



# Sibelius<sup>®</sup> 7

Using the ManuScript language

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See the **About Sibelius** dialog for a full list of the software development team and other credits.

We would like to thank all those (too numerous to list) who have provided helpful comments and suggestions for Sibelius and its documentation.

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# Introduction

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ManuScript is a simple, music-based programming language developed to write plug-ins for the Sibelius music processor. The name was invented by Ben Sloman, a friend of Ben Finn's.

It is based on Simkin, an embedded scripting language developed by Simon Whiteside, and has been extended by him and the rest of the Sibelius team ever since. (Simkin is a spooky pet name for Simon sometimes found in Victorian novels.) For more information on Simkin, and additional help on the language and syntax, go to the Simkin website at [www.simkin.co.uk](http://www.simkin.co.uk).

## Rationale

In adding a plug-in language to Sibelius we were trying to address several different issues:

- Music notation is complex and infinitely extensible, so some users will sometimes want to add to a music notation program to make it cope with these new extensions.
- It is useful to allow frequently repeated operations (e.g. opening a MIDI file and saving it as a score) to be automated, using a system of scripts or macros.
- Certain more complex techniques used in composing or arranging music can be partly automated, but there are too many to include as standard features in Sibelius.

There were several conditions that we wanted to meet in deciding what language to use:

- The language had to be simple, as we want normal users (not just seasoned programmers) to be able to use it.
- We wanted plug-ins to be usable on any computer, as the use of computers running both Windows and Mac OS X is widespread in the music world.
- We wanted the tools to program in the language to be supplied with Sibelius.
- We wanted musical concepts (pitch, notes, bars) to be easily expressed in the language.
- We wanted programs to be able to talk to Sibelius easily (to insert and retrieve information from scores).
- We wanted simple dialog boxes and other user interface elements to be easily programmed.

C/C++, the world's "standard" programming language(s), were unsuitable as they are not easy for the non-specialist to use, they would need a separate compiler, and you would have to recompile for each different platform you wanted to support (and thus create multiple versions of each plug-in).

The language Java was more promising as it is relatively simple and can run on any platform without recompilation. However, we would still need to supply a compiler for people to use, and we could not express musical concepts in Java as directly as we could with a new language.

So we decided to create our own language that is interpreted so it can run on different platforms, integrated into Sibelius without any need for separate tools, and can be extended with new musical concepts at any time.

The ManuScript language that resulted is very simple. The syntax and many of the concepts will be familiar to programmers of C/C++ or Java. Built into the language are musical concepts (Score, Staff, Bar, Clef, NoteRest) that are instantly comprehensible.

## Technical support

Since the ManuScript language is more the province of our programmers than our technical support team (who are not, in the main, programmers), we can't provide detailed technical help on it, any more than Oracle will help you with Java programming. This document and the sample plug-ins should give you a good idea of how to do some simple programming fairly quickly.

We would welcome any useful plug-ins you write – email them to [daniel.spreadbury@avid.com](mailto:daniel.spreadbury@avid.com) and we may put them on our web site; if we want to distribute the plug-in with Sibelius itself, we'll pay you for it.

## Mailing list for plug-in developers

There is a growing community of plug-in developers working with ManuScript, and they can be an invaluable source of help when writing new plug-ins. To subscribe, go to <http://avid-listsrv1.avid.com/mailman/listinfo/plugin-dev>.



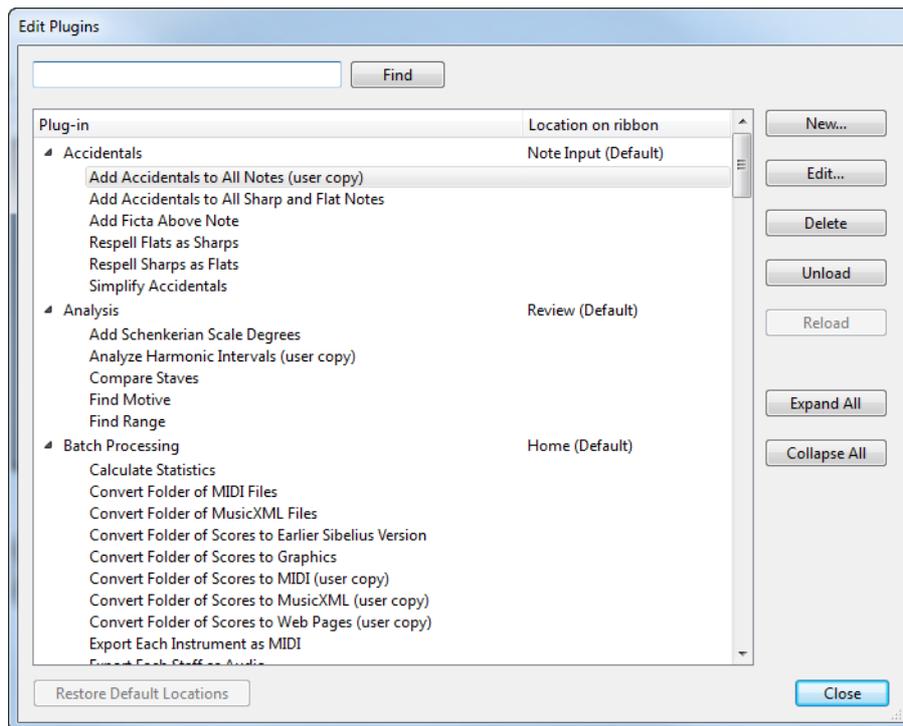
# Tutorial

# Edit Plug-ins

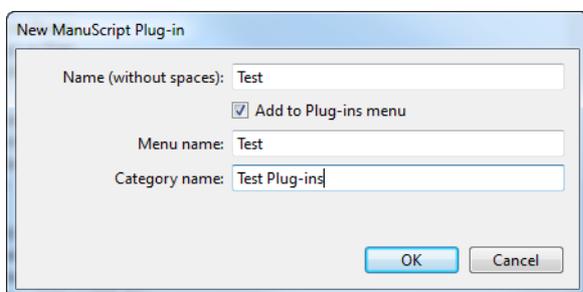
## A simple plug-in

Let's start a simple plug-in. You are assumed to have some basic experience of programming (e.g. in BASIC or C), so you're already familiar with ideas like variables, loops and so on.

- Start Sibelius.
- Choose **File** ▶ **Plug-ins** ▶ **Edit Plug-ins**. The following dialog appears:



- Now click **New**.

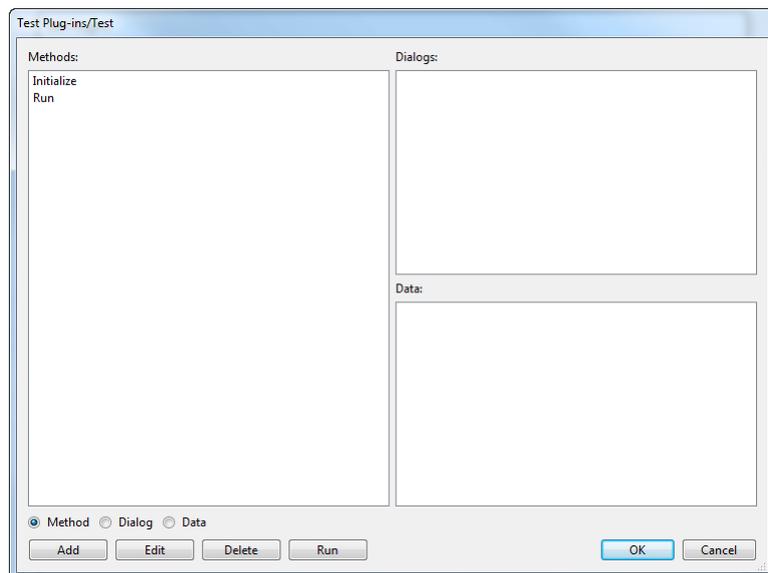


- You are asked to type the internal name of your plug-in (used as the plug-in's filename), the name that should appear on the menu and the name of the category in which the plug-in should appear, which will determine which ribbon tab it appears on. The reason for having two separate names for plug-ins is that filenames may be no longer than 31 characters on Macs running Mac OS 9 (which is only significant if you intend your plug-in to be used with versions of Sibelius prior to Sibelius 4), but the menu names can be as long as you like.
- Type **Test** as the internal name, **Test plug-in** as the menu name and **Tests** as the category name, then click **OK**.
- You'll see **Test (user copy)** added to the list in the **Edit Plug-ins** dialog under a new **Tests** branch of the tree view. Click **Close**. This shows the folder in which the plug-in is located (**Tests**, which Sibelius has created for you), the filename of the plug-in (minus the standard **.plg** file extension), and (**user copy**) tells you that this plug-in is located in your user application data folder, not the Sibelius program folder or application package itself.
- If you look in the **Home** ▶ **Plug-ins** gallery again you'll see a **Tests** category, with a **Test** plug-in underneath it.

- Choose **Home** ▶ **Plug-ins** ▶ **Tests** ▶ **Test** and the plug-in will run. You may first be prompted that you cannot undo plug-ins, in which case click **Yes** to continue (and you may wish to switch on the **Don't say this again** option so that you're not bothered by this warning in future.) What does our new **Test** plug-in do? It just pops up a dialog which says **Test** (whenever you start a new plug-in, Sibelius automatically generates in a one-line program to do this). You'll also notice a window appear with a button that says **Stop Plug-in**, which appears whenever you run any plug-in, and which can be useful if you need to get out of a plug-in you're working on that is (say) trapped in an infinite loop.
- Click **OK** on the dialog and the plug-in stops.

### Three types of information

Let's look at what's in the plug-in so far. Choose **File** ▶ **Plug-ins** ▶ **Edit Plug-ins** again, then select **Tests/Test (user copy)** from the list and click **Edit** (or simply double-click the plug-in's name to edit it). You'll see a dialog showing the three types of information that can make up a plug-in:



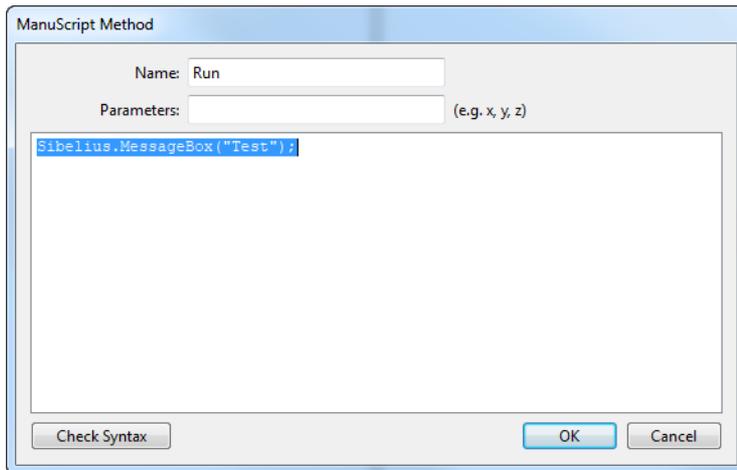
- **Methods:** similar to procedures, functions or routines in some other languages.
- **Dialogs:** the layout of any special dialogs you design for your plug-in.
- **Data:** variables whose value is remembered between running the plug-in. You can only store strings in these variables, so they're useful for things like user-visible strings that can be displayed when the plug-in runs. For a more sophisticated approach to global variables, Manuscript provides custom user properties for all objects – see **User properties** on page 22.

### Methods

The actual program consists of the methods. As you can see, plug-ins normally have at least two methods, which are created automatically for you when you create a new plug-in:

- **Initialize:** this method is called automatically whenever you start up Sibelius. Normally it does nothing more than add the name of the plug-in to the **Plug-ins** menu, although if you look at some of the supplied plug-ins you'll notice that it's sometimes also used to set default values for data variables.
- **Run:** this is called when you run the plug-in, you'll be startled to hear (it's like `main()` in C/C++ and Java). In other words, when you choose **Home** ▶ **Plug-ins** ▶ **Tests** ▶ **Test**, the plug-in's **Run** method is called. If you write any other methods, you have to call them from the **Run** method – otherwise how can they ever do anything?

Click on **Run**, then click **Edit** (or you can just double-click **Run** to edit it). This shows a dialog where you can edit the **Run** method:



In the top field you can edit the name; in the next field you can edit the parameters (i.e. variables where values passed to the method are stored); and below is the code itself:

```
Sibelius.MessageBox("Test");
```

This calls a method **MessageBox** which pops up the dialog box that says **Test** when you run the plug-in. Notice that the method name is followed by a list of parameters in parentheses. In this case there's only one parameter: because it's a string (i.e. text) it's in double quotes. Notice also that the statement ends in a semicolon, as in C/C++ and Java. If you forget to type a semicolon, you'll get an error when the plug-in runs.

What is the role of the word **Sibelius** in **Sibelius.MessageBox**? In fact it's a variable representing the Sibelius program; the statement is telling Sibelius to pop up the message box (C++ and Java programmers will recognize that this variable refers to an "object"). If this hurts your brain, we'll go into it later.

## Editing the code

Now try amending the code slightly. You can edit the code just like in a word processor, using the mouse and arrow keys, and you can also use **Ctrl+X/C/V** or **⌘X/C/V** for cut, copy and paste respectively. If you right-click (Windows) or **Control**-click (Mac) you get a menu with these basic editing operations on them too.

Change the code to this:

```
x = 1;
x = x + 1;
Sibelius.MessageBox("1 + 1 = " & x);
```

You can check this makes sense (or, at least, some kind of sense) by clicking the **Check syntax** button. If there are any blatant mistakes (e.g. missing semicolons) you'll be told where they are.

Then close the dialogs by clicking **OK**, **OK** again then **Close**. Run your amended plug-in from the **Plug-ins** menu and a message box with the answer  $1 + 1 = 2$  should appear.

How does it work? The first two lines should be obvious. The last line uses **&** to stick two strings together. You can't use **+** as this works only for numbers (if you try it in the example above, you'll get an interesting answer!).

One pitfall: try changing the second line to:

```
x += 1;
```

then click **Check syntax**. You'll get an error: this syntax (and the syntax **x++**) is allowed in various languages but not in Manuscript. You have to do **x = x+1;**.

## Where plug-ins are stored

Plug-ins supplied with Sibelius are stored in folders buried deep within the Sibelius program folder on Windows, and inside the application package (or "bundle") on Mac. It is not intended that end users should add extra plug-ins to these locations

themselves, as we have provided a per-user location for plug-ins to be installed instead. When you create a new plug-in or edit an existing one, the new or modified plug-in will be saved into the per-user location (rather than modifying or adding to the plug-ins in the program folder or bundle):

- On Windows, additional plug-ins are stored at **C:\Users\username\AppData\Roaming\Avid\Sibelius 7\Plugins**.
- On Mac, additional plug-ins are stored in subfolders at **/Users/username/Library/Application Support/Avid/Sibelius 7/Plugins**.

This is worth knowing if you want to give a plug-in to someone else. The plug-ins appear in subfolders which correspond to the categories in which they appear in the various **Plug-ins** galleries. The filename of the plug-in itself is the plug-in's internal name plus the **.plg** extension, e.g. **Test.plg**.

(Sibelius includes an automatic plug-in installer, which you can access via **File > Plug-ins > Install Plug-ins**. This makes it easy to download and install plug-ins from the Sibelius web site.)

## Line breaks and comments

As with C/C++ and Java, you can put new lines wherever you like (except in the middle of words), as long as you remember to put a semicolon after every statement. You can put several statements on one line, or put one statement on several lines.

You can add comments to your program, again like C/C++ and Java. Anything after **//** is ignored to the end of the line. Anything between **/\*** and **\*/** is ignored, whether just part of a line or several lines:

```
// comment lasts to the end of the line
/* you can put
several lines of comments here
*/
```

For instance:

```
Sibelius.MessageBox("Hi!"); // print the active score
```

or:

```
Sibelius /* this contains the application */ .MessageBox("Hi!");
```

## Variables

**x** in the **Test** plug-in is a variable. In Manuscript a variable can be any sequence of letters, digits or **\_** (underscore), as long as it doesn't start with a digit.

A variable can contain an integer (whole number), a floating point number, a string (text) or an object (e.g. a note) – more about objects in a moment. Unlike most languages, in Manuscript a variable can contain any type of data – you don't have to declare what type you want. Thus you can store a number in a variable, then store some text instead, then an object. Try this:

```
x = 56; x = x+1;
Sibelius.MessageBox(x); // prints '57' in a dialog box
x = "now this is text"; // the number it held is lost
Sibelius.MessageBox(x); // prints 'now this is text' in a dialog
x = Sibelius.ActiveScore; // now it contains a score
Sibelius.MessageBox(x); // prints nothing in a dialog
```

Variables that are declared within a Manuscript method are local to that method; in other words, they cannot be used by other methods in the same plug-in. Global **Data** variables defined using the plug-in editor can be accessed by all methods in the plug-in, and their values are preserved over successive uses of the plug-in.

A quick aside about strings in Manuscript is in order at this point. Like many programming languages, Manuscript strings uses the back-slash **\** as an “escape character” to represent certain special things. To include a single quote character in your strings, use **\'**, and to include a new line you should use **\n**. Because of this, to include the backslash itself in a Manuscript string one has to write **\\**.

## Converting between numbers, text and objects

Notice that the method **MessageBox** is expecting to be sent some text to display. If you give it a number instead (as in the first call to **MessageBox** above) the number is converted to text. If you give it an object (such as a score), no text is produced.

Similarly, if a calculation is expecting a number but is given some text, the text will be converted to a number:

```
x = 1 + "1"; // the + means numbers are expected
Sibelius.MessageBox(x); // displays '2'
```

If the text doesn't start with a number (or if the variable contains an object instead of text), it is treated as 0:

```
x = 1 + "fred";
Sibelius.MessageBox(x); // displays '1'
```

# Loops

---

## “for” and “while”

ManuScript has a **while** loop which repeatedly executes a block of code until a certain expression becomes **True**. Create a new plug-in called **Potato**. This is going to amuse one and all by writing the words of the well-known song “1 potato, 2 potato, 3 potato, 4”. Type in the following for the **Run** method of the new plug-in:

```
x = 1;
while (x<5)
{
    text = x & " potato,";
    Sibelius.MessageBox(text);
    x = x+1;
}
```

Run it. It should display “1 potato,” “2 potato,” “3 potato,” “4 potato,” which is a start, though annoyingly you have to click **OK** after each message.

The **while** statement is followed by a condition in ( ) parentheses, then a block of statements in { } braces (you don’t need a semicolon after the final } brace). While the condition is true, the block is executed. Unlike some other languages, the braces are *compulsory* (you can’t omit them if they only contain one statement). Moreover, each block must contain at least one statement. We did say that ManuScript was a simple language.

In this example you can see that we are testing the value of **x** at the start of the loop, and increasing the value at the end. This common construct could be expressed more concisely in ManuScript by using a **for** loop. The above example could also be written as follows:

```
for x = 1 to 5
{
    text = x & " potato,";
    Sibelius.MessageBox(text);
}
```

Here, the variable **x** is stepped from the first value (1) up to the end value (5), stopping one step before the final value. By default, the “step” used is 1, but we could have used (say) 2 by using the syntax **for x = 1 to 5 step 2**, which would then print only “1 potato” and “3 potato”!

Notice the use of **&** to add strings. Because a string is expected on either side, the value of **x** is turned into a string.

Notice also we’ve used the **Tab** key to indent the statements inside the loop. This is a good habit to get into as it makes the structure clearer. If you have loops inside loops you should indent the inner loops even more.

## The if statement

Now we can add an **if** statement so that the last phrase is just “4,” not “4 potato”:

```
x = 1;
while (x<5)
{
    if(x=4)
    {
        text = x & ".";
    }
    else
    {
        text = x & " potato,";
    }
    Sibelius.MessageBox(text);
    x = x+1;
}
```

The rule for `if` takes the form `if (condition) {statements}`. You can also optionally add `else {statements}`, which is executed if the condition is false. As with `while`, the parentheses and braces are compulsory, though you can make the program shorter by putting braces on the same line as other statements:

```
x = 1;
while (x<5)
{
  if(x=4) {
    text = x & ".";
  } else {
    text = x & " potato,";
  }
  Sibelius.MessageBox(text);
  x = x+1;
}
```

The position of braces is entirely a matter of taste.

Now let's make this plug-in really cool. We can build up the four messages in a variable called `text`, and only display it at the end, saving valuable wear on your mouse button. We can also switch round the `if` and `else` blocks to show off the use of `not`. Finally, we return to the `for` syntax we looked at earlier.

```
text = ""; // start with no text
for x = 1 to 5
{
  if (not(x=4)) {
    text = text & x & " potato, "; // add some text
  } else {
    text = text & x & "."; // add no. 4
  }
}
Sibelius.MessageBox(text); // finally display it
```

## Arithmetic

We've been using `+` without comment, so here's a complete list of the available arithmetic operators:

<code>a + b</code>	add
<code>a - b</code>	subtract
<code>a * b</code>	multiply
<code>a / b</code>	divide
<code>a % b</code>	remainder
<code>-a</code>	negate
<code>(a)</code>	evaluate first

ManuScript evaluates operators strictly from left-to-right, unlike many other languages; so `2+3*4` evaluates to 20, not 14 as you might expect. To get the answer 14, you'd have to write `2+(3*4)`.

ManuScript also supports floating point numbers, so whereas in some early versions `3/2` would work out as 1, it now evaluates to 1.5. Conversion from floating point numbers to integers is achieved with the `RoundUp(expr)`, `RoundDown(expr)` and `Round(expr)` functions, which can be applied to any expression.

# Objects

Now we come to the neatest aspect of object-oriented languages like Manuscript, C++ or Java, which sets them apart from traditional languages like BASIC, Fortran and C. Variables in traditional languages can hold only certain types of data: integers, floating point numbers, strings and so on. Each type of data has particular operations you can do to it: numbers can be multiplied and divided, for instance; strings can be added together, converted to and from numbers, searched for in other strings, and so on. But if your program deals with more complex types of data, such as dates (which in principle you could compare using =, < and >, convert to and from strings, and even subtract) you are left to fend for yourself.

Object-oriented languages can deal with more complex types of data directly. Thus in the Manuscript language you can set a variable, let's say `thischord`, to be a chord in your score, and (say) add more notes to it:

```
thischord.AddNote(60);           // adds middle C (note no. 60)
thischord.AddNote(64);           // adds E (note no. 64)
```

If this seems magic, it's just analogous to the kind of things you can do to strings in BASIC, where there are very special operations which apply to text only:

```
A$ = "1"
A$ = A$ + " potato, " :           REM add strings
X = ASC(A$) :                     REM get first letter code
```

In Manuscript you can set a variable to be a chord, a note in a chord, a bar, a staff or even a whole score, and do things to it. Why would you possibly want to set a variable to be a whole score? So you can save it or add an instrument to it, for instance.

## Objects in action

We'll have a look at how music is represented in Manuscript in a moment, but for a little taster, let's plunge straight in and adapt **Potato** to create a score:

```
x = 1;
text = "";                          // start with no text
while (x<5)
{
  if (not(x=4)) {
    text = text & x & " potato, ";    // add some text
  } else {
    text = text & x & ".";           // add no. 4
  }
  x = x+1;
}

Sibelius.New();                      // create a new score
newscore = Sibelius.ActiveScore;     // put it in a variable
newscore.CreateInstrument("Piano");
staff = newscore.NthStaff(1);        // get top staff
bar = staff.NthBar(1);               // get bar 1 of this staff
bar.AddText(0, text, "Technique");   // use Technique text style
```

This creates a score with a Piano, and types our potato text in bar 1 as Technique text.

The code uses the period (.) several times, always in the form `variable.variable` or `variable.method()`. This shows that the variable before the period has to contain an object.

- If there's a variable name after the period, we're getting one of the object's sub-variables (called "fields" or "member variables" in some languages). For instance, if `n` is a variable containing a note, then `n.Pitch` is a number representing its MIDI pitch (e.g. 60 for middle C), and `n.Name` is a string describing its pitch (e.g. "C4" for middle C). The variables available for each type of object are listed later.
- If there's a method name after the period (followed by () parentheses), one of the methods allowed for this type of object is called. Typically a method called in this way will either change the object or return a value. For instance, if `s` is a variable con-

taining a score, then `s.CreateInstrument("Flute")` adds a flute (changing the score), but `s.NthStaff(1)` returns a value, namely an object containing the first staff.

Let's look at the new code in detail. There is a pre-defined variable called `Sibelius`, which contains an object representing the Sibelius program itself. We've already seen the method `Sibelius.MessageBox()`. The method call `Sibelius.New()` tells Sibelius to create a new score. Now we want to do something to this score, so we have to put it in a variable.

Fortunately, when you create a new score it becomes active (i.e. its title bar highlights and any other scores become inactive), so we can just ask Sibelius for the active score and put it in a variable:

```
newscore = Sibelius.ActiveScore.
```

Then we can tell the score to create a Piano: `newscore.CreateInstrument("Piano")`. But to add some text to the score you have to understand how the layout is represented.

# Representation of a score

---

A score is treated as a hierarchy: each score contains 0 or more staves; each staff contains bars (though every staff contains the same number of bars); and each bar contains “bar objects.” Clefs, text and chords are all different types of bar objects.

So to add a bar object (i.e. an object which belongs to a bar), such as some text, to a score: first you have to get which staff you want (and put it in a variable): `staff = newscore.NthStaff(1)`; then you have to get which bar in that staff you want (and put it in a variable): `bar = staff.NthBar(1)`; finally you tell the bar to add the text: `bar.AddText(0, text, "Technique")`. You have to give the name (or index number – see **Text styles** on page 137) of the text style to use (and it has to be a staff text style, because we’re adding the text to a staff).

Notice that bars and staves are numbered from 1 upwards; in the case of bars, this is irrespective of any bar number changes that are in the score, so the numbering is always unambiguous. In the case of staves, the top staff is no.1, and all staves are counted, even if they’re hidden. Thus a particular staff has the same number wherever it appears in the score.

The `AddText` method for bars is documented later, but the first parameter it takes is a *rhythmic position* in the bar. Each note in a bar has a rhythmic position that indicates where it is (at the start, one quarter after the start, etc.), but the same is true for all other objects in bars. This shows where the object is attached to, which in the case of Technique text is also where the left hand side of the text goes. Thus to put our text at the start of the bar, we used the value 0. To put the text a quarter note after the start of the bar, use 256 (the units are 1024th notes, so a quarter is 256 units – but don’t think about this too hard):

```
bar.AddText(256, text, "Technique");
```

To avoid having to use obscure numbers like 256 in your program, there are predefined variables representing different note values (which are listed later), so you could write:

```
bar.AddText(Quarter, text, "Technique");
```

or to be quaint you could use the British equivalent:

```
bar.AddText(Crotchet, text, "Technique");
```

For a dotted quarter, instead of using 384 you can use another predefined variable:

```
bar.AddText(DottedQuarter, text, "Technique");
```

or add two variables:

```
bar.AddText(Quarter+Eighth, text, "Technique");
```

This is much clearer than using numbers.

## The system staff

As you know from using Sibelius, some objects don’t apply to a single staff but to all staves. These include titles, tempo text, rehearsal marks and special barlines; you can tell they apply to all staves because (for instance) they get shown in all the instrumental parts.

All these objects are actually stored in a hidden staff, called the system staff. You can think of it as an invisible staff which is always above the other staves in a system. The system staff is divided into bars in the same way as the normal staves. So to add the title “Potato” to our score we’d need the following code in our plug-in:

```
sys = newscore.SystemStaff;           // system staff is a variable
bar = sys.NthBar(1);
bar.AddText(0, "POTATO SONG", "Subtitle");
```

As you can see, `SystemStaff` is a variable you can get directly from the score. Remember that you have to use a system text style (here I’ve used `Subtitle`) when putting text in a bar in the system staff. A staff text style like `Technique` won’t work. Also, you have to specify a bar and position in the bar; this may seem slightly superfluous for text centered on the page as titles are (though in reality even this kind of page-aligned text is always attached to a bar), but for Tempo and Metronome mark text they are obviously required.

## Representation of notes, rests, chords and other musical items

Sibelius represents rests, notes and chords in a consistent way. A rest has no noteheads, a note has 1 notehead and a chord has 2 or more noteheads. This introduces an extra hierarchy: most of the squiggles you see in a score are actually a special type of bar object that can contain even smaller things (namely, noteheads). There's no overall name for something which can be a rest, note or chord, so we've invented the pretty name `NoteRest`. A `NoteRest` with 0, 1 or 2 noteheads is what you normally call a rest, a note or a chord, respectively.

If `n` is a variable containing a `NoteRest`, there is a variable `n.NoteCount` which contains the number of notes, and `n.Duration` which is the note-value in 1/256ths of a quarter. You can also get `n.Highest` and `n.Lowest` which contain the highest and lowest notes (assuming `n.NoteCount` isn't 0). If you set `lownote = n.Lowest`, you can then find out things about the lowest note, such as `lownote.Pitch` (a number) and `lownote.Name` (a string). Complete details about all these methods and variables may be found in the **Reference** section below.

Other musical objects, such as clefs, lines, lyrics and key signatures have corresponding objects in `ManuScript`, which again have various variables and methods available. For example, if you have a `Line` variable `ln`, then `ln.EndPosition` gives the rhythmic position at which the line ends.

# The “for each” loop

---

It’s a common requirement for a loop to do some operation to every staff in a score, or every bar in a staff, or every BarObject in a bar, or every note in a NoteRest. There are other more complex requirements which are still common, such as doing an operation to every BarObject in a score in chronological order, or to every BarObject in a multiple selection. Manuscript has a **for each** loop that can achieve each of these in a single statement.

The simplest form of **for each** is like this:

```

thisscore = Sibelius.ActiveScore;
for each s in thisscore                                // sets s to each staff in turn
{
    // ...do something with s
}

```

Here, since **thisscore** is a variable containing a score, the variable **s** is set to be each staff in **thisscore** in turn. This is because staves are the type of object at the next hierarchical level of objects (see **Hierarchy of objects** on page 42). For each staff in the score, the statements in {} braces are executed.

Score objects contain staves, as we have seen, but they can also contain a Selection object, e.g. if the user has selected a passage of music before running the plug-in. The Selection object is a special case: it is never returned by a **for each** loop, because there is only a single selection object; if you use the Selection object in a **for each** loop, by default it will return BarObjects (not Staves, Bars or anything else!).

Let’s take another example, this time for notes in a NoteRest:

```

noterest = bar.NthBarObject(1);
for each n in noterest                                // sets n to each note in turn
{
    Sibelius.MessageBox("Pitch is " & n.Name);
}

```

**n** is set to each note of the chord in turn, and its note name is displayed. This works because Notes are the next object down the hierarchy after NoteRests. If the NoteRest is, in fact, a rest (rather than a note or chord), the loop will never be executed – you don’t have to check this separately.

The same form of loop will get the bars from a staff or system staff, and the BarObjects from a bar. These loops are often nested, so you can, for instance, get several bars from several staves.

This first form of the **for each** loop got a sequence of objects from an object in the next level of the hierarchy of objects. The second form of the **for each** loop lets you skip levels of the hierarchy, by specifying what type of object you want to get. This saves a lot of nested loops:

```

thisscore = Sibelius.ActiveScore;
for each NoteRest n in thisscore
{
    n.AddNote(60);                                     // add middle C
}

```

By specifying **NoteRest** after **for each**, Sibelius knows to produce each NoteRest in each bar in each staff in the score; otherwise it would just produce each staff in the score, because a Staff object is the type of object at the next hierarchical level of objects. The NoteRests are produced in a useful order, namely from the top to the bottom staff, then from left to right through the bars. This is chronological order. If you want a different order (say, all the NoteRests in the first bar in every staff, then all the NoteRests in the second bar in every staff, and so on) you’ll have to use nested loops.

So here’s some useful code that doubles every note in the score in octaves:

```

score = Sibelius.ActiveScore;
for each NoteRest chord in score
{
  if(not(chord.NoteCount = 0))           // ignore rests
  {
    note = chord.Highest;                // add above the top note
    chord.AddNote(note.Pitch+12);        // 12 is no. of half-steps (semitones)
  }
}

```

It could easily be amended to double in octaves only in certain bars or staves, only if the notes have a certain pitch or duration, and so on.

This kind of loop is also very useful in conjunction with the user's current selection. This selection can be obtained from a variable containing a Score object as follows:

```
selection = score.Selection;
```

We can then test whether it's a passage selection, and if so we can look at (say) all the bars in the selection by means of a **for each** loop:

```

if (selection.IsPassage)
{
  for each Bar b in selection
  {
    // do something with this bar
    ...
  }
}

```

Be aware that you can not add or remove items from bars during iterating. The example of adding notes to chords above is fine because you are modifying an existing item (in this case a NoteRest), but it's not safe to add or remove entire items, and if you try to do so, your plug-in will abort with an error. However, it's very useful to add or remove items from bars, so you need to do that in a separate **for** loop, after first collecting the items you want to operate on into a Manuscript array, something like this:

```

num = 0;
for each obj in selection
{
  if (IsObject(obj))
  {
    n = "obj" & num;
    @n = obj;
    num = num + 1;
  }
}
selection.Clear();
for i = 0 to num
{
  n = "obj" & i;
  obj = @n; // get an object from the pseudo array
  obj.Select();
}

```

The **@n** in this example is the array. To find out more about arrays, read on.

# Indirection, sparse arrays and user properties

---

## Indirection

If you put the `@` character before a string variable name, then the *value* of the variable is used as the name of a variable or method. For instance:

```
var="Name";
x = @var;           // sets x to the contents of the variable Name

mymethod="Show";
@mymethod();       // calls the method Show
```

This has many advanced uses, though if taken to excess it can cause the brain to hurt. For instance, you can use `@` to simulate “unlimited” arrays. If `name` is a variable containing the string `"x1"`, then `@name` is equivalent to using the variable `x1` directly. Thus:

```
i = 10;
name = "x" & i;
@name = 0;
```

sets variable `x10` to 0. The last two lines are equivalent to `x[i] = 0;` in the C language. This has many uses; however, you'll also want to consider using the built-in arrays (and hash tables), which are documented below.

## Sparse arrays

The method described above can be used to create “fake” arrays through indirection, though this is a little fiddly. Manuscript also provides Javascript-style sparse arrays, which can store anything that can be stored in a Manuscript variable, including references to objects. Like a variable, storing a reference to an object in a sparse array will preserve the lifetime of that object (because objects are reference counted), but the underlying object in Sibelius may become invalid if (say) a Score is modified.

To create a sparse array in Manuscript, use the built-in method `CreateSparseArray (a1, a2, a3, a4...an)`. You can create an empty array simply by passing in no variables to the `CreateSparseArray` method.

Sparse arrays provide a read/write variable called `Length` that returns or sets the length of the array: when you set `Length` to a number greater than the present size of the array, the array is padded with null values; if you set `Length` to a number smaller than the present size of the array, any values beyond this number are removed.

To push one or more values to the end of the array, use the method `Push (a1, a2, ... an)`. To remove and return the last element of an array, use the method `Pop ()`.

An example of how to use a sparse array:

```
array = CreateSparseArray(4,5,6);
array[10] = 19; // creates 11th element of array, intervening elements are null
array.Length = 20; // extends array to 20 elements, new elements are all null
```

Sparse arrays by their nature may not have values in every array element. To return a new sparse array containing only the populated indices of the original sparse array (i.e. those that are not null), use the array's `ValidIndices` variable. For example, using the above sparse array:

```
array2 = array.ValidIndices; // will contain values 0, 1, 2, 10 and 19
return array[array2[0]]; // returns the first populated element of array
```

You can compare two sparse arrays for equality, e.g.:

```
if (array = array2) {
  // do something
}
```

To access the end of an array, it's convenient to use negative indices; e.g. `array[-1]` returns the last element, `array[-2]` returns the penultimate element, and so on. It's not possible to access elements before the start of the array, so if you do e.g. `array[-100]` on a six element array, you will get `array[0]` returned.

Some things to remember when using sparse arrays:

- Sparse arrays use a zero-based index.
- Elements that have not been initialised are null, and do not cause an error when referenced.
- Assigning to an index beyond the current length increases the **Length** to one greater than the index assigned to.
- If an array contains references to objects, whether the arrays are equal or not depends on the implementation of equality for those objects.

## User properties

All Manuscript objects other than those listed below, including objects created by Sibelius, can have user properties attached to them, allowing for convenient storage of extra data, encapsulation of several items of data within a single object, and returning more than one value from a method, among other things.

To create a new user property, use the following syntax:

```
object._property:property_name = value;
```

where *object* is the name of the object, *property\_name* is the desired user property name, and *value* is the value to be assigned to the new user property. User properties are read/write and can be accessed as *object*.*property\_name*.

To get a sparse array containing the names of all the user properties belonging to an object, you can do e.g.:

```
names = object._propertyNames;
```

Here is an example of creating a user property:

```
nr = bar.NoteRest;  
nr._property:original = true;  
if (nr.original = true) {  
    // do something  
}
```

Some things to remember when using user properties:

- If you attempt to get or set a user property that has not yet been created, your plug-in will exit with a run-time error.
- To check whether or not a user property has been created without causing a run-time error, use the notation *object*.**\_property:property\_name**, which will be null if no matching user property has been created yet.
- User properties cannot be created or accessed for normal data types (e.g. strings, integers, etc.), the global **Sibelius** object, old-style Manuscript arrays created by **CreateArray()**, old-style hashes created by **CreateHash()**, and null.
- User properties that conflict with an existing property name cannot be accessed as *object*.*property\_name* (though they can be accessed using the **\_property:** notation).
- User properties belong to a particular Manuscript object and disappear when that object's lifetime ends. To stop an object dying, you can (for example) store it in a sparse array, but be aware that its contents may become invalid if (say) the underlying score changes.

## Dictionary

**Dictionary** is a programmer extensible object, simply allowing the use of user properties as above with convenient construction. It also has methods allowing the use of arbitrarily named user properties, and can also have methods in plug-ins attached to it allowing the creation of encapsulated user objects (i.e. objects with variables and methods attached to them).

To create a dictionary, use the built-in function **CreateDictionary**(*name1*, *value1*, *name2*, *value2*, ... *nameN*, *valueN*). This creates a dictionary containing user properties called *name1*, *name2*, *nameN* with values *value1*, *value2*, *valueN* respectively.

A dictionary can contain named data items (like a **struct** in languages like C++), or data that is indexed by string, so that you can use strings to look items up within it.

The values in a dictionary can be accessed using square bracket notation, so you can use a dictionary like a hash table, e.g.:

```
test = CreateDictionary("fruit",apple, "vegetable",potato);  
test["fruit"] = banana;  
test["meat"] = lamb;
```

You can even put other objects, e.g. sparse arrays, inside dictionaries, e.g.

```
test2 = CreateDictionary("fruit", CreateSparseArray(apple,banana,orange));
```

You can access the user properties within a dictionary using the `._property:` notation, e.g.:

```
return test2._property:fruit;
```

which would return the array specified above. Even more direct, you can access user properties in a dictionary as if they were variables or methods, like this:

```
test2.fruit;
```

which would also return the array specified above. You can also return more than one value from any Manuscript method using a dictionary, e.g.:

```
getChord()
value = CreateDictionary("a", aNote, "b", anotherNote);
return value;

//... in another method somewhere
chord = getChord();
trace(chord.a);
trace(chord.b);
```

which returns two values, `a` and `b`, which you can access via e.g. `chord.a` and `chord.b`.

You can compare two dictionaries for equality, e.g.:

```
if (test2 = test3) {
    // do something
}
```

Whether or not dictionaries containing objects evaluate as equal depends on the implementation of equality for those objects.

If you're comfortable with programming in general, you may find it useful to be able to add methods to dictionaries, particularly if you are writing code designed to act as a library for other methods or plug-ins to call. Writing code in this way provides a degree of encapsulation and can make it easy for client code to use your library.

To add a method to a dictionary, call the dictionary's `SetMethod()` method, e.g.:

```
pluginmethod "(obj,x,y) {
    // a method that does something to obj
}"
test4 = CreateDictionary();
test4.SetMethod("doSomething",Self,"pluginmethod");
test4.doSomething(3,4); // call pluginmethod within the current plug-in, passing in
                        // test4 (obj in the method above) and 3 (x in the method
                        // above) and 4 (y in the method above)
```

In the example above, `doSomething` is the name of the method belonging to the dictionary, `Self` tells the plug-in that the method is defined in the same plug-in, and `pluginmethod` is the name of a method elsewhere in the plug-in (shown at the top of the example).

