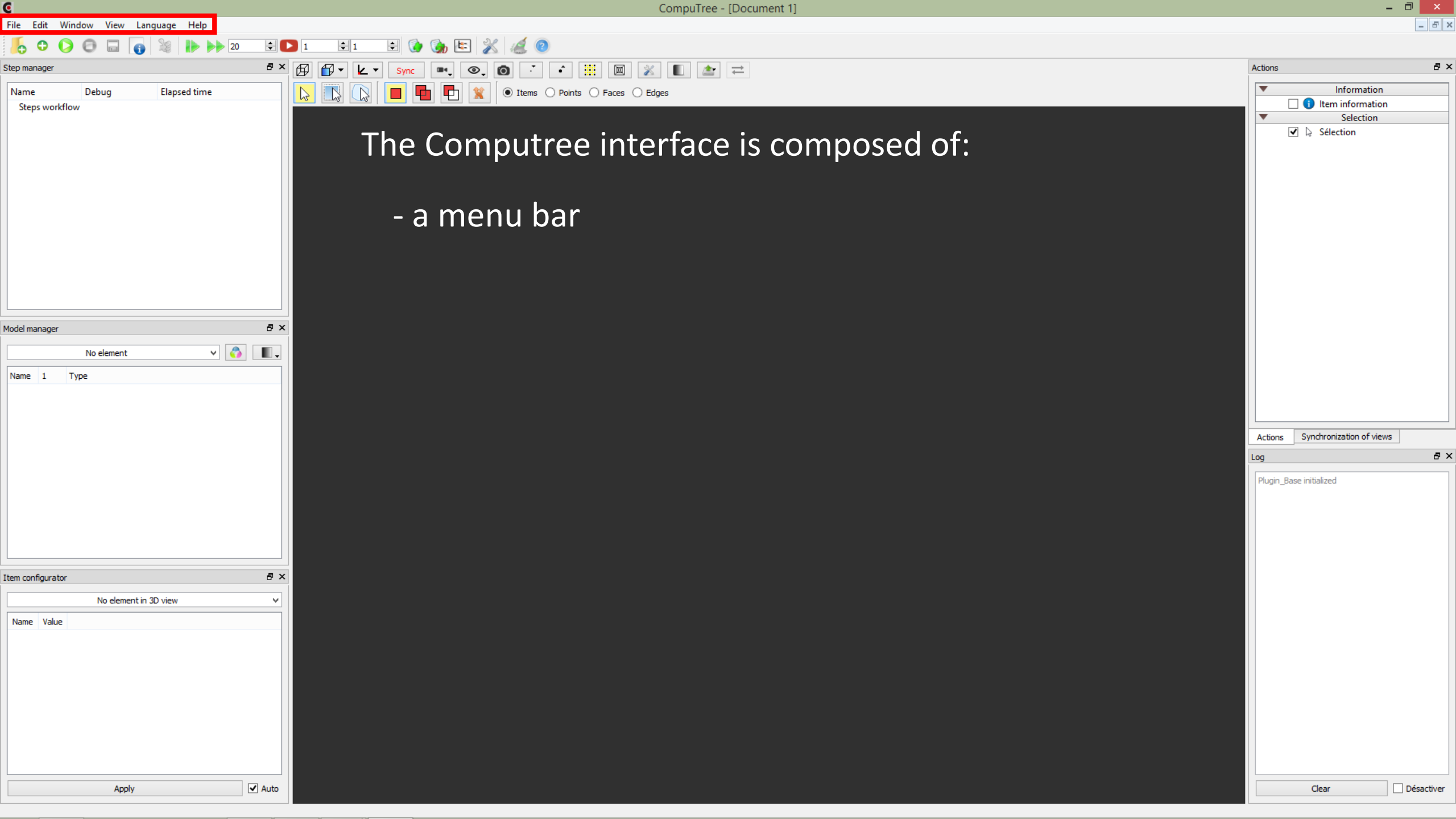


Tutorial CT01

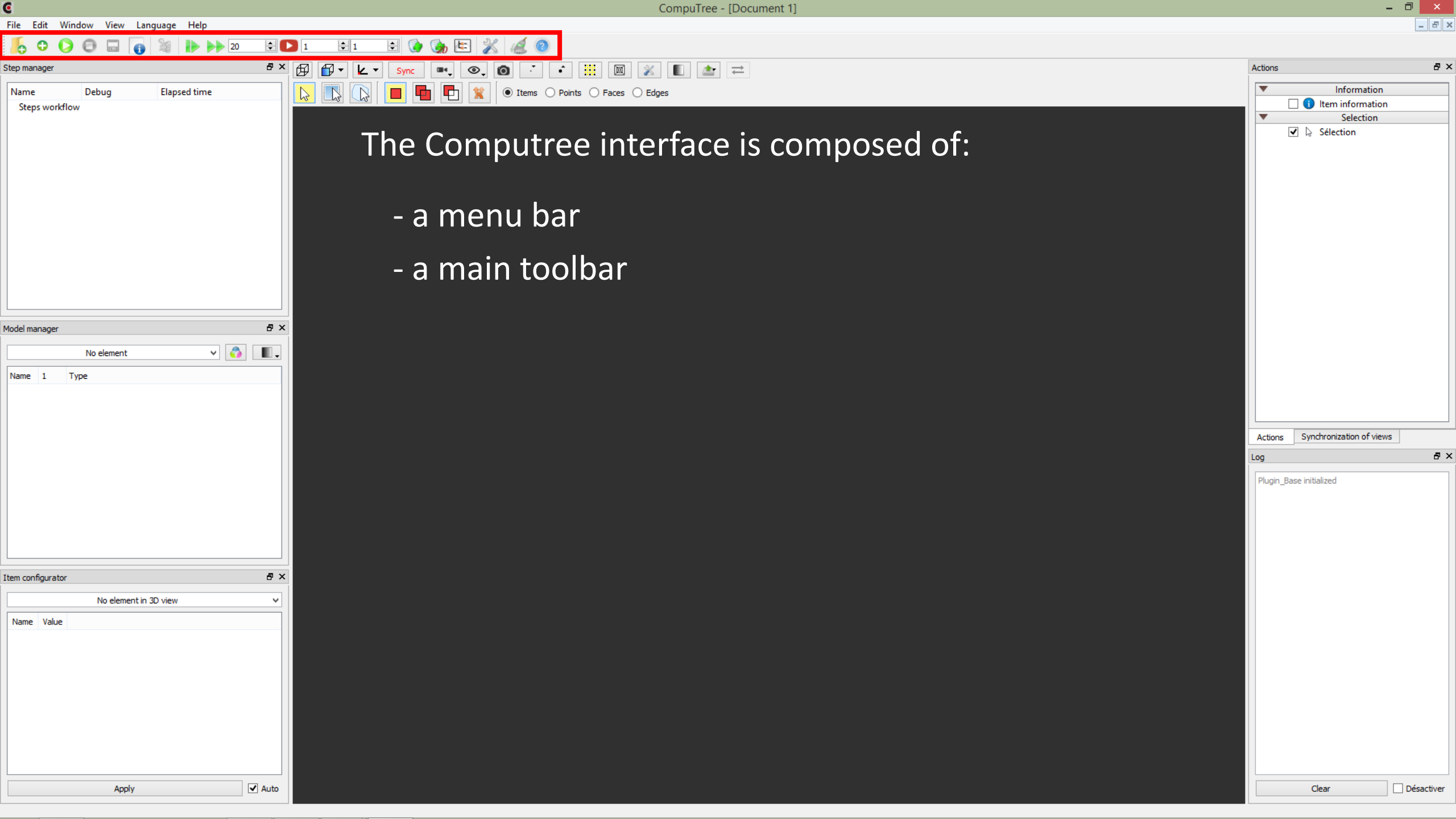
EN

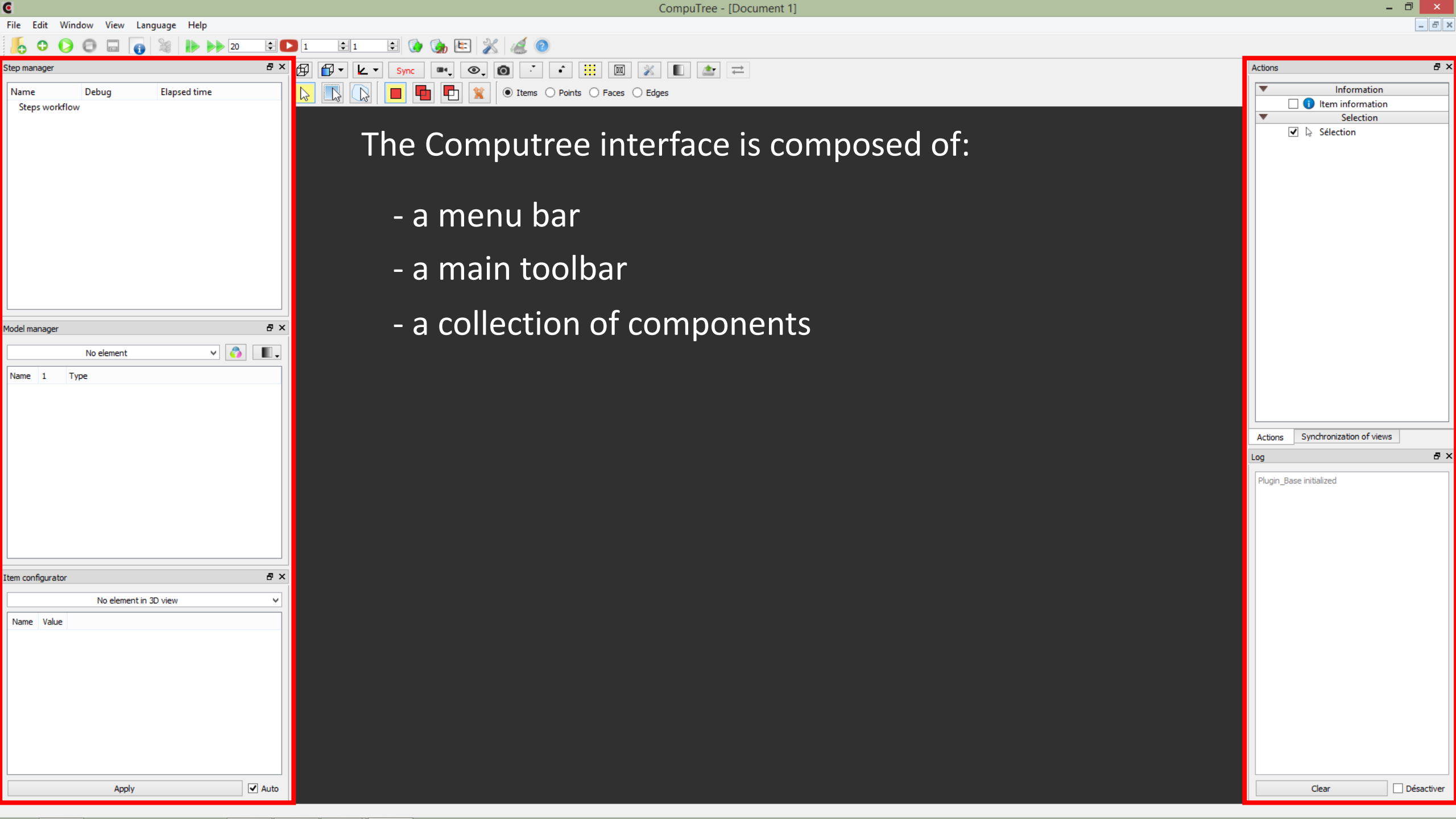
General organization of the interface,
Loading and displaying a point cloud



The Computree interface is composed of:

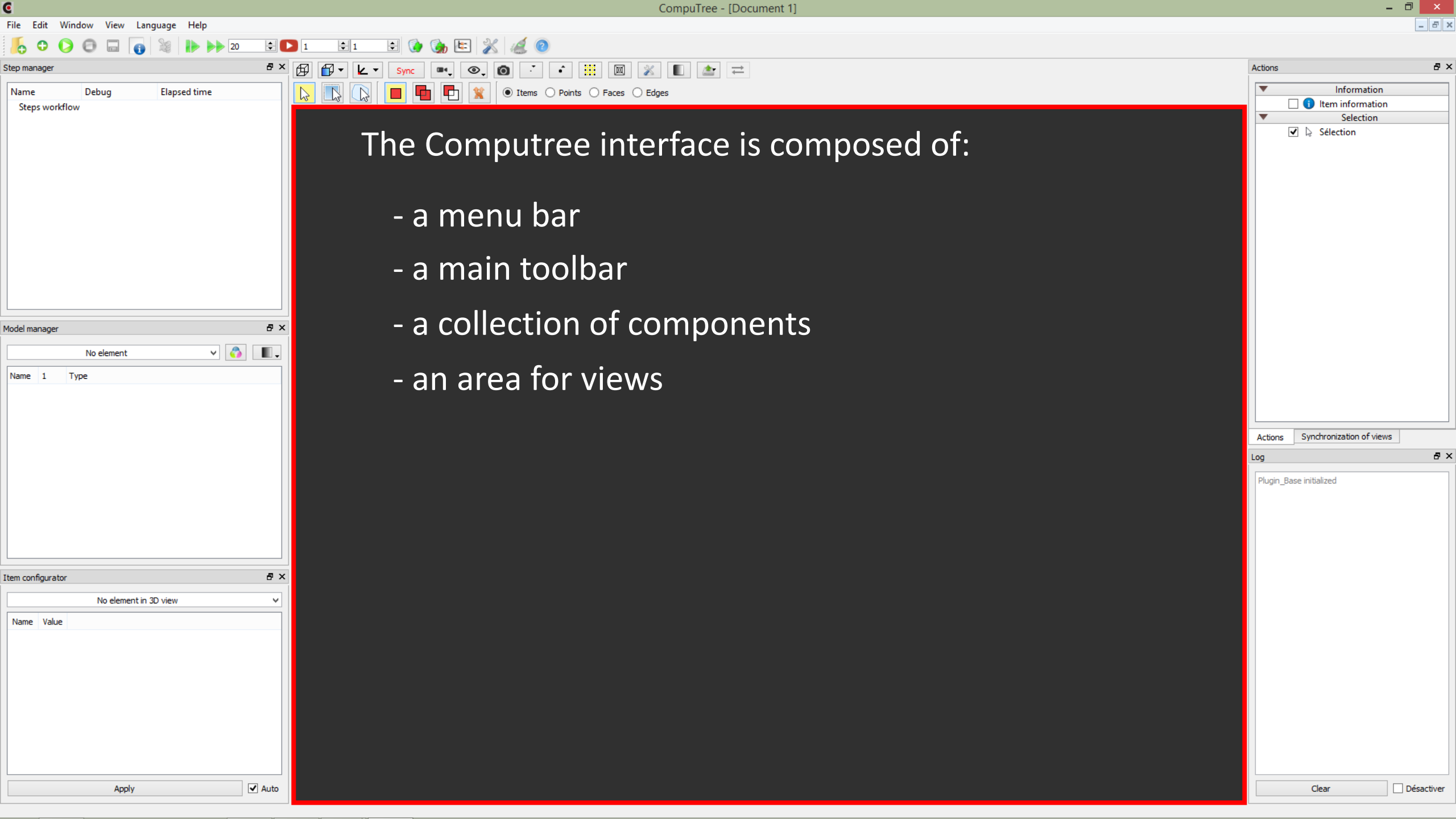
- a menu bar





The Computree interface is composed of:

- a menu bar
- a main toolbar
- a collection of components



The Computree interface is composed of:

- a menu bar
- a main toolbar
- a collection of components
- an area for views



Step manager

Name	Debug	Elapsed time
Steps workflow		

Model manager

No element

Name	1	Type
------	---	------

Item configurator

No element in 3D view

Name	Value
------	-------

Apply

☒ Auto

Let's start with the main toolbar

Actions

Information

☐ Item information

Selection

☒ Sélection

Actions

Synchronization of views

Log

Plugin_Base initialized

Clear

☐ Désactiver



Step manager

Name	Debug	Elapsed time
Steps workflow		

Model manager

No element

Name	1	Type
------	---	------

Item configurator

No element in 3D view

Name	Value
------	-------

Apply

☒ Auto

The first button is used to load a file of any format supported by CompuTree

Actions

Information

☐ Item information

Selection

☒ Sélection

Actions

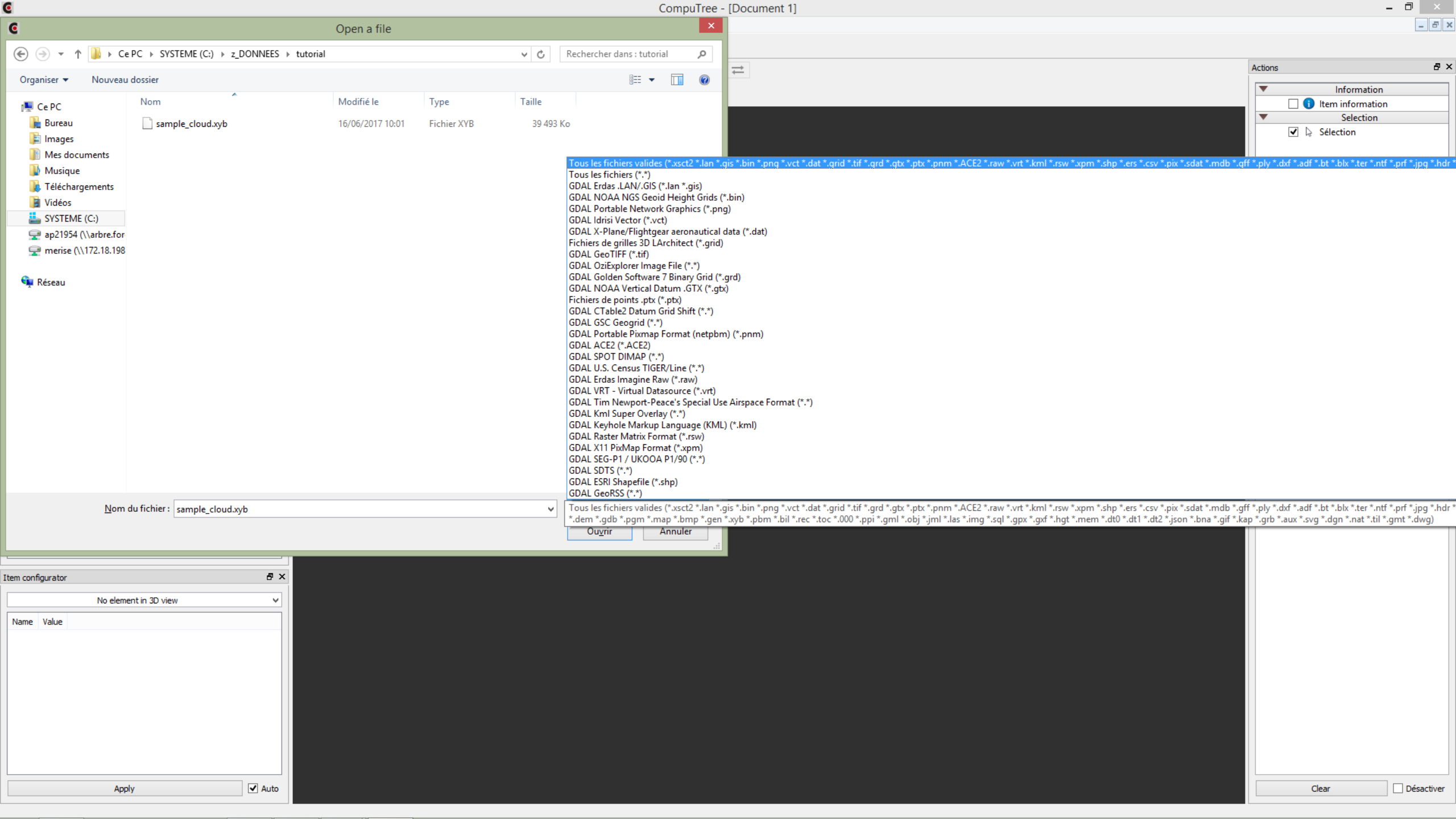
Synchronization of views

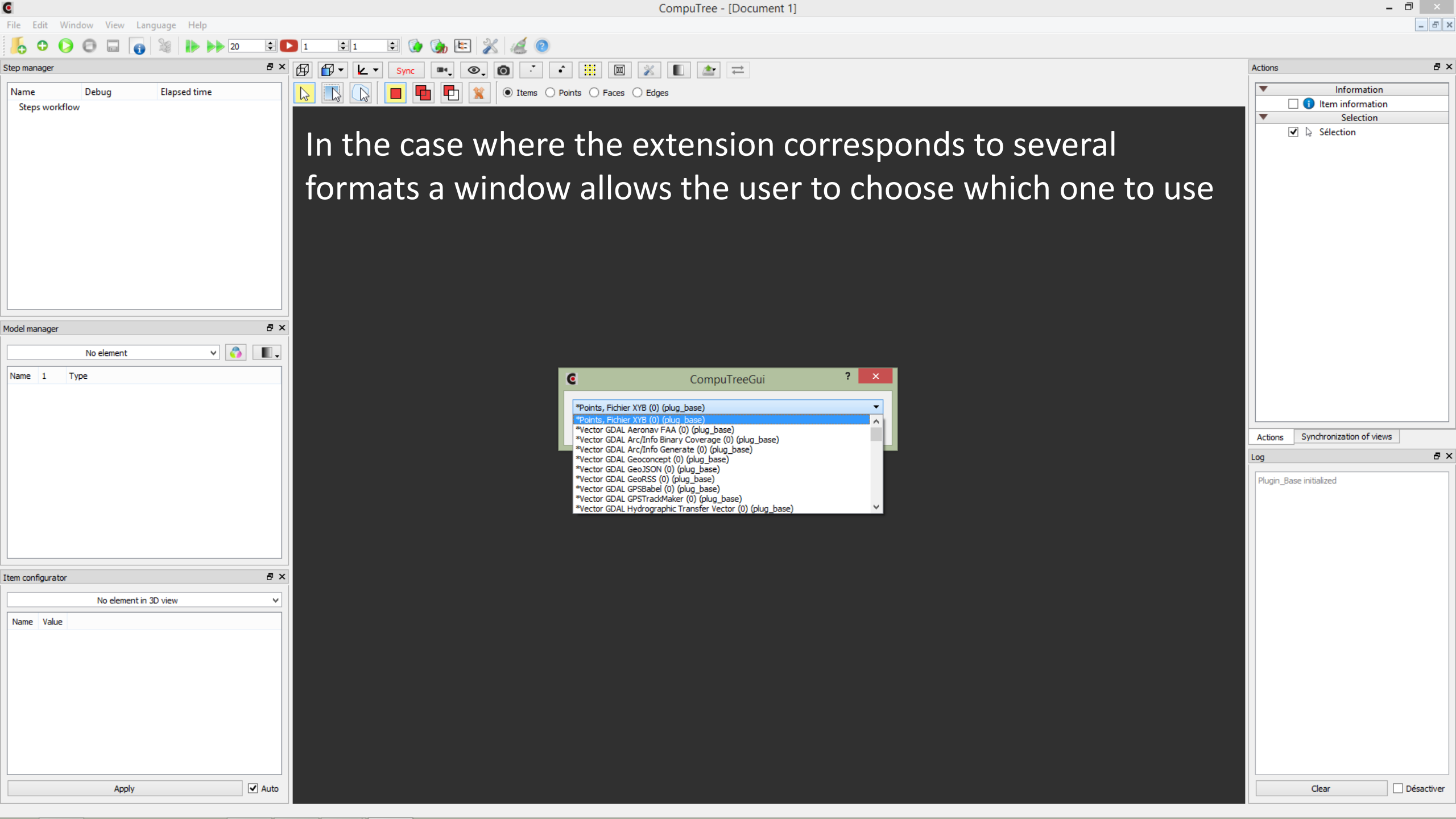
Log

Plugin_Base initialized

Clear

☐ Désactiver







Step manager

Name	Debug	Elapsed time
Steps workflow		

Model manager

No element

Name	1	Type
------	---	------

Item configurator

No element in 3D view

Name	Value
------	-------

Apply ☒ Auto

The second button is used to show / hide the steps panel

Actions

Information

- ☐ Item information

Selection

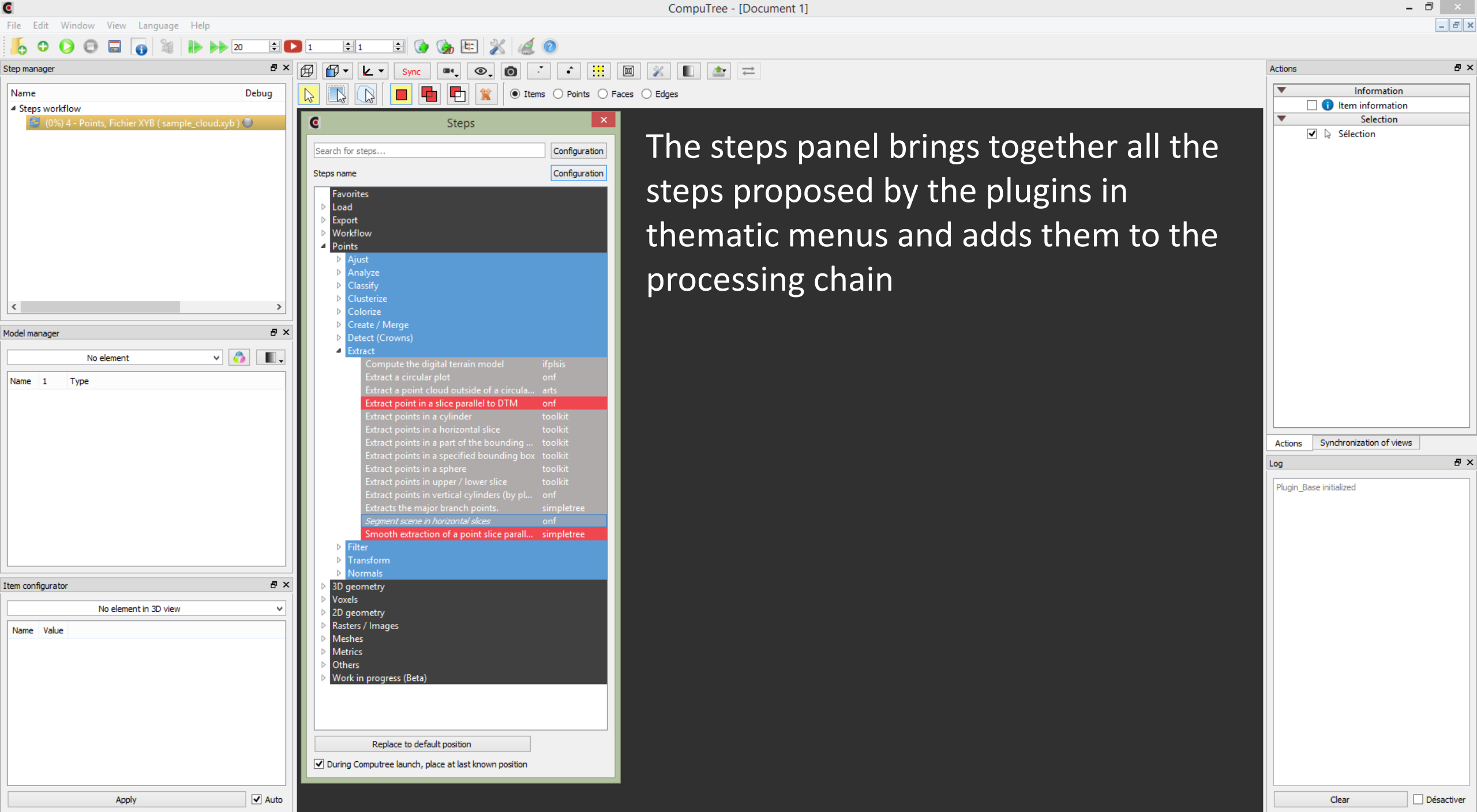
- ☒ Sélection

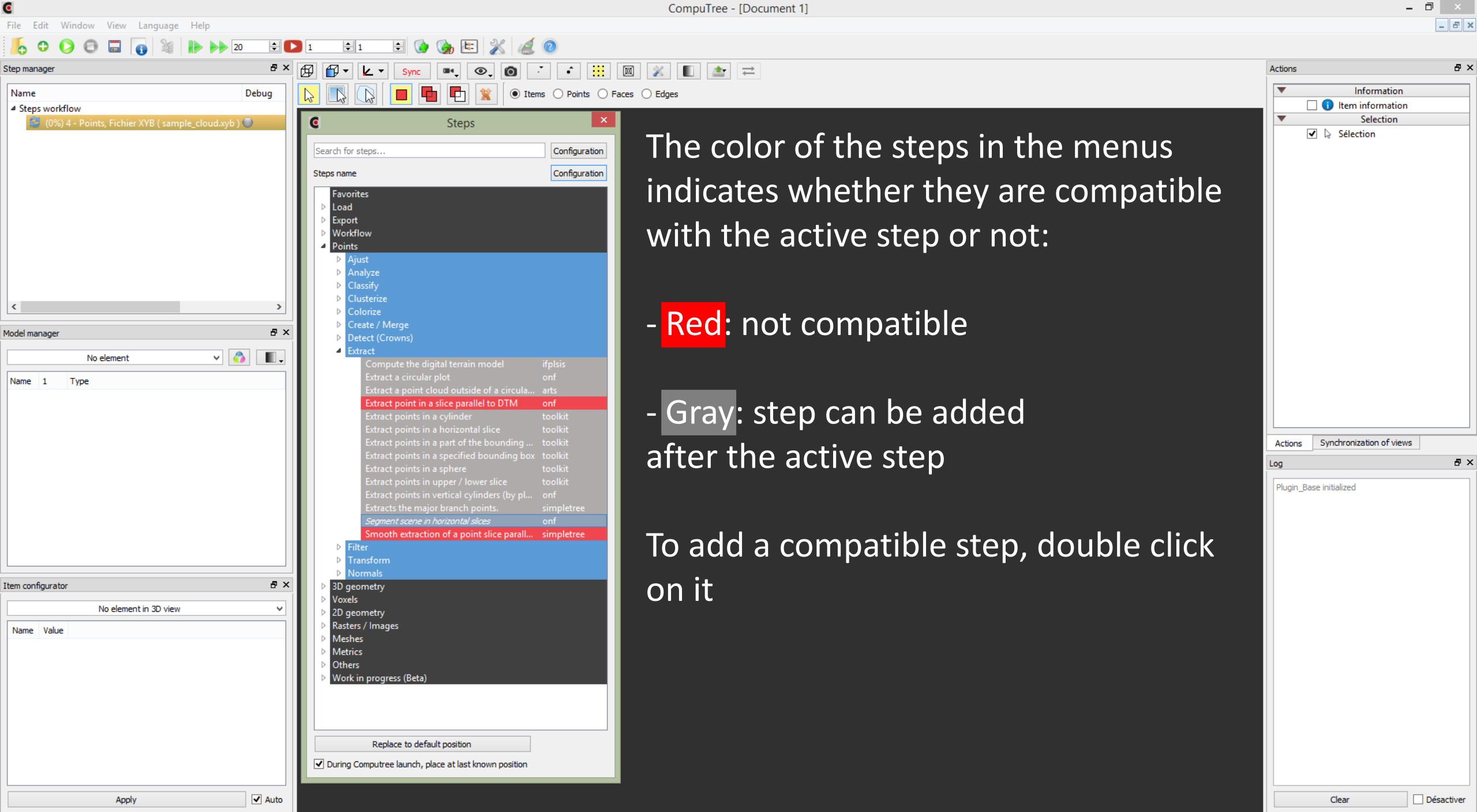
Actions Synchronization of views

Log

Plugin_Base initialized

Clear ☐ Désactiver







Step manager

Name	Debug	Elapsed time
Steps workflow		

Model manager

No element		
Name	1	Type

Item configurator

No element in 3D view		
Name	Value	

Apply ☒ Auto

The third button is used to execute the processing chain

Actions

Information
<input type="checkbox"/> Item information
Selection
<input checked="" type="checkbox"/> Sélection

Actions Synchronization of views

Log

Plugin_Base initialized
Clear <input type="checkbox"/> Désactiver



Step manager

Name Debug

Steps workflow

- (1%) 4 - Points, Fichier XYB (sample_cloud.xyb)
- (0%) 5 - Segment scene in horizontal slices

Model manager

No element

Name	1	Type
------	---	------

Item configurator

No element in 3D view

Name	Value
------	-------

Apply ☒ Auto

During execution, the 4th button is used to urgently interrupt the running process

Actions

Information

- ☐ Item information

Selection

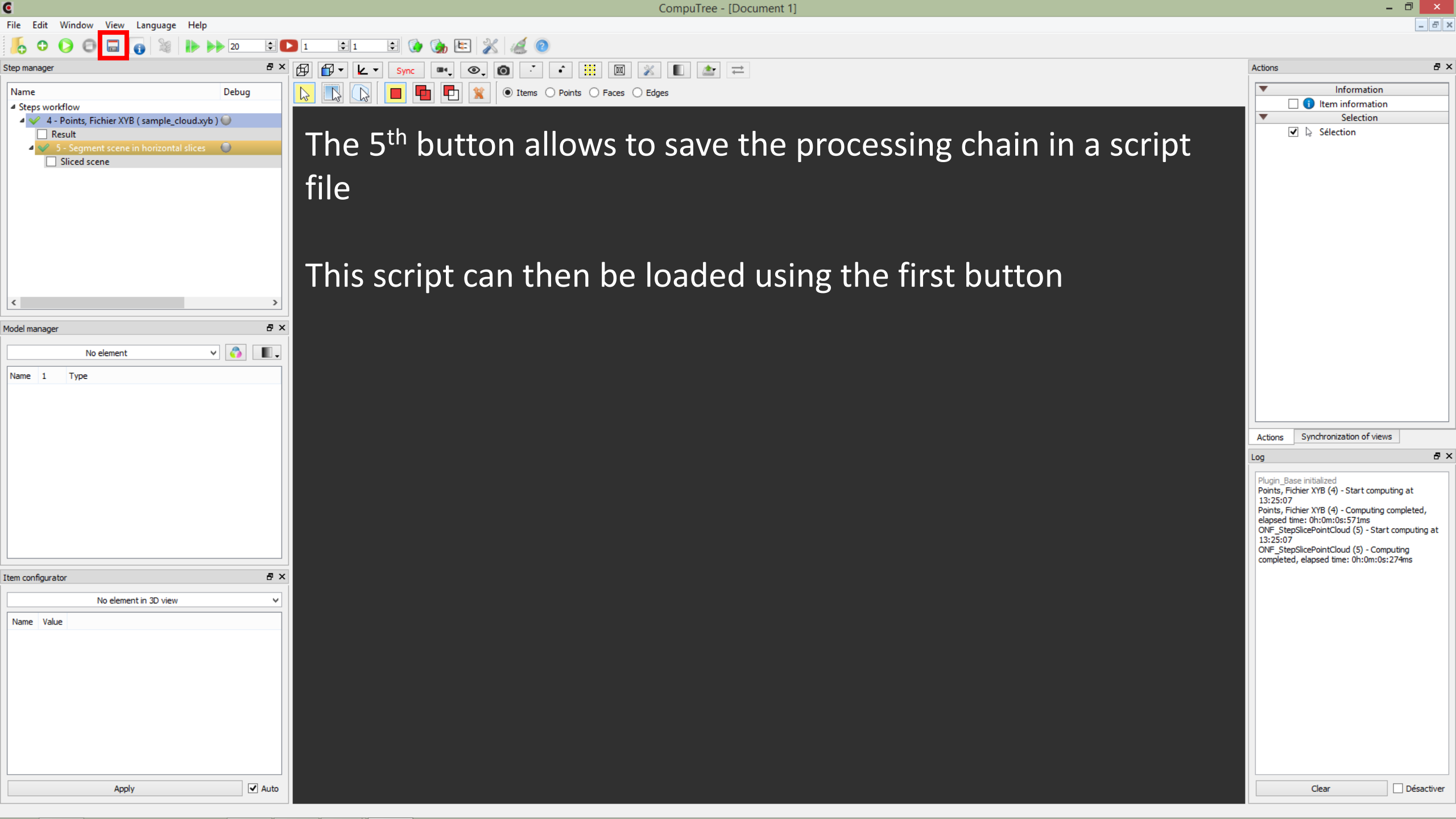
- ☒ Sélection

Actions Synchronization of views

Log

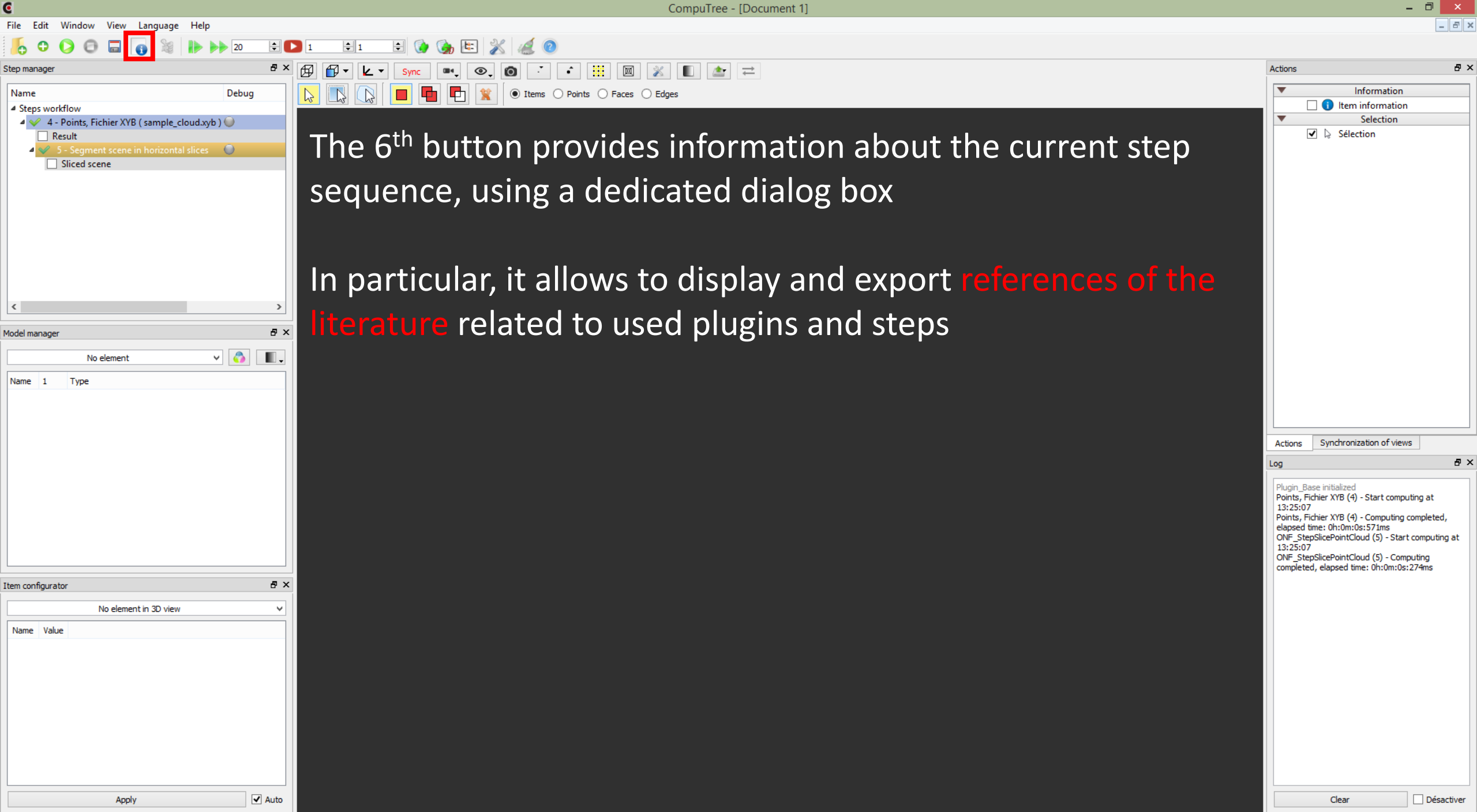
Plugin_Base initialized
Points, Fichier XYB (4) - Start computing at 13:25:07

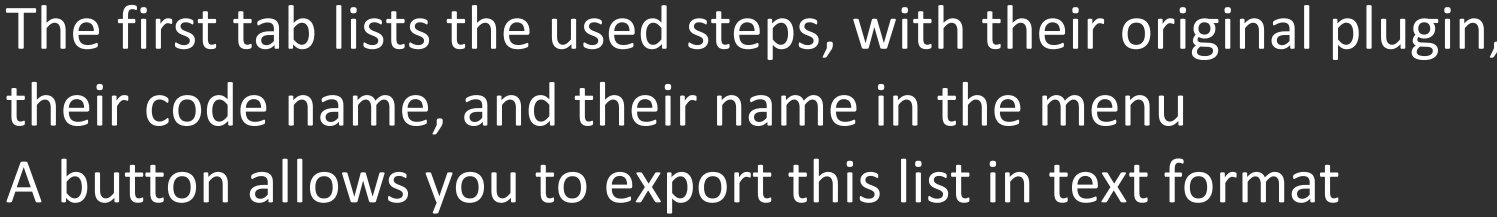
Clear ☐ Désactiver

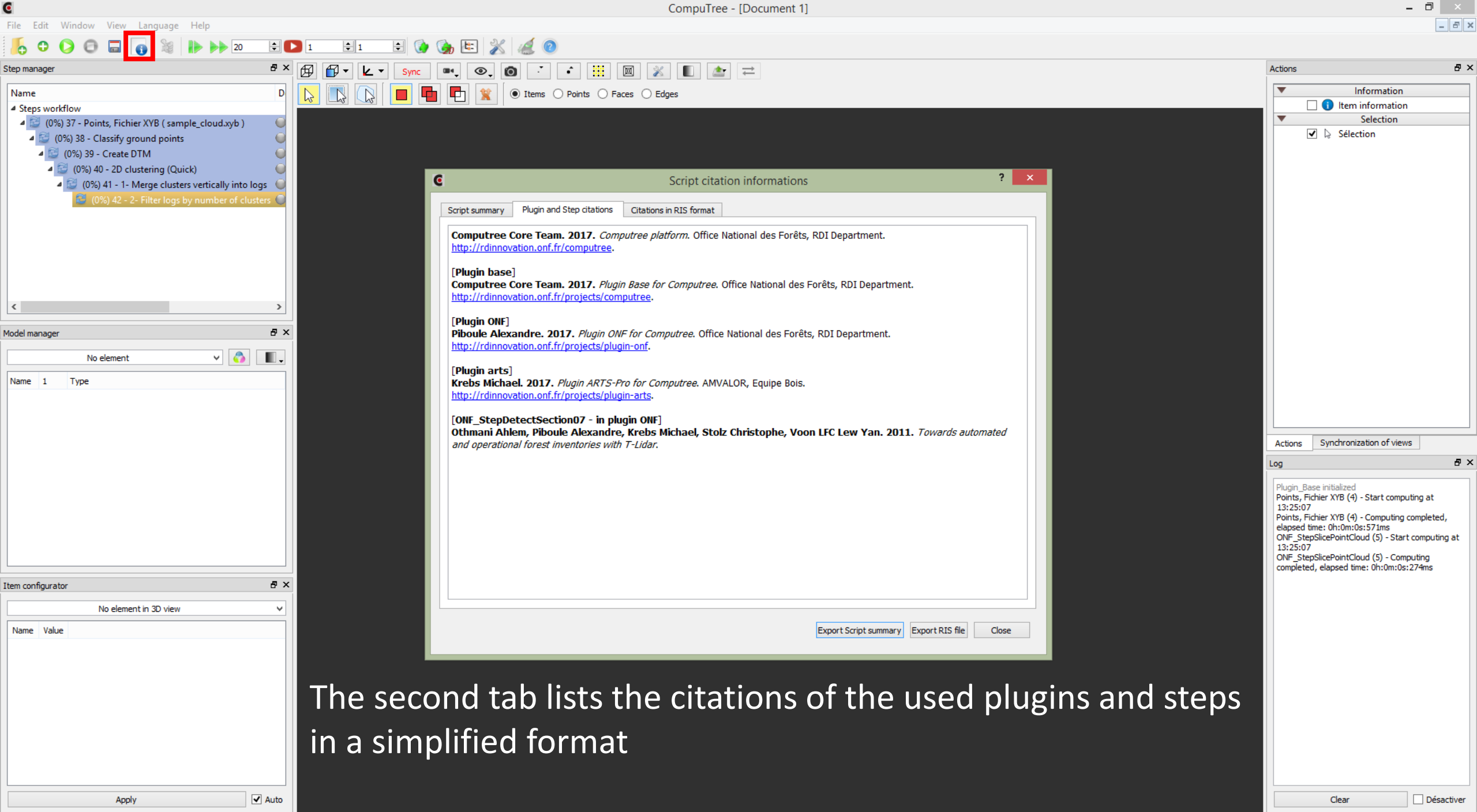


The 5th button allows to save the processing chain in a script file

This script can then be loaded using the first button







CompuTree - [Document 1]

