Hydra Desktop App | Developer Guide

This guide is intended to be the single source of info for how to get started with GUI / Vue development!

Legend

- This is a Mac-running-Parallels specific step

⚠️ - This is a step that is broken in **GUI Code Setup Automation** and will need to be done manually

Code and Jenkins Build Job Links

- Bitbucket url: https://git.intra.lutron.com/projects/GG
- Jenkins url: http://jenkins.intra.lutron.com:8080/job/gulliver/job/Designer/
- String tool url: http://ls877.intra.lutron.com/

Source Code

NOTE : This configuration step is included in GUI Code Setup Automation.

- Use a git client (command line, SourceTree, TortoiseGit, Visual Studio, etc) to checkout the "Code" repo
    - If you're building/developing the GUI on a Mac using Parallels, do NOT chose a shared drive for the code location. Choose `C:\Users\**USERNAME**\source\repos`
    - NEVER switch workspaces when doing a long git-operation, like a clone. Switching screens to go back to Teams or outlook on your mac will cause the operation to hang. So after kicking off git clone, just walk away, get a coffee, and wait for it to complete.
- Update git submodule and git SSH access keys on Git Repository – this includes a step to update submodules, which is required for subsequent builds to work

Installations and Configurations of Development PC

Windows PC or Mac running Parallels

Make sure you have a powerful machine.

Visual Studio

Get Visual Studio Professional (you can request a license via PC Help Desk, and use the 30 day free trial in the meantime).

During install, select these 2 things to install:

1. Desktop & Mobile > .NET desktop development
2. Other Tools > Data Storage and Processing

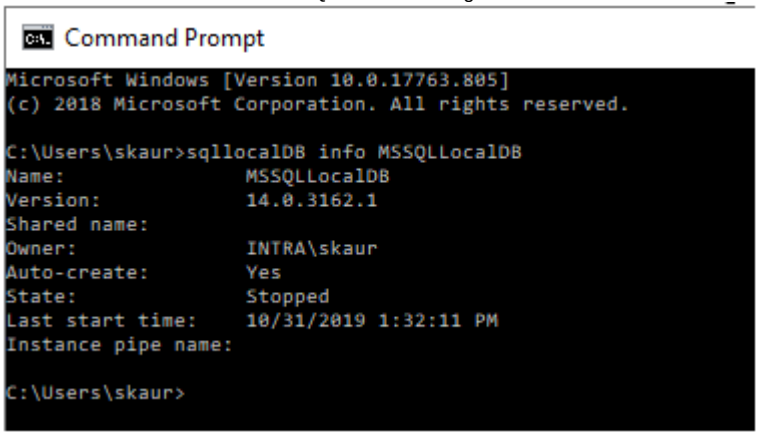
SQL 2017 Local DB

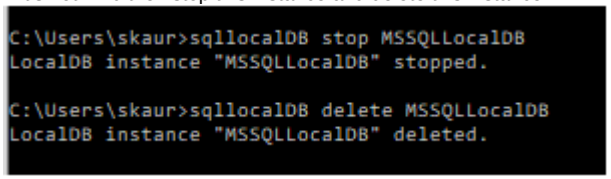
Install below installers:

https://download.microsoft.com/download/E/F/2/EF23C21D-7860-4F05-88CE-39AA114B014B/SqlLocalDB.msi

http://download.microsoft.com/download/2/E/6/2E61CFA4-993B-4DD4-91DA-3737CD5CD6E3/vcredist_x86.exe

If you have some old version of LocalDB installed on your machine, then please follow below steps:

