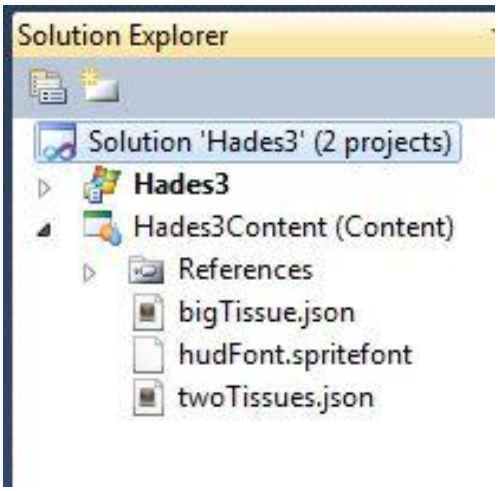
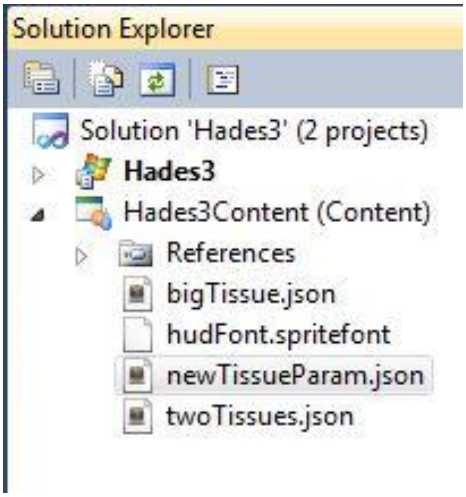
How to use simulation

1. Start Hades3.sln with Visual Studio

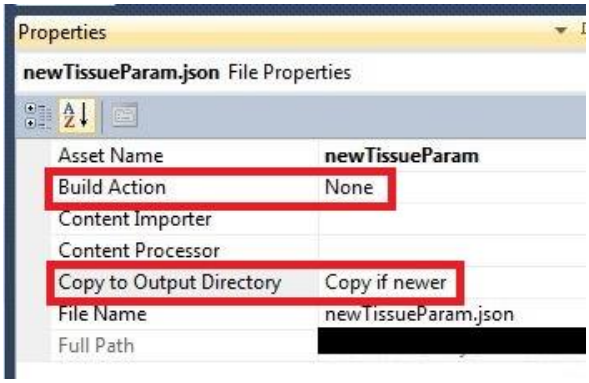
2. Locate the tissue parameters .json files



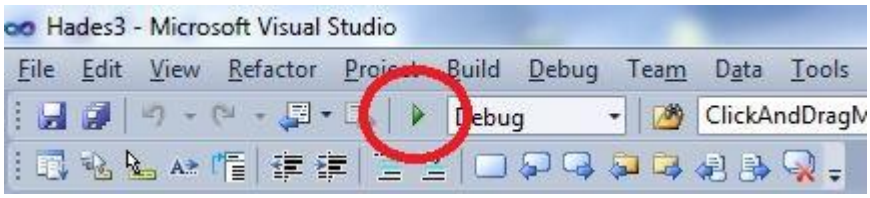
3. Create new tissue parameter to suit your needs



