Introduction.

Icarus IDE is integrated development environment for reservoir simulation. It understands Eclipse dataset syntax and thinks of it as a programming language. It here to help you:

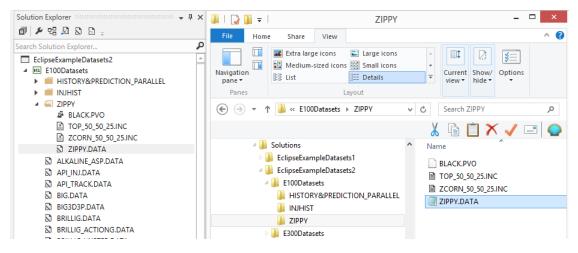
- Keep your study organized
- Quickly navigate within both folder based solution and datasets
- Get instant documentation on keywords
- Give you warnings as you type
- Launch simulator in one click
- Create a simulation queue and run it in batch process.

Demo workflow.

Please follow through this tour to get an application overview. Before we start, check some settings. Icarus will try to auto detect necessary files (eclipse.exe and pdf manuals) and green ticks from "Check List" indicate that everything is OK.

1. Click New Solution..., then choose Eclipse Example Datasets Solution, specify a location, give it a name and click OK. You have the solution with two projects. Drill down on <u>Solution Explore</u> to see the file structure. From context menu (right click) on Solution node in file tree, choose *Open containing folder*.

Note the file structure mimic solution structure.



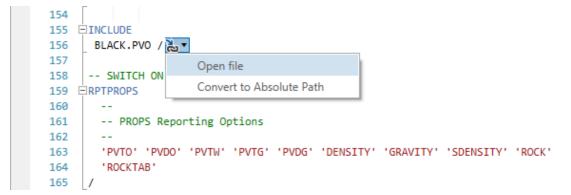
2. Search ZIPPY.DATA in **Solution Explore** and double click on the node it to open. Note the dataset sections and keywords are collapsible. There is navigation symbols on the editor's top to jump to chosen section and keywords.

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284	'P2'	'OPGRP1'	8	18	1*	'0IL' /	
285	'P3'	'OPGRP1'	18	18	1*	'0IL' /	
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3. **Document outline** tool is another way to navigate thought dataset. In addition, you can see the list on INCLUDE files.

Document Outline	
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 ZIPPY.DATA Syntax Tree RUNSPEC SCRED SOLUTION SUMMARY SCHEDULE END Include Files ZCORN_50_50_25.INC BLACK.PVO 	

4. Double click on one of them (.PVO for example); it will move cursor to keyword location within the document. Notice little adornment nearby, click on it and choose *Open file*.



5. Have a look at **Reference Manual** tool. Right click on any keyword and choose Search in Reference Manual. This should open reference manual on the page with keyword description.

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Open one more .data file and click Start button from menu – it launches simulation and activate.
 Simulation Queue Manager. It will keep run history for the current session.

Simulation Queue Manager
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History Queue
Dataset Duration State
ZIPPY.DATA 0:00:34 Processing
STEP 9 TIME= 9.19 DAYS (+1.4 DAYS TRNC 4 ITS) (10-JAN-1982) PAV= 3289.4 PSIA WCT=0.000 GOR= 2.34 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 10 TIME= 10.80 DAYS (+1.6 DAYS TRNC 5 ITS) (11-JAN-1982)
PAV= 3289.6 PSIA WCT=0.000 GOR= 2.33 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 11 TIME= 12.42 DAYS (+1.6 DAYS TRNC 5 ITS) (13-JAN-1982)
PAV= 3289.7 PSIA WCT=0.000 GOR= 2.32 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 12 TIME= 14.10 DAYS (+1.7 DAYS TRNC 5 ITS) (15-JAN-1982)
PAV= 3289.7 PSIA WCT=0.000 GOR= 2.31 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 13 TIME= 15.86 DAYS (+1.8 DAYS TRNC 5 ITS) (16-JAN-1982)
PAV= 3289.7 PSIA WCT=0.000 GOR= 2.30 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 14 TIME= 17.73 DAYS (+1.9 DAYS TRNC 5 ITS) (18-JAN-1982)
PAV= 3289.6 PSIA WCT=0.000 GOR= 2.29 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 15 TIME= 19.70 DAYS (+2.0 DAYS TRNC 5 ITS) (20-JAN-1982)
PAV= 3289.4 PSIA WCT=0.000 GOR= 2.28 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 16 TIME= 21.75 DAYS (+2.1 DAYS TRNC 5 ITS) (22-JAN-1982)
PAV= 3289.2 PSIA WCT=0.000 GOR= 2.27 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 17 TIME= 23.84 DAYS (+2.1 DAYS TRNC 5 ITS) (24-JAN-1982)
PAV= 3289.0 PSIA WCT=0.000 GOR= 2.26 MSCF/STB WGR= 0.0000 STB/MSCF
STEP 18 TIME= 26.00 DAYS (+2.2 DAYS TRNC 5 ITS) (27-JAN-1982)
PAV= 3288.7 PSIA WCT=0.000 GOR= 2.26 MSCF/STB WGR= 0.0000 STB/MSCF

