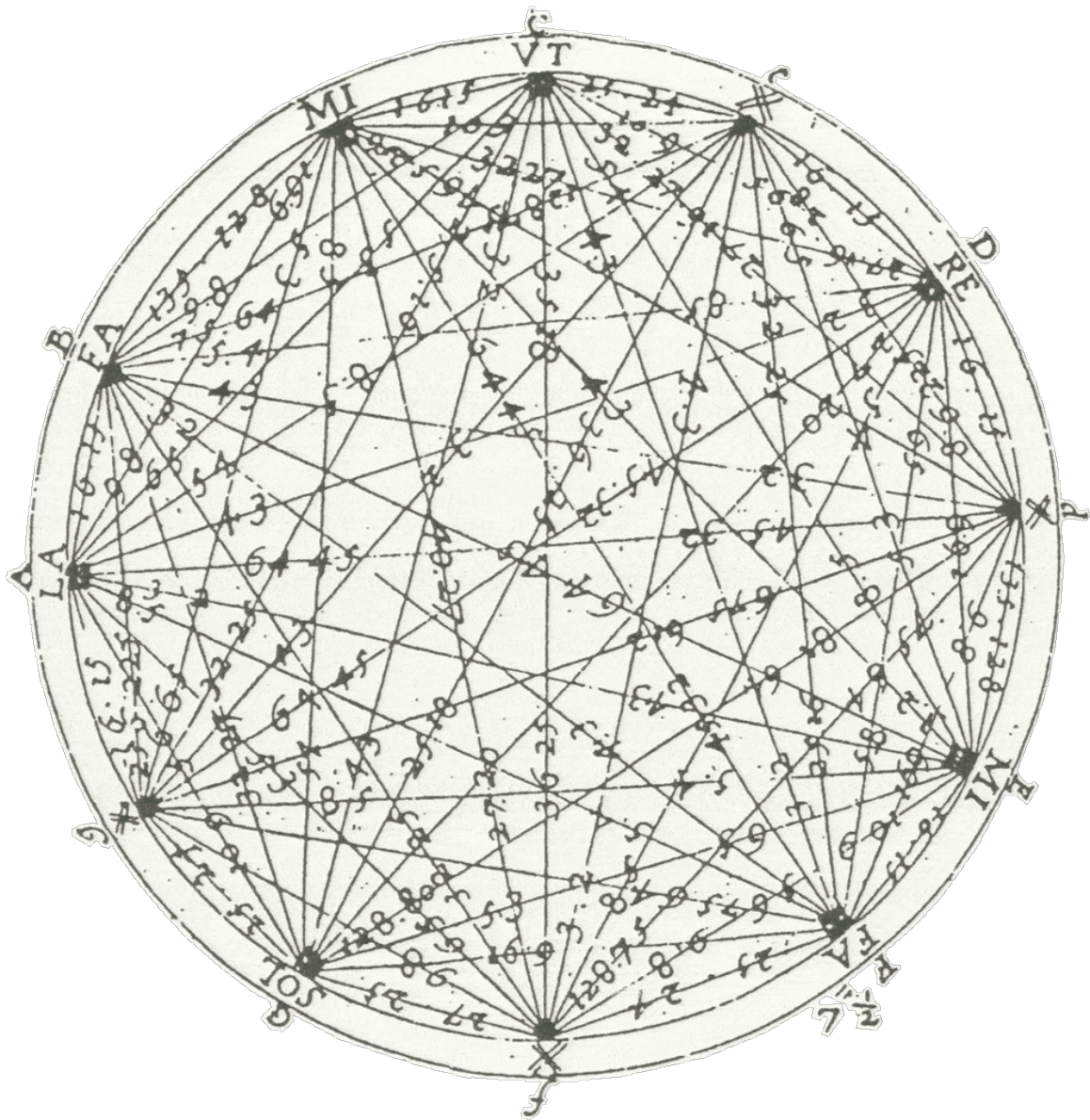


# Scala Vista



**π INSTRUMENTS**

Aaron Andrew Hunt

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# Introduction

The Scala archive is a collection of tuning files maintained by Manuel Op de Coul, the creator of Scala, at the Fokker foundation website <http://www.huygens-fokker.org/scala/downloads.html#scales> Over the last two decades, the Scala tuning archive has grown to over four thousand scales. Such a vast store of tunings is a bit overwhelming, especially for newcomers. ScalaVista provides the means to quickly see what is in the archive, to hear the sounds, and to easily explore them.

First appearing in 2009, with permission from Manuel Op de Coul, the original version of ScalaVista was freeware, and worked directly with Scala text files, and had no way of reliably correlating the scales on a user's machine with the scales in the current Scala archive. It was left to the user to keep his or her archive up to date. While this approach allowed a certain kind of flexibility for the user, it also was a bit confusing, and somewhat error prone.