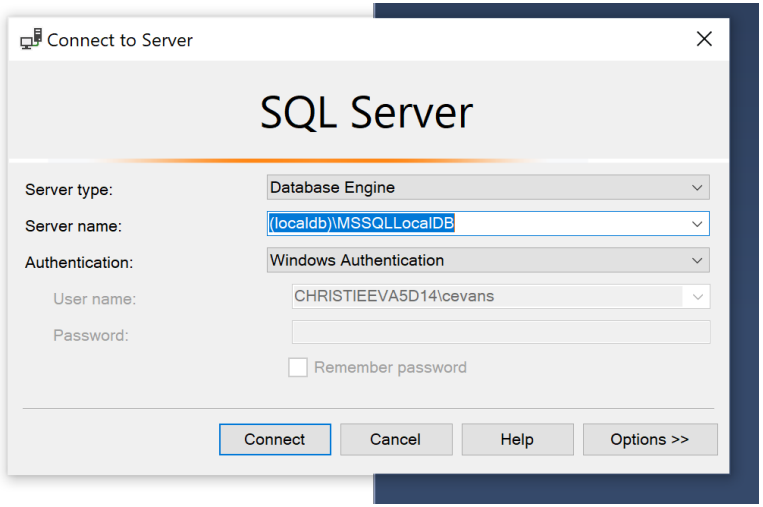
1. Check the version of local DB instance “MSSQLLocalDB” using command window. It should be 14.0.
   a. 

   b. If it’s not 14.0 then stop this instance and delete this instance.
   c. 

SQL Server Management Studio

Go to https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms, download and install SSMS.

After you get the QuantumResi application running, you can connect to its database with the server name "(localdb)\MSSQLLocalDB", which is case-sensitive.

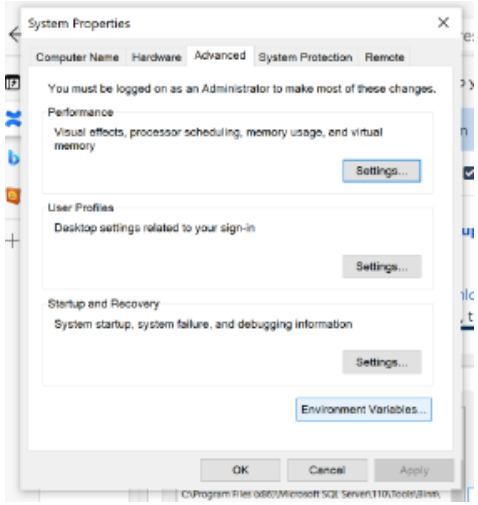


nuget

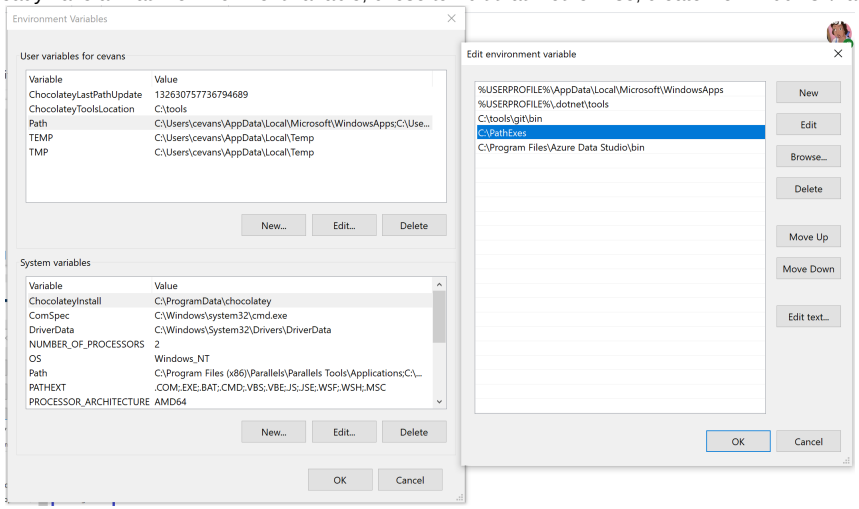
⚠️ **This configuration step is included in GUI Code Setup Automation but Does Not Currently Work.** You'll need to run the following steps manually.

Developers need to install following setup in their bench.

