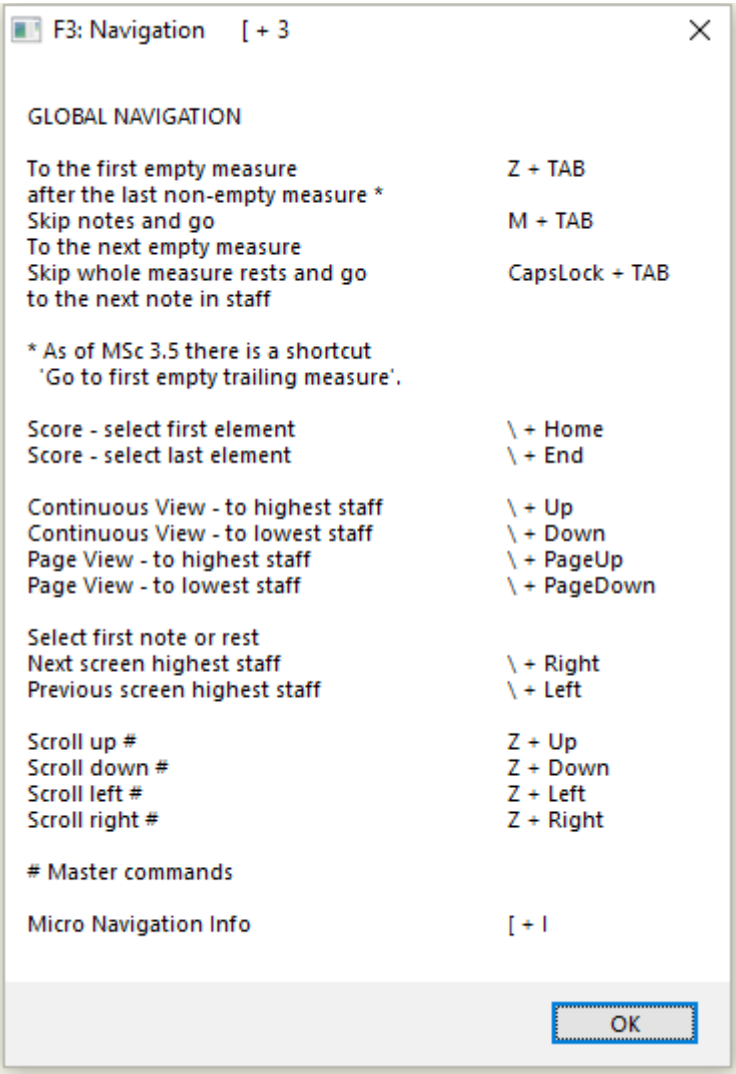
Reference section - F3 Navigation

Supporting document: F3_DATA.txt. *Includes all DIY details*

Global Navigation

[+ F3 In Master - Run macrogroup F3
[+ 3 General Info



PM: In addition to these hotkeys you can also use the color search commands of group F1 for Global Navigation .

The hotkeys from **Z + Tab** to **\ + PageDown** work only when there is a note or rest in voice 1 selected.

\ + Up
\ + Down
\ + PageUp
\ + PageDown
have been tested in scores with 40 staves.

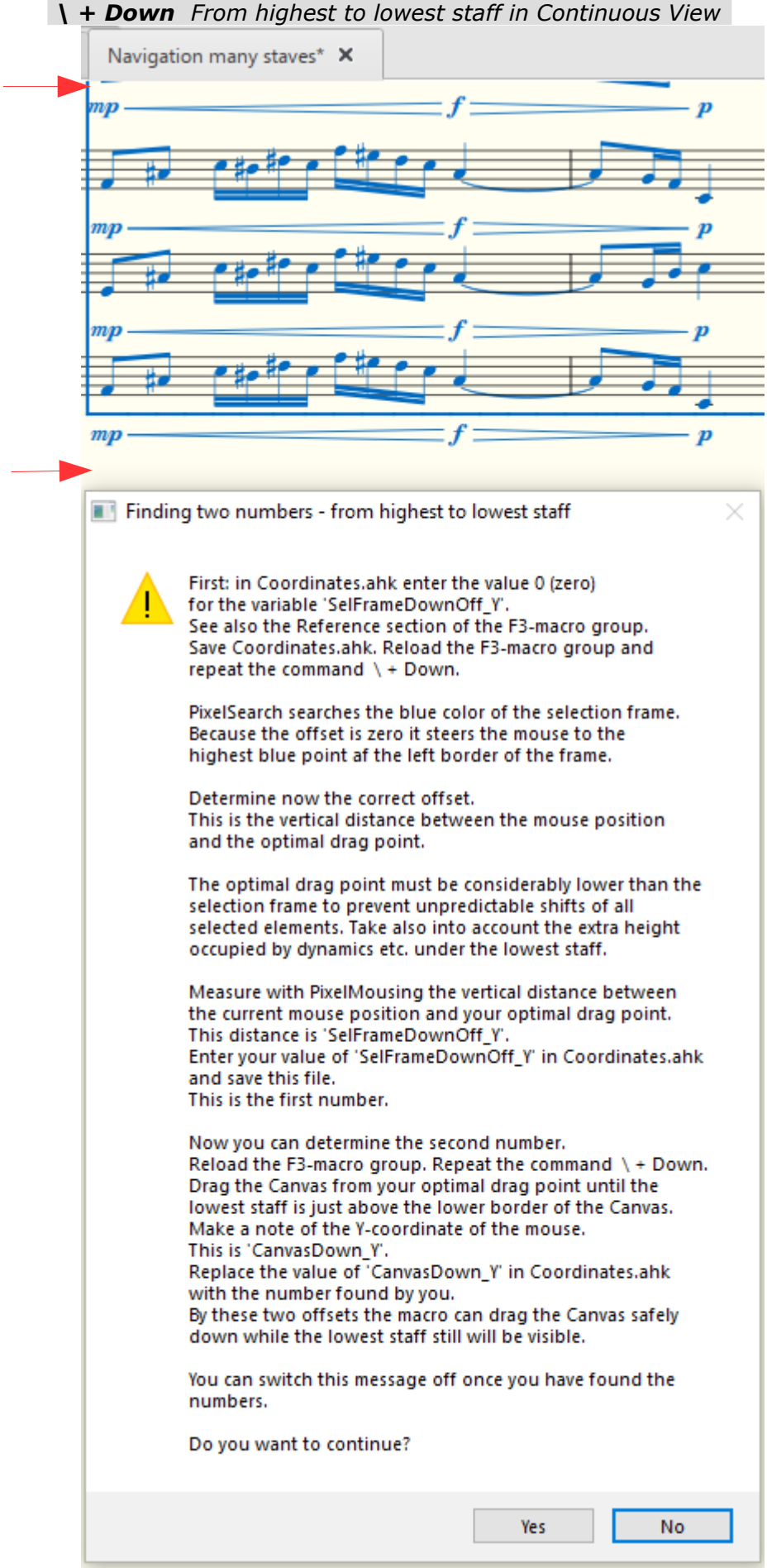
The 4 hotkeys include dragging the Canvas. Two of them have DIY items using PixelMousing:
\ + Up
\ + Down

Two hotkeys need a surface: the 'Canvas Navigation Area'.
\ + Left
\ + Right

\ + Up and **\ + Down** have rather verbose Help screens to assist you in the determination of two numbers: a vertical offset and an Y-coordinate.
The screens are on the next pages.

After dragging the Canvas the macros try to select a note or rest at about the same time position as the note or rest from which they departed.
If selection fails or something else gets selected press **Win + N** to get a note or rest selected. For **Win + N** see the paragraphs about Micro Navigation.

\ + Down *From highest to lowest staff in Continuous View*

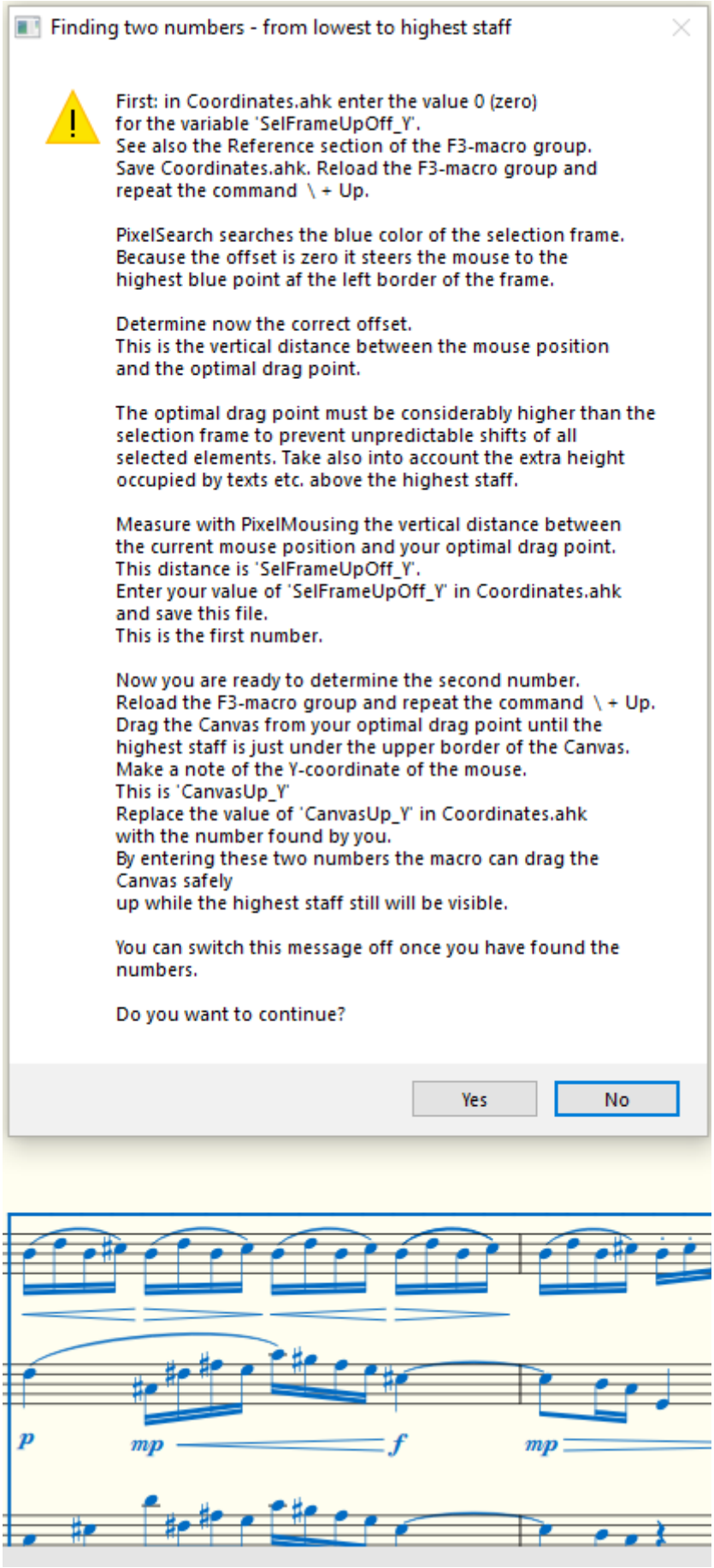


\ + Down starts with selecting a few measures containing the initial selected note or rest. It expands the selection across a maximum of 41 staves and scrolls the screen down. PixelSearch searches the Canvas topdown from Left to Right row by row for the color of the selection frame.
It will move the mouse to the point of the highest red arrow..

The lowest arrow points to the optimal drag spot. Pick a lower spot if you have lower elements.

From this spot the macro drags the canvas down to the lower border of the Canvas.

To disable the Help screen:
replace
`FindOffset_H_to_L := 1`
by
`FindOffset_H_to_L := 0`



\ + Up

After scrolling up PixelSearch moves the mouse to the upper left corner of the selection frame. Lowest arrow point.

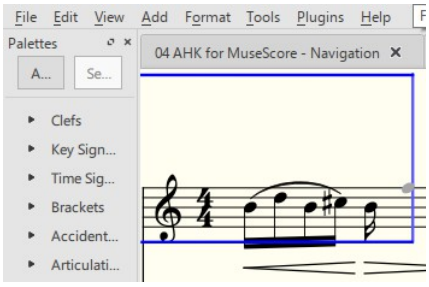
The highest arrow points to the optimal drag spot. Pick a higher spot if you have higher elements.

From this spot the macro drags the canvas up to the upper border of the Canvas.

To disable the Help screen: replace
`FindOffset_L_to_H := 1`
by
`FindOffset_L_to_H := 0`

\ + Right
\ + Left

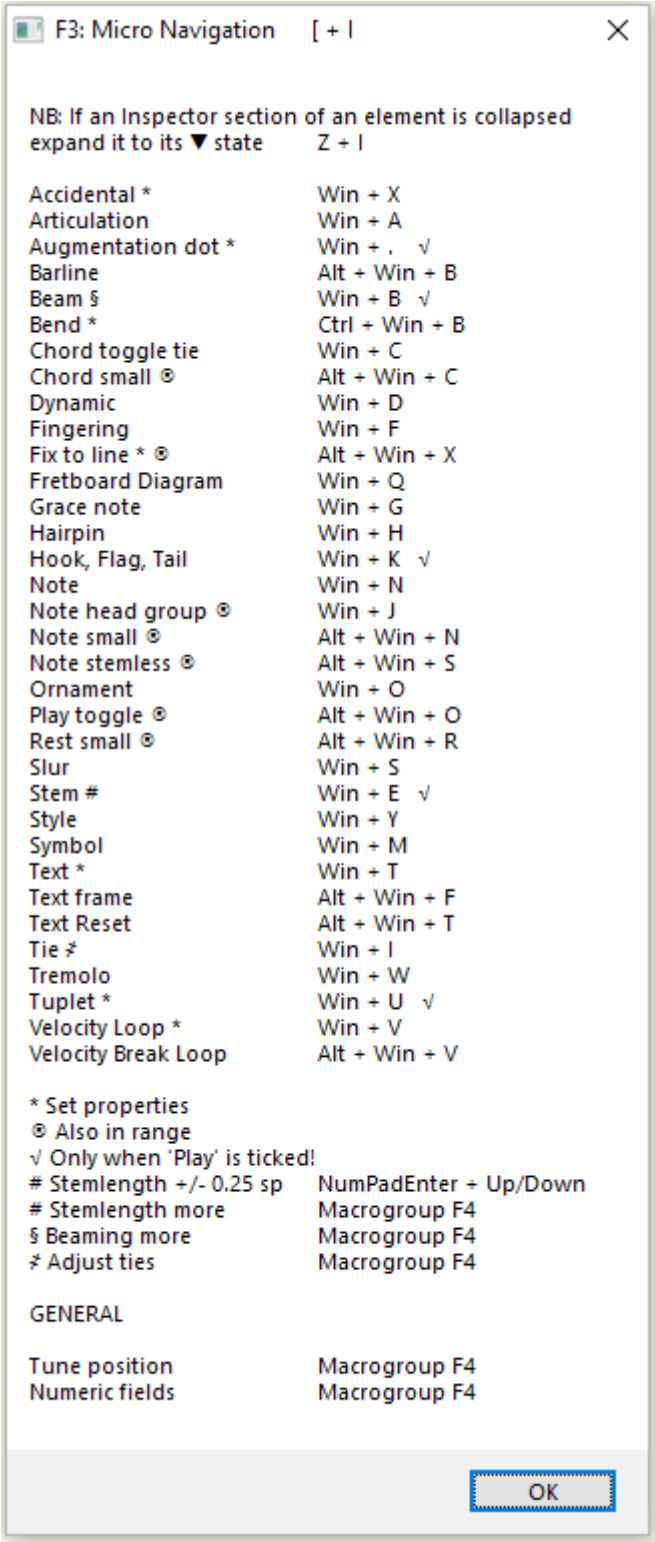
The screenshot shows the Canvas Navigation Area defined by
`CNA_X1`
`CNA_Y1`
`CNA_X2`
`CNA_Y2`



Canvas Navigation Area

Micro Navigation

[+ I Info screen



F3: Micro Navigation [+ I

NB: If an Inspector section of an element is collapsed expand it to its ▼ state Z + I

Accidental *	Win + X
Articulation	Win + A
Augmentation dot *	Win + . √
Barline	Alt + Win + B
Beam §	Win + B √
Bend *	Ctrl + Win + B
Chord toggle tie	Win + C
Chord small ®	Alt + Win + C
Dynamic	Win + D
Fingering	Win + F
Fix to line * ®	Alt + Win + X
Fretboard Diagram	Win + Q
Grace note	Win + G
Hairpin	Win + H
Hook, Flag, Tail	Win + K √
Note	Win + N
Note head group ®	Win + J
Note small ®	Alt + Win + N
Note stemless ®	Alt + Win + S
Ornament	Win + O
Play toggle ®	Alt + Win + O
Rest small ®	Alt + Win + R
Slur	Win + S
Stem #	Win + E √
Style	Win + Y
Symbol	Win + M
Text *	Win + T
Text frame	Alt + Win + F
Text Reset	Alt + Win + T
Tie ≠	Win + I
Tremolo	Win + W
Tuplet *	Win + U √
Velocity Loop *	Win + V
Velocity Break Loop	Alt + Win + V

* Set properties
® Also in range
√ Only when 'Play' is ticked!

# Stemlength +/- 0.25 sp	NumPadEnter + Up/Down
# Stemlength more	Macrogroup F4
§ Beaming more	Macrogroup F4
≠ Adjust ties	Macrogroup F4

GENERAL

Tune position	Macrogroup F4
Numeric fields	Macrogroup F4

OK

Apply the hotkey with preferably a nearby note or rest selected. Micro Navigation aims at getting fast access to attached elements and their most important editable properties. It uses the MuseScore shortcut for accessibility next element *Alt + Right* selectively, replaces a series of keypresses by one hotkey combination and so eliminates almost all mouse movements.

Most hotkeys start a loop in which *Alt + Right* will be repeated up to 20 times. In practice this will be more than enough to bridge the distance between point of departure and destination. **(Φ)**

About smooth operation of the WIN key while avoiding the Start Menu: Just keep the **Win** key depressed and press the other key.

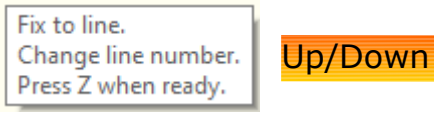
*	Set properties
®	Also in range
√	Only when 'Play' is ticked

Stems, beams and ties have dedicated hotkeys in macrogroup F4. The groups F3 and F4 usually best operate in combination.

Hotkeys in which the prefix key **Win** figures don't invoke the usual responses of the OS because they don't have a preceding tilde. The exception is **Win + G** - gaming. Read in F3_DATA how to disable this built-in Windows hotkey.

(Φ) Not all elements can be *reached* via *Alt+ Right*. **Win + X** : Accidentals need a special treatment. On the other hand, to *get back* to a note or rest from beams is a special case where *Alt + right* does not work. **Win + N** - from any element to note - and **Win + X** stand out between their colleagues.

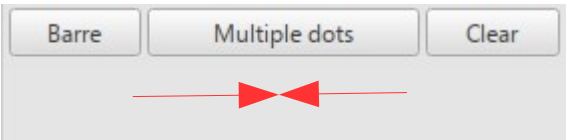
Alt + Win + B	To barline	*also from barline to barline*
Alt + Win + C	Make chord small	*toggle - also in range T&R*
Alt + Win + F	Set textframe	
Alt + Win + N	Make note small	*T&R*
Alt + Win + O	Toggle Play	*T&R influences coordinates*
Alt + Win + R	Make rest small	*T&R*
Alt + Win + S	Make stemless	*T&R*
Alt + Win + T	Text reset	
Alt + Win + V	Stop velocity loop	
Alt + Win + X	Fix to line	*T&R*
Ctrl + Win + B	To bend	*immediate bend editing*



Win + A	To articulation	*for positional fine tuning*
Win + B	To beam	*separate paragraph*
Win + C	Chord tying	*separate paragraph*
Win + D	To dynamic	*for positional fine tuning*
Win + E	To stem	*separate paragraph*
Win + F	To fingering	*for positional fine tuning*
Win + G	To first Grace Note	*disable Win gaming shortcut*

Recognizes also acciaccatura and appoggiatura

Win + H	To hairpin	*for positional fine tuning*
Win + I	To tie	*separate paragraph*
Win + J	To notehead group	*T&R choose from list*
Win + K	To hook, flag, tail	*for positional fine tuning*
Win + L	Lock computer	*Win OS*
Win + M	To symbol	*for positional fine tuning*
Win + N	To note	*separate paragraph*
Win + O	To ornament	*for positional fine tuning*
Win + P	Play project	*Win OS*
Win + Q	Fretboard Diagram	

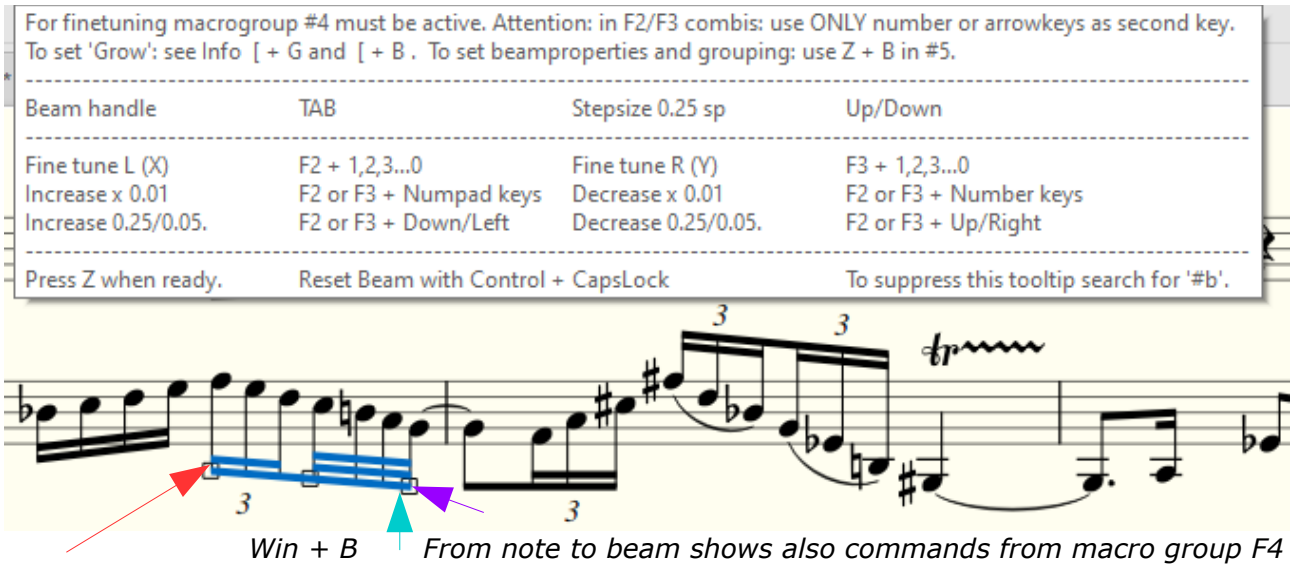


The red arrows point to **IN_098**

Win + R	Run command	*Win OS*
Win + S	To slur	*color handles ????*
Win + T	To text	*separate paragraph*
Win + U	To tuplet	*separate paragraph*
Win + V	To velocity	*separate paragraph*
Win + W	To tremolo	*for positional fine tuning*
Win + X	To accidental	*separate paragraph*
Win + Y	To style element	
Win + Z	PM: to last escaped element	*in master*
Win + .	To augmentation dot	*separate paragraph*

After a Micro Navigation selection the mouse will not always travel to the selected element. When selection by mouse is needed - e.g. for a doubleclick with **Alt + CapsLock** - press **Alt + Z, X, C, D or S** for ColorSearchSelect.

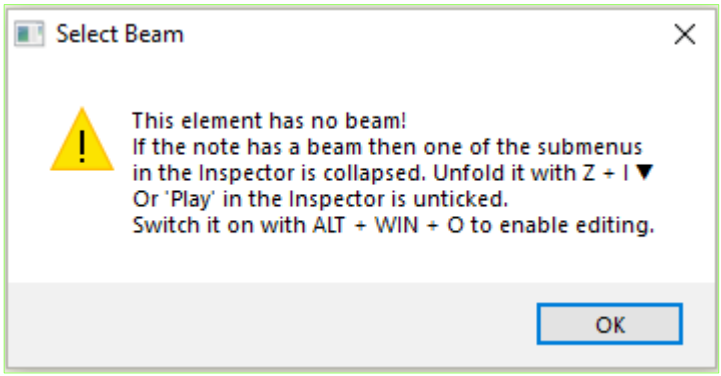
Win + B



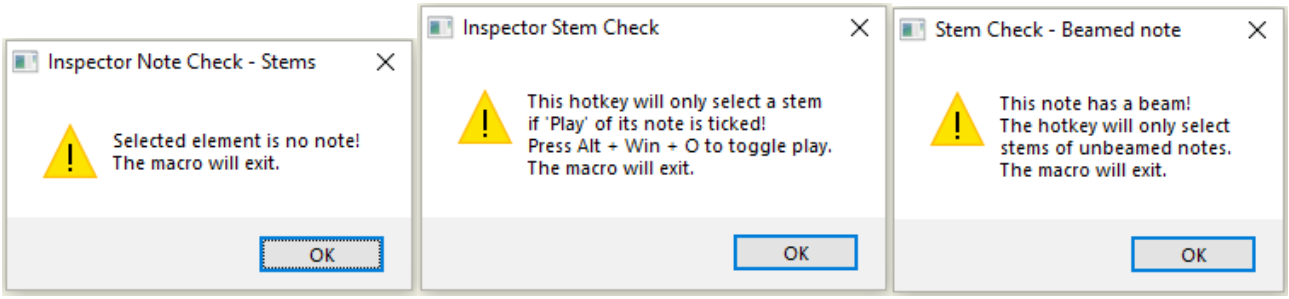
Win + B *From note to beam shows also commands from macro group F4*

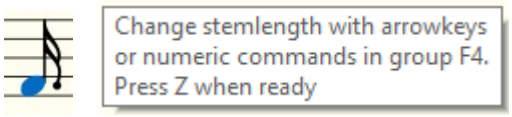
Win + B is rather sophisticated. In case of downstems often the stem will be clicked instead of the beam. **Red arrow.** Something similar can happen with cross-staff beaming. In both cases, if the first PixelSearch fails, the macro reverts direction and searches from the lower right corner upwards to the upper left corner of the Canvas. Again it's possible that another stem will be clicked. **Violet arrow.** In that case a small X-offset is subtracted. The click will be a bit more to the left avoiding the stem. **Cyan arrow.** This offset is *not* a variable in Coordinates.ahk. See F3_DATA about changing this number in the F3 .ahk file.