In 2013, I decided it was time to overhaul the design of ScalaVista, to turn it into a true database app, and to link it with the growing Scala archive, which had already increased by hundreds of scales. With permission, I programmed an online searchable database from the existing Scala archive, as an addition to the H-Pi Instruments website. This archive allowed searching for matching text within the parameters of the Scala format: *filename*, *description*, *tone count*, and *tones*.

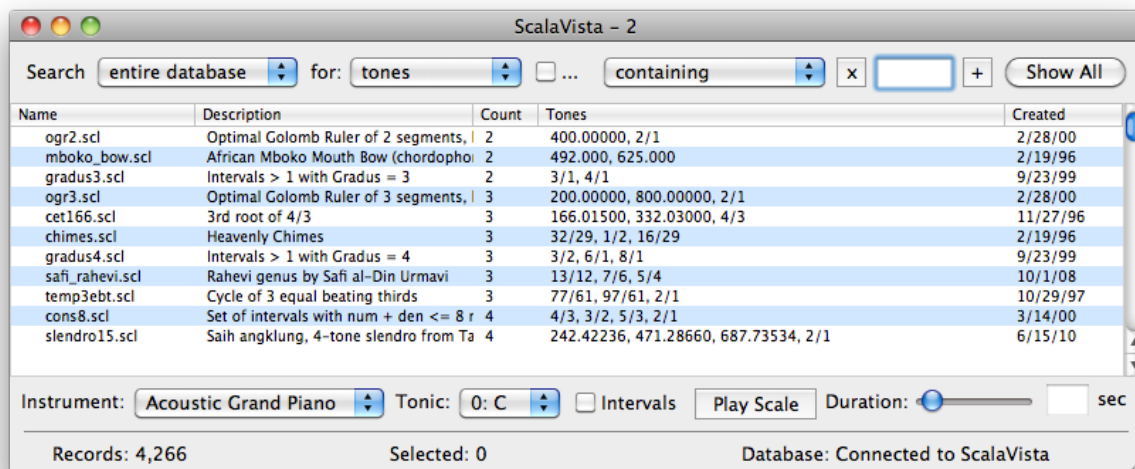
ScalaVista desktop is a much more advanced database allowing more specific searching using comparators as well as matching, introducing advanced search options and advanced functionality, and most importantly allowing the tones of every scale to be heard and compared quickly and easily.

The ScalaVista desktop app allows maintaining local searchable access to the continually expanding Scala archive of over 4000 scales.

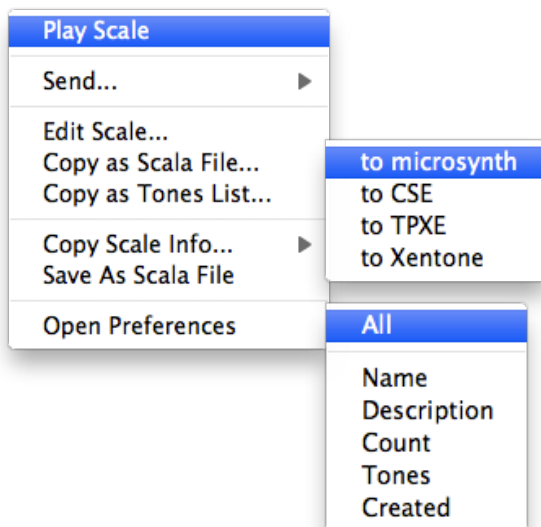
## Interface Basics

ScalaVista offers a straightforward single-window interface that should not require much explanation; however, one thing which is good to know at the outset is that you can open up as many database windows as you like.

Opening more than one database window allows you to perform different kinds of searches without losing the results. If there are results you want to keep visible while performing more searching, just open a new window using the menu item **File > New Window** or **Command-N**. The new window will be labeled in its titlebar with an index number, so you can keep track of which window you opened in what order.



Use the mouse to **Right-Click** or **Control-click** on the database list to bring up a menu providing quick access to many useful actions which are explained in this documentation.

