

Getting started with DROPLET 1.3.2

April 2023

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

N.B. Note that the SPIN version 3.3 has been released because of the new DROPLET 1.3.2.

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 C:\Program Files (x86)\PesticideModels\SPIN on a 32-bit platform or C:\Program Files\PesticideModels\SPIN on a 64-bit platform. 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 a copied FOCUS D3 surface water (ditch) scenario project has been run with MACRO and TOXSWA and 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.

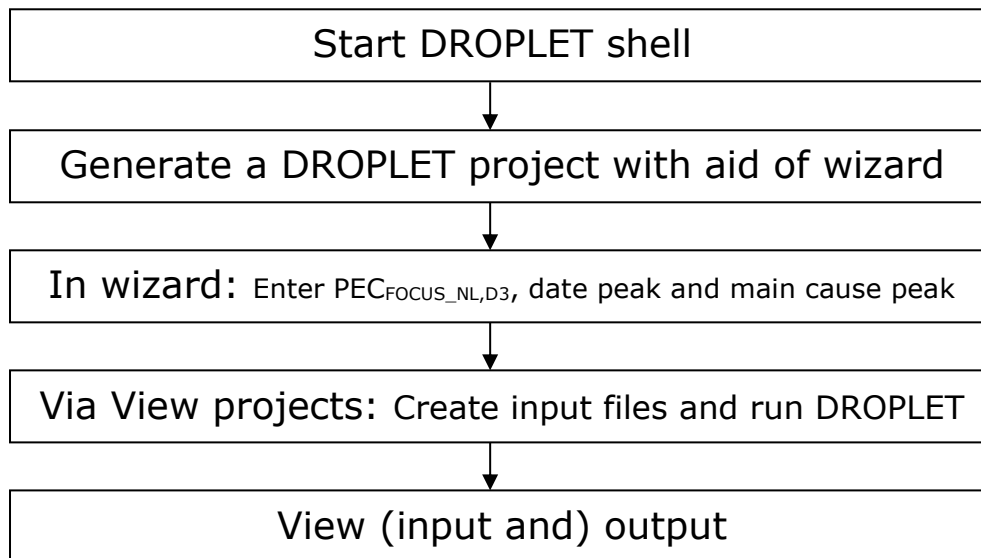


Fig. 1. Scheme for executing a run with DROPLET 1.3.2

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:

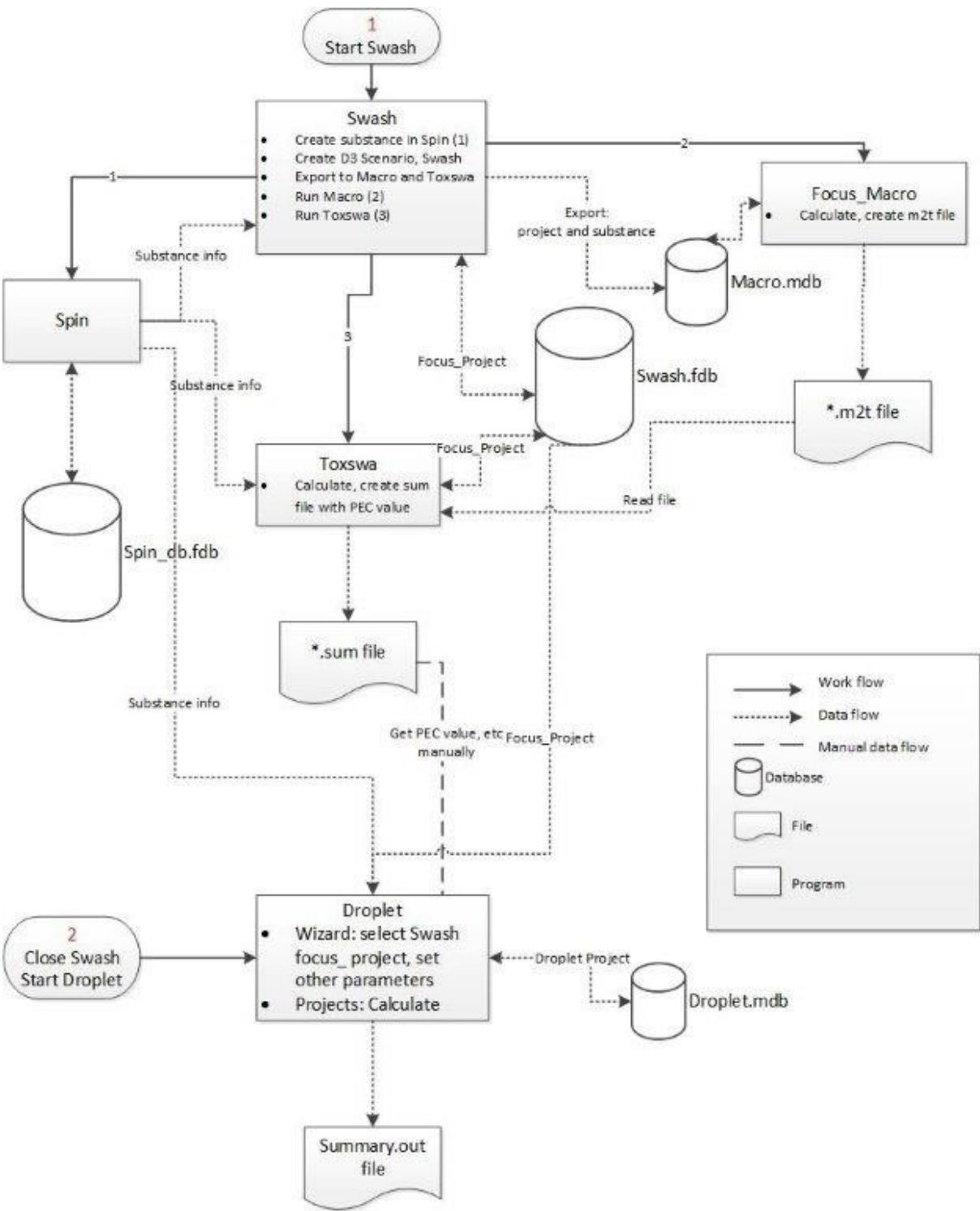
1. Start SWASH
2. Open SPIN by clicking on the button 'Create, View and Edit Substances'
3. Make a substance in SPIN
4. Use the FOCUS wizard to create a FOCUS D3 project with the wished substance
5. Export this project to MACRO and TOXSWA
6. Open MACRO, run the project and make the m2t file by clicking 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 project¹, (ii) filling in 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 is located e.g. at <appDataFolder>\PesticideModels\DROPLET\Projects\<projectname>\ or C:\Users\<public>\AppData\DROPLET\Projects\<projectname>\.

