

Scene Export

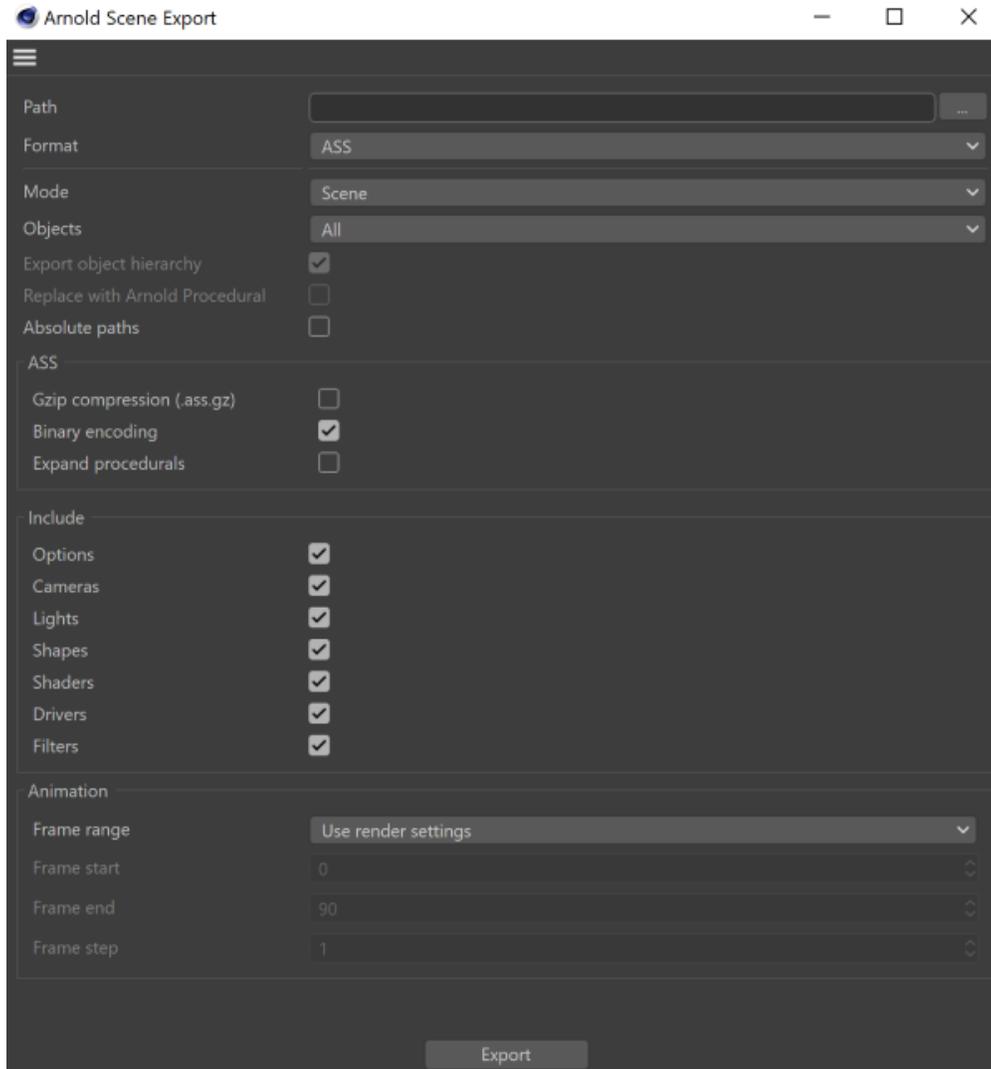
[Arnold Scene Source \(.ass\)](#) is Arnold's native scene definition format, stored in human-readable, editable ASCII files that can later be rendered outside of CINEMA 4D with [kick](#) (a multi-platform, command-line utility) or used for rendering via [procedurals](#). Beside ASS files Arnold offers writing scenes to [Universal Scene Description \(USD\)](#) format.

Scene Export Dialog

C4DtoA lets you save scenes to ASS or USD files. The scene export dialog can be accessed from the **Arnold > Scene Export** menu.



The dialog shows Arnold related options and frame settings described below.



