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# Commands/settings

You can adjust the way CoppeliaSim operates via a [plugin](#) or an [add-on](#), but you can also modify its behaviour via:

- command line arguments
- the overall settings file
- environment variables
- the status bar commander

Additionally, you can also interact with CoppeliaSim via script functions and the [commander](#).

## Command line

When you start CoppeliaSim via the command line, you have following command line options that are supported:

- v<verbosity>**: sets the verbosity level, in the console. Default is `loadinfos`. Other accepted values are `none`, `errors`, `warnings`, `loadinfos`, `scripterrors`, `scriptwarnings`, `scriptinfos`, `infos`, `debug`, `trace`, `tracelua` and `traceall`. Plugins should output messages via `simAddLog`, scripts via `sim.addLog`. Verbosity can change during runtime: from within CoppeliaSim, global verbosity can be adjusted with the `consoleVerbosity` property, and plugin verbosity with `sim.setPluginInfo(pluginName,sim.pluginInfo_verbosity,verbosity)`. By default, plugin verbosity follows global verbosity. Command line verbosity setting can be overridden via the `verbosity` value in `system/usrset.txt`. Additionally, console log messages can be filtered via the `consoleLogFilter` value in `system/usrset.txt`.
- w<verbosity>**: similar to the `-v` setting above, but for the verbosity level in the [status bar](#). Default is `scriptinfos`. Status bar verbosity setting can be overridden via the `statusbarVerbosity` value in `system/usrset.txt`.
- x<verbosity>**: similar to the `-v` or `-w` setting above, but for the verbosity level for simple dialogs. Default is `infos`. Other accepted values are `none`, `errors`, `warnings` and `questions`. Dialog verbosity setting can be overridden via the `dialogVerbosity` value in `system/usrset.txt`.
- c<scriptString>**: executes the script string as soon as the sandbox is initialized.
- H**: runs CoppeliaSim in *true* headless mode (i.e. without any GUI or GUI dependencies). A display server is however still required. Instead of using library `coppeliaSim`, library `coppeliaSimHeadless` will be used. Keep in mind that in that case, `vision sensors` won't operate, unless they use the Pov-Ray rendering mode (and the [Pov-Ray plugin](#) is installed, binaries available [here](#)), and that rendering will be drastically slower.
- h**: runs CoppeliaSim in an *emulated* headless mode: this simply suppresses all GUI elements (e.g. doesn't open the main window, etc.), but otherwise runs normally.
- s<simulationTimeInMM>**: automatically start the simulation and runs it for a certain amount of milliseconds. Use a value of 0 to disable automatic stopping.
- q**: automatically quits CoppeliaSim after the first simulation run ended.
- a<addOn.lua>** and/or **-b<addOn.lua>**: loads and runs an additional [add-on](#) specified via its filename.
- G<key>=<value>**: named parameter, can be queried within CoppeliaSim with [named parameter properties](#). With `-Glicense=licenseKey` you can enable a specific license key string, with `-GpreferredSandboxLang=python` you can specify the sandbox language (lua or python).
- g<string>**: represents an optional string argument that can be queried within CoppeliaSim with the `appArg` properties.
- 0<bitCoded>**: disables [specific GUI items](#).
- f<scene.ttt>** or **-f<scene.simscene.xml>**: loads a [CoppeliaSim scene](#).
- f<model.ttm>** or **-f<model.simmodel.xml>**: loads a [CoppeliaSim model](#).

For example, to start CoppeliaSim in headless mode, load the scene `myScene.ttt`, run the simulation for 5 seconds, then stop the simulation and automatically leave CoppeliaSim again, type from within the CoppeliaSim main folder:

```

Windows:
$ coppeliaSim.exe -h -s5000 -q myScene.ttt

Linux:
$ ./coppeliaSim.sh -h -s5000 -q myScene.ttt

Mac:
$ ./coppeliaSim.app/Contents/MacOS/coppeliaSim -h -s5000 -q ../Resources/myScene.ttt

```

## Overall settings file

When CoppeliaSim starts, the file `usrset.txt` is read and values applied. Settings apply to various areas, such as:

- debugging
- rendering/display
- directories
- serialization
- messaging
- compatibility
- floating licence
- etc.

The location of file `usrset.txt` can be queried via the `settingsPath` property

## Environment variables

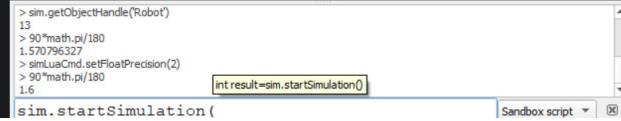
Following environment variables allow to modify the behaviour of CoppeliaSim:

- COPPELIASIMPLUGIN\_IGNORE\_MISSING\_SYMBOLS**. If defined, then plugins will ignore missing

- symbols
- COPPELIASIM\_USER\_SETTINGS\_FOLDER\_SUFFIX. Will append a suffix to the user settings folder. This can be used to start several CoppeliaSim instances, with different user settings.
  - COPPELIASIM\_CONSOLE\_LOG\_FORMAT. The format of the console log, e.g. "[{origin}:{verbosity}]{message}"
  - COPPELIASIM\_STATUSBAR\_LOG\_FORMAT. The format of the status bar log, e.g. "<font color='grey'>[{origin}:{verbosity}]</font> <font color='{color}'>{message}</font>"
  - COPPELIASIM\_STATUSBAR\_LOG\_FORMAT\_UNDECORATED. The format of the status bar log when *undecorated* is specified, e.g. "<font color='{color}'>{message}</font>"

## Status bar commander

The commander, implemented via the [simCmd plugin](#), is a read-eval-print loop, that adds a text input to the CoppeliaSim status bar, which allows entering and executing Python or Lua code on the fly, like in a terminal. The code can be run in the [sandbox](#), or any other active script in CoppeliaSim. The behavior of the plugin can be controlled via [Modules > commander]. It also offers its own [API functions](#). Additionally, *help()* will display usage tips.



```
> sim.getObjectHandle('Robot')
13
> 90*math.pi/180
1.570796327
> simLuaCmd.setFloatPrecision(2)
> 90*math.pi/180
1.6
int result=sim.startSimulation()
```