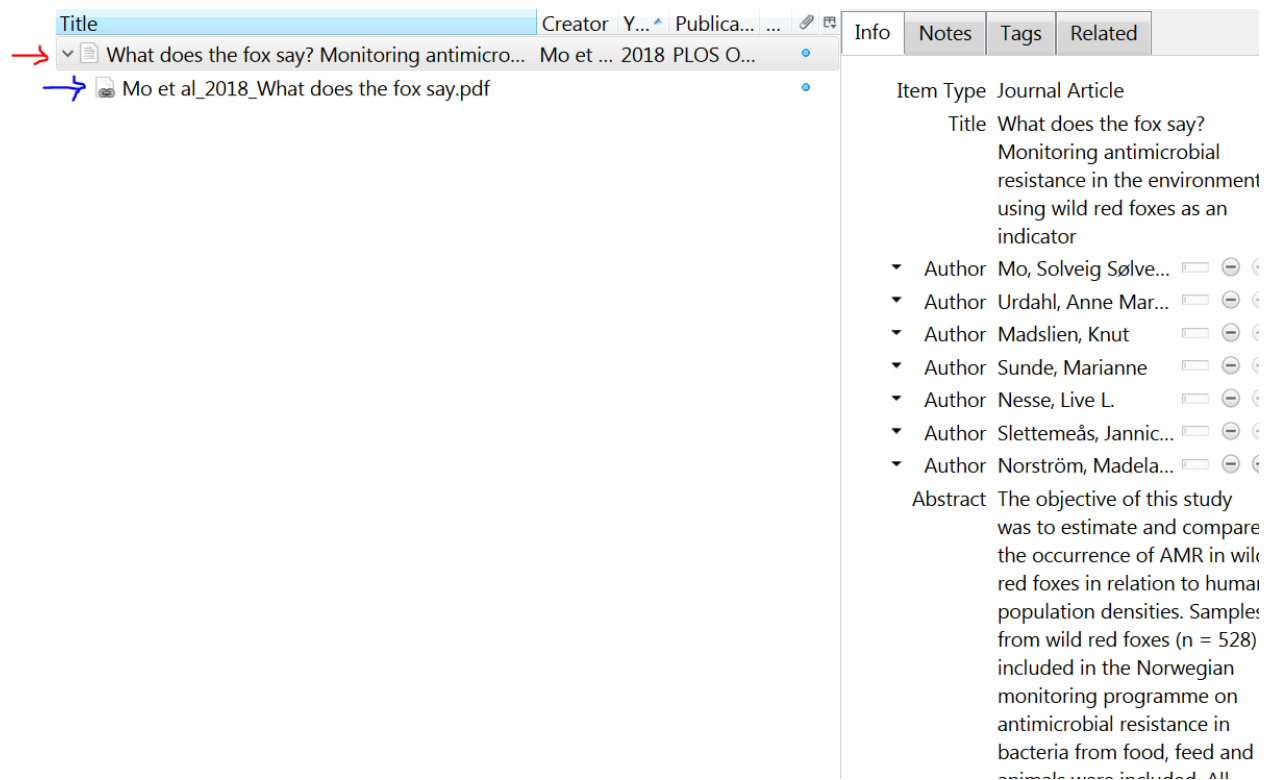


Now go back to the browser and click the Zotero button.

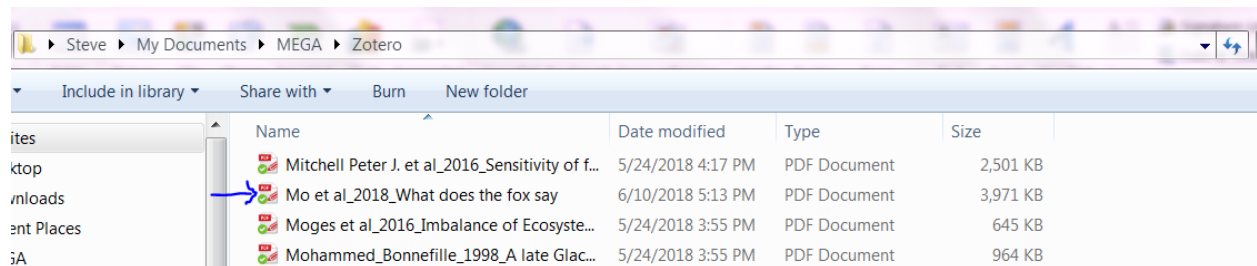
Watch and wait in wonder as the Zotero Connector grabs the reference and the PDF, and saves it to the "Foxes" collection in Zotero Standalone (below).



