



NETALLIED SYSTEMS

OpenCOLLADA techniques

StreamWriter and SaxLoader



COLLADASTreamWriter

The Library

- C++ library for writing COLLADA files as a stream
- No storage in intermediate data model
 - Extremely little memory consumption
 - Much higher performance
- Available at:
<https://opencollada.svn.sourceforge.net/svnroot/opencollada/trunk/COLLADASTreamWriter>



COLLADASTreamWriter Usage

- Only small objects like effects have their own data model. Other are written directly
- Requires very good knowledge of the COLLADA spec
 - Only for experienced colladenses
 - Needs some time to get used to it



COLLADASaxLoader

The Library

- C++ library to load COLLADA files, using a sax like approach
- Uses its own data model
- Each object (mesh, animation, ...) is send to a handler as soon as it got read from the file.
 - Little memory consumption, since only one object in memory at a time
- Objects are linked using a unique id



COLLADASaxLoader Usage

- Ensure to be able to handle objects in arbitrary order
 - If necessary cache some objects
 - Or parse the file a second time
- Keep track of the linkage of the objects



How to start?

- Take a look at the sample COLLADA to Ogre3D conversion
<http://opencollada.svn.sourceforge.net/viewvc/opencollada/trunk/dae2ogre/>
- Take a look at Blender 2.5
http://wiki.blender.org/index.php/User:Chingachgook/Gsoc2009/End-User_Specification
- Take a look at X-Ray
<http://www.hfink.eu/collada/xray>
- OpenCOLLADA for Max/Maya
<http://opencollada.svn.sourceforge.net/viewvc/opencollada/trunk/>



Performance comparison – 3ds Max - Import

Boom.dae 110MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for import	2.4s	32.5s	Doesn't work at all
Max memory consumption during Import	428MB	603MB	
Memory consumption after Import and loaded Model	368MB	392MB	
Memory consumption after deleting scene	265MB	296MB	
MegaBoom.dae 550MB five meshes	OpenCOLLADA	Feelings	Autodesk
Time used for import	48s	Doesn't work at all	Doesn't work at all
Max memory consumption during Import	822MB		
Memory consumption after Import and loaded Model	783MB		
Memory consumption after deleting scene	265MB		



Performance comparison – 3ds Max - Export

hipoly_196k_Unitcube_MAX8.max 22MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for export	2.5s	3.2s	11.1s
Max memory consumption during export	308MB	350MB	430MB
Memory consumption after export and loaded Model	304MB	304MB	316MB
boom.max 29MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for export	25.3s	84.8s	infinite
Max memory consumption during export	420MB	609MB	
Memory consumption after export and loaded Model	402MB	437MB	



Performance comparison – Maya - Import

Boom.dae 110MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for import	12.5s	34s	Doesn't work at all
MegaBoom.dae 550MB five meshes	OpenCOLLADA	Feelings	Autodesk
Time used for import	62s	Doesn't work at all	Doesn't work at all



Performance comparison – Maya - Export

hipoly_196k_Unitcube_MAX8.mb 17MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for export	6.8s	6.6s	12.6s
Max memory consumption during export	307MB	360MB	479MB
Memory consumption after export and loaded Model	302MB	316MB	359MB
boom.mb 32MB one mesh	OpenCOLLADA	Feelings	Autodesk
Time used for export	21.2s	42.3s	33.0s
Max memory consumption during export	391MB	588MB	835MB
Memory consumption after export and loaded Model	366MB	385MB	451MB