



www.Vmus.net

Online Platform for Musical Performance Studies
User's Guide V2.0

Video Tutorial: <https://www.youtube.com/VmusNet>

Chinese Edition: http://www.vmus.net/score/VmusNet_Users_Guide_Cn.pdf

Content

Introduction.....	3
I. User Sign up and Login.....	3
1. Click the “Sign Up” button on the front page	3
2. Input the intended username, email, password and then submit	4
3. Login with the username and password submitted or with any social media account such as google+, facebook or twitter.	4
II. Uploading audio files, playing music and generating waveform and spectrogram	5
1. After login, press the “Upload” button on the front page.....	5
2. Rename the mp3 file and upload.....	5
3. Generate the waveform and play the music	6
4. Generate the spectrogram.....	6
III. Marking the beats, generating the tempo-dynamic curve and performance worm	7
1. Marking the beats.....	7
2. The meaning of numbers under each beating mark	8
3. Modifying or deleting the beats	8
4. Calculating and Generating the tempo-dynamic curve	9
5. Tempo-dynamic curve and the related parameters.....	9
6. Switching among tempo-dynamic curve, performance worm and waveform-spectrogram	10
IV. Making IOI Deviations Curve.....	10
1. Marking the attack time of each note	11
2. Upload score and confirm notes value and position.....	11
3. Set the positions and relative lengths of the notes.....	12
V. Processing the results.....	13
1. Save, snapshot and share.....	13
2. Processing and comparing the results	13
VI. Loading, editing, deleting and discussing the existing items.....	15
1. Loading, editing and deleting existing music.....	15
2. Loading, editing and deleting existing analytical records	16
3. Commenting and discussing about the music and records.....	17
Follow us on	18
Resources mentioned in this manual	18

Introduction¹

In the epoch of Web 2.0, Cloud Computing and Big Data, an online platform, www.Vmus.net, for musical performance studies was launched in 2013. With the new tools any internet user can analyze sound files and obtain waveform, spectrogram, tempo-dynamic curve and performance worm by simply clicking a few buttons.

I. User Sign up and Login

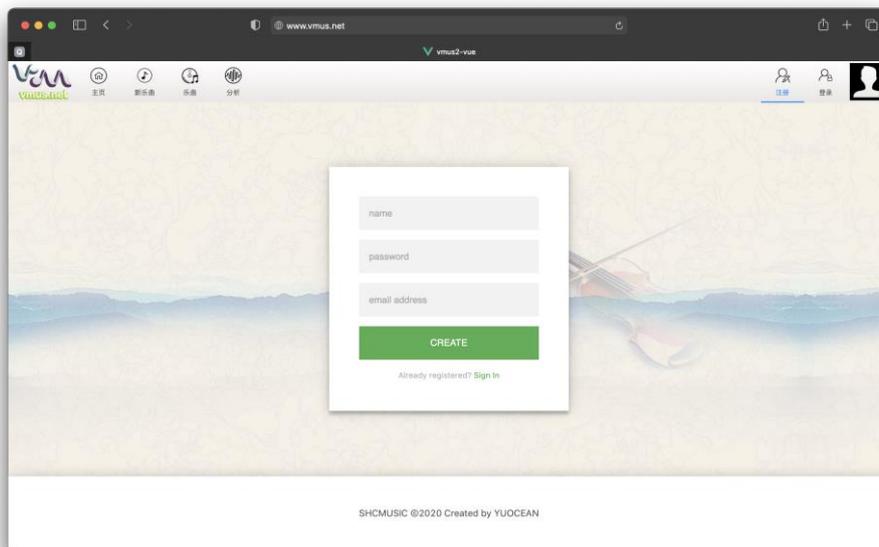
Open <http://www.vmus.net>

1. Click the “Sign Up” button on the front page

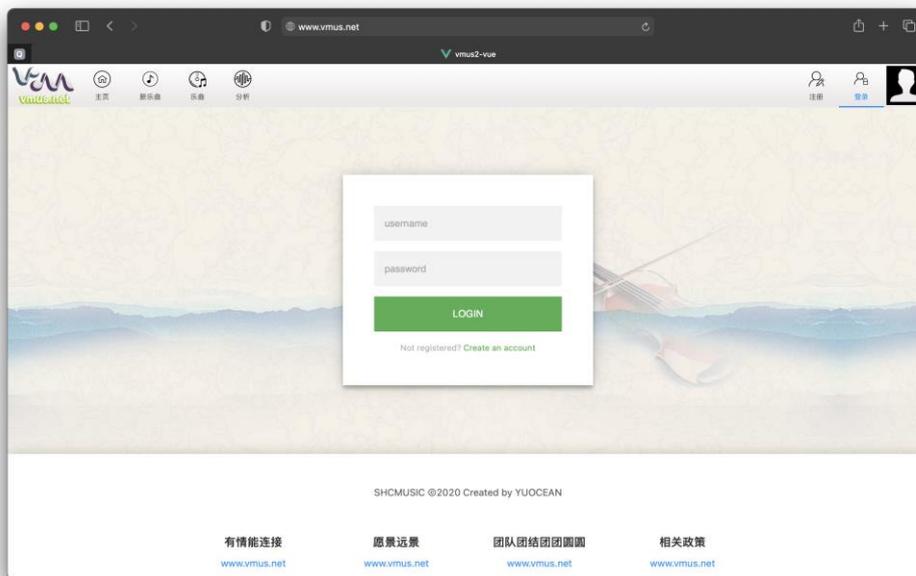


¹ This platform is sponsored by Art Disciplinary Projects “Musical Performance Studies: An Interdisciplinary Perspective” (No. 16BD052) supported by National Social Sciences Fund of China.