- nuget 4.7.1 or higher (https://www.nuget.org/downloads)
  - move the executable into C:\PathExecs
- Add the path of nuget executable in the "Path" environment variable. (even though nuget is "included" with Visual Studio, the build steps require the command line tool as well)
  - type into windows search "Environment Variables" , and select "Edit Environment Variables"



- if you already have a "Path" environment variable, chose to Edit that – otherwise, create New. Add "C:\PathExecs" to the Path environment variable

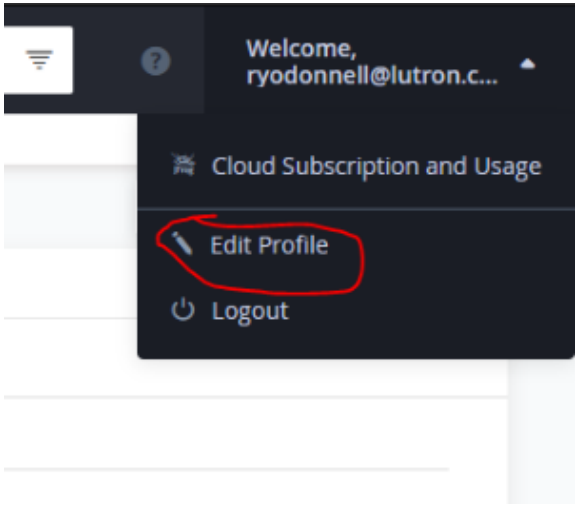


For accessing the Lutron nuget server, we need to do the following changes.

Setting up designer-nuget-prod-local repo

Step 1: Visit https://lutronartifactory.jfrog.io/ui/repos/tree/General/designer-nuget-prod-local and make sure you have access (you **don't** need deploy access! just make sure you can see the repo in artifactory)

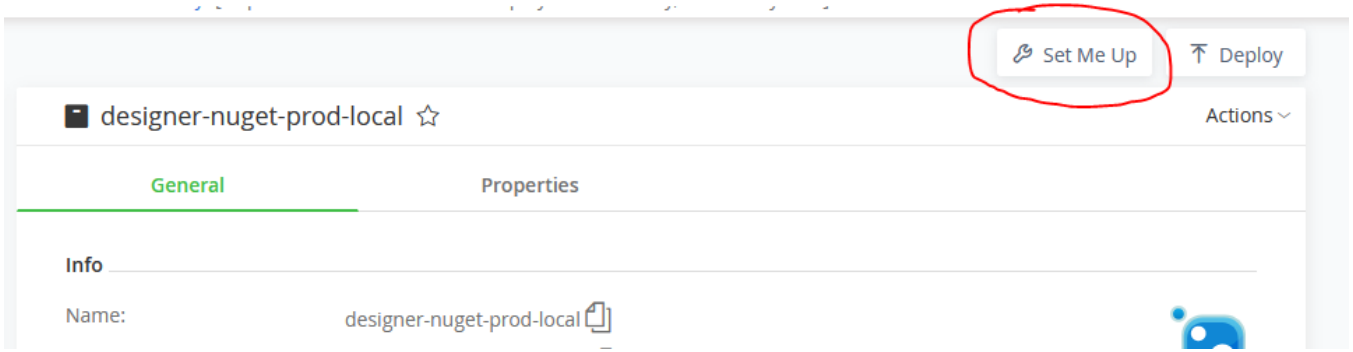
Step 2: You will now need generate an API key that will be used to connect to Artifactory. In Artifactory click on your name and then click the Edit Profile option.