Path

The path where the archive (.ass, .usd, .usda, .usdc) will be saved to. A padding pattern (####) can be used to save a file sequence (animation). If padding is not specified, #### is added to the file name automatically. For example /path/to/test.ass will produce /path/to/test.0000.ass, /path/to/test.0001.ass, /path/to/test.0002.ass and so on.

Format

File format, e.g. ASS or USD.

Mode

Set to **Scene** to export the whole scene, or set to **Procedural** to export only the selected meshes to be loaded in an [Arnold Procedural](#) (stand-in).

Objects

Defines the objects to be exported:

- **All:** Export all objects (geometries, lights, etc.) from the scene.
- **Selected:** Export only the selected objects.
- **Selected individually:** Export the selected objects to separate ASS files. The object name is added to the file name as a suffix (e.g. *myexport_Sphere.ass*, *myexport_Cube.ass*, etc.)

Export Object Hierarchy

Exports the whole hierarchy of the selected objects (instead of manually selecting all children).

Replace With Arnold Procedural

Available in **Procedural** mode. When enabled the exported objects are replaced with an [Arnold Procedural](#) object pointing to the exported file.



Currently animation can not be written to a single USD file, a different file is created for each frame.

Export

Writes the file(s) to the disc.

Scene Export from command line

Scene export can be executed from the command line as well via the **-arnoldSceneExport** parameter followed by the export options.

The following options are available:

- **scene**: Path of the C4D scene file which needs to be exported. This parameter is mandatory.
- **format**: Output file format, *ASS* or *USD*. If not specified, the plugin guesses the format from the file extension.
- **filename**: Path of the output file. If not given, the file is written next to the c4d scene file.
- **compressed**: If given the scene is exported directly to gzip-compressed files (.ass.gz). Only for ASS format.
- **asciiAss**: If given values exported to a standard text format, if not given (default) binary encoding is used. Only for ASS format.
- **expandProcedurals**: If given procedurals will be expanded before exporting the scene.
- **exportObjectHierarchy**: If given the whole hierarchy (children) of the selected objects is exported.
- **mask**: Specifies which Arnold node types are included in the .ass export. See the [AtNodeEntry](#) page of the Arnold API for the available node types.
- **exportType**: Specifies which objects are exported. Possible values are:
 - **0**: all
 - **1**: selected
 - **2**: selected individually
- **startFrame**: Specifies the start frame to be exported. When not given Start Frame from the render settings is used.
- **endFrame**: Specifies the end frame to be exported. When not given End Frame from the render settings is used.
- **frameStep**: Specifies the increment between frames. When not given Frame Step from the render settings is used.
- **camera**: You can override active scene camera by this option by specifying the name of the camera. Note that camera names must be unique otherwise always the first camera with the same name is used.
- **take**: Specifies the take to be exported. Alternatively you can use the **-take** argument instead of this option.

For example, the following command exports frame range 10-20 of *myscene.c4d* to *myscene.ass*:

```
Commandline.exe -arnoldSceneExport "scene=c:\path\to\myscene.c4d;format=ASS;filename=c:\path\to\myscene.ass;startFrame=10;endFrame=20"
```

Note that on Windows the export is executed in the background, therefore, you have no output in the console. You can redirect the output to a file using the **>** directive as follows:

```
Commandline.exe -arnoldSceneExport "scene=c:\path\to\myscene.c4d;format=ASS;filename=c:\path\to\myscene.ass;startFrame=10;endFrame=20" > export.log 2>&1
```

Scene Export from python

The *arnold.scene* module in the C4DtoA python API offers a convenient method to export the Cinema 4D scene to an Arnold ASS or USD file.