2. Input the intended username, email, password and then submit

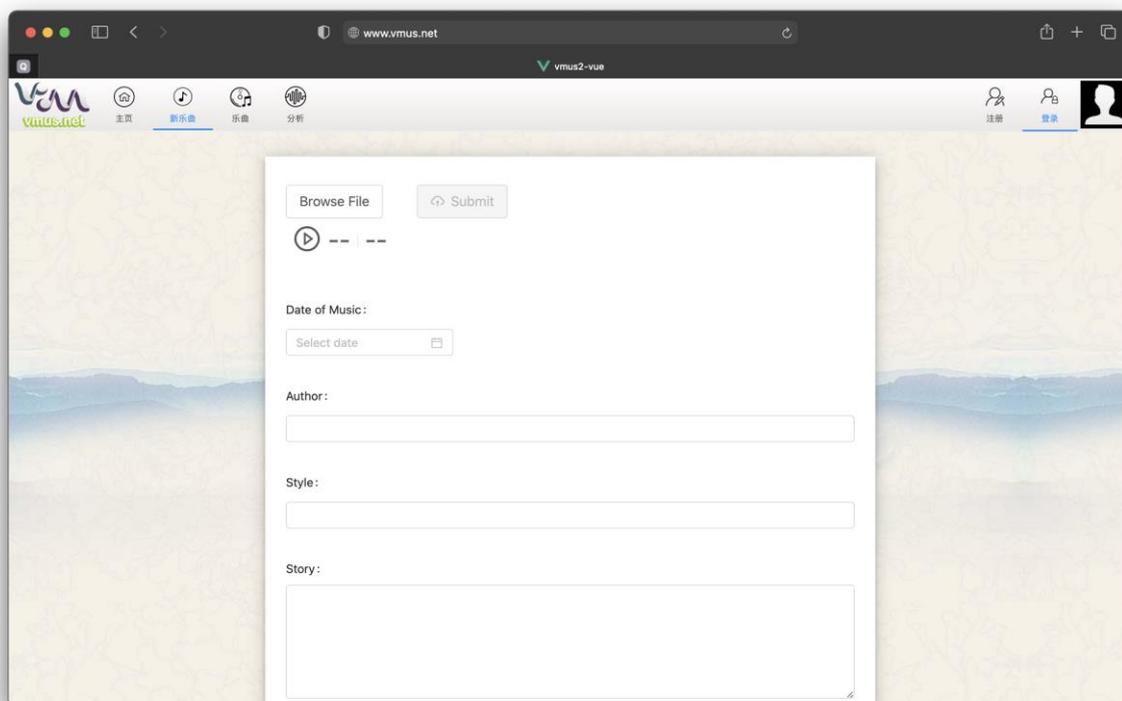


3. Login with the username and password submitted or with any social media account such as google+, facebook or twitter.



II. Uploading audio files, playing music and generating waveform and spectrogram

1. After login, press the “Upload” button on the front page



2. Rename the mp3 file and upload

Currently, only mp3 format is supported and the suggested naming rule is:

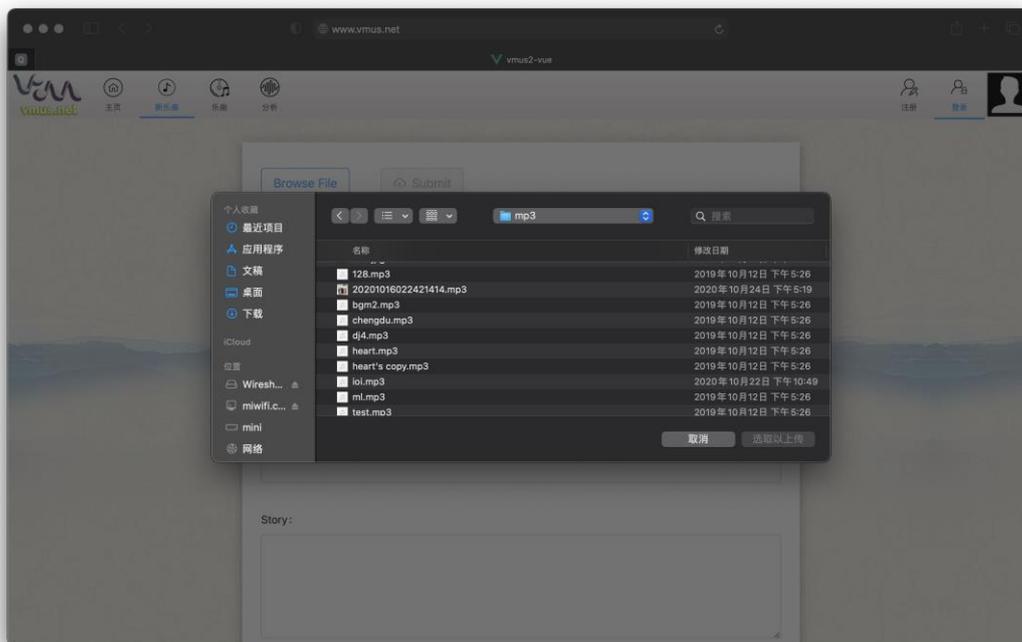
Composer-Title-Performer-Instrument-Year.mp3

For example, Bizet's Carmen Prelude played in 1964 by VPO with Karajan should be named:

Bizet-Carmen_Prelude-Karajan-VPO-1964.mp3

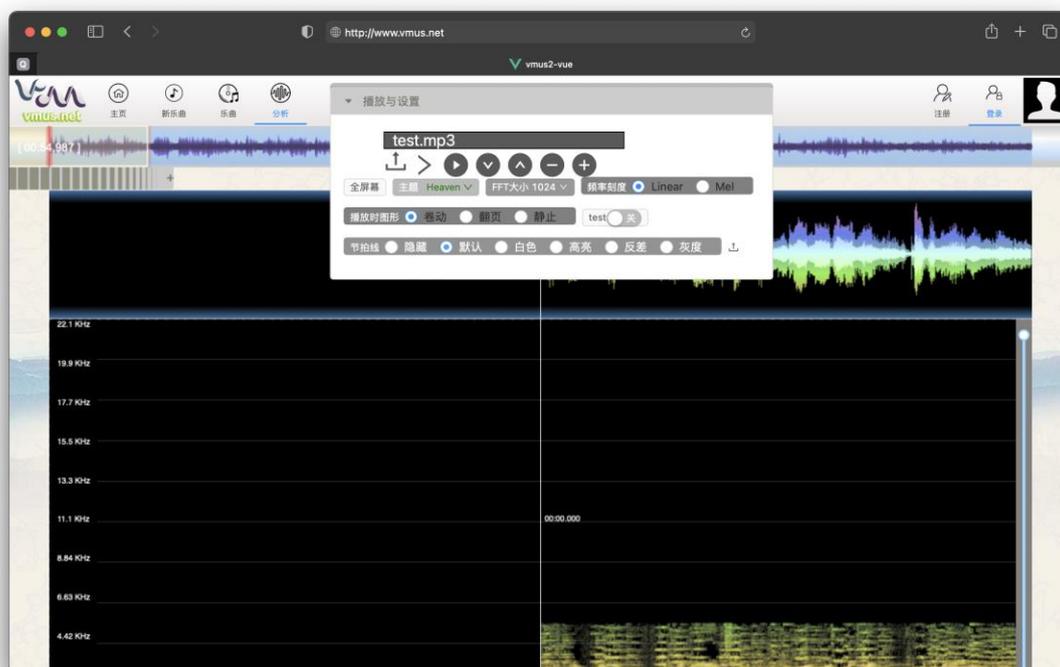
Then, upload the mp3 by clicking the “Upload Music” button in the main UI.