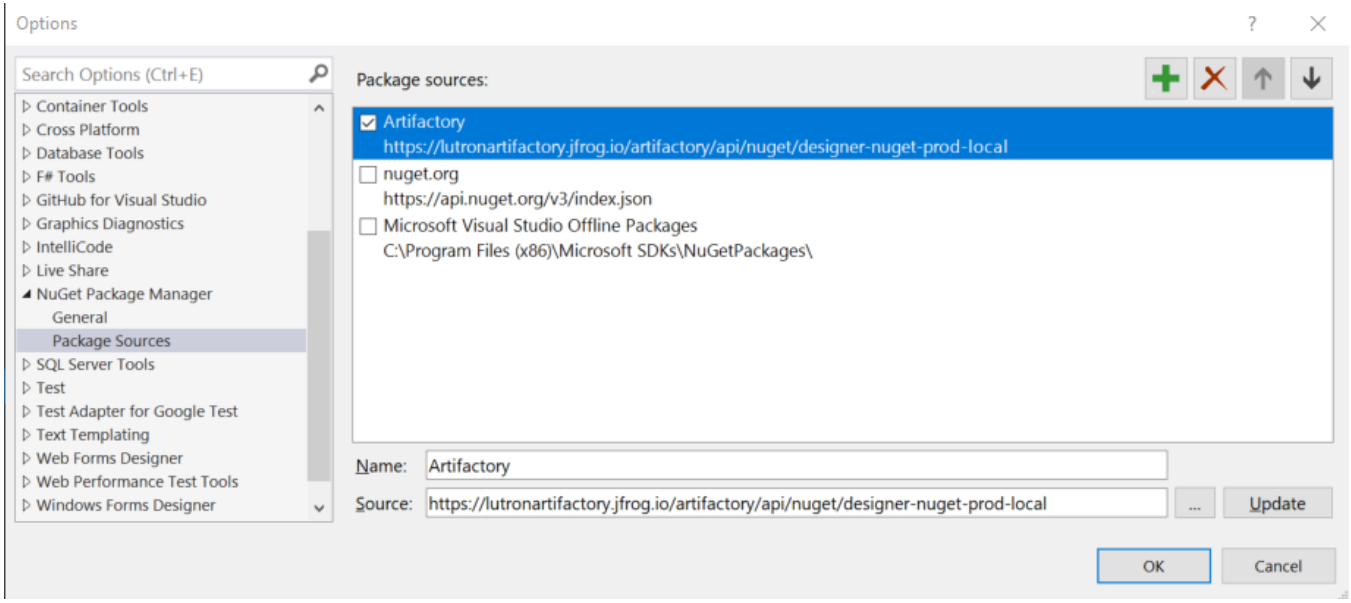
Step 3: On the Edit Profile screen there will be an API key field that will be blank if you have not yet setup an API key. If this is the case then click on the Gear icon next to the field and a new API key will be generated for you. Once this is done return to https://lutronartifactory.jfrog.io/ui/repos/tree/General/designer-nuget-prod-local.

Step 4: In the top right, there should be a button that says "Set Me Up" that details instructions on how to install.

1. ⚠️ **WHEREVER IT SAYS PASSWORD** use your API Key (found by clicking on your username in the top right > Edit Profile)
2. **wherever <USERNAME>** is defined you must use your fully qualified user name (Use xyz123@lutron.com instead of xyz123)
3. Follow both the "Nuget CLI Configuration" and the "Visual Studio Configuration" sections (you don't need to worry about the V3 stuff)
4. Reboot Visual Studio if it's open.



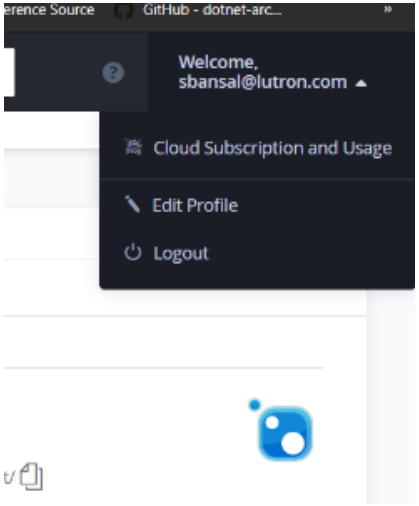
Step 5: Once you are done, in Visual Studio, your Tools>Nuget Package Manager>Package Manager Settings>Package Sources should look something like this (with only Artifactory selected):



Setting up base-repo

Step 1: Visit https://lutronartifactory.jfrog.io/ui/repos/tree/General/nuget%2FLutron.Mqtt.1.0.0.nupkg and make sure you have access (you **don't** need deploy access! just make sure you can see the repo in artifactory)

Step 2: You will now need generate an API key that will be used to connect to Artifactory. In Artifactory click on your name and then click the Edit Profile option.



