FLUIDOS COMPANION

ALVIN BEMAR

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Contents

INTRODUCTION....1
Set up a void scene....2
Set up a filled scene....5
Set up Sinks in Domain walls....8
Thicken a terrain....10
Set up fluid jet....13
Analyze Fluidos setup....16

INTRODUCTION

FLUIDOS COMPANION is an add-on for FLUIDOS for Daz Studio. It is intended for facilitate the use of Fluidos, by allowing the user could do quickly some common tasks with a few clicks. In addition, Companion could aid in allowing Fluidos to use premade surfaces without volume (as many current terrains).
Moreover, Companion can analyze a Fluidos setup looking for possible drawbacks and offering advice to fix the setup.

For this job, Fluidos Companion offers six wizards:

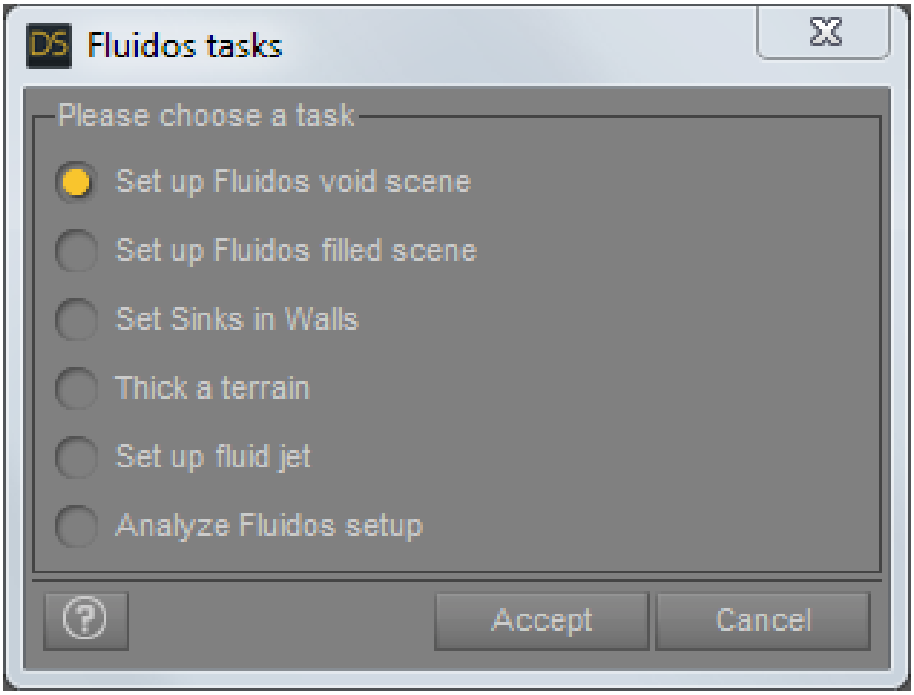
1. Set up Fluidos void scene
2. Set up Fluidos filled scene
3. Set Sinks in walls
4. Thick a terrain
5. Set up fluid jet
6. Analyze Fluidos setup

How to register the plugin (needed for using it):

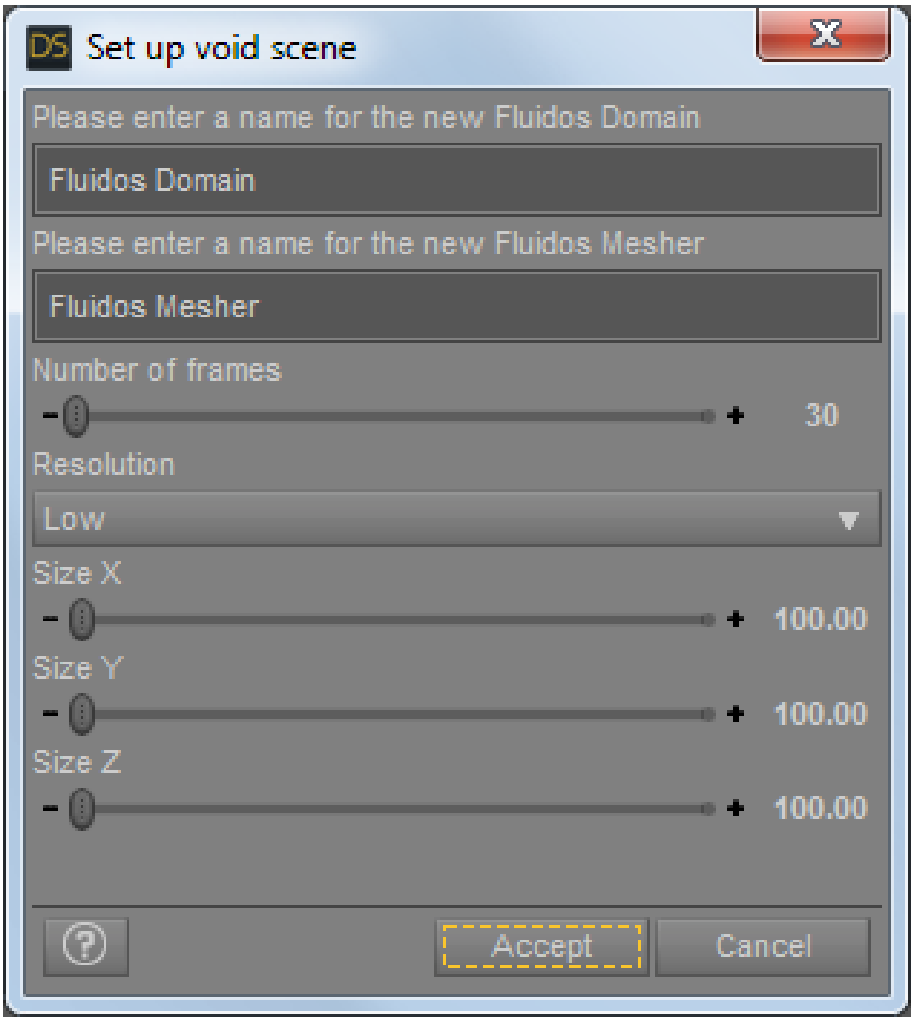
1. On Daz website, go to *My Account.*
2. Click on *Serial Numbers* and copy the Serial number for the “Fluidos Companion” product.
3. Start Daz Studio.
4. Go to *Help – About installed plugins.*
5. Scroll down to the “Fluidos Companion” product, paste the Serial number and click OK.
6. Restart Daz Studio and you should be up and running.

