

# Running the Program

## Running, Post Processing by ParaView

```
$> cd <$fem3d>/run  
$> ./sol (or ./sol.exe)  
  
$> ls test.inp  
test.inp
```

# UCD Format (1/2) \*.inp

## Unstructured Cell Data

### 要素の種類

点

線

三角形

四角形

四面体

角錐

三角柱

六面体

二次要素

線2

三角形2

四角形2

四面体2

角錐2

三角柱2

六面体2

### キーワード

pt

line

tri

quad

tet

pyr

prism

hex

line2

tri2

quad2

tet2

pyr2

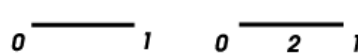
prism2

hex2

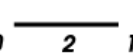
点



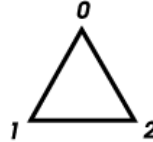
線



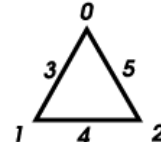
線2



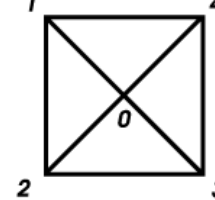
三角形



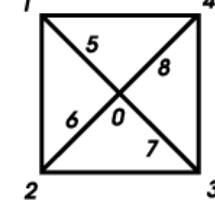
三角形2



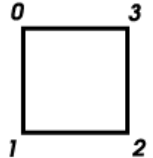
四角錐



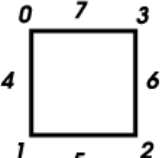
四角錐2



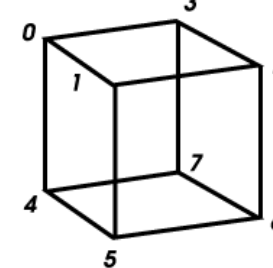
四角形



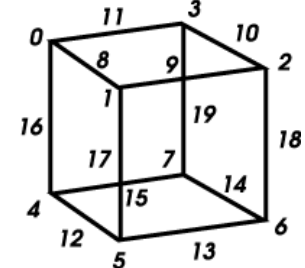
四角形2



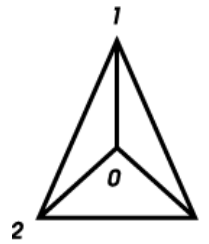
六面体



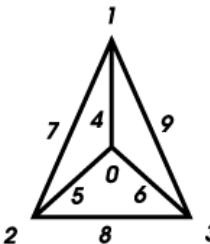
六面体2



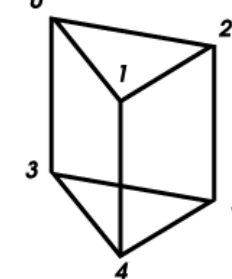
三角錐



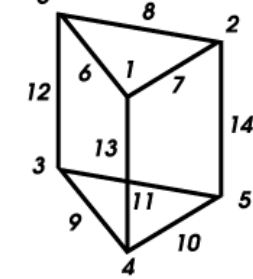
三角錐2



三角柱



三角柱2



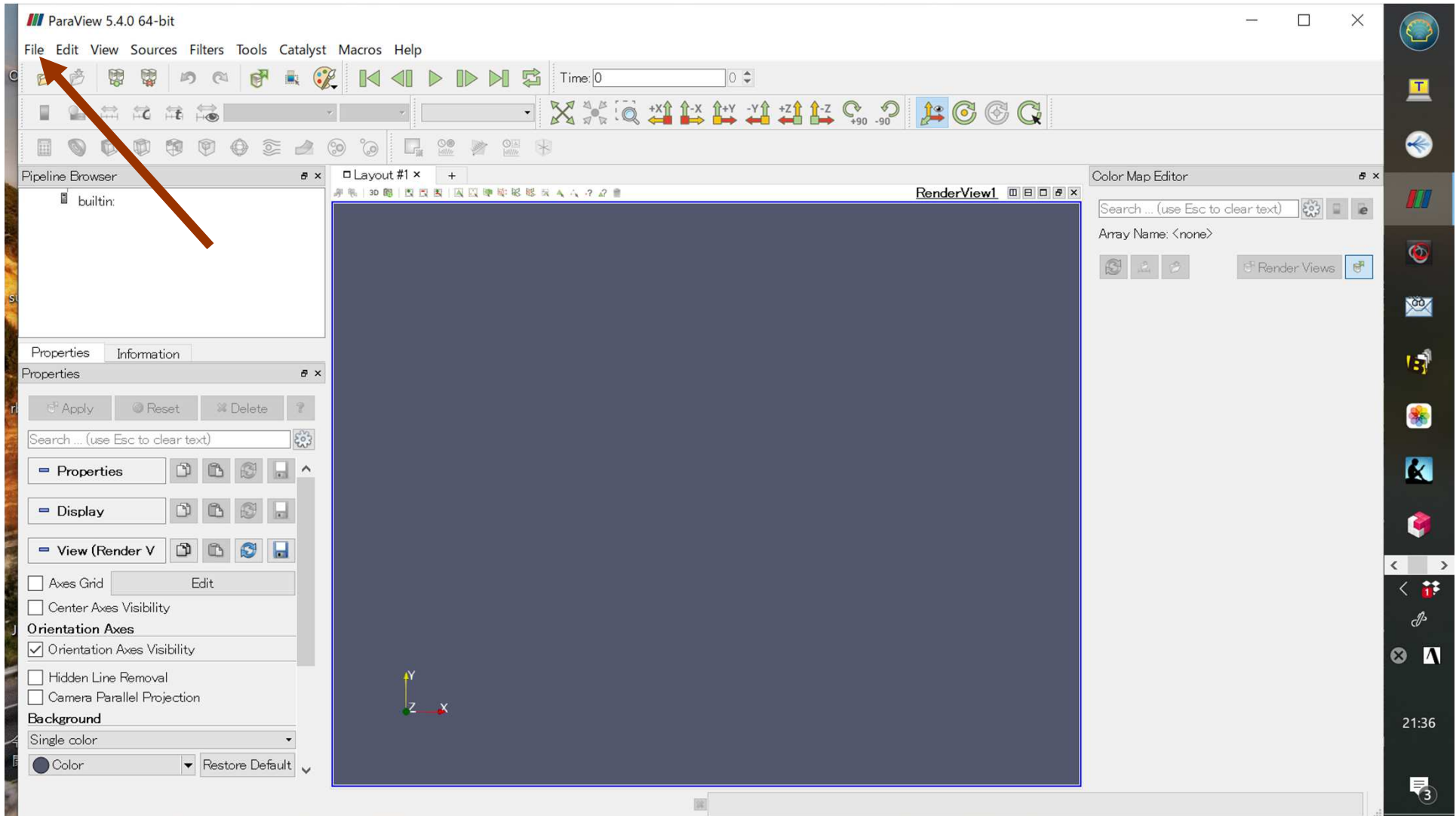
# UCD Format (2/2) \*.inp

- Originally for AVS, MicroAVS
- Extension of the UCD file is “inp”
- There are two types of formats. Only old type can be read by ParaView.