Currently only mp3 format with 44.1KHz sample rate is supported. The recommended bit rate is 128kbps and the total length should be better within 10 minutes.



3. Generate the waveform and play the music

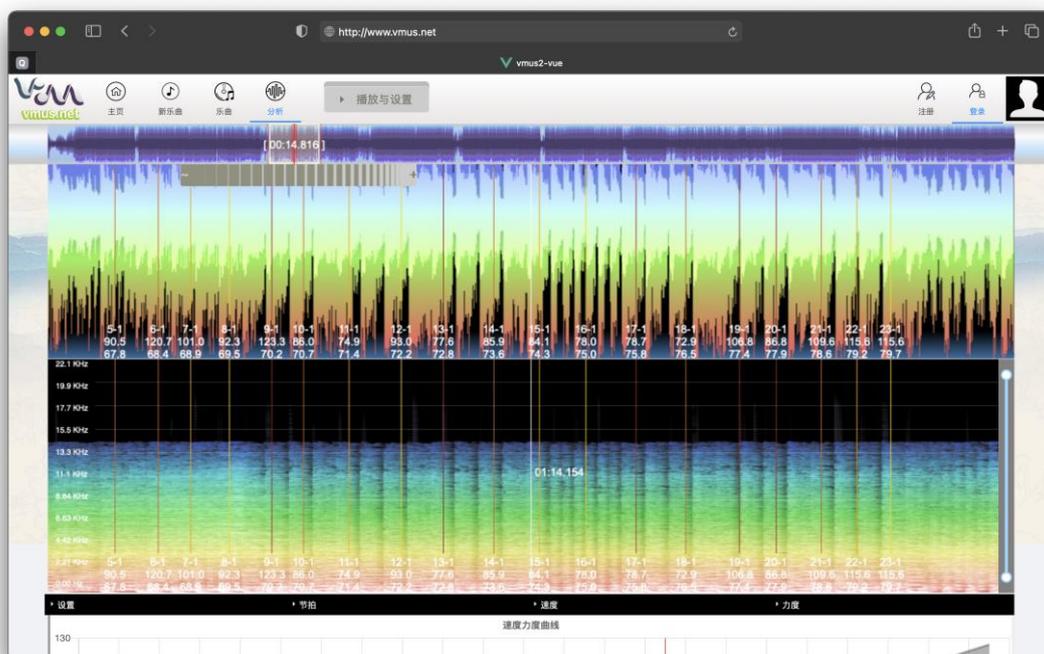
The programme will generate the waveform immediately (usually in a few seconds) and during uploading (it might take a few minutes) you can play and enjoy the music.



4. Generate the spectrogram

After uploading, you can click the "Spectrogram" button and get a spectrogram in a few minutes.

A progress bar will appear in the waveform thumbnail.



III. Marking the beats, generating the tempo-dynamic curve and performance worm

1. Marking the beats

Set the related parameters first: “Beat per Bar”, “Bar Offset” and “Beat Offset”. For Carmen Prelude, because the time signature is 2/4 and the music starts from the first beat of the first bar. Therefore: Beat per Bar=2, Bar Offset=0, Beat Offset=0. Then, rewind and play the music and tap the beats with either of the keys: “a”, “s”, “d” or “f” (recommended). You can change the speed of the playback from 50%-200% for better precision.



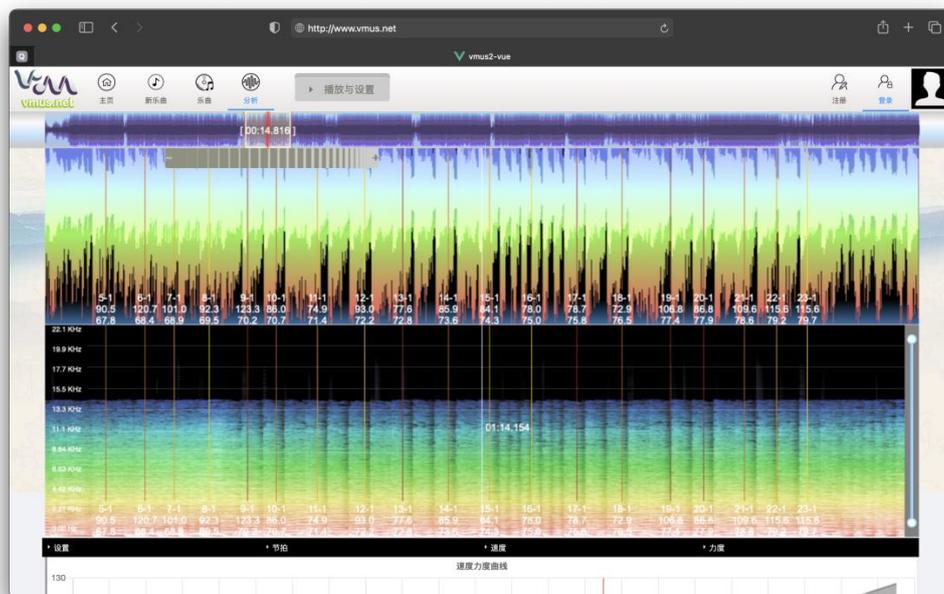
2. The meaning of numbers under each beating mark



The 1st line is “bar-beat”; the 2nd line is the BPM of the beat and the 3rd line is the current time.

