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PyOrator setup guidance

This guidance applies to the Windows environment only, however, since Python is available on all mainstream platforms, notably Linux and macOS, PyOrator can also be ported to these on request.

A note on the Windows environment and JSON files

PyOrator reads and writes various setup, configuration and management files which are formatted using the JavaScript Object Notation (JSON) data interchange format. JSON files are "*self-describing*" and easy to understand. A JSON file uses human-readable text to store and transmit data objects consisting of attribute-value pairs and array data types.

It is recommended that you use Notepad++ with the JSTool plugin for editing JSON files.

Notepad++ is a text and source code editor for use with Microsoft Windows. It supports tabbed editing, which allows working with multiple open files in a single window.

Notepad++ can be downloaded from here

There is also an online JSON file viewer here

Setting up PyOrator for the first time

PyOrator is stored on a GitHub repository and therefore it is necessary to download and install Git for Windows from here

Navigate to your preferred location on your workstation and open a command prompt.

Clone PyOrator from the top level of your file system:

C:\> git clone https://github.com/NewEconomicPolicy/testPyOra

It is important to choose a staging area i.e. a location on your file system, which is separate from the program modules then copy **testPyOra\OratorRun\Docs\PyOrator model files.zip** to the staging area and unzip to that location.

Folders created

`config`	Contains a model configuration file **pyorator_config.json**
`images`	Image files for program and desktop shortcut icon
`inputs`	Contains a model ORATOR inputs Excel file
`log`	Folder for log files - not currently used
`management`	Contains a choice of model management json files
`run`	Contains a model, **pyorator.bat**, to run PyOrator
`setup`	Contains a model setup file, **pyorator_setup.json**

Description of required files

PyOrator can be run directly using a Windows desktop shortcut to reference a batch script file named **pyorator.bat** in the distribution**.** The batch file invokes the Python interpreter to run PyOrator program.

To aid navigation the shortcut should be displayed with the PyOrator icon file.

pyorator.bat:

When setting up the program It is necessary to edit the highlighted paths to correspond to the local filesystem:

Line	
1	`echo off`
2	`rem @ tells the command processor to be less verbose`
3	`@set PYTHONPATH=C:\testPyOra\BioModels;C:\testPyOra\EnvModelModules`
4	`@set initial_working_dir=%cd%`
5	`@chdir /D C:\ORATOR\setup`
6	`@C:\Python38\python.exe -W ignore C:\testPyOra\InitInptsRslts\PyOratorGUI.py`
7	`@chdir /D %initial_working_dir%`

Line	Additional line description
3	extend the interpreter module search path to pick up all modules
5	change the working directory so PyOrator can locate the setup file – see below for setup file details
6	invoke the Python interpreter to read the PyOrator entry script, PyOratorGUI.py with the warning messages switched off (-W ignore)

The setup file

At start up PyOrator reads the setup file **pyorator_setup.json** in the current working directory, i.e. the directory in which the program is initialised.

The setup file comprises these attributes:

config_dir	the configuration file comprising user settings
fname_png	the logo file which appears in the LH side of the user interface (GUI)
fname_lookup	the single sheet Excel file comprising a lookup table for the Orator variables
log_dir	the path where PyOrator log files will be written

When setting up the program it is necessary to edit the attribute paths to correspond to the local filesystem.

The configuration file

The PyOrator configuration file is read at program start up and overwritten with new user settings on

ORATOR_parameters.xlsx

PyOrator requires an Excel file of input parameters with these mandatory sheets:

Crop parms	Crop parameters
Org Waste parms	Org Waste parameters
N constants	Nitrogen constants
Typical animal production	