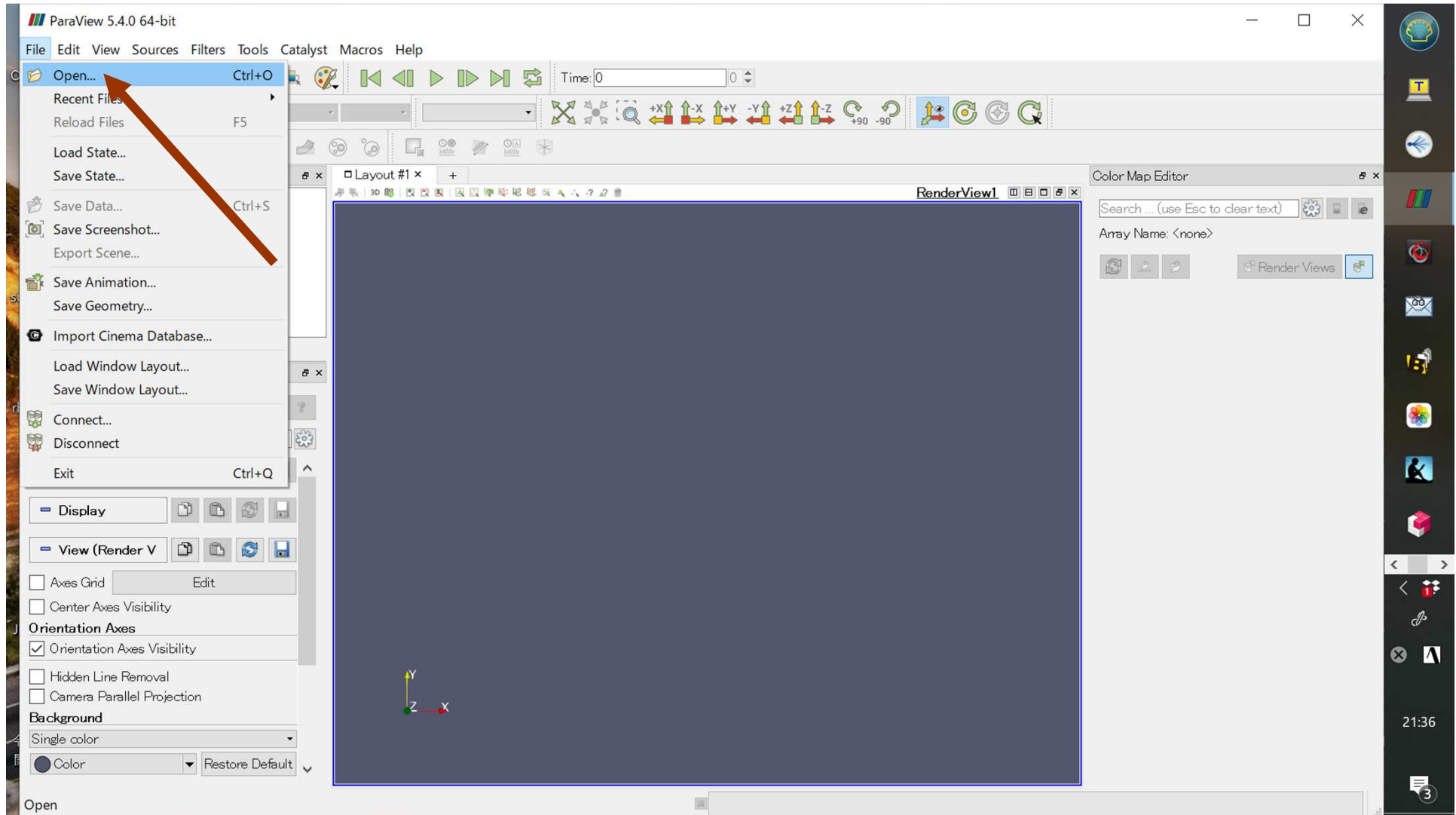
# Example NX=NY=NZ=2, 8 Cell's

27	8	0	1	0						(Vertex#)	(Cell#)	(DOF#-on-Vertex)	(DOF#-on-Cell)	(DOF#-in-Model)		
					(Vertex ID)	(X)	(Y)	(Z)								
1			0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
2			1.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
3			2.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
4			0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
5			1.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
6			2.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
7			0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
8			1.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
9			2.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00								
10			0.000000E+00	0.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
11			1.000000E+00	0.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
12			2.000000E+00	0.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
13			0.000000E+00	1.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
14			1.000000E+00	1.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
15			2.000000E+00	1.000000E+00	0.000000E+00	1.000000E+00	0.000000E+00	0.000000E+00								
16			0.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
17			1.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
18			2.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
19			0.000000E+00	0.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
20			1.000000E+00	0.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
21			2.000000E+00	0.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
22			0.000000E+00	1.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
23			1.000000E+00	1.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
24			2.000000E+00	1.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
25			0.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
26			1.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
27			2.000000E+00	2.000000E+00	0.000000E+00	2.000000E+00	0.000000E+00	0.000000E+00								
1	1 hex		1	2	5	4	10	11	14	13	(Cell ID) (Material ID) (Cell-Type) (Vertices (1-8))					
2	1 hex		2	3	6	5	11	12	15	14						
3	1 hex		4	5	8	7	13	14	17	16						
4	1 hex		5	6	9	8	14	15	18	17						
5	1 hex		10	11	14	13	19	20	23	22						
6	1 hex		11	12	15	14	20	21	24	23						
7	1 hex		13	14	17	16	22	23	26	25						
8	1 hex		14	15	18	17	23	24	27	26						
1		1														
VAL, VAL												(Componet#-on-Cell)	(Componenr ID (=1))			
1	8.071429E+00												(Name of Component)	(Unit of Component)		
2	8.500000E+00												(Cell ID)	(Value of 1st Component)	(Value of 2nd)...	
3	8.500000E+00															
4	8.928571E+00															
5	4.214286E+00															
6	4.500000E+00															
7	4.500000E+00															
8	4.785714E+00															

