Monday, February 22, 2010 14:35

Cal3D Export

Preparation

```
✓ 3Ds MAX Design 2010
✓ Cal3D Exporter (for max 6 to 2010)
✓ Worldviz Vizard 3
```

3D Model with biped skeleton

Overall

With Cal3D Exporter, 3Ds MAX can export 3D Models into Cal3D files. These Cal3D files can be imported by Vizard.

Cal3D files have 5 parts:

```
configure file (.cfg)
skeleton file (.csf)
mesh file (.cmf)
material file (.crf)
animation file (.caf)
```

The last 4 parts (csf cmf crf caf) are exported by 3Ds MAX with Cal3D Exporter. The first part (cfg) is created by use self.

Export as skeleton file (.csf)

Skeleton file must be exported FIRST.

Select From Scene		
Select Display Customize		
094802800>4		7 78
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Name	Revit Category Re	vit Family 🔺
🖽 🏷 Cally		
Q Neck		
		-
•		•
	ОК	Cancel

Open 3D Model in 3Ds MAX, select the father of all bones of biped skeleton:

Unfiled Notes Page 1

<u>Go to Montion tab and turn on Figure Mode:</u>

* 🛛 🗛 🎯 🖵 🥕
Cally
Selection Level:
Sub-Object Trajectories
Parameters Trajectories
Assign Controller 😵
Biped Apps 🖈
Mixer Workbench
Biped 🚷
🚠 👯 🛃 📅
Figure Mode 🛃 💡
+Modes and Display

Export as Cal3D Skeleton File:

Select File	to Export			x
Save in: 📗	export 👻	G 🦻 📂 🛄 -		
Name	*	Date modified	Туре	Siz
	No items mate	h your search.		
-	III			
File name:	skeletop		- Sav	(P
Cause as human				
save as type:	Cal3D Skeleton File (".CSF,".XSF)		Can	ceii

Select all and click Finish:

Cal3D Export - Sk	eleton Hierarchy
	Step 1 of 1
C/30	The exporter has found the nodes below that match the criteria for Cal3D bones. Select the ones you want to export. Keep in mind that only the selected ones can be used later in animation and mesh exports.
	Select the nodes you want to export:
About Cal3D	Cally Footsteps Cally Polvis Cally Spine Cally Spine Cally Spine 1 Cally Spine 2 Cally Neck Cally Neck Cally Ponytal 11 Cally Ponytal 11 Cally Ponytal 11 Cally Ponytal 11 Cally Cally LoperArm Cally L Clavide Cally L Clavide Cally L Clavide Cally L Forearm Cally L Forearm Cally L Forearm Cally L Finger 01 Cally L Fi
About Carbo	
	< Back Finish Cancel

Export as mesh file (.cmf)

When export mesh file, 3D Model MUST keep in Figure Mode.

One mesh file can not contain too many polygons. If the 3D Model is too complicated, try to divide it into several parts.

Select From	n Scene					x
Select Dis	splay Cu	stomize				
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Find:		Selection Set:		-	B B B 9	
Name			Revit Cat	egory	Revit Family	
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Calf Lef	t N					
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	jht					
Hand Ri	ght					
	rm Left					
						_
Ponytail						
Thigh Ri	ght					
Upper A	rm Right					
Calf Rig	ht					-
4						•
				OK	Cancel	
				UN	Cancer	

Select one part of the 3D Model meshes:

Export as Cal3D mesh file:

Select File	to Export				×
Save in: 🔒	export	•	G 🤌 📂 🖽 -		
Name	*		Date modified	Туре	Siz
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•		III			F
File <u>n</u> ame:	mesh_calfL			▼	ve
Save as type:	Cal3D Mesh File (*.CMF	.*.XMF)		→ Can	s icel

Select the Cal3D Skeleton File exported before and click Next:

Cal3D Export - Skeleton File	
Step 1 of 4	
The exporter needs the corresponding skeleton to assign the mesh vertices to the bones. previously exported Cal3D skeleton file below.	Choose a
Select the corresponding skeleton file:	
D:\Resource Files\3Ds MAX\export\skeleton.CSF	Browse
About Cal3D	
	Cancel
	Curree

Leave all the data in default and click Next:

Cal3D Export - Bone Assignment					
Step 2 of 4					
Each mesh vertex can be influenced by one or more bones with different weights. If you limit the number of bones per vertex below, the exporter will only take the strongest bone influences per vertex into account. A minimum weight threshold can also be set.					
1 - Set the maximum number of bones influencing one mesh vertex					
Max. Number 999 Bones per Vertex					
2 - Set the minimum weight a bone needs to be taken into account					
Weight Threshold: 0.010000					
About Cal3D					
< Back Next Cancel					

