

Studio One inventor Matthias Juwan in conversation

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When I learned about the »new« DAW for the first time at the Musikmesse 2009, I still had no idea what would connect me to this software over the next 10 years. One year later, in the summer of 2010, I had version 1 on the hard drive and started producing my first song with Studio One.

Now - almost a decade and hundreds of Studio One projects later - I did not miss the opportunity to ask Matthias Juwan, Studio One mastermind and CTO at Pre-Sonus Software a few questions about the creation and development of Studio One. In doing so, I have incorporated both my own questions and questions that have arisen in the RECORDING.de forum in recent years.

I hope you enjoy reading the unabridged interview with Matthias Juwan!



Matthias, Studio One will be 10 years old this year! In 2009 everyone was wondering what they needed a new DAW for. Meanwhile, Studio One has become indispensable in the DAW market. What was the trigger for you to program the first prototype of Studio One?

Everything started for me a few years earlier. When I released my 16-track freeware sequencer Kristal Audio Engine in 2004, there was a lot of positive feedback from the internet community and the press, and I decided to work on a more professional successor. The project ran for two years in my spare time in addition to the job as a software developer at Steinberg under the code name K2.

The resulting prototype could already record, play and edit audio and MIDI, had a start page, the browser for plug-ins and files, and the drag & drop-based workflow.

In May 2006, together with Wolfgang Kundrus, I founded the start-up KristalLabs Software in Hamburg and incorporated my source code there. At the time, PreSonus was the client for two new audio applications, today known as Capture and Studio One. Since 2009, the team has been part of the PreSonus family. Wolfgang left the team in 2012.

Which development would you least expect at the beginning?

At first you do not think much about what exactly comes to you. I'm always amazed what can be an idea with the right people and a lot of heart. I think we have made the daily work of many users more efficient with Studio One. That the great left and right features of us look, you would not have expected at the beginning. Software has changed the brand PreSonus and their share in the company is growing steadily. I think everything has become as it should be.

Most know you as the manufacturer of Studio One - although you have been involved in many more products for several years now ...

Yes, originally we worked exclusively on Studio One and Capture. This changed to version 2 when we took more responsibility within PreSonus. The strategic background was to achieve a deeper integration of hardware and software. It was also important to me that the software team became a central part of the company in order to secure the location and continue to grow.

Meanwhile, all desktop and mobile applications and even parts of the firmware come from Hamburg. To the target platforms Windows and macOS came over the time even iOS and Android. We also develop Universal Control as a remote control and management software for all current hardware products, as well as UC Surface, QMix-UC, Studio One Remote and various plug-ins such as the Fat Channel Collection. For some time now we have also taken care of the further development of the notation application Notion, which we acquired in 2013. But we also supply many basic technologies, such as the UCNET network protocol for device control and the cross-platform framework, which is used in addition to the applications mentioned in the firmware of the digital mixing consoles (AI and Series III) and in the FaderPort family.

How many people are currently involved in the development of Studio One compared to the early years?

We started in 2006 with three. Today we are in Hamburg about 20 people, about half of them developers, the others take care of product planning, quality assurance and UI

design. While everyone has their focus, we allocate the resources the way the projects require, so nobody works exclusively on Studio One. In about half the time is spent on other projects. Compared to many competitors, we are a small team.

Our advantage is that we have known each other for almost two decades from their time together at Steinberg, so we work very well together. The senior development team that sets the direction technically consists of Maik Oppermann, Mario Ewald and me. Maik was there from the beginning, Mario joined us in 2012, together with Arnd Kaiser, who has been General Manager with us ever since. In recent years, many young computer science talents have come along with a passion for music. By the way, we are currently looking for software developers again - so, feel free to apply with us!

What's your job in developing Studio One? Have your responsibilities changed over the years?

My job title is Chief Technology Officer. I am responsible for ensuring that the developers in our company are fine and that everyone has enough (and not too much) to do, and that our projects stay within the given timeframe. In addition, forward-thinking technology development is my responsibility.

Of course, I have a very close relationship with Studio One from history. I originally designed and developed many program areas, sometimes over the last 15 years. I continue to care about the software architecture, although unfortunately I am increasingly less likely to write code. I'm still involved in the strategic alignment and feature planning right from the start.



Do you make music or are you also a user of your own DAW?

