

# Garritan Personal Orchestra 5: Expression Maps for Dorico

## Introduction

GPO5 can work extremely well with Dorico — dare I say even better than with Finale, its intended partner. Although there may be newer, better (and more expensive) libraries, if you already own it, it's a perfectly serviceable and versatile addition. However there are a few obstacles. GPO5 comes with almost one thousand separate instruments! (There are over 100 Violins to choose from, for starters.) The keyswitches and CC controls are far from consistent, so a large number of separate Expression Maps is needed.

This set of Ex Maps is designed as a 'basis' for further development, to suit individual needs. It focuses on the sustaining instruments: Strings, Woodwind, Brass, and to a lesser extent, keyboards. I have concentrated on the **KS** keyswitch instruments, on the assumption that they are the most useful within Dorico.

## Nota bene

GPO5 contains two separate sets of String samples: the 'legacy' GPO4 Solo and Section Strings (numbered 07 and 08); and the Garritan Orchestral Strings (numbered 10). I will refer to these as GPO Strings and GOS Strings.

GPO5 contains Brass samples from the Project SAM library, as well as Garritan-originated samples. Some of both of these (!) are 'legacy' from GPO4, and some are new. The keyswitches used by the Brass samples are organised quite chaotically, so that legacy samples of either type use one set of switches, and new GPO5 samples use a different set of switches. Ultimately, there are only two types of Ex Map needed, but remembering out which is needed can be difficult.

It would be a lie to suggest that the 'legacy' samples were necessarily inferior or unnecessary: each has its strengths and weaknesses.

The GPO5 Help files contain a *Directory of GPO5 instrument patches*, which describes everything you need to know about the keyswitches and CCs used by each instrument. Another document on *Controls and MIDI controllers* is also highly informative. Nevertheless, I have also included a spreadsheet of the switches and CCs used by various groups of instruments, also which Brass instruments use which Ex Map.

## GPO Default

For basic playback, you can probably 'get by' using a generic or default Expression Map for a large number of sustaining instruments, particularly those that don't have switches. You can then use it as the basis for creating more specific maps.

## Natural

Volume is defined by **CC1** for most sustaining instruments.

For KS instruments, **C-2** (*that's minus 2*) is the keyswitch for 'normal' playing — when Middle C is defined as C3; if Middle C is C4, then it's ... **C-1**. This note is outside the range of any of the samples, so even if a switch is held on an instrument that doesn't have that switch, you won't get a low rumbling noise. (This is using the Notation bank of GPO samples.)

## Add-on: Legato

You'll need to create two Add-ons: one for *Legato*, with **CC68=127**; and one for *Non-Legato*, with **CC68=0**.

That will get you up and running with a large number of instruments. It will also work for instruments in other Garritan Libraries, including Garritan Instruments for Finale.

## Optional Extra: Ambience

The ARIA Player has some lovely Ambience settings, which give a bit of 'space' to the sounds. The extent to which the sound gets mixed with the ambience is controlled by the SEND knob in ARIA's mixer. You can set this in the Expression Map. I like to add **CC91=64** to the Init, to ensure a nice 50% mix. You may or may not want this: obviously, it will only affect the sound if you've set and turned on Ambience in the VST.

## Woodwind

There are only 2 KS instruments in the entire Woodwinds: Flute and Piccolo, which control Vibrato, Non-vibrato or Flutter. So the 'default' Ex Map should serve for the remainder. Or you can create a 'GPO Woodwind' Ex Map: instruments without switches will not do anything.

You may want to include a Base for Short notes: perhaps triggering Legato **CC68** and reducing the Length **CC21**. Vibrato Speed is controlled with **CC17** in some instruments.

## GPO Strings

The 'legacy' GPO Solo and Section Strings (07 and 08) all use identical KSeS and CCs, so they can all use the same Ex map. (Though you may want to create one map for Solo and one for Section, to give them slightly different effects.) The KS instruments have a useful range of switches: upbows, downbows, tremolo, mute, pizz, and trills.

Staccato can be made using the 'auto-alternate' up and downbow, which plays a short, non-sustaining note. Accents can be made with a Base expression that sets the Note Velocity to 127.

Non-sustaining samples, such as Pizzicato, Up/Down bows, do not use **CC1** for dynamics, but use Note Velocity instead.

Because *Tremolo*, *Mute*, and *Tremolo Mute* are three different switches, I'm not convinced that you can use Add-ons. You can't add D and E to make F..!

## GOS Strings

Almost every instrument in GOS Strings uses a different Map for switches. The basic characteristics of the Default Map remain. In addition:

*Mute* (and '*Na (Open)*') can be supplied using Add-ons, with **CC71=127** for Mute on and **=0** for Mute off.

GOS has no tremolo switch. Also: the Marcato sample is non-sustaining, so you don't want Dorico to use this for marcato accents, as the note will stop short (unless you have the notes doubled/layered with a sustaining sound).

One criticism of the GOS samples is that they sound a bit 'late', or 'slow'. This effect can be reduced, if not removed, by applying **CC119=127**.

GOS Strings have CCs for 'ADSR': *Attack, Decay, Sustain, Release* (**CC73, CC75, CC70, CC72**). Modifying these may be useful in Ex Map conditions, like Short Notes.

