**Test script for automatic color scaling**

**Context:**

This feature changes the current color scaling behaviour. Before this feature was introduced, the color scale was set to the min and max value of the active source. Our approach here is to set the color scale to values between the minimum and 10% of the maximum of all visible sources and to initially have a linear color scale.

Other settings, such as default log scaling or technique-dependent scaling, can be easily added in the future.

**Test data:**There are two data sets attached.

MDHisto1 which has a data range of 6.44544 to 357.722

MDHisto2 which has a data range of 19.0626 to 30541.4

**Single workspace:**

*MD-HISTO*

You should make notes of the values of the “Maximum” and “Minimum” line edit fields as well as the state of the “Automatic Color Scaling” (from now on CB1) and “Use Log Scaling” (from now on CB2) checkboxes.

1. Open the sample workspace MDHisto1 in the VSI
   1. Confirm that the auto scaling checkbox is checked.
   2. Confirm that the logarithmic scaling checkbox is **not** checked.
   3. Confirm that the values for the minimum and the maximum are minMDHisto1=6.44544 and (maxMDHisto1- minMDHisto1)\*0.1 = 41.5731
2. Make the workspace invisible by clicking the “eye” symbol in the pipeline browser widget.
   1. Since no other workspaces are visible, make sure that the color scale was set to 1e-2 for the “Minimum” line edit field and 1e-2 for the “Maximum” line edit field.
3. Make the workspace visible again by clicking the “eye” symbol in the pipeline browser widget.
   1. Confirm that the line edit fields for the “Minimum “and the “Maximum” are reset to the initial value.
4. Uncheck CB1 and increase the value of the “Maximum” line edit field.
5. Make the workspace invisible.
   1. Confirm that the values in the line edit field have not changed.
6. Make the workspace visible.
   1. Confirm that the values in the line edit field have not changed.
7. Check CB2
8. Check CB1
   1. Confirm that CB2 remains checked (your setting is being respected)
   2. Confirm that the line edit field values are set to the initial values.
9. Delete the workspace by pressing the “Delete” button in the properties panel.
   1. Confirm that the line edit fields are set to the values in step 2.
10. Uncheck CB1, uncheck CB2 and increase the value of the “Maximum” line edit field.
11. Reload the same workspace into the VSI.
    1. Confirm that CB1 checkbox remains unchecked.
    2. Confirm that the value in the “Maximum” line edit field has not changed.
12. Check CB1
    1. Confirm that CB2 remains unchecked.
    2. Confirm that the line edit field values are set to the initial values (when the workspace was first loaded)
13. Uncheck CB1 and increase the value of the “Maximum” line edit field.
14. Switch to THREESLICE view
    1. Confirm that the line edit fields have not changed.
    2. Confirm that CB1 remains unchecked.
15. Check CB1
    1. Confirm that the line edit fields have been set to the initial value
16. Make the workspace invisible.
    1. Confirm that the line edit fields have changed.
17. Disable CB1
18. Switch back to the STANDARD view.
    1. Confirm that the workspace has become visible. For a single workspace this makes sense and is done automatically by ParaView.
    2. Confirm that the “Automatic Color Scaling” checkbox remains unchecked.
    3. Confirm that the line edit fields remain unchanged.
19. Check the “Automatic Color Scaling” checkbox
    1. Confirm that the line edit fields reverted back to the initial value.

**Two workspaces:**

You should make notes of the values of the the “Maximum” and “Minimum” line edit fields as well as the state of the “Automatic Color Scaling” and “Use Log Scaling” checkboxes. You need a second MD-Histo workspace which is based on a data set with a larger max value than the previous workspace.

1. Open the MDHisto1 workspace you used for the previous test in the VSI (this is called WS1 from now on)
   1. Confirm the line edit field values correspond to the previous values.
2. Open the MDHisto2 workspace (this is called WS2 from now on)
3. Switch to the STANDARD view and make both WS1 and WS2 visible.
   1. Confirm that the “Minimum” line edit field contains the minimum data entry of the two workspaces you are using
   2. Confirm that the “Maximum” line edit field has changed. You have the original data ranges [(r\_min1, r\_max1) and (r\_min2, r\_max2)] at hand, you can confirm that the lower bound for the color range is min(r\_min1, r\_min2) and the upper bound is (min(r\_min1, r\_min2) + 0.1\*(max(r\_max1, r\_max2) - min(r\_min1, r\_min2) ))

Note that the values should be: minTotal=6.44544 and maxTotal=3059.94

1. Make WS2 invisible.
   1. Confirm that the line edit fields change back to the initial value.
2. Make both workspaces visible again.
   1. Confirm that the line edit fields contain the values of the line edit fields in STEP 3.

**Line edit entry checking:**

We want to make sure that the user cannot insert data which will cause inconsistencies. This is, for example, a max value which is smaller than the min value of the color scale or negative and zero values when dealing with logarithmic color scaling.

1. Close the VSI and load MDHisto1
   1. Confirm that CB1 is enabled
   2. Confirm that CB2 is disabled
2. Disable CB1
3. Set the value of the maximum to a value below the minimum
   1. Confirm that the maximum line edit field is reset to its previous value
4. Set the value of the minimum to a value above the maximum
   1. Confirm that the minimum line edit field is reset to its previous value
5. Set the minimum field to a value below 0
6. Check CB2
   1. Confirm that the minimum field was reset to a default value of 0.1
7. Try setting the minimum field to a negative value
   1. Confirm that this is not possible
8. Set the minimum field to 0
   1. Confirm that the minimum field was reset to a default value of 0.1
9. Disable CB2
10. Set a minimum value below 0
    1. Confirm that this is possible

**Issue with inconstancies when editing from the property panel:**

This is not addressed since we want to get rid of these options from the property panel. This is something which had been inconsistent previously.