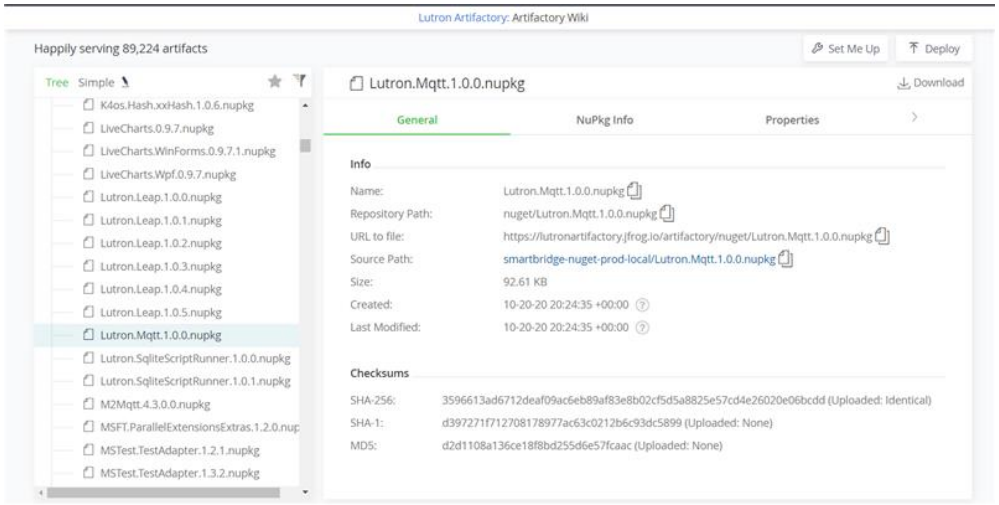
Step 3: On the Edit Profile screen there will be an API key field that will be blank if you have not yet setup an API key. If this is the case then click on the Gear icon next to the field and a new API key will be generated for you. Once this is done return to https://lutronartifactory.jfrog.io/ui/repos/tree/General/nuget%2FLutron.Mqtt.1.0.0.nupkg

Step 4: Since we already have used name Artifactory, we need to rename the name in the command.

- Example:
  - nuget sources Add -Name **BaseArtifactory** -Source https://lutronartifactory.jfrog.io/artifactory/api/nuget/nuget -username xxxxx@lutron.com -password %APIKEY%
  - nuget setapikey xxxxxx@lutron.com:%APIKEY% -Source **BaseArtifactory**

Step 5: In the top right, there should be a button that says "Set Me Up" that details instructions on how to install. Follow the "Visual Studio Configuration" sections (you don't need to worry about the V3 stuff)

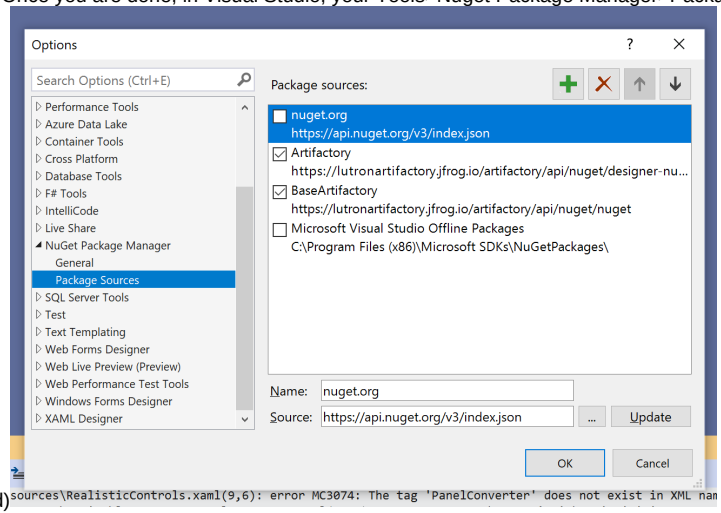
Important Note!: Wherever it says "password" in these instructions, it really means your artifactory API Key (found by clicking on your username in the top right > Edit Profile)



