# NVIDIA IndeX
## Options file structure and syntax

20 February 2024
Version 2020.2.2

**NVIDIA IndeX – Options file structure and syntax**

**Copyright Information**

Document build number rev375192

# Contents

# 1 Introduction

The NVIDIA IndeX *options file* defines a set of *initialization options* that configure the IndeX library during startup. The options file also includes *documentation comments* that explain the meaning of the options. These comments are read by a separate process to produce documentation about the options file.

# 2 Syntax of an initialization option

An option name is a *base name* preceded by one or more *qualifiers*. A qualifier is a name consisting of letters, numbers and the underscore character. Qualifiers in an option name are separated by two colon characters. For example, the option name `app::batch::output_image_fname` has two qualifiers, `app` and `batch`.

Qualifiers divide the options into different *option sets*. Multiple qualifiers define a hierarchy of option sets.

An `option definition` specifies an option name and its default value. In an option definition an option name is followed by an equals sign and the *default value* for that option. A default value can include space characters. Some options can be modified after initialization by the application.

Here are four examples of option definitions:

```
index::service = rendering_and_compositing
app::run_mode = batch
index::debug_configuration::alternative_distributed_compositing = yes
app::examiner::predefined_view::0::from = 0 0 0
```

Only one option is defined on a line. All space and tab characters are ignored, so options definitions can include space characters to make them easier to read in the options file:

```
index::canvas_resolution           = 1024 1024
index::image_file_canvas_resolution = 2048 2048
```

# 3   Describing the meaning of options

If a line in an options file begins with a letter, it is read as an option definition. Option descriptions and other information is added to the options file by lines that begin with the hash (#) character, called *comments*. These lines are ignored when NVIDIA IndeX reads the options file, but are used to create formatted documentation that describe the options.

The comments in an options file define a set of *categories* based on the role the option plays in NVIDIA IndeX. Each category contains one or more *option groups*. A option group contains a set of option definitions that share a description of the options in the group. An option may be a member of a group but is not enabled when NVIDIA IndeX reads the options file. These options are called *unassigned*.

Category definitions and option groups are separated by a blank line in the options file. A blank line cannot be used within either a category definition or option group.

To implement this structure for comments, there are five types of comment lines:

1. Header
2. Category
3. Description
4. Unassigned option
5. Internal comment

The type of comment line is defined by the initial characters of the line.

## 3.1  Header

The first line of the options file is the file's *header*. The header identifies that the file is an NVIDIA IndeX options file and includes the version number of the format of the options file at the end of the line. For version 0 (the current version), the header is specified as follows:

```
#! index_app_project 0
```

## 3.2  Category

A category comment line consists of `##category` followed by a space character and the category title. For example,

```
##category Network mode, logging, library, viewer run mode
```

## 3.3  Description

A description line begins with ## followed by a space character and the description text.  A series of description lines are combined to form the description of the options group.  A line only containing ## creates a blank line when the text is formatted.

For example, two options are described in this example as "Window resolution setting":

```
## Window resolution setting
index::canvas_resolution            = 1024 1024
index::image_file_canvas_resolution = 2048 2048
```

## 3.4  Unassigned option

An valid NVIDIA IndeX option that is present in the formatted description of the group but not read by NVIDIA IndeX begins with # followed by the option without leading space characters. For example, `index::horizontal_spans` in unassigned in this group:

```
## Number of horizontal spans and size of results queue at start-up.
index::horizontal_spans_per_machine = 4
#index::horizontal_spans = 2
index::result_queue = 1
```

## 3.5  Internal comment

A line that begins with # followed by one or more space characters is ignored both by NVIDIA IndeX and by the formatting of the options file description.  For example, copyright information in the scene file would consist of internal comments.

# 4 Formatting the description text

The documentation comments for options can include commands for font styles, bullet and numbered lists in the formatted documentation. Blank lines can be inserted into the resulting description for longer texts that benefit from division into paragraphs.

## 4.1 Fonts

Fixed font style for code and italics for emphasis are defined by single quote marks. For example, this documentation comment:

```
## Defining 'fixed' font style
## and ''italic'' font style
```

will produce this in the formatted output:

Defining `fixed` font style and *italic* font style

The double quotation mark (") is used for quoting text in the description.

## 4.2 Bulleted lists

A set of choices for an option should be documented with a bulleted list. For example, this list:

```
## Listing a set of choices
## * 'on'
## * 'off'
## * 'undefined'
```

will produce this in the formatted output:

Listing a set of choices
- on
- off
- undefined

## 4.3 Numbered lists

An ordered sequence of events or other descriptions that are dependent upon a specific order should be documented with a numbered list. For example, this list:

```
## An ordered sequence
## & First step
```

```
## & Second step
## & Final step
```

will produce this in the formatted output:

An ordered sequence
1. First step

2. Second step

3. Final step

## 4.4  Blank lines

A blank line in an options file is a separator between category definitions and option groups. To include a blank line in the formatted description, use the description comment line without any text. For example, the second line in this description of an option group:

```
## A blank documentation line generates a line break.
##
## Line breaks are not necessary before lists.
## & First step
## & Second step
## & Final step
```

will produce two paragraphs in the formatted output:

A blank documentation line generates a line break.
Line breaks are not necessary before lists.
1. First step

2. Second step

3. Final step

# 5  Complete examples

The options file source text is included in their documentation that was produced by the commands described above:

Project options: `project.prj`[a]

Scene options: `scene.prj`[b]

---

a. `https://raytracing-docs.nvidia.com/nvindex/getting_started/scene_file_syntax/project_options/index.html`

b. `https://raytracing-docs.nvidia.com/nvindex/getting_started/scene_file_syntax/scene_options/index.html`