I play bass, but to practice at home I usually get a headphone amp and I do not even start the computer. On the other hand, I often sit in front of Studio One for a long time to see the new features and workflows that you can possibly improve. That's the price, if you co-develop the DAW yourself. You always have the idea for the next working day. So no, I'm not serious about music with Studio One right now.

Do all Studio One developers work in Hamburg or is Studio One also developed in the USA?

The core team is based in Hamburg but we generally work very closely with our colleagues in Baton Rouge. The development department over there is responsible for hardware design and firmware. We get occasional plugins and UI design support from the US. This is no coincidence, but has to do with the fact that we develop some of the effect algorithms in hybrid form, so also usable for mixers or audio interfaces with built-in DSP. Marketing for Studio One is also controlled from the company's headquarters. There is also a web team for services such as MyPreSonus, Exchange and our online shop. For technical support and distribution in Europe, we have a location in Ireland.



Is there the typical Studio One user? In which area is Studio One particularly often used? Are there any styles that are particularly represented?

No, I think it does not exist. We try to be as broad as possible and we know pretty well which applications we cover well and where there is room for improvement. At the beginning with version 1 and 2 was clearly audio recording and editing in the foreground, then came with version 3 of the emphasis electronic music production. We have

further developed this with Studio One 4, also in the direction of composition. The built-in mastering has always been a unique selling proposition. But there is more!

In the past 10 years, you have expanded all possible areas of the program. Which area have you neglected in your opinion so far?

The challenge is not to neglect any area in such a complex and diverse program as Studio One. Unfortunately, we can not advance everything at the same time, but must go step by step. There were times when there was a longer standstill on the project page (mastering), because we added many new features to the songpage. We were able to compensate for that, but I think that is quite good. Currently, I think of the cloud area in the browser. Once very innovative, he could tolerate an update again. There are also some plug-ins that we have not touched for a while, such as our amp emulation Ampire. Some construction sites are too big for minor updates, so they have to wait for the next major update.

How can you imagine the development of a new feature or program part in Studio One (eg the multiinstruments, the pattern editor, the chord track or the Mix Engine FX)? Do you have someone in the team who thinks out how a feature has to work exactly?

No, there is no such thing as a super brain and that's a good thing. A new part of the program requires a lot of preparation and there are always more people involved from planning to implementation, testing and documentation.

This begins with collecting the requirements as so-called »user stories«. Then there is a market research, because for some problems have already established good solutions and we do not want to reinvent the wheel. Often, however, as you say, you can do it a bit rounder. Other features are so innovative that nobody has done it before. We always develop a concept that fits into the existing program structure and takes into account the basic principles of Studio One. These include a simple, intuitive workflow, drag-and-drop and, if possible, no dialogues or options that the user needs to understand. Most of the time that works exactly the same way.

Sometimes home-grown hardware plays a role, and the features are strategically designed to provide a fitting update to Studio One for product release. A good example of this is the integration of the ATOM Pad Controller with the Pattern Editor and the Note Repeat.

As soon as it is clear what is to be built, we start with the technical implementation. We do so called agile software development, that means we work in iterations and can check again and again, if the result corresponds to the ideas and maybe adjust the plan. First feedback comes from inside and from the US, then from our beta testers and VIP users.

Let's talk about current trends in music production. At the moment, for example, hardware is very popular again, modular synths, euroracks, effects devices and so on. What do you think about this trend and the integration of such devices in Studio One?

Yes, the trend away from pure »in the box« production to hybrid studio solutions, consisting of hardware and software, is clearly visible. We have recently expanded our pipeline plug-in to incorporate external effects devices. The topic will continue to occupy us in the near future. Incidentally, all newer PreSonus interfaces have »DC-coupled outputs« and are therefore suitable for CV.

On the subject of GUI: Since the beginnings of Studio One one hears again and again voices of users, who want a complete adaptability up to interchangeable »skins«. Have you decided against such a comprehensive customization on Studio One?

With version 3 we introduced the color controls and with version 4 the inverted light theme. So you can adapt the program interface quite well to different lighting conditions and also give a personal touch. As you know, there are programs with much more levers, but that's just not our approach. I think it's also important to leave things out. We attach great importance to a consistent look and consistent user guidance. That's what makes up the overall impression, the »user experience«. Small detail: Technically, we actually have a skin defined in XML that is separate from the program code.