In the Set Me Up instructions wherever <USERNAME> is defined you must use your fully qualified user name.

Example: Use xyz123@lutron.com instead of xyz123.

Step 6: Once you are done, in Visual Studio, your Tools>Nuget Package Manager>Package Manager Settings>Package Sources should look something like this (note how Base Artifactory and Artifactory are both selected)



Artifactory

1. Download the JFrog CLI from https://jfrog.com/getcli/.
2. Move it to a location on your PC.
3. Add that location to your PATH variable.
4. Configure Lutron's Artifactory with the CLI by running the following command:

```
jfrog rt c <NAME> --url=https://lutronartifactory.jfrog.io/artifactory/ --user=<USER> --apikey=<KEY>
```


- <NAME> - Name of how you want to refer to Lutron's Artifactory on your local machine.
- <USER> - You username that is used to log into Artifactory.
- <KEY> - Same API key that was used to connect to the GUI team nuget server on Artifactory.

Building the Code

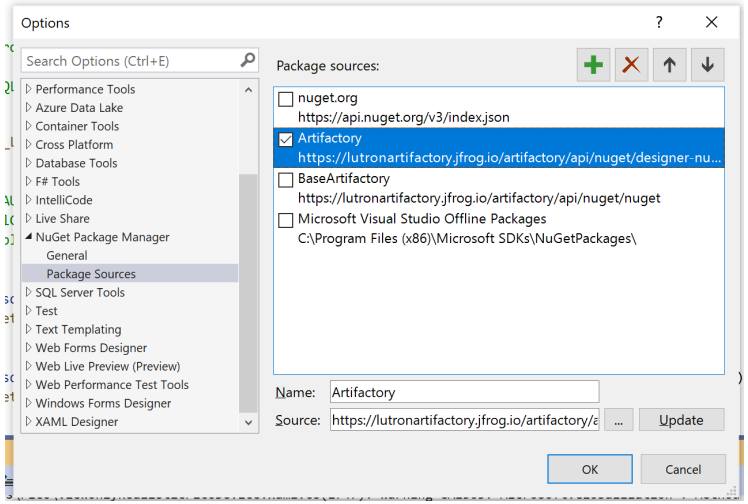
Loading the project

1. Open the solution `src\Lutron\Gulliver\QuantumResi.sln`
2. Right click on the QuantumResi project in Solution Explorer and click "Set as Startup Project"