USAGE

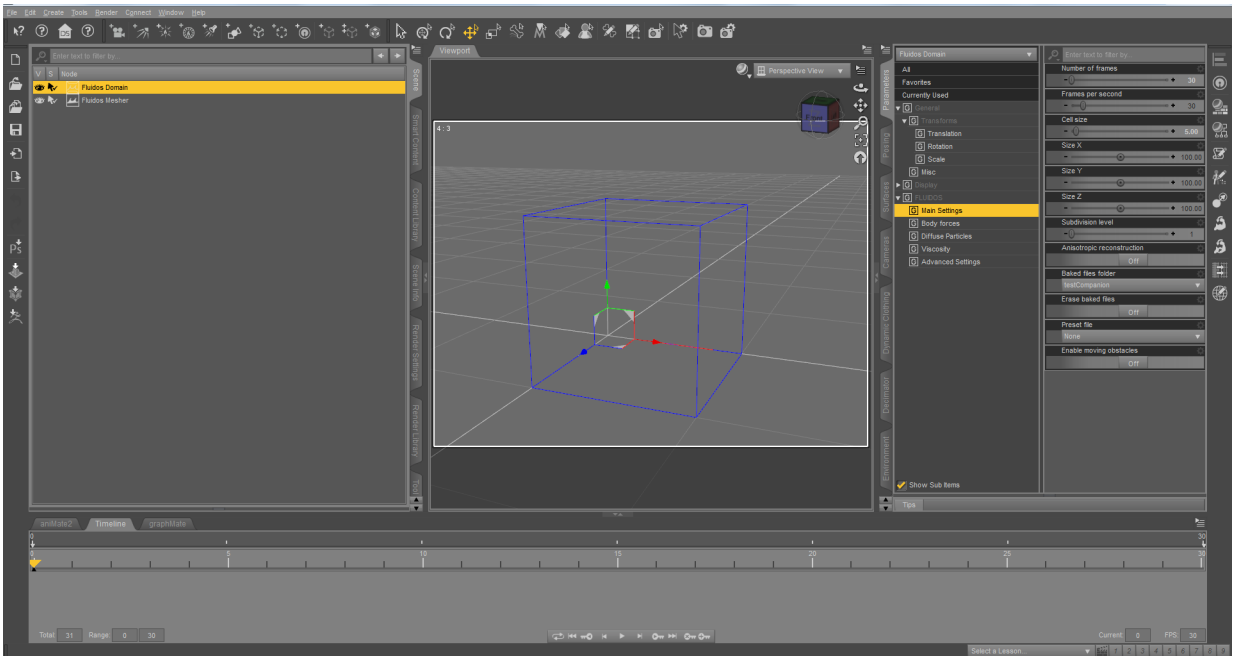
Daz Studio menu *Edit – Fluidos Companion* opens the main menu of Companion. The user can choose one of the tasks to get the desired wizard.



1. **Set up a void scene**



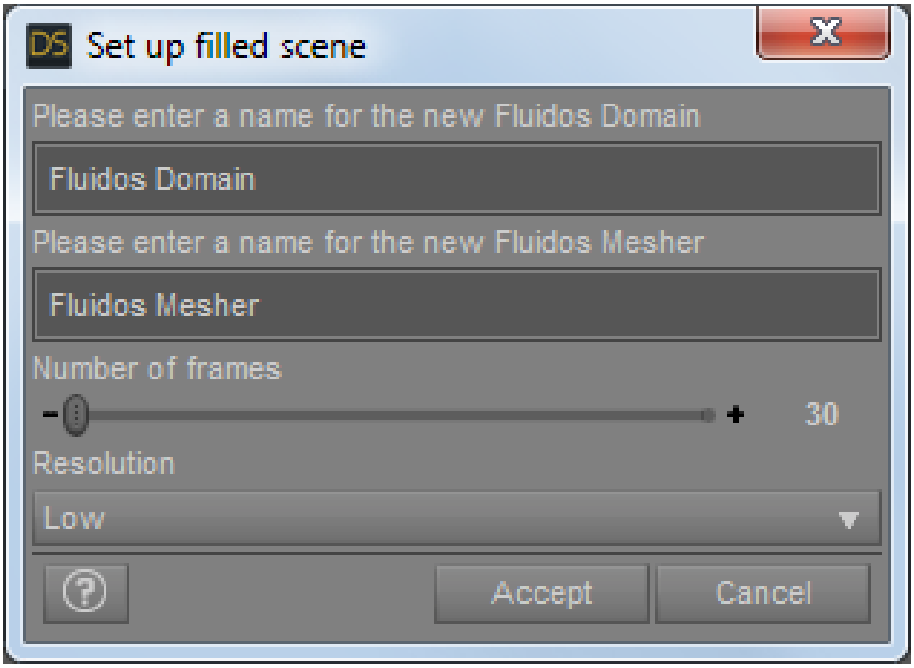
This wizard helps the user to create a Fluidos Domain and a matched Fluidos Mesher. The wizard ask for the names of these objects, the number of frames the simulation spans. The user set the resolution and size of Fluidos Domain. After click *Accept*, the wizard will ask for the folder for saving baked files (the user can skip for now this step).



After the wizard has finished the setup, the user can parent any object to the Domain.

The objects could be in scene before calling the wizard.
The user can modify any property of the Domain and the Mesher, anytime.

2. Set up a filled scene



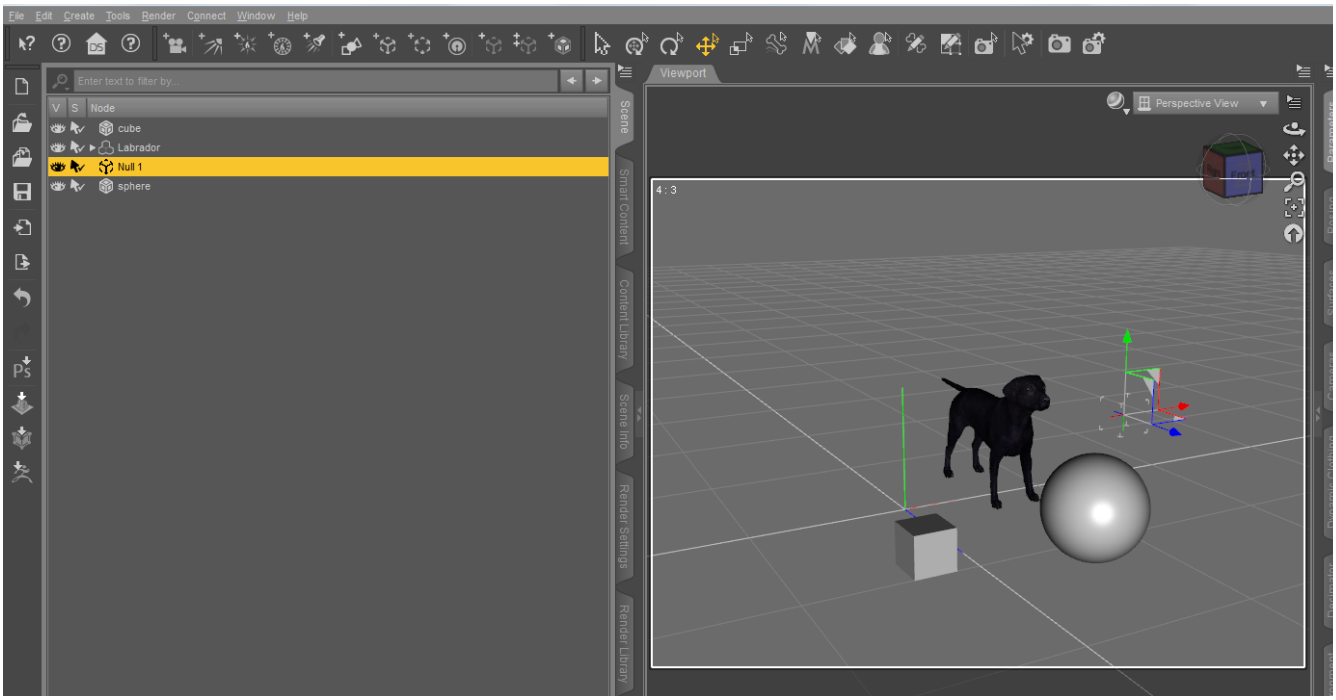
This wizard is similar to the previous one, however it doesn't ask for Domain size. Instead, this wizard will determinate the size and position of the created Domain to surround all the nodes the user has selected before calling the wizard. If no objects were selected, the wizard ask the user to select them.

