**Step-By-Step Setup Guide for Replicating Data Output (Windows OS)**

**Download GitHub Repository**

1. Open GitHub Repository - In your browser go to the project repo: <https://github.com/tgyuriseck/JWST-HighZ-Mature-Galaxies>
2. Click the **green “Code”** button on the GitHub repo page
3. Click on **“Download Zip”**

**Download ASTRODEEP Raw Data Files**

1. Go here: <https://owncloud.ia2.inaf.it/index.php/s/2N29s4Cp3hUKEEE>
   1. For awareness you can also navigate to the same download page from here <http://www.astrodeep.eu/category/data/data-release/>
2. Click to download **ASTRODEEP-JWST\_optap.tar.gz**
3. Click to download **ASTRODEEP-JWST\_photoz.tar.gz**

**Extract the GitHub ZIP and name the folder correctly**

1. Right-click your **downloaded ZIP (JWST-HighZ-Mature-Galaxies-main.zip)** → **Extract All** → **accept the default** (e.g., to your Downloads folder).
2. After the extraction, **open the new unzipped JWST-HighZ-Mature-Galaxies-main folder** that appears in your Downloads Folder.
3. The first subfolder that appears within it will be the **same** **name JWST-HighZ-Mature-Galaxies-main.** **Right-click** on that folder → **Cut** → **Paste directly onto C:\ Drive**. So new path is C:\JWST-HighZ-Mature-Galaxies-main.
4. In File Explorer, Right-click the new C:\JWST-HighZ-Mature-Galaxies-main folder and **rename** to JWST-HighZ-Mature-Galaxies (you are just dropping the “-main”).
5. Open C:\JWST-HighZ-Mature-Galaxies and confirm you see src folder (plus additional files like README). If you see JWST-HighZ-Mature-Galaxies-Main, you likely did not complete step 3. You need to remove that inner folder so src folder is the first subfolder.

**Install Python and Visual Studio Code (VSC/VS Code) if not already installed**

1. **For Python**, open your browser and go to: <https://www.python.org/downloads/windows/>
2. On the Python for Windows page, download “Windows installer (64-bit)” **for Python 3.11.x** (the file name will look like python-3.11.x-amd64.exe). Save it to your Downloads folder.
3. Open the downloaded file (e.g., python-3.11.x-amd64.exe). In the first screen, check **“Add Python 3.11 to PATH”**, then click **Install Now** and let it finish. When it’s done, close the installer.
4. **For Visual Studio Code**, open your browser and go to: <https://code.visualstudio.com/download>
5. On the page you just opened, click **Windows 10, 11 → User Installer (x64)** to download the VS Code installer.
6. Open your Downloads folder and double-click the VS Code installer (e.g., VSCodeUserSetup-x64-<version>.exe).
7. Accept the VSC license.
8. When prompted for tasks, **check**:
   1. **“Add ‘Open with Code’ action to Windows Explorer file context menu”**
   2. **“Add ‘Open with Code’ action to Windows Explorer directory context menu”**
   3. (Optional)
9. Click Install and let it finish. **“Register Code as an editor for supported file types”**
10. Leave “Launch Visual Studio Code” checked and click Finish.

**Build Required Folder Structure.**

1. In VS Code, click **File → Open Folder**. Navigate to path C:\JWST-HighZ-Mature-Galaxies\src.
   * From C:\ drive open JWST-HighZ-Mature-Galaxies folder, and then click on the src folder and click on “**Select Folder**” at the bottom. You should see analysis, figures, and tools in the VS Code Explorer sidebar.
2. In VS Code, click **Terminal → New Terminal**.
   * Look at the prompt that appears. It should display to C:\JWST-HighZ-Mature-Galaxies\src>
3. In the VS Code terminal, type: **python** **tools\make\_folders.py**
   * Note: color above will not match, coloring for display purposes of for ease of following.
   * **VS Code Response:**   
     [OK] Ensured 16 folders.

[NEXT] Put ASTRODEEP FITS into: data\_raw\astrodeep-jwst\ASTRODEEP-JWST\_optap\ and ASTRODEEP-JWST\_photoz\.

[NEXT] Then follow REVIEW\_GUIDE.md (Step 2: ingest).

* + This will build the folder structure required. New folders will appear within your JWST-HighZ-Mature-Galaxies folder, such as data\_raw, data\_processed, results, figures, and docs.

**Move ASTRODEEP Raw Data files to Correct Folder.**

1. In **Downloads**, locate ASTRODEEP-JWST\_optap.tar.
2. Extract ASTRODEEP-JWST\_optap.tar, **Right Click → Extract All →** **accept the default** (e.g., to your Downloads folder).
   * you’ll get ASTRODEEP-JWST\_optap.tar.
     1. Then extract ASTRODEEP-JWST\_optap.tar → you should now have a folder in Downloads\ASTRODEEP-JWST\_optap\ containing multiple \*\_optap.fits files (e.g., CEERS\_optap.fits, ABELL2744\_optap.fits, etc.).
     2. If Windows won’t open .tar cleanly, use **7-Zip**: Right-click → 7-Zip → **Extract Here** for each pass.
   * Open Downloads\ASTRODEEP-JWST\_optap\, **select all** the \*\_optap.fits files (Ctrl+A), **Copy or Cut**.
   * Paste them into the existing destination folder ASTRODEEP-JWST\_optap (created earlier by the tools script): C:\JWST-HighZ-Mature-Galaxies\data\_raw\astrodeep-jwst\ASTRODEEP-JWST\_optap
3. In **Downloads**, locate ASTRODEEP-JWST\_photoz.tar.
4. Extract ASTRODEEP-JWST\_photoz.tar, **Right Click → Extract All →** **accept the default** (e.g., to your Downloads folder).
   1. you’ll get ASTRODEEP-JWST\_photoz.tar.
      1. Then extract ASTRODEEP-JWST\_photoz.tar → you should now have a folder in Downloads\ASTRODEEP-JWST\_photoz\ containing multiple \*\_photoz.fits files (e.g., CEERS\_photoz.fits, ABELL2744\_photoz.fits, etc.).
      2. If Windows won’t open .tar cleanly, use **7-Zip**: Right-click → 7-Zip → **Extract Here** for each pass.
   2. Open Downloads\ASTRODEEP-JWST\_photoz\, **select all** the \*\_photoz.fits files (Ctrl+A), **Copy or Cut**.
   3. Paste them into the existing destination folder ASTRODEEP-JWST\_photoz (created earlier by the tools script): C:\JWST-HighZ-Mature-Galaxies\data\_raw\astrodeep-jwst\ASTRODEEP-JWST\_photoz

Run Python Scripts

1. Open **REVIEW\_GUIDE.md** in VS Code (it’s in C:\JWST-HighZ-Mature-Galaxies\ ), and continue from there.
   1. Please note steps 0.5, 1, 2 from Review Guide were covered in this step-by-step instruction guide.