

# The very unofficial guide to the mysteries and wonders of the State File (Part I)

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## 0 Disclaimer and positioning

0.1 Scaler staff and Plugin Boutique have had no input to any part of this document. It is probably completely incorrect and should be read with that understanding. It is provided merely for interest.

0.2 The motivation for the investigation described here was the wish for facilities to enable easier and more efficient workflow to audition the 700,000 odd base sequence permutations in Scaler and to have a mechanism of recording user information against them. I have now developed a system to analyse a folder of stat files, decode them and add them to a database for querying and printing.

*It is the expectation of the author that future developments of Scaler will address these issues and hence the ideas herein are merely temporary.*

## 1 Introduction

1.1 The purpose of this short document (and possible follow ups) is to offer a few thoughts on one of Scaler's really important features, the State File. I have had no input from Scaler folk, and it has no official status and is based entirely on guesswork (with the odd bit of logical deduction here and there.)

*Those familiar with XML probably won't need to read this document.*

1.2 The State File (which will henceforth be called "SF") serves a number of functions, three of which are noted here

- (a) It provides a means for collaborating users to exchange work (as is currently done on the forum by swapping SF's),
- (b) It allow saving and restoring work as a particular project progresses, and,
- (c) critically, it enables the saving of a music work at the origin end of the chain of actions involved in the completion of the final musical work. Of course, work can be saved from a DAW (by which time the scaler output has been converted to DAW specific form), or even in the form of rendered audio tracks from the DAW, but the SF is in many cases the optimal place to start to re-work some or all of a piece.

1.3 But, given you have a directory full of files with names like "Scaler-State\_2021-05-212543.xml", what do they all mean? Clearly, you could have renamed a file "nice jazzy piece in Eb Locrian using artist joe blows track called dull day go 5.xml", but there is a case for saying it might be useful to have a look at the SF and deduce something from that.

1.4 It would be even better if you could apply a query to your directory of SFs to ask 'what did I base on Joe Blows 'artist' sequences?' or 'what have I in Gmaj with a tempo between 90 and 115 bpm?'




















1.5 This note, and further issues, if there are any, seeks to lift the lid a little on the interpretation of the SF content

## 2 Gobbledegook

2.1 OK, you've called up a SF in WordPad and the question now is what do all these "<" , ">" and "UUID" things mean? Turn to Appendix I to find out.

## 3 Is this stuff any use ?

3.1 Let's have a look at an example, and see how an understanding the SF can be of use. Imagine that you have a folder with multiple SF's which you have saved at some time because you liked them when auditioning and think they might be used later for a piece.

 Scaler-State_2021-06-25_182950.xml	25/06/2021 18:30	XML File
 Scaler-State_2021-06-25_190309.xml	25/06/2021 19:03	XML File
 Scaler-State_2021-06-25_190332.xml	25/06/2021 19:03	XML File
 Scaler-State_2021-06-25_190406.xml	25/06/2021 19:04	XML File
 Scaler-State_2021-06-25_190422.xml	25/06/2021 19:04	XML File
 Scaler-State_2021-06-25_190445.xml	25/06/2021 19:04	XML File
 Scaler-State_2021-06-25_190452.xml	25/06/2021 19:04	XML File
 Scaler-State_2021-06-25_190505.xml	25/06/2021 19:05	XML File
 Scaler-State_2021-06-25_190523.xml	25/06/2021 19:05	XML File
 Scaler-State_2021-06-25_190554.xml	25/06/2021 19:05	XML File
 Scaler-State_2021-06-25_190626.xml	25/06/2021 19:06	XML File
 Scaler-State_2021-06-25_190642.xml	25/06/2021 19:06	XML File
 Scaler-State_2021-06-25_190653.xml	25/06/2021 19:06	XML File
 Scaler-State_2021-06-25_190712.xml	25/06/2021 19:07	XML File
 Scaler-State_2021-06-25_190726.xml	25/06/2021 19:07	XML File
 Scaler-State_2021-06-25_190740.xml	25/06/2021 19:07	XML File
 Scaler-State_2021-06-25_190826.xml	25/06/2021 19:08	XML File
 Scaler-State_2021-06-25_190909.xml	25/06/2021 19:09	XML File
 Scaler-State_2021-06-25_190954.xml	25/06/2021 19:09	XML File
 Scaler-State_2021-06-25_191018.xml	25/06/2021 19:10	XML File

You may be very organised and either (a) renamed the files so you know (aproximately) what they are later, or (b) made copious notes to cross refer them to. If so close this document. If not, read on.

