# 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:

٠ ^

Ĵ

2023/03/10 21:13	5,15			creating is	Eo meo m
Prolight Equinox Fusion 260ZR - Pr File Edit View Tools Help	ersonality Builder			- 1	o x
Equinox Fusion 260ZR	Attributes Function	s Created Attributes	Current Functions	History Mode	s Max •
🖲 🥔 History	+ Generic	+ Reserved	Dimmer		^
Physical	Pan Color	ବିନ୍ରୁ Tilt Colour 1	Shutter		
⊕∬9 Attributes ⊕ <u>∯</u> Modes	Colour Colour Macro	Gobo	Gobo Rot		~
	Fixture				
-•	Manufacturer		Prolight		-
	Name		Equinox Fusion	260ZR	
	Name Name of this fixture				
	Properties DMX Va	ues Channels Wh	eel Mapping Locat	e Values Cells	
	Propenses Onix va		contrapping coost	0 10000 0010	

# 4. Identify modes, enter references

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:

Market Prolight Equinox Fusion 260ZR - Personalit	y Builder			_		×
File Edit View Tools Help						
Equinox Fusion 260ZR	Attributes Functions	Created Attributes	Current Functions	History	Modes	Max + +
Manual Physical		+ Reserved	Dimmer Shutter Colour 2			^
⊕-∯ Attributes ⊡- <u>-</u> ₽_ Modes ⊕- <u>₽</u> 2 DMX ⊕₽_ 8 DMX		Gobo	Gobo Rot			~
⊞ <u></u> 17 DMX	Manufacturer		Prolight			^
@	Name		Equinox Fusion	260ZR		~
<ul> <li>macros</li> <li>macros</li> <li>macros</li> <li>macros</li> </ul>	Name Name of this fixture					
	Properties DMX Value	s Channels Whe	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.

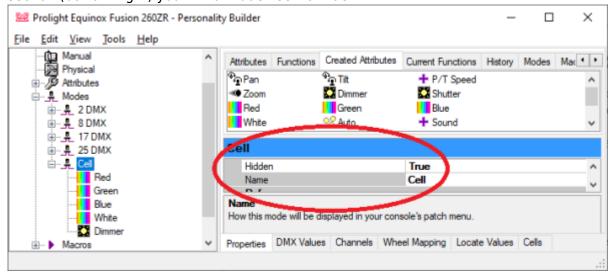
3/13

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

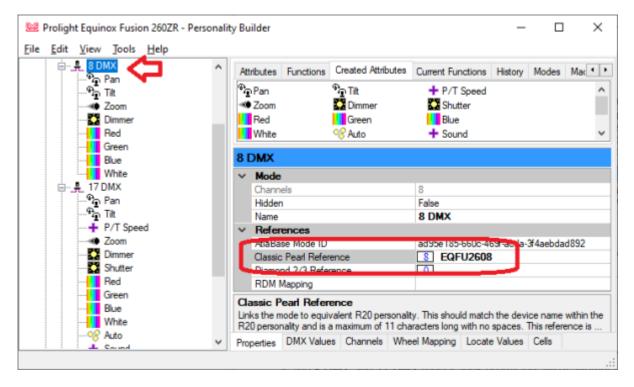
• the **25 DMX** mode contains the sections Cell Master, Cells, and Compatibility Attributes (here empty) - this is a mode which uses cells, and thus cannot be exported as R20.

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:

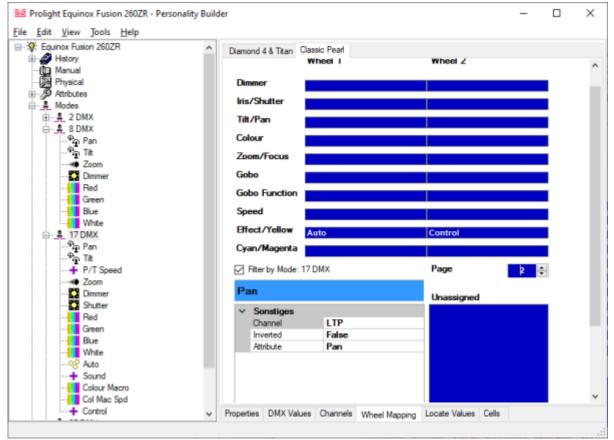
2010 Prolight Equinox Fusion 260ZR - Personality Build	der			-		×
<u>File Edit View Tools H</u> elp		<u> </u>				
Equinox Fusion 260ZR	Diamond 4 & Tian	Classic Pearl				
HISTORY		t for R29 rile Export				~
- Manual	wheel Assignme					
		Wheel 1	Wheel 2			
⊕-∯ Attributes	Dimmer					
		Dimmer				
	Iris/Shutter					
🖓 Pan	Tilt/Pan	Tilt	Pan			
n Tit	Colour		r un			
Zoom		Col Mac Spd				
🖸 Dimmer	Zoom/Focus	Zoom				
	Gobo					
Blue	Gobo Function					
THE THE PARTY OF T	Gobo Function					
(B- # 17 DMX	Speed	P/T Speed	Sound			
	Effect/Yellow		Blue			
- Pa Tit						
+ P/T Speed	Cyan/Magenta	Red	Green			
Dimmer	Filter by Mode:	DMX	Page		i i	
			_			
Red	Pan		Unassigned			
Green	<ul> <li>Sonstiges</li> </ul>		Shutter			
Blue	Channel	LTP	Auto			
White	Inverted	False	Colour Macro Control			
	Attribute	Pan	Control			
+ Sound						~
	moneties DMX Vel	ues Channes Wheel Mapping	Locate dama 1	Cells		
	Topenes DMA val	uta Charinna Wheel Mapping	g could ades	Cola		

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	21:15
------------	-------

201 Prolight Equinox Fusion 260ZR - Personality Build	er			_		×
File Edit View Tools Help						
Equinox Fusion 260ZR	Diamond 4 & Titan	Classic Pearl				
🖲 🥔 History						
- 🛄 Manual	Wheel Assignme	nt for R20 File Export				<u>^</u>
- Physical		Wheel 1	Wheel 2			
⊕-∯ Attributes ⊖- ♣ Modes	Dimmer					
⊡- <u>–</u> , modes ⊕ <u>–</u> , 2 DMX		Dimmer				
⊡- <u> </u>	Iris/Shutter		Shutter			
- Man Pan	Tilt/Pan					
-9 Tit		Tilt	Pan			
Zoom	Colour	Col Mac Spd	Colour Macro			
🚺 Dimmer	Zoom/Focus	Zoom				
Red	Gobo					
Green						
Blue White	Gobo Function					
IT DMX	Speed	P/T Speed	Sound			
- Pan			Sound			
-9° Tit	Effect/Yellow	White	Blue			
+ P/T Speed	Cyan/Magenta	Red	Green			
Zoom				_	2	
Dimmer	Filter by Mode:	17 DMX	Page	1 🖨	1	
Shutter	Pan					
Red			Unassigned			
Green	<ul> <li>Sonstiges</li> </ul>					
White	Channel	LTP				
	Inverted	False				
-+ Sound	Attribute	Pan				
Colour Macro						
Col Mac Spd						~
+ Control V	Properties DMX Val	ues Channels Wheel Mapping	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? Ja Nein	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 OK 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
🚾 Save "8 DMX" (EQ	U2608)				×	DMX" (EQFU2608).
	> Dieser PC > Dokumente > Titan > Personalities		~	Ö ,P Person	alities durchsuchen	The location
Organisieren 🔻	Neuer Ordner				8H <b>* ()</b>	is completely
Desktop	* Name	Änderungsdatum	Тур	Größe		up to you
Avo_SB_BK	*	Es wurden keine Suchergel	onisse gefunden.			(personally I'd prefer the
E Bilder	*					desktop). The
Produkte	*					file name is a
OneDrive	*					little special:
						while for the
Dieser PC						moment the
E Bilder						suggested
Desktop						name would be okay it
Dokumente	v					would be
Dateiname:	prolight_equinox_fusion_260zr.R20				~	impossible to
Dateityp:	Azure/Pearl/Sapphire Personality (*.R20)				~	import this
∧ Ordner ausblende	3			Speichern	Abbrechen	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.