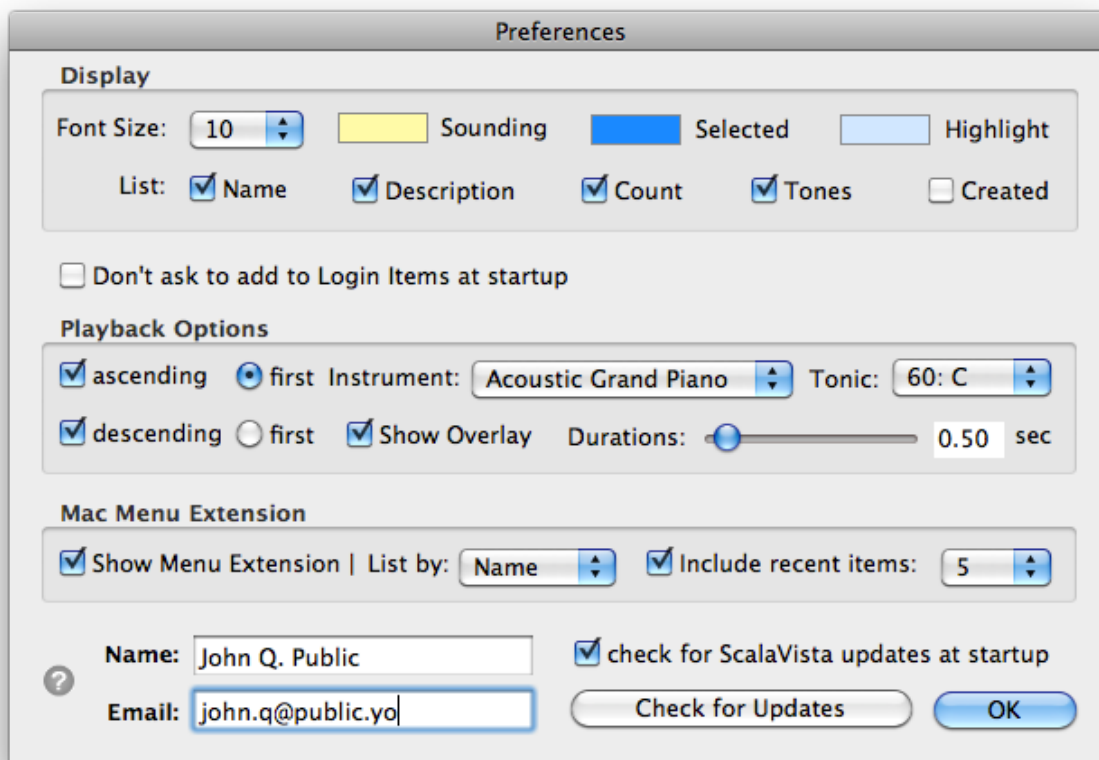


## Bug Reporting and Feedback

Please report any problems you may experience with ScalaVista directly by using the menu item *Report a Bug*. Before doing so, please also check the [ScalaVista reports webpage](#), which lists all known issues and feature requests. Your ideas and suggestions for improving the software are welcome. Please send feedback and suggestions by email directly or using the menu item *Send an Email*.

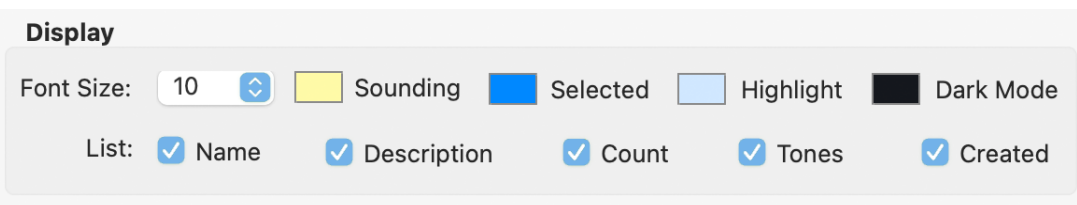
I ask kindly that you do not post complaints in Mac App Store Reviews, as I have no way of corresponding with you to correct the problem in that case. When you report bugs directly as described above, I can work with you to resolve the issue.

# 1. Preferences



When you open ScalaVista for the first time, the Preferences window is opened, so that you can select some basic options, which should be fairly self-explanatory. Details are as follows.

## Display



The database display window shows a list of scale information, which can be substantively and cosmetically tweaked in the Preferences window.

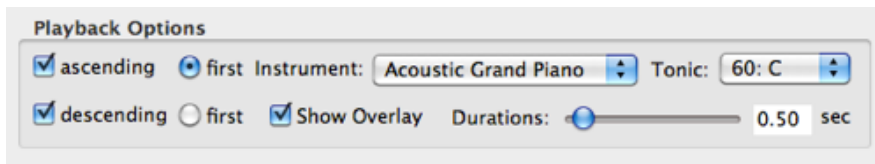
The **Font Size** can be selected by the user, to accommodate various screen sizes and resolutions. The **Highlight** color is used to change the background of alternate rows in the list in order to make it more readable. The **Selected** color likewise makes clear which rows are currently selected. The **Sounding** color refers to the rounded rectangle that is drawn around

tones which are sounding in a scale that is either being played back, or has been clicked on by the user. The **Dark Mode** color is the highlight color to be used when the OS is in Dark Mode.

The five checkbox items in the **List** row refer to the various data parameters which can be shown or hidden. To hide a parameter, simply uncheck it, and the column disappears from the database list in all viewer windows.

Changing settings in the Preferences window take immediate effect on all open database windows.

### Playback Options



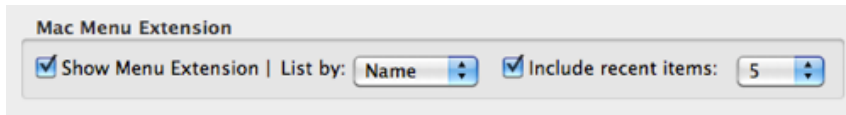
By default, scales play back in the following manner: they begin at a starting lowest note (1/1) and ascend to the highest note in the scale (usually 2/1, but not always), and then descend back down to the starting note (1/1). You can choose to hear scales only ascending, or only descending, or descending before ascending, using the **first** selector.

