# Creating R20 files from d4 personalities

(This is NOT an official documentation but simply based on my personal experiences - it might be not complete or even simply wrong in some aspects. Please give feeback if you find anything that you think should be improved.)

R20 files had been the personalities for the Classic consoles from the Pearl 2000 on. After production of the Classic consoles was stopped, Avolites also ceased to offer free personality service for this system in 2019. You can still download the existing personalities, but no new ones will be created.

This page is intended to be helpful when you need a new personality for a fixture which isn't in the library for classic consoles but does exist as d4 file for the Titan system.

Please understand that this page is currently **Work In Progress**.

#### **Preliminary Considerations**

It is good to understand the main differences (with regards to personalities) between the old Classic system and the new Titan system. When using the Personality Builder to export R20 files from existing d4 files you most likely need to correct some details following these points.

- 1. With R20 files, **each mode requires a separate personality file**, while in the d4 world there is only one file per fixture, holding all the modes.
- 2. **No Virtual Dimmers in Classic!** In Titan you can define a dimmer channel which doesn't exist in the fixture, to proportionally dim e.g. red/green/blue colour channels. This is not possible on Classic consoles, and thus not supported in R20 files.
- 3. **No cells/subfixtures in Classic!** Nowadays there are numerous fixtures available with many individually controllable pixels or other parts, and in Titan there is a mechanism where you can control all such parts simultaneously (as Master channels) or individualle (as subfixtures or cells). This is not possible in Classic. As such, cell modes as well as modes using cells are not supported in R20 files. There is a special feature called compatibility attributes which attempts to spread out all such attributes onto available attribute banks but this is currently not covered from this explanation.
- 4. No Conditions in Classic! In Titan it is rather common to have a virtual function-select attribute which controls how other attributes can be adjusted, e.g. a wheel Gobo Func where you can select Index, Scroll and Shake, and the Gobo wheel itself then shows only a subsection of all the Gobo values. This is not possible in Classic.
- 5. **No 16 bit Dimmer in Classic!** While in theory this should be possible, in reality there is an issue in the software which doesn't allow such dimmers to be dimmed down to 0. Thus you might need to reduce the resolution to 8 bit and put the extra channel elsewhere.
- 6. **Two wheels only in Classic!** While there are at least three control wheels on Titan consoles and it is easy to add and operate attributes on multiple pages, Classic consoles have only two wheels, and spreading attributes across pages is best avoided.
- 7. **Classic wheel mapping not stored in d4 files!** Subsequently to the previous point the wheel mapping (i.e. how the attributes are laid out onto the wheels) for Classic consoles is in most cases different from the mapping in Titan. However, as the d4 file format is targeted towards

Titan, it doesn't provide means to store the mapping for Classic consoles. The personality builder has the option to export and import this as separate xml file in File  $\Rightarrow$  Export  $\Rightarrow$  Pearl Mapping. But you need to keep track of such files if you are using this.

#### 1. Check if there really doesn't exist one

Use the search on https://personalities.avolites.com/ to check if there really doesn't exist what you need - downloading is always faster than attempting to do yourself.

## 2. Update your personality library

You certainly do not want to work with old data. Thus, download and install the latest Titan Fixture Library from https://personalities.avolites.com/.

### 3. Identify the correct d4 file

We assume that a d4 personality for your fixture already exists. Luckily they usually have verbose file names - have a look in the personality folder (with the PC suite installed it is C:\Program Files (x86)\Avolites\Titan\FixtureLibrary). If you don't find what you need then search at https://personalities.avolites.com/ or https://www.avolites.de/downloads/d4find for the correct filename. If you still don't find anything then request the personality for Titan or build it yourself (this might be explained on another day).

If you have found the correct d4 file copy it to a suitable location, e.g. your desktop, and open it in the Titan Personality Builder.