Apply the hacks

1. Copy `G:\Project47\Quantum\Lutron.Gulliver.Core.Configuration.dll.config` or Lutron.Gulliver.Core.Configuration.dll.config to `src\Lutron\Gulliver\x86\Debug (OR skip to 1.b. for the pro-tip, which works more reliably)`
    a. You will need to edit the config file to include the path where the code is on your PC
    b. **Pro-tip:** The best way to do this to avoid DB issues is to:
        i. Install Homeworks through the GUI Installer (16.5 found here if you don't have a Homeworks install already)
        ii. Copy the config file from: `C:\ProgramData\Lutron\Lutron Designer\Lutron Designer 16.x.x\Lutron Designer\Lutron.Gulliver.Core.Configuration.dll.config`
        iii. Paste into `src\Lutron\Gulliver\x86\Debug`
        iv. **Replace** the following keys with these paths to folders in your local repo (replacing "<<<PATH_TO_REPO>>>" with "C:\Users\USERNAME\repos\code" or wherever you cloned the GUI "code" repo to)
            1. `<add key="ProjectConnectionStringForFB" value="User=SYSDBA;Password=masterkey;Database=Project.Fdb;ServerType=1;client library=<<<PATH_TO_REPO>>>\bin\Firebird\fbembed.dll;Charset=UTF8" />`
            2. `<add key="GulliverBinDirectory" value="<<<PATH_TO_REPO>>>\bin" />`
            3. `<add key="FirmwareFolderPath" value="<<<PATH_TO_REPO>>>\src\Lutron\Gulliver\x86\Debug\Firmware" />`
            4. `<add key="IconsFolderPath" value="<<<PATH_TO_REPO>>>\src\Lutron\Gulliver\x86\Debug\Icons\" />`
            5. `<add key="IHASupportedShadeTypesFolderPath" value="<<<PATH_TO_REPO>>>\src\Lutron\Gulliver\x86\Debug\IHA" />`
2. Open `src\Lutron\Gulliver\LutronCustomRules.ruleset` in a text editor
    a. Delete all of the "Rules" for a build time speed boost
    b. **for Mac, this step is REQUIRED**. It will take **hours** to build if you don't do this
        i. Final file looks like:

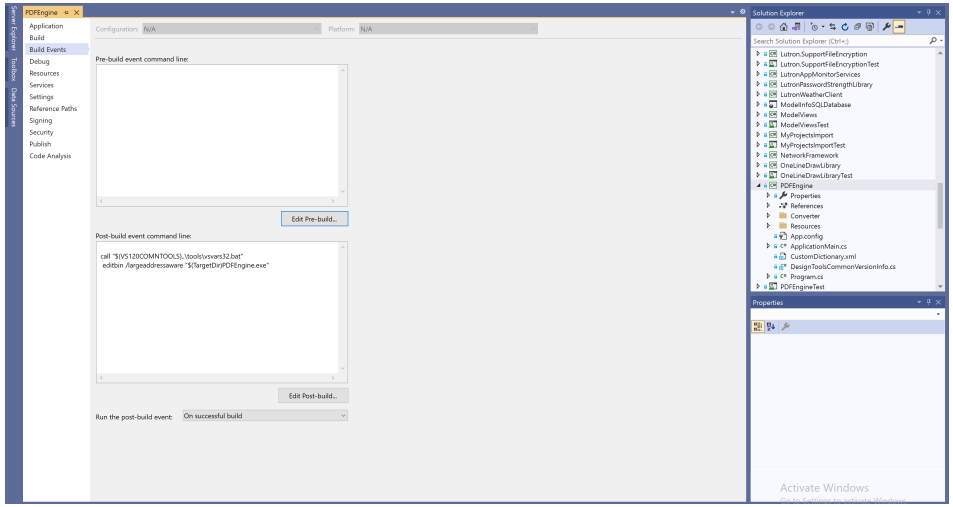
```
<?xml version="1.0" encoding="utf-8"?>
<RuleSet Name="LutronCustomRules" Description=" " ToolsVersion="14.0">
  <Rules AnalyzerId="Microsoft.Analyzers.ManagedCodeAnalysis" RuleNamespace="Microsoft.Rules.Managed">
  </Rules>
</RuleSet>
```

3. Save all changes and then reload the solution (i.e. Close Solution, then re-open).
4. Turn off unnecessary exceptions:
    a. Debug > Windows > Exception Settings
        i. Uncheck Common Langauge Runtime Exceptions
    b. For many other exceptions you can continue, and/or when you get them, uncheck that exception so it is ignored the next time.
5. Select "**Debug Build**" mode, and then Build > Rebuild Solution
    a. Watch the output window and confirm everything succeeds
        i. **for Mac, the build will always fail the first time.** You'll have about 33 packages that fail to build. You'll need to go back into Tools>Nuget Package Manager>Package Manager Settings>Package Sources and de-select BaseArtifactory and then build again. For some reason on Mac, your very first build ever after a clone MUST have both BaseArtifactory and Artifactory selected, and then once the build fails you turn off BaseArtifactory and never turn it on ever again.
        ii. 