You can also choose the **MIDI Instrument**, the **Tonic Note**, and the **Duration** in seconds for each note in the scale. By default, MIDI instrument 0 is used (Piano), but it is often useful to hear individual tones and intervals with a more sustained sound such as the Reed Organ (MIDI patch 21). By default, the tones are fairly short, but longer sustained tones can also be helpful to gain a better sense of the sounds of different pitches and intervals.

Lastly, you can choose to show or hide an overlay display of each scale tone value (number) as it plays back.

5-96tet.asc	Frank Jędrzejewski continued fractions approx. of 96-tet	96	138/137, 70/69, 47/46, 35/34, 28/27, 47/45, 61/58, 89/84, 56/55, 43/40, 133/121, 122/11, 67/63, 52/47, 39/35, 55/49, 26/23, 11/10
pipeum_99.asc	2401/2400, 3136/3125, 4375/4374, Gene Ward Smith, 2002	99	126/125, 875/864, 49/48, 36/35, 28/27, 25/24, 21/20, 1323/1250, 16/15, 15/14, 27/25, 49/45, 31/32, 54/49, 10/9, 28/25, 6/5
poole_330.asc	Henry Ward Poole's 100 note 7-limit scale, Helmholz page 474	100	32805/32768, 2240/2187, 26/25, 8565/8162, 20480/19683, 25/24, 137781/133872, 256/243, 101/128, 1087/1048, 7168/6561
tuneset3.asc	Marc Sabat, 3 octaves of intervals tuneable by ear	101	6/7, 7/6, 19/16, 6/5, 11/9, 5/4, 14/11, 9/7, 11/10, 4/3, 27/20, 11/8, 7/5, 17/12, 10/7, 13/9, 16/11, 3/2, 14/9, 11/7, 8/5, 13/8
cat54g.asc	380th root of 24	101	54.47480, 308.94960, 183.42441, 217.89921, 272.37401, 320.84881, 381.32361, 435.79842, 490.27322, 544.74802, 599.22282
scris3.asc	J.J. Weiss, system 1 gamut tuning (1990), Stefan Pohls thesis, 2011	105	81/80, 49/48, 1053/1024, 729/704, 2673/2560, 258/243, 135/128, 16/15, 2187/2048, 784/729, 13/12, 11/10, 20/9, 9/8
scris2.asc	J.J. Weiss, system 2 gamut tuning (2007), Stefan Pohls thesis, 2011	104	81/80, 177/164, 11/10, 77/76, 243/232, 794/743, 115/128, 16/15, 2187/2048, 14/13, 89/81, 128/117, 119/108, 105/9, 5/4, 3
scris1.asc	Superfiliated two out of 2 3 5 7 9 11 pentadecany	100	185/184, 2079/2048, 5/4, 45/44, 37/36, 265/252, 11/10, 110/100, 21/20, 135/128, 15/13, 297/288, 77/72, 51/54, 186/176, 1485/1322, 6/5
cel11.asc	36th root of 514, Mujagić Šahin	112	50.73097, 21.46187, 32.19281, 42.37171, 53.45461, 64.38162, 75.11656, 85.84749, 96.57841, 107.30936, 118.04030, 128.77124
duodenarium.asc	Ellis's Duodenarium - genus (3=12 5=8)	117	2048/2015, 81/80, 128/125, 250/243, 36875/36784, 648/625, 25/24, 27375/262144, 256/243, 135/128, 16/15, 2187/2048, 3/2
cel10.asc	20th root of 818, on Antonio Soler's tuning box, affador or tenorante	118	30.19550, 20.39100, 30.50050, 40.78200, 51.17750, 61.17300, 71.36850, 81.56400, 91.75950, 101.95500, 112.15050, 122.34600
astro.asc	Astro temperament, q=132.194511, 5-limit	118	30.24400, 20.49880, 30.74020, 39.94990, 50.29630, 60.44870, 70.69811, 80.94751, 91.19691, 101.44631, 111.69571, 121.94511
kwazy.asc	Kwazy temperament, q=162.741892, p=600, 5-limit	718	11.81102, 21.41000, 31.24038, 41.12838, 50.96735, 61.57838, 72.41757, 82.25676, 92.09595, 101.93514, 111.77432, 121.61350
gross.asc	Gross temperament, q=91, 531521, 5-limit	418	30.71973, 20.83393, 30.95866, 41.08716, 51.14481, 61.24084, 71.33737, 81.43429, 91.53102, 101.62775, 111.72448, 121.82116
pipeum_330.asc	2401/2400, 3136/3125, 19681/19680, Gene Ward Smith, 2001	330	126/125, 81/80, 84/81, 10/9, 36/35, 28/27, 25/24, 21/20, 1323/1250, 16/15, 15/14, 27/25, 49/45, 31/32, 54/49, 10/9, 28/25, 6/5
pipeum_340.asc	2401/2400, 5120/5103, 15821/15152	340	21/20, 81/80, 875/864, 49/48, 375/364, 31/30, 1323/1280, 729/700, 25/24, 21/20, 200/189, 1225/1152, 16/15, 15/14, 27/25
senior.asc	Senior temperament, q=322.801387, 5-limit	171	7.51374, 14.12788, 20.52899, 27.68293, 34.85682, 42.02080, 49.18474, 56.34868, 62.54980, 69.71373, 76.87767, 84.04163, 91
pipeum_171.asc	2401/2400, 4375/4374, 32805/32768, Gene Ward Smith, 2002	171	225/224, 245/243, 81/80, 64/63, 49/48, 525/512, 36/35, 1323/1280, 28/27, 25/24, 254/245, 21/20, 200/189, 200/189, 1225/1152
et-mix24.asc	Mix of all equal temperaments from 1-24 (= 13-24)	180	50.00000, 52.17391, 54.54545, 57.14286, 60.00000, 63.15789, 66.66667, 70.58824, 75.00000, 80.00000, 85.71429, 92.30769, 9
cel7.o48	27th root of 3, Heinz Bohlen (1972)	271	7.16128, 14.03657, 21.85485, 28.67314, 35.09142, 42.10970, 49.12799, 56.14627, 63.16456, 70.18284, 77.20113, 84.21941, 91
dwarf771.sp.asc	Trisave dwarf (= 171, 271, 397, 480)	271	3600000/1594323, 245/243, 179200/177347, 20000/19683, 43954000/43046723, 2240/2187, 250/243, 548800/533441, 28/27
sc311_41.asc	A 311 note 41-limit epimorphic 3 scale	311	280/279, 175/174, 125/124, 100/99, 82/81, 70/69, 63/62, 51/54, 45/44, 45/44, 45/39, 37/36, 34/33, 30/29, 28/27, 27/2
pipeum_342.asc	katsima, katsima, schisma and freedom, Manuel Op de Coust, 2001	342	441/440, 225/224, 896/891, 126/125, 350/99, 81/80, 8192/8085, 64/63, 56/55, 50/49, 45/44, 128/125, 6400/6237, 36/35, 32/31

