COMPUTER MODELLING GROUP LTD.

Launcher Tutorial

Introduction to Launcher 2021

Contents

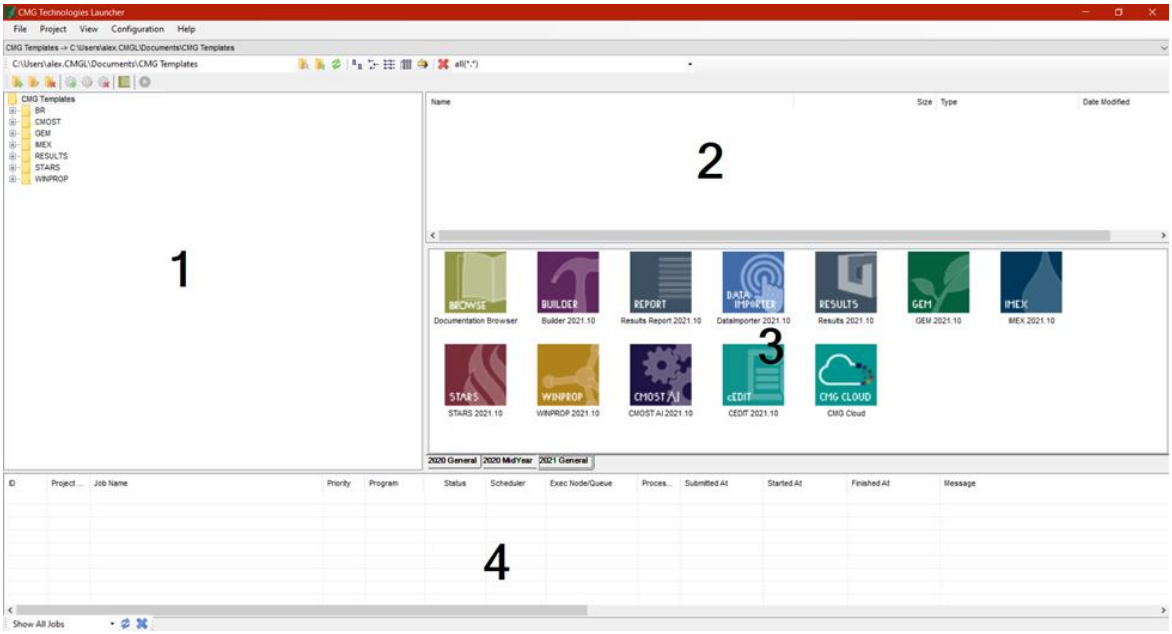
CMG's Launcher Application

CMG’s Launcher application was designed to aid users in organizing files and programs as well as running CMG simulators. Launcher contains numerous advantages to using Windows Explorer such as allowing the user to create projects to organize files, allows convenient access to help manuals and tutorials, and organizes all installed versions of CMG software.

Launcher Sections

1. When installed, the Launcher icon will appear on the desktop. Double-click on the icon to open Launcher (if not already open).

