

# **COLLADA**

## **Conformance Test Suite and openCOLLADA integration**

### **Request for Quotations**

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## 1. Background

The COLLADA working group has engaged a discussion during the last months to bring back momentum to COLLADA.

During this discussion, the working group acknowledged that beyond the specification itself, tools should be brought to the community to seamlessly adopt COLLADA.

The first identified tool to be brought to the community is a COLLADA API. Moreover, having Khronos "blessing" a COLLADA API, is certainly a clarification much appreciated by the community, as there is some legacy and confusion regarding what's the best solution for developers with regard to COLLADA.

The WG agreed that OpenCOLLADA had the potential to become the reference API.

In March, to validate its intentions, the WG sent an open letter to the community announcing that Khronos will fund OpenCOLLADA and a meet-up followed to engage the community.

Discussions within both members and community brought the following action items:

1. COLLADA Conformance Test Suite (CTS) should support OpenCOLLADA plugins for MAX and MAYA.
2. OpenCOLLADA recognized bugs should be fixed

Contractors will be able to perform the work using materials available publicly at these URLs:

- COLLADA Conformance Test Suite: <https://github.com/KhronosGroup/COLLADA-CTS>
- OpenCOLLADA framework and plugins: <https://github.com/KhronosGroup/OpenCOLLADA>

## 2. Requirements

### **OpenCOLLADA support for COLLADA Conformance Test Suite (CTS):**

The COLLADA Conformance Test contains 613 Tests currently integrated within MAX and MAYA plugins based on Feeling software FCOLLADA API.

The core work would be to adapt these tests while keeping the same logic to:

- Change calls from FCOLLADA Plugins to OpenCOLLADA Plugins.
- Enhance OpenCOLLADA plugins to be able to be driven like FCOLLADA Plugins.

### **OpenCOLLADA recognized bugs:**

P1: priority 1

P2: priority 2  
M1: milestone 1  
M2: milestone 2

## **M1/P1:**

- [Issue 79](#) Wrong validation code generated for <xs:choice maxOccurs="unbounded"> decision: highly recommended to fix
- [Issue 80](#) [3dsmax] Add MAXScript interface for export options setup decision: needs investigation if it does not impact CTS low priority or discard.

## **M2/P1:**

Following 9 bugs **M2/P1** are considered high priority to review / integrate because they have patches and should be low just hanging fruits.

- [Issue 89](#) missing input\_set leaves setIndex uninitialized
- [Issue 90](#) COLLADAFWKinematicsController copy constructor doesn't copy AxisInfos and KinematicsModelUniqueIds
- [Issue 91](#) Wrong call in COLLADASaxFWL.Loader.loadDocument( ..buffer.. )
- [Issue 94](#) Add support for <library\_nodes> [patch included]
- [Issue 97](#) typo in Externals/pcrc/CMakeLists.txt [patch included]
- [Issue 101](#) Regression on COLLADASaxFWL::loadDocument(String, char\*, IWriter) [patch included]
- [Issue 102](#) xmlCleanupParser used incorrectly, can cause crashes
- [Issue 52](#) Patch / crash when exporting morphs in 3ds max [patch included]
- [Issue 51](#) Vertex color indexes are not exported correctly [patch included]

The following bugs are still high priority but do not have known patches.

[Issue 101](#) the light color and light level should be combined before export

[Issue 21](#) specular exported from 3DS MAX plug-in is too strong (should be modulated by spec\_level)

decision: important both 101 & 21 share same kind of issue because the right value should be computed with MAX. (using the "level").

[Issue 14](#) Evaluate SketchUp version in the SketchUp transparency workaround

decision: high priority because great reward and probably easy to fix.

[Issue 111](#) OpenCOLLADA API should expose <extra> tag

decision: extra are part of the SPEC.

[Issue 112](#) OpenCOLLADA should preserve/expose original unique IDs for all elements

decision: high priority, having access to original IDs for all object is important for middleware.

[Issue 36](#) No import of normal maps  
decision: high demand from developers.  
comments: be sure to support both FCOLLADA and OpenCOLLADA style.  
update: need to check if that's fixed, and what's in there.