To return a sparse array containing the names of the methods belonging to a dictionary, use the dictionary's `GetMethodNames()` method. You can also check the existence of a particular method using the dictionary's `MethodExists()` method. Use the dictionary's `CallMethod()` method to call a specific method, where the name of the method is the first parameter, and any parameters to be passed to the specified method follow. For example:

```
array = test4.GetMethodNames(); // create sparse array containing method names
first_method_name = array[0]; // sets first_method_name to name of first method
methodfound = test4.MethodExists("doSomething"); // returns True in this case;
test4.CallMethod("doSomething",5,6);
```

Everything you put into a dictionary is a user property, so all of the methods outlined in **User properties** above can be used on data in dictionaries too.

## Using user properties as global variables

You can store `SparseArray` and `Dictionary` objects, and indeed any other object, as user properties of the `Plugin` object itself. In the example below, `Self` is the object that corresponds to the running plug-in, and a user property `globalData` is assigned to the plug-in, containing a `Dictionary`:

```
Self._property:globalData = CreateDictionary(1,2,3,4);
// globalData and Self.globalData can be used interchangeably
trace(globalData);
trace(Self.globalData);
```

User properties assigned to the plug-in are persistent between invocations. Take care to ensure that these user properties are created before you attempt to use them, otherwise your plug-in will abort with a run-time error. Using the `_property:property_name` syntax never causes run-time errors, but direct references to `property_name` force a runtime error if `property_name` hasn't been created yet.

The example below shows how to test the existence of a specific user property, `globalCounter`, initialise it to 0 if it is not found, then increment it by 1 every time the plug-in runs:

```
// Test the persistence of user properties
if (Self._property:globalCounter = null) {
    Self._property:globalCounter = 0;
}
globalCounter = globalCounter + 1;
// this number increases by one every time the plugin is run
trace(globalCounter);
trace(Self.globalCounter);
```

If you store a reference to a musical object in a user property that is assigned to the plug-in, there is an increased danger of that reference becoming invalid due to the score being closed or edited, etc. Use the `IsValid()` method to validate such data before using it.

User properties of plug-ins will be inaccessible (except by using the `_property:property_name` syntax) if there is an existing global variable of the same name.

## Watch out for recursive cycles!

Be careful not to create recursive cycles using arrays, user properties and dictionaries. When you use, say, an array in a dictionary, you are not creating a copy of the array or its values, but a reference to the original array: dictionaries and arrays are objects, not values. As a result, you could write something where an array contains a dictionary that itself refers to the original array: this will lead to Sibelius crashing. So be careful!

## Other things to look out for

The **Parallel 5ths and 8ves** plug-in illustrates having several methods in a plug-in, which we haven't needed so far. The **Proof-read** plug-in illustrates that one plug-in can call another – it doesn't do much itself except call the **CheckPizzicato**, **CheckSuspectClefs**, **CheckRepeats** and **CheckHarpPedaling** plug-ins. Thus you can build up meta-plug-ins that use libraries of others. Cool!

(You object-oriented programmers should be informed that this works because, of course, each plug-in is an object with the same powers as the objects in a score, so each one can use the methods and variables of the others.)

# Dialog editor

---

For more complicated plug-ins than the ones we've been looking at so far, it can be useful to prompt the user for various settings and options. This may be achieved by using Manuscript's simple built-in dialog editor. Dialogs can be created in the same way as methods and data variables in the plug-in editor.

## Showing a dialog in a plug-in

To show a dialog from a Manuscript method, we use the built-in call

```
Sibelius.ShowDialog(dialogName, Self);
```

where *dialogName* is the name of the dialog we wish to show, and **Self** is a “special” variable referring to this plug-in (telling Sibelius to whom the dialog belongs). Control will only be returned to the method once the dialog has been closed by the user.

## Creating or editing a dialog

To create a new dialog, choose the **Dialog** radio button at the bottom of the window that lists methods, data and dialogs, and click **Add**. To edit an existing dialog, select it from the **Dialogs** list box at the top right-hand corner of the window, and click **Edit**.

The dialog form will then appear, along with a long thin “palette” of available controls, as follows:



To create a new control, simply drag and drop it from the palette onto the dialog.

## Dialog properties

With no controls selected, either double-click on a blank part of the dialog (or right-click, and then choose **Properties**) to access the dialog's **Properties** dialog, which allows you to specify:

- **Name:** the value of *dialogName* for the `Sibelius.ShowDialog()` method call (see **Showing a dialog in a plug-in** above).
- **Title:** the name of the dialog as it appears in its title bar.
- **Size:** the **Width** and **Height** (measured in somewhat arbitrary dialog units); you can also set the size of the dialog by resizing it directly when editing it.
- **Position:** the **X** and **Y** position that the dialog should open at by default.

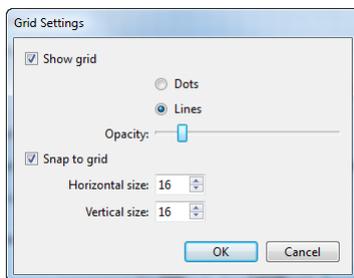
## Laying out controls

The dialog editor includes a number of simple options for producing a pleasing layout:

- To select a control, either click it or hit **Tab** to select the next control in the creation order (**Shift-Tab** selects the previous control).
- To nudge a selected control, simply use the arrow keys.
- To align controls, select them using **Ctrl+click** (Windows) or **⌘-click** (Mac), then use e.g. **Ctrl+←** or **⌘←** to align all of the selected controls with the left-hand edge of the left-most control, or **Ctrl+↑** or **⌘↑** to align all of the selected controls with the top edge of the top-most control.
- To space controls evenly, select them using **Ctrl+click** (Windows) or **⌘-click** (Mac), then use e.g. **Ctrl+Shift+Alt+↓** or **⌘~⌘↓** to space the controls evenly in the distance between the top edge of the top-most and the bottom edge of the bottom-most controls, or **Ctrl+Shift+Alt+←** or **⌘~⌘←** to space the controls evenly in the distance between the left-hand edge of the

left-most and the right-hand edge of the right-most controls. Once controls are spaced evenly, you can increase or decrease the space between them proportionally by typing **Ctrl+Shift+Alt+↑/↓/←/→** or **⇧⇧⇧↑/↓/←/→** as appropriate.

You can optionally display a grid to aid with alignment. Right-click on a blank part of the dialog and choose **Grid** from the context menu to see a dialog with settings for the grid:



Switch on **Show grid** to show the grid in the editor. Choose between **Dots** or **Lines**, and specify the **Opacity** of the grid display by adjusting the slider. Switch on **Snap to grid** to enable control snapping as you drag them with the mouse. Although a control that you nudge with the keyboard will not snap to the grid, one side of its selection outline will flash when it comes into alignment with the grid in either the horizontal or vertical directions.

## Undo and redo

You can undo and redo everything you have done while editing a dialog using **Ctrl+Z** or **⌘Z** to undo and **Ctrl+Y** or **⌘Y** to redo.

## Testing your dialog

To test your dialog within the editor, right-click a blank part of the dialog and choose Test from the context menu (or type the shortcut **Ctrl+T** or **⌘T**). To finish testing and return to the editor, simply hit **Esc**, or click any control whose properties are set to close the dialog (e.g. an **OK** or **Cancel** button, if you have created one).

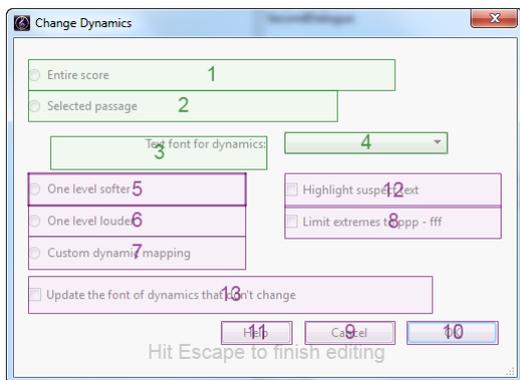
## Saving your changes

To save the changes to your dialog, simply click the close button in the dialog's title bar: if you have any unsaved changes, Sibelius will ask you whether or not to save the changes.

## Set Creation Order

If you have done any programming in other languages that allow you to edit dialogs, you will probably be familiar with the concept of *tab order*, which refers to the order in which controls are given the focus when the user repeatedly hits the **Tab** key to cycle through them. Manuscript has a similar concept called *creation order*, so named because the order in which the controls in a dialog are created affects not only the tab order but also some other subtle things (including radio button grouping – see **Radio buttons** below).

To set the creation order of controls in your plug-in's dialog, right-click on a blank part of the dialog and choose **Set Creation Order** from the context menu. A special display appears overlaid on the controls in your dialog, like this:



To set the creation order, simply click on each control in order. If you make a mistake, hold down **Ctrl** or **⌘** and click on the last control whose order is correct to restart the sequence from that point, then release **Ctrl** or **⌘** and resume clicking on the remaining controls. Once you're done, hit **Esc** to finish editing the creation order.

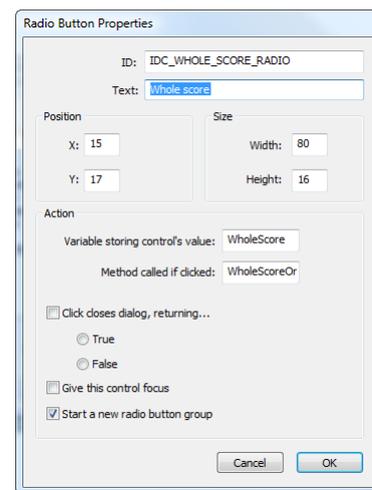
## Control properties

Every control that you create also has a **Properties** dialog, which can be accessed by double-clicking a selected control (or by right-clicking and choosing **Properties** from the context menu, or by typing the shortcut **Ctrl+Return** or **⌘-Return**). The dialog for a radio button control, for example, is shown on the right.

With a control selected, the properties window varies depending on the type of the control, but most of the options are common to all controls, and these are as follows:

- **ID:** an internal string that identifies the control; Sibelius generates this for you automatically, but you can change if you like
- **Text:** the text appearing in the control
- **Position (X, Y):** where the control appears in the dialog, in coordinates relative to the top left-hand corner
- **Size (width, height):** the size of the control
- **Variable storing control's value:** the Manuscript **Data** variable that will correspond to the value of this control when the plug-in is run
- **Method called when clicked:** the Manuscript method that should be called whenever the user clicks on this control (leave blank if you don't need to know about users clicking on the control)
- **Click closes dialog:** select this option if you want the dialog to be closed whenever the user clicks on this control. The additional options **Returning True / False** specify the value that the `Sibelius.ShowDialog` method should return when the window is closed in this way.
- **Give this control focus:** select this option if the "input focus" should be given to this control when the dialog is opened, i.e. if this should be the control to which the user's keyboard applies when the dialog is opened. Mainly useful for editable text controls.

Other options vary according to the type of control selected.



## Combo boxes and list boxes

Combo boxes and list boxes have an additional property; you can set a variable from which the control's list of values should be taken. Like the value storing the control's current value, this should be a global Data variable. However, in this instance they have a rather special format, to specify a *list* of strings rather than simply a single string. Look at the variable `_ComboItems` in **Add String Fingering** for an example – it looks like this:

```

ComboItems
{
    "1 "
    "2 "
    "3 "
    "4 "
    "1 and 3 "
    "2 and 4 "
}

```

## Radio buttons

Radio buttons also have an additional property that allows one to specify *groups* of radio buttons in plug-in dialogs. When the user clicks on a radio button in a group, only the other radio buttons belonging to that groups are deselected; any others in the dialog are left as they are. This is extremely useful for more complicated dialogs.

To specify a radio group, pick one control from each group that represents the first button of the group, and for these controls ensure that the checkbox **Start a new radio group** is selected in the control's **Properties** dialog. Then set the *creation order* of the controls (see **Set Creation Order** above). A radio button group is defined as being all the radio buttons created between two buttons that have the **Start a new radio group** flag set (or between one of these buttons and the end of the dialog). So to make the radio groups work properly, ensure that each group is created sequentially in order, with the button at the start of the group created first, and then all the rest of the radios in that group. To finish, click the **Set Creation Order** menu item again to deactivate this mode.

## **Static text**

Static text controls additionally allow you to determine whether the text should be aligned to the **Left** (useful for explanatory text) or to the **Right** (useful for text associated with a specific control to its right, such as an edit control, checkbox or combo box).

## **Buttons**

In most plug-in dialogs, you will want the **OK** button to be the default button for the dialog, such that if the user hits **Return** or **Enter** on their keyboard, the dialog is confirmed, and closes. Likewise, you will want the **Cancel** button to respond to the user hitting **Esc** on their keyboard, closing the dialog without making any changes.

For **OK** buttons, or other buttons that should confirm the dialog, switch on the **Default button for dialog** checkbox in the button's **Properties** dialog. Each dialog should only have one default button. You will also normally set **Click closes dialog, returning** to **True**. Depending on the other controls in your dialog, you may additionally want to check **Give this control focus**; if you have one or more edit controls in the dialog, you should probably set **Give this control focus** on the first of those controls instead.

**Cancel** buttons, by contrast, should normally only have **Click closes dialog, returning** set to **False**.

# Debugging your plug-ins

---

When developing any computer program, it's all too easy to introduce minor (and not so minor!) mistakes, or bugs. Manuscript performs its own internal error checking at all times, and you'll find that if you try to access a non-existent method or variable on an object, or make a syntax error, or attempt to add or remove bars or items from bars while iterating over them, the plug-in will throw an error and open the plug-in editor window at the line that generated the error.

As Manuscript is a simple, lightweight system, there is no special purpose debugger, but there are a handful of tools provided to help you debug your plug-ins.

## Undo

One good technique for finding problems in your plug-ins is to set Sibelius's undo buffer to a very small size, or to disable it altogether (by dragging the slider on the **Other** page of **File** ▶ **Preferences** to its leftmost position). In the unlikely event that Manuscript does not throw an error when you perform an illegal operation (e.g. adding or deleting an object while iterating over a bar), reducing the undo buffer to its smallest possible size will expose the problem right away – though be warned, the result of such a problem may well be that Sibelius will crash.

## Plug-in Trace Window

The trace window can be shown by choosing **Plug-ins** ▶ **Plug-in Trace Window**. A special Manuscript command, `trace (string)`, will print the specified string in the trace window. This is useful to keep an eye on what your plug-in is doing at particular points. These commands can then be removed when you've finished debugging. Another useful feature of the trace window is function call tracing. When this is turned on, the log will show which functions are being called by plug-ins.

One potential pitfall with the `trace (string)` approach to debugging is that the built-in hash table and array objects discussed earlier aren't strings, and so can't be output to the trace window. To avoid this problem, both of these objects have a corresponding method called `WriteToString ()`, which returns a string representing the whole structure of the array or hash at that point. So we could trace the current value of an array variable as follows:

```
trace("array variable = " & array.WriteToString());
```

## Checking the validity of objects

One of the common problems that you might encounter when writing complex plug-ins is that the object you are trying to operate on is no longer valid (e.g. it has already been deleted). You can enable error checking – either for all objects, or for individual objects – that will cause your plug-in to throw an error if an object is no longer valid.

To enable error checking, use the Manuscript command `ValidationChecking (enable[, object1[, object2]...])`, and set the Boolean parameter `enable` to `true`. If `enable` is the only parameter, validation checking is enabled for all types of objects, and all plug-ins. If you supply one or more `object` parameters (e.g. `Tuplet`, `Score`, `BarObject`, etc.), only those objects will be checked, and only in the currently running plug-in. You should ensure `ValidationChecking` is set to `false` before you give your plug-ins to anybody else to use.

You can also use the special method `IsValid ()` to determine whether an object is valid: it will return `false` if the object in question no longer exists. `GetValidationError (object)` returns an empty string if there is no error, or returns a string if an error has occurred, so you can do e.g. `trace (GetValidationError (score))`; to trace any validation error returned by a `Score` object to the trace window.

## Stopping the plug-in

If you want to force your plug-in to stop on a particular error condition, use the method `StopPlugin ([message])`, which will stop your plug-in, display the optional `message` in an alert box, and open the plug-in editor at the line of code reached.

You can also use `ExitPlugin ()`, which exits the plug-in cleanly without dropping into the plug-in editor.

# Storing and retrieving preferences

---

In Sibelius 4 or later, you can use **Preferences.plg**, contributed by Hans-Christoph Wirth, to store and retrieve user-set preferences for your plug-ins.

## How does it work?

**Preferences.plg** stores its data in a text file in the user's application data folder. Strings are accessed as associated pairs of a *key* (the name of the string) and a *value* (the contents of the string). The value can also be an array of strings, if required.

## Initializing the database

```
errorcode = Open (pluginname, featureset) ;
```

Open the library and lock for exclusive access by the calling plug-in. The calling plug-in is identified with the string *pluginname*. It is recommended that this string equals the unique Sibelius menu name of the calling plug-in.

Parameter *featureset* is the version of the feature set requested by the calling plug-in. The version of the feature set is currently **020000**. Each library release shows in its initial dialog a list of supported feature sets. The call to **Open** () will fail and show a user message if you request an unsupported feature set. If you should want to prevent this user information (and probably setup your own information dialog), use **CheckFeatureSet** () first.

After **Open** () the scope is undefined, such that you can access only global variables until the first call to **SwitchScope** () .

Return value: **Open** () returns zero or a positive value on success. A negative result indicates that there was a fatal error and the database has not been opened.

- -2 other error
- -1 library does not support requested feature set
- 0 no common preferences database found
- 1 no preferences found for current plug-in
- 2 preferences for current plug-in loaded

In case of errors (e.g. if the database file is unreadable), **Open** () offers the user an option to recover from the error condition. Only if this fails too will an error code be returned to the calling plug-in.

```
errorcode = CheckFeatureSet (featureset) ;
```

Check silently if the library supports the requested feature set.

Return value: **CheckFeatureSet** () returns zero or a positive value on success. A negative value indicates that the requested feature set is not supported by this version.

```
errorcode = Close () ;
```

Release the exclusive access lock to the library. If there were any changes since the last call to **Open** () or **Write** () , dump the data changes back to disk (probably creating a new score, if there was none present).

Return value: **Close** () returns zero or a positive value on success. A negative result indicates that there was a fatal error and the database has not been written.

```
errorcode = CloseWithoutWrite () ;
```

Release the exclusive access lock to the library, discarding any changes performed since last call to **Open** () or **Write** () .

Return value: **CloseWithoutWrite** () returns zero or a positive value on success. A negative result indicates that there was a fatal error, namely that the database was not open at the moment.

```
errorcode = Write (dirty) ;
```

Force writing the data back to disk immediately. Keep library locked and open. If *dirty* equals 0, the write only takes place if the data has been changed. If *dirty* is positive, the common preferences score is unconditionally forced to be rewritten from scratch.

Return value: **Write** () returns zero or a positive value on success. A negative result indicates that there was a fatal error and the database has not been written.

## Accessing data

**index = SetKey(keyname, value);**

Store a string value *value* under the name *keyname* in the database, overwriting any previously stored keys or arrays of the same *keyname*.

If *keyname* has been declared as a local key, the key is stored within the current scope and does not affect similar keys in other scopes. It is an error to call **SetKey()** for local keys if the scope is undefined.

Return value: **SetKey()** returns zero or a positive value on success, and a negative value upon error.

**errorcode = SetArray(keyname, array, size);**

Store a array *array* of strings under the name *keyname* in the database, overwriting any previously stored keys or arrays of the same *keyname*. *size* specifies the number of elements in the array. A *size* of **-1** is replaced with the natural size of the array, i.e., **array.NumChildren**.

If *keyname* has been declared as a local key, the array is stored within the current scope and does not affect similar keys in other scopes. It is an error to call **SetArray()** for local keys if the scope is undefined.

Return value: **SetArray()** returns zero or a positive value on success, and a negative value upon error.

**value = GetKey(keyname);**

Retrieve the value of key *keyname* from the database. It is an error to call **GetKey()** on an identifier which had been stored the last time using **SetArray()**. For local keys, the value is retrieved from the current scope which must not be undefined.

Return value: The value of the key or **Preferences.VOID** if no key of that name found.

**size = GetArray(keyname, myarray);**

Retrieve the string array stored under name *keyname* from the database. It is an error to call **GetArray()** on an identifier which has been stored the last time by **SetKey()**. For local arrays, the value is retrieved from the current scope which must not be undefined.

You must ensure before the call that *myarray* is of Manuscript's array type (i.e., created with **CreateArray()**).

Return value: *size* equals the number of retrieved elements or **-1** if the array was not found. Note that *size* might be smaller than **myarray.NumChildren**, because there is currently no way to reduce the size of an already defined array.

**size = GetListOfIds(myarray);**

Fill the array *myarray* with a list of all known Ids in the current score (or in the global scope, if undefined). Before you call this method, ensure that *myarray* is of Manuscript's array type (i.e. created with **CreateArray()**).

Return value: returns the size of the list, which might be smaller than the natural size of the array, **myarray.Numchildren**.

**index = UnsetId(keyname);**

Erase the contents stored with an identifier (there is no distinction between keys and arrays here). If the key is declared as local, it is erased only from the local scope which must not be undefined.

Return value: The return value is zero or positive if the key has been unset. A negative return value means that a key of that name has not been found (which is not an error condition).

**RemoveId(keyname);**

Erase all contents stored in the database with an identifier (there is no distinction between keys and arrays here). If the key is declared as local, it is erased from all local scopes.

Return value: The return value is always zero.

**RemoveAllIds();**

Erase everything related to the current plug-in.

Return value: the return value is always zero.

## Commands for local variables

**errorCode = DeclareIdAsLocal (keyname) ;**

Declare an identifier as a local key. Subsequent calls to **Set...** and **Get...** operations will be performed in the scope which is set at that time. The local state is stored in the database and can be undone by a call to **DeclareIdAsGlobal** or **RemoveId**.

Return value: Non-negative on success, negative on error.

**size = GetListOfLocalIds (myarray) ;**

Fill the array *myarray* with a list of all Ids declared as local. Before you call this method, ensure that *myarray* is of Manuscript's array type (i.e. created with **CreateArray ()**).

Return value: Returns the size of the list, which might be smaller than the natural size of the array, **myarray.NumChildren**.

**errorCode = SwitchScope (scopename) ;**

Select scope *scopename*. If scope *scopename* has never been selected before, it is newly created and initialized with no local variables. Subsequent **Set...** and **Get...** operations for keys declared as local will be performed in scope *scopename*, while access to global keys is still possible.

The call **SwitchScope ("")** selects the undefined scope which does not allow access of any local variables.

Return value: Non-negative on success, negative on error.

**errorCode = RemoveScope () ;**

Erase all local keys and arrays from the current scope and delete the current scope from the list of known scopes. It is an error to call **RemoveScope ()** if the current scope is undefined. After the call, the database remains in the undefined scope.

**errorCode = RemoveAllScopes () ;**

Erase all local keys and arrays from all scopes and delete all scopes from the list of known scopes. After the call, the database remains in the undefined scope. Note that this call does retain the information which Ids are local (see **DeclareIdAsLocal ()**).

Return value: Non-negative on success.

**string = GetCurrentScope () ;**

Retrieve the name of the currently active scope, or the empty string if the database is in undefined scope.

Return value: Returns a string.

**size = GetListOfScopes (myarray) ;**

Fill the array *myarray* with a list of all known scope names. You must ensure before the call that *myarray* is of Manuscript's array type (i.e., created with **CreateArray ()**).

Return value: Returns the size of the list, which might be smaller than the natural size of the array, **myarray.NumChildren**.

## Miscellaneous

**Trace (tracelevel) ;**

Select level of tracing for the library. Useful levels are: 0 for no trace, 10 for sparse trace, 20 for medium trace, 30 for full trace. This command can also be run when the library is not open, to specify the tracing level for the **Open ()** call itself.

**TraceData () ;**

Writes a full dump of the data stored currently in **ThisData** array to the trace window. This is the full data belonging to the current plug-in. **TraceData ()** always traces the data, regardless of the current trace level selected.

**filename = GetFilename () ;**

Return the full filename of the preferences database (including path).

**Editor () ;**

Invoke the interactive plug-in editor. This method must not be called while the database is open. Direct calls to `Editor()` from plug-ins are deprecated, since the end-user of your plug-in will probably not expect to be able to edit (and destroy) the saved preferences of *all* plug-ins at this stage.

## Basic example

Suppose you have a plug-in called *myplugin* and would like to save some dialog settings in a preferences file such that these settings are persistent over several Sibelius sessions and computer reboots. Your dialog may contain two checkboxes and a list box. Let `DialogDontAskAgain` and `DialogSpeedMode` be the global variables holding the status of the checkboxes, respectively, and let `DialogJobList` hold the contents of the list box item.

The work with the database can be reduced to four steps:

1. *Open the database and retrieve initial data.* At begin of your plug-in, e.g. right at top of your `Run()` method, you have to add some code to initialize the database. You probably also want to initialize your global keys based on the information currently stored in the database. See below for a detailed example. (Depending on your program, you might have to define `prefOpen` as a global variable in order to prevent trying to access an unopened database in future.)

```
// At first define hard coded plug-in defaults, in case that the plug-in
// is called for the first time. If anything else fails, these defaults
// will be in effect.

DialogDontAskAgain = 0;
DialogSpeedMode = 0;
DialogJobList = CreateArray();
DialogJobList[0] = "first job";
DialogJobList[1] = "second job";

// Attempt to open the database

prefOpen = Preferences.Open( "myplugin", "020000" );
if( prefOpen >= 0 ) {

    // Database successfully opened. So we can try to load the
    // information stored last time.
    // It's a good idea to work with a private version scheme, in order
    // to avoid problems in the future when the plug-in is developed
    // further, but the database still contains the old keys. In our
    // example, we propose that the above mentioned keys are present
    // if "version" key is present and has a value of "1".

    version = Preferences.GetKey( "Version" );

    switch( version ) {

        case( "1" ) {

            // Now overwrite the above set defaults with the information stored
            // in the database.

            DialogDontAskAgain = Preferences.GetKey( "DontAskAgain" );
            DialogSpeedMode = Preferences.GetKey( "SpeedMode" );
            Preferences.GetArray( "JobList", DialogJobList );

        }

        default {

            // handle other versions/unset version gracefully here ...

        }

    }

}
```

2. *Work with the data.* After the initialization step, you can and should work with global variables **DialogDontAskAgain**, **DialogSpeedMode**, and **DialogJobList** as you are used to: read from them to base control flow decisions on their setting, write to them (mostly from within your own dialogs) to set new user preferences.

3. *Write data back to the database.* To make any changes persistent, you must tell the database the new values to be written to the hard disk. See below for a detailed example. According to taste, you can execute these lines each time the settings are changed, or only once, at the end of your plug-in.

```
if( prefOpen >= 0 ) {  
    Preferences.SetKey( "Version", "1" );  
    Preferences.SetKey( "DontAskAgain", DialogDontAskAgain );  
    Preferences.SetKey( "SpeedMode", DialogSpeedMode );  
    Preferences.SetArray( "JobList", DialogJobList, -1 );  
}
```

4. *Close the database.* In any case, you must release the lock to the library on exit of your plug-in. This writes data actually back to disk, and enables other plug-ins to access the shared database later. To do this, use:

```
Preferences.Close();
```

# Reference

# Syntax

---

Here is an informal run-down of the syntax of Manuscript.

A method consists of a list of statements of the following kinds:

Block `{ statements }`

e.g.

```
{
  a = 4;
}
```

While `while { expression } block`

e.g.

```
while (i < 3) {
  Sibelius.MessageBox(i);
  i = i + 1;
}
```

Switch `switch (test-expression) {
 case (case-expression-1) block
 [ case (case-expression-2) block ]
 ...
 [ default block ]`

The switch statement consists of a “test” expression, multiple case statements and an optional default statement. If the value of test-expression matches one of the case-expressions, then the statement block following the matching case statement will be executed. If none of the case statements match, then the statement block following the default statement will be executed. For example:

```
switch (note.Accidental) {
  case (DoubleSharp) {
    Sibelius.MessageBox("Double sharp");
  }
  case (DoubleFlat) {
    Sibelius.MessageBox("Double flat");
  }
  default {
    Sibelius.MessageBox("No double");
  }
}
```

if else `if (expression) block [ else block ]`

e.g.

```
if (found) {
  Application.ShowFindResults(found);
} else {
  Application.NotFindResults();
}
```

for each

**for each** *variable in expression*  
*block*

This sets variable to each of the sub-objects within the object given by the expression.

Normally there is only one type of sub-object that the object can contain. For instance, a NoteRest (such as a chord) can only contain Note objects. However, if more than one type of sub-object is possible you can specify the type:

**for each** *Type variable in expression*  
*block*

e.g.

```
for each NoteRest n in thisstaff {
    n.AddNote(60);           // add middle C
}
```

for

**for** *variable = value to value [ step value ]*  
*block*

The variable is stepped from the first value up to or down to the end value by the step value. It stops one step before the final value.

So, for example:

```
for x=1 to note.NoteCount {
    ...
}
```

works correctly.

assignment

*variable = expression;*

e.g.

*value = value + 1;*

or

*variable.variable = expression;*

e.g.

```
Question.CurrentAnswer=True;
```

method call

*variable.identifier (comma-separated expressions);*

e.g.

```
thisbar.AddText(0, "Mozart", "text.system.composer");
```

self method call

*identifier (comma-separated expressions);*

Calls a method in this plug-in, e.g.

```
CheckIntervals();
```

return

**return** *expression;*

Returns a value from a plug-in method, given by the expression. If a method doesn't contain a **return** statement, then a "null" value is returned (either the number zero, an empty string, or the **null** object described below).

# Expressions

---

Here are the operators, literals and other beasts you're allowed in expressions.

**Self** This is a keyword referring to the plug-in owning the method. You can pass yourself to other methods, e.g.

```
other.Introduce(Self);
```

**null** This is a literal object meaning “nothing.”

**Identifier** This is the name of a variable or method (letters, digits or underscore, not starting with a digit) you can precede the identifier with @ to provide indirection; the identifier is then taken to be a string variable whose value is used as the name of a variable or method.

**member variable** *variable.variable*

This accesses a variable in another object.

**integer** e.g. **1, 100, -1**

**floating point number** e.g. **1.5, 3.15, -1.8**

**string** Text in double quotes, e.g. **"some text"**. For strings that are rendered by Sibelius as part of the score, i.e. the contents of some text object, there is a small but useful formatting language allowing one to specify how the text should appear. These “styled strings” contain commands to control the text style. All commands start and end with a backslash (\) The full list of available styling commands is as follows:

**\n\** New paragraph

**\N\** New line

**\B\** Bold on

**\b\** Bold off

**\I\** Italic on

**\i\** Italic off

**\U\** Underline on

**\u\** Underline off

**\fArial Black\** Font change to Arial Black (for example)

**\ctext.character.musictext\**  
Character style change to **Music text** (for example)

**\f\_\** Font change to text style's default font, including removing any active character styles

**\s123\** Size change to 123 (units are 1/32nds of a space, not points)

**\v\** Vertical scale in percent

**\h\** Horizontal scale in percent

**\t\** Tracking (absolute) in 1/32nds of a space

**\p\** Baseline adjustment: use **normal**, **sub** (for subscript) or **super** (for superscript)

**\\$keyword\** Substitutes a string from the **Score Info** dialog (see below)

A consequence of this syntax is that backslashes themselves are represented by **\\**, to avoid conflicting with the above commands.

The substitution command **\\$keyword\** supports the following keywords: **Title**, **Composer**, **Arranger**, **Lyricist**, **MoreInfo**, **Artist**, **Copyright**, **Publisher** and **PartName**. Each of these correspond to a field in the **File > Score Info** dialog.

not	<b>not</b> <i>expression</i> Logically negates an expression, e.g. <b>not (x=0)</b>
and	<i>expression</i> <b>and</b> <i>expression</i> Logical and, e.g. <b>FoxFound and BadgerFound</b>
or	<i>expression</i> <b>or</b> <i>expression</i> Logical or, e.g. <b>FoxFound or BadgerFound</b>
equality	<i>expression</i> = <i>expression</i> Equality test, e.g. <b>Name="Clock"</b>
subtract	<i>expression</i> - <i>expression</i> Subtraction, e.g. <b>12-1</b>
add	<i>expression</i> + <i>expression</i> Addition, e.g. <b>12+1</b>
minus	- <i>expression</i> Inversion, e.g. <b>-1</b>
concatenation	<i>expression</i> & <i>expression</i> Add two strings, e.g. <b>Name = "Fred" &amp; "Bloggs"; // 'Fred Bloggs'</b>  You can't use + as this would attempt to add two numbers, and sometimes succeed (!). For instance: <b>x = "2" + "2"; // same as x = 4</b>
subexpression	( <i>expression</i> ) For grouping expressions and enforcing precedence, e.g. <b>(4+1)*5</b>
method call	<b>variable.identifier</b> ( <i>comma-separated expressions</i> ); e.g. <b>x = monkey.CountBananas();</b>
self method call	<i>Identifier</i> ( <i>comma-separated expressions</i> ); Calls a method in this plug-in, e.g. <b>x = CountBananas();</b>

# Operators

---

## Condition operators

You can put any expressions in parentheses after an `if` or `while` statement, but typically they will contain conditions such as `=` and `<`. The available conditions are very simple:

<code>a = b</code>	equals (for numbers, text or objects)
<code>a &lt; b</code>	less than (for numbers)
<code>a &gt; b</code>	greater than (for numbers)
<code>c and d</code>	both are true
<code>c or d</code>	either are true
<code>not c</code>	inverts a condition, e.g. <code>not (x=4)</code>
<code>&lt;=</code>	less than or equal to
<code>&gt;=</code>	greater than or equal to
<code>!=</code>	not equal to

Note that you use `=` to compare for equality, not `==` as found in C/C++ and Java.

## Arithmetic

<code>a + b</code>	add
<code>a - b</code>	subtract
<code>a * b</code>	multiply
<code>a / b</code>	divide
<code>a % b</code>	remainder
<code>-a</code>	negate
<code>(a)</code>	evaluate first

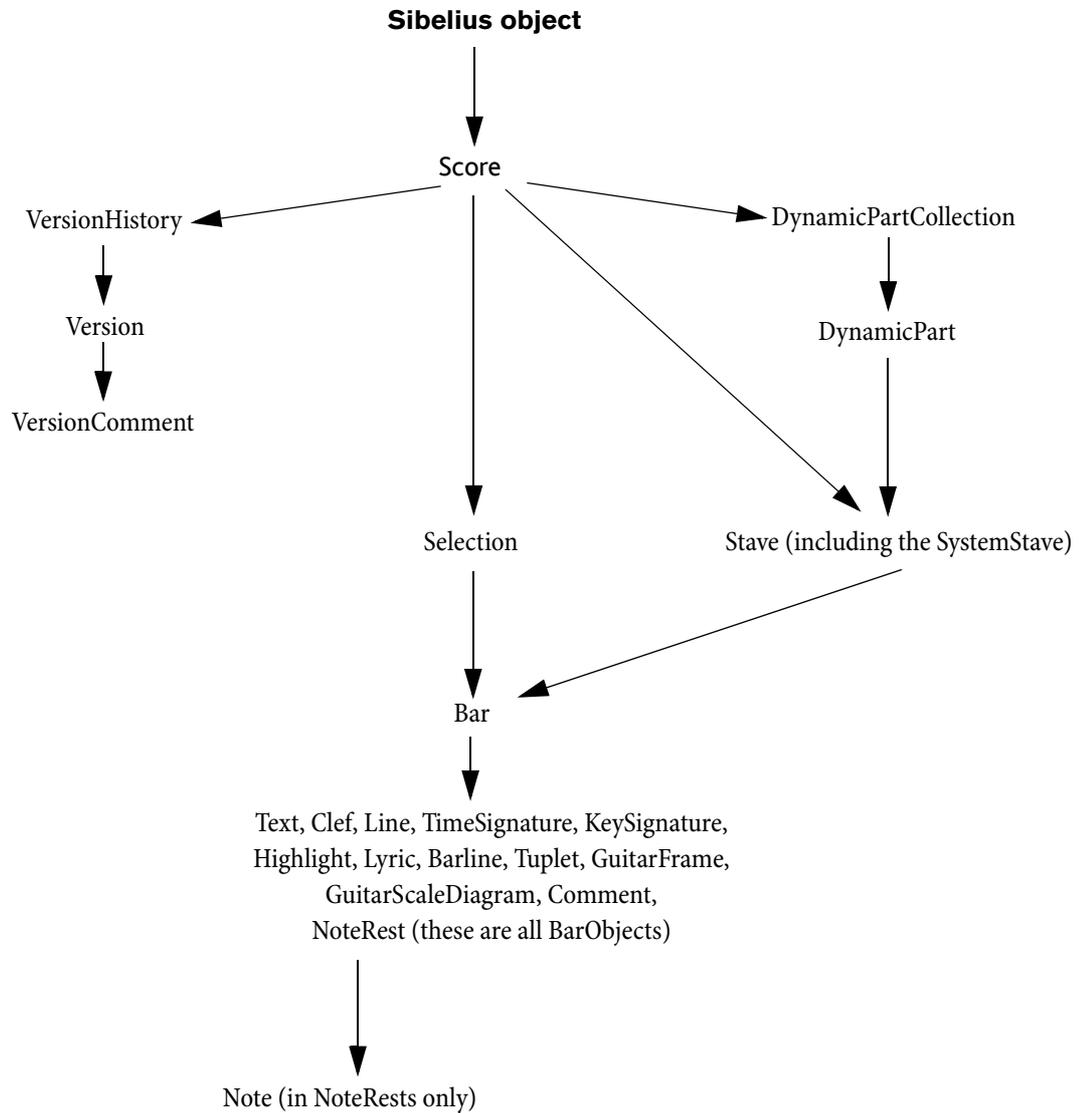
ManuScript will evaluate expressions from left to right, so that `2+3*4` is 20, not 14 as you might expect. To avoid problems with evaluation order, use parentheses to make the order of evaluation explicit. To get the answer 14, you'd have to write `2+(3*4)`.

ManuScript also now supports floating point numbers, so whereas in previous versions `3/2` would work out as 1, it now evaluates to 1.5. Conversion from floating point numbers to integers is achieved with the `RoundUp(expr)`, `RoundDown(expr)` and `Round(expr)` functions, which can be applied to any expression.

# **Object Reference**

# Hierarchy of objects

---



# All objects

---

## Methods

**AddToPluginsMenu** ("menu text", "function name")

Adds a new menu item to the **Plug-ins** menu. When the menu item is selected the given function is called. This is normally only used by plug-ins themselves. This method may only be called once per plug-in (i.e. each plug-in may only add one item to the **Plug-ins** menu); subsequent method calls will be ignored.

**Asc** (expression)

Returns the ASCII value of a given character (the expression should be a string of length 1).

**CharAt** (expression, position)

Returns the character from the expression at the given (zero-based) position, e.g. **CharAt** ("Potato", 3) would give "a."

**Chr** (expression)

Returns a character (as a string) with the given ASCII value. This can be used for inserting double quotes (") into strings with **Chr** (34).

**CreateArray** ()

Returns a new array object.

**CreateHash** ()

Returns a new hash-table object.

**GetValidationError** (object)

Returns the validation error, if any, of the specified *object*. Useful to pass validation errors to the plug-in trace window.

**ExitPlugin** ()

Exits the plug-in cleanly without dropping into the plug-in editor

**IsObject** (expression)

Returns 1 (or **True**) if expression evaluates to an object rather than a null, boolean, string, or any number.

(Not to be confused with the **IsPassage** variable of Selection objects!)

**IsValid** (object)

Returns 1 (or **True**) if the object is valid, returns 0 (or **False**) if the object no longer exists (i.e. has been deleted).

**JoinStrings** (expression, delimiter)

Joins together (concatenates) an array of strings into a single string, separated by the string delimiter.

**Length** (expression)

Gives the number of characters in the value of the expression.

**Round** (expression)

Returns the nearest integer to the value of the expression, e.g. **Round** (1.5) would be "2" and **Round** (1.3) would be "1."

**RoundDown** (expression)

Returns the nearest integer less than the value of the expression, e.g. **RoundDown** (1.5) would be "1."

**RoundUp** (expression)

Returns the nearest integer greater than the value of the expression, e.g. **RoundUp** (1.5) would be "2."

**SplitString** (expression, [delimiter, ][trimEmpty])

Splits a string into an array of strings, using the given delimiter. The delimiter can be a single character or a string containing several characters – for instance ". , " would treat either a comma or full stop as a delimiter. The default delimiter is the space

character. If the *trimEmpty* parameter is **True** then this will ignore multiple delimiters (which would otherwise produce some empty strings in the array). The default value of *trimEmpty* is **False**.

```
s=':a:b:c';
bits=SplitString(s,':', false);
// bits[0] = ''; bits[1] = 'a'; bits[2] = 'b' ...
s='a b c';
bits=SplitString(s,' ', true);
// bits[0] = 'a'; bits[1]='b' ...
```

#### **StopPlugin** (*[message]*)

Stops the plug-in, and shows the optional *message* in an alert box. Opens the plug-in editor at the line of code reached.

