

# Units management

De Wiki

Aller à : [navigation](#), [rechercher](#)  
[Units management](#)

Units are managed with the [GUnit](#) class or more directly with [GMetricUnit](#).

```
// To display a menu allowing to display kilometers (km) or Nautic Miles (nmi)
GUnit[] unitDis = { new GMetricUnit ("km") , new GMetricUnit ("nmi") };
```

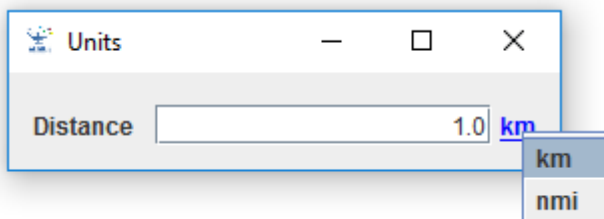
Since V1.7, a static factory method is available to simplify the creation of such tabel. We may write:

```
GUnit[] unitDis = GUnitFactory.getGUnitArray("km", "nmi");
```

In case of using [GMetricUnit](#), when we define a unit for a real value, it is stored automatically in the computer memory in **International System (IS)** (m, kg, rad ...).

```
dist = new GEntryReal("Distance", 1000., unitDis); // Initialization with 1000 meters.
```

Thus, in that case, we may have a difference between what it is displayed (for example 1.0 km) and what it is actually stored in the memory (1000.).



To get the value stored in memory (same for an integer even if there is no units for it), we will use the [getValue\(\)](#) method:

```
double val = dist.getValue(); // Allways in IS
```

## Available units

The basic **IS** units given by default by **GENIUS** are the following:

- kilogram (**kg**)
- meter (**m**)
- second (**s**)
- Amper (**A**)

Of course, **GENIUS** proposes also angular units with **radian** (rad) for IS to be convertible in **degree**

(deg).

Then, it is possible to get composed units using "." for multiplication, "/" for division or "^" for power (a negative power is enabled). Thus, we may have **kg.m/s^2** (or **kg.m.s^-2**) as a composed unit.

Allways about composed units, **GENIUS** proposes the following ones:

- Steradians ( $\text{m}^2.\text{m}^{-2}$ ) => **sr**
- Hertz ( $\text{s}^{-1}$ ) => **Hz**
- Newton ( $\text{kg.m.s}^{-2}$ ) => **N**
- Pascal ( $\text{N.m}^{-2}$ ) => **Pa**
- Joules ( $\text{N.m}$ ) => **J**
- Watt ( $\text{J.s}^{-1}$ ) => **W**
- Coulomb ( $\text{A.s}$ ) => **C**
- Volt ( $\text{W.A}^{-1}$ ) => **V**
- Farad ( $\text{C.V}^{-1}$ ) => **F**
- Ohm ( $\text{V.A}^{-1}$ ) => **R**

For more facilities, these units have also been added:

- gramm =  $0.001 \cdot \text{kg}$  => **g**
- ton =  $1000 \text{ kg}$  => **t**
- minutes =  $60 \text{ s}$  => **mn**
- hour =  $3600 \text{ s}$  => **h**
- day =  $86400$  => **j** or **d**
- month =  $1/12 \text{ year}$  => **mo**
- year =  $365.25 \text{ days}$  => **a** or **y**

It is also possible to use coefficients:

- **T**: Tera =  $10^{12}$
- **G** : Giga =  $10^9$
- **M**: Mega =  $10^6$
- **k**: kilo =  $10^3$
- **h**: hecto =  $10^2$
- **da**: deca =  $10$
- **d**: deci =  $10^{-1}$
- **c**: centi =  $10^{-2}$
- **m**: mili =  $10^{-3}$
- **u**: micro =  $10^{-6}$
- **n**: nano =  $10^{-9}$
- **p**: pico =  $10^{-12}$

Note that for mass values, these coefficient will be applied on "**g**" and not "**kg**".

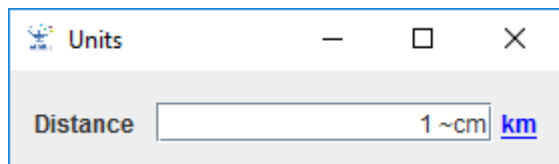
So, we could have something as **mg.dam/mn^2** ... for something equivalent as  $(1/36)10^{-6}$  Newtons !