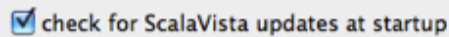
## Mac Menu Extension



On Mac, the scales which are currently being displayed in the topmost database window can also be organized for quick access using a system menu extension, which appears at the top right area of the screen. The scales in the menu can be organized by name alphabetically, or by the number of tones. Which scales you access and listen to can be stored in a **Recent Items** list, and you can choose the number of items to remember.

Using the Mac Menu Extension may slow down the database searching slightly, because after each search, the menu must be rebuilt. Organizing the menu alphabetically is faster than organizing it by the number of tones.

## Check For Updates At Startup




If you purchased ScalaVista via the Mac App Store, then you should be go there to receive updates, and you needn't check for updates through ScalaVista. If you purchased from the H-Pi Instruments website, then you should keep this option checked, and visit the H-Pi website to get updates.

Note that checking this option lets you know when an update is available from the H-Pi website, not the Mac App Store, and keep in mind that updates may be available at the H-Pi website before they are available at the Mac App Store.

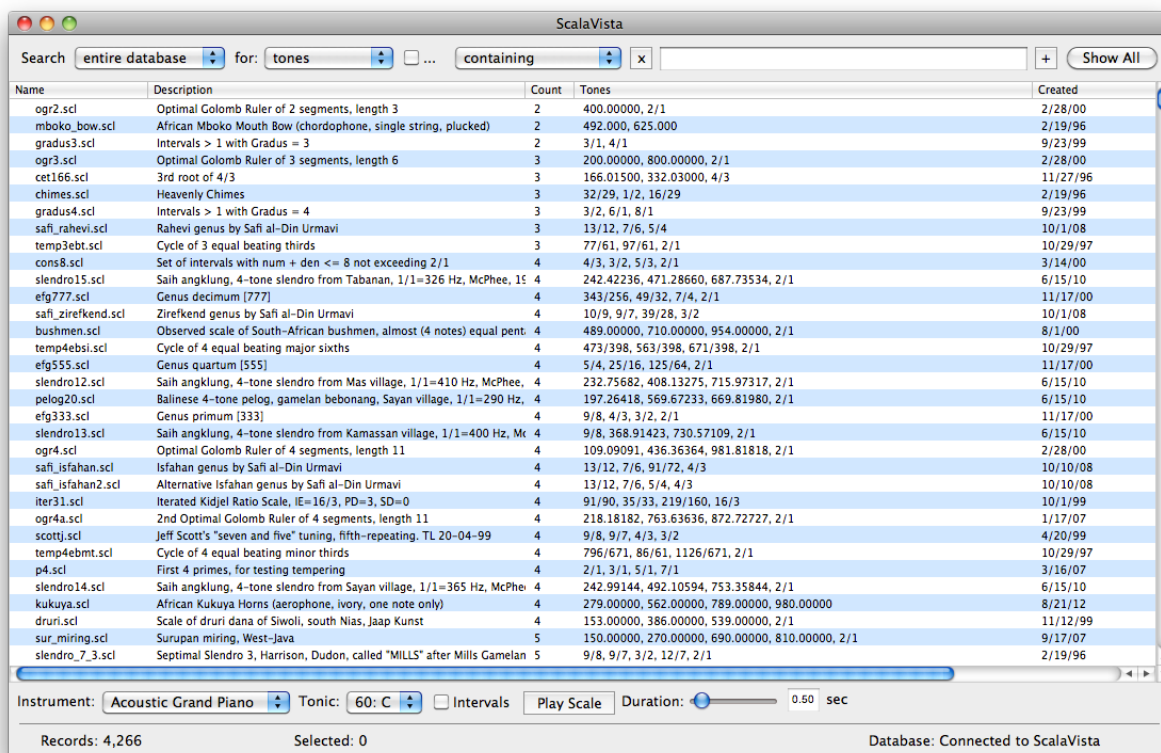
If you purchased from the Mac App Store, then you must wait until the update is issued there in order to install it.

## Name & Email



Your name and email are used for bug reporting purposes and otherwise remain completely private. They are never given to any third party.

## 2. The Database



ScalaVista is primarily a database for scales. Unlike previous versions of ScalaVista, beginning with version 2, the database begins by downloading the archive directly from the online ScalaVista database, which is kept in sync with the Scala Archive maintained by Manuel Op de Coul. Below are listed the

### The Demo DB

The demo version of ScalaVista ships with a small internal database of 25 scales, the purpose of which is to demonstrate functionality of the full version of the app. To access the complete database of thousands of scales, you must purchase a license for the software either from H-Pi Instruments directly, or from the Mac App Store.

