Getting started with DROPLET 1.4.2

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Installation of DROPLET 1.4.2

To install DROPLET 1.4.2 no admin rights are required and so, it is set up for the current user only. This means the actual user of DROPLET should install the application with its own credentials and not use e.g. another account with admin rights.

In case of multiple users on a PC each user should install DROPLET 1.4.2 on its own personal folder.

In case the current user is not allowed to install anything at all on his/her own PC please contact droplet@pesticidemodels.eu to ask for assistance on a special installation.

Program and data files of DROPLET after installation

Appendix 1 gives an overview of all software elements as well as the flow of data and work needed to run DROPLET. After installation of DROPLET, the user should have the structure of directories and files as described in Appendix 2.

Communication with SWASH and SPIN databases

The User Interface (UI) of DROPLET 1.4.2 communicates with both the SWASH and SPIN databases. The UI can read data from the SWASH and SPIN databases. A DROPLET user may also access the SPIN database (see below).

The SWASH database, SWASH.fdb, which is normally stored at C:\SWASH\Data or D:\SWASH\Data contains information about hydrology, locations, meteo stations, created SWASH projects, created runs, water bodies, etcetera of the FOCUS surface water scenarios. Part of it is introduced by the user when creating a new SWASH project. Most of the information is fixed, indicated by the field 'locked' in the database and partly mentioned as 'FOCUS definition' in Appendix E of FOCUS (2001).

The SPIN database, SPIN_db.fdb, contains the compound properties. The default directory for installing SPIN is either C:\Program Files (x86)\PesticideModels\SPIN or C:\Program Files\PesticideModels\SPIN. SPIN can be accessed via SWASH, but also via the DROPLET UI. If a user would change compound parameters in SPIN after having run MACRO and TOXSWA but before running DROPLET, a run with inconsistent compound properties would be executed by DROPLET. A warning has been included in the DROPLET UI to prevent the user from performing such inconsistent runs.

As the structure of DROPLET and related models and databases is relatively complex, we prepared Appendix 1 that gives an overview of all software elements as well as a visual overview of the data flow and work flow.

Getting started

Before using the DROPLET tool, the user has to make sure that FOCUS_MACRO has been run for a D3 ditch scenario project and FOCUS_TOXSWA for the copied FOCUS D3 surface water (ditch) scenario project with Dutch drift deposition. This copied project is stored in the SWASH database and its compound properties in SPIN.

Next the wizard in the DROPLET UI can be used to create a DROPLET project. At the 'Overview of DROPLET projects' page the substance properties (in SPIN), refinements and the PEC peak (a TOXSWA result) can be edited, but this is only optional. Finally, the PEC_Tier1, the concentration at the abstraction points, can be calculated. The sequence of steps is depicted in Figure 1 below.

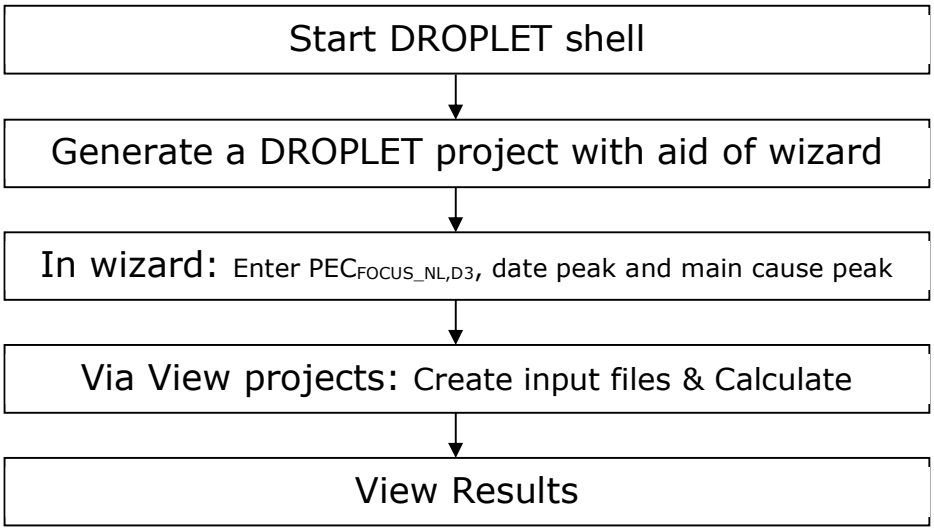


Fig. 1. Scheme for executing a run with DROPLET 1.4.2

The sequence of steps, including generation of the PEC_{max} in the D3 ditch with NL drift deposition, the $PEC_{FOCUS\_NL,D3}$, within SWASH is given into more detail below.