#### **Substring** (*expression, start, [length]*)

This returns a substring of the expression starting from the given start position (zero-based) up to the end of the expression, e.g. **Substring**("Potato",2) would give "tato". When used with the optional length parameter, Substring returns a substring of the of the expression starting from the given start position (zero-based) of the given length, e.g. **Substring**("Potato",2,2) would give "ta".

#### **Trace** (*expression*)

Sends a piece of text to be shown in the plug-in trace window, e.g. **Trace**("Here's a trace");

#### **ValidationChecking** (*enable[, object1[, object2]...]*)

If *enable* is the only parameter, validation checking is enabled for all types of objects, and across all plug-ins. If you supply one or more *object* parameters (e.g. **Tuplet**, **Score**, **BarObject**, etc.), only those objects will be checked, and only in the currently running plug-in. You should ensure **ValidationChecking** is set to **false** before you give your plug-ins to anybody else to use.

## **User properties**

All objects (except for the **Sibelius** object, old-style Manuscript arrays created using **CreateArray** (), old-style Manuscript hashes created using **CreateHash** (), and **null**) can also have user properties assigned to them. See **User properties** on page 22 for more details.

# Accessibility

---

Accessed from the Sibelius object.

## Methods

None.

## Variables

**ScoreDescription** Returns **true** if Sibelius's built-in score description functionality is enabled (read/write).

# Bar

---

A Bar contains BarObject objects.

**for each variable in** produces the BarObjects in the bar

**for each type variable in** produces the BarObjects of the specified type in the bar

## Methods

**AddBarNumber** (*new bar number* [, *format* [, *extra\_text* [, *prepend* [, *skip this bar*]]]])

Adds a bar number change to the start of this bar. *new bar number* should be the desired external bar number. The optional *format* parameter takes one of the three pre-defined constants that define the bar number format; see **Global constants** on page 135. The optional *extra\_text* parameter takes a string that will be added after the numeric part of the bar number, unless the optional boolean parameter *prepend* is **True**, in which case the *extra\_text* is added before the numeric part of the bar number. If the optional *skip this bar* parameter is **True**, the bar number change is created with the **Don't increment bar number** option set. Returns the BarNumber object created.

**AddChordSymbolFromPitches** (*position*, *pitches* [, *instrument style*])

Adds a chord symbol from the given array of *pitches* at the specified *position*. The optional instrument style parameter operates the same as in the **AddGuitarFrame** method (see above). If the method is unable to create a chord symbol, the method returns null; otherwise it returns the GuitarFrame object created.

**AddClef** (*pos*, *concert pitch clef* [, *transposed pitch clef*])

Adds a clef to the staff at the specified position. *concert pitch clef* determines the clef style when **Notes ▶ Transposing Score** is switched off; the optional *transposed pitch clef* parameter determines the clef style when this is switched on. Clef styles should be an identifier like “clef.treble”; for a complete list of available clef styles, see **Clef styles** on page 139. Alternatively you can give the name of a clef style, e.g. “Treble,” but bear in mind that this may not work in non-English versions of Sibelius. Returns the Clef object created.

**AddComment** (*sr*, *text* [, *color* [, *maximized*]])

Adds a comment at the specified *sr* position in the current bar, displaying the specified *text*. The optional *color* parameter allows you to specify the color of the comment that is created (if not specified, the comment is created with its default color), and the optional *maximized* Boolean parameter allows you to set the comment to be minimized (if not specified, the comment is created maximized by default). If you want to specify the *maximized* parameter without specifying a particular color, set *color* to **-1**.

**AddCommentWithName** (*sr*, *text*, *username* [, *color* [, *maximized*]])

Adds a comment that will display a given *username* at the specified *sr* position in the current bar, displaying the specified *text*. The optional *color* parameter allows you to specify the color of the comment that is created (if not specified, the comment is created with its default color), and the optional *maximized* Boolean parameter allows you to set the comment to be minimized (if not specified, the comment is created maximized by default). If you want to specify the *maximized* parameter without specifying a particular color, set *color* to **-1**.

**AddGraphic** (*file name*, *pos* [, *below staff* [, *x displacement* [, *y displacement* [, *size ratio*]]]])

Adds a graphic above or below the bar at a given position. If *below staff* is **True**, Sibelius will position the graphic below the staff to which it is attached, otherwise it will go above (the default). You may additionally displace the graphic from its default position by specifying *x*- and *y displacements*. These should be expressed in millimeters, the latter defining an offset from the top or bottom line of the staff, as appropriate. By default, the graphic will be created 5mm away from the staff. To adjust the size of the graphic, you may set a floating point number for its *size ratio*. When set to **1.0** (the default), the graphic will be created with a height equal to that of the staff to which it is attached. A value of **0.5** would therefore halve its size, and **2.0** double it. The graphic may be rescaled to a maximum of five times the height of its parent staff. This function returns **True** if successful, otherwise **False**.

**AddGraphicToBlankPage** (*file name*, *nth page*, *x offset*, *y offset* [, *size ratio*])

Adds a graphic to a blank page belonging to the current bar. *nth page* specifies the particular blank page you would like the graphic to, starting from **1**. The *x offset* and *y offset* parameters are floating point values relative to the size of the page the graphic is being added to. For example, an *x offset* of **0.0** would position the graphic at the very left of the page; **0.5** in the centre. You may specify the size of the graphic by specifying a value for *size ratio*. This defaults to **1.0**, which has the same effect as creating a graphic in Sibelius manually using **Create ▸ Graphic**. (As with **AddGraphic**, **0.5** would halve its size, and **2.0** double it.) The graphic may be rescaled to a maximum of five times its initial size. This function returns **True** if successful, otherwise **False**.

**AddGuitarFrame** (*position*, *chord name* [, *instrument style* [, *fingerings*])

Adds a chord symbol for the given *chord name* to the bar. The optional *instrument style* parameter should refer to an existing instrument type that uses tab, and should be specified by identifier; see **Instrument types** on page 139. If *instrument style* is not specified, Sibelius will create a chord symbol that will optionally display a chord diagram using the default tab tuning associated with the instrument type used by the staff to which the chord symbol will be attached. The *position* is in 1/256th quarters from the start of the bar. The optional *fingerings* parameter gives the fingerings string to display above (or below) the guitar frame, if supplied. If the method is unable to create a chord symbol, the method returns null; otherwise it returns the GuitarFrame object created.

**AddInstrumentChange** (*pos*, *styleID* [, *add\_clef* [, *show\_text* [, *text\_label* [, *show\_warning* [, *warning\_label* [, *full\_instrument\_name* [, *short\_instrument\_name*]]]]]]])

Adds an instrument change to the bar at the specified position. *styleID* is the string representing the instrument type to change to (see **Instrument types** on page 139 for a list). The optional boolean parameter *add\_clef*, **True** if not specified, determines whether Sibelius will add a clef change at the same position as the instrument change if required (i.e. if the clef of the new instrument is different to that of the existing instrument). *show\_text* is an optional boolean parameter, **True** if not specified, determining whether or not the text label attached to the instrument change should be created shown (the default) or hidden. *text\_label* is an optional string parameter; if specified, Sibelius will use this string instead of the default string (the new instrument's long name). *show\_warning* is an optional boolean parameter, **True** if not specified, determining whether or not Sibelius should create a text object (using the Instrument change staff text style) above the last note preceding the instrument change, announcing the instrument change and giving the player time to pick up the new instrument. *warning\_label* is an optional string parameter; if specified, Sibelius will use this string instead of the default string (the word "To" followed by the new instrument's short name). You can also override the names Sibelius will give the instruments on subsequent systems. If a null string is passed to either *full\_instrument\_name* or *short\_instrument\_name* (or if the arguments are omitted), the instrument names will remain unchanged. Returns the InstrumentChange object created.

**AddKeySignatureFromText** (*pos*, *key name*, *major key* [, *add double barline* [, *hidden* [, *one staff only*]]])

Adds a key signature to the bar. The key signature is specified by text name, e.g. "Cb" or "C#". The third parameter is a Boolean flag indicating if the key is major (or minor). Unless the fourth parameter is set to **False**, a double barline will ordinarily be created alongside the key signature change. You may additionally hide the key signature change by setting *hidden* to **True**, and make the change of key appear on the bar's parent staff only with the *one staff only* flag. Returns the key signature object created.

**AddKeySignature** (*pos*, *num sharps*, *major key* [, *add double barline* [, *hidden* [, *one staff only*]]])

Adds a key signature to the bar. The key signature is specified by number of sharps (+1 to +7), flats (-1 to -7), no accidentals (0) or atonal (-8). The third parameter is a Boolean flag indicating if the key is major (or minor). Unless the fourth parameter is set to **False**, a double barline will ordinarily be created alongside the key signature change. You may additionally hide the key signature change by setting *hidden* to **True**, and make the change of key appear on the bar's parent staff only with the *one staff only* flag. Returns the key signature object created.

**AddLine** (*pos*, *duration*, *line style* [, *dx* [, *dy* [, *voicenum* [, *hidden*]]]]])

Adds a line to the bar. The line style can be an identifier such as "line.staff.hairpin.crescendo" or a name, e.g. "Crescendo". For a complete list of line style identifiers that can be used in any Sibelius score, see **Line styles** on page 138. Style identifiers are to be preferred to named line styles as they will work across all language versions of Sibelius. Returns the Line object created, which may be one of a number of types depending on the Line style used.

**AddLiveTempoTapPoint** (*position*)

Adds a Live Tempo tap point at the rhythmic position specified by *position*, in 1/256th quarters from the start of the bar.

**AddLyric** (*position*, *duration*, *text*[, *syllable type* [, *number of notes*, *voicenum*]])

This method adds a lyric to the bar. The position is in 1/256th quarters from the start of the bar, and the duration is in 1/256th quarter units. The two optional parameters allow you to specify whether the lyric is at the end of a word (value is “1”, and is the normal value) or at the start or middle of a word (value is “0”), and how many notes the lyric extends beneath (default value 1). You can also optionally specify the voice in which the lyric should be created; if *voicenum* is 0 or not specified, the lyric is created in all voices. Returns the LyricItem object created.

**AddNote** (*pos*, *sounding pitch*, *duration*, [*tied* [, *voice*[, *diatonic pitch*[, *string number*]]]])

Adds a note to staff, adding to an existing NoteRest if already at this position (in which case the duration is ignored); otherwise creates a new NoteRest. Will add a new bar if necessary at the end of the staff. The position is in 1/256th quarters from the start of the bar. The optional tied parameter should be **True** if you want the note to be tied. Voice 1 is assumed unless the optional voice parameter (with a value of 1, 2, 3 or 4) is specified. You can also set the diatonic pitch, i.e. the number of the “note name” to which this note corresponds, 7 per octave (35 = middle C, 36 = D, 37 = E and so on). If a diatonic pitch of zero is given, a suitable diatonic pitch will be calculated from the MIDI pitch. The optional *string number* parameter gives a string number for this note, which is only meaningful if the note is on a tablature stave. If this parameter is not supplied then a default string number is calculated based on the current tablature stave type and the guitar tab fingering options (specified on the **Notes** page of **File** ▶ **Preferences**). Returns the Note object created (to get the NoteRest containing the note, use **Note.ParentNoteRest**).

**AddPageNumber** ([*blank page offset*])

Creates and returns a page number change at the end of the bar. Note that – due to the nature of adding a page number change – a page break will also be created at the end of the bar. Therefore, the page number change will actually be placed at the start of the *next* bar. The desired properties of the page number change can be set by calling the appropriate methods on the **Page Number Change** object returned.

The *blank page offset* flag allows you to create page number changes on blank pages. If a bar object is followed by one or more blank pages, each blank page may also have a page number change of its own. If unspecified, the page number change will be created on the next available page (whether it contains music or not) after the bar, otherwise the user may specify a 1-based offset which refers to the *n*th blank page after the bar itself.

**AddRehearsalMark** ([*consecutive* [, *mark* [, *new prefix and suffix* [, *prefix* [, *suffix* [, *override defaults*]]]]]])

Adds a rehearsal mark above the bar. If no parameters have been specified, the rehearsal mark will inherit the properties of the previous rehearsal mark in the score, incrementing accordingly. Optionally, the appearance of the rehearsal mark may be overridden. If *consecutive* is **False**, Sibelius will not continue the numbering of the new rehearsal marks consecutively, but allow the user to set a new *mark*. A *mark* may be expressed as a number or a string. For example both **5** and **“e”** are both valid and equivalent values. If *new prefix and suffix* is **True**, the values set for *prefix* and *suffix* will be applied to the new rehearsal mark. The final parameter, *override defaults*, is a Boolean defaulting to **False** whose purpose it is to mimic the behavior of the option with the same name in the **Rehearsal Mark** dialog in Sibelius.

**AddSpecialBarline** (*barline type* [, *pos*])

Adds a special barline to a given position in a bar; see **Global constants** on page 135. If no position has been specified, start repeat barlines will snap to the start of the bar by default. All other special barline types will snap to the end.

**AddSymbol** (*pos*, *symbol index or name*)

Adds a symbol to the bar at the specified position. If the second parameter is a number, this is taken to be an index into the global list of symbols, corresponding to the symbol’s position in the **Create** ▶ **Symbol** dialog in Sibelius (counting left-to-right, top-to-bottom from zero in the top-left hand corner). Some useful symbols have pre-defined constants; see **Global constants** on page 135. There are also constants defined for the start of each group in the **Create** ▶ **Symbol** dialog, so that to access the 8va symbol, for example, you can use the index **OctaveSymbols + 2**. It’s better to use indices rather than names, because the names will be different across the various language versions of Sibelius. Returns the Symbol object created, or **null** if no symbol can be added to the score.

**AddText** (*pos, text, style[, voicenum]*)

Adds the text at the given position, using the given text style. A staff text style must be used for a normal staff, and a system text style for a system staff. The styles should be an identifier of the form “text.staff.expression”; for a complete list of text styles present in all scores, see **Text styles** on page 137. Alternatively you can give the name of a text style, eg. “Expression”, but be aware that this may not work in non-English versions of Sibelius. You can also optionally specify the voice in which the lyric should be created; if *voicenum* is 0 or not specified, the text object is created in all voices. Returns the Text object created.

**AddTextToBlankPage** (*xPos, yPos, text, style, pageOffset*)

Adds the *text* at the given position, using the given text *style*. A blank page text style must be used; you cannot add staff text or system text to a blank page. *style* takes a style ID, using the form “text.blankpage.title”; for a complete list of text styles present in all scores, see **Text styles** on page 137. *xPos* and *yPos* are the absolute position on the page. *pageOffset* takes a positive number for a blank page following a special page break (the first blank page is 1), and negative for a blank page preceding the first bar of the score (the blank page immediately before the first bar is -1, the one before that -2, and so on). Returns the Text object created.

To add text to a blank page, first create the special page break using the **Bar.BreakType** variable, and set the number of blank pages using **Bar.NumBlankPages** or **Bar.NumBlankPagesBefore**. Then use **Bar.AddTextToBlankPage**.

**AddTimeSignature** (*top, bottom, allow cautionary, rewrite music[, use symbol]*)

Returns an error string (which will be empty if there was no error) which if not empty should be shown to the user. The first two parameters are the top and bottom of the new time signature. The third tells Sibelius whether to display cautionary time signatures from this time signature. If *rewrite music* is **True** then all the bars after the inserted the time signature will be rewritten. You can also create common time and alla breve time signatures. If you’re creating a time signature in 4/4 or 2/2, set *use symbol* to **True** and Sibelius will replace the numbers of the time signature with their symbolic equivalent.

**AddTimeSignatureReturnObject** (*top, bottom, allow cautionary, rewrite music[, use symbol]*)

As above, but returns the time signature object created, or **null** if unsuccessful.

**AddTuplet** (*pos, voice, left, right, unit[, style[, bracket[, fullDuration]]]*)

Adds a tuplet to a bar at a given position. The *left* and *right* parameters specify the ratio of the tuplet, e.g. 3 (left) in the time of 2 (right). The *unit* parameter specifies the note value (in 1/256th quarters) on which the tuplet should be based. For example, if you wish to create an eighth note (quaver) triplet group, you would use the value 128. The optional *style* and *bracket* parameters take one of the pre-defined constants that affect the visual appearance of the created tuplet; see **Global constants** on page 135. If *fullDuration* is true, the bracket of the tuplet will span the entire duration of the tuplet. Returns the Tuplet object created.

N.B.: If **AddTuplet** () has been given illegal parameters, it will not be able to create a valid Tuplet object. Therefore, you should test for inequality of the returned Tuplet object with *null* before attempting to use it.

**Bar** [*array element*]

Returns the nth item in the bar (counting from 0) e.g. **Bar [0]**

**Clear** (*[voice number]*)

Clears a bar of all its items, leaving only a bar rest. If a particular voice number is specified, only the items in that voice will be removed.

**ClearNotesAndModifiers** (*[voice number]*)

Clears a bar of all its notes, rests, tuplets and slurs, replacing them with a single bar rest. If a particular voice number is specified, only the items in that voice will be removed.

**Delete** ()

Deletes and removes an entire bar from a score. This, by definition, will affect all the staves in the score.

**DeletePageNumber** (*[blank page offset]*)

Deletes the page number change at the end of the bar, or if there are one or more blank pages after the bar, any page number change that occurs on any of those blank pages. If *blank page offset* is unspecified, the page number change on the first page after the bar will be deleted.

**GetClefAt** (*pos*)

Returns a Clef object corresponding to the current clef at the specified rhythmic position.

**GetKeySignatureAt** (*pos*)

Returns a KeySignature object corresponding to the current clef at the specified rhythmic position.

**GetInstrumentTypeAt** (*pos*)

Returns an InstrumentType object representing the instrument type used by the bar at the specified rhythmic position.

**GetPageNumber** (*[blank page offset]*)

Returns the page number change object at the end of the bar, or if the bar contains no page number change, **null**. As with **AddPageNumber**, you may get the page number change from any of the blank pages that follow the bar by specifying a valid *blank page offset*.

**InsertBarRest** (*voice number* [, *rest type*])

Inserts a bar rest into the bar, but only if the bar is void of any NoteRests (or an existing bar rest) using the same *voice number*. The optional *rest type* parameter allows you to specify the type of bar rest or repeat bar to be created, defined by the constants **WholeBarRest** (the default if rest type is not specified), **BreveBarRest**, **OneBarRepeat**, **TwoBarRepeat** and **FourBarRepeat**. Returns **True** if successful.

**NthBarObject** (*n*)

Returns the nth object in the bar, counting from 0.

**RemoveLiveTempoTapPoint** (*position*)

Removes a Live Tempo tap point at the rhythmic position specified by *position*, in 1/256th quarters from the start of the bar.

**ResetSpaceAroundBar** (*above*, *below*)

Does the equivalent of **Layout ▶ Reset Space Above Staff** and/or **Reset Space Below Staff** for the given bar. Set *above* to **True** to reset the space above the staff, and *below* to **True** to reset the space below the staff.

**Respace** ()

Respaces the notes in this bar.

**Variables**

<b>BarNumber</b>	The bar number of this bar. This is the internal bar number, which always runs consecutively from 1 (read only).
<b>BarObjectCount</b>	The number of objects in the bar (read only).
<b>BreakType</b>	The break at the end of this bar, given by the constants <b>MiddleOfSystem</b> , <b>EndOfSystem</b> , <b>MiddleOfPage</b> , <b>EndOfPage</b> , <b>NotEndOfSystem</b> , <b>EndOfSystemOrPage</b> or <b>SpecialPageBreak</b> . To learn the correspondence between these constants and the menu in the <b>Bars</b> panel of the Properties window, see the discussion in <b>Global constants</b> on page 135.  When you set the break at the end of a bar to be <b>SpecialPageBreak</b> , Sibelius will add one blank page after the break. You can then adjust the number of pages by setting the value of either <b>Bar.NumBlankPages</b> or <b>Bar.NumBlankPagesBefore</b> , or tell Sibelius to restart the music on the next left or right page with <b>Bar.MusicRestartsOnPage</b> .
<b>ExternalBarNumber</b>	This has been deprecated as of Sibelius 5, because it can only return a number, and bar numbers that appear in the score may now include text. Use <b>ExternalBarNumberString</b> instead.

Returns the external bar number of this bar, taking into account bar number changes in the score (read only). Note that you cannot pass this bar number to any of the other Manuscript accessors; they all operate with the internal bar number instead.

<b>ExternalBarNumberString</b>	The external bar number of this bar as a string, taking into account bar number changes and bar number format changes (read only). Note that you cannot pass this bar number to any of the other Manuscript accessors; they all operate with the internal bar number instead.
<b>InMultirest</b>	Returns one of four global constants describing if and/or where the bar falls in a multirest (read only). The constants are <b>NoMultirest</b> , <b>StartsMultirest</b> , <b>EndsMultirest</b> and <b>MidMultirest</b> ; see <b>Global constants</b> on page 135.
<b>Length</b>	The rhythmic length (read only).
<b>MusicRestartsOnPage</b>	Tells Sibelius to restart the music on the next left or right page after a special page break, and can only be set if <b>BreakType</b> is <b>SpecialPageBreak</b> . This variable may be set to only <i>two</i> of the global special page break constants: <b>MusicRestartsOnNextLeftPage</b> or <b>MusicRestartsOnNextRightPage</b> (write only).
<b>NthBarInSystem</b>	Returns the position of the bar in the system, relative to the first bar on the system (bar 0) (read only).
<b>NumBlankPages</b>	The number of blank pages following the bar containing a special page break.
<b>NumBlankPagesBefore</b>	The number of blank pages preceding the bar containing a special page break. This value only has an effect if a special page break exists in bar 1.
<b>OnHiddenStave</b>	Returns <b>True</b> if the bar is currently hidden by way of <b>Hide Empty Staves</b> (read only).
<b>OnNthPage</b>	Returns the zero-based page number on which the bar occurs in the current part (read only).
<b>OnNthPageExternal</b>	Returns a string containing the external page number (i.e. the page number displayed in the score) of the page in which the bar occurs.
<b>OnNthSystem</b>	Returns the zero-based system number (relative to its parent page) in which the bar occurs (read only).
<b>ParentStaff</b>	The staff containing this bar (read only).
<b>SectionEnd</b>	Corresponds to the <b>Section end</b> checkbox on the <b>Bars</b> panel of Properties (read/write).
<b>Selected</b>	Returns <b>True</b> if the entire bar is currently selected (read only).
<b>SpecialPageBreakType</b>	Returns the type of the special page break; see the documentation for the Special page break types in <b>Global constants</b> on page 135 (read only).
<b>SplitMultirest</b>	When <b>True</b> , a multirest intersecting the bar in question will be split (read/write).
<b>Time</b>	The time at which the bar starts in the score in milliseconds (read only).

# Barline

---

Accessed from a Barlines object.

## Methods

None.

## Variables

<b>BottomStaff</b>	Returns the Staff object at which the barline ends, relative to the current part.
<b>BottomStaffNum</b>	Returns the number of the bottom staff included in the barline, relative to the current part.
<b>TopStaff</b>	Returns the Staff object at which the barline starts, relative to the current part.
<b>TopStaffNum</b>	Returns the number of the top staff included in the barline, relative to the current part.

# Barlines

---

Accessed from a Score object. Corresponds to the barline groupings in the score.

`for each barline in` iterates through all the barlines in the list, e.g.

```
s = Sibelius.ActiveScore;
barlines = s.Barlines;
for each barline in barlines {
    // do something with barlines here
}
```

Array access `[int n]` returns the *n*th barline in the list, or null if the barline does not exist.

## Methods

**AddBarline** (*top staff number, bottom staff number*)

Creates a new bar line inclusively spanning the staff numbers (relative to the current part) supplied. Returns the new Barline object created, or null if it fails.

**ClearAll** ()

Removes all the barlines from the score.

**DeleteNthBarline** (*index*)

Removes a given barline identified by *index* from the score.

## Variables

**NumChildren** Returns the number of unique barlines in the score (read only).

# BarObject

---

BarObjects include Clef, Line, NoteRest & Text objects. All the methods and variables below apply to all specific types of BarObject – they are listed here instead of separately for each type. (To object-oriented programmers, the NoteRest, Clef etc. types are derived from the base class BarObject.)

## Methods

### Delete()

Deletes an item from the score. This will completely remove text objects, clefs, lines etc. from the score; however, when a NoteRest is deleted, it will be converted into a rest of similar duration. To delete multiple items from a bar, see **Deleting multiple objects from a bar** below.

### Deselect()

Removes the object from the selection list of the parent score. If the selection is currently a passage selection, it is first changed to a multiple selection before the object is deselected. Returns **True** if the object is successfully removed from the selection.

### FreezeMagneticLayoutPositions()

Does the same as selecting an object and choosing **Layout › Freeze Magnetic Layout Positions**, i.e. explicitly sets the object's **Dx/Dy** to the position produced by Magnetic Layout, then disables Magnetic Layout for that object.

### GetIsInVoice(voiceenum)

Returns **True** if the object is in the *voiceenum* specified.

### GetPlayedOnNthPass(n)

Returns **True** if the object is set to play back the *n*th time.

### NextItem([voice[, item type]])

Returns the next item in the parent bar of the current item, or **null** if no item exists. If no arguments have been supplied, the very next item in the bar will be returned, regardless of its voice number and item type. You may additionally specify the voice number of the object you're looking for (**1** to **4**, or **0** for any voice number), and the item's type. Note that an item will only be returned if it exists in the same bar as the source item. By way of example, to find the next crescendo line in voice 2, you would type something along the lines of: `hairpin = item.NextItem(2, "CrescendoLine");`

### PreviousItem([voice[, item type]])

As above, but searches backwards.

### RemoveVoice(voiceenum)

Removes the object from the specified *voiceenum*, leaving the object in all remaining voices.

### ResetPosition([horizontal[, vertical]])

Performs **Layout › Reset Position** on the object. If you supply no parameters, this method will reset both the horizontal and vertical position of the object. If either or both of the optional Boolean parameters *horizontal* or *vertical* is set to **True**, you can reset the position of the object either horizontally or vertically independently if required.

### ResetDesign()

Performs **Layout › Reset Design** on the object.

### Select()

Appends the object to the selection list of the parent score. A multiple selection consisting of any number of individual objects can be built up by repeatedly calling **Select** on each object you wish to add to the list. Note that calling **Select** on a BarObject will first clear any existing passage selection.

### SetAllVoices()

Sets the object to be in all voices. This has no effect on some types of object, e.g. NoteRests.

### SetVoice(voiceenum[, clear other voices])

Sets the object to be in voice *voicenum*, optionally removing the object from all other voices if the Boolean parameter *clear other voices* is **True**.

**ShowInAll ()**

Shows the object in the full score, and in all relevant parts; equivalent to **Edit ▸ Hide or Show ▸ Show In All**.

**ShowInParts ()**

Hides the object in the full score, and shows it in all relevant parts; equivalent to **Edit ▸ Hide or Show ▸ Show In Parts**.

**ShowInScore ()**

Hides the object in all relevant parts, and shows it in the full score; equivalent to **Edit ▸ Hide or Show ▸ Show In Score**.

**SetPlayedOnNthPass (n, do play)**

Tells Sibelius whether or not the object should play back the *n*th time.

**Variables**

<b>CanBeInMultipleVoices</b>	Returns <b>True</b> if the object can be in more than one voice (read-only).
<b>Color</b>	The color of this BarObject (read/write). The color value is in 24-bit RGB format, with bits 0–7 representing blue, bits 8–15 green, bits 16–23 red and bits 24–31 ignored. Since Manuscript has no bitwise arithmetic, these values can be a little hard to manipulate; you may find the individual accessors for the red, green and blue components to be more useful (see below).
<b>ColorAlpha</b>	The alpha channel component of the color of this BarObject, in the range 0–255 (read/write).
<b>ColorRed</b>	The red component of the color of this BarObject, in the range 0–255 (read/write).
<b>ColorGreen</b>	The green component of the color of this BarObject, in the range 0–255 (read/write).
<b>ColorBlue</b>	The blue component of the color of this BarObject, in the range 0–255 (read/write).
<b>CueSize</b>	<b>True</b> if the object is cue-size in the current part or score, and <b>False</b> if the object is normal size (read/write).
<b>CurrentTempo</b>	Returns the tempo, in bpm, at the location of the object in the score (read only).
<b>DrawOrder</b>	Returns the layer at which the object is currently drawn. When used to set the layer of an object, values from <b>1</b> (meaning the bottom layer) to <b>32</b> (meaning the highest layer) can be used; <b>0</b> is a special value that tells Sibelius to use the default layer for that type of object (read/write).
<b>Dx</b>	The horizontal graphic offset of the object from the position implied by the <b>Position</b> field, in units of 1/32 spaces (read/write).
<b>Dy</b>	The vertical graphic offset of the object from the centre staff line, in units of 1/32 spaces, positive going upwards (read/write).
<b>HasCustomDrawOrder</b>	Returns <b>True</b> if the object is set to a layer other than its default layer (read only).
<b>Hidden</b>	<b>True</b> if the object is hidden in the current part or score, and <b>False</b> if the object is shown (read/write).
<b>OnNthBlankPage</b>	Returns <b>0</b> if the object occurs on a page of music, otherwise a number from <b>1</b> upwards indicating the <i>n</i> th blank page of the bar on which the object occurs (read only).
<b>ParentBar</b>	The Bar containing this BarObject (read only).
<b>Position</b>	Rhythmic position of the object in the bar (read only).
<b>Selected</b>	Returns <b>True</b> if the object is currently selected (read only).
<b>Time</b>	The time at which the object occurs in the score in milliseconds (read only).

<b>Type</b>	A string describing the type of object, e.g. “NoteRest,” “Clef.” This is useful when hunting for a specific type of object in a bar. See <b>GuitarScaleDiagram type values</b> on page 157 for the possible values (read only).
<b>UsesMagneticLayout</b>	Returns <b>True</b> if the object is positioned by Magnetic Layout. Returns <b>False</b> if the object is set not to be taken into account by Magnetic Layout. To set whether or not an object should use Magnetic Layout, use one of the global constants <b>AlwaysDodge</b> (equivalent to <b>Edit ▶ Magnetic Layout ▶ On</b> ), <b>SuppressDodge</b> ( <b>Edit ▶ Magnetic Layout ▶ Off</b> ) or <b>DefaultDodge</b> ( <b>Edit ▶ Magnetic Layout ▶ Default</b> ) (read/write).
<b>UsesMagneticLayoutSettingOverridden</b>	Returns <b>True</b> if the object has had its Magnetic Layout settings overridden; otherwise <b>False</b> .
<b>VoiceNumber</b>	Is <b>0</b> if the item belongs to more than one voice (a lot of items belong to more than one voice) and <b>1 to 4</b> for items that belong to voices 1 to 4 (read only).
<b>Voices</b>	Returns or sets Sibelius’s internal bitfield that represents the voices to which an object belongs; useful for copying the voices used by a given object (read/write).

### Deleting multiple objects from a bar

If you wish to delete multiple objects from a bar, you should first build up a list of items to delete, then iterate over the list deleting each object in turn. It is not sufficient to simply delete the objects from the bar as you iterate over them, as this may cause the iterator to go out of sync. Therefore, code to delete all tuplets from a bar should look something like this:

```

counter = 0;
for each Tuplet tup in bar {
    name = "tuplet" & counter;
    @name = tup;
    counter = counter + 1;
}

// Delete objects in reverse order
while(counter > 0) {
    counter = counter - 1;
    name = "tuplet" & counter;
    tup = @name;
    tup.Delete();
}

```

# BarRest

---

Derived from a BarObject object.

## Methods

None.

## Variables

### PauseType

Returns the type of fermata (pause), if any, on the bar rest. Returns one of the constants **PauseTypeNone** (0), **PauseTypeSquare** (1), **PauseTypeRound** (2), **PauseTypeTriangular** (3) (read/write).

### RestType

Returns the type of bar rest via one of the constants **WholeBarRest** (0), **BreveBarRest** (1), **OneBarRepeat** (2), **TwoBarRepeat** (3), **FourBarRepeat** (4) (read only). To create a bar rest of a particular type, use **bar.InsertBarRest()** (see above).

# Bracket

---

Accessed from a BracketsAndBraces object.

## Methods

None.

## Variables

<b>BottomStave</b>	Returns the Staff object at which the bracket ends, relative to the current part.
<b>BottomStaveNum</b>	Returns the number of the bottom staff included in the bracket, relative to the current part.
<b>BracketType</b>	Returns the type of the bracket: <b>BracketFull</b> , <b>BracketBrace</b> or <b>BracketSub</b> .
<b>TopStave</b>	Returns the Staff object at which the bracket starts, relative to the current part.
<b>TopStaveNum</b>	Returns the number of the top staff included in the bracket, relative to the current part.

# BracketsAndBraces

---

Accessed from a Score object. Describes the brackets (which may be brackets, sub-brackets or braces) present in the score.

`for each bracket in` iterates through all the brackets in the list.

Array access `[int n]` returns the *n*th bracket in the list, or null if the bracket does not exist.

## Methods

**AddBracket** (*type*, *top staff number*, *bottom staff number*)

Creates a bracket of a given *type*, spanning the range of staves specified between *top staff number* and *bottom staff number* inclusive, and returns the new Bracket object. The staff numbers are relative to the current part view. Values for *type* are **BracketFull** (0), **BracketBrace** (1) and **BracketSub** (2).

**ClearAll** ()

Removes all existing brackets, sub-brackets and braces from the current part, and returns the number of brackets removed.

**DeleteNthBracket** (*n*)

Deletes the *n*th bracket from the current part, and returns True if successful.

## Variables

**NumChildren** Returns the number of child brackets, sub-brackets and braces in the list.

# Clef

---

Derived from a BarObject

## Methods

None.

## Variables

<b>ClefStyle</b>	The name of this clef, which may be different depending on the state of <b>Notes › Transposing Score</b> (read only).
<b>ConcertClefStyleId</b>	The concert pitch identifier of the style of this clef (read only).
<b>ConcertClefStyle</b>	The concert pitch name of this clef (read only).
<b>StyleId</b>	The identifier of the style of this clef, which may be different depending on whether or not <b>Notes › Transposing Score</b> is switched on. This can be passed to the <b>Bar.AddClef</b> method to create a clef of this style (read only).
<b>TransposingClefStyle</b>	The transposing score name of this clef (read only).
<b>TransposingClefStyleId</b>	The transposing score identifier of the style of this clef (read only).

# Comment

---

Derived from a BarObject.

## Methods

None; create via **Bar** object.

## Variables

<b>Maximized</b>	Returns True if the comment is maximized, otherwise returns False (read/write).
<b>Text</b>	Returns the text of the comment (read/write).
<b>TextWithFormatting</b>	Returns an array containing the various changes of font or style (if any) within the comment's text in a new element (read only). For example, " <b>This text is \B\bold\b\, and this is \I\italic\I\</b> " would return an array with eight elements containing the following data: <pre> arr[0] = "This text is " arr[1] = "\B\" arr[2] = "bold" arr[3] = "\b\" arr[4] = ", and this is " arr[5] = "\I\" arr[6] = "italic" arr[7] = "\i\" </pre>
<b>TextWithFormattingAsString</b>	The comment's text including any changes of font or style (read only).
<b>TimeStamp</b>	Returns a <b>DateTime</b> object corresponding to the date the comment was created or last edited (read only).
<b>UserName</b>	Returns the username of the user who created or last edited the comment (read only).

# ComponentList

---

An array that is obtained from `Sibelius.HouseStyles` or `Sibelius.ManuscriptPapers`. It can be used in a `for each` loop or as an array with the `[n]` operator to access each Component object:

## Methods

None.

## Variables

`NumChildren`                      Number of plug-ins (read only).



# DateTime

---

This object returns information about the current date and time.

## Methods

None.

## Variables

<b>Seconds</b>	Returns the number of seconds from the time in a date (read only).
<b>Minutes</b>	Returns the number of minutes from the time in a date (read only).
<b>Hours</b>	Returns the number of hours from the time in a date (read only).
<b>DayOfMonth</b>	returns the nth day on the month, 1-based (read only).
<b>Month</b>	returns the nth month of the year, 1-based (read only).
<b>Year</b>	returns the year (read only).
<b>NthDayOfWeek</b>	returns the nth day of the week, 0-based (read only).
<b>NthDayOfYear</b>	returns the nth day of the year, 0-based (read only).
<b>LongDate</b>	returns the date in a human-readable format, e.g. <b>1st May 2008</b> (read only).
<b>ShortDate</b>	returns the date in a human-readable format, e.g. <b>01/05/2008</b> (read only).
<b>LongDateAndTime</b>	returns the date and time in a human-readable format, e.g. <b>1st May 2008 14:07</b> (read only).
<b>ShortDateAndTime</b>	returns the date and time in a human-readable format, e.g. <b>01/05/2008 14:07</b> (read only).
<b>TimeWithSeconds</b>	returns the time in a human-readable format, e.g. <b>14:07</b> (read only).
<b>TimeWithoutSeconds</b>	returns the time in a human-readable format, e.g. <b>14:07:23</b> (read only).

# Dictionary

---

For more details about using dictionaries in Manuscript, see **Dictionary** on page 22.

To create a dictionary, use the built-in function `CreateDictionary` (*name1*, *value1*, *name2*, *value2*, ... *nameN*, *valueN*). This creates a dictionary containing user properties called *name1*, *name2*, *nameN* with values *value1*, *value2*, *valueN* respectively.

To iterate over dictionaries:

- To iterate over element values in Dictionary objects, use `for each n in Dictionary` or `for each Value n in Dictionary`
- To iterate over element names in Dictionary objects, use `for each Name n in Dictionary`
- To iterate over `value.name` pairs in Dictionary objects, use `for each Pair n in Dictionary`; this returns a new Dictionary object: *n.Name* is the element name, *n.Value* is the element value.

## Methods

**CallMethod** (*methodName*, *param1*, *param2*, ...*paramN*)

Calls the specified method *methodName* in the dictionary, passing in any other values that are required for the method as further parameters.

**GetMethodNames** ()

Returns a sparse array containing the names of the methods belonging to a dictionary.

**GetPropertyNames** ()

Returns a sparse array of the names of all the user properties in the dictionary (same as `_propertyNames`).

**MethodExists** (*methodName*)

Returns **True** if the specified method *methodName* exists in the dictionary.

**PropertyExists** (*propertyName*)

Returns **True** if the specified user property *propertyName* exists in the dictionary.

**SetMethod** (*methodName*, **Self**, *method*)

Binds a method to the dictionary. *methodName* is the name by which you want to access the method via the dictionary, **Self** refers to the plug-in in which the method is found, and *method* is the name of the method itself, found elsewhere in the plug-in.

## Variables

None.

## Converting old-style hash tables to dictionaries

The Dictionary object is, among other things, a replacement for the old Hash object, which was a simple hash table object. You are recommended to use the new Dictionary object instead of the old Hash object in your plug-ins, but if you have an existing plug-in in which old-style hashes are used, you can convert them to Dictionaries as follows:

`Hash.ConvertToDictionary` () returns a new Dictionary object, populated with strings converted from the old-style Hash.

# DocumentSetup

---

Accessed from a Score object. Corresponds to the settings in **Layout ▶ Document Setup**.

When you first access the DocumentSetup object, the units default to millimetres; if you want to use another unit of measurement, set `DocumentSetup.Units` before you set any of the other values. This will not, however, change the units displayed in **Layout ▶ Document Setup**; to do that, set `DocumentSetup.UnitsInDocumentSetupDialog`.

Be careful also that if you set `DocumentSetup.PageSize` after setting `DocumentSetup.PageWidth` or `DocumentSetup.PageHeight`, the page size specified will override any custom height/width you may have just set: so set the page size before you then adjust the width or height of the page.

## Methods

None.

