

The Shift Staff Spacing Plugin

Bob Zawalich August 6, 2023

What it does

Shift Staff Spacing adds a user-specified amount of spacing to **each staff selected** in a passage selection. It does not process hidden staves. A positive spacing number moves the staves down, a negative spacing moves the selected staves up.

The purpose of the plugin is to let you change a block of staves to have the same staff spacing.

You will likely more often want to use Staff Optimization, or Reset Spacing Above/Below Staff, or to adjust stave spacing manually, but in certain cases, typically large scores with lots of staves, this plugin may be useful.

This plugin is dedicated to Ilkay Bora Oder.

It requires Sibelius Ultimate version 2020.3 or later.

Shift Staff Spacing - Version 01.07.06 - by Bob Zawalich

Adjusts the distance between staves for all staves in a passage selection in the range of the selected bars.

Spacing can be spaces, mm, inches, or points. The spacing is added to or subtracted from the current line spacing of each selected staff.

You may not get the spacing you specified, especially if the score is justified. Help (?) has suggestions for getting your desired spacing. View>Staff Ruler, and set its units in File>Preferences>Other to see the results.

Spacing to add to selected staves:

1

spaces
mm
inches
points

Use Relative Move commands
Use Absolute Move commands

Engraving Rules settings

** Default staff spacing: 6 spaces
** Staff Justification %: 0

Set Justification Percentage to 0 to always justify, to 100 to never justify

☐ Set Staff Justification Percentage: 0 %

Toggle staff ruler visibility

Reset spacing for selected staves

☐ Do not show this dialog (this Sibelius session)

? Cancel OK

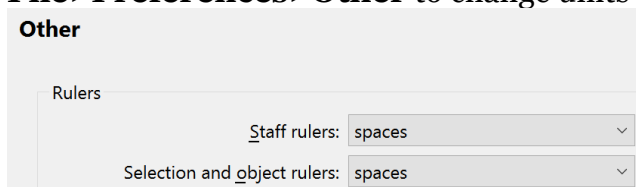
How it works

- The plugin runs one or more Sibelius **Move Staff** commands on each selected staff. The “a lot” commands move the staff by 1 space, and the “normal” commands move in 1/8 space increments, though there is a lot of rounding involved with the “normal” commands, so it is hard to be very precise.

- The plugin automates what a user could do manually by dragging staves or using the **Move Staff** commands on each selected staff.
- **For various reasons, discussed below, you may not get the spacing you asked for.** You can usually run the plugin again with smaller adjustments to get closer to the spacing you want.

Using the staff ruler

- Show the staff ruler (**View>Rulers>Staff Rulers**) to see what the current spacings are and to see the spacing after the plugin is run.
- You can also toggle the visibility of the staff rulers by pressing the **Toggle Staff Ruler visibility** button. This will close and then reopen the dialog.
- Change the units in the **Staff Rulers** to match the units chosen in this plugin. Go to **File>Preferences>Other** to change units for the staff ruler.