If you switch back to Zotero Standalone you should see the **reference** (red arrow) and the **link** to the attached PDF (blue arrow). The column on the right shows the detailed metadata.



Meanwhile, in the background, ZotFile has automatically taken the PDF, renamed it, and moved it into the sync folder for your cloud service:

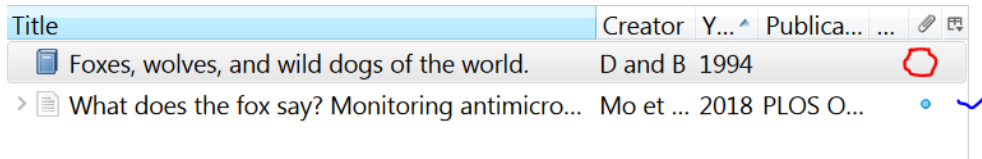


References vs. Attachments

This is an important moment to note that Zotero makes a distinction between the **reference** (or parent item) and the **file(s)** associated with it. If you wanted to, you could have a whole Zotero Library composed of references, with no PDFs at all. You can also have PDFs in Zotero that have no associated reference.

Continuing with our example, let's say you find this [book](#) on foxes. The PDF is not available from the website, but you download the reference with the Zotero Connector to your "Foxes" Collection.

As you can see below, Zotero has the Book reference, but no attachment. The PLOS ONE paper, however, has a blue dot, showing it has an attachment.



Double-clicking on a reference will open the associated file. If the reference doesn't have a PDF attachment, Zotero will open the website where you found the reference (try it with the book on foxes).

However, if the reference does have a PDF attachment, Zotero will open it in the default PDF viewer (I highly recommend [PDF X-Change Editor](#) for Windows users).

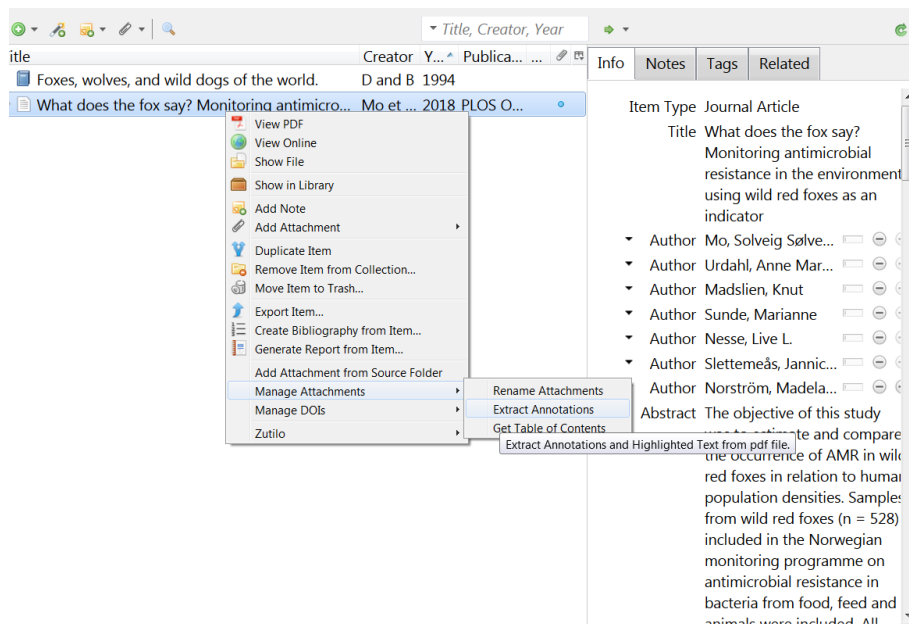
I like to annotate PDFs with highlights or comments. For example, open the "Mo et al." paper and highlight the first sentence of the abstract:

Abstract

The objective of this study was to estimate and compare the occurrence of AMR in wild red foxes in relation to human population densities. Samples from wild red foxes (n = 528) included in the Norwegian monitoring programme on antimicrobial resistance in bacteria from food, feed and animals were included. All samples were divided into three different groups based on population density in the municipality where the foxes were hunted. Of the 528 samples included, 108 (20.5%), 328 (62.1%) and 92 (17.4%) originated from areas with low, medium and high population density, respectively. A single faecal swab was collected from each fox. All samples were plated out on a selective medium for *Enterobacteriaceae*

