Solid State Logic

S O U N D || V I S I O N

C10
HD
Digital Broadcast Console

V5.0/5 Software Update and Install Notes

Applicable to upgrades from V3.2/7 onwards

Packing List

Please ensure that you have the following items before attempting any part of the upgrade:

1	V5.0/5 Update Notes	82S6QC010P
		(this document)
1 *(or 2)*	Software Licence String	P996C012P
	(redundant systems will require two licence strings)	

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

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Please download the software disk image from the SSL website: www.solidstatelogic.com

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

Solid State Logic

S O U N D || V I S I O N

Document History
June 2014   Initial release

As research and development is a continual process, Solid State Logic reserves the right
to change the features and specifications described herein without notice or obligation

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 C10 HD software.

This release is only applicable to those systems that have previously been installed with V3.2/7 or greater software. If you require information regarding the previous 'cost' options now available in V5 please contact your local SSL office.

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 C10 HD 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 C10 HD 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 C10 HD 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.

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 C10 HD 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 C10 HD 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 C10 HD system, similar to that shown below:

System backups appear in here

Support software is placed in here
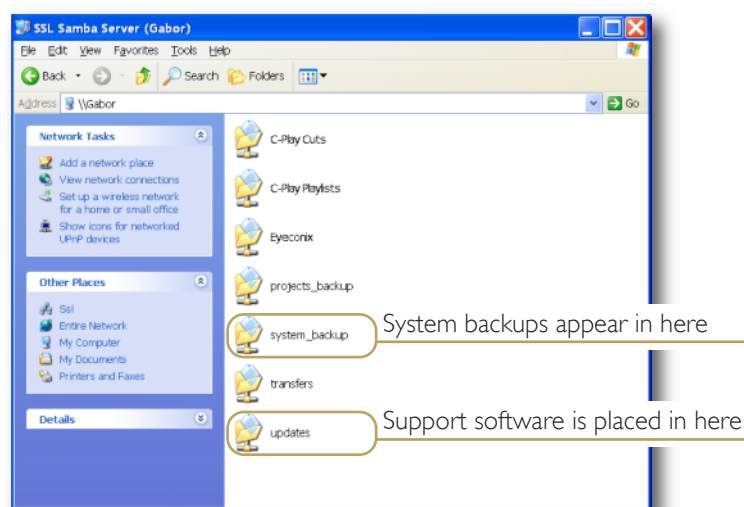
Firmware Update

The minimum firmware requirements for C10 HD 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 Core MADI Redundancy is required then a firmware upgrade is needed. Please contact your SSL representative for further instruction.

SSL Service Personnel Only: If configuring a system with Core MADI Redundancy please refer to FSB 932 and FSB 933.

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. Ensure that you have all of the items shown in the Check List at the begining of this document; if you are unsure about any item, 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 C10 HD System Disk before proceeding. Open the SSH client on the **networked computer** and login to the C10 HD 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 C10 HD 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. Connect the USB memory device containing the V5.0/5 Software Disk image to the **networked computer** and open a window to display the contents of the USB device.

5. Locate the 'updates' folder within the folders exported by the C10 HD system (ref. **Assumption A5.**).

6. On the USB device, open the 'C10_V5_0_5_Updates' folder and drag the following three `.rpm` files from the USB device 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*

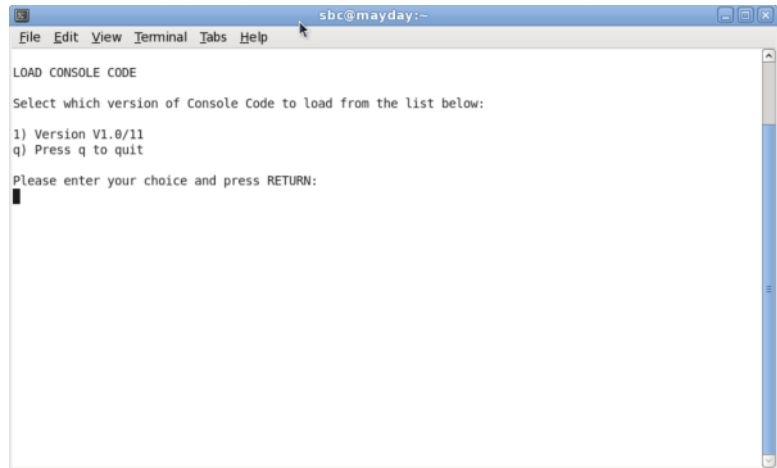7. Once the `.rpm` files have been copied, return to the SSH client and type:

   `install_updates <CR>.`   This will unwrap and install each of the `.rpm` archives. Follow the on-screen instructions to install them.

Installing the C10 HD 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.

```
                                    sbc@mayday:~
 File  Edit  View  Terminal  Tabs  Help

 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:
```

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 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 C10 HD Software.

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. Ensure that you have all of the items shown in the Check List at the begining of this document; if you are unsure about any item, 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 C10 HD System Disk before proceeding. Open the SSH client on the **networked computer** and login to the C10 HD 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 C10 HD 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. 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. Connect the USB memory device containing the V5.0/5 Software Disk image to the networked computer and open a window to display the contents of the USB device.

5. Locate the 'updates' folder within the folders exported by the C10 HD system (ref. **Assumption A5.**).

6. On the USB device, open the 'C10_V5_0_5_Updates' folder and drag the following three .rpm files from the USB device 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*

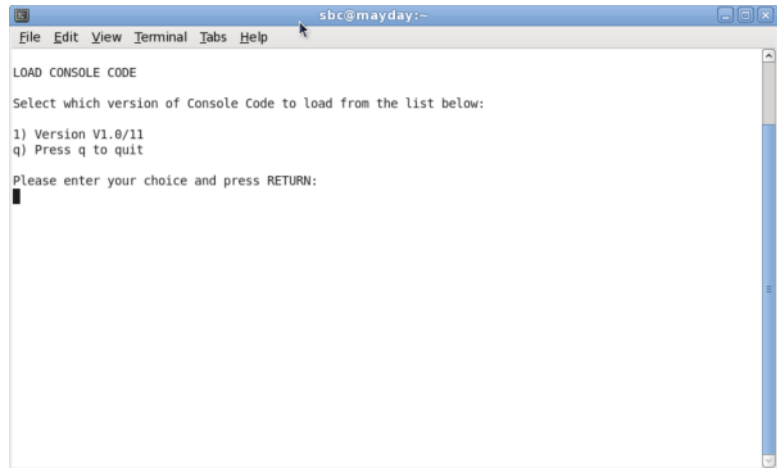7. Once the .rpm files have been copied, return to the SSH client and type:

   `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 C10 HD 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 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. 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 C10 HD Software.

