The *Colored Noteheads on Strings* plugin and string numbers for notes in stringed instruments in Sibelius

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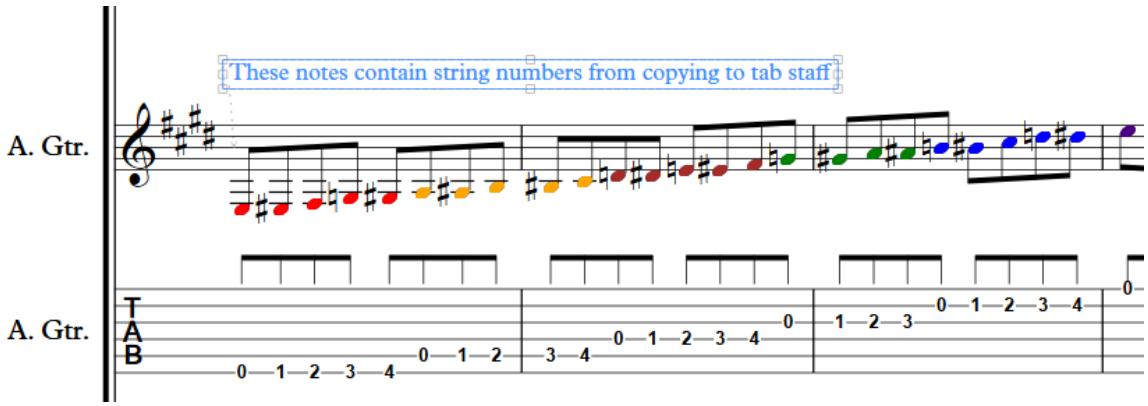
The *Colored Noteheads on Strings* plugin assigns colors to notes based on the string on which the notes appear. It uses colored notehead styles rather than traditional Sibelius coloring, which enables it to color individual notes in a chord.

Unfortunately it is not simple to determine which string a note should be assigned to, and this can require some setup before the plugin can be successfully used. The remainder of the document will discuss how notes can be assigned to strings so that coloring can be done.

String numbers for notes



Results of the Colored Noteheads on Strings plugin that colors notes based on the string where the notes appear

For a stringed instrument (with a fingerboard, such as a violin or guitar) it is sometimes useful to know which string a given note is on. Normally you do not care what string a note is on, but I encountered this problem while writing a plugin to color notes based on the string the note is on.

In Sibelius, notes in tablatures staves contain a string number (where 0 is number of the lowest string in the instrument).

Notes on normal notation staves do not contain string indications unless the notes originated in a tablature staff and were copied back to the notation staff. If they were copied, then the notes do contain a string indicator; if however, you change the pitch of the note in the notation staff, the string indicator is reset to the special “no string” value “-1”.

The only way to know which string a note is assigned to is to write a plugin that can trace the value; the information is not available from the Sibelius user interface.

The ambiguous mapping of notes to strings

In instruments with a fingerboard, the same note can appear in multiple locations, and that makes it difficult to determine which string the note should be on. Sibelius has this problem when copying notes from a notation staff to a tablature staff. It tries to guess which string it will go on, and there are options to favor open strings or not, but it is common when copying notes to a tablature staff to have to manually drag tab numbers to adjust the strings the notes land on.

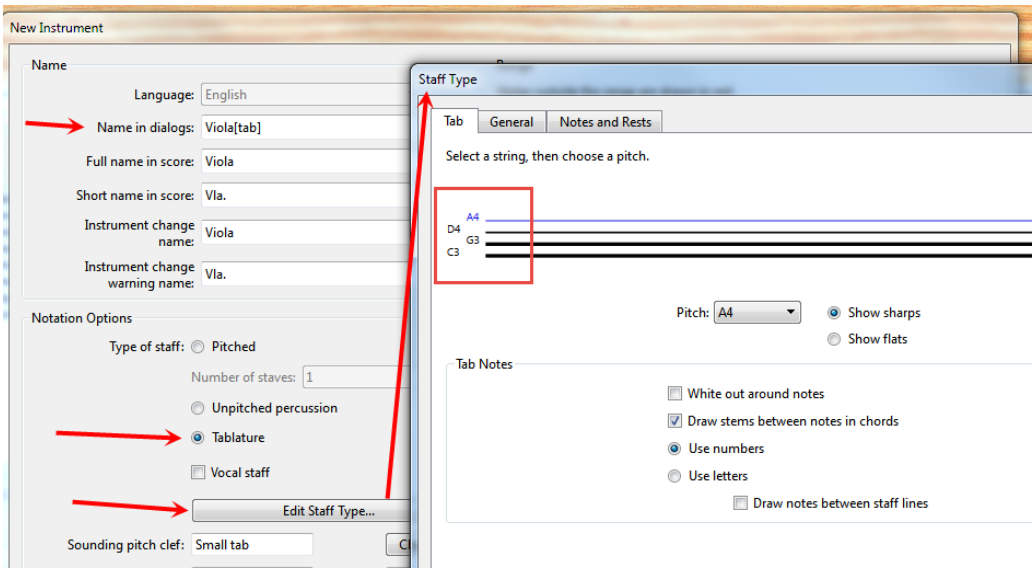
Notes on a tablature staff, on the other hand, are unambiguous in their string assignment. By their nature, such staves show the assignment of the note to a string.