We recently discussed in the RECORDING.de forum what it looks like for you to further develop or improve plugins. Can you make a compressor plugin or a reverb plugin even better?

Definitely yes! The expectation of a DAW today is that in addition to the basic program, the included sound content and plug-ins are of high quality. We have gathered many wishes and ideas about our plugins and we will implement them as the schedule allows. Building a well-sounding algorithmic reverb that is easy to use is an art in itself and takes time.

In recent years, you have built several emulations of analog hardware devices, starting with the Console Shaper, CTC-1, VT1, the Rotor Plugin, etc. How to approach such a development? Will there be any further innovations in this area in the future?

For us, Kristjan Dempwolf, who has been a member of the team for some years, uses so-called state space models, also known as »state space modeling«. He typically starts by looking for schematics and studying them. Then the device is opened and measured in different places during operation. Kristjan creates mathematical models that are later translated into program code. This can be correspondingly complex, depending on the complexity of the electrical circuit.

Compared to other modeling approaches, the digital copy behaves the same way as the original when rotating the knobs. Sonically, we are only satisfied when you hear no difference in the A / B comparison and this was also confirmed with the oscilloscope.

Not to be neglected is of course a nice GUI, because the eye finally listens! Yes, even in this area is even more!

You have opened many of your interfaces and formats for external developers, so these technologies can also be supported by 3rd party developers. Worth mentioning here are audioloops and musicloops, ARA, which you developed together with Celemony, or in some way also the Mix Engine FX. So you have a different strategy than many other manufacturers who prefer to keep their techniques under lock and key ...

We are very open about technical cooperation with other companies. Maybe it's because we're a small shop, and we do not even want to try to invent everything ourselves. We have good contacts to many plug-in blacksmiths and other host manufacturers. We indirectly benefit from the fact that a new interface is also supported by other hosts, because more compatible plug-ins are created. Many people probably do not know that together with Bitwig we have defined a multisample file format that is supported in both applications. Another example was the Console 1 integration with Studio One in conjunction with Softube.

Personally, I enjoy creating new opportunities and collaborating with creative minds from other companies. It is remembered that one's own in-house view is not the only one possible. This then applies to both sides. At ARA, Maik and I meet regularly with Stefan Gretscher from Celemony.

With Mix Engine FX you have developed an interesting new plugin interface. However, many still do not realize why Mix Engine FX is not »something like HEAT, Harrison Mixbus, or Slate Digital products,« and why no ordinary VST plugin can simulate what Mix Engine FX does. Can you summarize it in a simple way?

Yes, that's really easy. Plug-ins usually work as insert effects, which can only process the signal of the respective mixer channel - unless one works with tricks and interconnects the plug-ins internally, without the knowledge of the DAW. Officially, the Mix Engine FX gets from the host access to all the individual sources of a bus before it is summed up. This can produce special effects such as crosstalk between channels, which is not possible with normal inserts.



You have just released the 4.5.3 update, which in addition to many bugfixes and small improvements »just« also the top-1 wish in the feature voting area in your Answers base has met: The support for NI Komplete Kontrol Mk II. Also in the network is often praised that you let the user in this way have a say. What influence does this voting platform have on your decisions?

The Answers base plays a crucial role. Requests with many votes are indeed given priority by us. We had been talking to Native Instruments for a while about the Komplete Kontrol integration and when it was technically finally available in June of this year, we did not hesitate and used the next update for it.

Of course, there are many other factors that affect when we can deliver which features. We set thematic priorities for updates. It is clear that we can not always make every user happy, even if we would wish that. If it was not your turn, there may be something in it for the next iteration.

As a rule of thumb, the farther back in the version number the number has changed, the less we have rebuilt or rebuilt so as not to jeopardize program stability. In concrete terms, in 4.5 there was a lot of new stuff, 4.5.1 to 4.5.3 were actually »just« minor maintenance updates.

Finally, the inevitable question: what could Studio One fans look forward to in the future?

Yes, the question was to be expected - and it is also a nice conclusion. Unfortunately, I can not reveal much there. Certain things are perhaps predictable, such as version 5 comes after version 4 ... and yes, we are already working on it! Also the previously mentioned Answers-Base is a good clue. In this sense: likes to choose features!

Thanks for the interview, Matthias!

You're welcome, Lukas! Again for the next anniversary, right?

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