

Solid State Logic

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C100 HDS

Digital Broadcast Console

V5.0/5 Software Update and Install Notes

Applicable to upgrades from V4.2/6 onwards

Packing List

Please check that the V5.0/0 Software Upgrade Kit (726750S5 – *redundant systems will require a kit for each processor*) contains the following items:

I	V5.0/5 Update Notes	82S6QC101AJ <i>(this document)</i>
I	C100 HDS Software Disk (DVD-ROM)	P996C100J <i>(or website download)</i>
I	Software Licence String <i>(redundant systems will require two licence strings)</i>	P996C120J

If any of the listed items are missing, please contact your local SSL representative before attempting the upgrade

This document contains essential information – please read it carefully before making any attempt to upgrade the system

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E&OE

INTRODUCTION

This document describes the new features, new options and bug fixes incorporated in the V5.0/5 software upgrade and details the hardware and software installation procedure required to update your system to this latest release of C100 HDS software.

Please note that this release is only applicable to those systems that have previously been installed with V4.2/6 or greater software and that have had the new 256 channel Blackrock DSP card installed.

Do not apply power to – or re-start – the Blackrock processor with the C100 HDS Software Disk in the processor's DVD drive; doing so will force a complete system re-install!

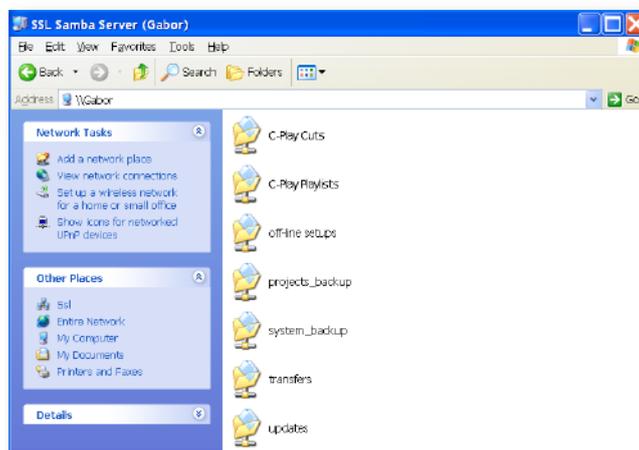
INSTALLATION PROCEDURE

Assumptions

The following points are assumed in these installation instructions:

- A1. This installation procedure details installation of new software and hardware on a running system, not a fresh installation.
- A2. During commissioning/installation of the C100 HDS system, at least one networked computer within the studio facility – ideally located in the same room as the console – will have been configured to communicate with the system. Access to one of these computers will be required to run the software installation process. This will be referred to in the following text as the '**networked computer**'.
- A3. The network IP Address that has been assigned to the C100 HDS system will be required. If you do not know either of these details, please contact your IT or Studio Maintenance Department.
- A4. The **networked computer** used for this installation should have an SSH client installed ('PuTTY', for example). This program will be used to communicate with the C100 HDS system – login as 'sbc' using 'server' as the password. If you are unsure how to run this program, or the default password has been changed, please contact your IT or Studio Maintenance Department. This computer must also be fitted with a DVD ROM drive.
- A5. Backing up of the current system and installation of the new software will require that the **networked computer** has access to the folders exported by the C100 HDS system. This can be achieved as follows:
 - a. Click on 'Run' in the Windows Start menu.
 - b. In the 'Run' box, type '\\<IP_Address> <CR>'

Where: '\\\' indicates that we wish to mount a file share,
'<IP_Address>' is the IP Address of the C100 HDS system,
'<CR>' indicates the 'Return' key on the computer keyboard.
 - c. At the resulting login prompt, enter the username ('sbc') and password (the default for this login being 'sbc123'). This will result in a view of the shared folders on the C100 HDS system, similar to that shown below:



Firmware Update

The minimum firmware requirements for CI00 software V5.0/5 are as follows:

T9960KF6	PCIE ROUTING & SPI 256CH
T989RPLF	MADI MEZZANINE (B-RIO) CONTROL V15.0 – (for 626989X2 and 626989X3)
T989PCU9	MADI MEZZANINE CONTROL UPPER V9.0 – (for 626989X4)

Please check the version of firmware running on the SSL PCI-E card and MADI Mezzanine cards using the `firm` command in `tclient` and, if required, update the firmware to current revision.

- The UID numbers reported by `firm` will be as follows for the new firmware:

T9960KF6	UID :- 922
T989RPLF	UID :- 1446
T989PCU9	UID :- 1447

If required, please contact your SSL representative for further instruction.

SOFTWARE INSTALLATION ON A SINGLE BLACKROCK SYSTEM

This installation procedure applies to single Blackrock systems only – the process for redundant systems is slightly different and so is detailed separately on page 5.