Win + C With a note selected its stem will be selected. The macro sends the MuseScore shortcut *Shift* + = which toggles (Un)tie chords and reselects the note.



Win + E This type of messages will pop up if the selected element does not match the desired edit.

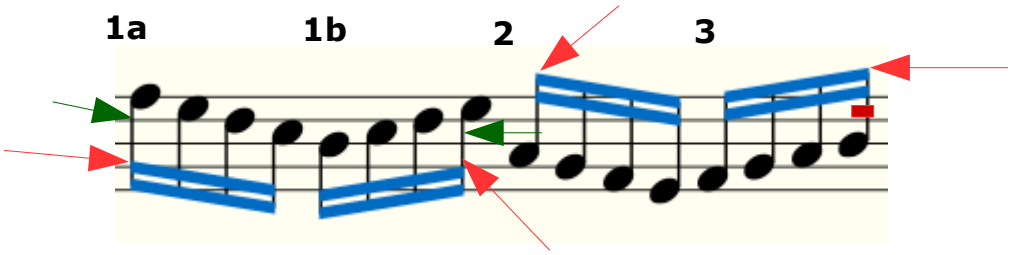




More stemlength hotkeys in macro group F4.

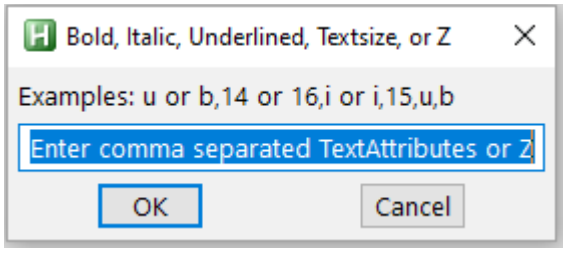
Win + I The handling of ties is a weak spot in MuseScore. In macro group F4 an attempt is made to speed up adjusting ties. Especially in compound time signatures with dotted notes and in chords with seconds there are repetitive graphical patterns where hotkeys can create predictable results.
Yet the number of patterns is considerable. The challenge is to organise the hotkeys in a way which does'nt tax the memory.

Win + N From element to note. After the usual Inspector check the macro searches for the presence of a segment. If present the element is a note, rest, barline, clef, key- or timesignature which are easy to handle in a loop. If not present it tests the Statusbar. Is it a beam? If not it jumps to the same loop. Beams however need a special treatment. The macro first clicks the top left pixel of the colored beam. Then it begins to inspect the environment of the beam looking for a stem. If a stem is found it starts looping *Alt + right* commands until the Statusbar shows that a note is selected.
The search from beam to stem can pass three phases.
1 Is it a downstem ascending or descending beam? The mouse moves **25** pixels higher and clicks. The macro checks. Is a note clickced or a stem?
2 If note nor stem is recognized it switches to another approach. Is the beam maybe descending from an upstem note? In phase 1 the mouse moved 25 pixels up. In phase 2 it moves from that position **50** pixels down and clicks. The macro checks again. Has a stem been hit?
3 If no stem has been hit the beam will be ascending from an upstem note. The mouse moves **1** pixel to the right and clicks. Does it hit a stem?
If not the mouse moves again **1** pixel to the right and clicks. Again, a stem? If not the macro searches a very small environment with an upper-left corner **10** pixels to the left but on its current height and a lower-right corner on its current position but **10** pixels lower. Within this small surface it searches for the black color of the stem and once found it loops its way until a note is found.
Because of the small width of the stem the macro needs a zoomfactor of at least 130%. If the zoomfactor is too high - on the test system more than 350% - the stems of the notes can be too far from the beam.
The test screen has a resolution of 1920 x 1080 at 96 DPI. If the resolution of your screen is much higher maybe you have to change the number **1** in **2**. In the same way **25** maybe becomes **35** and **50** becomes **70**. The number **10** you have to change proportionally as well. Searchword (*change*?)
If your screen has a lower resolution you could make the numbers proportionally smaller. Just experiment a bit with the three situations to find numbers which work in the biggest possible range of zoomfactors.



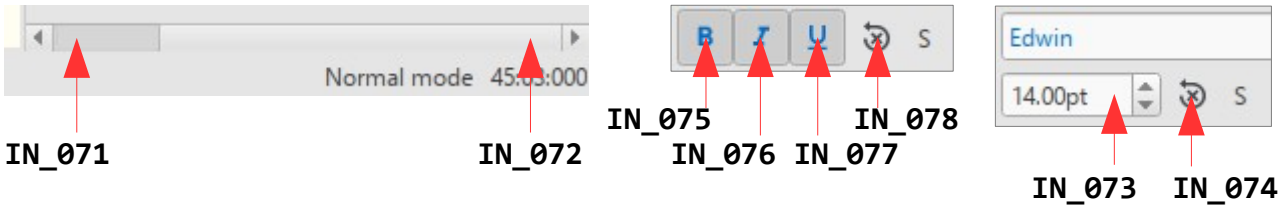
Stems in type 3 beams with less or no slant are still recognized.

Win+ T Looks for **IM_17** Text and finds all types of text

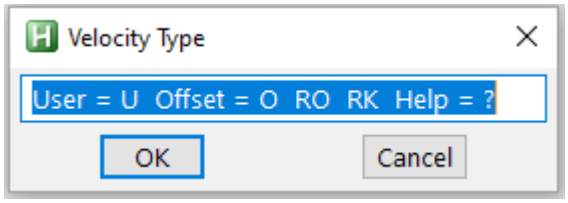


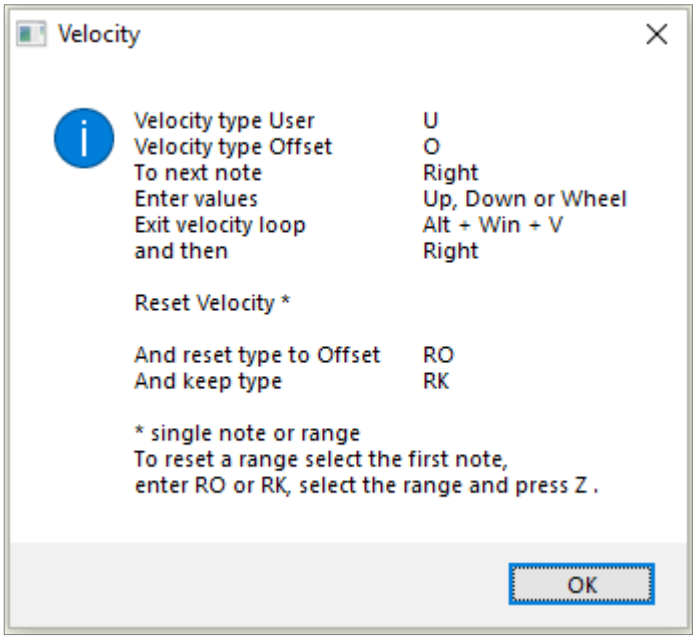
U, **B**, **I** and **number** of text size can be input in any order.
Z returns to the text.
Cancel returns to the note.

The narrower variant of the Inspector (see page 15) needs the scrollbar:
Clicking **IN_072** shifts the Inspector to the right and shows **IN_075..IN_078**
Clicking **IN_071** shifts the Inspector to the left and shows **IN_073** and **IN_074**



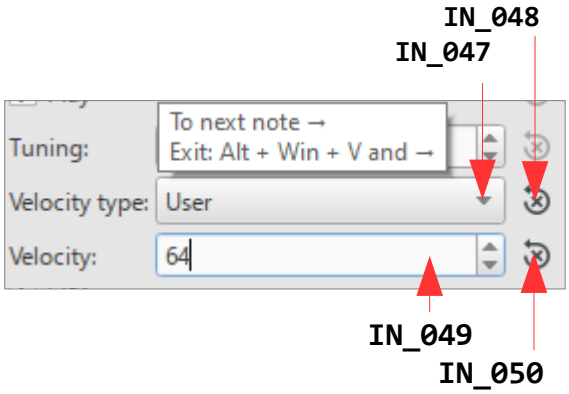
Win + V To velocity



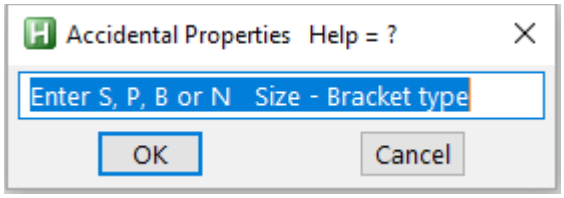


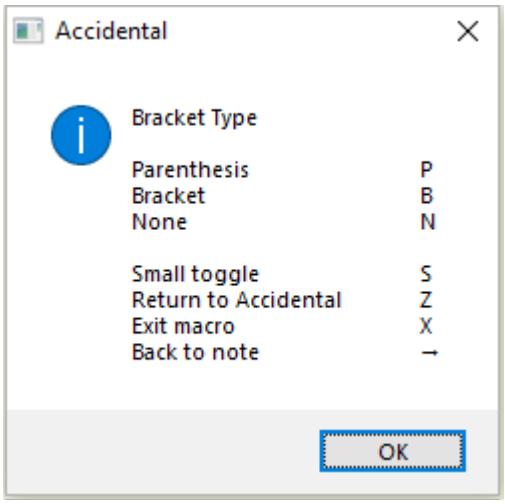
Fast access to velocity. The value of the previous velocity is transferred to the next, ready to be changed by arrowkeys or wheel.

After pressing **Alt + Win + V** press **Right** to return the mouse to the selected note.



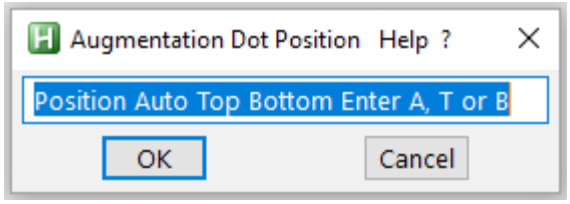
Win + X From note to accidental. The mouse clicks the selected note and starts searching in a loop for the color of the Canvas in a very small area, a bit to the left and a bit higher to avoid staff lines. If it fails it shifts a bit more to the left. When it finds the Canvas it starts a similar search but now for the black color of the accidental. If it fails after the 35th time it shows a message. Normally it will show its Inputbox and after editing auto select the note again.

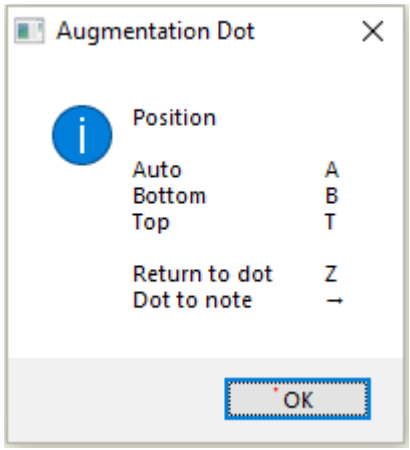




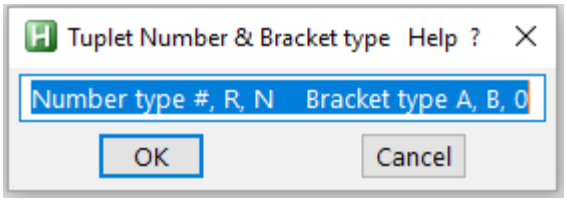
See F3_DATA about adapting some (small) numbers for screens with a high or low resolution.
It concerns 4 lines marked with **(*change*?)**

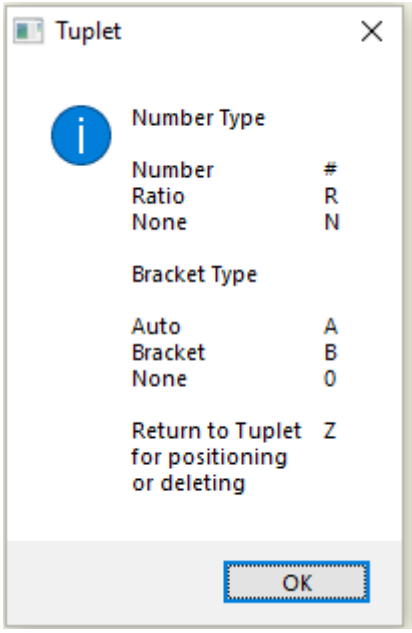
Win + . To augmentation dot





Win + U To tuplet





Reference section - F4 Positioning

Supporting document: F4_DATA.txt. *Includes all DIY details*

[+ F4 In Master - Run macrogroup F4
[+ 4 Info screen General Positioning

F4: General Positioning [+ 4

CHORD X-offset	
0.50 sp to the left	CapsLock + NumPad 4 (Left)
0.50 sp to the right	CapsLock + NumPad 6 (Right)
0.10 sp to the left	CapsLock + Left
0.10 sp to the right	CapsLock + Right
0.05 sp to the left	CapsLock + Up
0.05 sp to the right	CapsLock + Down
ELEMENTS	Stepsize 0.5 sp
Set X-offset	LButton + X and Wheel
Set Y-offset	LButton + Y and Wheel
Back to canvas	Z
Set X-offset (2)	WIN + MouseWheel
Set Y-offset (2)	CapsLock + MouseWheel
ELEMENTS MICRO POSITIONING X/Y Offsets	
0.01 left/right/higher/lower	NumPadSub + L/R/U/D
0.03 left/right/higher/lower	NumPadAdd + L/R/U/D
0.05 left/right/higher/lower	NumPadEnter + L/R/U/D
0.25 sp up	NumPadEnter + NumPadAdd
0.25 sp down	NumPadEnter + NumPadSub
LEADING SPACE - NOTES and RESTS	Stepsize 0.1 sp
To segment leading space	WIN + [
Back to canvas	Z
Reset segment leading space	WIN +]
GENERIC MICRO POSITIONING	[+ G Info
MASK ELEMENTS	
Mask elements partially	, + . comma+period
Set stacking order	, + /
See F1 - Search and Select how to find white elements	
Ties	[+ T
Beams	[+ B
Stems & Align	[+ L
Copy Positions	[+ Y
Numeric Fields	[+ G

OK

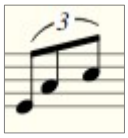
A recurring theme in this AHK Kit:
The hotkeys to change the offsets of Chords (notes) and Elements are meant to reduce manual mouse movements.

As for Elements:
Dependent on workflow and previous actions there are hotkeys for keyboard *and* for mouse.

In addition the section *Numeric Fields* has hotkeys for fast access to frequently used fields including the offsets. These alternatives offer versatility and facilitate different workflows.

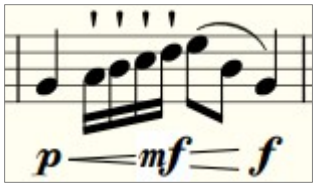
The micro positioning hotkeys originate from the observation that often the smallest stepsize of the arrowkeys is still too big.

In collision avoidance, when finetuning the position is of no avail masking text at times comes to the rescue.

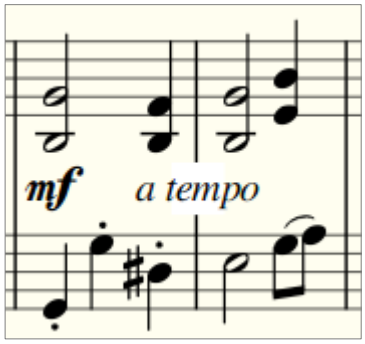


Archaic notation:
Faking out of date triplets

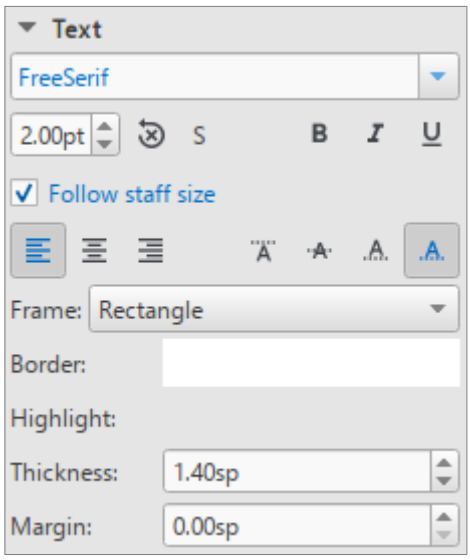
, + . Masking text



Cut hairpin



Masking the barline



Properties masking text

, + .

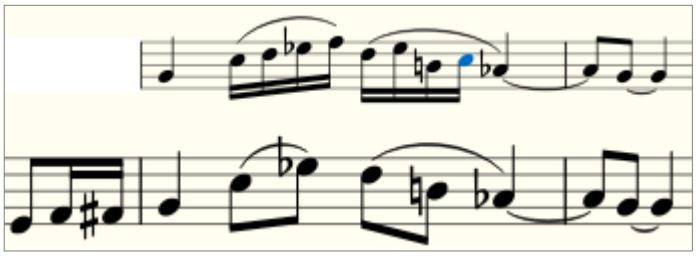
Masking text creates a staff text consisting of a period **.** of 2pt size with properties as shown in the picture at the right. It is pure white.
Automatic placement is turned off. By default the macro moves the text down untill it covers the dynamic. Its stacking order is set to 950, a low value which will only cover slurs.
The period remains black which has an advantage. With a high zoomfactor it can be used for fine positioning. In this case the period is hidden behind the last stroke of the m.
The stacking order of the masking text must be set higher than that of the hairpin but lower than that of the dynamic.
A balance between increasing the one and decreasing the other.

The macro works very well for the described frequently occurring situation.
But obviously in other circumstances additional manual adjustments of position and frame thickness will be needed.

, + / Set stacking order. A messagebox shows a long list of the default stacking orders of MuseScore elements, positioned at the left border of the screen. *See supplement at the end of this reference section*. Pressing OK selects the stacking order input field to change the value with the arrowkeys.

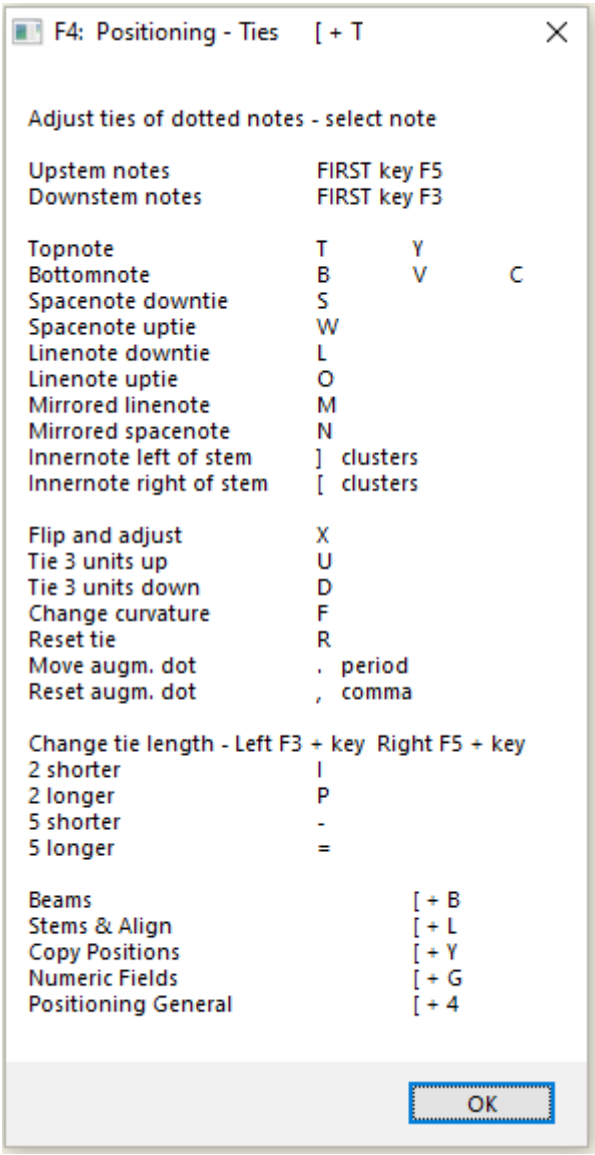
Finding the masking text by eye can be tiring especially in crowded scores.
The info screen of **[+ 4** refers to macro group F1 where masking text can be searched in the whole score with **Z + C** → **/\MT** and on the current screen with **Z + C** → **[]MT**.

In macro group F9 'Specials' there is the hotkey **Alt + W** which searches the screen for the pure white of masking text as well.
Related and also in macro group F9: **Z + M** *Mask measures*.
Here measures can be made invisible with pixel precision.



Z + M This example shows a workaround for the problem of the missing left barline in an ossia.

[+ T Info screen Ties



F4: Positioning - Ties [+ T

Adjust ties of dotted notes - select note

Upstem notes	FIRST key F5		
Downstem notes	FIRST key F3		
Topnote	T	Y	
Bottomnote	B	V	C
Spacenote downtie	S		
Spacenote uptie	W		
Linenote downtie	L		
Linenote uptie	O		
Mirrored linenote	M		
Mirrored spacenote	N		
Innernote left of stem	] clusters		
Innernote right of stem	[clusters		
Flip and adjust	X		
Tie 3 units up	U		
Tie 3 units down	D		
Change curvature	F		
Reset tie	R		
Move augm. dot	. period		
Reset augm. dot	, comma		

Change tie length - Left F3 + key Right F5 + key

2 shorter	I
2 longer	P
5 shorter	-
5 longer	=

Beams	[+ B
Stems & Align	[+ L
Copy Positions	[+ Y
Numeric Fields	[+ G
Positioning General	[+ 4

OK

In many situations MuseScore's handling of ties is awkward and getting them right is very time consuming.
Especially the tied dotted notes of chords are very clumsy to tackle. They gave the primary occasion to these hotkeys. In the slipstream tied notes without dots profit as well. The aim is to make ties look the same in comparable situations, to avoid those ugly collisions or at least try to minimize them.

A partial solution is a set of hotkeys arranged in a pattern which we can try to remember. We get types of chords distinguished by:

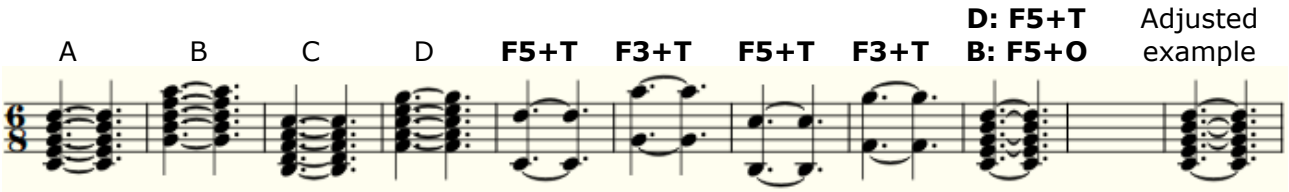
stemdirection: up or down
and note specific by:
pitch: *line or space note*
tiecurvature: up or down
position: *top, bottom or inner note*
notehead: normal or *mirrored*

These criteria cover a lot of cases.
Yet we'll still meet situations where manual finetuning is necessary.

All hotkeys are FREE CANVAS. They only use Alt + Right, Tab and the arrow keys.

A piece in 6/8 with chains of tied dotted notes could be an incentive to start using them. More so because after copying the ties default to ugliness again.

Stacking thirds *MuseScore defaults* are A, B, C and D. Layout stretch = 1
Interior system dependencies govern the actual distances.
PM: Note to tie: **Alt + Right** (MSc), **CapsLock + Z** or **WIN + I** (AHK)
Note to lower note **Alt + Down**, **CapsLock + D**. From tie to tie: **WIN + I**



ABCD: *Default*

F5+B **F3+B** **F5+B** **F3+B**

G:**F5+L**
E:**F5+L**
C:**F5+B**

Inner ties:
6 up/down
F5+2U/2D

Downstem	**F3**
Upstem	**F5**

Within the chord **T** and **Y** resp. **B**, **V** and **C** will automatically select top resp. bottom note

Topnote	**T Y**
Bottomnote	**B V C**

Space note uptie	**W**
Space note downtie	**S**
Line note uptie	**O**
Line note downtie	**L**

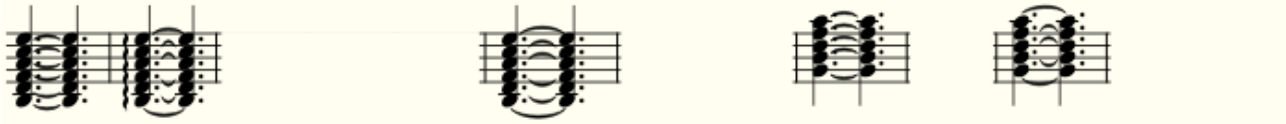
The chosen curvature is optimized for minimal stretch

E: **F5+T**
C: **F5+W**
A: to treat as Space note uptie
A: **F5+W**
A: **F5+X** flips tie & adjusts height

NB: B has uptie
Better: downtie
(Gould, Behind Bars
p. 65)

A: **F3+T**
F: **F3+O** Line note uptie
D: **F3+O**

Default → Result *Idem with Layout stretch 1.3* *Default* → *Result*



F: **F5+S**
D: **F5+S**
B: **F5+B**

Note spacing 1.2
NB: tie settings
can't be copied!

B: treat as downtie
B: **F3+L** Line note downtie
B: **F3+X** flips tie &
adjusts height
G: **F3+B**

G: **F3+T**
E: **F3+W** Space note uptie
C: **F3+W**

midpoint
4 up
4 x **F3+F**

Idem with Layout stretch 1.3 *Default* *Default* *Default*

Top: **F3/F5 + T or Y**
Bottom: **F3/F5 + B or V or C**

A: **F3+S**
F: **F3+V**
Bottom space note

In/decrease
tie curvature
F3+F F5+F
Flatten

Midpoint
4 x down
4 x **F5+F**

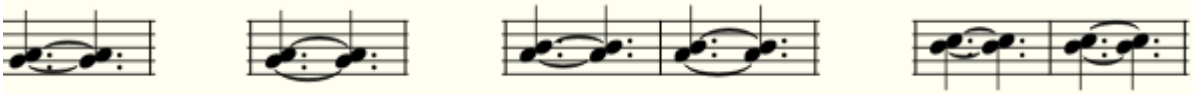
Mirrored line note	**M**
Mirrored space note	**N**

A: *mirrored space note*
A: **F5+N**
G: **F5+B**

B: *mirrored line note*
B: **F5+M**
A: **F5+B** (or **V**)

C: **F3+T**
B: *mirr. line note*
B: **F3+M**

Default *Default* *Default*



PM: key layout
S↔ N

PM: key layout
M↔ L

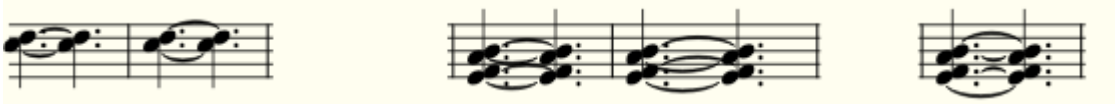
D: **F3+T**
C: **F3+N**

Default
Stretch = 1

Default
Stretch = 1.4
Outerties no change

B: top line note mirrored
B: **F5+M**
A: **F3+]**

Default



Innerties:
A: tie lower
F: tie higher

F: **F3+[** *
E: **F5+B**

Innernotes as second:	
left of stem	**]**
right of stem	**[**

Default

Default
Stretch = 1.5
Toptie higher
Innerties no change

Bottomtie lower

C: top space note mirrored
C: **F5+Y** and **F5+D** or
C: **F5+M** and **F5+U**
U/D finetuning

B: **F5+]**
G: **F3+[** *
F: **F5+V**

Default
Stretch = 1.7

Outerties different
Innerties the same

E: **F3+Y**
D: **F3+]**
Stretch = 1.2

B: **F3+[**
and 3x**F5+D**
Finetuning down
A: **F3+C**

* Mirrored line innernote behavior here as mirr. space note. (G) Compare with * on previous page.