The user have to select the objects that should be completely inside the Domain. If any object is intended to be only partially overlaped with the Domain, they should not be selected.

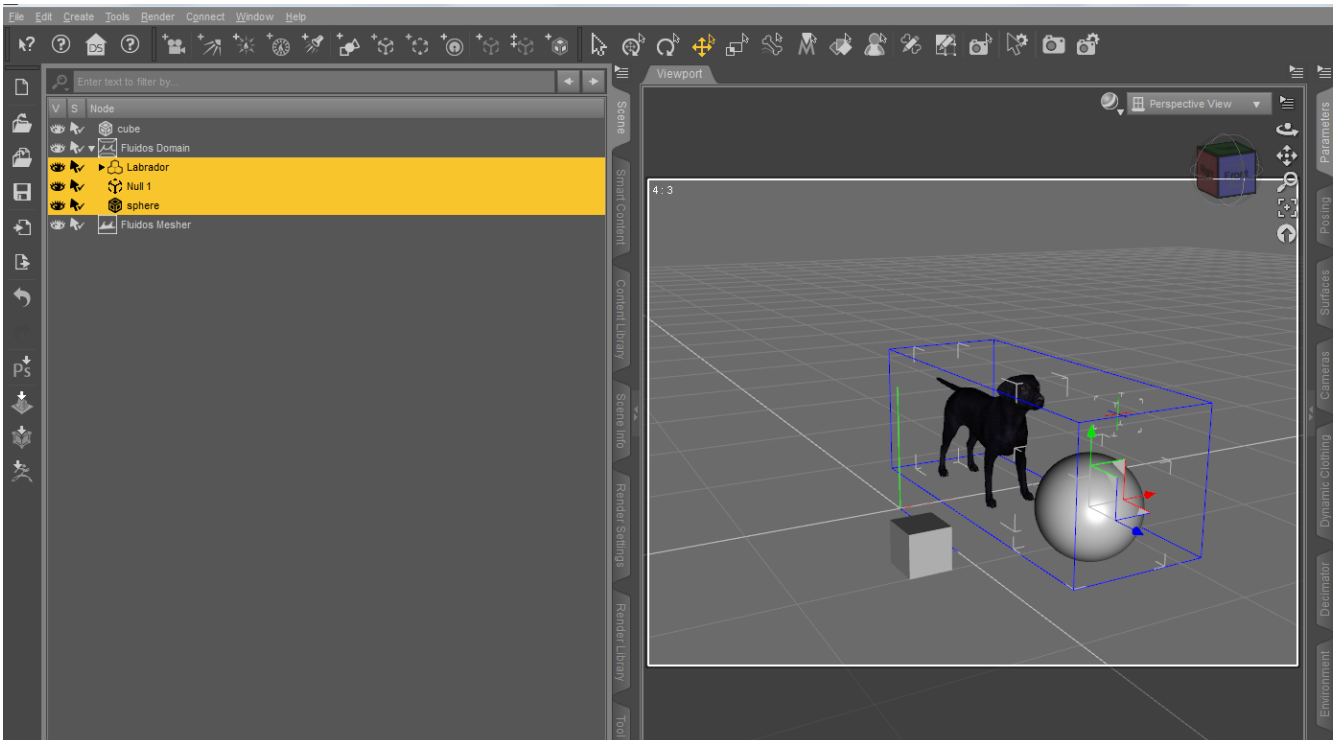
Again, the user can modify any property of the Domain and the Mesher, anytime. Moreover, the user can parent more objects to the Domain.

All the objetcs, by default are considered as obstacles, the user need to update *Object type* properties to get the desired type (fluid mass, viscosity control or ignored).

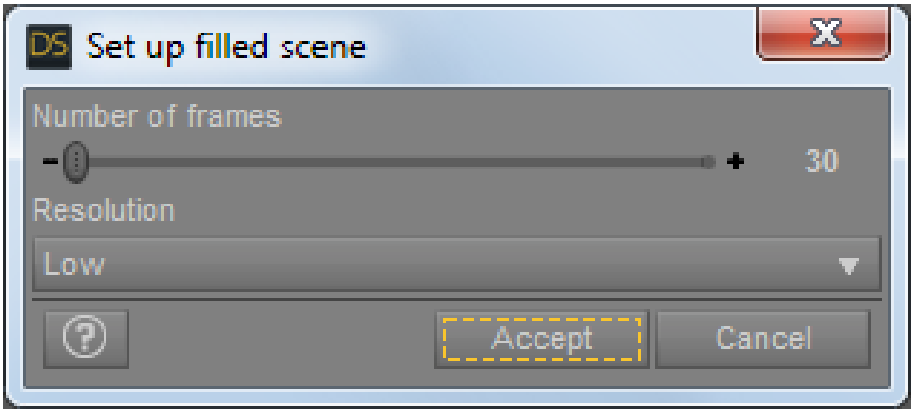
In this example, the dog, the sphere and a null node will be selected before calling the wizard. The cube will be leave behind.



The wizard will create a Domain that ajust exactly to the box bounding of the selected objects.



If the user select an existing Domain (and only the Domain) *before* calling the *Set up filled scene* wizard, the mode edition is activated. The Domain will be resized using the current nodes parented to it, if any. The user will ask for the corresponding meshers too.