2. Once open it can be noted that Launcher is divided into 4 main sections:



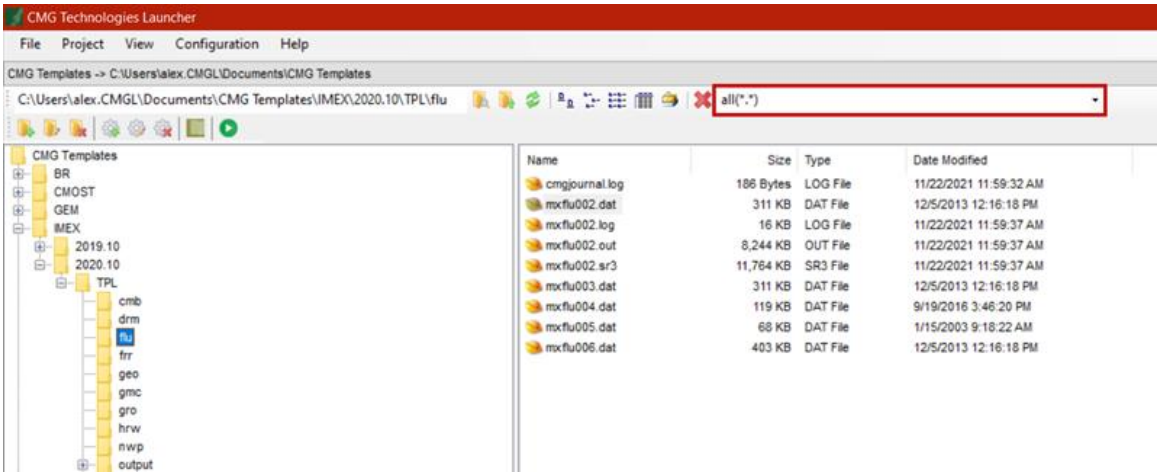
Section 1

The purpose of Section 1 is to help in the organization of folders. Specific folders can be navigated to by using the  buttons on the top menu bar.

Section 2

After the appropriate folder has been navigated to in **Section 1**, the contents of the folder will appear in **Section 2.**

The files being shown in this window can be filtered based on their associated use (e.g. Simulator files, Results files, etc.) by using the filter option on the top toolbar (highlighted below):



Files in this section can be copy/pasted by right clicking on them and selecting copy/paste.

Files in this section can be opened in a CMG product or run in a simulator by 'dragging and dropping' it onto the associated executable's icon in **Section 3.**

Section 3

This section contains CMG products organized by version in different tabs. Certain products with graphical user interfaces (GUIs) can be opened by double clicking on them such as Builder, Results, WinProp, cEDIT and CMOST-AI. The simulators (IMEX, STARS, and GEM) do not have associated GUIs and should be run by dragging a dataset file onto their icon.

When new CMG versions are installed, the user will be prompted to add icons the next time they open Launcher. This can also be done through **Configuration → Icons and Projects → Import Release Manifest.**

Non-CMG executables may be added to this window as shortcuts. Common programs may include Microsoft Office products (Excel, PowerPoint, etc.), text editing software (Textpad, Notepad, etc.), or other programs (ExamDiff).

Section 4

This section displays information on queued, completed, or running datasets.

To launch a dataset the user drags and drops the dataset file (.dat) onto the associated simulator. After selecting the appropriate run options from the window which appears (covered in the tutorial) the run will be launched and appear in this section.

ID	Project Name	Job Name	Status	Scheduler	Submitted At	Started At	Finished At	Message
16176	CMG Templates	mxflu002.dat	Complete	Local	11/22/2021 12:53:4...	11/22/2021 12:53:4...	11/22/2021 12:53:58 PM	
16177	CMG Templates	mxflu003.dat	Complete	Local	11/22/2021 12:54:0...	11/22/2021 12:54:0...	11/22/2021 12:54:11 PM	
16178	CMG Templates	mxflu004.dat	Complete	Local	11/22/2021 12:54:1...	11/22/2021 12:54:1...	11/22/2021 12:54:26 PM	
16179	CMG Templates	mxflu003.dat	Running	Local	11/22/2021 12:55:3...	11/22/2021 12:55:3...		
16180	CMG Templates	mxflu004.dat	Waiting to Start	Local				

Information displayed relating to the runs that will be of most interest include: Job Name (file name), Status, Scheduler, Submitted time, Started time, Finished times and Message.

Shown in the above image is what a user may expect to see when a simulation is Complete, Running, and still waiting to start.

If a run has failed to launch to then it will turn **Red** (as opposed to the **Green** shown above) indicating that it has encountered an issue. It should be noted, though, that this may not be related to the run terminating abnormally or due to an error while running (as often these runs will display Complete and the user will need to look at the .Log file to determine if the run was successful).