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.

New Features

Layer/Bank Option

The 10 freely configurable user layers for the console fader strips can now be configured as 5 fixed layers each containing 2 banks of channel fader strips and a single set of eight master fader strips. The channel fader strips can be assigned to channels or other relevant console signal paths and the banks can be toggled globally via two centre section softkeys or individually via channel strip softkeys.

A new menu in the Tool Box/Config Menu will enable the AB Banking Mode.

When active, the existing 10 User layers become 5 fixed Layers, with each layer having access to two channel fader banks, A and B. The A Bank is the default bank, with the B bank accessible via channel and master A B bank select softkeys.

With the Layer/Bank mode enabled, on channel strips containing bank switching softkeys, the labels below the Eyeconix/Mini Graphs are blue when the channel strip is controlling Bank A channels and green when a Bank B channel is selected.

  or
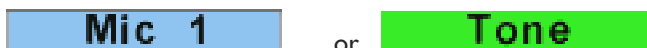
The Master Bank A and B Free keys only affect fader strips programmed with a local bank switching softkey so that channel strips can be easily isolated from the global bank switching softkeys when **banking is not required** on specific strips. The 8 faders below the centre section do not have A and B banks and have fixed console path assignments regardless of the current channel bank selection.

When changing layers the fader strip A B banking state is retained and recalled whenever the layer is reselected.

As with the standard layering mode, Spill populates channel strips with the channels assigned to the selected 5.1 channel, stereo channel, or Master Fader. On spilled channels the Eyeconix labels will be grey. Turning off Spill restores the last active state of the channel strip bank assignments.

As the layers are fixed, the Edit Layer feature is inhibited when Banking is enabled.

PFL and Level control of the channel path in the B Bank can be assigned to softkeys on the A Bank channel path and visa-versa.

Both Bank A and Bank B access softkey functions are provided for use with the channel strips. As the Bank B key cycles the A/B bank state, the Bank A function need only be used if additional front panel indication is required that the A bank is selected.

The AB Banking Mode is project based, so projects can be configured to use AB Banking or Multiple User layers as required.

Additional technical detail can be found in the AB Banking configuration notes.

N-1 Setup Menu

The new N-1 set up menu located in the ToolBox/Config options provides two modes for the onscreen indication of N-1 bus routing, the default **Display N-1 Bus OFF State** which highlights when a channel is not routed to the N-1 bus using a 'strikethrough' symbol similar the Mix Minus bus display.

Alternatively **Display N-1 Bus ON State** uses the standard bus routing display to show the channels N-1 routed state.

Choice of indication is down to N-1 bus use; when configured for use as a conference mix or as on off air record bus, then the ON state makes it easier to see what channels are routed to the N-1 bus. For a conventional N-1 channel return, the OFF state mode makes it easier to identify channels not contributing the N-1 reference mix.

AB Banking Mode configuration

Note: the AB banking mode must be disabled for configuration options that requires use of the Edit Layer tools and the actual physical layer select keys must be used. See the table below for how the User Layer keys map to the AB Layer Banks.

Mode	Layers/Bank Mapping									
User	1	2	3	4	5	6	7	8	9	10
AB Banking	1A	2A	3A	4A	5A	1B	2B	3B	4B	5B

The steps involved in setting up a banked console configuration are as follows:

Decide how many layers are required and assign the relevant Layer select functions to centre section softkeys. On a temporary basis assign additional softkeys to select the layers corresponding to the B banks for the primary A bank layers.

Assign the console channels, bus masters etc to the relevant channel fader strips using the Edit layer controls and user layer select keys as required. B bank fader strips can be populated as required, with fader strips remaining unassigned (Blank) if a B bank is not required on a specific strip or strips. As with the user layers, channels, busses masters etc. can be duplicated in layers and banks as required.

The centre section faders are not banked and need only be configured in the user layers mapped to the A banks. Avoid assigning any channels, which are already assigned to banked channel strips, to centre section faders as the Bank switching function will not work if the user attempts to use the Master Fader softkey.

Set up channel formats and input routing.

At this point the AB banking mode can be enabled from the Toolbox/Config menu and the softkeys for the User layers corresponding to the B Banks can be cleared and used for other user functions. However it may be easier to wait until the channel strip softkeys have been set up as detailed in the next section.

The next stage is to set up Channel Banking softkeys on all channel strips that have channels assigned to the B Bank. This needs to be done twice; on the A bank channel strips of the current Layer and again with the B Bank channels enabled. Two options are available; assign just the Bank B select function to a single channel strip softkey, or assign both the Bank A and Bank B functions to two softkeys. The latter is only required if separate A and B bank tallies are required. The functions are named ABNK and BBNK and are located in the Channel Extras folder in the Channel FREE Function list. Once the softkey has been set up on the first channel, the handy COPY Free Key function can be used to copy the softkey to the other console channel strips.

> *Note that if the Auto Format mode is set to 'Reformat to match source', the banking sotfkey will need to be reassigned to the channel strip when a source is routed to channel that has a different format to that of the current source.*

Finish the configuration process by loading eyeconix images and presets, using the layer select and channel banking functions to access the required channels.

The global bank select softkey functions will be found in the main centre section Function list and are called ALL A and ALL B.

It is probably a good idea to save the set up in a Project at this point.

Banking softkey setup

It may be necessary to edit the max range value for the Channel Banking softkey functions to match the number of fader strips on the console. The file to edit is **AB Banking.lst**, which can be found in the ToolBox/File/Edit/Function Lists/chan wild folder.

```
{Channel Banking}   Must equal the number of control surface channel strips
Chan A Bank, 1, 32, 0, ABNK, Channel A Bank
Chan B Bank, 1, 32, 0, ABNK, Channel B Bank
```

Function Key Macros

It is now possible to action multiple console commands simultaneously, using the new Macro facility. This allows for the configuration of commonly required functions such as talkback groups, multichannel input flip and routing groups.

Macros are created, activated and edited in the console's system files, as described in the appendix to these update notes.

> *Important Note: Please do not attempt to edit these files unless you are absolutely confident that you know what you are doing. Incorrect edits may result in a console which will not boot. Please contact your SSL service representative for assistance, if required.*

There are four ways in which a macro can be triggered: Channel softkeys, Centre Section softkeys, Fader 'Functions' and GPIs.

For triggering macros using Centre Section or Channel Softkeys, open the relevant **Functions** display and locate the **Free Key Macros** folder which is now located there. Softkeys can then be assigned using the standard Free Assign procedures.