[Issue 98](#) Wrong Normals  
decision: high priority because of crash and round tripping issue.

<polylist> primitives reported as POLYGONS type  
decision: high priority and might be just an enum to fix.

[Issue 57](#) Multiple textures with the same name get the same ID  
decision: high priority to fix.

[Issue 17](#) Tangents and Binormals float array with 'NaN' strings inside. [should be fixed with <https://github.com/KhronosGroup/OpenCOLLADA/pull/114>]  
decision: for that one the pull request is in . So we should be able to remove it quickly, otherwise it is high priority.

[Issue 69](#) colladamaya: wrong transformation on (some) imported nodes

[Issue 63](#) inputs array reads 6 indices, but only enough indices for 5 indices per vertex.  
decision: *Fabrice - there are attached files, and indeed the exported file verified that attached file produces consistency errors -> P1.*

[Issue 22](#) COLLADAFW::Mesh remaps TEXCOORD semantic to UV functions  
decision: Marc is pointing to the code. According to him the issue is real.

[Issue 106](#) Missing animations when "sample animations" is turned on and "bake matrices" is turned off  
decision: probably easy to reproduce given to the steps.

[Issue 51](#) Vertex color export bug in the Maya plugin  
decision: verify if that fixed is contained within <https://github.com/KhronosGroup/OpenCOLLADA/pull/114> otherwise P1.  
[note: maybe dup of [Issue 51](#) and updated decision because during call we did not notice the fix was of the pull request was mentioned fir Maya and not for Max, need to check if that's common )

[Issue 78](#) Export flips normals  
decision: could be very easy to fix, has test case (files available on the google code issue).  
Double check if that's a problem of OpenCOLLADA or not.

[Issue 67](#) Collada files with Y-UP axis are imported with bad rotation/translation values  
decision: should be an option set by default to convert from the COLLADA tool up axis to the tool up axis.

comment: important but might take time. So other easier P1 should be taken before.

**M2/P2:**

[Issue 53](#) Constant nonzero angle animations are not exported from 3ds max.  
decision: P2 if confirmed that the COLLADA is still Compliant even though there as missing datas otherwise P1. has test case.

[Issue 99](#) Unexpected removal of unused joint's data (joint name and joint indexes)  
decision: need to confirm/reproduce data loss.

[Issue 24](#) Rotation error when importing via the OpenCOLLADA Maya importer

[Issue 37](#) OpenCollada loses settings when exporting from Max 2010  
decision: more investigation needed.  
comments: double-check if that's really an extra tag problem

[Issue 33](#) Error when exporting a single polygon (triangle)  
decision: unclear / ask the developer a test case. [update: mail sent to developer [seithcg@gmail.com](mailto:seithcg@gmail.com) ]

[Issue 44](#) missing geometry when importing into Maya 2010/2011

[Issue 88](#) Maya blinn eccentricity exported as shininess without conversion

[Issue 26](#) [ColladaMaya] Baked Transforms and Character Clips incompatible  
decision: unclear / ask the developer a test case. [update: mail sent to developer [Carsten.P.Neumann@gmail.com](mailto:Carsten.P.Neumann@gmail.com) ]

[Issue 68](#) MAYA. library\_animation\_clips are not exported when joint visibility channel is not keyed  
decision: unclear / ask the developer a test case. [update: mail sent to developer]

[Issue 87](#) OpenCOLLADA autorename mesh  
decision: needs an example.

[Issue 77](#) "image" is legal child of "effect" but not supported by OpenCollada  
decision: M2/P2 until we get more insights - ask the user how he generate such assets.

### **3.Deliverables and Acceptance Criteria**

The 2 main deliverables agreed by the WG are:

- OpenCOLLADA plugins integration within CTS

- OpenCOLLADA bug fixes.

