User’s Guide for Windows with Stata, SAS, and R
Table of Contents

1.0 Introduction ........................................................................................................................................ 3
2.0 Setup .................................................................................................................................................. 4
3.0 Basics of StatTag ............................................................................................................................... 5
3.1 Build .................................................................................................................................................. 6
3.2 Manage .............................................................................................................................................. 13
3.3 Support ............................................................................................................................................ 17
4.0 Tag Structure and Syntax .................................................................................................................. 18
4.1 Values .............................................................................................................................................. 18
4.2 Tables .............................................................................................................................................. 19
4.3 Figure .............................................................................................................................................. 19
4.4 Verbatim .......................................................................................................................................... 20
4.5 Syntax .............................................................................................................................................. 20
5.0 Formatting tags ................................................................................................................................. 21
5.1 Values .............................................................................................................................................. 21
5.2 Tables .............................................................................................................................................. 21
5.3 Formatting after insertion ................................................................................................................ 22
6.0 Troubleshooting ................................................................................................................................ 22
7.0 Acknowledgements .......................................................................................................................... 24
Appendix A. Licenses .............................................................................................................................. 25
1.0 Introduction

StatTag is user-friendly software that integrates statistical code with document preparation in Microsoft Word. StatTag facilitates reproducible research by connecting Word documents, such as a manuscript, to associated statistical code. Word documents prepared with StatTag are reproducible dynamic documents: statistical results in the document can be automatically updated if either statistical code or data change. In addition, StatTag allows statistical code to be edited directly from Microsoft Word.

2.0 Setup

For use with all statistical software, the StatTag plug-in must be installed. For some software, additional steps are required.

<table>
<thead>
<tr>
<th>Setup Instruction</th>
<th>14</th>
<th>sas</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install the StatTag Plugin</td>
<td>Steps 1-3</td>
<td>Steps 1-3</td>
<td>Steps 1-3</td>
</tr>
<tr>
<td>Enable the Stata Automation API(^1)</td>
<td>Steps 4-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Install the StatTag Plug-In:

1. Download the StatTag setup.exe file.

2. When prompted, click “Run” and follow the InstallShield Wizard.

3. Open Microsoft Word. If StatTag has installed successfully, your Word toolbar will include a “StatTag” tab that will look like this:

Enable the Stata Automation API:

4. Select the “StatTag” tab on the top tool bar.

5. Select the “Settings” icon

6. Under “Stata executable location,” enter the file path for Stata on your computer. This may be something like C:\Program Files (x86)\Stata14\StataSE-64.exe.

\(^1\) [http://www.stata.com/automation/](http://www.stata.com/automation/)
Tip: To locate the file path of your Stata program, open Stata, and type ‘sysdir’ in the command line. This returns the installation pathway. Open the folder in Windows Explorer to verify the pathway and identify the name of your Stata executable (.exe) file.

7. After the file path has been set, click ‘Enable Automation’ to allow StatTag and Stata to communicate via the Stata Automation API. **You must click ‘Enable Automation’ in order for StatTag to work.**

8. Click ‘OK’ to return to the main screen.

Note: You must install the StatTag plug-in first, before enabling the Stata Automation API. Both installation of the StatTag plug-in and enabling the Stata Automation API require administrator access on your computer. The Stata Automation Application Program Interface (API) allows StatTag and Stata to exchange information. StatTag sends ‘calls’ to Stata to execute statistical code, and Stata in turn sends back the results of the code to be inserted in the Word document. You only have to do this step on initial installation of StatTag. Updates to StatTag will not require re-enabling Stata Automation.

3.0 Basics of StatTag
The StatTag program will link any code file written for Stata (.do), SAS (.sas), or R (.R) with your Word document, will run the code file from Word, and will insert any tagged results. We recommend that you begin with a code file that already contains your working statistical code and generates the results of interest. With StatTag, it is possible to write your statistical code directly from Word, but not as convenient as writing your code files in the statistical program’s editor.

There are three main steps to using StatTag:

1. Connect a Word document to files containing statistical code (i.e. .do, .sas, or .R file).
2. Annotate the code files to tag results, tables, or figures that are of interest.
3. Instruct StatTag where to insert those results within the Word document itself.

Note: This guide uses example code files to explain the use of StatTag. The example code files are distributed with the program, along with raw data and a Word document ready for tags to be embedded. To follow along with the User Guide, open the Word document.

