



**Application Note Title:**      **Creating Custom Colour palettes for the veo**  
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## Introduction

The Sonatest veo provides a selection of standard colour palettes for the B- and C-scan type displays. These allow the user to select the appropriate colours to aide reporting and analysis. Sometimes additional colour palettes are required, for example to assist in analysis of specific data or to comply with company reporting standards. **This document gives an outline of how to create and use custom palettes.**

Veo colour palettes are defined as XML files. XML (Extensible Mark-up language) is a set of rules for creating machine readable documents. Many programs use XML type files, for example, the current Microsoft office formats (.docx etc) use a variation of XML.

Creating palette files does not require computer programming experience, but does require an appreciation of the precision required.

## Sample Colour Palette definition file

```

<!DOCTYPE ColorPalette>
<colorpalette name="Rainbow" version="1">

  <specialcolor value="red" id="nodata" />
  <specialcolor value="yellow" id="noift" />
  <specialcolor value="white" id="filtered" />

  <color pos="-100" value="#AA0000" />
  <color pos="-90" value="red" />
  <color pos="-60" value="yellow" />
  <color pos="-45" value="lime" />
  <color pos="-25" value="#8888FF" />
  <color pos="-15" value="#CCCCFF" />
  <color pos="-3" value="white" />
  <color pos="0" value="white" />
  <color pos="3" value="white" />
  <color pos="15" value="#CCCCFF" />
  <color pos="25" value="#8888FF" />
  <color pos="45" value="lime" />
  <color pos="60" value="yellow" />
  <color pos="90" value="red" />
  <color pos="100" value="#AA0000" />
</colorpalette>

```

New colour palettes for the veo and for UT Studio can be created fairly easily. Above is an example of the "Rainbow" palette file, from the db/palettes/rainbow.xml file:

The characters in blue (greater than, less than, slashes, etc.) are all very important. However, you can add additional spacing if necessary.

## XML Tag Details

Use Notepad to edit colour palette files. Each palette file has a mandatory header, which tells the system that it is a colour palette file:

```
<!DOCTYPE ColorPalette>
```

Then, the name and the version of the palette are described. It is **mandatory** that you change the name to something else. Let's create the "Blue Lagoon" palette. Version is always "1".

```
<colorpalette name="Blue Lagoon" version="1">
```

There are 3 special colours that need to be specified before we go on. They are the **filtered**, **nodata** and **noift** colours. Each of these is used in special cases:

**filtered** Data was filtered out using a gate or box threshold.

**nodata** The frame is does not contain inspection data. (No samples were collected.)

**noift** The Interface Triggering (IFT) gate, or the Straightening feature, has realigned the data. This is the fill color for the aligned zones.

The **value** is can be either a colour name or an #RRGGBB (Red-Green-Blue) colour code. The RGB colour codes start from #000000 (black) to #FFFFFF (white). You can mix colour names and RGB colours. Use the following references as guidance to select colors:

List of allowed colours: <http://www.w3.org/TR/SVG/types.html#ColorKeywords>

RGB colour picker: <http://www.lightsphere.com/colors>

```
<specialcolor value="red" id="nodata" />
<specialcolor value="yellow" id="noift" />
<specialcolor value="#FFFFFF" id="filtered" />
```

Then, comes the complete palette spread. Your palette **must** span from -100 %FSH to 100 %FSH (described as the **pos** parameter). Let's make the Blue Lagoon palette start with White (0xFFFFFFFF), then gradually make it turn Blue up to 80 %FSH, where it will turn Red and then fade to Black:

```
<color pos="-100" value="black" />
<color pos="-80" value="red" />
<color pos="-79.999" value="blue" />
<color pos="0" value="#FFFFFF" />
<color pos="79.999" value="blue" />
<color pos="80" value="red" />
<color pos="100" value="black" />
```

Notice how this palette is configured to show the same colours in the positive and negative spectrums. Most palettes are configured this way, except for the TOFD palette, where negative is Black and positive is White.

Also notice how spacing was added to improve readability, and how the blue colour sharply turns to red at 80%.