1. Check the contents of the Software Upgrade Kit against the packing list; if there are any omissions, please contact your local SSL office before proceeding further.

Archiving the System Disk

2. As with all software installations, we strongly advise you to generate a 'mirror' copy of the C100 HDS System Disk before proceeding. Open the SSH client on the **networked computer** and login to the C100 HDS system (ref. **Assumption A4.**). Once you are logged in (as user 'sbc'), type:

```
backup_system_disk <CR>
```

This will create a time and date stamped backup file in the 'system_backup' folder.

The backup process copies the entire C100 HDS System Disk and so will take a considerable time (about 5min) to complete. It is of course also recommended that any backups created are stored off-line elsewhere.

3. To ensure that sufficient space is still available to contain the upgrade, type:

```
df -h /home <CR>
```

Check that the percentage used is less than about 90%. If it is higher, consider removing any old backups from the 'system_backup' folder.

Installing the Support Software

4. Place the C100 HDS Software Disk in the DVD drive in the **networked computer** and open a window that displays the contents of the DVD – *do not place the software disk in the DVD drive on the Blackrock processor!*
5. Locate the 'updates' folder within the folders exported by the C100 HDS system (ref. **Assumption A5.**).
6. On the DVD, open the 'C100_V5_0_5 Updates' folder and drag the following three .rpm files from the DVD into the 'updates' folder:

- kernel *SBC kernel and associated modules*
- ssl_console_files *Blackrock system software and files*
- ssl_host_tools *SBC support files and applications*

7. Once the .rpm files have been copied, return to the SSH client and type:

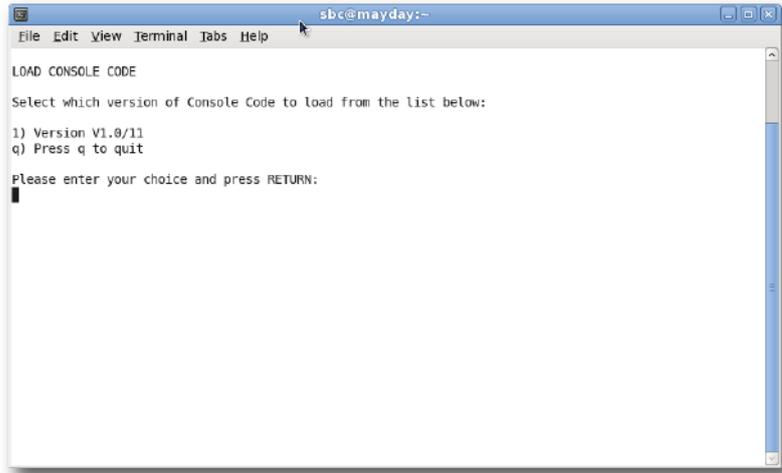
```
install_updates <CR>.
```

This will unwrap and install each of the .rpm archives. Follow the on-screen instructions to install them. Ignore any error messages printed to the terminal during this time.

Installing the CI00 HDS System Software

8. Once the files are installed the system code will need to be copied to the flash memory on the Blackrock processor's PCIe card. At the terminal prompt typing `load_console_code <CR>` will result in a list of software versions similar to that shown here.

Select the version of code you wish to install by entering the number next to the software version, eg. 1 <CR> in the illustration opposite. The system code will now be copied to the flash device on the PCIe card. A percentage indicator on the terminal will provide an indication as to how far through the process the system is. On completion a prompt will request a key on the keyboard be pressed to shutdown 'p' or reboot 'r' the Blackrock processor.



It is strongly recommended that at this point the Blackrock processor be shutdown and re-powered if at all possible!

Enabling the New System

9. When the system has fully booted, a pop-up will appear on screen inviting you to enter a Software Licence string and so enable the software.

You will not be able to use the console until the Software Licence has been accepted.

Open the Software Licence envelope containing your Licence string and type this carefully using the on-screen keyboard. Once the system has verified the validity of the Licence, a Software Licence Agreement will appear on-screen. Stab on the 'I Agree' box at the top of the pop-up to complete the licensing procedure.

Reboot the processor to ensure the licence is correctly read.

10. Remember to store the Software Licence string in a safe place along with the CI00 HDS Software Disk.

Once the update is complete and the console has rebooted, any Windows workgroup the Blackrock has been assigned to may need to be reassigned (updates performed by the SSL Host Tools package may erase various parts of the network integration settings) – you may need to contact your contact your IT or Studio Maintenance personnel to check this.

INSTALLATION ON A REDUNDANT BLACKROCK SYSTEM

Installation of software and support files on a redundant Blackrock system must be performed on one processor at a time with the other processor powered down. Do not attempt this process with both units running!

