

TOMLAB INSTALLATION GUIDE

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1 Installation Guide Overview

This guide describes the installation of the TOMLAB Optimization Environment on the following operating systems: Windows (XP, 2000, XP-64, Vista), Linux (32 and 64-bit), Mac OS X (Intel). It is basically the same procedure on all operating systems: Extract the application files, set up environment variables and install license files.

The first step is to [register as a TOMLAB user](#) and download the distribution.

Make sure the system is supported by TOMLAB in Section 2, then go to Section 3 and follow the instruction to obtain a copy of TOMLAB. When the installation file has been downloaded, go to Subsection 4 for the system in question and follow the instructions. To get some modules of TOMLAB to work, e.g: TOMLAB /CPLEX and TOMLAB /KNITRO, some environment variables may need to be set. How to do this is described in Section 5. The last step is to install the license file(s), which is described in Section 6.

2 Supported platforms

TOMLAB supports the following platforms and MATLAB versions:

- Windows 32-bit (MATLAB 6.5 and above)
- Windows 64-bit (MATLAB 7.2 and above)
- Linux x86 32-bit (MATLAB 6.5 and above)
- Linux x86 64-bit (MATLAB 7.3)
- Mac OS X (MATLAB 7.3 and above)

3 Downloading TOMLAB

In order to download TOMLAB a myTOMLAB account need to be created at: <http://tomopt.com>. When a myTOMLAB account exist, login and go to the Download → Products section, from where TOMLAB can be downloaded.

Here is a complete list of the files needed:

- Windows 32-bit,
 - MATLAB 6.x/7.x: `tomlab-win32-73-setup.exe`
 - MATLAB ≥ 7.4 : `tomlab-win32-setup.exe`
- Windows 64-bit,
 - MATLAB ≥ 7.3 : `tomlab-win64-setup.exe`
 - MATLAB 7.2: `tomlab-win64-72-setup.exe`
- Linux,
 - MATLAB 7.4-7.5: `tomlab-lnx32-gcc41-setup.tar.gz`

- MATLAB 7.1-7.3: `tomlab-lnx32-gcc34-setup.tar.gz`
- MATLAB 6.5: `tomlab-lnx32-gcc32-setup.tar.gz`
- Linux 64-bit,
 - MATLAB ≥ 7.3 : `tomlab-lnx64-setup.tar.gz`
- Mac OS X,
 - MATLAB ≥ 7.3 : `tomlab-osx-setup.dmg`

4 Installing TOMLAB

This section describes how to install the TOMLAB software. Follow the instructions in the section for your operating system.

4.1 Install on Windows

For Windows an InstallShield installer extracts the TOMLAB files and automatically sets the `PATH` environment variable to point at directories containing dynamic libraries required by some TOMLAB modules. The installer is downloaded from the web site. It requires that no instance of MATLAB is running during the installation to be sure the `PATH` environment variable is properly set in the MATLAB environment when starting to use TOMLAB. Do `getenv('path')` in MATLAB to confirm the presence of `tomlab/shared`.

As the `PATH` environment variable is set automatically, one can skip Section 5 and go directly to the Section 6 .

If the installer failed to set the `PATH` environment variable, go to Section 5 and read about how to do it manually.

It may be needed to reboot the computer after installation.

4.2 Upgrade on Windows

With Add/Remove Programs from the control panel, remove the TOMLAB Optimization Environment. Make sure that (only) `tomlab.lic` remains in the installation folder and install the new version in the same location. As defaults in TOMLAB may change over time a backup copy of the old version is recommended.

4.3 Install on Unix-like systems

On the Unix-like systems Linux and Mac OS X, the installation procedures are identical, but different files are needed. The files for each operating system can be found in Section 3.

Extract the files to a directory where TOMLAB is to be installed. After extraction there will be a `README.TOMLAB` file and a sub-directory `tomlab` (do not create manually before installation) in the destination directory. The commands for extracting the files are

```
$ gunzip tomlab-xxx-setup.tar.gz
$ tar -xf tomlab-xxx-setup.tar
```

where `tomlab-xxx-setup.tar.gz` is the name of the TOMLAB file for your operating system listed above.

