
Helix Toolkit Documentation

Release 2015.1

Helix Toolkit Contributors

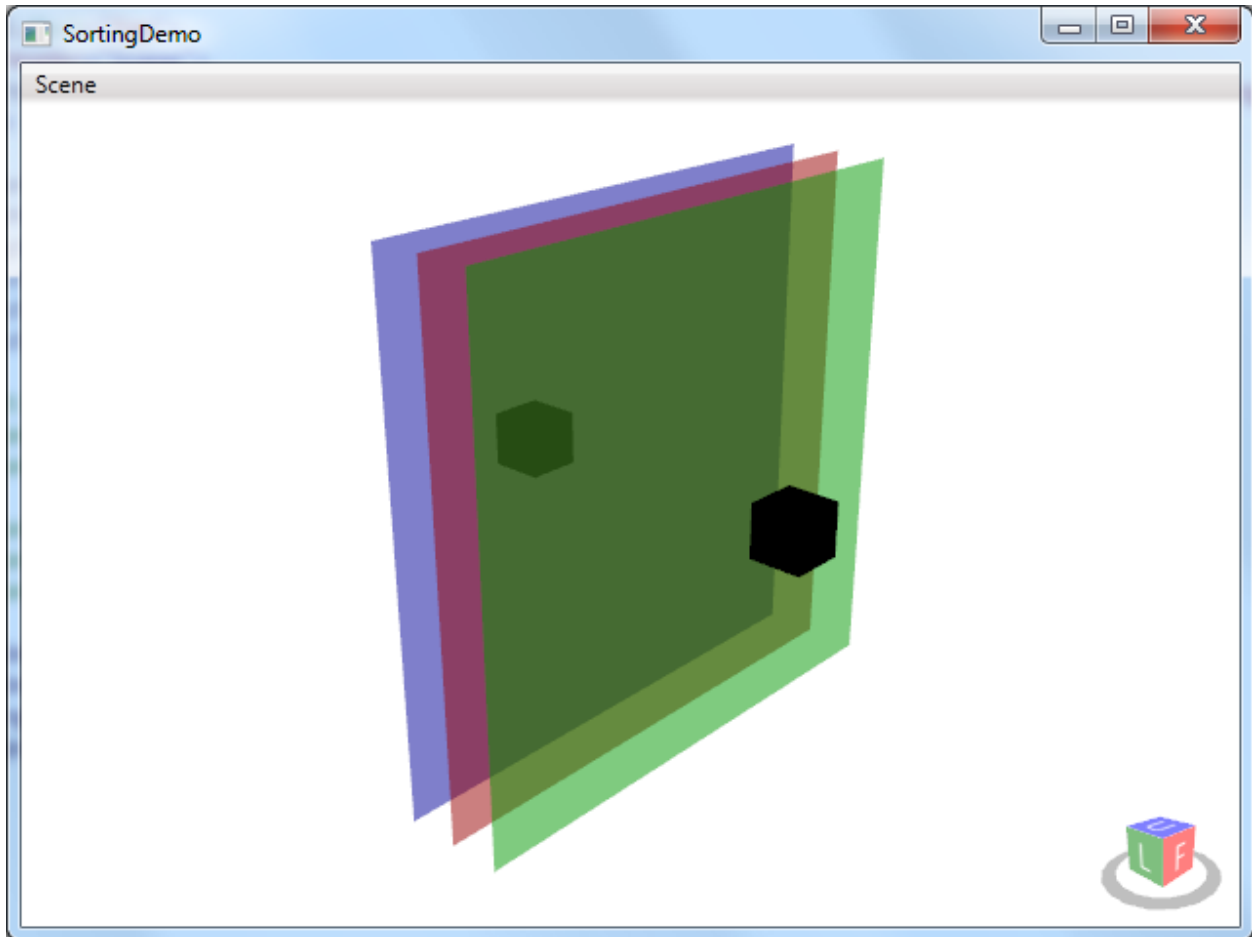
Oct 30, 2017

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Note: The documentation is under construction. Please contribute!