Click Next:

Cal3D Export - Level of Detail
Step 3 of 4
Cal3D supports progressive meshes for level-of-detail. The exporter can automatically create them now. This will take a while for complex models.
1 - Set the LOD properties
Automatically create progressive meshes
About Cal3D
< Back Nex Cancel

Click Finish:

Cal3D Export - Spring System
Step 4 of 4
EXPERIMENTAL!!! Cal3D supports spring systems for features such as doth animation. The exporter can automatically create them now. This will take a while for complex models.
1 - Set the spring system properties
Automatically create a spring system for unattached vertices
About Cal3D
< Back Finish Cancel

Repeat until all meshes are exported:

Select File to Export				×
Save in: 퉬 export	•	G 🌶 📂 🖽 -		
Name	*	Date modified	Туре	Siz
mesh_calfL.CMF		2010-02-09 23:30	CMF File	
mesh_calfR.CMF		2010-02-09 20:18	CMF File	
mesh_chest.CMF		2010-02-09 20:16	CMF File	
mesh_footL.CMF		2010-02-09 20:19	CMF File	
mesh_footR.CMF		2010-02-09 20:16	CMF File	
mesh_handL.CMF	:	2010-02-09 20:19	CMF File	
mesh_handR.CMF	:	2010-02-09 20:17	CMF File	
mesh_lowerarmL.	CMF	2010-02-09 20:17	CMF File	
mesh_lowerarmR.	CMF	2010-02-09 20:19	CMF File	
mesh_neck.CMF		2010-02-09 20:17	CMF File	
mesh_pelvis.CMF		2010-02-09 20:20	CMF File	
mesh_ponytail.CN	1F	2010-02-09 20:18	CMF File	
mesh_thighL.CMF	:	2010-02-09 20:19	CMF File	
mesh_thighR.CMF	:	2010-02-09 20:18	CMF File	
mesh_upperarmL.	CMF	2010-02-09 20:20	CMF File	
mesh_upperarmR	.CMF	2010-02-09 20:18	CMF File	
•		1		•
File <u>n</u> ame: mesh_he	ad		-	Save
Save as type: Cal3D M	esh File (*.CMF,*.XMF)		•	Cancel

Export as material file (.crf)

Rename all the materials used by the 3D Model as following format:

```
MaterialName [0]
MaterialName [1]
....MaterialName [N]
```

MaterialName can be any word, but must take a bracket with a serial number begin



Export Cal3D material file:

Select File	to Export	-				x
Save in: 🌗	export	-	G 🌶 📂 🛄 -			
Name	~		Date modified	Туре		Siz
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-						•
File name:					Catro	
rac name.	material_U				Sale	
Save as type:	Cal3D Material File (*.0	;RF,*.XRF)			Cancel	
						and the second second

Select one of the materials:

Cal3D Export - Ma	aterial Selection
	Step 1 of 2
C/30	The exporter has found the materials below that match the criteria for Cal3D materials. Select the one you want to export.
	Select the material you want to export:
	Arm [2] Body [1] Hand [3] Head () Material #10 Material #11 Material #12 Material #13 Material #14 Material #15 Material #16 Material #17 Material #18 Material #20 Material #20 Material #21 Material #22 Material #23 Material #24 Material #45 Material #6 Material #6 Material #7 Material #7 Material #8
About Cal3D	
	< Back Next > Cancel

Click Finish:

Cal3D Export - N	laterial Map	5				x
C/ 30	Step 2 of 2 The selected	d material contains the maps os of this material:	below.			
About Cal3D	Мар	Filename				
				< Back	Finish C	ancel

NOTE: try to only use Standard material for the 3D Models.

NOTE: strongly recommend put 3D Model File (.max, .3ds, .obj, ...) and the Texture File (.jpg, .tga, .bmp, ...) in the same folder with exported Cal3D files.

NOTE: in Cal3D configure file, the material parts MUST quoted in order by the MaterialName [0], MaterialName [1], ..., MaterialName [N].

NOTE: if the material shows upside down in Cal3D Model, try to check and change the value of "flip_texture" in Cal3D configure file (0 or 1).

When export animation file, 3D Model MUST NOT in Figure Mode.