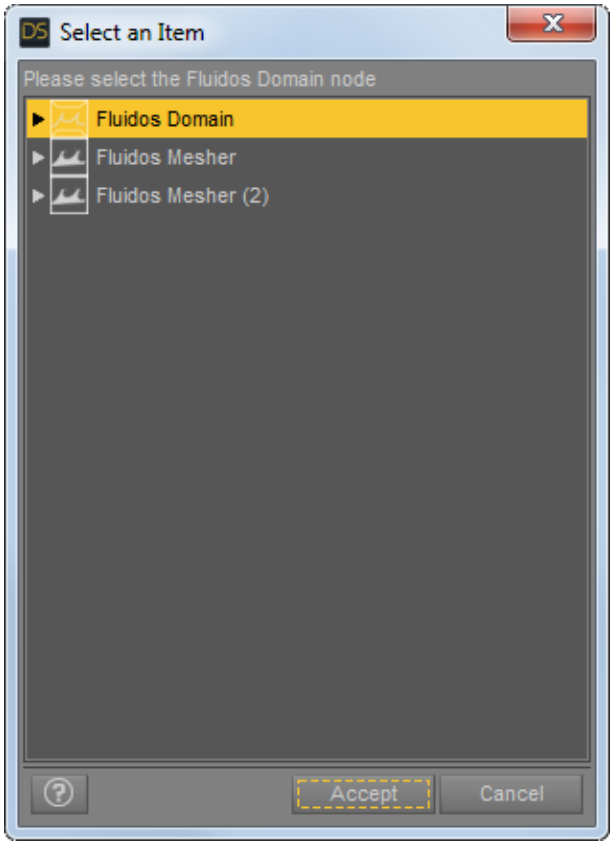


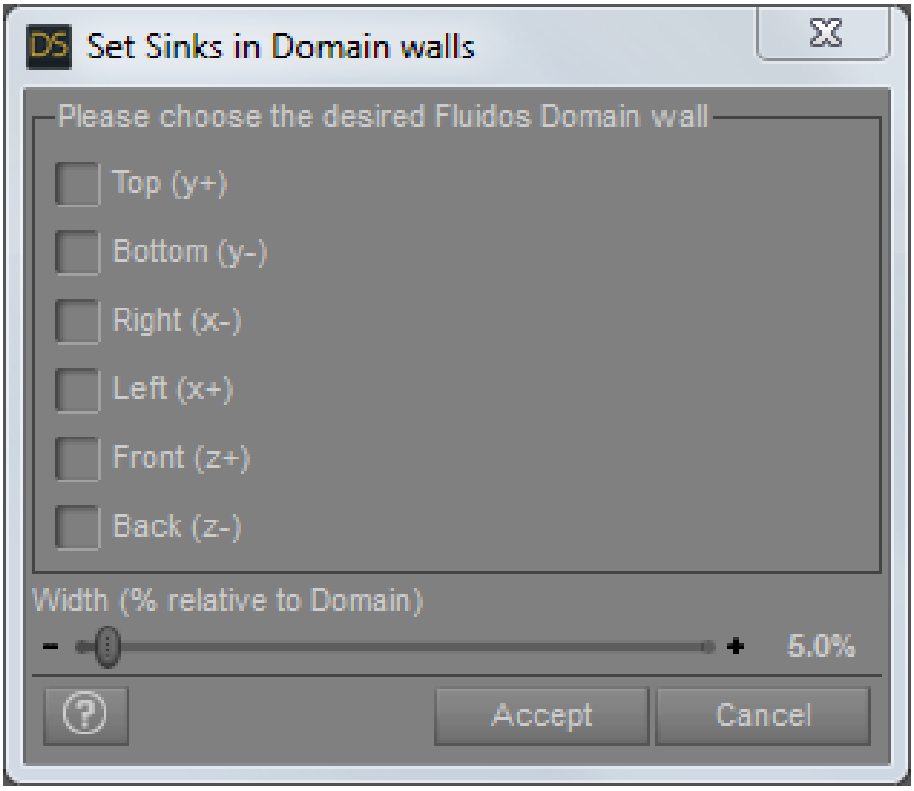
For a node to be included into the Domain, it must be a root node, although its childs nodes will be included too.

3. Set up Sinks in Domain walls

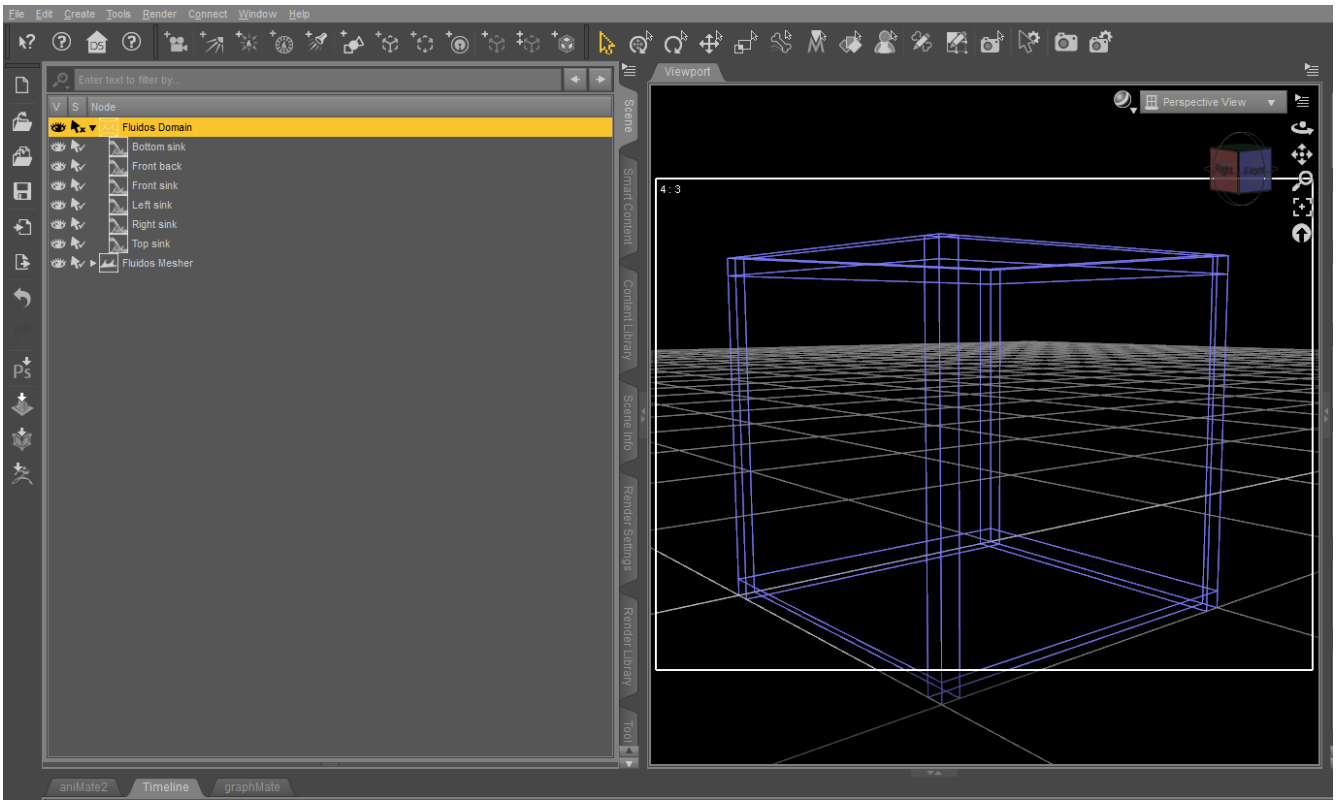
Frequently it is needed to set some sinks in the Domain's frontier, the walls. The sinks will avoid the acumulation of fluid and its crashing with walls. This task is somehow tedious, but *Set up Sink in Domain walls* wizard can do the job.

The user must select the domain to witch the sinks will be set, before calling the wizard. If no, the wizard itself will ask for the Domain.



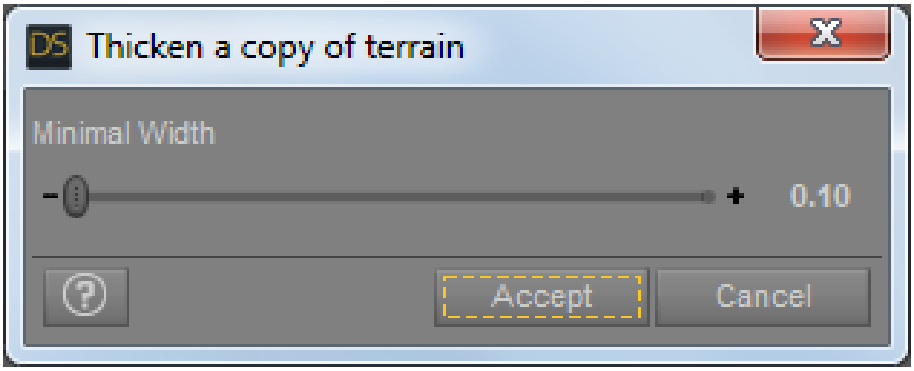


The user can choose one of the walls or as many as needed. The width for the sinks is relative to the Domain corresponding size (X, Y or Z).