Default
Stretch = 1.4

D: **F3+T**
C: **F3+]**

A: **F3+[**
G: **F3+**M

The actual stretch depends of course on the presence of notes in other staves of the system. Notice the non-mirrored A is here treated as mirrored.

Moving the augmentation dot

Move augmentation dot	**F3 + .** or **F5 + .**
Reset augmentation dot	**F3 + ,** or **F5 + ,**

Moving the dot in cramped situations can make ties a bit more conspicuous.

Default

F5+. or **F3+.**
applied on AFBGEC
Dot moves to stem

The same
applied also
on tied note

A: **F5+T**
F: **F5+O**
B: **F5+O**
A: **F5+[**
G: **F5+L**
E: **F5+L**
C: **F5+B**

Default *Moved dots* *Result*

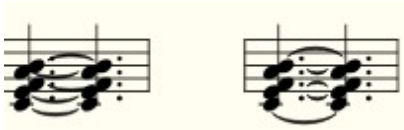
D: **F5+T**
C: **F5+[2xU**
B: **F5+]**
B: **F5+X 1xD**
G: **F3!+]**
F: **F5+[**
E: **F5+L**
C: F**5+L**
A: **F5+B**

Alternative with some height adjustments

D: **F5+T**
C: **F3!+[→ U**
B: **F3!+] → X → D**
G: **F3!+]**
F: **F5+[**
E: **F5+], 2xF5+D**
C: **F5+], 2xF5+D**
A: **F5+B**

Keyboard layout Tie hotkeys: See supplement at the end of this section

Default



NB: Tie direction F is wrong. Adjacent notes must have opposite tie direction

Experience will teach which hotkeys to try in increasingly narrower structures!
B: **F5+M**
A: **F5+]** and down
F: **F5+[** and down
E: **F5+[** and down
C: **F5+B**
Flatten ties in narrow measures.

Default

D: wrong tie direction
Treat D as line note with uptie:
F3+O → **X**
shorten **F3+-**

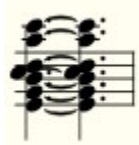
A: **F3+T**
E: up
D: **F3+[**

B: **F3+[**
A: **F3+C**

Decrease curvature	
Uptie	**F5 + F**
Downtie	**F3 + F**
Increase curvature	
Uptie	**F3 + F**
Downtie	**F5 + F**

Clusters

Small cluster



Default

C: **F3+T**
A: **F3+O**
D: **F5!+O**
line note uptie

C: **F3+]** and down
B: **F3+L**
G: **F3+L**
E: **F3+B**

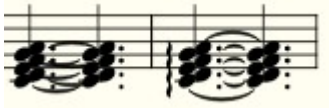
Default

D:**F5+T**
C: **F5+[** and up
B: **F5+]** and up
A: **F5+[** and up
G: **F5+]**
E: **F5+[**
E: (flip) **X** and up
D: **F5+]** and down
B: **F5+B**

In denser clusters: try the hotkeys with the bracket keys first. In a second pass several up/down corrections are needed.
Walk with **CapsLock + Z** thru the ties and adjust their height with arrow up/down.

Changing tie length:		Shorter 2	**+ I**
Start of tie	**F3 +** (key)	Longer 2	**+ P**
End of tie	**F5 +** (key)	Shorter 5	**+ -**
		Longer 5	**+ =**

Default



A:**F5+Y**
G: **F5+]** → **F5+X** and down
F: **F5+[** → **F5+X** and down
E: **F5+]** → **2x F5+D**
D: **F5+[** → down
C: **F5+B**

Summary tied dotted notes: in simple chords the adjustments go very fast. For mirrored noteheads the +M and +N keycombinations as well as the bracket keys work fine. Use the bracket keys in clusters. In denser clusters vertical adjustments will still steal time. Hopefully MuseScore 4 will be more intelligent in the handling of ties. Like beams it is obviously a complex issue.

[+ B Info screen Beams

F4: Positioning - Beams [+ B

SET BEAM POSITION - See also alternative method [+ G

Select beamed note. Mouse cursor can be anywhere.
With macrogroup F3 Navigation active:

From note to beam		WIN + B
To beam handles		TAB
Change in MS-units		up/down
Back to note		Z

MICRO ADJUSTMENT

FIRST key

Left Handle	(X)	F2
Right Handle	(Y)	F3

SECOND key
stepsize = 0.01 sp

1,2,3...10 steps higher	1,2,3...0
1,2,3...10 steps lower	Numpad1,2,3...0
25 steps higher	up
5 steps higher	right
25 steps lower	down
5 steps lower	left

Make single beam horizontal#	CapsLock + H
Make beams of same voice horizontal *	CapsLock + I
Reset single beam #	CapsLock + J
Reset beams of selected voice in range *	CapsLock + K

Select note
* Select range and put mouse on beam

Select beamed note:

Copy custom beam position	P + F9
Paste custom beam position	P + F10
Beamdistance - Copy grow L/R	P + -
Beamdistance - Paste grow L/R	P + =

NB: Grow hotkeys in 'Numeric Fields'

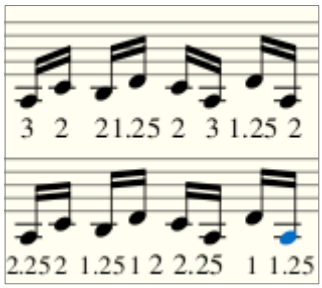
SET BEAM PROPERTIES
In macrogroup F5 Z + B

Ties	[+ T
Stems & Align	[+ L
Copy Positions	[+ Y
Numeric Fields	[+ G
Positioning General	[+ 4

OK

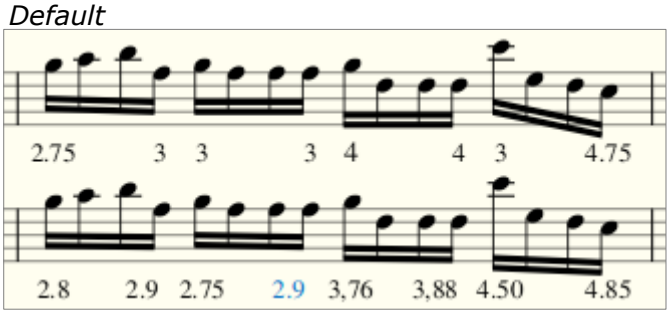
WIN + B from macro group F3 actually selects the beam. **TAB** and **up/down** are the usual MuseScore shortcuts. The stepsize is 0.25 sp.

Default



Edited

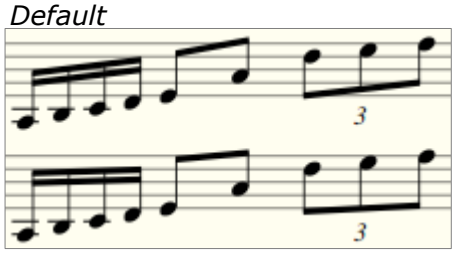
Default



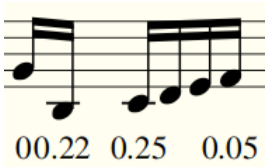
Edited

In many situations a smaller stepsize yields a more convincing result. E.g to prevent default hanging beams or the lattice effects of wedges.

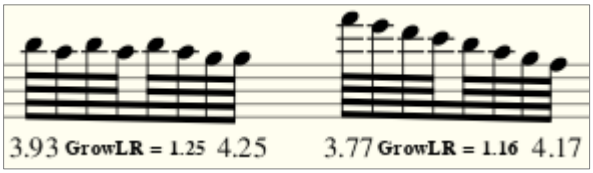
Default



Edited

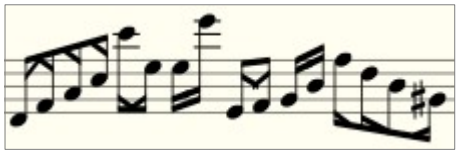


Subtle numbers



Beams slightly apart, Gould, Behind Bars p.18

Growfactors 1.16 and 1.25 make unobtrusive slant possible.



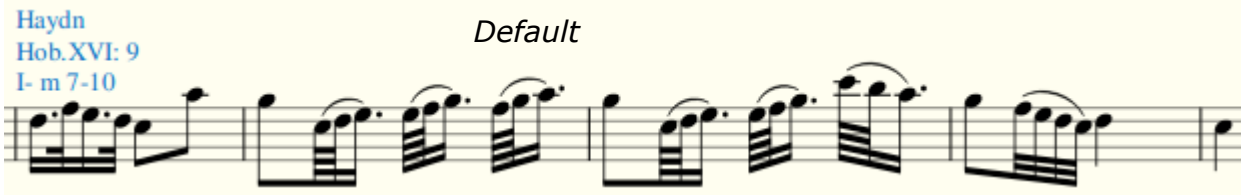
*Experimental notation Grow & **Z + B***

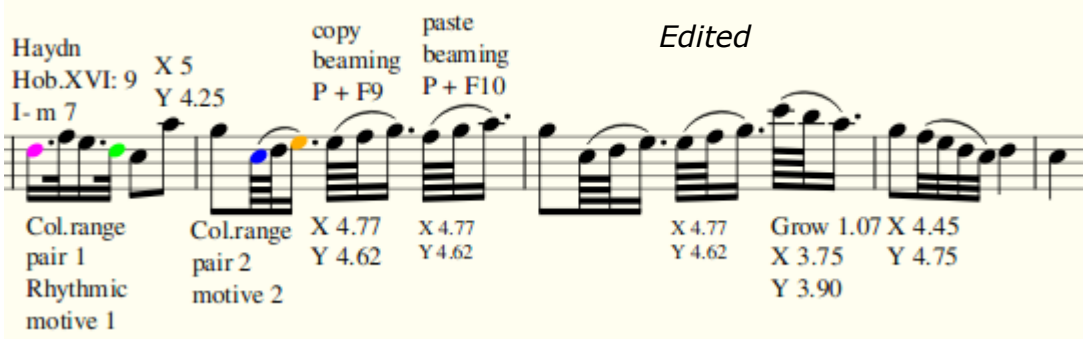
WIN + B The gigantic tooltip from Reference F3 once again

For finetuning macrogroup F4 must be active. Attention: in F2/F3 combis: use ONLY number or arrowkeys as second key.
To set 'Grow': see Info [+ G and [+ B . To set beamproperties and grouping: use Z + B in F5.

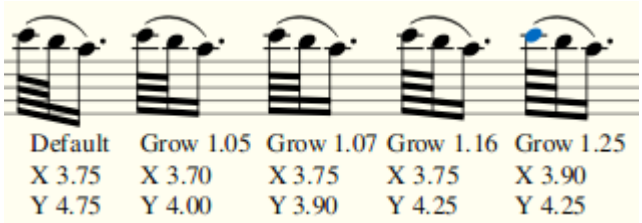
Beam handle	TAB	Stepsize 0.25 sp	Up/Down
Fine tune L (X) Increase x 0.01 Increase 0.25/0.05.	F2 + 1,2,3...0 F2 or F3 + Numpad keys F2 or F3 + Down/Left	Fine tune R (Y) Decrease x 0.01 Decrease 0.25/0.05.	F3 + 1,2,3...0 F2 or F3 + Number keys F2 or F3 + Up/Right
Press Z when ready.	Reset Beam with Control + CapsLock		To suppress this tooltip search for '#b'.

F2 Left handle (X) F3 Right handle (Y)
Numpad keys Increase Number keys Decrease Arrow keys Bigger steps





Colored range used for copying rhythmic motives and later repitch.



X and Y Beam settings
P + F9 Copy
P + F10 Paste

Grow Left and Right
P + - Copy
P + = Paste

Alternative way:
Direct navigation to beam settings - *see Numeric Fields* - note selected:

M + B To left handle
M + N To right handle
M + , To grow left
M + . To grow right
M + [Parallel beams grow 1.16
M +] Parallel beams grow 1.25
M + / Reset parallel beams

NumpadAdd	Increase		
NumpadSubtract	Decrease		
1 2 3	0.01	0.02	0.03
4 5 6	0.10	0.20	0.30
7 8 9	1.00	2.00	3.00
0	10		

[+ L Info screen Stemlength & Align

F4: Stemlength and Alignment [+ L

Stems , tails, flags, hooks. Dotted notes colliding with tails.

ADJUST STEMLENGTH

Mico navigation from note to stem	WIN + E
Increase stemlength 0.25 sp	NumPadEnter + Up
Decrease stemlength 0.25 sp	NumPadEnter + Down

ONE NOTE *

Increase stemlength 0.25 sp	\ + 0
Increase stemlength 0.50 sp	\ + =
Decrease stemlength 0.25 sp	\ + 9
Decrease stemlength 0.50 sp	\ + -

RANGE same voice # - zoom 60% - 200%

Increase stemlength 0.25 sp	\ + P
Increase stemlength 0.50 sp	\ +]
Decrease stemlength 0.25 sp	\ + O
Decrease stemlength 0.50 sp	\ + [

* Select a note and go with colorsearch to the note.
\# Select the first note. Press the hotkey.
Make the range. Position mouse on stem and press Z.
Next: press U(pstem) if first note is U or D(ownstem) when D.

Reset stemlength range:

Select first stem, shiftclick last stem	Ctrl + CapsLock
Reset stemlength one note	\ + /

ALIGN ELEMENTS

Similar	CapsLock + F10
Same subtype	CapsLock + F11

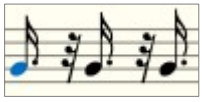
Ties	[+ T
Beams	[+ B
Copy Positions	[+ Y
Numeric Fields	[+ G
Positioning General	[+ 4

OK

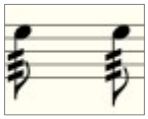
WIN + E from note to stem in macro group F3

Stemlength change for:
- dotted 16ths
- tremolos
- attaching symbols
- notes outside staff in polyphony
- notes in staff in polyphonic pieces

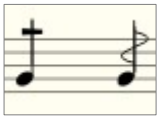
Blue Default



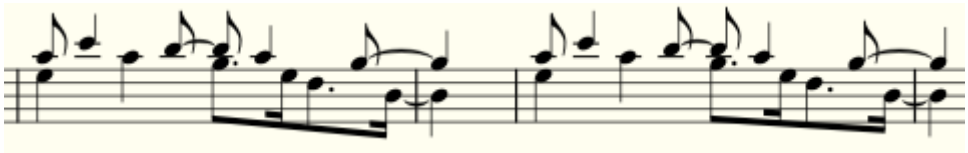
+0.25 +0.50
Stemlength change



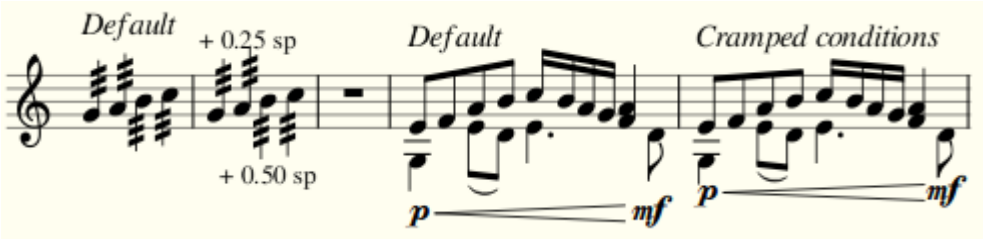
+ 0.50 sp



+ 1.00 sp

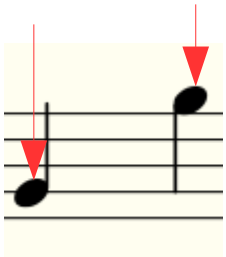


Default *Edited*



Stemlength change - *moving to the stem*

When you press one of the hotkeys **\ + P,], O, [, 0, =, 9 and -** you are asked if the first note in the range has an **U**pstem or a **D**ownstem.



Via PixelSearch the macro finds the highest point of the colored (selected) note. It's the spot where the red arrows point to. This is the starting point for the mouse.
If the note has an upstem the mouse moves **4** pixels to the right and **15** pixels higher and right-clicks the sensitive area around the stem.
If the note has a downstem the mouse moves **7** pixels to the left and **15** pixels lower and right-clicks the sensitive area around the stem.
Experiment a bit to find these numbers for your system.
Conduct your tests with different zoomfactors to find numbers which will work from 80 to 200%.

CapsLock + F10 Align elements

Mixed score In the vocal staves of a mixed score dynamics, hairpins and expression texts are usually placed above the staff.
When there are many of these elements:
use the selection filter **Z + F**, flip the elements with **X**.
and align with **CapsLock + Wheel** or the finetune commands.

Another method uses colored range selection. Set the range with **L + [** resp. **L +]**. Select the range with **L + =** Put the mouse on a dynamic and press **Ctrl + RightButton** and then **X** to flip. *
Repeat the range selection, put the mouse on a hairpin and execute the same commands. Finally reset the colored range with **L + -**.

Combining colored range selection and selection filter is also possible. It makes the reset of flipped stems and beams easier.
Or use the command **] + H** of macrogroup F1.

* As of MSc 3.5 there is a *native* alternative way for Range -> All similar selection. For example: click on the first dynamic in the desired range.
Shift + click on the last dynamic in the range. Result: all dynamics in that range are selected, and nothing else. This is in normal mode.
This method is mentioned on the info screen: *Reset stemlength in range*.
The advantage of using colored range selection is the possibilty of instant reselection for other element types you want to align.

[+ G Info screen Numeric Fields

F4: Numeric Fields Navigation and Input [+ G

NAVIGATION

Minimum distance	M + D	
X-offset element	M + X	
Y-offset element	M + Y	
Stacking order	M + Z	
Segment leading space	M + L	
X-offset chord	M + C	
Y-offset chord	M + U	
Velocity amount	M + V	
Beam left handle (X)	M + B	
Beam right handle (Y)	M + N	
Beam grow left	M + ,	
Beam grow right	M + .	
Reset Parallel Beams 1.00 sp	M + /	
Parallel Beams 1.16 sp	M + [	
Parallel Beams 1.25 sp	M +]	
Text font size	M + T	
Walk fields	TAB	Shift + TAB

NUMERIC INPUT

Add 0.01, 0.02, 0.03	NumpadAdd + Numpad 1,2,3
Add 0.10, 0.20, 0.30	NumpadAdd + Numpad 4,5,6
Add 1.00, 2.00, 3.00	NumpadAdd + Numpad 7,8,9
Add 10.00	NumpadAdd + Numpad 0
Subtract 0.01..10.00	NumpadSub + Numpad 1...0

Copy Positions	[+ Y
Ties	[+ T
Beams	[+ B
Stems & Align	[+ L
Positioning General	[+ 4

OK

These navigation hotkeys work on single elements.
Before the mouse will click in the numeric field the macro checks the general conditions:
- Defined State? *Yes*
- Somehing selected? *Yes*
- List selection? *No*
- Range selection? *No*

and will show a message when a condition is not met and exits.
The mouse goes to the selected element and clicks it. In the Inspector collapsed sections will be expanded. The mouse clicks the numeric field. The macro checks if the field operation is applicable on the selected element. If not it exits with a message. Otherwise everything is now ready for numeric input.

To prevent unpredictable behavior the numeric input hotkeys pose three conditions:
- Defined State?
- Something selected?
- Mouse in Inspector area? *

and will show a message if etc.

* The X-coordinate of the mouseposition must be higher than **`Def_Insp_Width`.**

Before the add or subtract operation the content of the numeric field is written to the clipboard by selecting it first with Control + A. If in spite of all precautions something went wrong the whole score will be selected. The Statusbar shows 'Range Selection' and the macro will exit.

To Numeric Fields not in the list you can assign a Memorypoint for the duration of the session. See the info for macro group F9. E.g. the time stretch of an articulation or a fermata or in text line details the placement of begin/ continue /end text. **M + F1,2,3...12** set Memory-spot. **M + 1,2,3..0,-,=** go to Memoryspot.

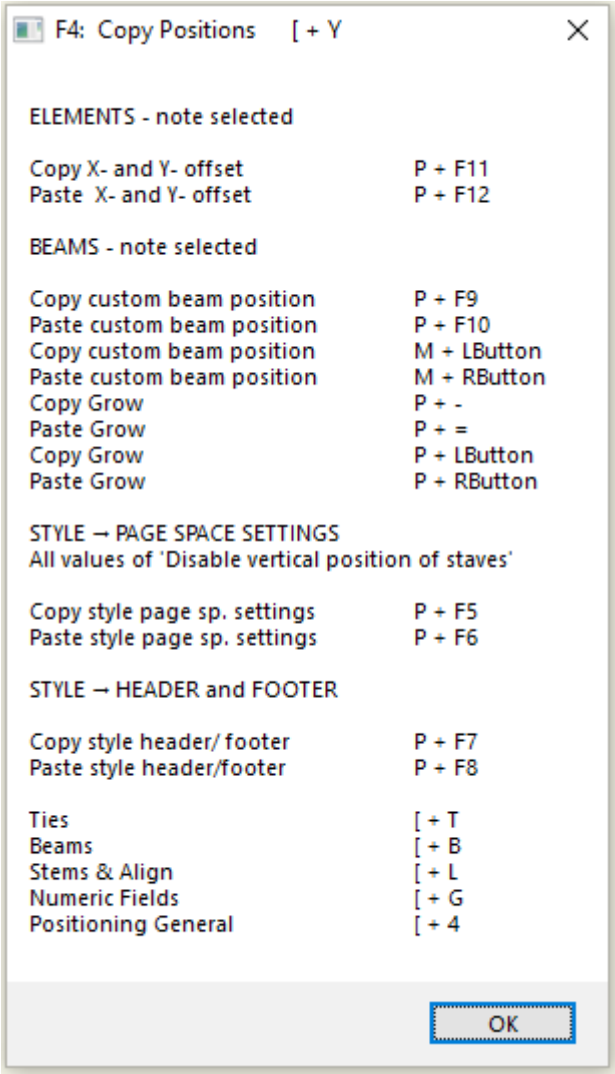
Change values: Big steps: Up/Down.
Small steps: End → Numpad Add/Subtract + number.
When ready press CapsLock.

Tooltip after a Beam hotkey.
M + B N , . / [or **]**

Edit beam: Press X, Y, L, R, [or]. X-Y handles L-R grow.
The brackets set the parallel beamdistance: [= 1.16] = 1.25
Useful for some 32nd and 64th beams. Press Z to exit the macro.

After pressing **CapsLock** you can continue editing.

[+ Y Info screen Copy Positions



The copy beam hotkeys have mouse button equivalents which can be useful when the beamed notes are spread across the page.

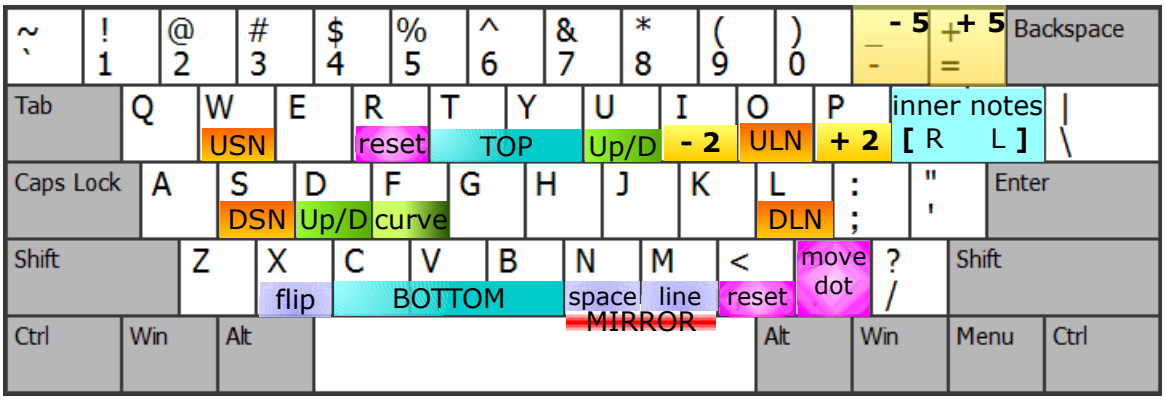
With the hotkeys to copy the sp. settings of Style → Page you can also transfer pre 3.6 settings of an existing score to a new score.

