Recommonmark Documentation

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A `docutils`-compatibility bridge to CommonMark.

This allows you to write CommonMark inside of Docutils & Sphinx projects.

Documentation is available on Read the Docs: http://recommonmark.readthedocs.org

CHAPTER 1

Contents

1.1 API Reference

This document is for developers of recommonmark, it contans the API functions

1.1.1 Parser Component

class `recommonmark.parser.`**`CommonMarkParser`**

Bases: `docutils.parsers.Parser`

Parser of recommonmark.

1.1.2 Dummy State Machine

class `recommonmark.states.`**`DummyStateMachine`**

Bases: `docutils.statemachine.StateMachineWS`

A dummy state machine that mimicks the property of statemachine.

This state machine cannot be used for parsing, it is only used to generate directive and roles. Usage: - Call *reset* to reset the state - Then call *run_directive* or *run_role* to generate the node.

`reset`(*document*, *parent*, *level*)

Reset the state of state machine.

After reset, self and self.state can be used to passed to docutils.parsers.rst.Directive.run

Parameters

- **`document`** (*`docutils document`*) – Current document of the node.
- **`parent`** (*`parent node`*) – Parent node that will be used to interpret role and directives.
- **`level`** (*`int`*) – Current section level.

`run_directive`(*name*, *arguments=None*, *options=None*, *content=None*)

Generate directive node given arguments.

Parameters

- **`name`** (*`str`*) – name of directive.
- **`arguments`** (*`list`*) – list of positional arguments.
- **`options`** (*`dict`*) – key value arguments.

- **content** (*content*) – content of the directive

Returns **node** – Node generated by the arguments.

Return type docutil Node

run_role(*name*, *options=None*, *content=None*)

Generate a role node.

options [dict] key value arguments.

content [content] content of the directive

Returns **node** – Node generated by the arguments.

Return type docutil Node

1.1.3 AutoStructify Transformer

class recommonmark.transform.**AutoStructify**(*document*, *startnode=None*)

Bases: docutils.transforms.Transform

Automatically try to transform blocks to sphinx directives.

This class is designed to handle AST generated by CommonMarkParser.

apply()

Apply the transformation by configuration.

auto_code_block(*node*)

Try to automatically generate nodes for codeblock syntax.

Parameters **node** (*nodes.literal_block*) – Original codeblock node

Returns **tocnode** – The converted toc tree node, None if conversion is not possible.

Return type docutils node

auto_doc_ref(*node*)

Try to convert a reference to docref in rst.

Parameters **node** (*nodes.reference*) – A reference node in doctree.

Returns **tocnode** – The converted toc tree node, None if conversion is not possible.

Return type docutils node

auto_inline_code(*node*)

Try to automatically generate nodes for inline literals.

Parameters **node** (*nodes.literal*) – Original codeblock node

Returns **tocnode** – The converted toc tree node, None if conversion is not possible.

Return type docutils node

auto_toc_tree(*node*)

Try to convert a list block to toctree in rst.

This function detects if the matches the condition and return a converted toc tree node. The matching condition: The list only contains one level, and only contains references

Parameters **node** (*nodes.Sequential*) – A list node in the doctree

Returns **tocnode** – The converted toc tree node, None if conversion is not possible.

Return type docutils node

find_replace(*node*)

Try to find replace node for current node.

Parameters **node** (*docutil node*) – Node to find replacement for.

Returns **nodes** – The replacement nodes of current node. Returns None if no replacement can be found.

Return type node or list of node

parse_ref(*ref*)

Analyze the ref block, and return the information needed.

Parameters **ref** (*nodes.reference*) –

Returns **result** – The returned result is tuple of (title, uri, docpath). title is the display title of the ref. uri is the html uri of to the ref after resolve. docpath is the absolute document path to the document, if the target corresponds to an internal document, this can bex None

Return type tuple of (str, str, str)

traverse(*node*)

Traverse the document tree rooted at node.

node [docutil node] current root node to traverse

1.2 AutoStructify Component

AutoStructify is a component in recommonmark that takes a parsed docutil AST by `CommonMarkParser`, and transform it to another AST that introduces some of more. This enables additional features of recommonmark syntax, to introduce more structure into the final generated document.