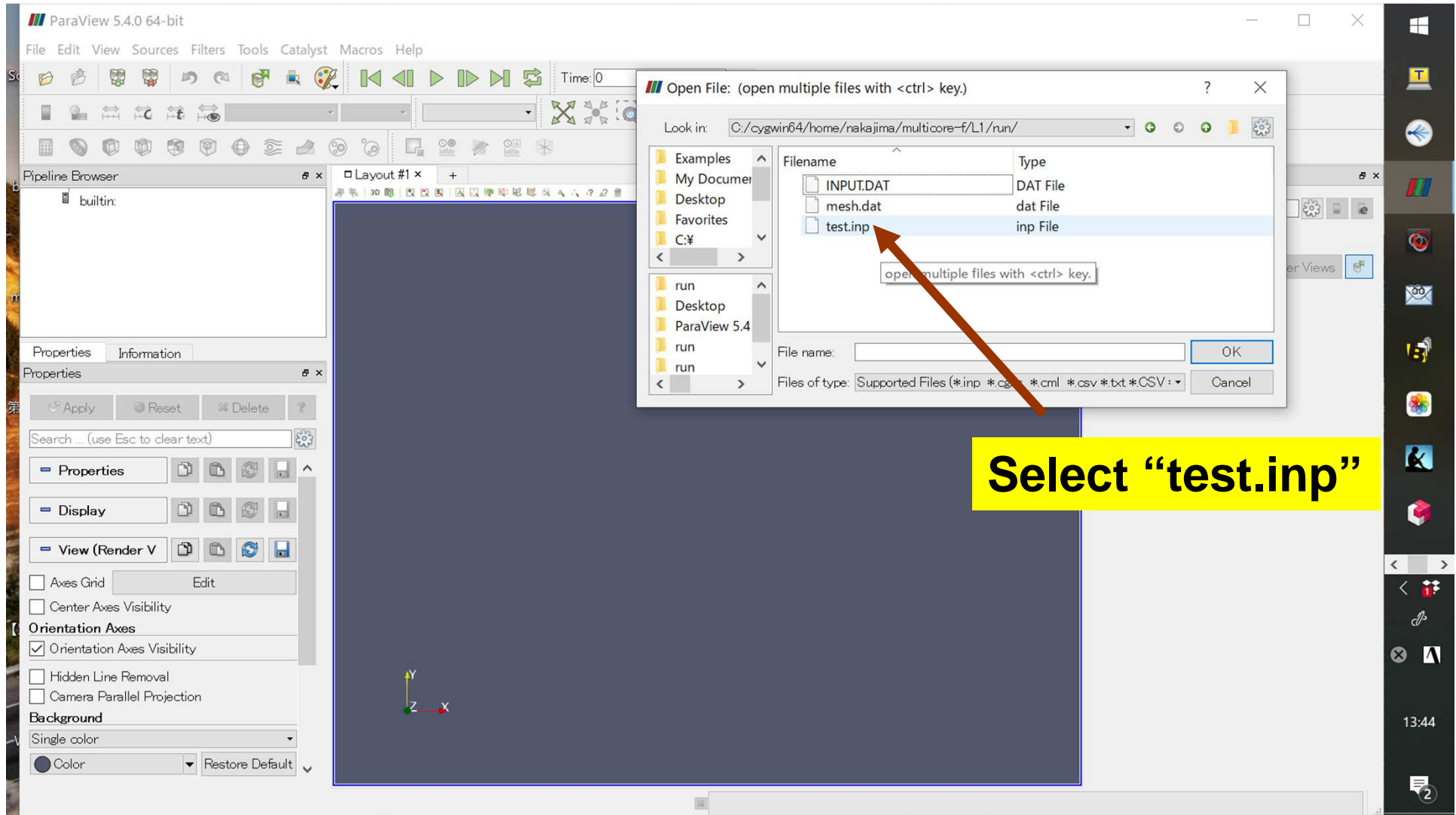
# Open the UCD file (1/3)



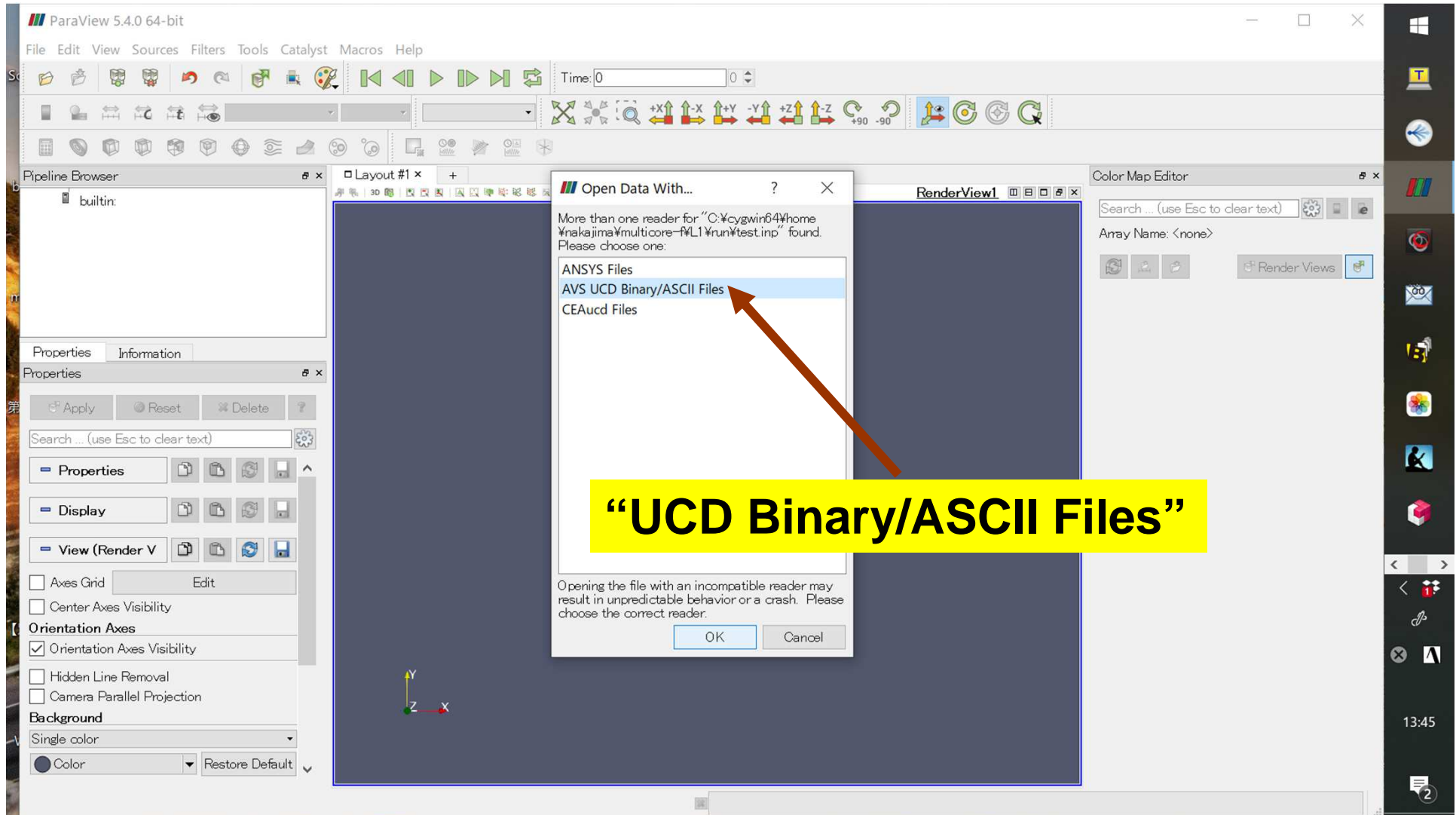
# Open the UCD file (2/3)



