NppTags Documentation

Release 0.9.1

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Contents

Introduction

NppTags is a Universal Ctags plug-in for Notepad++.

When you use Notepad++ to program in a popular programming language (like C, C++, Java, JavaScript, PHP), ctags can be very useful for you. It creates a so called tags file that can be used to navigate through your sources. This plug-in can help you to jump to a selected function / variable / class / etc in your code by pressing just one key!

1.1 History

There are several ctags based plug-ins for Notepad++, but none of them really fits my needs. There are to limited (only jump, just one file, based upon line numbers, etc) or to slow at startup. Back in 2002 and 2003 I wrote an add-on for TextPad named FindTag. I used this code base to create my own ctags based plug-in for Notepad++.

How to install

To manually install the plug-in, in the `plugins` directory in the Notepad++ installation directory, create a folder named `NppTags` and place `NppTags.dll` and `ctags.exe` in that directory. Then (re)start Notepad++.

2.1 Provided ctags executable

In the zip is a precompiled version of `ctags.exe`. This is always a recent version of the Windows executables provided by the Universal Ctags project when the plugin was released.

You can always try to replace the provided version of `ctags.exe` with a more recent version.

Note that is you are upgrading from an older build of ctags you may have to put your local `ctags.cnf` or `.ctags` file to a file in the `.ctags.d` directory. See the Files section in the documentation of ctags for more details.

CHAPTER 3

How to use this plug-in

To use this plug-in you first need to generate a tags database in the directory of the current source file by pressing the `Generate` button in the toolbar. This will first generate a tags file, using the `ctags` program, which is converted to a SQLite database directly after that. This tags database is used by the plug-in.

3.1 Basic use

This plug-in has different ways to use:

- `Jump to Tag` tries to find the tag (function, variable, etc) under the cursor. If you want to jump to this tag simply press the assigned button (default `Alt+Q`) or the button in the toolbar. If there is only one reference found, you will be taken to it. Otherwise a dialog is shown where you can select the right one.

- The tree shows all (recognized) tags in a tree. You can double-click on a tag in the tree and you will be taken to it.

- `Jump Back` (default `Ctrl+Alt+Q`) will bring you back to the position where you were when you jumped to a tag.

3.2 Source files in a directory tree

Make sure you generate the database from the root directory of your project, that means with a file in that directory active. When you have generated the database and you open a file in a sub-directory NppTags will first look in the current directory for the tags database. If it cannot find one, it will go up a *number of times* to see if a database can be found there.

Do not try to generate a tags database from the root directory (like `C:\`) of your harddisk. Because of the `ctags -R` flag it will search your entire disk for source files, which is probably not what you want.

When you need to regenerate your existing database you can just click the button on the toolbar. The plug-in will know where the database is located.

3.3 Tree

Since ctags supports so many programming languages, it is impossible for me to add proper support for all these languages to the tree instantly.

There is a generic treebuilder that tries builds a basic tree for every language. For some languages there is a specific treebuilder that tries to build a tree as good as it can, although they are not perfect at this moment.

These languages have a specific treebuilder:

- C / C++
- C#
- Java
- reStructuredText
- SQL

If your programming language isn't in the list and/or the tags for your programming language don't show (properly) in the tree, *contact me* because it is probably not too difficult to add or improve support for other languages and/or types.

Note that this it only affects the tree, `Jump to Tag` shouldn't have any problem. If `Jump to Tag` does **not** work as expected, *contact me* as well.

Options

The Options dialog lets you control some of the behavior of the plug-in. It can be found in `Plugins`, `NppTags`, `Options...`.

Here you have these options:

`Maximum depth` is the number of directories the plug-in will go up to search for the tags database.

`Jump Back Stack` is the size of the stack of locations used by *Jump Back*.

`Path to ctags.exe` specifies the location of `ctags.exe`. When left empty, the plug-in will search for ctags.exe as described in the *installation instructions*.

4.1 NppTags.ini

The options are stored in an ini-file that is normally found in your "Application Data" directory and is named `NppTags.ini`. On my Windows 10 machine this directory is `C:\Users\Frank\AppData\Roaming\Notepad++\plugins\config`.

These are the default settings:

```
[Options]
Show=1
Depth=3
JumpBackStack=4
CtagsPath=
```

`Show` is controlled by the `Show Tags Tree` button on the toolbar and stores if the tree is shown.

The other options correspond to the various items in the dialog.

4.2 Debug section in NppTags.ini

For debugging it can be necessary to see the raw tags file or see what ctags is exactly doing. You can manually add an extra section with read-only options to the `NppTags.ini` to control what happens to the automatically generated tags file. These are the default settings:

```
[Debug]
DelTags=1
OverwriteTags=1
CtagsVerbose=0
```

When `DelTags` is set to `0` the plug-in will not delete the generated tags file after it is converted to the database.

When `OverwriteTags` is set to `0` and a tags file is found the plug-in will not overwrite and regenerate this existing tags file before generating the database. When set to `0`, this implies that `DelTags` is set to `0` as well. Can be useful when regenerating the database but you don't want to execute ctags every time.

When `CtagsVerbose` is set to `1` the `--verbose` flag is added when ctags is executed. The output is written to `tags.stdout` and `tags.stderr`.

Frequently Asked Questions

Q: Does NppTags recognize tags in language `XYZ`?

A: NppTags relies on Universal Ctags for the recognition of tags. So please check the documentation of Universal Ctags to see if your language is supported by Universal Ctags. If not, you have to contact the Universal Ctags team to see if they want to add support for your programming language. If Universal Ctags supports your language `Jump to Tag` should have no problems, but the tree could not show any or all tags.