## Variables

<code>AboveTopStaveGap</code>	Returns or sets the top staff margin on each page in the units specified by the <code>Units</code> variable (read/write).
<code>AboveTopStaveGapAfterFirstPage</code>	Returns or sets the top staff margin on pages after the first page in the units specified by the <code>Units</code> variable (read/write). To set this, first set <code>FirstPageHasUniqueVerticalStaveMargins</code> to <code>True</code> .
<code>BelowBottomStaveGap</code>	Returns or sets the bottom staff margin on each page in the units specified by the <code>Units</code> variable (read/write). To set this, first set <code>FirstPageHasUniqueVerticalStaveMargins</code> to <code>True</code> .
<code>BelowBottomStaveGapAfterFirstPage</code>	Returns or sets the bottom staff margin on each page after the first page in the units specified by the <code>Units</code> variable (read/write).
<code>FirstPageHasUniqueVerticalStaveMargins</code>	Returns <code>True</code> if the <b>After first page</b> checkbox is switched on in <b>Document Setup</b> , specifying that the first page of the score has different top and bottom staff margins to subsequent pages; otherwise returns <code>False</code> (read/write).
<code>Orientation</code>	Returns or sets the current page orientation. Values are <code>OrientationPortrait</code> (0) and <code>OrientationLandscape</code> (1). If you change the orientation, this will swap the <code>PageTopMargin</code> and <code>PageBottomMargin</code> values with the <code>PageLeftMargin</code> and <code>PageRightMargin</code> values, to reflect the change in orientation (read/write).
<code>PageHeight</code>	Returns or sets the height of a page in the units specified by the <code>Units</code> variable (read/write).
<code>PageSize</code>	Returns or sets the current page size. Values are listed in <b>Page Size values</b> on page 158. If you attempt to set <code>PageSize</code> to <code>PageSizeCustom</code> , Sibelius will do nothing; to set a custom page size, set <code>PageWidth</code> and <code>PageHeight</code> individually. Setting any default <code>PageSize</code> value will also change the <code>PageWidth</code> and <code>PageHeight</code> values (read/write).
<code>PageWidth</code>	Returns or sets the width of a page in the units specified by the <code>Units</code> variable (read/write).
<code>MarginType</code>	Returns or sets the current page margin type. Values are <code>PageMarginsSame</code> (0), <code>PageMarginsMirrored</code> (1), <code>PageMarginsDifferent</code> (2) (read/write).
<code>PageBottomMargin</code>	Returns or sets the bottom page margin in the units specified by the <code>Units</code> variable (read/write).
<code>PageLeftMargin</code>	Returns or sets the left page margin in the units specified by the <code>Units</code> variable (read/write).
<code>PageRightMargin</code>	Returns or sets the right page margin in the units specified by the <code>Units</code> variable (read/write).

<b>PageTopMargin</b>	Returns or sets the top page margin in the units specified by the <b>Units</b> variable (read/write).
<b>RightPageLeftMargin</b>	Returns or sets the left page margin for right-hand pages in the units specified by the <b>Units</b> variable (read/write). Setting this value automatically sets <b>MarginType</b> to <b>PageMarginsDifferent</b> .
<b>RightPageRightMargin</b>	Returns or sets the right page margin for right-hand pages in the units specified by the <b>Units</b> variable (read/write). Setting this value automatically sets <b>MarginType</b> to <b>PageMarginsDifferent</b> .
<b>StaffLeftMarginFullNames</b>	Returns or sets the margin to the left of staves showing full instrument names in the units specified by the <b>Units</b> variable (read/write).
<b>StaffLeftMarginNoNames</b>	Returns or sets the margin to the left of staves showing no instrument names in the units specified by the <b>Units</b> variable (read/write).
<b>StaffLeftMarginShortNames</b>	Returns or sets the margin to the left of staves showing short instrument names in the units specified by the <b>Units</b> variable (read/write).
<b>StaffSize</b>	Returns or sets the staff size in the units specified by the <b>Units</b> variable (read/write).
<b>Units</b>	Returns or sets the units of measurement for all of the relevant variables of the DocumentSetup object. Always returns 0 (millimeters). Values are <b>DocumentSetupUnitsmm</b> (0), <b>DocumentSetupUnitsInches</b> (1), <b>DocumentSetupUnitsPoints</b> (2) (read/write).
<b>UnitsInDocumentSetupDialog</b>	Returns or sets the units of measurement currently shown in the <b>Layout ▸ Document Setup</b> dialog. Values are as for <b>Units</b> .

# DynamicPartCollection

---

Accessed from a Score object. Contains DynamicPart objects.

The DynamicPartCollection object always contains the full score as the first entry, whether or not any dynamic parts exist. The DynamicPart objects are returned in the order in which they were created (the last part returned is the most-recently created one). For scores in which dynamic parts were generated automatically, the parts will normally be returned in top to bottom score order.

The edit context for Manuscript is stored in the score itself which means that Manuscript can only ever access one part at a time – the “current” DynamicPart for that Score object. This is irrespective of the number of score windows open for a score, which dynamic parts are open, and even if the user has managed to create two different Manuscript Score objects referring to the same Sibelius score.

It is inadvisable to modify Staves, Bars, or any BarObjects that do not exist on Staves in **Score.CurrentDynamicPart**. Doing so will create part overrides for part-specific properties of these objects which will be invisible until those Staves are added to the part. **DynamicPart.IncludesStaff()** can be used to test if a DynamicPart contains a particular Staff object.

Both DynamicPartCollection and DynamicPart refer to an underlying Score and part(s) and will generate errors if the Score and/or part(s) are no longer valid (e.g. if a DynamicPart has been deleted). DynamicParts are never “re-used.” For example, if you delete a DynamicPart and create a new DynamicPart, the old Manuscript DynamicPart object will not refer to the newly-created DynamicPart.

**for each variable in** iterates through all valid DynamicPart objects for the Score, always starting first with the full score. Adding or deleting parts while iterating will have undefined results, and is not recommended.

Array access [*int n*] returns the *n*th part (0 is always the full score), or null if the part does not exist.

## Methods

### CreateDefaultParts()

Creates the default set of dynamic parts, as created automatically by Sibelius when clicking the **New Part** button in the Parts window. This method does nothing and returns **False** if the Score has no staves.

### CreatePartFromStaff(*staff*)

Creates a dynamic part from the specified Staff object, if valid. Returns the new DynamicPart object for success, or null for failure.

### DeletePart(*dynamic part*)

Deletes the specified part, if it's valid. Returns **True** for success, **False** for failure. This method fails if the specified dynamic part is the currently active part for the Score, or is the full score, or refers to a different Score.

## Variables

**NumChildren** Returns the number of DynamicPart objects for the Score returned by iteration (read only).

# DynamicPart

---

Accessed from a DynamicPartCollection object.

**for each variable in** returns the Staff objects in the dynamic part, in top to bottom order. Warning: this can return a Staff that is not included in **Score.CurrentDynamicPart**.

## Methods

**AddStaffToPart** (*staff*)

Adds the specified *staff* to the bottom of the dynamic part. Returns **False** for failure. This method will cause an error if it is called on the full score, or if attempting to add a staff that is already present in the part or a staff from a different score.

**DeleteStaffFromPart** (*staff*)

Deletes the specified *staff* from the dynamic part. Returns **False** for failure. This method will cause an error if called on the full score, or if attempting to delete a staff that is not present in the part, or if deleting the last staff in a part, or attempting to delete a part from a different score.

**IncludesStaff** (*staff*)

Returns **True** if the specified *staff* is contained in this dynamic part.

## Variables

<b>IsFullScore</b>	Returns <b>True</b> if this is the full score (read only).
<b>IsSelectedInPartsWindow</b>	Returns <b>True</b> if the part is selected in the Parts window (read only).
<b>StaveCount</b>	Returns the number of staves in the part (read only).
<b>ParentScore</b>	Returns the Score object containing this dynamic part (read only).

# EngravingRules

---

Accessed via the Score object. Corresponds to selected settings in the **House Style** ▶ **Engraving Rules** dialog.

## Methods

None.

## Variables.

### `AdjustTranspositionIfKeySigWraps`

Returns **True** if Sibelius will adjust note spelling for transposing instruments in extreme keys, **False** otherwise; corresponds to the **Adjust note spelling in transposing instruments in remote keys** option on the **Clefs and Key Signatures** page (read/write).

### `BarlineWidth`

Returns or sets the width of normal barlines in spaces, from the **Barlines** page (read/write).

### `BeamThickness`

Returns or sets the thickness of beams in spaces, from the **Beams and Stems** page (read/write).

### `CautionaryNaturalsInKeySignatures`

Returns **True** if key changes will show cautionary naturals; **False** otherwise, from the **Clefs and Key Signatures** page (read/write).

### `CueNoteScale`

Returns or sets the percentage by which cue-sized notes are scaled relative to normal-sized notes, from the **Notes and Tremolos** page (read/write).

### `DashedBarlineWidth`

Returns or sets the width of dashed barlines in spaces, from the **Barlines** page (read/write).

### `DoubleBarlineSeparation`

Returns or sets the distance between the two lines in double barlines in spaces, from the **Barlines** page (read/write).

### `DoubleBarlineWidth`

Returns or sets the width of double barlines in spaces, from the **Barlines** page (read/write).

### `DoubleTremoloStyle`

Returns or sets the style used for double tremolos in the score, from the **Notes and Tremolos** page; values are **DoubleTremolosTouchingStems** (0), **DoubleTremolosBetweenStems** (1), **DoubleTremolosOuterTremoloTouchingStems** (2) (read/write).

### `ExtraSpacesAboveForSystemObjectPositions`

Returns or sets the *n* **extra spaces above for System Object Positions** value on the **Staves** page (read/write).

### `ExtraSpacesBelowVocalStaves`

Returns or sets the *n* **extra spaces below vocal staves (for lyrics)** value on the **Staves** page (read/write).

### `ExtraSpaceBetweenGroupsOfStaves`

Returns or sets the *n* **extra spaces between groups of staves** value on the **Staves** page (read/write).

### `FinalBarlineSeparation`

Returns or sets the distance between the two lines in final barlines in spaces, from the **Barlines** page (read/write).

### `FinalBarlineWidth`

Returns or sets the width of the thick line of final barlines in spaces, from the **Barlines** page (read/write).

### `GraceNoteScale`

Returns or sets the percentage by which grace notes are scaled relative to normal notes, from the **Notes and Tremolos** page (read/write).

### `InstrumentNamesFirstSystem`

Corresponding to the option for instrument names on the first system on the **Instruments**

page; values are **InstrumentNamesFull** (0), **InstrumentNamesShort** (1), **InstrumentNamesNone** (2) (read/write).

#### **InstrumentNamesNewSections**

Corresponding to the option for instrument names at the start of new sections on the **Instruments** page; values are **InstrumentNamesFull** (0), **InstrumentNamesShort** (1), **InstrumentNamesNone** (2) (read/write).

#### **InstrumentNamesSubsequentSystems**

Corresponding to the option for instrument names on subsequent systems on the **Instruments** page; values are **InstrumentNamesFull** (0), **InstrumentNamesShort** (1), **InstrumentNamesNone** (2) (read/write).

#### **JustifyGrandStaveInstruments**

Returns **True** if **Justify both staves of grand staff instruments** on the **Staves** page is switched on, otherwise **False** (read/write).

#### **JustifyMultiStaveInstruments**

Returns **True** if **Justify all staves of multi-staff instruments** on the **Staves** page is switched on, otherwise **False** (read/write).

#### **LegerLineThickness**

Returns or sets the thickness of leger lines in spaces, from the **Notes and Tremolos** page (read/write).

#### **RespellRemoteKeysInTransposingScore**

Returns **True** if Sibelius will choose the equivalent key signature with one fewer flat or sharp for transposing instruments; **False** otherwise, corresponding to the option **Respell remote key signatures in transposing score** on the **Clefs and Key Signatures** page (read/write).

#### **ShowNameOfPrevailingInstrumentChangeAtStartOfSystems**

Returns **True** if Sibelius will update the instrument name at the start of each system to reflect the current instrument change, **False** otherwise; corresponds to the **Change instrument names at start of system after instrument changes** option on the **Instruments** page (read/write).

#### **SlurMiddleThickness**

Returns or sets the default thickness of the middle of slurs in spaces, from the **Slurs** page (read/write).

#### **SlurOutlineWidth**

Returns or sets the thickness of slur ends in spaces, from the **Slurs** page (read/write).

#### **SmallStaffSizeScale**

Returns or sets the percentage by which small staves are scaled relative to normal-sized staves, from the **Staves** page (read/write).

#### **SpacesBetweenStaves**

Returns or sets the *n* **spaces between staves** value on the **Staves** page (read/write).

#### **SpacesBetweenSystems**

Returns or sets the *n* **spaces between systems** value on the **Staves** page (read/write).

#### **StaffJustificationPercentage**

Returns or sets the **Justify staves when page is at least *n*% full** value on the **Staves** page (read/write).

#### **StaffLineWidth**

Returns or sets the width of a staff line in spaces, from the **Staves** page (read/write).

#### **StemThickness**

Returns or sets the thickness of stems in spaces, from the **Beams and Stems** page (read/write).

#### **TieMiddleThickness**

Returns or sets the thickness of the middle of ties in spaces, from the **Ties 1** page (read/write).

#### **TieOutlineWidth**

Returns or sets the thickness of tie ends in spaces, from the **Ties 1** page (read/write).

# File

---

Retrievable using `for each` on a folder.

## Methods

**Delete()**

Deletes a file, returning **True** if successful.

**Rename** (*newFileName*)

Renames a file, returning **True** if successful.

## Variables

**CreationDate**

Returns the file's creation date and time as a `DateTime` object, in local time (read only).

**CreationDateAndTime**

A string giving the date and time the file was last modified in GMT (read only).

**ModificationDate**

Returns the file's modification date and time as a `DateTime` object, in local time (read only).

**Name**

The complete pathname of the file, no extension (read only).

**NameWithExt**

The complete pathname of the file, with extension (read only).

**NameNoPath**

Just the name of the file, no extension (read only).

**Path**

Returns just the path to the file (read only).

**Type**

A string giving the name of the type of the object; `File` for file objects (read only).

# Folder

---

Retrievable from methods of the Sibelius object.

**for each variable in** produces the Sibelius files in the folder, as File objects.

**for each type variable in** produces the files of type *type* in the folder, where *type* is a Windows extension. Useful values are SIB (Sibelius files), MID (MIDI files) or OPT (PhotoScore files), because they can all be opened directly by Sibelius. On the Macintosh files of the corresponding Mac OS Type are also returned (so, for example, **for each MID f** will return all files whose names end in .MID, and all files of type “Midi”).

Both these statements return subfolders recursively.

## Methods

**FileCount** (*Type*)

Returns the number of files of type *Type* in the folder. As above, useful values are SIB, MID or OPT.

## Variables

<b>FileCount</b>	The number of Sibelius files in the folder (read only).
<b>FileCountAllTypes</b>	The number of files of all types in the folder (read only).
<b>Name</b>	The name of the folder (read only).
<b>Type</b>	A string giving the name of the type of the object; Folder for folder objects (read only).

# GuitarFrame

---

Derived from a BarObject. This refers to chord symbols as created by **Create ▶ Chord Symbol**, whether or not they show a guitar chord diagram (guitar frame), but is called GuitarFrame in Manuscript for historical reasons.

## Methods

### CopyOutSuffixes ()

Returns an array containing a list of the suffix elements present in the chord. If the chord symbol is an unrecognised chord type, the array returned will be empty. The values that can be returned in the array are as follows:

halfdim	dim
add6/9	6/9
sus2/4	aug
omit5	alt
omit3	b13
maj13	#11
add13	13
maj11	11
dim13	#9
dim11	b9
maj9	b6
add9	#5
maj7	b5
dim9	#4
dim7	nc
sus9	9
sus4	7
add4	6
sus2	5
add2	m
maj	/

### GetChromaticPitchesOfChordInClosePosition (*consider root*)

Returns an array containing the chromatic pitches of the notes in the chord, assuming a voicing in close position. If consider root is **True** (it defaults to **False**), the pitches returned will be offset according to the chromatic value of the root note on which the chord is based.

### GetEndStringForNthBarre (*barreNum*)

Returns the string number on which the nth barré ends.

### GetPitchOfNthString (*stringNum*)

Returns the pitch of the given (open) string *stringNum*, as a MIDI pitch.

### GetPositionOfFingerForNthBarre (*barreNum*)

Returns the fret position that the nth barré occupies.

### GetPositionOfFingerOnNthString (*stringNum*)

Returns the position of the black dot representing the finger position on a given string *stringNum*, relative to the top of the frame. A return value of **0** means the string is open (i.e. a hollow circle appears at the top of the diagram), and **-1** means that the string is not played (i.e. an X appears at the top of the diagram). Used in conjunction with **GetPitchOfNthString ()**, you can calculate the resulting pitch of each string.

### GetStartStringForNthBarre (*barreNum*)

Returns the string number from which the nth barré begins.

**IsNthStringPartOfBarre** (*stringNum*)

Returns **True** if the given string is part of a barré.

**NthStringHasClosedMarkingAtNut** (*nth string*)

Returns **True** if there's an X marking at the top or left of the specified string.

**NthStringHasOpenMarkingAtNut** (*nth string*)

Returns **True** if there's an O marking at the top or left of the specified string.

## Variables

<b>BassAsString</b>	The note name of the chord symbol's altered bass note (e.g. "F").
<b>ChordNameAsStyledString</b>	The name of the chord represented by this chord symbol as it appears in the score, e.g. "Cm <sup>^</sup> " (read only).
<b>ChordNameAsPlainText</b>	The name of the chord represented by this chord symbol as it appears when editing the chord symbol, i.e. in its plain text representation, e.g. "Cmmaj7" (read only).
<b>ChromaticRoot</b>	The chromatic pitch (C = 0, B = 11) of the chord symbol's root note (read only).
<b>ChromaticBass</b>	The chromatic pitch (C = 0, B = 11) of the chord symbol's altered bass note (read only).
<b>DiatonicRoot</b>	The diatonic pitch, i.e. the number of the "note name" to which this note corresponds, 7 per octave (0 = C, 1 = D, 2 = E etc.), of the chord symbol's root note (read only).
<b>DiatonicBass</b>	The diatonic pitch, i.e. the number of the "note name" to which this note corresponds, 7 per octave (0 = C, 1 = D, 2 = E etc.), of the chord symbol's altered bass note (read only).
<b>Fingerings</b>	The fingerings string for this chord. This is a textual string with as many characters as the guitar frame has strings (i.e. six for standard guitars). Each character corresponds to a guitar string. Use - to denote that a string has no fingering.
<b>FrameIsVisible</b>	True if the chord symbol is currently showing a guitar chord diagram (read only).
<b>Horizontal</b>	<b>True</b> if the guitar chord diagram is horizontally orientated, <b>False</b> if it is vertically orientated (read/write).
<b>LowestVisibleFret</b>	The number of the top fret shown in the guitar chord diagram; setting the special value -1 resets the lowest visible fret to the default for that chord diagram (read/write).
<b>NumBarresInChord</b>	The number of unique barrés in the guitar chord diagram (read only).
<b>NumberOfFrets</b>	The number of frets in the guitar chord diagram, i.e. the number of horizontal lines; setting the special value -1 resets the number of frets to the default for that chord diagram (read/write).
<b>NumberOfStrings</b>	The number of strings in the guitar chord diagram, i.e. the number of vertical lines (read only).
<b>NumPitchesInClosePosition</b>	The number of unique pitches in the chord, assuming a voicing in close position with no duplicates.
<b>Recognized</b>	Returns <b>True</b> if the chord symbol is a specific recognized chord type, and <b>False</b> otherwise, i.e. if the chord symbol is shown in red in the score because Sibelius is unable to parse the user's input (read only).
<b>RootAsString</b>	The note name of the chord symbol's root (e.g. "C#").
<b>ScaleFactor</b>	The scale factor of the guitar chord diagram (as adjustable via the <b>Scale</b> parameter on the <b>General</b> panel of Properties), expressed as a percentage (read/write).
<b>ShowFingerings</b>	Set to <b>True</b> if the fingerings string should be displayed, <b>False</b> otherwise (read only).

<b>SuffixText</b>	The suffix part of the chord symbol as it appears in the score, or an empty string if the chord isn't recognised (read only).
<b>TextIsVisible</b>	True if the chord symbol is currently showing a text chord symbol (read only).
<b>TransposingChromaticRoot</b>	Returns the chromatic pitch of the root note for the specified chord symbol as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>TransposingChromaticBass</b>	Returns the chromatic pitch of the altered bass note for the specified chord symbol, if present, as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>TransposingDiatonicRoot</b>	Returns the diatonic pitch of the root note for the specified chord symbol as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>TransposingDiatonicBass</b>	Returns the diatonic pitch of the altered bass note for the specified chord symbol, if present, as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>TransposingRootAsString</b>	Returns a string representing the pitch of the root note for the specified chord symbol as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>TransposingBassAsString</b>	Returns a string representing the pitch of the altered bass note for the specified chord symbol, if present, as if the score is shown at transposed pitch, but regardless of whether or not <b>Notes ▶ Transposing Score</b> is switched on.
<b>VisibleComponents</b>	The visible parts of the chord symbol, i.e. whether it displays a text chord symbol only ( <b>TextOnly</b> ), a guitar chord diagram only ( <b>FrameOnly</b> ), both a text chord symbol and a guitar chord diagram ( <b>FrameAndText</b> ), or whether or not the chord symbol shows a guitar chord diagram based on the type of instrument to which it is attached ( <b>InstrumentDependent</b> ) (read/write).

# GuitarScaleDiagram

---

Derived from a BarObject. This refers to guitar scale diagrams as created by **Create ▶ Guitar Scale Diagram**.

## Methods

**GetDotFingeringsOnNthString** (*nth string*)

Returns an array of strings containing the text that has been entered on the dots on a given string.

**GetDotSymbolsOnNthString** (*nth string*)

Returns an array of values describing the appearance of each of the dots on a given string. The possible values are **DotStyleCircle**, **DotStyleFilledCircle**, **DotStyleSquare**, **DotStyleFilledSquare**, **DotStyleDiamond**, and **DotStyleFilledDiamond**.

**GetPitchesOfDotsOnNthString** (*nth string*)

Returns an array containing the pitches of all the dots on a given string, in ascending order of pitch.

**GetPitchOfNthString** (*stringNum*)

Returns the pitch of the given (open) string *stringNum*, as a MIDI pitch.

## Variables

<b>Fingerings</b>	The fingerings string for this scale diagram. This is a textual string with as many characters as the scale diagram has strings (i.e. six for standard guitars). Each character corresponds to a guitar string. Use - to denote that a string has no fingering.
<b>Horizontal</b>	<b>True</b> if the guitar scale diagram is horizontally orientated, <b>False</b> if it is vertically orientated (read/write).
<b>LowestVisibleFret</b>	The number of the top fret shown in the guitar scale diagram; setting the special value -1 resets the lowest visible fret to the default for that scale diagram (read/write).
<b>NumberOfFrets</b>	The number of frets in the guitar scale diagram, i.e. the number of horizontal lines; setting the special value -1 resets the number of frets to the default for that scale diagram (read/write).
<b>NumberOfStrings</b>	The number of strings in the guitar scale diagram, i.e. the number of vertical lines (read only).
<b>Root</b>	Returns the chromatic pitch (C = 0) of the scale's root note (read only).
<b>ScaleFactor</b>	The scale factor of the guitar scale diagram (as adjustable via the <b>Scale</b> parameter on the <b>General</b> panel of Properties), expressed as a percentage (read/write).
<b>ScaleType</b>	Returns the type of the guitar scale diagram, as specified in the list of <b>GuitarScaleDiagram type values</b> on page 157 (read only).
<b>ShowFingerings</b>	Set to <b>True</b> if the fingerings string should be displayed, <b>False</b> otherwise (read only).

# HitPointList

---

Retrievable as the **HitPoints** variable of a score. It can be used in a **for each** loop or as an array with the **[n]** operator – this gives access to a HitPoint object. The HitPoint objects are stored in time order, so be careful if you remove or modify the time of the objects inside a loop. If you want to change the times of all the hit points by the same value then use the **ShiftTimes** function.

## Methods

### **Clear()**

Removes all hit points from the score.

### **CreateHitPoint** (*timeMs*, *label*)

Creates a hit point in the score at the given time (specified in milliseconds) with a specified string label. Returns the index in the HitPointList at which the new hit point was created.

### **Remove** (*index*)

Removes the given hit point number.

### **ShiftTimes** (*timeMs*)

Adds the given time (in milliseconds) onto all the hit points. If the time is negative then this is subtracted from all the hit points.

## Variables

**NumChildren**                      Number of hit points (read only).

# HitPoint

---

Individual element of the HitPointList object.

## Methods

None.

## Variables

<b>Bar</b>	The bar in which this hit point occurs (read only).
<b>Label</b>	The name of the hit point (read/write).
<b>Position</b>	The position within the bar at which this hit point occurs (read only).
<b>Time</b>	The time of the hit point in milliseconds. Note that changing this value may change the position of the hit point in the HitPointList (read/write).

# InstrumentChange

---

Derived from a Bar object. Provides information about any instrument changes that may exist in the score.

## Methods

None.

## Variables

<b>StyleId</b>	Returns the style ID of the new instrument; see <b>Instrument types</b> on page 139 (read only).
<b>TextLabel</b>	Returns the text that appears above the staff containing the instrument change in the score (read only).

# InstrumentTypeList

---

Contains a list of **InstrumentType** objects common to a given score.

**for each type variable in** returns each instrument type in the list, in alphabetical order by the instrument type's style ID.

Array access *[int n]* returns the *n*th instrument type, in the same order as using a **for each** iterator, or null if the instrument type does not exist.

## Methods

None.

## Variables

**NumChildren** Returns the number of unique instrument types in the list (read only).

# InstrumentType

---

Provides information about an individual instrument type.

## Methods

**Clone()** Makes an exact copy of an existing instrument type.

**PitchOfNthString** (*string num*)

Returns the pitch of a given string in a tablature staff, with string number **0** being the lowest string on the instrument.

## Variables

<b>Balance</b>	Returns the instrument's default balance, in the range <b>0–100</b> (read only).
<b>Category</b>	Returns an index representing the category of the staff type belonging to this instrument type; <b>0</b> = pitched; <b>1</b> = percussion; <b>2</b> = tablature (read only).
<b>ChromaticTransposition</b>	Returns the number of half-steps (semitones) describing the transposition of transposing instruments; e.g. for B $\flat$ Clarinet, this returns <b>-2</b> (read/write).
<b>ChromaticTranspositionInScore</b>	Returns the number of half-steps (semitones) describing the transposition of transposing instruments in a score shown at concert pitch. Typically this is only used by instruments that transpose by octaves, so this will return e.g. <b>12</b> for piccolo or <b>-12</b> for guitars (read only).
<b>ComfortableRangeHigh</b>	Returns the highest comfortable note (MIDI pitch) of the instrument (read only).
<b>ComfortableRangeLow</b>	Returns the lowest comfortable note (MIDI pitch) of the instrument (read only).
<b>ConcertClefStyleId</b>	Returns the style ID of the normal clef style of the instrument (read only).
<b>DefaultSoundId</b>	Returns the default sound ID used by the instrument (read only).
<b>DiatonicTransposition</b>	Returns the number of diatonic steps describing the transposition of transposing instruments; e.g. for B $\flat$ Clarinet, this returns <b>-1</b> (read/write).
<b>DiatonicTranspositionInScore</b>	Returns the number of diatonic steps describing the transposition of transposing instruments in a score shown at concert pitch (read only).
<b>DialogName</b>	Returns the name of the instrument as displayed in the <b>Create ▶ Instruments</b> dialog in Sibelius (read/write).
<b>FullName</b>	Returns the name of the instrument as visible on systems showing full instrument names (read only).
<b>HasBracket</b>	Returns <b>True</b> if the instrument has a bracket (read only).
<b>HasKeySignatureOrTuning</b>	Returns <b>True</b> if the instrument type has the <b>Key signature / Tuning</b> checkbox switched on in the <b>Edit Staff Type</b> dialog.
<b>InstrumentTypeForChordDiagrams</b>	Returns the style ID of the tab instrument type that determines the tuning used for chord diagrams shown for this instrument, i.e. corresponding to the <b>Tab instrument to use for string tunings</b> in the <b>New/Edit Instrument</b> dialogs.
<b>IsVocal</b>	Returns <b>True</b> if the instrument type used has the <b>Vocal staff</b> option switched on, meaning that e.g. the default positions of dynamics should be above the staff rather than below (read only).
<b>NumStaffLines</b>	Returns the number of staff lines in the staff (read only).
<b>NumStrings</b>	Returns the number of strings in a tablature staff (read only).

<b>OtherClefStyleId</b>	Returns the style ID of the clef style of the second staff of grand staff instruments, e.g. piano (read only).
<b>Pan</b>	Returns the instrument's default pan setting, in the range <b>-127</b> (hard left) to <b>127</b> (hard right) (read only).
<b>ProfessionalRangeHigh</b>	Returns the highest playable note (MIDI pitch) of the instrument for a professional player (read only).
<b>ProfessionalRangeLow</b>	Returns the lowest playable note (MIDI pitch) of the instrument for a professional player (read only).
<b>ShortName</b>	Returns the name of the instrument as visible on systems showing short instrument names (read only).
<b>StyleId</b>	Returns the style ID of the instrument; see <b>Global constants</b> on page 135 (read only).
<b>TransposingClefStyleId</b>	Returns the style ID of the clef to be used when <b>Notes ▸ Transposing Score</b> is switched on (read only).

# KeySignature

---

Derived from a BarObject.

## Methods

None

## Variables

<b>AsText</b>	The name of the key signature as a string (read only).
<b>IsOneStaffOnly</b>	True if this key signature belongs to one staff only (read only).
<b>Major</b>	True if this key signature is a major key (read only).
<b>Sharps</b>	The number of sharps (positive) or flats (negative) in this key signature (read only).

# Line

---

Anything you can create from the **Create ▸ Line** dialog is a line object, eg. `CrescendoLine`, `DiminuendoLine`, etc. These objects are derived from a `BarObject`.

## Methods

None.

## Variables

<code>Duration</code>	The total duration of the line, in 1/256th quarters (read/write).
<code>EndBarNumber</code>	The bar number in which the line ends (read only).
<code>EndPosition</code>	The position within the final bar at which the line ends (read only).
<code>RhDx</code>	The horizontal graphic offset of the right-hand side of the line, in units of 1/32 spaces (read/write).
<code>RhDy</code>	The vertical graphic offset of the right-hand side of the line from the centre staff line, in units of 1/32 spaces, positive going upwards (read/write).
<code>StyleId</code>	The identifier of the line style associated with this line (read only).
<code>StyleAsText</code>	The name of the line style associated with this line (read only).

# LyricItem

---

Derived from a BarObject

## Methods

None.

## Variables

<b>Duration</b>	The total duration of the lyric line, in 1/256th quarters (see <b>Line</b> on page 85) (read/write).
<b>NumNotes</b>	Gives the number of notes occupied by this lyric item (read/write). Note that changing this value will not automatically change the length of the lyric line; you also need to set the lyric line's <b>Duration</b> variable to the correct length.
<b>StyleAsText</b>	The text style name (read/write).
<b>StyleId</b>	The identifier of the text style of this lyric (read/write).
<b>SyllableType</b>	An integer indicating whether the lyric is the end of a word ( <b>EndOfWord</b> ) or the start or middle of one ( <b>MiddleOfWord</b> ) (read/write). This affects how the lyric is justified, and the appearance of hyphens that follow it. <b>EndOfWord</b> and <b>MiddleOfWord</b> are global constants; see <b>SyllableTypes for LyricItems</b> on page 154.
<b>Text</b>	The text as a string (read/write).

# NoteRest

---

Derived from a BarObject. A NoteRest contains Note objects, stored in order of increasing diatonic pitch.

`for each variable in` returns the notes in the NoteRest.

## Methods

**AddAcciaccaturaBefore** (*sounding pitch*, [*duration* [, *tied* [, *voice* [, *diatonic pitch* [, *string number* [, *force stem dir*]]]]]])

Adds a grace note with a slash on its stem (acciaccatura) before a given NoteRest. The duration should be specified as normal, for example, 128 would create a grace note with one beam/flag. The optional *tied* parameter should be **True** if you want the note to be tied. Voice 1 is assumed unless the optional *voice* parameter (with a value of 1, 2, 3 or 4) is specified. If *force stem dir* is set to **True** (the default), stems of grace notes in voices 1 and 3 will always point upwards, and stems of notes in voices 2 and 4, downwards. You can also set the diatonic pitch, i.e. the number of the “note name” to which this note corresponds, 7 per octave (35 = middle C, 36 = D, 37 = E and so on). If a diatonic pitch of zero is given then a suitable diatonic pitch will be calculated from the MIDI pitch. The optional string number parameter gives a string number for this note, which is only meaningful if the note is on a tablature stave. If this parameter is not supplied then a default string number is calculated based on the current tablature stave type and the guitar tab fingering options (specified on the **Note Input** page of **File ▶ Preferences**). Returns the Note object created (to get the NoteRest containing the note, use **Note.ParentNoteRest**).

Note that adding a grace note before a NoteRest will *always* create an additional grace note, just to the left of the note/rest to which it is attached. If you wish to create grace notes with more than one pitch, you should call **AddNote** on the object returned.

**AddAppoggiaturaBefore** (*sounding pitch*, [*duration* [, *tied* [, *voice* [, *diatonic pitch* [, *string number* [, *force stem dir*]]]]]])

Identical to **AddAcciaccaturaBefore**, only no slash is added to the note’s stem.

**AddNote** (*pitch* [, *tied* [, *diatonic pitch* [, *string number*]])

Adds a note with the given MIDI pitch (60 = middle C), e.g. to create a chord. The optional second parameter specifies whether or not this note is tied (True or False). The optional third parameter gives a diatonic pitch, i.e. the number of the ‘note name’ to which this note corresponds, 7 per octave (35 = middle C, 36 = D, 37 = E etc.). If this parameter is 0 then a default diatonic pitch will be calculated from the MIDI pitch. The optional fourth parameter gives a string number for this note, which is only meaningful if the note is on a tablature stave. If this parameter is not supplied then a default string number is calculated based on the current tablature stave type and the guitar tab fingering options (specified on the **Notes** page of **File ▶ Preferences**). Returns the Note object created.

**Delete** ()

Deletes all the notes in the NoteRest, converting the entire chord into a rest of similar duration.

**FlipStem** ()

Flips the stem of this NoteRest – this acts as a toggle.

**GetArticulation** (*articulation number*)

Returns **True** or **False** depending on whether the given articulation is currently set on this note. The valid articulation numbers are defined in **Articulations** on page 153.

**NoteRest** [*array element*]

Returns the *n*th note in the chord, in order of increasing diatonic pitch (counting from 0). For example, **NoteRest[0]** returns the lowest note (in terms of diatonic pitch – see **AddNote** below).

**RemoveNote** (*note*)

Removes the specified Note object.

**SetArticulation** (*articulation number*, *set*)

If *set* is **True**, turns on the given articulation; otherwise turns it off. The valid articulation numbers are defined in **Articulations** on page 153.

**Transpose** (*degree, interval type[, keep double accs]*)

Transposes the entire NoteRest up or down by a specified *degree* and *interval type*. To transpose up, use positive values for *degree*; to transpose down, use negative values. Note that degrees are 0-based, so **0** is equal to a unison, **1** to a second and so on. For descriptions of the various available interval types, see **Global constants** on page 135. By default, Sibelius will transpose using double sharps and flats where necessary, but this behavior may be suppressed by setting the *keep double accs* flag to **False**.

For help in calculating the interval and degree required for a particular transposition, see the documentation for the `Sibelius.CalculateInterval` and `Sibelius.CalculateDegree` methods.

**Variables**

<b>ArpeggioDx</b>	The horizontal offset of the arpeggio line on the NoteRest (read/write), in units of 1/32nd of a space (the distance between two adjacent staff lines).
<b>ArpeggioType</b>	The type of note-attached arpeggio line present on the NoteRest. Values are <b>ArpeggioTypeNone</b> , <b>ArpeggioTypeNormal</b> , <b>ArpeggioTypeUp</b> , <b>ArpeggioTypeDown</b> (read/write).
<b>ArpeggioTopDy</b>	The vertical offset of the top of the note-attached arpeggio line on the NoteRest (read/write), in units of 1/32nd of a space.
<b>ArpeggioBottomDy</b>	The vertical offset of the bottom of the note-attached arpeggio line on the NoteRest (read/write), in units of 1/32nd of a space.
<b>ArpeggioHidden</b>	Returns <b>True</b> if the note-attached arpeggio line on the NoteRest is hidden (read/write).
<b>Articulations</b>	Enables you to copy a set of articulations from one NoteRest to another (read/write), e.g: <code>destNr.Articulations = sourceNr.Articulations;</code>
<b>Beam</b>	Takes values <b>StartBeam</b> , <b>ContinueBeam</b> , <b>NoBeam</b> and <b>SingleBeam</b> . (see <b>Global constants</b> on page 135 for details). These correspond to the keys <b>7</b> , <b>8</b> , <b>*</b> (/ on Mac) and <b>/</b> (* on Mac) on the third ( <b>F9</b> ) Keypad layout.
<b>DoubleTremolos</b>	Gives the number of double tremolo strokes starting at this note, in the range 0–7. Means nothing for rests. To create a double tremolo between two successive notes, ensure they have the same duration and set the <b>DoubleTremolos</b> of the first one (read/write).
<b>Duration</b>	The duration of the note rest (read only).
<b>FallDx</b>	The horizontal offset of a fall, if present on the NoteRest (read/write), in units of 1/32nd of a space.
<b>FallType</b>	The type of note-attached fall present on the NoteRest. Values are <b>FallTypeNone</b> , <b>FallTypeNormal</b> and <b>FallTypeDoit</b> (read/write)
<b>FeatheredBeamType</b>	Returns one of three values, based on whether a note is set to produce a feathered beam. Values are <b>FeatheredBeamNone</b> (0), <b>FeatheredBeamAccel</b> (1) and <b>FeatheredBeamRit</b> (2) (read/write).
<b>GraceNote</b>	<b>True</b> if it's a grace note (read only).
<b>HasStemlet</b>	Returns <b>True</b> if the note is showing a stemlet, according either to the state of the <b>Use stemlets on beamed rests</b> option on the <b>Beams and Stems</b> page of <b>Engraving Rules</b> or the stemlet button on the Keypad (read only).
<b>Highest</b>	The highest Note object in the chord (read only).
<b>IsAcciaccatura</b>	<b>True</b> if it's an acciaccatura, i.e. a grace note with a slash through its stem (read only).
<b>IsAppoggiatura</b>	<b>True</b> if it's an appoggiatura, i.e. a grace note without a slash through its stem (read only).
<b>Lowest</b>	The lowest Note object in the chord (read only).
<b>NoteCount</b>	The number of notes in the chord (read only).

<b>ParentTupletIfAny</b>	If the NoteRest intersects a tuplet, the innermost Tuplet object at that point in the score is returned. Otherwise, <i>null</i> is returned (read only).
<b>PositionInTuplet</b>	Returns the position of the NoteRest relative to the duration and scale-factor of its parent tuplet. If the NoteRest does not intersect a tuplet, its position within the parent Bar is returned as usual (read only).
<b>RestPosition</b>	The vertical position of a rest (read/write).
<b>ScoopDx</b>	The horizontal offset of a scoop or plop, if present on the NoteRest (read/write), in units of 1/32nd of a space.
<b>ScoopType</b>	The type of note-attached scoop present on the NoteRest. Values are <b>ScoopTypeNone</b> , <b>ScoopTypeNormal</b> , <b>ScoopTypePlop</b> (read/write).
<b>StemFlipped</b>	<b>True</b> if the stem is flipped (read only).
<b>StemletType</b>	Provides information about whether the NoteRest is set to display a stemlet using the options on the Keypad. Returns either <b>StemletCustomOff</b> (in which case the NoteRest definitely does not show a stemlet), <b>StemletCustomOn</b> (in which case the NoteRest definitely <i>does</i> show a stemlet), or <b>StemletUseDefault</b> (in which case you should use the read-only variable <b>HasStemlet</b> to determine whether the NoteRest currently shows a stemlet) (read/write).
<b>Stemweight</b>	<p>Returns the stemweight of a note, taking beams into account (read only). For an unbeamed note, this is the sum of the stave positions of all the notes in the NoteRest, where the stave position of the middle line is zero and the position increases as you move up the stave and decreases as you move downwards. For a beamed note, it is the sum of all the stemweights of the NoteRests under the beam (treated as though they were unbeamed).</p> <p>There are some special cases. If a note has its stem direction forced due to voicing, then the stemweight will be one of the global constants <b>StemweightUp</b> or <b>StemweightDown</b>. If a note has its stem direction forced due to the “flip” flag being set, the stemweight will be either <b>StemweightFlipUp</b> or <b>StemweightFlipDown</b>. Finally, cross-stave notes have stemweight equal to <b>StemweightCross</b>.</p> <p>If the stemweight is less than zero, the stem will point up, otherwise it will point down.</p>
<b>SingleTremolos</b>	Gives the number of tremolo strokes on the stem of this note, in the range -1 (for “z on stem”) to 7. Means nothing for rests (read/write).

# Note

---

Only found in NoteRests. Correspond to individual noteheads.

## Methods

**Delete()**

Removes a single note from a chord.

**Transpose** (*degree, interval type[, keep double accs]*)

Transposes and returns a single Note object up or down by a specified *degree* and *interval type*\*. To transpose up, use positive values for *degree*; to transpose down, use negative values. Note that degrees are 0-based, so **0** is equal to a unison, **1** to a second and so on. For descriptions of the various available interval types, see **Global constants** on page 135. By default, Sibelius will transpose using double sharps and flats where necessary, but this behavior may be suppressed by setting the *keep double accs* flag to **False**. For help in calculating the interval and degree required for a particular transposition, see the documentation for the **Sibelius.CalculateInterval** and **Sibelius.CalculateDegree** methods.

