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:

| M Prolight Equinox Fusion 260ZR - Pe File Edit View Tools Help | ionality Builder | – 🗆 X |
|---|--|-------------------------|
| Equinox Fusion 260ZR | Attributes Functions Created Attributes Current Func | tions History Modes Mac |
| History Manual Physical H D Attributes H L Modes | + Generic + Reserved Dimme Pan Pan Tit Shutte Colour Colour 1 Colour Colour Ø Gobo Ø Gobo | r 2 |
| ⊕ ► Macros ⊕ ● Palettes | Fixture | |
| | Manufacturer Prolight Name Equinox Fi | usion 260ZR |
| | Name Name of this fixture | |
| | Properties DMX Values Channels Wheel Mapping | Locate Values Cells |

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:

| 2012 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 | 1 |
| Manual Physical | + Generic + Reserved Par Pan Par Tilt | Dimmer ^ | |
| Attributes | Colour Colour 1 Colour Macro Gobo | Colour 2 Gobo Rot V | |
| ⊞ <u>-</u> <u>-</u> 2 DMX ⊛ <u>-</u> <u>-</u> 8 DMX | Fixture | | |
| ⊞- <u></u> . 17 DMX | Manufacturer | Prolight ^ | |
| · | Name | Equinox Fusion 260ZR | |
| B → Macros B → Palettes | Name 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:

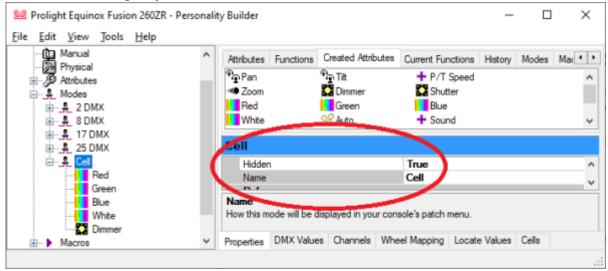
- the 2 DMX mode features only Auto and Sound as attributes. You will hardly use this at all. Let's just skip it.
- the 8 DMX and 17 DMX modes look promising. We'll attempt to export those as R20.

| Market Prolight Equinox Fusion 260ZR - Per File Edit View Jools Help | onality Builder | | | _ | | × |
|---|------------------------|---------------------------|----------------------------|---------|-------|---------|
| | ^ Attributes Fi | unctions Created Attribut | tes Current Functions | History | Modes | Mac • • |
| ⊜- <u>#</u> 8DMX | + Generic Pan | + Reserved | Dimmer 🖸 Dimmer | | | ^ |
| | Colour Colour Ma | icro 🖉 Gobo | Colour 2 | | | ~ |
| Dimmer Red | Fixture | | | | | |
| Green | Manufact Name | urer | Prolight Equinox Fusion | 260ZR | | Ŷ |
| ⊛- <u>-</u> <u>म</u> 17 DMX ⊕ <u>म</u> 25 DMX | Name Name of this f | | | | | |
| i∰ <u>-</u> R_ Cell ⊛ ▶ Macros | v Properties D | MX Values Channels | Wheel Mapping Locate | Values | Cells | |

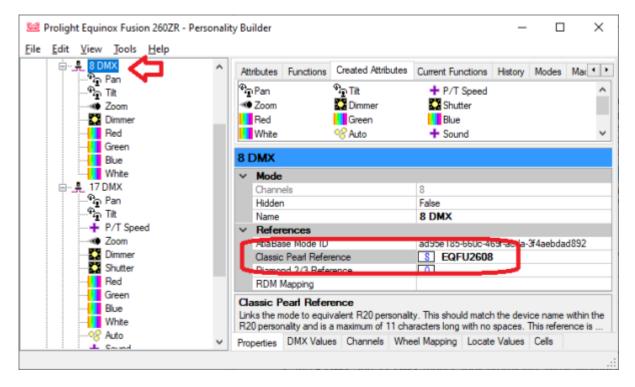
• the **25 DMX** mode contains the sections Cell Master, Cells, and Compatibility Attributes (here empty) - this is a mode which uses cells, and thus cannot be exported as R20.