1. Check the contents of the Software Upgrade Kit against the packing list; if there are any omissions, please contact your local SSL office before proceeding further.

Archiving the System Disk

2. As with all software installations, we strongly advise you to generate a 'mirror' copy of the C100 HDS System Disk before proceeding. Open the SSH client on the **networked computer** and login to the C100 HDS system (ref. **Assumption A4.**). Once you are logged in (as user 'sbc'), type:

```
backup_system_disk <CR>
```

This will create a time and date stamped backup file in the 'system_backup' folder.

The backup process copies the entire C100 HDS System Disk and so will take a considerable time (~5min) to complete. It is of course also recommended that any backups created are stored off-line elsewhere. This must be done separately for both Blackrock processors – but this can be done on both processors simultaneously.

3. To ensure that sufficient space is still available to contain the upgrade, on each system type:

```
df -h /home <CR>
```

Check that the percentage used is less than about 90%. If it is higher, consider removing any old backups from the 'system_backup' folder.

Installing the Support Software

4. Ensure that the slave Blackrock processor has been powered down. Proceed through the following steps on the master processor first.
5. Place the C100 HDS Software Disk in the DVD drive in the **networked computer** and open a window that displays the contents of the DVD – *do not place the software disk in the DVD drive on the Blackrock processor!*
6. Locate the 'updates' folder within the folders exported by the C100 HDS system (ref. **Assumption A5.**).
7. On the DVD, open the 'C100_v5_0_5 Updates' folder and drag the following three .rpm files from the DVD into the 'updates' folder:

- kernel *SBC kernel and associated modules*
- ssl_console_files *Blackrock system software and files*
- ssl_host_tools *SBC support files and applications*

8. Once the .rpm files have been copied, return to the SSH client and type:

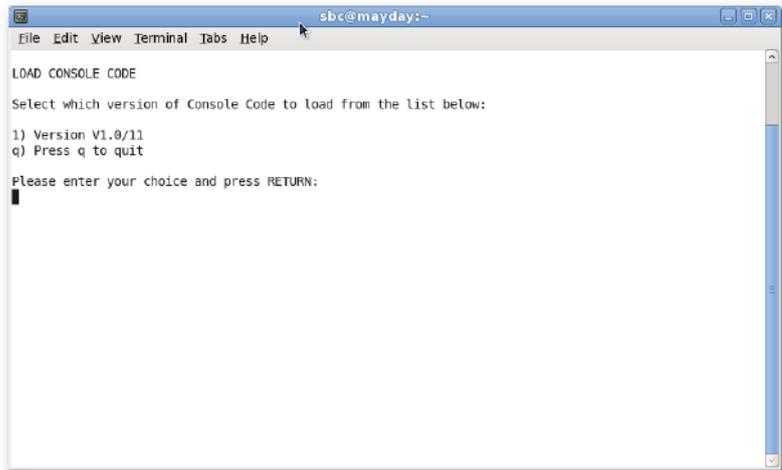
```
install_updates <CR>.
```

This will unwrap and install each of the .rpm archives. Follow the on-screen instructions to install them. Ignore any error messages printed to the terminal during this time.

Installing the CI00 HDS System Software

9. Once the files are installed the system code will need to be copied to the flash memory on the Blackrock processor's PCIe card. At the terminal prompt typing `load_console_code <CR>` will result in a list of software versions similar to that shown here.

Select the version of code you wish to install by entering the number next to the software version, eg. 1 <CR> in the illustration opposite. The system code will now be copied to the flash device on the PCIe card. A percentage indicator on the terminal will provide an indication as to how far through the process the system is. On completion a prompt will request a key on the keyboard be pressed to shutdown 'p' or reboot 'r' the Blackrock processor.



It is strongly recommended that at this point the Blackrock processor be shutdown and re-powered if at all possible!

Enabling the New System

10. When the system has fully booted, a pop-up will appear on screen inviting you to enter a Software Licence string and so enable the software.

You will not be able to use the console until the Software Licence has been accepted.

Open the Software Licence envelope containing your Licence strings. Each processor will have a different licence; match the 5 digit PAL id. given with the licence to the Blackrock network ID on the sticker on the front face of the Blackrock unit and type this in carefully using the on-screen keyboard. Once the system has verified the validity of the Licence, a Software Licence Agreement will appear on-screen. Stab on the 'I Agree' box at the top of the pop-up to complete the licensing procedure. Reboot the processor to ensure the licence is correctly read.

11. Power down the master Blackrock processor and power up the slave processor, such that only the slave processor is on and running. Repeat this process from Step 2. for the slave processor.
12. Once all updates have been performed, **re-boot both processors** together.
13. Remember to store the Software Licence strings in a safe place along with the CI00 HDS Software Disk.