¹ Note that only the SWASH projects containing D3 scenarios are shown in DROPLET

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 1.3.2 (including the recommended configuration of the SPIN, SWASH, MACRO and TOXSWA models, and the DROPLET model for single user and multiple user pc)

Structure of the installed files

In case DROPLET 1.3.2 is installed on the default directory the following files are installed.

Program files

C:\Program Files (x86)\PesticideModels\Droplet

- Droplet.exe
 - Read_me.rtf
 - Install.rtf
 - Getting started with DROPLET_v1.3.2.docx
 - LicenseAgreementDROPLET.rtf
 - fbclient.dll
 - firebird.msg
 - ib_util.dll
 - icudt30.dll
 - icuin30.dll
 - icuuc30.dll
 - msvcp71.dll
 - msucr71.dll
 - OdbcFb.lib
 - OdbcFb.dll
 - \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 10 (single user PC, see Appendix 1) it may look like this:

C:\users\\AppData\Droplet\

\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 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.

Installation of DROPLET 1.3.2 on a Single user or Multiple user pc

The overview below provides help for the installation on a computer that is used by a single user, as well as on a computer that is used by multiple users, who share the databases. It presents the recommended configuration of the SPIN, SWASH and MACRO and TOXSWA models, and the DROPLET model.

Installation overview for Single user pc or Multiple users pc

Below the suggested configurations are presented for a computer that has a single user or a computer that has multiple users.

Note that the **<public>** directory (indicated for the multiple user configuration in the DROPLET and SPIN configuration) has to be selected during the installation procedure ! The installation of the SPIN application and data files are the first step in the installation procedure of DROPLET (for new users of SPIN and FOCUS_SWASH with FOCUS_MACRO, possibly FOCUS_PRZM and FOCUS_TOXSWA), so, make sure to document the directory where spin_db.fdb is located, so that other users can indicate this when they start up the DROPLET and/or SPIN application for the first time at this multiple user pc.

SWASH is always installed in a public directory, by default this is at the C:\SWASH\DATA\ directory.

Single User PC	Multiple User PC
<p>----- Droplet -----</p> <p>Application C:\Program Files (x86)\PesticideModels\Droplet Droplet.exe \Data \CropArea Default.CropArea \Resources</p> <p>Data files C:\users\<<currentuser>\AppData\Droplet\ \Data Droplet.mdb \CropArea <user defined crop areas> \PEC DROPLET_CalcPEC.exe \Projects <user projects></p>	<p>----- Droplet -----</p> <p>Application C:\Program Files (x86)\PesticideModels\Droplet Droplet.exe \Data \CropArea Default.CropArea \Resources</p> <p>Data files C:\users\<<public>\AppData\Droplet\ \Data Droplet.mdb \CropArea <user defined crop areas> \PEC DROPLET_CalcPEC.exe \Projects <user projects></p>
<p>----- SWASH -----</p> <p>Application and database C:\SWASH Swash.exe \DATA Swash.fdb \MACRO Macro_focus.exe \PRZM Przm.exe \TOXSWA toxswa_focus_3.exe TOXSWA_GUI.exe</p> <p>Project data files C:\SwashProjects \Project1 \MACRO \cereals_winter \... \PRZM \cereals_winter \... \TOXSWA \cereals_winter \...</p>	<p>----- SWASH -----</p> <p>Application and database C:\SWASH Swash.exe \DATA Swash.fdb \MACRO Macro_focus.exe \PRZM Przm.exe \TOXSWA toxswa_focus_3.exe TOXSWA_GUI.exe</p> <p>Project data files C:\SwashProjects \Project1 \MACRO \cereals_winter \... \PRZM \cereals_winter \... \TOXSWA \cereals_winter \...</p>
<p>----- SPIN -----</p> <p>Application C:\Program Files (x86)\PesticideModels\Spin\bin SPIN_DLL.dll SPIN_GUI.exe</p> <p>Data files C:\users\<<currentuser>\AppData\Spin\ spin_db.fdb</p>	<p>----- SPIN -----</p> <p>Application C:\Program Files (x86)\PesticideModels\Spin\bin SPIN_DLL.dll SPIN_GUI.exe</p> <p>Data files C:\users\<<public>\AppData\Spin\ spin_db.fdb</p>