Q: I want to ignore some files when ctags generates the tags file. Can I add extra command line options?

A: If you want to add extra command line options to ctags, create a file `.ctags.d/exclude.ctags`. Add lines with the `--exclude=` command line options you need.

It can be placed in the current directory for local settings or in your user directory for global settings. See the Files section in the documentation of ctags for more details.

Q: Why are the languages C and C++ are displayed as 'C/C++'?

A: This is done because .h files are standard marked as C++ by ctags. And for tags there is not too much difference between C and C++ to not combine them.

Q: When I jump to a tag it misses it by a few lines or it can not find it at all.

A: You probably need to regenerate the tags database by pressing generate button. Another problem may be that there is no unique search pattern for this tag. An option to use line numbers instead of seach patterns is planned.

CHAPTER 6

Wish list

- Show the tags per file. This should be configurable per language, and maybe even per language, per database.

- Building better trees for many languages.

- Internally always use WCHARS for filenames

- Add an option to set a path to a secondary tags database. If the tag is not found in the default tags database, the secondary one should be searched. Such a tags database can be created from the root of your programming environment to search the standard libraries. Where to find this secondary database could be based upon the language of current document, or a tags database option.

- Nest enums and structs in C++ classes in the tree.

- Auto-completion based upon the tags database.

- Options per tags database. Preserve those settings when the database is regenerated.

- Optional set the hidden attribute for `tags.sqlite`.

- Option to use line numbers instead of search patterns. Note that adding `-n` to a `.ctags.d/*.ctags` file already gives you this result.

- Make the plug-in multi-threading, especially when generating the tags file and converting that to the database.

- When `Jump to Tag` is used and there is no database, ask to generate it and then jump to the tag.

- Expand the tree item of a generic language if there is only one type.

- Add a searchbox above the tree.

Known Issues

7.1 General

- When you double-click in the tree the focus will not return to the edit window. I use the code from Npp-Snippets where it just works, but here is doesn't work. The context menu item `Jump to Tag` does work as expected.

- Switching between files leaves the tree untouched when there is no tags database found for the new source file.

- Find out how to use the full search pattern to jump to the line, while searching. So including the ^ and $ to ensure the entire line is searched for.

- Recent versions of Universal Ctags have changed ho to behave on long JavaScript and CSS files. This is most visible on minimized files. The current check in NppTags to prevent items from minimized files to show up on the tree need to be updated.

7.2 TreeBuilder specific

- The C# treebuilder shows a class twice per namespace when this class is split over two files, for instance in a situation of a *partial class* defined in both *FrmMain.cs* and *FrmMain.Designer.cs*. I need a come up with a decent solution for this. What should be the tag to jump to when the class name is selected?

- The C# treebuilder does not recognize nested namespaces yet.

How to compile

To compile NppTags you can use Visual Studio. Project files for VS 2019 are provided and actively used. To compile with other versions of Visual Studio you can convert the existing project files.

There is also a MinGW-w64 `Makefile`, using their 32-bit compilers. It can be used from Cygwin and MSYS2. The debug build of this makefile is not tested with `gdb`.

Contact

The plug-in's web page can be found at https://github.com/ffes/npptags.

If you have problems with, questions about or suggestions for NppTags please use GitHub. This is by far the best way to contact me. Pull requests are much appreciated! If for some reason you want to contact me directly, you can send me an email at fesevur@gmail.com.

License

This plug-in is published under the GPL-2 license. See *GNU General Public License* for the full license agreement. You can find the sources of the latest version and the current developments at GitHub.

This plug-in relies on Universal Ctags to recognize the tags. Universal Ctags is released under GPL-2 as well and the source code of Universal Ctags can be found at GitHub.

Changelog

11.1 Version 0.9.1, 2021-04-11

- Provide a 64-bit version of the plugin.
- Adjust to the new `plugins` directory of Notepad++.
- Setting `CtagsPath` was not saved.
- Remove the changelog from the About dialog. It is already in the documentation.
- Add menu entry to put the focus on the tree. This makes the plugin more keyboard friendly.
- Allow `Enter`-key to be used to go to a tag from the tree.
- Include latest git commit SHA in About dialog.
- Upgrade to libreadtags 0.1.0
- Upgrade to SQLite 3.35.4

11.2 Version 0.9.0, 2015-12-05

- The color of the tree match the selected Notepad++ theme.
- Add an *Options dialog*.
- Rewrite of the way the language trees are built.
- Add a `Java`, `reStructuredText` and `SQL` tree.
- Add an *option* to specify the path to `ctags.exe`
- Converted DocBook documentation to reStructedText and publish it at Read the Docs.
- Add `Jump Back` to bring you back to the position where you were when you jumped to a tag.
- Better support for *sources stored in sub-directories*.
- Very simple Tags Properties MessageBox.
- Add debug option to store the output of `ctags --verbose`.
- Updated to recent Universal Ctags build.

- Upgrade to SQLite version 3.9.2.

11.3 Version 0.2.0, 2013-11-23

- After generating the tags file, it is now converted to a SQLite database. This makes it much easier and faster to build a proper tree.
- Tree filled with common types of tags for various languages. Still far from perfect.
- In the Select Tag dialog, preselect the first tag in the current file.
- Show a separate root item per language, if more then one language is found.
- Using a SVN (rev 804) based build of `ctags.exe` for better JavaScript support and two personal patches.
- Upgrade to SQLite version 3.8.1

11.4 Version 0.1.1, 2013-07-05

- Tree now filled with functions.
- Added three toolbar buttons.

11.5 Version 0.1.0, 2013-06-30

- Internal proof of concept

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CHAPTER 13

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