### The Scala DB

Once you have purchased ScalaVista, you have access to the complete database of thousands of scales which can be found online the H-Pi Instruments website, at <http://scalavista.zentral.zone>, made with permission from the collection of tuning files maintained by Manuel Op de Coul, creator of Scala, at the Fokker foundation website <http://www.huygens-fokker.org/scala/downloads.html#scales>. Before using the full features of an authorized (unlocked) installation of ScalaVista, the scale database must first be created and



updated from the online archive. Each of these database actions will be done automatically when you purchase a license, and can also be done manually.

### Create Local DB

After installation, ScalaVista will automatically create a database on startup, and the menu option *Create Local DB* will be disabled. The first database created will be *The Demo DB* described above, which is replaced by *The Scala DB* full database once a license has been purchased. If you ever choose to delete the local database, you need only to select this menu option to rebuild the database.

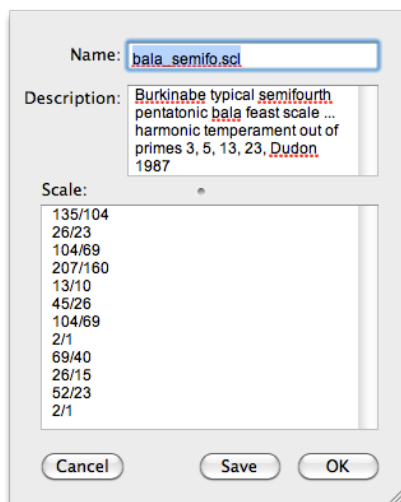
### Delete Local DB

This menu option allows you to delete the local database, should you ever wish to do so. The database can always be recreated using the menu option *Create Local DB*.

### Update Local DB

The local database is essentially a personal copy of the database which exists online at <http://scalavista.zentral.zone> which is itself a searchable version of the Scala file archive at <http://www.huygens-fokker.org/scala/downloads.html#scales>. Because the archive is continually expanding, the online database will likewise continually expand; however, your local database will not expand unless you voluntarily choose to update it. When you select this menu option, a network query checks the online database for any new scales in the database, and all new scales that are found in the online archive are downloaded and added to your local database.

### Scale Editing



Using this menu option, you may edit any scale in your local database. Note that any changes you make are applied only locally at your computer - that is, in your local database. Your edits are not made to the online archive. If you wish to submit corrections or changes to the existing archive, please use the *Send an Email* menu option and copy the scale data into the email along with an explanation of why you have made the changes.

To make changes to the central archive, *Send an Email*, copying your edited scale data with an explanation of any changes you have made.

