HoseSystem Tutorial

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In this tutorial, you are going to learn how to add HoseSystem support to your mod.

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1. What do I need?

To successfully do the required steps you will need the following programs:

- Text editor (Notepad++, any proper IDE ...)
- Giants Editor or 3D software which supports the GE exporter (Maya, Blender ...)
- Internet connection for GitHub access.

If you want to add the HoseSystem to your vehicle you will need to get a copy of the latest HoseSystemVehicle.lua file which can be found in the GitHub repository.

1. Go to the _modding folder and click on the HoseSystemVehicle.lua file.
   A gray area will pop up with the button raw.

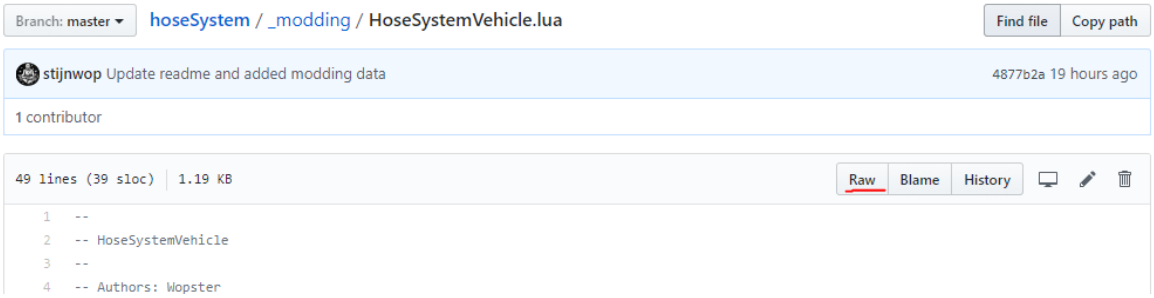


Figure 1 - HoseSystemVehicle.lua

2. Click on the raw button and it will open the file in raw format.
3. Hit ctrl – s on your keyboard (or right click and save as) and save the file to the preferred location in your mod.
   *Remember to save it as .lua and **NOT** .txt.*

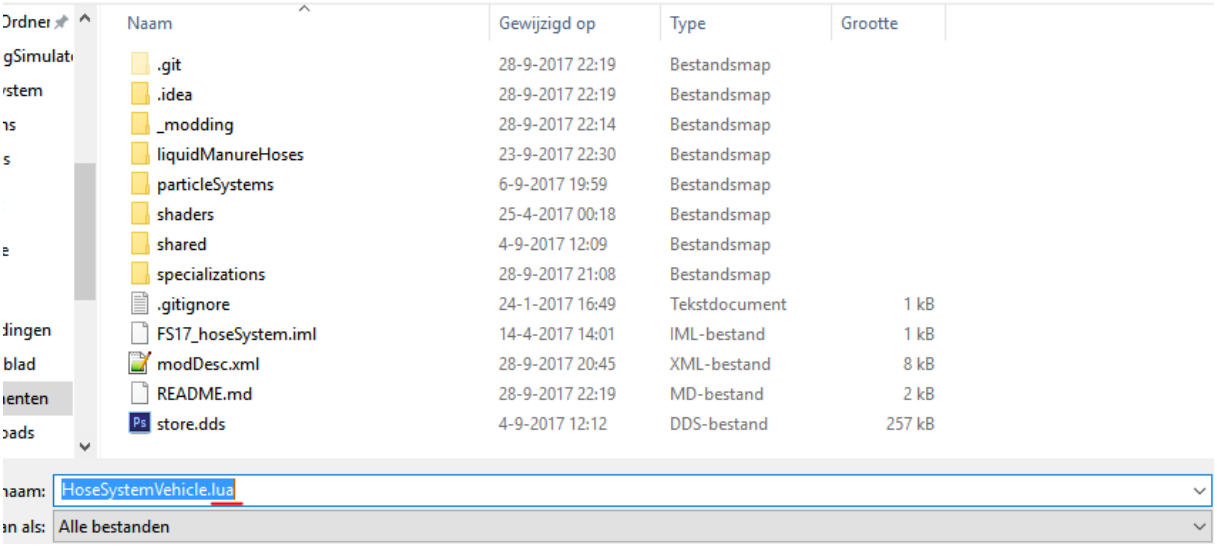


Figure 2- Save as .lua

2. Installation into vehicles

To install the hose system in your vehicle you have different options.