Helix Toolkit is a 3D library for .NET



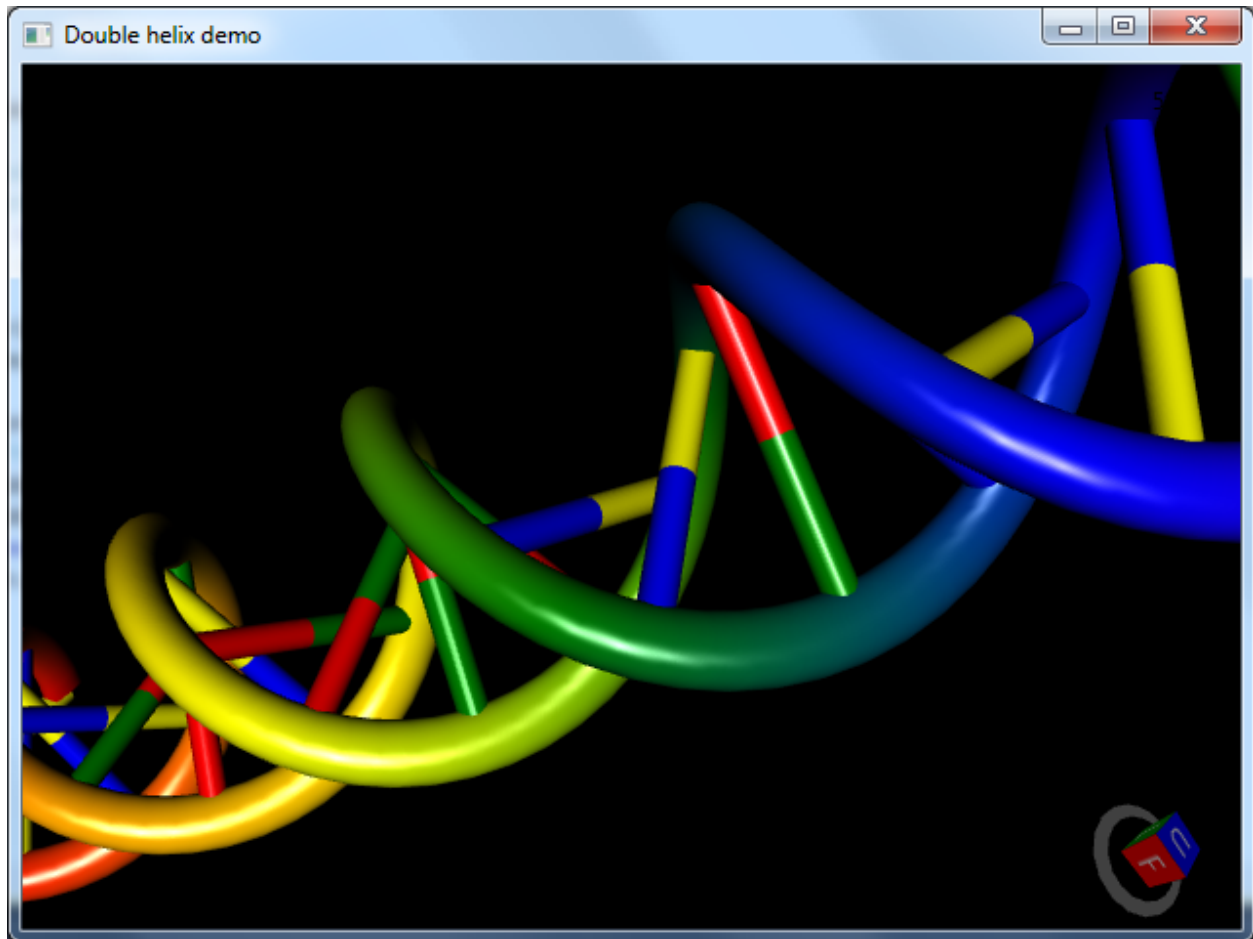
Introduction

Introduction

Helix Toolkit is an open source 3D library that is licensed under the MIT license. The MIT license is very permissive and permits use in proprietary software.

The library is based on .NET and is currently focusing on the WPF platform.

The goal has been to make it easy to work with 3D in WPF, and also provide features that are not included in the standard WPF 3D visual model.



Background

Helix Toolkit was started in 2009.

Features

Note: This section is under construction. Please contribute!

Portable code

- coming

WPF

- 3D viewport control that supports mouse and touch interaction
- <todo> add more info

WPF+SharpDX

- 3D viewport control that supports mouse and touch interaction
- <todo> add more info

License

Helix Toolkit is licensed under the [MIT](#) license. This is the shortest and probably broadest of all the popular open-source licenses. Its terms are very loose and more permissive than most other licenses. It is also compatible with [GPL](#).