Turn off Figure Mode and load a Mocap File (.bip):

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Cally				
Selection Level: Sub-Object Trajectories				
Parameters Trajectories				
Assign Controller 💝				
[🥂 Key Info 🛛 😵 🗍				
Biped Apps 🔝				
Mixer Workbench				
Biped 🚷				
* 👥 🕏 🕏				
▶4 💽 🖥 🖉 ઠ				
+Modes an Load File				

Export as Cal3D Animation File:

Select File	to Export			×
Save in: 🌗	export 👻	G 🌶 📂 🛄 -		
Name	*	Date modified	Туре	Siz
	No items matc	h your search.		
•	m			Þ
File name:	animation_01		•	Save
Save as type:	Cal3D Animation File (*.CAF,*.XAF)		•	Cancel
	· · · · · · · · · · · · · · · · · · ·			

Select the Cal3D Skeleton File exported before and click Next:

Cal3D Export - Skele	eton File
st	tep 1 of 3
	he exporter needs the corresponding skeleton to assign the animation tracks to the bones. Choose a reviously exported Cal3D skeleton file below.
Se	elect the corresponding skeleton file:
	D:\Resource Files\3Ds MAX\export\skeleton.CSF Browse
About Cal3D	
	< Back Next Cancel

Select all bones except dummys and click Next:

Cal3D Export - Skeleton Hierarchy	-
Step 2 of 3	
The nodes below were previously exported as Cal3D bones. Select the ones you want to export an animation track for.	_
Select the nodes you want to export:	
About Cal3D	
< Back Next > Cancel	

Set animation parameters and click Finish:

Cal3D Export - Animation Time
Step 3 of 3 The exporter has tried to query the animation time values. Adjust them carefully. Make sure that the start and end frame are correctly set for animation cycles, and use the displacement to synchronize different ones.
1 - Set the start and end frame of the animation Start Image: End Frame: 30
2 - Set the displacement of the keyframes within the animation Displacement: 0 Frames
3 - Set the frame rate (fps) of the animation Frame Rate: 30 Frames/Second
About Cal3D
< Back Finith Cancel

Repeat until finish all animations:

Select File to Export			×	
Save in: 🌗 export	G 🤌 📂 🛄 -			
Name	Date modified	Туре	Siz	
animation_01.CAF	2010-02-09 23:41	CAF File		
animation_02.CAF	2010-02-09 21:54	CAF File		
animation_03.CAF	2010-02-09 20:26	CAF File		
animation_04.CAF	2010-02-09 20:21	CAF File		
animation_05.CAF	2010-02-09 20:21	CAF File		
animation_06.CAF	2010-02-09 20:25	CAF File		
۰				
File name: animation_07		-	Sale	
Save as type: Cal3D Animation File (*.CAF,*.XAF)		•	Cancel	

Create a configure file (.cfg)

The configure file is written manually. Here is a sample:

demo	

```
#-----aquCHAOS -:
# Cal3D cfg file demo
#-----:
#
#-
  ------
#-----:
# basic setting
#-----:
path = Cal3D folder/
scale = 0.01
flip_texture = 1
# Cal3D skeleton file
skeleton=skeleton.CSF
#-----:
# Cal3D meshes files
#-----:
mesh=mesh calfL.CMF
mesh=mesh_calfR.CMF
mesh=mesh_chest.CMF
mesh=mesh_footL.CMF
mesh=mesh_footR.CMF
mesh=mesh_handL.CMF
mesh=mesh_handR.CMF
mesh=mesh_head.CMF
mesh=mesh_lowerarmL.CMF
mesh=mesh_lowerarmR.CMF
mesh=mesh_neck.CMF
mesh=mesh_pelvis.CMF
mesh=mesh_spinelower.CMF
mesh=mesh_spineupper.CMF
mesh=mesh_thighL.CMF
mesh=mesh_thighR.CMF
mesh=mesh_upperarmL.CMF
mesh=mesh_upperarmR.CMF
morph=morph 00.CMF
morph=morph 01.CMF
morph=morph_02.CMF
morph=morph_03.CMF
morph=morph_04.CMF
#-----:
# Cal3D animation files
animation=animation 00.CAF
animation=animation_01.CAF
animation=animation_02.CAF
animation=animation_03.CAF
animation=animation_04.CAF
#-----:
# Cal3D material files
#-----:
material=material 00.CRF
material=material_01.CRF
material=material_02.CRF
material=material_03.CRF
material=material_04.CRF
#-----:
# Vizard special setting
#-----:
head_bone = Bip01 Head
neck_bone = Bip01 Neck
```