Once the update is complete and the console has rebooted, any Windows workgroup the Blackrock has been assigned to may need to be reassigned (updates performed by the SSL Host Tools package may erase various parts of the network integration settings) – you may need to contact your contact your IT or Studio Maintenance personnel to check this.

SYSTEM CONFIGURATION

7.1 Monitoring

Support for 7.1 monitoring requires a new Speaker Positions file to be copied from the Config V15 directory into the Laws directory on the hard drive:

- In the **Spanner/File** menu select **Copy**.
- In the resultant pop-up, stab on the large box beneath **Source**, will present the contents of the System Disk at root level; if not, stab the box next to **System** on the left of the pop-up.
- Select the **Config V15** directory and then the **Speaker Positions** file. Press **OK**.
- Select the small box beneath **Destination**, and select the **Laws** directory from the resulting pop-up.
- Select **Current Dir** and you will be returned to the **Copy** pop-up.
- Press **Start Copy** at the foot of the **Copy** pop-up and once the copy process is complete, reboot.

Surface Screen Saver

It is now possible to set a front panel screen saver. If no user input is detected on the surface for the duration of the user defined screen saver period, the surface control panel displays, as well as the channel info/meter screens, are blanked. The centre touch screen remains active. Touching any control will deactivate the screen saver restoring the front panel displays.

By default the screen saver is disabled.

To enable the screen saver, set a time period using the following command in tclient:

```
OLEDSaver setb n <CR>           Where 'n' is the screen saver time period in minutes.
```

This setting is stored in a data file `$sys/oled_saver/oled_blank_mins`. Setting the time period to 0 (zero) – the default – disables the screen saver. A reboot is required for the change to become active.

Although this function is disabled by default, it is strongly recommended that the function be enabled on all systems; our recommended delay period being '30' for 30 minutes. If required, please contact your SSL representative for further instruction.

DUAL USER MODE

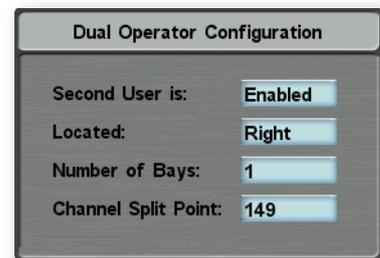
Overview

The new Dual User Mode software option allows independent control of the console surface by two operators, including independent layer switching and PFL monitoring. It provides independent User 2 layer switching for nominated bays on the control surface, together with PFL monitoring which can be split between the channels in the primary console bays and those in the second user (User 2) bays. All Dual User configurations are project based, so that at no time is the standard single user mode ever compromised.

Note that Dual User Mode is a cost option. Contact your SSL service representative for licensing information.

Dual User Setup

 Dual User Mode is configured and enabled via the **Dual Operator Configuration** window, opened by pressing the **Dual User Setup** key in the Tool Box's **Config** Menu.



To enable Dual User Mode, touch the **Second User is** text box so that it reads **Enabled**.

Touch the **Located** text box to define whether the Second User's bays are located on the **Left** or the **Right** of the main user, and define the **Number of Bays** User 2 is controlling.

Note that, from the console's point of view, the User 2 bays are always adjacent to each other, and are always located at either the left or right edge of the console. Note also, however, they they may in fact be physically located in another room!

Normally, at least one master tile should be fitted in one of the User 2 bays, for control of channel processing. However, it is possible to have user bays without a master tile, in order to support the use of a remote fader bay in a separate production area (such as the production gallery) but with no processing or menu control.

The way the channels are divided between the split PFL busses now needs to be defined. To do this, touch the **Channel Split Point** text box, enter User 2's first channel number using the keyboard which appears, and press **OK**. The PFL buttons on all channels from that number up will route to PFL bus 2, while all channels below that number will route to PFL bus 1.

Once a bay, or bays, have been nominated for User 2 access, and Second User mode is Enabled, the fader strips in the User 1 and User 2 bays automatically become isolated from each other.

Unlike standard user layers, the User 2 layers come ready to use and do not need to be created by the operator. If only one layer is required for User 2, Layer 1 simply needs channels assigned to it. If more than one layer is required, User 2 layer switching also needs to be configured, as the Centre Section **LAYER SELECT** keys only control User 1's SSL and User Layers.

Note that SSL layers remain under User 1's control and will increase in number to accommodate the full console channel count in the console bays controlled by User 1.

Assigning Channels to User 2 Layers

To assign channels and groups to the User 2 layers, select the **User** button in the **LAYER SELECT** panel, then select the User 2 layer on which you want to assign the channels. You can now use the normal Edit Layer procedure. The **EDIT LAYER** screen displays the Operator number in the title area (see right).

Note that the Edit Layer Move command provides an easy way to copy channels from the SSL layers to channels in either the User 1 or User 2 bays.