Assigning string numbers to notes in a notation staff

The only way to assign string numbers to notes in a notation staff is to create a tablature staff with the desired instrument and tuning, copy the notes from the notation staff to the tablature staff, adjust any string assignments, and then copy the notes back to the notation staff.

You will probably want to filter notes and rests before copying between staves to avoid moving text and chord symbols.

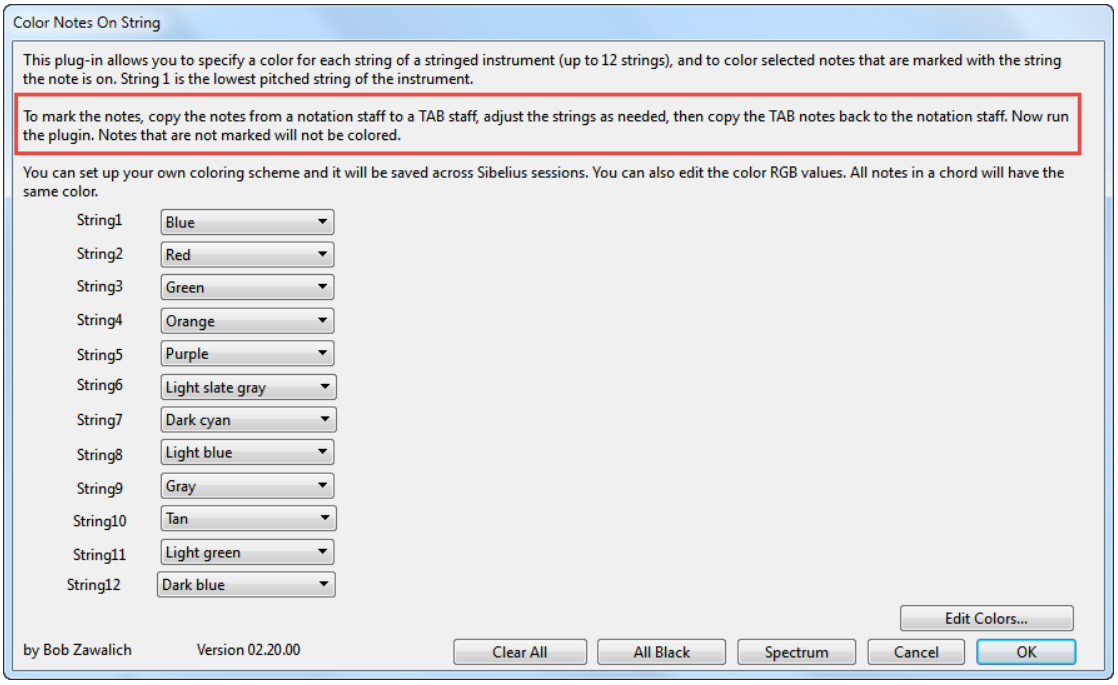
For instruments like guitars, there are lots of available tablature staves in different tunings. For a violin, you can use a standard tuning mandolin tab to copy to and from, and for a double bass, you can use a tab for a 4-string electric bass. For other instruments like a cello or viola, you may need to create a new tablature staff instrument based on something similar – in these examples you could base the tablature instrument on a mandolin, or any other 4-stringed instrument, and then, edit the staff type to assign pitches to the strings.