## Brass

The problem here is choosing which instruments you want, and working out which Ex Map they need. There are 3 Players, Solo and Section instruments, and SAM variants. Broadly speaking, all Player KS and Non-SAM Solo instruments use 'Ex Map 1', and all Section and SAM Solo KS instruments use "Ex Map 2". The Piccolo Trumpet Solo KS could share an Ex Map with the Flute and Piccolo instruments, or have its own.

The Ex Map 2 group has much in common with the GOS Strings: **CC71** for Mute, CCs for ADSR and Tone. The Ex Map 1 group is more like the 'legacy' instruments: Mute is a keyswitch, not a CC. You may want to synthesise conditions for Short Notes or Staccato.

## Percussion

I haven't done anything for the Percussion: Percs use Note Velocity for dynamics, so will work Dorico's default map (not GPO Default). The real work will probably be in Percussion Maps.

## Keyboards

I haven't made provision for the keyswitches on harps. Like percussion, most of the keyboards use Note Velocity for dynamics, rather than **CC1**. They need the usual Legato Add-ons. The exceptions are: Harpsichord, which has no dynamics at all, and the Organs, which use **CC1**. The Harpsichord has three keyswitches for 8-foot, 8 & 4-foot, and Buff Stop. I've mapped the Buff stop to Mute and Dampened, the 8' to Natural, and the 8 & 4 to *ff*, in lieu of anything better. The Piano is mapped for Soft, Sostenuito and Pedal pedals (**CC67, CC66, CC46**), plus legato playing. However, I'm not convinced that Sost and Soft pedals are working.

## Organ

The Organs can use *GPO Default* map for now. However....

GPO's *Custom Organ Console* instrument allows stop registrations to be combined and configured entirely through MIDI CCs. Dorico's system of Playing Technique > Playback

Technique > Expression Map > Sample offers the prospect of registration marks in the score — such as *Great 8'*, *Swell*, *Pedal*, *Reeds*, etc— actually triggering appropriate stops automatically in playback. The GPO5 help pages '*Controls and MIDI Controllers*' and '*Loading instruments and making sounds*' contain information on how the Organ Console works. (This is left as an exercise for the reader....)

## Choir

The Choir will work perfectly well with the GPO Default map. If you want to control the vowel using keyswitches, you'll need to create a map for the Choir, and create the Playing and Playback Techniques. You may want permanent Legato **CC68**, depending on the style.

## Installing the Maps

You can import the maps into Dorico's Expression Maps editor dialog. Alternatively, simply dropping the *.doricolib* file onto the Hub will ensure that they are always loaded.

## Endpoints, VSTs and Playback Templates

Given the choice of instruments, you will need to create your own Playback Template that auto-loads the particular samples that you want.

To do this, you will need to create a Dorico project file with the Players that you want to use, and load the relevant samples into ARIA Player VSTs, assigning the appropriate Ex Map to each instrument. Once you've done this once, then you save the VST, Ex Map and sample data as an 'Endpoint'.

I'd suggest doing each orchestral group as a separate endpoint, so you can save different endpoints for: GPO Brass, GPO Woodwind, GOS Strings, GPO Strings, etc. Then when you make a Playback Template, you can mix or select the various groups, and use them with other sample libraries.

When you save your Endpoints, don't forget that you'll need to set up both Section and Solo Players in Dorico. Thus, you could have Garritan's Section and Solo samples matching Dorico's players. If you don't set both, you'll get an empty, silent player.

On Dorico's YouTube channel, John Barron has demonstrated how to create Ex Maps, Endpoints and Playback Templates for the BBC SO Discover library from Spitfire. The principles are entirely the same. You'll notice in the video that one instance of the Spitfire VST is used for each instrument. GPO users may be accustomed to loading all 16 slots in the ARIA Multi-output VST. However, the latest version of ARIA Player (v.1959) comes with a VST3 plug-in. This takes only one input and one output. (Even though you can load the slots, only the sample on channel 1 will sound, even if Dorico sends on a different channel.)

Using the single-slot VST, you won't load any unneeded sounds, and you don't get unneeded channels in Dorico's mixer. The VST3 ARIA plug-in is very quick to load.

If you do want to layer Garritan samples together (as they were designed to do) for one Dorico staff, then you'll need to use one of the VST2 plug-ins, and load several instruments into the banks, and then set them to the same MIDI channel.

## **Concluding remarks**

I've tried to keep the number of Ex Maps as few as possible: I've also tried to keep the names short, as long names aren't easy to identify in the Endpoint configuration dialog at present. Users may prefer to duplicate maps for more specific groups, or individual instruments, for finer control.

One of the great strengths of the Garritan instruments is the use of human-readable text files for the instrument definition files, in the sfz format. It's remarkably easy to customize them. For instance, it would be simple to change some of the keys for the switches, in order to use fewer Ex Maps. At the more extreme end of editing: I've created a new instrument which combines Cello and Contrabass, with the bass playing one octave lower, which I can play from one 'Basso' staff in Dorico.

Thanks must go to Brian Roland for his detailed knowledge of GPO's capabilities.

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