> *See the main manual for descriptions of these procedures.*

Macros which have been configured for use with fader starts will appear in the **Fader Functions** list, accessed via the **Channel Settings** display:
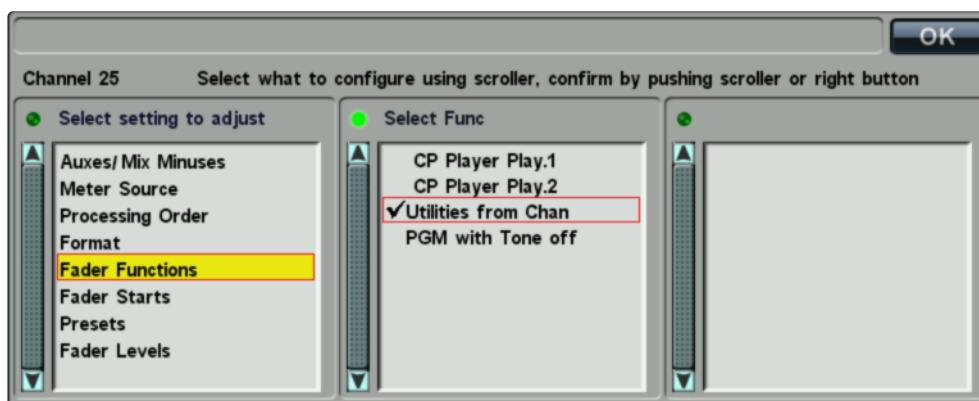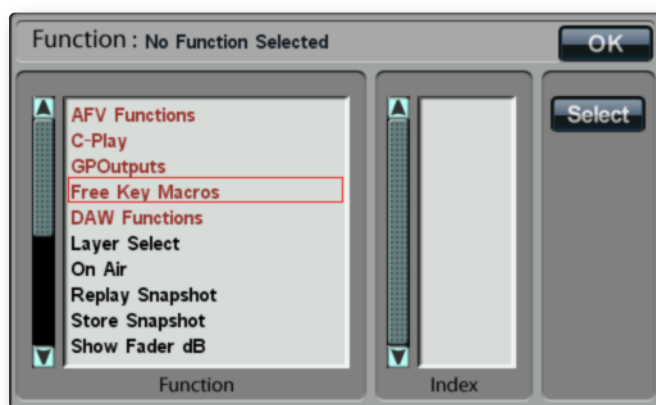

> *All macros will be listed in the **Functions** and **GPI** displays, whether or not they have been configured.*
> *Any macro which has not been named will appear as '**Unused Macro XX**' in the **Functions** displays;*
> *Macros are always displayed by number, not name, in the GPI display.*
> *The macro's configuration will define whether it appears in the **Fader Functions** list.*

HyperRoute

The console's routing procedures have been extended to allow quicker navigation between Source and Destination columns. Whenever the cursor in the left-hand column of the **Routing** display (the **Select Source Group** column in the standard display), the *MASTER* encoder's left switch can be used to toggle between the familiar **Source Routing** display and a new **Destination Routing** display.

The Destination display functions exactly like the Source display, except in reverse – start by selecting your Destination Group and Destination, before then selecting the Source Group and Source. The diagram below illustrates the extended navigation flexibility of HyperRoute:
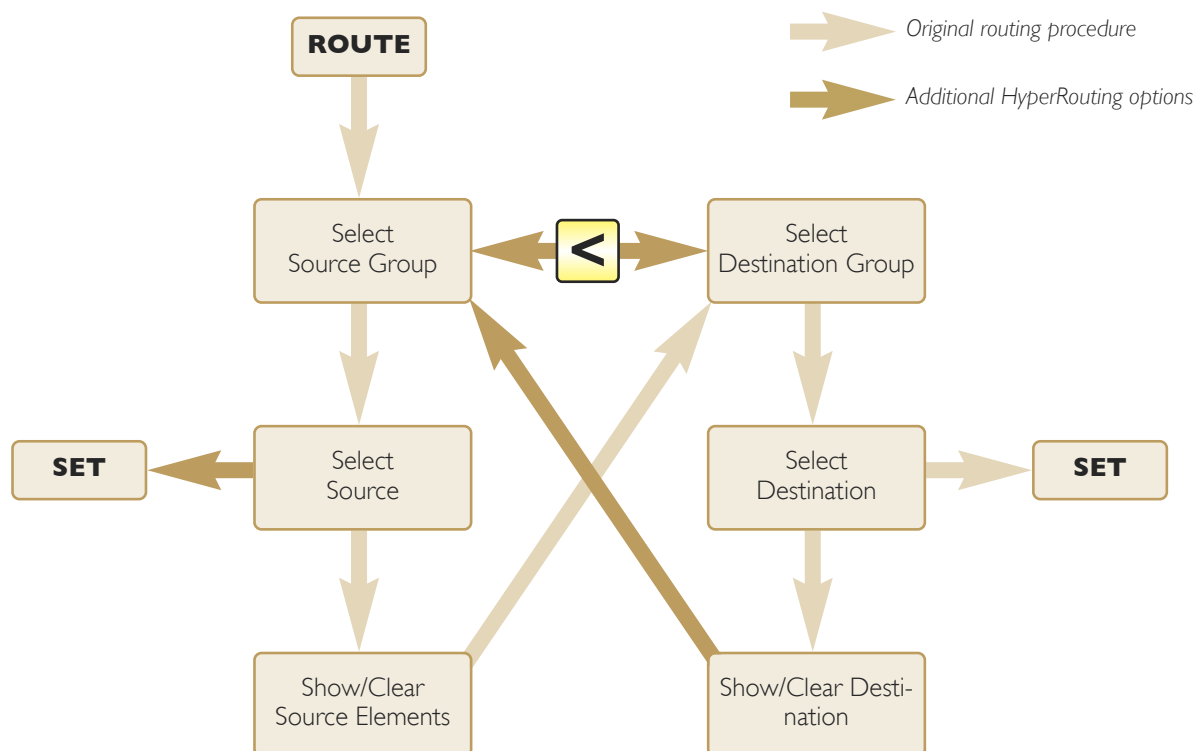
*Note that the older routing procedures with which you are probably familiar still work in exactly the same way.*