3.1 Build

The three steps above are accomplished using the first three icons listed on the StatTag toolbar: Code Files, Define Tag, and Insert Tag Output. These three icons comprise the Build section of the StatTag toolbar. They allow the user to: (1) link statistical code to the Word document; (2) tag results, tables, and figures within the statistical code; and (3) identify where those tagged results should be inserted in to the Word document.

Code File

The Build toolbar enables linking one or more code files with your Word document. The first step to using StatTag is to connect your Word document with your statistical code. Note that it is possible to connect multiple code files to one Word document, and you may use code files from Stata, SAS or R in a single document. To link a code file:

1. Click on “Code Files”
2. A new dialog box will open. Select “Add File”. A Windows Explorer box will open, allowing you to navigate to the appropriate code file. This should be a .do, .sas, or .R file.
3. Locate the statistical code file and click “Open”.

4. After clicking “Open”, the file will appear in the selection window, and the default program will be chosen to run the code in. For example, if a do file is selected, Stata will be chosen by default.

5. Click “OK”.

**Note:** You can connect multiple source code files to a single Word document.

**Define Tag**

After a code file has been linked, the options to *Define Tag* and *Insert Tag Output* become available and are no longer grayed out. Once you have connected your statistical code file to your Word document, you are ready to create tags.

Tags in your code file(s) identify numbers, tables, figures, or verbatim output (i.e. raw output from the statistical program console) that you would like to embed in your Word document. Tags can be inserted through StatTag, using the following instructions, or for the more advanced user, can be directly written into your code files using a text editor of the user’s choice. Tags are specifically formatted text that Stata, SAS, or R interpret as comments, but allows StatTag to pull results into Word.
In the following example, we create a tag for a single value. **Section 4** covers additional information on creating tags for tables, figures, and verbatim output and the corresponding commands that must be present in your statistical code.

To create a tag through StatTag:

1. Click “Define Tag”

2. The linked statistical code will open in a new dialog box.

3. The dialog box has the following components:
   1. Code File
      - If you have only 1 code file linked to your Word document, this will be automatically selected in the drop down menu
      - If you have 2 or more code files linked to your document, use the drop down menu to select the code file you are using to make the new tags.
   2. Text editor showing the statistical code
      - The statistical code may be edited directly though StatTag. Any changes you make are made to the file itself and saved immediately.
   3. Name
      - The tag name is the unique name of the result of interest, and should only be used once within each code file to identify a result. StatTag will warn you if you try to use a tag name more than once.
ii. The tag name can contain any string of characters including special characters and spaces.

(4) Refresh
i. “Always” is the default selection. The results within the Word document will be updated automatically by StatTag every time the statistical code runs. The statistical code is run whenever a tag is added, removed, or updated, and when the Word file is opened.

ii. “On Demand” may also be selected. The results within the Word document will be updated only when you instruct StatTag to update them (using “Update Tag Output” icon, see Section 3.2). This is particularly useful for code that takes a long time to run, or when inserting many tags into a document.

(5) Result Type
i. This section informs StatTag if the tag will be a value, figure, table, or verbatim output and how the data should be managed.

ii. More information on tags for tables, figures and verbatim output is provided in Section 4.

(6) Format
i. Formatting options are specific to the type of result inserted.

ii. More information on formatting is provided in Section 5.

4. Enter a tag name for your new tag. For this example, we will create a new tag called “Total N”, which will insert the total number of participants in the example study.

5. Use the text editor window to locate the statistical result of interest.

Note: StatTag recognizes different keywords in Stata, SAS, and R. Use of these commands is discussed in detail in Section 4.

<table>
<thead>
<tr>
<th>Type</th>
<th>StatTag</th>
<th>SAS</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numeric Values</td>
<td>display</td>
<td>%put</td>
<td>Any command that returns a value</td>
</tr>
<tr>
<td>Tables</td>
<td>matrix list, any command that returns a .xls or .csv file</td>
<td>ODS CSV</td>
<td>Any command that returns a data frame, matrix, vector or list, any command that returns a .xls or .csv file</td>
</tr>
<tr>
<td>Figures</td>
<td>graph export</td>
<td>ODS PDF</td>
<td>pdf, win.metafile, png, jpeg, bmp, postscript</td>
</tr>
</tbody>
</table>
6. Highlight the line of code containing the `display`, `%put` or R command. **To highlight,** click between the line number and the start of the line of code. Clicking in this margin will highlight the line of code in purple.