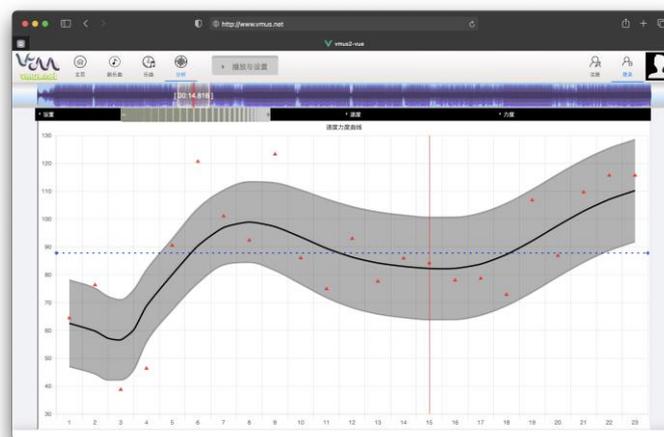
3. Modifying or deleting the beats

By default, the mouse cursor will appear as a hand which can be used to move the position of the waveform and music. If you need to move or delete the existing beats, “move beat” and “erase beat” tools in the bottom-left corner might be useful. You can also use the “zoom in/out” button in the bottom-right for higher resolution of the beating points.



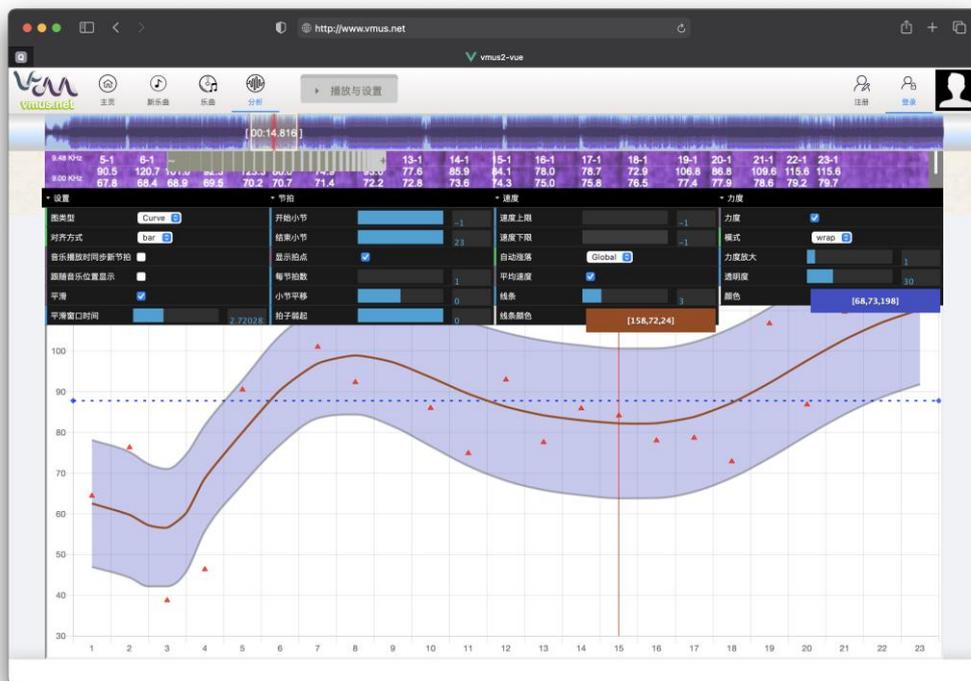
4. Calculating and Generating the tempo-dynamic curve

If you are satisfied with all the beating points, then click the “generate!” button. The programme will take a few minutes to process all the data and generate the tempo-dynamic curve. When the “buffering” message is flashing, better do not touch anything.



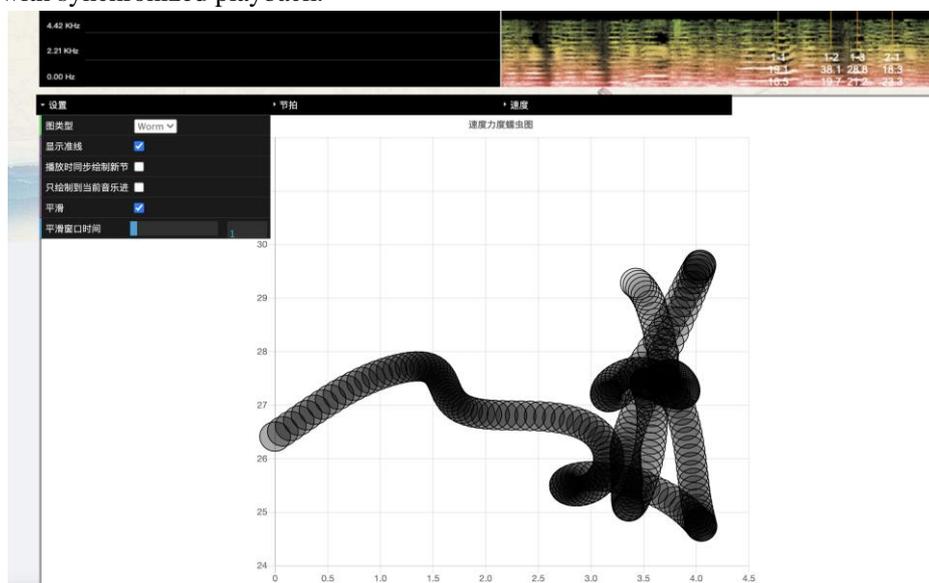
5. Tempo-dynamic curve and the related parameters

After calculating all the data, the tempo-dynamic curve will appear by default. There is a series of related parameters which can be adjusted and the most important one is “Window Size”. A bigger “Window Size” will result in smoother curve and evidences of larger scale can be observed. The default value of “Window Size” is the duration of a bar and the suggested values could be the even multiples of the duration of a bar or a beat.



6. Switching among tempo-dynamic curve, performance worm and waveform-spectrogram

By clicking the radio buttons of “Curve/Worm” and the “Generate!” button, you can switch among tempo-dynamic curve, performance worm and waveform-spectrogram and observe the animated graphs with synchronized playback.