Generation of the $PEC_{FOCUS\_NL,D3}$ in the D3 ditch with NL drift deposition:

1. Start SWASH
2. Open SPIN by clicking on the button 'Create, View and Edit Substances'
3. Make a substance in SPIN
4. Use the FOCUS wizard to create a FOCUS D3 project with the wished substance
5. Export this project to MACRO and TOXSWA
6. Open MACRO, run the project and make the m2t file by clicking on the 'Write TOXSWA' button at the 'Results' page of MACRO

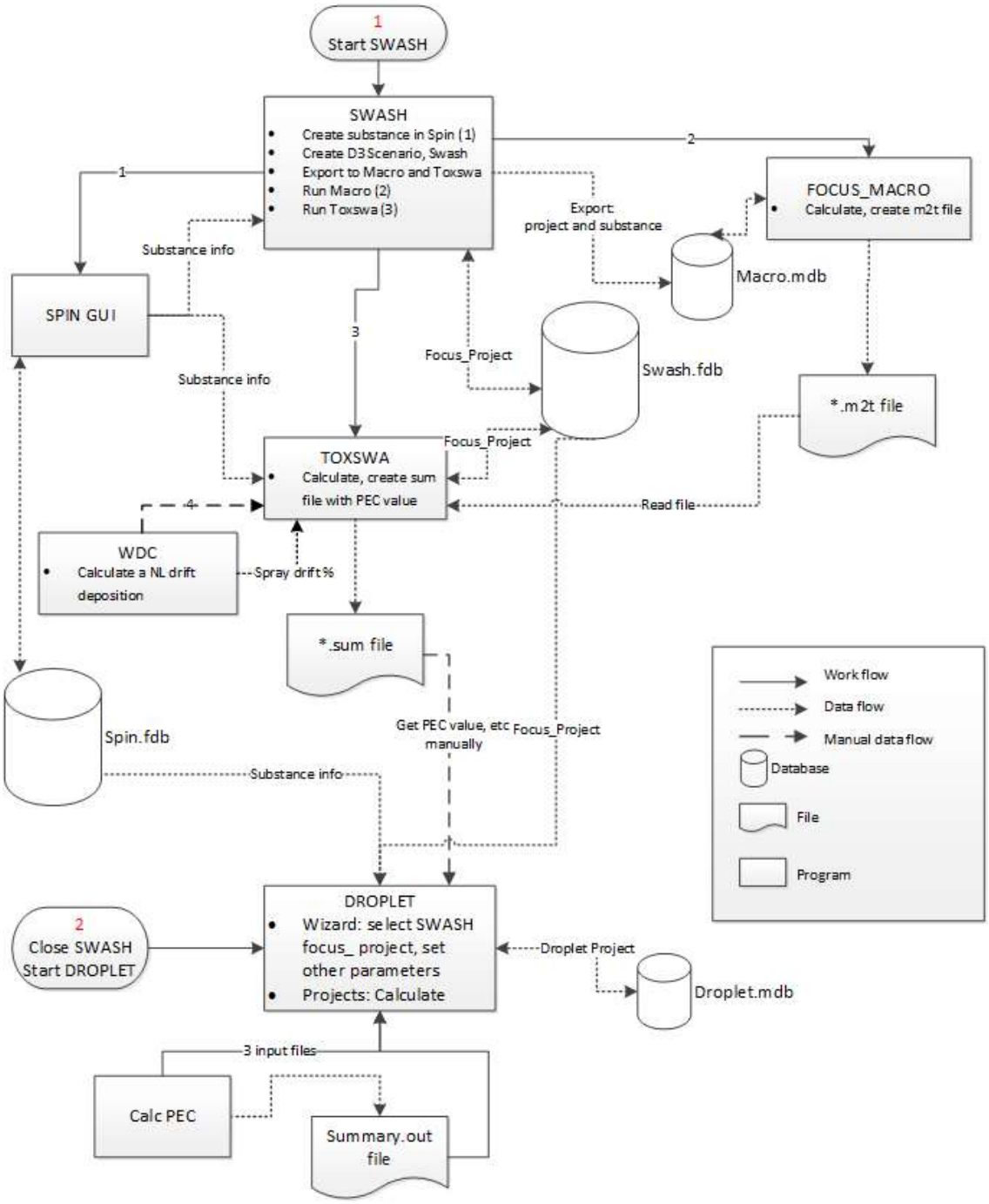
7. Open TOXSWA, select the FOCUS project and copy it (to be able to edit the spray drift to differ from the FOCUS drift numbers). Create an application scheme with wished NL drift deposition onto the FOCUS D3 ditch. Select the created application scheme and run TOXSWA. Note the runID.
8. Exit TOXSWA and SWASH.
9. Open the summary file of TOXSWA with the results. The file is called <runid>.sum and located at C:\SWASHProjects\<projectname>\TOXSWA\. The most relevant results contained in this file can also be viewed from within the TOXSWA-GUI by clicking on the 'Report file' tab.