**Tip:** You can select multiple lines, but as best practice, select only the line(s) containing the result of interest.
7. If your selection of code does not include a recognized keyword, StatTag will print an error in the top right of the text editor.
Tip: If you get a warning that the section of code you have highlighted cannot output to StatTag, double check the instructions in the selection pane. These will tell you what commands you should highlight.

8. Use the formatting window to make any changes to the way in which the result is displayed. By default, the result will be displayed as it is in the statistical program. For example, our selections to `display `ntotal', `put &num' and `print(nrow(esoph))` will insert these numbers to the Word document using the default formatting from Stata, SAS and R respectively.

9. Click either “Save” or “Save and Insert in Word”. If “Save” is chosen, the tag will be saved, as will any edits to the statistical code. If “Save and Insert in Word” is selected, the tag will be saved, the statistical code will run, and the result will be inserted at the location of the cursor in your Word document.

10. Use the “Define Tag” icon as often as needed to create tags for all of your statistical results. (In the next section, we have also defined “Intervention N” and “Control N,” following the steps above).

Insert Tag Output
Tags can be inserted at the point of the cursor when they are defined, using the “Save and Insert in Word” option. They can also be inserted after they are created through the “Insert Tag Output” icon. Tags can be inserted more than once, and the results will be updated collectively.
Throughout the text, tags are always inserted at the location of the cursor, although they can be copied and pasted elsewhere once inserted.

**Tip:** Once a tag is inserted into a Word document, double clicking on the tag will open the tag window, from which you can modify the characteristics of the tag (name, when to run) or the associated statistical code.

To insert a saved tag:

1. Click “Insert Tag Output”

2. All saved tags will be shown in a new window by their tag name and the code file in which they have been saved. Select one or more tags by clicking on the checkbox next to the tag name.

3. Click “OK” to insert the output. Upon clicking “OK” the statistical code will run and the result will be inserted in to the document.

### 3.2 Manage

The second portion of the StatTag toolbar consists of the *Manage* icons. These icons allow the user to manage tags after they have been created and inserted using the *Build* icons. The *Manage* icons include Update Tag Output, Manage Tags, and Troubleshoot Tags. These icons allow the user to manually update results; add, edit or delete saved tags; and troubleshoot any issues with inserted tags.
Update Tag Output

Tags are either updated “Always” when the statistical code is run (when new tags are defined, removed, or modified, and when the document is opened), or “On Demand” when the user instructs StatTag to update the results. To change how tags are updated, or to update the tags “On Demand”:

1. Click on “Update Tag Output”

2. A new dialog box is opened. Tags are shown in either the “On Demand” window or the “Always” window, depending on how they have been defined in the statistical code.

3. To update the inserted results from any tags that have been defined as “On Demand,” select the tags by checking the box next to the tag name.

4. To update the inserted results from any tags that have been defined as “Always,” select the tags by checking the box next to the tag name. By default, all of these tags will be selected.

5. Click “OK” to run the statistical code, and update the selected results.
Manage Tags

Once saved, all tags will be listed in the Manage Tags dialog box. From this dialog box, the user can change how tags are formatted and updated, or can remove them entirely. To manage tags:

1. Click “Manage Tags”

2. All saved tags will be shown in a dialog box by their tag name with information about how they have been defined. From this dialog box, new tags can be defined, and existing tags can be edited or removed.

3. To define a new tag, click the “Define New Tag” button at the bottom of the dialog box. This will open the statistical code, and follow the “Define Tag” process described above. Defining new tags will insert new tag notation in your statistical code.

4. To edit a tag, click the “Edit” button on the right of the window. This opens the statistical code, showing the highlighted tag. The options for this tag can be edited through the dialog box.

**Note:** Tag properties can be edited either through the dialog box using the clickable and selectable tag properties options or by editing the tag itself through either the statistical program or a text editor. Do not try to modify the tag text from within Word.
5. To remove a tag, check the boxes next to each tag you wish to remove. Then click “Remove Checked Tag(s)”.

**Note:** Removing tags will delete the tag notation in your statistical code. Removing tags will not delete inserted text, tables or figures from your Word document. However, those results will no longer be tagged. They will not be updated when code is rerun or the document is open.