The license can be found in the [LICENSE](#) file that is located in the root folder of the repository:

```
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The MIT License is the least restrictive license out there. It basically says that anyone can do whatever they want with the licensed material, as long as it is accompanied by the license.

See also the explanation on [tl;dr](#).

Authors

Information about the copyright holders is found in the [AUTHORS](#) file.

Contributors

Information about the contributors is found in the [CONTRIBUTORS](#) file.

Getting Support

Community Support

Helix Toolkit has a small community that may help you out if you have questions. If you can't find your answer in the documentation, you can...

- Ask your question on the [forum](#). This is a good idea if you have multiple questions or a question that might have a more subjective answer (e.g., “recommendations” sorts of things).
- You can also try [StackOverflow](#). Be sure to use the `helix-3d-toolkit` tag in your question.

Commercial Support

- We are not aware of anyone offering commercial support

If you would like your company listed here, please let us know.

Frequently asked questions

Note: This section is under construction. Please contribute!

See also the FAQ section at <http://forum.helix-toolkit.org>.

Where is the source code?

The source code can be found at GitHub: <https://github.com/helix-toolkit/helix-toolkit>.

Where can I find examples?

You should get the source code and build one of the Visual Studio solution files. These solution includes the examples!

Glossary

Note: This section is under construction. Please contribute!

The goal of this page is to help keep documentation, discussions, and APIs consistent.

Viewport todo

Visual todo

View cube todo


```
        TriangleIndices="2 3 1 2 1 0 7 1 3 7 5 1 6 5 7 6 4 5 6"  
↪2 0 2 0 4 2 7 3 2 6 7 0 1 5 0 5 4">  
        </MeshGeometry3D>  
    </GeometryModel3D.Geometry>  
    <GeometryModel3D.Material>  
        <DiffuseMaterial x:Name="matDiffuseMain">  
            <DiffuseMaterial.Brush>  
                <SolidColorBrush Color="Gray"/>  
            </DiffuseMaterial.Brush>  
        </DiffuseMaterial>  
    </GeometryModel3D.Material>  
    </GeometryModel3D>  
    </ModelVisual3D.Content>  
    </ModelVisual3D>  
    <HelixToolkit:GridLinesVisual3D Width="8" Length="8" MinorDistance="1"  
↪MajorDistance="1" Thickness="0.01"/>  
</HelixToolkit:HelixViewport3D>
```

You can also see simple examples on the [repository](#) of helix-toolkit.

WPF + SharpDX

Note: This section is under construction. Please contribute!

The HelixToolkit.Wpf.SharpDX package makes it easier to work with SharpDX in WPF.

Getting started

Note: This section is under construction. Please contribute!

- Adding the “HelixToolkit.Wpf.SharpDX” NuGet package
- Adding a viewport control
- Adding content

Contribute

How to contribute

Note: This section is under construction. Please contribute!

Introduction

Contributions to this project, whether new features or bug fixes, are deeply appreciated and benefit the whole user community.

The following guidelines help ensure the smooth running of the project, and keep a consistent standard across the codebase. They are guidelines only - should you feel a need to deviate from them it is probably for a good reason - but please adhere to them as closely as possible.

Making contributions

If you would like to contribute code or documentation to the project, we welcome pull requests.

New features and bugs should always be added in the [issue tracker](#). It might be a good idea to discuss in the [forum](#) first if you are not sure if it is a bug or a feature we want to include in the library.

License

See the [License](#) page. Your contributions must be your own work and licensed under the same terms as Helix Toolkit.

Branches

The repository contains two branches:

- `master` - the release branch (stable channel)
- `develop` - the main branch with the latest development changes (pre-release channel)

See [A successful git branching model](#) for more information about the branching model in use.

Process

1. Search the [issue tracker](#) to see if the bug or new feature is already there.
2. If not, create a new issue
3. Wait for the issue to be tagged
4. Create a fork, branch, do the changes, commit, rebase, push
5. Create a pull request

The changes will be reviewed and merged into the [origin](#) if everything is OK.

Working with Git

1. Log in to GitHub and open the [origin](#) repository. Click the “Fork” button to create your own fork of the repository.
2. Create a clone on your local system: `git clone https://github.com/yourusername/helix-toolkit.git`
3. Create a branch for the bugfix/feature you want to work on: `git branch bugfix-some-error`
4. Checkout the branch: `git checkout bugfix-some-error`
5. Commit your changes: `git commit -m <msg>`
6. Rebase interactively (“squash”) to the latest commit of the [origin](#)
7. Push: `git push`
8. Open the GitHub page for your fork and create a “Pull Request”

9. Include the issue number in the pull request comment (not in the title where it will not be linked!)

Commit messages

Please follow the style of the other messages in the commit history. Explain the intentions for the change and include the issue number.

Requirements for pull requests

- The pull request should be based on the latest commit on the `develop` branch of the origin repository
- Include examples or unit tests for the change / new feature
- Update the `CHANGELOG.md` file
- Make sure the code builds
- Make sure all unit tests are passing
- Follow the *Coding style*, make sure there are no StyleCop issues
- `squash` each logical change to a single commit

And please:

- create a branch/pull request for each issue, do not combine multiple issues
- define full name and e-mail address in the change list user information
- update the `AUTHORS` and `CONTRIBUTORS` files if you are not already listed there
- include the issue number in the commit message, e.g. “#9945”
- follow the style of the existing commit messages

Issues

Note: This section is under construction. Please contribute!

- Please use the discussion forum if you are unsure whether it is a bug in the library or a problem in your code.
- When you are sure, please add defects directly in the issue tracker.
- It is very helpful to get the generated code (use `CTRL+ALT+C` in the plot control) and report (`CTRL+ALT+R`) of the bug plot
- You could use services like <http://snipit.org> or <https://gist.github.com> to share code snippets.
- Images can easily be included both in the forum and the issue tracker

Build

Note: This section is under construction. Please contribute!

Requirements

- .NET 3.5 or later
- Build tool with support for Portable Class Libraries (Visual Studio 201x, MsBuild)
- StyleCop

The solutions can be opened in

- VS 2010 (with the [Portable Library Tools](#) extension)
- VS 2012 (with the latest update)
- VS 2013
- VS 2013 CE
- VS 2015

VS Express does not support Portable Class Libraries, and cannot be used to build this project.

Depending on what platform you want to build, you may need to install extra SDKs or target framework profiles

- [.NET 3.5](#)
- [.NET 4.0](#)
- [.NET 4.5](#)
- [Portable library tools 2.0](#)
- [Microsoft .NET Portable Library Reference Assemblies 4.6](#)
- [StyleCop](#)
- [SharpDX](#)
- [DirectX SDK](#)

Obtain the source code

This project is using [Git](#) distributed version control system (DVCS). To obtain the code, it is recommended to install one of the following Git clients

- [GitHub for Windows](#)
- [SourceTree](#) (for Windows and Mac)
- [TortoiseGit](#) (Windows shell extension)
- [Git](#) (command line)

Clone the repository from <https://github.com/helix-toolkit/helix-toolkit.git>. This can be done by the following command line:

```
git clone https://github.com/helix-toolkit/helix-toolkit.git
```

If you don't want to use Git, you can also obtain the complete source code as a .zip archive from the [repository page](#). Click the "Download Zip" button.

Build

It should be possible to open the solution and build with Visual Studio or msbuild without any additional steps.

Build output

The build output of the *Release* configurations are placed in the `Output/` folder. The output of the *Debug* configurations are placed under the `Source/*/bin/Debug` folders.

Coding style

- write StyleCop compliant code
- include XML comments for all methods, properties and fields
- do not use `#regions`
- use `linq` method syntax (not query syntax)
- keep it simple

Architecture

Note: This section is under construction. Please contribute!

- show some diagrams?
- something about the components and dependencies?
- architecture issues?

Documentation

Note: This section is under construction. Please contribute!

API documentation

The API documentation is generated from the XML comments included in the source code. All methods and properties should be documented in compliance with the StyleCop rules.

User's guide

The user's guide contains "hand-written" information about the library. The user's guide is provided online (html) and as a printable file (pdf).

Contributions

Contributions to the documentation should be done the same way as for code. Clone the [repository](#), create a branch and submit a pull request when the changes are ready.

Web site

The source of the helix-toolkit.org web site can be found in the [helix-toolkit.github.io](https://github.com/helix-toolkit/helix-toolkit.github.io) repository.

The web-site is built by [GitHub](#) with [Jekyll](#).

Please contribute by creating pull requests in the [helix-toolkit.github.io](https://github.com/helix-toolkit/helix-toolkit.github.io) repository.

CHAPTER 2

Indices and tables

- `genindex`
- `modindex`
- `search`