These directions are written for installation on Windows 10

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## Setting up Python environment:

-Download [Anaconda | Anaconda Distribution](https://www.anaconda.com/products/distribution#Downloads) for Windows/Mac

-Use a python source code editor preferably [visual studio code](https://code.visualstudio.com/) for Windows/Mac

-Go to start and select Anaconda powershell and type “conda activate base” and then type “code” (this opens up VSC from the command line). This activates conda base and starts VS code using conda. Alternately, you could activate conda following the directions: [How to activate conda environment in VS code | by Udi Yosovzon | Medium](https://medium.com/@udiyosovzon/how-to-activate-conda-environment-in-vs-code-ce599497f20d#:~:text=To%20do%20that%2C%20go%20to%20user%20settings%20in,editor%20and%20select%20Run%20Python%20File%20in%20Terminal.)

-Install git. Go to [Git - Downloads (git-scm.com)](https://git-scm.com/downloads) and download, setup Git with default options.

-Install GoogleDrive: To access bags/administration content on shared google drive install <https://www.google.com/drive/download/>. Upon completion of installation a google drive icon will appear in the launchpad or open finder and google drive will appear on the left side under favorites.

### Cloning the University of Arizona Libraries data curation codes from github:

-In the anaconda powershell terminal type the following commands:

(Some of the commands in this section are copy pasted from [UAL-RE/LD-Cool-P: Python tool to enable data curation (github.com)](https://github.com/UAL-RE/LD-Cool-P) with some changes)

(Following command creates a folder called “Curation” at the following path: C:\Users\username\Anaconda3\envs)

$ conda create -n curation python=3.9.0

Click y when Proceed ([y]/n) option pops up

(Following command activates the curation folder)

$ conda activate curation

(The above command creates a folder curation whose path is at C:\Users\username\Anaconda3\envs\curation)

-Go to File->OpenFolder on VS Code and select curation folder at the above path

-Go to extensions in the left-hand corner on VS Code and enter python, select Python IntelliSense (Pylance) and install this python interpreter. After installation, click shift+ctrl+P, type Python interpreter and select Python 3.9.0 (‘curation: conda)

(**Tip**: For quick access to the curation folder, go to File->Preferences->Settings in VSC, type terminal.integrated and change the “python.defaultInterpreterPath”, “terminal.integrated.cwd” and “PYTHONPATH” to “C: \Users\username\Anaconda\envs\curation” , replace username with your username, this path might be different on mac OS. See the last error in the ‘Possible errors’ section at the end of this document for more details on troubleshooting related to failed activation of conda environment)

Now, install git (if you haven’t already). Go to [Git - Downloads (git-scm.com)](https://git-scm.com/downloads) and click Download, open the .exe file from downloads and setup Git with all the default options.

On VS Code, go to “Terminal” tab and open new terminal, under this terminal on the right column click the drop-down menu, next to “+” tab and select “**Git bash**”

Next, clone the [UA Libraries' forked copy of figshare](https://github.com/UAL-RE/figshare), in the **bash** terminal type: git clone <https://github.com/UAL-RE/figshare.git>

(Alternately, this can be cloned by shift+ctrl+p and pick Git: Clone, go to the github URL above , click code, copy https link and paste it in VSC Git: Clone, press enter, pick curation directory)

Now, run the setup.py script as follows in the **bash** terminal:

(The path below will be C:/Users/username/Anaconda3/envs/curation, where username is what you have to enter, alternately you could go to the folder where curation folder was created, and copy paste the path below)

(curation) $ cd /path/to/parent/folder

(The path below will be C:/Users/username/Anaconda3/envs/curation/figshare, where username is what you have to enter, alternately you could go to the folder where curation folder was created and copy paste the path below)