6. Click “OK” to permanently save any changes you have made within your statistical code.

**Troubleshoot Tags**

There are two troubleshoot options provided: (1) linking unlinked tags, and (2) removing duplicate tags. Tags can become unlinked if the statistical code is unlinked from the Word document, or if the statistical code is edited outside of StatTag and the notations are modified. For example, code could become unlinked if the code file (.do, .sas or .R) is moved to new location without changing the code file path in StatTag. Tag names can be duplicated within statistical code if the code is edited outside of StatTag and a tag name is inadvertently duplicated. To troubleshoot either issue:

1. Click “Troubleshoot Tags”

2. A new window will open showing any unlinked tags and any duplicated tags in separate tabs.

3. If there are unlinked tags, they will be shown in the first tab.
4. The drop down menu “Action to Take” shows three options for each tag:
   (1) Link the tag to a code file currently linked to the Word document
   (2) Remove the tag from the document
   (3) Link the missing code file

5. If there are duplicated tags, they will be shown in the second tab.

6. The dialog box shows the duplicated tags and the lines in the statistical code in which they occur. Use the “Manage Tags” icon to resolve any duplicates – for example, by removing or renaming a duplicate tag. If duplicates are not resolved, the tag output in the Word document will reflect output corresponding to the latest occurrence of the tag in the statistical code.

3.3 Support

Settings

The Settings window controls aspects of StatTag’s operation. The first option either enables or disables StatTag to automatically run your statistical code when a Word document with embedded code files is opened. This is disabled by default, but when enabled by checking the box, will execute the statistical code and refresh the results of all tags set to run “Always”.

The second option enables or disables StatTag to capture information about the StatTag plug in. This is disabled by default, but if you encounter errors and would like to request assistance please do the following: (1) enable the debug file, by checking the box, which will write a plain text file to your computer; (2) run your program to generate the errors, and; (3) send the debug file to StatTag@northwestern.edu.

If you are using Stata, the Settings dialog will contain the location of your Stata executable file. See page 4 for more information about configuring Stata.
StatTag Windows Version 3.4 User’s Guide

About
The About icon will open a window containing the version number of StatTag that you are using, and information regarding citation, usage, and licenses related to StatTag.

Help
The Help icon will open the User Guide from within Word. If you need additional help or support, email StatTag@northwestern.edu or visit the StatTag website at http://sites.northwestern.edu/stattag/ to interact with the user community.

4.0 Tag Structure and Syntax
Four types of results can be tagged.

<table>
<thead>
<tr>
<th>Type</th>
<th>StatTag</th>
<th>SAS</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numeric Values</td>
<td>display</td>
<td>%put</td>
<td>Any command that returns a value</td>
</tr>
<tr>
<td>Tables</td>
<td>matrix list</td>
<td>ODS CSV</td>
<td>Any command that returns a data frame, matrix, vector or list</td>
</tr>
<tr>
<td>Figures</td>
<td>graph export</td>
<td>ODS PDF</td>
<td>pdf, win.metafile, png, jpeg, bmp, postscript</td>
</tr>
</tbody>
</table>

In order to return results from your statistical analysis to Word, your results must be created and either printed to the results window of your statistical program or to file through one of the above commands, and encapsulated in a tag. Other lines in your statistical code should not be encapsulated by tags, as they may cause errors. Examples of all commands referenced below can be found in the accompanying sample files for each statistical program.

4.1 Values
Values are returned to StatTag and then inserted into Word with the display (Stata) or %put (SAS) commands, or R commands that return a number. The display and %put commands are used in Stata and SAS code respectively to print strings or scalar values to the results window. They will not return data in any other format, such as a matrix or table.
The display command is typically used in Stata code with the return command to retrieve stored results, or with local or global macro variables.

The %put command is typically used in SAS code to store values or strings as local macro variables.

R commands that return a single value (e.g., print) may be used. If the value returned has more than one element (such as a vector), only the first element will be used.

4.2 Tables

Tables are returned to Word with the matrix list (Stata) or ODS CSV (SAS) commands, or R commands that return a collection of values.

The matrix list command is used in Stata code to print a matrix to the results window. The matrix list command is typically used after creation of a matrix with the mkmat, matrix define, estout, or estimates table commands.

The ODS CSV command is used in SAS code to redirect output to a location on file, instead of the results window. The file location is used by StatTag to pull in the results of interest.

R commands that return a collection of values (data frame, matrix, vector, or list) can be used as table results by StatTag.

4.3 Figure

Figures are returned to Word with the graph export (Stata), ODS PDF (SAS), pdf, win.metafile, png, jpeg, bmp, or postscript (R) commands.