Finally, do not forget to add this closing tag:





```
</colorpalette>
```




## Here is the resulting Blue Lagoon palette!



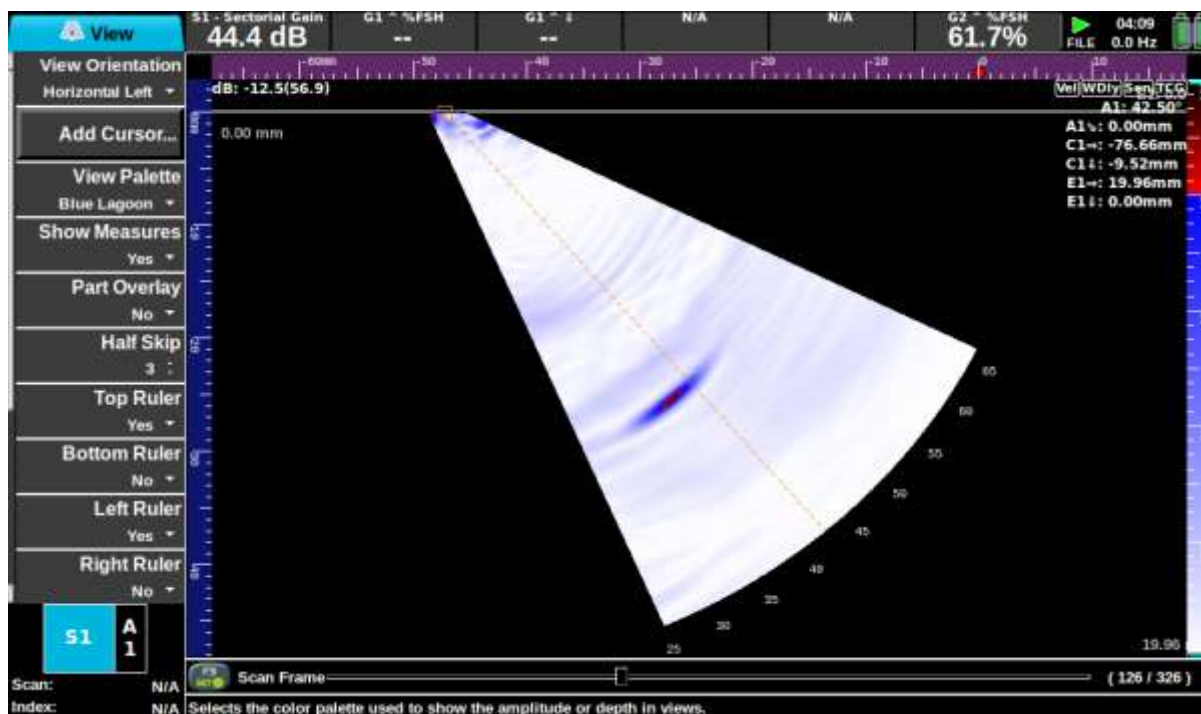
```
<!DOCTYPE ColorPalette>
<colorpalette name="Blue Lagoon" version="1">
  <specialcolor value="red" id="nodata" />
  <specialcolor value="yellow" id="noift" />
  <specialcolor value="#FFFFFF" id="filtered" />
  <color pos="-100" value="black" />
  <color pos="-80" value="red" />
  <color pos="-79.999" value="blue" />
  <color pos="0" value="#FFFFFF" />
  <color pos="79.999" value="blue" />
  <color pos="80" value="red" />
  <color pos="100" value="black" />
</colorpalette>
```

## Installing the palette file in the veo

1. Save your palette file with an XML extension (ex: bluelagoon.xml), and copy the file to a USB key.
2. Connect your USB key to the veo.
3. In the **Prefs** menu, open the Media Browser.
4. In the first browser, select your USB disk with .
5. Press the  button to focus the second file list browser.
6. Press  to select the veo "Internal" memory.
7. By using the Left and Right arrows, navigate to the **db\palettes** directory. You should see the existing palettes in this folder.
8. Press  again to return to the first browser.

9. Select your XML file with the Up or Down arrows and press .
10. Press , then select the **Copy** button and press .
11. Your palette is now on the veo.
12. You need to shut down the veo and restart it for the palette to be discovered.

The custom palette will now be available for use, just like any other.



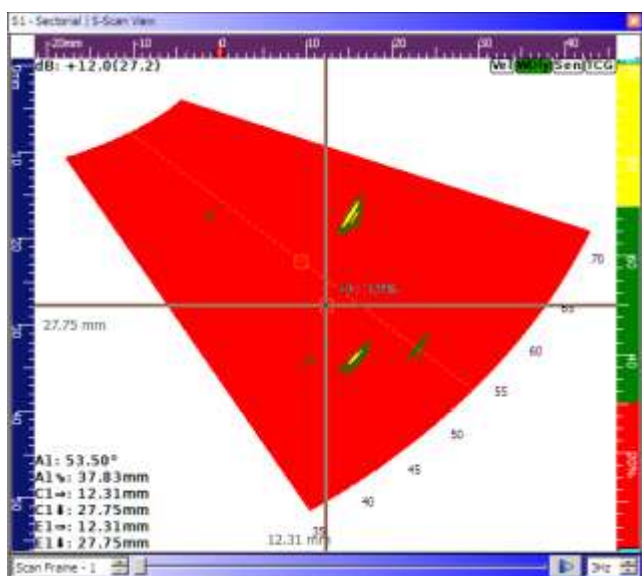
## Installing the palette file in the UTStudio

1. Simply copy the XML file (ex: bluelagoon.xml) in the “**My Documents\My UTStudio Files\db\palettes**” directory.
2. Restart UT Studio.

## Creating palettes with 'solid colours'

The palettes shown above use mostly 'blended colours', in order to create solid blocks of colour we add two entries delimiting the high and low points of each solid colour block.

For example to create the rather unpleasant looking palette 'Traffic Light' (intended for depth / thickness measurement where red is thin, green OK, yellow thicker than expected )



We use the file below

```
<!DOCTYPE ColorPalette>
<colorpalette name="TRAFFIC LIGHT" version="1">
  <specialcolor value="blue" id="nodata" />
  <specialcolor value="white" id="noift" />
  <specialcolor value="black" id="filtered" />
  <color pos="-100" value="yellow" />
  <color pos="-70" value="yellow" />
  <color pos="-69.999" value="green" />
  <color pos="-30" value="green" />
  <color pos="-29.999" value="red" />
  <color pos="0" value="red" />
  <color pos="29.999" value="red" />
  <color pos="30" value="green" />
  <color pos="69.999" value="green" />
  <color pos="70" value="yellow" />
  <color pos="100" value="yellow" />
</colorpalette>
```

Note that for 'Depth Mode' display the range from zero to +100 is used, as for rectified signals. The range over which the palette is applied can be set, outside this the 'end colours' corresponding to zero and +100 are used.