If you want to try it yourself then, as an example, you can download and open the personality of the

#### Prolight Equinox Fusion 260ZR

. The PersoBuilder will open with the whole tree collapsed, and the Attributes (top) and Properties (bottom) tabs selected:

Prolight Equinox Fusion 260ZR - Person File Edit View Tools Help	ality Builder	_	
Equinox Fusion 260ZR	Attributes Functions Created Att	tributes Current Functions History M	odes Mac • •
History     Manual     Physical     Attributes	+ Generic + Reserve Pan Pan Pan Tit Colour Colour 1	ed Dimmer	^
ia Macros	Colour Macro 🛛 Gobo	Gobo Rot	*
Alectos	Fixture		
-	Manufacturer	Prolight	^
	Name	Equinox Fusion 260ZR	~
	Name Name of this fixture		
	Properties DMX Values Channel	s Wheel Mapping Locate Values Ce	ells

# 4. Identify modes, enter references

3/12

2025/09/10 21:28

As stated above the Classic system cannot handle some specific things which came with Titan. One of them are cells and subfixtures. Thus, cell modes as well as modes referencing those cannot be exported as R20 (we omit the 'Compatibility Attributes' workaround for the moment).

In the left-hand pane expand the Modes section by clicking on the + sign. Now it will look like this:

M Prolight Equinox Fusion 260ZR - Personalit	y Builder	- 🗆 X
File Edit View Tools Help		
Equinox Fusion 260ZR	Attributes Functions Created Attributes	Current Functions History Modes Mac
	+ Generic + Reserved	Dimmer ^
Physical	ବିଳୁ Pan ବିଳୁ Tit	Shutter
H- P Attributes	Colour Colour 1	Colour 2
ia	Colour Macro 🖉 Gobo	Gobo Rot 🗸
⊞- <u>म</u> 2 DMX	Fixture	
खे⊹_— <u>———————————————————————————————————</u>		D-t-h
	Manufacturer	Prolight ^
⊞- ≜ Cell	Name	Equinox Fusion 260ZR
Macros	Name	
🗄 - 🔗 Palettes	Name of this fixture	
-		
	Properties DMX Values Channels Whee	el Mapping Locate Values Cells

One by one expand each mode (you might enlarge the PersoBuilder's window for a better overview), and identify the modes which you want to and can export as R20 file:

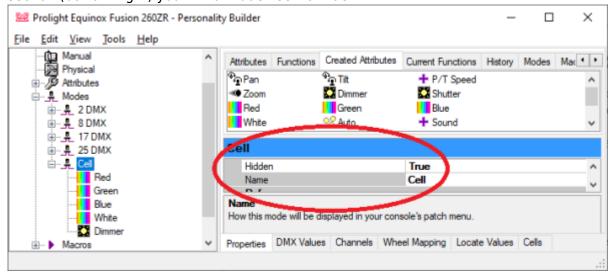
- the 2 DMX mode features only Auto and Sound as attributes. You will hardly use this at all. Let's just skip it.
- the 8 DMX and 17 DMX modes look promising. We'll attempt to export those as R20.

Prolight Equinox Fusion 260ZR - P File Edit View Jools Help	ersonali	ty Builder			-		×
e - ♣ Modes e - ♣ 2 DMX - ♣ 8 DMX - ♣ 8 DMX - ♣ 7 Tit - ♣ Zoom - ♥ Dimmer	^	Colour Colour Macro	Created Attributes + Reserved Tit Colour 1 Gobo	Current Functions	History	Modes	Mac
	*	Name       Name       Name of this fixture   Properties DMX Value	s Channels Whe	Prolight Equinox Fusion		Cels	\$

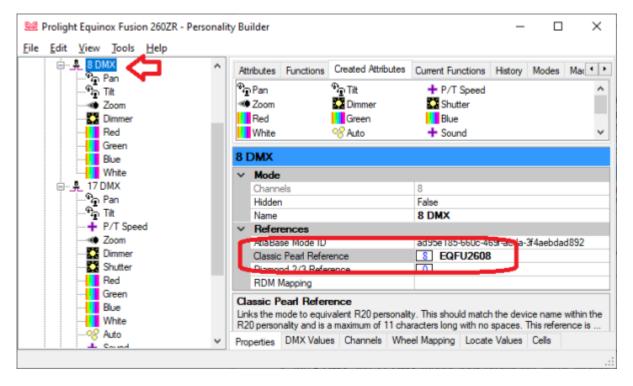
• the **25 DMX** mode contains the sections Cell Master, Cells, and Compatibility Attributes (here empty) - this is a mode which uses cells, and thus cannot be exported as R20.