4. Edit Properties of the newly created file to
   Build Action: None
   Copy to Output Directory: Copy of newer

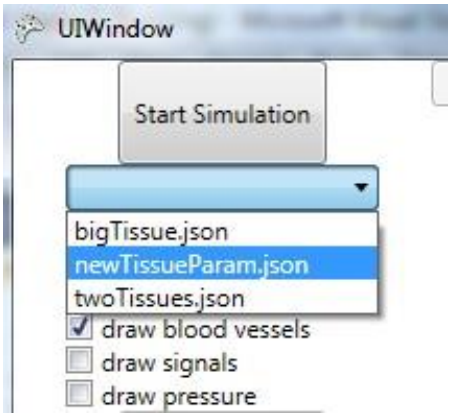


5. Launch the program either from Visual Studio by pressing F5 or the green arrow

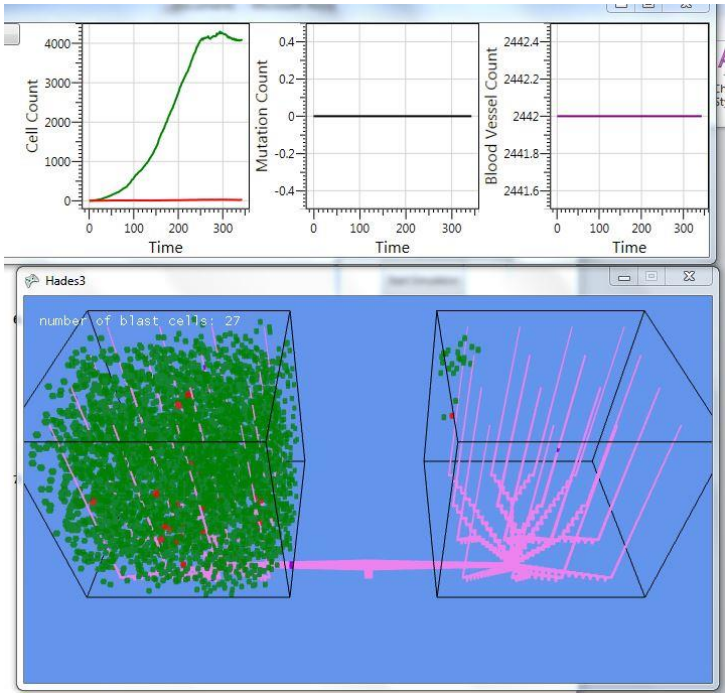


or by launching it from the Hades3.exe located in \CancerSimulation\Hades3\Hades3\bin\x86\Debug

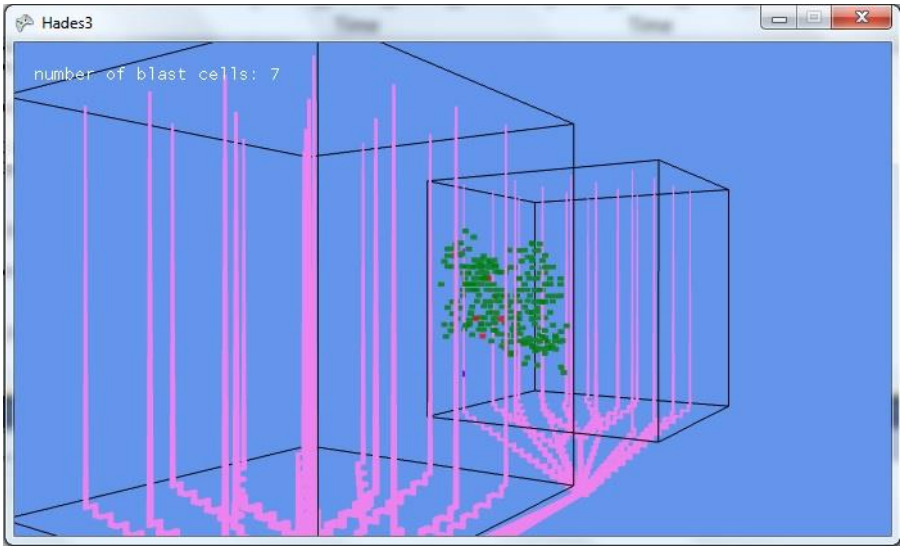
6. Select the desired parameter file from the drop-down menu and press Start Simulation button