# 3. MIDI Playback

Instrument: Acoustic Grand Piano Tonic: 60: C  Intervals Play Scale Duration: 0.50 sec

Listening to the sounds of different tunings is the most immediate way to absorb their unique aspects. ScalaVista lets you listen to entire scales as well as individual tones and intervals via internal MIDI playback. Tones will sound according to the options displayed at the bottom of the database window: instrument, tonic note, single tones or intervals, and duration. The *Intervals* checkbox toggles between single tones and harmonic intervals. When *Intervals* is checked, the tonic pitch will always sound along with all other pitches.

## Listening to Individual Tones

73.61241, 192.71978, 311.82716, 385.43957, 504.54694, 578.15935, 697.2125/24, 9/8, 6/5, 5/4, 4/3, 45/32, 3/2, 25/16, 27/16, 16/9, 15/8, 276.04900, 193.15686, 310.26471, 386.31371, 503.42157, 579.47057, 696.5116.66667, 200.00000, 316.66667, 383.33333, 500.00000, 583.33333, 700.00000

To hear an individual tone in a scale, simply point and click on the tone. In the example above, 6/5 has been clicked. If the *Intervals* option has been checked, the harmonic interval 5:6 will sound. The harmonic interval can also be played by holding down the *Option* key while clicking on a tone.

## Listening to Scales

The screenshot shows the ScalaVista application window. At the top, there are controls for Instrument (Acoustic Grand Piano), Tonic (60: C), Intervals (unchecked), Play Scale (button), and Duration (0.50 sec). Below this is a database window with a search bar and a list of scales. The scale '6/5' is selected and highlighted in blue. The list includes columns for Name, Description, and Count. At the bottom of the window, there are playback controls: Instrument (Acoustic Grand Piano), Tonic (60: C), Intervals (unchecked), Play Scale (button), and Duration (0.50 sec). The status bar at the bottom shows 'Records: 4,266' and 'Selected: 1'.

When you click on a scale in the database window, the row will be selected, and the scale can be then be played back using the *Play Scale* button, or by pressing the spacebar. Once the

scale is playing, you can also stop the playback by pressing the spacebar. If you have chosen in the *Preferences* to display the tone overlay, playback can also be stopped by clicking on the overlay. Harmonic intervals can be heard either by checking the *Intervals* playback option, or by holding down the *Option* key during playback.

## 4. Copying Scale Data

ScalaVista lets you place scale data on the clipboard in the following various ways. Scales selected in the database window can be copied either using *Command-C* or by selecting one of the following options under the *Edit* menu.

Copy as Scala File	<i>place a single scale on the clipboard in the Scala file format</i>
Copy as Tones List	<i>copy a list of a single scale's tone values only to the clipboard</i>
Copy Scale Info ...	<i>copy all or just one of the database parameters (name, description, tone count, tones, created) of a group of scales to the clipboard, as tab-delimited text, ready for pasting into a spreadsheet</i>

The keyboard shortcut *Command-C* works the same way as the menu option *Edit > Copy Scale Info... > All*, that is, all selected data is placed on the clipboard as tab-delimited text ready to be pasted into a spreadsheet.

## 5. Saving and Exporting

ScalaVista formerly referenced actual individual files, but beginning with version 2.0, there are no actual Scala files, only the data those files contain. This means that the data can be saved or exported in .scl or other formats. Currently only .scl and .tonex formats are supported.

### *Saving Scala Files*

Third party applications may require Scala files to be imported. ScalaVista allows you to quickly save any scale as Scala file anywhere you like. Simply use the keyboard shortcut *Command-S* or select the menu option *File > Save Scala File*. Note that if more than one scale is selected in the database window, only the first scale will be saved.

### *Exporting Tonex Files*

To export a scale, select the scale in the database window and use the keyboard shortcut *Command-E* or choose the menu item *File > Export .tonex File*. The .tonex format is an

experimental language for tunings using XML tags. All data from the Scala file is included in a .tonex file, in the format as shown in the example scale shown below.

```
<tonex>
  <scale>
    <name>Name of the scale goes here, without extension.</name>
    <description>The scale description goes here.</description>
    <period>2/1</period>
    <tones>
      <tone>1/1</tone>
      <tone>9/8</tone>
      <tone>5/4</tone>
      <tone>4/3</tone>
      <tone>3/2</tone>
      <tone>5/3</tone>
      <tone>15/8</tone>
    </tones>
  </scale>
</tonex>
```

The above file is equivalent to the scale file shown below.

```
! Name of the scale goes here, with an .scl extension; for example, myscale.scl
!
The scale description goes here.
7
!
9/8
5/4
4/3
3/2
5/3
15/8
2/1
```

Whereas an .scl file includes the period as the final tone in a scale, and does not include 1/1, .tonex file includes 1/1 and places the period inside an XML <period> tag instead of including it in the scale tones list.

## 6. Sending Tunings to microsynth and Other Apps

ScalaVista allows you to send any scale directly to other H-Pi Instruments applications without the hassle of saving and importing files. To send the scale to the application, the application should be running on your system. When you select the **Send** menu option in ScalaVista, the scale is prepared as XML text on the clipboard for the destination application. After selecting the **Send** menu option, simply switch to the destination application, and it will recognize the XML text on the clipboard, which has been formatted especially for it.