File Edit Window View Language Help

Step manager

Name

Steps workflow

- (0%) 37 - Points, Fichier XYB (sample_cloud.xyb)
- (0%) 38 - Classify ground points
 - (0%) 39 - Create DTM
 - (0%) 40 - 2D clustering (Quick)
 - (0%) 41 - 1- Merge clusters vertically into logs
 - (0%) 42 - 2- Filter logs by number of clusters

Model manager

No element

Name 1 Type

Item configurator

No element in 3D view

Name Value

Apply ☒ Auto

Script citation informations

Script summary Plugin and Step citations Citations in RIS format

PB - AMVALOR, Equipe Bois
PY - 2017
UR - <http://rdinnovation.onf.fr/projects/plugin-arts>
ER -
TY - COMP
TI - Plugin Base for Computree
AU - Computree Core Team
PY - 2017
PB - Office National des Forêts, RDI Department
UR - <http://rdinnovation.onf.fr/projects/computree>
ER -
TY - COMP
TI - Plugin ONF for Computree
AU - Piboule, Alexandre
PB - Office National des Forêts, RDI Department
PY - 2017
UR - <http://rdinnovation.onf.fr/projects/plugin-onf>
ER -
TY - CONF
T1 - Towards automated and operational forest inventories with T-Lidar
A1 - Othmani, Ahlem
A1 - Piboule, Alexandre
A1 - Krebs, Michael
A1 - Stolz, Christophe
A1 - Voon, LFC Lew Yan
JO - 11th International Conference on LiDAR Applications for Assessing Forest Ecosystems (SilviLaser 2011)
Y1 - 2011
ER -

Export Script summary **Export RIS file** Close

Actions

Information

- ☐ Item information
- ☒ Selection

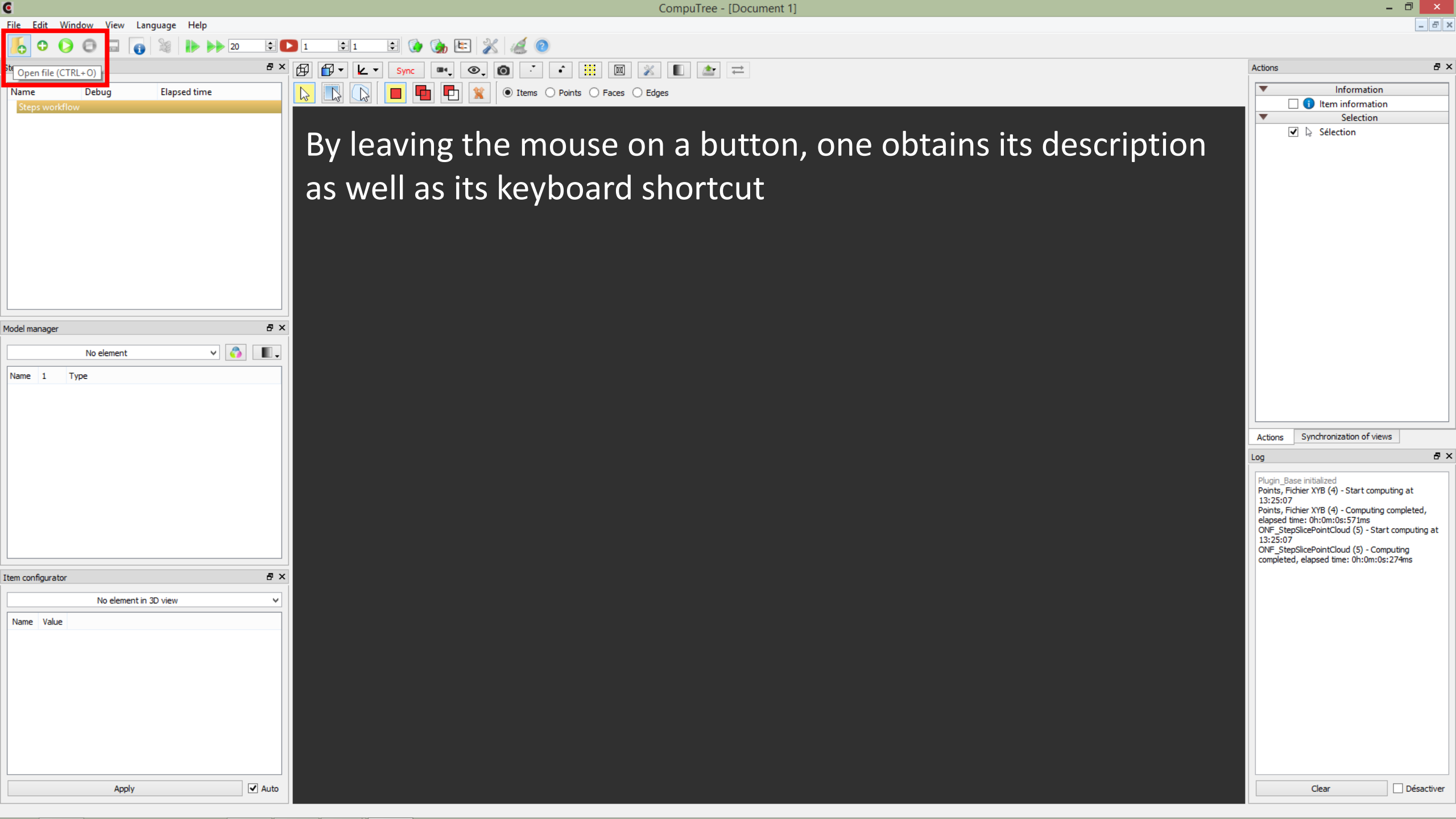
Actions Synchronization of views

Log

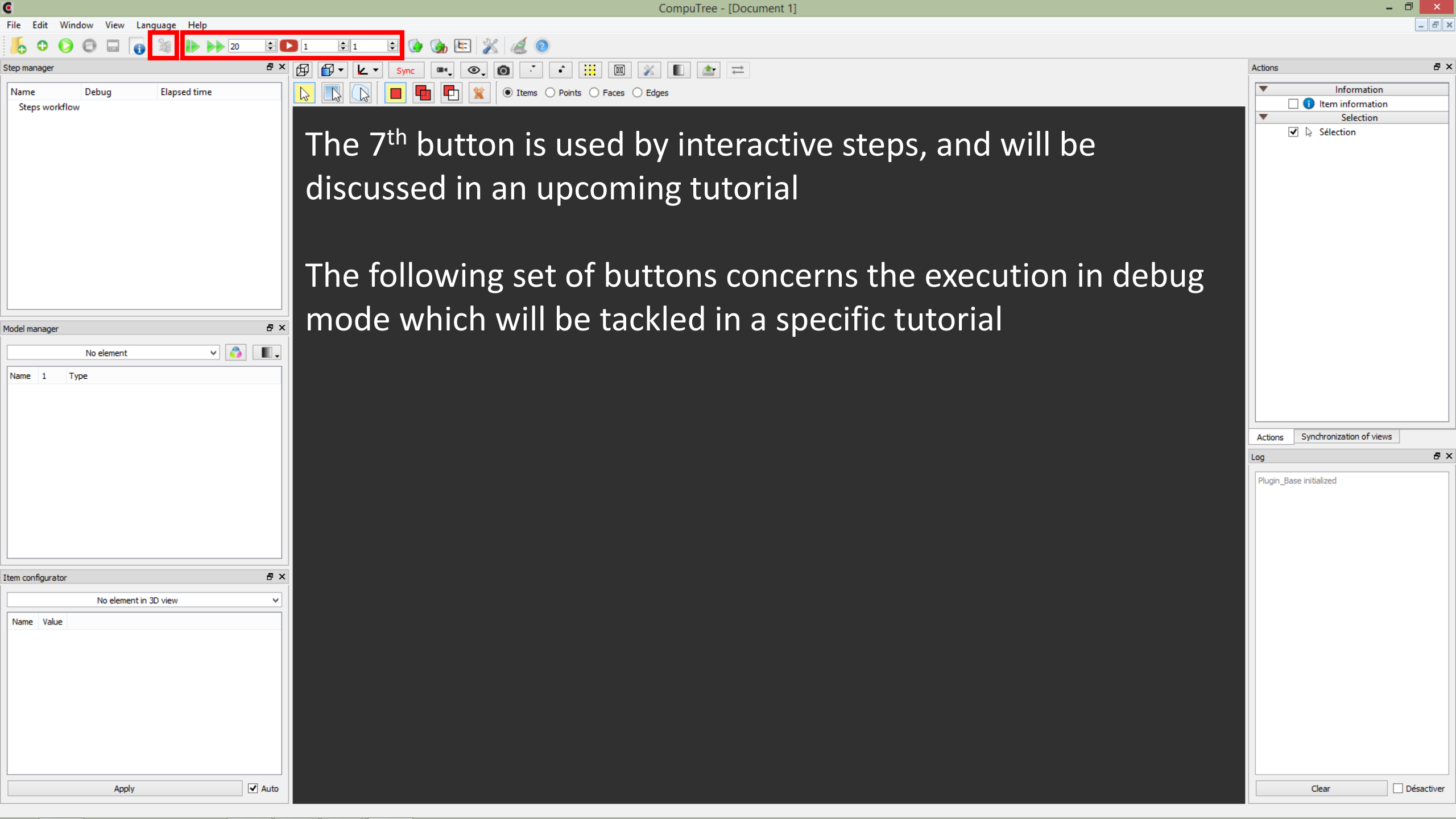
Plugin_Base initialized
Points, Fichier XYB (4) - Start computing at 13:25:07
Points, Fichier XYB (4) - Computing completed, elapsed time: 0h:0m:0s:571ms
ONF_StepSlicePointCloud (5) - Start computing at 13:25:07
ONF_StepSlicePointCloud (5) - Computing completed, elapsed time: 0h:0m:0s:274ms

Clear ☐ Désactiver

The third tab gives full quotes in the standard RIS format
A button allows to export quotes in RIS format

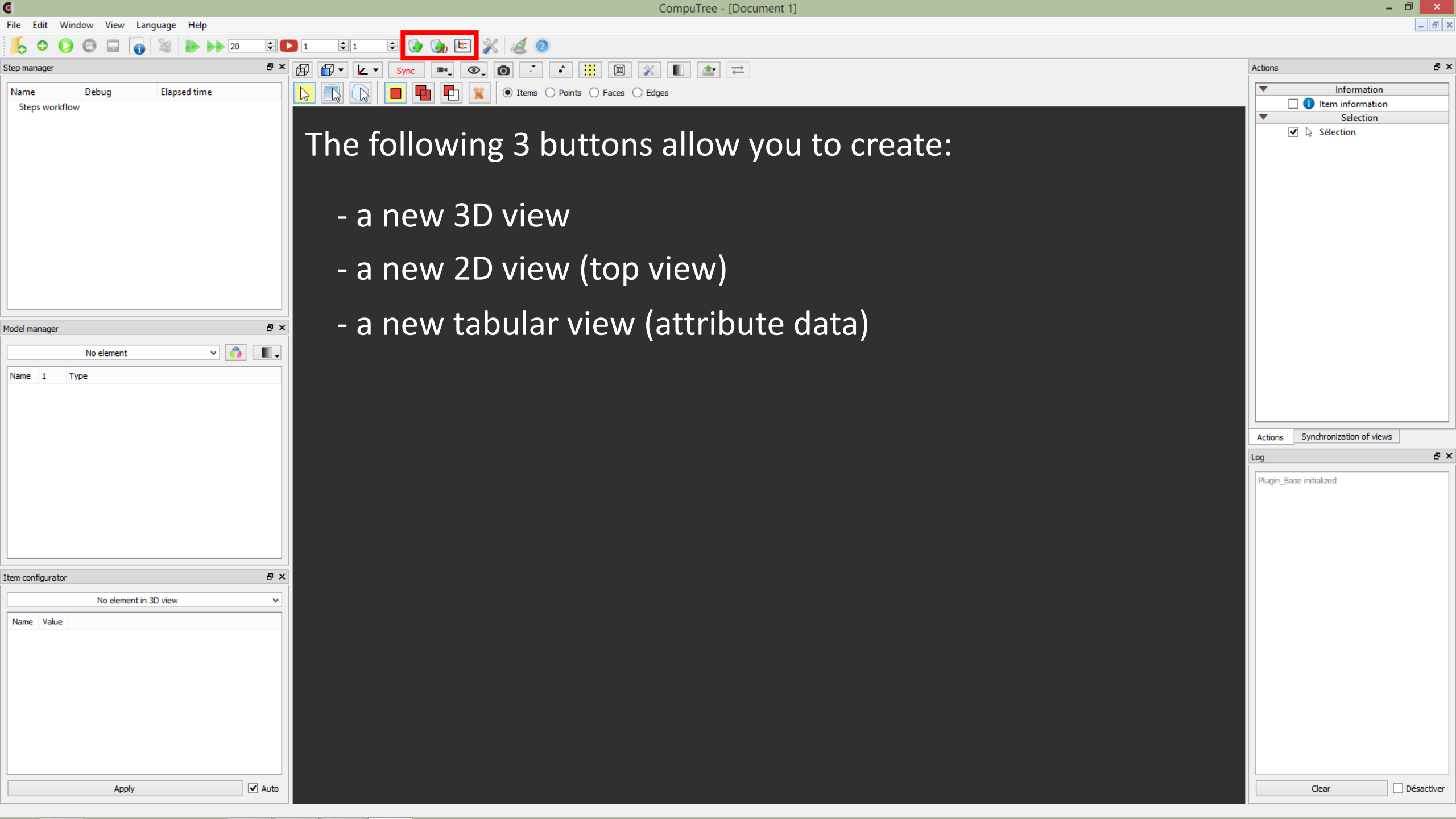


By leaving the mouse on a button, one obtains its description as well as its keyboard shortcut



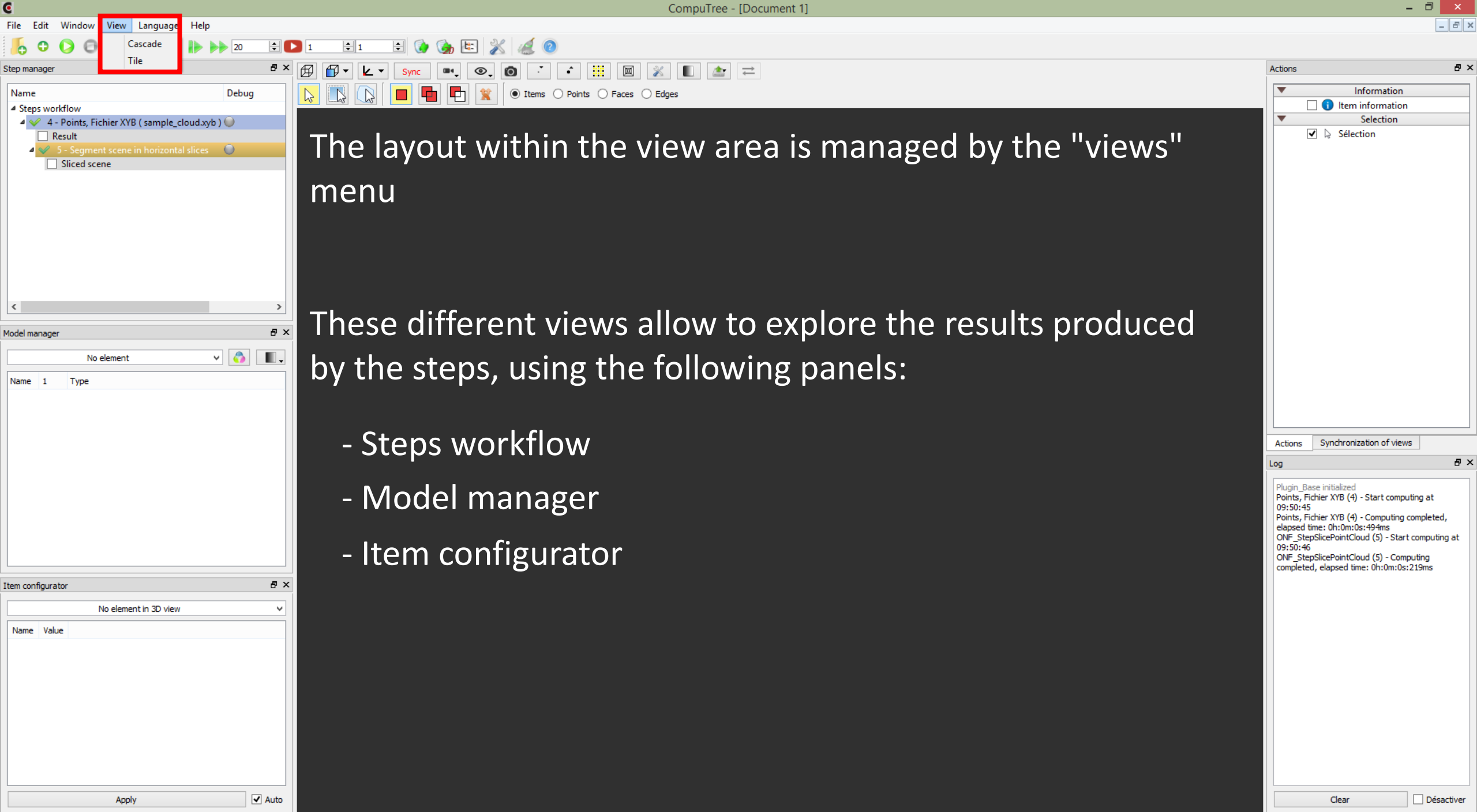
The 7th button is used by interactive steps, and will be discussed in an upcoming tutorial

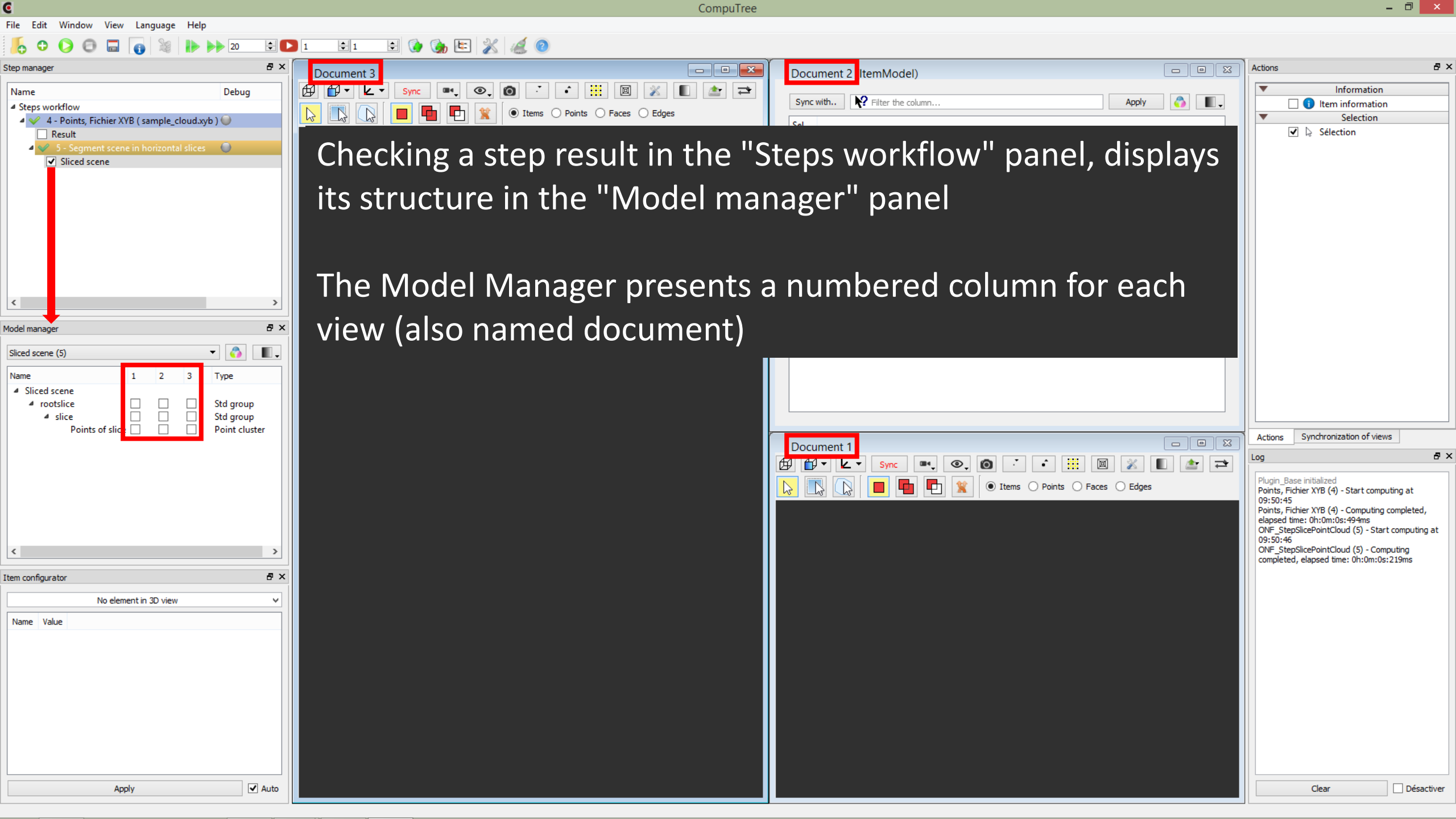
The following set of buttons concerns the execution in debug mode which will be tackled in a specific tutorial