7. Observe tissue growth



8. Use Spacebar to pause simulation and move the camera with WASD or arrow keys and mouse.

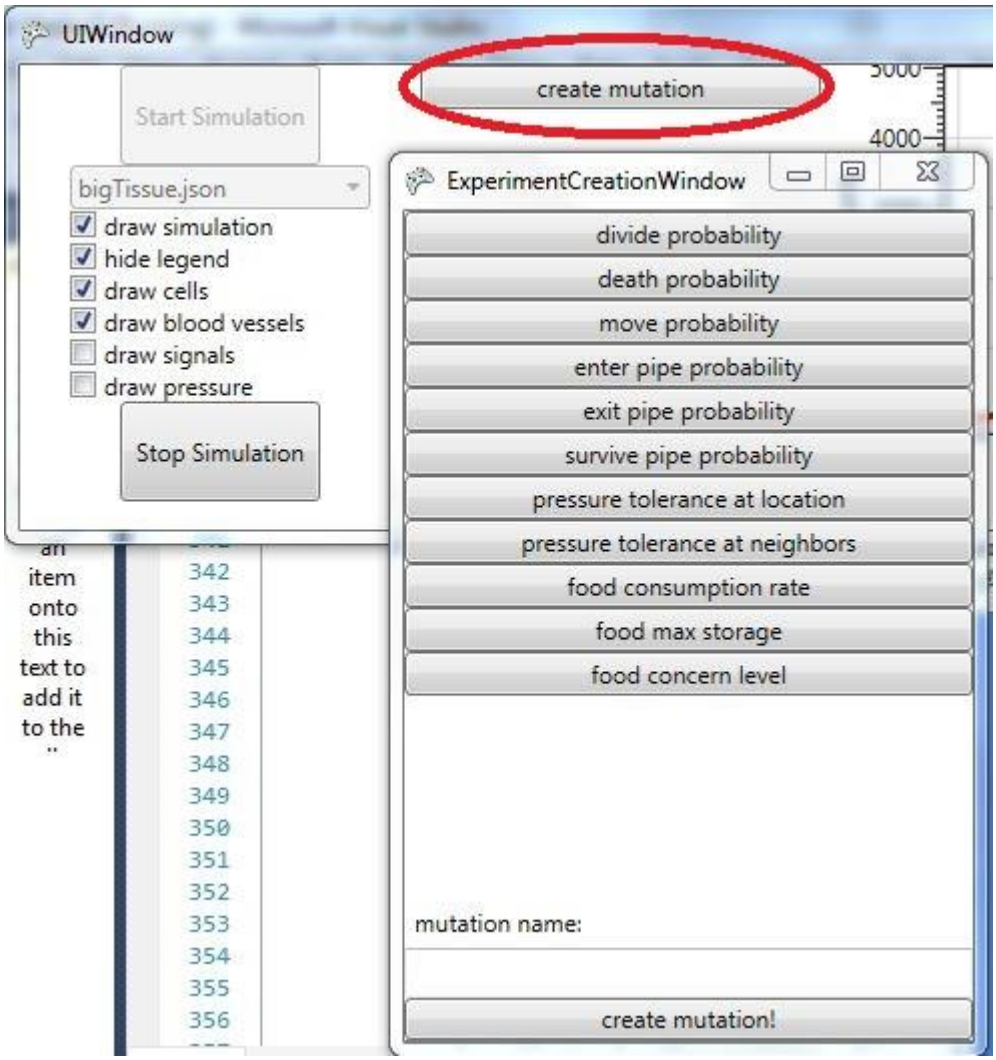


SimulationCore.cs

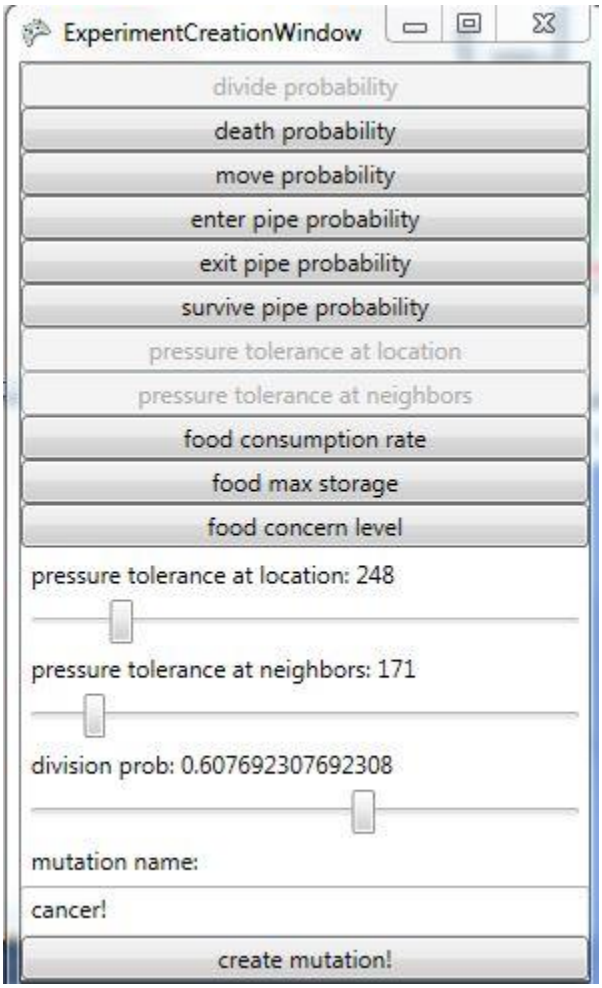
Hades3.SimulationCore — toggleMovement()

```
334         #region processKeyPresses
335
336         private void processInput()
337         {
338             prevKeyboardState = currentKeyboardState;
339             currentKeyboardState = Keyboard.GetState();
340
341             if (KeyJustPressed(Keys.Space))
342             {
343                 togglePause();
344                 toggleMovement();
345             }
346
347             else if (KeyJustPressed(Keys.PageUp))
348             {
349                 SelectionDistance++;
350             }
351
352             else if (KeyJustPressed(Keys.PageDown))