### Supported Applications

microsynth	A 16 track multi-timbral <a href="#">microtonal synthesizer</a> based on the soundfont format
UTE	<a href="#">Universal Tuning Editor</a> microtonal tuning editor, for all imaginable MIDI controllers (user-definable)
CSE	<a href="#">Custom Scale Editor</a> microtonal tuning editor, for conventional keyboards (legacy application)
TPXE	<a href="#">Tonal Plexus Editor</a> microtonal tuning editor, for Tonal Plexus keyboards (legacy application)
Xentone	<a href="#">Xenharmonic Ear Trainer</a> microtonal aural skills practice program

## 7. Searching

The aim of most database applications is to store data in a way that can be easily searched, and ScalaVista is no exception.

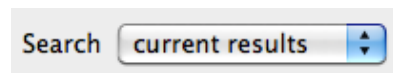
### Search Local DB

Search  for:   ...  x  +

Unlike the limited text matching of the online database, ScalaVista desktop allows easy searching for scales by matching text or comparing a certain value of a data parameter, including the *not* option. Notice that when the middle popup value is changed, the third popup will change its options to suit the type of data you have selected. For example, selecting *created* changes the following popup options to *on*, *before*, and *after*, because the data type deals with the calendar.


## Searching Within Current Results

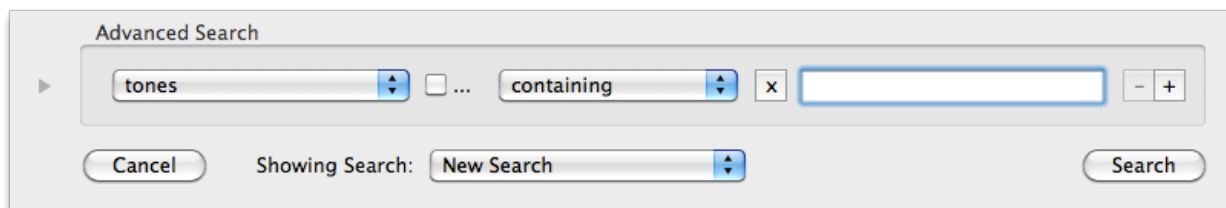
Once results have been found, subsequent searches can be done within those results, to home in on any desired scale. To do this, simply change the first popup menu to *current results*.




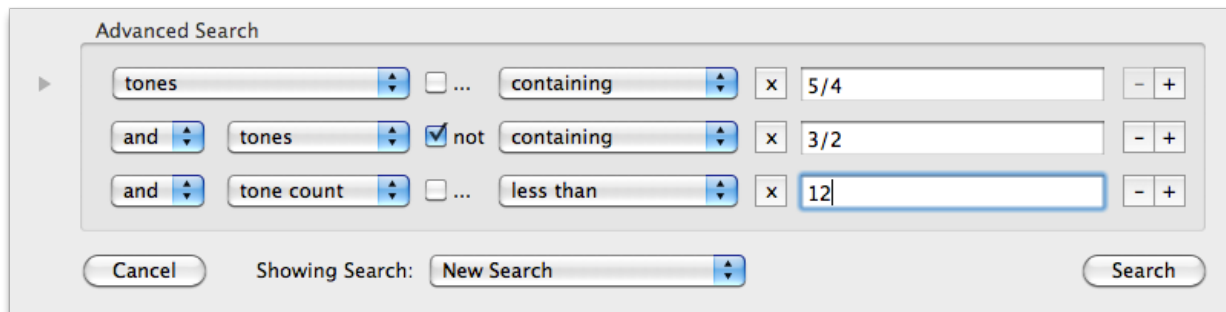
## Advanced Searching

While simple searching allows you to find whatever you want through a series of steps, the advanced search window lets you combine search parameters into one query. Additionally, whereas simple searches occur and are not retrievable, advanced searches can be named, saved and recalled for future reference.


To open the advanced search window, click the  plus button next to the **Show All** button on the database window. The advanced search window initially appears with options that look almost identical to the simple search:



By clicking the  plus button at the right, an additional group of search options appears. In the example below, two groups of additional parameters have been added.



Options can be removed by clicking the  minus button to the right of the option group.

To save an advanced search, click the  triangle at the upper left and select **Save**. The popup menu also allows search file management search duplication, deletion, and renaming.

To load a saved advanced search, simply select the saved search using the **Showing Search** popup menu.

## Credits & Resources

All versions of ScalaVista are designed and programmed by Aaron Andrew Hunt, using [Xojo](#) and [MBS Plugins](#) on a [Mac](#).

Special thanks to [Manuel Op de Coul](#), author of Scala, the Scala file format, and keeper of the Scala archive.

This documentation was written by Aaron Andrew Hunt, using Apple [Pages](#).

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