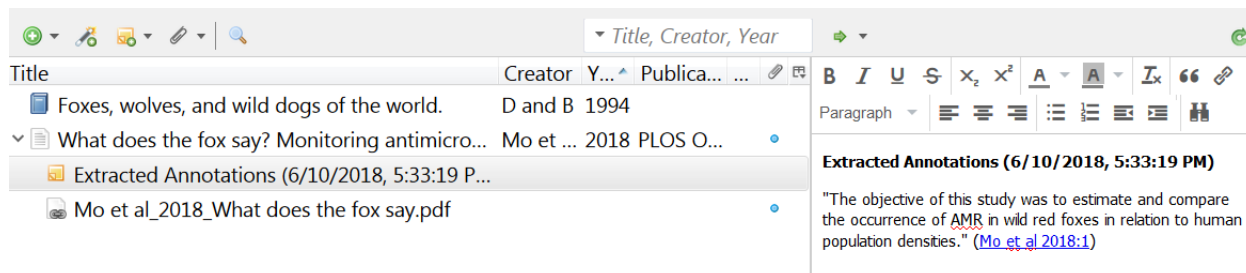
Now **save** the changes to the PDF, and go back to Zotero Standalone.


Right-click on the reference, and go to *Manage Attachments* → *Extract Annotations*



You should now see a note attached to the reference, and the extracted annotation in the right-hand column.

Clicking the blue link will take you to the relevant page in the PDF.



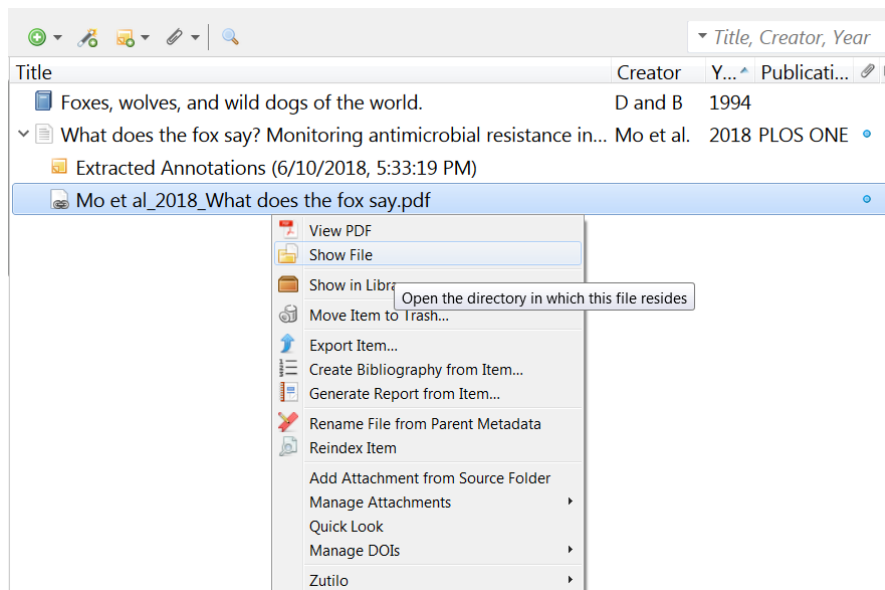
Click the green arrow  in the top right corner to sync your references to your Zotero Cloud (you will have to make an account first). Remember, this will only sync the *references*, **not** the *PDFs*. The latter are being synced by your personal cloud service (e.g., MEGA).

PART 6: Deleting

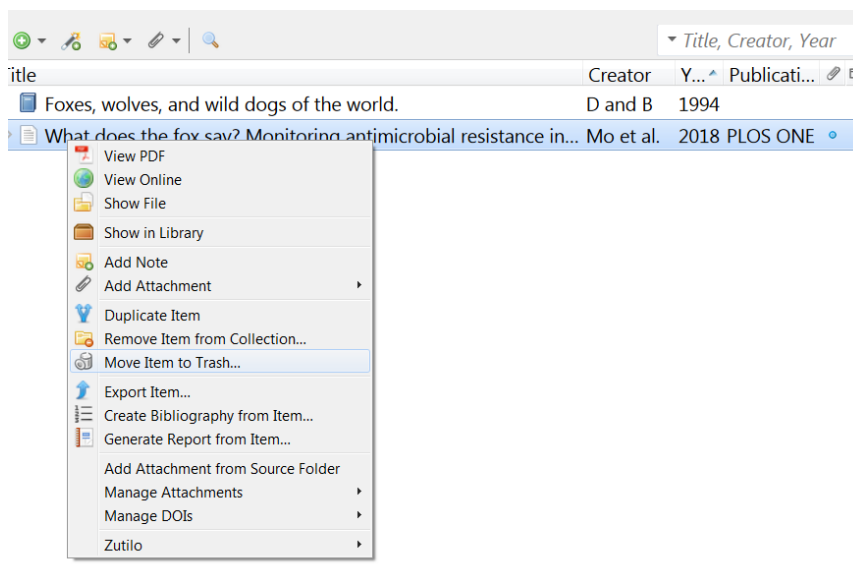
There are a number of different options for deleting, and they're a little tricky with this setup. Usually, to delete an entry, you just right click and select "Move Item to Trash".

