



# VSM Project Study

Vancouver 2010 | Project 1

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## **VSM @Vancouver 2010**

### **1. Fast action requires fast reaction**

For the 2010 Winter Games in Vancouver, a most innovative infrastructure was used to meet the goals for an intense and exciting surround broadcast transmission for the sliding events. For the coverage of the high speed action of the bob, luge and skeleton events, it was decided to use Audio-follow-Video functionality for supporting the audio engineers to pick the right source and enhance the HD video feed by a premium surround sound. In applications like these, the flying faders of the audio console are controlled by the On Air Tally (Red light) of the video switcher, thus providing the proper correlation of the audio and the active picture, no matter how fast or excursive the video feed is being cut by the director.

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### **2. A possible solution**

For inserting the Tally information of the video mixer into the audio console, hard wiring of every single GPI contact from the vision mixer frame to the audio console is the least convenient option. But besides the extensive cabling effort, this solution is not very flexible. The Tally information of the video switcher is usually fixed to its physical inputs and not to the order of the source in the production. If, for example, a camera signal on physical input 7 is used as camera 9 in production, the Tally information for camera 9 would be on GPI line 7 and not as maybe expected on line 9. As in most of all mobile productions the switcher layout does not reflect the order of the physical sources, the mapping of the incoming Tally information to the faders can become very confusing. A difficult communication between audio and video gear and staff are most likely, especially in a complex production like the sliding events, where about 50 cameras were in action and different sport events required a video switcher layout change on a daily basis. Furthermore, without the appropriate tool, the current status of the Tally would neither be transparent nor easy to 'read' in the context of the current sport event.

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### **3. The smart solution**

For a more safe, flexible and user-friendly control as well as status information of the Audio-follow-Video functionality, a VSM controller system was added to the setup. The VSM system is able to control any kind of broadcast device via protocol. Freely customizable hardware and software user interfaces are available and can be configured to meet today's demands for easy and transparent operation. The separate GPI cabling of about 50 GPI contacts between audio and video mixer can be replaced by just two Cat5 network cables as all communication is done over IP protocol: it needs one cable from the GVG Kalypso video switcher and another one from the Lawo audio console connected to the same network switch to which the VSM server is also connected to. With the VSM system, a flexible routing and assignment between the

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audio and video device becomes easy. All operations can be performed by the Audio Engineer on site via a customized software panel on a touch screen next to the audio console.

#### 4. Virtual layers – Real status

To set up a transparent production environment for the operators, three virtual GPI layers had been configured in the VSM system that displays the video switcher outputs, camera and replay sources as well as the Audio-follow-Video events. The video switcher GPIs in the layout are related to the ‘physical’ Tally GPIs received over protocol. All incoming Tally status changes can be supervised on a separate page. (Fig. 1)