| M Prolight Equinox Fusion 260ZR - Persona | lity Builder | - 0 | × |
|---|------------------------------------|---|-----|
| <u>File Edit View Tools H</u> elp | | | |
| Equinox Fusion 260ZR | Attributes Functions Created Attri | ributes Current Functions History Modes | Mac |
| Manual | + Generic + Reserve | d Dimmer | ^ |
| Physical Physical Attributes | Colour Colour 1 | Colour 2 | - 1 |
| | Colour Macro O Gobo | Gobo Rot | * |
| | Fixture | | |
| ⊞- <u>-</u> 17 DMX | Manufacturer | Prolight | ^ |
| ia | Name | Equinox Fusion 260ZR | ~ |
| e-se Cells Compatibility Attributes | Name Name of this fixture | | |
| 🕀 🕨 Macros | 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:

| 00.21 | Last update: 2022/05/30 08:21 | personality:create_r20_from_ | _d4 https://www.avosupport.de/wiki/personality/cr | reate_r20_from | _d4?rev=1653898869 |
|-------|----------------------------------|------------------------------|---|----------------|--------------------|
|-------|----------------------------------|------------------------------|---|----------------|--------------------|

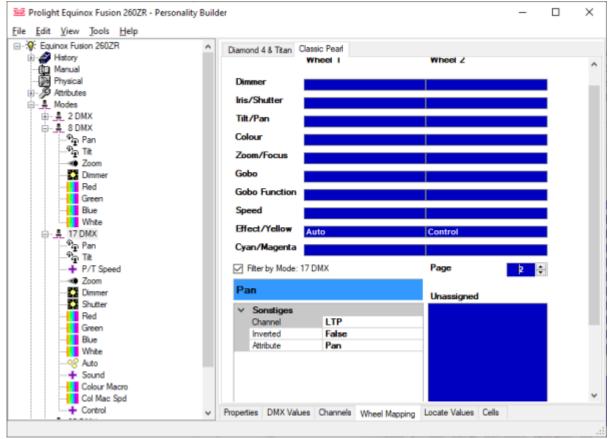
| 🔤 Prolight Equinox Fusion 260ZR - Personality Bu | ilder | | | - 0 | \times |
|--|--------------------|-----------------------|-------------------------|-----|----------|
| <u>File Edit View Tools H</u> elp | | ~ 3 | | | |
| Equinox Fusion 260ZR | Diamond 4 & Tan | Classic Pearl | - | | |
| 🗈 🥔 History | | t for B29 rile Export | | | ^ |
| Manual | Wheel Assignme | | | | |
| >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> | | Wheel 1 | Wheel 2 | | |
| B- 4 Modes | Dimmer | Dimmer | | | |
| | Iris/Shutter | Contract | | | |
| <u>向-</u> 8 DMX | | | | | |
| ିନ୍ଦୁ Pan | Tilt/Pan | Tilt | Pan | | |
| | Colour | Col Mac Spd | | | |
| Dimmer | Zoom/Focus | Zoom | | | |
| Red | | 200m | | | |
| Green | Gobo | | | | |
| | Gobo Function | | | | |
| | Speed | P/T Speed | Sound | | |
| Pan Pan | Effect/Yellow | | Blue | | |
| - Pp Tit | | | Blue | | |
| + P/T Speed | Cyan/Magenta | Red | Green | | |
| Dimmer | Filter by Mode: | T DMX | Page | 1 🗐 | |
| | | | | | |
| | Pan | | Unassigned | | |
| Green | ✓ Sonstiges | | Shutter | | |
| Blue | Channel | LTP | Auto | | |
| | Inverted | False | Colour Macro Control | | |
| | Attribute | Pan | | | |
| Colour Macro | | | | | ~ |
| | Properties DMX Val | ues Channus Wheel Ma | pping Locat plues Cell | 5 | |
| | | The state | she a | | .: |