However, because we are storing the PDFs outside of Zotero, moving items to the trash will only delete the reference, not the PDF. Therefore, I recommend deleting the PDF first, then deleting the reference in Zotero.

- 1) To delete the PDF, right-click on the link to the attachment and choose "Show File". This will open up your storage folder in a new Window where you can delete the PDF as you would any other file on your computer.




- 2) Now that the PDF is deleted, go to Zotero, right-click on the reference, and select "Move Item to Trash". Alternatively, you can type *Ctrl+Delete*.



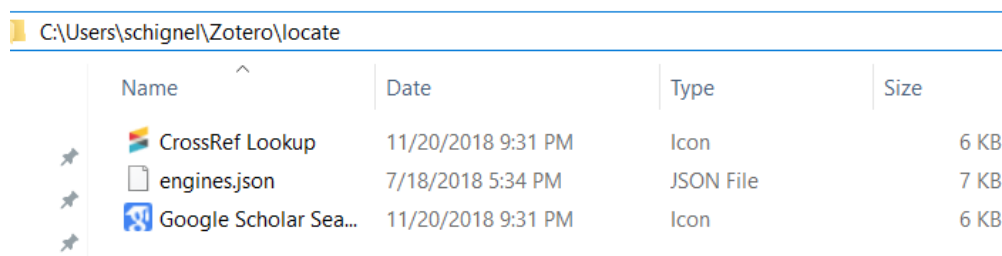
PART 7: Lookup Engines







This isn't required for the setup to work, but it's so useful that I've given it its own section.

If you look to the top right of Zotero Standalone, you'll see a "Locate" button . Clicking this gives you different options for opening whichever reference is currently selected in your library.

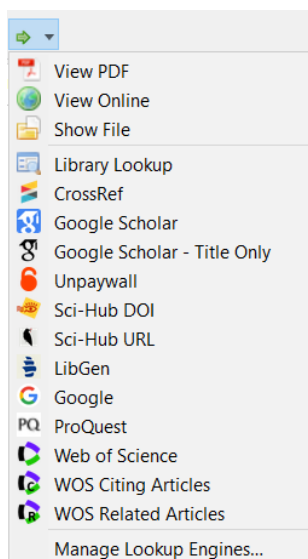
This can be useful for locating the original website or URL or the associated record in your institution's library catalogue. However, these defaults are just the tip of the iceberg.

- 1) Follow the instructions under "Managing Search Engines" on this [webpage](#),
- 2) Navigate to your [Zotero Data Directory](#). Mine looks like this:



C:\Users\schignel\Zotero\locate				
	Name	Date	Type	Size
	 CrossRef Lookup	11/20/2018 9:31 PM	Icon	6 KB
	 engines.json	7/18/2018 5:34 PM	JSON File	7 KB
	 Google Scholar Sea...	11/20/2018 9:31 PM	Icon	6 KB

- 3) Delete the default "engines.json" file and replace it with the one that I've provided [here](#).
- 4) Close and restart Zotero.
- 5) Select a reference from your library and then click the "Lookup" button.
- 6) You should see a variety of new options to choose from, including Google Scholar, Web of Science, and Sci-Hub. These can be extremely useful for quickly locating reference information and/or PDFs from the internet.



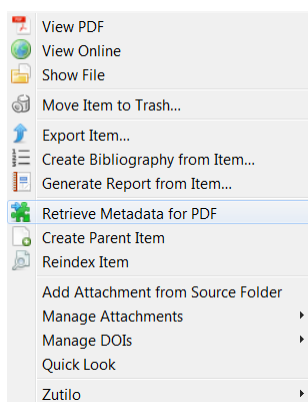
Note: Not all search options will always be available. It will depend on what type of reference it is, and whether it has a DOI listed in your Zotero library.