Before you begin:

Unpack mod zip file, open i3d file of the vehicle. (It's recommended to create a new camera for editing, set the current scene view on your created camera.)

2.1. Hose coupling reference

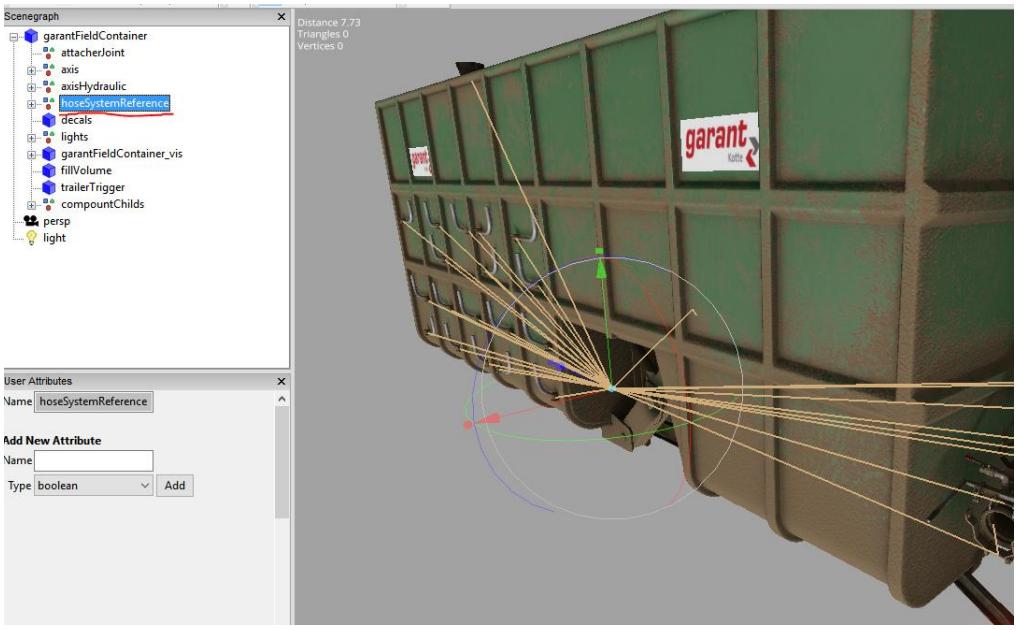
Setup connector points or park places for the hoses.

2.1.1. Creating the connector point node

Setup in i3d or create an index node by xml.

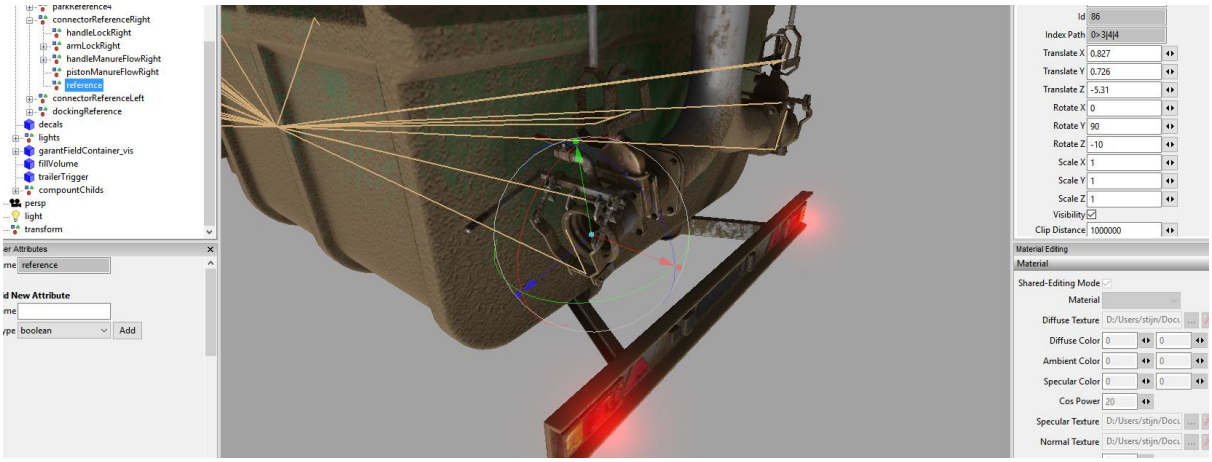
Manual creation mode

1. If you have write access to the i3d file or you like to do it with more visual control we can create the reference points manually.
   I recommend you starting with creating a 'root' transform group in Giants Editor for all the connector references.
   (Recommended position/rotation XYZ of the 'root' transform group is zero on all axis.)