1.2.1 Configuring AutoStructify

The behavior of AutoStructify can be configured via a dict in document setting. In sphinx, you can configure it by `conf.py`. The following snippet is what is actually used to generate this document, see full code at conf.py.

```
github_doc_root = 'https://github.com/rtfd/recommonmark/tree/master/doc/'
def setup(app):
    app.add_config_value('recommonmark_config', {
            'url_resolver': lambda url: github_doc_root + url,
            'auto_toc_tree_section': 'Contents',
            }, True)
    app.add_transform(AutoStructify)
```

All the features are by default enabled

List of options

- **enable_auto_toc_tree**: whether enable *Auto Toc Tree* feature.
- **auto_toc_tree_section**: when enabled, *Auto Toc Tree* will only be enabled on section that matches the title.
- **enable_auto_doc_ref**: whether enable *Auto Doc Ref* feature.
- **enable_math**: whether enable *Math Formula*
- **enable_inline_math**: whether enable *Inline Math*

- **enable_eval_rst**: whether *Embed reStructuredText* is enabled.
- **url_resolver**: a function that maps a existing relative position in the document to a http link

1.2.2 Auto Toc Tree

One of important command in tools like sphinx is `toctree`. This is a command to generate table of contents and tell sphinx about the structure of the documents. In markdown, usually we manually list of contents by a bullet list of url reference to the other documents.

AutoStructify will transforms bullet list of document URLs

```
* [Title1](doc1.md)
* [Title2](doc2.md)
```

will be translated to the AST of following reStructuredText code

```
.. toctree::
   :maxdepth: 1

   doc1
   doc2
```

You can also find the usage of this feature in `index.md` of this document.

1.2.3 Auto Doc Ref

It is common to refer to another document page in one document. We usually use reference to do that. AutoStructify will translate these reference block into a structured document reference. For example

```
[API Reference](api_ref.md)
```

will be translated to the AST of following reStructuredText code

```
:doc:`API Reference </api_ref>`
```

And it will be rendered as API Reference

1.2.4 URL Resolver

Sometimes in a markdown, we want to refer to the code in the same repo. This can usually be done by a reference by reference path. However, since the generated document is hosted elsewhere, the relative path may not work in generated document site. URL resolver is introduced to solve this problem.

Basically, you can define a function that maps an relative path of document to the http path that you wish to link to. For example, the setting mentioned in the beginning of this document used a resolver that maps the files to github. So `[parser code](../recommonmark/parser.py)` will be translated into parser code

Note that the reference to the internal document will not be passed to url resolver, and will be linked to the internal document pages correctly, see *Auto Doc Ref*.

1.2.5 Codeblock Extensions

In markdown, you can write codeblocks fenced by (at least) three backticks (```). The following is an example of codeblock.

```
```` language
some code block
```
```

Codeblock extensions are mechanism that specialize certain codeblocks to different render behaviors. The extension will be trigger by the language argument to the codeblck

Syntax Highlight

You can highlight syntax of codeblocks by specifying the language you need. For example,

```
```python
def function():
    return True
```
```

will be rendered as

```python
def function():
    return True
```

Math Formula

You can normally write latex math formula with `math` codeblock. See also *Inline Math*.

Example

```
```math
E = m c^2
```
```

will be rendered as

$$E = mc^2$$

Embed reStructuredText

Recommonmark also allows embedding reStructuredText syntax in the codeblocks. There are two styles for embedding reStructuredText. The first is enabled by `eval_rst` codeblock. The content of codeblock will be parsed as reStructuredText and insert into the document. This can be used to quickly introduce some of reStructuredText command that not yet available in markdown. For example,

```
```eval_rst
.. autoclass:: recommonmark.transform.AutoStructify
    :show-inheritance:
```
```

will be rendered as

class `recommonmark.transform.`**`AutoStructify`**(*document*, *startnode=None*)

Bases: `docutils.transforms.Transform`

Automatically try to transform blocks to sphinx directives.

This class is designed to handle AST generated by CommonMarkParser.

This example used to use sphinx autodoc to insert document of AutoStructify class definition into the document.

