

Slicer Extensions

NA-MIC Summer Project Week @ MIT

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Outline

- 1 Motivation
- 2 Using Extensions
- 3 Making Extensions
- 4 Sharing Data
- 5 Summary
- 6 Demos
- 7 Q&A

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What Is An Extension ?

Definition

An installable package including Slicer modules.

What Is A Module ?

Definition

From simple filter to an entire processing GUI workflow, implements *your* method to interactively (or not) process, transform and visualize medical data.

Why Extensions ?

- Extend Slicer with functionalities specific to *your* use case.
- This is the future of Slicer.
- Ownership.
- Recognition by your peers.
- Possibility to cite in publications and proposals.

Why Extensions ?

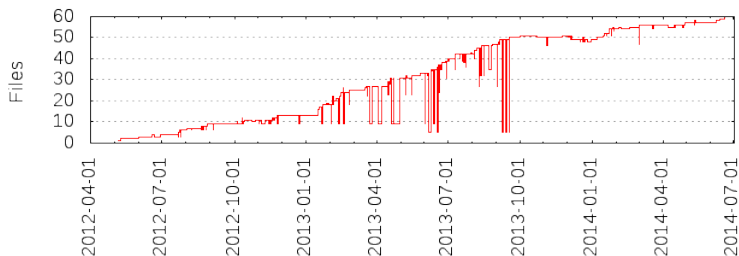
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Some stats.

- More than 50 extensions contributed.
- Available on Linux, MacOSX and Windows.
- ExtensionsIndex: 59 authors, 1052 commits



- ## Slicer Extensions

Categories
 - 88
 - Developer Tools (2)
 - Diffusion (1)
 - Editing Effects (1)
 - Export/Import (2)
 - Hardware (1)
 - Imaging (1)
 - Mathematics (1)
 - Physics (1)
 - ROI (2)
 - Information (2)
 - Multi-Cardinality (2)
 - Neurology (1)
 - Quantification (1)
 - Registration (1)
 - Resection (1)
 - Statistics (1)
 - Super-resolution (1)
 - Volume Analysis (2)
 - Utilities (1)
 - Workflows (1)

- Handles dependencies.
- Searchable list of extension.
- Offline installation given extension package path.

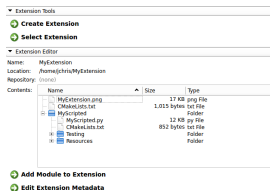
Update Extension.

Planned For 4.4 Release

- Manual or automatic update of any given extension. See #2089.

Creating extensions using UI.

Modules → Developer Tools → Extension Wizard



New Features

- Create *default* or *superbuild* extension.
- Add *cli*, *loadable* or *scripted* module.
- Add module to existing extension.
- Edit extension metadata.
- Create and load scripted module without restarting Slicer.

Creating Extensions using slicerExtensionWizard.

One-liner to create your extension !

```
1 PATH=~ / Projects / Slicer - SuperBuild - Release / Slicer - build / bin / : $PATH  
2 slicerExtensionWizard --create MyExtension ~/ \\  
3 --addModule scripted : MyScripted
```

ProTips

- Wizard available (1) if Slicer built with OpenSSL support or (2) directly from the nightly.
- Windows user should use Git Bash.

Publishing Extensions.

One-liner to publish your extension on Github !

```
1 slicerExtensionWizard --publish ~/MyExtension
```

New Features

- Associate git repository with extension sources.
- Create initial commit.
- Publish extension sources on Github.

ProTips

- We recommend Github.

Contributing Extensions.

One-liner to contribute your extension !

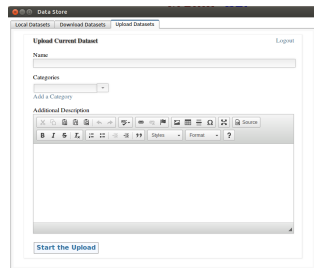
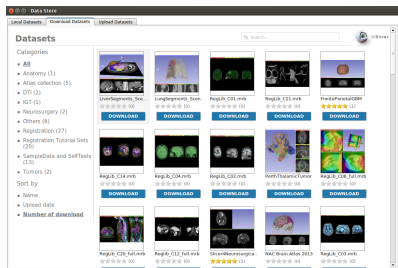
```
1 slicerExtensionWizard --contribute ~/MyExtension
```

ProTips

- The ExtensionWizard creates a pull request on the ExtensionsIndex.

DataStore Module

Modules → DataStore



- Upload new datasets.
- Browse and search datasets.
- Download, Review and comment the datasets.

Summary

- Extensions are the future of Slicer.
- *Extension Wizard* for streamlined extensions creation and contribution.
- *DataStore* to share your data.

What is Next ?

- Keep track of installed extensions across version (#2779).
- Automatic creation of extension wiki page (#3605).
- Slicer developer SDK (#3353).
- Streamlined Slicer API documentation.

Demos

- 1 Create, Publish and Create an extension using the CLI *slicerExtensionWizard*.
- 2 Create an extension using the ExtensionWizard UI.

Q&A

Questions ?

References

- [wiki: Create Extensions](#)
- [wiki: Contribute Extension Description Files](#)
- [wiki: ExtensionWizard](#)
- [wiki: Extensions Framework Roadmap](#)
- [wiki: DataStore Module](#)
- [wiki: Different Type of Modules](#)

Acknowledgments

- Matthew Woehlke, Kitware Inc: ExtensionWizard Lead Developer
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