Virtual Console Collection
Beta 2 quick user guide

New features :

- Grouping system
- Oversampling Option

Bug fixes :

- Fixed AU Validation issue with Logic 8 & 9
- Fixed the stability issues with many instances (> 20)
- Fixed the memory leaks
- Fixed the random instantiation crashes

Know issues :

- No AU 64 support for the moment
- Inaccurate VU meters
- GUI takes too much time to load
- No parameter reset on Command/Ctrl-Click
- The grouping system is for the moment separate between Channels and Mix Busses

To be done :

- CPU optimizations are still to be done. The algorithms will be optimized without any sound modification (code and process optimization)
- Calibration issues: the VU meters, input levels and internal processing are for the moment not precisely calibrated. There is a fixed internal calibration which faithfully reproduce each original model behavior

The Virtual Console Collection contains a dual plugin package that authentically emulates the sound of mixing into a vintage analog desk. The algorithms follow the dynamic response of the consoles with exact precision. Engineers who have used the actual consoles will find that the plugins will give their mixes the same classic color, vibe, and character.

WHY ANALOG MIXING?

Many of today's top mixers still mix on analog consoles. Over the past decade, many pro audio companies have even made "analog summing busses" so that recording engineers could sum their digital tracks externally in the analog domain. Most engineers who sum with analog summing busses and mixers claim that mixing analog gives their music more space, depth, width, punch, and "vibe".

So this brings up a few questions.

- What's wrong with digital summing?
- What makes analog summing "better"?

To answer this first question, we first made several digital mixers to test. One of them was a 32bit floating point mixer, the other 48bit fixed integer mixer. These are the most popular types of digital mixers offered in today's digital audio workstations.

We ran dozens of tests with the digital mixers, trying to find out why they would not perform as well sonically as an old analog console. The result was a bit surprising.

What we found, was that there was absolutely NOTHING wrong with digital summing. It is actually a fairly straightforward and simple digital process, and nothing about it would reduce bandwidth or create any negative artifacts on the mix.

Then, we began to run some tests on several vintage analog consoles. Again, the results were surprising. Some of the analog desks were FAR from perfect. We found that the analog circuits created many nonlinear and dynamic artifacts such as harmonic distortion, phase distortion, component saturation, and crosstalk.

This was rather odd, since so many engineers claim that analog desks sound better than digital mixers. Therefore, the only conclusion is that these nonlinear artifacts sound “musical” to the human ear.

THE VIRTUAL CONSOLE COLLECTION

The Slate Digital Virtual Console Collection reproduces the sound of classic recording consoles using a dual plugin package, consisting of the Virtual Channel and the Virtual Mixbuss. Each plugin allows you to choose from 4 modeled consoles.

The Consoles:

Brit N Discrete – This classic desk has been a staple of the recording industry for over thirty years. Known for a rich, fat, and warm sound, it can add some classic vibe to your mixes.

Brit4k – The most popular mixing console in the industry, this desk has a clean, punchy, wide, and slightly aggressive quality that has made it the go-to desk for rock, pop, metal, and hip hop. Push it hard to get some extra grit to the transients.

US A Discrete – One of the most sought after desks in the industry, this American made discrete console is known for a thick and fat tone with lots of vibe and midrange punch.

Ψ– Another classic British console, this desk is known for being the ultimate rock desk, with a wide soundstage, smooth hi end, and fat low end. Push it hard for some extra fatness.

Virtual Channel and Virtual Mixbuss

Virtual Channel Controls and Features:

Console Selection:
Selects the console that is emulated

Input:
Controls the amount of gain going through the channel. Increasing the amount will emulate more signal going through the console’s channel.

Depending on the desk selection, this can create more modeled artifacts.
Drive:
This specialized control will increase or decrease some of the nonlinear artifacts of the selected console WITHOUT altering the channel level. Use this to get extra tone from the channel without changing the balance of the live mix.

Virtual Mixbuss Controls:

Drive:
Like on the Virtual Channel, this control increases the nonlinear artifacts of the console's center section without altering the mix levels.

Console Selection:
Selects the console that is emulated.

Grouping features

The VCC grouping feature allows adjusting the parameters of several VCC instances at the same time.

Please note that the grouping system is separated for the moment between Channel and Mix Buss plugins.

You will be able to use the grouping system for both Channel and MixBuss plugins the same way in the final version.

To activate the grouping feature on a VCC plugin instance

- Click on the **Group** switch at the bottom of the plugin
- Open the grouping panel by clicking on the bottom arrow if it's not already open
- Assign the current plugin instance to one of the 8 available groups by clicking on one of the green **Assign** buttons
- Edit the parameters of one of the groups by clicking on the red **Edit** buttons. This way, you can edit each group without modifying the current channel assigned group
- Open the Track list panel if it's not already open by clicking on the bottom arrow in the grouping panel

- You can rename the current track and the edited group in this panel. The list of the assigned tracks to the currently edited group is also displayed.

If the Group switch of the current plugin instance is activated, the plugin Console parameter is the same as the group one, the group **Input** value is added to the current channel **Input** value, and the group **Drive** value is added to the current channel **Drive** value. The resulting Input and Drive values of the current channel will be displayed on the final version.

The plugin Console selection knob is greyed out to show that the console is selected via the assigned group and is not the displayed one on the main plugin interface.

IN USE

Single Console Emulation:

Place the Virtual Channel on the first insert of your audio channels. Select one of the four console emulations. Place the Virtual Mixbuss on your Master fader. Select the same console emulation as in the channel. Additionally, you can also use the Virtual Mixbuss on group/buss tracks.