The title at the top-left of the display indicates which mode you are in: **Source Routing** (in blue) or **Destination Routing** (in green). The column order and the order of the **Source** and **Destination** labels at the base of the display provide additional indication of the current mode:
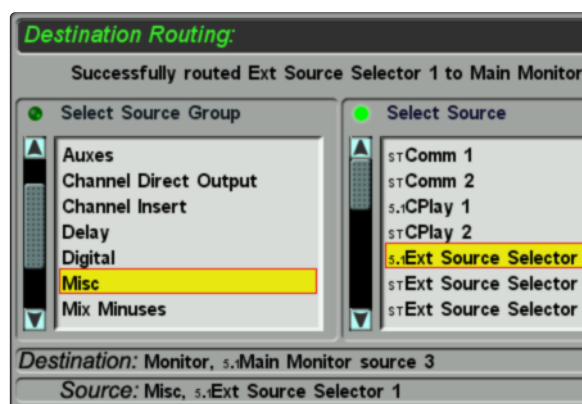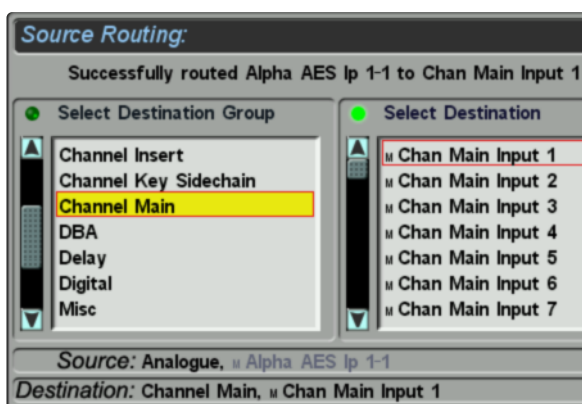
Delay Channels

There are now 32 delay modules which can be connected to any internal or external source and destination, including the insert points for any channel or bus. These delays are routed using the console's standard routing procedures:
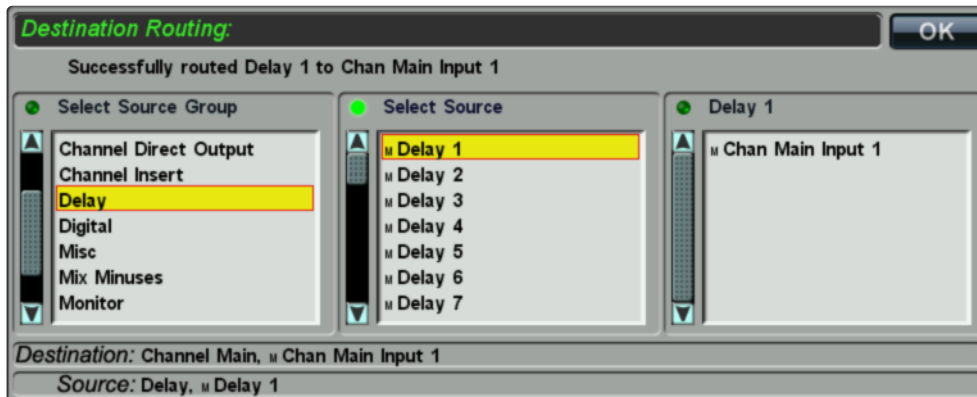
When routed to console channel insert points, assigning the return automatically routes the send to the delay input, as with local IO insert routing. When routing to bus inserts this is not the case and two routes need to be made.

Modules can be configured using the **Delay Channel** display, opened via the **Misc** menu's new **Delay** button.
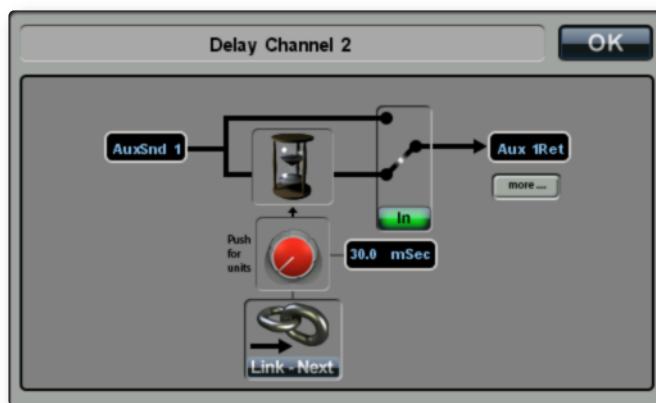
Use the left and right *MASTER* scroller switches to scroll through the modules.

The input and output routing is indicated in the boxes on the left and right of the display's system diagram.

The **more...** indicator beneath the output box will appear 'pressed in' to indicate that the delay is routed to more than one output, of which only the first is listed.

Only one output:
Two or more outputs:

Use the *MASTER* Scroller to change delay amount, as indicated in the blue box to the right of the pot graphic. Press the Scroller to cycle the delay units through the four options: seconds (**s**), milliseconds (**ms**), frames (**fr**) or samples (**sa**).

You can also switch the delay in and out of circuit by clicking on the **In** button below the switch graphic, or on the delay icon itself – When the delay is out, the delay icon is greyed out, the switch is labelled **Out**, and the switch graphic will indicate 'open circuit'.

Delay units can be linked together, making it easier to configure stereo or 5.1 delays: select the **Link Next** button at the base of the display to link the next unit in the list. Any number of delay units can be linked in this way.

> *Note that when linking units, the settings from the lower-numbered unit will overwrite the old settings in the higher-numbered unit.*

These delay units use the same pool of delays as the Channels, ASG and PGM outputs – a total of 64 delays can be employed across the console, up to 32 of which can be used up by the delay modules.

> *Note that whenever a delay module has a delay value greater than 0, one delay from the pool of 64 is used up. Switching a module off using its **In/Out** button does not release the delay back into the pool.*

> *On completion of a Software Update, the Delays need to be added to Source and Destination IO Groups, see the main manual for details. If in doubt please contact your SSL service representative.*

Automix Override

It is now possible to automatically remove a channel's contribution to the AutoMix processing whenever its fader is closed. This option is set globally:

Open the **Automix setup** display (**Misc** / **Automix**), and place a tick in the **Automix Override - Auto Chanel Off** box.
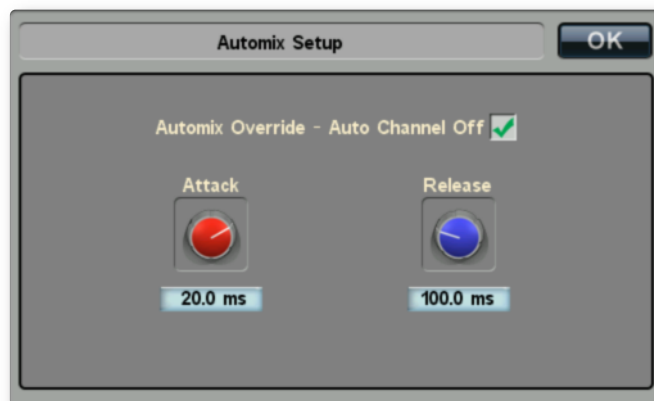
Surface OLED Saver

It is now possible to set a front panel OLED 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.