### **Milestone 1: Integration of OpenCOLLADA plugins within COLLADA Conformance Test Suite**

- All tests from the CTS should be launched for both Maya and Max against the OpenCOLLADA plugins.
- The status for each test does not have to be SUCCESS but it has to be valid.
- A crash in the authoring tool should not prevent the CTS to perform all tests.
- The OpenCOLLADA validation should be working and optionally be tested for re-exported assets.
- Any issue that prevents executing tests should be fixed. The fix might be needed at the script level, OpenCOLLADA plugins or framework.
- Support for latest plugins MAX 2013 / Maya 2011-2012-2013.  
<https://github.com/KhronosGroup/OpenCOLLADA/issues/109>  
If implementing support takes more than 2 days then it should be re-prioritized within the the **Milestone 2**.  
Once recompiled, new binaries for Maya and MAX should be uploaded on the GitHub site.
- Documentation for building plugin on OSX and windows.
- Documentation to create new extras.

### **Milestone 2: OpenCOLLADA bug fixes**

- During their work, contractors will work on a specific branch.
- Any OpenCOLLADA patch should be submitted as a pull request in GitHub.
- Each patch should at least have one reviewer.
- The final reviewer should be a designated Khronos member.
- For a bug containing a reproducible test case (typically containing DAE file), the bug fix must be tested successfully against the test case, in case of failure or the impossibility to reproduce exactly the same test case, discussion should be engaged with a designated Khronos member to decide if the work on that bug should be continued or not.
- One reviewed the patch should be integrated by the contractor in the branch.
- Before pushing a fix in the code repository trunk, the fix from the branch should be tested against CTS.
- Finally, to stay on top of any regression, CTS will be run against code repository trunk.
- All fixes should be tested using Maya and Max exporters.

Final acceptance of the whole bug fixing work, will be submitted to an examination of the CTS results based on running CTS without the bug fixing engaged by this RFQ and one run made containing the bug fixes from the RFQ.

While the number of result passing the CTS should increase, the exact number cannot be known at the time of writing the RFQ, but the number of test passed must not decrease.

#### **4. Project Scoping and Priorities**

Having OpenCOLLADA and CTS side by side on GitHub raises the importance of having them well integrated to convey a consistent message to the community.

Thus, first priority is OpenCOLLADA integration in CTS and consequently bugs fixing in OpenCOLLADA of any CTS integration blocker.

Then for bug fixing, the priorities can follow the order specified in section 2.

#### **5. Schedule & Checkpoints**

Expected Date: [to be agreed with WG and contractor]

Budget: \$5K (US)

##### **Milestone 1: Integration of OpenCOLLADA plugins within COLLADA Conformance Test Suite**

Expected Date: [to be agreed with WG and contractor]

Budget: \$15K (US)

##### **Milestone 2: OpenCOLLADA bug fixes**

##### **Important note:**

Even though in theory it is possible to have Milestones 1 & 2 worked in parallel, **the working group strongly prefers that Milestone 1 to be completed before starting Milestone 2** and will privilege RFQ answers that comply with this schedule.

#### **6. Khronos Contractor Agreement**

No work shall begin, and Khronos shall be liable for no costs or expenses, until the selected contractor is in receipt of an executed contractor's agreement.

It is important that contractors understand that we will be assessing progress on a regular basis, and reserve the right to terminate or renegotiate the contract in the event insufficient progress is being made. Khronos would prefer to renegotiate the contract on a fixed-price basis once enough experience has been gathered in the initial month or two.

## 7.RFQ Reponses

This is a fixed price contract with a total budget from Khronos of \$20K (US). Vendors are encouraged to quote for a subset of the deliverables if they feel they are able to specifically address those deliverables, as Khronos will consider splitting this project between multiple respondents.

Please provide the following information in the format of your choice:

- Identification of which deliverables on which you wish to bid;
- The billed cost to Khronos of providing those deliverables;
- Proposed schedule for the deliverables, including any intermediate milestones;
- A description of your familiarity (if any) with the COLLADA CTS, OpenCOLLADA framework, and of any test development you have previously performed in this framework;
- An indication you are willing to work under the Khronos Contractor Agreement;
- Any particular issues or risk factors that you wish to highlight;
- Supporting materials, including background materials about your company, highlighting other relevant experience and expertise for this project.