Generation of PEC_Tier1 at the abstraction points by DROPLET:

1. Open DROPLET
2. Use the wizard to generate a new DROPLET project by (i) selecting the wished SWASH project[1], (ii) filling in the correct GeoPEARL crop (to obtain the correct crop acreage for the intake areas) and (iii) filling in the PEC_{max} in the D3 ditch with NL drift, the date of the peak and the main cause of the peak (drainage or spray drift deposition).
3. Use 'View projects' to select the wished DROPLET project and create and view the input files, perform the calculations and view the results.
4. The results are written into the Summary.out file. This file can be found by clicking on the 'Explore project directory' button on the 'Overview of DROPLET projects' screen.

[1] Note that only the non-FOCUS TOXSWA projects are shown in DROPLET, i.e. FOCUS D3 ditch scenarios with drift deposition according to Dutch regulations

Appendix 1. Overview of all software elements and visual overview of the data flow and work flow



Appendix 2. Structure of the installed files for DROPLET 1.4.2 (including the recommended configuration of the SPIN, SWASH, MACRO and TOXSWA models, and the DROPLET model)

Structure of the installed files

In case DROPLET 1.4.2 is installed on the default directory the following files are installed.

Program files

C:\Users\<current user>\AppData\Local\Programs\PesticideModels\DROPLET142

- Droplet.exe
- Read_me.rtf
- Getting started with DROPLET_v1.4.2.docx
- LicenseAgreementDROPLET.rtf
- fbclient.dll
- firebird.msg
- ib_util.dll
- icudt30.dll
- icuin30.dll
- icuuc30.dll
- msvcp71.dll
- msvcr71.dll
- unins000.exe
- Unins000.dat

- \Data
    - \CropArea
        - Default.CropArea
    - \Resources
        - AbstractionPointsMap.jpg
        - D3ScenarioMap.jpg
        - IntakeAreasMap*.jpg (5 files)

i. CropArea: contains the default CropArea file. User-defined crop area files are located at the personal data folder.
ii. Resources: contains pictures with information on the extraction points.
iii. The installed dll, msg and lib files are required to connect to the SWASH Firebird database.

Data files and Projects files

The data and projects directories and files are described below. At installation the data files are installed in a personal data folder. For Windows 11 (see Appendix 1) it may look like this:

C:\Users\<current user>\AppData\Local\Programs\PesticideModels\DROPLET142\Projects_DB

- \Data
  - DROPLET.mdb
  - \CropArea
    - <user-defined crop areas>
  - \PEC
    - DROPLET_CalcPEC.exe
    - Names.inp
- \Projects
  - <users projects>

DROPLET.mdb: The database contains information on the DROPLET projects and runs as defined by the user. (The substance information is stored in the SPIN database.)

CropArea: At this directory the user can store his own defined CropArea files.

PEC: In this directory the model DROPLET_CalcPEC.exe is installed. This application reads and writes on the current directory. Therefore it is installed here and not on the Program Files directory.

Projects: At this directory input and output files for the DROPLET projects are stored. After creation of the input files and running DROPLET in the DROPLET User Interface each project subdirectory contains the input files CompoundProperties, CropPEC and CropArea as well as the Summary output file.