1 Installation and Setup Quick Guide

This guide describes how to install and set up a working environment to support the **Plot Generation** and **Print Generation Workflows**.

Set Up Software

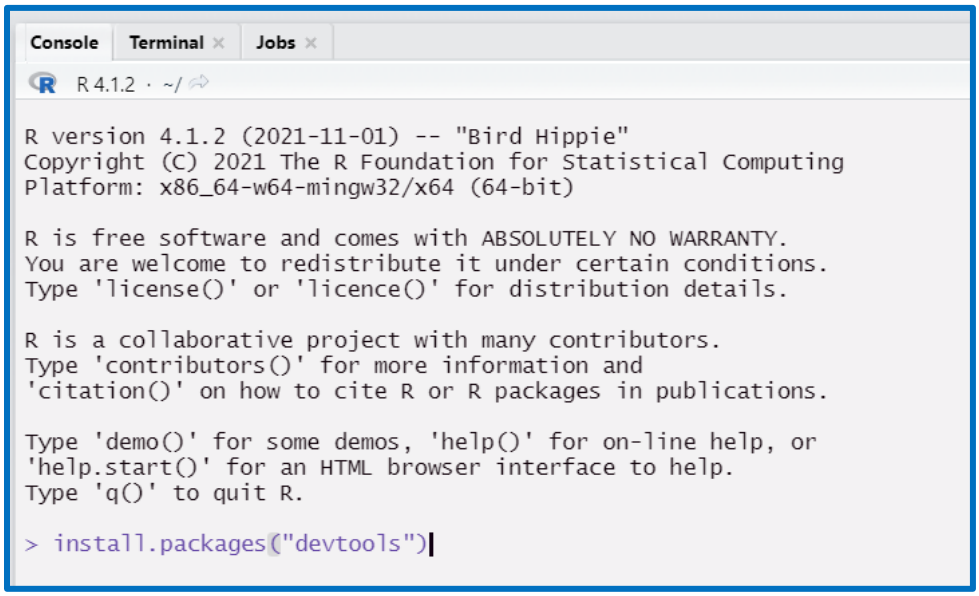
Four separate programs are needed to complete the overall workflow:

- Microsoft Excel (2007 and greater)
- Microsoft PowerPoint (2007 or greater)
- R + R Studio
- A PDF Viewer (e.g., Adobe Acrobat)

This guide assumes that the user has Microsoft products and a PDF viewer installed. A description of the required R installation steps is summarized below:

1. **Update or install R to a version 4.1 or greater** from the Comprehensive R Archive Network (CRAN) [Windows, Mac]. Follow the instructions on CRAN for a regular/standard installation.
2. **Install the latest version of R Studio** from R Studio's website**.** R Studio is a graphical user interface that uses a user-selected installation of R. Choose the version of R installed in step 1 when following the set up steps for R Studio.
3. **Launch R Studio**
4. **Install R packages.** R "packages" are sets of functions that an R user develops and shares with others. R comes pre-loaded with a standard set of packages, but the Plot Generation Workflow and Print Generation Workflow need several others. During the installation of new packages, the R Console may prompt the user to choose whether or not to install dependencies or update existing packages that have new versions. If prompted, choose to install all dependencies and update all out-of-date packages. Type the following lines into the R Studio Console and hit enter in this sequence:
    - install.packages("devtools")
    - devtools::install_github("LimnoTech/SWMPrStorm")
    - install.packages("htmlwidgets")
    - install.packages("readxl")
    - install.packages("officer")
    - webshot::install_phantomjs()

It is important that the "devtools" package is installed first*.** If not, the SWMPrStorm package will not be installed. ***It is also important that the user types these commands into the R Console, because the quotations are misinterpreted by R when pasting from Microsoft products. If you paste the commands from this list, they will return an error unless you manually delete and retype the quotations.