When this timeout is reached, the **Status Log** window will now open to notify you that **OLED SAVER IS ACTIVE**:
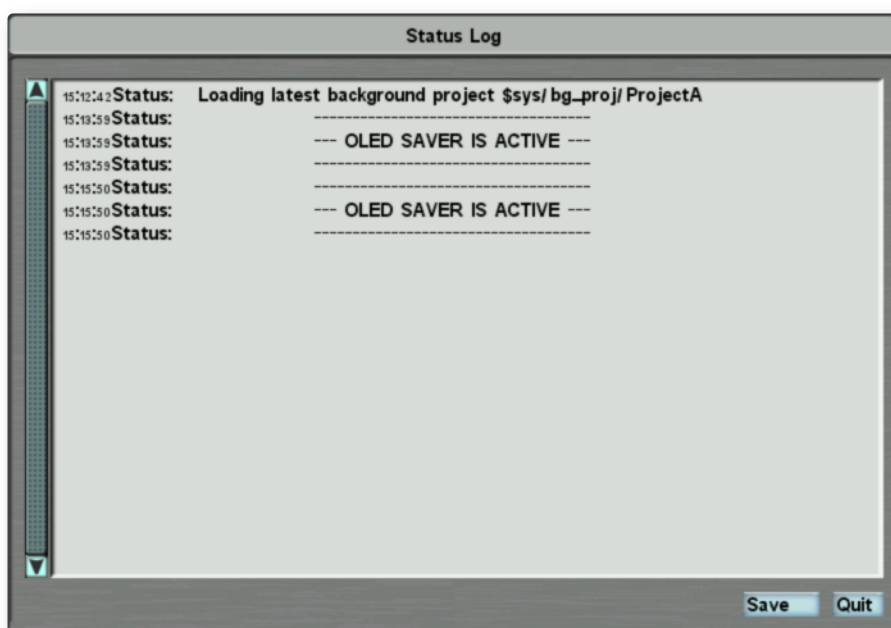
Note that the configuration of the OLED saver timeout is described in the appendix to these update notes.

Wide Range 2 Band Filters

This option is a chargeable upgrade. Please contact your SSL service representative for more information.

A 2-band filter can now be added to the channel strip, providing a full 6-band EQ option. Filter controls are assigned to the channel Quik-controls using a new softkey called **Wide Band Filters** in the **Function** display – its softkey label is *FTFC*.

> *Functions are assigned to softkeys using the **Function** display, opened via the **Misc** menu's **Free** button. See the main manual for details.*
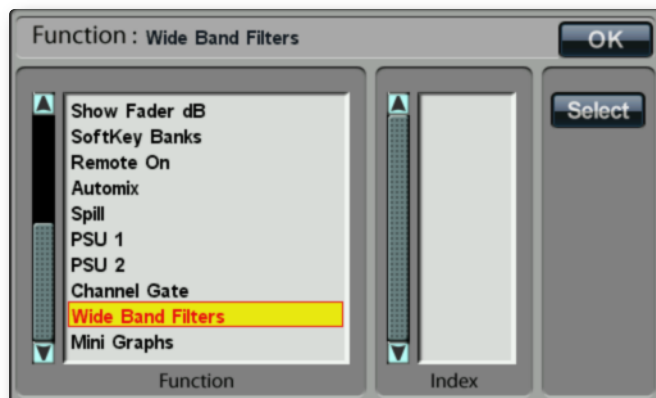
When the filter is active in the channel Quik-controls, the upper Quik-controls affect the HF (lo-pass) filter, while the lower Quik-controls affect the LF (hi-pass) filter. The Quick-knobs can be used to alter the filter frequency, and the Quik-keys can be used to cycle the filter slope between 12dB (button unlit), 18dB (button half-lit) and 24dB (button fully lit).

The filter unit is switched in and out using the right scribble key (*FLTR*). To clear the filter settings, press and hold the left scribble key (*CLRF*).
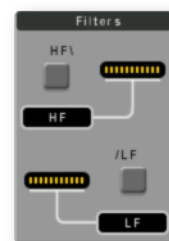
> ***Important note:*** *Care should be taken when enabling Wide Range 2 Band Filters on a console. EQ from Snapshots taken before the feature was enabled may not be compatible.*

Eyeconix Processing Display

A mini signal processing display can now be shown in the Eyeconix area of the Channel Information Display. This is done using a new softkey called **Mini Graphs** in the **Function** display – its softkey label is *Eye*.

When the *Eye* button is active, the Eyeconix image is replaced by a series of graphs:

The top area displays the EQ response graph, while the bottom left area displays the compression graph. These are reduced versions of the fuller graphs available via the **PARAM** / **SHOW** button.
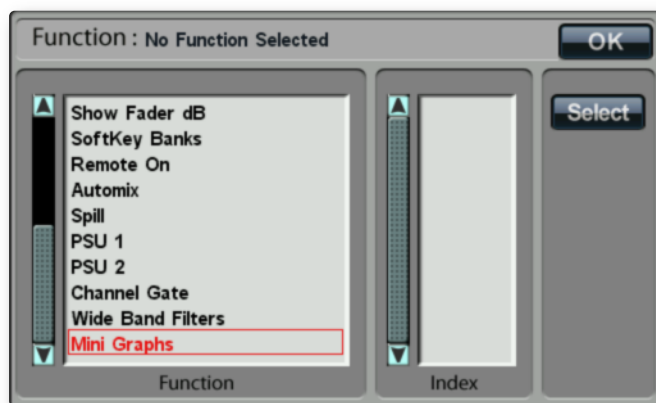
In the bottom right area, there is a pan display. This is a reduced version of the fuller pan indication displayed via the **PAN** button.

In the centre of the lower half of the display, there is a square channel Attention icon - it is lit green when that channel is assigned to the Master Channel, as shown right. When other channels are selected for editing with menus such as **Channel Settings**, this Attention icon remains on the channel still assigned to the Master Channel.
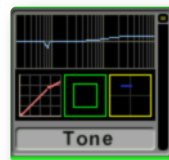
> *See Section 3 of the main manual for more on using channel signal processing and panning.*

Mix Minus Lock

There is a new mode available to the Mix Minus system, called Mix Minus Lock. When Mix Minus Lock is active, all channels are initially routed to all Mix Minus busses; The in-channel Mix Minus routing buttons can then be used to exclude channels from each bus. In other words, Mix Minus Lock mode defines buses as Mix Minus busses but with a virtual (invisible) owner.

