

Model**Collada Conversion Library (M1)****Actors***Client (A1)***Use cases***Load COLLADA File (UC1)**Convert (UC2)**Convert Geometry (UC3)**Convert Rigging and Animation (UC4)**Convert Lighting (UC5)**Convert Physics (UC6)**Convert Textures and Shading (UC7)***Requirements**

1	Convert COLLADA digital library file to a Crystal Space map and/or library file.
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Actor**Client (A1)****Description**

The client (user) of the library.

Notes

This can be a user calling functions from within the library, or it might actually represent the calling program (the COLLADA conversion utility).

Goals

1	Be able to load a COLLADA digital asset file into the system.
2	Once a COLLADA digital asset file has been loaded, be able to convert that file to a Crystal Space map and/or library file.

Use case**Load COLLADA File (UC1)**

Description

Load a COLLADA digital asset file into the system, parsing the XML file into a tree structure based on the iDocument specification.

Active actors

Client

Details

Priority	1
Level	User
Complexity	Low
Status	Created
Implementation	Created

Flow of events

1	Create a new, empty iDocument data structure and assign this to the system's current COLLADA file.
2	Create an iFile data structure, and use it to open the specified path to the COLLADA file, unless provided by the client.
3	Parse the iFile data structure using the iDocument parse() function.
4	Verify that the pointer to the parsed iDocument is valid.
5	Close the iFile representing the COLLADA file.
6	Return the parsed iDocument pointer.

Use case**Convert (UC2)****Description**

Convert a COLLADA implementation file to a Crystal Space map or library file.

Pre-conditions

COLLADA file has been loaded and parsed.

Post-conditions

COLLADA file has been converted to Crystal Space map or library format.

Active actors

Client

Details

Priority	1
Level	Summary
Complexity	High
Status	Created
Implementation	Created

Flow of events

1	Check to see if COLLADA file is open and has been parsed.
2	If COLLADA file has been opened and parsed, begin by converting geometry.
2.A	If COLLADA file has not been opened, or has not been parsed, prompt the user to open and parse COLLADA file before continuing.
2.B	Convert lighting.
2.C	Convert textures and shading.
2.D	Convert rigging and animation.
2.E	Convert physics.
2.F	Write converted data out to an iFile object.
2.G	Return pointer to converted iDocument object.

Use case

Convert Geometry (UC3)

Description

Converts the COLLADA file's geometry to a Crystal Space format. Specifically, the following COLLADA elements are converted in this stage:

```
<library_geometries>
<geometry>
<mesh>
<spline>
<convex_mesh>
<verticies>
```

Pre-conditions

COLLADA file has been loaded and parsed.

Post-conditions

Geometry components of the COLLADA iDocument have been converted to Crystal Space format.

Details

Priority	1
Level	Subfunction
Complexity	Medium
Status	Created
Implementation	Created

Flow of events

1	Find all instances of <library_geometries>. For each of these, perform the following:
1.A	Find each instance of <geometry>. For each of these, perform the following:
1.A.1	Parse and convert each <mesh> subsection.
1.A.2	Parse and convert each <spline> subsection.
1.A.3	Parse and convert each <convex_mesh> subsection.
1.B	Parse and convert additional data associated with <geometry> tag.
2	Parse and convert additional data associated with <library_geometries> tag, including <asset> information.

Use case**Convert Rigging and Animation (UC4)****Pre-conditions**

COLLADA file has been loaded and parsed.

Post-conditions

Rigging and animation components of the COLLADA iDocument have been converted to Crystal Space format.

Details

Priority	1

Level	Subfunction
Complexity	High
Status	Created
Implementation	Created

Use case**Convert Lighting (UC5)****Pre-conditions**

COLLADA file has been loaded and parsed.

Post-conditions

Lighting components of the COLLADA iDocument have been converted to Crystal Space format.

Details

Priority	1
Level	Subfunction
Complexity	Medium
Status	Created
Implementation	Created

Use case**Convert Physics (UC6)****Pre-conditions**

COLLADA file has been loaded and parsed.

Post-conditions

Physics components of the COLLADA iDocument object have been converted to Crystal Space format.

Details

Priority	1
Level	Subfunction
Complexity	High
Status	Created
Implementation	Created

Use case**Convert Textures and Shading (UC7)**

Pre-conditions

COLLADA file has been loaded and parsed.

Post-conditions

Texture and shading components of the COLLADA iDocument object have been converted to Crystal Space format.

Details

Priority	1
Level	Subfunction
Complexity	High
Status	Created
Implementation	Created

Glossary

Glossary item	Description
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