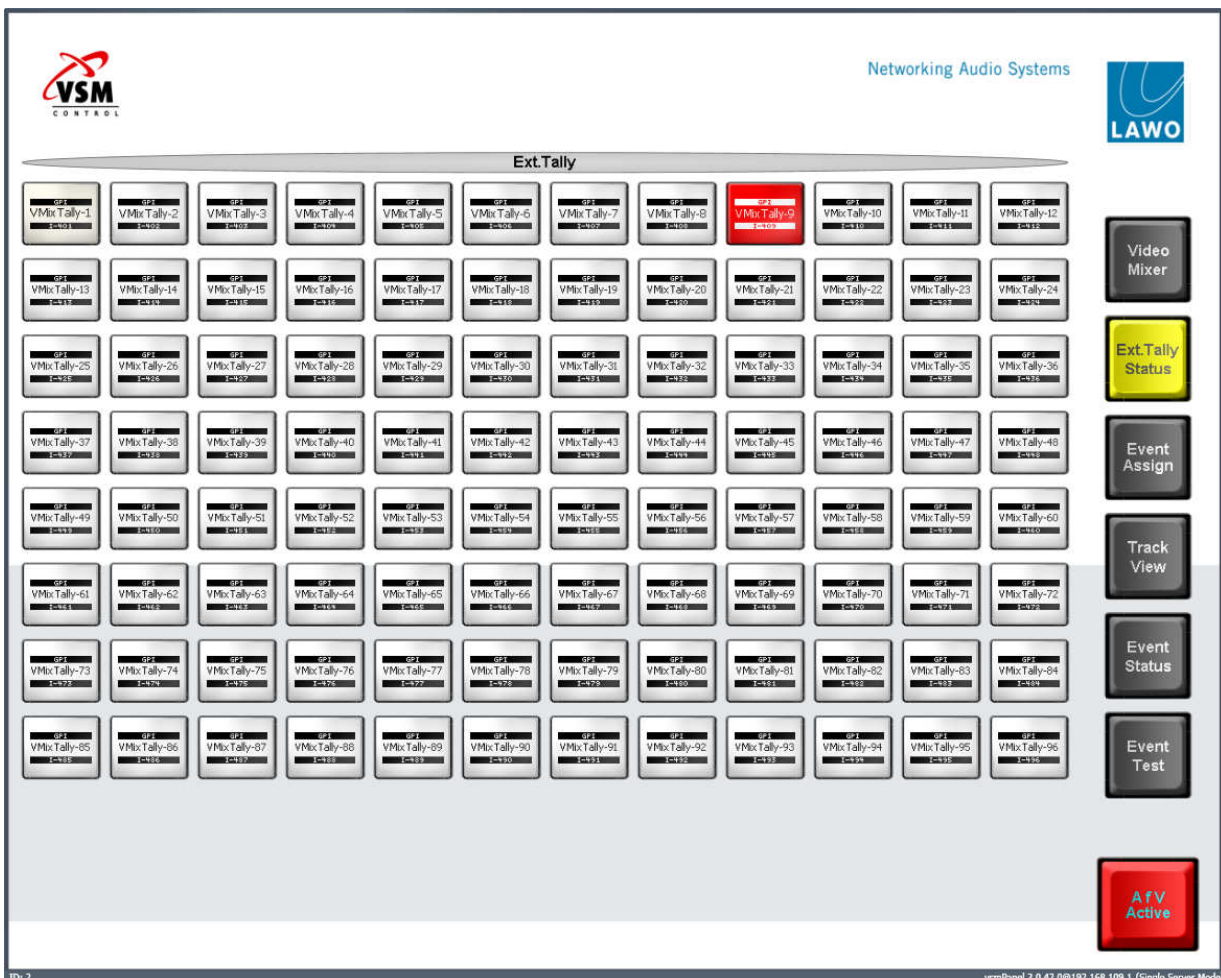


Fig. 1 – External Tally Status

The video switcher Tally have to be associated to the 'virtual' cameras. For example camera 9 to virtual switcher input 7 (Fig 2 & 3). As shown in the picture, the Tally signalisation of camera 9 will be active while the associated physical source of the video switcher is input number 7.