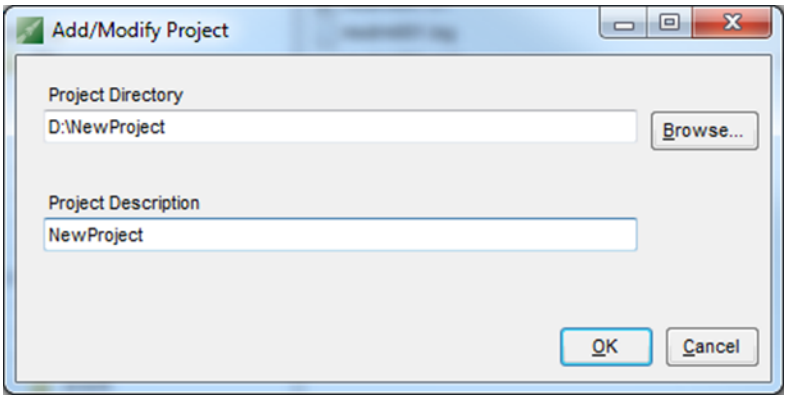
Scheduler refers to the computer or resource that the simulation was ran on. If Local is listed then the run was done on the current machine. Launcher allows users to send a simulation to a separate computer or cluster through different schedulers (common ones include Microsoft HPC, IBM Platform LSF, and Oracle Grid Engine).

'Submitted At' indicates when the simulation was launched. This may not necessarily coincide with the 'Started At' time as when a simulation starts will be based on availability of both computer and license resources. Simulations may also be queued by the user to start running based on numerous controls (a specific time, after another specified simulation is complete, etc.).

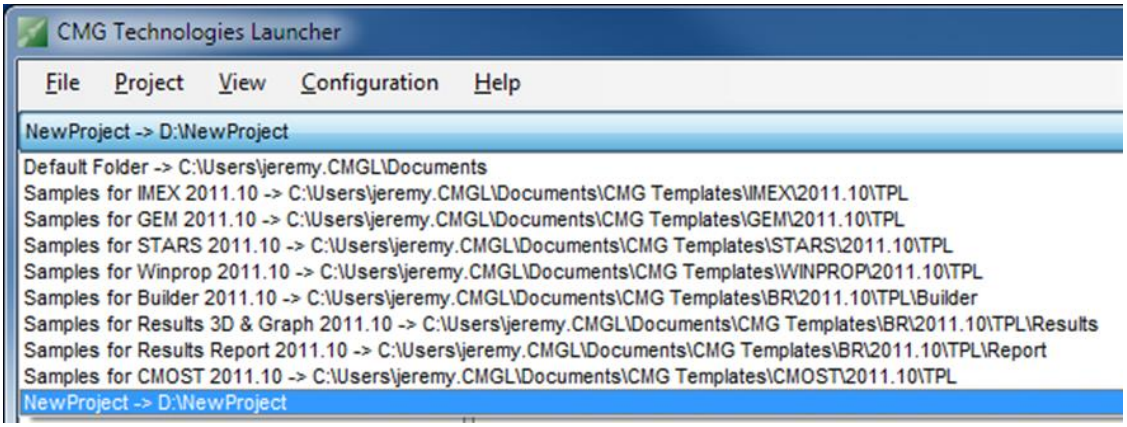
'Finished At' indicates the date and time that the simulation was completed. The difference between the 'Started At' and 'Finished At' times give the elapsed run-time. This can also be found at the bottom of the .log file.

Projects

Users can create Projects to associate their files with. Projects can act as a bookmark for runs associated with each other. To add, modify, or delete a project use the shortcuts on the menu bar: 



Projects can be quickly switched by using the top toolbar's Project dropdown.