You can also stop it from from toolbar (small black squere button).



Note that **Solution Explore** combines output files under the node to keep the view less cluttered.

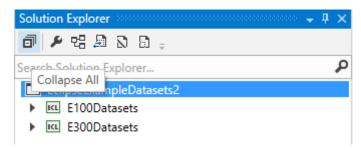
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 - ALKALINE_ASP.DATA
- 7. Right click on project node in the Solution Explore and select *Send to new Simulation Queue* from context menu now you have a queue with every .data file in the project.

Solution Explorer	- 4 ×	Start Page	ZIPPY.DATA \times
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BRILLIG.DATA	Collapse All	283 284	'P1' 'OPGR 'P2' 'OPGR
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On toolbar menu, a button Start All will launch a batch run process, but it would take some time.

Simulation Queue Manager		→ ₽ ×
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API_TRACK.DATA	0:00:00 Unknown	
BIG.DATA	0:00:00 Unknown	
BIG3D3P.DATA	0:00:00 Unknown	
BRILLIG.DATA	0:00:00 Unknown	
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8. Collapse solution tree to see what see have in solution.



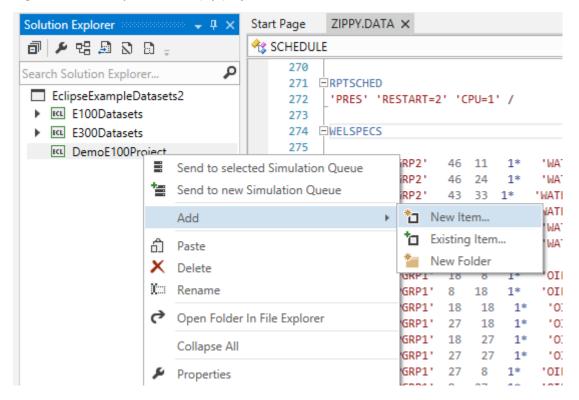
To add a new project to the solution, right click on solution node and select Add -> New Project from context menu.

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E300Datasets	ت ج	Rename			15	Existing Project		
		Open Folder In File Explore			16	'I1' 'I2'	'IGRP2' 'IGRP2'	46 46
		Collapse All			18	'13'	'IGRP2'	43
	۹	Properties			19 10	'14' '15'	'IGRP2' 'IGRP2'	33 11

Choose *Empty Eclipse E100 project*, give it a name and click OK button.

Icarus IDE	×
E Empty Eclipse E100 project	
Empty Eclipse E300 project	
Name DemoE100Project	
OK Cano	el

Right click on newly created empty project, Add -> New Item...



Select Empty Eclipse Dataset, give it a name, and click OK.

Icarus IDE	×
S Empty Eclipse Dataset	
Empty Include File	
Empty File	
File Name DATASET1.DATA	
	OK Cancel

That it. You should get the idea on how to create your solution with projects and datasets, navigate between tools ad editor and launch simulator.

Future plans

Result plots and project summaries, multiple dataset generation tool, new project and templates, just to name a few.

Your feedback is highly appreciated and will help us move forward. Please report any bugs or suggest an idea for improvement at <u>here</u>.