IV. Making IOI Deviations Curve

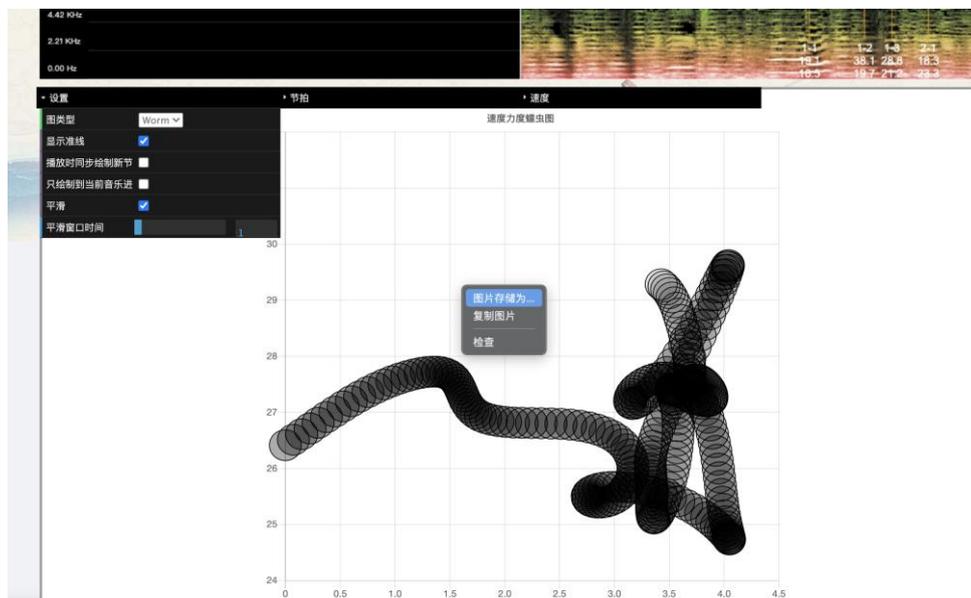
Inter onset interval (IOI) is defined as the time interval between the onset of the tone and the onset of the immediately following tone. For explanations of IOI deviations, please read the following

chapter: <http://www.speech.kth.se/prod/publications/files/880.pdf>.

The music and data of this example: <http://www.vmus.net/record.php?record=447>

1. Marking the attack time of each note

With similar method as marking beating points, you can mark the attack time of each note. We suggest setting the “Beat Per Bar” to 1. Before click the “IOI” button in the right bottom corner, “save” the attack time result first.



2. Upload score and confirm notes value and position

In the next page, the attack time values that we have marked are shown in the first text area. Then, we need to **upload** a score image with all notes in one line (or system). The text area in the bottom is for the data of note positions and relative lengths and could remain blank for further edit and input. If you are analyzing several performances of the same piece, the score URL and note positions/lengths could be directly copied and pasted. Click “OK” to proceed.

46 (max=99) note intervals obtained by the following 47 attack time values:

```
0.02, 0.97, 1.98, 2.54, 3.29, 4.29, 4.82, 5.33, 5.92, 6.54, 7.07, 7.58, 8.14, 8.69, 9.39, 10.07,
10.63, 11.13, 11.56, 12.01, 12.56, 13.1, 13.56, 14.08, 14.7, 15.32, 15.82, 16.27, 16.89, 17.44,
17.98, 18.53, 19.38, 20.05, 20.55, 21.04, 21.86, 22.21, 22.71, 23.34, 24.03, 24.73, 25.45, 26.36, 27.27, 27.74, 28.78
```

Upload a score with all the notes in ONE line or copy from the same piece:

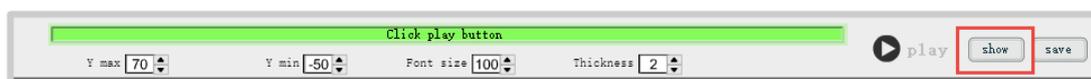
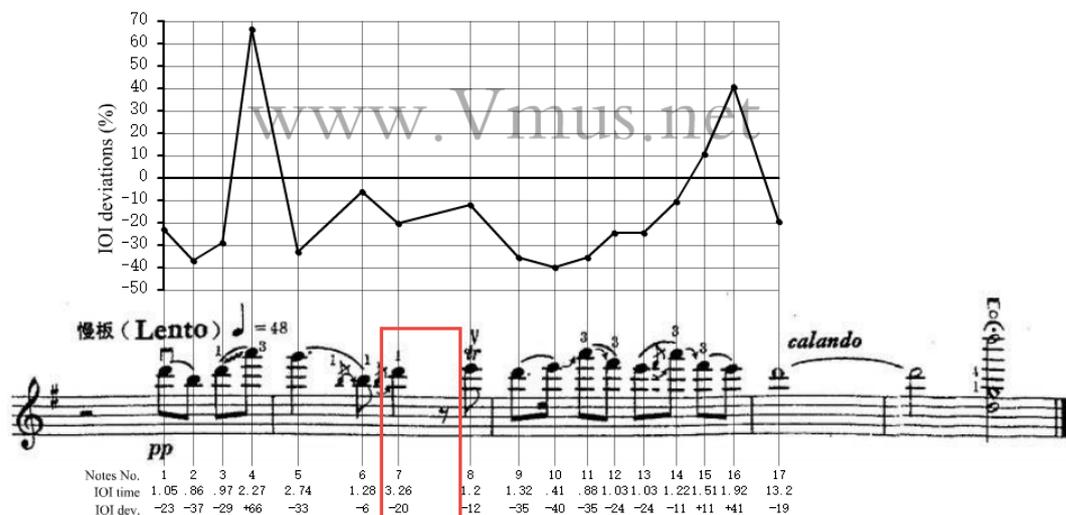
Note positions and relative values (copy from the same piece or edit later):

```
0, 72, 91, 1, 112, 65, 138, 25, 155, 9, 178, 35, 205, 95, 227, 5, 245, 05, 262, 65, 298, 2, 313, 75, 32
8, 3, 344, 8, 369, 45, 389, 409, 6, 424, 15, 448, 7, 464, 3, 485, 85, 503, 4, 528, 548, 55, 567, 1, 582
, 65, 604, 25, 621, 6, 639, 35, 655, 95, 678, 5, 698, 05, 717, 65, 733, 2, 757, 75, 772, 3, 791, 9, 805
, 45, 829, 849, 6, 875, 15, 890, 7, 913, 3, 928, 85, 945, 4, 962, 10, 414, 25, 368, 25, 349, 25, 431, 25
, 391, 25, 408, 25, 404, 25, 448, 25, 410, 25, 449, 25, 400, 25, 360, 25, 415, 25, 433, 25, 411, 25, 4
45, 25, 396, 25, 378, 25, 413, 25, 375, 25, 386, 25, 437, 25, 412, 25, 422, 25, 397, 25, 413, 25, 397
, 25, 378, 25, 415, 25, 460, 25, 413, 25, 466, 25, 415, 25, 403, 25, 403, 25, 469, 25, 415, 25, 398, 2
```

3. Set the positions and relative lengths of the notes

Drag the sticks aligning to each note and input the relative value according to the lowest common multiples of the minimum rhythmic unit.