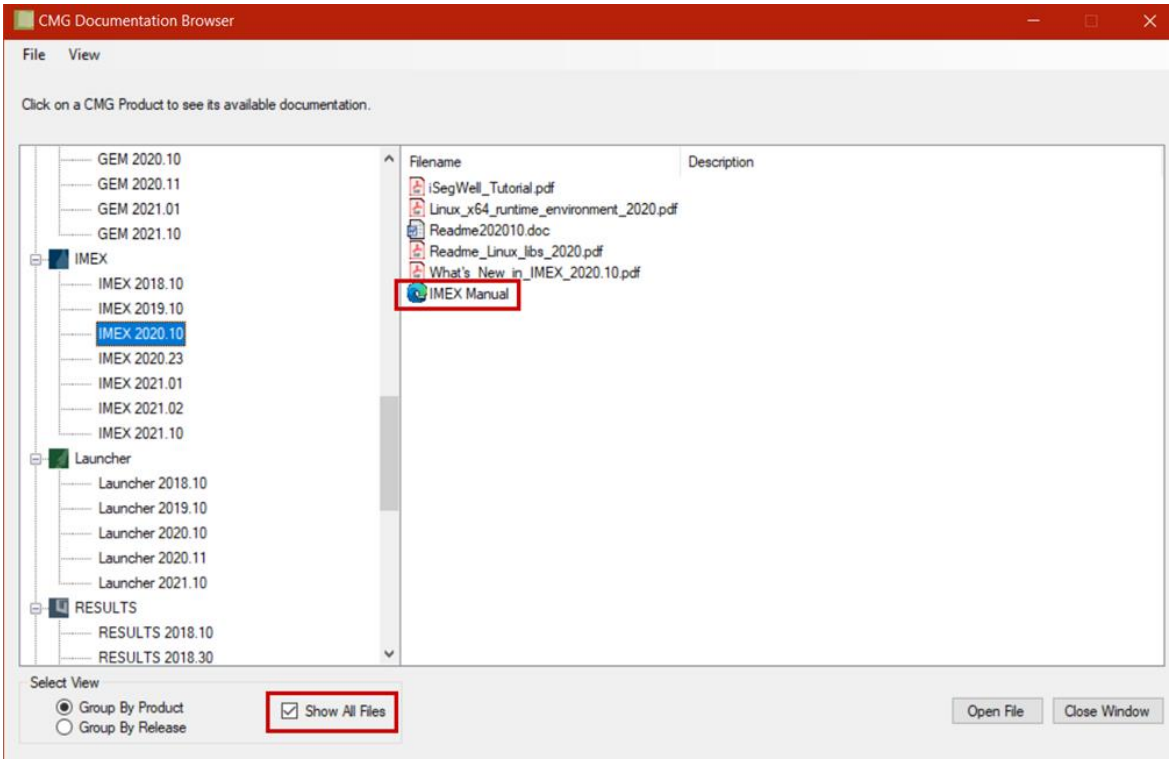
Please note that a project is a shortcut to a particular file location and that deleting a project just deletes the shortcut but the files associated with it are not deleted.

Documentation Browser and Help Materials

To assist users in the application of CMG software manuals and template files have been included with each installation.

Documentation Browser

The Documentation Browser (opened with the toolbar shortcut  or the Help Menu) sorts the available manuals and help materials by version for the easy viewing.



Materials displayed will include the Manuals and other related documents. By checking the box to **Show All Files** the user is able to view additional materials such as Readme files contained in the documentation.