The second style is a shorthand of the above style. It allows you to leave off the eval_rst .. portion and directly render directives. For example,

```
```` important:: Its a note! in markdown!
```
```

will be rendered as

Important: Its a note! in markdown!

An Advanced Example

```
```` sidebar:: Line numbers and highlights

     emphasis-lines:
       highlights the lines.
     linenos:
       shows the line numbers as well.
     caption:
       shown at the top of the code block.
     name:
       may be referenced with `:ref:` later.
```

```` code-block:: markdown
     :linenos:
     :emphasize-lines: 3,5
     :caption: An example code-block with everything turned on.
     :name: Full code-block example

     # Comment line
     import System
     System.run_emphasis_line
     # Long lines in code blocks create a auto horizontal scrollbar
     System.exit!
```
```

will be rendered as

**Line numbers and highlights**

**emphasis-lines:** highlights the lines.
**linenos:** shows the line numbers as well.
**caption:** shown at the top of the code block.
**name:** may be referenced with *:ref:* later.

Listing 1.1: An example code-block with everything turned on.

```
1 # Comment line
2 import System
3 System.run_emphasis_line
```

```
# Long lines in code blocks create a auto horizontal scrollbar
System.exit!
```

The `<div style="clear: right;"></div>` line clears the sidebar for the next title.

### 1.2.6 Inline Math

Besides the *Math Formula*, you can also write latex math in inline codeblock text. You can do so by inserting in the beginning and end of inline codeblock.

Example

```
This formula `$ y=\sum_{i=1}^n g(x_i) $`
```

will be rendered as:

This formula $y = \sum_{i=1}^{n} g(x_i)$

CHAPTER 2

# Getting Started

To use `recommonmark` inside of Sphinx only takes 2 steps. First you install it:

```
pip install recommonmark
```

Then add this to your Sphinx conf.py:

```
from recommonmark.parser import CommonMarkParser

source_parsers = {
    '.md': CommonMarkParser,
}

source_suffix = ['.rst', '.md']
```

This allows you to write both `.md` and `.rst` files inside of the same project.

## 2.1 AutoStructify

To use the advanced markdown to rst transformations you must add `AutoStructify` to your Sphinx conf.py.

```
# At top on conf.py (with other import statements)
import recommonmark
from recommonmark.transform import AutoStructify

# At the bottom of conf.py
def setup(app):
    app.add_config_value('recommonmark_config', {
            'url_resolver': lambda url: github_doc_root + url,
            'auto_toc_tree_section': 'Contents',
            }, True)
    app.add_transform(AutoStructify)
```

See https://github.com/rtfd/recommonmark/blob/master/docs/conf.py for a full example.

AutoStructify comes with the following options. See http://recommonmark.readthedocs.org/en/latest/auto_structify.html for more information about the specific features.

- **enable_auto_toc_tree**: enable the Auto Toc Tree feature.
- **auto_toc_tree_section**: when True, Auto Toc Tree will only be enabled on section that matches the title.
- **enable_auto_doc_ref**: enable the Auto Doc Ref feature.

- **enable_math**: enable the Math Formula feature.
- **enable_inline_math**: enable the Inline Math feature.
- **enable_eval_rst**: enable the evaluate embedded reStructuredText feature.
- **url_resolver**: a function that maps a existing relative position in the document to a http link

CHAPTER 3

# Development

You can run the tests by running `tox` in the top-level of the project.

We are working to expand test coverage, but this will at least test basic Python 2 and 3 compatability.

CHAPTER 4

# Why a bridge?

Many python tools (mostly for documentation creation) rely on `docutils`. But docutils only supports a ReStructuredText syntax.

For instance this issue and this StackOverflow question show that there is an interest in allowing `docutils` to use markdown as an alternative syntax.

CHAPTER 5

# Why another bridge to docutils?

recommonmark uses the python implementation of CommonMark while remarkdown implements a stand-alone parser leveraging parsley.

Both output a `docutils` document tree and provide scripts that leverage `docutils` for generation of different types of documents.

CHAPTER 6

# Acknowledgement

recommonmark is mainly derived from remarkdown by Steve Genoud and leverages the python CommonMark implementation.

It was originally created by Luca Barbato, and is now maintained in the Read the Docs (rtfd) GitHub organization.

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