- `Export(doc, filename, fileFormat, compressed, bbox, binary, expandProcedurals, mask, startFrame, endFrame, stepFrame, objectMode, exportObjectHierarchy, replaceWithProcedural)`
 - **doc** (c4d.documents.BaseDocument): The scene to export.
 - **filename** (str): Path of the output file. If None, the file is exported next to the c4d scene file.
 - **fileFormat** (int): Output file format. If None, the format is guessed from the filename. Available values are:
 - `arnold.scene.SCENE_EXPORT_FORMAT_ASS`
 - `arnold.scene.SCENE_EXPORT_FORMAT_USD`
 - **compressed** (boolean): If true the scene is exported directly to gzip-compressed files (.ass.gz).
 - **bbox** (boolean): If true bounding box of the scene are added to the ASS meta data.
 - **binary** (boolean): If true binary encoding is used.
 - **expandProcedurals** (boolean): If true procedurals will be expanded before exporting the scene.
 - **mask** (int): Specifies which Arnold node types are included in the output. See the [AtNodeEntry](#) page of the Arnold API for the available node types.
 - **startFrame** (int): Specifies the first frame when exporting an animation. If None, the scene's render settings will be used.
 - **endFrame** (int): Specifies the last frame when exporting an animation. If None, the scene's render settings will be used.

- **stepFrame** (int): Specifies the increment between frames when exporting an animation. If None, the scene's render settings will be used.
- **objectMode** (int): Specifies which objects are exported (all, selected, selected individually). Available values are:
 - arnold.scene.SCENE_EXPORT_OBJECT_MODE_ALL
 - arnold.scene.SCENE_EXPORT_OBJECT_MODE_SELECTED
 - arnold.scene.SCENE_EXPORT_OBJECT_MODE_SELECTED_INDIVIDUALLY
- **exportObjectHierarchy** (boolean): If true, exports the whole hierarchy (children) in 'selected' object mode.
- **replaceWithProcedural** (boolean): If true, replaces the exported objects with an Arnold Procedural pointing to the exported file.

Example

```
import arnold.scene as arnold_scene

# export the current scene to ASS
arnold_scene.Export(doc, "/path/to/my/scene.ass", binary = False)

# export frame 10, 11 and 12 to USD
arnold_scene.Export(doc, "c:\\path\\to\\my\\scene.usd", startFrame = 10, endFrame = 12)
```

In C4DtoA version prior 4.2, scene export can be called via the **CallCommand()** function with id of **1029993**. Options of the export command can be defined in the document settings.

For example, the following python script exports frame range 10-20 to *myscene.ass*:

```
import c4d

ARNOLD_SCENE_EXPORT = 1029993

def main():
    options = c4d.BaseContainer()
    options.SetFilename(0, "c:\\path\\to\\myscene.ass")
    options.SetInt32(6, 10)
    options.SetInt32(7, 20)
    doc.GetSettingsInstance(c4d.DOCUMENTSETTINGS_DOCUMENT).SetContainer(ARNOLD_SCENE_EXPORT, options)

    c4d.CallCommand(ARNOLD_SCENE_EXPORT)

if __name__ == '__main__':
    main()
```

List of available option ids can be found in *C4DtoA/res/c4d_symbols.h* header file. They are the following:

- **0 (Filename)** | *filename*: path of the output .ass file. If not given .ass file is exported next to the c4d scene file.
- **1 (Bool)** | *compressed*: if true the scene is exported directly to gzip-compressed files (.ass.gz).
- **2 (Bool)** | *bounding box*: if true bounding box of the scene are added to the ASS meta data.
- **3 (Bool)** | *binary*: if true binary encoding is used.
- **4 (Bool)** | *expand procedurals*: if true procedurals will be expanded before exporting the scene.
- **5 (Int32)** | *mask*: specifies which Arnold node types are included in the .ass export. See the *AtNodeEntry* page of the Arnold API for the available node types.
- **6 (Int32)** | *start frame*: specifies the start frame to be exported. When not given scene's render settings will be used.
- **7 (Int32)** | *end frame*: specifies the end frame to be exported. When not given scene's render settings will be used.
- **8 (Int32)** | *step frame*: specifies the increment between frames. When not given scene's render settings will be used.
- **11 (Int32)** | *export objects*: specifies which objects are exported. Possible values are:
 - **0**: all
 - **1**: selected
 - **2**: selected individually
- **12 (Bool)** | *replace with Arnold Procedural*: replaces the exported objects with an Arnold Procedural pointing to the ASS file.
- **13 (Bool)** | *export object hierarchy*: exports the whole hierarchy (children) of the selected objects.
- **14 (Int32)** | *format*: format of the output file. If not specified, the plugin guesses the format from the file extension. Available values are:
 - 193450604: ASS
 - 193472369: USD