    b. Common Errors/Workarounds
        i. **31 Build Failures, mentioning something about Nuget**
        ii. **PDF Engine:** If the PDF Engine has a weird compiler warning like this.....

```
The command "
call "..\tools\vsvars32.bat"
editbin /largeaddressaware "C:\Users\cevans\source\repos\code\src\Lutron\Gulliver\x86\Debug\PDFEngine.exe"
" exited with code 9009.PDFEngine
```

1. right-click on the PDF engine project > Properties
2. Build Events > Edit Post Build
3. Delete the Post build events, and save

a. 

iii. **SQLite Errors**: If you see SQLite errors, it may be that your forgot to initialize submodules. Re-run the steps from the bottom of Update git submodule and git SSH access keys on Git Repository

iv. **GUI Starts, but File New Fails with SQL Server Errors:**

1. Reboot the PC (or parallels – completely shut down and restart) and see if that fixes it
2. Increase Parallels RAM allocation from 4GB to 5GB

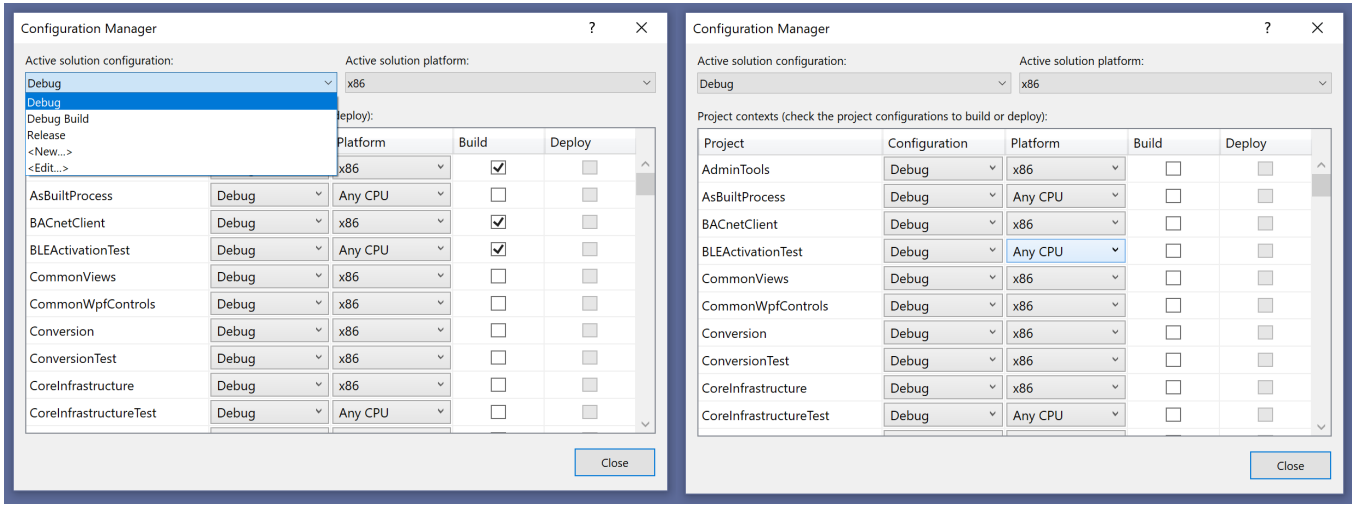
Running the code

Select "**Debug**" mode and press the Run button!

Turn Off Rebuilding on Debug

After the debug build succeeds, for normal Debug you want to **turn off** rebuilding everything. This will save tons of time when debugging.

1. Build > Configuration Manager ....
2. Select "Debug" from the drop down, and then un-tick all the boxes under build (there's a lot, keep scrolling). Close

a. 

Updating the code

Adding/Updating NuGet libs

See [DEPRECATED] Lutron Nuget Server