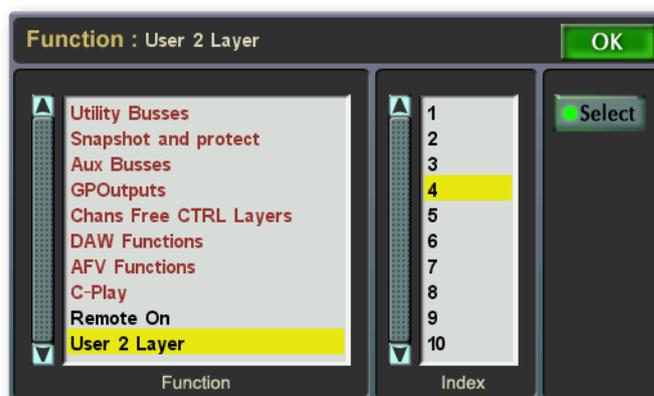


User 2 Layer Switching

There are 10 User layers available for the User 2 bays.

User 2 layer switching can be controlled via Centre Section Free Controls, Channel Free Controls, external switches wired to GPIO ports, or the Utility Tile on the console's meter bridge.

The layer switching function is displayed as "**User 2 Layer**" in the Channel and Centre Section **Function** displays, as well as in the **GPIO** display. User 2 layer Free Controls are labelled as **U2LX** (where **X** is the layer number).



*Note that the Utility Tile is configured via the **File** menu's **Edit** function; You should only attempt this if you are certain you understand the procedure involved. Please contact your SSL service representative for more details.*

Additional notes:

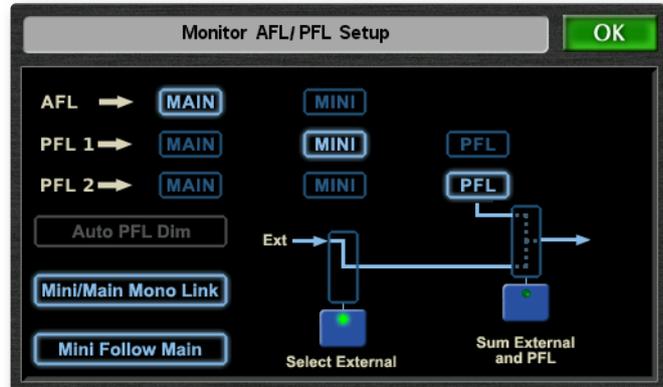
- As the control surface can be physically split, the second operator position can be located remotely from the main console if required. Standard network cables are used to link the remote section to main surface.
- Menu operations controlled via the keys at the base of the Master Channel operate as for single user mode. For example, Select All will still work across all channel strips on the surface regardless of their User assignment.
- When using the master menus, it is down to the operators to select the correct channels to avoid changing the status or format of channels belonging to another user. As with current operation, only one menu can be active at any one time. Simultaneous operator access to these menus is not supported.
- If a Master Channel Menu or function has been activated by one of the users, the other user cannot select menus via their Master Channel menu keys until the first user has cancelled the active menu or function. This interlock prevents a user from cancelling another user's operation before it has been completed.
- Anything in the **Edit Layer** function list can be assigned to User 2 layers. However, for Split PFL to work correctly, only channels above the split point defined in the **Dual Operator Configuration** pop up should be used.
- The **Aux to Fader** functions in the Aux configuration panels only affect channels assigned to User 1.
- Softkeys used for switching between User 2 layers can be named in the normal way using the **Misc** menu's **Free Name** display.

Split PFL

Enabling Second User Mode in the **Dual Operator Configuration** pop up reconfigures the Console PFL system to provide two independent mono PFL monitor feeds; PFL 1 is used by all the channels allocated to User 1, and PFL 2 carries the PFL signals from the channels assigned to User 2.

The **Monitor AFL/PFL Setup** page is used to route the PFL signals to the required monitor outputs. When Second User mode is enabled, the Monitor setup page shows both PFL 1 and PFL 2 signals. These can then be assigned in mono to any of the three existing monitor outputs, allowing the second operator the ability to monitor stereo program on headphones, interrupted by the PFL2 signal.

The PFL signals are routed to both the left and right outputs of the assigned monitor feed.



In the case of the **MAIN** and **MINI** outputs, if both PFL feeds are assigned to the same output, the mono sum of the two feeds is routed to both outputs when either or both PFL buses are active.

If only one PFL signal is assigned to the PFL output, it is routed to both PFL outputs in mono. However, the PFL monitor output can receive both PFL signals, in which case PFL 1 is routed to the left PFL Monitor output and PFL 2 to the right PFL Monitor output.

The external PFL input functions as for single user mode. **Auto PFL Dim** is not available in Dual User mode and should normally be disabled when the mode is selected.