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:

| Prolight Equinox Fusion 260ZR - Perso | onality Builde | r | | | | | - | | \times |
|--|----------------|------------|---------------|--------------|---------------|---------------|----------|---|----------|
| e <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp | | | | | | | | | |
| - 🔆 Equinox Fusion 260ZR | ^ | Diamond 4 | & Titan Clas | sic Pearl | | | | | |
| History | | | signment fo | | Export | | | | ^ |
| - 🔯 Manual - 🔯 Physical | | mice / | - | heel 1 | CAPON | Wheel 2 | | | |
| Attributes | | | | neeli | | wheel 2 | | | |
| □-♣ Modes | | Dimmer | Di | mmer | | | | | |
| ⊕- <u></u> ♣_2 DMX | | lris/Shu | | | | | | | |
| | | | | | | Shutter | | | |
| Pan Pan | | Tilt/Par | Ti | it | | Pan | | | |
| | | Colour | C | ol Mac Spd | | Colour Macro | | | |
| Dimmer | | Zoom/F | | | | Colour macri | <u> </u> | | |
| Red | | | ocus Zo | om | | | | | |
| Green | | Gobo | | | | | | | |
| Blue | | Gobo Fi | unction | | | | | | |
| White | | Speed | | | | | | | |
| | | | | T Speed | | Sound | | | |
| Pan Tit | | Effect/ | Yellow 🛛 | hite | | Blue | | | |
| P/T Speed | | Cyan/M | agenta 📊 | d | | Green | | | |
| Zoom | | _ | | | | | | | |
| Dimmer | | Filter I | by Mode: 17 [| XMX | | Page | 1 | ÷ | |
| Shutter | | Pan | | | | | | | |
| | | | | | | Unassigned | | | |
| Blue | | ✓ Son | | 1.70 | | | | | |
| White | | Char | | LTP False | | | | | |
| | | Attrit | | Pan | | | | | |
| + Sound | | | rune. | | | | | | |
| Colour Macro | | | | | | | | | |
| Col Mac Spd | | | Difference in | ~ . | | 1 | | | |
| - Control | ~ | Properties | DMX Values | Channels | Wheel Mapping | Locate Values | Cells | | |

7/11

- 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 |
|---|---|
| Error X The pearl reference, **, for the mode *2 DMX* is invalid. Skip OK Abbrechen | here it complains about the missing reference for the 2 DMX mode. We left this one empty intentionally. Thus click 0K here to 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" (EQF | | | | | × | DMX" (EQFU2608). |
| $\leftrightarrow \rightarrow \uparrow \uparrow$ | > Dieser PC > Dokumente > Titan > Personalities | | × | Ö 🔎 Pers | onalities durchsuchen | The location |
| Organisieren 👻 | Neuer Ordner | lades and them | I | G-18- | III 🕶 (| is completely |
| 🔂 Dokumente 📰 Bilder | prolight_equinox_fusion_260zr.R20 | Anderungsdatum Es wurden keine Suchergeb | Typ inisse 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: | Azure/Pearl/Sapphire Personality (*.R20) | | | | ~ | import this |
| Ordner ausblender | | | | Speich | 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. |

| Last update: 2022/05/30 08:21 | personality:create_r20_from_d4 https://www.avosupport.de/wiki/personality/create_r20_from_d4?rev=1653898869 |
|----------------------------------|---|
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| Save "8 DMX" (EQFU2608) | |
|--|---------------|
| | |
| ← → × ↑ 🖬 > Dieser PC > W7_System (E) > Benutzer > Administrator > Desktop V & O 🔎 Desktop durchsuchen | |
| Organisieren 👻 Neuer Ordner | |
| ▲ Name Ānderungsdatum Typ Größe | |
| Es wurden keine Suchergebnisse gefunden. | |
| Avo_SB_BK 💉 | |
| Dokumente 🖈 | |
| Fider * | Here location |
| icke # | and name are |
| A Papierkorb | as suggested. |
| OneDrive | |
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| Dateigame: EQFU2608.R20 ~ | |
| Dateityp: Azure/Pearl/Sapphire Personality (*.R20) V | |
| ∧ Ordner ausblenden Speichern Abbrechen | |

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 $1 \sim 15$)
- 4. Colour Macro (change Safe to $1 \sim 127$)
- 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://www.avosupport.de/wiki/ - **AVOSUPPORT**

Permanent link: https://www.avosupport.de/wiki/personality/create_r20_from_d4?rev=165389886



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