\* N.B.: Individual note objects cannot be transposed diatonically.

## Variables

<b>Accidental</b>	The accidental, for which global constants such as <b>Sharp</b> , <b>Flat</b> and so on are defined; see <b>Global constants</b> on page 135 (read only).
<b>AccidentalStyle</b>	The style of the accidental (read/write). This can be any of following four global constants: <b>NormalAcc</b> , <b>HiddenAcc</b> , <b>CautionaryAcc</b> (which forces an accidental to appear always) and <b>BracketedAcc</b> (which forces the accidental to be drawn inside brackets).
<b>Bracketed</b>	The bracketed state of the note, as shown on the <b>F9</b> layout of the <b>Keypad</b> (read/write).
<b>DiatonicPitch</b>	The diatonic pitch of the note, i.e. the number of the “note name” to which this note corresponds, 7 per octave (35 = middle C, 36 = D, 37 = E and so on) (read only).
<b>Name</b>	The pitch of the note as a string (read only).
<b>NoteStyle</b>	The index of the notehead style of this Note (read/write). The styles correspond to those accessible from the <b>Notes</b> panel of the Properties window in Sibelius; see <b>Note Style names</b> on page 153 for a complete list of the defined NoteStyles.
<b>NoteStyleName</b>	The name of the notehead style of this Note (read/write). If an attempt is made to apply a non-existent style name, the note in question will retain its current notehead.
<b>OriginalDeltaSr</b>	The <b>Live start position</b> of this notehead (in 1/256th quarters), as shown in the <b>Playback</b> panel of Properties (read/write). This value can be positive or negative, indicating that the note is moved forwards or backwards.
<b>OriginalDuration</b>	The <b>Live duration</b> of this notehead (in 1/256th quarters), as shown in the <b>Playback</b> panel of Properties (read/write).
<b>OriginalVelocity</b>	The <b>Live velocity</b> of this notehead (in MIDI volume units, 0-127), as shown in the <b>Playback</b> panel of Properties (read/write). Note that the word “original” refers to the fact that this data is preserved from the original performance if the score was imported from a MIDI file or input via Flexi-time. For further details on this value, and the ones following below, read the <b>Live Playback</b> section in Sibelius Reference.
<b>ParentNoteRest</b>	The NoteRest object that holds this note (read only).
<b>Pitch</b>	The MIDI pitch of the note, in semitones, 60 = middle C (read only).
<b>Slide</b>	Is <b>True</b> if the note has a slide, <b>False</b> otherwise (read/write).

<b>StringNum</b>	The string number of this note, only defined if the note is on a tablature staff. If no string is specified, reading this value will give <code>-1</code> . Strings are numbered starting at 0 for the bottom string and increasing upwards (read only).
<b>Tied</b>	Is <b>True</b> if the note is tied to the following note (read/write).
<b>WrittenAccidental</b>	The accidental, taking transposition into account (read only).
<b>WrittenDiatonicPitch</b>	The written diatonic pitch of the note, taking transposition into account if <b>Score.TransposingScore</b> is <b>True</b> (35 = middle C) (read only).
<b>WrittenName</b>	The written pitch of the note as a string (taking transposition into account) (read only).
<b>WrittenPitch</b>	The written MIDI pitch of the note, taking transposition into account if <b>Score.TransposingScore</b> is <b>True</b> (60 = middle C) (read only).
<b>UseOriginalDeltaSrForPlayback</b>	Is <b>True</b> if the <b>Live start position</b> of this Note should be used for Live Playback. Corresponds to the <b>Live start position</b> checkbox in the <b>Playback</b> panel of the Properties window.
<b>UseOriginalDurationForPlayback</b>	Is <b>True</b> if the <b>Live duration</b> of this Note should be used for Live Playback. Corresponds to the <b>Live duration</b> checkbox in the <b>Playback</b> panel of the Properties window.
<b>UseOriginalVelocityForPlayback</b>	Is <b>True</b> if the <b>Live velocity</b> of this Note should be used for Live Playback. Corresponds to the <b>Live velocity</b> checkbox in the <b>Playback</b> panel of the Properties window.

# PageNumberChange

---

Provides access to get and set the attributes of a page number change at the end of a bar or on a blank page.

## Methods

**SetFormatChangeOnly** (*format change only*)

If *format change only* is **True**, this has the same effect as switching *off* the **New page number** check box on the **Page Number Change** dialog in Sibelius. The page numbering will therefore continue counting consecutively, but it's possible to (for example) hide a group of page numbers and restore visibility at a later point on the score without having to keep track of the previous page numbers.

**SetHideOrShow** (*page number visibility*)

Takes one of the three **Page number visibility** global constants to determine the visibility of the initial page number change and its subsequent pages; see **Global constants** on page 135.

**SetPageNumber** (*page number*)

Takes an integral number specifying the new number you wish to assign to the page.

**SetPageNumberFormat** (*format*)

Takes one of the four **Page number format** global constants to change the format used to display the page number change; see **Global constants** on page 135.

## Variables

<b>HideOrShow</b>	Returns one of the three <b>Page number visibility</b> global constants; see <b>Global constants</b> on page 135 (read only).
<b>PageNumber</b>	Returns the page number expressed as an integer. For example, page <b>x</b> when using Roman numerals would be <b>10</b> , or <b>24</b> with alphabets (read only).
<b>PageNumberAsString</b>	Returns the page number change as visible on the corresponding page in Sibelius (read only).
<b>PageNumberBlankPageOffset</b>	Returns the blank page offset of the page number change, or <b>0</b> if there are no blank pages following the bar containing the page number change (read only).
<b>PageNumberFormat</b>	Returns one of four <b>Page number format</b> global constants describing the format of the page number change; see <b>Global constants</b> on page 135 (read only).

# PluginList

---

An array that is obtained from `Sibelius.Plugins`. It can be used in a `for each` loop or as an array with the `[n]` operator to access each Plugin object.

## Methods

**Contains** (*pluginName*)

Returns `True` if a plug-in with the given name is installed. This can be used to query whether a plugin is installed before you try to call it.

## Variables

**NumChildren**                      Number of plug-ins (read only).

# Plugin

---

This represents an installed plugin. Typical usage:

```
for each p in Sibelius.Plugins
{
    trace("Plugin: " & p.Name);
}
```

## Methods

The following methods are intended to allow you to check the existence of specific methods, data and dialogs in plug-ins, which allows you to check in advance that e.g. calling a method in another plug-in will succeed, and fail gracefully if the method is not found:

### **MethodExists** (*method*)

Returns **True** if the specified *method* exists in the current Plugin object.

### **DataExists** (*data*)

Returns **True** if the specified *data* exists in the current Plugin object.

### **DialogExists** (*dialog*)

Returns **True** if the specified *dialog* exists in the current Plugin object.

## Variables

**File** The File object corresponding to the file that the plug-in was loaded from (read only).

**Name** The name of the plug-in (read only).

# RehearsalMark

---

Derived from a BarObject and found in the system staff only. RehearsalMarks have an internal numbering and a visible text representation, both of which can be read from Manuscript.

## Methods

None.

## Variables

<b>Mark</b>	The internal number of this rehearsal mark. By default rehearsal marks are consecutive (with the first one numbered zero), but the user can also create marks with specific numbers.
<b>MarkAsText</b>	The textual representation of this rehearsal mark as drawn in the score. This is determined by the <b>House Style › Engraving Rules</b> options, and can take various forms (numerical or alphabetical).

# Score

---

A Score contains one SystemStaff and one or more Staff objects.

**for each variable in** returns each staff in the score or the current dynamic part in turn (not the system staff).

**for each type variable in** returns the objects in the score in chronological order, from the top staff to the bottom staff (for simultaneous objects) and then from left to right (again, not including the system staff).

## Methods

### AddBars (*n*)

Adds *n* bars to the end of the score.

### ApplyStyle (*style file*, "*style*", [*"style"*])

Imports named styles from the given house style file (**.lib**) into the score. The style file parameter can either be a full path to the file, or just the name of one of the styles that appears in the **House Style** ▶ **Import House Style** dialog. You can import as many “style” elements as you like in the same method. Style names are as follows:

**HOUSE**, **TEXT**, **SYMBOLS**, **LINES**, **NOTEHEADS**, **CLEFS**, **DICTIONARY**, **SPACINGRULE**, **DEFAULTPARTAPPEARANCE**, **INSTRUMENTSANDENSEMBLES**, **MAGNETICLAYOUTOPTIONS** or **ALLSTYLES**.

For instance:

```
score2.ApplyStyle("C:\NewStyle.lib", "HOUSE", "TEXT");
```

Note that the constant **HOUSE** refers, for historical reasons, only to those options in the **House Style** ▶ **Engraving Rules** and **Layout** ▶ **Document Setup** dialogs, not the entire house style. To import the entire House Style, use the **ALLSTYLES** constant.

### ClefStyleId (*clef style name*)

Returns the identifier of the clef style with the given name, or the empty string if there is no such clef style.

### CreateInstrument (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

Creates a new instrument, given the *style ID* of the instrument type required (see **Instrument types** on page 139). If you want to supply the instrument names to be used in the score, set the optional *change names* parameter to **True**, then supply strings for the *full name* and *short name*. Returns **True** if the instrument was created successfully and **False** if the instrument type could not be found.

### CreateInstrumentAtBottom (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

Behaves the same way as **CreateInstrument**, only the new instrument is always created below all other instruments that currently exist in the score. This can be useful when programatically copying a list of staves/instruments from one score to another, as you can guarantee the ordering of the staves will be the same in both scores.

### CreateInstrumentAtBottomReturnStave (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

As above, but returns the Staff object created, or **null** if unsuccessful.

### CreateInstrumentAtTop (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

Behaves in exactly the same way as **CreateInstrumentAtBottom**, only the new instrument is always created above all other instruments that currently exist in the score.

### CreateInstrumentAtTopReturnStave (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

As above, but returns the Staff object created, or null if unsuccessful.

### CreateInstrumentReturnStave (*style ID* [, *change names*, [*"full name"*, [*"short name"*]]])

Like **CreateInstrument**, but returns the Staff object created, or **null** if unsuccessful. Note that if the instrument being created contains more than one staff (e.g. piano or harp), the top staff of the instrument in question will be returned.

**ExportPartsAsPDF** (*filename* [, *single file* [, *part IDs* [, *include score*]])

Exports one dynamic part, a selection of dynamic parts, or all dynamic parts in PDF format, either concatenated into a single file, or as separate files. The *filename* parameter should be a complete path. It may contain the following tokens, which Sibelius will expand automatically to generate a complete filename:

**%f** = Score filename  
**%t** = Score title (as specified in the **Title** field in **File ▶ Info**)  
**%p** = Part name (as specified in the **Part name** field in **File ▶ Info**)  
**%n** = Part number  
**%o** = Total number of parts  
**%d** = Date (format YYYY-MM-DD)  
**%h** = Time (format HHMM)

The Boolean parameter *single file* specifies whether the chosen parts should be extracted into separate PDF files or concatenated into a single PDF file. This parameter defaults to **True** if not specified.

To specify which parts to export, create a sparse array of part IDs, and pass this in as the third parameter, *part IDs*. For example:

```
s = Sibelius.ActiveScore;
partsToExport = CreateSparseArray();
parts = s.DynamicParts;
firstNPartsToExport = 2;
i = 0;
for each part in parts {
    if (i <= firstNPartsToExport) { // <= because the first "part" in the
                                    //DynamicPartsCollection is the full score.
        partsToExport.Push(part);
    }
    i = i + 1;
}
s.ExportPartsAsPDF("c:\\%f - %p.pdf", true, partsToExport);
```

To export all parts, pass in 0 instead of a sparse array.

The final optional Boolean parameter, *include score*, defaults to **False**. If set to **True**, the full score will also be exported along with the parts.

**ExportScoreAsPDF** (*filename*)

Exports the full score as a PDF, with the specified *filename*, which should be a complete path. The *filename* parameter may use the same tokens as the **ExportPartsAsPDF** () method – see above.

**ExtractParts** ([*show\_dialogs* [, *parts path* [, *open parts*]])

Extracts parts from the score. The first optional Boolean parameter can be **False**, in which case the parts are extracted without showing an options dialog. The second optional parameter specifies a folder into which to extract the parts (must end with a trailing folder separator). The third optional Boolean parameter, which defaults to **True**, specifies whether the extracted parts should be opened immediately, or simply saved.

**FreezeMagneticLayoutPositions** ()

Does the same as selecting the whole score and choosing **Layout ▶ Magnetic Layout ▶ Freeze Positions**, i.e. explicitly sets the **Dx/Dy** of every object to the position produced by Magnetic Layout, then disables Magnetic Layout for each object.

**GetLocationTime** (*bar number* [, *position*])

Returns the time of a given location in the score in milliseconds.

**GetVersions** ()

Returns the score's VersionHistory object (see **VersionHistory** on page 131).

**InsertBars** (*n*, *barNum* [, *length*])

Inserts *n* bars before bar number *barNum*. If no *length* has been specified, the bar will be created with the correct length according to the current time signature. However, irregular bars may also be created by specifying a value for *length*.

**InternalPageNumToExternalPageNum** (*pagenum*)

Returns a string containing the external page number of the given internal page number *pagenum*.

**LineStyleId** (*line style name*)

Returns the identifier of the line style with the given name, or the empty string if there is no such line style.

**NoteStyleIndex** (*notehead style name*)

Returns the index of the note style with the given name, or **-1** if there is no such note style.

**NthStaff** (*staff index from 1*)

Returns the *n*th staff of the score or the current dynamic part.

**OptimizeStaffSpacing** (*from staff number[, to staff number[, from bar[, to bar]]]*)

Does the equivalent of **Layout ▶ Optimize Staff Spacing** for the given range of staves or a whole score. *from staff number* must be specified; if *to staff number* is not specified, Sibelius will optimize the distances between *from staff number* and the bottom staff in the score; if *from bar* is not specified, Sibelius sets it to **1**; if *to bar* is not specified, Sibelius sets it to the last bar of the score.

**PlayLiveTempo** (*play*)

Switches **Play ▶ Live Tempo** on or off; set *play* to **True** to switch it on, or **False** to switch it off.

**RemoveAllHighlights** ()

Removes all highlights in this score.

**RemoveVideo** ()

Removes an attached video from the score.

**RenameTextStyle** ("*old name*", "*new name*")

Renames a text style to a new name.

**Save** (*filename*)

Saves the score, overwriting any previous file with the same name.

**SaveAs** (*filename,type[, use\_defaults, foldername]*)

Saves the score in a specified format, overwriting any previous file with the same name. The optional argument *use\_defaults* only applies to graphics files, and specifies whether or not the default settings are to be used. When set to **False**, the **Export Graphics** dialog will appear and allow the user to make any necessary adjustments. The optional *foldername* specifies the folder in which the file is to be saved, and will create the specified folder if it does not exist. The *foldername* parameter must not end with a path separator (i.e. “\” on Windows).

The possible values for *type* are:

<b>SIBL</b>	Sibelius format (current version)
<b>EMF</b>	EMF
<b>BMP</b>	Windows bitmap
<b>PICT</b>	PICT format
<b>PDF</b>	PDF format
<b>PNG</b>	PNG format
<b>Midi</b>	MIDI format
<b>EPSF</b>	EPS format
<b>TIFF</b>	TIFF format
<b>XML</b>	Uncompressed MusicXML
<b>MXL</b>	Compressed MusicXML

So, to save a file using the current Sibelius file format, you would write `score.SaveAs("filename.sib", "SIBL");`

**SaveAsAudio** (*filename[, include all staves[, play from start]]*)

Creates a WAV file (PC) or AIFF file (Mac) of the score, using Sibelius's **File ▶ Export ▶ Audio** feature. If *include all staves* is **True** (the default), Sibelius will first clear any existing selection from the score so every instrument will be recorded; only selected staves will otherwise be exported. When *play from start* is **True** (also the default), Sibelius will record the entire score from beginning to end, otherwise from the current position of the playback line. Note that **SaveAsAudio** will only have an effect if the user's current playback configuration consists of solely VST and/or AU devices. The function returns **True** if successful, otherwise **False** (including if the user clicks **Cancel** during export).

**SaveAsSibelius2** (*filename[, foldername]*)

Saves the score in Sibelius 2 format, overwriting any previous file with the same name. The optional *foldername* specifies the folder in which the file is to be saved. Note that saving as Sibelius 2 may alter some aspects of the score; see Sibelius Reference for full details.

**SaveAsSibelius3** (*filename[, foldername]*)

Saves the score in Sibelius 3 format. See documentation for **SaveAsSibelius2** above.

**SaveAsSibelius4** (*filename[, foldername]*)

Saves the score in Sibelius 4 format. See documentation for **SaveAsSibelius2** above.

**SaveAsSibelius5** (*filename[, foldername]*)

Saves the score in Sibelius 5 format. See documentation for **SaveAsSibelius2** above.

**SaveAsSibelius6** (*filename[, foldername]*)

Saves the score in Sibelius 6 format. See documentation for **SaveAsSibelius2** above.

**SaveCopyAs** (*filename[, foldername]*)

Saves a copy of the score in the current version's format without updating the existing score's file name in Sibelius.

**SetPlaybackPos** (*bar number, sr*)

Sets the position of the playback line to a given *bar number* and rhythmic (*sr*) position.

**StaveTypeId** (*stave type name*)

Returns the identifier of the stave type with the given name, or the empty string if there is no such stave type.

**SystemCount** (*page num*)

The number of systems on a page (the first page of the score is page 1).

**SymbolExists** (*symbol*)

Returns **True** if the symbol index or name *symbol* is found in the score, otherwise **False**.

**SymbolIndex** (*symbol name*)

Returns the index of the symbol with the given name, or -1 if there is no such symbol.

**TextStyleId** (*text style name*)

Returns the identifier of the text style with the given name, or the empty string if there is no such text style.

**ViewLiveTempo** (*view*)

Switches **View ▶ Live Tempo** on or off; set *view* to **True** to switch it on, or **False** to switch it off.

## Variables

<b>Arranger</b>	Arranger of score from <b>File ▶ Score Info</b> (read/write).
<b>Artist</b>	Artist of score from <b>File ▶ Score Info</b> (read/write)
<b>Barlines</b>	Returns a Barlines object containing information about the barline groupings in the score (read only).
<b>BracketsAndBraces</b>	Returns a BracketsAndBraces object containing information about the brackets and braces in the score (read only).

<b>Composer</b>	Composer of score from <b>File ▶ Score Info</b> (read/write).
<b>ComposerDates</b>	Value of <b>Composer's dates</b> from <b>File ▶ Score Info</b> (read/write).
<b>Copyist</b>	Copyist of score from <b>File ▶ Score Info</b> (read/write).
<b>Copyright</b>	Copyright of score from <b>File ▶ Score Info</b> (read/write).
<b>CurrentDynamicPart</b>	Returns or sets the current DynamicPart object for the Score (read/write). Sibelius will not automatically display the new part: use <b>Sibelius.ShowDynamicPart()</b> to change the displayed part.
<b>CurrentPlaybackPosBar</b>	Returns the bar number in which the playback line is currently located.
<b>CurrentPlaybackPosSr</b>	Returns the rhythmic position within the bar at which the playback line is currently located.
<b>Dedication</b>	Dedication of score from <b>File ▶ Score Info</b> (read/write).
<b>DocumentSetup</b>	Returns a DocumentSetup object representing the settings in <b>Layout ▶ Document Setup</b> (read only).
<b>DynamicParts</b>	Returns a DynamicPartCollection object representing the dynamic parts present in the Score. This object will always stay up to date, even if parts are added or deleted (read only).
<b>EnableScorchPrinting</b>	Corresponds to the <b>Allow printing and saving</b> checkbox in the <b>Export Scorch Web Page</b> dialog (read/write).
<b>EngravingRules</b>	Returns an EngravingRules object corresponding to selected settings in the <b>House Style ▶ Engraving Rules</b> dialog (read only).
<b>FileName</b>	The filename for the score (read only).
<b>FocusOnStaves</b>	is <b>True</b> if <b>View ▶ Focus on Staves</b> is switched on (read/write). See also <b>Staff.ShowInFocusOnStaves</b> .
<b>HitPoints</b>	The HitPointList object for the score (read/write).
<b>InstrumentChanges</b>	Value of <b>Instrument changes</b> from <b>File ▶ Score Info</b> (read/write).
<b>InstrumentTypes</b>	Returns an <b>InstrumentTypeList</b> containing the score's instrument types, on which one may execute a <b>for each</b> loop to get information about each instrument type within the score.
<b>IsDynamicPart</b>	Returns <b>True</b> if the current active score view is a part (read only).
<b>LiveMode</b>	Is <b>True</b> (1) if <b>Play ▶ Live Playback</b> is on (read/write).
<b>Lyricist</b>	Lyricist of score from <b>File ▶ Score Info</b> (read/write).
<b>MagneticLayoutEnabled</b>	Returns <b>True</b> if the current score has <b>Layout ▶ Magnetic Layout</b> switched on (read/write).
<b>MainMusicFontName</b>	Returns the name of the font specified as the <b>Main music font</b> (e.g. "Opus", "Reprise") in <b>House Style ▶ Edit All Fonts</b> (read/write).
<b>MainTextFontName</b>	Returns the name of the font specified as the <b>Main text font</b> (e.g. "Times New Roman", "Arial") in <b>House Style ▶ Edit All Fonts</b> (read/write).
<b>MusicTextFontName</b>	Returns the name of the font specified as the <b>Music text font</b> (e.g. "Opus Text", "Reprise Text") in <b>House Style ▶ Edit All Fonts</b> (read/write).
<b>NumberOfPrintCopies</b>	The number of copies to be printed (read/write).
<b>OpusNumber</b>	Opus number of score from <b>File ▶ Score Info</b> (read/write).
<b>OriginalProgramVersion</b>	The version of Sibelius in which this score was originally created, as an integer in the following format:  (major version) * 1000 + (minor version) * 100 + (revision) * 10  So Sibelius 3.1.3 would be returned as <b>3130</b> .

<b>OtherInformation</b>	More information concerning the score from <b>File ▶ Score Info</b> (read/write).
<b>PageCount</b>	The number of pages in the score (read only).
<b>PartName</b>	Value of <b>Part Name</b> from <b>File ▶ Score Info</b> (read/write).
<b>Publisher</b>	Publisher of score from <b>File ▶ Score Info</b> (read/write).
<b>Redraw</b>	Set this to <b>True</b> (1) to make the score redraw after each change to it, <b>False</b> (0) to disallow redrawing (write only).
<b>ScoreDuration</b>	The duration of the score in milliseconds (read only).
<b>ScoreEndTime</b>	The duration of the score, plus the score start time (see above), in milliseconds (read only).
<b>ScoreHeight</b>	Height of a page in the score, in millimetres (read only).
<b>ScoreStartTime</b>	The value of <b>Timecode of first bar</b> , from <b>Play ▶ Video and Time ▶ Timecode and Duration</b> , in milliseconds (read only).
<b>ScoreWidth</b>	Width of a page in the score, in millimetres (read only).
<b>Selection</b>	The Selection object for the score, i.e. a list of selected objects (read only).
<b>ShowMultiRests</b>	Is <b>True</b> (1) if <b>Layout ▶ Show Multirests</b> is on (read/write).
<b>StaffCount</b>	The number of staves in the score (read only).
<b>StaffHeight</b>	Staff height, in millimetres (read only).
<b>Subtitle</b>	Subtitle of score from <b>File ▶ Score Info</b> (read/write).
<b>SystemCount</b>	The number of systems in the score (read only).
<b>SystemObjectPositions</b>	Returns a SystemObjectPositions object corresponding to the settings in <b>House Style ▶ System Object Positions</b> for the score (read only).
<b>SystemStaff</b>	The SystemStaff object for the score (read only).
<b>Title</b>	Title of score from <b>File ▶ Score Info</b> (read/write).
<b>TransposingScore</b>	Is <b>True</b> (1) if <b>Notes ▶ Transposing Score</b> is on (read/write).
<b>YearOfComposition</b>	Value of <b>Year of composition</b> from <b>File ▶ Score Info</b> (read/write).

# Selection

---

**for each variable in** returns every BarObject (i.e. an object within a bar) in the selection.

**for each type variable in** produces each object of type *type* in the selection. Note that if the selection is a system selection (i.e. surrounded by a double purple box in Sibelius) then objects in the system staff will be returned in such a loop.

## Methods

### Clear ()

Removes any existing selection(s) from the current active score.

### ClipboardContainsData ([clipboard Id])

Returns **True** if the given clipboard contains data. As with the **Copy** and **Paste** methods, **0** (or no arguments) refers to Sibelius's internal clipboard, and all other numeric values will interrogate the temporary clipboard with the matching ID.

### Copy ([clipboard Id])

Copies the music within the current selection to Sibelius's internal clipboard or a Manuscript-specific temporary clipboard, which goes out of scope along with the **Selection** object itself. If no *clipboard Id* is specified, or if it is set to **0**, the selection will be copied to Sibelius's internal clipboard. Any other numeric value you pass in will store the data in a temporary clipboard adopting the ID you specify. Used in conjunction with **Paste** or **PasteToPosition** (see below).

### Delete ([remove staves])

Deletes the music currently selected in the active score. Akin to making a selection manually in Sibelius and hitting **Delete**. If *remove staves* is omitted or set to **True**, Sibelius will completely remove any wholly selected staves from the score. If you wish Sibelius to simply hide such staves instead, set this flag to **False**.

### ExcludeStaff (staff number)

If a passage selection already exists in the current active score, an individual staff may be removed from the selection using this method.

### IncludeStaff (staff number)

If a passage selection already exists in the current active score, a non-consecutive staff may be added to the selection using this method.

### Paste ([clipboard Id[, reset positions]])

Pastes the music from a given clipboard to the start of the selection in the current active score. If no *clipboard Id* is specified, or if it is set to **0**, the data will be pasted from Sibelius's internal clipboard. Any other numeric value you pass in will take the data from a temporary clipboard you must have previously created with a call to **Copy** (see above). Returns **True** if successful.

If *reset positions* is **False**, the positions of any objects that have been moved by the user in the source selection will be retained in the copy. This is the default behaviour. If you wish Sibelius to reset objects to their default positions, set this flag to **True**. This can be useful when copying one or more single objects (i.e. a non-passage selection).

Note that pasting into a score using this method will overwrite any existing music. Only one copy of the music will ever be made, so if your selection happens to span more bars or staves than is necessary, the data will *not* be duplicated to fill the entire selection area.

### PasteToPosition (stave num, bar num, position[, clipboard Id[, reset positions]])

Pastes the music from a given clipboard to a specific location in the current active score. The optional parameters and pasting behavior works in the same way as calls to **Paste**.

### RestoreSelection ()

Restores the selection previously recorded with a call to **StoreCurrentSelection**. Usefully called at the end of a plugin to restore the initial selection.

### SelectPassage (start barNum[, end barNum[, top staveNum[, bottom staveNum[, start pos[, end pos]]]])

Programmatically makes a passage selection around a given area of the current active score. When no *end barNum* is given, only the *start barNum* will be selected. If neither a *top-* nor *bottom staveNum* has been specified, every stave in the score will be selected, whereas if only a *top staveNum* has been supplied, only that one staff will be selected. Sibelius will begin the selection from the start of the first bar if no *start pos* has been given, similarly completing the selection at the end of the final bar if no *end pos* has been supplied.

NB: The *start pos* and *end pos* you supply may be altered by Manuscript: Sibelius requires a passage selection to begin and end at a NoteRest if it doesn't encompass the entire bar.

**SelectSystemPassage** (*start barNum*[, *end barNum*[, *start pos*[, *end pos*]]])

Programmatically makes a system selection around a given area of the current active score. When no *end barNum* is given, only the *start barNum* will be selected. Sibelius will begin the selection from the start of the first bar if no *start pos* has been given, similarly completing the selection at the end of the final bar if no *end pos* has been supplied.

NB: The *start pos* and *end pos* you supply may be altered by Manuscript: Sibelius requires a passage selection to begin and end at a NoteRest if it doesn't encompass the entire bar.

**StoreCurrentSelection** ()

Stores the current selection in the active score internally. Can be retrieved with a call to **RestoreSelection** (see below). Usefully called at the start of a plug-in to store the initial selection.

**Transpose** (*degree*, *interval type*[, *keep double accs*[, *transpose keys*]])

Transposes the currently selected music up or down by a specified *degree* and *interval type*. To transpose up, use positive values for *degree*; to transpose down, use negative values. Note that degrees are 0-based, so **0** is equal to a unison, **1** to a second and so on. For descriptions of the various available interval types, see **Global constants** on page 135. By default, Sibelius will transpose using double sharps and flats where necessary, but this behavior may be suppressed by setting the *keep double accs* flag to **False**. Sibelius will also transpose any key signatures within the selection by default, but can be overridden by setting the fourth parameter to **False**.

For help in calculating the interval and degree required for a particular transposition, see the documentation for the **Sibelius.CalculateInterval** and **Sibelius.CalculateDegree** methods.

## Variables

<b>BottomStaff</b>	The number of the bottom staff of a passage (read only).
<b>FirstBarNumber</b>	The internal bar number of the first bar of a passage (read only).
<b>FirstBarNumberString</b>	The external bar number (including any bar number format changes) of the first bar of a passage (read only).
<b>FirstBarSr</b>	The position of the start of the passage selection in the first bar (read only).
<b>IsPassage</b>	True if the selection represents a passage, as opposed to a multiple selection (read only).
<b>IsSystemPassage</b>	True if the selection includes the system staff (read only).
<b>LastBarNumber</b>	The internal bar number of the last bar of a passage (read only).
<b>LastBarNumberString</b>	The external bar number (including any bar number format changes) of the last bar of a passage (read only).
<b>LastBarSr</b>	The position of the end of the passage selection in the last bar (read only).
<b>TopStaff</b>	The number of the top staff of a passage (read only).

## Copying entire bars

Copying passages from one location in a score to another – or even from one score to another – is very simple. Here is an example function demonstrating how one might go about achieving this:

```
CopyBar(scoreSrc, barFirstSrc, barLastSrc, scoreDest, barFirstDest,
        barLastDest) // This is the function signature
```

```

{
    sel = scoreSrc.Selection;
    sel.SelectPassage(barFirstSrc.BarNumber, barLastSrc.BarNumber,
                     barFirstSrc.ParentStaff.StaffNum,
                     barLastSrc.ParentStaff.StaffNum);

    sel.Copy(0);
    selDest = scoreDest.Selection;
    selDest.SelectPassage(barFirstDest.BarNumber, barLastDest.BarNumber,
                          barFirstDest.ParentStaff.StaffNum,
                          barLastDest.ParentStaff.StaffNum);

    selDest.Paste(0);
}

```

Note that you may use any temporary clipboard or Sibelius's own internal clipboard if the source and destination locations are in the same score, however you can only use Sibelius's internal clipboard if the data is being transferred between two individual scores. This is because the temporary clipboards belong to the **Selection** object itself.

## Copying multiple selections from one bar to another

Using a combination of the **BarObject**'s **Select** method and the **Selection** object's **Copy** and **PasteToPosition** methods, it is possible to copy an individual or multiple selection from one location in a score to another. Bear in mind that **Paste** will always paste the material to the very start of the selection, so if you're copying a selection that doesn't start at the very beginning of a bar, you'll have to store the position of the first item and pass it to **PasteToPosition** when you later come to paste the music to another bar.

This example code below copies all items from position 256 or later from one bar to another. It is assumed that **sourceBar** is a valid **Bar** object, and **destStaffNum** and **destBarNum** contain the destination staff number and bar number respectively:

```

sel = Sibelius.ActiveScore.Selection; // Get a Selection object for this score
sel.Clear(); // Clear the current selection
clipboardToUse = 1; // This clipboard ID we're going to use
copyFromPos = 256; // Copy all objects from this point in the source bar
posToCopyTo = 0; // Variable used to store the position of the first object copied
for each obj in sourceBar { // Iterate over all objects in the bar
    if (obj.Position >= copyFromPos) { // Ignore objects before the start threshold
        obj.Select(); // Select each relevant object in turn
        if (posToCopyTo = 0) {
            posToCopyTo = obj.Position; // Remember the position of the first item
        }
    }
}
sel.Copy(clipboardToUse); // Copy the objects we've selected to the clipboard

sel.PasteToPosition(destStaffNum, destBarNum, posToCopyTo, clipboardToUse); // And
paste them to the destination bar at the relevant offset

```

# Sibelius

---

There is a predefined variable that represents the Sibelius program. You can use the Sibelius object to open scores, close scores, display dialogs or (most commonly) to get currently open Score objects.

`for each variable in` returns each open score.

## Methods

**AppendLineToFile** (*filename, text[, use\_unicode]*)

Appends a line of text to the file specified (adds line feed). See comment for **AppendTextFile** above for explanation of the *use\_unicode* parameter. Returns **True** if successful.

**AppendLineToRTFFile** (*filename, text*)

Appends a line of text to the file specified. Times New Roman 12pt is used, unless you specify a change of formatting. To change formatting, use the following backslash expressions:

`\B\` bold on

`\I\` italic on

`\U\` underline on

`\n\` new line

`\b\` bold off

`\i\` italic off

`\u\` underline off

`\fontname\` change to given font name (e.g. `\fArial\` to switch to Arial)

`\spoints\` set the font size to a specific point size (e.g. `\s16\` to set the font to 16pts).

Note the difference in meaning of `\s` in the context of adding data to an RTF file, versus its use in the context of styling text directly within Sibelius (see **Syntax** on page 36 following).

**AppendTextFile** (*filename, text[, use\_unicode]*)

Appends text to the file specified. If the optional Boolean parameter *use\_unicode* is **True**, then the string specified will be exported in Unicode format; if this parameter is **False** then it will be converted to 8-bit Latin-1 before being added to the text file. This parameter is **True** by default. Returns **True** if successful.

**CalculateDegree** (*source pitch, dest pitch, upward interval*)

Takes two note names in the form of a string (e.g. C, G#, Bb, Fx or Ebb) and a boolean that should be **True** if the interval you're wishing to calculate is upward. Returns a 0-based number describing the degree between the two notes.

For example, `CalculateDegree("C#", "G", False)` would return **3**.

**CalculateInterval** (*source pitch, dest pitch, upward interval*)

Takes two note names in the form of a string (e.g. C, G#, Bb, Fx or Ebb) and a boolean that should be **True** if the interval you're wishing to calculate is upward. Returns a number representing an **Interval Type** (see **Global constants** on page 135). You can use the value returned in calls to `NoteRest.Transpose` and `Selection.Transpose`.

For example, `CalculateInterval("Bb", "G#", True)` would return **IntervalAugmented**.

**Close** (*show dialogs*)

Closes the current score or part view; if the current view is the last tab in the current window, the window will therefore also be closed. If the optional Boolean parameter is **True** then warning dialogs may be shown about saving the active score, and if it is **False** then no warnings are shown (and the score will not be saved).

**CloseAllWindows** (*show dialogs*)

Closes all open document windows. If the optional Boolean parameter is **True** then warning dialogs may be shown about saving any unsaved scores, and if it is **False** then no warnings are shown (and the scores will not be saved).

**CloseWindow** (*show dialogs*)

Closes the current window (i.e. closes all of the open tabs in the current window). If the optional Boolean parameter is **True** then warning dialogs may be shown about saving the score, and if it is **False** then no warnings are shown (and the score will not be saved).

**CreateFolder** (*foldername*)

Creates the folder of specified *foldername*; returns the Folder object created if successful, or null if it fails.

**CreateProgressDialog** (*caption, min value, max value*)

Creates the progress dialog, which shows a slider during a long operation.

**CreateRTFFile** (*filename*)

Creates the Rich Text Format (RTF) file specified. Any existing file with the same name is destroyed. Returns **True** if successful.

**CreateTextFile** (*filename*)

Creates the plain text file specified. Any existing file with the same name is destroyed. Returns **True** if successful.

**DestroyProgressDialog** ()

Destroys the progress dialog.

**EnableControlById** (*plugin, dialog, controlID, enable*)

Dynamically enables or disables a given control on a plug-in dialog: *plugin* is a plug-in object, e.g. **Self**; *dialog* is a dialog object, and therefore should not be passed in quotation marks; *controlID* is the string corresponding to the control to be enabled or disabled; and *enable* is a Boolean parameter, which enables the control when set to **True** and disables the control when set to **False**.

**EnableNthControl** (*nth control, enable*)

Dynamically enables or disables a given control on a plug-in dialog. Can be called either before a dialog has been displayed (in which case the operation will apply to the next dialog you show), or while a dialog is already visible (in which case the operation will affect the top-most currently visible dialog).

Note that, using this method, controls can only be identified according to their order upon creation; for this reason, you are strongly recommended to use **EnableControlById** () instead. To find out the creation order, open the appropriate dialog in the plug-in editor, right click on the dialog's client area and choose **Set Creation Order** from the contextual menu that appears. Note that *nth control* expects a 0-based number, unlike the display given by **Set Creation Order**. By default, all controls will be enabled; to disable any given control, set *enable* to **false**.

**FileExists** (*filename*)

Returns **True** if a file exists or **False** if it doesn't.

**FolderExists** (*foldername*)

Returns **True** if a folder exists or **False** if it doesn't.

**GetDocumentsFolder** ()

Returns the user's **My Documents** (Windows) or **Documents** (Mac) folder.

**GetElapsedCentiSeconds** (*timer number*)

Returns the time since **ResetStopWatch** was called for the given stop watch, in 100ths of a second.

**GetElapsedMilliseconds** (*timer number*)

Returns the time since **ResetStopWatch** was called for the given stop watch, in 1000ths of a second.

### **GetElapsedSeconds** (*timer number*)

Returns the time since **ResetStopWatch** was called for the given stop watch in seconds.

### **GetFile** (*file path*)

Returns a new File object representing a file path e.g. `file=Sibelius.GetFile("c:\\onion\\foo.txt");`

### **GetFolder** (*file path*)

Returns a new Folder object representing a file path e.g. `folder=Sibelius.GetFolder("c:\\");`

### **GetNotesForChord** (*chord name*)

Returns a Manuscript array giving the MIDI pitches corresponding to the named chord symbol.

### **GetNotesForGuitarChord** (*chord name*)

Returns a Manuscript array giving the MIDI pitches and string numbers corresponding to the named guitar chord, using the most suitable fingering according to the user's preferences. Strings are numbered starting at 0 for the bottom string and increasing upwards. The array returned has twice as many entries as the number of notes in the chord, because the pitches and string numbers are interleaved thus:

```
array[0] = MIDI pitch for note 0
array[1] = string number for note 0
array[2] = MIDI pitch for note 1
array[3] = string number for note 1
...
```

### **GetScoresFolder** ()

Returns a new Folder object representing the default **Scores** folder (as defined on the **Files** page of **File > Preferences**).

### **GetSyllabifier** ()

Returns a new Syllabifier object, providing access to Sibelius's internal syllabification engine.

### **GetUserApplicationDataFolder** ()

Returns the user's **Application Data** (Windows) or **Application Support** (Mac) folder.

### **GoToEnd** ()

Moves the playback line to the end of the score.

### **GoToStart** ()

Moves the playback line to the start of the score.

### **IsDynamicPartOpen** (*dynamic part*)

Returns **True** if the specified part and its corresponding Score is valid and is visible in a Score window within Sibelius.

### **LiveTempoTap** ()

Equivalent to tapping a beat during Live Tempo recording.

### **MakeSafeFileName** (*filename*)

Returns a "safe" version of filename. The function removes characters that are illegal on Windows or Unix, and truncates the name to 31 characters so it will be viewable on Mac OS 9.

### **MessageBox** (*string*)

Shows a message box with the string and an **OK** button.

### **MoveActiveViewToBar** (*bar number* [, *position*])

Brings a given internal bar number into view. Has the same effect as **Go to Bar** in Sibelius. An optional position within the bar may also be specified, but if omitted, the very start of the bar will be brought into view.

### **MoveActiveViewToSelection** (*[start of selection]*)

Brings the object(s) currently selected into view. If *start of selection* is **False**, the end of the selection will be brought into view. If the optional argument is **True** or omitted, the start of the selection will be visible. Has the same effect as **Shift + Home/End** in Sibelius.

**New** (*[manuscript paper]*)

Creates and shows a new score. If the optional parameter *manuscript paper* is not supplied, Sibelius will create a blank score; *manuscript paper* should be the filename of the manuscript paper you want to create, minus its **.sib** file extension, optionally including the name of the category (subfolder) in which it is located, e.g. both **"String orchestra"** and **"Orchestral/String orchestra"** will work. Returns the score object corresponding to the new score.