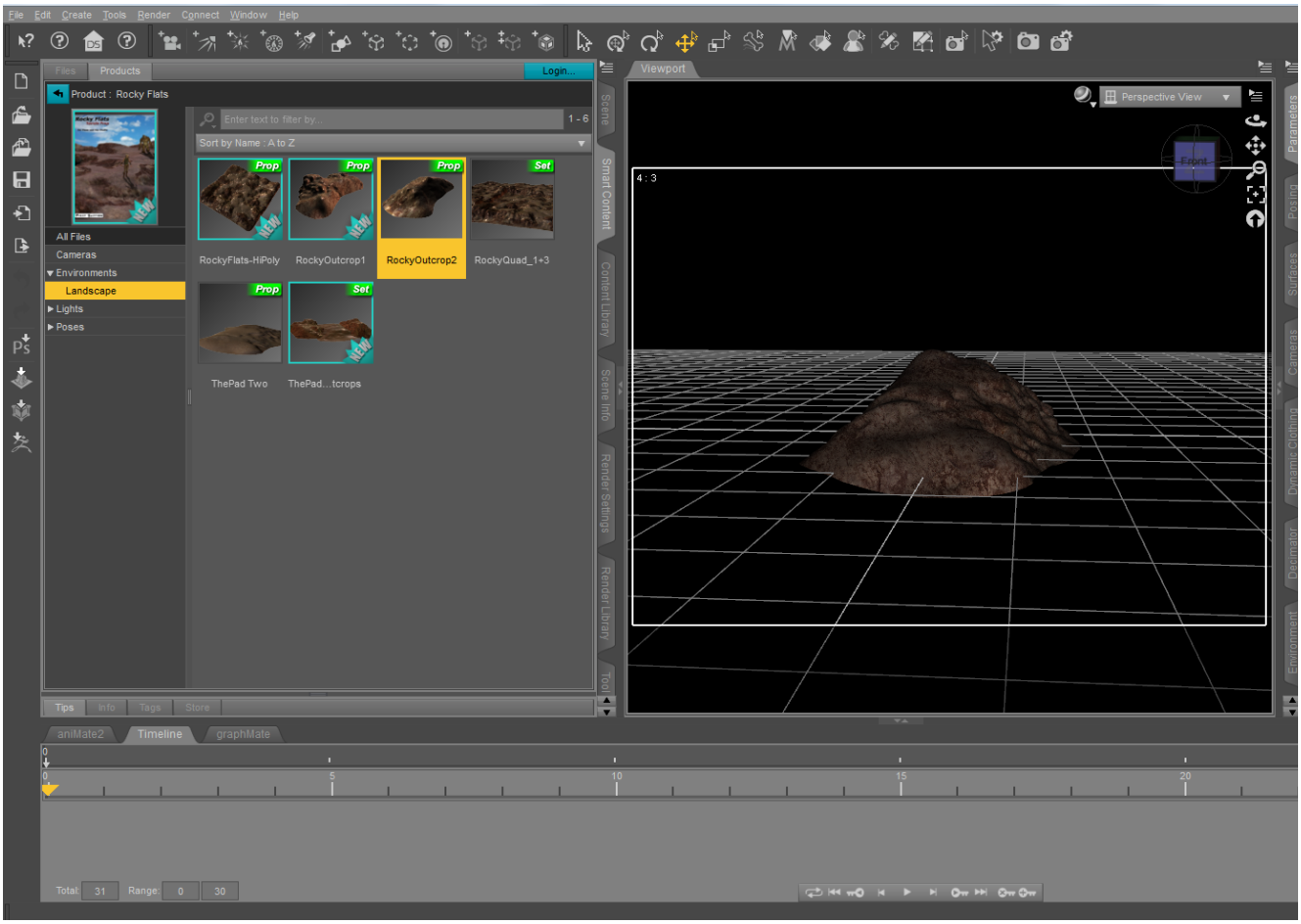
4. Thicken a terrain

For Fluidos interact with an obstacle (or fluid mass or viscosity control), its mesh must be closed, that is, it has to have a volume. Currently, most terrains are open meshes, do not have volume, so Fluidos will not recognize it. *Thicken a terrain* helps to solve this problem by creating a copy of the desired terrain. The copy will be closed at its bottom by creating a plane parallel to the ground of the scene (the plane XZ)