(curation) $ cd /path/to/parent/folder/figshare

(curation) $ (sudo) python setup.py develop

(**Errors:** If setup doesn’t develop or conda is not recognized then activate it from the anaconda powershell, (Start->anaconda powershell), type conda activate base, and open VS code with command “code” from the anaconda powershell, [python - Error when trying to use conda on vs code: conda : The term 'conda' is not recognized as the name of a cmdlet - Stack Overflow](https://stackoverflow.com/questions/65064740/error-when-trying-to-use-conda-on-vs-code-conda-the-term-conda-is-not-recog). See the last error in the ‘Possible errors’ section at the end of this document for more details on troubleshooting related to failed activation of conda environment )

Next, get out of the figshare folder and back to the curation folder (cd ..). Clone this repository ([LD-Cool-P](https://github.com/UAL-RE/LD-Cool-P)) to the curation folder and install with the setup.py script:

(The path below will be C:/Users/username/Anaconda3/envs/curation/, where “username” is to be replaced based on the path it appears on your folder, alternately you could go to the curation folder and copy paste the path below)

(curation) $ cd /path/to/parent/folder

(curation) $ git clone https://github.com/UAL-RE/LD-Cool-P.git

(The path below will be C:/Users/username/Anaconda3/envs/curation/LD-Cool-P (cd LD-Cool-P), where username is to be replaced, alternately you could go to the folder where LD-Cool-P folder was created, and copy paste the path below or type cd LD-Cool-P to go inside the curation directory)

(curation) $ cd /path/to/parent/folder/LD-Cool-P

(curation) $ (sudo) python setup.py develop

This will automatically install the required pandas, requests, numpy, jinja2, tabulate, and html2text packages.

You can confirm installation via conda list

(curation) $ conda list ldcoolp

You should see that the version is 1.1.8

## Cloning the Virginia Tech Libraries data curation codes from github:

-Clone [VT Figshare repository](https://github.com/PadmaCarstens/VTechDataServices-Figshare) :

Open bash on VS Code, clone VT repository in the curation folder using the following command:

$ cd C:/Users/username/Anaconda3/envs/curation

$ git clone <https://github.com/PadmaCarstens/VTechDataRepo.git>

## Creating a token on [Virginia Tech Data Repository](https://data.lib.vt.edu/)(VTDR) and navigating [VTDR](https://data.lib.vt.edu/):

Short description on VTDR: VTDR is Virginia Tech’s platform for sharing the research datasets provided by the researchers. The researcher is provided with a citation and DOI upon publishing their dataset. The research can then include this in a journal or manuscript or thesis/dissertation etc. This platform is based off of figshare and customized to fit VTDR’s requirements. On VTDR, curators are encouraged to read information in the tabs:“About, Preparing Data for Deposit tap and Deposit Agreement” found at the bottom of VTDR. This will help the curator have a better understanding of VTDR and how it operates.

**Navigating VTDR:**

**Creating a token:** Click on the name initials on the top right corner of VTDR, this is displayed in a circle. Pick “Applications”, scroll down to “Personal Tokens”, click on “Create Personal Token”, in the “Description” box enter any description e.g. “token for VTDR workflow”, click “Save”. On the next pop up box, copy the token created and paste it in the token tag in generate\_config.py.

**Impersonating author’s account:** Click on the name initials on the top right corner of VTDR, this is displayed in a circle. Go to “Administration”, pick the tab “USERS”, under “search users” box type the authors name, click the gear account and pick “Access this account”, click the pen icon that pops up when scrolling on the item, here you can edit the metadata of the item or add/drop files in the “Manage” box.

Other figshare functionalities can also be explored following figshare documentation found at <https://help.figshare.com>. Documentation for interacting with Figshare’s API can be found at: [Figshare documentation](https://docs.figshare.com/)

## Setting up configurations on your local computer:

Following scripts will be in the “**Python**” interpreter terminal.

Go to File->Open File-> Open generate\_config\_example.py located at Users/username/Anaconda3/envs/curation/VTechDataRepo/generate\_config\_example.py, go to File->Save As-> (Go to curation/VTechDataRepo folder) generate\_config.py

Open .gitignore in Users/username/Anaconda3/envs/curation/VTechDataRepo/ and make sure generate\_config.py appears in this list.