**NthScore** (*score index from 0*)

Returns the *n*th open score (zero-based), or null if the specified index is not valid.

**Open** (*filename [, quiet]*)

Opens and displays the given file. Filename must include its extension, e.g. **Song.sib**. If the optional boolean parameter *quiet* is set to **True**, then no error messages or dialogs will be displayed, even if the file could not be opened for some reason. Returns **True** if the file is opened successfully, **False** otherwise.

**Play** ()

Plays the current score, from the current position of the playback line.

**PlayFromSelection** ()

Plays from the current selection.

**PlayFromStart** ()

Plays from the start of the score.

**PrependScreenreaderText** (*string*)

Prepends *string* to the default screen reader description.

**Print** (*number of copies[, dynamic part[, showdialog]]*)

Prints the specified number of copies of the current score or dynamic part using default settings. If *number of copies* is missing or a negative number, then the default number of copies for the score or part is printed, and if set to 0 no printing occurs. The optional *dynamic part* parameter must be a valid object of the active Score (this does not affect or use **Score.CurrentDynamicPart** for the Score printed); if it is not supplied, the active Score is printed instead. Returns **True** for success, **False** for failure. The second optional parameter, *showdialog*, is a Boolean: if set to **True**, Sibelius will show the **Print** dialog, and if not specified or set to **False**, Sibelius will not show the dialog.

**PrintAllDynamicParts** (*[score]*)

Prints the default number of copies of all dynamic parts, but does not print the full score. Prints the currently-active Score if the optional *score* parameter is not passed in. Returns **True** for success, **False** for failure.

**RandomNumber** ()

Returns a random number.

**RandomSeed** (*start number*)

Restarts the random number sequence from the given number.

**RandomSeedTime** ()

Restarts the random number sequence based on the current time.

**RefreshDialog** ()

Refreshes the data being displayed by any controls on the currently active plug-in dialog. For example, if a text object gets its string from a global variable and the value stored in this global variable has changed whilst the dialog is visible, calling **RefreshDialog** will update the text object on the dialog accordingly. Returns **True** if successful.

**ResetStopWatch** (*timer number*)

Resets the given stop watch. *timer number* must be an integer greater than 0.

**ReadTextFile** (*filename*, [*unicode*])

Reads the given filename into an array of strings, one per line. If the *unicode* parameter is true, the file is treated as Unicode, otherwise it is treated as ANSI (i.e. 8-bit) text, which is the default. The resulting array can be used in two ways:

```
lines = Sibelius.ReadTextFile("file.txt");
for each l in lines {
    trace(l);
}
```

or:

```
lines = Sibelius.ReadTextFile("file.txt");
for i=0 to lines.NumChildren {
    trace(lines[i]);
}
```

**ScreenreaderText** (*string*)

Replaces Sibelius's default screen reader description with *string*.

**SelectFileToOpen** (*caption*, *file*, *initial\_dir*, *default extension*, *default type*, *default type description*)

Shows a dialog prompting the user to select a file to open. All parameters are optional. The method returns a file object describing the selection. For example:

```
file=Sibelius.SelectFileToOpen("Save Score","*.sib","c:\","sib","SIBE","Sibelius File");
```

Note that the *initial\_dir* parameter has no effect on Mac, because it is unsupported by Mac OS X.

**SelectFileToSave** (*caption*, *file*, *initial\_dir*, *default extension*, *default type*, *default type description*)

Shows a dialog prompting the user to select a file to save to. All parameters are optional. The method returns a file object describing the selection. File types and extensions:

Description	Type	Extension
EMF graphics	"EMF"	emf
Windows bitmap	"BMP"	bmp
Macintosh PICT bitmap	"PICT"	pict
Sibelius score	"SIBE"	sib
MIDI file	"Midi"	mid
House style file	"SIBS"	lib
PhotoScore file	"SCMS"	opt
Web page	"TEXT"	html
TIFF graphics	"TIFF"	tif
PNG graphics	"PNG"	png

Note that the *initial\_dir* parameter has no effect on Mac, because it is unsupported by Mac OS X.

**SelectFolder** (*[caption]*)

Allows the user to select a folder and returns a Folder object. The optional string parameter *caption* sets the caption of the dialog that appears.

**SetCurrentScoreViewType** (*view type*)

Allows plug-ins to switch between Panorama and normal view; values are **ViewTypePage** (0) and **ViewTypePanorama** (1).

**ShowDialog** (*script name, object*)

Shows a dialog from a dialog description and sends messages and values to the given object. Returns the value **True** (1) or **False** (0) depending on which button you clicked to close the dialog (typically **OK** or **Cancel**).

**ShowDynamicPart** (*dynamic part[, newWindow]*)

Shows the specified dynamic part. The second optional Boolean parameter *newWindow* allows you to specify whether the part should open in a new tab (specify **False**, the default) or a new window (specify **True**). Returns **True** if the specified part can be shown, **False** otherwise. Can be used to bring a Score to the front by way of **Sibelius.ShowDynamicPart(Score.CurrentDynamicPart)**.

**StartLiveTempoRecording** ()

Starts recording Live Tempo; equivalent to choosing **Play ▶ Record Live Tempo**.

**StopLiveTempoRecording** ()

Stops recording Live Tempo.

**Stop** ()

Stops the current score from playing.

**UpdateProgressDialog** (*progress pos, status message*)

Returns 0 if the user clicked **Cancel**.

**YesNoMessageBox** (*string*)

Shows a message box with **Yes** and **No** buttons. Returns **True** if **Yes** is chosen, else **False**.

## Variables

<b>ActiveScore</b>	is the active Score object (read/write). Setting <b>Sibelius.ActiveScore</b> makes active the current dynamic part (which may be the full score rather than a part) of the score. If that window is not currently shown, a new window may be created according to the user's preferences. Returns null if it fails to make the specified score or part active.
<b>ApplicationLanguage</b>	returns the language of the version of Sibelius currently running, always in English – e.g. <b>English</b> , <b>German</b> , <b>French</b> etc. (read only)
<b>ApplicationLanguageIsoString</b>	returns the two-letter ISO 3166 identifier of the language in which Sibelius is currently running, e.g. it <b>en</b> , <b>de</b> , <b>fr</b> , etc. (read only).
<b>CurrentTime</b>	returns a string containing the current time in the format hh:mm:ss, based on your own computer's locale (read only)
<b>CurrentDateShort</b>	returns a string containing the current date in the format dd/mm/yyyy, based on your own computer's locale (read only)
<b>CurrentDateLong</b>	returns a string containing the current date in the format dd MM yyyy, based on your own computer's locale (read only)
<b>CurrentDate</b>	returns the current date and time as a <b>DateTime</b> object in local time (read only).
<b>HouseStyles</b>	the list of house styles available, as a <b>ComponentList</b>
<b>LocalizedApplicationLanguage</b>	returns the language in which Sibelius is currently running, in the localized language, e.g. it returns <b>Deutsch</b> when running in German (read only).
<b>ManuscriptPapers</b>	the list of manuscript papers available, as a <b>ComponentList</b>

<b>OSVersionString</b>	the current operating system in which the plug-in is running, as one of the following strings:																		
	<table> <tr> <td><b>Windows 95</b></td> <td><b>Mac OS X</b></td> </tr> <tr> <td><b>Windows 98</b></td> <td><b>Mac OS X Jaguar</b></td> </tr> <tr> <td><b>Windows ME</b></td> <td><b>Mac OS X Panther</b></td> </tr> <tr> <td><b>Windows NT 3.x</b></td> <td><b>Mac OS X Tiger</b></td> </tr> <tr> <td><b>Windows NT 4</b></td> <td><b>Mac OS X Leopard</b></td> </tr> <tr> <td><b>Windows 2000</b></td> <td><b>Mac OS X Snow Leopard</b></td> </tr> <tr> <td><b>Windows XP</b></td> <td><b>Mac OS X Lion</b></td> </tr> <tr> <td><b>Windows Vista</b></td> <td></td> </tr> <tr> <td><b>Windows 7</b></td> <td></td> </tr> </table>	<b>Windows 95</b>	<b>Mac OS X</b>	<b>Windows 98</b>	<b>Mac OS X Jaguar</b>	<b>Windows ME</b>	<b>Mac OS X Panther</b>	<b>Windows NT 3.x</b>	<b>Mac OS X Tiger</b>	<b>Windows NT 4</b>	<b>Mac OS X Leopard</b>	<b>Windows 2000</b>	<b>Mac OS X Snow Leopard</b>	<b>Windows XP</b>	<b>Mac OS X Lion</b>	<b>Windows Vista</b>		<b>Windows 7</b>	
<b>Windows 95</b>	<b>Mac OS X</b>																		
<b>Windows 98</b>	<b>Mac OS X Jaguar</b>																		
<b>Windows ME</b>	<b>Mac OS X Panther</b>																		
<b>Windows NT 3.x</b>	<b>Mac OS X Tiger</b>																		
<b>Windows NT 4</b>	<b>Mac OS X Leopard</b>																		
<b>Windows 2000</b>	<b>Mac OS X Snow Leopard</b>																		
<b>Windows XP</b>	<b>Mac OS X Lion</b>																		
<b>Windows Vista</b>																			
<b>Windows 7</b>																			
	If the operating system is unrecognized, the variable returns <b>Unknown system version</b> .																		
<b>PathSeparator</b>	returns the current path separator character (i.e. “\” on Windows, “/” on Mac).																		
<b>Plugins</b>	the list of plug-ins installed. See the documentation for the <b>Plugin</b> object																		
<b>Playing</b>	is <b>True</b> if a score is currently being played (read only).																		
<b>ProgramVersion</b>	the current version of Sibelius in which the plug-in is running, as an integer in the following format:  $(\text{major version}) * 1000 + (\text{minor version}) * 100 + (\text{revision}) * 10$ So Sibelius 3.1.3 would be returned as <b>3130</b> .																		
<b>ScoreCount</b>	is the number of scores being edited (read only).																		
<b>ViewHighlights</b>	is <b>True</b> if <b>View ▶ Highlights</b> is switched on (read/write).																		
<b>ViewNoteVelocities</b>	is <b>True</b> if <b>View ▶ Live Playback Velocities</b> is switched on (read/write).																		
<b>ViewNoteColors</b>	the current <b>View ▶ Note Colors</b> setting used (read/write).																		

<b>Description</b>	<b>Value</b>
None	0
Notes out of Range	1
Pitch Spectrum	2
Voice Colors	3

# SparseArray

---

For more information about using sparse arrays in Manuscript, see **Sparse arrays** on page 21.

To create a sparse array, use the built-in method **CreateSparseArray** (*a1, a2, a3, a4...an*).

**for each** allows you to iterate over the contents of a sparse array.

## Methods

**Concat** (*array1, array2 ... arrayN*)

Concatenate zero or more sparse arrays to this one, and return it as a one-level deep copy (so if a sparse array contains other arrays, for example, then the new sparse array will contain references to those arrays, not copies of them). This method does not modify the original sparse array.

**Join** (*[separator]*)

Returns the array as a string, with each populated element separated by the optional *separator*. If you don't specify *separator*, the default separator is a comma.

**Push** (*value1, value2, value3 ... valueN*)

Pushes one or more values to the end of the array.

**Pop** ()

Returns the last element of the array, and removes it from the array.

**Reverse** ()

Reverses the sparse array in place, modifying the sparse array being operated on. The reversed array only populates the elements needed to create the reversed array.

**Slice** (*start[, end]*)

Returns a new sparse array of the elements starting from *start* and up to, but not including, the optional *end*. *start* and *end* can be negative indices referring to offsets from the end of the array.

## Variables

**Length** Returns or sets the length of the array (read/write).

**ValidIndices** Returns a sparse array containing only the populated indices of the original sparse array, i.e. those that are not null.

## Converting old-style arrays to new sparse arrays

The SparseArray object is a replacement for the old Array object, which was a more limited kind of array that could only hold strings and integers, but no other kind of objects. You are recommended to use the new SparseArray object for all arrays in your plug-ins, but if you have an existing plug-in in which old-style Arrays are used, you can convert them to SparseArrays as follows:

**Array.ConvertToSparseArray** () returns a new SparseArray object, populated with strings converted from the old-style Array.

# SpecialBarline

---

Derived from a BarObject

These can only be found in system staves.

## Methods

None.

## Variables

<b>BarlineType</b>	The name of the type of special barline, expressed as a string.
<b>BarlineInternalType</b>	The type of the barline, expressed as a numeric ID which maps to one of the SpecialBarline global constants (see <b>Global constants</b> on page 135).

# Staff

---

These can be normal staves or the system staff. The system staff contains objects that apply to all staves, such as `SpecialBarlines` and text using a system text style.

A Staff contains Bar objects.

`for each variable in` returns each object in the staff.

`for each type variable in` returns each item of `type` in the staff in chronological order (i.e. in order of rhythmic position in each bar).

## Methods

**AddClef** (*pos*, *concert pitch clef* [, *transposed pitch clef*])

Adds a clef to the staff at the specified position. *concert pitch clef* determines the clef style when **Notes ▶ Transposing Score** is switched off; the optional *transposed pitch clef* parameter determines the clef style when this is switched on. Clef styles should be an identifier like “clef.treble”; for a complete list of available clef styles, see **Clef styles** on page 139. Alternatively you can give the name of a clef style, e.g. “Treble,” but bear in mind that this may not work in non-English versions of Sibelius.

**AddLine** (*pos*, *duration*, *line style*, [*dx*, [*dy*, [*voicenum*, [*hidden*]]]])

Adds a line to staff (please see the documentation in Bar object below).

**AddNote** (*pos*, *sounding pitch*, *duration*, [*tied* [, *voice* [, *diatonic pitch* [, *string number*]]]])

Adds a note to staff, adding to an existing NoteRest if already at this position (in which case the duration is ignored); otherwise creates a new NoteRest. Will add a new bar if necessary at the end of the staff. The position is in 1/256th quarters from the start of the score. The optional *tied* parameter should be **True** if you want the note to be tied. Voice 1 is assumed unless the optional *voice* parameter (with a value of 1, 2, 3 or 4) is specified. You can also set the diatonic pitch, i.e. the number of the “note name” to which this note corresponds, 7 per octave (35 = middle C, 36 = D, 37 = E and so on). If a diatonic pitch of zero is given then a suitable diatonic pitch will be calculated from the MIDI pitch. The optional string number parameter gives a string number for this note, which is only meaningful if the note is on a tablature stave. If this parameter is not supplied then a default string number is calculated based on the current tablature stave type and the guitar tab fingering options (specified on the **Note Input** page of **File ▶ Preferences**). Returns the Note object created (to get the NoteRest containing the note, use `Note.ParentNoteRest`).

When adding very short notes to tuplets, Sibelius may be unable to find a legal place for the note in the bar. Should this happen, Sibelius will return **null**. You should therefore check for a valid object if there is any likelihood that this situation may arise in your code.

N.B.: If you add a note to a score that intersects an existing tuplet, Sibelius will try to snap the note to the closest sensible place within that tuplet. However, you are advised to use `Tuplet.AddNote()` for this purpose as it is void of any ambiguity.

**AddStaffAbove** (*ossia*, [*start bar number* [, *end bar number* [, *start pos* [, *end pos*]]]])

Adds a new staff above the staff. Set *ossia* to **True** to create an ossia (small) staff. The other, optional parameters determine where the staff should be visible: if you do not specify a *start bar number*, the staff will be visible from the start of the score; if you do not specify an *end bar number*, the staff will be visible to the end of the score. If you specify a start and/or end bar number, the staff will be hidden outside that range by way of an instrument change to the **No instrument (hidden)** instrument type. *start pos* and *end pos* represent the rhythmic position within the *start bar number* and *end bar number* respectively, and if not specified, *start pos* will default to the start of the bar, and *end pos* will default to the end of the bar. Returns the staff created, or null if the call fails.

**AddStaffBelow** (*ossia*, [*start bar number* [, *end bar number* [, *start pos* [, *end pos*]]]])

Adds a new staff below the staff. See **AddStaffAbove** () above for details.

**AddSymbol** (*pos*, *symbol index or name*)

Adds a symbol to staff (please see the documentation in Bar object below).

**CurrentKeySignature** (*bar number*)

Returns a KeySignature valid at the bar number passed.

**NthBar** (*n*)

Returns the *n*th bar in the staff, counting from 1.

**ResetSpaceAroundStaff** (*above*, *below* [, *from bar* [, *to bar*]])

Does the equivalent of **Layout** ▶ **Reset Space Above Staff** and/or **Reset Space Below Staff** for the given range of bars in a staff. Set *above* to **True** to reset the space above the staff, and *below* to **True** to reset the space below the staff. If *from bar* is not specified, Sibelius sets it to 1; if *to bar* is not specified, Sibelius sets it to the last bar of the score.

**SetSound** (*styleID* [, *set SoundStage*])

Changes the initial playback sound of this staff to be the default sound for the given default instrument *styleID*. For a complete list of default instrument style IDs in Sibelius, see **Instrument types** on page 139. If the optional Boolean parameter is set to **False**, then the SoundStage information (volume, pan and distance) for this staff will be unchanged. If it is omitted or set to **True**, then the SoundStage information will be set to the default for the new sound.

**SetSoundID** (*soundID*)

Changes the initial playback sound of this staff to the given *soundID*.

**Staff** [*array element*]

Returns the *n*th bar (counting from 1) e.g. **Staff** [1].

## Variables

<b>BankHigh</b>	Controls MIDI controller 0, used to select the “coarse” bank number for this stave, and corresponding to the Mixer control of the same name. The range is 0–127, or –1 if you don’t want to send this controller message at the start of playback. Note that not all MIDI devices support multiple banks (read/write).
<b>BankLow</b>	Controls MIDI controller 32, used to select the “fine” bank number for this stave, and corresponding to the Mixer control of the same name. The range is 0–127, or –1 if you don’t want to send this controller message at the start of playback. Note that not all MIDI devices support multiple banks (read/write).
<b>BarCount</b>	Number of bars in the staff (read only).
<b>Channel</b>	The MIDI channel number of this staff, numbered 1–16 (read/write).
<b>Distance</b>	The reverb “distance” of this staff, corresponding to the control of the same name in the Mixer. This is a percentage, used to scale the overall reverb settings from the Performance dialog (read/write).
<b>FullInstrumentName</b>	Gives the full instrument name of the staff, empty for an unnamed staff (read/write).
<b>FullInstrumentNameWithFormatting</b>	Gives the full instrument name of the staff including any changes of font or style, if any (read/write).
<b>NumStavesInSameInstrument</b>	The number of staves belonging to the default instrument from which this staff was created (read only).
<b>InitialClefStyle</b>	The name of the initial clef on a staff, depending on the state of <b>Notes</b> ▶ <b>Transposing Score</b> (read only).
<b>InitialClefStyleId</b>	The style identifier of the initial clef on a staff, depending on the state of <b>Notes</b> ▶ <b>Transposing Score</b> (read only).
<b>InitialInstrumentType</b>	Returns an InstrumentType object for the instrument type at the start of the staff.
<b>InitialKeySignature</b>	Returns the KeySignature object at the start of this staff (read only).

<b>InitialStyleId</b>	Returns the style identifier of the staff (read only). To create an instrument from such an ID, pass the style as the first argument to <b>Score.CreateInstrument</b> . For a complete list of all the default instrument names in Sibelius, see <b>Instrument types</b> on page 139.
<b>InstrumentName</b>	Gives the full instrument name of the staff in the form that is displayed on the <b>Instruments and Staves</b> dialog in Sibelius (read only). For an unnamed staff, this will be “[Piano]” for example, where Piano is the default instrument name of the staff (see below). To get the internal name (which will be empty for unnamed staves), use the read/write variables <b>FullInstrumentName</b> or <b>ShortInstrumentName</b> instead.
<b>IsSystemStaff</b>	<b>True</b> or <b>False</b> depending on whether this staff is a system staff or not (read only).
<b>IsVocalStaff</b>	Returns <b>True</b> if the instrument type used by the staff has the <b>Vocal staff</b> option switched on, meaning that e.g. the default positions of dynamics should be above the staff rather than below (read only).
<b>MuteMode</b>	Specifies whether or not this staff will play back. Corresponds to the mute button in the Mixer. The supported values are defined as global constants (see <b>Global constants</b> on page 135) and are <b>Muted</b> , <b>HalfMuted</b> and <b>NotMuted</b> (read/write).
<b>Pan</b>	The MIDI stereo panning position of this staff (corresponding to the pan control in the Mixer). Permissible values are -100 to 100, with positive values being to the right and negative to the left (read/write).
<b>ParentScore</b>	Returns the staff’s parent Score object (read only).
<b>ShortInstrumentName</b>	Gives the short instrument name of the staff, empty for an unnamed staff (read/write).
<b>ShortInstrumentNameWithFormatting</b>	Gives the short instrument name of the staff including any changes of font or style, if any (read/write).
<b>ShowInFocusOnStaves</b>	If <b>True</b> then this staff will be shown when <b>Layout ▶ Focus on Staves</b> is switched on (see also <b>Score.FocusOnStaves</b> ). This variable cannot be set to <b>False</b> unless it is also <b>True</b> for at least one other staff in the score (read/write).
<b>Solo</b>	<b>True</b> or <b>False</b> depending on whether this staff plays back in “solo” mode, corresponding to the Mixer button of the same name (read/write).
<b>SoundIdOverrideIfAny</b>	Returns a string containing the sound ID override set in the mixer for the staff. If no override has been set, an empty string is returned (read only).
<b>Small</b>	<b>True</b> if the staff is small (e.g. an ossia staff), <b>False</b> if it is normal sized (read/write).
<b>StaffNum</b>	Returns the number of this staff, counting from 1 at the top of the currently-viewed part. Returns <b>0</b> for for SystemStaff objects (read only).
<b>Volume</b>	The overall MIDI volume of this staff, corresponding to its fader in the Mixer. Permissible values are 0–127 (read/write).

# Syllabifier

---

Acts as a wrapper around Sibelius's internal Syllabification engine, exposing its functionality to Manuscript.

## Methods

**AbbreviateUsingApostrophe** (*useApostrophe*)

When the **abbreviate** flag is set to **True** when calling **Syllabify**, Sibelius will replace vowels that have been combined with the previous syllable with an apostrophe if this option is switched on – e.g. *Vege-ta-bles* vs *Veg'-ta-bles*. Calling this method will cause the syllabification engine to recalculate its result if necessary.

**GetNthSyllable** (*n*)

Once a string has been syllabified by calling the **Syllabify** method, you can use this method to return each individual syllable as a string

**NthSyllableEndsWord** (*n*)

Once a string has been syllabified by calling the **Syllabify** method, you can use this method to find out whether each syllable occurs at the end of a word

**Syllabify** (*textToSyllabify*[, *language*[, *abbreviate* = *False*]])

Breaks a string down into its syllabic components, returning the number of syllables in the resultant syllabification, or **0** if an error has occurred. The rules of the specified language will be used, and you may legally supply either a language ID, or the localized language name. To get the individual syllables, you should call the **GetNthSyllable** and **NthSyllableEndsWord** methods documented below.

If the **language** argument is omitted, Sibelius will attempt to automatically identify the language of the text. If this is not possible, or if an unrecognised language ID or name has been supplied, **0** will be returned.

When **abbreviate** is **True**, each ambiguous word in the string will be syllabified using the minimal number of syllables. For example, syllabifying “Everybody likes vegetables” would return “Eve-ry-bod-y likes vege-ta-bles” with this flag set to **True**, otherwise “E-ve-ry-bod-y likes veg-e-ta-bles”.

## Variables

<b>AbbreviateUsingApostrophe</b>	Returns <b>True/False</b> depending on whether the syllabification engine is set to abbreviate combined syllables with an apostrophe (read only – call method with same name for write access)
<b>AvailableLanguageIds</b>	Returns an array containing a list of the available syllabification languages as three-letter non-translatable IDs – e.g. <b>ENG</b> (English), <b>GER</b> (German), <b>LAT</b> (Latin). These IDs are identical in all localized versions of Sibelius (read only)
<b>AvailableLanguages</b>	Returns an array containing a list of the available syllabification languages as localized strings (read only)
<b>NumberOfSyllables</b>	Returns the number of syllables in the hyphenated string generated by calling the <b>Syllabify</b> method (read only)
<b>SyllabifiedString</b>	Returns the resultant hyphenated string generated by calling the <b>Syllabify</b> method (read only)

# SymbolItem and SystemSymbolItem

---

Derived from a BarObject. For system symbols (i.e. symbols belonging to the system staff, retrieved with `for each` on the system staff object), the type of symbol objects is SystemSymbolItem, not SymbolItem.

## Methods

None.

## Variables

<b>Index</b>	The index of this symbol in the list of symbols. This corresponds to its position in the <b>Create Symbol</b> dialog, counting from zero left-to-right and top-to-bottom (read only).
<b>Name</b>	The name of this symbol. May be translated in non-English language versions of Sibelius (read only).
<b>Size</b>	The draw size of the symbol, corresponding to the four available options in the Symbols dialog in Sibelius. The four available values are <b>NormalSize</b> , <b>CueSize</b> , <b>GraceNoteSize</b> and <b>CueGraceNoteSize</b> , all defined as global constants (read/write).

# SystemObjectPositions

---

Accessed from a Score object. Corresponds to the settings in **House Style** › **System Object Positions**.

## Methods

**GetNthStaffShowsSystemObjects** (*staffNum*)

Returns **True** if the given staff number *staffNum* (relative to the current part) is showing system objects above it, otherwise **False**.

**SetNthStaffShowsSystemObjects** (*staffNum*, *show*)

Tells the staff with the given staff number *staffNum* (relative to the current part) either to show or not show system objects above it. This will have no effect if you pass in the top staff in the part, or if the maximum number of staves allowed to show system objects has already been met.

**Clear** (*[removeBelowBottomStaff]*)

Allows you to clear all the system object positions (apart from the compulsory one above the top staff) in a single operation; set the optional Boolean parameter *removeBelowBottomStaff* to **True** to also clear the **Below bottom staff** system object position.

## Variables

**NumStavesShowingSystemObjects**

Returns the current number of staves showing system object positions (read only)

**ShowSystemObjectsBelowBottomStaff**

Returns **True** if system objects should show below the bottom staff, otherwise **False** (read/write).

# SystemStaff, Staff, Selection, Bar and all BarObject-derived objects

---

## Variables

### IsALine

Returns true if the object is a line object. (Note that this is a variable, not a method, unlike the `IsObject ()` method for all objects.)

### Type

A string giving the name of the type of an object. The strings for the first 4 types above are `"SystemStave"`, `"Stave"`, `"MusicSelectionList"`, and `"Bar"`. Note that this variable is also a member of all objects that occur in bars.

# SystemStaff

---

There is one SystemStaff object per score. The SystemStaff contains objects which apply to all staves, such as SpecialBarlines and text using a system text style. Unlike normal staves, the SystemStaff does not appear in the score itself. As such, most of the variables and methods supported for Staff objects are not available on a SystemStaff. Those that are supported by SystemStaff are as follows.

## Methods

**CurrentKeySignature** (*bar number*)

Returns a KeySignature valid at the bar number passed.

**CurrentTimeSignature** (*bar number*)

Returns a TimeSignature valid at the bar number passed.

**NthBar** (*n*)

Returns the *n*th bar in the staff, counting from 1.

**SystemStaff** [*array element*]

Returns the *n*th bar (counting from 1) e.g. **SystemStaff**[1].

## Variables

**BarCount**                      Number of bars in the staff (read only).

**InitialKeySignature**       Returns the KeySignature object at the start of this staff (read only).

**IsSystemStaff**               Returns **True** for a SystemStaff (read only).

# Text and SystemTextItem

---

Derived from a BarObject. For system text (i.e. text belonging to the system staff, retrieved with `for each` on the system staff object), the type of text objects is SystemTextItem, not Text.

## Methods

None.

## Variables

<code>StyleAsText</code>	The text style name (read/write).
<code>StyleId</code>	The identifier of the text style of this piece of text (read/write).
<code>Text</code>	The text as a string (read/write).
<code>TextWithFormatting</code>	Returns an array containing the various changes of font or style (if any) within the string in a new element (read only). For example, " <b>This text is \B\bold\b\, and this is \I\italic\i\</b> " would return an array with eight elements containing the following data:

```
arr[0] = "This text is "
arr[1] = "\B\"
arr[2] = "bold"
arr[3] = "\b\"
arr[4] = ", and this is "
arr[5] = "\I\"
arr[6] = "italic"
arr[7] = "\i\"
```

`TextWithFormattingAsString` The text including any changes of font or style (read only).

# TimeSignature

---

Derived from a BarObject.

## Methods

None

## Variables

<b>AllowCautionary</b>	Returns <b>True</b> if the time signature is set to show a cautionary at the end of the previous system, if it occurs at the start of a system (read/write).
<b>Denominator</b>	The time signature's bottom number (read only).
<b>Numerator</b>	The time signature's top number (read only).
<b>Text</b>	The time signature as text. You can use this to detect common time and alla breve time signatures by comparing it to the global constants <b>CommonTimeString</b> and <b>AllaBreveTimeString</b> , which define the Unicode characters used by these symbols. Other time signatures will be of the form "4\n4" (read only).

# TreeNode

---

These are used internally by Manuscript to implement arrays and hashes (returned with the **CreateArray** and **CreateHash** methods), and to represent global data (defined in the plugin editor). Each **TreeNode** can contain a label, a piece of data and a list of “children,” which are also **TreeNode**s. Normally, any access to a **TreeNode** object will access the data that is held, so that you don’t need to know anything about them, but there are also some extra variables and methods that may be useful in some circumstances. These can be called on any array, hash or global variable, and on any member of such a structure.

## Methods

### **WriteToString**

Returns a string that represents the structure of this **TreeNode** object. In this representation, the data of a **TreeNode** is surrounded by double quotes and the label is not. Note that a label need not be defined. Any children of the **TreeNode** (also **TreeNode** objects themselves) are contained within curly braces { and }. To obtain child **TreeNode**s, use the normal array operator, as described in the documentation for arrays and hashes.

## Variables

<b>Label</b>	The label of this <b>TreeNode</b> .
<b>NumChildren</b>	The number of child <b>TreeNode</b> s belonging to this <b>TreeNode</b> object.

# Tuplet

---

Derived from a BarObject.

## Methods

**AddNestedTuplet** (*posInTuplet*, *left*, *right*, *unit*[, *style*[, *bracket*[, *fullDuration*]]])

Nests a new tuplet bracket within an existing tuplet at a position relative to the duration and scale-factor of the existing tuplet. The *left* and *right* parameters specify the ratio of the new tuplet, e.g. 3 (left) in the time of 2 (right). The *unit* parameter specifies the note value (in 1/256th quarters) on which the tuplet should be based. For example, if you wish to create an eighth note (quaver) triplet group, you would use the value 128. The optional *style* and *bracket* parameters take one of the pre-defined constants that affect the visual appearance of the created tuplet; see **Global constants** on page 135. If *fullDuration* is true, the bracket of the tuplet will span the entire duration of the tuplet. Returns the Tuplet object created.

NB: If **AddNestedTuplet()** has been given illegal parameters, it will not be able to create a valid Tuplet object. Therefore, you should test for inequality of the returned Tuplet object with *null* before attempting to use it.

**AddNote** (*posInTuplet*, *pitch*, *duration*[, *tied*[, *diatonic pitch*[, *string number*]]])

Adds a note to an existing tuplet, adopting the same voice number as used by the tuplet itself. Please note that *posInTuplet* is relative to the duration and scale-factor of the tuplet bracket itself. Therefore, if you wanted to add a quarter note/crotchet to the second beat of a quarter note/crotchet triplet, you would simply use the value 256 – not 341!

**utils.SplitTuplet** (*tuplet*, *splitpoint*)

Split the tuplet object *tuplet* at the specified *splitpoint*, which is a number in relation to the tuplet's parent bar. It then splits a nest of tuplets at that point in the bar. This method is provided by the **utils.plg** – see **Utils** on page 126.

## Variables

<b>Bracket</b>	The bracket type of the tuplet (e.g. none, auto; see <b>Global constants</b> on page 135).
<b>FullDuration</b>	True if the bracket of the tuplet spans its entire duration.
<b>Left</b>	The left side of the tuplet, e.g. 3 in 3:2 (read only).
<b>ParentTupletIfAny</b>	If the tuplet intersects a tuplet, the innermost Tuplet object at that point in the score is returned. Otherwise, <i>null</i> is returned (read only).
<b>PlayedDuration</b>	The true rhythmic duration of the tuplet e.g. for crotchet triplet this would be the duration of a minim (read only).
<b>PositionInTuplet</b>	Returns the position of the tuplet relative to the duration and scale-factor of its parent tuplet. If the tuplet does not intersect a tuplet, its position within the parent Bar is returned as usual (read only).
<b>Right</b>	The rightside of the tuplet, e.g. 2 in 3:2 (read only).
<b>Style</b>	The style of the tuplet (e.g. number, ratio, ratio + note; see <b>Global constants</b> on page 135).
<b>Text</b>	The text shown above the tuplet (read only).
<b>Unit</b>	The unit used for the tuplet, e.g. 256 for a triplet of quarter notes (read only).

# Utils

---

Sibelius installs a plug-in called **utils.plg** that contains a set of useful and common methods that can be called directly by other plug-ins. It is not intended to be run as a plug-in in its own right, so does not appear in the **Plug-ins** menu.

The methods available via **utils.plg** are as follows:

**utils.AbsoluteValue** (*value*)

Returns the absolute value of a number, i.e. its numerical value without regard to its sign.

**utils.AddFractions** (*x*, *y*)

Adds two fractions *x* and *y*, passed in as Manuscript arrays. Returns an array with the result of the addition.

**utils.BinaryString** (*x*)

Returns a binary string (e.g. "101010") equivalent to the number *x*.

**utils.bwAND** (*x*, *y*)

Equivalent to the C++ bitwise AND (&) operator. For example, **utils.bwAND** (129, 1) is equal to 1.

**utils.bwOR** (*x*, *y*)

Equivalent to the C++ bitwise inclusive OR (|) operator. For example, **utils.bwOR** (64, 4) is equal to 68.

**utils.bwXOR** (*x*, *y*)

Equivalent to the C++ bitwise exclusive XOR (^) operator. For example, **utils.bwXOR** (4, 6) is equal to 2.

**utils.CapableOfDeletion** ()

Returns **True** if the object can be deleted using **Delete** (), which is determined by checking Sibelius's version number.

**utils.CaseInsensitiveComparison** (*s1*, *s2*)

Returns **True** if the two strings *s1* and *s2* match, ignoring case.

**utils.CastToBool** (*x*)

Returns the variable *x* explicitly cast as a Boolean.

**utils.CastToInt** (*x*)

Returns the variable *x* explicitly cast as an integer.

**utils.CastToStr** (*x*)

Returns the variable *x* explicitly cast as a string.

**utils.CombineArraysOfBool** (*arr1*, *arr2*)

Concatenates two arrays containing Boolean values and returns the result.

**utils.CombineArraysOfInt** (*arr1*, *arr2*)

Concatenates two arrays containing integral values and returns the result.

**utils.CombineArraysOfString** (*arr1*, *arr2*)

Concatenates two arrays containing string values and returns the result.

**utils.CopyTextFile** (*source*, *dest*)

Copies an existing text file from one location to another, returning **True** if successful.

**utils.CreateArrayBlanket** (*value*, *size*)

Returns an array with *size* elements, each containing a blanket value specified by the first parameter.

**utils.DeleteStaff** (*score, nth staff, retain selection*)

Deletes an entire staff and its content from a given score, returning **True** if successful. If *retain selection* is **True**, Sibelius will ensure any item(s) that were selected prior to the staff's deletion are still selected.

**utils.DenaryValue** (*x*)

Returns a number in base 10 equivalent to binary number *x*, which must be provided as a string.

**utils.DivideFractions** (*x, y*)

Divides fraction *x* by fraction *y*, passed in as Manuscript arrays. Returns an array with the result of the division.

**utils.ExtractFileName** (*filename*)

Returns just the filename portion of a string *filename* containing both a path and a filename.

**utils.Format** (*str, [val1, val2, val3 ...]*)

Provides a simple means of replacing human-readable data types in a string. Each successive instance of **%s** in *str* is replaced with the value of the next remaining unused argument. e.g. `s = utils.Format("The %s brown %s jumps %s the lazy %s", "quick", "fox", "over", "dog");`

**utils.FormatTime** (*ms*)

Formats a time, given in milliseconds, to a human-readable string using the format **mm'ss.z** (where z is centiseconds).

**utils.FractionAsDecimal** (*x*)

Returns the decimal equivalent of the fraction *x*, which is passed in as an array.

**utils.FractionDenominator** (*x*)

Returns the denominator of fraction *x*, which is passed in as an array.

**utils.FractionNumerator** (*x*)

Returns the numerator of fraction *x*, which is passed in as an array.

**utils.GetAppDir** ()

Returns the path of the Sibelius executable as a string.

**utils.GetArrayIndex** (*arr, value*)

Returns the index of *value* in the array *arr*, or -1 if it doesn't exist in the array.

**utils.GetBits** (*x*)

Returns an array containing the list of powers of two whose cumulative sum equates to the value of *x*.

**utils.GetGlobalApplicationDataDir** ()

Returns the path of the system's global application data area as a string.

**utils.GetLocationTime** (*score, barNum, position*)

Returns the precise time (in milliseconds) of a given location in a score. The position should be local to the start of the bar number you have supplied. Use the utils library to achieve this if your plug-in needs to be backwards compatible with Sibelius 4; otherwise call the Score object's function with the same name.

**utils.GetMillisecondsFromTime** (*time*)

If you pass in a time expressed in milliseconds (e.g. one minute being 60,000), this function returns the milliseconds portion of the number (in this case 60,000 modulus 1000 = 0).

**utils.GetMinutesFromTime** (*time*)

If you pass in a time expressed in milliseconds, this function returns the minutes portion of the number (e.g. if *time* = 120,262 milliseconds, this function returns 2).

**utils.GetObjectTime** (*score, obj*)

Returns the precise time (in milliseconds) that the object *obj* occurs from the start of a given score, taking into account tempo changes, performance markings and any other events in the score that have an effect on playback. Use this method to achieve this if your plug-in needs to be backwards compatible with Sibelius 4; otherwise use the **Time** property of the BarObject object whose time you wish to determine.

**utils.GetPluginId** (*plug-in*)

This enables you to identify a plug-in by entering the line of code **PluginUniqueID = "someUniqueId"**; in a plug-in's **Initialize** method. When you pass a plug-in object to this function, it scans the plug-in's code and returns its unique ID if it has one, otherwise an empty string.

**utils.GetSibeliusPluginsFolder** ()

This is a wrapper around the deprecated **GetPluginsFolder** () function, and returns the path of the **Plugins** folder.

**utils.GetSibMajorVersion** ()

Returns the major version number of Sibelius.

**utils.GreatestCommonDivisor** (*m, n*)

Returns the greatest common divisor of two non-zero integers, i.e. the largest positive integer that divides both numbers without remainder.

**utils.IsInArray** (*arr, value*)

Returns **True** if *value* exists in the array *arr*.

**utils.IsNumeric** (*str* [, *integer only*])

Returns **True** if the string *str* is numeric. Set the optional Boolean parameter *integer only* to **True** if you want the method to only return **True** if *str* is an integer (so that you can disallow floating point numbers).

**utils.LowerCase** (*str*)

Returns the ANSI string *str* in lowercase.

**utils.MakeFraction** (*x, y*)

Creates a fraction with *x* as the numerator and *y* as the denominator. The fraction is returned as a normal Manuscript array. (Manipulating fractions means you never have to worry about rounding errors.)

**utils.max** (*x, y*)

Returns the greater of two numbers.

**utils.min** (*x, y*)

Returns the lesser of two numbers.

**utils.MultiplyFractions** (*x, y*)

Multiplies fraction *y* by fraction *x*, passed in as Manuscript arrays. Returns an array with the result of the multiplication.

**utils.PatternCount** (*pattern, str*)

Returns the number of times the substring *pattern* exists in *str*.

**utils.Pos** (*subStr, str*)

Returns the zero-based position of the first instance of the sub-string *subStr* in *str*, or **-1** if it isn't found.

**utils.PosReverse** (*subStr, str*)

Returns the zero-based position of the *last* instance of the sub-string *subStr* in *str*, or **-1** if it isn't found.

**utils.RaisePower** (*x, y*)

Raises *x* to the *y*th power, where *y* is a positive integer.

**utils.Replace** (*inStr, toFind, replaceWith, replaceAll*)

Replaces a sub-string in a string with a new value. It looks for *toFind* in the string *inStr*, and if it finds it, replaces it with *replaceWith*. If the Boolean *replaceAll* is **False**, it only changes the first instance found; if it's **True**, it replaces all instances.