# Open the UCD file (3/3)

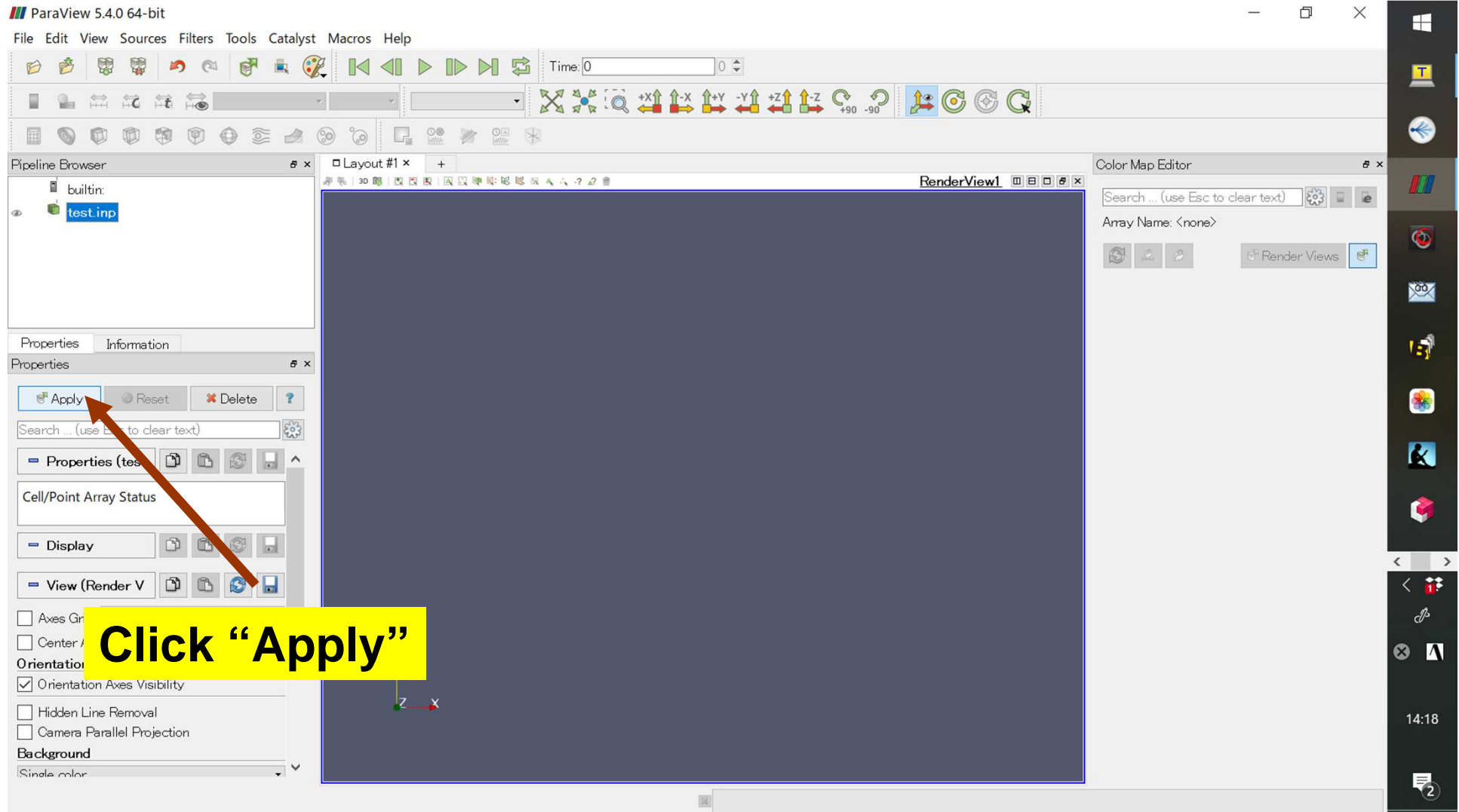


# Select UCD Format

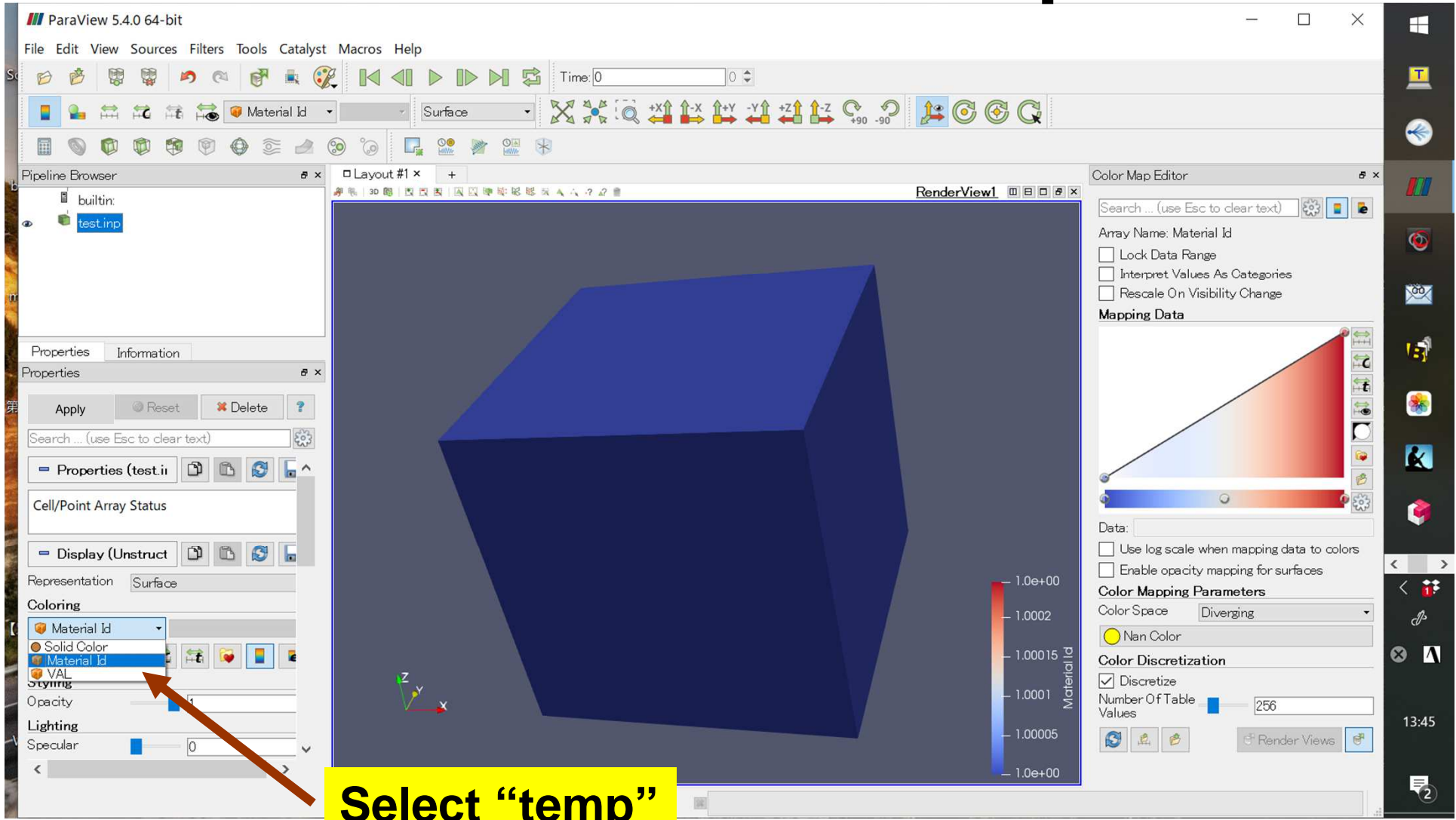




# Click “Apply”



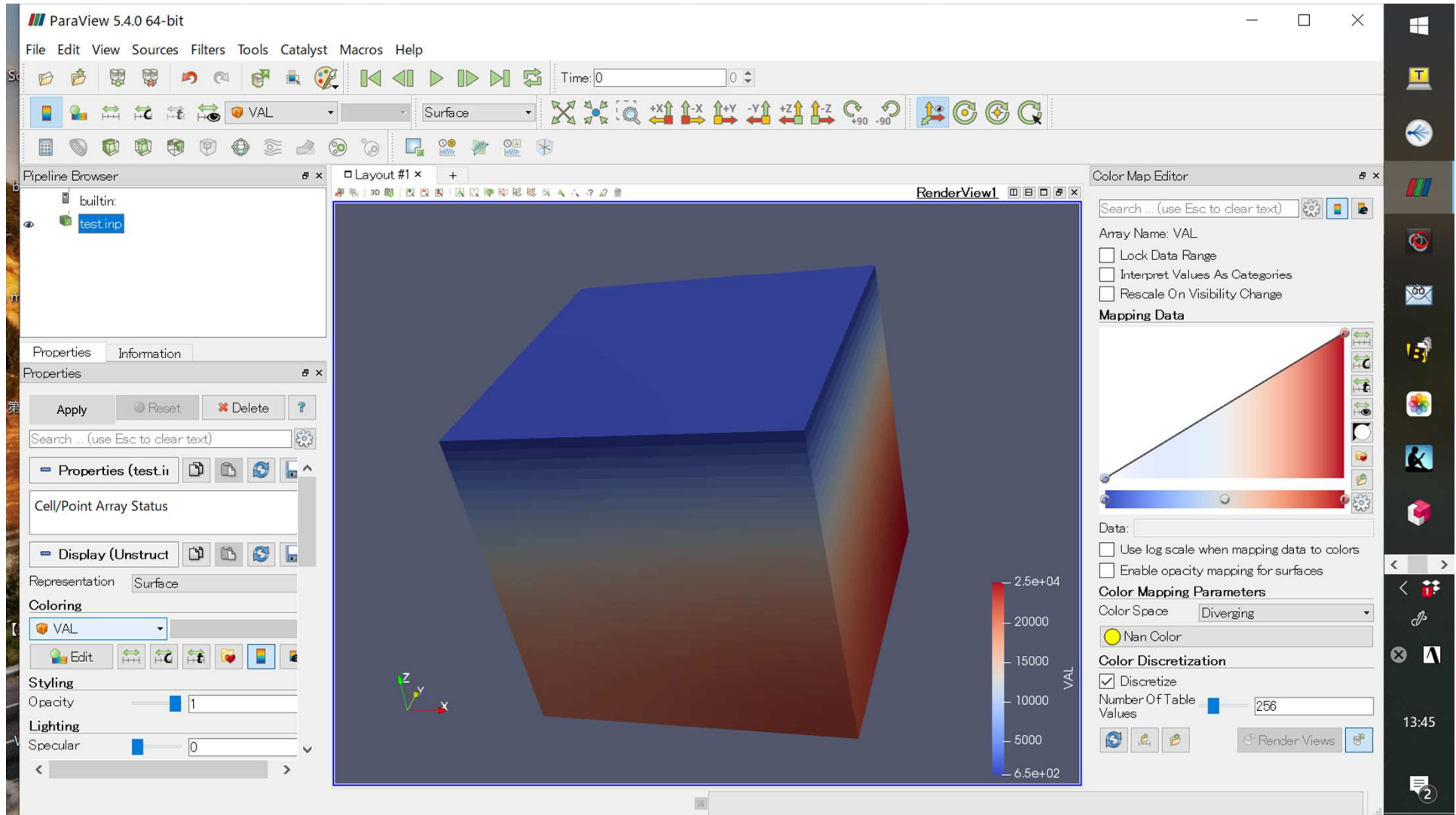
# Pulldown “Coloring” Material ID -> temp



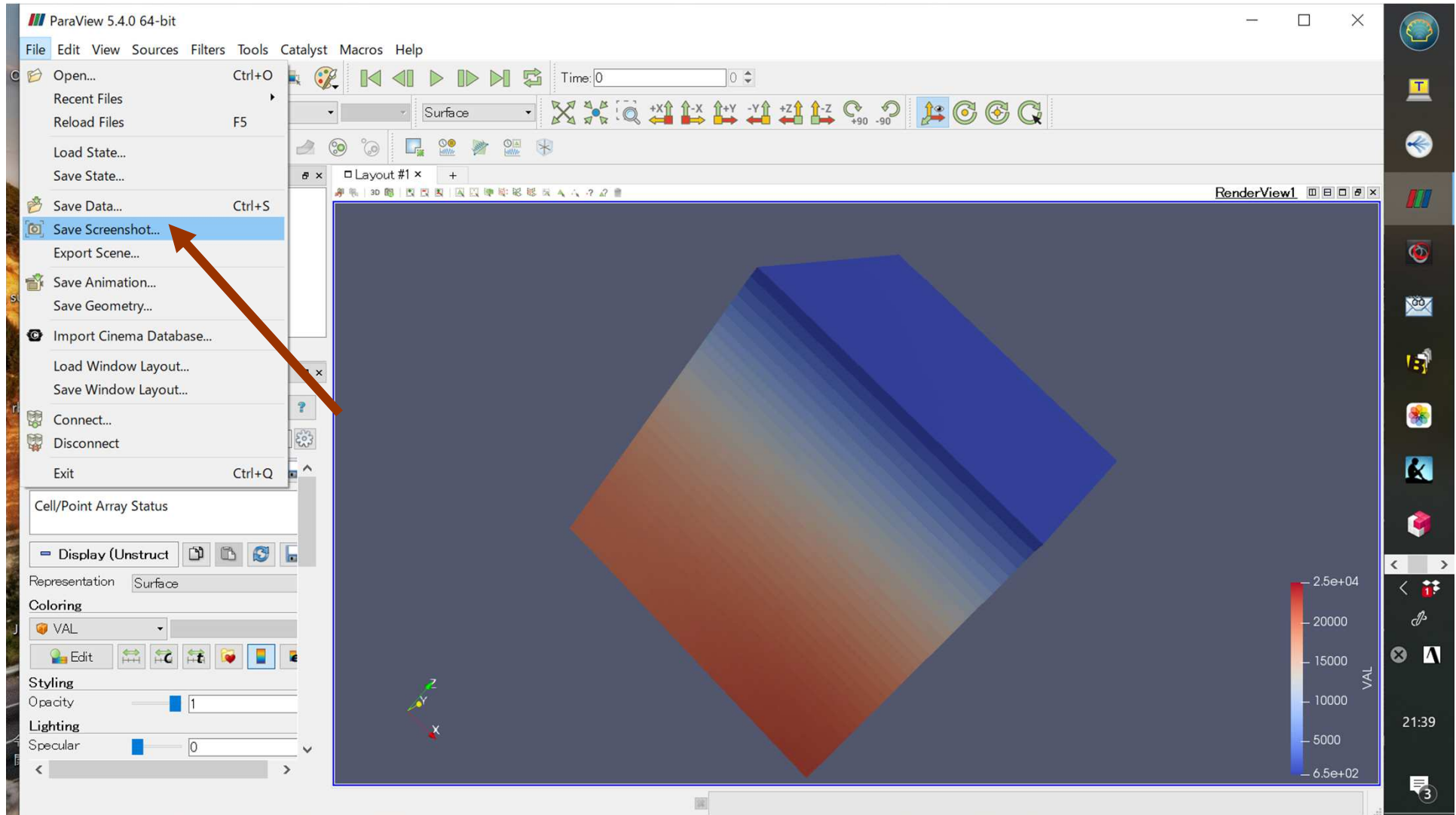
The screenshot displays the ParaView 5.4.0 64-bit software interface. The main window shows a 3D rendering of a blue cube. The left sidebar contains the Pipeline Browser, Properties panel, and Information panel. The Properties panel is set to 'Surface' representation. The 'Coloring' section is expanded, and the 'Material Id' pulldown menu is open, showing a list of options including 'Material Id', 'Solid Color', 'Material Id', 'VAL', and 'temp'. A red arrow points to the 'temp' option. The right sidebar shows the Color Map Editor panel, which is currently set to 'Material Id' as the array name. The Color Map Editor panel includes a search bar, a color map visualization, and various settings for data range, mapping parameters, and color discretization. A yellow box at the bottom of the image contains the text 'Select “temp”' with an arrow pointing to the 'temp' option in the pulldown menu.