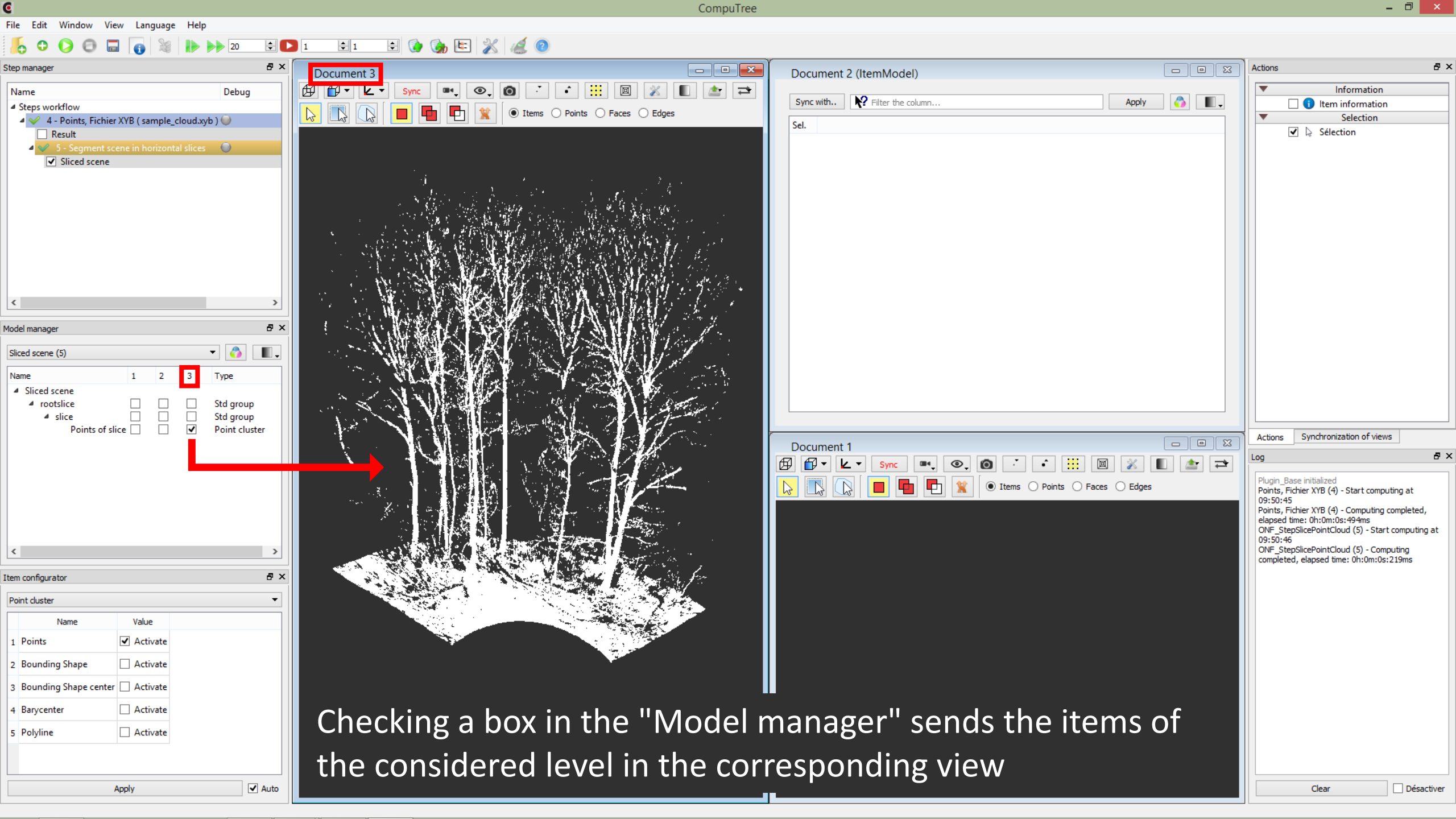


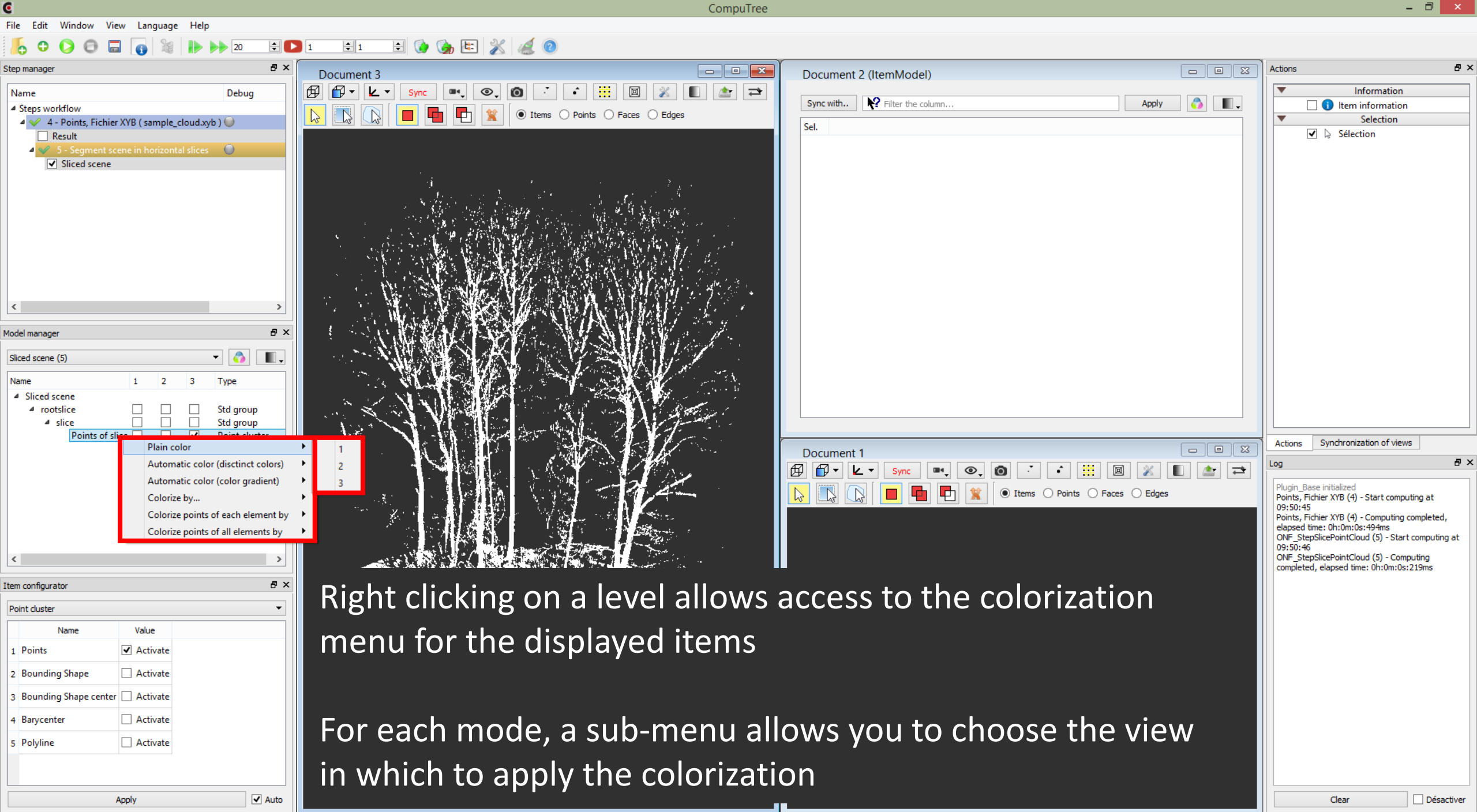
The following 3 buttons allow you to create:

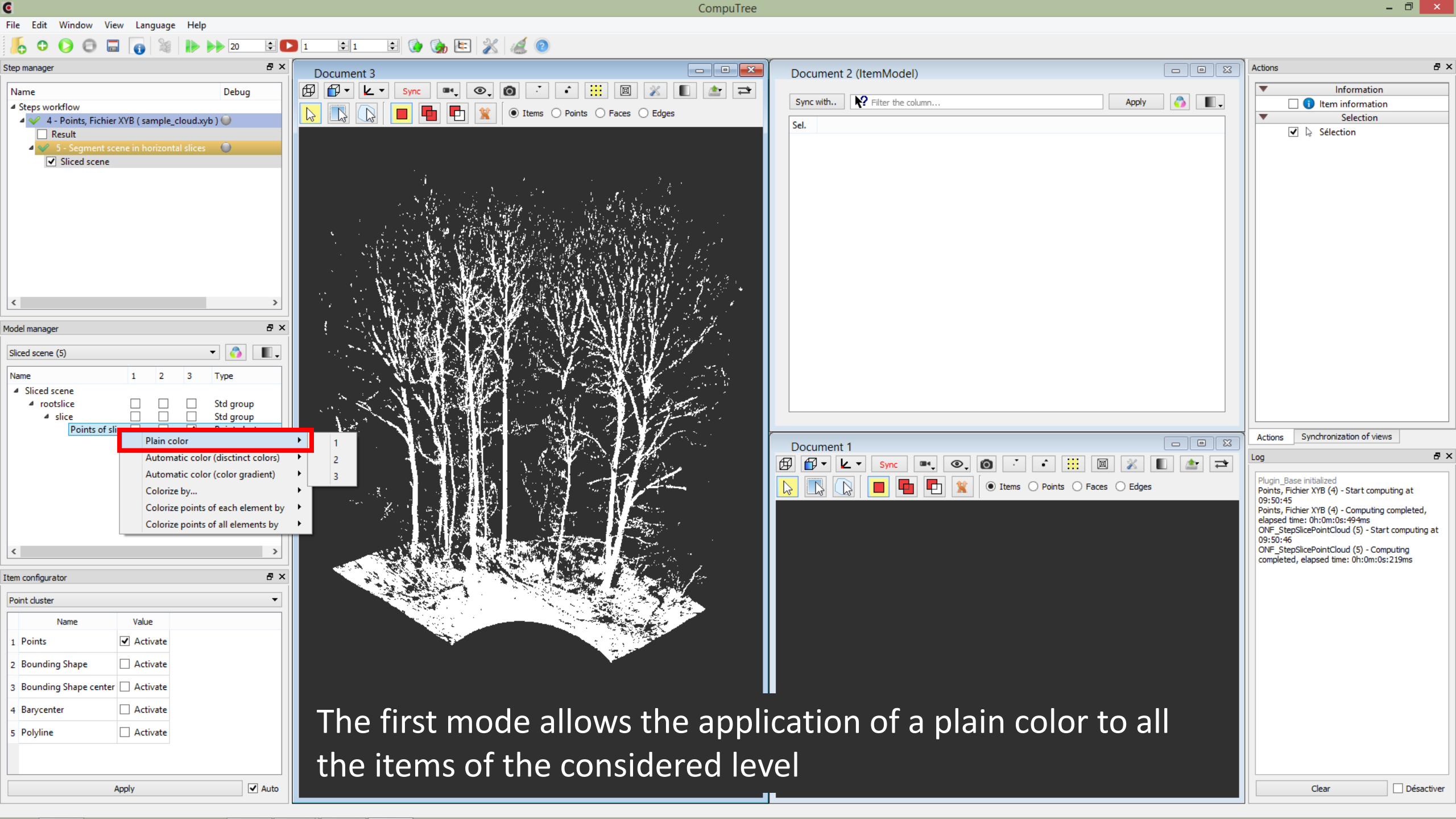
- a new 3D view
- a new 2D view (top view)
- a new tabular view (attribute data)



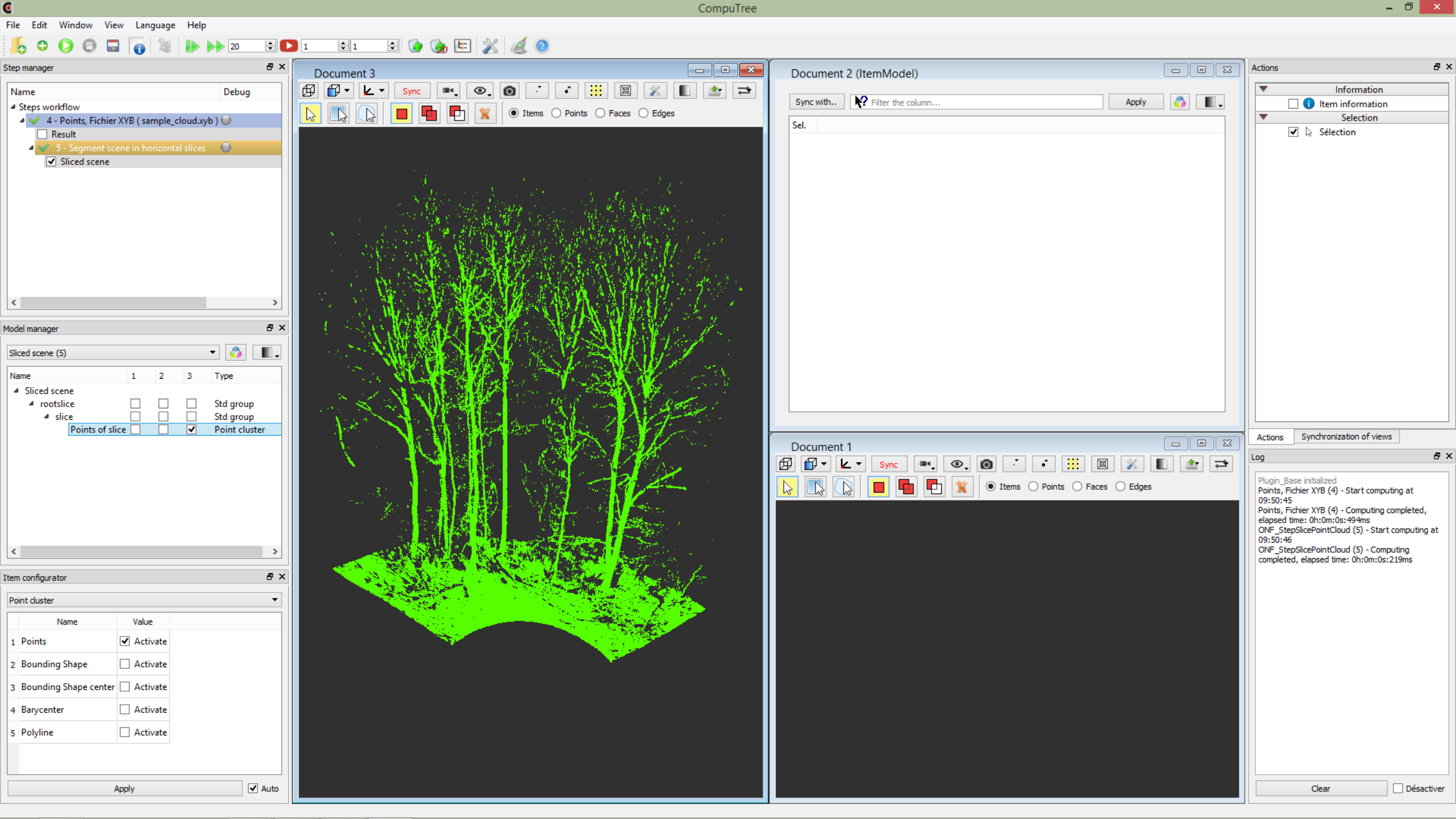








The first mode allows the application of a plain color to all the items of the considered level



Step manager

Name	Debug
Steps workflow	
✓ 4 - Points, Fichier XYB (sample_cloud.xyb)	
<input type="checkbox"/> Result	
✓ 5 - Segment scene in horizontal slices	
<input checked="" type="checkbox"/> Sliced scene	

The screenshot shows the 'Model manager' window. At the top, there is a dropdown menu set to 'Sliced scene (5)' and two icons: a multi-colored sphere and a grayscale cube. Below this is a table with columns 'Name', '1', '2', '3', and 'Type'. The tree structure is as follows:

Name	1	2	3	Type
▲ Sliced scene				
▲ rootslice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
▲ slice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Point cluster

A right-click context menu is open for 'Points of slice'. The menu items are:

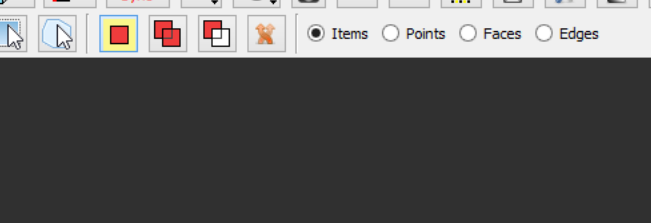
- Plain color
- Automatic color (distinct colors)** (highlighted with a red rectangle)
- Automatic color (color gradient)
- Colorize by...
- Colorize points of each element by
- Colorize points of all elements by

Item configurator

Point cluster

	Name	Value
1	Points	<input checked="" type="checkbox"/> Activate
2	Bounding Shape	<input type="checkbox"/> Activate
3	Bounding Shape center	<input type="checkbox"/> Activate
4	Barycenter	<input type="checkbox"/> Activate
5	Polyline	<input type="checkbox"/> Activate


Apply ☒ Auto




The screenshot shows the top toolbar of a 3D modeling application. The title bar reads "Document 1". The toolbar includes icons for selection (mouse cursor, lasso, pan), navigation (orbit, pan, zoom), and modeling (extrude, revolve, etc.). A "Sync" button is highlighted in red. Below the icons are radio buttons for "Items", "Points", "Faces", and "Edges", with "Items" currently selected. The main workspace is a dark gray area.