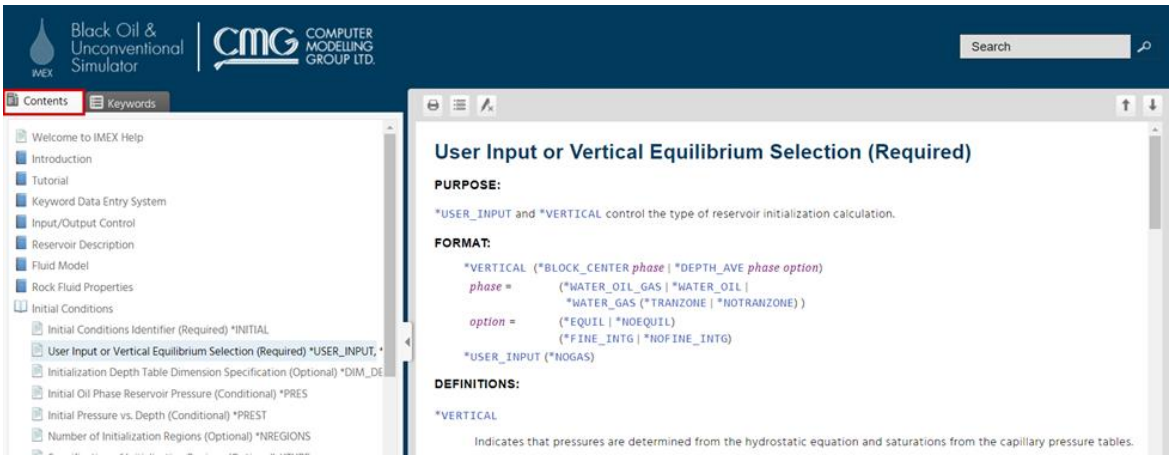
Manuals

Double-clicking on the manual through the CMG Documentation Browser will open the manual in your default web browser. There are 3 main options for locating information in the manual:

1. Contents Browser
2. Keyword List
3. Search Option

Contents Browser

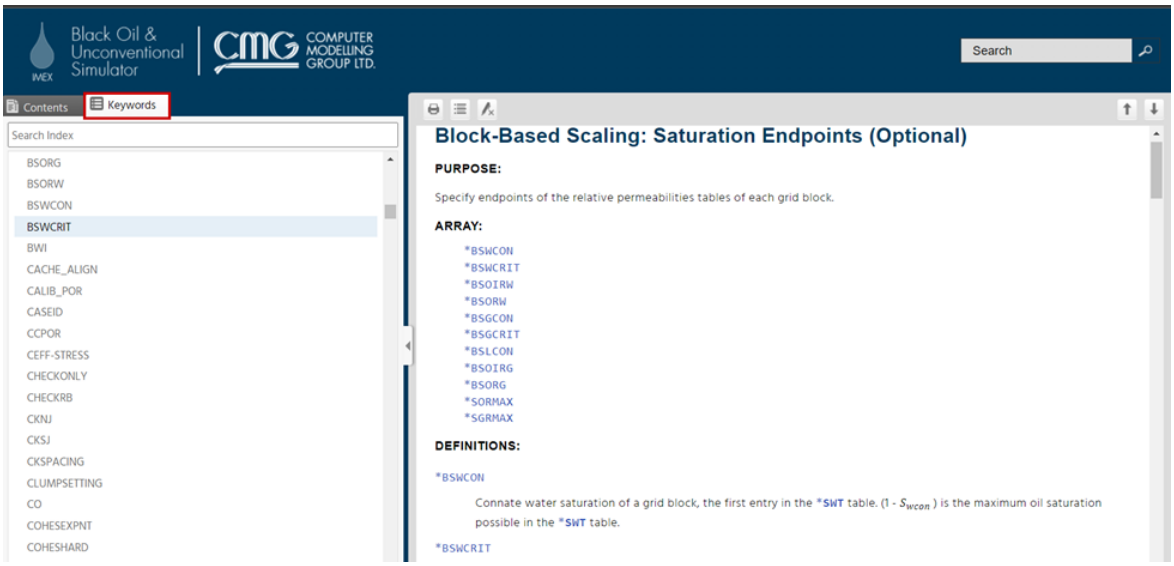
The Contents Browser is an interactive table of contents which is organized based on the different sections of a dataset. By clicking on a section in the Contents List, the corresponding section will be shown on the page on the right.



