

# Solid State Logic

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## C100 HDS

Digital Broadcast Console

### V2.0/7 Software Update and Install Notes

*Applicable to upgrades from V1.1/15 onwards*

#### **Packing List**

Please check that the V2.0/7 Software Upgrade Kit (706C100LM) contains the following items:

I	V2.0/7 Update Notes	(this document)
I	C100 HDS Software Disk (DVD-ROM)	P986C100M
I	Sealed Software Licence envelope (containing your Software Licence string)	P986C120M

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

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

# Solid State Logic

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Initial Release (0L): December 2009

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to change the features and specifications described herein without notice or obligation

E&OE

## Introduction

This document describes the fixes incorporated in V2.0/7 software, and details the 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 V1.1/15 or greater software. If you have any questions about this release, please contact your local SSL office or distributor.

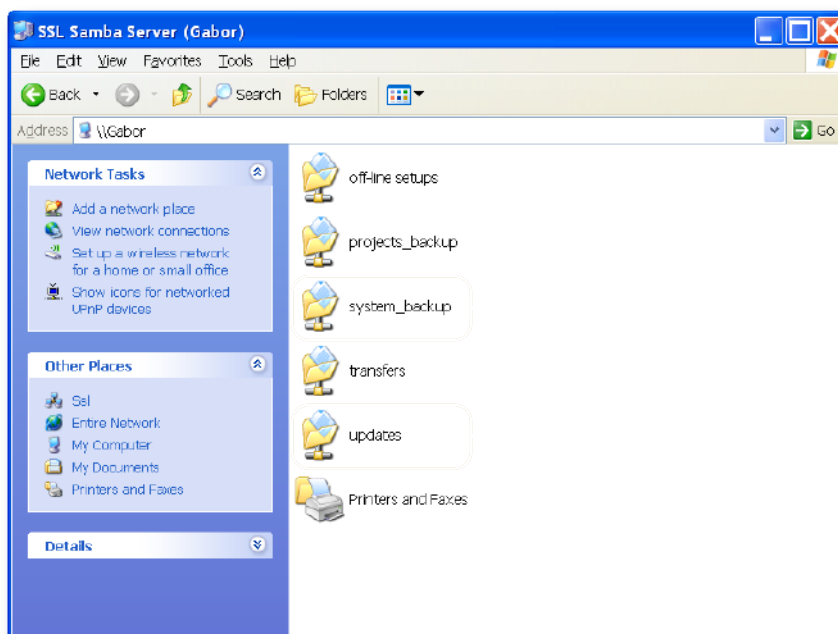
*Do not apply power to – or re-start – the Blackrock processor with the C100 HDS Software Disk in the processor's DVD drive; doing so will force a complete system re-install!*

## Assumptions

The following points are assumed in these installation instructions:

- A1. This installation procedure details installation of new software 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:



### Software Installation on a Single Blackrock System

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*This installation procedure applies to single Blackrock systems only – the process for redundant systems is slightly different and so is detailed separately on page 4.*

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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 CI00 HDS System Disk before proceeding. Open the SSH client on the **networked computer** and login to the CI00 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.

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*The backup process copies the entire CI00 HDS System Disk and so will take a considerable time (≈15min) 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 CI00 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 CI00 HDS system (ref. **Assumption A5.**).
6. On the DVD, open the ‘CI00\_V2\_0\_7 Updates’ folder and drag the following three .rpm files from the CD 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:

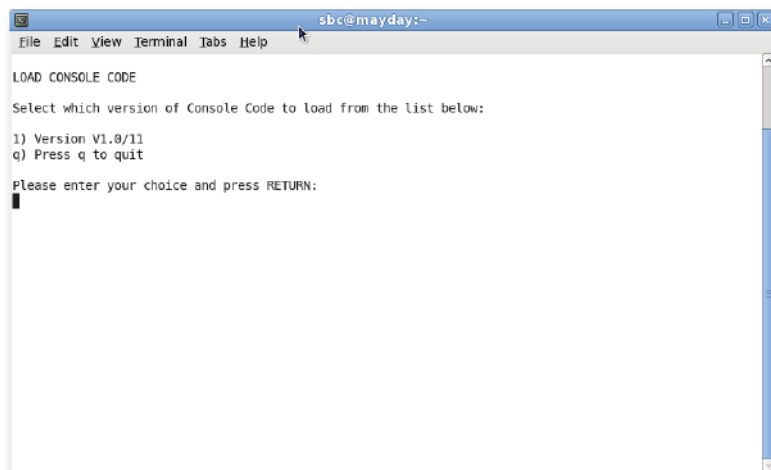
```
install_updates <CR>.
```

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 C100 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 recommended that at this point the Blackrock processor be shutdown and re-powered if possible.

A screenshot of a terminal window titled 'sbc@mayday:~'. The terminal displays the following text:

```
LOAD CONSOLE CODE
Select which version of Console Code to load from the list below:
1) Version V1.0/11
q) Press q to quit
Please enter your choice and press RETURN:
█
```

## 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.

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

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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.

11. Remember to store the Software Licence string in a safe place along with the C100 HDS Software Disk.

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*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.*

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## Software Installation on a Redundant Blackrock System

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*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!*