Multiple Console Emulation:

You can select different console emulations on the Virtual Channel plugins across various channels. For instance, you can use the Brit A Discrete on your drum tracks and Brit N Discrete on vocals and guitars, and even use the Brit 4k console for the mixbuss.

Virtual Channel..First or Last?

In our tests, it didn't make much difference whether we used the Virtual Channel plugin first or last in the inserts. On a real mixing console, engineers will sometimes use onboard eq and compression, which is more closely emulated by putting the Virtual Channel first in the inserts. Other times, engineers will patch in outboard gear before hitting the console, which is more closely emulated by placing the Virtual Console plugin last in the inserts.

MIXING STRATEGIES using the Virtual Console Collection

Pushing Your Virtual Console

Often times, engineers will push the channels of analog desk, over-saturating the mixbuss. They compensate for this gain by lowering the master fader. This effect can be duplicated using the Virtual Channel and Virtual Mixbussplugins. Simply push the channels of the mix high so that you overload the master fader (most DAWs will show that you are overloading), and then lower the master volume using the master fader.

Setting Up Your Mix

One of the easiest ways to get the most out of the Virtual Console Collection is to set up four to six “transfer” groups/busses. These transfer busses are meant only to be a digital level control, which will dictate the amount of gain going into the mixbuss.

Using these busses, you can control the virtual “push” into your mixbuss without having to alter automation of individual groups or channels. You can also use these busses to make final mix balances if you route to them according to mix categories (ie: guitars, drums/bass, vox, keys, synths).

MAKING THE VIRTUAL CONSOLE COLLECTION
By STEVEN SLATE

One of the first studios that I worked at when I was about sixteen years old was a two room facility that had two vintage consoles. I remember that we began to think about the desks in regards to their tone. One desk was the one that sounded fat and warm, the other was the bright and punchier of the two. We’d choose which room to mix in based on the sound of the band. The more modern bands would always get mixed on the brighter punchy desk, and the more old school bands would get mixed on the fat and warm desk.

Given these experiences, I’ve always thought of analog consoles as part of the sound of the mix. This is why things started to get odd for me once I began mixing digitally. The digital mixes didn’t add any of the nonlinearities that my ears grew to love from the analog desks. I

started experimenting by running my mixes into my mic preamps in order to get some color. But because my mixes were line level and the mic preamps were not, this was not a match made in heaven!

I needed someone to design a mix system that would allow me to use my mic preamps for tone and gain in a more intelligent way. In 2001, I was introduced to an extremely talented tech named Justin Ulysses Morse of Roll Music of Minnesota. Justin and I got to talking and he quickly understood my goals. He designed for me a 16 channel passive summing mixer that would require a mic preamp for make up gain. The unit was called the RMS Folcrom and became one of the best selling analog summing solutions in the industry.

Years later when I teamed up with algorithm guru Fabrice Gabriel to start Slate Digital, I asked him if it would be possible to replicate the sound of an analog console's "sound". After doing a few tests on a famous British vintage console, his first answer was "No".

The reason, he said, was due to the nonlinear dynamic response of the desks. While many plugin companies have reproduced some simple static nonlinear characteristics, and some even have algorithms that are somewhat dynamic in their response… None had gone into the detail that would be needed to reproduce the dynamic nonlinearities of a vintage analog mixer.

"It would take up too much CPU and be unusable" he said to me in his classically French accent.

So, we put the project on hold and kept developing our flagship mastering processor, the FG-X. But as the FG-X algorithm came to a close, my analog fever would return. With a vengeance!

I dragged Fabrice to a famous Los Angeles recording studio so he could do some complex testing on their vintage desks. He reluctantly obliged, and then requested that I get him the schematics of the desks for him to study.

Then I didn't hear from him for a week. I was beginning to wonder what was happening, but then got a call sometime in the middle of the night.

"It will be very very difficult, but I think it can be done", he said.

And thus was born the Virtual Console Collection.

Over the next six months, I would travel around Los Angeles listening to dozens of classic desks, in an attempt to find the cream of the crop. Once found, Fabrice would come in and do a series of custom tests using specialized techniques that he developed for analog modeling.

Fabrice's Los Angeles office would soon become a fury of schematics, console components, test equipment, and dozens of papers filled with hand written algorithms and French words.

The very first versions of what would become the Virtual Console Collection were already very impressive to me. I would test them by comparing the processed digital files with the same audio files that went through the actual desks. From start to finish, Fabrice and I both would do hundreds of listening tests to ensure that we were replicating the exact sound of the analog consoles, dynamically. Many analog desks have a certain "sweet spot"..a point of gain structuring in the desk where the console would exude its most pleasing character. This type of "sweet spot" would have to be duplicated in the algorithm in order to properly have the console modeled.

The goal was not to simply *claim* that this plugin could recreate the vibe of analog mixing, but to *prove it* by showing how close the sound of a digital mix that had been processed by the VCC plugins was to the same mix summed through the relative analog desk.

We began to post some of these comparison demos on the web in the spring, and luckily, we were reassured that the Virtual Console Collection was something special!

Months later, we are proud to release what is the result of countless months of hard work and dedication. I must give credit where its due. This project has been spectacularly executed by the most brilliant and revolutionary algorithm engineer in pro audio, Slate Digital co-founder Fabrice Gabriel. It is Fabrice's amazing skill and expertise that has allowed this remarkable plugin to exist.

Fabrice and I genuinely hope that the Virtual Console Collection will help give your music that special vibe and tone that is reminiscent of mixing on a classic vintage console. Thanks for your purchase, and we look forward to you making great music with this, and other Slate Digital plugins.

Steven Slate