Keyword List

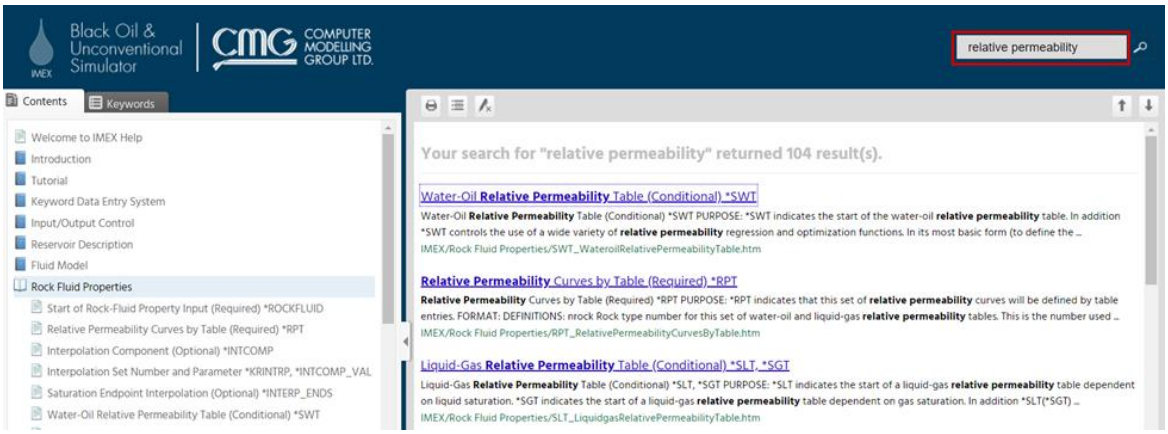
A list of all keywords available in the associated simulator which appear when opening a simulator dataset in a text editor such as cEDIT. All available keywords are listed in alphabetical order. The list can also be filtered using the search option located above the list.

This list is helpful for users who are working in a text editor in the dataset and wish to gain a better understanding of a particular keyword or for those who wish to enter a keyword by typing directly into the dataset.

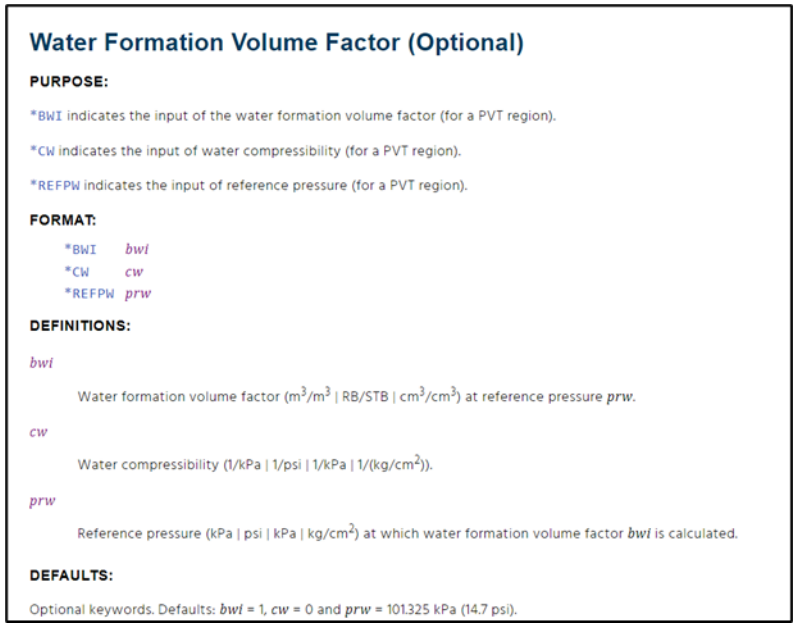


Search Option

The search option will search the manual pages for the words input. Multiple matching pages may be returned and results are sorted based on the best match to the words entered.



In a given manual section the user is able to gain knowledge on all aspects of the particular feature or keyword. This includes breakdowns of all available options for Input Values and their definitions, Keyword Syntax, Default Values (if applicable), Conditions of usage, Explanation, and Literary References (if applicable).



Water Formation Volume Factor (Optional)

PURPOSE:

*BWI indicates the input of the water formation volume factor (for a PVT region).

*CW indicates the input of water compressibility (for a PVT region).

*REFPW indicates the input of reference pressure (for a PVT region).

FORMAT:

*BWI *bwi*
*CW *cw*
*REFPW *prw*

DEFINITIONS:

bwi

Water formation volume factor (m^3/m^3 | RB/STB | cm^3/cm^3) at reference pressure ***prw***.

cw

Water compressibility (1/kPa | 1/psi | 1/kPa | $1/(kg/cm^2)$).

prw

Reference pressure (kPa | psi | kPa | kg/cm^2) at which water formation volume factor ***bwi*** is calculated.