PART 8: Other tips

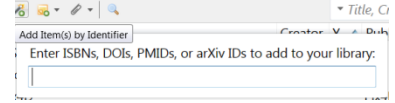
You now have the basics of downloading and managing references in Zotero! There are many other neat functions available in Zotero, and the best way to learn is to start exploring the program. The Zotero documentation and forum are also great places to start looking for [tips and tricks](#). Here are a few functions/options that I find particularly useful:

Other ways to bring a reference into Zotero

- 1) Drag and drop a PDF into Zotero Standalone. Zotero will attempt to find the correct metadata and create a reference for it.
- 2) Sometimes this doesn't work, and you can right-click and say *Retrieve metadata for PDF*.

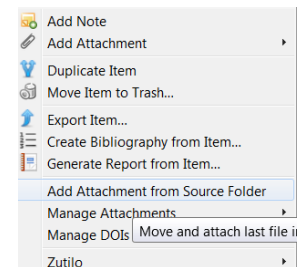


- 3) Perhaps you have a DOI for an article but don't have a PDF. You can click the  tool at the top of the Zotero Standalone window, and paste a DOI or other type of identifier into it. If Zotero can find a matching record online, it will create a new reference in the library.



If you happen to acquire the relevant PDF at a later date:

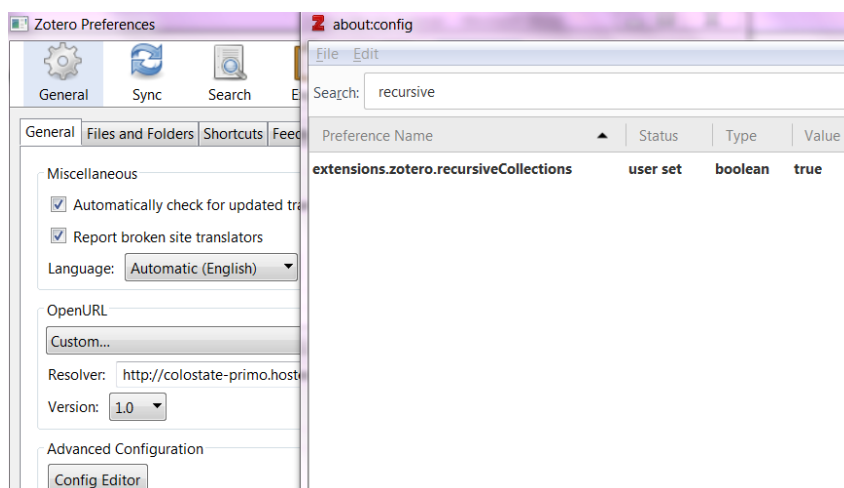
- a) Put the PDF in the "Downloads" folder on your computer (or whichever folder you selected as the *Source Folder for Attaching New Files* in ZotFile settings in PART 3).
- b) Go to Zotero Standalone and right-click on the reference.
- c) Select Add attachment from source folder (right).
- d) ZotFile will grab the PDF, rename it, move it to your sync folder, and associate the reference with it in Zotero, just as if you had clicked the Zotero Connector button in your browser.



Recursive folders

If you like it so that selecting a Collection shows all the references in that Collection **and** its Sub-collections then you need to switch on "recursive collections." This is the default behavior in Mendeley, but is not the default for Zotero, and can be easily changed by the following steps:

1. Open Zotero Preferences
2. Go to the "Advanced" tab
3. Click *Config Editor* (it may give you a warning, just ignore it)
4. Search for "recursive" in the search bar
5. Change **extensions.zotero.recursiveCollections** so that Value = **true** (double-click on the word "false" to change it)



Searches

There are many ways of searching your Zotero library. It's worth reading through the [search documentation](#) to get a sense of what's possible.

Open URL

Consider setting up an OpenURL resolver to help identify references with the "Lookup" button. This can be very useful, especially if your institution or organization has a library that gives you access to journals. Here are [instructions](#).

Deleting PubMed entries

Some journals, such as *Science* automatically download a PubMed metadata attachment to the reference. This can be annoying because it will seem like the reference has a PDF attached, when in fact it's just the PubMed entry.

I suggest creating a saved search which will identify any references with a PubMed attachment. Once it's set up, simply check the search once in a while, and delete the PubMed entries. Here are [instructions](#).

RSS Feeds

If you sign up for table of contents alerts from your favorite journals, you might consider sending them straight to Zotero via an RSS feed. [Here](#) is how to do it.

Groups

[Groups](#) are incredibly useful when working with collaborators. A couple of notes about groups:

- Each of your group libraries is distinct from each other and from your personal library
- You can easily drag references from one group to the other
- If you followed the setup in this tutorial, your library PDFs will be stored and synced in your cloud service. However, your group PDFs will be synced on Zotero's cloud, which gives you 300 MB for free, and larger storage plans for an annual fee.

Happy Researching!