Once you have this instrument, you can create one (at least temporarily) in the score, copy the notes from the notation staff to the tablature staff, adjust the string assignments, copy the notes back to the notation staff, and then delete the tab staff if it will no longer be needed.

*This mechanism is the **only** way you can assign a specific string number to a note in Sibelius. It is certainly tedious but it does work, and if you want string assignments other than what Sibelius chooses by default, this is what you need to do.*

I wrote the plugin *Color Notes On String* a number of years ago, and it will only color notes that contained a string number, so you would be required to copy notes to and from a tablature staff in order to color any notes.


Color Notes On String
This plug-in allows you to specify a color for each string of a stringed instrument (up to 12 strings), and to color selected notes that are marked with the string the note is on. String 1 is the lowest pitched string of the instrument.
To mark the notes, copy the notes from a notation staff to a TAB staff, adjust the strings as needed, then copy the TAB notes back to the notation staff. Now run the plugin. Notes that are not marked will not be colored.
You can set up your own coloring scheme and it will be saved across Sibelius sessions. You can also edit the color RGB values. All notes in a chord will have the same color.
String1 Blue
String2 Red
String3 Green
String4 Orange
String5 Purple
String6 Light slate gray
String7 Dark cyan
String8 Light blue
String9 Gray
String10 Tan
String11 Light green
String12 Dark blue
Edit Colors...
by Bob Zawalich
Version 02.20.00
Clear All
All Black
Spectrum
Cancel
OK

A different way to get string numbers for notes

I wrote a plugin suite that used colored notehead styles rather than Sibelius colors to color notes. This gave the ability to color individual notes in a chord with different colors, which Sibelius coloring does not do.

I wanted to update *Color Notes On String* to use colored notehead styles, and at the same time provide some more flexibility in determining string assignments.

The new plugin, *Colored Noteheads On Strings*, available for Sibelius 7 and later,
uses the string numbers contained in notes if they are available, but if not, it tries to find a string for a note by different means.

If you know the number of strings and the starting pitches for each string for a given stringed instrument, you can calculate a string for each pitch in the range of the instrument.

This does not allow you to specify that a note should go on a specific string, but for simple music (typically in the first position), it will give useful values, and will at least be a good starting point.

If you do need more specific string assignments, you can create a tablature staff, and copy the notes to the tab staff, then back to the notation staff.

This is what this plugin does when it knows the nature of the stringed instrument, using a violin as an example:

- It gets the number of strings, and the starting pitch for each string. So, for a violin in standard tuning it would find that there are 4 strings, and the starting pitches (from low to high) would be G3 D4 A4 E5.
- Any notes below the low string will not get a string number.
- Any notes from G3 up to and including C#4 are assigned to the low string (string 4)
- Any notes from D4 up to and including G#4 are assigned to the next higher string (string 3)
- Any notes from A4 up to and including D#5 are assigned to the next higher string (string 2)
- Any notes from E5 and higher are assigned to the high string (string 1)

The effect of this mapping is that as soon as a note appears on a string, the note is assigned to that string, and thus the notes are assigned to the lowest positions available for that note.