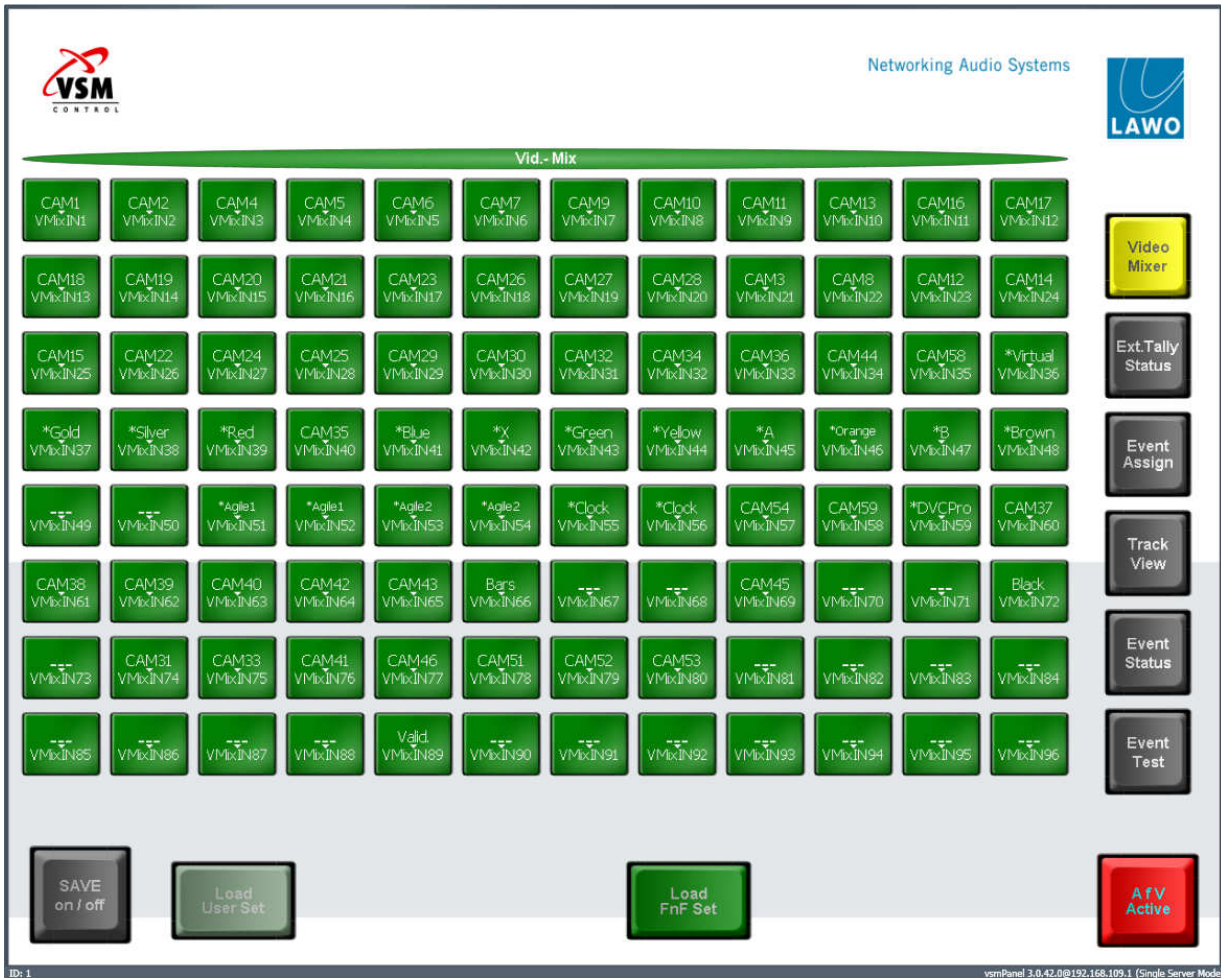


Fig. 2 - Mapping page visualizing source-to-video-mixer connections on a virtual level. Selecting any virtual switcher destination triggers a page swap for immediate access to available sources. (Fig. 3)