Open generate\_config.py and fill in all the following fields:

FigshareArticleID: This is the number found towards the end of the DOI link, click the red "Cite" button on the item under review/to be published

PubVerNum: Publication Version Number to be downloaded, found at the end of "Cite"

VTDRToken: VTDR token created under applications

CurName: Name of the curator, this shows up in ArchivalReadme Package created in the publication folder

CurationDir: Curation directory where Ingest/Publication folder/README file will be created

NonDissContentDir: Directory where Non disseminated content will be stored, non disseminated content includes provenance log, email correspondence and archival readme package created in the publication folder

FileID: This is used only in the ChangeThumbnail.py script. File ID is the number at the end of the file link, this is the ID of the file that the curator wants to change the thumbnail of the published article to.

FigshareArticleID="20558580"

PubVerNum="01"

VTDRToken="1234"

CurName="XYZ"

CurationDir="C:/Users/username/anaconda3/envs/curation"

NonDissContentDir="G:/Shared drives/CurationServicesGoogleDriveArchive/BAGS/NonDisseminatedContent/"

DartExePath="C:/Users/username/AppData/Local/Programs/DART/DART.exe"

ReadmeDir="C:/Users/username/anaconda3/envs/curation/README\_FILES"

FileID="38937515"

**Note:** The config path “LargeBagsPath”,” F:/VTechbags” is for downloading huge datasets to a different location (in this case to Sandisk), this option can be ignored since it requires uncommenting a section of the script in the IngFolder\_Download\_TransferBagAPTrust.py and PubFolder\_Download.py in order to enable downloading to a different path.

After these configurations are saved, run generate\_config.py, this creates configurations.ini file (this is hidden if scripts are pushed to github through .gitignore)

## Replacing UAL script and figshare script with the customized VT script for curation:

-Copy the script retrieve.py from the following folder:

C:\Users\username\Anaconda3\envs\curation\VTechDataRepo\Figshare-LDCoolP

and paste (“Replace the file in destination”/overwrite the original retrieve.py”) it in the following folder:

C:\Users\username\Anaconda3\envs\curation\LD-Cool-P\ldcoolp\curation

-Copy the script figshare.py from the following folder:

C:\Users\username\Anaconda3\envs\curation\VTechDataRepo\Figshare-LDCoolP

and paste (“Replace the file in destination”/overwrite the original figshare.py”) it in the following folder:

C:\Users\username\Anaconda3\envs\curation\figshare\figshare

Copy client\_secret.json from Curation Workflow folder and paste it at C:\Users\padma\Anaconda3\envs\curation

## Filling ingest/published article information in VTDR v7 spreadsheet and setting up DART:

Before running these scripts, the following steps need to be followed:

1. Please make sure the ingest/published record information for the article in review/published is entered in the VTDR V7 spreadsheet in the corresponding sheet “Ingest” or “Published”
2. Please make sure DART app is installed and set up for uploading bags to APTrust following instructions in CurationWorkflow\_SetupDART\_APTrustDeposit.docx in the Curation Workflow folder

## Running the [VTDR Workflow](https://github.com/PadmaCarstens/VTechDataRepo) scripts:

Note for Errors:

If “module not found error” is received then try “pip install modulename”, examples below:

-For “PyRTF module not found error” do “pip install PyRTF3”

-For “bagit module not found” do “pip install bagit”

### Creating README.rtf:

-Enter the article id whose README.rtf needs to be created in generate\_config.py and run generate\_config.py

-Make sure ingest information in the “Ingest” sheet in the VTDR V7 spreadsheet is filled in as described in section 6

-Run the script AutomatedREADMErtf.py located at Curation/VTechDataRepo/Figshare-APTrust