Set the size of the Window Style as described in F4_DATA.txt

WSTYHeight
WSTYWidth

Supplement Layout tie hotkeys

Uptie**S**pace**N**ote - **D**owntie**S**pace**N**ote - **U**ptie**L**ine**N**ote - **D**owntie**L**ine**N**ote



Supplement Stacking order table

Stacking order

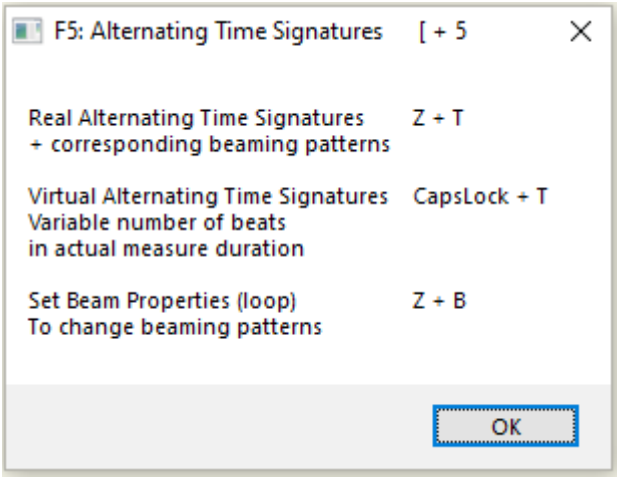
Accidental	1600
Ambitus	2200
Arpeggio	1500
Articulation	2800
Barline	1100
Beam	3200
Bend	4800
Breathmarks	2500
Caesura	2500
Change instrument	4400
Clef	2000
Cresc. - Dim	5100
D.C	3700
D.S	3700
Dynamic	3100
Fall etc.	3000
Fermata	2900
Fingering	3800
Flag	3300
Fretboard diagram	4700
Glissando	6100
Hairpin	5100
Hook/Flag	3300
Instrument names	800
Key signature	2100
Ledgerlines	1700
Line	5700
Minus sign measure	1099
mf + hairpin	5100
Note anchored line	5700
Note dot	6600
Noteheads	1900
Ornament	2800
Ottava's	5200
Palm mute	5600
Parenthesis	500
Pedal lines	5900
Rehearsal mark	4300
Repeat measure sign	2600
Rest	2400
RH fingering	2800
Sawtooth	5500
Segno	3600
Slide etc.	3000
Slur	900
Stafflines	1200
Staff text	4100
Stem	1800
System text	4200
Tempo	4000
Text line	5700
Thumb pos	2800
Tie	1000
Time signature	2300
Title text	600
Tremolo	6700
Tremolobar	4900
Trill lines	5300
Volta	5800

OK

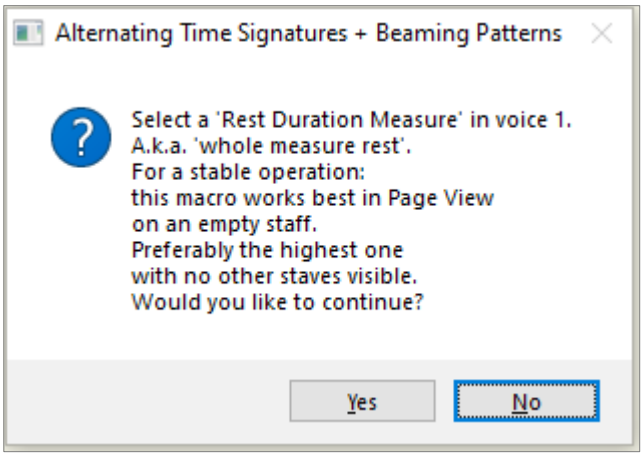
Reference section - F5 Alternating Time Signatures

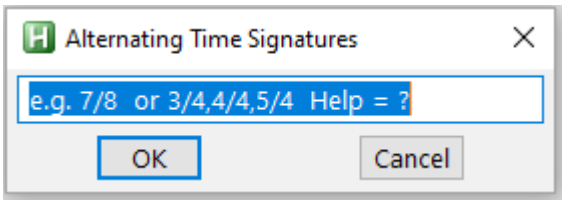
Supporting document: F5_DATA.txt. *Includes all DIY details*

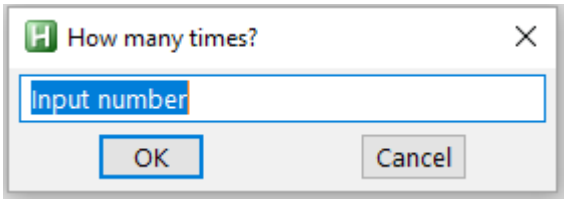
[+ F5 In Master - Run macrogroup F5
[+ 5 Info screen Alternating Time Signatures

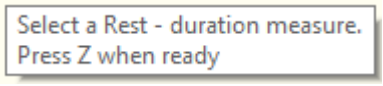


Z + T Info screen 'Real' ATS

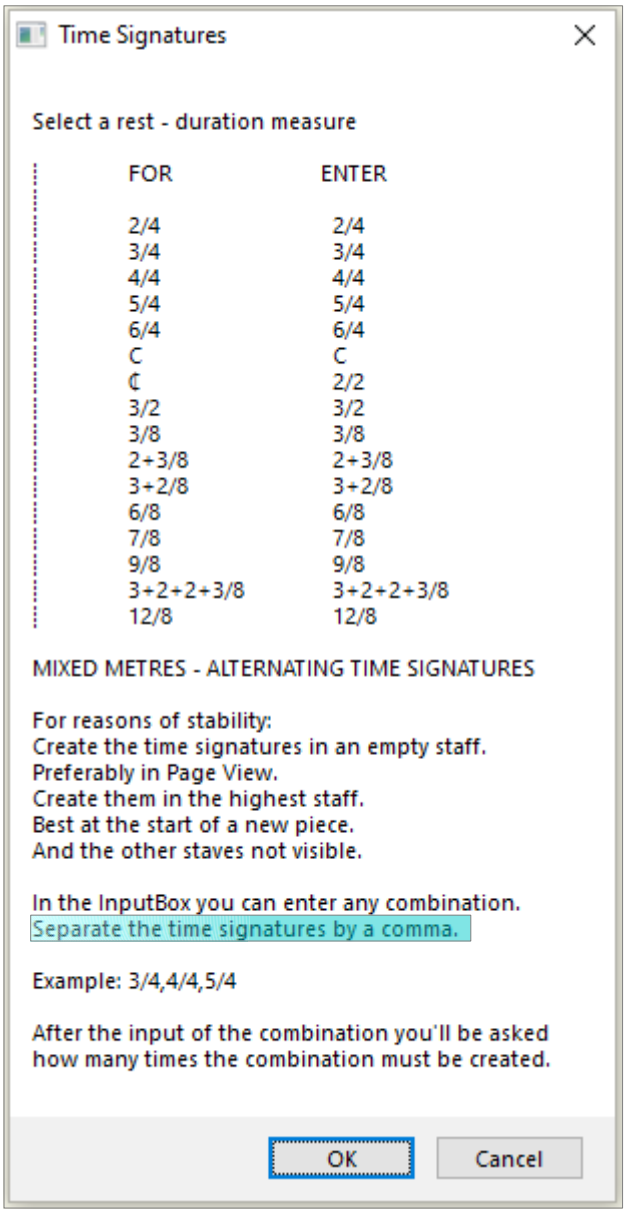




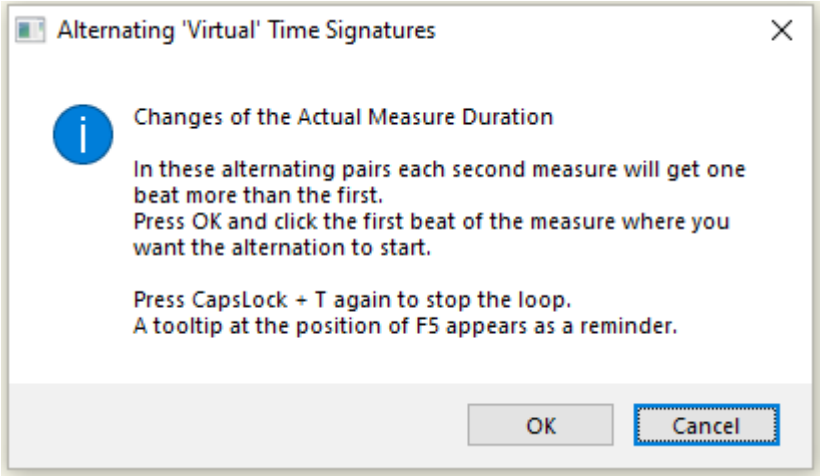




When the first TimeSig is created MuseScore loses focus. Or when something gets selected it's not predictable which element it will be. That's why the macro creates a colored note in the first measure as a point of reference. AHK finds the colored note and from there Alt+Left returns the cursor to the TimeSig.
Now the loop can start. When it finishes the colored note will be deleted again if it is still visible.



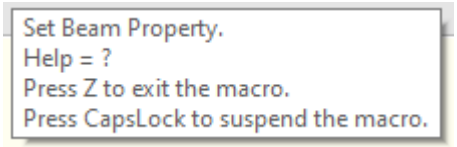
CapsLock + T Create virtual alternating time signatures

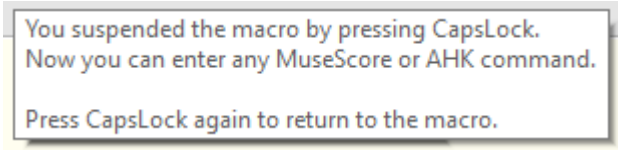


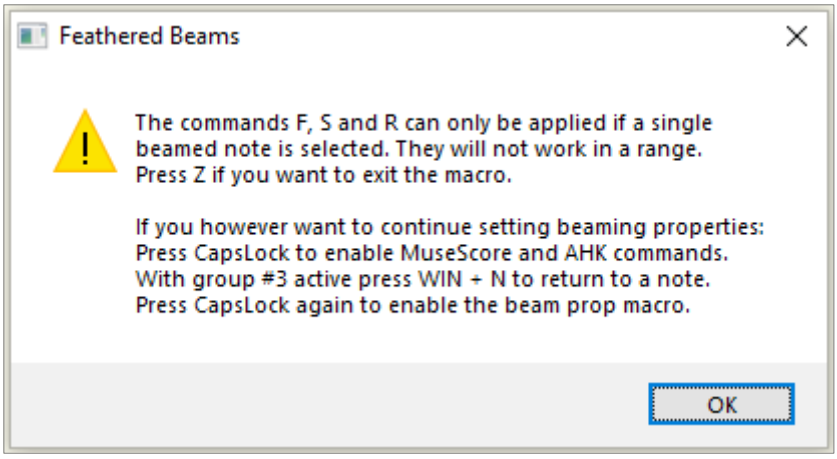
Start with choosing a Time Signature. All measures will have the same denominator. The numerator of each second measure will become one higher than that of the first. When you repeat the macro starting on the same measure the length of the second measure of the pair will again increase with one beat.

Changes in bigger steps are easy. The searchterm 'CapsLock & t' brings you to the lines in the macro which must be activated.

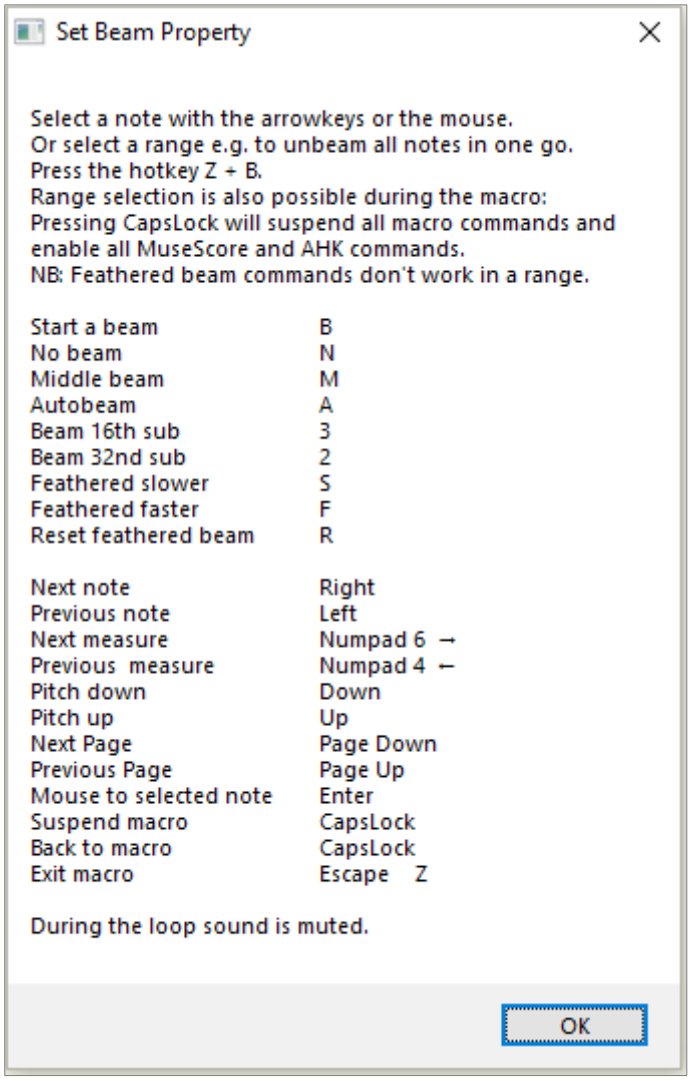
Z + B Set beam property - loop to walk through the score.
Change the beaming created by the virtual time signature.







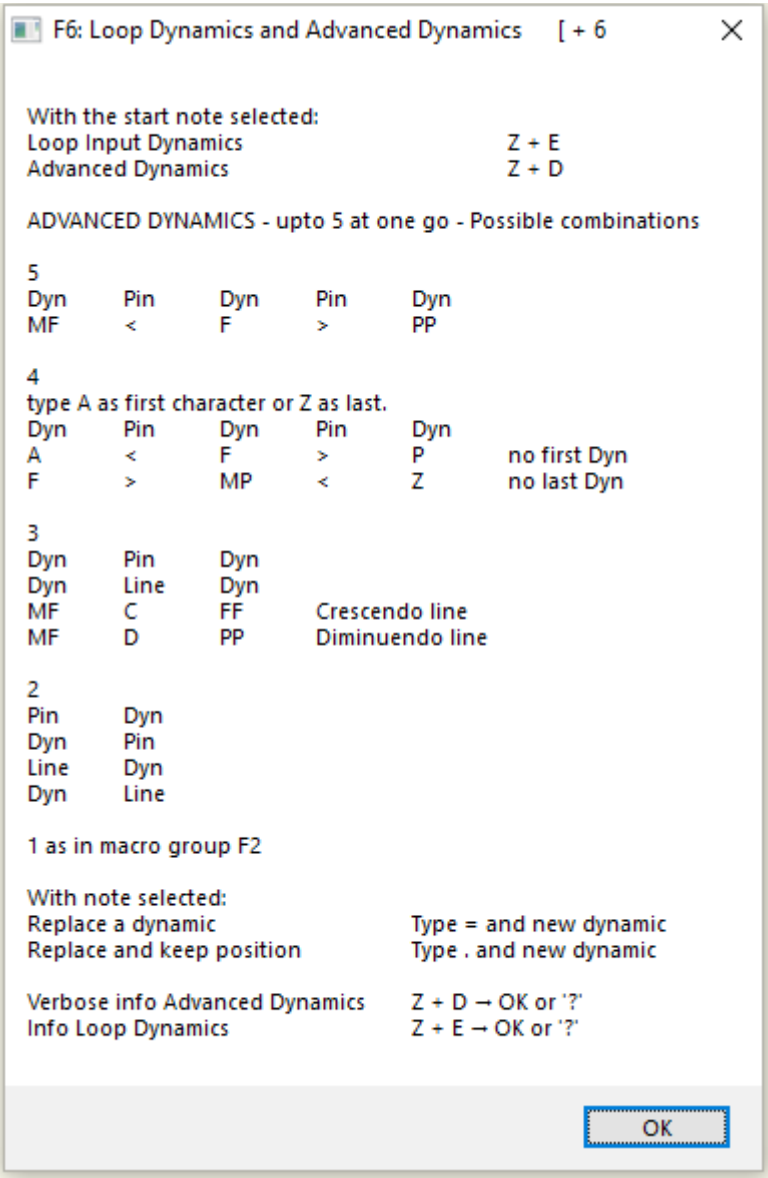
When the macro finishes the mouse returns to the selected note. If however the focus is lost press **WIN + N** to return to a note and **Alt + Z,X,C,D or S** to let the mouse select the note.



Reference section - F6 Advanced Dynamics

Supporting document: F6_DATA.txt. *Includes all DIY details*

[+ F6 In Master - Run macrogroup F6
[+ 6 Info screen Advanced Dynamics



F6: Loop Dynamics and Advanced Dynamics [+ 6

With the start note selected:
Loop Input Dynamics Z + E
Advanced Dynamics Z + D

ADVANCED DYNAMICS - upto 5 at one go - Possible combinations

5

Dyn	Pin	Dyn	Pin	Dyn
MF	<	F	>	PP

4
type A as first character or Z as last.

Dyn	Pin	Dyn	Pin	Dyn	
A	<	F	>	P	no first Dyn
F	>	MP	<	Z	no last Dyn

3

Dyn	Pin	Dyn	
Dyn	Line	Dyn	
MF	C	FF	Crescendo line
MF	D	PP	Diminuendo line

2

Pin	Dyn
Dyn	Pin
Line	Dyn
Dyn	Line

1 as in macro group F2

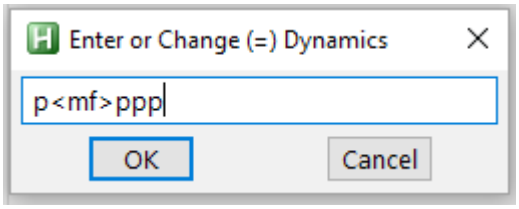
With note selected:
Replace a dynamic Type = and new dynamic
Replace and keep position Type . and new dynamic

Verbose info Advanced Dynamics Z + D → OK or '?'
Info Loop Dynamics Z + E → OK or '?'

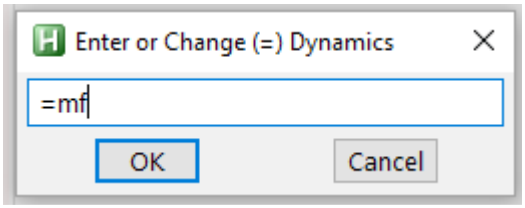
OK

Some workflows favor adding dynamics and articulations in a second pass after the note input.

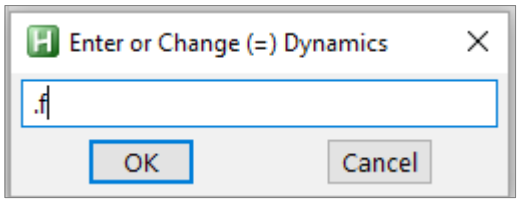
Z + D makes combined dynamics possible in one staff at one go.
See next page for the verbose info screen.



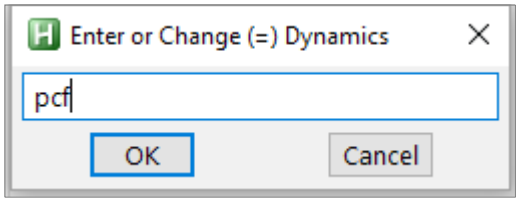
Z + D *Combined dynamics*



Z + D *Replace dynamic*



Z + D *Replace dyn. Retain position*



Z + D *Dyn Line Dyn*

Z + E is for single dynamics.
In this macro the dynamics are on standby.
While working in MuseScore you can activate them at any moment.

Z + B and **Z + E** operate in the Defined State.

Advanced Dynamics - verbose info

Advanced Dynamics - main info

SINGLE DYNAMICS - Also possible with macro group #2

Type the name of the dynamic in the InputBox.

ppp	pp	p	mp	mf	f	ff	fff
rf	rfz	fz	sf	sfz	sff	sffz	
sfpp	sfp	fp	m	r	s	z	n

To REPLACE a dynamic: select the note with the wrong dynamic.
Type = and then the dynamic. E.g. =f

To REPLACE a dynamic ON THE CUSTOMIZED POSITION of the old one:
Type first a period and then the name of the dynamic.
So .mp or .ff. This presupposes the Defined State.

COMBINED DYNAMICS in the range from ppp to fff

Up to five dynamics can be entered at one go.

Dynamic hairpin dynamic hairpin dynamic mf<f>pp f>pp<mf

The first dynamic will be attached to the start note.
Navigate with arrowkeys or mouse to the note where the first hairpin must end. PRESS Z. Do the same for the second hairpin. Again: PRESS Z.
The first dynamic will be attached to the selected start note.
The second and the third dynamic after the first resp. second hairpin.

With four dynamics: type A as first character or Z as last.

Leave out the first dynamic:	a<f>p	a>p<f	a<mf>p
Leave out the last dynamic:	p<f<z	p<f>z	f>mp<z

With three dynamics these combinations are possible:

Dynamic	hairpin	dynamic	mp<ff	mf>p
Dynamic	line	dynamic	mfcff	mfdpp

The first dynamic will be attached to the start note. Navigate to the note where the hairpin or the cresc/dim. line must end. PRESS Z.
The hairpin cq line and the final dynamic will be attached.
C= cresc. D= dim. line.

With two dynamics these combinations are possible:

Hairpin	dynamic	<ff	>p
Dynamic	hairpin	p<	mf>
Line	dynamic	cff	dmp
Dynamic	line	mpc	fd

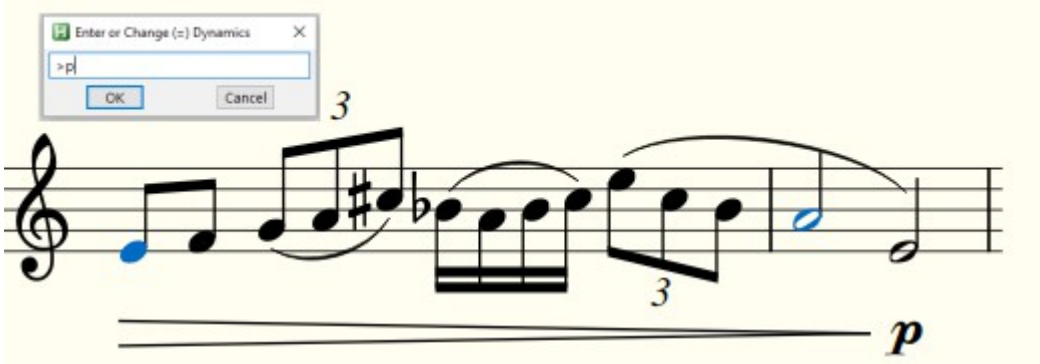
The dynamic, hairpin or cresc./dim. line will be attached to the start note. C= cresc. D= dim. line.
Navigate to the note where the hairpin or line must end.
PRESS Z. The final dynamic will be attached after the pin.
The hairpin or line will be created, the final dynamic will be attached.

At higher zoomfactors in Page View navigating across line breaks can cause a screen shift and thus malfunctioning of the macro.
To prevent this switch to a smaller zoom or select the second note with the mouse. Or work in Continuous View.

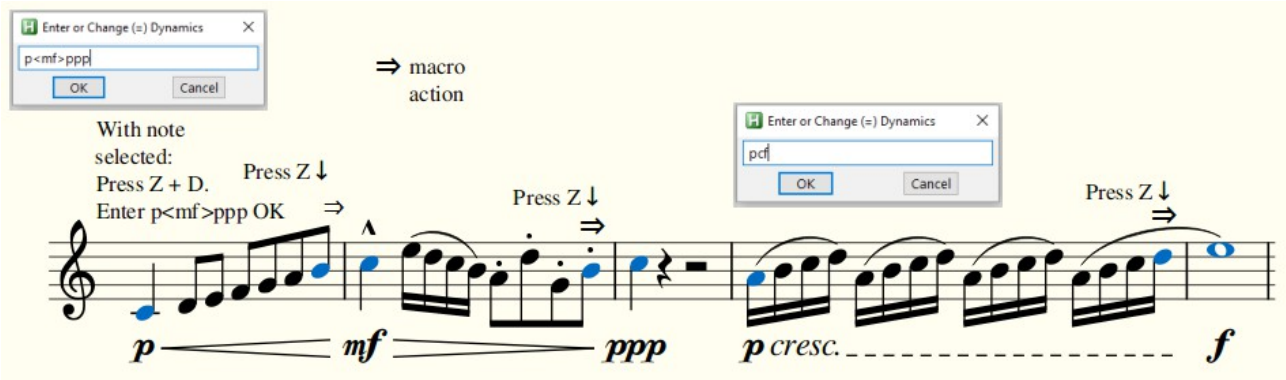
COMBINED dynamics work on one staff only.
To copy them to the same timeposition in another staff: use the hotkeys of macro group #1: colored range selection and select similar.

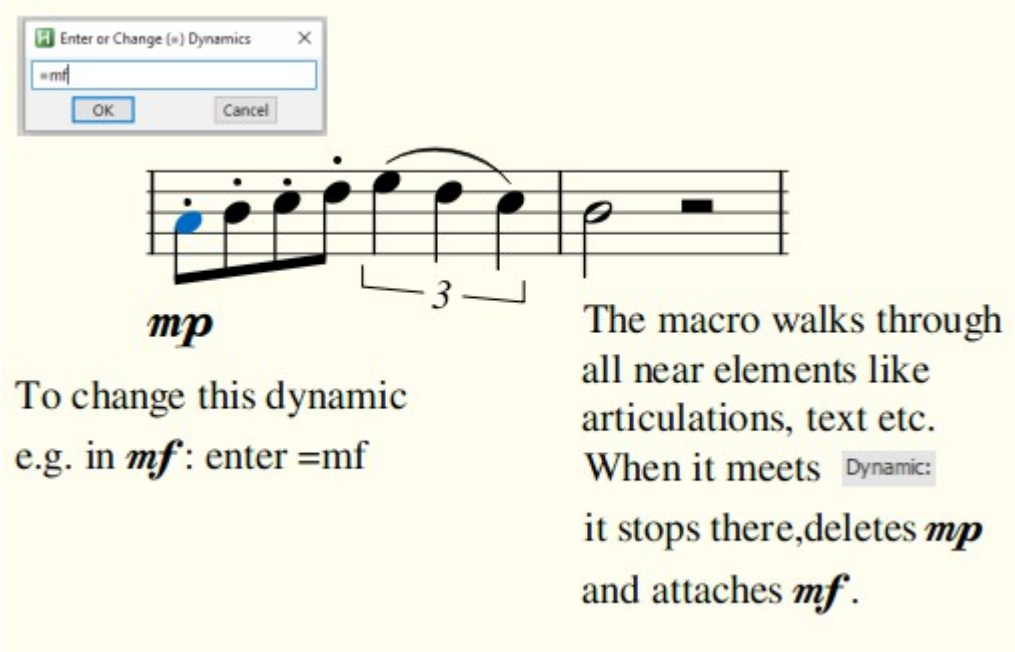
OK Cancel

Examples



After pressing Z + D the mouse travels to the selected note. This minimizes the use of the mouse and muscular strain. With arrowing you reach the spot where the pin or line has to end.
There you press **Z**.

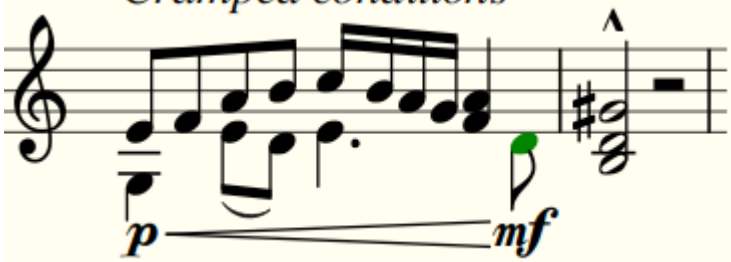


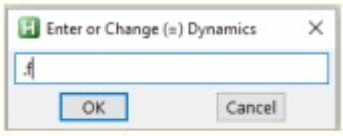


In this example space is limited.
The positions of quite a few elements had to be tweaked.

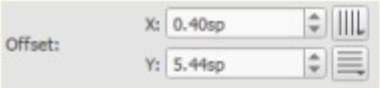
Now you want to replace ***mf*** by ***f*** while retaining its position.

