

Lawo HOME for CBC/Radio-Canada



For its live-event-based streaming services, CBC/Radio-Canada, the country's national public broadcaster, now accommodates up to 80 streaming events simultaneously using only two instances of Lawo's HOME mc² DSP app. This highly compact and functional workflow allows CBC/Radio-Canada to instantiate processing channels for sporting and entertainment events, press conferences, simulcasts, and more. The primary use case for audio shuffling is to correct non-standardized audio sources received from venues where live events are held to prepare them for airing on digital outlets, such as O&O, Gem, CBC.ca, and third-party services such as YouTube, FAST channel programming, etc. This is often used for university sports, government news conferences, Olympic events, and so on.

Many media sources arrive with non-standardized audio streams that require digital streaming operators to use an audio shuffler function to manipulate the audio prior to digital streaming. Audio on channels 3 and 4, for instance, is remapped to channels 1 and 2; the gain of soft audio is increased; off-tube commentary is added to the stadium sound; 5.1 sources are downmixed to 2.0, etc. In all cases, the goal is to achieve a standardized 2.0 audio stream for live events that are streamed to the web using downstream AWS Elemental encoders.

Given the number of possible combinations and channels, CBC/Radio-Canada was looking for a flexible SMPTE ST2110-based solution to replace legacy, single-purpose hardware used so far, and to also introduce the ability to scale up and down the number of audio streams that can be processed simultaneously beyond

the limitations of the previously-used hardware devices. "Today, one app offering as many shuffling instances as we need can be controlled using VSM to provide us with the required agility," said Jaime Thomas, Supervising Technician, Digital Presentation at CBC/Radio-Canada.



After studying the proposals from various manufacturers, Lawo's HOME mc² DSP stood out as the most elegant and compact solution for the envisaged audio workflow. The HOME mc² DSP app's CoMixer function indeed allows the team to instantiate the desired number of audio shufflers. For its streaming and linear channels, CBC/Radio-Canada requested 80 shuffling instances, each offering 22 audio input channels and 18 audio output channels. The easy-to-manage solution relies on scripts for XCS mixing cores and mapping files for the VSM control system, which is used to map, adjust and balance the relevant audio feeds for each streaming event individually. Two VSM panels have been created, each displaying up to 40 mixes.

The system works as follows: where necessary, the original non-standardized audio content is modified, which includes operations such as audio channel remapping, gain adjustment, downmix, and mono summing. The standardized signals are then routed to the 6-channel (5.1) and Stereo busses. Each CoMixer shuffling instance provides DSP functionality for level changes and other tweaks. Next, the resulting stereo stream is passed on for use downstream.

Each HOME mc² DSP app configured by CBC/Radio-Canada provides 40 shuffling mixers, so that two HOME mc² DSP app instances allow CBC/Radio-Canada to accommodate up to 80 streaming events. Although up to three HOME mc² DSP instances can comfortably run on one 64-core CPU server, CBC decided to host its two HOME mc² DSP instances on separate servers. This way, a HOME mc² DSP instance can “migrate” to the other server in the event of an issue, for seamless redundant operation.

“This is another milestone for Lawo,” said Herbert Lemcke, Lawo’s Key Account Manager. “Lawo is very pleased that the CoMixer shuffling feature of the HOME mc² DSP app—which is chiefly known as a formidable DSP processor for our mc²-series, crystal and headless consoles - enables users to get creative and explore new horizons. Stay tuned for even more exciting audio shuffling news at this year’s IBC show.”

“We like the economy and dynamic scalability of the HOME mc² DSP app,” added Frédéric Dorion, Project Lead, Capital Project Management Governance and Engineering at CBC/Radio-Canada. “With just two app instances and the built-in shuffling functionality, we are able to cover as many streaming events as we need, with convenient VSM panel control.” “With this ST2110-based event streaming project in Toronto, we have implemented a solution from Lawo we trust,” said François Legrand, Senior Director of Innovation, Governance and Engineering, CBC/Radio-Canada.

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