302 Save "8 DMX" (EQFU2608)						×	
← → ~ ↑ 🗖 → Dieser PC → W7_System (E:) → Benutzer → Admin	istrator > Desktop	~	õ	Desktop di	urchsuchen		
Organisieren 👻 Neuer Ordner					8:: •	0	
📌 Schnellzugriff	Änderungsdatum	Тур	Größe				
Desktop *	Es wurden keine Sucherg	ebnisse gefunden.					
Avo_SB_BK 🖈							
Dokumente 🖈							
Produkte #							Here location
icke 🖈							and name are
Papierkorb *							as suggested.
OneDrive							
Dieser PC							
3D-Objekte							
Dateigame: EQFU2608.R20							
Dateityp: Azure/Pearl/Sapphire Personality (*.R20)						v	
and the second second second			_			_	
∧ Ordner ausblenden				Speichern	Abbrechen	۱ ية	
							Pretty much
							self
							explanatory:
							there is a
							macro
							defined which
							uses an
							attribute which is not
Question		×					included in
Question							this mode.
							Maybe you
The attribute, Control, is not included in the macro Reset.	this mode but is i	n					want to
Write macro anyway?							cancel here,
							go back, and
							check which
Ja	Nein						macros and
							attributes are
							defined. In
							this case it is
							100% correct,
							and we do
							not include
							the macro in
							this mode:
							click No.

2025/09/10 21:15

11/13

968 Save "17 DMX" (EQFU2617)			×	Now we are
← → ~ ↑ □ → Dieser PC → Desktop →		✓ Õ ,○ Desktop dur	chsuchen	about to save
Organisieren - Neuer Ordner			i∷ <b>-</b> 0	the next
^ Name	Änderungsdatum Typ	Größe		mode's
★ Schnellzugriff EQFU2608.R20	30.05.2022 10:30 Visualiser.R2			personality
Desktop 🖈				file. Please
Avo_SB_BK *				note that it
Elider #				did not
Produkte 🖈				change the
🦲 icke 📌				suggested
OneDrive				filename to
Dieser PC				the new
3D-Objekte				mode. You
E Bilder				need to
Desiton Y				manually
Dateinante C\Users\sb\Desktop\EQFU2608.R20	)		v	change the
Dateityp: Azon (Pearl/Sapphire Personality (* 830)			Ý	filename
∧ Ordner ausbienden		Speichern	Abbrechen	again, here to
				EQFU2617.
				This is quite
				common, in
				particular for
				attributes like
				Shutter, Gobo
				or Colour: in
				this case e.g.
Question	$\times$			the shutter
				has a value
The channels assigned to wheel	s in this mode only utilise			range from
part of the DMX range.	and the second sec			0~15 for
Note: Visualiser will require com	plete range to work correctly.			Open, but it is
Adjust limits to match?				only 0 in the
				d4 file - and
	Ja Nein			then the
				strobe range
M Prolight Equinox Fusion 260ZR - Personali	by Puilder		- 0	starts at 16,
	y builder		- U	leaving the
File Edit View Tools Help				values 115
Equinox Fusion 260ZR	Start At DMX Value 0		Pad text to	not defined.
History	End At DMX Value 255		T DU TEXT TO	THIS IS OKAY
Physical				for d4 (Titan)
Attributes	Assign One Value Auto Assign	End from Start	Start from I	as well as
∎ ¶an Pan	Shutter Functions			R20 (Classic)
⊕		art At DMX   End At DMX	Wheel Displa	files but is a
P/I Speed     Zoom	1 Open 0	0	Open	problem for
Dimmer	2 Strobe % 16		Strobe	visualiser
E Shutter				files. However
1) Open				l'd
2) Strobe %				recommend
				to adjust the
				values
				manually if
				required (see
				Creating vis
				files from d4
				personalities).

### 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:

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

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

### 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=1653900663

Last update: 2022/05/30 08:51