Cramped conditions



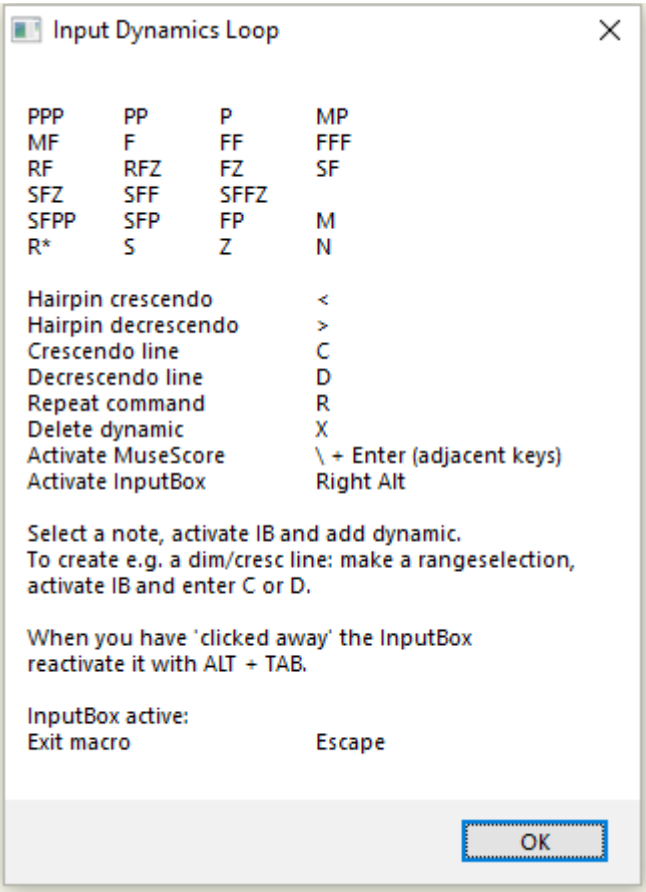


Type **.**f (period f)



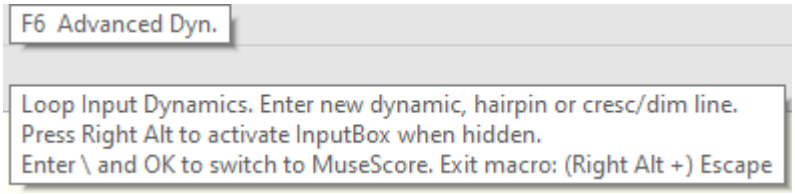
The default offsets of the ***mf*** element have been tweaked to these values. After entering **.f** the macro lets the mouse travel to the X-rectangular, clicks it, selects all, copies the value to the clipboard and repeats these actions for the Y-coordinate, deletes ***mf***, attaches ***f***, travels to the rectangulars to paste the X- and Y-values and orders the mouse to return to its last position on the staff.
In short: some 20 actions reduced to one.

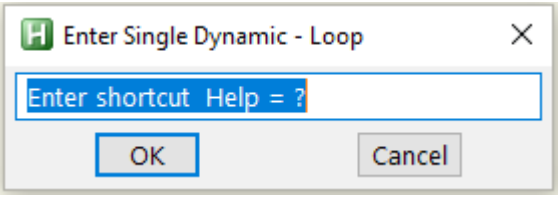
Z + E Loop Single Dynamic



Z + E Dynamics on standby. Switch back and forth between MuseScore, other AHK commands and this macro.

Combining the voice color select hotkeys from F1, the micro navigation commands from F3 and the apply palette symbols shortcuts from F2 speeds up the workflow considerably.

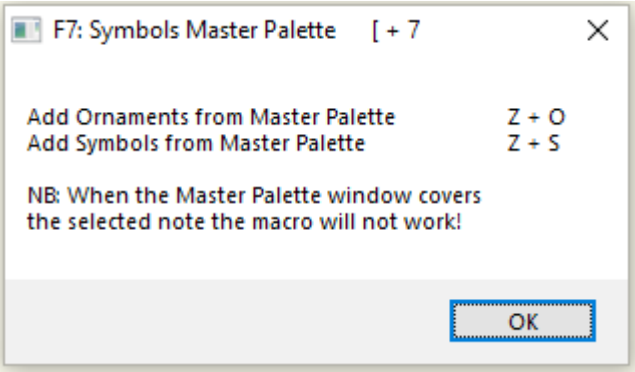


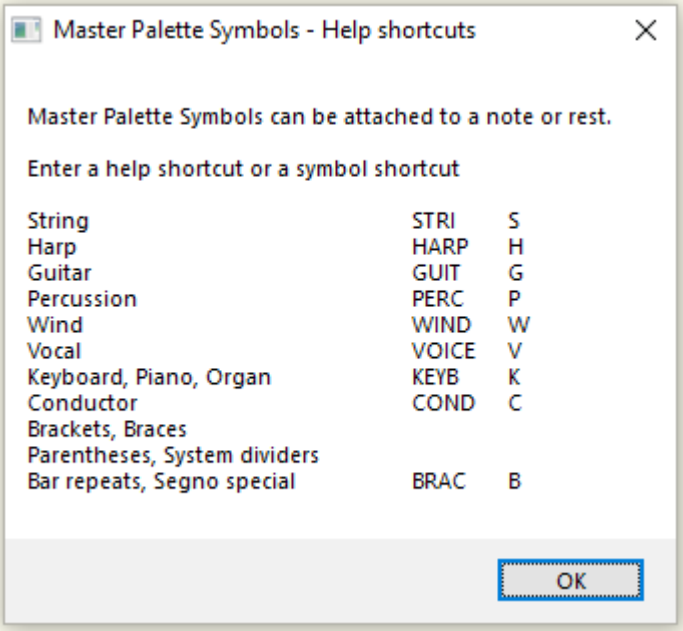


Reference section - F7 Master Palette

Supporting document: F7_DATA.txt. *Includes all DIY details*

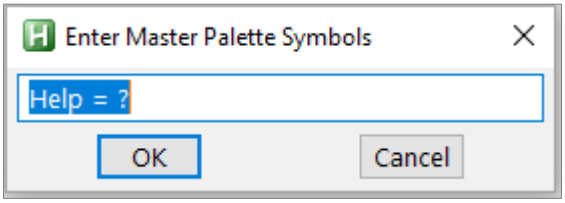
[+ F7 In Master - Run macrogroup F7
[+ 7 Info screen Master Palette





Tip: **I**nitialize the **M**aster **P**alette at the start of a session.
Z + U → **IMP** see Reference section *Master* on page 49. At startup there is no field selected. The utility selects the Symbol Pincé. Unselected it is not blue. Selecting it turns it blue. From now on there will always be a blue field as first symbol whenever a subcategory of the Palette is invoked.

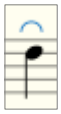
PIN_Master_Palette_Pincé.png



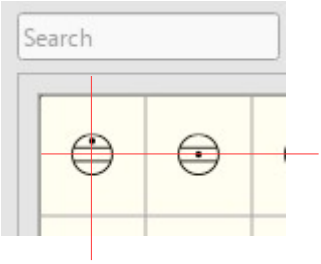
The InputBox is best situated low in the Inspector. The Master Palette Symbols next to it on the Canvas. *The selected note must remain visible*. No overlap!

Sending the names of symbols

If you hover with the mouse over a symbol a tooltip shows its name. The macro sends this name - or rather the smallest possible part of it - to the search field. In this respect it acts the same as in macro group F2 where the Palette symbols of the Advanced AHK Workspace are selected.
Of course the name must be unique to single out the wanted symbol.
An example: you want to attach the string symbol *sul ponticello.*
If you type *sulp* in the InputBox the macro sends *e (sul p*
The full name of the symbol is *Bow behind bridge (sul ponticello)*
In this case *e (sul p* suffices for unique identification.



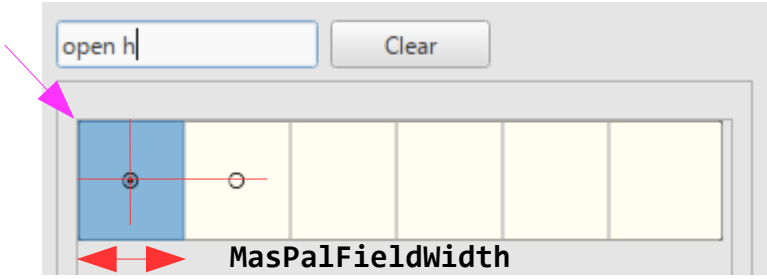
Hitting the centre of the first field



If the search field is empty we see these symbols. Put the mouse on the centre of the left dot. PixelMousing shows the X-coordinate. The Y-coordinate is the centre of the other dot. So the point of intersection of the red lines is the centre.
`MasPalFirstFieldX`
`MasPalFirstFieldY`

Ambiguous symbol names

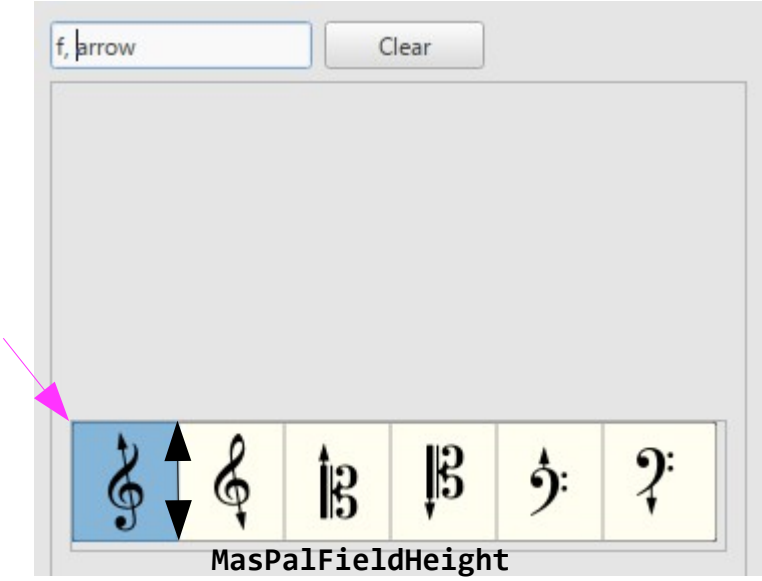
Some symbolnames are ambiguous. This results in more glyphs candidates. The correct one does not reside in the first, leftmost field. An example:
The macro sends *open h* and finds two candidates. We want the not-blue one.



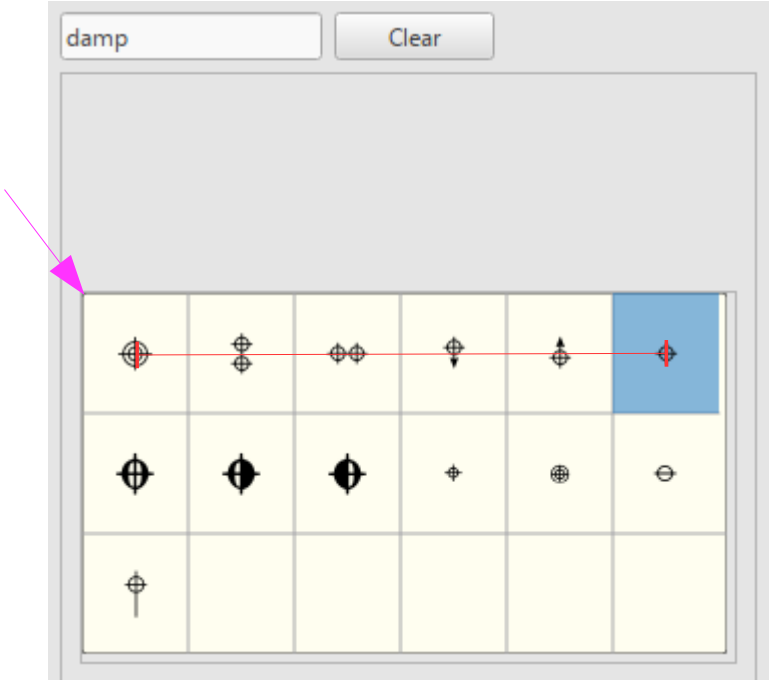
Determine this color with
Z + U → GCM

The blue color is
`ColorMasPal`
For the test screen it is:
`ColorMasPal := 0x7fb27`

The PixelSearch for **`ColorMasPal`** in the Search Area of the Master Palette Symbols with surface **`MP_X1, MP_Y1`** and **`MP_X2, MP_Y2`** finds the upperleft corner where the arrow points to. If the search fails - blue not found - the macro returns a message and exits.



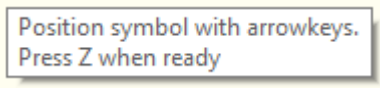
The symbols can appear everywhere. There is no fixed vertical distance between symbols and search field.
The centre of a field in a row of symbols is determined relative to the upper-left corner found by PixelSearch.
Determine with PixelMousing:
`MasPalFieldWidth` and
`MasPalFieldHeight`
With these data the macro can select the centre of any field, also those with ambiguous names.



We want to attach 

We add **`5x MasPalFieldWidth`** to the X-coordinate of the centre of the leftmost field. That centre itself is easy to calculate. Its X and Y are off-sets from the upper-left corner:
`MasPalFieldWidth/2` and **`MasPalFieldHeight/2`**

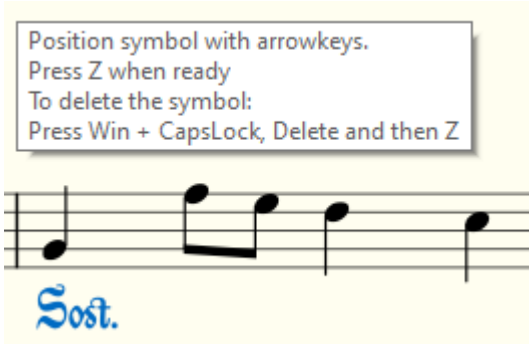
After attaching the symbol it moves 4 spaces up. This tooltip appears:



Tooltip 1

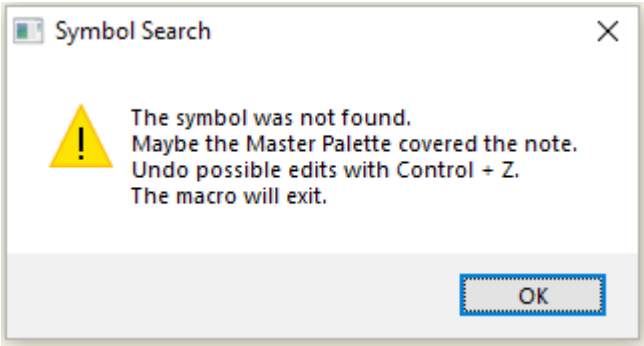
After pressing **Z** the note will be selected again.

Automatic Placement of the symbols is switched off.
Pedal and organ (heel-toe) signs are placed under the staff.



Tooltip 2

Sometimes when *Tooltip 1* appears the symbol is not selected. Some symbols seem to need more time or the CPU is temporarily very busy.
In such a case press **Z** followed by **WIN + M** from F3 Micro navigation, select sy**M**bol. Now you can position the symbol. *Tooltip 2*.



Or zoomfactor too small for this symbol?

The position of the Master Palette window has not been fixed via coordinates.
This message is an effective reminder to edit the notes outside the surface of the Master Palette.
PM: size Master Palette is minimized.

Strings

Master Palette Symbols - shortcuts String and Plucked

String techniques

Up bow	UB	
Down bow	DB	
Turned up bow	TUB	
Turned down bow	TDB	
Bow behind bridge stemless	SULP	(sul ponticello)
Bow behind bridge with stem	SULP+	(sul ponticello)
Bow on top of bridge stemless	BOB	
Bow on top of bridge with stem	BOB+	
Bow on tailpiece stemless	TAIL	
Bow on tailpiece with stem	TAIL+	
Bow behind bridge on one string	BBB1	
Bow behind bridge on two strings	BBB2	
Bow behind bridge on three strings	BBB3	
Bow behind bridge on four strings	BBB4	
Change bow direction, indeterminate	CBDI	
Fouetté, whip stroke	FOUETTE	
Harmonic	HAR	
Half-harmonic	HHAR	
Jeté (gettato) above	JETEA	
Jeté (gettato) below	JETEB	
Mute on	MON	
Mute off	MOFF	
Overpressure, down bow	OVERD	
Overpressure, up bow	OVERU	
Overpressure, no bow direction	OVERN	
Thumb position	TP	
Turned thumb position	TTP	
Unmeasured tremolo stemless	UT	(Penderecki)
Unmeasured tremolo with stem	UT+	(Penderecki)
Vibrato pulse accent stemless	VPA	(Saunders)
Vibrato pulse accent with stem	VPA+	(Saunders)

Plucked techniques

Arpeggiato up	ARPU
Arpeggiato down	ARPD
Buzz pizzicato	BPIZZ
Damp stemless	D
Damp with stem	D+
Damp for stem	DFS
Damp all	DA
Fingernail flick	FF
With fingernails	WF
Left-hand pizzicato	LHPIZZ
Plectrum	PL
Snap pizzicato above	SPIZZA
Snap pizzicato below	SPIZZB

OK

Harp

Master Palette Symbols - shortcuts Harp

Harp techniques

Ascending aeolian chords (Salzedo)	AAC
Descending aeolian chords (Salzedo)	DAC
Damp above (Salzedo)	DAMPA
Damp below (Salzedo)	DAMPB
Damp with both hands (Salzedo	DAMP2H
Damp only low strings (Salzedo)	DAMPL
Fluidic sounds, left hand (Salzedo)	FSL
Fluidic sounds, right hand (Salzedo)	FSR
Harp pedal raised (flat)	HPR
Harp pedal centered (natural)	HPC
Harp pedal lowered (sharp)	HPL
Harp pedal divider	HPD
Isolated sounds (Salzedo)	ISO
Metal rod pictogram	ROD
Metallic sounds, one string (Salzedo)	MS1S
Metallic sounds (Salzedo)	MSS
Muffle totally (Salzedo)	MUF
Oboic flux (Salzedo)	FLUX
Play at upper end of strings (Salzedo)	UPPER
Retune strings for glissando	RETUNE
Slide with suppleness (Salzedo)	SLIDE
Snare drum effect (Salzedo)	SNARE
String noise stemless	SN
String noise with stem	SN+
Tam-tam sounds (Salzedo)	TAM
Thunder effect (Salzedo)	THU
Timpanic sounds (Salzedo)	TIM
Tuning key pictogram	TKEY
Use handle of tuning key pictogram	HANDLE
Use shank of tuning key pictogram	SHANK
Whistling sounds (Salzedo)	WHISTLE

OK

Vocal

Master Palette Symbols - shortcuts Vocal

Vocal techniques

Mouth closed	MC
Mouth slightly open	MSO
Mouth open	MO
Mouth wide open	MWO
Mouth pursed	MP
Sprechgesang	SG
Sprechgesang with stem	SG+
Sussurando for stem	SSDO
Sussurando with stem	SSDO+
Nasal voice	NV
Tongue click (Stockhausen)	TC
Finger click (Stockhausen)	FC
Tongue and finger click (Stockhausen)	TFC

OK

Percussion

Master Palette Symbols - shortcuts Percussion

Percussion techniques

Buzz roll stemless	BUZZ
Buzz roll with stem	BUZZ+
Center (Weinberg)	CENTERW
Center (Ghent)	CENTERG
Center (Caltabiano)	CENTERC
Choke (Weinberg)	CHOKE
Crush stemless	CRUSH
Damp	DAMP
Damp 2	DAMP2
Damp 3	DAMP3
Damp 4	DAMP4
Damp with stem	D+
Damp for stem	DFS
Half-open	HO
Half-open 2 (Weinberg)	HO2
Left hand (Agostini)	LHA
Normal position (Caltabiano)	NPC
On rim	ONRIM
Open = open wah	O
Right hand (Agostini)	RHA
Rim (Caltabiano)	RIMC
Rim (Ghent)	RIMG
Rim or edge (Weinberg)	RIMW
Rim shot for stem	RS
Rim shot with stem	RS+
Rim shot closed + sign	RSC
Scrape from center to edge	SCE
Scrape from edge to center	SEC
Scrape around rim (counter-clockwise)	SCCW
Scrape around rim (clockwise)	SCW
Stick shot	SS
Swish stemless	SWISH
Swish with stem	SWISH+
Turn right stemless	TR
Turn left stemless	TL
Turn left or right stemless	TLOR
X stemless (dead note)	X

OK

Wind

Master Palette Symbols - shortcuts Wind

Wind techniques

Embouchure	
Flatter embouchure	FEMB
Sharper embouchure	SEMB
Relaxed embouchure	REMB
Somewhat relaxed embouchure	SREMB
Somewhat tight embouchure	STEMB
Tight embouchure	TEMB
Very tight embouchure	VTEMB
Very relaxed embouchure / weak air-pressure	VREMBW
Very tight embouchure / strong air pressure	VTEMBS
Hole	
Closed hole	CLH
Half-closed hole	1/2CLH
Half-closed hole 2	1/2CLH2
Half-open hole	HOH
Three-quarters closed hole	3/4CLH
Open hole	OH
Multiphonics	
Multiphonics (black) stemless	MPHB
Multiphonics (black) with stem	MPHB+
Multiphonics (white) stemless	MPHW
Multiphonics (white) with stem	MPHW+
Multiphonics (black and white) stemless	MPHBW
Multiphonics (black and white) with stem	MPHBW+
Reed	
Normal reed position	NREED
Very little reed (pull outwards)	VLREED
Much more reed (push inwards)	MMREED
Tongue	
Double-tongue above	DTA
Double-tongue below	DTB
Triple-tongue above	TTA
Triple-tongue below	TTB
Miscellaneous	
Mouthpiece or hand pop	MPIECE
Rim only	RIM
Trill key	TRK

OK

Guitar

Master Palette Symbols - shortcuts Guitar

Guitar

Strum direction up	SDU
Strum direction down	SDD
Left-hand tapping	LHT
Right-hand tapping	RHT
Golpe (tapping the pick guard)	GOL
Guitar shake	GSHAKE
Half-open wah/volume pedal	HALFO
Guitar vibrato bar dip	BARDIP
Guitar vibrato bar scoop	BARSCP

OK

Keyboard

Master Palette Symbols - shortcuts Keyboard

Keyboard, Piano, Organ & Finger substitution

Pedal heel 1	PH1	Pedal Ped	PEDPED
Pedal heel 2	PH2	Pedal P	PEDP
Pedal heel 3 (Davis)	PH3	Pedal S	PEDS
Pedal toe 1	PT1	Sostenuto pedal mark	SOS
Pedal toe 2	PT2	Half pedal mark 1	HP1
Pedal toe to heel	PTTH	Half pedal mark 2	HP2
Pedal heel to toe	PHTT		
Pedal heel or toe	PHOT		

Truncated brackets:

Play with left hand	PLH	Play with right hand	PRH
Play with left hand (End)	PLHE	Play with right hand (End)	PRHE

Loco (octaves supplement)	LOCO

Finger substitution above	FSA
Finger substitution below	FSB
Finger substitution dash	FSD
Multiple notes played by thumb or single finger	MN

OK

Brackets, braces, parentheses, dividers, segno, repeats

Master Palette Symbols - shortcuts Brackets etc.

Brackets, Braces, Parentheses, System dividers, Bar repeats

Double-height left bracket	DHLB
Double-height right bracket	DHRB
Left bracket for whole time signature	LBTS
Right bracket for whole time signature	RBTS
Left bracket for numerator only	LBNO
Right bracket for numerator only	RBNO
Combining open curly brace	OCB
Combining close curly brace	CCB
Brace	BR
Reversed brace	RBR
Double-height left parenthesis	DHLP
Double-height right parenthesis	DHRP
System divider	SDIV
Long system divider	LSDIV
Extra long system divider	ELSDIV
Split bar divider (bar spans a system break)	SBDIV
Staff divide arrows	SDIVAR
Segno serpent vertical lines	SS||
Repeat 1-measure	RM1
Repeat 2-measure	RM2
Repeat 4-measure	RM4

OK

Conductor

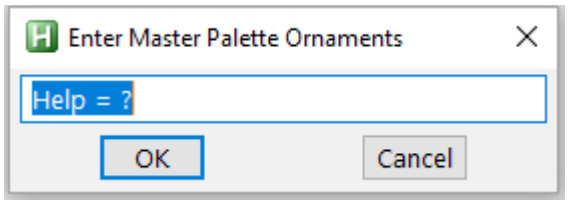
Master Palette Symbols - shortcuts Cond...