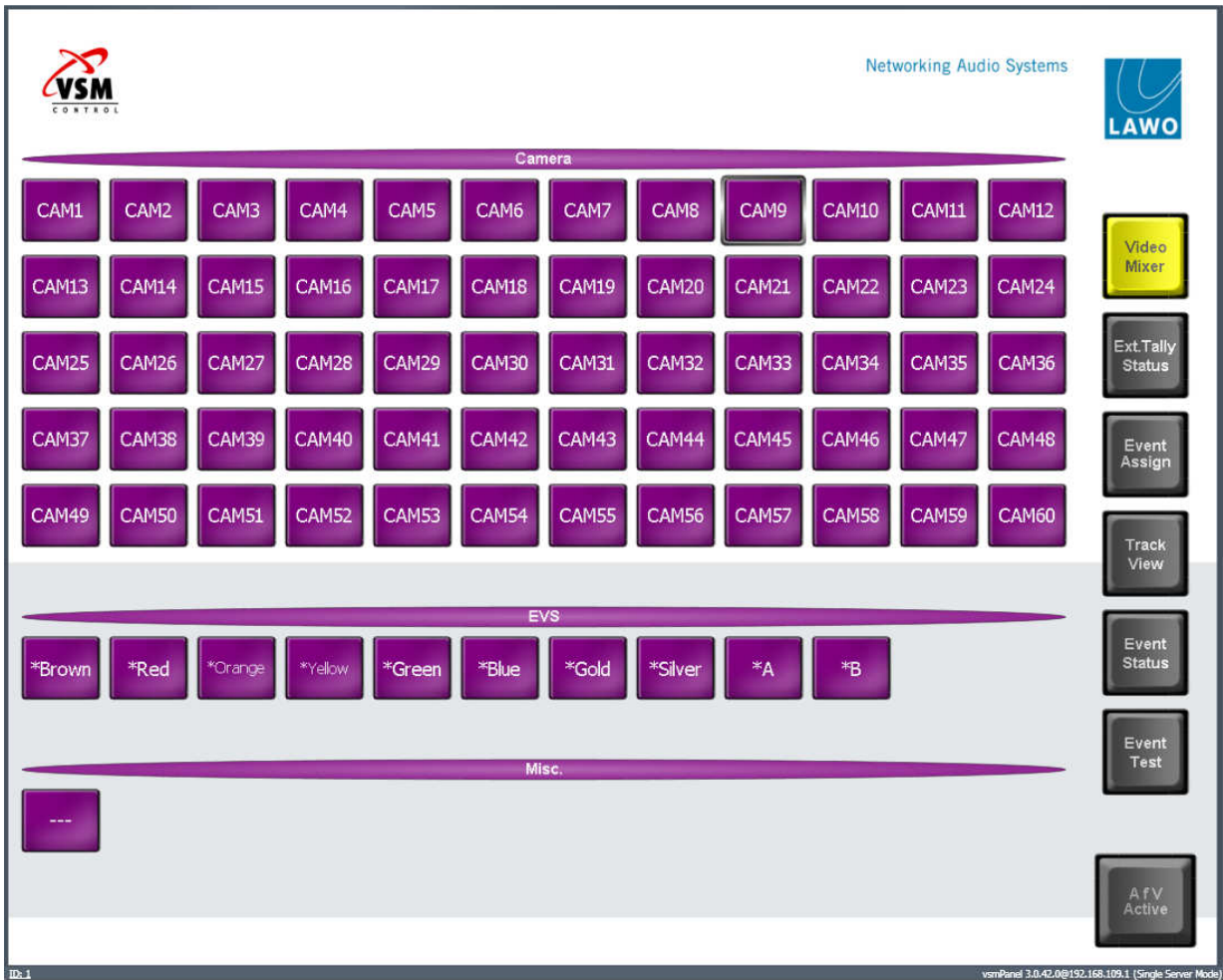


Fig. 3 - Selecting a source triggers a page swap back to the video switcher page (Fig. 2)

In the next step, the virtual cameras are put in relation to the Audio-follow-Video events of the audio console. It is also possible to link multiple camera- or replay sources to the same AfV event. For nearby camera positions this action is most useful for triggering the same audio source/fader even if a different camera is used. In this example, camera 8 and 9 Tally will trigger AfV event 9. (Fig. 4 & 5)