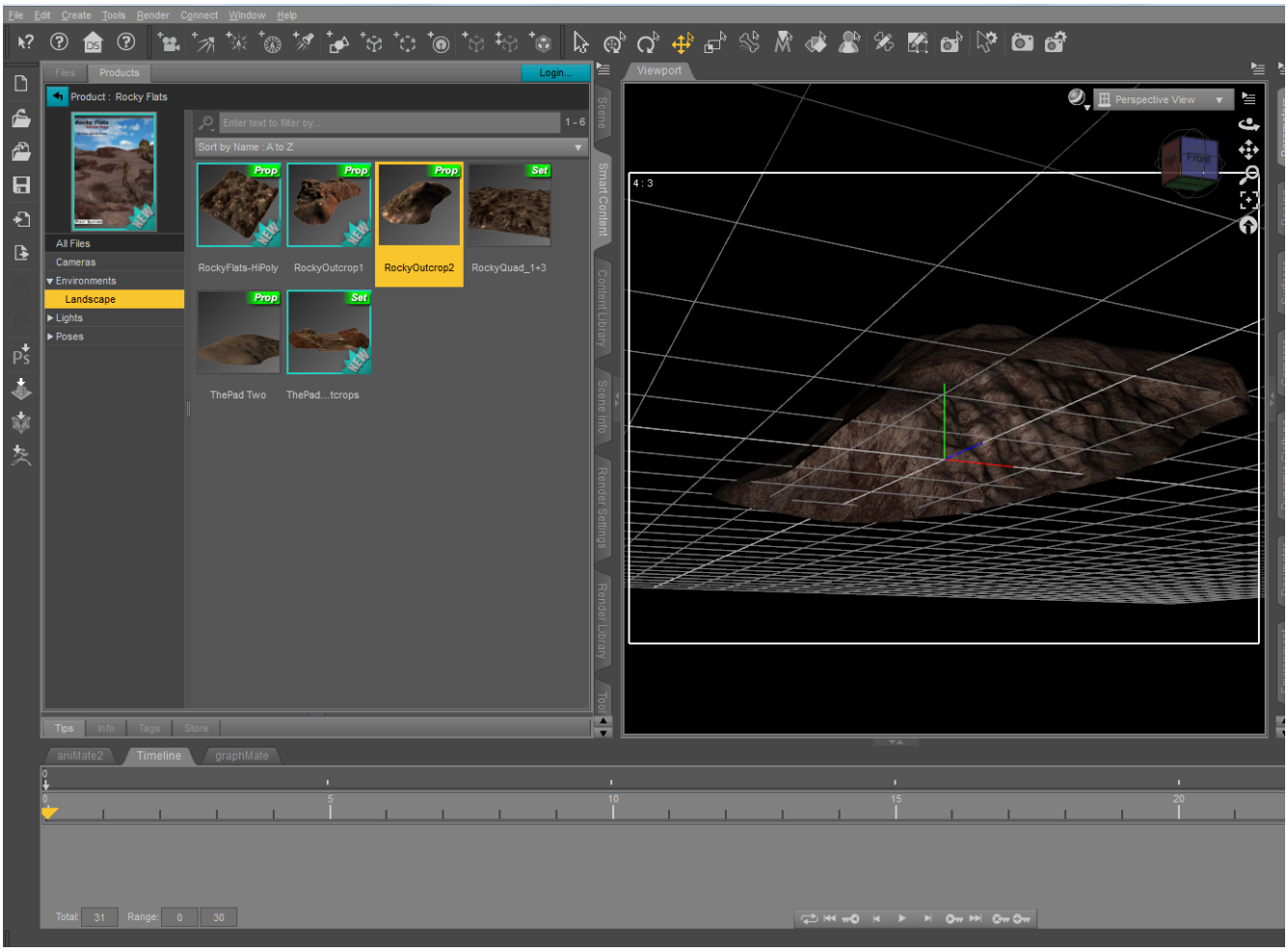


Here, the width is the additional distance (cm) from the lowest point of the original mesh.

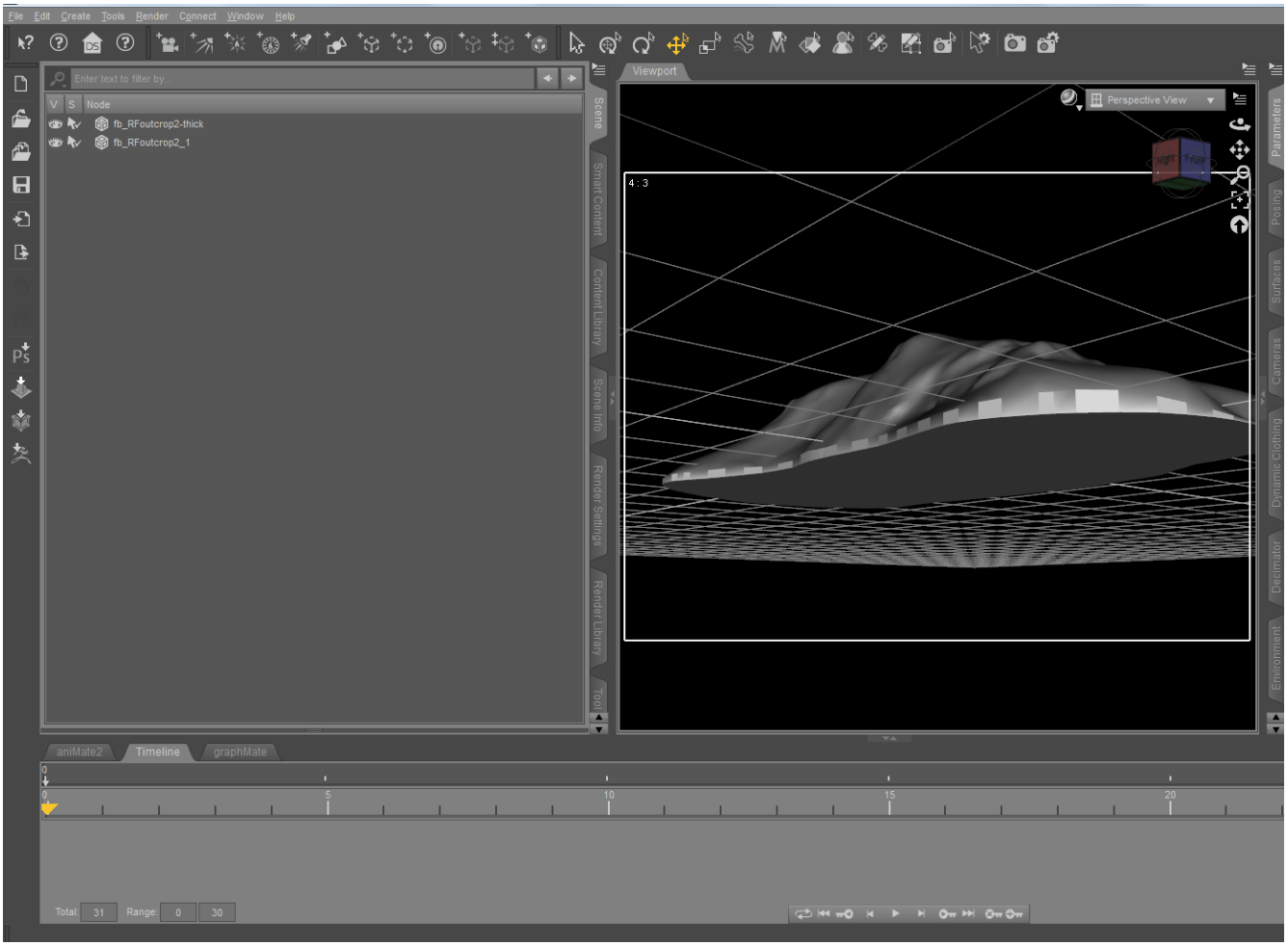
For example, *Rocky Flats* props (https://www.daz3d.com/rocky-flats)



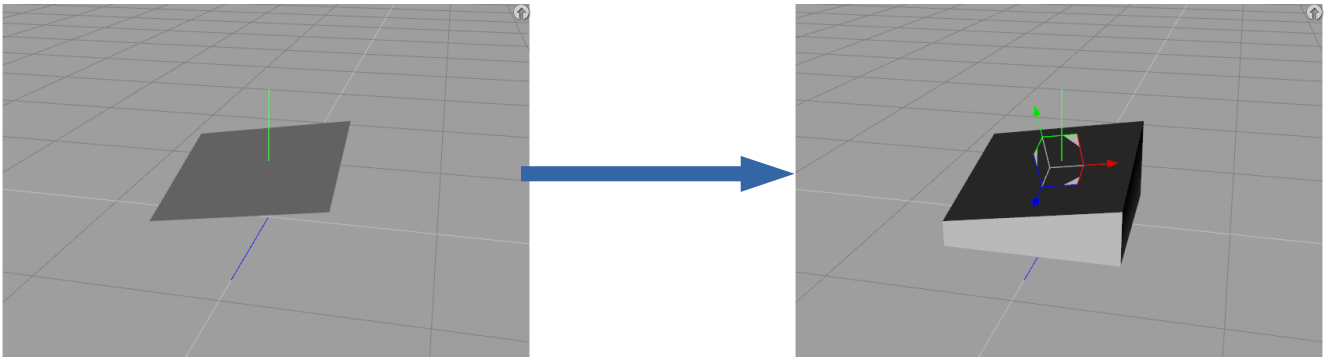
These props are open meshes, they have not volume.



When the wizard *Thicken a terrain* is applied, the user get an aditional node, close meshed. The original prop is preserved. The new node is gray, it is not intended to be used in final render. Could be deleted after simulation or be hidden at any time.