Actions

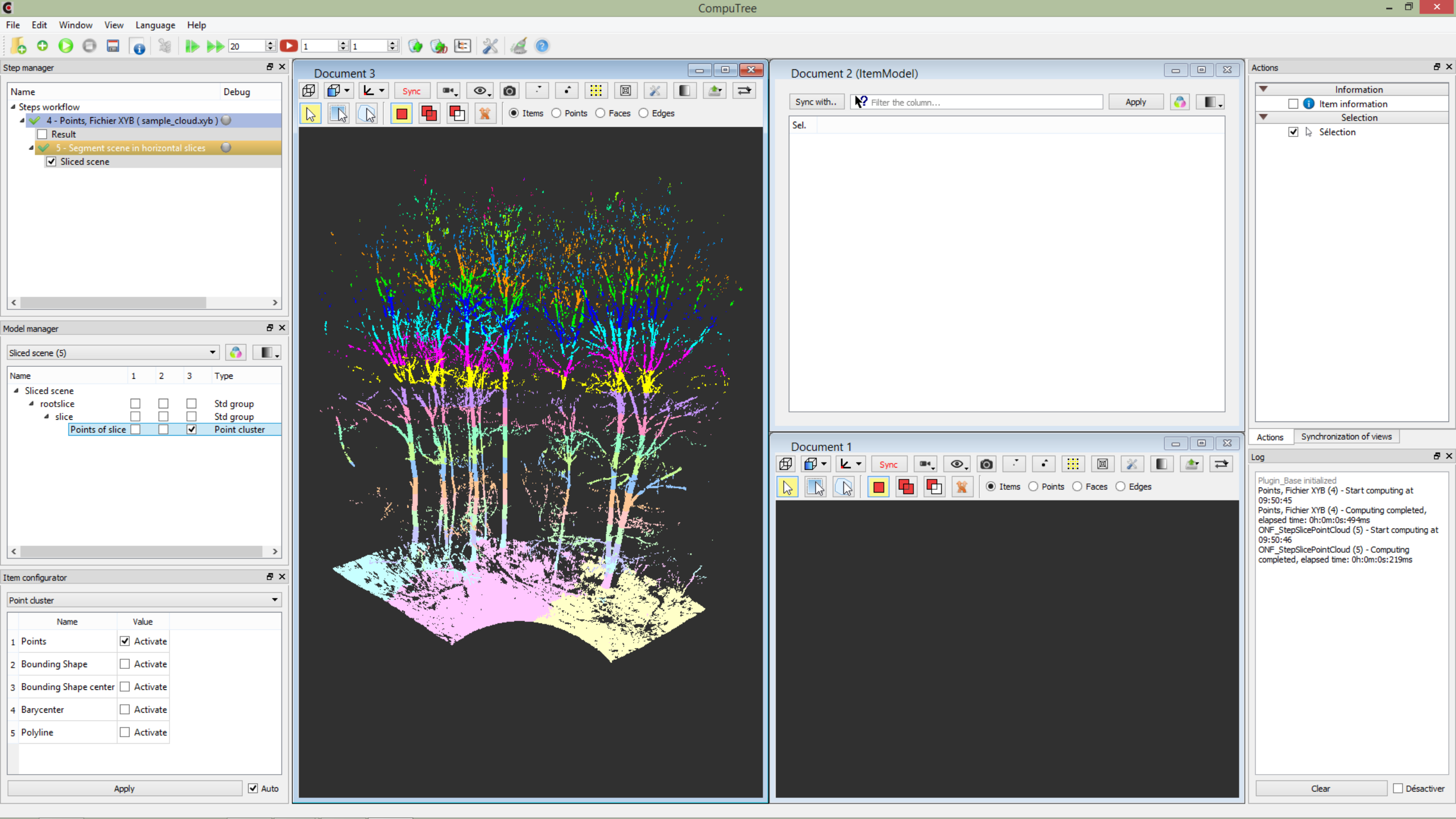
Information

☐  Item information

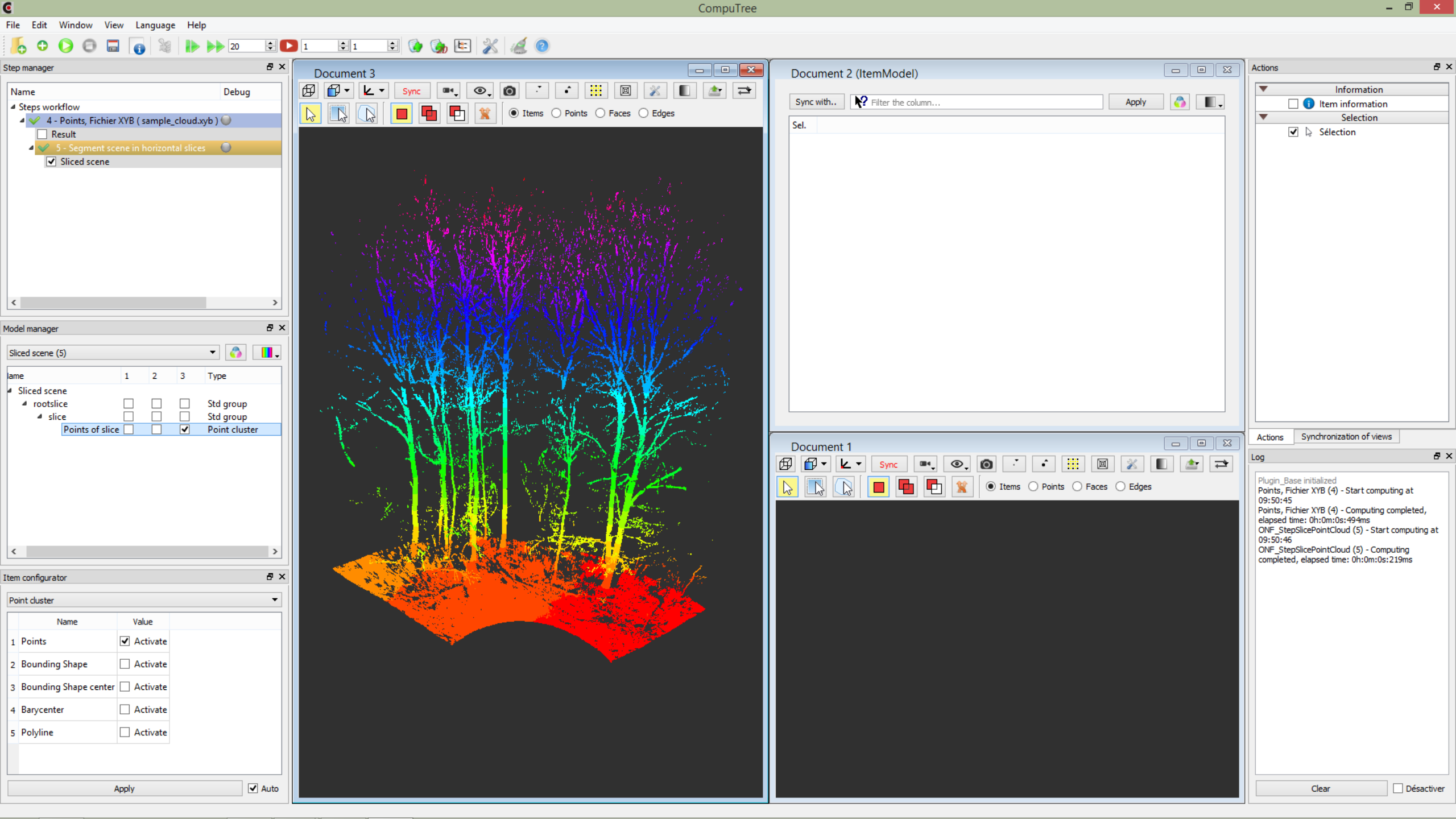
Selection

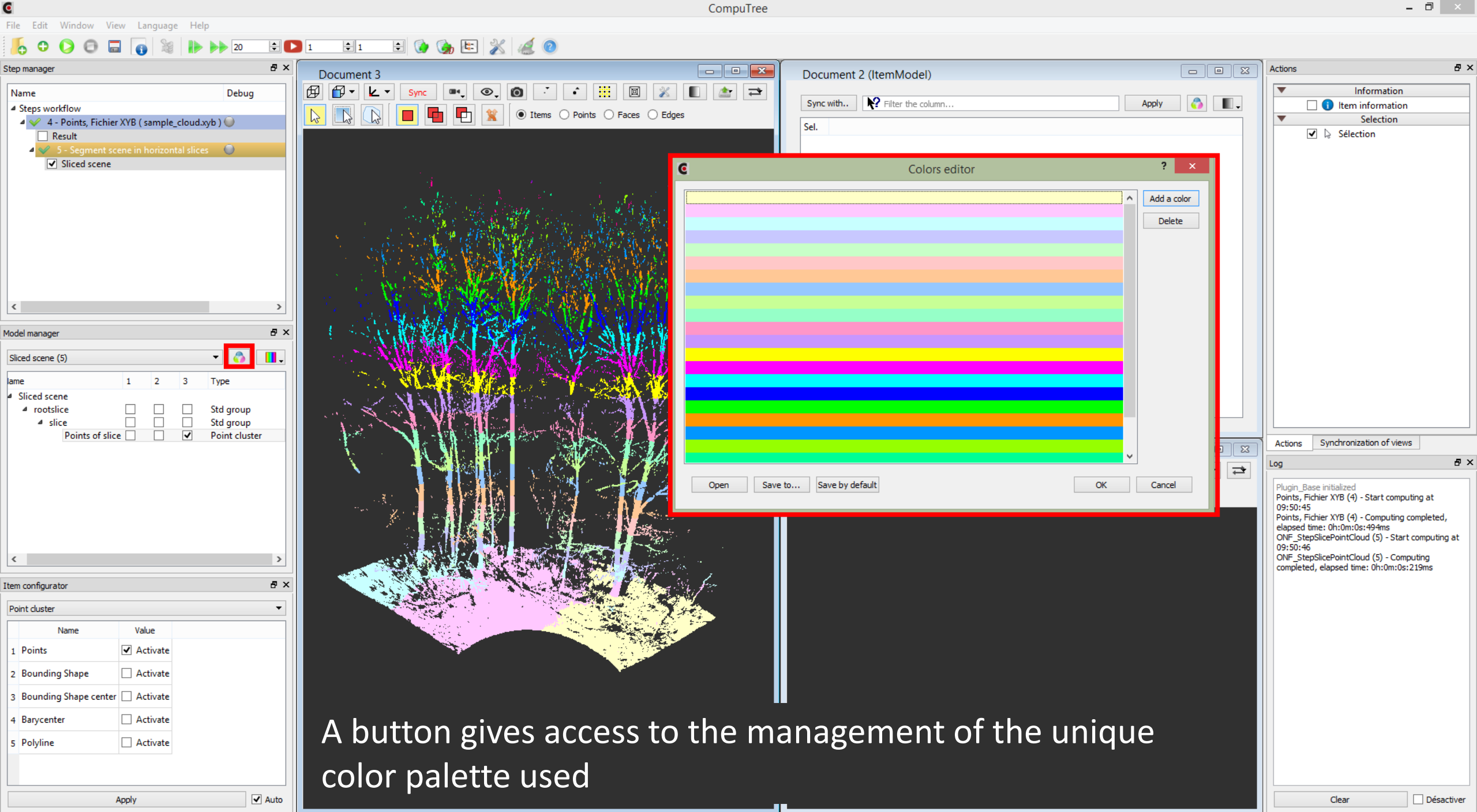
☒  Selection

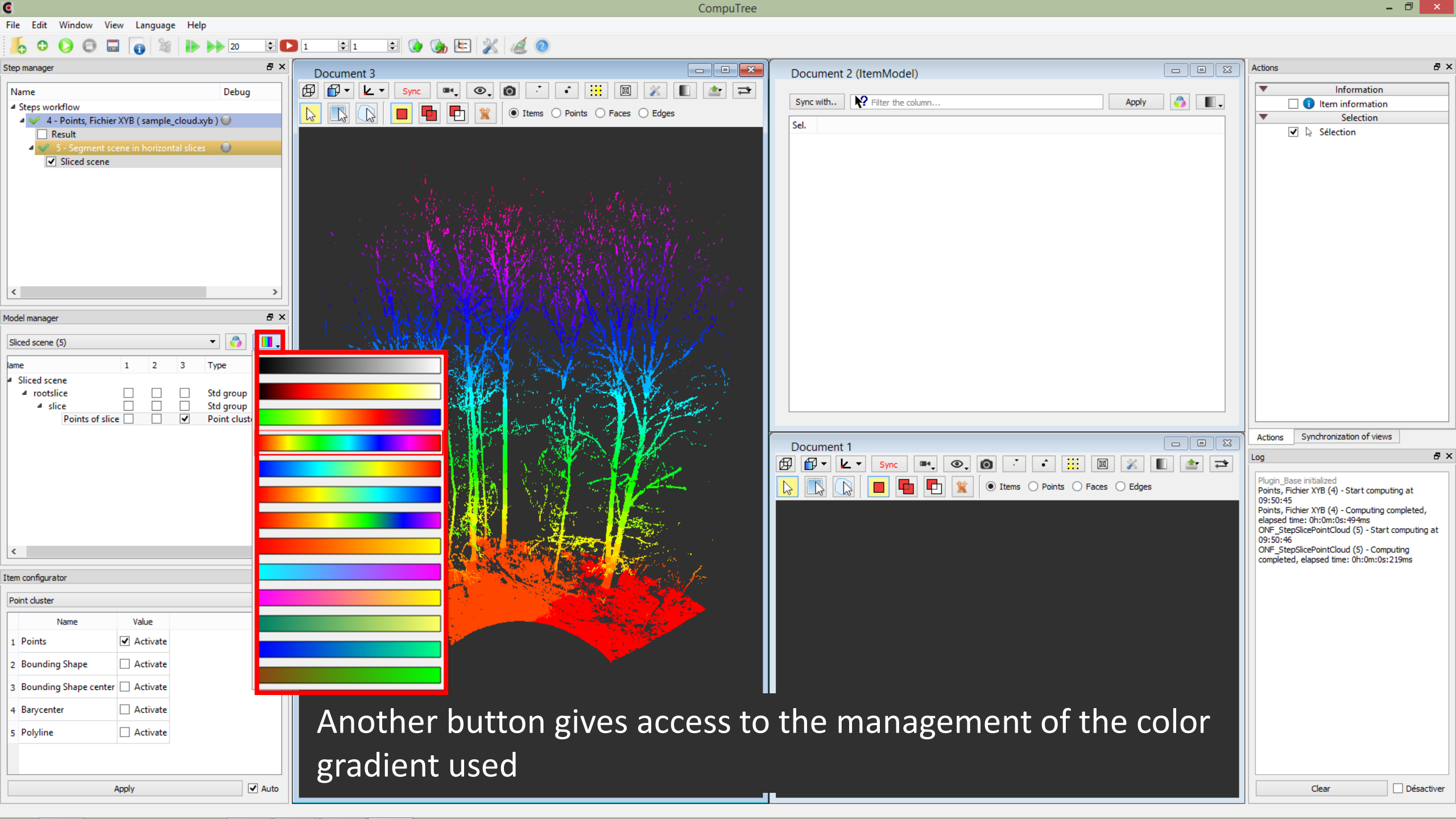
The second mode allows a differentiated colorization of each item of the considered level, using a list of unique colors



The third mode also allows a differentiated colorization of each item of the considered level, but using a continuous gradient







Another button gives access to the management of the color gradient used



Step manager

Name Debug

Steps workflow

- 4 - Points, Fichier XYB (sample_cloud.xyb)
- Result
- 5 - Segment scene in horizontal slices
 - Sliced scene

Model manager

Sliced scene (5)

Name	1	2	3	Type
Sliced scene				
rootslice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
slice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Point cluster

Item configurator

Point cluster

Name	Value
1 Points	<input checked="" type="checkbox"/> Activate
2 Bounding Shape	<input type="checkbox"/> Activate
3 Bounding Shape center	<input type="checkbox"/> Activate
4 Barycenter	<input type="checkbox"/> Activate
5 Polyline	<input type="checkbox"/> Activate

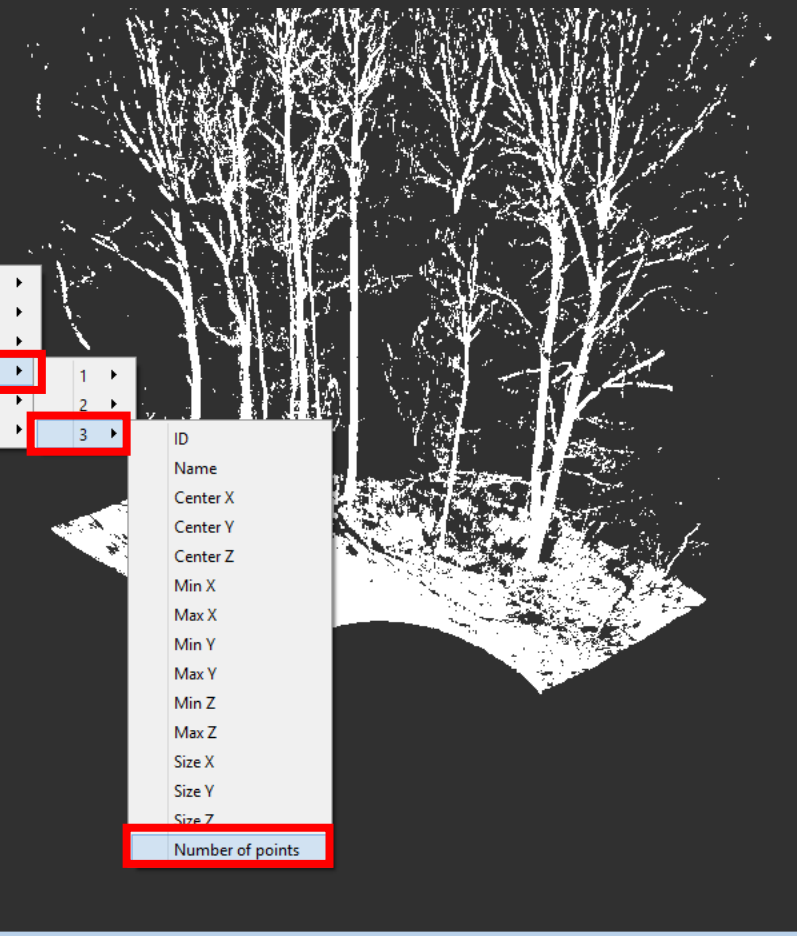
Apply ☒ Auto

Document 3

Sync

Items Points Faces Edges

The fourth mode allows a gradient colorization of the items of the considered level, according to an attribute (eg number of points in the cluster)



Document 2 (ItemModel)

Sync with.. Filter the column... Apply

Document 1

Sync

Items Points Faces Edges

Actions

Information

- Item information
- Selection
 - Sélection

Actions Synchronization of views

Log

Plugin_Base initialized

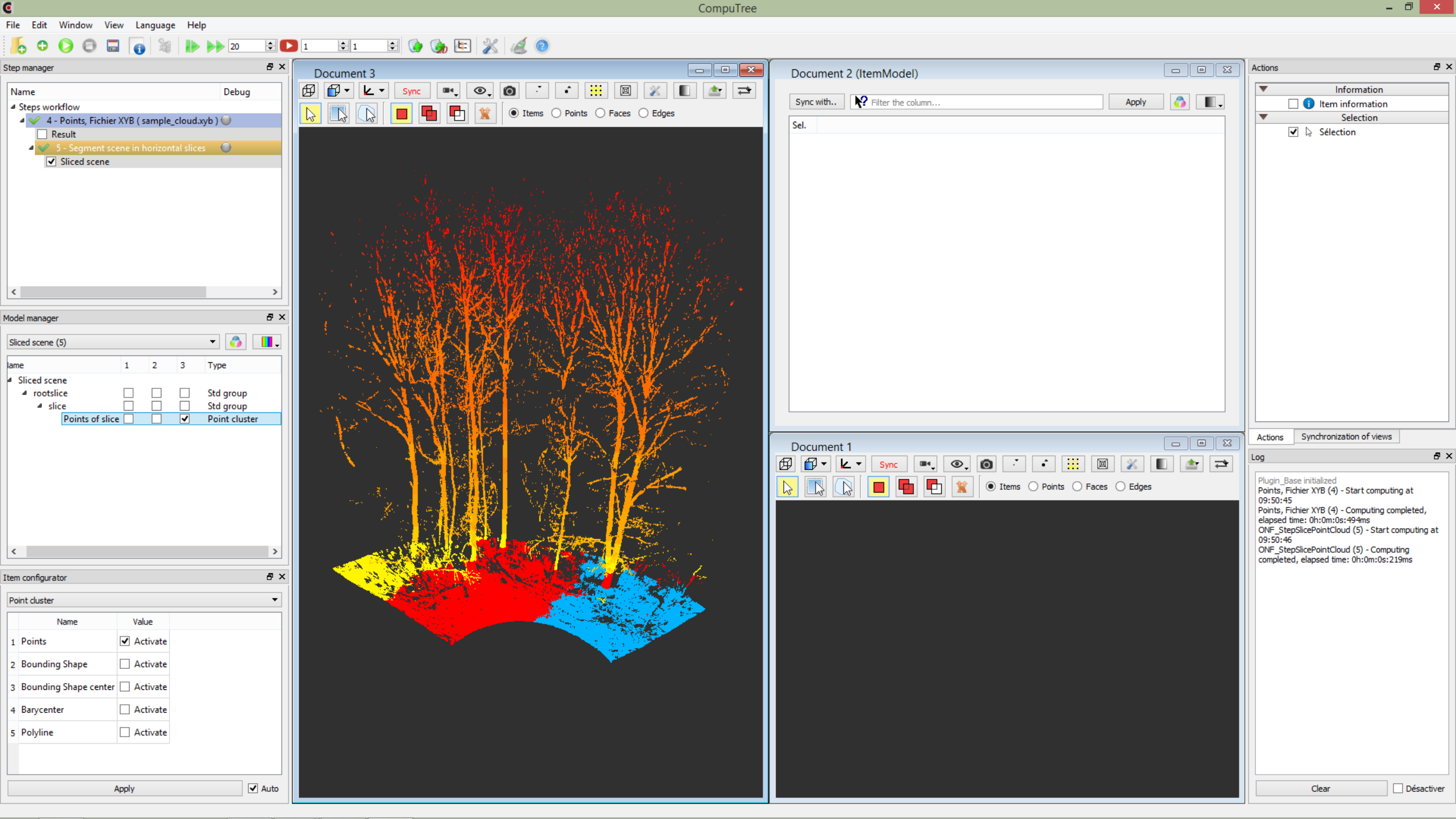
Points, Fichier XYB (4) - Start computing at 09:50:45

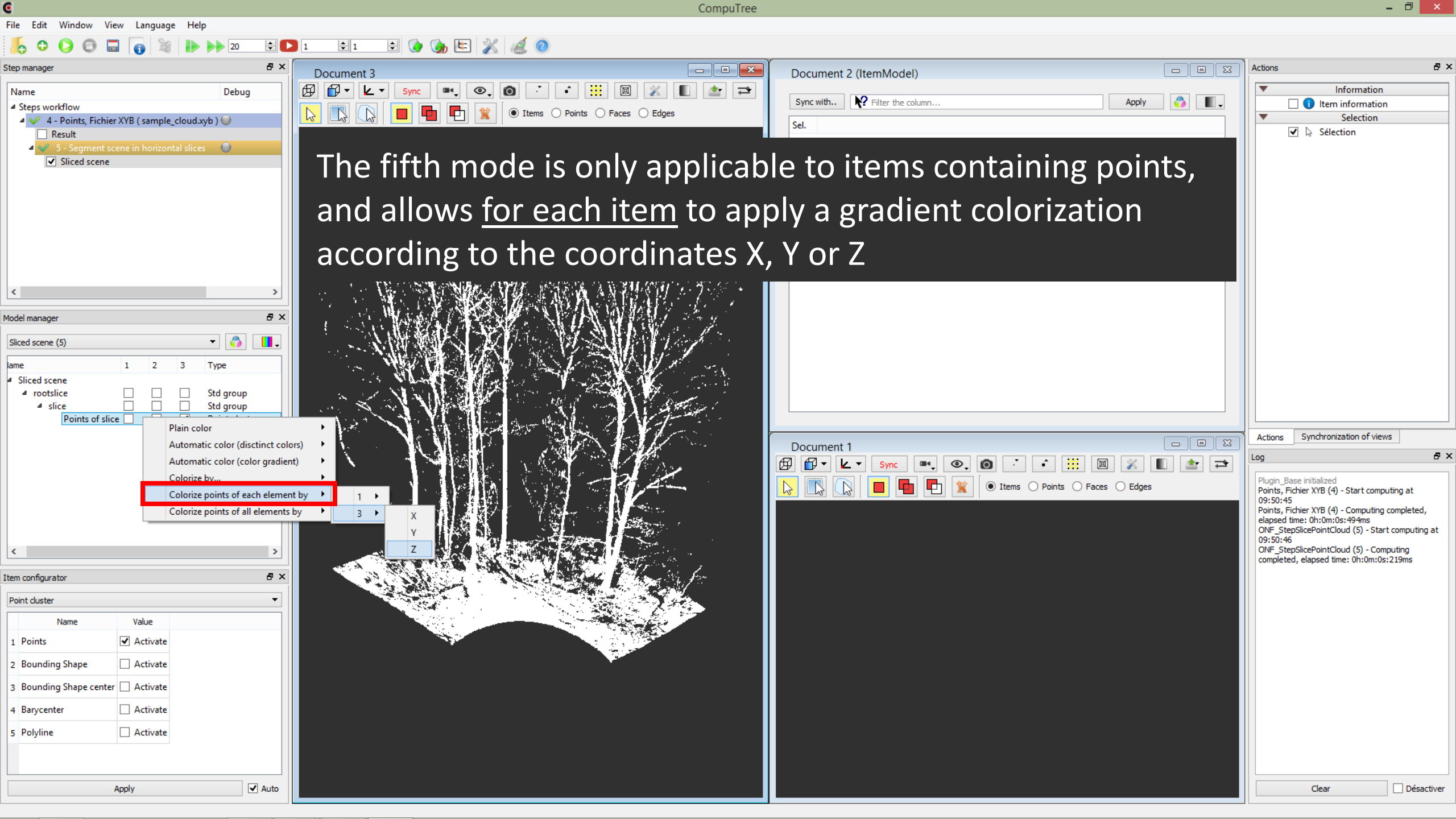
Points, Fichier XYB (4) - Computing completed, elapsed time: 0h:0m:0s:494ms