**Select “temp”**

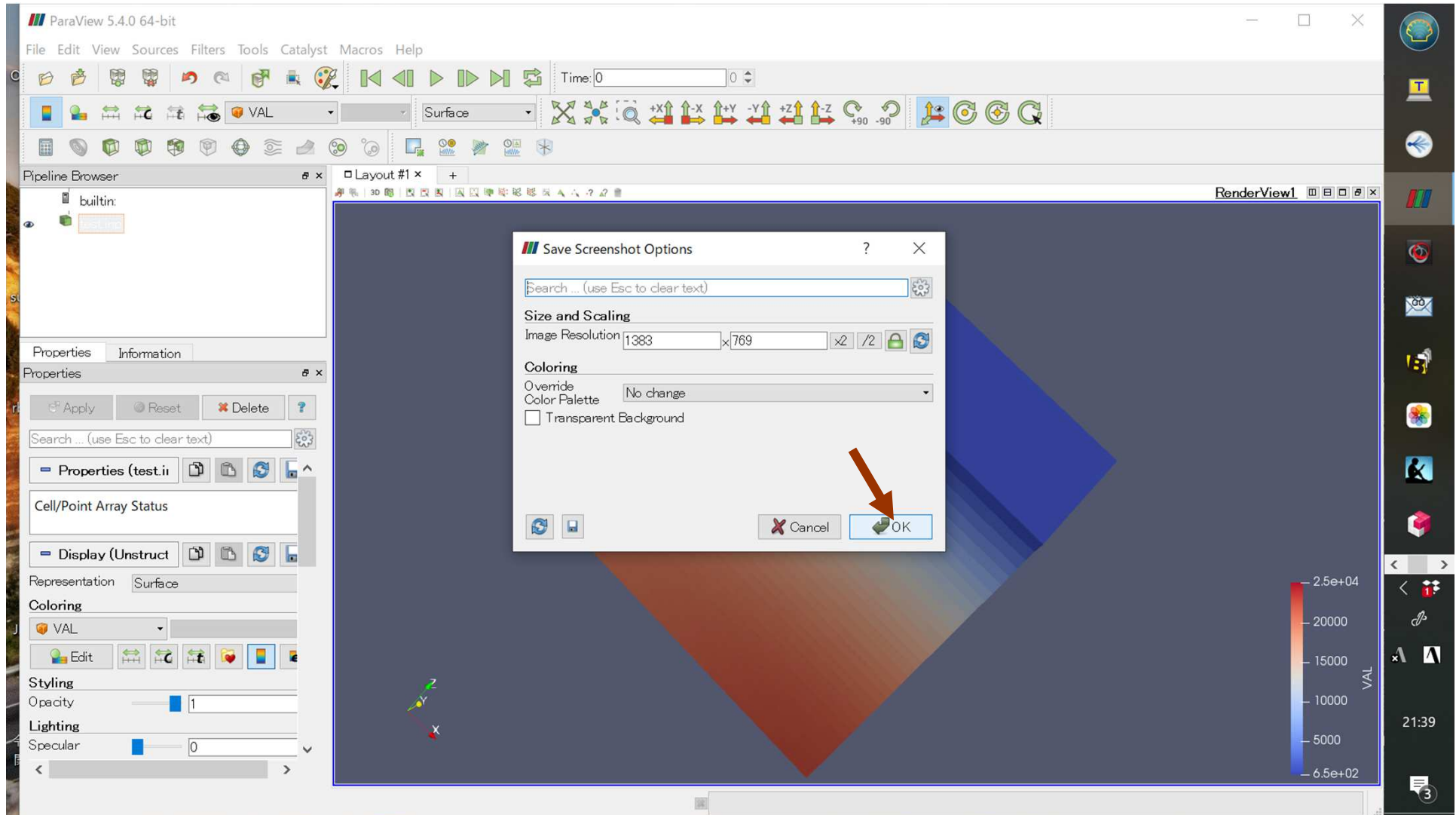
# Distribution of Results



# Save Screenshot (1/4)



# Save Screenshot (2/4)



# Save Screenshot (3/4)

ParaView 5.4.0 64-bit

File Edit View Sources Filters Tools Catalyst Macros Help

Time: 0

VAL

Surface

Pipeline Browser

Layout #1 x

Properties Information

Properties (test.i)

Cell/Point Array Status

Display (Unstruct)

Representation Surface

Coloring

VAL

Styling

Opacity 1

Lighting

Specular 0

Save Screenshot

Look in: C:/Program Files/ParaView 5.4.0-Qt5-OpenGL2-Windows-64b

Filename	Type
bin	Folder
data	Folder
doc	Folder
share	Folder

File name:

Files of type: **JPG image (\*.jpg)**

- ✓ PNG
- ✓ JPG
- ✓ TIFF
- ✓ BMP
- ✓ PPM

OK Cancel

Data:

Use log scale when mapping data to colors

Enable opacity mapping for surfaces

Color Mapping Parameters

Color Space Diverging

Nan Color

Color Discretization

Discretize

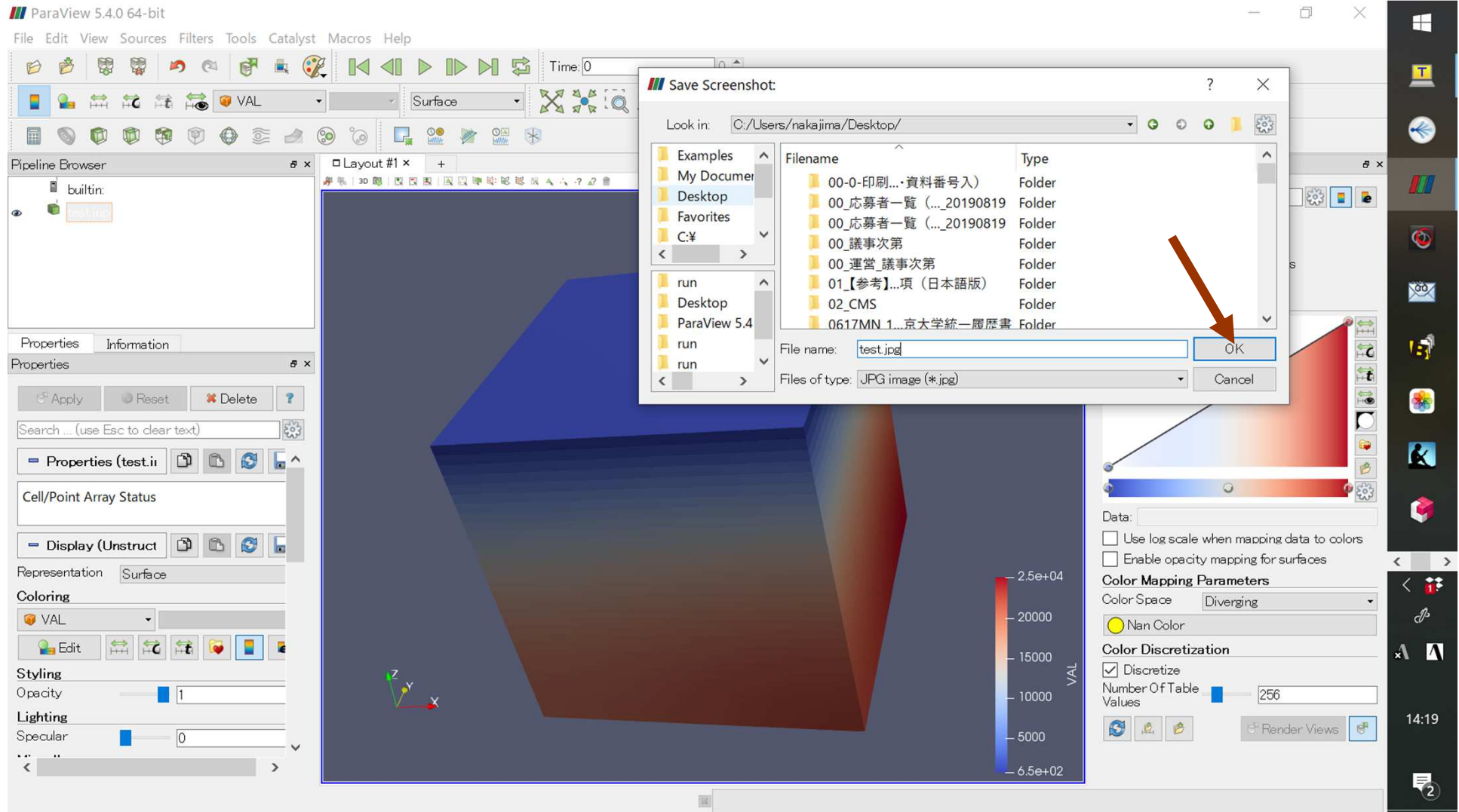
Number Of Table Values 256

Render Views

14:18

# Save Screenshot (4/4)

## Name & Location of the File



# Click “test.jpg” (1/2)

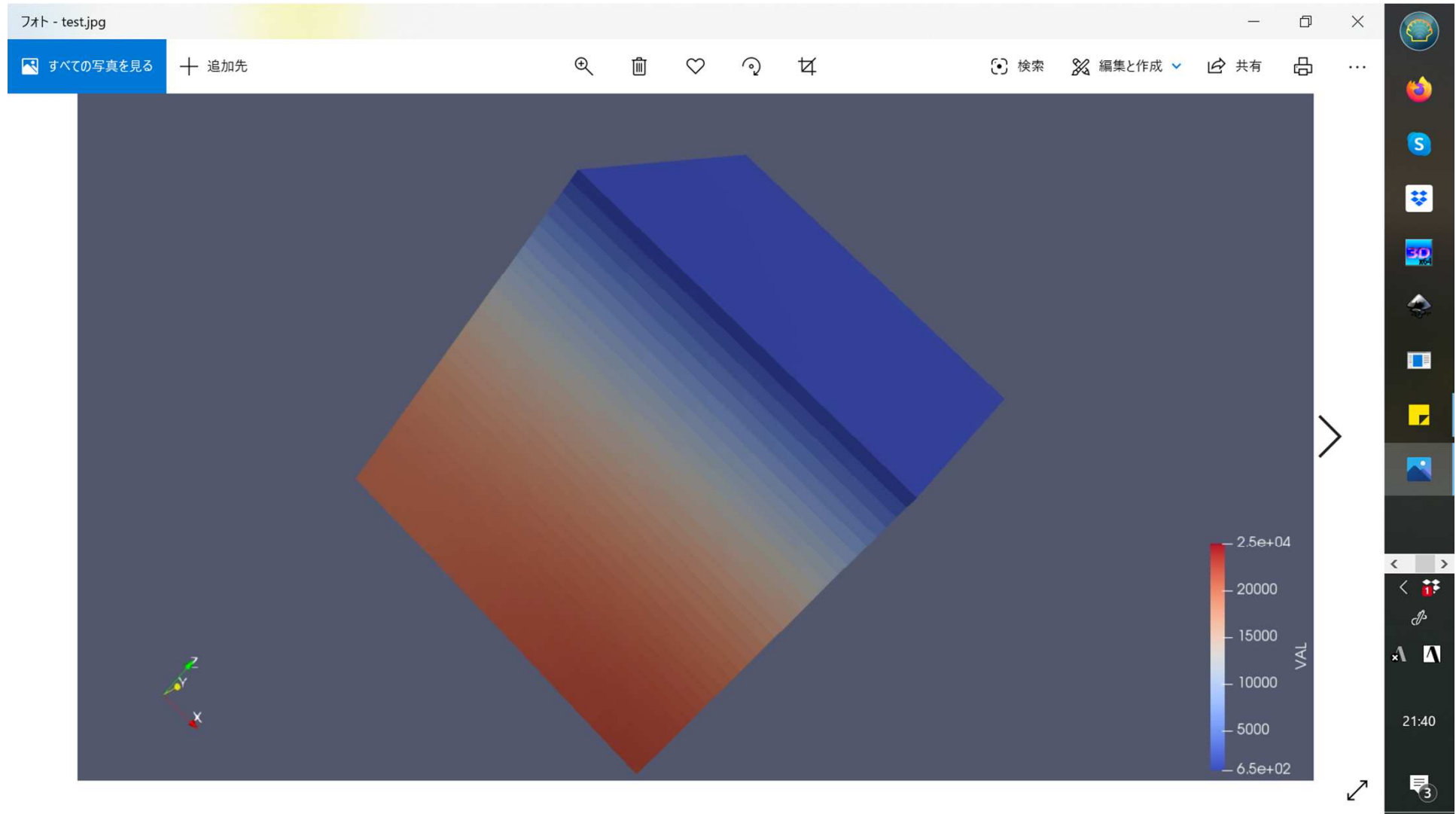
The screenshot shows a Windows File Explorer window titled "デスクトップ" (Desktop). The address bar shows the path "PC > デスクトップ". The left sidebar shows "クイック アクセス" (Quick access) with "デスクトップ" selected. The main pane displays a list of files with columns for "名前" (Name), "更新日時" (Last modified), "種類" (Type), and "サイズ" (Size). The file "test.jpg" is highlighted, and a tooltip is displayed over it with the following information:

- 項目の種類: JPG ファイル
- 大きさ: 1383 x 769
- サイズ: 97.3 KB

名前	更新日時	種類	サイズ
test.jpg	2020/05/14 21:40	JPG ファイル	98 KB
Sla	2020/05/14 9:53	ショートカット	3 KB
Blu	2020/05/13 15:54	ショートカット	3 KB
Ma	2020/05/13 9:20	JPG ファイル	111 KB
Zoom	2020/05/12 18:03	ショートカット	2 KB
Cisco Webex Meetings	2020/05/12 12:54	ショートカット	3 KB
2019w_KN_class.pdf	2020/05/07 20:51	Adobe Acrobat Docu...	87 KB
20200502.pptx	2020/05/06 9:17	Microsoft PowerPoin...	146 KB
NakajimaKengo.pdf	2020/04/30 19:31	Adobe Acrobat Docu...	58 KB
cube-1.tar	2020/04/28 17:21	TAR ファイル	10,970 KB
geofem-djds.tar	2020/04/28 16:43	TAR ファイル	31,370 KB
中島研吾日程調整.xlsx	2020/04/24 13:15	Microsoft Excel ワーク...	11 KB
p.docx	2020/04/22 16:07	Microsoft Word 文書	12 KB
2020S1S2融合情報輪講.pdf	2020/04/16 10:25	Adobe Acrobat Docu...	203 KB
中島02プロジェクト年表201905-rev1-1.pptx	2020/04/15 11:30	Microsoft PowerPoin...	66 KB
202003_ITC値.xlsm	2020/04/12 11:42	Microsoft Excel マクロ...	199 KB
BDEC20200410.pdf	2020/04/10 14:59	Adobe Acrobat Docu...	1,423 KB
Nakajima繰越申請書.xlsx	2020/03/27 16:44	Microsoft Excel ワーク...	17 KB
Mckernel-OBCX-20200306.pptx	2020/03/25 14:39	Microsoft PowerPoin...	591 KB
印刷.pdf	2020/03/25 11:56	Adobe Acrobat Docu...	94 KB
a.ps	2020/03/24 15:35	PostScript	34 KB
a.pdf	2020/03/23 12:36	Adobe Acrobat Docu...	36,461 KB
電気系2020 (R2)年度教務日程表 (配布用).xlsx	2020/03/23 10:39	Microsoft Excel ワーク...	168 KB
★最終版) 2019年度第12回計算科学研究センタ...	2020/03/16 13:08	Adobe Acrobat Docu...	14,943 KB
(最終版) 理事連絡会議資料.pdf	2020/03/16 13:06	Adobe Acrobat Docu...	195 KB
20200312_hpci_used0.pdf	2020/03/13 8:35	Adobe Acrobat Docu...	139 KB
事前打合せ資料) 理事連絡会議.pdf	2020/03/11 10:32	Adobe Acrobat Docu...	97 KB



# Click “test.jpg” (2/2)



# Edit Color Map (1/5)

## Click “Choose Preset”

The screenshot displays the ParaView 5.4.0 64-bit interface. The main window shows a 3D visualization of a complex object with a color map applied. The 'Coloring' section in the 'Properties' panel is active, showing the 'VAL' array. A red arrow points to the 'Choose Preset' icon (a small color bar) in the 'Coloring' section. The 'Choose Preset' dialog box is open, showing a list of color maps such as 'Cool to Warm', 'Warm to Cool', 'Rainbow Desa...', 'Cold and Hot', 'Black-Body Ra...', 'X Ray', and 'Grayscale'. The 'Color Map Editor' panel is also visible, showing the 'Array Name: VAL' and various mapping options.

**Click “Choose Preset”**

# Edit Color Map (2/5)

## “Rainbow Desaturated”

The screenshot displays the ParaView 5.4.0 64-bit software interface. The main window shows a 3D visualization of a surface with a color map. A 'Choose Preset' dialog box is open in the center, listing various color maps. The 'Rainbow Desaturated' preset is selected, and an orange arrow points to it. Another orange arrow points to the 'Apply' button in the dialog. The 'Color Map Editor' panel on the right shows the selected color map and its parameters. The 'Color Map Editor' panel includes a search bar, a list of options to load (Colors, Opacities, Use preset range), a mapping data visualization, and color mapping parameters such as Color Space (Diverging), Color Discretization (Discretize checked, Number Of Table Values set to 256), and a 'Render Views' button. The 'Properties' panel on the left shows the 'Coloring' section with the 'VAL' array selected and the 'Edit' button highlighted. The 'RenderView1' window shows a 3D view of a surface with a color map, and a vertical color bar on the right indicates the value range from -6.5e+02 to 2.5e+04.

# Edit Color Map (3/5)

## “Rainbow Desaturated”

The screenshot displays the ParaView 5.4.0 64-bit interface. The main window shows a 3D surface plot of a data set named 'test.inp'. The surface is colored using a 'Rainbow Desaturated' color map. The Color Map Editor panel is open, showing the following settings:

- Array Name: VAL
- Lock Data Range
- Interpret Values As Categories
- Rescale On Visibility Change
- Mapping Data: A color bar showing the mapping from data values to colors.
- Data: [Empty field]
- Use log scale when mapping data to colors
- Enable opacity mapping for surfaces
- Color Mapping Parameters: Color Space: RGB
- Nan Color: [Yellow circle]
- Color Discretization:  Discretize, Number Of Table Values: 256

The 3D plot shows a surface with a color gradient from dark blue to red. A vertical color bar on the right indicates the data values, ranging from  $-6.5e+02$  to  $2.5e+04$ . The Color Map Editor panel is open, showing the 'Rainbow Desaturated' color map selected. The plot shows a surface with a color gradient from dark blue to red, with a vertical color bar on the right indicating values from  $-6.5e+02$  to  $2.5e+04$ .

# Edit Color Map (4/5)

## “Blue to Red Rainbow”

ParaView 5.4.0 64-bit

File Edit View Sources Filters Tools Catalyst Macros Help

Time: 0

Pipeline Browser

Layout #1 x +

RenderView1

Color Map Editor

Search ... (use Esc to clear text)

Array Name: VAL

Lock Data Range

Interpret Values As Categories

Rescale On Visibility Change

Mapping Data

Data:

Use log scale when mapping data to colors

Enable opacity mapping for surfaces

Color Mapping Parameters

Color Space: HSV

Nan Color

Color Discretization

Discretize

Number Of Table Values: 256

Render Views

21:44

3

Choose Preset

Search ... (use Esc to clear text)

Options to load:

Colors

Opacities

Use preset range

Presets

Grayscale

Black, Blue an...

Black, Orange ...

Linear YGB 12...

Linear Green (...)

Linear Blue (8...

Blue to Red Ra...

Red to Blue Ra...

Rainbow Blen...

Rainbow Blen...

Tip: <click> to select, <double-click> to apply a preset.

Apply

Import

Export

Remove

Close

2.5e+04

20000

15000

10000

5000

-6.5e+02

VAL

# Edit Color Map (5/5)

## “Blue to Red Rainbow”

The screenshot displays the ParaView 5.4.0 64-bit software interface. The main window shows a 3D surface plot of a triangular prism, colored with a 'Blue to Red Rainbow' gradient. The color map editor on the right is open, showing the array name 'VAL' and a color scale from -6.5e+02 to 2.5e+04. The color map editor also includes options for 'Lock Data Range', 'Interpret Values As Categories', and 'Rescale On Visibility Change'. The 'Mapping Data' section shows a color gradient bar. The 'Color Mapping Parameters' section shows 'Color Space' set to 'HSV' and 'Nan Color' selected. The 'Color Discretization' section shows 'Discretize' checked and 'Number Of Table Values' set to 256. The interface also includes a Pipeline Browser, Properties panel, and various toolbars.