Mix Minus Lock is activated and deactivated via the Mix Minus configuration displays, opened by touching the required Mix Minus bus's meter (with the **Setup** button not selected).

Press the **MM Lock** button to toggle the mode on and off.

When Mix Minus Lock is active, you will notice that the bus meter outline will go from blue to yellow, indicating that it is functioning as a Mix Minus, despite not having an 'owner' channel.

The press-and-hold function in the in-channel routing buttons will still allow you give ownership of the bus to that channel, automatically disabling the bus's **MM Lock** button.

The Mix Minus Lock function for any bus can be assigned to a softkey, using the console's standard softkey assignment procedure.

> *Functions are assigned to softkeys using the **Function** display, opened via the **Free** button. See the main manual for details.*

Status Lock function

It is now possible to protect Channel **ON** and **PGM** routing buttons from being pressed accidentally by introducing a press-and-hold function. When Status Lock is active, the status of these buttons will only change if they are held down.

The duration of this press-and-hold function is set using the **Press & Hold Delay** value in the **Front Panel** / **Settings** display, as described in the System Setup section of the main manual.

The Status Lock feature is configured via the console's system files, as described in the appendix to these update notes.

> *Important Note: Please do not attempt to edit these files unless you are absolutely confident that you know what you are doing. Incorrect edits may result in a console which will not boot. Please contact your SSL service representative for assistance, if you are in any doubt.*

More Channels

The C10 channel count has been increased from 128 to 160.

Eyeconix Extended

Eyeconix graphics are now available for channel types, including ASG and PGM busses, Aux and Mix Minus Masters, and DBA busses.

Appendix: Advanced Configuration

INTRODUCTION

This appendix to the C10 V4 update notes provides studio system administrators some assistance with those configuration elements of the update which require technical expertise, either using the Terminal or the console's system files.

Editing Text Files

Important Note: Please do not attempt to edit system files unless you are absolutely confident that you know what you are doing. Incorrect edits may result in a console which will not boot. Please contact your SSL service representative for assistance, if you are in any doubt.

To edit the console's system files, go to the touchscreen's maintenance pages and select **File** / **Edit**. A screen similar to this one will open:
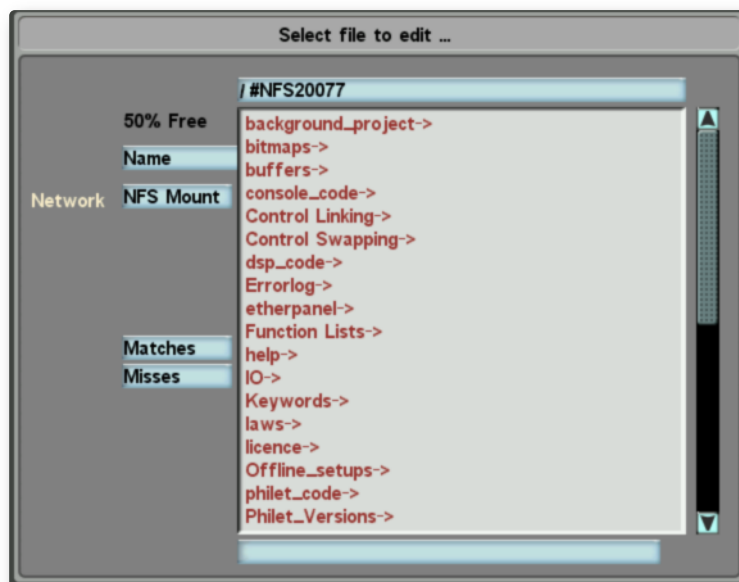
Folders are listed in red, and files are listed in black. Touch on an entry in the list to open it. The current file location is shown in the blue box at the top, begining with the console's network ID. (as shown above) – touch the box to navigate up a level.

Further details regarding editing files can be found in the System Administrator section of the console's operating manual.

Using the Terminal

This Appendix also assumes some familiarity with the SSL terminal; instructions to access this from an external computer are included in the install guide. All instructions are to be run from within the SSL terminal, from the standard Linux terminal this can be accessed with the command:

```
tclient <CR>
```

The SSL terminal can also be accessed from the console touchscreen by touching the grey status bar while in the studio menu, then selecting the **Terminal** button that appears in the resulting **Status Log** popup.

PROGRAMMING FUNCTION KEY MACROS

Overview

Macros allow an operator to condense multiple actions into a single function that can be triggered by a single action, saving time and increasing workflow. This could simply be performing the same action in multiple locations, eg. switching all channels to the alt input. It could also be a very specific sequence of functions for a particular purpose, eg. switch PG1 off on channel 4, 10 and 14 to 20, while switching in the compressor on channel 14 to 22 and sending them to Aux 3, at the same time as switching channel 10's channel output (CHOP) to N-1 and its meter source to CHOP.

Up to 128 Macros can be programmed. Macro Programming is done via a text file; it is advised that an SSL Service Engineer or Studio Maintenance Engineer/Administrator programmes the Macros.

Creating Macros:

Macros are setup by editing a text file, then rebooting. To access the text file, open the file edit window (as described in the introduction to this appendix), locate the folder /Free_Key_Macros and open the Free_Key_Macros file it contains. The file will open on the touch screen and can be edited using the keyboard and mouse:
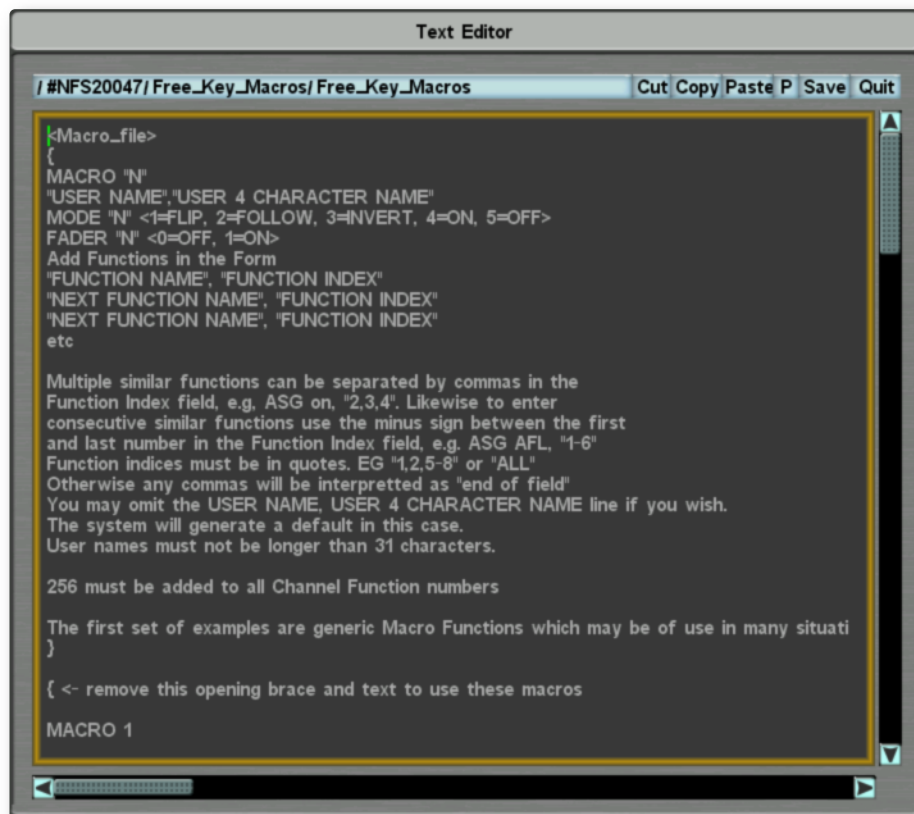
The file includes instructions for writing Macros and some examples. It looks like this:

```
<Macro_file>
{
MACRO "N"
"USER NAME","USER 4 CHARACTER NAME"
MODE "N" <1=FLIP, 2=FOLLOW, 3=INVERT, 4=ON, 5=OFF>
FADER "N" <0=OFF, 1=ON>
Add Functions in the Form
"FUNCTION NAME", "FUNCTION INDEX"
"NEXT FUNCTION NAME", "FUNCTION INDEX"
"NEXT FUNCTION NAME", "FUNCTION INDEX"
etc
.
.
}
```