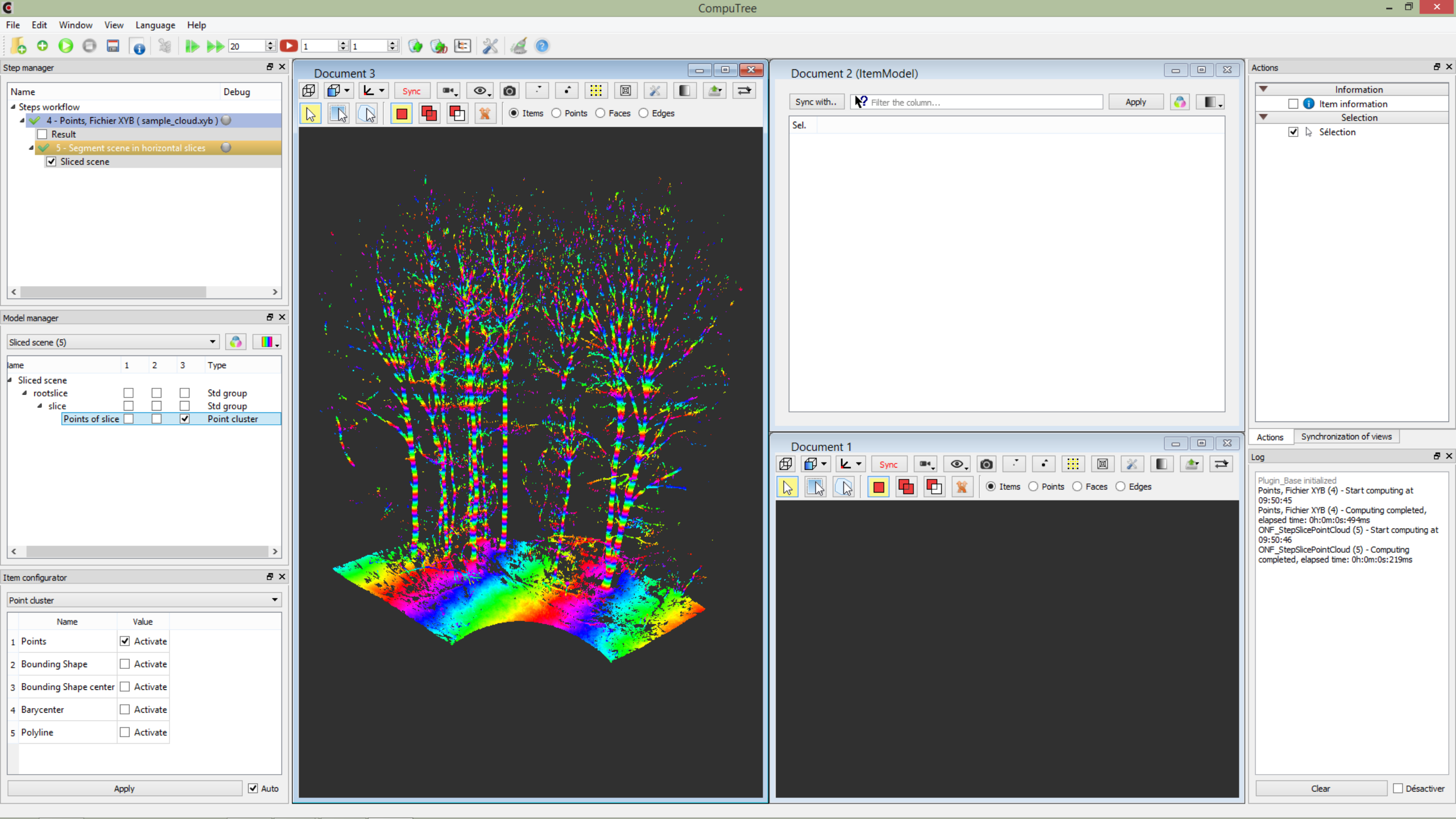
ONF_StepSlicePointCloud (5) - Start computing at 09:50:46

ONF_StepSlicePointCloud (5) - Computing completed, elapsed time: 0h:0m:0s:219ms

Clear ☐ Désactiver









Step manager

Name Debug

Steps workflow

- 4 - Points, Fichier XYB (sample_cloud.xyb)
- Result
- 5 - Segment scene in horizontal slices
 - Sliced scene

Model manager

Sliced scene (5)

Name	1	2	3	Type
Sliced scene				
rootslice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
slice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Point cluster

Item configurator

Point cluster

Name	Value
1 Points	<input checked="" type="checkbox"/> Activate
2 Bounding Shape	<input type="checkbox"/> Activate
3 Bounding Shape center	<input type="checkbox"/> Activate
4 Barycenter	<input type="checkbox"/> Activate
5 Polyline	<input type="checkbox"/> Activate

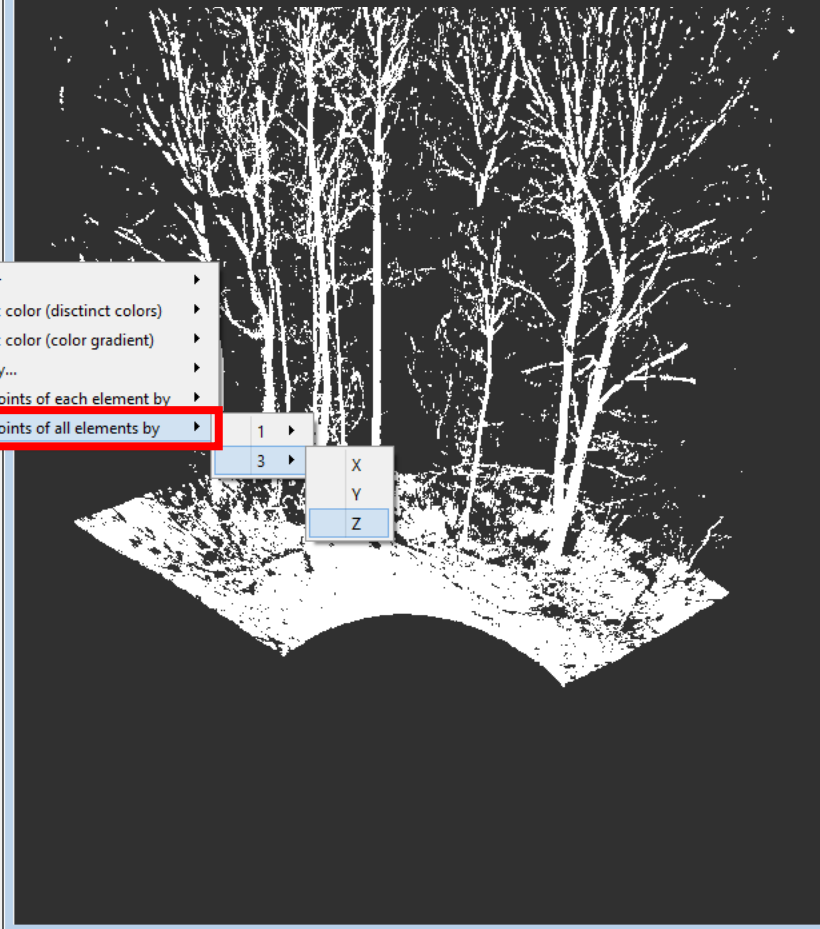
Apply ☒ Auto

Document 3

Sync

Items Points Faces Edges

The sixth mode is only applicable to items containing points, and allows a gradient colorization according to the X, Y or Z coordinates for all displayed items



Document 2 (ItemModel)

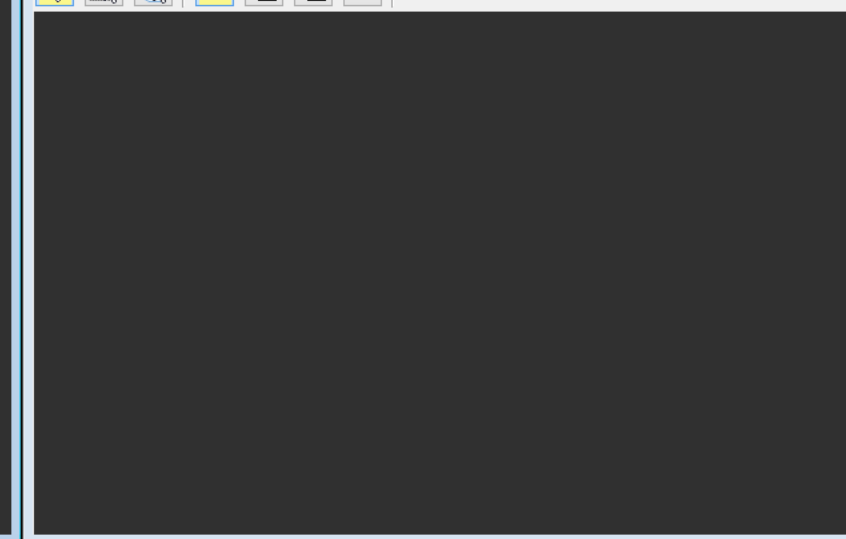
Sync with.. Filter the column... Apply

Sel.

Document 1

Sync

Items Points Faces Edges



Actions

Information

☐ Item information

Selection

☒ Sélection

Actions Synchronization of views

Log

Plugin_Base initialized

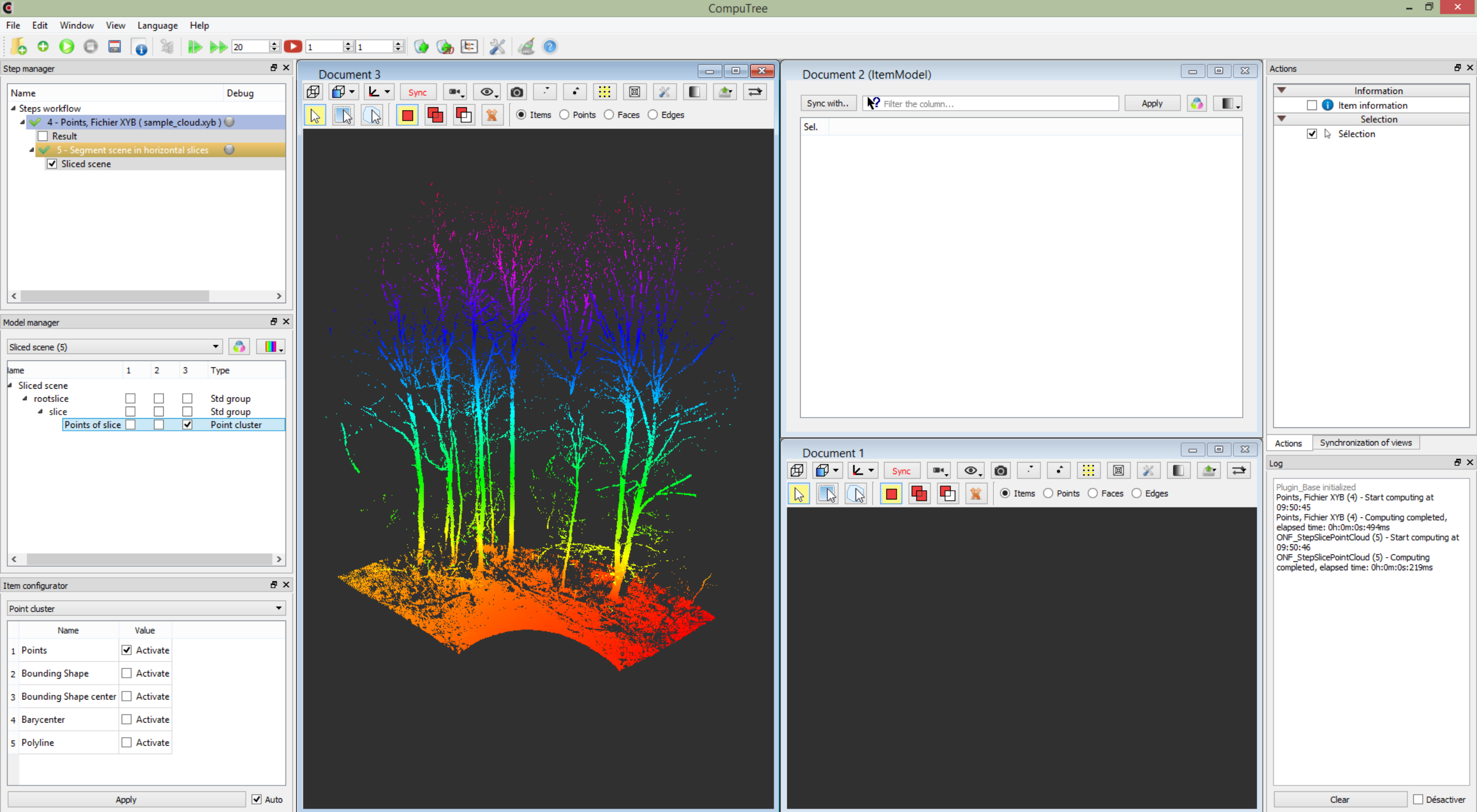
Points, Fichier XYB (4) - Start computing at 09:50:45

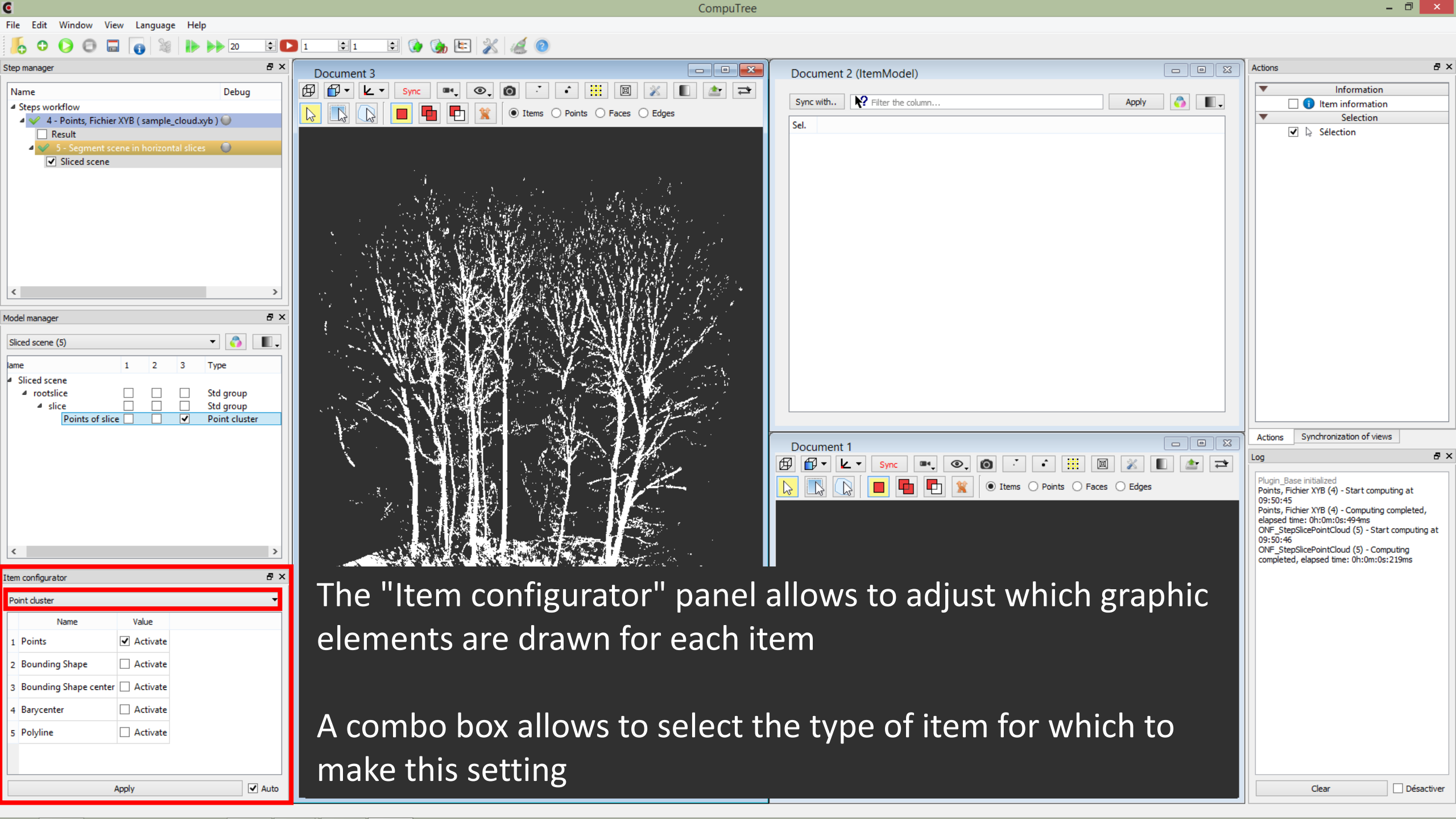
Points, Fichier XYB (4) - Computing completed, elapsed time: 0h:0m:0s:494ms

ONF_StepSlicePointCloud (5) - Start computing at 09:50:46

ONF_StepSlicePointCloud (5) - Computing completed, elapsed time: 0h:0m:0s:219ms

Clear ☐ Désactiver





The "Item configurator" panel allows to adjust which graphic elements are drawn for each item

A combo box allows to select the type of item for which to make this setting

File Edit Window View Language Help

Step manager

Name Debug

Steps workflow

- 4 - Points, Fichier XYB (sample_cloud.xyb)
 - Result
- 5 - Segment scene in horizontal slices
 - Sliced scene

Model manager

Sliced scene (5)

Name	1	2	3	Type
Sliced scene				
rootslice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
slice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Point cluster

Item configurator

Point cluster

Name	Value
1 Points	<input checked="" type="checkbox"/> Activate
2 Bounding Shape	<input checked="" type="checkbox"/> Activate
3 Bounding Shape center	<input type="checkbox"/> Activate
4 Barycenter	<input type="checkbox"/> Activate
5 Polyline	<input type="checkbox"/> Activate

Apply ☒ Auto

Document 3

Sync

Items Points Faces Edges

Document 2 (ItemModel)

Sync with.. Filter the column... Apply

Sel.

Document 1

Sync

Items Points Faces Edges

Actions

Information

- Item information
- Selection
 - Sélection

Actions Synchronization of views

Log

Plugin_Base initialized

Points, Fichier XYB (4) - Start computing at 09:50:45

Points, Fichier XYB (4) - Computing completed, elapsed time: 0h:0m:0s:494ms

ONF_StepSlicePointCloud (5) - Start computing at 09:50:46

ONF_StepSlicePointCloud (5) - Computing completed, elapsed time: 0h:0m:0s:219ms

Clear ☐ Désactiver

In the case of "cluster of points" item type, it's possible, for example, to activate the display of the bounding box

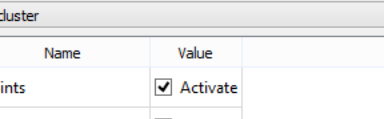
The screenshot shows the 'Step manager' window with a 'Debug' button in the top right. The workflow is expanded, showing the following steps:

- 4 - Points, Fichier XYB (sample_cloud.xyb) (Status: Success, icon: green checkmark)
- Result (Status: Pending, icon: white square)
- 5 - Segment scene in horizontal slices (Status: Success, icon: green checkmark)
- Sliced scene (Status: Pending, icon: white square)

The screenshot shows the 'Model manager' window. At the top, there is a title bar 'Model manager' and a close button. Below the title bar is a search bar containing 'Sliced scene (5)' and a dropdown arrow. To the right of the search bar are two icons: a multi-colored sphere and a grayscale gradient bar. The main area is a tree view with the following structure:

name	1	2	3	Type
└ Sliced scene				
└┐ rootslice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
└┐┐ slice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Std group
└┐┐┐ Points of slice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Point cluster

At the bottom of the window is a horizontal scrollbar.



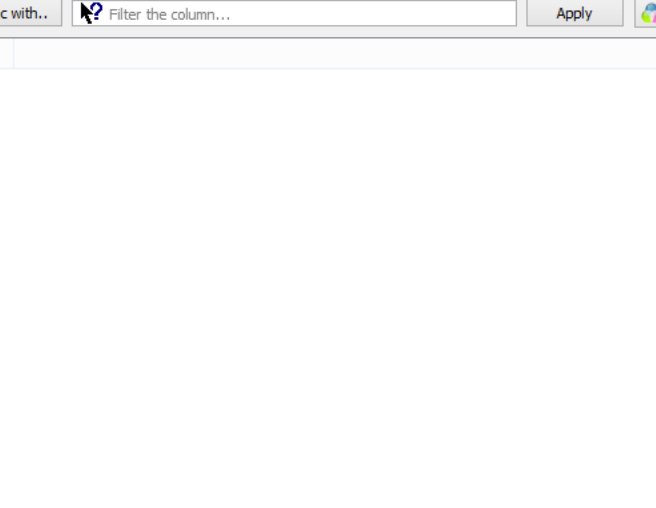
Item configurator

Point cluster

	Name	Value
1	Points	<input checked="" type="checkbox"/> Activate
2	Bounding Shape	<input checked="" type="checkbox"/> Activate
3	Bounding Shape center	<input type="checkbox"/> Activate
4	Barycenter	<input type="checkbox"/> Activate
5	Polyline	<input type="checkbox"/> Activate

Apply ☒ Auto

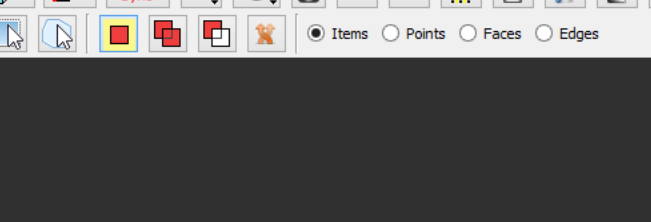
A screenshot of a 3D software interface, likely Blender, showing a wireframe model of a building with trees inside. The interface includes a top toolbar with various icons and a menu bar with 'Document 3'. The model is rendered in a wireframe style, showing the internal structure of the building and the trees. The trees are positioned inside the building, and the building's structure is visible through the wireframe. The interface also includes a 'Sync' button and a 'Items' button.