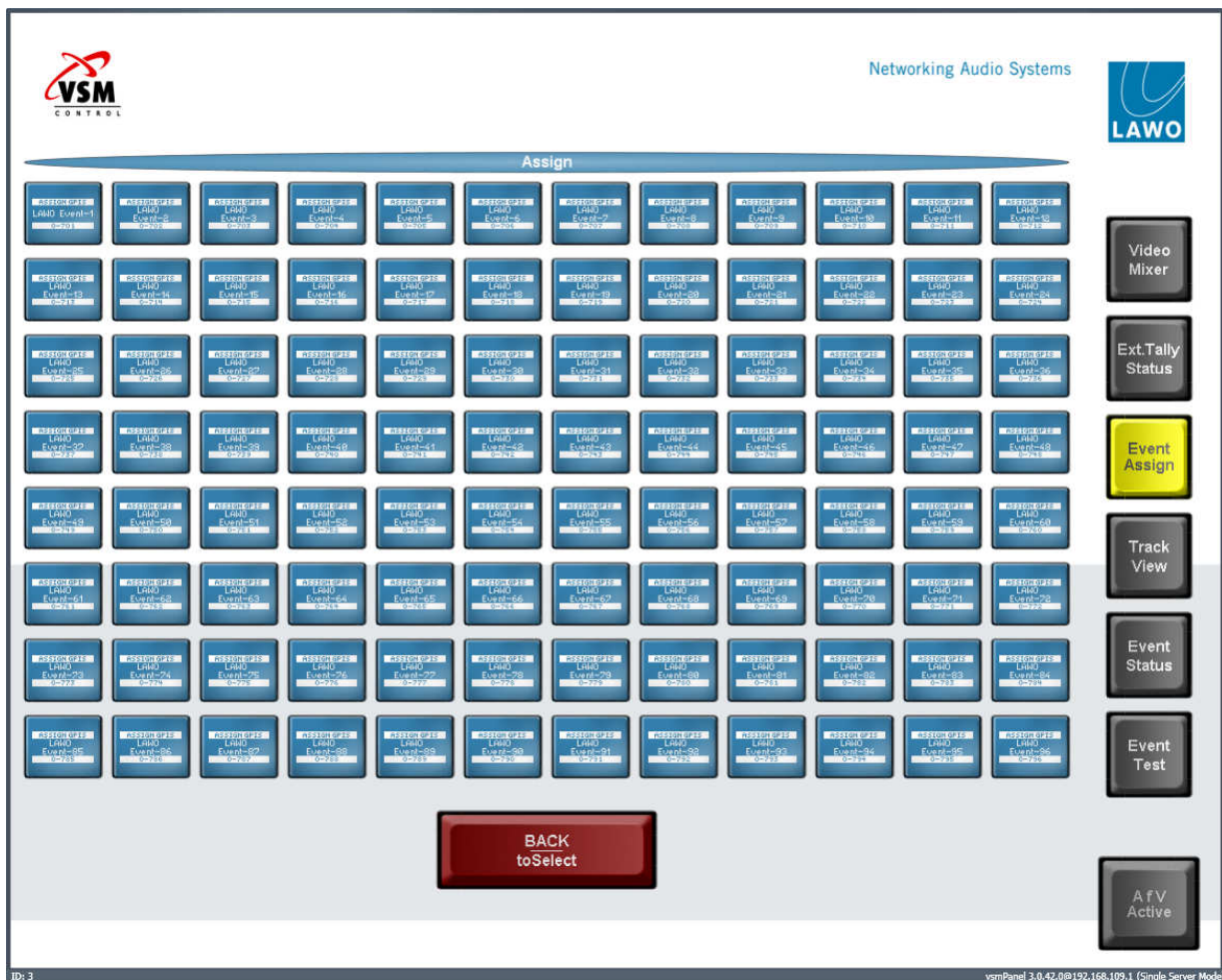


Fig. 4 – Selecting any Audio-follow-Video Event induces a page change to available sources. (Fig. 5)