DEFAULTS:

Optional keywords. Defaults: ***bwi*** = 1, ***cw*** = 0 and ***prw*** = 101.325 kPa (14.7 psi).

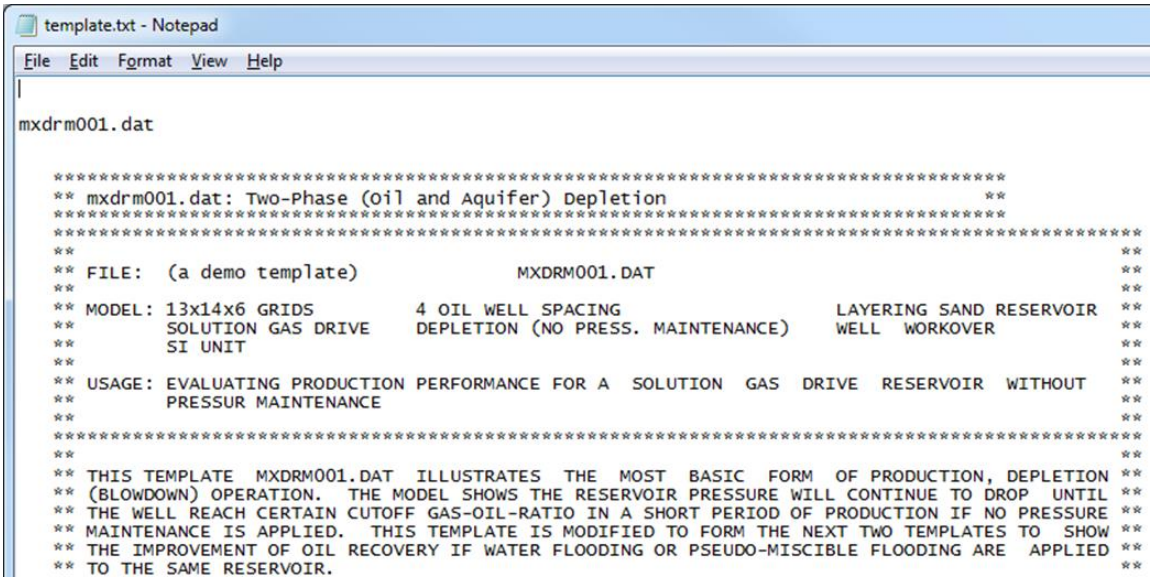
Template Files

Template files are automatically installed with any CMG installation. By default, the template files can be found in the CMG directory. The location of the CMG directory may vary from one computer to the next but the default location will be:

C-Drive → Program Files (x86) → CMG → Associated Simulator (i.e. STARS, IMEX, etc.) → Associated Version (i.e. 2020.10, 2021.10, etc.) → TPL

These files may also be found in the **My Documents** folder if the 'Add Projects' box was checked when adding an icon tab following installation. These can be later copied and included in the project list through **Configuration → Icons and Projects → Import Release Manifest.**

In the TPL folder there will be multiple subfolders and a text file commonly named **template.txt** or **template.lst.** This text file is a list of all associated templates. For example, the first template referenced in this file for IMEX is **mxdrm001.dat**. This file's information is displayed below:



The location of this template is described by its name. The 'mx' refers to the simulator (e.g. mx = IMEX, st = STARS, gm = GEM, etc.). The next 3 letters refers to the subfolder it is located in (e.g. folder drm). The final 3 numbers are which dataset in the subfolder it is (in this example the first file).

Template files are fully built datasets which may be ran, opened in Builder, or opened in a text editor such as cEDIT for examination. The template files give additional understanding for the keyword setup/syntax for certain processes. The **template.txt** file is a text document which means it may be searched in a text editor for a specific process being investigated to find template files associated with it. There are template files available for IMEX, STARS, GEM, CMOST-AI, WinProp, Builder, and Results.