So what did we do in E Aeolian ? We can identify these immediately with a search

Main		Options	
File name:	*.xml		
Containing text:	e9e30a0e2d8b43f08801f8ac9e202093,b9bb825f0df4416f876992677abfdc94		
Look in:	C:\Users\fran\Desktop\example searches\		
	<input checked="" type="checkbox"/> Search subfolders		

Name	Location	Size	Hits	Type
Scaler-State_2021-06-25_191018.xml	C:\Users\...\example searches\	8 KB	1	XML File
Scaler-State_2021-06-25_190954.xml	C:\Users\...\example searches\	8 KB	1	XML File
Scaler-State_2021-06-25_182950.xml	C:\Users\...\example searches\	8 KB	1	XML File

Ok, you would like this to be more flexible / sophisticated. Fine; this is just a demonstration of the basic concepts.

## \$ Delving into the SF

If we open Scaler, select key G and scale major, then highlight the selection and save state, looking at the SF will show

```
<DisplayState
selectedScale="2e88c13b77fd4677a5aaab3b891467ed,92345c1c9f7049c7b65fbd1f80e30451" />
```

```
<BrowserState selectedBrowserTab="scales" />
<FilterState noteFilter="G" typeFilter="Major scale" />
```

Ok, G major as we expected, but what about that selected scale ?

If we repeat the exercise for Gmin, we get

```
<DisplayState
selectedScale="2e88c13b77fd4677a5aaab3b891467ed,b9bb825f0df4416f876992677abfdc94" />
```

```
<BrowserState selectedBrowserTab="scales" />
<FilterState noteFilter="G" typeFilter="Minor scale" />
```

3.2 One thing to know is what a UUID is; it's that list of characters like 2e88c13b77fd4677a5aaab3b891467ed

UUIDs are used to identify something. They are unique (a simplification actually) which is why they are used.

If we look at the 'Display State' lines, we will see that the first 32 characters (UUID) is the same for both G maj and Gmin state files.

So by doing many state saves, and just changing one item at a time, we can figure out that the first 32 characters are the key, and the second 32 are the 'mode' (familiar to any guitarist .. I don't know about piano players) In the case of a diatonic major scale, the 7 modes are Ionian, Dorian, Phrygian, Aeolian, Locrian, Lydian and Mixolydian). This is totally logical and exactly as one would have imagine the Scaler folks would set this up.

So in summary, when we see 2e88c13b77fd4677a5aaab3b891467ed in a SF it is the key of G (defined in terms of intervals); 92345c1c9f7049c7b65fbd1f80e30451 is the

Ionian mode, regardless of key; and b9bb825f0df4416f876992677abfdc94 is the Aeolian mode.

3.2 After a spell of (tedious) changing and dumping, one can deduce the following for a diatonic major scale.

For keys

UUID	(key)
86cbd097512843ebb0776bb6bcc9c99d	A
dfd64d32792744aa8da1f2a3858a3a1d	B
ad72b5cb571e401ba882a686c8bdaec6	C
cea7d06c355e40898945b2b5091824f8	D
e9e30a0e2d8b43f08801f8ac9e202093	E
2a1ee224831947238f154e83eb21f3c4	F
2e88c13b77fd4677a5aaab3b891467ed	G
d7e9a48fe82d4e1993a45123578431ca	Db
43540aa426e74d4d81e643405d2e4b28	Eb
992a4689fcbe4823bc03b011f4734aa9	Gb
3fc5a0657e114800ae45124b141bccac	Bb

and for modes

UUID	(mode)
fc8b75641e8143f4b135fd73987cd7c8	Dorian mode
2d3c14149cdb419793f42fea21d0cff9	Locrian mode
31e4b269b1164e9f844da0e338c7677a	Lydian mode
92345c1c9f7049c7b65fbd1f80e30451	Ionian mode
d8acd29c43954bd8a5938c9b896a75bf	Mixolydian mode
b9bb825f0df4416f876992677abfdc94	Aeolian mode
8cb35132182f4ce493924a17efb99801	Phrygian mode

So it now is simple to do a wild card text file search for pieces in E minor, as shown in paragraph 3.1, (just look for

e9e30a0e2d8b43f08801f8ac9e202093 AND b9bb825f0df4416f876992677abfdc94

but there other much more sophisticated ways of doing this, coming in future parts !