The graph export command is used in Stata code to save a graph or figure to file outside of Stata, the location of which is specified by the user. StatTag will retrieve the file to insert into Word. The graph export command expects a pathway and file name to be specified along with the file format, and the replace option to overwrite an existing file as required. The command will export the last graph rendered in Stata.

The ODS PDF command is used in SAS code to save results of other commands to a pdf file outside of SAS, the location of which is specified by the user. StatTag will retrieve the file to insert into Word. The ODS PDF command expects a pathway and file name to be specified. The command will export any contained output that would be otherwise printed in the results window.

The pdf, win.metafile, png, jpeg, bmp and postscript commands are used by R to save a graph or figure to a file outside of R, the location of which is specified by the user. StatTag will retrieve the file to insert into Word.
4.4 Verbatim

Verbatim results echo any printed output within the statistical program. Inserted output will be formatted text in a text box. The inserted text may be further formatted in Word.

Tagging code as verbatim in Stata will result in the insertion of any output printed to the Stata results screen.

Tagging code as verbatim in SAS will result in the insertion of any information printed to the SAS log screen.

Tagging code as verbatim in R will result in the insertion of any output printed to the R console.

4.5 Syntax

A tag always starts with **>>ST:Value(Label=" ", Frequency="", Type="")** and may contain additional information based on the type of tag (number, table, or figure) it identifies. The tag always ends with **<<<**. Examples of tags for a numeric value, a table, a figure and verbatim output are listed below.

**>>ST:Value(Label=" ", Frequency="", Type="")**

code

**<<<**

**>>ST:Table(Label="", Frequency="", Type="", AllowInvalid=True, Decimals=0, Thousands=False)**

code

**<<<**

**>>ST:Figure(Label="", Frequency="")**

code

**<<<**

**>>ST:Verbatim(Label="", Frequency="")**

code

**<<<**

If tags are made through StatTag, the text (“***>>> … <<<”) will be written into your statistical code by the plug-in. The Label, Frequency, Type and Table parameters are inserted with the opening and closing tags by StatTag. For the more advanced user, you can also directly
write tags into your statistical code. If written by hand in the statistical code, you must write both the opening and closing tags, and provide a tag name for each tag.

**Note:** Tags cannot be nested within each other. A tag should encapsulate exactly one keyword command (i.e. `display`, `matrix list`, `&put`, etc.)

## 5.0 Formatting tags

When a tag is created, its format should be specified accordingly. Options may be selected for either Values or Tables. There are no formatting options for Figures or Verbatim.

### 5.1 Values

Values can be formatted by default (per the exact statistical output), as a number with a specific number of decimal places, as a date/time combination, or as a percentage with a specific number of decimal places. Formatting is selected from the drop down list.

### 5.2 Tables

Matrices and tables are inserted to Word through StatTag using different mechanisms depending on the statistical software used. In all cases, data are formatted using OpenXML prior to being inserted. By default, where data are blank or missing, a “.” is returned in the particular cell. This behavior can be changed for either the document (document properties) or the user (user settings) so that the returned value is a missing character or another default character. Tables use field formatting, and text cannot currently be wrapped within a cell.

Currently, if any formatting is specified, the formatting is applied to the entire table. Formatting options include specification of the number of decimal places and inclusion of a comma separator for thousands places, which will be applied to all numerical data in the table.

Once inserted to Word, the dimensions (rows and columns) of a table should not be modified by removing or adding columns, as this will cause errors when updating the results. If you change the dimensions of a table, you should delete the table from Word and insert the table again. StatTag allows flexibility in importing tables to exclude rows and columns by number. Using these options, the headers, row names, or specific variables and data can be excluded.
Tip: Data from individual cells in an inserted table can be copied elsewhere within the Word document text, and will retain their linkage to the original data. For example, if you wished to include a p-value in the text, copy the result from the table and paste into the text. When the table is updated, the value in the text will be updated as well.

5.3 Formatting after insertion

Once inserted, values and tables can be formatted using Word text formatting options, such as changing fonts, bolding, or italicizing. Updating the tags will not affect the applied formatting in Word.

Tags can also be copy and pasted, or cut and pasted to other parts of the text, and will retain their linkage to the statistical code. If your tag is copied or inserted in multiple locations, updates within your statistical code will update every instance of the tag within your text.

Tags can be deleted from the text. Deleting the tag from the text will not delete the tag syntax within your statistical code. To delete the syntax, use the “Remove tags” option in the Manage Tags dialog box.

