

# 3.3.10.0

## Milestone 3.3.10 Enhancements

- **Improved sampling of the skydome\_light with diffuse shading:** The MIS technique will now also be applied to the diffuse component of the standard shader when lit by skydome lights. This can result in a great reduction in noise in some cases, particularly for scenes lit by skydome lights that have low contrast maps applied. Note that this change also applies to all shaders that use the Oren-Nayar MIS API. (trac#2338)
- **Optimized skydome\_light and textured quad\_light importance sampling:** Shader color values for precomputing importance sampling are now stored alongside the importance table in a table of equal size. Using this table for lighting gives a dramatic speedup over re-evaluating the shader, particularly if the attached shader is expensive to evaluate. 2x and even 4x speedups are not uncommon. In most cases, the quality difference of this re-sampling is unnoticeable, and diminishes as skydome\_light.resolution and quad\_light.resolution increases. This feature can be disabled by setting enable\_fast\_importance\_tables to off. (trac#2342)

### API additions

- **Metadata flag for non-linkable parameters:** Node parameters can be explicitly flagged as non-linkable by setting the following boolean metadata to false:

```
node_parameters
{
    ...
    AiMetaDataSetBool(mds, "parameter_name", "linkable", FALSE);
}
```

Attempts to use AiNodeLink() on a parameter that has been flagged as non-linkable will produce a warning but otherwise have no effect. (trac#2341)

- **Application defined string:** Client applications, such as the Maya and Softimage plugins, are now allowed to pass a descriptive string to Arnold using the following API function:

```
AI_API AtVoid AiSetAppString(const char *appstr);
```

The app string will be printed in the output log and in the header of exported .ass files, which can greatly help developers when debugging customer scenes. We have also provided a corresponding Python binding. (trac#2337)

### Incompatible changes

- **Renamed GI\_direct\_lighting to ignore\_direct\_lighting:** The ignore\_direct\_lighting option makes more sense alongside the other ignore\_\* options because it is mainly used for troubleshooting. Note that this flips the meaning of the option, so it is an incompatible change, not a simple rename. Along with the renaming, the -dd option in kick and pykick has also been changed to -idirect. (trac#2335)

### Bug fixes

Ticket	Summary	Component	Owner	Priority	Version	Created
#1268	default auto-naming of nodes is not thread-safe	arnold	xo	major	2.33	2 years
#2344	Race condition in importance table initialization	arnold	xo	major	3.3	27 hours
#2345	AiNode (node creation) function is not thread-safe	arnold	xo	major	3.3	6 hours
#2346	Data race in string pool add	arnold	xo	major	3.3	6 hours