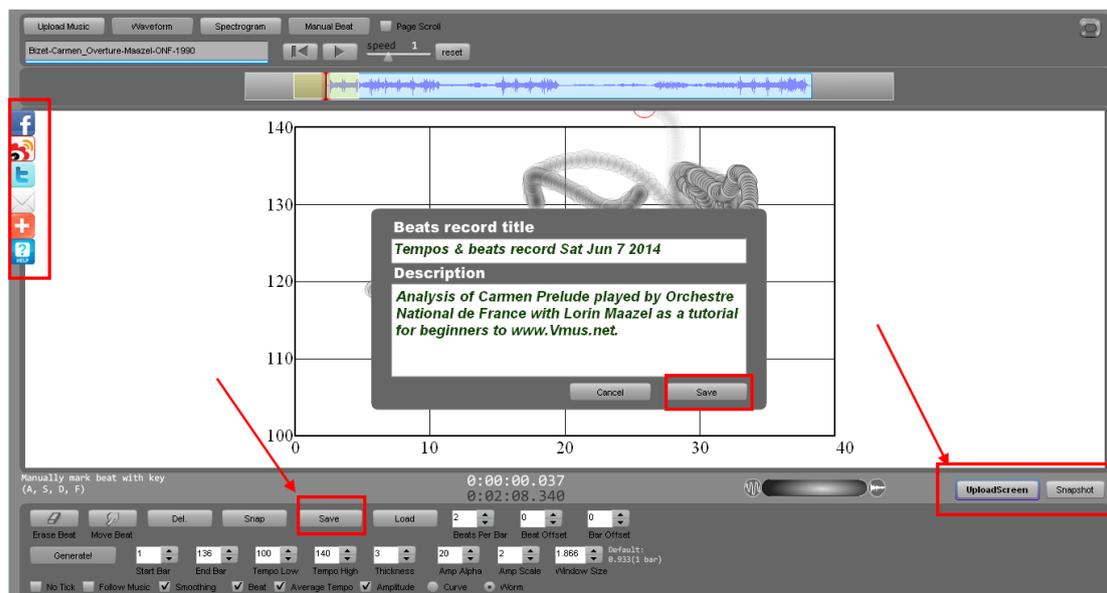
- Drag the small green squares to locate the position of each note.
- Input the relative length (as shown in the score) of each note in the text boxes under the green squares. Provided that quarter note is “1”, then half note is “2”. In the following example, sixteenth note is “1”, then eighth note is “2” and dotted eighth note is “3” etc. So the relative lengths should be the “lowest” common multiples of the minimum rhythmic unit in the score. If there is any rest between the notes, the length of the rest should be added to the previous note.
- Click “hide/show” button to hide and show the red lines, green squares and text boxes.
- Click “play” to listen to the music with synchronized graph and then “save” the results.



V. Processing the results

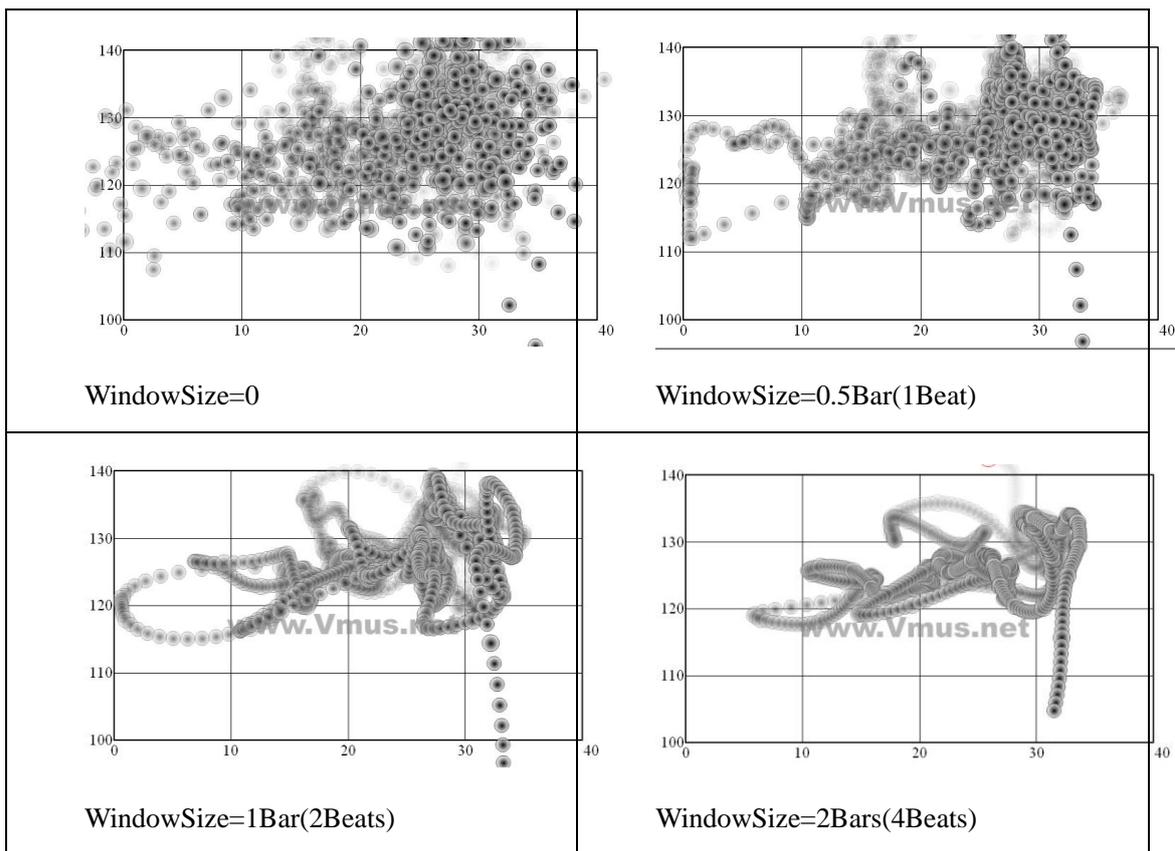
1. Save, snapshot and share

Do not forget to save the results by clicking the “save” button and upload a screenshot by clicking the “UploadScreen” button. You can save and quote the graphs as a jpg file by clicking the “snapshot” button and most importantly you can share your work through social media such as facebook or twitter inviting others to join your projects.

