

Wood Norton Technical Areas
BNCS Documentation

Studio C Matrix Names and Packages Editor

Applcore Panel BNCS Version 3 (Initial release)

Used in:

Studio A	✗
Studio C	✓
CTA	✗
CAR	✗
Vale Engineering Classrooms	✗
Bredon Wing	✗
Avon Wing	✗

Version	Edited by	Date	Key Changes
1	Andy Woodhouse	12/08/13	Initial release

Background

Studio C has three routers within its infrastructure:

1. Quartz SD-SDI – 128 sources, 128 destinations
2. Quartz Analogue Audio – 16 sources, 16 destination
3. AES/EBU audio – set in this application as 128 sources by 128 destination.

The Quartz units are standard hardware units.

The AES/EBU router is enabled as a ProBel control protocol within the Studer OnAir 3000 sound desk, and requires some configuration within the desk to map the logical inputs and bus outputs into BNCS sources, and to map the output stages of the desk to BNCS destinations. The BNCS control uses two BNCS database sets, one that provides the logical source and destination names, and one that records the (fixed) mapping between the Studer internal ProBel id and the external BNCS ID.

The three physical routers are combined through BNCS defined packages that enable a user to configure audio and video routes by the use of logical names. There are large numbers of logical sources and destinations (420 sources, 420 destinations).

The large size of the package names and crosspoints allows source and destinations to be grouped by function (eg VTR and Server), with many entries unused. For each source or destination package name there is an entry in the package crosspoints database of the form:

0124=23,13,29

Let us use this as a source package entry (database 0). The number to the left side of the equals sign indicates that the information is for source package 124, and the comma delimited list after the equals says that the package uses SDI input 23, analogue audio uses input 13, and the Studer AES/EBU logical source number is 29.

A hyphen (-) indicates no crosspoint change is used for the element. For example a video only package may have an entry like "0129=72,-,-".

The size of the package names and crosspoints is larger than that required for the normal day-to-day operation. The day-to-day operations use the first 360 sources and destinations. The sources and destinations from 361 are designated as "fixed" and editing their contents is a manual process. Such fixed entries are used to define hardwired combinations that should not be overridden by someone using the editor. An example of such a source is the camera inputs to the SDI router.

Editor Function

Occasionally, hardware changes happen in the installation. These modifications require changes to individual SDI or audio names for an input or output. The editor in this BNCS task enables these changes to be made using either a touchscreen or mouse, with the results broadcast to all other BNCS stations on the network.

Similarly, there will be changes to names and contents for the packages. The editor also supports the changing of package names and contents, again broadcasting the changes to the network.

Dependencies

The panel only requires a working CSI on the machine that runs the panel. Obviously for network updates the network and other work stations must also be active. Offline stations will collect updated driver INI files as part of their boot process.

Significant Support Files

c:\bncls\ws_ini\wnglobal.ini	Names and numbers of drivers etc, read into memory at startup. Also the names used for the source and destination packages are read from strings StCSrcPkg and StCDstPkg in the Routers section of the file.
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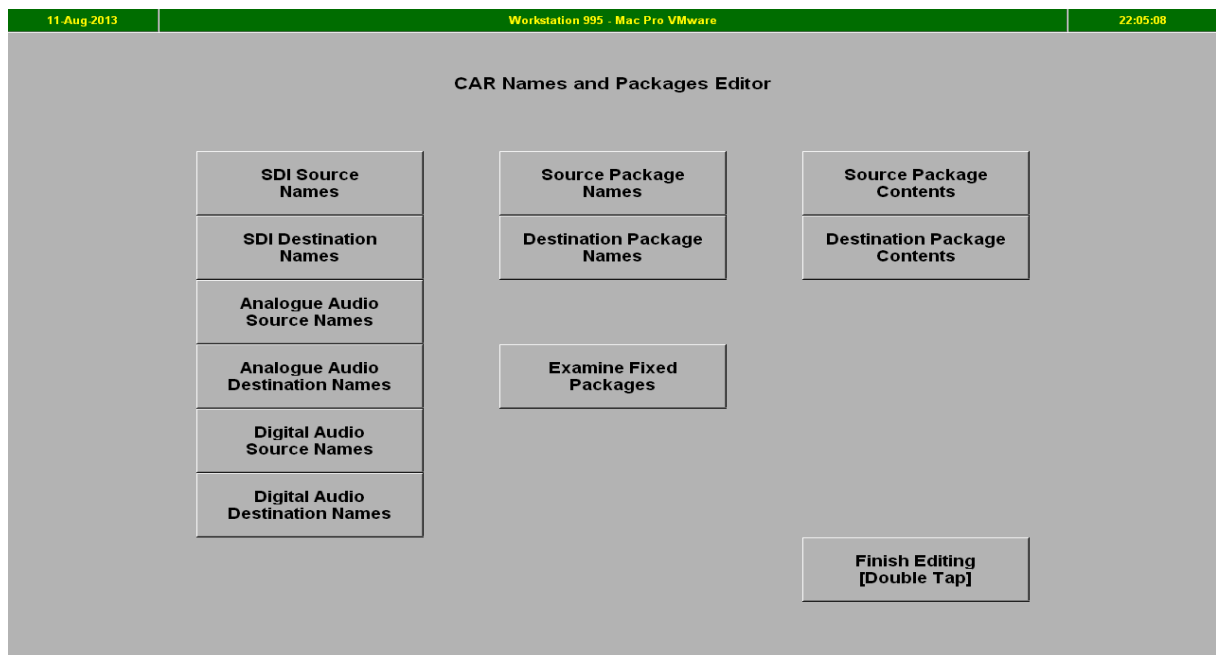
For this editor task the relevant driver INI files are:

dev_500.ini	Package names driver ID
dev_501.ini	SDI video driver ID
dev_502.ini	Analogue Audio driver ID
dev_503.ini	Digital Audio logical driver ID
dev_504.ini	Package Contents driver ID

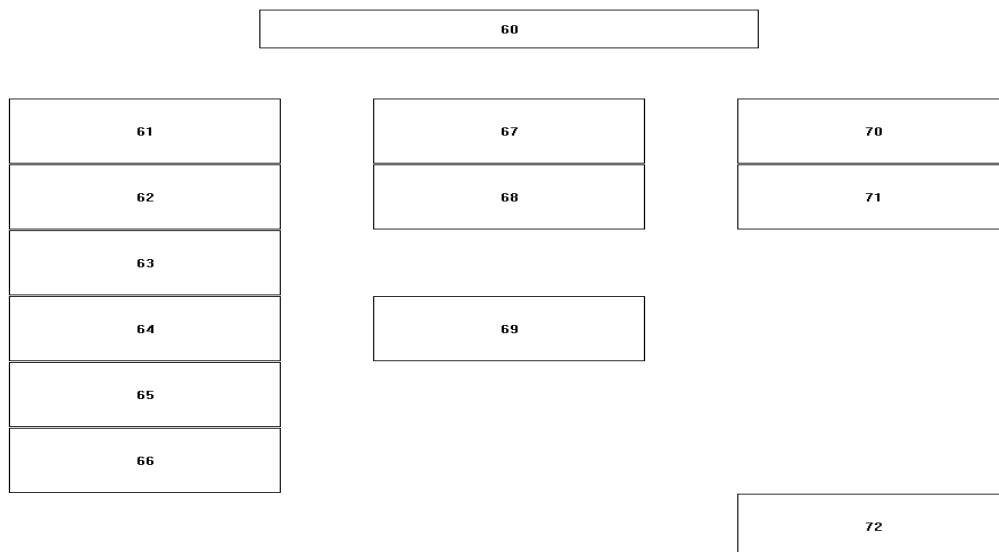
Panels

There are multiple panels used in this task, all designed for use on a 1280 by 1024 pixel screen, with due allowance for the Studio C task selector bar at the bottom of the screen. There is a small headline bar that shows the task name, the date, and the time. The zone below the bar shows either a function select panel (choose editor function or quit edit operations), the SDI or audio name editor, the package name editor, or the package contents editor. The showing and hiding of these panels is managed by the editor task.

The function select panel is shown below.



The button numbers for the function select panel are shown below.



The source/destination panel layout is shown below.

11-Aug-2013

Workstation 995 - Mac Pro VMware

22:11:13

Edit SDI Source Name

Sources 1 to 16	Sources 17 to 32	100% Bars	EBU Bars	VT 100% Bars	VT EBU Bars
Sources 33 to 48	Sources 49 to 64	TCW (Wide)	TCJ	Pluge	BBC P&B
Sources 65 to 72	Sources 73 to 96	YUV Sweep	Grille	Zoneplate	Matrix SDI
Sources 97 to 112	Sources 113 to 128	SDI Black	PTV TPG	PAL Dec 1	CAR VT A Main

Name before Edit

TCW (Wide)

5

CANCEL

ACCEPT and UPDATE

FINISH EDIT

TCW (Wide)

1	2	3	4	5	6	7	8	9	0	<—	
	Q	W	E	R	T	Y	U	I	O	P	Del
#	A	S	D	F	G	H	J	K	L	Return	
Shift	Z	X	C	V	B	N	M	,	.	Shift	
Clear		Space						<—	—>	Home	End

The button numbers for the source/destination name editor are shown below.