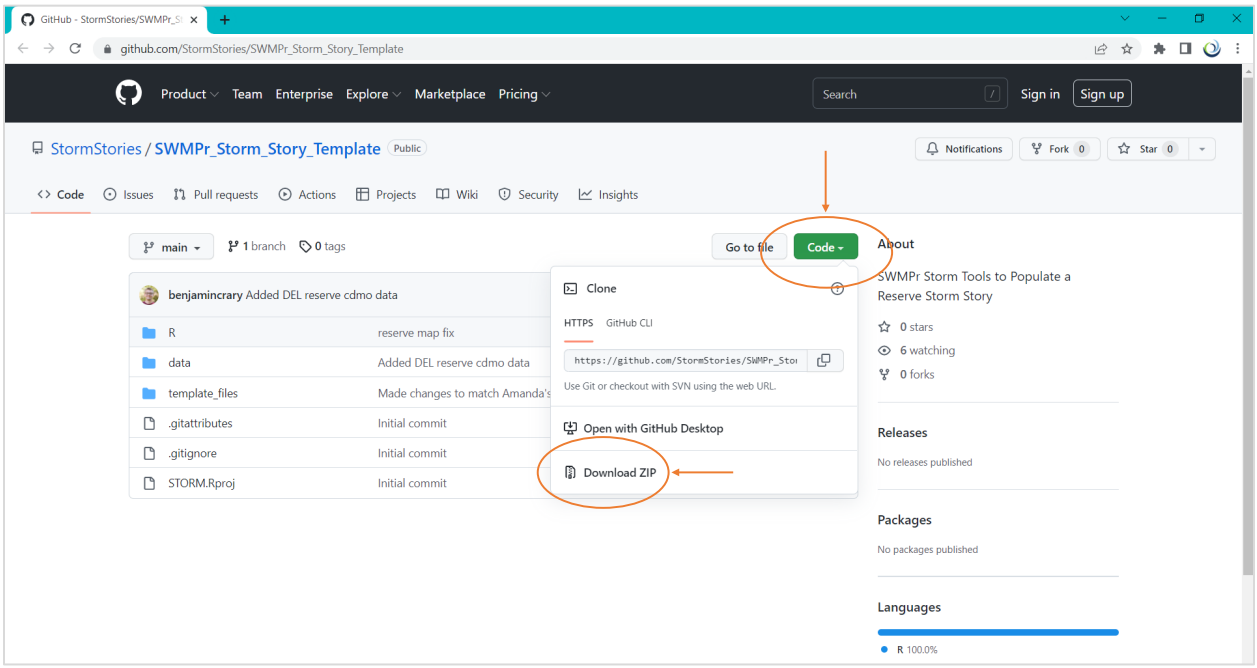
Screenshot of package installation

The SWMPrStorm package contains all functions needed to conduct the storm story analyses and execute the Plot Generation and Print Generation workflows.

Set Up Workspace

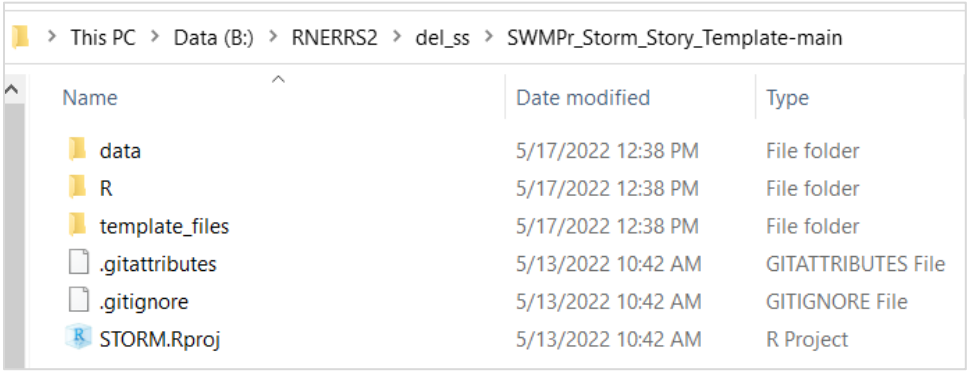
The SWMPrStorm package was developed to specifically create storm stories. The package and its functions will search for inputs and export results into predesignated locations. ***It is important that the SWMPr Storm Workspace Template be used for this project.*** The following steps show how to set up the workspace.

1. **Download the Workspace Template** from the GitHub repository. After clicking the repository link, the workspace can be downloaded as a zip file by clicking on the green 'code' dropdown button.



Screenshot of GitHub repository

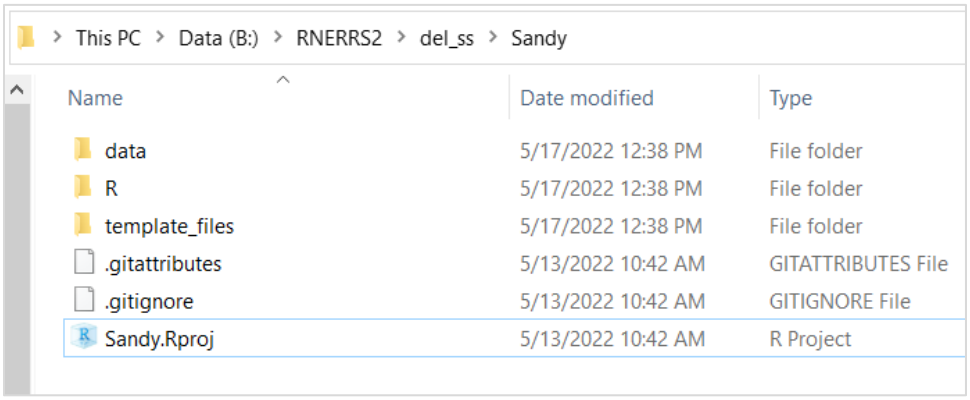
2. **Unzip the Workspace Template zip file**. Move the zip file to a desired working directory, right click, and choose 'extract to SWMPr_Storm_Story_Template-main/'. For example, set up a directory with the reserve call code and an underscore "ss" to indicate "storm story."



Screenshot of an example workspace template directory structure

Note: Workspace Template does not include an “output” folder. This folder is created and populated as part of the Plot Generation Workflow.

3. **Rename unzipped folder and STORM.Rproj file if desired.** These could be renamed according to the storm that will be analyzed (e.g., del_ss/Sandy/Sandy.Rproj.).



Screenshot of an example workspace template directory structure using a storm as the naming convention

4. **Download NOAA storm track data** for the desired storm from NOAA’s National Hurricane Center. After clicking the link, choose the appropriate year and region under Tropical Cycle Reports and hit ‘Go’. Download the .shp file for the storm that will be analyzed.
5. **Place the downloaded zip file into the /data/noaa_nhc/gis/ directory** of the Workspace Template and extract it to a subdirectory.
6. **Download CDMO data (optional).** SWMP data from 2015 to 2020 comes with the Workspace Template for the project team reserves (i.e., ace, del, gtm, niw, noc, job). SWMP data post-2020 or for reserves not part of the project team will need to be downloaded from the CDMO. The CSV files are saved to the **/data/cdmo** folder (example: /data/cdmo/acebpmet2020.csv). The file naming convention must not be changed from the CDMO data download.

Subsequent Workflow Guides will refer to this as the ‘Workspace’.