2. Let's create another transform group and place it in the previously created transform group from step 1. A. (In this case I've called it 'reference')
   Set the preferred position and rotation on the created transform group.

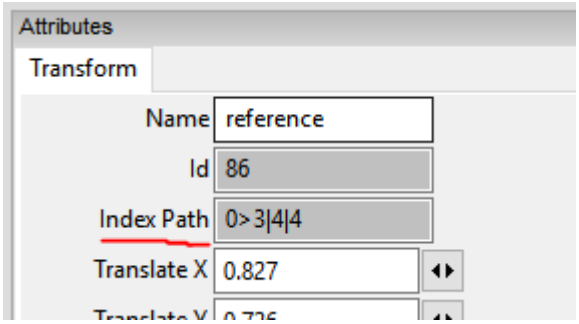
   Repeat this step until you have reached the number of connectors you wanted to add.
   Warning: The Z-axis must point away from the connector (blue arrow)



3. Save the i3d file but keep it open since we need it for reading the indexes.
4. Open your vehicle XML file and copy paste the following entry:

```
<hoseSystemReferences>
    <hoseSystemReference index="X" componentIndex="X" />
</hoseSystemReferences>
```

5. Replace the index=”X” with the index of the previous created transform group.
   To find the index open the i3d file again and click on the created reference. (Remember that we’ve called it ‘reference’?).
   Under the attributes window we can see the Index Path. Copy and replace the X with that value into the index=”X” attribute in your XML.



6. Set the component index to the component which your reference is located in. In this example, our reference point is located in the root component which is index 0.
   Warning: the componentIndex is an indicator of which number the component is in your XML <components> entries! So, an index to an actual node (like 0>1|0) is invalid!
7. The result of a [Manual mode] reference should be something like this:

```
<hoseSystemReferences>
    <hoseSystemReference index="0>3|4|4" componentIndex="0" />
</hoseSystemReferences>
```

Create mode by script

1. The previous XML entry from step 1. D. will change a bit. We don't need the index="" attribute anymore.
   Copy paste the following into the <hoseSystemReferences> entry:

```
<hoseSystemReference createNode="true" position="X Y Z" rotation="X Y Z"
componentIndex="0" />
```

2. We tell the hoseSystem that we want to create a node by setting the createNode="true" attribute.
   To set the position and rotation we also need the two vector entries 'position' and 'rotation'.
   Tip: if you want to set up the position and rotation in the XML attributes it can be helpful by creating a transform group in the i3d and copy past that information over to the XML attributes.
3. We also have the linkNode attribute to set a preferred parent of the reference node. By default, the created node is linked to the root component node of the vehicle (Index 0>).
   Tip: if you want to link the reference to the root component you don't have to add the attribute to the entry because it's linked to the root component by default.
4. The result of a [Create mode] reference should be something like this:

```
<hoseSystemReferences>
    <hoseSystemReference createNode="true" linkNode="0>2" position="1.274
0.818 2.797" rotation="0 90 -24.5" componentIndex="0"/>
</hoseSystemReferences>
```

2.1.2. Tweaking the inrange distance

If you want to tweak the distance of the player being in range of the reference you can set the inRangeDistance attribute.

Default value is set to 1.3 (m).

```
inRangeDistance="2"
```

2.1.3. Setting up lock state and manure flow animations

Please note: I am not going to explain on how to create a XML animation. At this point I assume you are known with the creations of XML animations.