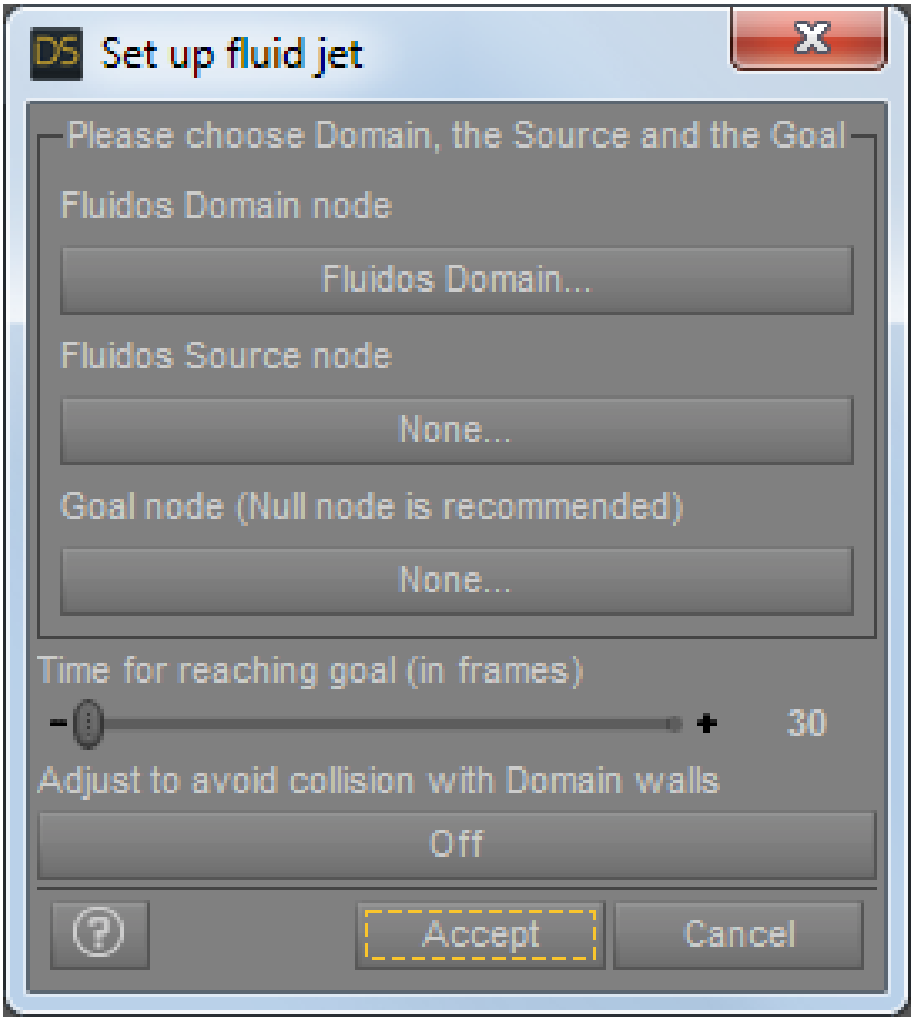


Thicken a terrain could be applied to any open mesh, even if it was not intended as a terrain.



5. Set up fluid jet

A common task in fluids simulation is jet from a Source. But to control the precise trajectory of the jet is not a trivial task. *Set up fluid jet* wizard can help the user.

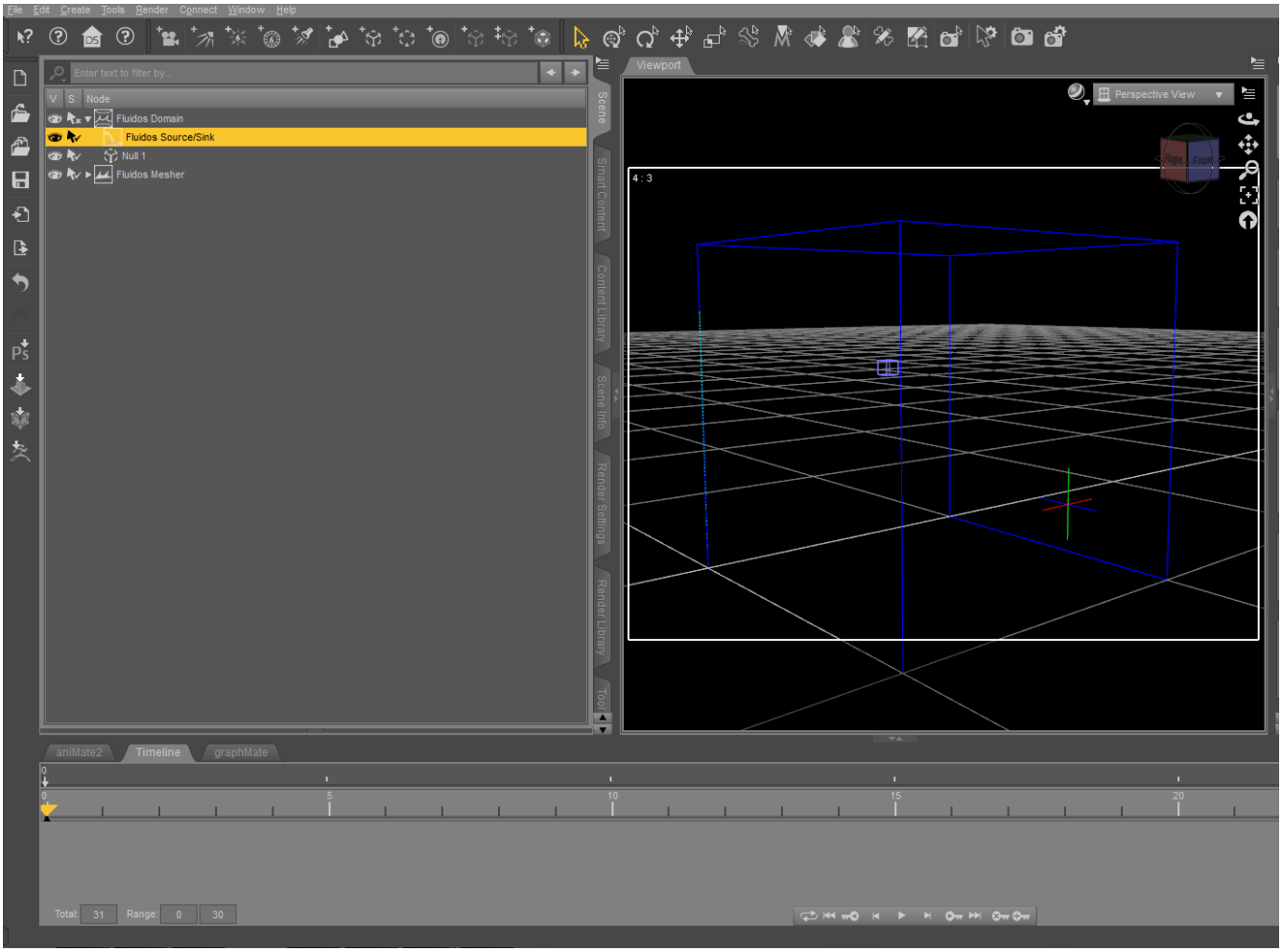


If a Domain was selected before calling the wizard, the *Fluidos Domain node* button in dialog will show the name of that Domain, otherwise *None…* will be shown. The user must select the Source and the Goal node (and the Domain if not selected yet), by clicking the corresponding buttons.