The **SOLO Clear** function remains a global function regardless of Dual User mode status.

The level of PFL 1 is controlled using the existing front panel **MISC LEVELS** control in the normal way.

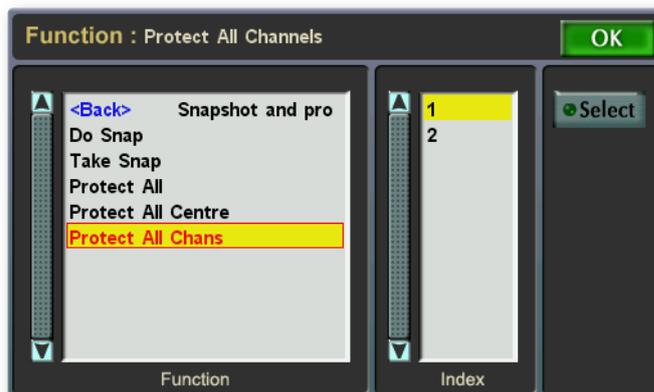
PFL 2 is controlled via the rotary encoder and value box in the **PFL Settings** display, which displays gain in dB. Touching the on screen knob assigns the Master encoder to control the **PFL 2 Level** function.



Snapshot Protects

In Dual User mode, the **Protect All Chans** and **Protect All** functions in the **Function** display's **Snapshot and protects** folder are specific to each user.

When assigning the function to a softkey, select the **Protect All Chans** or **Protect All** functions in the normal way, followed by User **1** or **2** in the right-hand column, before touching the **Select** button.



*Note: for User 2, **Protect All Chans** and **Protect All** have the same function. For User 1, **Protect All** protects the centre functions as well as the User 1 channels.*

Dual User Projects

The Dual User configuration is project based. The Project saves the number of bays allocated to User 2, their physical position, and the PFL channel split point. This additional data is included in the existing **User Layer** Project Element.

Loading Dual User configured projects onto consoles with less bays than the console that the project was created on, will retain User 2's bays at the expense of the User 1's bays, provided there is at least one more bay on the console than is assigned to User 2.

Control Surface Redundancy

Bays assigned to User 2 are excluded from surface redundancy. This prevents the User 2's bays being overwritten if a fault situation occurs on one of the bays in use by the primary user and the bay is made inactive.

MOMENTARY PFL

There is a new **Momentary PFL** option in the **PFL Settings** display (opened by pressing the Touchscreen **Misc** button, followed by **Config PFL** from the display which appears).

When **Momentary PFL** is active, PFL buttons become non-latching. (In other words, PFL is active only while the button is held down.)

Momentary PFL can also be assigned to a Soft Key, either using the normal Free Assign system or via the GPI Free List.

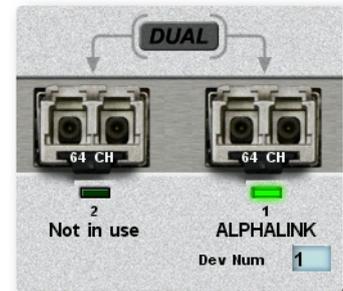


CORE REDUNDANCY

Note that this element of V5 software requires an SSL engineer to complete a firmware update on-site. Please speak to your SSL service representative for more information.

AlphaLink and Morse Stage Box connections can now be configured for Core redundancy without having to reserve additional I/O Ports for Loop redundancy. Simply connect each core to one of the two MAD1 ports on the AlphaLink or Morse Stage Box (using the same port number on each core), then open the **IO Links** page in the **Spanner/Route** menu and ensure that neither **DUAL** nor **LOOP** are active for that Link (the label over the link's MAD1 IO symbol should display **DUAL** greyed out).

In the event of a Core changeover, the inactive Core's MAD1 output will be disabled, allowing the AlphaLink to detect the changeover and switch to its other input.



Third party I/O hardware with redundant ports may be able to support Core redundancy changeover. Please contact your SSL service representative to determine compatibility.