1. First setup the animations for both the lock state and manure flow.
   Give them both a logical name.
2. In this example, I've setup the lock and manure flow animations for the right reference.
   This is my result:

```
<animation name="flowHoseRight">
    <part node="0>3|4|2" startTime="0" endTime="0.5" startRot="0 0 0"
endRot="0 0 -60"/>
    <part node="0>3|4|2|0" startTime="0" endTime="0.5" startRot="0 0 0"
endRot="0 0 67"/>
    <part node="0>3|4|3" startTime="0.0" endTime="0.5" startTrans="0.7
1.101 -5.31" endTrans="0.752 1.296 -5.31"/>
</animation>
```

```
<animation name="dockingHoseRight">
    <part node="0>3|4|0" startTime="0" endTime="0.5" startRot="0 0 -135"
endRot="0 0 -30"/>
    <part node="0>3|4|1" startTime="0" endTime="0.5" startRot="-20 -90 0"
endRot="-10 -90 0"/>
    <part node="0>3|4|1|0" startTime="0" endTime="0.25" startRot="-30 0 0"
endRot="-33 0 0"/>
    <part node="0>3|4|1|0" startTime="0.25" endTime="0.5" startRot="-33 0
0" endRot="-20 0 0"/>
</animation>
```

3. To add the animations to the reference entry just copy over the animation names to the attributes: lockAnimationName and manureFlowAnimationName.
4. In this example, it should look something like this:

```
<hoseSystemReference index="0>3|4|4" componentIndex="0"
lockAnimationName="dockingHoseRight"
manureFlowAnimationName="flowHoseRight"/>
```

2.1.4. Setup park places for the hoses

Create a node as described in step 2.1.1.

Available attributes:

- parkable (true/false) [default: false]
- parkAnimationName
- offsetDirection (right/left) [default: right]
- startTransOffset (x y z)
- startRotOffset (x y z)
- endTransOffset (x y z)
- endRotOffset (x y z)
- parkLength [default: 5]

To tell the HoseSystem that we want to create a parkable reference we set the attribute parkable=”true”.

The offsetDirection attribute determines the direction the hose is being parked. By default, the direction starts on the right side.

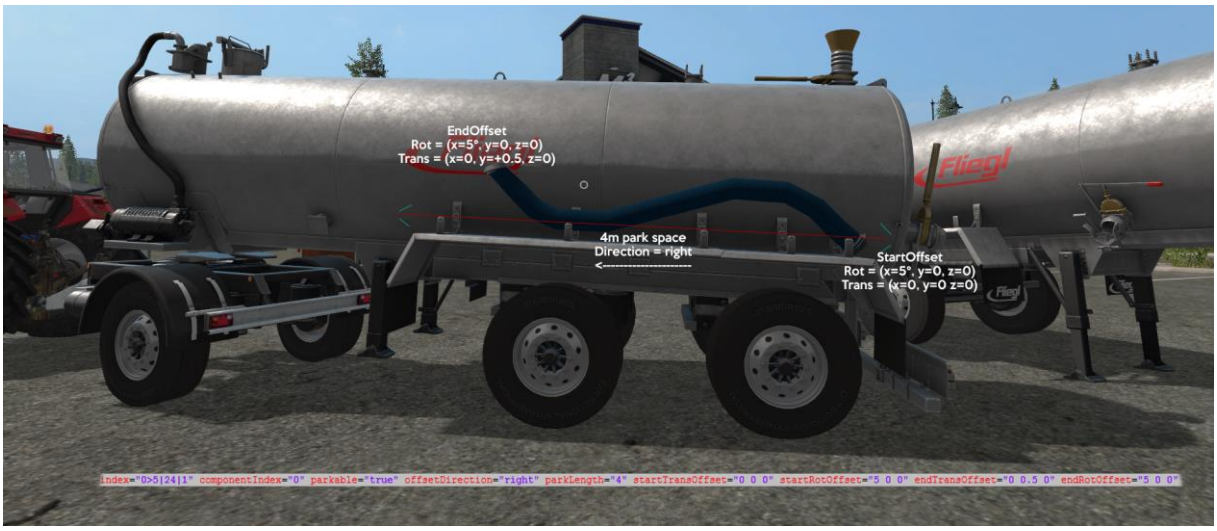
The startTransOffset attribute determines the translation offset of the first component from the hose that’s being parked.

The startRotOffset attribute determines the rotation offset of the first component from the hose that’s being parked.

The endTransOffset attribute determines the translation offset of the last component from the hose that’s being parked.

The endRotOffset attribute determines the rotation offset of the last component from the hose that’s being parked.

The parkLength attributes set’s the maximum hose length we accept on the parking place.




```
<hoseSystemReference index="0>3|3|5" componentIndex="0" parkable="true"
parkAnimationName="parkReference4" offsetDirection="right" parkLength="5"/>
```