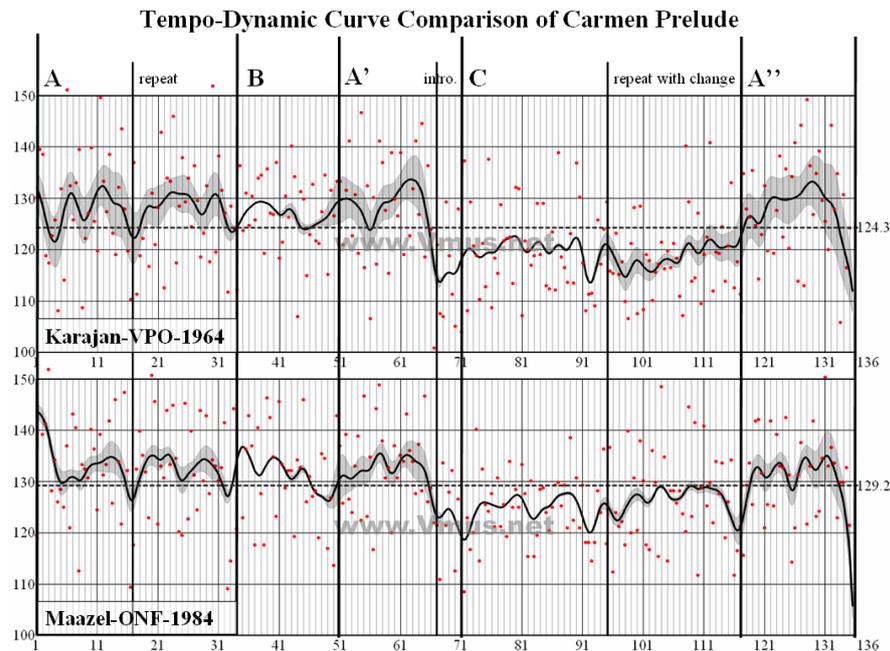


2. Processing and comparing the results

With the collaborative work of the users around the world, the results of these analyses could be unbelievably interesting. For example if we gradually adjust the Window Size from 0 to 2 bars duration, the performance worm will show an organic development from chaos to orderliness.



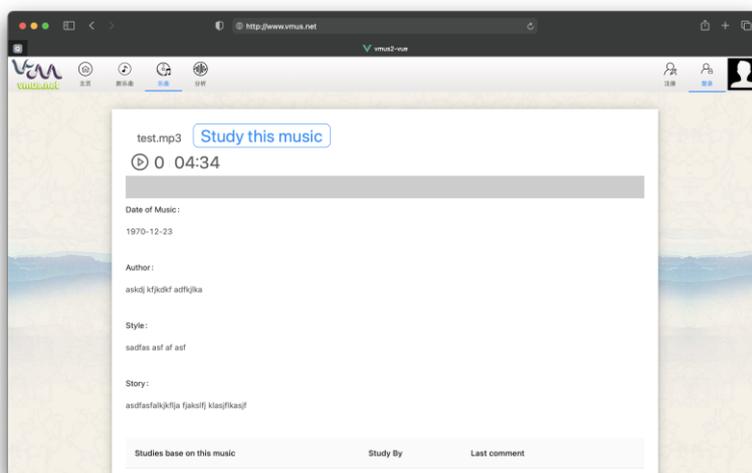
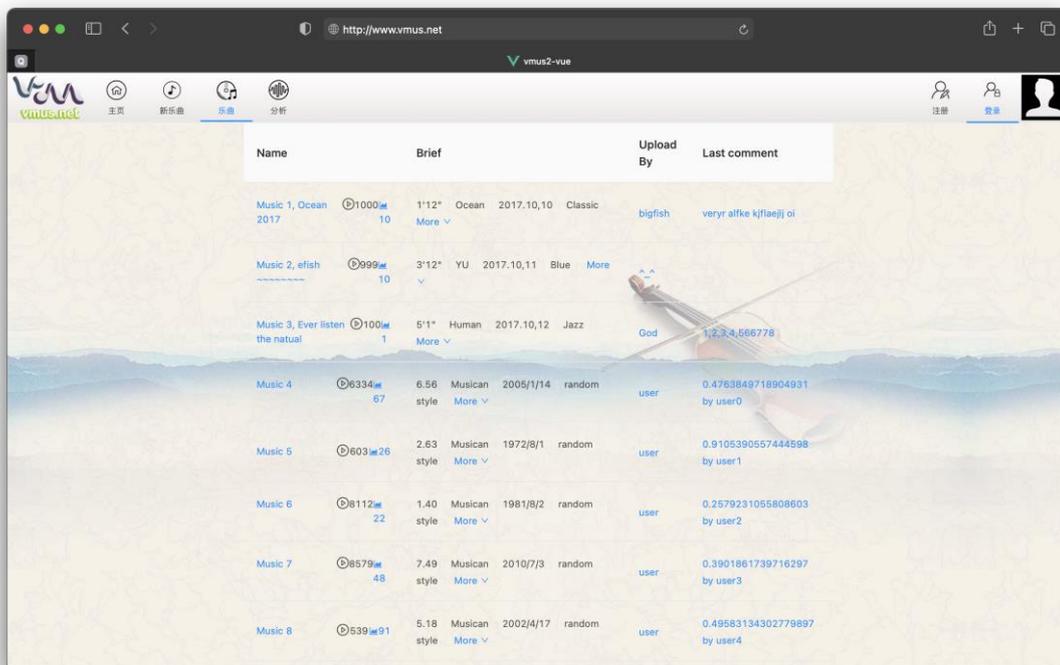
Or, if we compare the tempo-dynamic curves of two performances (Karajan-VPO-1964 and Maazel-ONF-1984) of “Carmen Prelude” with formal structure markings, many interesting interpretative similarities and differences can be observed.