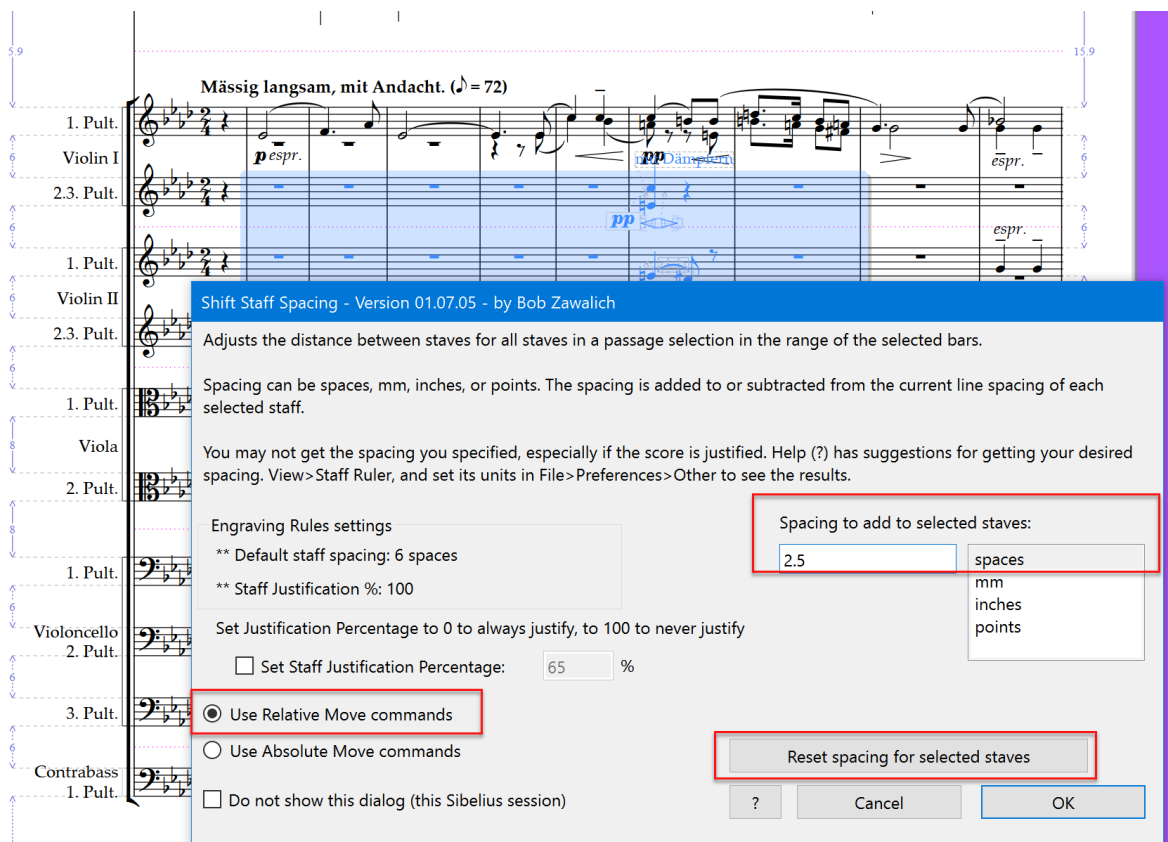


An Example

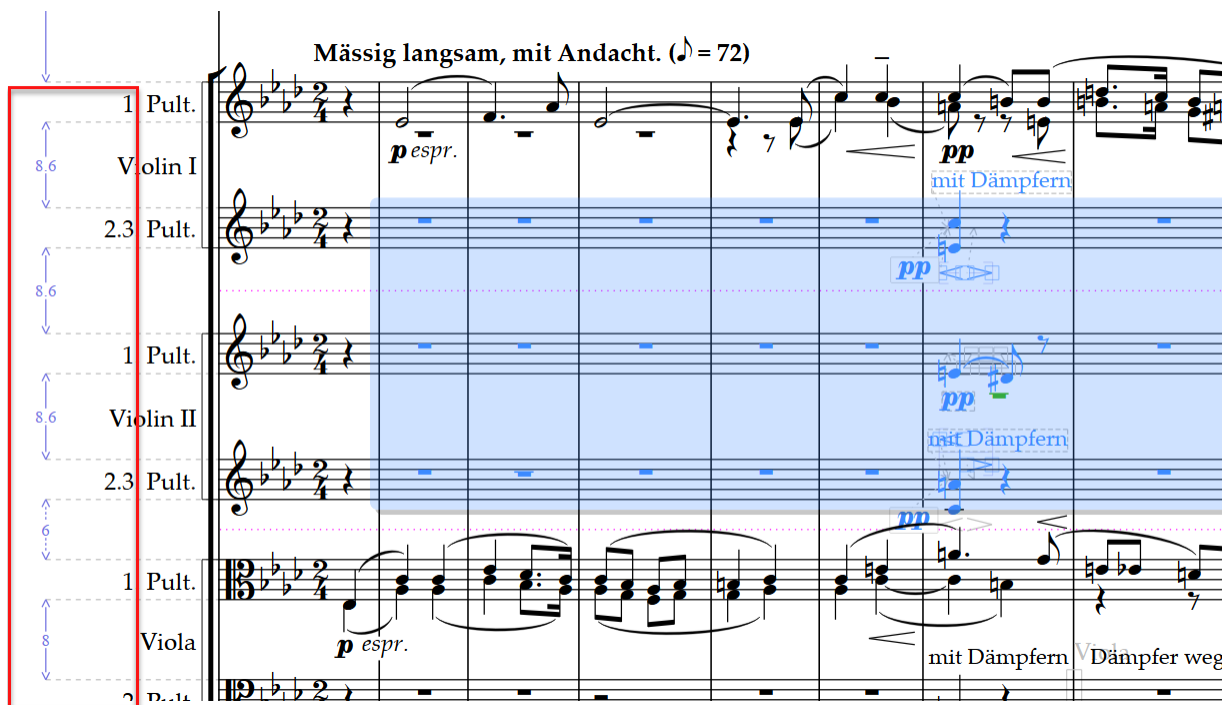
Let's say we want the violin 1 and 2 staves to have the same spacing, at a specific value. I have the staff ruler set to show spacing in spaces. Note that I am not selecting the top violin 1 staff since I only want to move the violin staves relative to the top violin staff.

This example has the engraving rules **Staff Justification set to 100%**, so no vertical page justification is being done.

I used the **Reset spacing for selected staves** button so the staves would start at the same spacing, as much as possible. At this time they are 6 spaces apart, which is the **Engraving Rules** default staff spacing for this score (which the plugin dialog explains).



I would like these staves to be 8.5 spaces apart, so I will need to add +2.5 spaces to these staves. When I press OK, this is what I see. 2.6 spaces, have been added above each of the staves. The .1 space difference is due to rounding error and is as close as the plugin can get to the desired spacing.



Move Staff Commands

These Sibelius commands are called by this plugin.

- Move staff down **a lot** (relative) / Select note in staff below
- Move staff down (relative)
- Move staff up **a lot** (absolute)
- Move staff up (absolute) / Select note in previous voice