March Prolight Equinox Fusion 260ZR - Personal	ty Builder	– 🗆 ×
File Edit View Tools Help		
i → → History	Attributes Functions Created Attributes Current Fu	nctions History Modes Mac · ·
Manual Physical	+ Generic + Reserved ↔ Pan Colour Colour 1 Colour 1	tter
B. J. Autobles B. J. Modes B. J. 2 DMX B. J. 8 DMX	Colour Macro Gobo Gobo	
⊕ <u>-</u> 17 DMX	Manufacturer Prolight	^
ia	Name Equinox	Fusion 260ZR v
Cells	Name Name of this fixture	
Macros V	Properties DMX Values Channels Wheel Mapping	Locate Values Cells

 finally the Cell mode is the one which is only referenced in the 25 DMX mode. proof for this is the Hidden attributes set to true: left, click on the mode Cell itself, and in the properties section (bottom right) you'll find Hidden set to True:



In order to make the selected modes exportable they each need a distinct Classic Pearl Reference. While it is possible to use up to 11 characters life is much easier if you restrict this to 8 characters. It is good practice to use the first 2 characters for an abbreviation for the manufacturer, characters 3~6 for the fixture name, and the last two for the DMX mode. Here let's use **EQ**uinox **FU**sion **26**0ZR **08** (DMX), or **EQFU2608**, and **EQFU2617** respectively. In PersoBuilder, left, click on the mode, in the properties tab (bottom-right) find Classic Pearl Reference, and enter the references we have found.



Do so for each mode which you plan to export as R20.

### 5. Check Wheel Mapping

Unlike Titan consoles classic only features 2 encoder wheels, and the attribute banks are structured differently. Obviously wee need to check the wheel mapping – the way how the attributes are laid out on the wheels and banks. In order to do this click on the Wheel Mapping tab on the bottom, enlarge the program window so that you have a good overview, select a mode on the left (pro tip: start with bigger modes, than smaller ones may also fit), then select the Classic Pearl tab on top-right, and tick the Filter by Mode checkbox. It will look like this:

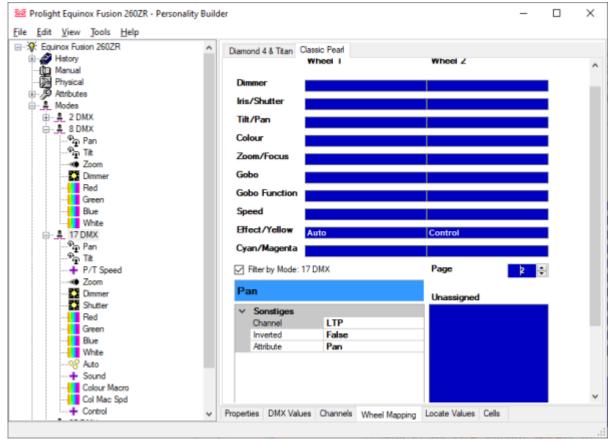
201 Prolight Equinox Fusion 260ZR - Personality But	ilder	- 0		-		×
<u>File Edit View Tools H</u> elp		<u> </u>				
Equinox Fusion 260ZR	Diamond 4 & Tran	Classic Pearl				
🕀 – 🥔 History						^
🔃 Manual	Wheel Assignme	t for R22 rile Export				<u> </u>
		Wheel 1	Wheel 2			
⊕-∬9 Attributes ⊟Modes	Dimmer					
er-≞ 2DMX	Diminea	Dimmer				
	Iris/Shutter					
Pan Pan	Tilt/Pan		Dee			
		Tilt	Pan			
Zoom	Colour	Col Mac Spd				
🚺 Dimmer	Zoom/Focus	Zoom				
Red	Gobo	20011				
Green	6000					
Blue	Gobo Function					
	Speed	P/T Speed	Sound			
		P/T Speed	Sound			
Pa Tit	Effect/Yellow		Blue			
+ P/T Speed	Cyan/Magenta	Red	Green			
Zoom				_		
🔀 Dimmer	Filter by Mode	DMX	Page		1 ≑	
C Shutter	Pan					
Green			Unassigned			
Blue	<ul> <li>Sonstiges</li> </ul>		Shutter Auto			
White	Channel	LTP	Colour Macro			
	Inverted	False	Control			
+ Sound	Attribute	Pan	-			
Colour Macro						¥
	Properties DMX Val	lues Chann s Wheel Mappin	g Locat slues	Cells		
			- I.			:
						111