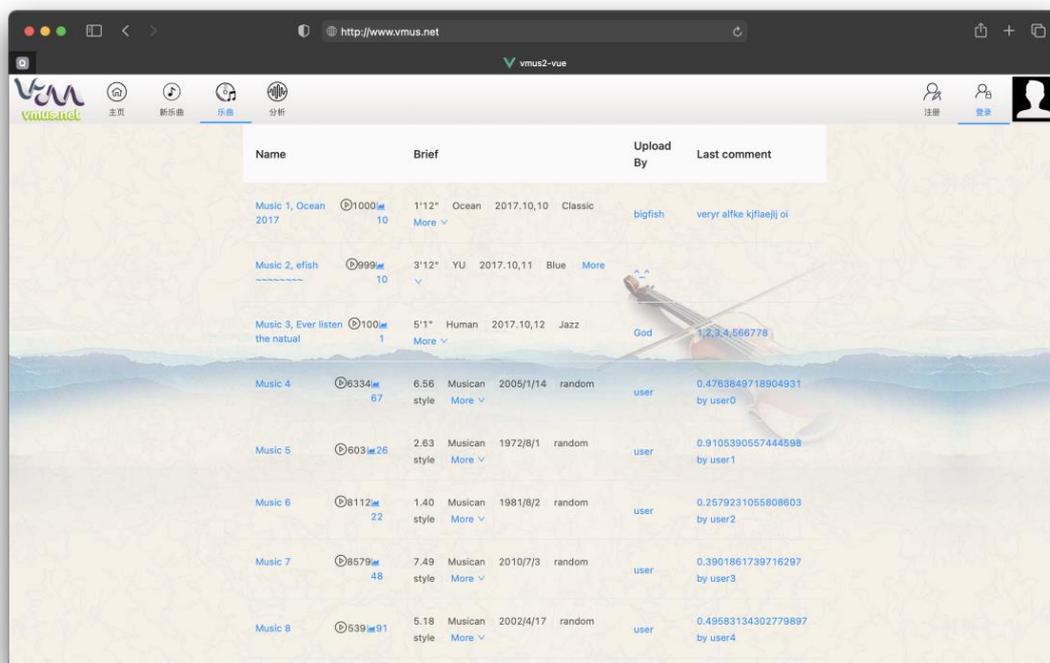
VI. Loading, editing, deleting and discussing the existing items

1. Loading, editing and deleting existing music

The existing music can usually be accessed from home page or user's own "My Vmus" page:



You can open the music by clicking the "Open" Button in the information page.

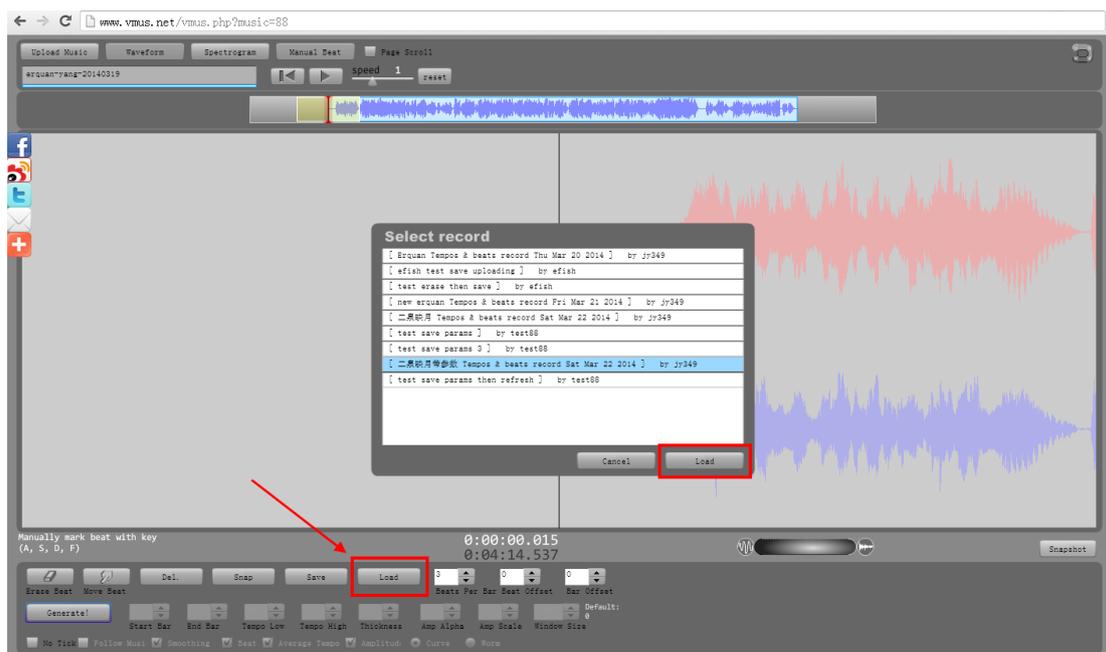


And you can also modify the music name by clicking the title or delete it by clicking the “Delete” button. Of course, you can only modify and delete the music uploaded by yourself and only those pieces without any analytical record can be deleted.



2. Loading, editing and deleting existing analytical records

Similarly, you can load, edit and delete the analytical records and sometimes you can also load or switch records of the current music by clicking the “Load” button in the main UI.



Or, you can load your music and records from the shared links directly.



3. Commenting and discussing about the music and records

You can paste your analytical graphs on the information pages and discuss with others.



Follow us on

-  <https://www.facebook.com/VmusNet>
-  <https://twitter.com/VmusNet>
-  <https://plus.google.com/+VmusNet8>
-  <http://t.qq.com/VmusNet>
-  <http://www.weibo.com/VmusNet>

Resources mentioned in this manual

Two analytical results of “Carmen Prelude”:

Karajan-VPO-1964: <http://www.vmus.net/record.php?record=95>

Maazel-ONF-1984: <http://www.vmus.net/record.php?record=97>

Piano reduction with bar number and formal structure makings:

http://www.vmus.net/score/Bizet-Carmen-Prelude-Piano_Score_Marked.pdf

A website which can convert youtube video into mp3:

<http://www.youtube-mp3.org/>

The newest version of this manual can be downloaded here:

http://www.vmus.net/score/VmusNet_Users_Guide.pdf