The plugin uses the “**a lot**” commands as much as possible, to move by full spaces. For spacing smaller than a unit, it will call the normal commands as many times as needed to get close to the desired spacing.

The “a lot” commands move 1 space at a time. So to move 2.5 spaces in the example above, I called **Move staff down a lot (relative)** twice.

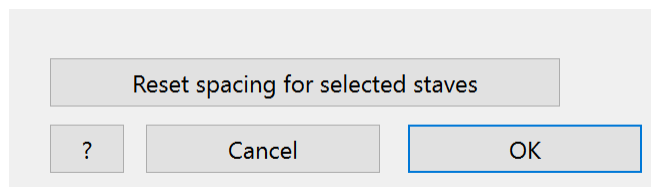
Move staff down (relative) theoretically moves $\frac{1}{8}$ of a space at a time, but there appears to be a lot of rounding going on. In my testing it usually took about 5 calls to move a space, rather than the advertised 8 times. Each call to **Move staff down (relative)** moves about $\frac{1}{5}$ (or .2) spaces, so it would be called either 2 or 3 times to reach .5. These calls are likely where the rounding error comes in.

Options

- **Spacing units**
 - By default, the plugin adds spacing in units of spaces, where a space is $\frac{1}{4}$ of the staff size.
 - If you have installed the most recent version of the plugin **Convert Units To Spaces**, you will be able to specify spacing in units of mm, inches, or points as well as spaces.
- **Relative vs Absolute commands**
 - A *relative* Move command moves the selected staff and all staves below it in the score. This plugin uses *relative* commands by default.
 - An *absolute* Move command moves only the selected staves. If you keep moving the staff it will eventually overlap the staff below and stop moving.
 - In this document, all the examples use *relative* spacing.