**utils.ReverseArrayOfBool** (*arr*)

Reverses the order of the elements in an array of Booleans.

**utils.ReverseArrayOfInt** (*arr*)

Reverses the order of the elements in an array of integers.

**utils.ReverseArrayOfString** (*arr*)

Reverses the order of the elements in an array of strings.

**utils.RoundToNDecimalPlaces** (*number*, *precision*)

Returns a string containing the number *number* rounded to *precision* decimal places. The method handles the input as a string, in order to avoid rounding errors which would otherwise spoil results beyond the tenth decimal place or so.

**utils.SetDefaultIfNotInArray** (*value*, *arr*, *DefaultIndex*)

Scans the array *arr* for the value specified by the first parameter. *Value* is returned if it exists in the array, otherwise, *arr[DefaultIndex]*.

**utils.shl** (*x*, *y*)

Bitwise left-shift. Shifts the value *x* left by *y* bits. Equivalent to C++ << operator.

**utils.shr** (*x*, *y*)

Bitwise right-shift. Shifts the value *x* right by *y* bits. Equivalent to C++ >> operator.

**utils.SortArray** (*arr*, *show progress*)

Sorts the array *arr* using a case-insensitive alphabetic sort. Set *show progress* to **True** to see a progress bar while the sort is carried out, or set it to **False** if you don't want to see a progress bar.

**utils.SortArrayCustom** (*arr*, *show progress*, *plug-in name*, *method*)

Sorts the array *arr* using a custom sort order routine *method*, which must be passed into this method. *plug-in name* is the name of the plug-in that contains the sort order routine *method*. You can write your own sort order routine: it must be a method that takes two strings (*strA* and *strB*) and returns 1 or 0 based on the results of the comparison.

**utils.SortArrayNumeric** (*arr*, *show progress*)

Sorts the array *arr* in ascending numeric order. Set *show progress* to **True** to see a progress bar while the sort is carried out, or set it to **False** if you don't want to see a progress bar.

**utils.SplitTuplet** (*tuplet*, *splitpoint*)

Split the tuplet object *tuplet* at the specified *splitpoint*, which is a number in relation to the tuplet's parent bar. It then splits a nest of tuplets at that point in the bar.

**utils.StartComponentManager** (*componentName*, *callbackFunc*)

Returns an array of filenames (strings) found on the system inside a folder with a given name, following the same rules of precedence as Sibelius's internal component manager. Files in the user's application data area take priority over those in the global application data area, followed lastly by those in the Sibelius's application directory itself.

*callbackFunc* should point to a function in the calling script that scans a supplied directory for files with a specific extension. Such a function might look something like this:

```
GetFooFiles(dir) { // This is the function signature
    components = CreateArray();
    for each FOO file in dir {
        components[components.NumChildren] = file.NameWithExt;
    }
    return (components);
}
```

In the scenario above, the call to start the component manager would look like this (where “Foo Files” is the name of the directory containing your files):

```
files = utils.StartComponentManager("Foo Files", "myPlugin.GetFooFiles");
```

```
utils.SubtractFractions(x, y)
```

Subtracts fraction  $y$  from fraction  $x$ , passed in as Manuscript arrays. Returns an array with the result of the subtraction.

```
utils.UpperCase(str)
```

Returns the ANSI string  $str$  in uppercase.

# VersionHistory

---

Each Score object has a VersionHistory object (obtained by way of the `score.GetVersions()` method), which in turn provides a list of Version objects. Each Version object represents a specific version, and also provides a list of VersionComment objects, which represent the per-version comments (as opposed to bar-attached comments, which are represented to Manuscript as Comment objects, derived from BarObject objects).

## Methods

**AddVersion** (*[name[, comment]]*)

Adds a new version object and returns it if successful (or null if not), with an optional *name* and *comment* for the version.

**DeleteNthVersion** (*n*)

Deletes the *n*th Version object, returning **True** if successful.

**GetNthVersion** (*n*)

Returns the *n*th Version object.

## Variables

**NumChildren**

Returns the number of versions in the score's VersionHistory object.

# Version

---

Accessed via a Score object's VersionHistory object.

## Methods

**AddComment** (*text*)

Adds a new comment with the specified *text*, and returns the VersionComment object created.

**Close** ()

Closes all views of the version that are currently open in Sibelius, returning **True** if it has actually closed anything.

**GetNthComment** (*n*)

Gets the *n*th comment as a VersionComment object, or returns null if the index is out of range.

**DeleteNthComment** (*n*)

Deletes the *n*th comment, returning **True** if successful, or null if the index is out of range.

**OpenAndReturnScore** ()

Opens the specified version in Sibelius (if it's not already open) and returns its Score object.

## Variables

**EndDate**

Returns a DateTime object representing the version's end date (read only).

**IsOpen**

Returns **True** if the version is currently open in Sibelius (read only).

**Name**

Returns the name of the version (read/write).

**NumComments**

Returns the number of comments in the version (read only).

**StartDate**

Returns a DateTime object representing the version's start date (read only).

# VersionComment

---

Accessed via Version objects.

## Methods

None.

## Variables

<b>Text</b>	Returns or changes the text of the comment, and this cannot be undone (read/write).
<b>TimeStamp</b>	Returns a DateTime object representing the time at which the comment was created.
<b>UserName</b>	Returns the name of the user who created the comment (read only).



# **Global constants**

# Global constants

---

These are useful variables held internally within Manuscript and are accessible from any plug-in. They are called “constants” because you are encouraged not to change them.

Many of the constants are the names of note values, which you can use to specify a position in a bar easily. So instead of writing `320` you can write `Quarter+Sixteenth` or equally `Crotchet+Semiquaver`.

## Truth values

True	1
False	0

## Measurements

Space	32
StaffHeight	128

## Positions and durations

Long	4096	Sixteenth	64
Breve	2048	Semiquaver	64
DottedBreve	3072	DottedSixteenth	96
Whole	1024	DottedSemiquaver	96
Semibreve	1024	ThirtySecond	32
DottedWhole	1536	Demisemiquaver	32
Half	512	DottedThirtySecond	48
Minim	512	DottedDemisemiquaver	48
DottedHalf	768	SixtyFourth	16
DottedMinim	768	Hemidemisemiquaver	16
Quarter	256	DottedSixtyFourth	24
Crotchet	256	DottedHemidemisemiquaver	24
DottedQuarter	384	OneHundredTwentyEighth	8
DottedCrotchet	384	Semihemidemisemiquaver	8
Eighth	128	DottedOneHundredTwentyEighth	12
Quaver	128	DottedSemihemidemisemiquaver	12
DottedEighth	192		
DottedQuaver	192		

## Style names

For the `ApplyStyle()` method of Score objects. Instead of the capitalized strings in quotes, you can use the equivalent variables in mixed upper and lower case. Note again that the constant `HOUSE` refers to the options in **House Style** **Engraving Rules** and **Layout** **Document Setup** only; to apply the entire House Style, use the `ALLSTYLES` constant.

House	"HOUSE"	Dictionary	"DICTIONARY"
Text	"TEXT"	SpacingRule	"SPACINGRULE"
Symbols	"SYMBOLS"	CustomChordNames	"CUSTOMCHORDNAMES"
Lines	"LINES"	DefaultPartAppearance	"DEFAULTPARTAPPEARANCE"
Noteheads	"NOTEHEADS"	InstrumentsAndEnsembles	"INSTRUMENTSANDENSEMBLES"
Clefs	"CLEFS"	AllStyles	"ALLSTYLES"

## Bar number formats

These constants can be used for the *format* argument of the **AddBarNumber** method.

BarNumberFormatNormal	0
BarNumberFormatNumberLetterLower	1
BarNumberFormatNumberLetterUpper	2

## Text styles

Here is a list of all the text style identifiers which are guaranteed to be present in any score in Sibelius. In previous versions of Manuscript text styles were identified by a numeric index; this usage has been deprecated but will continue to work for old plug-ins. New plug-ins should use the identifiers given below. For each style we first give the English name of the style and then the identifier.

Instrument names	"text.instrumentname"	Time signatures (one staff only)	"text.staff.timesig.onestaffonly"
1st and 2nd endings	"text.staff.1st_n_2nd_endings"	Tuplets	"text.staff.tuplets"
Auto page break warnings	"text.staff.autopagebreak.warnings"	Bar numbers	"text.system.barnumber"
Boxed text	"text.staff.boxed"	Metronome mark	"text.system.metronome"
Expression	"text.staff.expression"	Multirests (numbers)	"text.system.multirestnumbers"
Chord diagram fingering	"text.staff.fingering.chord_diagrams"	Composer	"text.system.page_aligned.composer"
Footnote	"text.staff.footnote"	Composer (on title page)	"text.system.page_aligned.composer.ontitlepage"
Block lyrics	"text.staff.lyrics.block"	Copyright	"text.system.page_aligned.copyright"
Multirests (tacet)	"text.staff.multirests.tacet"	Dedication	"text.system.page_aligned.dedication"
Plain text	"text.staff.plain"	Footer (inside edge)	"text.system.page_aligned.footer.inside"
Small text	"text.staff.small"	Footer (outside edge)	"text.system.page_aligned.footer.outside"
Chord symbol	"text.staff.space.chordsymbol"	Worksheet footer (first page, l)	"text.system.page_aligned.footer.worksheet.left"
Figured bass	"text.staff.space.figuredbass"	Header	"text.system.page_aligned.header"
Fingering	"text.staff.space.fingering"	Worksheet header (first page, l)	"text.system.page_aligned.header.worksheet.left"
Chord diagram fret	"text.staff.space.fretnumbers"	Worksheet header (first page, r)	"text.system.page_aligned.header.worksheet.right"
Lyrics above staff	"text.staff.space.hypen.lyrics.above"	Header (after first page)	"text.system.page_aligned.header_notp1"
Lyrics (chorus)	"text.staff.space.hypen.lyrics.chorus"	Header (after first page, inside edge)	"text.system.page_aligned.header_notp1.inside"
Lyrics line 1	"text.staff.space.hypen.lyrics.verse1"	Instrument name at top left	"text.system.page_aligned.instrnametopleft"
Lyrics line 2	"text.staff.space.hypen.lyrics.verse2"	Lyricist	"text.system.page_aligned.lyricist"
Lyrics line 3	"text.staff.space.hypen.lyrics.verse3"	Page numbers	"text.system.page_aligned.pagenumber"
Lyrics line 4	"text.staff.space.hypen.lyrics.verse4"	Subtitle	"text.system.page_aligned.subtitle"
Lyrics line 5	"text.staff.space.hypen.lyrics.verse5"	Title	"text.system.page_aligned.title"
Nashville chord numbers	"text.staff.space.nashvillechords"	Title (on title page)	"text.system.page_aligned.title.ontitlepage"
Common symbols	"text.staff.symbol.common"	Rehearsal mark	"text.system.rehearsalmarks"
Figured bass (extras)	"text.staff.symbol.figured.bass.extras"	Repeat (D.C./D.S./To Coda)	"text.system.repeat"
Note tails	"text.staff.symbol.noteflags"	Tempo	"text.system.tempo"
Special noteheads etc.	"text.staff.symbol.noteheads.special"	Timecode	"text.system.timecode"
Percussion instruments	"text.staff.symbol.percussion"	Duration at end of score	"text.system.timecode.duration"
Special symbols	"text.staff.symbol.special"	Hit points	"text.system.timecode.hitpoints"
Tablature letters	"text.staff.tab.letters"	Time signatures (huge)	"text.system.timesig.huge"
Tablature numbers	"text.staff.tab.numbers"	Time signatures (large)	"text.system.timesig.large"
Technique	"text.staff.technique"	Time signatures	"text.system.timesig.normal"

## Line styles

Arpeggio	"line.staff.arpeggio"	Bracketed slur below	"line.staff.slur.down.bracketed"
Arpeggio down	"line.staff.arpeggio.down"	Dashed slur below	"line.staff.slur.down.dashed"
Arpeggio up	"line.staff.arpeggio.up"	Dotted slur below	"line.staff.slur.down.dotted"
Unused 2	"line.staff.arrow"	Slur above	"line.staff.slur.up"
Arrow	"line.staff.arrow.black.right"	Bracketed slur above	"line.staff.slur.up.bracketed"
Dashed arrow	"line.staff.arrow.black.right.dashed"	Dashed slur above	"line.staff.slur.up.dashed"
Double arrow	"line.staff.arrow.black.right.left"	Dotted slur above	"line.staff.slur.up.dotted"
Vertical arrow (2)	"line.staff.arrow.black.vertical"	String indicator above (1)	"line.staff.string.above.1"
White arrow	"line.staff.arrow.white.right"	String indicator above (2)	"line.staff.string.above.2"
Dashed white arrow	"line.staff.arrow.white.right.dashed"	String indicator above (3)	"line.staff.string.above.3"
Double white arrow	"line.staff.arrow.white.right.left"	String indicator above (4)	"line.staff.string.above.4"
Vertical arrow	"line.staff.arrow.white.vertical"	String indicator above (5)	"line.staff.string.above.5"
Beam	"line.staff.beam"	String indicator above (6)	"line.staff.string.above.6"
Guitar Bend	"line.staff.bend"	String indicator above (7)	"line.staff.string.above.7"
Guitar hold bend	"line.staff.bend.hold"	String indicator above (8)	"line.staff.string.above.8"
Box	"line.staff.box"	String indicator below (1)	"line.staff.string.below.1"
Bracket above	"line.staff.bracket.above"	String indicator below (2)	"line.staff.string.below.2"
Bracket above (end)	"line.staff.bracket.above.end"	String indicator below (3)	"line.staff.string.below.3"
Bracket above (start)	"line.staff.bracket.above.start"	String indicator below (4)	"line.staff.string.below.4"
Bracket below	"line.staff.bracket.below"	String indicator below (5)	"line.staff.string.below.5"
Bracket below (end)	"line.staff.bracket.below.end"	String indicator below (6)	"line.staff.string.below.6"
Bracket below (start)	"line.staff.bracket.below.start"	String indicator below (7)	"line.staff.string.below.7"
Vertical bracket	"line.staff.bracket.vertical"	String indicator below (8)	"line.staff.string.below.8"
Vertical bracket 2	"line.staff.bracket.vertical.2"	Tie	"line.staff.tie"
Dashed line	"line.staff.dashed"	Trill	"line.staff.trill"
Vertical dashed line	"line.staff.dashed.vertical"	Tuplet	"line.staff.tuplet"
Dotted line	"line.staff.dotted"	Vertical line	"line.staff.vertical"
Glissando (straight)	"line.staff.gliss.straight"	Vibrato	"line.staff.vibrato"
Glissando (wavy)	"line.staff.gliss.wavy"	Guitar vibrato bar	"line.staff.vibrato.bar"
Guitar effect	"line.staff.guitareffect"	Wide vibrato	"line.staff.vibrato.wide"
Crescendo	"line.staff.hairpin.crescendo"	Dashed system line	"line.system.dashed"
Bracketed crescendo	"line.staff.hairpin.crescendo.bracketed"	Wide dashed system line	"line.system.dashed.wide"
Dashed crescendo	"line.staff.hairpin.crescendo.dashed"	1st ending	"line.system.repeat.1st"
Dotted crescendo	"line.staff.hairpin.crescendo.dotted"	1st and 2nd ending	"line.system.repeat.1st_n_2nd"
Crescendo from silence	"line.staff.hairpin.crescendo.fromsilence"	2nd ending	"line.system.repeat.2nd"
Diminuendo	"line.staff.hairpin.diminuendo"	2nd ending (closed)	"line.system.repeat.2nd.closed"
Bracketed diminuendo	"line.staff.hairpin.diminuendo.bracketed"	3rd ending	"line.system.repeat.3rd"
Dashed diminuendo	"line.staff.hairpin.diminuendo.dashed"	Repeat ending (closed)	"line.system.repeat.closed"
Dotted diminuendo	"line.staff.hairpin.diminuendo.dotted"	Repeat ending (open)	"line.system.repeat.open"
Diminuendo to silence	"line.staff.hairpin.diminuendo.tosilence"	Accel.	"line.system.tempo.accel"
Guitar artificial harmonic	"line.staff.harmonic.artificial"	Accel. (italic)	"line.system.tempo.accel.italic"
Guitar harp harmonic	"line.staff.harmonic.harp"	Accel. (italic, text only)	"line.system.tempo.accel.italic.textonly"
Guitar pinch harmonic	"line.staff.harmonic.pinch"	Molto accel.	"line.system.tempo.accel.molto"
Guitar touch harmonic	"line.staff.harmonic.touch"	Molto accel. (text only)	"line.system.tempo.accel.molto.textonly"
Guitar harmonics	"line.staff.harmonics"	Poco accel.	"line.system.tempo.accel.poco"
Hauptstimme	"line.staff.hauptstimme"	Poco accel. (text only)	"line.system.tempo.accel.poco.textonly"
Guitar let ring	"line.staff.letting"	Accel. (text only)	"line.system.tempo.accel.textonly"
Lyric line	"line.staff.lyric"	Tempo change (arrow right)	"line.system.tempo.arrowright"
Guitar palm mute	"line.staff.mute.palm"	Rall.	"line.system.tempo.rall"

Nebenstimme	"line.staff.nebenstimme"	Rall. (italic)	"line.system.tempo.rall.italic"
2 octaves down	"line.staff.octava.minus15"	Rall. (italic, text only)	"line.system.tempo.rall.italic.textonly"
Octave down	"line.staff.octava.minus8"	Molto rall.	"line.system.tempo.rall.molto"
2 octaves up	"line.staff.octava.plus15"	Molto rall. (text only)	"line.system.tempo.rall.molto.textonly"
Octave up	"line.staff.octava.plus8"	Poco rall.	"line.system.tempo.rall.poco"
Pedal	"line.staff.pedal"	Poco rall. (text only)	"line.system.tempo.rall.poco.textonly"
Pedal lift	"line.staff.pedal.lift"	Rall. (text only)	"line.system.tempo.rall.textonly"
Pedal lift again	"line.staff.pedal.lift.again"	Rit.	"line.system.tempo.rit"
Pedal lift finally	"line.staff.pedal.lift.finally"	Rit. (italic)	"line.system.tempo.rit.italic"
Pedal (no line)	"line.staff.pedal.noline"	Rit. (italic, text only)	"line.system.tempo.rit.italic.textonly"
Guitar pick scrape	"line.staff.pick.scrape"	Molto rit.	"line.system.tempo.rit.molto"
Line	"line.staff.plain"	Molto rit. (text only)	"line.system.tempo.rit.molto.textonly"
Portamento	"line.staff.port.straight"	Poco rit.	"line.system.tempo.rit.poco"
Guitar rake	"line.staff.rake"	Poco rit. (text only)	"line.system.tempo.rit.poco.textonly"
Guitar slide	"line.staff.slide"	Rit. (text only)	"line.system.tempo.rit.textonly"
Slur below	"line.staff.slur.down"		

## Clef styles

Here is a list of all the clef style identifiers that are guaranteed to be present in any score in Sibelius, for use with the `Stave.AddClef` method. For each style we first give the English name of the style, and then the identifier.

Alto	"clef.alto"	Small tab	"clef.tab.small"
Baritone C	"clef.baritone.c"	Small tab (taller)	"clef.tab.small.taller"
Baritone F	"clef.baritone.f"	Tab (taller)	"clef.tab.taller"
Bass	"clef.bass"	Tenor	"clef.tenor"
Bass down 8	"clef.bass.down.8"	Tenor down 8	"clef.tenor.down.8"
Bass up 15	"clef.bass.up.15"	Treble	"clef.treble"
Bass up 8	"clef.bass.up.8"	Treble down 8	"clef.treble.down.8"
Null	"clef.null"	Treble (down 8)	"clef.treble.down.8.bracketed"
Percussion	"clef.percussion"	Treble down 8 (old)	"clef.treble.down.8.old"
Percussion 2	"clef.percussion_2"	Treble up 15	"clef.treble.up.15"
Soprano	"clef.soprano"	Treble up 8	"clef.treble.up.8"
Mezzo-soprano	"clef.soprano.mezzo"	French violin	"clef.violin.french"
Tab	"clef.tab"	Sub-bass F	"clef.sub-bass.f"

## Instrument types

Here is a list of all the instrument type identifiers that are guaranteed to be present in any score in Sibelius. For each style we first give the English name of the style and then the identifier. Note that only the tablature stave types can be used with guitar frames; the rest are included for completeness.

Alp-Horn in F	instrument.brass.alp-horn.f
Alp-Horn in G	instrument.brass.alp-horn.g
Baritone Bugle in G	instrument.brass.bugle.baritone.g
Contrabass Bugle in G	instrument.brass.bugle.contrabass.g
Euphonium Bugle in G	instrument.brass.bugle.euphonium.g
Mellophone Bugle in G	instrument.brass.bugle.mellophone.g
Soprano Bugle in G	instrument.brass.bugle.soprano.g
Cimbasso in Bb	instrument.brass.cimbasso.bflat
Cimbasso in Eb	instrument.brass.cimbasso.eflat
Cimbasso in F	instrument.brass.cimbasso.f
Cornet in A	instrument.brass.cornet.a
Cornet in Bb	instrument.brass.cornet.bflat

## Global constants

Soprano Cornet in Eb	instrument.brass.cornet.soprano.eflat
Euphonium in Bb [treble clef]	instrument.brass.euphonium
Euphonium in Bb [bass clef, treble transp.]	instrument.brass.euphonium.bassclef
Euphonium in C [bass clef]	instrument.brass.euphonium.bassclef.bassclef
Euphonium in Bb [bass clef]	instrument.brass.euphonium.bflat.bassclef.bassclef
Flugelhorn	instrument.brass.flugelhorn
Horn in A [no key]	instrument.brass.horn.a.nokeysig
Horn in Ab alto [no key]	instrument.brass.horn.alto.aflat.nokeysig
Alto Horn in Eb	instrument.brass.horn.alto.eflat
Alto Horn in F	instrument.brass.horn.alto.f
Horn in B [no key]	instrument.brass.horn.b.nokeysig
Baritone in Bb [treble clef]	instrument.brass.horn.baritone
Baritone in C [treble clef]	instrument.brass.horn.baritone.2
Baritone in Bb [bass clef, treble transp.]	instrument.brass.horn.baritone.bassclef
Baritone in C [bass clef]	instrument.brass.horn.baritone.bassclef.bassclef
Bass in Bb	instrument.brass.horn.bass.bflat
Bass in Bb [bass clef, treble transp.]	instrument.brass.horn.bass.bflat.bassclef
Bass in C	instrument.brass.horn.bass.c
Bass in Eb	instrument.brass.horn.bass.eflat
Bass in Eb [bass clef, treble transp.]	instrument.brass.horn.bass.eflat.bassclef
A Basso Horn [no key]	instrument.brass.horn.basso.a.nokeysig
Bb Basso Horn [no key]	instrument.brass.horn.basso.bflat.nokeysig
C Basso Horn [no key]	instrument.brass.horn.basso.c.nokeysig
Horn in Bb [no key]	instrument.brass.horn.bflat.nokeysig
Horn in C [no key]	instrument.brass.horn.c.nokeysig
Horn in D [no key]	instrument.brass.horn.d.nokeysig
Horn in Db [no key]	instrument.brass.horn.dflat.nokeysig
Horn in E [no key]	instrument.brass.horn.e.nokeysig
Horn in Eb	instrument.brass.horn.eflat
Horn in Eb [no key]	instrument.brass.horn.eflat.nokeysig
Horn in F	instrument.brass.horn.f
Horn in F [bass clef]	instrument.brass.horn.f.bassclef
Horn in F [no key]	instrument.brass.horn.f.nokeysig
Horn in F# [no key]	instrument.brass.horn.fsharp.nokeysig
Horn in G [no key]	instrument.brass.horn.g.nokeysig
Tenor Horn	instrument.brass.horn.tenor
Mellophone in Eb	instrument.brass.mellophone.eflat
Mellophone in F	instrument.brass.mellophone.f
Mellophonium in Eb	instrument.brass.mellophonium.eflat
Mellophonium in F	instrument.brass.mellophonium.f
Ophicleide	instrument.brass.ophicleide
Brass	instrument.brass.section
Serpent	instrument.brass.serpent
Sousaphone in Bb	instrument.brass.sousaphone.bflat
Sousaphone in Eb	instrument.brass.sousaphone.eflat
Trombone	instrument.brass.trombone
Alto Trombone	instrument.brass.trombone.alto
Bass Trombone	instrument.brass.trombone.bass
Trombone in Bb [bass clef, treble transp.]	instrument.brass.trombone.bassclef.trebleclef
Contrabass Trombone	instrument.brass.trombone.contrabass

Tenor Trombone	instrument.brass.trombone.tenor
Trombone in Bb [treble clef]	instrument.brass.trombone.trebleclef
Trumpet in A	instrument.brass.trumpet.a
Trumpet in B [no key]	instrument.brass.trumpet.b.nokeysig
Bass Trumpet in Bb	instrument.brass.trumpet.bass.bflat
Bass Trumpet in Eb	instrument.brass.trumpet.bass.eflat
Trumpet in Bb	instrument.brass.trumpet.bflat
Trumpet in Bb [no key]	instrument.brass.trumpet.bflat.nokeysig
Trumpet in C	instrument.brass.trumpet.c
Trumpet in D	instrument.brass.trumpet.d
Trumpet in Db	instrument.brass.trumpet.dflat
Trumpet in E [no key]	instrument.brass.trumpet.e.nokeysig
Trumpet in Eb	instrument.brass.trumpet.eflat
Trumpet in F	instrument.brass.trumpet.f
Trumpet in G [no key]	instrument.brass.trumpet.g.nokeysig
Piccolo Trumpet in A	instrument.brass.trumpet.piccolo.a
Piccolo Trumpet in Bb	instrument.brass.trumpet.piccolo.bflat
Tenor Trumpet in Eb	instrument.brass.trumpet.tenor.eflat
Tuba	instrument.brass.tuba
Tuba in F	instrument.brass.tuba.f
Tenor Tuba (Wagner, in Bb)	instrument.brass.tuba.tenor
Tenor Tuba [bass clef]	instrument.brass.tuba.tenor.bassclef
Wagner Tuba in Bb	instrument.brass.tuba.wagner.bflat
Wagner Tuba in F	instrument.brass.tuba.wagner.f
Applause	instrument.exotic.applause
Birdsong	instrument.exotic.birdsong
Helicopter	instrument.exotic.helicopter
Ondes Martenot	instrument.exotic.ondes-martenot
Sampler	instrument.exotic.sampler
Seashore	instrument.exotic.seashore
Tape	instrument.exotic.tape
Telephone	instrument.exotic.telephone
Theremin	instrument.exotic.theremin
Bajo [notation]	instrument.fretted.bajo.5lines
Bajo, 6-string [tab]	instrument.fretted.bajo.tab
Bajo, 4-string [tab]	instrument.fretted.bajo.tab.4lines
Bajo, 5-string [tab]	instrument.fretted.bajo.tab.5lines
Alto Balalaika [notation]	instrument.fretted.balalaika.alto.5lines
Alto Balalaika [tab]	instrument.fretted.balalaika.alto.tab
Bass Balalaika [notation]	instrument.fretted.balalaika.bass.5lines
Bass Balalaika [tab]	instrument.fretted.balalaika.bass.tab
Contrabass Balalaika [notation]	instrument.fretted.balalaika.contrabass.5lines
Contrabass Balalaika [tab]	instrument.fretted.balalaika.contrabass.tab
Prima Balalaika [notation]	instrument.fretted.balalaika.prima.5lines
Prima Balalaika [tab]	instrument.fretted.balalaika.prima.tab
Second Balalaika [notation]	instrument.fretted.balalaika.second.5lines
Second Balalaika [tab]	instrument.fretted.balalaika.second.tab
Bandola [notation]	instrument.fretted.bandola.5lines
Bandola [tab]	instrument.fretted.bandola.tab
Bandolón [notation]	instrument.fretted.bandolon.5lines

## Global constants

Bandolón [tab]	instrument.fretted.bandolon.tab
Bandurria [notation]	instrument.fretted.bandurria.5lines
Bandurria [tab]	instrument.fretted.bandurria.tab
Banjo [notation]	instrument.fretted.banjo.5lines
Banjo (aDADE tuning) [tab]	instrument.fretted.banjo.aDADE.tab
Banjo (aEADE tuning) [tab]	instrument.fretted.banjo.aEADE.tab
Banjo (gCGBD tuning) [tab]	instrument.fretted.banjo.gCGBD.tab
Banjo (gCGCD tuning) [tab]	instrument.fretted.banjo.gCGCD.tab
Banjo (gDF#AD tuning) [tab]	instrument.fretted.banjo.gDFAD.tab
Banjo (gDGBD tuning) [tab]	instrument.fretted.banjo.gDGBD.tab
Banjo (gDGCD tuning) [tab]	instrument.fretted.banjo.gDGCD.tab
Tenor Banjo [notation]	instrument.fretted.banjo.tenor.5lines
Tenor Banjo [tab]	instrument.fretted.banjo.tenor.tab
Bordonúa [notation]	instrument.fretted.bordonua.5lines
Bordonúa [tab]	instrument.fretted.bordonua.tab
Cavaquinho [notation]	instrument.fretted.cavaquinho.5lines
Cavaquinho [tab]	instrument.fretted.cavaquinho.tab
Charango [notation]	instrument.fretted.charango.5lines
Charango [tab]	instrument.fretted.charango.tab
Cuatro [notation]	instrument.fretted.cuatro.5lines
Cuatro, Puerto Rico [tab]	instrument.fretted.cuatro.puerto-rico.tab
Cuatro, Venezuela [tab]	instrument.fretted.cuatro.venezuela.tab
Resonator guitar [notation]	instrument.fretted.guitar.resonator.5lines
Resonator Guitar, A6 tuning [tab]	instrument.fretted.guitar.resonator.a6.tab
Resonator Guitar, B11 tuning [tab]	instrument.fretted.guitar.resonator.b11.tab
Resonator Guitar, C#m tuning [tab]	instrument.fretted.guitar.resonator.c#m.tab
Resonator Guitar, C6+A7 tuning [tab]	instrument.fretted.guitar.resonator.c6-a7.tab
Resonator Guitar, C6 + high G tuning [tab]	instrument.fretted.guitar.resonator.c6-highg.tab
Resonator Guitar, standard tuning [tab]	instrument.fretted.guitar.resonator.c6.tab
Resonator Guitar, C#m7 tuning [tab]	instrument.fretted.guitar.resonator.cm7.tab
Resonator Guitar, E13 Hawaiian tuning [tab]	instrument.fretted.guitar.resonator.e13-hawaiian.tab
Resonator Guitar, E13 Western tuning [tab]	instrument.fretted.guitar.resonator.e13-western.tab
Resonator Guitar, open A tuning [tab]	instrument.fretted.guitar.resonator.open.A.tab
Resonator Guitar, open G tuning [tab]	instrument.fretted.guitar.resonator.open.G.tab
Dulcimer	instrument.fretted.dulcimer
Dulcimer [notation]	instrument.fretted.dulcimer.5lines
Dulcimer (DAA tuning) [tab]	instrument.fretted.dulcimer.daa.tab
Dulcimer (DAD tuning) [tab]	instrument.fretted.dulcimer.dad.tab
Gamba [notation]	instrument.fretted.gamba.5lines
Gamba [tab]	instrument.fretted.gamba.tab
12-string Acoustic Guitar [notation]	instrument.fretted.guitar.12-string.5lines
12-string Acoustic Guitar, DADGAD tuning [tab]	instrument.fretted.guitar.12-string.dadgad.tab
12-string Acoustic Guitar, double D tuning [tab]	instrument.fretted.guitar.12-string.double-d.tab
12-string Acoustic Guitar, dropped D tuning [tab]	instrument.fretted.guitar.12-string.dropped-d.tab
12-string Acoustic Guitar, open D tuning [tab]	instrument.fretted.guitar.12-string.open-d.tab
12-string Acoustic Guitar, open E tuning [tab]	instrument.fretted.guitar.12-string.open-e.tab
12-string Acoustic Guitar, open G tuning [tab]	instrument.fretted.guitar.12-string.open-g.tab
12-string Acoustic Guitar, standard tuning (no rhythms) [tab]	instrument.fretted.guitar.12-string.tab
12-string Acoustic Guitar, standard tuning [tab]	instrument.fretted.guitar.12-string.tab.rhythms
Acoustic Guitar [notation]	instrument.fretted.guitar.acoustic.5lines

Acoustic Guitar, DADGAD tuning [tab]	instrument.fretted.guitar.acoustic.dadgad.tab
Acoustic Guitar, double D tuning [tab]	instrument.fretted.guitar.acoustic.double-d.tab
Acoustic Guitar, dropped D tuning [tab]	instrument.fretted.guitar.acoustic.dropped-d.tab
Acoustic Guitar, modal D tuning [tab]	instrument.fretted.guitar.acoustic.modal-d.tab
Acoustic Guitar, Nashville tuning [tab]	instrument.fretted.guitar.acoustic.nashville.tab
Acoustic Guitar, open A tuning [tab]	instrument.fretted.guitar.acoustic.open-a.tab
Acoustic Guitar, open C tuning [tab]	instrument.fretted.guitar.acoustic.open-c.tab
Acoustic Guitar, open D tuning [tab]	instrument.fretted.guitar.acoustic.open-d.tab
Acoustic Guitar, open Dm cross-note tuning [tab]	instrument.fretted.guitar.acoustic.open-dm.tab
Acoustic Guitar, open E tuning [tab]	instrument.fretted.guitar.acoustic.open-e.tab
Acoustic Guitar, open G tuning [tab]	instrument.fretted.guitar.acoustic.open-g.tab
Acoustic Guitar, standard tuning (no rhythms) [tab]	instrument.fretted.guitar.acoustic.tab
Acoustic Guitar, standard tuning [tab]	instrument.fretted.guitar.acoustic.tab.rhythms
4-string Bass Guitar [notation]	instrument.fretted.guitar.bass.4-string.5lines
4-string Bass Guitar [tab]	instrument.fretted.guitar.bass.4-string.tab
5-string Bass Guitar [notation]	instrument.fretted.guitar.bass.5-string.5lines
5-string Bass Guitar [tab]	instrument.fretted.guitar.bass.5-string.tab
Bass Guitar [notation]	instrument.fretted.guitar.bass.5lines
6-string Bass Guitar [notation]	instrument.fretted.guitar.bass.6-string.5lines
6-string Bass Guitar [tab]	instrument.fretted.guitar.bass.6-string.tab
Acoustic Bass [notation]	instrument.fretted.guitar.bass.acoustic.5lines
Acoustic Bass [tab]	instrument.fretted.guitar.bass.acoustic.tab
5-string Electric Bass [notation]	instrument.fretted.guitar.bass.electric.5-string.5lines
5-string Electric Bass [tab]	instrument.fretted.guitar.bass.electric.5-string.tab
Electric Bass [notation]	instrument.fretted.guitar.bass.electric.5lines
6-string Electric Bass [notation]	instrument.fretted.guitar.bass.electric.6-string.5lines
6-string Electric Bass [tab]	instrument.fretted.guitar.bass.electric.6-string.tab
5-string Fretless Electric Bass	instrument.fretted.guitar.bass.electric.fretless.5-string.5lines
5-string Fretless Electric Bass [tab]	instrument.fretted.guitar.bass.electric.fretless.5-string.tab
Fretless Electric Bass [notation]	instrument.fretted.guitar.bass.electric.fretless.5lines
6-string Fretless Electric Bass	instrument.fretted.guitar.bass.electric.fretless.6-string.5lines
6-string Fretless Electric Bass [tab]	instrument.fretted.guitar.bass.electric.fretless.6-string.tab
Fretless Electric Bass [tab]	instrument.fretted.guitar.bass.electric.fretless.tab
Electric Bass [tab]	instrument.fretted.guitar.bass.electric.tab
5-string Fretless Bass Guitar [notation]	instrument.fretted.guitar.bass.fretless.5-string.5lines
5-string Fretless Bass Guitar [tab]	instrument.fretted.guitar.bass.fretless.5-string.tab
Fretless Bass Guitar [notation]	instrument.fretted.guitar.bass.fretless.5lines
6-string Fretless Bass Guitar [notation]	instrument.fretted.guitar.bass.fretless.6-string.5lines
6-string Fretless Bass Guitar [tab]	instrument.fretted.guitar.bass.fretless.6-string.tab
Fretless Bass Guitar [tab]	instrument.fretted.guitar.bass.fretless.tab
Semi-Acoustic Bass [notation]	instrument.fretted.guitar.bass.semi-acoustic.5lines
Semi-Acoustic Bass [tab]	instrument.fretted.guitar.bass.semi-acoustic.tab
Bass Guitar [tab]	instrument.fretted.guitar.bass.tab
Bass Guitar [tab, with rhythms]	instrument.fretted.guitar.bass.tab.rhythms
Classical Guitar [notation]	instrument.fretted.guitar.classical.5lines
Classical Guitar, DADGAD tuning [tab]	instrument.fretted.guitar.classical.dadgad.tab
Classical Guitar, double D tuning [tab]	instrument.fretted.guitar.classical.double-d.tab
Classical Guitar, dropped D tuning [tab]	instrument.fretted.guitar.classical.dropped-d.tab
Classical Guitar, open D tuning [tab]	instrument.fretted.guitar.classical.open-d.tab
Classical Guitar, open E tuning [tab]	instrument.fretted.guitar.classical.open-e.tab

## Global constants

Classical Guitar, open G tuning [tab]	instrument.fretted.guitar.classical.open-g.tab
Classical Guitar, standard tuning (no rhythms) [tab]	instrument.fretted.guitar.classical.tab
Classical Guitar, standard tuning [tab]	instrument.fretted.guitar.classical.tab.rhythms
Electric Guitar [notation]	instrument.fretted.guitar.electric.5lines
7-string Electric Guitar, low A tuning [tab]	instrument.fretted.guitar.electric.7-string.low-a.tab
7-string Electric Guitar, low B tuning [tab]	instrument.fretted.guitar.electric.7-string.tab
Electric Guitar, DADGAD tuning [tab]	instrument.fretted.guitar.electric.dadgad.tab
Electric Guitar, double D tuning [tab]	instrument.fretted.guitar.electric.double-d.tab
Electric Guitar, dropped D tuning [tab]	instrument.fretted.guitar.electric.dropped-d.tab
Electric Guitar, open D tuning [tab]	instrument.fretted.guitar.electric.open-d.tab
Electric Guitar, open E tuning [tab]	instrument.fretted.guitar.electric.open-e.tab
Electric Guitar, open G tuning [tab]	instrument.fretted.guitar.electric.open-g.tab
Electric Guitar, standard tuning (no rhythms) [tab]	instrument.fretted.guitar.electric.tab
Electric Guitar, standard tuning [tab]	instrument.fretted.guitar.electric.tab.rhythms
Kora	instrument.fretted.guitar.kora
Semi-acoustic Guitar [notation]	instrument.fretted.guitar.semi-acoustic.5lines
Semi-acoustic Guitar, DADGAD tuning [tab]	instrument.fretted.guitar.semi-acoustic.dadgad.tab
Semi-acoustic Guitar, double D tuning [tab]	instrument.fretted.guitar.semi-acoustic.double-d.tab
Semi-acoustic Guitar, dropped D tuning [tab]	instrument.fretted.guitar.semi-acoustic.dropped-d.tab
Semi-acoustic Guitar, open D tuning [tab]	instrument.fretted.guitar.semi-acoustic.open-d.tab
Semi-acoustic Guitar, open E tuning [tab]	instrument.fretted.guitar.semi-acoustic.open-e.tab
Semi-acoustic Guitar, open G tuning [tab]	instrument.fretted.guitar.semi-acoustic.open-g.tab
Semi-acoustic Guitar, standard tuning (no rhythms) [tab]	instrument.fretted.guitar.semi-acoustic.tab
Semi-acoustic Guitar, standard tuning [tab]	instrument.fretted.guitar.semi-acoustic.tab.rhythms
10-string Hawaiian Steel Guitar [tab]	instrument.fretted.guitar.steel.hawaiian.10-string.tab
Hawaiian Steel Guitar [notation]	instrument.fretted.guitar.steel.hawaiian.5lines
6-string Hawaiian Steel Guitar, standard tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab
6-string Hawaiian Steel Guitar, alternate tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.alternative
6-string Hawaiian Steel Guitar, slack key Bb Mauna Loa tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.bflat.mauna.loa
6-string Hawaiian Steel Guitar, slack key C Mauna Loa tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.c.mauna.loa
6-string Hawaiian Steel Guitar, slack key Wahine CGDGBD tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.cgdgbd.wahine
6-string Hawaiian Steel Guitar, slack key Wahine CGDGBE tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.cgdgbe.wahine
6-string Hawaiian Steel Guitar, slack key Wahine DGD#BD tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.dgd#bd.wahine
6-string Hawaiian Steel Guitar, slack key G Mauna Loa tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.g.mauna.loa
6-string Hawaiian Steel Guitar, slack key G Taro Patch tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.g.taro.patch
6-string Hawaiian Steel Guitar, slack key Wahine GCDGBE tuning [tab]	instrument.fretted.guitar.steel.hawaiian.6-string.tab.gcdgbe.wahine
8-string Hawaiian Steel Guitar [tab]	instrument.fretted.guitar.steel.hawaiian.8-string.tab
8-string Hawaiian Steel Guitar, alternate tuning [tab]	instrument.fretted.guitar.steel.hawaiian.8-string.tab.alternative
Hawaiian Steel Guitar [tab]	instrument.fretted.guitar.steel.hawaiian.tab
Pedal Steel Guitar [notation]	instrument.fretted.guitar.steel.pedal.5lines
Pedal Steel Guitar [tab]	instrument.fretted.guitar.steel.pedal.tab
Guitarra [notation]	instrument.fretted.guitarra.5lines
Guitarra, Coimbra [tab]	instrument.fretted.guitarra.coimbra.tab
Guitarra, Lisboa [tab]	instrument.fretted.guitarra.lisboa.tab
Guitarra, Portuguesa [tab]	instrument.fretted.guitarra.portuguesa.tab
Guitarrón [notation]	instrument.fretted.guitarron.5lines
Guitarrón [tab]	instrument.fretted.guitarron.tab
Laúd [notation]	instrument.fretted.laud.5lines
Laúd [tab]	instrument.fretted.laud.tab
Tenor Lute [notation]	instrument.fretted.lute.5lines