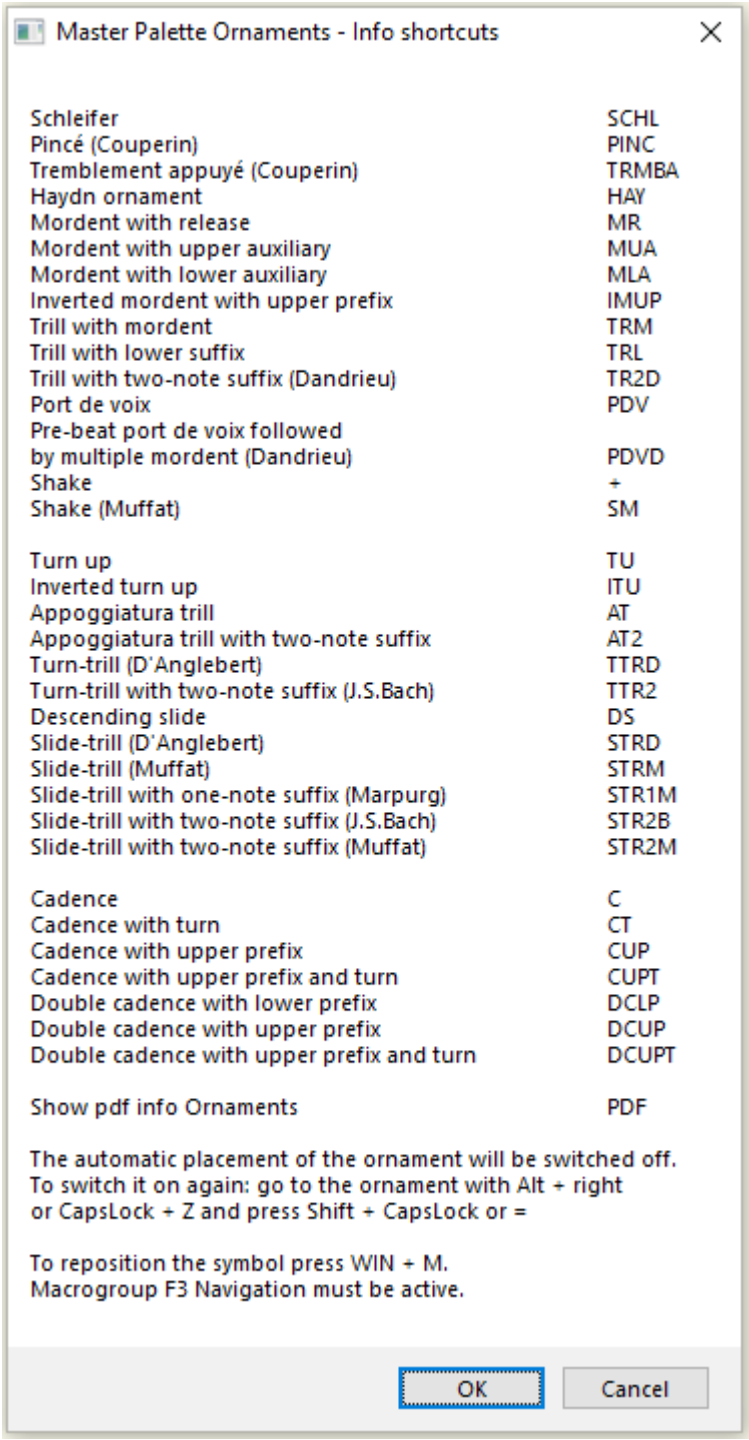
Conductor symbols

Strong beat or cue	SB
Left-hand beat or cue	LB
Right-hand beat or cue	RB
Weak beat or cue	WB
Beat 2, simple time	B2S
Beat 3, simple time	B3S
Beat 4, simple time	B4S
Beat 2, compound time	B2C
Beat 3, compound time	B3C
Beat 4, compound time	B4C
Unconducted/free passages	FREE

OK

Z + O





The ornaments have been moved 4 spaces higher before a PixelSearch command tries to select them again for final positioning.
The sensitive area around the ornament symbols seems to vary considerably.
In practice this means that not every ornament will be selected.
Press **Win + M** to reselect and reposition them.*

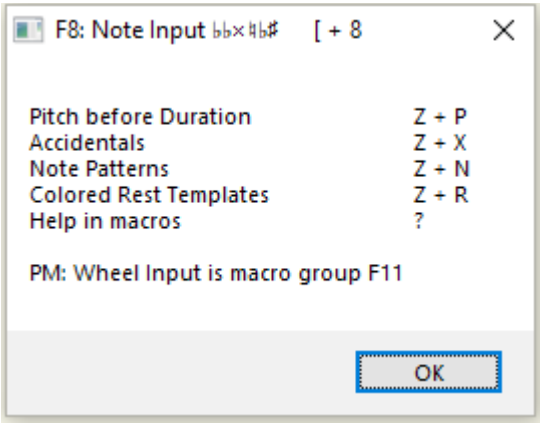
Entering **PDF** will show the ornaments with their shortcuts.

* Press **Win + M** , ColorSelect with **Alt + Z, X,C,D** or **S**, double-click with **Alt + CapsLock** and position the ornament with the arrowkeys or one of the finetuning commands from macro group F4. Finally **Win + N** to return to a note or rest.

Reference section - F8 Note Input

Supporting document: F8_DATA.txt. *Includes all DIY details*

[+ F8 In Master - Run macrogroup F8
[+ 8 Info screen Note Input



The macros in this group were inspired by feature requests on the MuseScore forum.

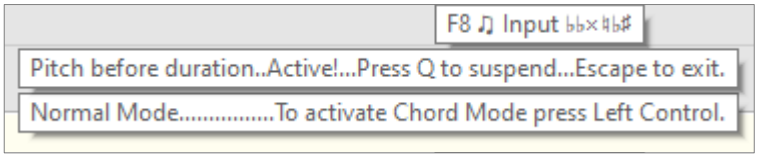
Pitch before duration: pitches are entered by the computer keyboard. It does'nt work with a MIDI keyboard.

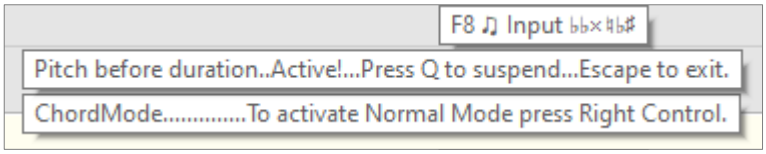
Note Patterns: fast input of the rhythm; repitching in a second pass.

Colored Rest Templates: a series of empty measures are filled with colored rests to indicate the stressed moments within the Time Signature.

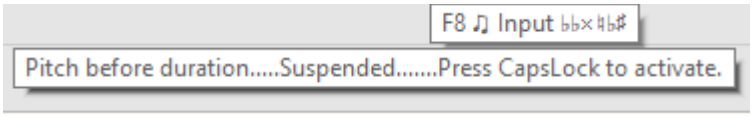
Accidentals include the quarter tone Gould arrow accidentals.

Z + P Pitch before duration
The tooltip shows the status. Normal Mode, Chord Mode or suspended.



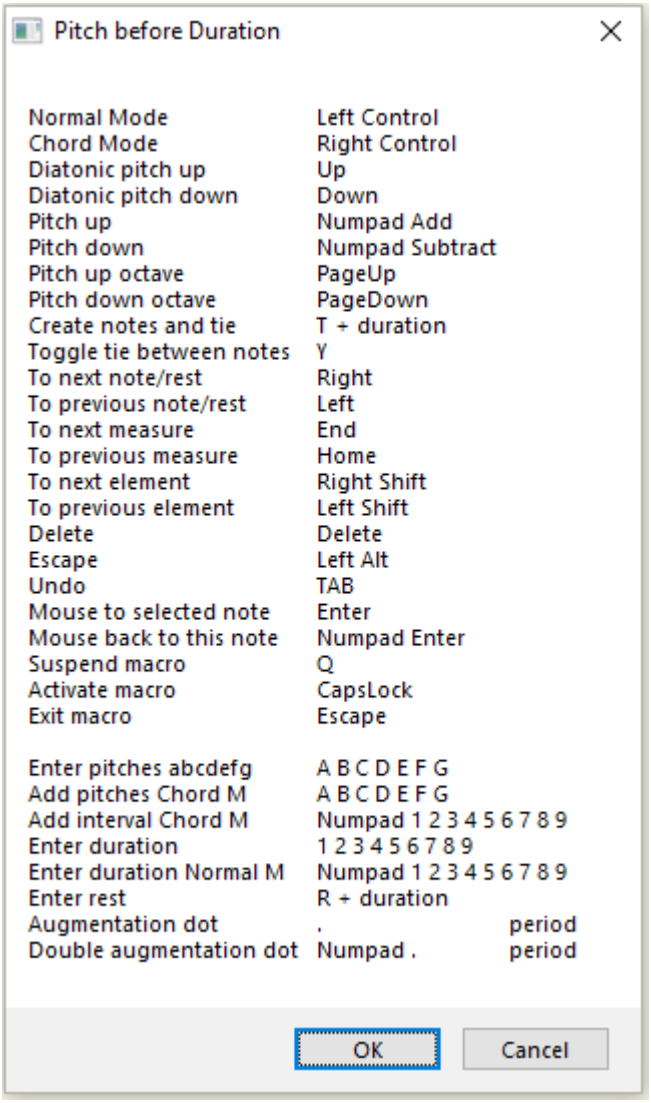


Normal Mode linear input. After each new note the macro leaves Note Input. A number key moves the cursor back, changes the note length and moves the cursor forward.
Chord Mode stacks notes without moving the cursor.



Pressing **Q** switches back to MuseScore. Now you can use also all commands of active macro groups except those with **CapsLock** as first key.

Z + P → ? Shortcuts Pitch before Duration



Pitch before Duration

Normal Mode	Left Control	
Chord Mode	Right Control	
Diatonic pitch up	Up	
Diatonic pitch down	Down	
Pitch up	Numpad Add	
Pitch down	Numpad Subtract	
Pitch up octave	PageUp	
Pitch down octave	PageDown	
Create notes and tie	T + duration	
Toggle tie between notes	Y	
To next note/rest	Right	
To previous note/rest	Left	
To next measure	End	
To previous measure	Home	
To next element	Right Shift	
To previous element	Left Shift	
Delete	Delete	
Escape	Left Alt	
Undo	TAB	
Mouse to selected note	Enter	
Mouse back to this note	Numpad Enter	
Suspend macro	Q	
Activate macro	CapsLock	
Exit macro	Escape	
Enter pitches abcdefg	A B C D E F G	
Add pitches Chord M	A B C D E F G	
Add interval Chord M	Numpad 1 2 3 4 5 6 7 8 9	
Enter duration	1 2 3 4 5 6 7 8 9	
Enter duration Normal M	Numpad 1 2 3 4 5 6 7 8 9	
Enter rest	R + duration	
Augmentation dot	.	period
Double augmentation dot	Numpad .	period

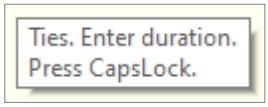
OK Cancel

Wherever possible the commands imitate their MuseScore equivalents. Where they have to deviate they follow a pattern which hopefully can be easily memorized.

MuseScore commands like *Alt + Right* had to be replaced by one-key commands as *Right Shift*.

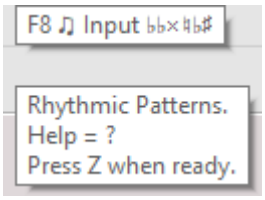
The *Numpad duration* commands work in both modes.

Pressing **T** brings up this tooltip:

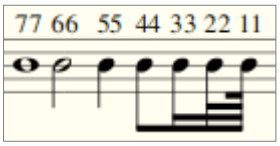


To create tuplets suspend the macro with **Q.** Apply the MuseScore commands and return to the macro with **CapsLock**.

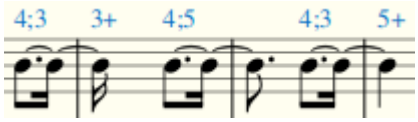
Z + N Note Patterns, Rhythmic Patterns



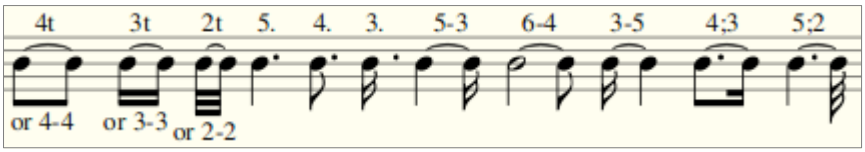
As with Pitch before Duration some MuseScore ways to handle notes had to be changed. Single notes need two keystrokes:



Tied notes, dotted notes, notes tied to dotted notes. Examples:

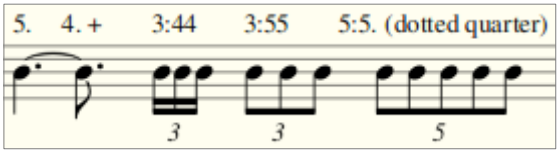


Ties across barlines



Dotted notes + tie need semicolons

If the tied note is dotted, enter its length and press **+** to tie it to the previous note.
Tuplets A:B B can be dotted.



Tuplets use colons

Z + N → ? Shortcuts Note Patterns - verbose

Note Patterns, Rhythmic Patterns

In a treble clef staff the notes are created on the middle line.
The pitch is then b4. The actual octave depends on the preceding note.

	One note	Dotted	Tied	Or
64th	11	1.	1t	1-1
32nd	22	2.	2t	2-2
16th	33	3.	3t	3-3
Eight	44	4.	4t	4-4
Quarter	55	5.	5t	5-5
Half	66	6.	6t	6-6
Whole	77	7.	7t	7-7

TIED NOTES

Tied to	64th	32nd	16th	eight	quarter	half	whole
64th	1-1	1-2	1-3	1-4	1-5	1-6	1-7
32nd	2-1	2-2	2-3	2-4	2-5	2-6	2-7
16th	3-1	3-2	3-3	3-4	3-5	3-6	3-7
Eight	4-1	4-2	4-3	4-4	4-5	4-6	4-7
Quarter	5-1	5-2	5-3	5-4	5-5	5-6	5-7
Half	6-1	6-2	6-3	6-4	6-5	6-6	6-7
Whole	7-1	7-2	7-3	7-4	7-5	7-6	7-7

If the first note must be dotted replace the hyphen by a semicolon.
E.g. dotted eight tied to 16th is 4;3 - dotted quarter tied to 32th is 5;2
If the second note is dotted enter its duration and press +
If the second note crosses a barline press left and then +

TUPLETS 2, 3, 4, 5, 6, 7, 8, 9 notes in the time of one

Eight	3:44	5:44	6:44	7:44	9:44
Eight dotted	2:4.	4:4.	5:4.	7:4.	9:4.
Quarter	3:55	5:55	6:55	7:55	9:55
Quarter dotted	2:5.	4:5.	5:5.	7:5.	8:5.
Half	3:66	5:66	7:66	9:66	
Half dotted	4:6.	5:6.	7:6.	8:6.	
Whole	3:77	5:77	7:77	9:77	

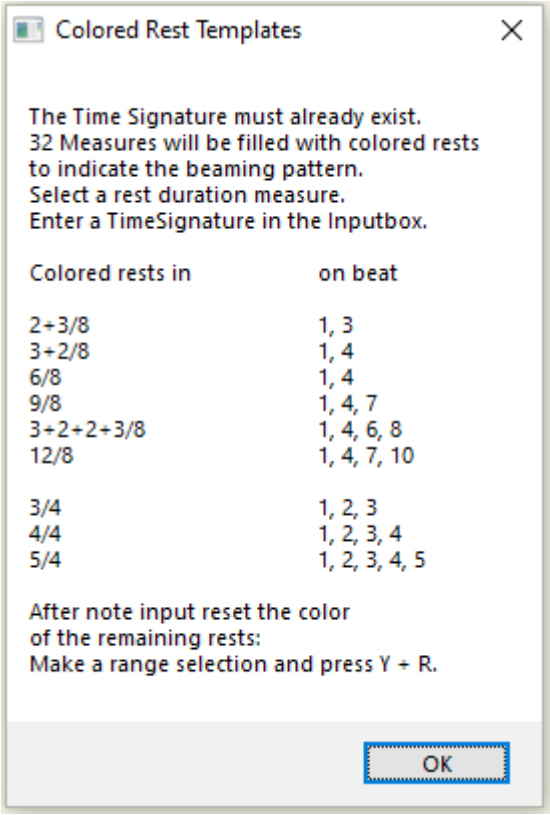
Delete last note	From current position	Delete
Create a rest	Enter duration	End
Edit tuplet	Macrogroup F3	WIN + U
Beam properties	Macrogroup F3 and F9	Z + B

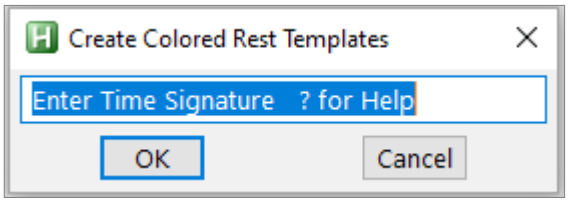
Repeat last command	R
Next note	Right
Previous note	Left
Pitch down	Down
Pitch up	Up
Next Page	Page Down
Previous Page	Page Up
Mouse to selected note	Enter
Undo	Tab
Exit macro	Escape Z

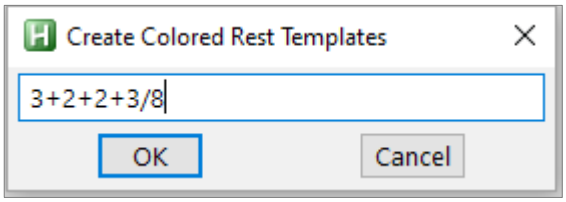
OK

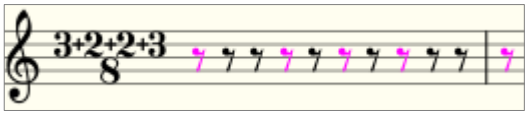
Z + R Colored Rest Templates.

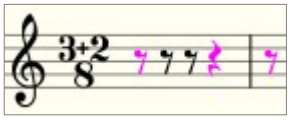
Z + R → ? Shortcuts Colored Rests





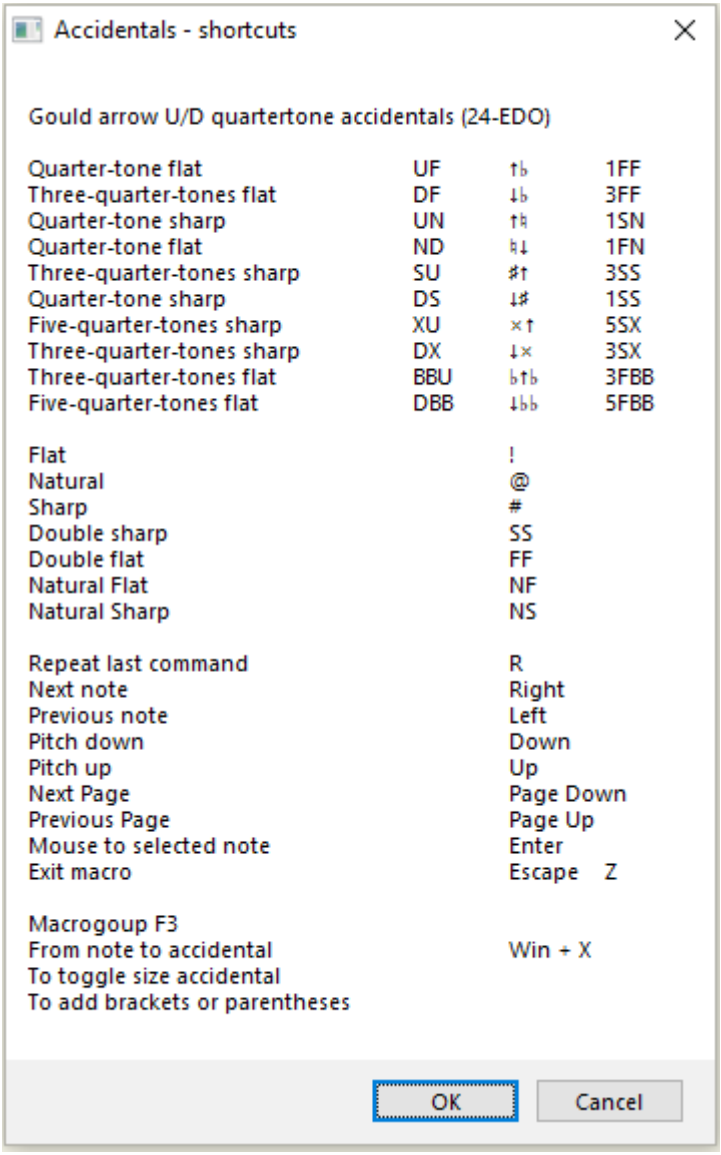






Z + X Accidentals

Z + X → ? Shortcuts accidentals

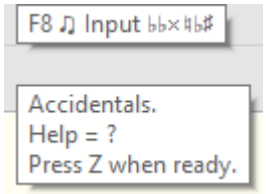


Accidentals - shortcuts

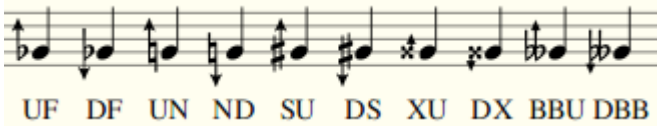
Gould arrow U/D quartertone accidentals (24-EDO)

Quarter-tone flat	UF	↑♭	1FF
Three-quarter-tones flat	DF	↓♭	3FF
Quarter-tone sharp	UN	↑♮	1SN
Quarter-tone flat	ND	♮↓	1FN
Three-quarter-tones sharp	SU	♯↑	3SS
Quarter-tone sharp	DS	↓♯	1SS
Five-quarter-tones sharp	XU	×↑	5SX
Three-quarter-tones sharp	DX	↓×	3SX
Three-quarter-tones flat	BBU	♭↑♭	3FBB
Five-quarter-tones flat	DBB	↓♭♭	5FBB
Flat		!	
Natural		@	
Sharp		#	
Double sharp		SS	
Double flat		FF	
Natural Flat		NF	
Natural Sharp		NS	
Repeat last command		R	
Next note		Right	
Previous note		Left	
Pitch down		Down	
Pitch up		Up	
Next Page		Page Down	
Previous Page		Page Up	
Mouse to selected note		Enter	
Exit macro		Escape	Z
Macrogoup F3			
From note to accidental		Win + X	
To toggle size accidental			
To add brackets or parentheses			

OK Cancel



1FF 3FF 1SN 1FN 3SS 1SS 5SX 3SX 3FBB 5FBB Functional equivalents.

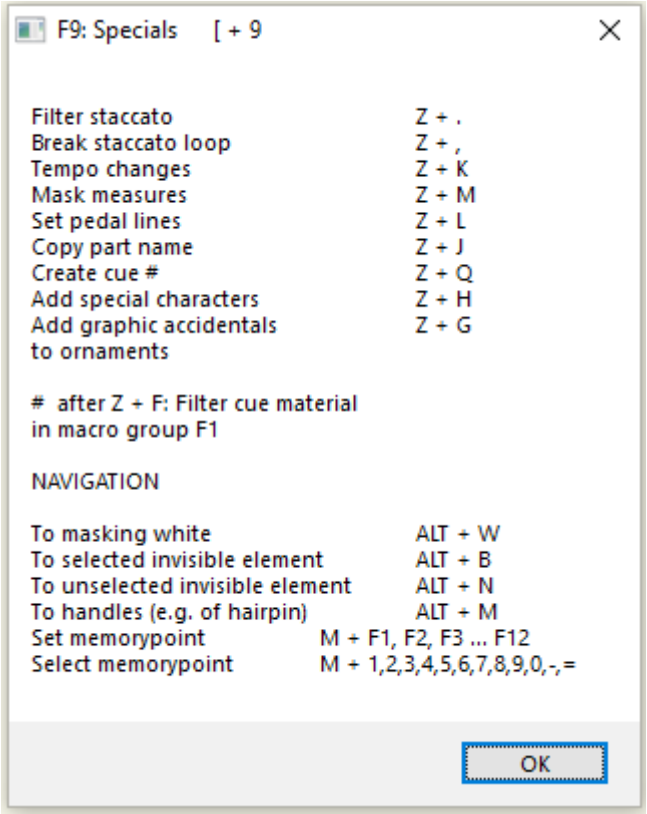


Names as combinations of arrow direction and accidental.

Reference section - F9 Specials

Supporting document: F9_DATA.txt. *Includes all DIY details*

[+ F9 In Master - Run macrogroup F9
[+ 9 Info screen Specials



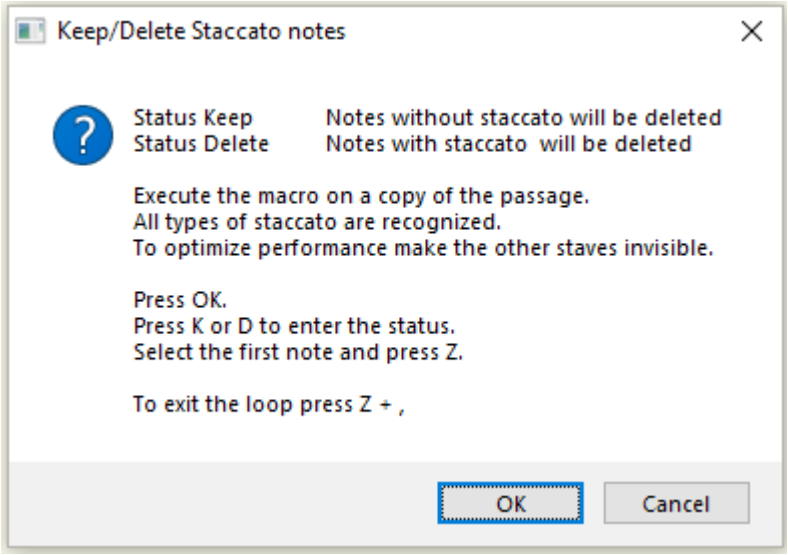
Some hotkeys in this group originate in feature requests on the forum. Others are the outcome of repetitive tasks encountered in scoring.

Z + . *Filter staccato* uses only one image to find all forms of staccato.
Staccato
Staccatissimo
Staccatissimo stroke
Staccatissimo wedge
Accent staccato
Marcato staccato
Tenuto staccato
Soft accent staccato
Soft accent tenuto staccato

`Statusbar_tacca.png`

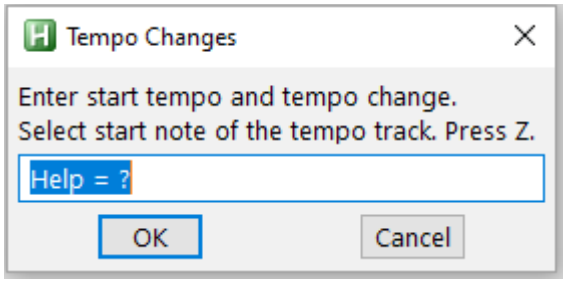
Use PixelMousing to get the precision this image needs.