Resetting staff spacing

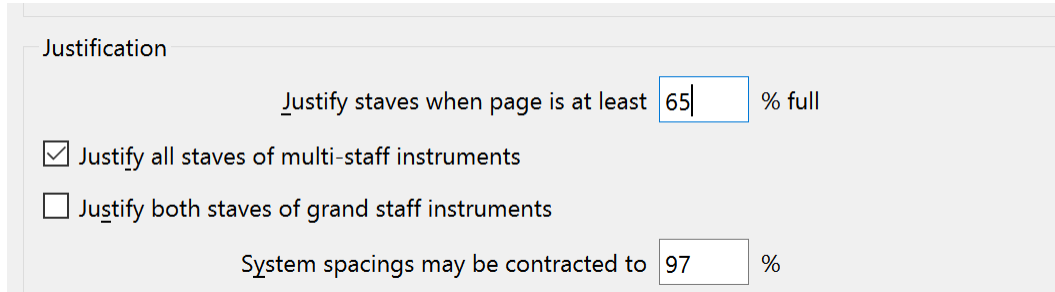
If you want to make a group of staves have the same spacing, you need to start with the staves having a consistent spacing. Press **Reset spacing for Selected staves** to reset spacing above and below each selected staff. This button will not close the dialog. You can press it, then drag the dialog out of the way so you can see the resulting spacing before making additional changes.



Engraving Rules and staff justification

Vertical staff justification has a very significant effect on this plugin, and on moving staves in general. There are settings for staff justification in **Engraving Rules> Staves**.

Hang onto your hat...



The screenshot shows a 'Justification' panel with the following settings:

- A label 'Justify staves when page is at least' followed by a text box containing '65' and a label '% full'.
- A checked checkbox labeled 'Justify all staves of multi-staff instruments'.
- An unchecked checkbox labeled 'Justify both staves of grand staff instruments'.
- A label 'System spacings may be contracted to' followed by a text box containing '97' and a label '%'.

If **Justify staves when page is at least xx% full** is **not** set to 100%, the systems on a page will be justified if the music on the page does not exceed the justification percentage. This means that the bottom staff of the last system will be aligned with the staff margin, as set in Document Setup, as soon as the contents of the page exceed the justification percentage. Typically, the bottom staff of a justified system stays attached to the bottom of the page even if staff spacing changes.

If a page is justified, changing staff spacing will change the spacing of the staves within the system, rather than taking space from outside the systems. If you have a justified page, it is likely that the number of spaces you enter in the plugin will not be what appears in the score, since changes in spacing are distributed throughout the system.

If **Justify staves when page is set to is set to 100%, the page will never be justified**. The bottom staff will be wherever staff spacing puts it. If you increase staff spacing, the bottom staff will move down; if you reduce space staffing, it will move up.

If a page is not justified, changing the staff spacing will move the bottom staff on the page. If the bottom staff moves enough that the page is now full enough to be justified, the bottom of the page may move abruptly to the bottom of the page. Similarly, if you reduce the spaces so that page no longer exceed the justification percentage, the bottom staff will abruptly pop up.

This can be disconcerting. It will happen when you move staves manually as well, but since the plugin often moves several staves at once, it is more likely to cause a noticeable justification change.

If a page is not justified and you change staff spacing, you may move the bottom system to another page, or bring in a system from the following page.

You can change the **Engraving Rules** setting for the staff justification using the **Set justification** edit box.