-A README.rtf will be created at Curation/README\_FILES\_timestamp\_authorname

### Creating Ingest bag creation and depositing it to APTrust-Repo/APTrust-Demo/ VT-Library S3:

1. Open the script: IngFolder\_Download\_TransferBagAPTrust.py
2. Pick a workflow for depositing bag to APTrust-Demo/APTrust-Repo/VT-Library S3 (enter 1, 2, 3 or 4 from the options below):

Option 1:Enter “1” (without the quotations) to deposit the ingest bag to APTrust-Demo storage, this option is for depositing test bags to APTrust-Demo storage system. Bags deposited here will be deleted after a certain amount of time

Option 2: Enter “2” to deposit the ingest bag to APTrust-Repo and VT library S3 storage systems (this is the standard option). APTrust-Repository does periodic integrity checks on the bags deposited. Depositing bags to the VT library S3 storage system will allow us to access the bags if needed. Bags deposited to VT library S3 storage will be deleted every few months.

Option 3: Enter “3” to deposit the ingest bag to VT library S3 storage system only

Option4: Enter “4” to deposit the ingest bag to APTrust-Repo only

1. Run the script IngFolder\_Download\_TransferBagAPTrust.py

Running this script after picking the workflow above will create an ingest folder in the “Curation” folder which looks like VTDR\_I00NBR\_lastnamefirstnameinitial\_lastnamefirstnameinitial\_v0X\_date. An ingest bag (ingest folder in tar format and with tag values in it) will also be created at Username/. dart/bags or at the “Output Path” picked in “Application Setting” in DART app. The bag name will have the same naming convention but with a .tar at the end. This bag will be uploaded to APTrust-Demo/APTrust-Repo/VT-Library s3 bucket depending on the workflow selected in step 2. The bags on demo or repo can be checked for upload at demo.aptrust.org or repo.aptrust.org

### Steps for Publication bag creation and deposition to APTrust-Demo/APTrust-Repo/VT-Library S3:

1. Open and run the script PubFolder\_Download.py, this script downloads the published dataset and creates a publication folder in the “Curation” folder
2. Open the publication folder created, this folder will have a naming convention like: VTDR\_P00XYZ\_I00XYZ\_DOI\_XYZ\_lastnamefirstinitial\_v0X\_date.
3. Fill in the [Provenance Log](https://docs.google.com/document/d/1AOQsr0GP00mp3ZfpeW9oJE-wLY48oKWYZ_NR2cLz8wI/edit) and save Email interactions and save them as ProvenanceLog.rtf and Email Correspondence (or Email\_Correspondence1, Email\_Correspondence2 etc. in case of multiple email threads) in VTCurationServicesActions folder found at the path: C:\Users\username\anaconda3\envs\curation\VTDR\_P00XYZ\_I00XYZ\_DOI\_XYZ\_lastnamefirstinitial\_v0X\_date\VTCurationServicesActions
4. Open PubBagDART\_TransferBagAPTrust.py
5. Pick a workflow for depositing bag to APTrust-Demo/APTrust-Repo/VT-Library S3:

**Option 1:** Enter “1” (without the quotations) to deposit the ingest bag to APTrust-Demo storage, this option is for depositing test bags to APTrust-Demo storage system. Bags deposited here will be deleted after a certain amount of time

**Option 2:** Enter “2” to deposit the ingest bag to APTrust-Repo and VT library S3 storage systems (this is the standard option). APTrust-Repository does periodic integrity checks on the bags deposited. Depositing bags to the VT library S3 storage system will allow us to access the bags if needed. Bags deposited to VT library S3 storage will be manually deleted every few months.