Z + . → **?** Info screenFilter Staccato

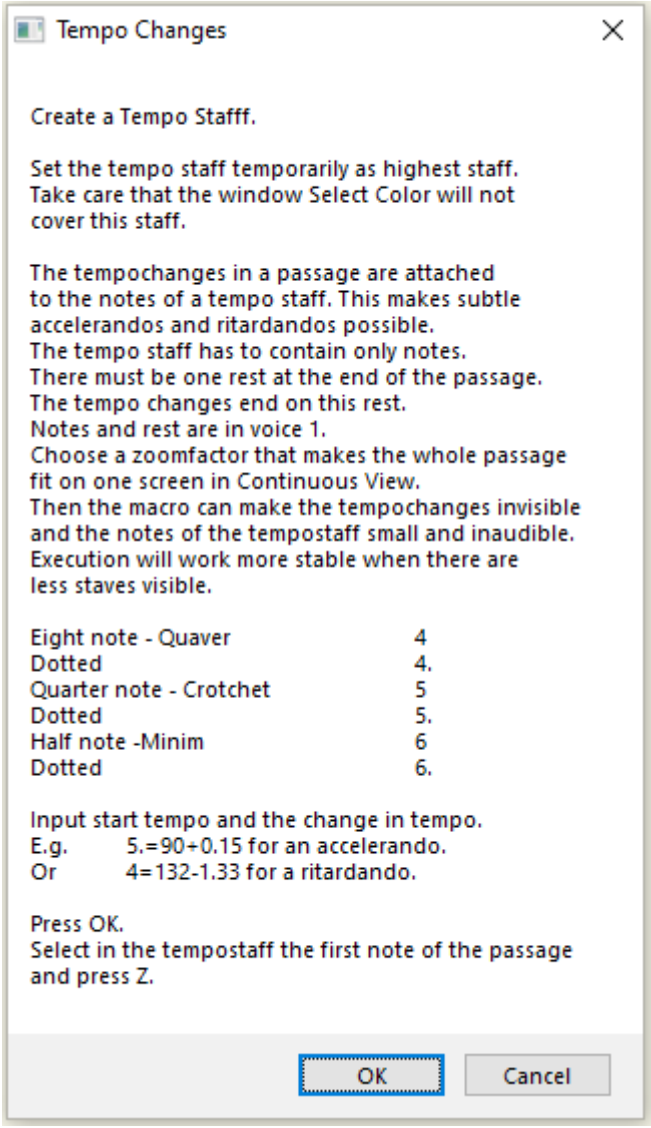


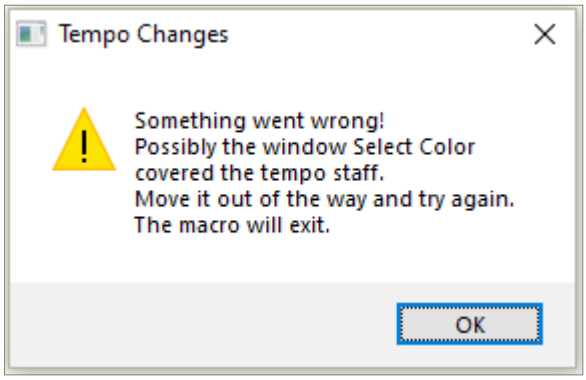
Z + K → ? Tempo changes

For MuseScore's plugin:
https://musescore.org/en/project/tempochanges
http://jeetee.github.io/MuseScore_TempoChanges/

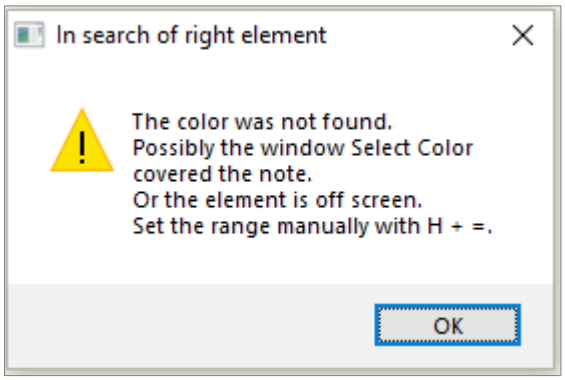


Start and end note will be colored to create a colored range within which *Play* will be switched off and *Chord small* on. When the ColorPicker window covers the tempo staff unpredictable edits must be prevented.

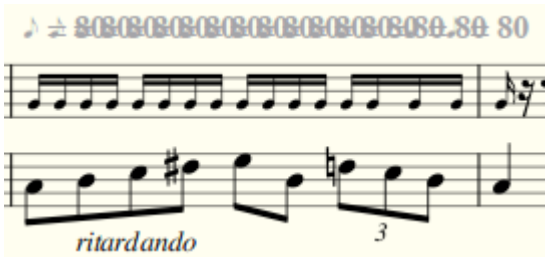




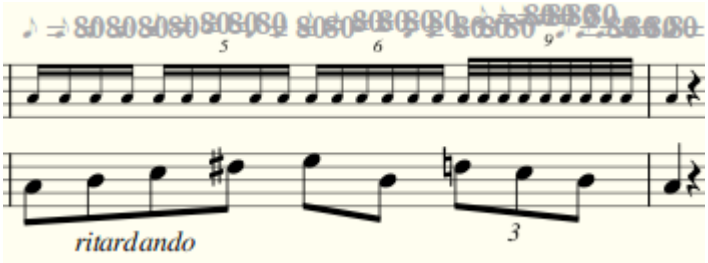
If selection of the colored range fails it's best to finish the macro manually. *Play* must still be switched off.



H + = or **Y + =**
See macro group F1

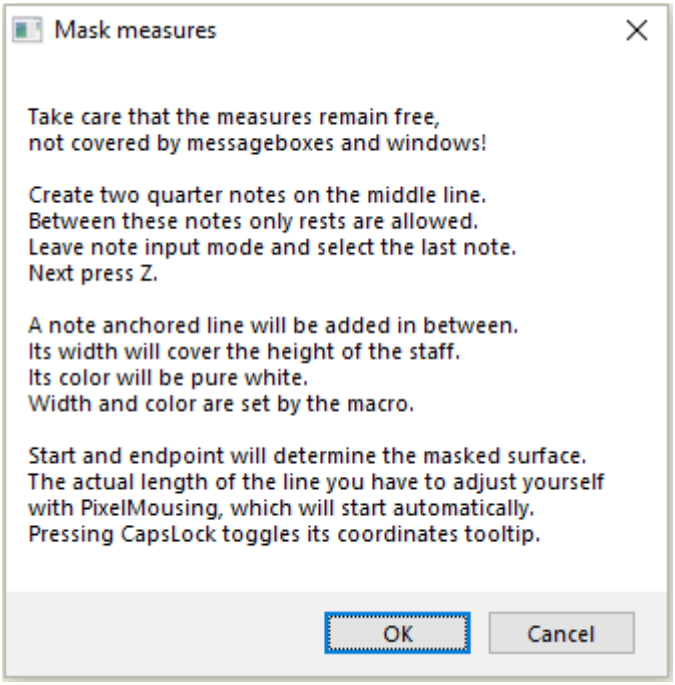


Linear slowing down

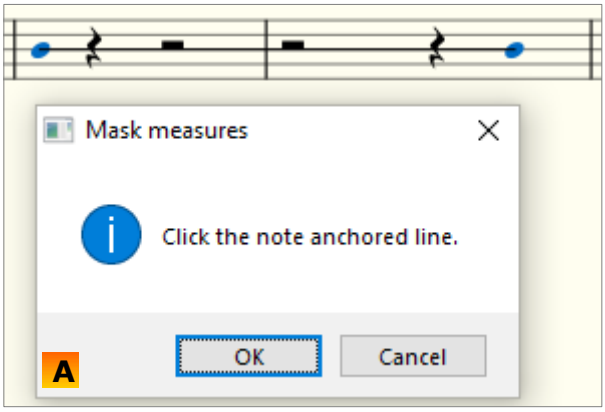


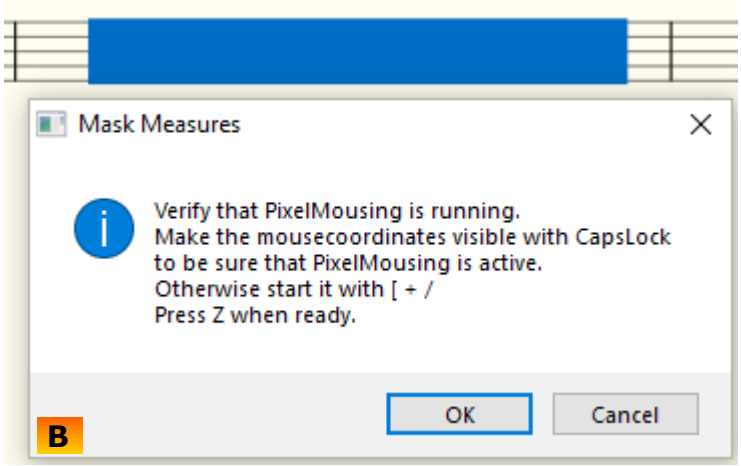
Ritardando steered by tuplet ratios

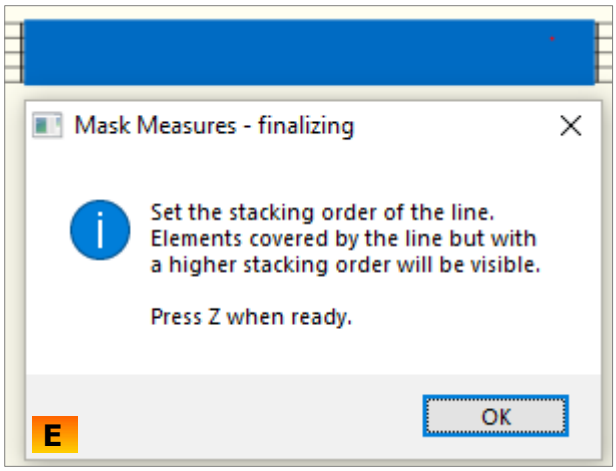
Z + M Mask measures

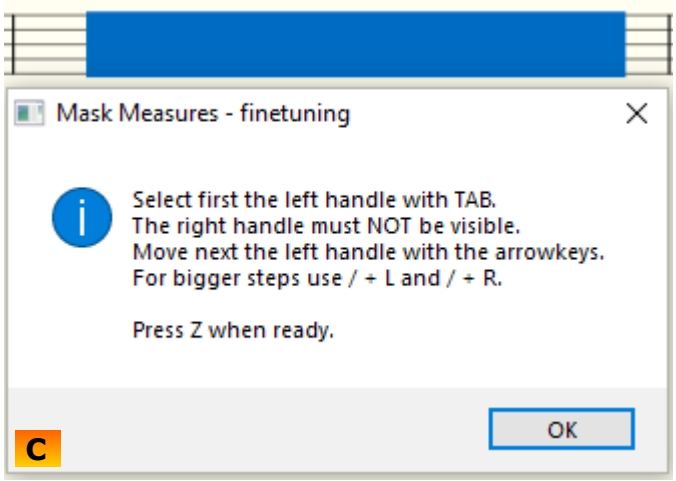


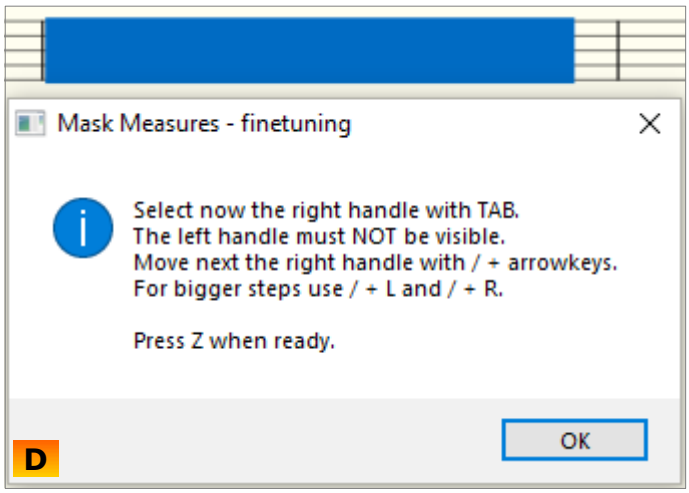
Mask measures - fully or partially - after finishing the score when the layout stretch is fixed.
Or when there are definitive linebreaks of which survival chances you are sure.



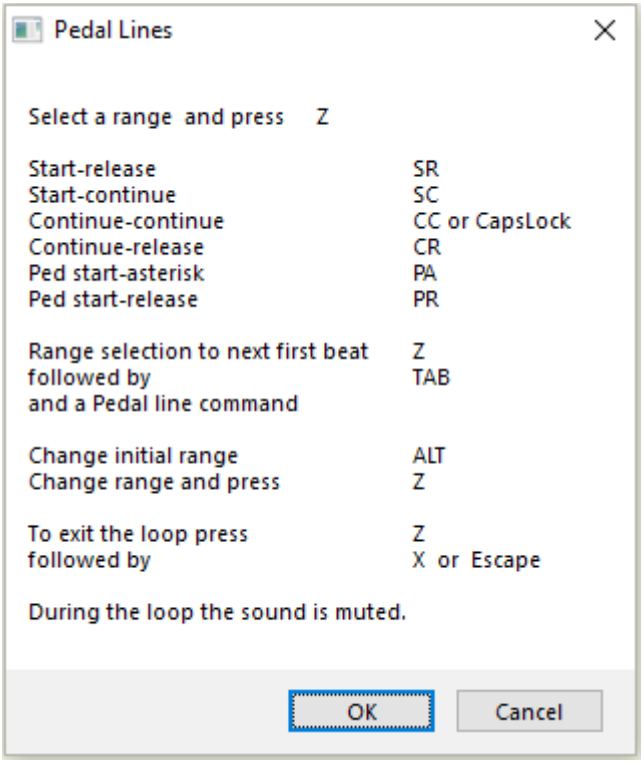


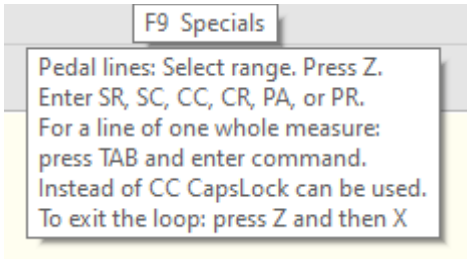






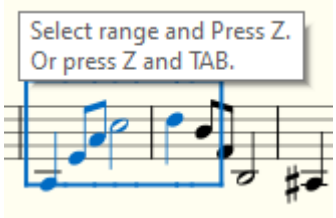
Z + L Set pedal lines





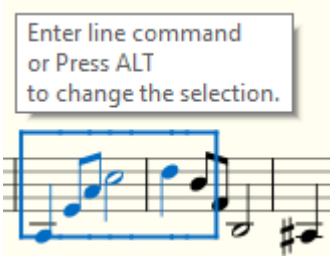
This tooltip is present as long as the macro is active.

In situation 1 (or 3) we can exit.
Not in situation 2



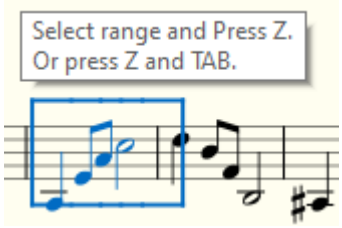
Situation 1

We press **Z + TAB** and land in situation 2.



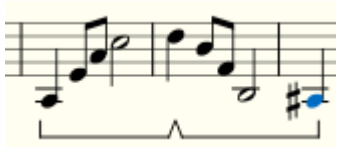
Situation 2

We change our mind and press **ALT.**
While we change the selection we are in situation 3.

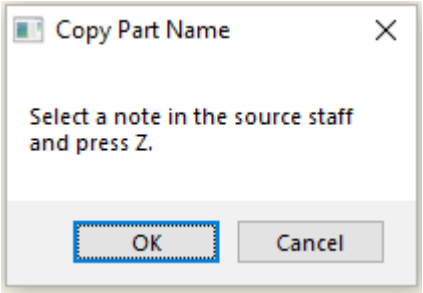


Situation 3

But in the end we return again to a rather traditional pedalling style.



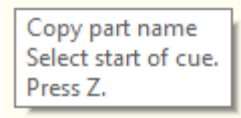
Z + J Copy part name



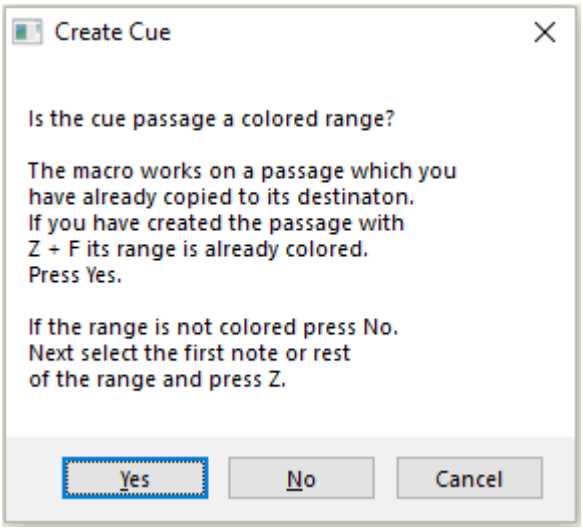
Z + J is a companion of **Z + Q**

Pressing **Z** brings up the tooltip .

Z + Q can copy the partname as well. In bigger cues it's most stable to add the partname separately.



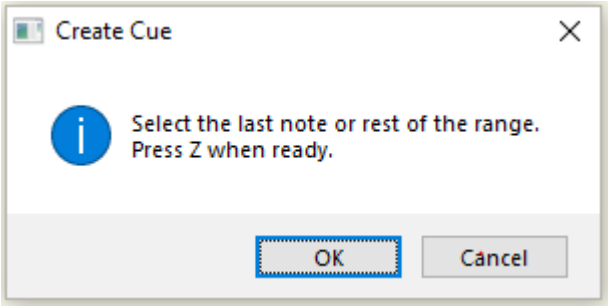
Z + Q Create cue

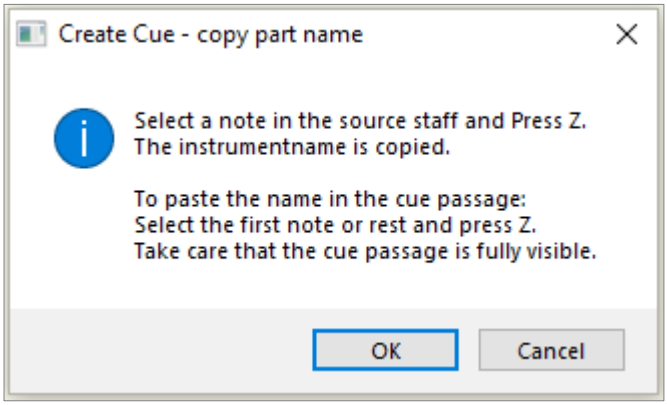


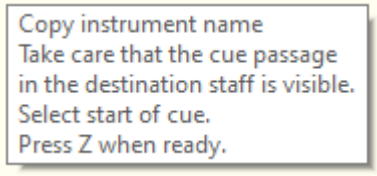
Selection filter
Z + F has an option to create cue material in a colored range.
See F1-Reference.

If the cue passage is not a colored range pressing **No** starts a colored range creation.
You can also color the first and last note (or rest) manually.
If macrogroup F1 is active: it concerns Colored Range pair 4.
First note **H + [** and last note **H +]** or **Y + F7** resp. **Y + F8**

Coloring the last note or rest:

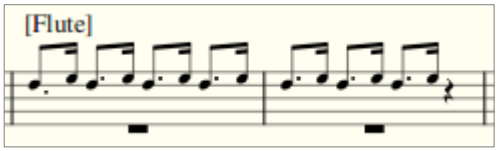






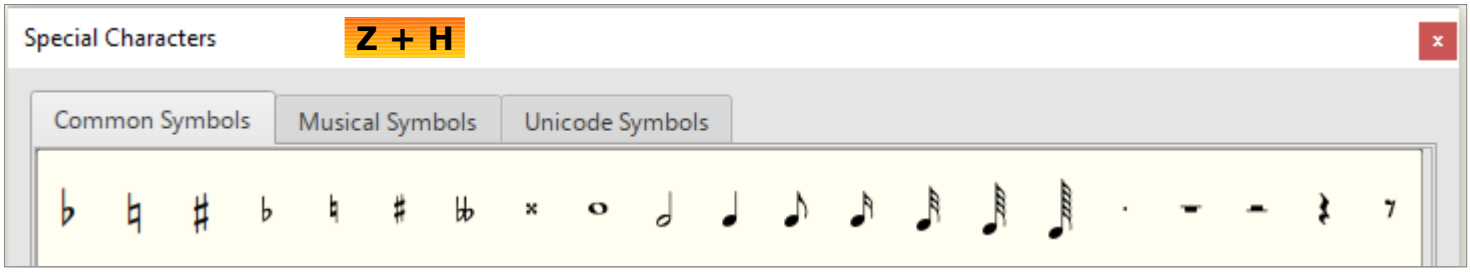
The cue passage must be in voice 1. Notes and rests are made small, *Play* is switched off. Small rests are moved upwards. Whole rests of main part get voice 2 and stay big.

Check the hotkey in F9_DATA.txt for all **DIY** parts and MSc shortcuts esp. Exchange voice 1-2

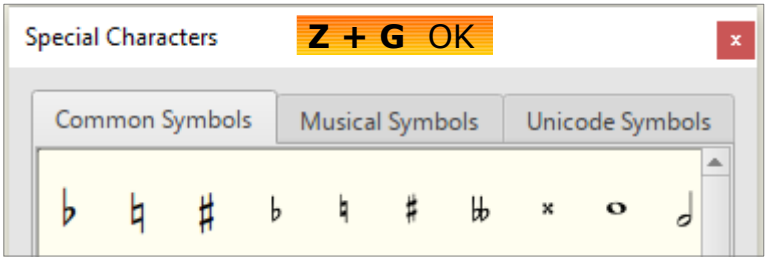


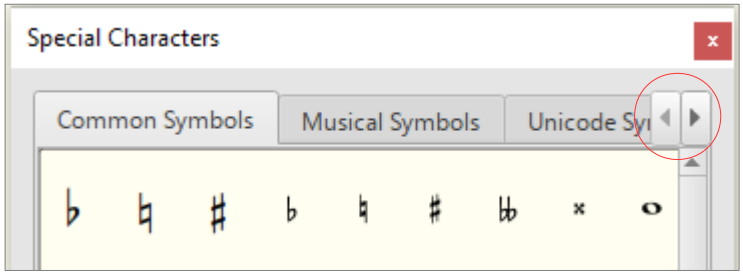
Window Special Characters used in **Z + H** and **Z + G**

Each hotkey uses a different size of this window.



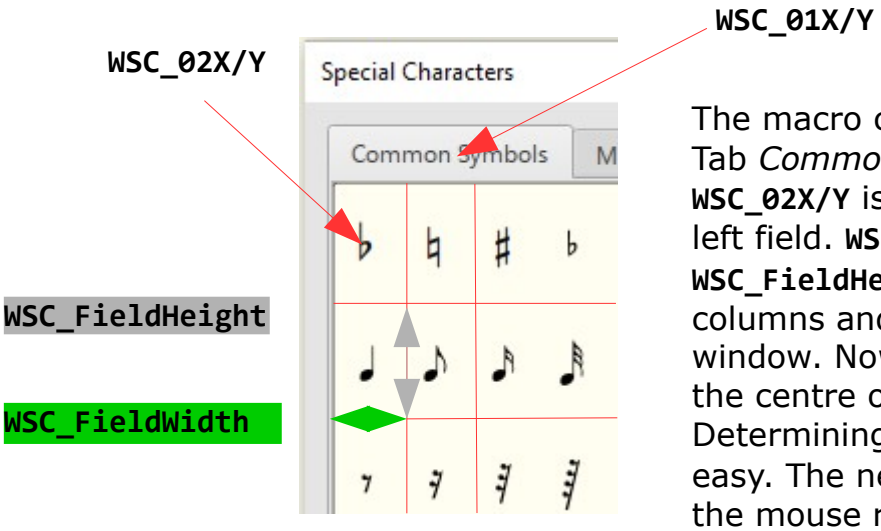
Upper row: from flat to eighth rest. This determines **`WSC_Width2`**
Size the height so that all symbols are visible. This is **`WSC_Height2`**





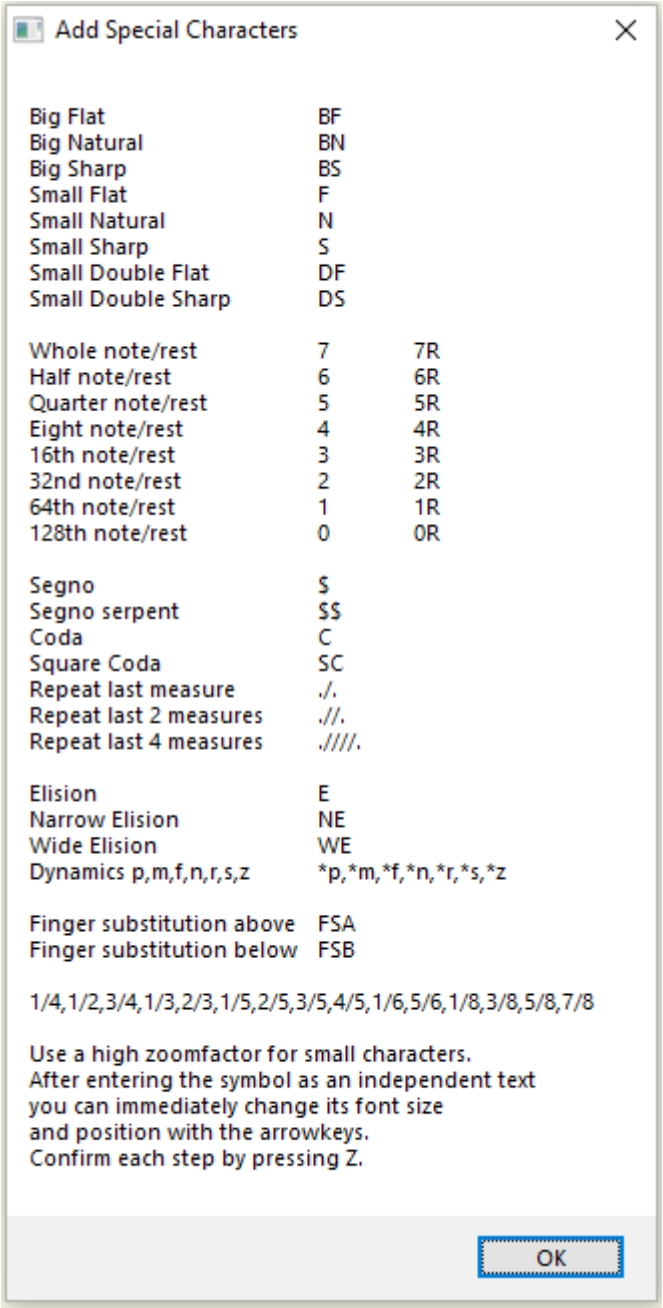
Adjust the width until the triangles in the red circle just disappear.
This is **`WSC_Width.`** Minimize the height and measure it. This is **`WSC_Height.`**

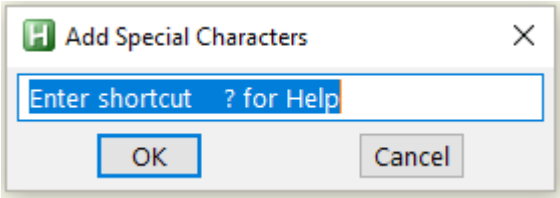
Selecting a field in the Window Special Characters



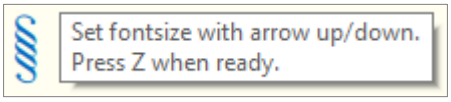
The macro clicks on **`WSC_01X/Y`** the Tab *Common Symbols*.
`WSC_02X/Y` is the centre of the upper-left field. **`WSC_FieldWidth`** and **`WSC_FieldHeight`** give us the columns and rows within the window. Now the macro can click in the centre of any field.
Determining **`Width`** and **`Height`** is easy. The next field turns blue when the mouse reaches the field border.