- **Set justification percentage** edit box
 - The value in the edit box defaults to the current justification percentage from **Engraving Rules** the first time the plugin is run in a session.
 - Click the checkbox to be able to change the percentage.
 - *Changing the staff justification will change it for the entire score.*

More Examples

Non Justified scores

The earlier example in this document showed a non-justified score, where 2.5 spaces were added to 3 staves that started at 6 spaces apart, and they ended up 8.6 spaces apart, which is as close to 8.5 as the plugin could come due to rounding. This works well because there was space below the bottom staff and the added spacing can come out of that space, leaving the spacing of the staves below the staff that was moved untouched.

With non-justified scores, there are a whole set of problems that may occur when the spacing is added or removed.

- Adding space could force a previously unjustified system to be justified, especially if the default justification percentage is the default of 65%. If the system justifies, the spacing between all the staves in the system will become larger, so the system will fill the page.
- Adding space could force a system that followed the changed system to move to another page. This may or may not make the processed system become justified, which will change the spacing between all the staves in the system.
- Similar changes can occur when spacing is made smaller. A justified system may now be below the justification percentage, and it will close up, changing the spacing between many other staves. Reducing the size of the system may also mean that a system on the following page may now fit on this page, and again, staff spacing may change.

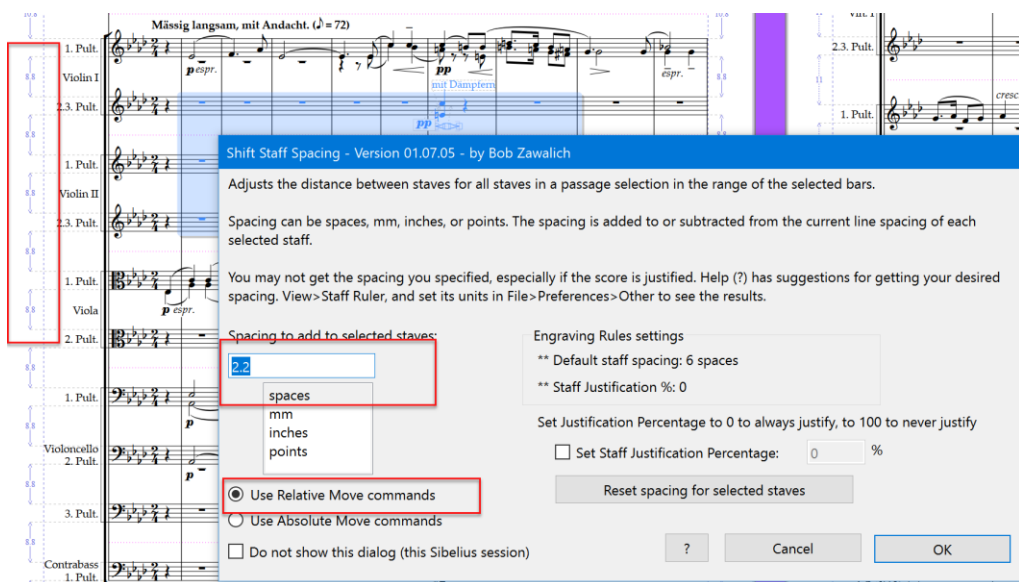
Justified scores

Below is the first page of a justified score

To start with I want to make the spacing consistent. We could go to **Layout>Reset Space Above/Below** to accomplish this or run the plugin and use the **Reset Spacing for selected staves** button in the plugin.

In this score, the default staff spacing in **Engraving Rules** is 6 spaces. However, since the page is justified, it fills the page and extra space is distributed among the existing staves when **Reset Staff Spacing** is done.

In my current example, after resetting the spaces, the majority of staves have 8.8 spaces between them, rather than the default 6 spaces.



After running the plugin I see:



Huh? Why are the staves 10.5 units apart, rather than 11? This seems more than what rounding would account for.

This score is justified. The bottom staff is aligned with the staff margin, and cannot go any lower. Thus any changes to staff spacing will come out of the spacing between the existing staves. We noted already that the staves were further apart than expected due to justification.