7.1 SURROUND FORMAT

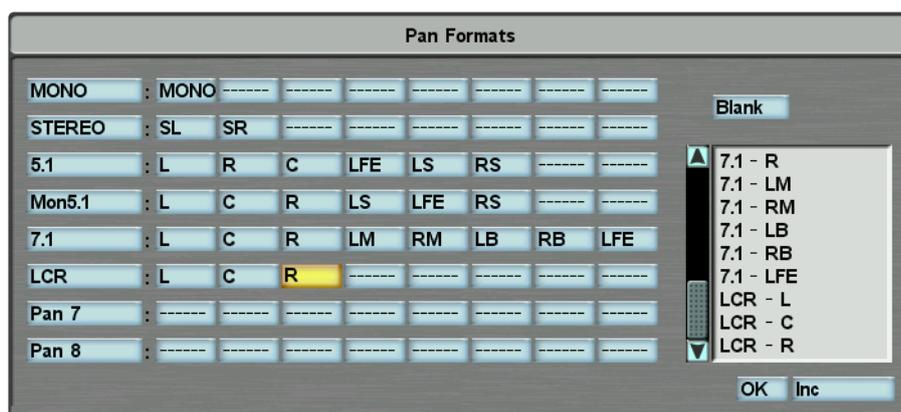
Feature Overview

V5 adds support for the 7.1 Multichannel Surround format, incorporating both side and rear surround speakers, as well as LCR for post production use. These new formats can be applied to Input channels, ASGs and Utility Busses via the **Channel Settings** menu. 8-Channel monitoring utilises the main and mini outputs simultaneously, with the link option enabled so that Monitor Level, Cut and Dim are controlled from the existing front panel hardware controls. Two dedicated 7.1 Monitor inputs are available which can be expanded using the External source selectors with the option of summing three 7.1 returns.

In conjunction with the DAW control option, C100 V5 offers powerful multichannel stem mixing and monitoring features to compliment a workstation-based postproduction workflow. In a studio production environment, programmes can be compiled with native support for the additional channels in the Dolby® Digital Plus codec as well as simultaneously delivering standard Dolby® Digital mixes.

Initial Configuration

In order for the new format to appear in the **Channel Settings** menu, it first must be configured in the **Pan Formats** pop up, accessed via the **Spanner/Config** menu:



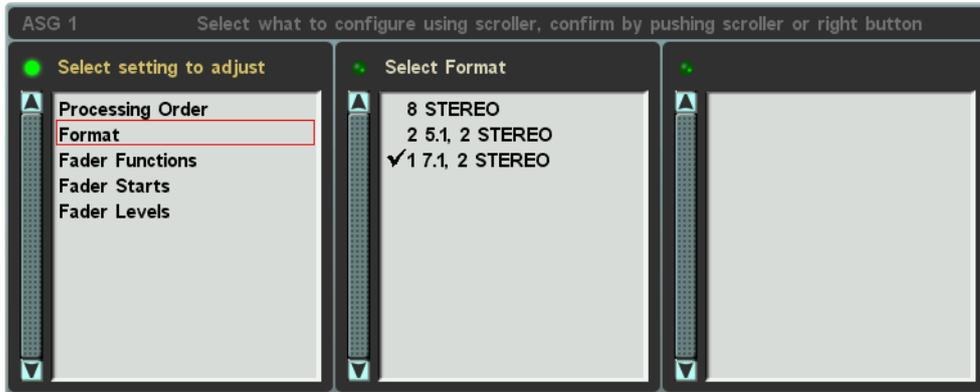
Formats 1 to 4 are system entered and cannot be edited, whereas Formats 5 to 8 are available for user formats. To create a 7.1 or LCR format, select the appropriate components in the display using the 7.1 or LCR entries in the scrollable list to the right. The speaker order is not fixed and can be what ever the user requires.

Note that once channels and busses have been formatted, this page should not be edited, or extremely bizarre pan routing will occur.

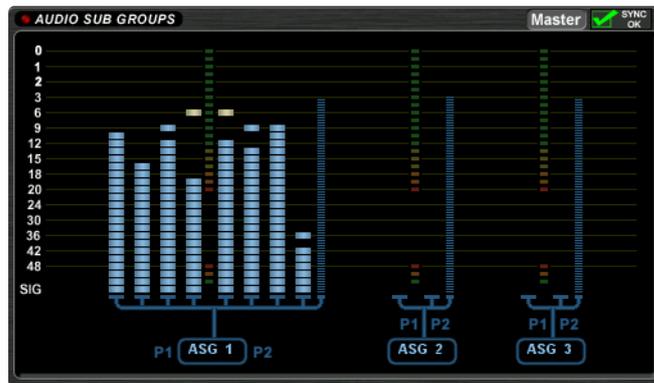
*Full details of the **Pan Formats** display can be found in Section 6 of the main operator's manual.*

Bus Configuration

7.1 ASGs are set up in the **Channel Settings** menu, not from the touch screen. Once an ASG has been 'attended', the **Format** entry contains a new configuration that delivers a single 7.1 mix bus with two additional stereo busses.

