

# overview

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## 1 Overview

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In this tutorial, we make an overview of Scilab features so that we can get familiar with this environment. The goal is to present the core of skills necessary to start with Scilab.

We thank the authors of legacy documents, which this tutorial is based on:

- “Introduction to Scilab”: Michael Baudin, Digiteo,
- “Scilab for beginners tutorials”: Scilab Enterprises.

### 2.1 Overview of Scilab

Scilab is a programming language associated with a rich collection of numerical algorithms covering many aspects of scientific computing problems.

From the software point of view, Scilab is an **interpreted** language. This generally speeds up the development process, because the user directly accesses a high-level language, with a rich set of features provided by the library. The Scilab language is meant to be extended so that user-defined data types can be defined with possibly overloaded operations. Scilab users can develop their own modules so that they can solve their particular problems.

The Scilab language can dynamically compile and link other languages such as Fortran and C: this way, external libraries can be used as if they were a part of Scilab built-in features.

From the license point of view, Scilab is a free software in the sense that the user does not pay for it and Scilab is an open source software, provided under the [GPL license](#). The software is distributed with source code, so that the user has an access to Scilab’s most internal aspects. Most of the time, the user downloads and installs a binary version of Scilab, available under Windows, Linux and Mac OS systems.

From the scientific point of view, Scilab comes with many features. At the very beginning of Scilab, features were focused on linear algebra. But, rapidly, the number of features extended to cover many areas of scientific computing. The following is a short list of its capabilities:

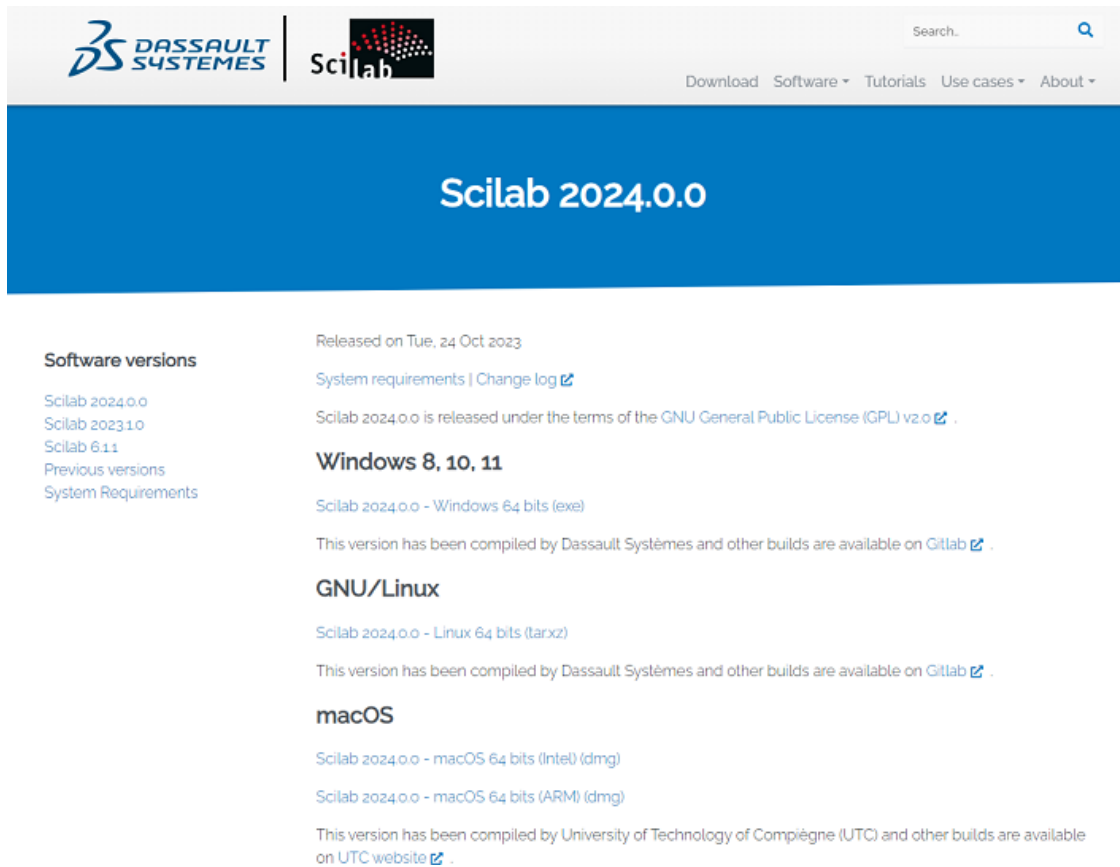
- Linear algebra, sparse matrices,
- Polynomials and rational functions,
- Interpolation, approximation,

- Linear, quadratic and non linear optimization,
- Ordinary Differential Equation solver and Differential Algebraic Equations solver,
- Classic and robust control, Linear Matrix Inequality optimization,
- Differentiable and non-differentiable optimization,
- Signal processing,
- Statistics.

Scilab provides many graphics features, including a set of plotting functions, which create 2D and 3D plots as well as user interfaces. The Xcos environment provides a hybrid dynamic systems modeler and simulator.

## 2.2 Install Scilab

Whatever your platform is (i.e. Windows, Linux or Mac), Scilab can be downloaded directly from the Scilab homepage <https://www.scilab.org> or from the download page <https://www.scilab.org/download>.



## 2.3 Mailing lists, wiki and bug reports

To facilitate the exchange between Scilab users, dedicated mailing lists exist (list in French, list for the education world, international list in English). The principle is simple: registrants can communicate with each other by e-mail (questions, answers, sharing of documents, feedbacks...) on [mailing list](#) and on the [Discourse](#) discussion forum.

The [Scilab wiki](#) is a public tool for reading and publishing general information about Scilab. The wiki is used both by Scilab users and developers to publish information about Scilab. From a developer's point of view, it contains step-by-step instructions to compile Scilab from the sources, dependencies of various versions of Scilab, instructions to use Scilab source code repository, etc...

To submit a report each time we find a bug, we use [Scilab issues](#). It may happen that this bug has already been discovered by someone else. This is why it is advised to search the bug database for existing related problems before reporting a new bug. If the bug is not reported yet, it is a very good thing to report it, along with a test script. This test script should remain as simple as possible to reproduce the problem and identify the source of the issue.

To browse the available lists and to subscribe, go to the following address: [Community](#).