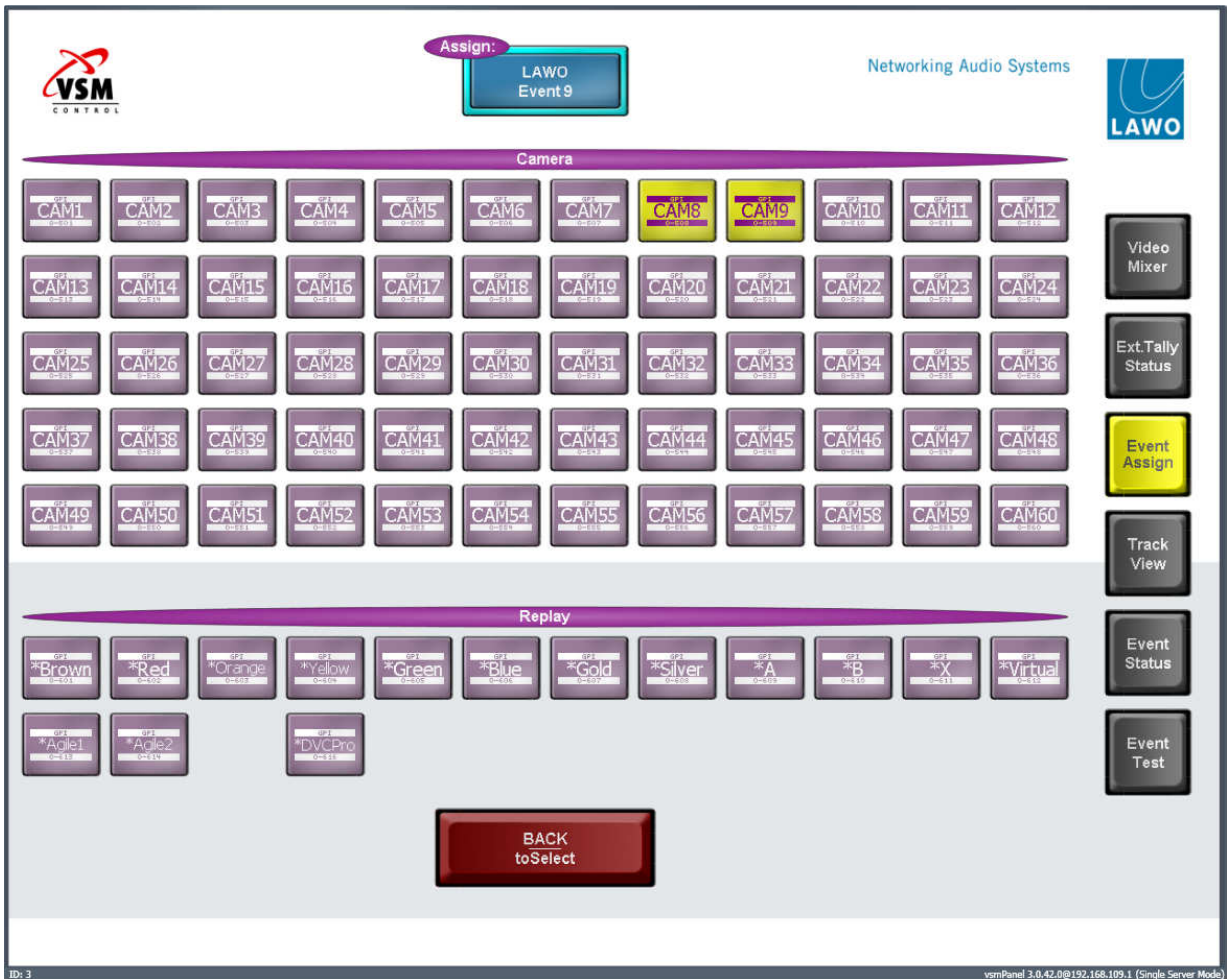


Fig. 5 – Source page to select one or multiple sources (GPI triggers) for the same AfV event.

## 5. Crystal sound - Clear view

Beside all sophisticated logic, the VSM system also represents a free configurable user interface for allowing easy and intuitive operation as well as achieving best performance for any kind of workflow. Both an event test and the event status page (Fig. 6 & 7) are helpful tools during the production setup.