The core elements of the text file are edited as follows:

Macro Number

MACRO "N" – eg. MACRO 1

This is the MACRO number 1 – 128, not every macro number needs to be included and the macros do not need to be sequential.

Macro Name

"USER NAME","USER 4 CHARACTER NAME" – eg. Channel Alt Flip All,FLIP

The name "Channel Alt Flip All" would be displayed in the Channel softkey, Centre Section softkey and Fader Functions Menus. The name "FLIP" would appear on the 4 character display with the appropriate softkeys.

Macro Mode

MODE "N" – eg. MODE 1

Each Macro entry operates with one of the following modes:

1. FLIP – toggles the current state of the assigned functions.
2. FOLLOW – assigned functions are ON for the duration of Macro key closure unless already ON.
3. INVERT – assigned functions are OFF for the duration of the Macro key closure unless already OFF.
4. ON – forces the ON state of the assigned functions.
5. OFF – forces the OFF state of the assigned functions.

> *Note that with the exception of FLIP, if the assigned functions already match the active state, the macro has no action on those functions. A single function's state can be altered by multiple Macros, to prevent Tally conflicts the switch will only tally on for the duration of the switch press. For similar reasons only the functions state rather than the Macro state is saved.*

Fader Status

FADER "N" – eg. FADER 1

Macros configured for Fader mode (FADER 1), can be triggered from the fader status. The fader status includes the state of the channel On switch and the fader being open or closed. To trigger the fader status as "open" the channel has to be on and the fader lifted from closed. For the majority of uses it is advised that only Follow and Invert are used for functions intended for use with Fader Status'. For obvious reasons using Invert on a Function that is triggered by that fader as standard is not valid, eg. channel On cannot be inverted on the same channel. This would cause a function state to constantly toggle, traps are included to prevent the software entering an endless loop.

Functions

"FUNCTION NAME", "FUNCTION INDEX" – eg. Alternate, "ALL"

Macro Programming is available for any 2-state switching functions available on the console. Each Macro entry can include multiple functions and other Macros. The Function name must exactly match the name that appears in the Functions List file, located in /Functions Lists/Functions.lst. Function names may also be found using the terminal 'assign assign touch' command. See later in this document for details.

Functions also require an index. Busses are indexed by the bus number, therefore Aux Bus 3 requires the index "3". Channels are indexed by the channel number with a 256 offset, therefore channel 1 is index "257". An index of "ALL" will act on all available indexes. The minus sign can be used to specify a range of indexes, eg. "1-8". Individual indexes can be separated by commas, eg. "257,290,300". Indexes must always be in quotes otherwise commas may be interpreted as end of field.

The Function to nest other Macros is Free Key Macro 002, "1" – where 002 states that it is macro 2, the index should always be 1.

Examples

The first set of examples are generic Macro Functions which may be of use in many situations:

```
{
MACRO 1
Channel Alt Flip All,ALT
MODE 1
FADER 0
Alternate, "ALL"

MACRO 2
Tone Off everywhere,Toff
MODE 5
FADER 0
PGM Tone, "ALL"
ASG Tone, "ALL"
Aux Tone, "ALL"
Utility Tone, "ALL"
CHOP Tone, "ALL"
UOP Tone, "ALL"
}
```

Fader Functions

This fader example will need adapting for specific needs in a custom setup. It is primarily intended for demonstration of what can be achieved:

```
{
MACRO 101
Utilities from Chan,UON
MODE 2
FADER 1
Utility 1 In, "257,260-272"
Utility 3 In, "257,260-272"
Utility 5 In, "257,260-272"
Utility 6 In, "257,260-272"
}
```

Macros within Macros

```
{
MACRO 102
PGM with Tone off,PGM
MODE 2
FADER 1
PGM 1 In, "258"
Free Key Macro 002, "1"
}

/<Macro_file>
```

> *Note the end of the file outside of the braces, without this the Macros will not work.*

Advice when editing the Macro file

The default file has all the example macros initially commented out. Any text between braces ("curly brackets") is defined as a comment, not as part of the configuration. To enable the examples, remove the braces { } at either end of the relevant text, along with its associated removal instructions. Alternatively, simply write your own outside of the braces.