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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 CI00 HDS System Disk before proceeding. Open the SSH client on the **networked computer** and login to the CI00 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 CI00 HDS System Disk and so will take a considerable time (≈15min) 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 CI00 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 CI00 HDS system (ref. **Assumption A5.**).
7. On the DVD, open the 'CI00\_V2\_0\_7 Updates' folder and drag the following three .rpm files from the CD 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>.
```

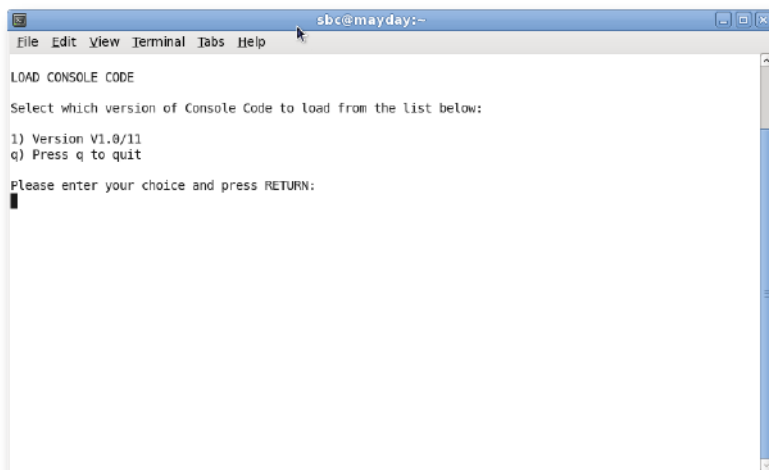
This will unwrap and install each of the .rpm archives. Follow the on-screen instructions to install them. Ignore any error messages printed to the terminal during this time.

---

## Installing the CI00 HDS System Software

10. 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 recommended that at this point the Blackrock processor be shutdown and re-powered if possible.



## Enabling the New System

11. 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.

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*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.

12. 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.
13. Once all updates have been performed, re-boot both processors together.
14. Remember to store the Software Licence strings in a safe place along with the CI00 HDS Software Disk.

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*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.*

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## **New Features**

### **Blacklight (Bulk I/O card)**

Following customer demand for more I/O channels, greater I/O flexibility and more robust RIO redundancy C100 HDS V2 introduces the new Blacklight I/O pipe, a powerful optical audio interconnect that carries four times the capacity of standard MAD1 and is designed for secure, fail-safe operation over huge distances.

Each Blacklight mezzanine card holds four Blacklight I/O transceivers providing two permanently configured redundant 256 channel optical I/O channels on four duplex LC connectors. Each Blackrock core can now contain up to two Blacklight mezzanine cards, two standard 64ch. MAD1 I/O cards or a combination of the two.

Introduction of the new Blacklight I/O mezzanine card provides the following functionality:

- 256 input channels with full processing from a single, upgraded Blackrock DSP card
- 256ch I/O bandwidth with control and status data between Blackrock and B-RIO, over a single duplex fibre pair
- An automatic 'split point' for the division of the maximum Blackrock 'I/O slot' limit of 512 bidirectional channels between the upper and lower mezzanine cards
- An automatic 'split point' dividing the I/O slot allocation between the redundant ports on a Blacklight I/O card according to the I/O cards fitted in each B-RIO

Additionally the V2 Software is compatible with the original C100 HDS 128ch DSP cards, providing various bug fixes and offering a cost option retrofit for Blacklight I/O cards. A further DSP upgrade is also available as a cost option to allow access to greater than 128 audio channels.

### **256 Input Channels from a Single Blackrock DSP card**

All new C100 HDS consoles shipping from early 2010 will be fitted with the upgraded 256ch DSP card as standard and only a licence will be required to access the higher channel counts. Full processing is available on all 256chs though Audio delays remain the same: 64 modules shared between all input channels and ASG buses, each with 5.4s duration.

### **256 Channels of I/O Bandwidth between Blackrock and B-RIO**

In the current implementation if redundant fibre connections and redundant Blackrock processors are specified the four RIO MAD1 ports will all carry the same data (two sets to and from each Blackrock) thus reducing the maximum I/O count to 62chs per RIO. However, with the new Blacklight mezzanine cards fitted in both the Blackrocks and B-RIO the four links will provide 256chs audio I/O with control and status and full fibre redundancy, so that each Blackrock can have 256ch main and one 256ch backup I/O link, regardless of the I/O cards fitted in the B-RIO.

### **Automatic I/O Split Point between Mezzanines**

The console detects the I/O cards fitted in the B-RIO(s) and allocates enough I/O slots to each mezzanine card, starting with the lower card and finishing with the upper one.

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*This applies to B-RIO and MORSE Stageboxes only and not for any other MAD1 units.*

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### **Automatic I/O Split Point within Mezzanines**

The console detects the I/O cards fitted in the B-RIO(s) and automatically divides the I/O slots allocated to a Blacklight mezzanine card between the two redundant ports according to the physical I/O cards fitted in the attached B-RIO(s).

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*This only applies to B-RIO and MORSE Stageboxes. For all other ports the console will assign I/O slots consecutively to the remaining MAD1 ports until all available slots are used or all MAD1 ports have been completely included.*

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### Support for several combinations of MADI and Blacklight I/O cards

Standard 64 channel MADI cards and Blacklight I/O cards can be fitted in the Blackrock core in several combinations. For example:

<b>Upper Mezzanine</b>	(spare)	MADI	(spare)	MADI	Blacklight	Blacklight *
<b>Lower Mezzanine</b>	MADI	MADI	Blacklight	Blacklight	Blacklight	MADI *

\* This variant is not possible due some technical limitations.

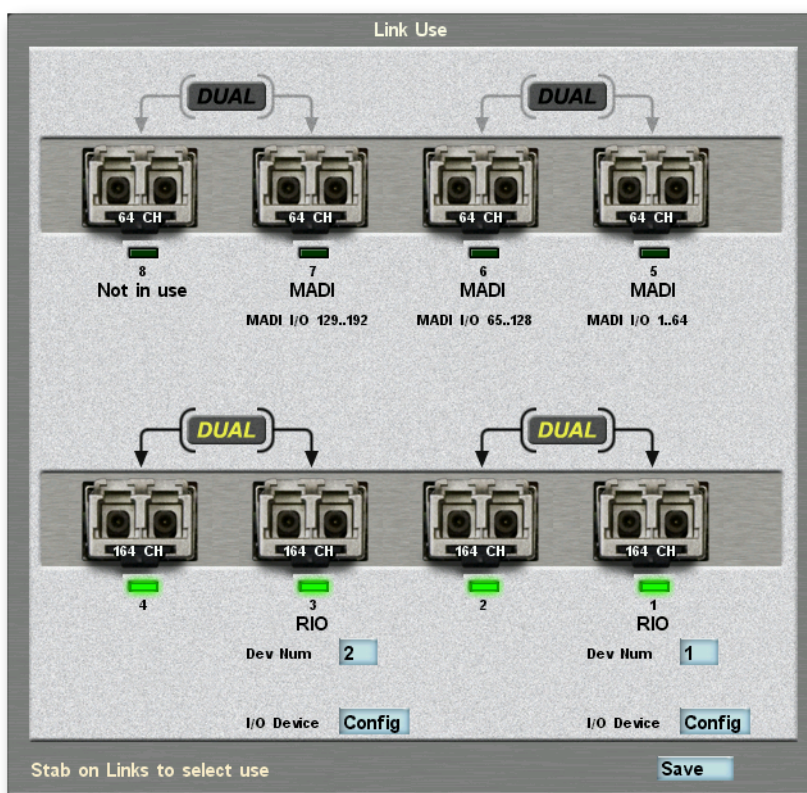
### Link Setup Page

The Link Setup Page has been updated to reflect the new 256ch I/O count and will now display how many channels are fitted in the B-RIO. In the adjacent picture, links 1 through 4 are Blacklight I/O ports whilst ports 5 through 8 are MADI ports.

The RIO unit attached to the Blacklight I/O ports contains 2 x 64ch DIO cards, 1 x 24ch Analogue I/O card and 1 x 12ch. Mic I/P card, hence the 164 channel count.

### Long Press on Changeover

The Core Swap switch has now been linked to the 'Press & Hold Delay' facility in the **Front Panel, Settings** menu. This security feature has been introduced to ensure that a momentary and unintentional press of the Core Swap switch will not initiate a core changeover. The delay can be set between 0.1s and 3.0s so that the switch must be held down for a pre-determined time before changeover takes place.



### System Master GPO function added

To the GPIO.lst file can be added, the option, to trigger a relay when the slave system is active. This can be used to provide an indication as to which blackrock processor is active. When the Master system is active, any button the GPO is assigned to, will be lit. If the Slave system is active the button the GPO is assigned to will not be lit.

Add the following line of text to the **Functions List/GPIO.lst file** found in the Root directory on the hard drive:

```
System Master,0,0,0,System Master,System Master
```

Reboot, and check for correct operation. If unsure of how to perform the above procedure please contact your local SSL distributor or the SSL Service Department.

### Bug Fixes

The following is a list of the major bugs fixed or resolved in this release:

- PGM bus OLED meters above the faders are now pre-processing
- File synchronization and project integrity have been made more robust
- The HDS logo now appears on boot
- Occasional surface freeze has been fixed
- Morse routing is correctly retained when switching between main and redundant processors
- The mic gain – on a MORSE stagebox connected directly to the processor – displays it's value correctly
- The channel gate no longer fully attenuates when the gate is switched in
- GPIO naming on systems with 2 RIOs now displays correctly
- Morse static output routes are no longer overwritten when switching between main and redundant processors
- The swap function now includes the channel input in the swap. Previously a copy was actioned
- When pressing attention keys to select ASGs or Auxes in the routing menu the attention keys now light
- The processor will now boot correctly if the the ethernet connection to the DAW is not present
- The change over switch now requires a press and hold to action changeover
- In the event of a main processor crash the changeover to the redundant system is actioned faster
- In the event of a dormant processor crash the changeover button on a console surface does not remain lit
- Fader starts on stereo channels are now saved in Control Linking
- Now responds to Morse router restart messages and re-sends mic gain, pad etc
- Added support for Morse router card changeover when ethernet to the active Morse controller card fails
- Clear warning about Morse router being offline from the status bar when its comes back online
- UOP TFT source names now correct respect whether Main or Alt input route is active
- Project Write Protect menu is now always visible when entering the Status Page
- Channel delays no longer introduce delay when dialled in but switched out
- Changeover switch now more reliable
- Routes which go over the 512 total IO slot limit are now permanently greyed out
- A potential system hang no longer possible when locking a channel to the surface

## Software Licence Agreement

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