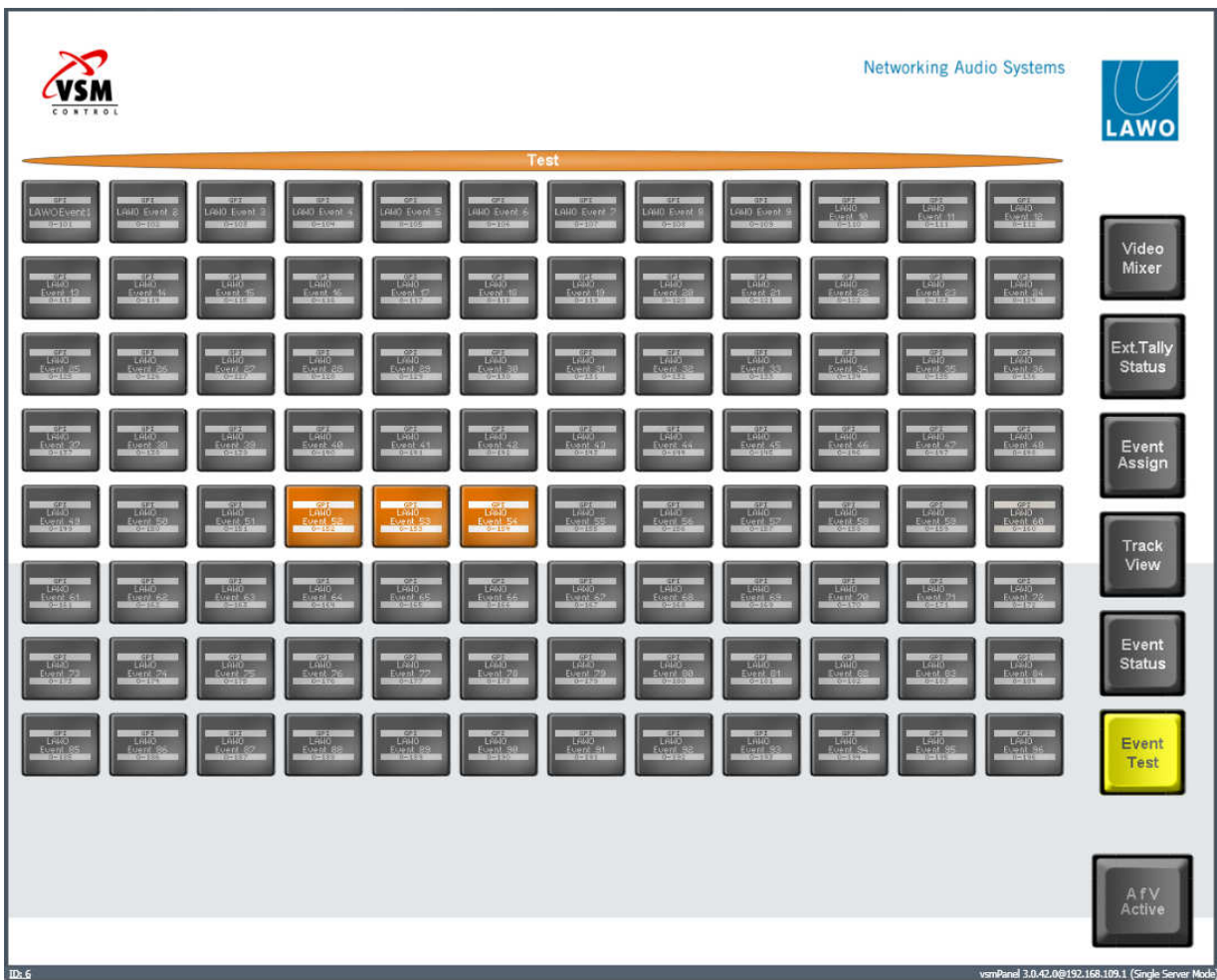


Fig. 6 – Audio-follow-Video Event Test Page

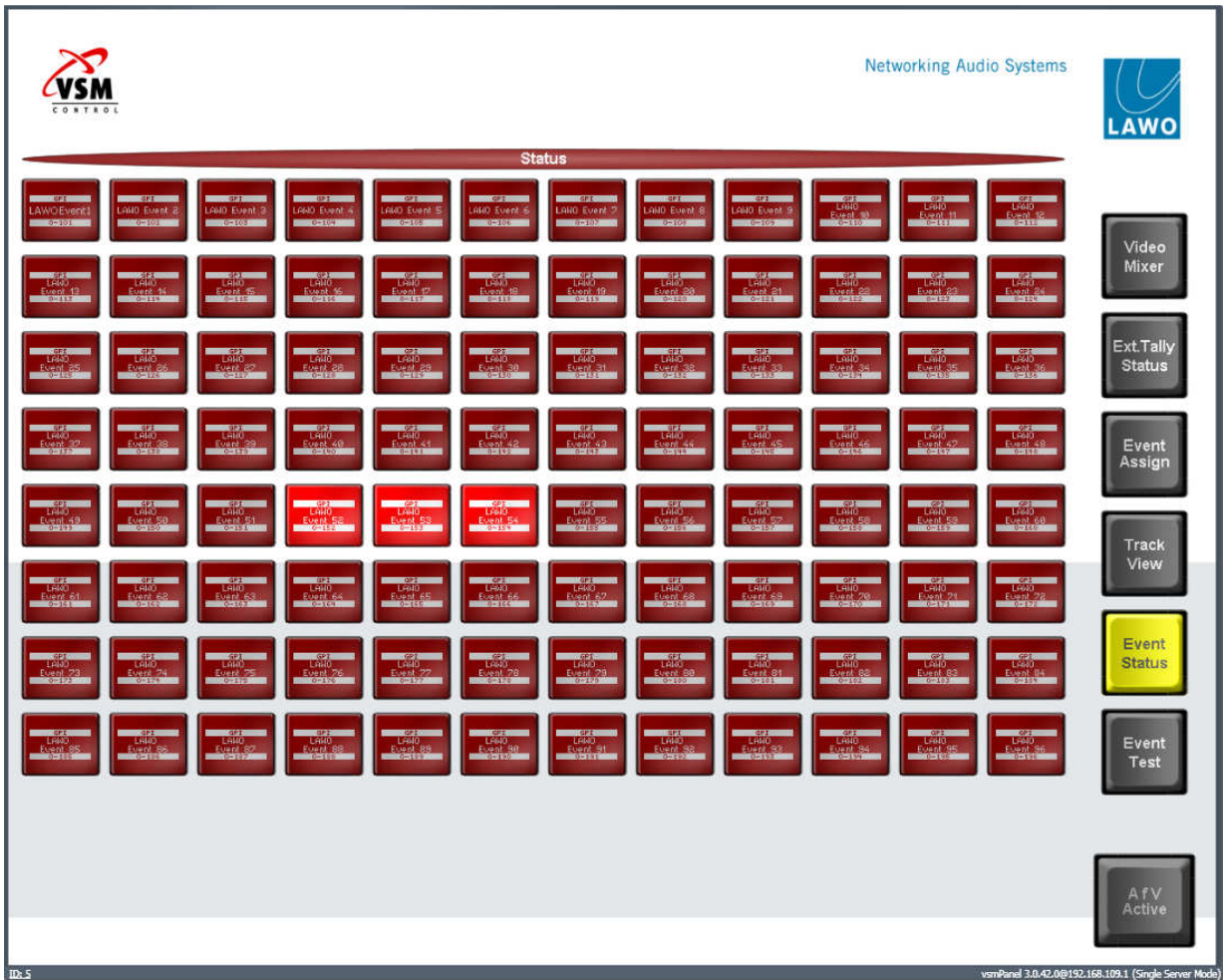


Fig. 7 – Audio-follow-Video Event Status Page

## 6. On Air

A special 'Track View Page' includes the camera position and On Air Tally depending the current sport event as well as the signalization of the active Audio-follow-Video events, thus providing a powerful and most informative real-time status tool for thrilling and demanding live actions. (Fig. 8)



Fig. 8 – Track View Page with bobsleigh camera positions

A manual interrupt of the Audio-follow-Video automation could be carried out by the operator at any time, using the AfV active button in the corner of the touch screen panel. This button had a clear status indication when active as well as all menu buttons.

Additional status information was provided by a VSM hardware Monitor Display (UMD) which was installed next to the video program monitor in the audio cabin for displaying the name of the current physical On Air source as well as the status of the Audio-follow-Video automation. (Fig. 9)



*Fig. 9 – VSM UMD for program monitor*

## 7. TOC Support

The TOC manager was also equipped with a VSM Touch- and Hardware Panel. Additionally to the track views, the panel configuration allowed setting crosspoint- and parameter changes on the connected Lawo audio router and could be used for lineup and monitoring operations. For security purposes and as prevention against unauthorized operation, the routing panel was protected by an external RFID Tag Reader. Only the specific RFID Card of the TOC manager could unlock the panel. The correct routing of all transmission lines was indicated by a status indicator and could also be monitored via a visual link window which showed the input routing of the separate audio channels following the selected line. Generally all status information provided by the VSM system is displayed in real-time. For maximum safety, the status information is always based on the confirmation of the attached devices. (Fig. 10)



Fig. 10 – TOC Status Panel



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