Note: It is essential that this is done correctly. Otherwise, the console may not boot.
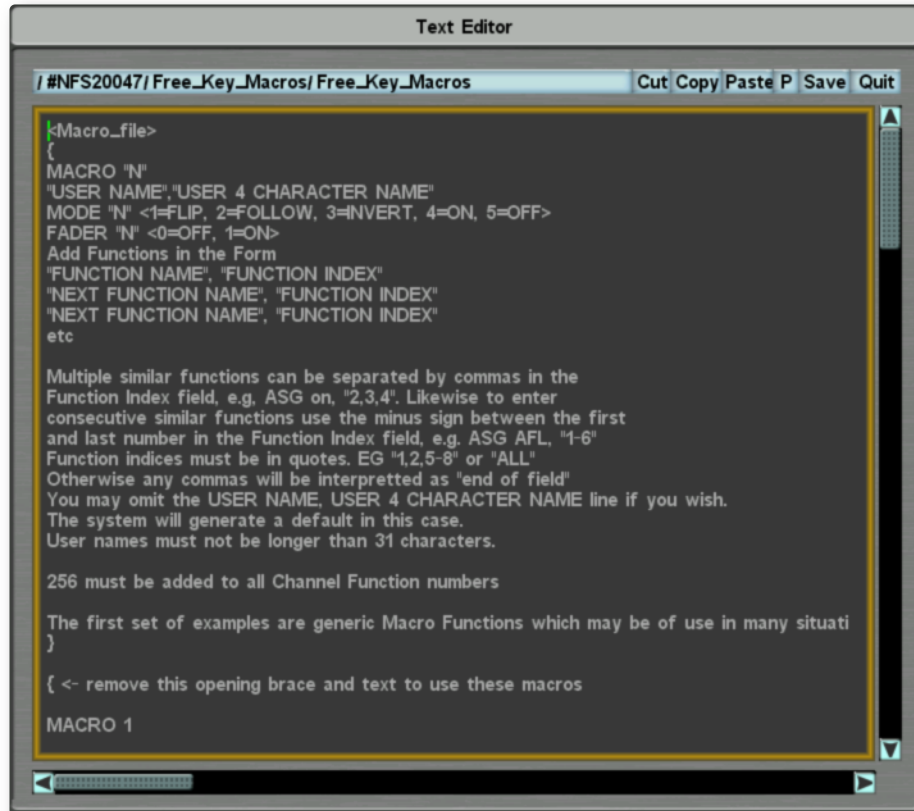
When you have made the relevant edits the file should be saved.

Care should be taken to use only valid characters in the text file. However the files syntax can be checked using the terminal command:

```
map18 loadfile <CR>
```

If the syntax is ok the terminal will report

```
map18: load_macro_file, all OK.
map18: parse_macro_list, all OK.
```

Functions Names and Indexes

You can also find a function name and index from the terminal. With the console in the state where the next switch press is the function you are interested in (ie. with any relevant menus open or channels called to attention), type the following on the tclient terminal:

```
assign assign touch <CR>
```

When touching the channel **Alt** button on channel 1, the terminal will show:

```
AS1: Control "In Alt" regular 1
   is assigned to Function "Alternate" regular 257 which has legend "ALT"
   and calls at line  191 of cp63_misc_chan_controls.pas.MASH.p->switch_action
```

In this case the Function name is "Alternate" and the Function index is "257".

Here are some popular channel Functions as they appear in the `Functions.lst` file. The index required will be channel N + 256.

```
Alternate, 1,               512,Switch
ASG 1 In,                   1,          512,Switch,
Aux 1 On,                   1,          512,Switch,
Chan Meter Input,           1,          512,Switch,
Chan Meter Pre Fader,       1,          512,Switch,
Channel ON,1,               512,Switch,
CHOP Inp,                   1,          512,Switch,
CHOP Ext,                   1,          512,Switch,
Mono L,                     1,          512,Switch,
Mono R,                     1,          512,Switch,
Utility 1 In,               1,          512,Switch,
```

Here are some popular Bus Functions as they appear in the `Functions.lst` file. The index required will be the Bus number.

```
ASG ON,                     1,          8,Switch,
Aux Talkback,               1,          24,Switch,
```

Backing up the Macro File

There is the potential to include characters in the Macro file that will cause a cyclical crash on boot. If you delete the `Free_Key_Macro.txt` file and reboot, the default file will be remade. Some simple housekeeping terminal commands will allow you to rectify this situation without loosing all previously programmed Macros.

Prior to editing the file make a backup of the `Free_Key_Macro.txt` file:

```
newfs <CR>
cd Free_Key_Macros <CR>
cp Free_Key_Macros Free_Key_Macros_Backup <CR>
```

If you need to revert to saved version during boot use the commands:

```
wait <CR>
newfs <CR>
cd Free_Key_Macros <CR>
del Free_Key_Macros <CR>
yes <CR>
cp Free_Key_Macros_Backup Free_Key_Macros <CR>
```

STATUS LOCK FUNCTION

It is now possible to protect Channel **ON** and **PGM** routing buttons from being pressed accidentally by introducing a press-and-hold function. When Status Lock is active, the status of these buttons will only change if they are held down.

Status Lock is setup by editing a text file and then rebooting. To access the text file, open the file edit window (as described in the introduction to this appendix), locate the folder `/sysfiles/press_and_hold_switches` and open the `press_and_hold_switches` file it contains. The file will open on the touch screen and can be edited using the keyboard and mouse:
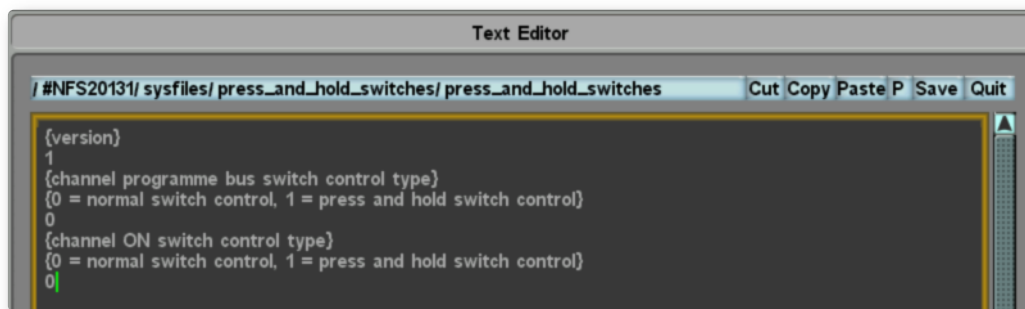
To activate the press-and-hold function for the **PGM** routing buttons, replace the '0' half way down the file with a '1', so that it reads as follows:

```
{channel programme bus switch control type}
{0 = normal switch control, 1 = press and hold switch control}
1
```

To activate the press-and-hold function for the Channel **ON** buttons, replace the '0' at the bottom of the file with a '1', so that it reads as follows:

```
{channel ON switch control type}
{0 = normal switch control, 1 = press and hold switch control}
1
```

OLED Saver Configuration

The OLED Saver allows you 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.

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)*

See the start of this appendix for more information on working with tclient.

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.

By default the screen saver is disabled. However, 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.

Bug Fixes in V5 software

- On creation of a New Project all project elements are now copied into the project
- A condition where a BRIO can appear on line but routes appear in red is now fixed
- Noise appearing on BRIO on changeover issue has now been resolved
- Error message that occurs when fader start is assigned to a free key macro has been resolved

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