353             {
354                 SelectionDistance--;
355             }
356
357             else if (KeyJustPressed(Keys.G))
358             {
359                 interferanceQueue.Enqueue(new ToggleAllowPleaseDieSignal());
360             }
361         }
362
```

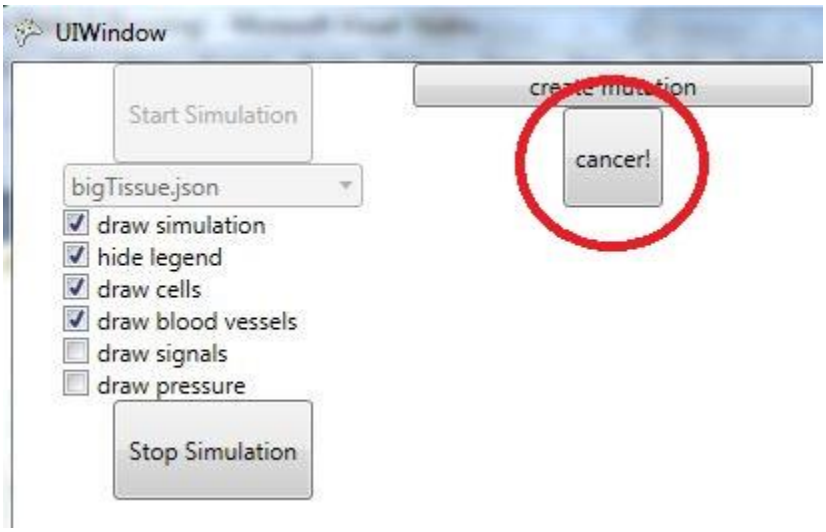
9. Open mutation window



10. Select the desired mutations and values.



11. Upon pressing the *create mutation* button, a new button with the specified name will appear on the main UI.



At this point you can either create additional mutations or close the Mutation Creation Window

12. Now press the mutation button on the UI to select the mutation, move the camera so that a cell is highlighted in yellow and press “M” to apply the mutation to the cell.

13. Observe the cancer grow!