6.0 Troubleshooting

<table>
<thead>
<tr>
<th>Error</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>[NO RESULT]</td>
<td>StatTag returns this value when the plug-in does not capture any information from the statistical program. If your tag returns this result, complete these steps:</td>
</tr>
<tr>
<td></td>
<td>1. Close the statistical program if it is open.</td>
</tr>
<tr>
<td></td>
<td>2. Check to ensure the tag encapsulates a keyword command.</td>
</tr>
<tr>
<td></td>
<td>3. Check to ensure the statistical code is running correctly. Run the code in the native software and check for any errors or warnings.</td>
</tr>
<tr>
<td></td>
<td>4. Review any files created on disk to ensure they contain the expected output, and they are created each time the code is run.</td>
</tr>
</tbody>
</table>

My document takes a long time to update

Inserting and updating tables can take a long time. The default update option is “Always”, in which case the statistical code is run each time any tag is inserted, removed, modified, and when the document is opened. Depending on the number and type of tags you have inserted, this process may be very long.
Consider using the “On Demand” update option for your tables to reduce the amount of time the update takes.

**Could not communicate with Stata**  
The Stata API must be enabled to insert and update tags. Check the Settings icon to ensure that (1) the correct pathway has been specified to your Stata.exe file, and (2) that the API has been enabled.

**Warning is displayed when a tag is defined**  
If a red warning notice is given, you have not highlighted a keyword command in your code. Check to ensure you have selected the right option of Value, Table, or Figure, and you have highlighted a section of code containing the corresponding command.

**Looping**  
Tags must be standalone, and should not be embedded within a loop.

**Embedded Tags**  
Tags should not encapsulate other tags.

**I don’t see StatTag in the Toolbar**  
Check in your program files to ensure StatTag is installed. If installed, check the COM Add-ins after Word is launched. To do so, from the File menu in Word, open the Options menu, then the Add-ins menu. On the bottom of the menu, under Manage, ensure COM Add-ins is selected and click ‘Go’. Ensure the box for StatTag is checked and click ‘OK’.
7.0 Acknowledgements

Development of StatTag and this user’s guide was supported, in part, by the National Institutes of Health’s National Center for Advancing Translational Sciences, Grant Number UL1TR001422. The content is solely the responsibility of the developers and does not necessarily represent the official views of the National Institutes of Health.

StatTag was inspired in part by the Stata Automation Report project:

StatTag makes use of the following open source projects (licenses in Appendix I):
• Scintilla - http://www.scintilla.org/
• ScintillaNET - https://github.com/jacobslusser/ScintillaNET
• Json.NET - http://www.newtonsoft.com/json
• SASHarness - https://github.com/cjding/ScintillaNET
• R.NET - https://github.com/jmp75/Rdotnet

Use of these projects does not imply endorsement of StatTag by the respective project owners, or endorsement of the use of these projects by Northwestern University.
Appendix A. Licenses

License for StatTag
The MIT License (MIT)

Copyright (c) 2016, Northwestern University, All Rights Reserved

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

License for Scintilla and SciTE
License for Scintilla and SciTE

Copyright 1998-2003 by Neil Hodgson neilh@scintilla.org, All Rights Reserved

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation.

NEIL HODGSON DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL NEIL HODGSON BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
License for ScintillaNET
The MIT License (MIT)

Copyright (c) 2016, Jacob Slusser, https://github.com/jacobslusser

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

License for Json.NET
The MIT License (MIT)

Copyright (c) 2007 James Newton-King

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.
License for R.NET

New BSD License (BSD)
Copyright (c) 2010, RecycleBin
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

License for ScintillaNET Find & Replace Dialog

MIT License

Copyright (c) 2017 Steve Towner

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

License for log4net
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as
defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is
granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are
controlled by, or are under common control with that entity. For the purposes of this definition,
"control" means (i) the power, direct or indirect, to cause the direction or management of such
entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this
License.

"Source" form shall mean the preferred form for making modifications, including but not
limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a
Source form, including but not limited to compiled object code, generated documentation, and
conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available
under the License, as indicated by a copyright notice that is included in or attached to the work
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or
derived from) the Work and for which the editorial revisions, annotations, elaborations, or
other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

License for EPPlus

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions.

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:
a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.
e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.
The Free Software Foundation may publish revised and/or new version of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.