100

121	122	101	102	103	104
123	124	105	106	107	108
125	126	109	110	111	112
127	128	113	114	115	116

137

136

134

135

131

132

133

141

The source/destination package name editor screen is shown below.

11-Aug-2013		Workstation 995 - Mac Pro VMware				22:10:03	
Edit Source Package Name							
Test Signals	Graphics	100% Bars	EBU Bars	VT 100% Bars	VT EBU Bars	TCW (Wide)	
Record Replay	Loop Devices	TCJ (4x3)	Pluge	BBC P&B	YUV Sweep	Grille	
Audio	Off Air	Zoneplate	Matrix SDI	TBA -> Watch	SDI Black	Tone	
V Block Eng Areas	V2 Lab	Step Tone	Stereo Tone	Sweep Tone	TOD Timecode	Silence	
Bredon & Studio C	CTA & Avon						
Misc	Streams						

Name before Edit

100% Bars

1

CANCEL

ACCEPT and UPDATE

FINISH EDIT

100% Bars

1	2	3	4	5	6	7	8	9	0	<—
	Q	W	E	R	T	Y	U	I	O	P
#	A	S	D	F	G	H	J	K	L	Return
Shift	Z	X	C	V	B	N	M	,	.	Shift
Clear	Space						<—	—>	Home	End

The button numbers for the source/destination package editor are shown below.

200

241	242	201	202	203	204	205
243	244	206	207	208	209	210
245	246	211	212	213	214	215
247	248	216	217	218	219	220
249	250	221	222	223	224	225
251	252	226	227	228	229	230

267

266

264

265

261

262

263

271

The layout of the show fixed packages screen is shown below.

11-Aug-2013

Workstation 995 - Mac Pro VMware

22:12:05

Show Fixed Packages

Previous

Next

ID	Package Name
361	

ID	SDI Source	ID	Analogue Audio Source	ID	Digital Audio Source
-		-			

Previous

Next

ID	Package Name
361	CAR Monitoring

ID	SDI Source	ID	Analogue Audio Source	ID	Digital Audio Source
1	CAR Monitor	1	CAR Monitor		

FINISHED VIEWING

The layout if the buttons for the display fixed package screen is shown below.

500

509

510

-1	-1
501	502

-1	-1
503	504

516

517

-1	-1	-1	-1
505	506	507	508

529

530

-1	-1
521	522

-1	-1
523	524

509

537

-1	-1	-1	-1
525	526	527	528

541

The package contents editor screen is shown below.

11-Aug-2013		Workstation 995 - Mac Pro VMware				22:13:27	
Edit Studio C Source Package Contents							
Test Signals	Graphics	100% Bars	EBU Bars	VT 100% Bars	VT EBU Bars	TCW (Wide)	
Record Replay	Loop Devices	TCJ (4x3)	Pluge	BBC P&B	YUV Sweep	Grille	
Audio	Off Air	Zoneplate	Matrix SDI	TBA -> Watch	SDI Black	Tone	
V Block Eng Areas	V2 Lab	Step Tone	Stereo Tone	Sweep Tone	TOD Timecode	Silence	
Bredon & Studio C	CTA & Avon						
Misc	Streams						

Pkg	Video	Analogue Audio	Digital Audio	Package Name
11	11 Zoneplate	5 Sweep Tone	Zoneplate	
Pre-> Edit >	11 Zoneplate	5 Sweep Tone	Zoneplate	

CANCEL

ACCEPT & UPDATE

FINISH EDIT

Sources 1 to 16	Sources 17 to 32	100% Bars	EBU Bars	VT 100% Bars	VT EBU Bars
Sources 33 to 48	Sources 49 to 64	TCW (Wide)	TCJ	Pluge	BBC P&B
Sources 65 to 80	Sources 81 to 96	YUV Sweep	Grille	Zoneplate	Matrix SDI
Sources 97 to 112	Sources 113 to 128	SDI Black	PTV TPG	PAL Dec 1	CAR VT A Main

Not Active = 0

Cancel

ACCEPT

The button numbers for the package contents editor screen are shown below.