Document 2 (ItemModel)

Sync with.. Filter the column... Apply

Sel.



Document 1


Sync

Items Points Faces Edges


Some changes are applied in real time, while others are applied only when you click the Apply button.

Actions

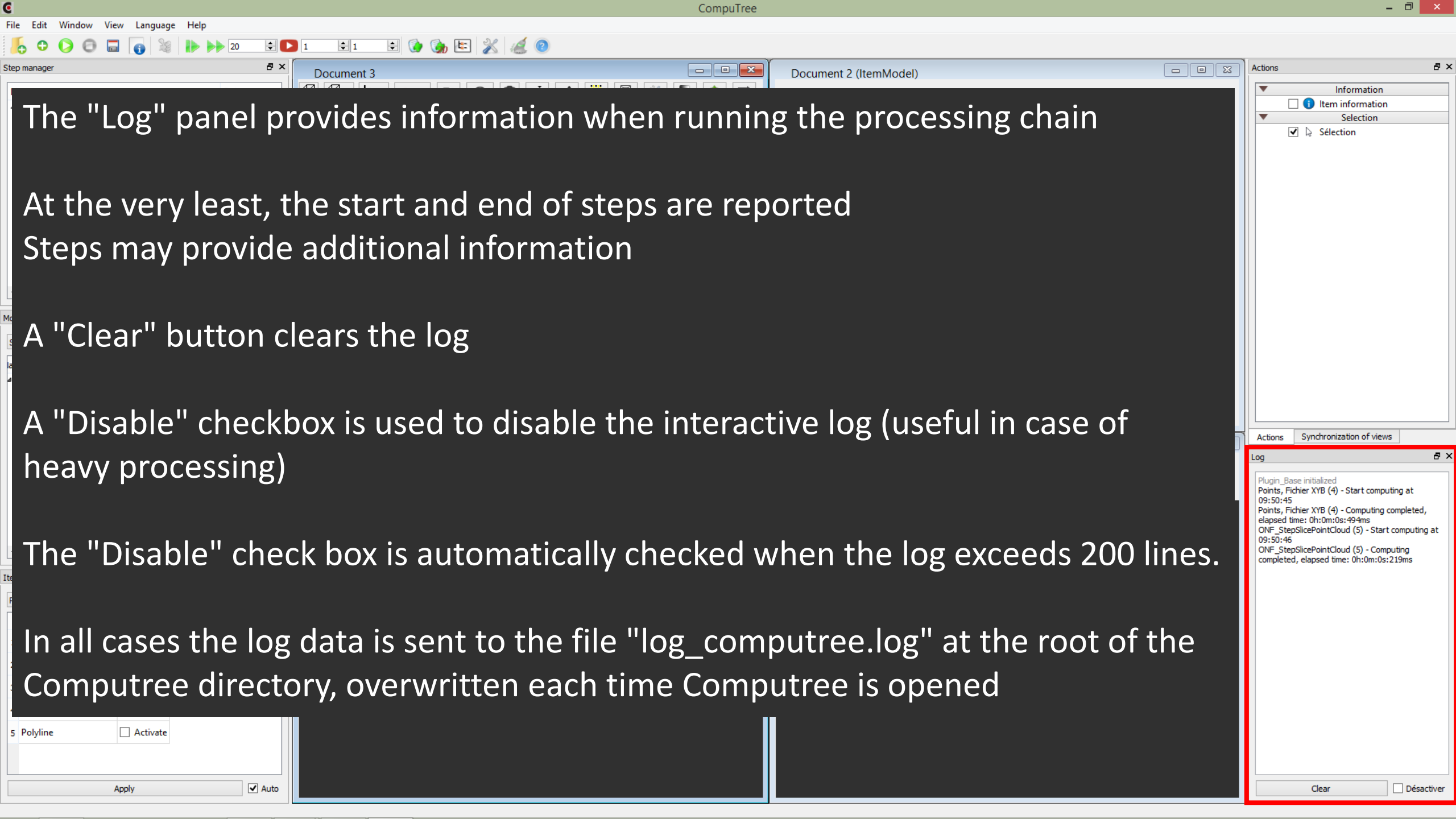
Information

☐  Item information

Selection

☒  Selection

If the "auto" box is checked, the changes are applied in real time. If not, click Apply to apply the changes.



The "Log" panel provides information when running the processing chain

At the very least, the start and end of steps are reported

Steps may provide additional information

A "Clear" button clears the log

A "Disable" checkbox is used to disable the interactive log (useful in case of heavy processing)

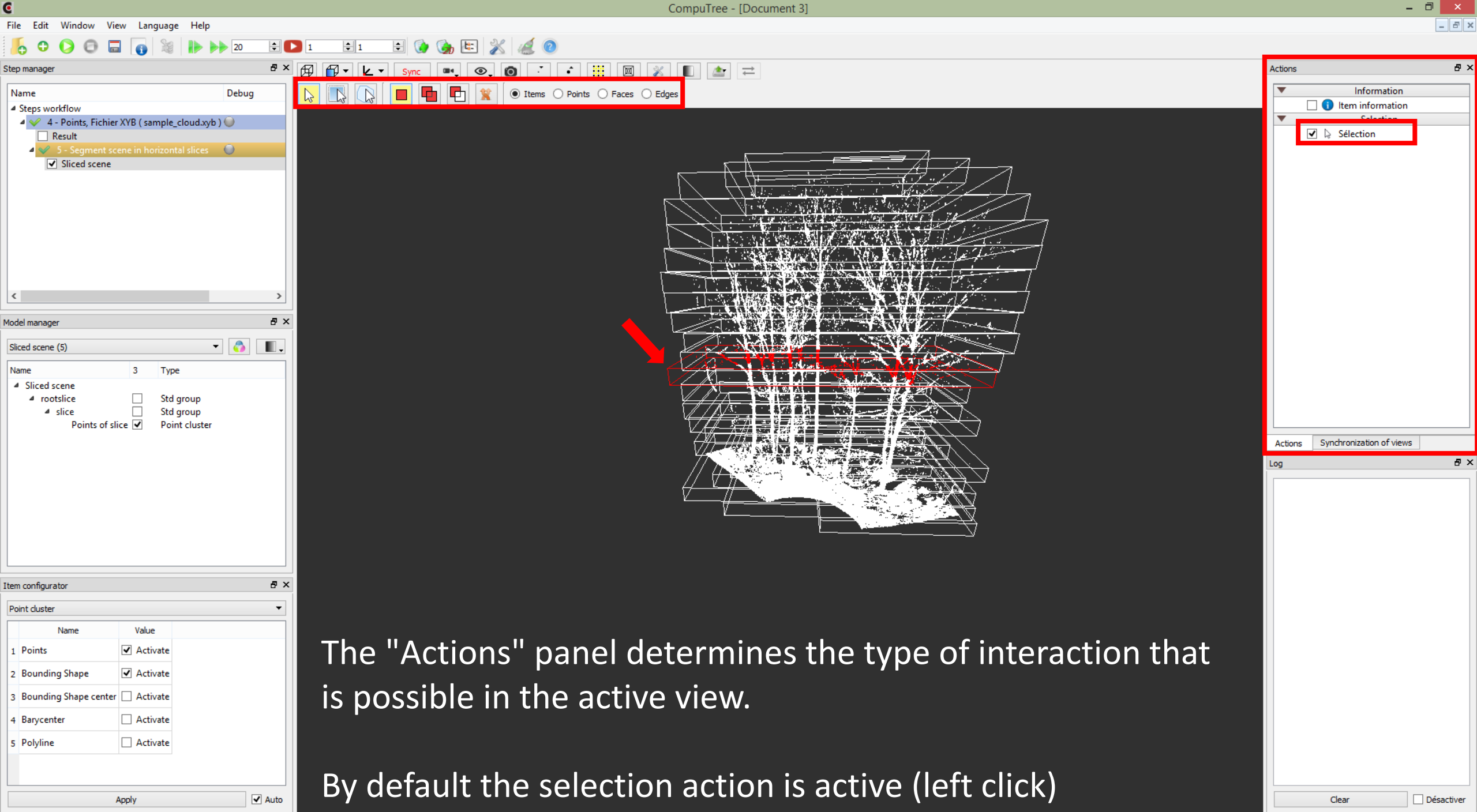
The "Disable" check box is automatically checked when the log exceeds 200 lines.

In all cases the log data is sent to the file "log_computree.log" at the root of the Computree directory, overwritten each time Computree is opened

Log

Plugin_Base initialized
Points, Fichier XYB (4) - Start computing at 09:50:45
Points, Fichier XYB (4) - Computing completed, elapsed time: 0h:0m:0s:494ms
ONF_StepSlicePointCloud (5) - Start computing at 09:50:46
ONF_StepSlicePointCloud (5) - Computing completed, elapsed time: 0h:0m:0s:219ms

Clear ☐ Désactiver



CompuTree - [Document 3]

File Edit Window View Language Help

Step manager

Name Debug

Steps workflow

- 4 - Points, Fichier XYB (sample_cloud.xyb)
- Result
- 5 - Segment scene in horizontal slices
 - Sliced scene

Model manager

Sliced scene (5)

Name	3	Type
Sliced scene		
rootslice	<input type="checkbox"/>	Std group
slice	<input type="checkbox"/>	Std group
Points of slice	<input checked="" type="checkbox"/>	Point cluster

Item configurator

Point cluster

Name	Value
1 Points	<input checked="" type="checkbox"/> Activate
2 Bounding Shape	<input checked="" type="checkbox"/> Activate
3 Bounding Shape center	<input type="checkbox"/> Activate
4 Barycenter	<input type="checkbox"/> Activate
5 Polyline	<input type="checkbox"/> Activate

Apply ☒ Auto

Actions

Information

☒ Item information

Selection

☐ Sélection

Actions Synchronization of views

Log

(X Y Z) = 7.44 9.36 7.87

Informations on selected item:

ID = 196
Name = Points of slice_196
Center X = 1.0437002182006835938
Center Y = 6.8061091303825378418
Center Z = 8.3606519699096679688
Min X = -8.4405422210693359375
Max X = 10.527942657470703125
Min Y = 1.9999994039535522461
Max Y = 11.612218856811523438
Min Z = 7.8606615066528320313
Max Z = 8.8606424331665039063
Size X = 18.968484878540039063
Size Y = 9.6122194528579711914
Size Z = 0.999980926513671875
Number of points = 40399

The "Item information" action is also available, and displays the attributes of the selected item (view and log)



Step manager

Name Debug

Steps workflow

- 4 - Points, Fichier XYB (sample_cloud.xyb)
 - Result
- 5 - Segment scene in horizontal slices
 - Sliced scene

Model manager

Sliced scene (5)

Name	3	Type
Sliced scene		
rootslice	<input type="checkbox"/>	Std group
slice	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	Point cluster

Item configurator

No element in 3D view

Apply ☒ Auto

The "broom" button removes all items from all views

Actions

Information

☐ Item information

Selection

☒ Sélection

Actions

Synchronization of views

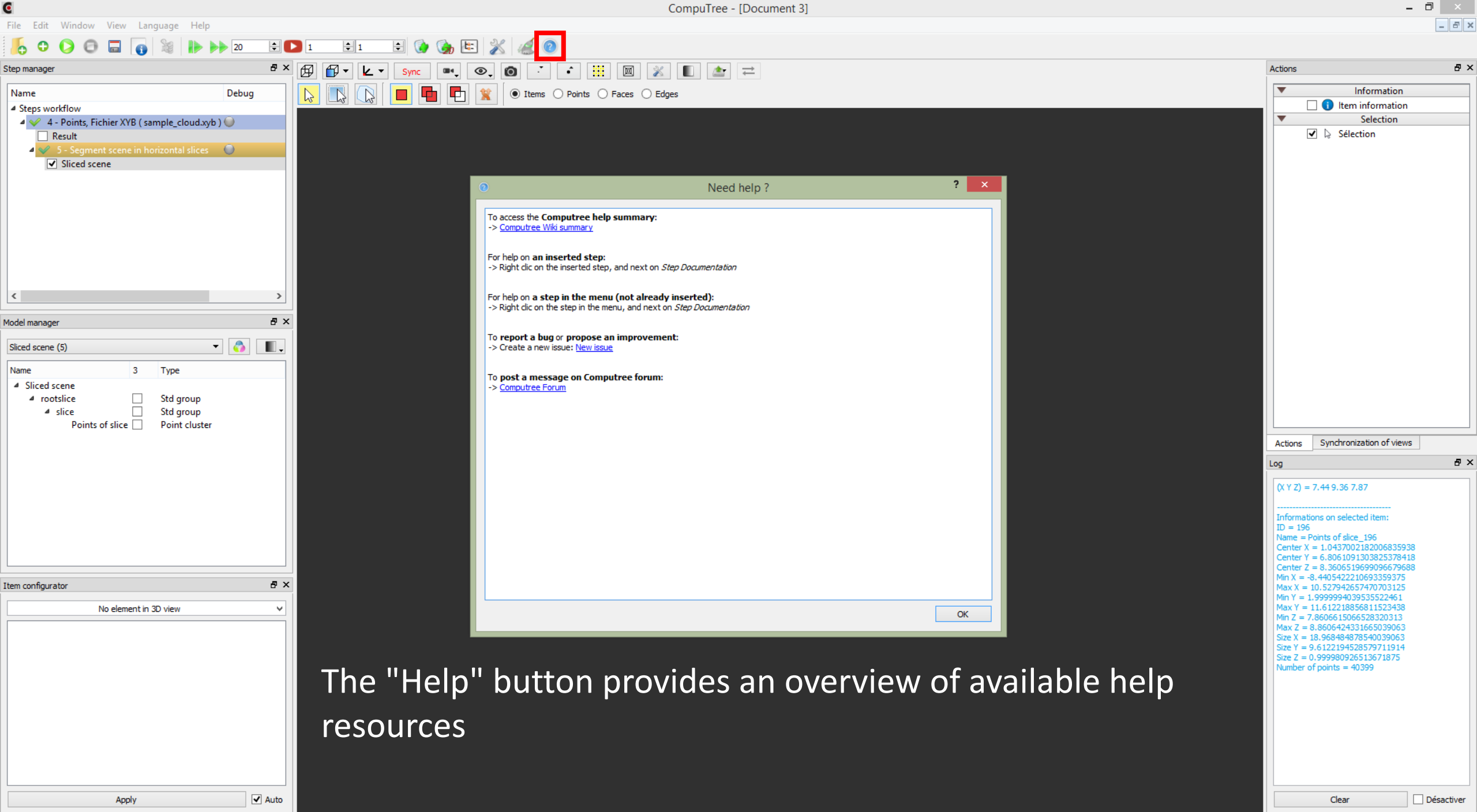
Log

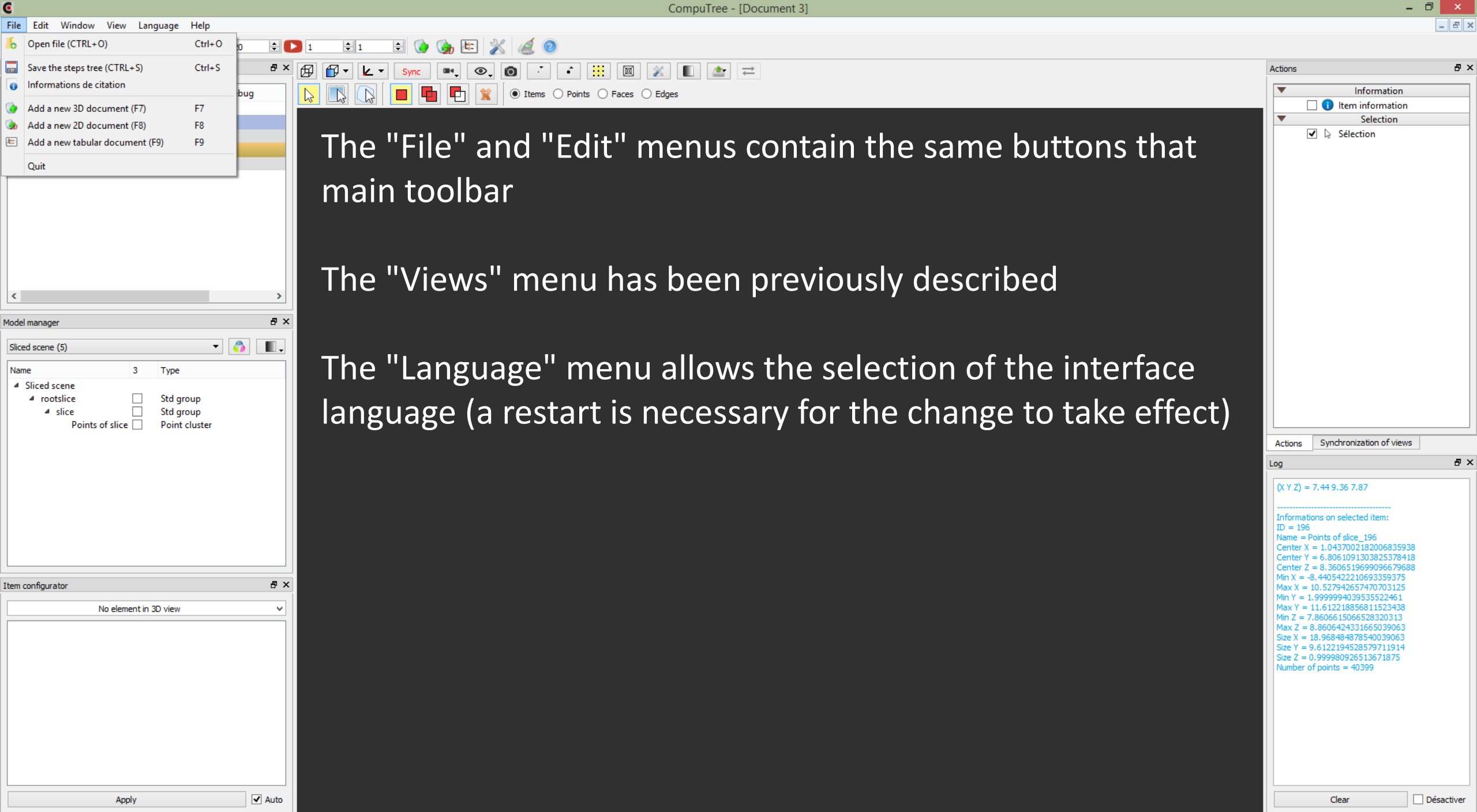
(X Y Z) = 7.44 9.36 7.87

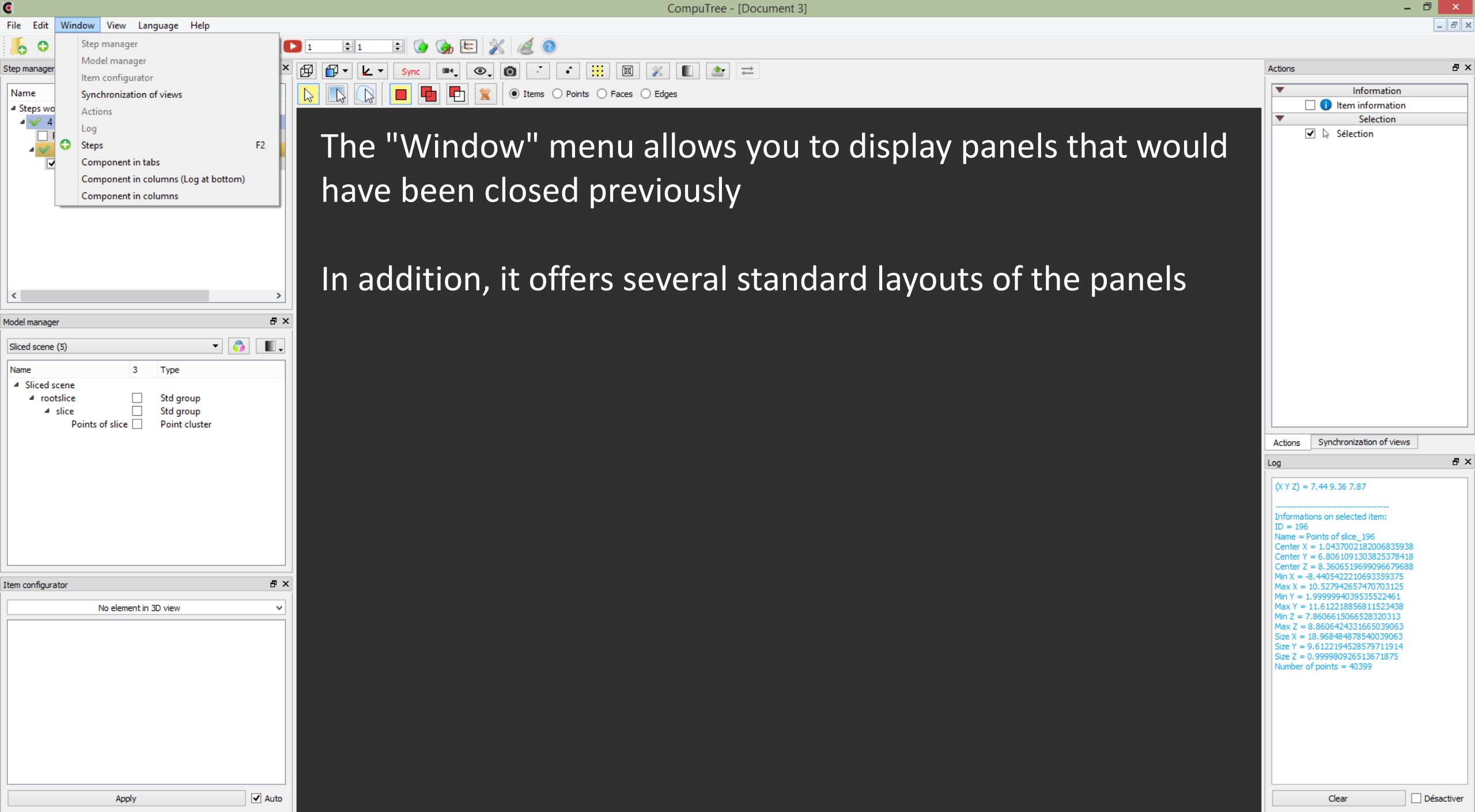
Informations on selected item:

ID = 196
Name = Points of slice_196
Center X = 1.0437002182006835938
Center Y = 6.8061091303825378418
Center Z = 8.3606519699096679688
Min X = -8.4405422210693359375
Max X = 10.527942657470703125
Min Y = 1.9999994039535522461
Max Y = 11.612218856811523438
Min Z = 7.8606615066528320313
Max Z = 8.8606424331665039063
Size X = 18.968484878540039063
Size Y = 9.6122194528579711914
Size Z = 0.999980926513671875
Number of points = 40399

Clear ☐ Désactiver







Step manager

Name

- Steps wo
- 4
- Steps
- Component in tabs
- Component in columns (Log at bottom)
- Component in columns

F2

Model manager

Sliced scene (5)

Name 3 Type

- Sliced scene
 - rootslice ☐ Std group
 - slice ☐ Std group
 - Points of slice ☐ Point cluster

Model manager Actions Log

Item configurator

No element in 3D view

Apply ☒ Auto

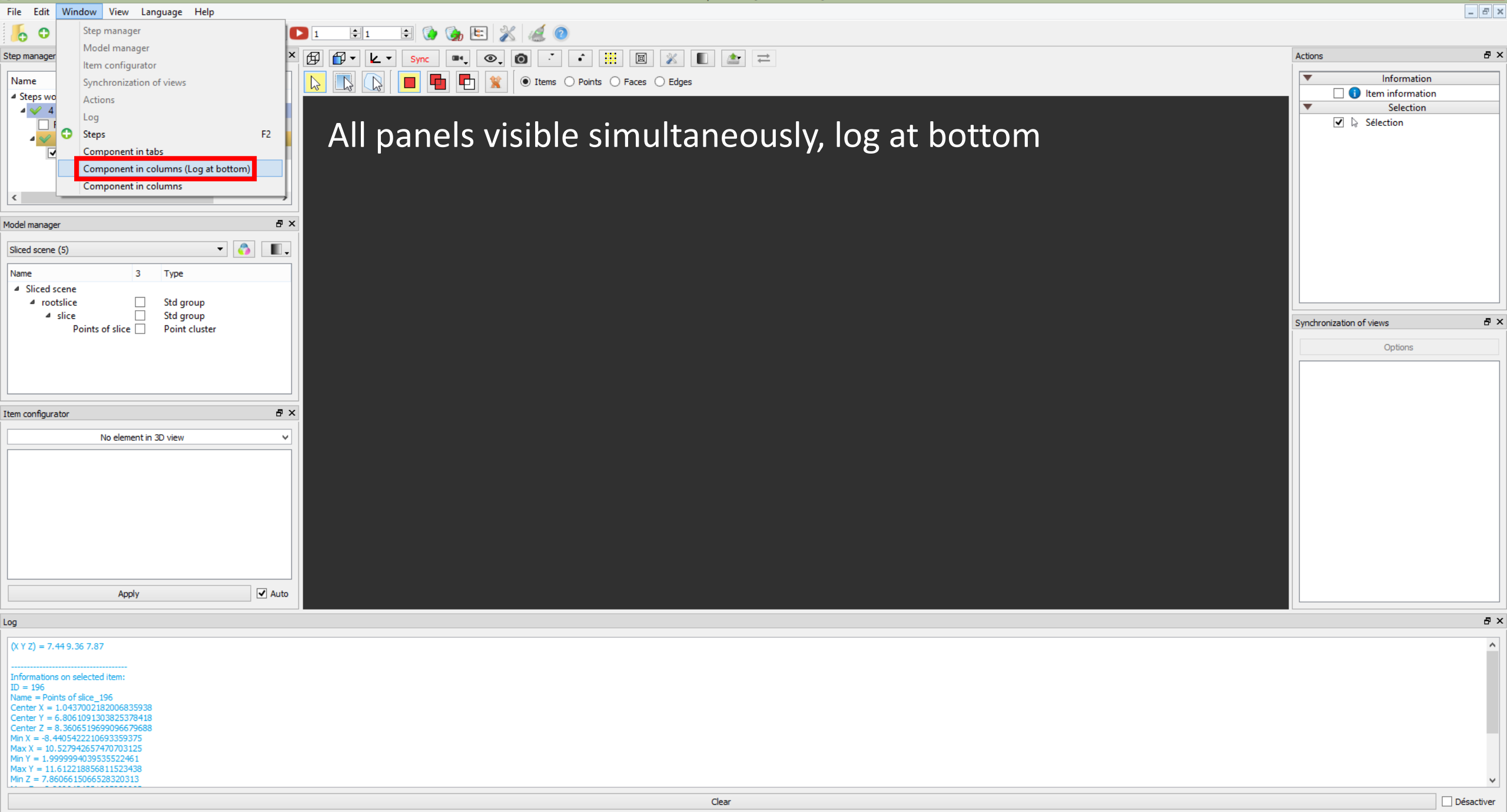
Item configurator Synchronization of views

1 1

Sync

Items Points Faces Edges

All panels grouped on the left, stacked



Step manager

Name

Steps wo

4

Log

Steps

Component in tabs

Component in columns (Log at bottom)

Component in columns

F2

Model manager

Sliced scene (5)

Name	3	Type
▲ Sliced scene		
▲ rootslice	<input type="checkbox"/>	Std group
▲ slice	<input type="checkbox"/>	Std group
Points of slice	<input type="checkbox"/>	Point cluster

Item configurator

No element in 3D view

Apply ☒ Auto

1 1

Sync

Items Points Faces Edges

All panels visible simultaneously, log at right (default layout)

Actions

Information

☐ Item information

Selection

☒ Sélection

Actions Synchronization of views

Log

(X Y Z) = 7.44 9.36 7.87

Informations on selected item:

ID = 196

Name = Points of slice_196

Center X = 1.0437002182006835938

Center Y = 6.8061091303825378418

Center Z = 8.3606519699096679688

Min X = -8.4405422210693359375

Max X = 10.527942657470703125

Min Y = 1.9999994039535522461

Max Y = 11.612218856811523438

Min Z = 7.8606615066528320313

Max Z = 8.86066424331665039063

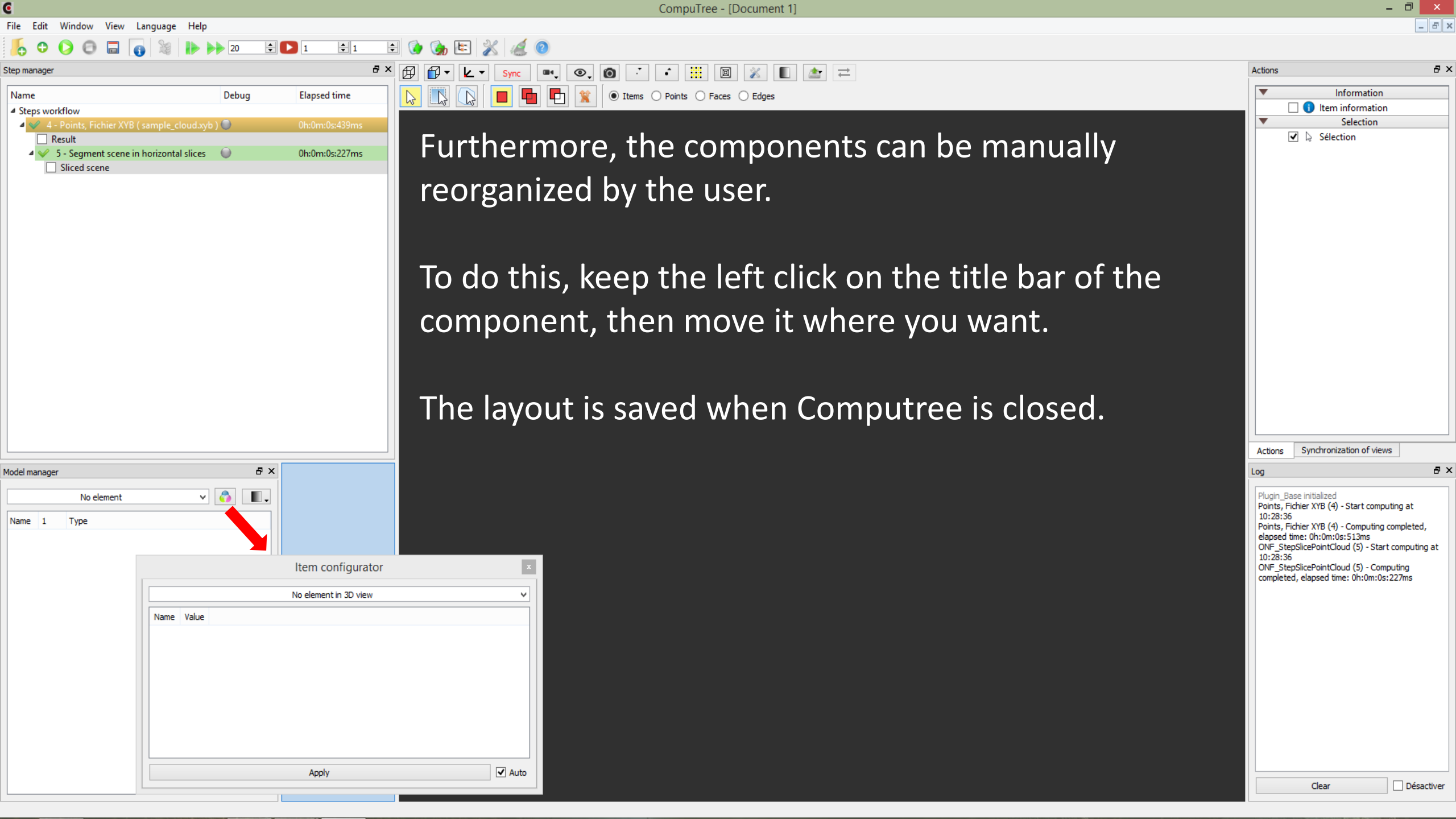
Size X = 18.968484878540039063

Size Y = 9.6122194528579711914

Size Z = 0.999980926513671875

Number of points = 40399

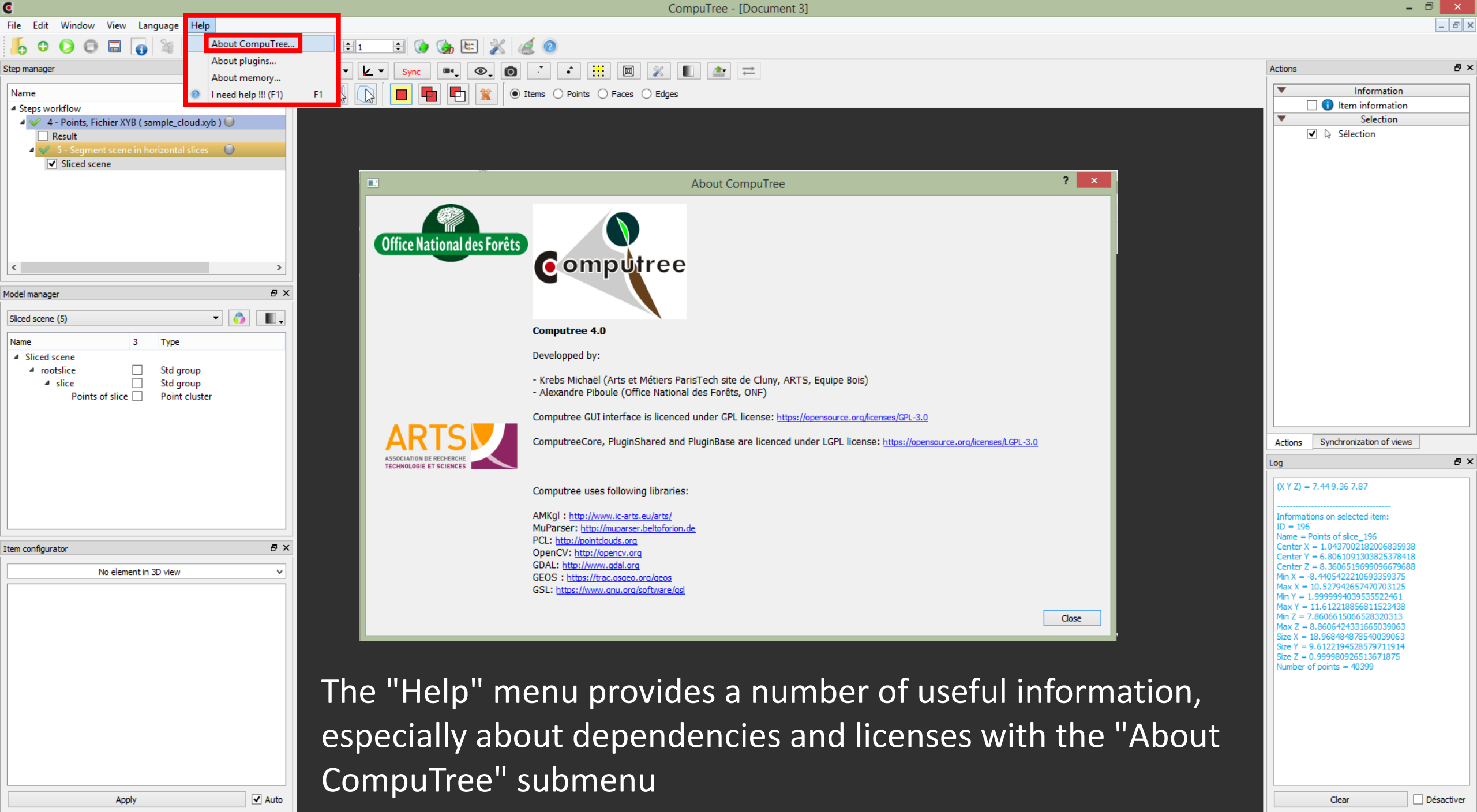
Clear ☐ Désactiver



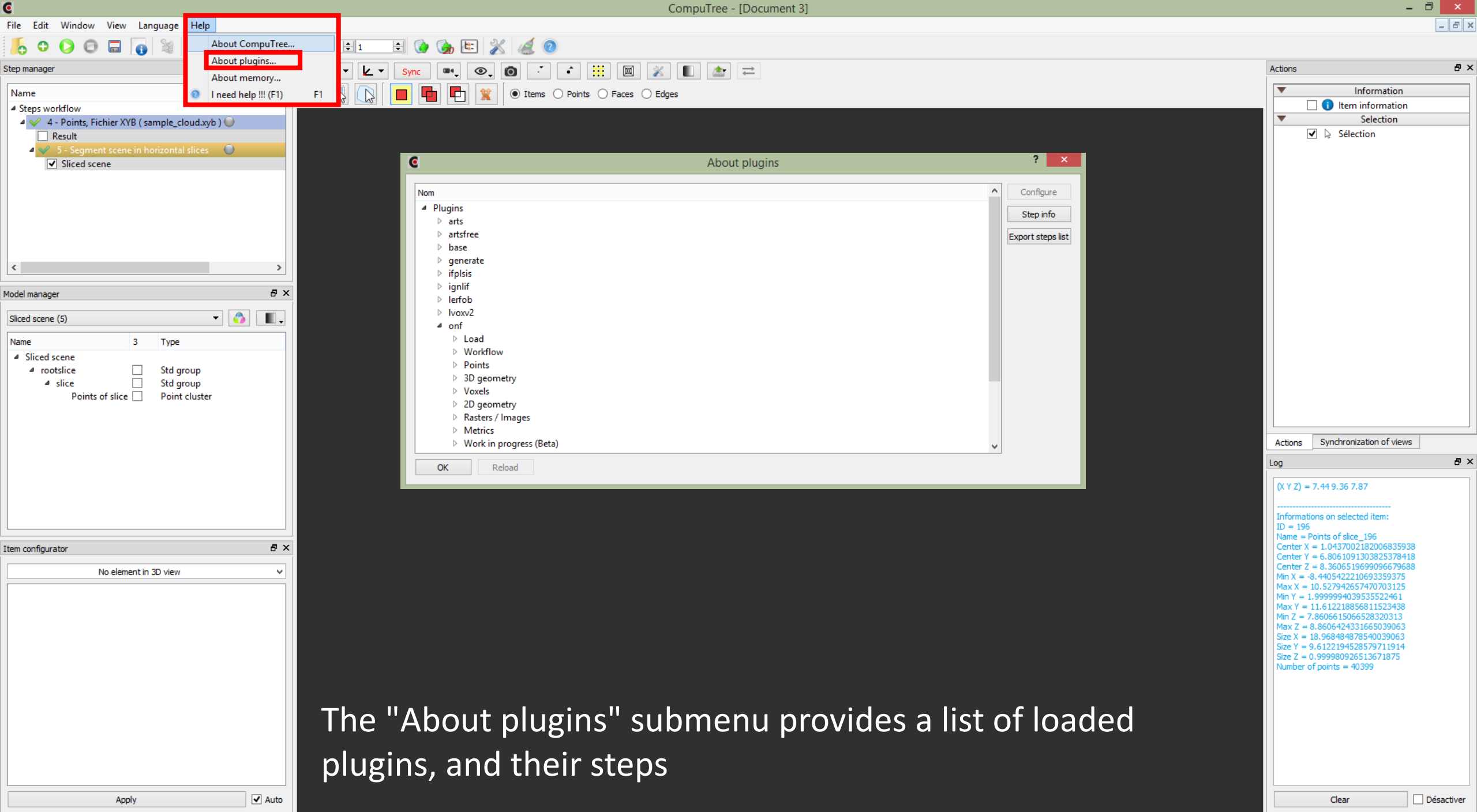
Furthermore, the components can be manually reorganized by the user.

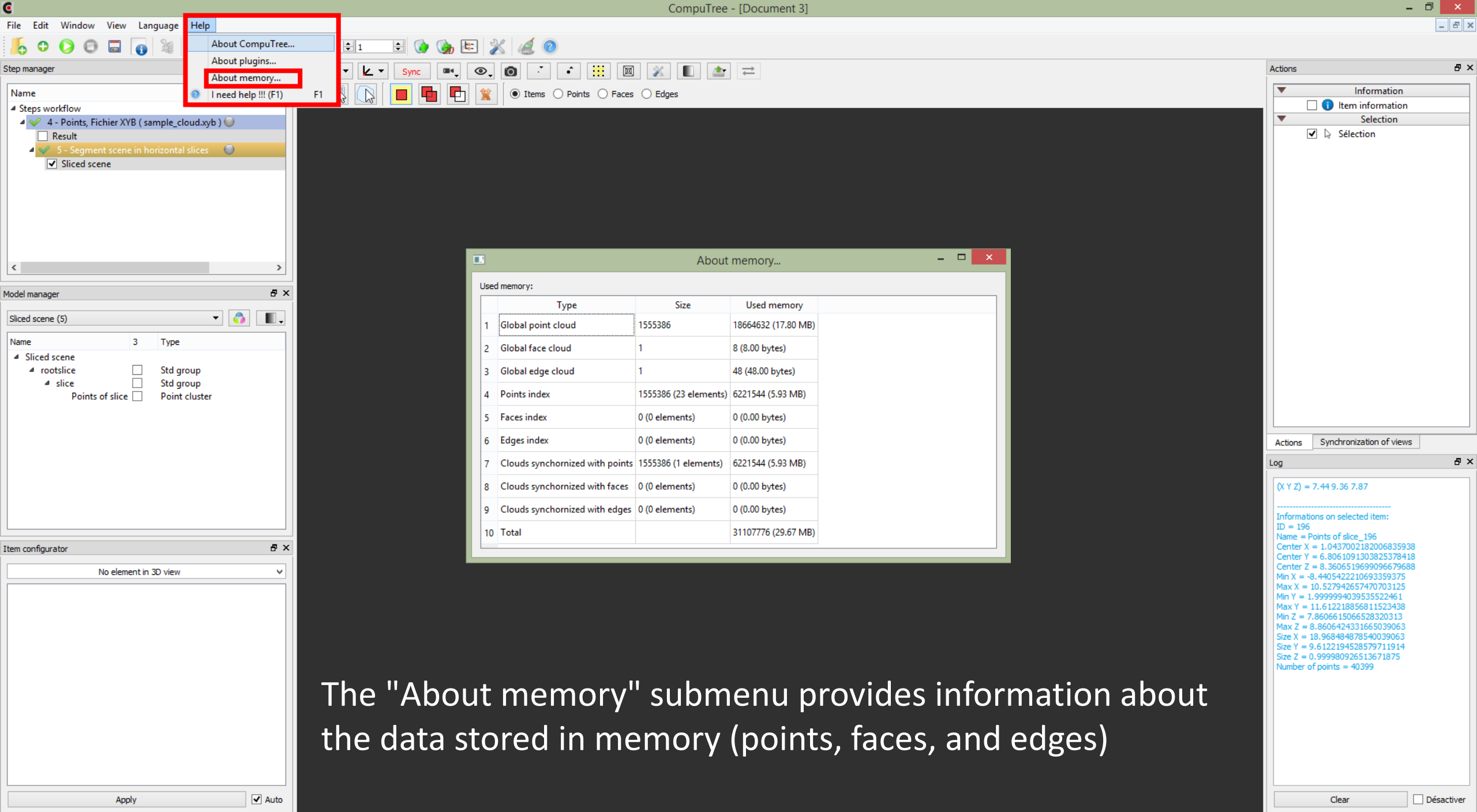
To do this, keep the left click on the title bar of the component, then move it where you want.

The layout is saved when Computree is closed.



The "Help" menu provides a number of useful information, especially about dependencies and licenses with the "About CompuTree" submenu





The "About memory" submenu provides information about the data stored in memory (points, faces, and edges)