The plugin processes each staff separately. To add 2.2 spaces it will call **Move staff down a lot (relative) / Select note in staff below** twice, which moves the staff 2 spaces, and **Move staff down (relative)** once, which is as close as it can get to .2 spaces.

Let us do the same spacing manually and note what is happening. This will do exactly what the plugin is doing.

1. I start with spacing of 8.8 spaces and run **Move staff down a lot (relative)** twice, which should add 2 spaces above the staff. It gives me 10.6 spaces, which is less than the expected 10.8 spaces. Running **Move staff down (relative)** once gives me 10.9 spaces, which is close to 11. But note that the other staves that were 8.8 spaces apart are now mostly 8.6 spaces apart.

The image shows two screenshots of a musical score. The top screenshot shows the initial state with a spacing of 8.8 between staves. The bottom screenshot shows the result after two 'Move staff down a lot (relative)' moves, resulting in a spacing of 10.6 between the first and second staves, and 8.6 between the second and third staves. A red callout bubble points to the second staff with the text 'after 2 moves a lot'.

2. Selecting the next staff below and running the same commands adds 2.2 spaces to a staff with 8.6 spaces above, and it ends up changing the 2 staves we moved to be 10.7, and the staves following became 8.4. The 2.2 extra spaces comes out of the space between the justified staves, and the spacing is reduced a little in each staff after the changes are made.

The image shows a screenshot of a musical score. The spacing between the first and second staves is now 10.7, and the spacing between the second and third staves is now 8.4. A red callout bubble points to the second staff with the text 'after 2 moves a lot and 1 move'.

3. Now I process the 3rd staff and run the same commands. The space above all the staves we moved is now 10.5, and the other staves are at 8.2.

The image shows a musical score snippet with staves for Violin I, Violin II, Viola, and Violoncello. The tempo is marked 'Mässig langsam, mit Andacht. (♩ = 72)'. The Violin I and II staves are grouped together, and the Viola and Violoncello staves are grouped together. The spacing between the Violin I and II staves is 10.5, and the spacing between the Viola and Violoncello staves is 8.2. The spacing between the Violin I/II group and the Viola/Violoncello group is 10.2. The Violin I and II staves are highlighted with a red box, and the Viola and Violoncello staves are highlighted with a red box.

This is what the plugin produced, and this effect is inevitable with justified staves.

What if I ran the plugin again to see if I can get closer? It turns out that if I run the plugin again on all 3 staves with .5 spaces, I come up with the desired 11 spaces between the staves, and 8 spaces between the other staves.

The image shows the same musical score snippet as before, but with adjusted staff spacing. The spacing between the Violin I and II staves is now 11, and the spacing between the Viola and Violoncello staves is now 8. The spacing between the Violin I/II group and the Viola/Violoncello group is now 10. The Violin I and II staves are highlighted with a red box, and the Viola and Violoncello staves are highlighted with a red box.

So could I have run it from the start with 2.7 spaces (2.2 + .5), and get the same result? In this case, at least, yes.

The image shows a musical score snippet with five staves. The top staff is a bass line. The second staff is for Violin I, marked '1. Pult.' and 'Violin I', with a 'p espr.' dynamic marking. The third and fourth staves are for Violin II, marked '2.3. Pult.' and 'Violin II'. The fifth staff is a bass line marked '1. Pult.'. A red rectangle highlights the left margin of the Violin I and II staves. Blue vertical lines and arrows indicate spacing adjustments: a '10' space adjustment for the top staff, '11' for Violin I, '11' for Violin II, and '8' for the bottom staff. The tempo/mood is 'Mässig langsam, mit Andacht. (♩ = 72)'.

Is there a formula you can use to make the adjustment automatically in the plugin? It may be possibly to calculate the effect of moving, but the plugin does not actually know whether a page is actually justified, nor does it know how much space is between the staves, so guessing and trying out different amounts is likely as good as it will get.