300						
341	342	301	302	303	304	305
343	344	306	307	308	309	310
345	346	311	312	313	314	315
347	348	316	317	318	319	320
349	350	321	322	323	324	325
351	352	326	327	328	329	330

401	402		403		404		405	406	
363	364	365	366	367	368	369			
333	334	335	336	337	338	339			

391	392	371	372	373	374
393	394	375	376	377	378
395	396	379	380	381	382
397	398	383	384	385	386
399		387	388		

Variable Usage

Numeric memories

ID	Usage	ID	Usage
A%	Scratchpad	a%	Current matrix id
B%	Scratchpad	b%	Current database (0=src, 1=dest)
C%	Scratchpad	c%	Current crosspoint id
D%	Scratchpad	d%	Current block id
E%	Scratchpad	e%	Current button in block
F%	Scratchpad	f%	Edit function id
G%		g%	
H%		h%	Package Name Driver ID
I%		i%	Package Content Driver ID
J%		j%	First fixed source package ID
K%		k%	Last fixed source package ID
L%		l%	First fixed destination package ID
M%		m%	Last fixed destination package ID
N%		n%	Fixed source package ID on display
O%		o%	Fixed destination package ID on display
P%	Exit Edit Pushes Counter	p%	Current panel ID
Q%		q%	Source Selector Panel Enabled flag
R%		r%	Package Edit Source/Destination SDI ID
S%	Revertive numeric value	s%	Package Edit Source/Destination Audio ID
T%	Matrix ID for Package Content	t%	Package Video/Audio change enabled flag 0 = inactive, 1 = video , 2 = audio
U%	Package content edit block id	u%	
V%	Package content button id	v%	
W%	Package content crosspoint id	w%	Reserved for router database in V3 BNCS
X%		x%	Router database change – driver id
Y%		y%	Router database change – database id
Z%		z%	Router database change - index

String Memories

ID	Usage	ID	Usage
A\$	Temporary variable	a\$	Edited name from keyboard
B\$	Temporary variable	b\$	
C\$	Temporary variable	c\$	
D\$	Temporary variable	d\$	
E\$	Temporary variable	e\$	
F\$	Temporary variable	f\$	
G\$		g\$	
H\$		h\$	
I\$		i\$	
J\$		j\$	
K\$		k\$	
L\$		l\$	
M\$		m\$	
N\$		n\$	
O\$		o\$	
P\$		p\$	
Q\$		q\$	
R\$		r\$	
S\$	Revertive string value	s\$	
T\$	Time	t\$	
U\$	Date	u\$	Colour – White text dark red background
V\$		v\$	Colour – Black text light red background
W\$	Workstation name	w\$	
X\$		x\$	Colour – Yellow text dark blue background
Y\$	CAR Package Source Names string	y\$	Colour – Yellow text light blue background
Z\$	CAR Package Destination names string	z\$	Colour – Black text mid-grey background

Numbered Memory Usage

Integer Stores

Address	Content
1	CAR Package names driver ID
2	CAR Package Crosspoint driver ID
3	CAR Video Router Driver ID
4	CAR Audio Router Driver ID
5	CAR HD Router Driver ID
6	Unused
...	
10	
11	CTA Package names driver ID
12	CTA Package Crosspoint driver ID
13	CTA Video Router Driver ID
14	CTA Audio Router Driver ID
15	CTA to CAR first address
16	CTA to CAR last address
17	Unused
...	
20	
21	Bredon Package names driver ID
22	Bredon Package Crosspoint driver ID
23	Bredon Video Router Driver ID
24	Bredon Audio Router Driver ID
25	Bredon to CAR first adress
26	Bredon to CAR last address
27	Unused
...	
30	
31	AVON Package names driver ID
32	AVON Package Crosspoint driver ID
33	AVON Video Router Driver ID
34	AVON Audio Router Driver ID
35	AVON to CAR first adress
36	AVON to CAR last address
37	Unused
...	
40	
41	
...	
5000	

String Stores

Address	Content
1 ... 12	Names of Source package groups, extracted from string StCSrcPkg= in wnullws.ini
13 ... 20	Unused
21 ... 32	Names of Destination package groups, extracted from string StCDstPkg= in wnullws.ini
33 .. 40	Unused
41 ... 5000	Unused

Applcore Code

It is assumed any person attempting to read this documentation is already familiar with general BNCS Applcore programming conventions such as line numbers used at startup and closedown of a panel.

Insert code here....