In the righthand area you can now drag and drop each attribute, in order to move it to another bank and wheel. Usually the suggested mapping is a good starting point. The most important thing is to move attributes from the 'Unassigned' area (bottom right) onto a valid blue rectangle (defined by Wheels and attribute group). Also using the Page select box with arrow buttons you can toggle to more pages. My result looks this:

2025/09/10 2	21:28
--------------	-------

201 Prolight Equinox Fusion 260ZR - Personality Builde	er			-		×
<u>File Edit View Tools H</u> elp						
Equinox Fusion 260ZR	Diamond 4 & Titan	Classic Pearl				
🗈 - 🥔 History		nt for R20 File Export				^
- D Manual	wheel Assignment	-				
- De Physical		Wheel 1	Wheel 2			
- Annoures	Dimmer					
· · · · · · · · · · · · · · · · · · ·		Dimmer				
	Iris/Shutter		Shutter			
- Pa Pan	Tilt/Pan	2014				
-9 Tit		Tilt	Pan			
Zoom	Colour	Col Mac Spd	Colour Macro			
Dimmer	Zoom/Focus	Zoom				
		20011				
Green	Gobo					
Blue	Gobo Function					
White	Count					
□_ <u>_</u> 17 DMX	Speed	P/T Speed	Sound			
	Effect/Yellow	White	Blue			
	Cuan /Mananta					
Zoom	Cyan/Magenta	Red	Green			
Dimmer	Filter by Mode:	17 DMX	Page	1	4	
Shutter					-	
	Pan		Unassigned			
Green	<ul> <li>Sonstiges</li> </ul>		Griabilgrica			
Blue	Channel	LTP				
	Inverted	False				
	Attribute	Pan				
+ Sound						
Colour Macro						~
Col Mac Spd						Ŧ
+ Control V	Properties DMX Value	ues Channels Wheel Mappi	ng Locate Values Cells			

- Shutter was moved from Unassigned to Iris/Shutter, Wheel 2
- Colour Macro was moved from Unassigned to Colour, Wheel 2
- White was on page 2. There I moved it to Unassigned, toggled to page 1, and moved it to Effect/Yellow, Wheel 1.



• Auto and Control are good candidates for page 2, Effect/YelloW attribute bank.

Please note that the Classic Pearl wheel mapping is not stored in the d4 file. If you made any changes which you want to store separately for future use then you need to export it using File -> Export -> Pearl Mapping. This will export the mapping onyl as xml file which you need to store and keep track of separately.

Your work on this page is done when nothing is in the Unassigned area, and nothing in the top boxes is red - on every page!

#### 6. Export R20

After having entered the references and checked/adjusted the wheel mapping it is time to have a go on creating R20 files: click File -> Generate R20 Files.... Here are some prompts and solutions which might happen.

Question × Generate Visualiser files?	most likely you will answer No - generating visualiser files is explained in Creating vis files from d4 personalities
	here it complains about the missing reference for the 2 DMX
Error × The pearl reference, "", for the mode "2 DMX" is invalid. Skip mode and continue?	mode. We left this one empty intentionally. Thus click 0K here to
OK Abbrechen	continue. You'd click Cancel if you'd decide to add a reference for this mode as well.

							now it's getting closer: we are prompted for name and location of the first mode (have a look at this prompt's title
							bar, it reads Save "8 DMX"
Save "8 DMX" (EQFL	> Dieser PC > Dokumente > Titan > Personalities		~	õ	© Personalities	X durchsuchen	(EQFU2608).
	Neuer Ordner			-		⊪ - 0	The location is completely
Desktop ( Avo_SB_BK ( Dokumente ( Bilder ( ) Produkte ( ) icke ( Dieser PC ( ) 3D-Objekte ( Bilder ( Desktop ( ) Dokumente ( ) Dateiname: [		Anderungsdøtum	δγp nisse gefunden.	Größe		~	up to you (personally I'd prefer the desktop). The file name is a little special: while for the moment the suggested name would be okay it would be impossible to
Dateityp: 4	Azure/Pearl/Sapphire Personality (*.R20)			[	Speichern	Abbrechen	import this into a real Classic
							console. Hence I'd recommend to change the file name to the 8 char name which we defined as reference for this mode, in this case EQFU2608.