At last, for not proportional conversions, **GENIUS** proposes anyway to convert:

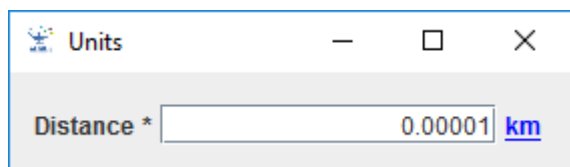
- Kelvin (**K**) to Celsius (**C**) or Fahrenheit (**F**) (using [GTemperatureUnit](#))
- "%" to "‰" (using [GPercentUnit](#)).

# How to enter directly a unit

Even if a unit is not proposed in the dedicated menu ("**km**" and "**nmi**" in the previous example), it is possible to enter a compatible unit with the following syntax:

A screenshot of a web application window titled "Units". It has standard window controls (minimize, maximize, close). Below the title bar, there is a label "Distance" followed by a text input field containing "1 ~cm" and a unit selector dropdown menu currently showing "km".

Thus, it will take into account 0.01 meter in memory and will display the value with the current displayed unit.

A screenshot of the same "Units" window. The text input field now contains "0.00001" and the unit selector dropdown menu still shows "km".

[Return to the introduction](#) ↑ [Go to the next page](#) →

Récupérée de « [http://genius.cnes.fr/index.php?title=Units\\_management&oldid=788](http://genius.cnes.fr/index.php?title=Units_management&oldid=788) »

## Menu de navigation

### Outils personnels

- [18.118.1.158](#)
- [Discussion avec cette adresse IP](#)
- [Créer un compte](#)
- [Se connecter](#)

### Espaces de noms

- [Page](#)
- [Discussion](#)

### Variantes

### Affichages

- [Lire](#)
- [Voir le texte source](#)
- [Historique](#)
- [Exporter en PDF](#)

## Plus

## Rechercher

## GENIUS

- [Welcome](#)
- [Quick Start](#)
- [News](#)

## Basic principles

- [GFrame and GPanel](#)
- [Main widgets](#)
- [Links with Swing](#)
- [GLayout](#)
- [Conditional Display](#)
- [GListener interface](#)

## More deeper in the concept

- [Units management](#)
- [GContainer](#)
- [GReadWrite interface and data files management](#)
- [Modified data](#)
- [Process management](#)

## Still more ...

- [Validity controls](#)
- [Menu bar](#)
- [Icons](#)
- [GClear interface](#)

## Still more again ...

- [Tooltips](#)
- [Shortcuts](#)
- [Copy & paste](#)
- [Plots](#)

- [Results File Management](#)
- [GPlotPanel](#)
- [GGroundPlotPanel](#)
- [Internationalization](#)
- [Log file](#)
- [Update data](#)

## **Some other widgets**

- [GTabbedPane](#)
- [GTable1D](#)
- [GTable2D](#)
- [GComponentList](#)
- [GDialog and GDetachedPanel](#)
- [GContextFileManagement](#)
- [How to build a standard application](#)
- [GPanTest](#)
- [Create your own widget](#)

## **Evolutions**

- [Main differences between V1.11.4 and V1.12.1](#)
- [Main differences between V1.10.1 and V1.11.4](#)
- [Main differences between V1.10 and V1.10.1](#)
- [Main differences between V1.9.1 and V1.10](#)
- [Main differences between V1.9 and V1.9.1](#)
- [Main differences between V1.8 and V1.9](#)
- [Main differences between V1.7 and V1.8](#)
- [Main differences between V1.6.2 and V1.7](#)
- [Main differences between V1.6.1 and V1.6.2](#)
- [Main differences between V1.6 and V1.6.1](#)
- [Main differences between V1.5 and V1.6](#)
- [Main differences between V1.4.1 and V1.5](#)
- [Main differences between V1.3 and V1.4.1](#)

## **Training**

- [Training slides](#)
- [Tutorials package for V1.12.1](#)
- [Tutorials package for V1.11.4](#)
- [Tutorials package for V1.10.1](#)
- [Tutorials package for V1.9.1](#)
- [Training & tutorials package for V1.8](#)
- [Training & tutorials package for V1.7](#)
- [Training & tutorials package for V1.6](#)

## Links

- [CNES freeware server](#)

## Outils

- [Pages liées](#)
- [Suivi des pages liées](#)
- [Pages spéciales](#)
- [Adresse de cette version](#)
- [Information sur la page](#)
- [Citer cette page](#)
- Dernière modification de cette page le 14 novembre 2019 à 08:58.
- [Politique de confidentialité](#)
- [À propos de Wiki](#)
- [Avertissements](#)

- The logo consists of a small yellow sun icon on the left, followed by the text "Powered By" in a small font, and "MediaWiki" in a larger, bold font, all enclosed within a thin rectangular border.