The Goal node could be any node, but it is recommended to use a Null node. The *Time for reaching goal* is the time necessary for the jet collides with the Goal node. The lower the time, the less curved trajectory.

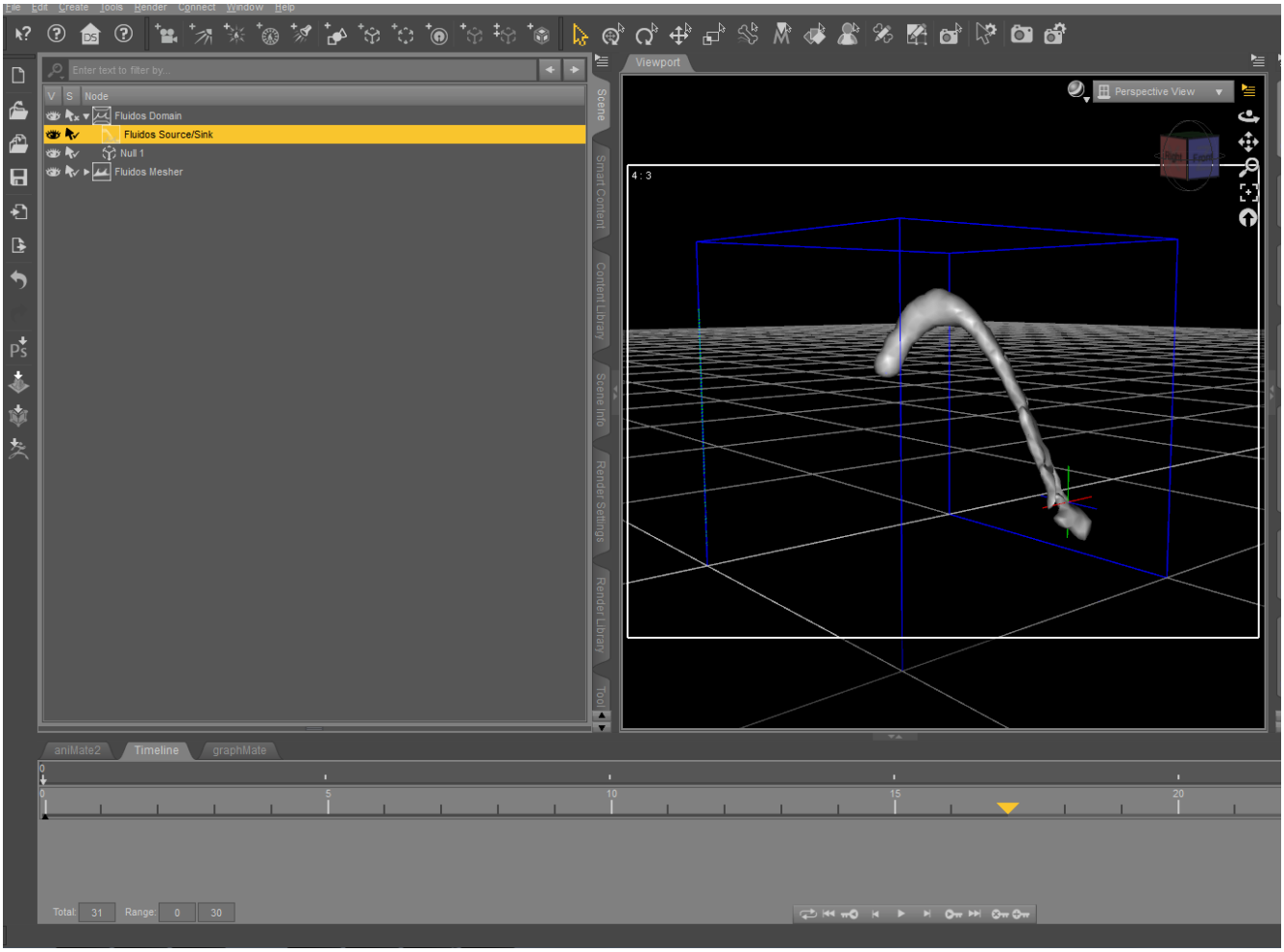
However, many times a larger time will cause the jet to collide with the Domain's wall before reaching the Goal, thus the trajectory will be deviated. The user could try another timing, but is easier to let the wizard to do the job. If *Adjust to avoid collision with Domain walls* is set ON, *Fluidos Companion* will calculate the greatest time below the time selected by the user with which the jet will not collision with the walls before reaching the Goal.

In this example, there is a Source and a Null node inside the Domain.



The Source and the Goal must be parented to the Domain at the same hierarchical level.

The wizard calculates the Sorce velocities and set them in the Source.
After running the simulation:



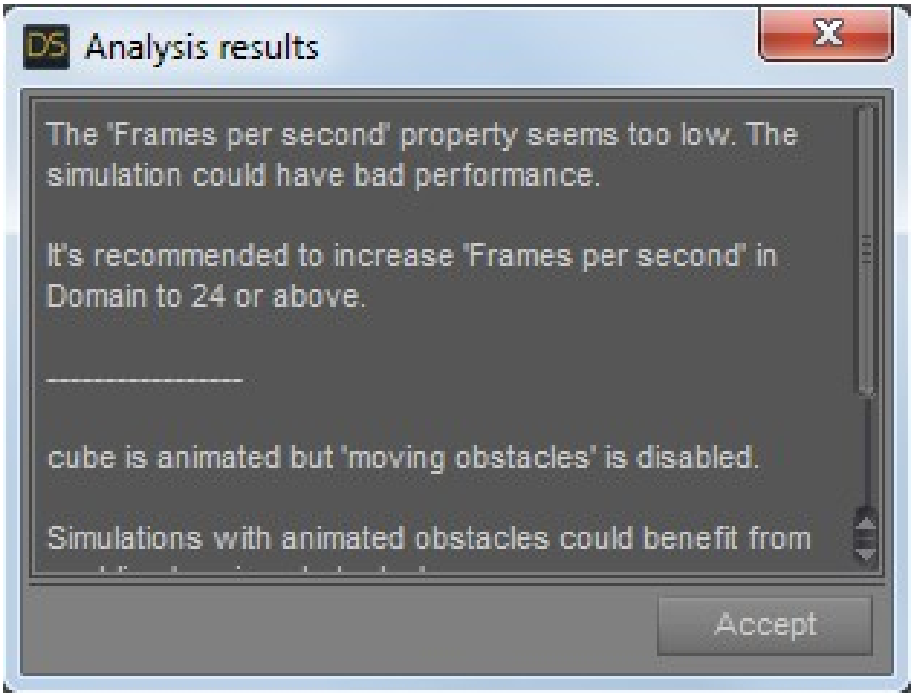
The Goal is reached at frame 17 in this case.

Set up fluid jet wizard do not works properly for viscous fluids, however.

6. Analyze Fluidos setup

This wizard analyses the settings for a simulation and render a diagnosis with advices. It could be useful for finding the cause of a problematic simulation, or in order to prevent one.

The user must to select the Domain and the applicable Meshers before calling the wizard. Otherwise, Companion will ask for them.



The report could be copied and pasted into any text editor or word processor.

The advices are not mandatory, could be ignored by an experimented users if they know what they are doing.