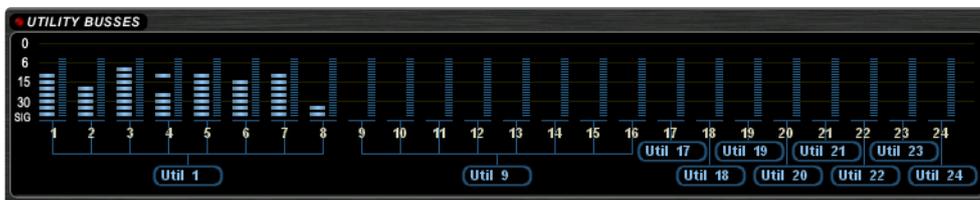


With the 7.1 option active, the ASG outputs are as shown below:



If additional 7.1 busses are required, Utility busses can also be formatted as 7.1 via the **Channel Settings** menu.

*Note that this requires the Utility bus faders to be in a User Layer, in order to access the **Channel Settings** menu with the attention keys.*

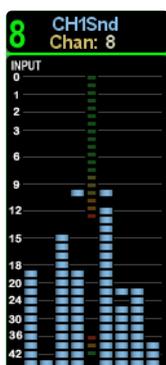
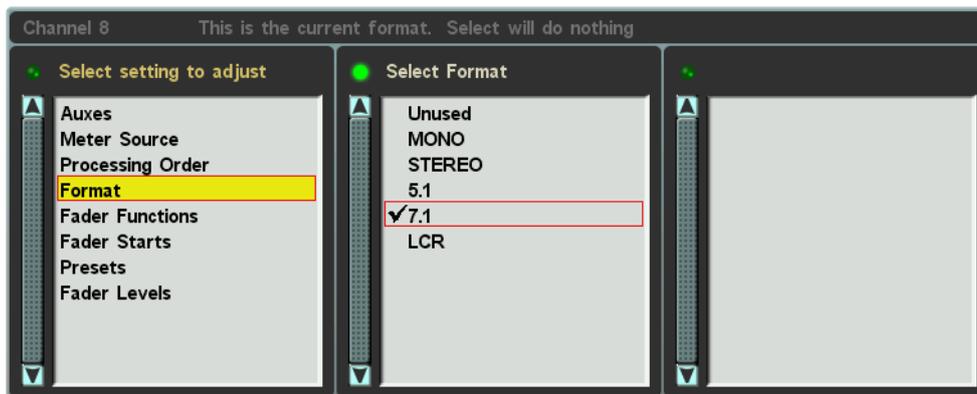


Channel Panning in 7.1

Channels routed to 7.1 busses will have full 7.1 panning via the existing pan controls and Touch Pan option. As a channel is panned from the front to rear, it passes through the side speakers at 50R/50F reaching the rear speakers at R100/0F. 5.1 Channels routed to a 7.1 bus map correctly with the rear signals assigned to the rear busses of the 7.1 sound field. The pan Depth control can then be used to distribute the rear signals to the side speakers.

Channel Configuration

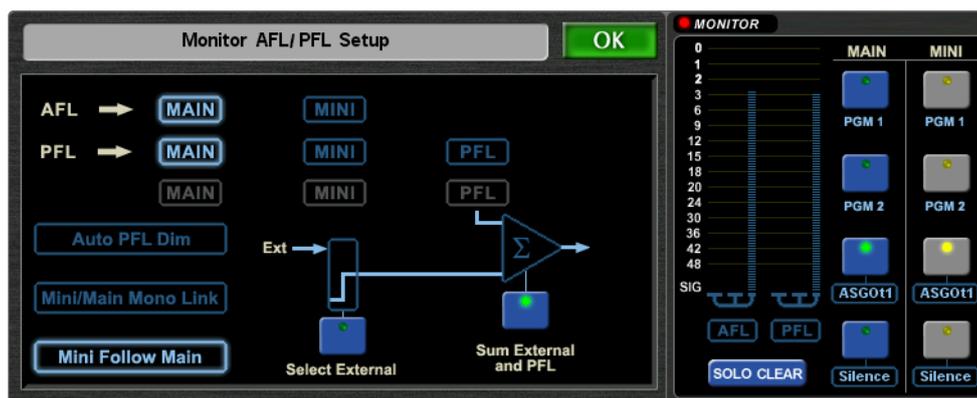
The 7.1 and LCR formats can also be used for channels, using the **Channel Settings** menu.



7.1 channels have similar functions to 5.1 channels and can be spilled onto 8 mono channels strips. Channel metering displays all 8 inputs.

8 Channel Monitoring

8-Channel monitoring utilises the Main and Mini outputs simultaneously. Enabling the **Mini Follow Main** option in the **Monitor AFL/PFL Setup** pop up allows level, cut and dim control of both Monitor outputs from the **MONITOR** panel simultaneously.



Using the console's standard routing procedures, the L R C LFE LB and RB signals from a 7.1 bus output need to be routed to **MAIN** External monitor input 3 or 4, and the LM and RM signals to the corresponding **MINI** External monitor input. Selecting the corresponding input on both monitor outputs activates full 7.1 monitoring.

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