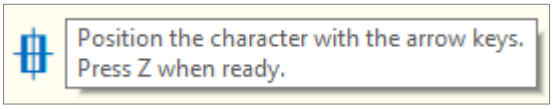
Z + H → ? Add special characters

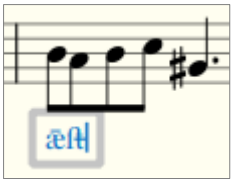




Special characters can be inserted in another text, e.g. the elision and finger substitution symbols or they can be used independently within the score as graphical elements.
Diacritical characters and ligatures have been left out.
They can be produced byASCII Character Mapping and Unicode.*

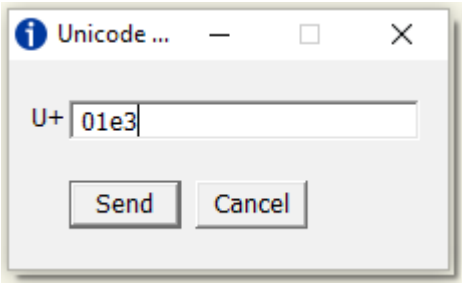




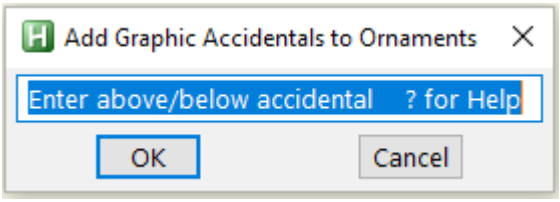


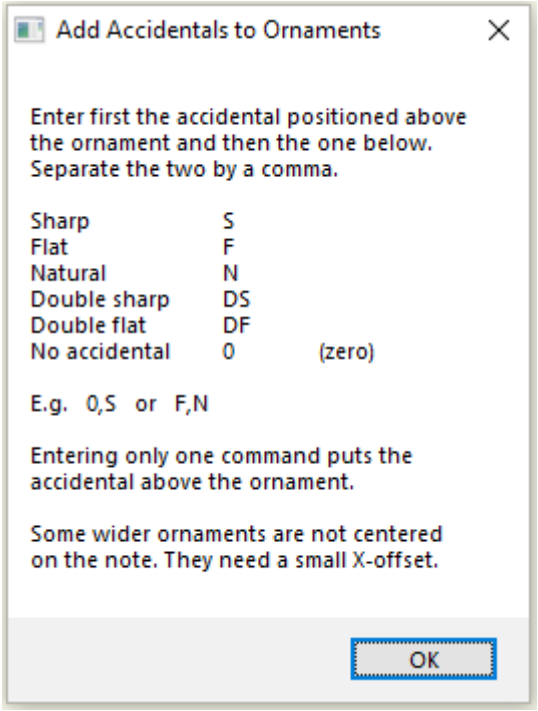
* e.g. https://www.fileformat.info/info/unicode/font/consolas/grid.htm
https://www.softpedia.com/get/Office-tools/Other-Office-Tools/UnicodeInput.shtml

Program *unicodeinput.exe* tested on lyrics FreeSerif Win 10
The macro group *Independent Hotkeys includes a* hotkey to run this little program. **F3 + F2** Run Unicode input



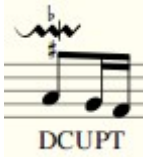
Z + G Add graphic accidentals to ornaments





The macro uses the behavior of Automatic Placement to optimize positions for most ornaments. Accidentals above the ornament get a minimum distance of 0.20 sp and X/Y offsets that in most cases will center them relative to the ornament. For accidentals below the ornament minimum distance and Y-offset depend on the presence of an ornament above.

The result is that the accidentals move up or down together with the ornament depending on the pitch. Positional finetuning is needed for some ornaments with a small 'AP-sensitive' width.



DCUPT *Double cadence with upper prefix and turn* from **Z + O** in group F7 plus graphical accidentals in cramped conditions. The beaming has been tweaked with **WIN + B**

Positional finetuning: select ornament sy**m**bol with **WIN + M**.
Mouse travels to ornament with **ALT + Z** (for voice 1 elements)
Doubleclick with **ALT + CapsLock**. Arrowkeys or numeric commands to trim the position, macro group F4. Back to note with **WIN + N**.

It happens sometimes that the positional finetuning trespasses the limits of the minimum distance. In that case only the symbol will move with the pitch.
The synchronized movement of the accidentals got lost.

Colorsearch specials

ALT + W Searches for the pure white of masking text

This is of course **`0xffffff`**

ALT + B Searches for the color of selected invisible elements

`ColorSelectedInvisible := 0x99c1e5`

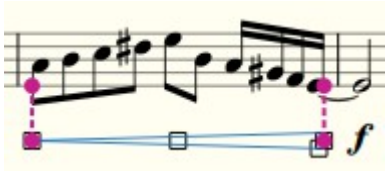
ALT + N Searches for the color of unselected invisible elements

`ColorHandleGrey := 0xa0a0a4`

ALT + M Searches for the red color of handles. This is the same as **`ColorV4`** .

Note Anchored Line

Activate L- or R-handle with Tab - change length with arrowkeys.



C	V	B	N	M

Set memory spots	**M+F1**	**M+F2...**	**M+F10**	**M+F11**	**M+F12**
Select memory spots	**M+1**	**M+2...**	**M+0**	**M+-**	**M+=**

Examples of temporary hotspots: a triangle to open a custom palette, a rectangle for tuning, its reset button, the time stretch of fermatas, the begin text of text line details.
When you have to revisit specific inspector fields frequently during a session it could help to store its coordinates in a memory spot.
The coordinates will remain in memory until macro group F9 exits

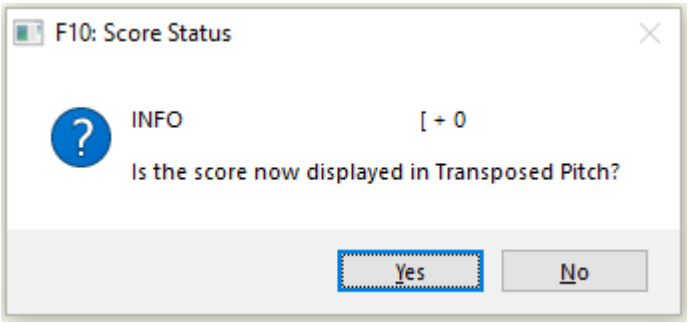
Reference section - F10 Score Status

Supporting document: F10_DATA.txt. *Includes all DIY details*

[+ F10 In Master - Run macrogroup F10
[+ 0 Info screen Score Status

After pressing **[+ F10** a timed tooltip appears during 2 seconds:

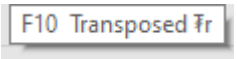
Then follows a question:



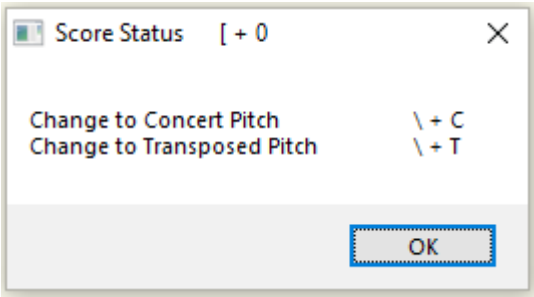
A simple macro to show the status. At startup you enter the actual status. When you switch status later you only have to check the tooltip to know how to answer the Yes/No question.

Answering No shows this tooltip:

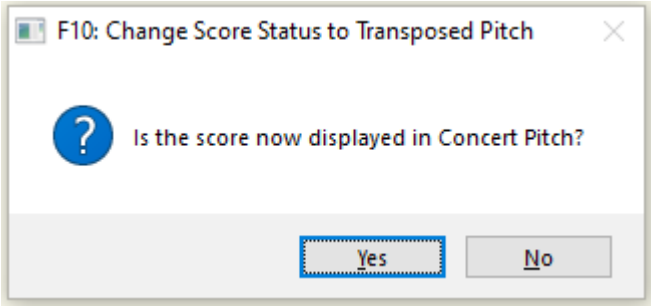
Answering Yes shows this tooltip:



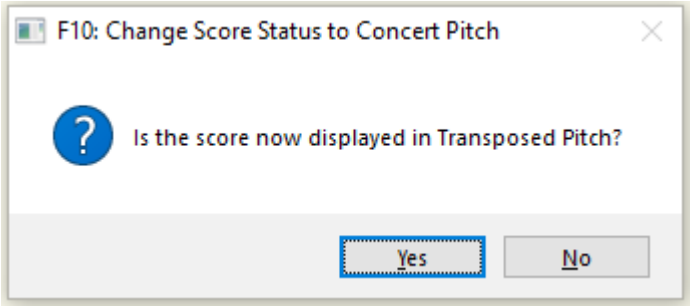
[+ 0 shows:



\ + T shows:



\ + C shows:

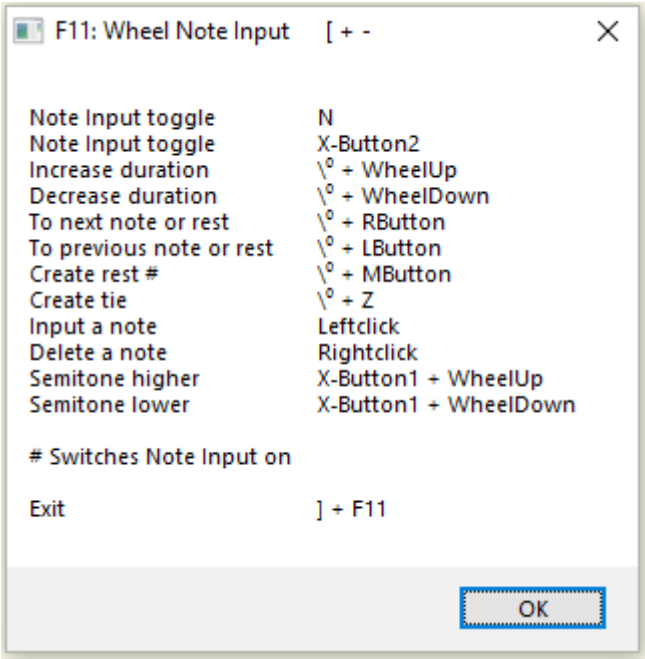


Knowing the Score Status is an indispensable piece of knowledge while scoring. Showing it as a tooltip makes MAX CANVAS - no toolbars - possible.
MSc shortcut for 'Display Concert Pitch' (toggle): the macro uses **Alt+Shift+C**

Reference section - F11 Wheel Input

Supporting document: F11_DATA.txt. *Includes all DIY details*

[+ F11 In Master - Run macrogroup F11
[+ - Info screen Wheel note input



Requests for mouse note input combined with wheel duration came up several times on the forum.

Because of the native scroll function of the wheel a prefix key is unavoidable.

The Wheel hotkeys send the MuseScore shortcuts **Shift + W** resp. **Shift + Q** for in/decrease note duration dotted.

To delete notes of a chord click the note. To change the pitch you could also use the arrowkeys or input the new note and delete the old one.

The prefix key

\° Key SC056 - ScanCode 056 - see F11_DATA
If your keyboard lacks this key you could substitute it by one of the free prefix keys and choose an ergonomical combination for the *Create tie* function.

Extra mouse buttons

When your mouse has extra buttons you could try using the *Back button* as prefix key. This is **`XButton1`**. But it takes some dexterity to move the wheel constantly at the same time. Ergonomically far from ideal. An alternative function which puts less strain because it happens less often is changing the pitch chromatically. Now you don't have to move the hand to the arrowkeys.

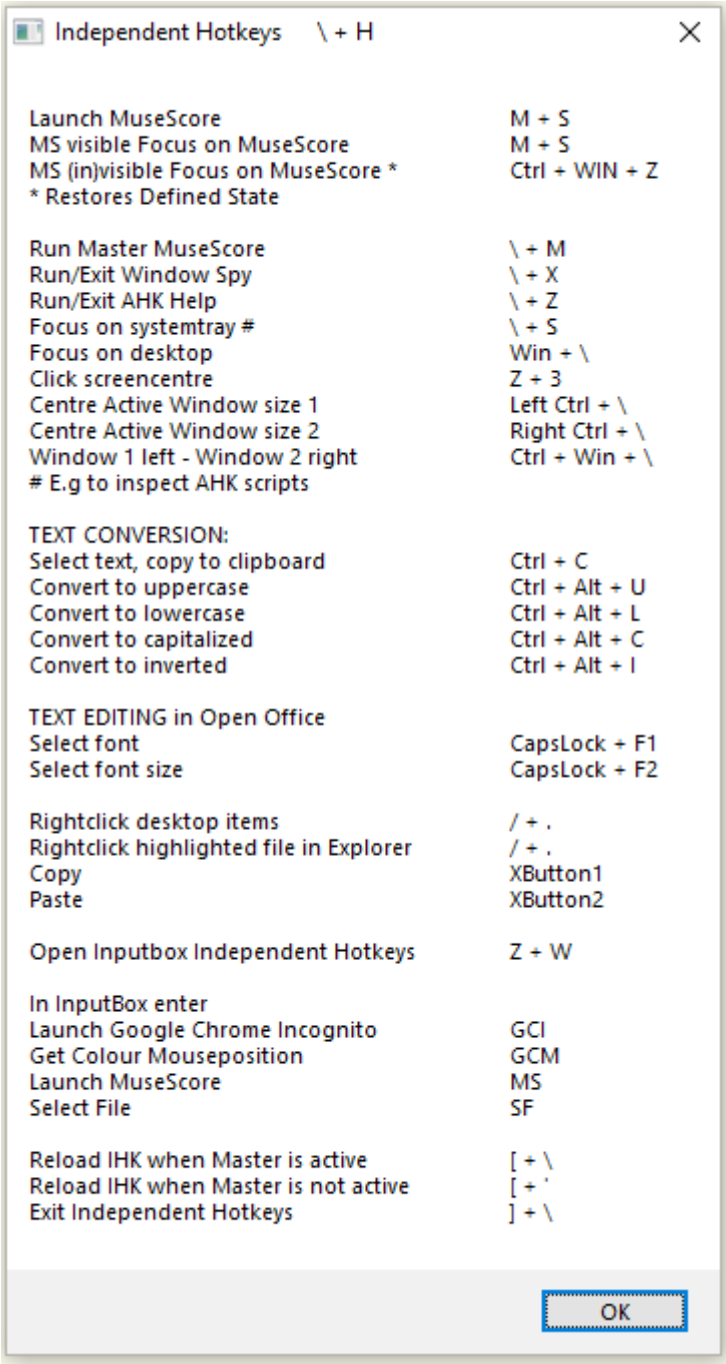
`XButton1 + WheelUp` *Pitch semitone higher*
`XButton1 + WheelDown` *Pitch semitone lower*
The other extra button could get a sensible function as well:
`XButton2` *Note Input toggle*

NB: **`XButton1`** and **`XButton2`** have a second function. In *Independent Hotkeys* they are mouse-like alternatives for *Copy* resp. Paste when *F11 Wheel Input* is not active.

Reference section - Independent Hotkeys

Supporting document: IHK_DATA.txt. *Includes all DIY details*

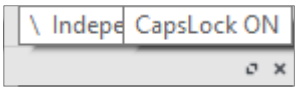
Launch the macro group as you would any other program.
\ + H Info screen Independent Hotkeys



The macros in this group are independent. They will work whether MuseScore is active or not. *

Because some of them perform actions on MuseScore they need Coordinates. ahk.

The majority however consists of little programs and small utilities to streamline repetitive chores. For instance the commands *Select font* and *Select font size* were added when writing this document Maybe you can use some of these ideas for your own macros.



If *PixelMousing* is off and *CapsLock* is On this tooltip is visible, covering partly the \ *Independent Hotkeys* tip. Its desirability is comparable with the Score Status tooltip.

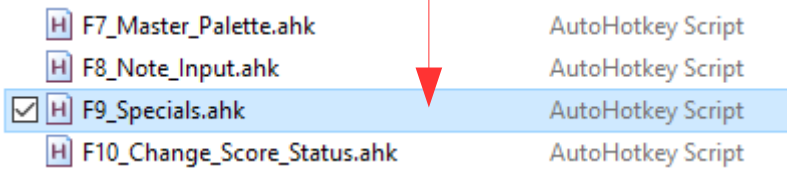
* The exception is **Z + W → SF** Select File

M + S	Starts MuseScore when the program is not running. If it's running it brings MuseScore in focus.
Control + WIN + Z	Restores the defined state for MuseScore when the program is minimzed. In IHK_DATA.txt you find again the list of images and coordinates. These are the same details of the defined state as discussed earlier in the Intro section of this document e.g. in the context of the hotkey **CapsLock + 8** on page 29 and 30.
\ + M	Starts the MuseScore Master, from which you van start and stop the 11 macro groups
\ + X	Starts the AHK Utility *Windows Spy*
\ + Z	Starts the AHK *Help File*
\ + S	Minimizes MuseScore if active, minimizes all other open windows and opens Windows' system tray. By a double-click on an AHK icon you can inspect the main window of the script and see e.g. how many milliseconds macro actions take. is important for determining *Sleep* time. -> *Menu View*: Lines most recently executed Variables and their contents Hotkeys and their methods Key history and script info
**WIN + **	Activates Windows Program Manager. If MuseScore is open its dependent hotkeys will stop functioning.
Z + 3	Clicks the screen centre. With MuseScore open it activates its dependent hotkeys again.
**LControl + ** **RControl + **	The active window is centered. Size 1 The active window is centered. Size 2
**Control + WIN + **	Positions two windows of the same size on the screen. These commands include some coordinates you have to adapt to your screen.
Text conversion	Nice when you have to use *CapsLock* often.
Text editing	Font and font size. Examples of small timesaving tools.
X-Button 1/2	Copy/Paste See also F11 Reference

/ + . This is a small demo project using Pixel Search as an approach with many applications. **/ + .** is the PixelMousing command for a right-click. But when MuseScore is not active it can select desktop icons. It can also right-click selected Explorer items without using the mouse as an alternative for the Windows shortcut Shift + F10. This demo variant is outcommented! The active variant gives a right-click. In Explorer it right-clicks a selected file.

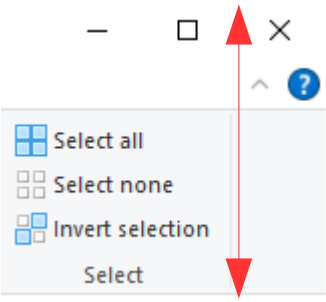
Two colors are used: **`RGB_DesktopIcon`** and **`RGB_Expl_File`**

`RGB_DesktopIcon`



`RGB_Expl_File`

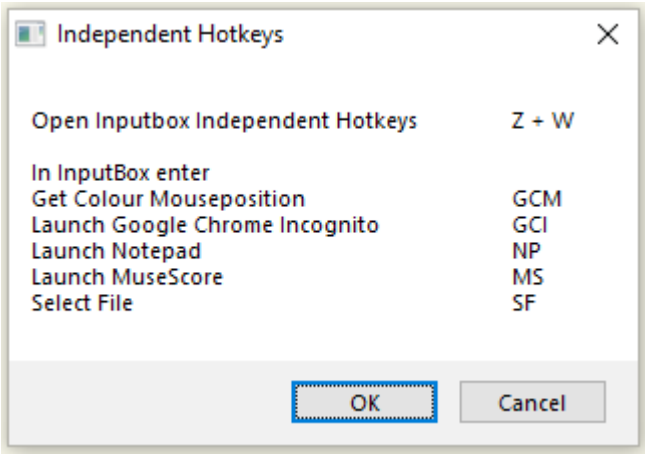
The search area of **`RGB_DesktopIcon`** is the screen.
The search area of **`RGB_Expl_File`** is the window but **not** its top rectangular.

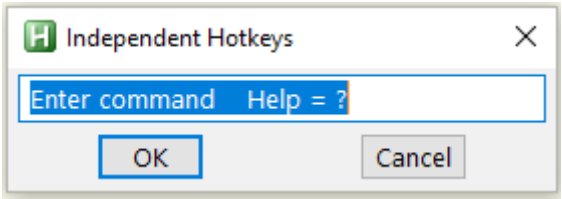


The square in front of *Select all* has also the color of **`RGB_Expl_File`**. We limit the search area by adding an offset to the upper-left corner. Now only the surface with the file names will be searched. (*change*?) the offset in hotkey **/ + .**

Determine the colors with the utility Get Color Mouse Position. In *Independent hotkeys*:
Z + W → GCM

Z + W An InputBox appears.





An InputBox in this macro group makes it easier to add new macros and keeps the commands separated from the MuseScore hotkeys.

Z + W → SF Makes immediate file selection possible but in this case only when MuseScore is active. Restores defined state.

Technical Supplement

The Help file of AutoHotkey is of course the first resource to learn more about its commands and the syntax of how to write them.

The program is light on the computer. The report of Process Explorer on the last page shows the economical way in which AHK operates.
The macros have been developed and tested on a 3.7 Ghz AMD machine - 2 cores - 4 logical processors - much RAM.

When an AHK file is running we can inspect it via its icon in the system tray.
In *Independent Hotkeys* we have this command:

\ + S This minimizes MuseScore when it is active, minimizes all other windows and opens Windows' system tray. By a double-click on an AHK icon you can inspect the main window of the script and see e.g. how many milliseconds macro actions take. This can be important for determining *Sleep* time. Via the *View Menu* we can choose to see

- Lines most recently executed
- Variables and their contents
- Hotkeys and their methods
- Key history and script info

Sleep During macro execution MuseScore often has to respond.
E.g. select the next note, update the Statusbar or Inspector items, open a window, move the mouse, click on a hotspot, create a text, color a note and so on. The *Sleep* command gives MuseScore time to respond. This is less needed in small macros but becomes increasingly important in bigger ones.

The *Sleep* times were found by experiments and then increased to accomodate slower systems. Where appropriate test conditions included large scores with many staves. In this way the response times of specific actions got clearer step by step. How much time does it take before an escape command has been executed, the next note or a range is selected, a repeat barline is attached? Especially this type of global operations takes much time compared with symbols attached to a single note.
When *Sleep* times are too short AHK may overshoot and the macro will not work because MuseScore lags behind.
If this happens to you check first if the CPU load is suspiciously high.
Programs running in the background and other apps running simultaneously could frustrate execution speed. Often you will already be warned because MuseScore itself slows down.
If CPU load is normal we'll need a closer look into the macros.

Warn All .ahk files have this directive enabled. It detects a number of common errors such as a typo or a piece of initialization code which has not been placed in the auto-execute section. A MessageBox shows the warning type and the line number of the script in which it occurs.

Troubleshooting

A MessageBox interrupts the flow of execution.
By placing MessageBoxes on strategical places in the script we can learn upto which line the macro still works as expected and where things go wrong.
E.g. at some point the mouse has to click a hotspot within the Inspector or the Statusbar has to show *Range Selection*.
Put a MessageBox after this line to check if the click actually has occurred resp. the StatusBar shows the correct content. Increase the *Sleep* time before the line with the ImageSearch to give MuseScore more time to respond.
Keep in mind that the appearance of a MessageBox itself needs some time.
In rare cases after increasing *Sleep* it's still possible you have to increase it again when you have switched off the MessageBox because of the extra time gained by its appearance.
Another rare case can happen in which it looks like the appearance of the MessagBox causes the script to keep the focus on the MessageBox instead of a selected item.
Some more complex macos include outcommented MessageBoxes to facilitate testing.

Another approach is to use the *Pause* command rather than *MsgBox* because it is less intrusive.* It is a good way to put "breakpoints" in your script. When you put a few *Pauses* at critical places in the script and the tray icon turns red to indicate it's paused you can open the main window and view the lines most recently executed.
After studying it (and perhaps the View > Variables screen also), resume the script by selecting the Pause menu item. The script will pause again when it reaches the next Pause line.

* https://autohotkey.com/board/topic/609-troubleshooting-tool/
Thanks to Chris Mallet

Note about modifier keys

The macros use the following characters as modifiers for hotkeys:

~	Tilde - the prefix key will not lose its native function
^	Control
<^	Left Control
>^	Right Control
!	Alt
<!	Left Alt
>!	Right Alt
+	Shift
<+	Left Shift
>+	Right Shift
#	Windows key

Tools for creating images

page 18 - 21

Make one image using Windows Snipping Tool, cooperating with PixelMousing

Make upto 8 images and their surface areas
[+ NumpadEnter hotkey in Master launches *Set_Surface_Coordinates.ahk*.
After determination of the coordinates create the images with
Shift + NumpadEnter hotkey in *Set_Surface_Coordinates.ahk*.

Tools to get many coordinates successively

page 27

Z + F11	Get coordinates of hotspots
Z + F12	Get coordinates of surfaces

After having stopped the loop with Shift you can immediately paste the coordinates in the supporting text files.

Tool for testing images

page 50 - 52

Z + U ► TIR	Test Image Recognition

Tool for testing coordinates

page 53 - 54

Z + U ► CCC	Check coordinates

Window Spy

page 11

\ + X	Run Window Spy *Independent Hotkey*	page 124

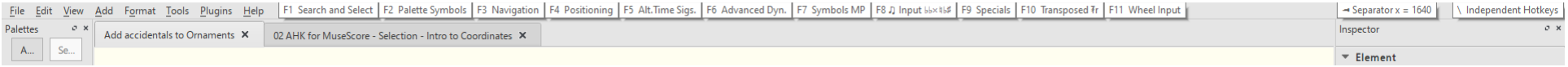
AutoHotkey Help

\ + Z	Run AHK Help *Independent Hotkey*	page 124

PixelMousing

page 8 - 11

[+ /	Load PixelMousing	page 39



Process Explorer:

	CPU	Private Bytes	Working Set			
AutoHotkey.exe		4,676 K	26,664 K	3896	AutoHotkey Unicode 64-bit	
MuseScorePortable.exe	0.01	37,248 K	3,608 K	10840	MuseScore Portable (Portabl...	PortableApps.com
MuseScore3.exe	1.24	314,620 K	344,652 K	2500		
splwow64.exe		3,912 K	12,256 K	7700	Print driver host for applicatio...	Microsoft Corporation
QtWebEngineProcess.exe		31,900 K	46,760 K	10904	Qt Qtwebengineprocess	The Qt Company Ltd.
AutoHotkey.exe	0.11	2,728 K	10,692 K	4192	AutoHotkey Unicode 64-bit	
AutoHotkey.exe	0.02	5,436 K	26,736 K	12556	AutoHotkey Unicode 64-bit	
AutoHotkey.exe	0.03	3,312 K	11,368 K	12552	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,204 K	11,180 K	6900	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,012 K	11,024 K	9888	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,344 K	11,344 K	3228	AutoHotkey Unicode 64-bit	
AutoHotkey.exe	0.05	3,372 K	11,396 K	12376	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,080 K	11,060 K	848	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,124 K	11,096 K	3352	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,096 K	11,124 K	11200	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,248 K	11,204 K	7216	AutoHotkey Unicode 64-bit	
AutoHotkey.exe		3,348 K	13,696 K	5536	AutoHotkey Unicode 64-bit	
AutoHotkey.exe	0.06	2,952 K	10,960 K	2596	AutoHotkey Unicode 64-bit	
AutoHotkey	0.27	47.932K	189.544K			