4.4 Upgrade on Unix-like systems

The first step is to save a copy of the license file (and make a backup copy of the old version if needed). Assuming that TOMLAB is installed in `/usr/local/matlab7/tomlab` execute the follow commands:

```
$ cd /usr/local/matlab7/tomlab
$ mv tomlab.lic ../
```

Then remove the old version:

```
$ cd ..
$ rm -f -r tomlab
```

Install the new version as described in section 4.3 and move back the license:

```
$ mv tomlab.lic ./tomlab
```

5 Setting up environment variables

TOMLAB requires the directory `tomlab/shared` to be included in the environment variable `PATH` (for Windows) or in the library search path (all other operating systems).

5.1 Shared libraries path

The library search path environment variable name differs between different systems. On Linux it is called `LD_LIBRARY_PATH`, while on Mac OS X it is `DYLD_LIBRARY_PATH`. On Windows, it is the `PATH` variable.

The way environment variables are set varies depending on operating systems and shells.

5.1.1 Windows

To set the `PATH` environment variable permanently on Windows, do: Control Panel → System → Advanced → Environment Variables. Assuming TOMLAB was installed in `C:\tomlab`, append (or prepend) `C:\tomlab\shared` separated to the other entries with a semi-colon (;) to the `PATH` environment variable.

One can also set the `PATH` environment variable temporarily in a running command shell. This is done by doing

```
C:\> set PATH=%PATH%;C:\tomlab\shared
```

This change will only be applied in that command shell, and will therefore be discarded when the command shell is terminated.

5.1.2 Unix-like systems

Assuming TOMLAB was extracted to `/usr/local`, then the `tomlab/shared` directory is `/usr/local/tomlab/shared`.

For CSH-like shells do:

```
$ setenv LD_LIBRARY_PATH /usr/local/tomlab/shared:$LD_LIBRARY_PATH
```

For Bourne-like shells do:

```
$ export LD_LIBRARY_PATH=/usr/local/tomlab/shared:$LD_LIBRARY_PATH
```

MATLAB must be started from a shell where these variable changes were made. Otherwise one will get error messages about missing libraries when using some solvers. It could be a good idea to put the command in a logon-script, such as `/etc/profile` or `~/profile` for Bourne-like shells. `.bashrc` might also be an option.

6 Installing TOMLAB license files

In order to run the TOMLAB solvers a valid license file is needed (a plain text file called `tomlab.lic`). This file should normally be placed in the TOMLAB root directory `tomlab`. In case of a demo license, there may be an additional file `tomlab.dat` which also should be put in the TOMLAB root directory.

It is **important** that `tomlab.dat` is writable for the user running TOMLAB.

An environment variable (`TOMLAB_LICENSE_FILE`) need to point to the location of this file (if not placed in the TOMLAB root directory).

For Windows 2000/XP/Vista go to the Control Panel, click on System, select the Advanced Tab, and click on Environment variables. Click on New under user variables. Variable name should be set to `TOMLAB_LICENSE_FILE` and variable value to the location of the file (including file name), for example: `C:\tomlab\tomlab.lic`.

If using a UNIX-like system the following command (depending on Shell) archives the same result:

For CSH-like shells:

```
$ setenv TOMLAB_LICENSE_FILE /usr/local/tomlab/tomlab.lic
```

For Bourne-like shells:

```
$ export TOMLAB_LICENSE_FILE=/usr/local/tomlab/tomlab.lic
```

7 Setting up Xpress

The demo/permanent version of TOMLAB /Xpress requires a special file, `xpress.lic`.

8 Setting up CPLEX

For information on non-standard CPLEX license please contact the TOMLAB support team.

9 Starting TOMLAB

When the files are installed and the license is setup correctly, MATLAB can be started. Change directory to the root directory of TOMLAB (where TOMLAB was installed, that is) and run

```
>> startup
```

This command checks the installation and makes sure the license is properly installed. If everything is ok one can start using TOMLAB. If something is wrong, go back and check every step covered in this guide. If that cannot solve your problem, don't hesitate to contact support at support@tomopt.com.

The QUICKSTART GUIDE (available at <http://tomopt.com>) is good for getting started with TOMLAB.