Bass Lute [notation]	instrument.fretted.lute.bass-d.french.english.5lines
Bass Lute, D tuning, French/English [tab]	instrument.fretted.lute.bass-d.french.english.tab
Bass Lute, D tuning, Italian [tab]	instrument.fretted.lute.bass-d.italian.tab
Bass Lute, D tuning, Spanish [tab]	instrument.fretted.lute.bass-d.spanish.tab
Tenor Lute, G tuning, Italian [tab]	instrument.fretted.lute.italian.tab
Tenor Lute, G tuning, Spanish [tab]	instrument.fretted.lute.spanish.tab
Tenor Lute, G tuning, French/English [tab]	instrument.fretted.lute.tab
Tenor Lute, A tuning, French/English [tab]	instrument.fretted.lute.tenor-a.french.english.tab
Tenor Lute, A tuning, Italian [tab]	instrument.fretted.lute.tenor-a.italian.tab
Tenor Lute, A tuning, Spanish [tab]	instrument.fretted.lute.tenor-a.spanish.tab
Treble Lute [notation]	instrument.fretted.lute.treble-d.french.english.5lines
Treble Lute, D tuning, French/English [tab]	instrument.fretted.lute.treble-d.french.english.tab
Treble Lute, D tuning, Italian [tab]	instrument.fretted.lute.treble-d.italian.tab
Treble Lute, D tuning, Spanish [tab]	instrument.fretted.lute.treble-d.spanish.tab
Mandolin [notation]	instrument.fretted.mandolin.5lines
Mandolin [tab]	instrument.fretted.mandolin.tab
Oud [notation]	instrument.fretted.oud.5lines
Oud [tab]	instrument.fretted.oud.tab
Qanoon	instrument.fretted.qanoon.5lines
Requinto [notation]	instrument.fretted.requinto.5lines
Requinto [tab]	instrument.fretted.requinto.tab
Santoor	instrument.fretted.santoor.5lines
Sitar [notation]	instrument.fretted.sitar.5lines
Sitar (Ravi Shankar) [tab]	instrument.fretted.sitar.ravi-shankkar.tab
Sitar (Vilayat Khan) [tab]	instrument.fretted.sitar.vilayat-khan.tab
Tambura (Female) [notation]	instrument.fretted.tambura.female
Tambura (Male) [notation]	instrument.fretted.tambura.male
Tiple [notation]	instrument.fretted.tiple.5lines
Tiple, Argentina [tab]	instrument.fretted.tiple.argentina.tab
Tiple, Colombia ADF#B tuning [tab]	instrument.fretted.tiple.colombia.tab.adfb
Tiple, Colombia DGBE tuning [tab]	instrument.fretted.tiple.colombia.tab.dgbe
Tiple, Cuba [tab]	instrument.fretted.tiple.cuba.tab
Tiple, Peru [tab]	instrument.fretted.tiple.peru.tab
Tiple, Santo Domingo [tab]	instrument.fretted.tiple.santo.domingo.tab
Tiple, Uruguay [tab]	instrument.fretted.tiple.uruguay.tab
Tres [notation]	instrument.fretted.tres.5lines
Tres, GCE tuning [tab]	instrument.fretted.tres.tab
Tres, ADF# tuning [tab]	instrument.fretted.tres.tab.adf
Tres, GBE tuning [tab]	instrument.fretted.tres.tab.gbe
Ukulele [notation]	instrument.fretted.ukulele.5lines
Ukulele [tab]	instrument.fretted.ukulele.tab
Vihuela [notation]	instrument.fretted.vihuela.5lines
Vihuela [tab]	instrument.fretted.vihuela.tab
Zither	instrument.fretted.zither
Keyboard	instrument.keyboard
Accordion	instrument.keyboard.accordion
Bandoneon	instrument.keyboard.bandoneon
Celesta	instrument.keyboard.celesta
Clavichord	instrument.keyboard.clavichord
Harmonium	instrument.keyboard.harmonium

## Global constants

Harpsichord	instrument.keyboard.harpsichord
Keyboards	instrument.keyboard.keyboards
Tape Sampler Keyboard [Brass]	instrument.keyboard.tape sampler.brass
Tape Sampler Keyboard [Choir]	instrument.keyboard.tape sampler.choir
Tape Sampler Keyboard [Flute]	instrument.keyboard.tape sampler.flute
Tape Sampler Keyboard [Strings]	instrument.keyboard.tape sampler
Melodeon	instrument.keyboard.melodeon
Electric Organ	instrument.keyboard.organ.electric
Organ [manuals]	instrument.keyboard.organ.manuals
Manual [solo organ manuals]	instrument.keyboard.organ.manuals.solo
Ped. [Organ pedals]	instrument.keyboard.organ.pedals
Pedal [solo organ pedals]	instrument.keyboard.organ.pedals.solo
Piano	instrument.keyboard.piano
Electric Piano	instrument.keyboard.piano.electric
Electric Clavichord	instrument.keyboard.piano.electric.clavichord
Electric Stage Piano	instrument.keyboard.piano.electric.stage
Overdriven Electric Piano	instrument.keyboard.piano.electric.overdriven
Honky-tonk Piano	instrument.keyboard.piano.honky-tonk
Synthesizer	instrument.keyboard.synthesizer
Unnamed (2 lines)	instrument.other.2lines
Unnamed (3 lines)	instrument.other.3lines
Unnamed (4 lines)	instrument.other.4lines
Unnamed (bass staff)	instrument.other.bassclef
No instrument (barlines shown)	instrument.other.none.barlines
No instrument (bar rests shown)	instrument.other.none.barrests
No instrument (hidden)	instrument.other.none.hidden
Solo	instrument.other.solo.real
Unnamed (treble staff)	instrument.other.trebleclef
Almglocken	instrument.pitchedpercussion.almglocken
Antique Cymbals	instrument.pitchedpercussion.anticquecymbals
Chimes	instrument.pitchedpercussion.bells.chimes
Chimes [no key]	instrument.pitchedpercussion.bells.chimes.nokeysig
Bell lyre [marching band]	instrument.pitchedpercussion.bells.marching
Orchestral Bells	instrument.pitchedpercussion.bells.orchestral
Tubular Bells	instrument.pitchedpercussion.bells.tubular
Cimbalom	instrument.pitchedpercussion.cimbalom
Crotales	instrument.pitchedpercussion.crotales
Steel Drums	instrument.pitchedpercussion.drums.steel
Steel Drums [bass clef, treble transp.]	instrument.pitchedpercussion.drums.steel.bassclef
Gamelan Kengong	instrument.pitchedpercussion.gamelan.kengong
Gamelan Slentam	instrument.pitchedpercussion.gamelan.slentam
Glockenspiel	instrument.pitchedpercussion.glockenspiel
Alto Glockenspiel	instrument.pitchedpercussion.glockenspiel.alto
Soprano Glockenspiel	instrument.pitchedpercussion.glockenspiel.soprano
Handbells	instrument.pitchedpercussion.handbells
Harp	instrument.pitchedpercussion.harp
Lever Harp	instrument.pitchedpercussion.harp.lever
Kalimba	instrument.pitchedpercussion.kalimba
Marimba [grand staff]	instrument.pitchedpercussion.marimba
Marimba [treble staff]	instrument.pitchedpercussion.marimba.trebleclef

Alto Metallophone	instrument.pitchedpercussion.metallophone.alto
Bass Metallophone	instrument.pitchedpercussion.metallophone.bass
Soprano Metallophone	instrument.pitchedpercussion.metallophone.soprano
Roto-toms	instrument.pitchedpercussion.roto-toms
Temple Blocks	instrument.pitchedpercussion.templeblocks
Timpani [with key]	instrument.pitchedpercussion.timpani
Timpani [no key]	instrument.pitchedpercussion.timpani.nokeysig
Vibraphone	instrument.pitchedpercussion.vibraphone
Wood Blocks [5 lines]	instrument.pitchedpercussion.woodblocks
Xylophone	instrument.pitchedpercussion.xylophone
Alto Xylophone	instrument.pitchedpercussion.xylophone.alto
Bass Xylophone	instrument.pitchedpercussion.xylophone.bass
Contra Bass Bar	instrument.pitchedpercussion.xylophone.contrabass.bar
Gyl	instrument.pitchedpercussion.xylophone.gyl
Soprano Xylophone	instrument.pitchedpercussion.xylophone.soprano
Xylorimba	instrument.pitchedpercussion.xylorimba
Alto	instrument.singers.alto
Solo Alto	instrument.singers.alto.solo
Altus	instrument.singers.altus
Baritone	instrument.singers.baritone
Solo Baritone	instrument.singers.baritone.solo
Bass	instrument.singers.bass
Solo Bass	instrument.singers.bass.solo
Bassus	instrument.singers.bassus
Cantus	instrument.singers.cantus
Choir	instrument.singers.choir
Contralto	instrument.singers.contralto
Countertenor	instrument.singers.counter-tenor
Mean	instrument.singers.mean
Mezzo-soprano	instrument.singers.mezzo-soprano
Quintus	instrument.singers.quintus
Secundus	instrument.singers.secundus
Soprano	instrument.singers.soprano
Solo Soprano	instrument.singers.soprano.solo
Tenor	instrument.singers.tenor
Solo Tenor	instrument.singers.tenor.solo
Treble	instrument.singers.treble
Solo Treble	instrument.singers.treble.solo
Voice	instrument.singers.voice
Voice [male]	instrument.singers.voice.male
Contrabass	instrument.strings.contrabass
Bass [Double]	instrument.strings.contrabass.bass
Double Bass	instrument.strings.contrabass.double-bass
Solo Contrabass	instrument.strings.contrabass.solo
String Bass	instrument.strings.contrabass.string
Upright Bass	instrument.strings.contrabass.upright
Hurdy-gurdy	instrument.strings.hurdy-gurdy
Sarangi	instrument.strings.sarangi
Strings	instrument.strings.section
Strings [reduction]	instrument.strings.section.reduction

## Global constants

Bass Viol	instrument.strings.viol.bass
Tenor Viol	instrument.strings.viol.tenor
Treble Viol	instrument.strings.viol.treble
Viola	instrument.strings.viola
Solo Viola	instrument.strings.viola.solo
Violin 1	instrument.strings.violin.1
Violin 2	instrument.strings.violin.2
Violin I	instrument.strings.violin.I
Violin II	instrument.strings.violin.ii
Solo Violin	instrument.strings.violin.solo
Violoncello	instrument.strings.violoncello
Solo Violoncello	instrument.strings.violoncello.solo
Anvil	instrument.unpitched.anvil
Cha-cha bell [1 line]	instrument.unpitched.bells.cha-cha
Mambo bell [1 line]	instrument.unpitched.bells.mambo
Sleigh Bells	instrument.unpitched.bells.sleigh
Brake Drum [1 line]	instrument.unpitched.brake-drum.1line
Cabasa [1 line]	instrument.unpitched.cabasa
Cabasa [2 lines]	instrument.unpitched.cabasa.2lines
Castanets	instrument.unpitched.castanets
Shaker, Caxixi [1 line]	instrument.unpitched.caxixi.1line
Claves [1 line]	instrument.unpitched.claves
Shaker, Cocoa Bean Rattle [1 line]	instrument.unpitched.cocoa.bean.1line
Finger Cymbals [1 line]	instrument.unpitched.cymbals.finger.1line
Percussion [1 line]	instrument.unpitched.drums.1line
Percussion [2 lines]	instrument.unpitched.drums.2lines
Berimbau	instrument.unpitched.drums.2lines.berimbau
Percussion [3 lines]	instrument.unpitched.drums.3lines
Percussion [4 lines]	instrument.unpitched.drums.4lines
Percussion [5 lines]	instrument.unpitched.drums.5lines
Agogos [2 lines]	instrument.unpitched.drums.agogos
Bass Drum	instrument.unpitched.drums.bass
Bass Drum [5 lines]	instrument.unpitched.drums.bass.5lines
Marching Bass Drum [3 lines]	instrument.unpitched.drums.bass.marching.3lines
Marching Bass Drum [5 lines]	instrument.unpitched.drums.bass.marching.5lines
Itótele [Batá Drum]	instrument.unpitched.drums.bata.itotele
Iyá [Batá Drum]	instrument.unpitched.drums.bata.iya
Okónkolo [Batá Drum]	instrument.unpitched.drums.bata.okonkolo
Bongos [2 lines]	instrument.unpitched.drums.bongos
Bongo Bell [High]	instrument.unpitched.drums.bongos.bell.high
Bongo Bell [Low]	instrument.unpitched.drums.bongos.bell.low
Box	instrument.unpitched.drums.box.3lines
Cajon [2 lines]	instrument.unpitched.drums.cajon
Congas [2 lines]	instrument.unpitched.drums.congas
Congas [1 line]	instrument.unpitched.drums.congas.1line
Congas [3 lines]	instrument.unpitched.drums.congas.3lines
Congas [4 lines]	instrument.unpitched.drums.congas.4lines
Cuica [3 lines]	instrument.unpitched.drums.cuica.3lines
Cymbals	instrument.unpitched.drums.cymbal
Marching Cymbals [5 lines]	instrument.unpitched.drums.cymbals.marching.5lines

Djembe [3 lines]	instrument.unpitched.drums.djembe.3lines
Drum Set (Rock)	instrument.unpitched.drums.drumset
Drum Set (Alternative)	instrument.unpitched.drums.drumset.alternative
Drum Set (Brushes)	instrument.unpitched.drums.drumset.brushes
Drum Set (Dance)	instrument.unpitched.drums.drumset.dance
Drum Set (Disco)	instrument.unpitched.drums.drumset.disco
Drum Set (Electronica)	instrument.unpitched.drums.drumset.electronic
Drum Set (Fusion)	instrument.unpitched.drums.drumset.fusion
Drum Set (Garage)	instrument.unpitched.drums.drumset.garage
Drum Set (Hip-hop)	instrument.unpitched.drums.drumset.hip-hop
Drum Set (Industrial)	instrument.unpitched.drums.drumset.industrial
Drum Set (Jazz)	instrument.unpitched.drums.drumset.jazz
Drum Set (Lo-Fi)	instrument.unpitched.drums.drumset.lo-fi
Drum Set (Metal)	instrument.unpitched.drums.drumset.metal
Drum Set (Motown)	instrument.unpitched.drums.drumset.motown
Drum Set (New Age)	instrument.unpitched.drums.drumset.new age
Drum Set (Pop)	instrument.unpitched.drums.drumset.pop
Drum Set (Reggae)	instrument.unpitched.drums.drumset.reggae
Drum Set (Stadium Rock)	instrument.unpitched.drums.drumset.rock.stadium
Drum Set (Rods)	instrument.unpitched.drums.drumset.rods
Drum Set (Drum Machine)	instrument.unpitched.drums.drumset.tr-808
Dumbek [3 lines]	instrument.unpitched.drums.dumbek.3lines
Kidi [Ewe Drum]	instrument.unpitched.drums.ewe.kidi
Sogo [Ewe Drum]	instrument.unpitched.drums.ewe.sogo
Gankokwe (Bell)	instrument.unpitched.drums.gankokwe
Jam Blocks [2 lines]	instrument.unpitched.drums.jamblocks
Jawbone [1 line]	instrument.unpitched.drums.jawbone.1line
Pandeiro [2 lines]	instrument.unpitched.drums.pandeiro
Rain Stick (High) [1 line]	instrument.unpitched.drums.rainstick.high.1line
Rain Stick (Low) [1 line]	instrument.unpitched.drums.rainstick.low.1line
Egg Shaker (High) [1 line]	instrument.unpitched.drums.shaker.high.1line
Egg Shaker (Low) [1 line]	instrument.unpitched.drums.shaker.low.1line
Egg Shaker (Medium) [1 line]	instrument.unpitched.drums.shaker.medium.1line
Side Drum	instrument.unpitched.drums.side
Snare Drum	instrument.unpitched.drums.snare
Marching Snare Drums [5 lines]	instrument.unpitched.drums.snare.5lines
Surdo [2 lines]	instrument.unpitched.drums.surdo
Tabla	instrument.unpitched.drums.table
Taiko Drum	instrument.unpitched.drums.taiko
Tenor Drum	instrument.unpitched.drums.tenor
Marching Tenor Drums [5 lines]	instrument.unpitched.drums.tenor.marching
Quads [5 lines]	instrument.unpitched.drums.tenor.marching.quads
Tom-toms [5 lines]	instrument.unpitched.drums.tom-toms
Tom-toms [4 lines]	instrument.unpitched.drums.tom-toms.4lines
Udu	instrument.unpitched.drums.udu
Shaker, Egg Shaker [1 line]	instrument.unpitched.egg shaker.1line
Finger Click [1 line]	instrument.unpitched.fingerclick
Gamelan Gong Ageng (High) [1 line]	instrument.unpitched.gamelan.gong-ageng.high
Gamelan Gong Ageng (Low) [1 line]	instrument.unpitched.gamelan.gong-ageng.low
Gamelan Kempyang and Ketuk [2 lines]	instrument.unpitched.gamelan.kempyang-ketuk

## Global constants

Gamelan Khendang Ageng [1 line]	instrument.unpitched.gamelan.khendang-ageng
Gamelan Khendang Ciblon [1 line]	instrument.unpitched.gamelan.khendang-ciblon
Large Gong [1 line]	instrument.unpitched.gong.large.1line
Medium Gong [1 line]	instrument.unpitched.gong.medium.1line
Gourd [1 line]	instrument.unpitched.gourd
Guira [1 line]	instrument.unpitched.guira
Guiro (High) [1 line]	instrument.unpitched.guiro.high
Guiro (Medium) [1 line]	instrument.unpitched.guiro.medium
Handclap [1 line]	instrument.unpitched.handclap
Shaker, Kayamba [1 line]	instrument.unpitched.kayamba.1line
Maracas	instrument.unpitched.maracas
Shaker, Gourd Maracas [1 line]	instrument.unpitched.maracas.gourd.1line
Maracas [High]	instrument.unpitched.maracas.high
Maracas [Medium]	instrument.unpitched.maracas.medium
Mark tree [1 line]	instrument.unpitched.marktree
Shaker, Nsak Rattle [1 line]	instrument.unpitched.nsak.1line
Finger Snaps	instrument.unpitched.orff.fingersnaps
Hand Claps	instrument.unpitched.orff.handclaps
Patsch	instrument.unpitched.orff.patsch
Stamp	instrument.unpitched.orff.stamp
Salsa bell [1 line]	instrument.unpitched.salsa.bell
Shaker [1 line]	instrument.unpitched.shaker
Shaker, Shekere [1 line]	instrument.unpitched.shekere.1line
Tam-tam	instrument.unpitched.tam-tam
Tambourine	instrument.unpitched.tambourine
Timbales [2 lines]	instrument.unpitched.timbales.2lines
Timbales [5 lines]	instrument.unpitched.timbales.5lines
Triangle	instrument.unpitched.triangle
Shaker, Wasembe Rattle (High) [1 line]	instrument.unpitched.wasembe.high.1line
Shaker, Wasembe Rattle (Low) [1 line]	instrument.unpitched.wasembe.low.1line
Shaker, Wasembe Rattle (Medium) [1 line]	instrument.unpitched.wasembe.medium.1line
Whip	instrument.unpitched.whip
Whistle	instrument.unpitched.whistle
Wind Chimes [1 line]	instrument.unpitched.wind-chimes.1line
Wood Block [1 line]	instrument.unpitched.woodblock.1line
Bagpipes	instrument.wind.bagpipe
Basset Horn	instrument.wind.basset-horn
Bassoon	instrument.wind.bassoon
Contrabassoon	instrument.wind.bassoon.contrabassoon
Quart Bassoon	instrument.wind.bassoon.quart
Quint Bassoon	instrument.wind.bassoon.quint
Clarinet in A	instrument.wind.clarinet.a
Clarinet in Ab	instrument.wind.clarinet.aflat
Alto Clarinet in Eb	instrument.wind.clarinet.alto.eflat
Alto Clarinet in Eb [bass clef, treble transp.]	instrument.wind.clarinet.alto.eflat.bassclef
Bass Clarinet in Bb	instrument.wind.clarinet.bass.bflat
Bass Clarinet in Bb [score sounds 8vb]	instrument.wind.clarinet.bass.bflat.8vb-score
Bass Clarinet in Bb [bass clef, treble transp.]	instrument.wind.clarinet.bass.bflat.bassclef
Clarinet in Bb	instrument.wind.clarinet.bflat
Clarinet in C	instrument.wind.clarinet.c

Contra Alto Clarinet in Eb	instrument.wind.clarinet.contra.alto.eflat
Contra Alto Clarinet in Eb [score sounds 8vb]	instrument.wind.clarinet.contra.alto.eflat.8vb-score
Contra Alto Clarinet in Eb [bass clef, treble transp.]	instrument.wind.clarinet.contra.alto.eflat.bassclef
Contrabass Clarinet in Bb	instrument.wind.clarinet.contrabass.bflat
Contrabass Clarinet in Bb [score sounds 15mb]	instrument.wind.clarinet.contrabass.bflat.15mb-score
Contrabass Clarinet in Bb [bass clef, treble transp.]	instrument.wind.clarinet.contrabass.bflat.bassclef
Clarinet in D	instrument.wind.clarinet.d
Clarinet in Eb	instrument.wind.clarinet.eflat
Clarinet in G	instrument.wind.clarinet.g
Cor Anglais	instrument.wind.coranglais
Didgeridoo	instrument.wind.didgeridoo
Duduk	instrument.wind.duduk
English Horn	instrument.wind.englishhorn
Flageolet	instrument.wind.flageolet
Flute	instrument.wind.flute
Alto Flute	instrument.wind.flute.alto
Bansuri	instrument.wind.flute.bansuri
Bass Flute	instrument.wind.flute.bass
Eb Flute	instrument.wind.flute.eflat
G Flute	instrument.wind.flute.g
Harmonica	instrument.wind.harmonica
Heckelphone	instrument.wind.heckelphone
Mey	instrument.wind.mey
Nai	instrument.wind.nai
Oboe	instrument.wind.oboe
Baritone Oboe	instrument.wind.oboe.baritone
Bass Oboe	instrument.wind.oboe.bass
Oboe d'Amore	instrument.wind.oboe.damore
Ocarina	instrument.wind.ocarina
Panpipes	instrument.wind.panpipes
Piccolo	instrument.wind.piccolo
Military Piccolo in Db	instrument.wind.piccolo.dflat
Alto Recorder	instrument.wind.recorder.alto
Bass Recorder	instrument.wind.recorder.bass
Great Bass Recorder	instrument.wind.recorder.bass.great
Contrabass Recorder	instrument.wind.recorder.contrabass
Descant Recorder	instrument.wind.recorder.descant
Sopranino Recorder	instrument.wind.recorder.sopranino
Soprano Recorder	instrument.wind.recorder.soprano
Tenor Recorder	instrument.wind.recorder.tenor
Treble Recorder	instrument.wind.recorder.treble
Alto Saxophone	instrument.wind.saxophone.alto
Baritone Saxophone	instrument.wind.saxophone.baritone
Baritone Saxophone [score sounds 8vb]	instrument.wind.saxophone.baritone.8vb-score
Baritone Saxophone [bass clef, treble transp.]	instrument.wind.saxophone.baritone.bassclef
Bass Saxophone	instrument.wind.saxophone.bass
Bass Saxophone [score sounds 15mb]	instrument.wind.saxophone.bass.15mb-score
Bass Saxophone [bass clef, treble transp.]	instrument.wind.saxophone.bass.bassclef
C Melody Saxophone	instrument.wind.saxophone.c-melody
Contrabass (Tubax) Saxophone	instrument.wind.saxophone.contrabass

## Global constants

Contrabass (Tubax) Saxophone [score sounds 15mb]	instrument.wind.saxophone.contrabass.15mb-score
Contrabass (Tubax) Sax [bass clef, treble transp.]	instrument.wind.saxophone.contrabass.bassclef
F Mezzo Soprano Saxophone	instrument.wind.saxophone.mezz-soprano.f
Sopranino Saxophone	instrument.wind.saxophone.sopranino
Piccolo Saxophone in Bb [Soprillo]	instrument.wind.saxophone.sopranino.bflat
Soprano Saxophone	instrument.wind.saxophone.soprano
C Soprano Saxophone	instrument.wind.saxophone.soprano.c
Subcontrabass (Tubax) Saxophone	instrument.wind.saxophone.subcontrabass
Subcontrabass (Tubax) Saxophone [score sounds 15mb]	instrument.wind.saxophone.subcontrabass.15mb-score
Subcontrabass (Tubax) Sax [bass clef, treble transp.]	instrument.wind.saxophone.subcontrabass.bassclef
Tenor Saxophone	instrument.wind.saxophone.tenor
Tenor Saxophone [score sounds 8vb]	instrument.wind.saxophone.tenor.8vb-score
Tenor Saxophone [bass clef, treble transp.]	instrument.wind.saxophone.tenor.bassclef
Woodwind	instrument.wind.section
Shakuhachi	instrument.wind.shakuhachi
Tin Whistle	instrument.wind.whistle.tin

## Beam options

For the **Beam** variable of NoteRest objects.

NoBeam	1
StartBeam	2
ContinueBeam	3
SingleBeam	4

## Bracket types

For the **AddBracket** () method of BracketList objects, and the **BracketType** variable of Bracket objects.

BracketFull	0
BracketBrace	1
BracketSub	2

## Breaks

These constants are used by the **SetBreakType** () method of Score objects.

MiddleOfSystem	1
EndOfSystem	2
MiddleOfPage	3
EndOfPage	4
NotEndOfSystem	5
EndOfSystemOrPage	6
Default	7
SpecialPageBreak	8

These constants correspond to the menu entries in the **Bars** panel of the Properties window in the following way:

<b>MiddleOfSystem</b>	<b>Middle of system.</b> The bar can only appear in the middle of a system, not at the end.
<b>EndOfSystem</b>	No menu entry; created by <b>Layout ▶ Lock Format</b> . The bar can only appear at the end of a mid-page system, not the middle of a system or the end of a page.
<b>MiddleOfPage</b>	<b>Middle of page.</b> The bar can appear anywhere except at the end of a page.
<b>EndOfPage</b>	<b>Page break.</b> The bar can only appear at the end of a page.
<b>NotEndOfSystem</b>	No menu entry. The bar can appear anywhere except the end of a mid-page system.

**EndOfSystemOrPage**      **System break.** The bar can only appear at the end of a mid-page system or the end of a page.

**Default**      **No break.** The bar can appear anywhere.

Note that in older versions of Manuscript the constant **MiddleOfSystem** was called **NoBreak** and the constant **EndOfSystem** was called **SystemBreak**. These older names were confusing, because they implied a correlation with the similarly-named menu items in the Properties window that was not accurate. The old names are still supported for old plug-ins, but should not be used for new plug-ins. For consistency, the old constant **PageBreak** has also been renamed **EndOfPage**, even though this did correlate correctly with the Properties window.

## Accidentals

For the **Accidental** variable of Note objects.

DoubleSharp	2
Sharp	1
Natural	0
Flat	-1
DoubleFlat	-2

## Note Style names

For the **NoteStyle** variable of Note objects; these correspond to the noteheads available from the **Notes** panel of the Properties window in the manuscript papers that are supplied with Sibelius.

NormalNoteStyle	0	BackSlashedNoteStyle	12
CrossNoteStyle	1	ArrowDownNoteStyle	13
DiamondNoteStyle	2	ArrowUpNoteStyle	14
BeatWithoutStemNoteStyle	3	InvertedTriangleNoteStyle	15
BeatNoteStyle	4	ShapedNote1NoteStyle	16
CrossOrDiamondNoteStyle	5	ShapedNote2NoteStyle	17
BlackAndWhiteDiamondNoteStyle	6	ShapedNote3NoteStyle	18
HeadlessNoteStyle	7	ShapedNote4StemUpNoteStyle	19
StemlessNoteStyle	8	ShapedNote4StemDownNoteStyle	23
SilentNoteStyle	9	ShapedNote5NoteStyle	20
CueNoteStyle	10	ShapedNote6NoteStyle	21
SlashedNoteStyle	11	ShapedNote7NoteStyle	22

## MuteMode constants

These are the possible values of **Stave.MuteMode**:

Muted	0
HalfMuted	1
NotMuted	2

## Articulations

Used with **Note.GetArticulation** and **Note.SetArticulation**.

Custom3Artic	15
TriPauseArtic	14
PauseArtic	13
SquarePauseArtic	12
Custom2Artic	11
DownBowArtic	10
UpBowArtic	9
PlusArtic	8

## Global constants

HarmonicArtic	7
MarcatoArtic	6
AccentArtic	5
TenutoArtic	4
WedgeArtic	3
StaccatissimoArtic	2
StaccatoArtic	1
Custom1Artic	0

## SyllableTypes for LyricItems

Used in LyricItem.

MiddleOfWord	0
EndOfWord	1

## Accidental styles

As used by `Note.AccidentalStyle`.

NormalAcc	"0"
HiddenAcc	"1"
CautionaryAcc	"2"
BracketedAcc	"3"

## Time signature strings

These define the unicode characters used to draw common time and alla breve time signatures, so that you can recognise these by comparison with `TimeSignature.Text`.

`CommonTimeString`

`AllaBreveTimeString`

## Symbols

There are a lot of symbols in Sibelius. We've defined named constants for the indices of some of the most frequently used symbols, which can be passed to `Bar.AddSymbol`. For other symbols, you can work out the required index by "counting along" in the **Create > Symbol** dialog of Sibelius, or by using the method `Score.SymbolIndex`. To help with the "counting along," we've defined a constant for the start of every group of symbols in the **Create > Symbol** dialog, and these are also given below. Then for example you can access the 8va symbol as `OctaveSymbols + 2`.

### Common symbol indices

SegnoSymbol	"1"
CodaSymbol	"2"
RepeatBeatSymbol	"5"
RepeatBarSymbol	"6"
RepeatTwoBarsSymbol	"7"
TrillSymbol	"32"
BracketedTrillSymbol	"33"
MordentSymbol	"36"
InvertedMordentSymbol	"37"
TurnSymbol	"38"
InvertedTurnSymbol	"39"
ReversedTurnSymbol	"40"
TripleMordentSymbol	"41"
InvertedTripleMordentSymbol	"42"
PedalSymbol	"48"
PedalPSymbol	"49"

PedalUpSymbol	"50"
LiftPedalSymbol	"51"
HeelOneSymbol	"52"
HeelTwoSymbol	"53"
ToeOneSymbol	"54"
ToeTwoSymbol	"55"
CommaSymbol	"247"
TickSymbol	"248"
CaesuraSymbol	"249"
ThickCaesuraSymbol	"250"

### **Indices at the start of each group of symbols**

RepeatSymbols	"0"
GeneralSymbols	"16"
OrnamentSymbols	"32"
KeyboardSymbols	"48"
ChromaticPercussionSymbols	"64"
DrumPercussionSymbols	"80"
MetallicPercussionSymbols	"96"
OtherPercussionSymbols	"112"
BeaterPercussionSymbols	"128"
PercussionTechniqueSymbols	"160"
GuitarSymbols	"176"
ArticulationSymbols	"208"
AccidentalSymbols	"256"
NoteSymbols	"288"
NoteheadSymbols	"320"
RestSymbols	"368"
ConductorSymbols	"400"
ClefSymbols	"416"
OctaveSymbols	"448"
BreakSymbols	"464"
TechniqueSymbols	"480"
AccordionSymbols	"496"
HandbellSymbols	"528"
MiscellaneousSymbols	"544"

### **Symbol size constants**

NormalSize	"0"
CueSize	"1"
GraceNoteSize	"2"
CueGraceNoteSize	"3"

## Special page break types

NoPageBreak	"0"
MusicRestartsAfterXPages	"1"
MusicRestartsOnNextLeftPage	"2"
MusicRestartsOnNextRightPage	"3"

## Interval types

IntervalDiatonic	"-1"
Interval5xDiminished	"0"
Interval4xDiminished	"1"
Interval3xDiminished	"2"
Interval2xDiminished	"3"
IntervalDiminished	"4"
IntervalMinor	"4"
IntervalMajor	"5"
IntervalPerfect	"5"
IntervalAugmented	"6"
Interval2xAugmented	"7"
Interval3xAugmented	"8"
Interval4xAugmented	"9"
Interval5xAugmented	"10"

## InMultirest values

NoMultirest	"0"
StartsMultirest	"1"
EndsMultirest	"2"
MidMultirest	"3"

## Page number visibility values

PageNumberShowAll	"0"
PageNumberHideFirst	"1"
PageNumberHideAll	"2"

## Page number format values

PageNumberFormatNormal	"0"
PageNumberFormatRomanUpper	"1"
PageNumberFormatRomanLower	"2"
PageNumberFormatLetterLower	"3"

## Special barlines

SpecialBarlineStartRepeat	"0"
SpecialBarlineEndRepeat	"1"
SpecialBarlineDashed	"2"
SpecialBarlineDouble	"3"
SpecialBarlineFinal	"4"
SpecialBarlineInvisible	"5"
SpecialBarlineBetweenStaves	"6"
SpecialBarlineNormal	"7"
SpecialBarlineTick	"8"

SpecialBarlineShort	"9"
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## Bar rest type values

WholeBarRest	"0"
BreveBarRest	"1"
OneBarRepeat	"2"
TwoBarRepeat	"3"
FourBarRepeat	"4"

## GuitarScaleDiagram type values

ScaleTypeMajor	"0"
ScaleTypeMinor	"1"
ScaleTypeHarmonicMinor	"2"
ScaleTypeMelodicMinor	"3"
ScaleTypeDorian	"4"
ScaleTypePhrygian	"5"
ScaleTypeLydian	"6"
ScaleTypeMixolydian	"7"
ScaleTypeLocrian	"8"
ScaleTypeWholeTone	"9"
ScaleTypeDiminishedHalfWhole	"10"
ScaleTypeDiminishedWholeHalf	"11"
ScaleTypeAlteredDominant	"12"
ScaleTypeLocrianSharp2	"13"
ScaleTypeLydianFlat7	"14"
ScaleTypeMajorBebop	"15"
ScaleTypeDominantBebop	"16"
ScaleTypeLydianSharp5	"17"
ScaleTypePhrygianDominant	"18"
ScaleTypeAugmentedArpeggio	"19"
ScaleTypeMajor7thArpeggio	"20"
ScaleType7thArpeggio	"21"
ScaleTypeMin7Flat5Arpeggio	"22"
ScaleTypeDiminished7thArpeggio	"23"
ScaleTypeMajorPentatonic	"24"
ScaleTypeMinorPentatonic	"25"
ScaleTypeOther	"26"

## FeatheredBeamType values

For the **FeatheredBeamType** variable of NoteRest objects.

FeatheredBeamNone	"0"
FeatheredBeamAccel	"1"
FeatheredBeamRit	"2"

## Units values

For the DocumentSetup object.

DocumentSetupUnitsmm	"0"
DocumentSetupUnitsInches	"1"
DocumentSetupUnitsPoints	"2"

## Orientation values

For the **Orientation** variable of DocumentSetup objects.

OrientationPortrait	"0"
OrientationLandscape	"1"

## PageSize values

For the **PageSize** variable of DocumentSetup objects.

PageSizeLetter	"0"
PageSizeTabloid	"1"
PageSizeA5	"2"
PageSizeB5	"3"
PageSizeA4	"4"
PageSizeB4	"5"
PageSizeA3	"6"
PageSizeUSBand	"7"
PageSizeStatement	"8"
PageSizeHymn	"9"
PageSizeOctavo	"10"
PageSizeExecutive	"11"
PageSizeQuarto	"12"
PageSizeConcert	"13"
PageSizeFolio	"14"
PageSizeLegal	"15"
PageSize9_5x12_5	"16"
PageSize10x13	"17"
PageSizeCustom	"18"

## MarginType values

For the **MarginType** variable of DocumentSetup objects.

PageMarginsSame	"0"
PageMarginsMirrored	"1"
PageMarginsDifferent	"2"

## Tuplets

These define the constants that can be passed as a *style* parameter to **Bar.AddTuplet()** and **Tuplet.AddNestedTuplet()**.

TupletNoNumber	"0"
TupletLeft	"1"
TupletLeftRight	"2"
TupletLeftRightNote	"3"

These define the constants that can be passed as a *bracket* parameter:

TupletBracketOff	"0"
TupletBracketOn	"1"
TupletBracketAuto	"2"

## SingleTremolos

For the **SingleTremolos** variable of NoteRest objects, the constants are numbers in the range 0 to 7, representing the number of tremolo beams on the stem of the note or chord. For a “z on stem” (for buzz rolls), use the value -1 or the constant **ZOnStem**.

**DoubleTremolo values**

For the double tremolo style variables of EngravingRules objects.

DoubleTremolosTouchingStems	"0"
DoubleTremolosBetweenStems	"1"
DoubleTremolosOuterTremoloTouchingStems	"2"

**Instrument name values**

For the instrument name variables of EngravingRules objects.

InstrumentNamesFull	"0"
InstrumentNamesShort	"1"
InstrumentNamesNone	"2"

**Types of Objects in a Bar**

The **Type** field for objects in a bar can return one of the following values:

**Clef, SpecialBarline, TimeSignature, KeySignature**

**Line, ArpeggioLine, Bend, CrescendoLine, DiminuendoLine, GlissandoLine, OctavaLine, PedalLine, RepeatTimeLine, Slur, Trill, Box, BeamLine, Tuplet, RitardLine, Highlight**

**LyricItem, Text, SystemTextItem, GuitarFrame, GuitarScaleDiagram, RehearsalMark, InstrumentChange**

**BarRest, NoteRest, Graphic, Comment, Bracket, BarNumber**

**SymbolItem, SystemSymbolItem**

# What's new in Sibelius 7

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If you have used previous versions of Sibelius, you may be interested to know about the improvements to Manuscript added in Sibelius 7. The following is a list of the various new objects, methods and variables:

## Dialog editor

The dialog editor for plug-in dialogs has been significantly improved, and is now available for the first time on Mac as well as Windows – see **Dialog editor** on page 25.

## New objects

- New **Accessibility** object, currently with a very limited object model for controlling how Sibelius interacts with screen reading software – see **Accessibility** on page 45.

## New methods

- New **RemoveVideo()** method in the Score object, to remove an attached video – see **Score** on page 96.
- New **PrependScreenreaderText()** and **ScreenreaderText()** methods in the Sibelius object, to override or augment Sibelius's default screen reader descriptions – see **Sibelius** on page 105.
- New **CloseAllWindows()** and **CloseWindow()** methods in the Sibelius objects – see **Sibelius** on page 105.
- New **CopyOutSuffixes()** method in the GuitarFrame object, replacing the deprecated **Suffixes** variable – see **GuitarFrame** on page 74.
- New **ExportScoreAsPDF()** and **ExportPartsAsPDF()** methods in the Score object – see **Score** on page 96.

## New variables

- **BarObject** objects now provide a variable for the alpha channel of their color – see **BarObject** on page 54.
- **Folder** objects now provide a variable for the total number of files of any file type in the folder – see **Folder** on page 73.
- **InstrumentType** objects now provide a variable returning the style ID of the tab instrument type used to determine the tuning of chord diagrams on standard notation staves – see **InstrumentType** on page 82.
- **NoteRest** objects now provide a variable for the stem direction of the note – see **NoteRest** on page 87.