92 Save "8 DMX" (EQFU2608)	<
← → × ↑ 🗖 > Dieser PC > W7_System (E) > Benutzer > Administrator > Desktop 🗸 Ŏ 🔎 Desktop durchsuchen	
Organisieren - Neuer Ordner	
Anderungsdatum Typ Größe	
★ Schnellzugriff Es wurden keine Suchergebnisse gefunden.	
Avo_SB_BK #	
Dokumente 🖈	
E Bilder 🖈	Here location
Produkte 🖈	and name are
A Papierkorb 🖈	as suggested.
OneDrive	
Dieser PC	
3D-Objekte	
E Rilder	
Dateigame: EQFU2608.R20	_
Dateityp: Azure/Pearl/Sapphire Personality (*.R20)	
A Ordner ausblenden Speichern Abbrechen	
L	Pretty much
	self
	explanatory:
	there is a
	macro
	defined which
	uses an
	attribute
	which is not
Question	included in
	this mode.
The attribute, Control, is not included in this mode but is in	Maybe you
the macro Reset.	want to
Write macro anyway?	cancel here,
	go back, and
Ja Nein	check which macros and
	attributes are
	defined. In
	this case it is
	100% correct,
	and we do
	not include
	the macro in
	this mode:
	click No.

× Now we are

AVOSUPPORT - https://avosupport.de/wiki/

11/12

← → ~ ↑ 🗖	> Die	eser PC > Desktop >		~	ō	P	Desktop durchsuchen		about to save
Organisieren 👻	Neuer	Ordner						0	the next mode's
<ul> <li>Schnellzugriff</li> <li>Desktop</li> <li>Avo_SB_BK</li> <li>Dokumente</li> <li>Bilder</li> <li>Produkte</li> <li>icke</li> <li>OneDrive</li> <li>Dieser PC</li> <li>3D-Objekte</li> <li>Bilder</li> <li>Deckton</li> <li>Dateityp:</li> <li>Ordner ausblender</li> </ul>	* * * * *	Name EQFU2608.R20 EQFU2608.R20 Personality (* 8	Änderungsdatum 30.05.2022 10:30	Typ Visualiser.R20File	Gree	7 KB	zichern Abbreche	~ ~	personality file. Please note that it did not change the suggested filename to the new mode. You need to manually change the filename again, here to EQFU2617.

My scratchpad:

- get the latest d4 file, check at http://personalities.avolites.com - you might already check which modes are in the fixture -> cells are not supported by r20 files/classic consoles - open in personality builder - check the modes you want to use as r20 (each mode gets its own file) - for the Equinox Fusion 260ZR the Cell mode and the 25 DMX mode (which uses the cells) cannot be used as r20 - for the usable modes:

- check that a distinct Classic Pearl Reference is set (11 characters, no spaces PLEQFU2602, PLEQFU2608, PLEQFU2617
- 2. when exporting the filename is created from the Classic Pearl Reference but is limited to 8 characters. Thus, 8 char references are preferable here: EQFU2602, EQFU2608, EQFU2617
- 3. check wheel mapping for the modes you need, tab 'Classic Pearl' all attributes mapped, nothing unassigned and nothing red
- 4. \_\_\_\_\_

Question

The channels assigned to wheels in this mode only utilise part of the DMX range.

Note: Visualiser will require complete range to work correctly.

Adjust limits to match?

Ja Nein

1. not necessarily but recommended to fix this. Here:

2025/09/10 21:28

305 Save "17 DMX" (EQFU2617)

- 1. Shutter (change Open to  $1 \sim 15$ )
- 2. Auto (change No Effect to  $0 \sim 15$ )
- 3. Colour Macro (change Open to  $1 \sim 15$ )
- 4. Colour Macro (change Safe to 1~127)
- 1. \_\_\_\_\_

Question

The attribute, Control, is not included in this mode but is in the macro Reset.

Write macro anyway?

Ja Nein

No!

- from the second mode on make sure you give the correct filename

prolight\_equinox\_fusion\_260zr.d4 eqfu2602.r20 eqfu2608.r20 eqfu2617.r20

From: https://avosupport.de/wiki/ - **AVOSUPPORT** 

Permanent link: https://avosupport.de/wiki/personality/create\_r20\_from\_d4?rev=1653899834



Last update: 2022/05/30 08:37