**Option 3:** Enter “3” to deposit the ingest bag to VT library S3 storage system only

**Option 4:** Enter “4” to deposit the ingest bag to APTrust-Repo only

1. Run the script PubBagDART\_TransferBagAPTrust.py.

This will create a publication bag (publication folder in tar format and with tag values in it) “Username/.dart/bags” and has the same naming convention but with a .tar at the end. This bag will be uploaded to APTrust-Demo/APTrust-Repo/VT-Library s3 bucket based on what was selected in step 5. The bags on demo or repo can be checked for upload at demo.aptrust.org or repo.aptrust.org

1. Check the bag created following the instructions in section 9

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## Checking the bags created by DART and bag validation (need to fill information later on bag validation):

To check the contents of the bag created in tar format created at the output path, go to the Start->Command Prompt and type:

>cd <Output Path> (*For Example*: if bag is created at an output path C:\Users\username\Documents\DART then change directory to

cd C:\Users\username\Documents\DART)

>tar -xvf VTDR\_I00NNN\_XYZ\_XYZ\_v01\_xof8\_date.tar

This will extract the contents of the bag above in the same directory as the bag in tar format.

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**Accessing information from deposited bags through VT library S3, non-disseminated content folder, LibCRM:**

-Set up VT library S3 following the instructions on Accessing Bags S3.

-**Opening the stored bags through webdrive**: Right click the webdrive icon, and select “Connect to S3”, this opens the S3 window where the uploaded bags can be accessed. Extract the bags following instructions under section 9.

-**Opening the stored bags through cyberduck:** click start windows icon, go to cyberduck app and the bags will be found under ESRI\_storage. Extract the bags following instructions under section 9.

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## Changing thumbnails:

This section describes how to change the thumbnail on [**VTDR**](https://data.lib.vt.edu/) for a published article with a thumbnail that does not reflect the desired thumbnail. This can be done using ChangeThumbnail.py. Open generate\_config.py and enter the article ID (FigshareArticleID), published version number(PubVerNum) and FileID of the desired thumbnail file, this is found at the end of the file link after selecting it on [**VTDR**](https://data.lib.vt.edu/)). Run generate\_config.py, then run ChangeThumbnail.py. The status code “205” means the thumbnail change is successful.

## Possible errors:

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**Error:**

“File "C:\Users\username\Anaconda3\lib\site-packages\redata-0.4.1-py3.9.egg\redata\commons\logger.py", line 3, in <module>

from os import path, uname, chmod, mkdir

ImportError: cannot import name 'uname' from 'os' (C:\Users\padma\Anaconda3\lib\os.py)”

**Possible solution:**

Then, open logger.py in the folder above and replace

“from os import path, uname, chmod, mkdir” on line 3 with the following 2 lines:

from os import path, chmod, mkdir

from platform import uname

Now, save the logger.py and run again

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**Error:**

“Module gspread not found”

Then install gspread:

-pip install gspread

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**Error:**

“ModuleNotFoundError: No module named 'oauth2client'”:

Then, install oath2client:

-pip install oauth2client

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**Error:**

“ModuleNotFoundError: No module named 'PyRTF'”

Then, install PyRTF:

-pip install PyRTF

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**Error:**

ModuleNotFoundError: No module named 'bagit'

Then, install bagit:

-pip install bagit

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**Error:**

ModuleNotFoundError: No module named 'rdflib'

Then, install rdflib:

-pip install rdflib

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**Error:**

Python/conda/pip command not found/recognized in VS code:

open anaconda prompt and type following:

>cd Anaconda

>where conda

>conda install pip

>conda activate curation

>code

If pip/conda/python is still not recognized, then follow the suggestions below:

1. Make sure conda is added to the path. There are several ways to do this, one of them is to add the anaconda paths to the environment variables as described here:

[python - 'Conda' is not recognized as internal or external command - Stack Overflow](https://stackoverflow.com/questions/44515769/conda-is-not-recognized-as-internal-or-external-command/51996934#51996934)

1. Update anaconda to the latest version, either by opening ‘anaconda navigator’ from the start menu or by following the instructions listed below:

[Fix: 'conda' is not recognized as an internal or external command, operable program or batch file (appuals.com)](https://appuals.com/fix-conda-is-not-recognized-as-an-internal-or-external-command-operable-program-or-batch-file/)

1. Make sure python is selected as the default interpreter on vs code: On vs code go to settings, type “Python: Select Interpreter” in the search, make sure the box in “Python: Default Interpreter Path” has “python” in it.

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