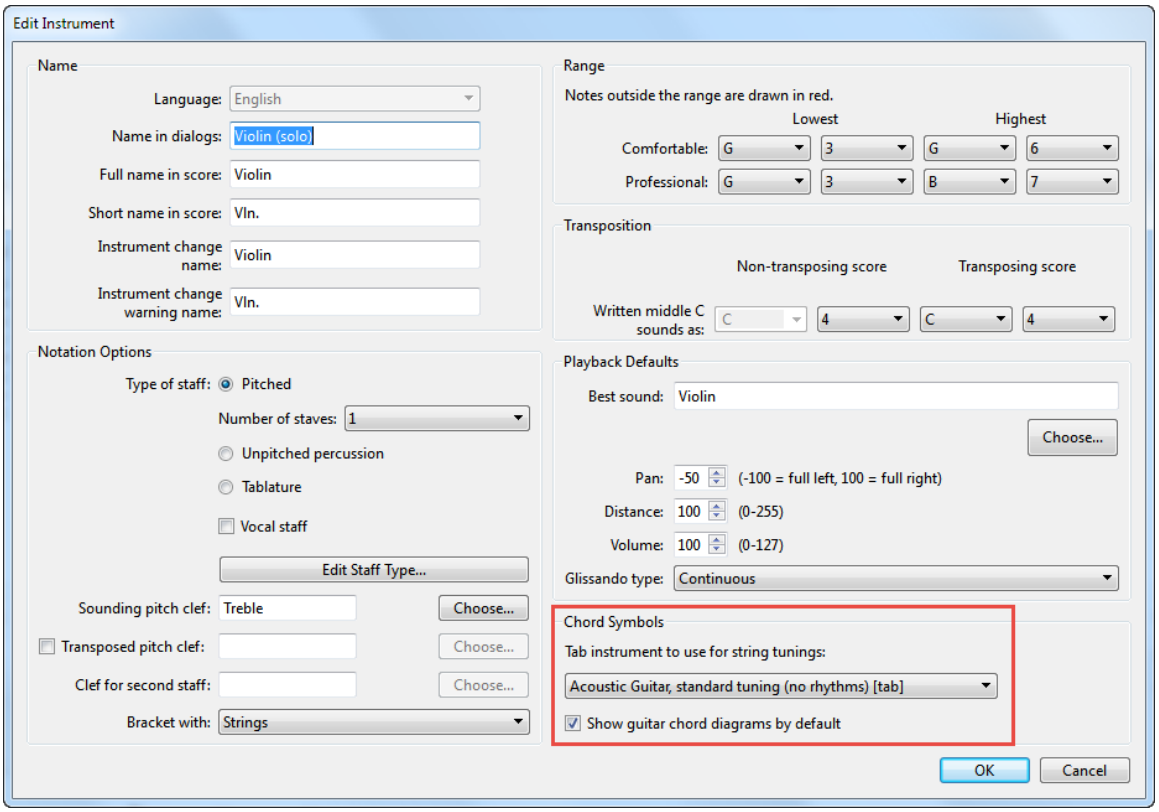
How to determine the number of strings and the starting pitches

In *Edit Instrument*, Sibelius provides a mechanism to specify a tab instrument that is associated with a notation staff. This is intended primarily for fretted instruments that display chord symbols, such as guitars or mandolins, but the field is available for all instruments. This information is available to a plugin.

It will not be meaningful for non-stringed instruments such as woodwinds, pianos, or percussion, but it is what we want for stringed instruments.

For guitars and mandolins and banjos, the default tab instruments are set up to be appropriate instruments in standard tuning. You may need to change the assignment if you want to use a non-standard tuning, but for a standard tuning, you can find the number of strings and the starting pitches from this information.

Unfortunately, for instruments that do not typically display chord symbols, Sibelius uses the Acoustic Guitar, Standard Tuning as the tab instrument, as in this example of a violin.



This is not useful for a violin, since it will tell you there are 6 strings in guitar tuning.

How *Colored Noteheads On Strings* determines the number of strings and the starting pitches

While it would be possible to edit an instrument type such as a violin and set the tab instrument to be something like a mandolin (which has the same number of strings and tuning as a violin), it would be tricky to do, and other instrument like viola and cello would need to have special tab instruments created.

Since it is likely that bowed string instruments might want to use colored notes, I decided to hard-code the values of numbers of strings and starting pitches for standard-tuned violin, viola, cello, and contrabass.

These instruments will ignore the tab instrument setting in Edit Instruments.

Guitar, mandolin, and banjo, which have reasonable default tab instruments, derive the number of strings and starting pitches from the tab instruments. If you change the tab instrument, these instruments will find the new values.

Once the plugin is run and notes are colored, it is tricky to see whether the coloring is correct. You can run the plugin *Trace Colored Notehead Styles*, which tells you which notes in the selection are assigned to which color, and since a color is mapped to a string, this will show you which notes are assigned to which string.

Implications

If you assign strings by copying to and from a tablature staff, those string assignments will be used by the plugin.

If you do not assign strings by copying to and from a tablature staff, the plugin will use the number of string and starting pitches for some instruments, and the string assignment will always favor open strings and provide the lowest available fret or position.

For guitar, banjo and mandolin, you can change the tab instrument in the instrument definition and pick up different tunings.

For violin, viola, cello, and contrabass, the plugin will always use the standard tuning in the notes are not assigned to string numbers.

All instruments in the *string* and *fretted* families can be colored if string numbers are assigned to the notes.

The only instruments that will use the string number/starting pitch model are those instruments specified above. All variant types of guitar (such as dobros), banjo and mandolin, and all types of violin, viola, cello, and contrabass should be processed.