Design, Simulation and Virtual Testing

madymo

Installation Instructions | VERSION 7.7

www.tassinternational.com

MADYMO Manuals

An overview of the MADYMO solver related manuals is given below. From Acrobat Reader, these manuals can be accessed directly by clicking the manual in the table below. Manuals marked with a star (*) are also provided in hard-copy (major releases only).

Theory Manual	The theoretical concepts of the MADYMO solver.
Reference Manual*	Detailed information on how to use the MADYMO solver and how to specify the input.
Model Manual*	Dummy, Dummy Subsystem and Barrier Models with simple examples.
Human Model Manual	Human Models and applications that make use of Human Models.
Tyre Model Manual	Documentation about Tyre Models.
Utilities Manual	User's guide for MADYMO/Optimiser, MADYMO/Scaler, MADYMO/Dummy Generator, MADYMO/Tank Test Analysis
Folder Manual	Describes the use of MADYMO/Folder.
Programmer's Manual	Information about user-defined routines.
Release Notes	Describes the new features, modifications and bug fixes with respect to the previous release.
Installation Instructions	Description for the system administrator to install MADYMO.
Coupling Manual	Description of coupling with ABAQUS, LS-DYNA, PAM CRASH/SAFE and Radioss and the TCP/IP coupling with MATLAB/Simulink.

TASS International provides extensive and high quality support for its products to help you in utilizing the software most efficiently. TASS International offers extensive hotline support for our software products, MADYMO, PreScan and Delft-Tyre. Our hotline support can be reached over phone as well as via email and will assist you with your questions regarding our different software products. Your requests will be dealt with in a fast and effective manner to support you in the continuation of your work in progress. On the website you will find your local representative with the accompanying support contact details.

Contents

1 Introduction

This manual provides detailed installation instructions for MADYMO R7.7 on LINUX and Windows computer systems.

The user is expected to have a general knowledge of the LINUX or Windows systems (the locations and contents of system files).

2 Conventions in this manual

The data that must be entered on the command line is indicated with typewriter font (courier). The conventions are:

(LINUX) Commands are typeset in a box, and put in `typewriter` font.

A part of a command that is variable will be in underlined font. The user must enter the appropriate data.

Most LINUX commands can normally be used for all LINUX systems. However, if a specific system dependent LINUX command is needed, it is preceded by an underlined name identifying the computer system, followed by a colon.

The LINUX system prompt is shown as a % (C-shell) or a $ (Bourne shell) sign.

When a line within a script does not start with the shell prompt sign, the line is a continuation of the previous line.

3 Downloading MADYMO products

Downloading MADYMO products, patches and models requires access to the MADYMO web pages at www.tassinternational.com. Authorization is required to access the software download area. To obtain access, contact your MADYMO support office.

4 MADYMO installation

4.1 Installing MADYMO

Read the installation document README.TXT and follow the instructions to carry out installation on the desired operating system. This document can be found on the CD-ROM or can be downloaded from www.tassinternational.com (see Section 3) for the appropriate MADYMO release.

Before starting the installation procedure, first check if the system hardware and operating system version match the requirements listed in Appendix A and Appendix B.

4.2 Installing MADYMO silently under Windows

Madymo can be installed non-interactively or silently, that is, without user input from the command line. This may be of interest to administrators that need to install software remotely or in cases where automated installation is desired.

In order to install silently, use the /SILENT option.

If logging is desired, use the /LOG option. If no log path is specified, the log will be placed in the %TEMP% directory as per the local Windows environment variable settings.

The -AcceptLicense parameter (case sensitive) is followed by a space then 'y' or 'yes' (case insensitive).

Example invocation:

```
C:\Temp>madymo_win32p.exe -AcceptLicense yes /SILENT /LOG=c:\temp\madymoIsFun.log
```

In order to make the installation truly silent, the command shell (cmd) should be run as Administrator, otherwise the user will be prompted to confirm that the installer is to be run as Administrator.

4.3 Setting up the Command Line Interface under LINUX

With the MADYMO Command Line Interface (CLI), **madymo_cli**, all MADYMO release R7.7 executables can be launched.

madymo_cli is a platform specific executable, and can be found in the directory **madymodir/madymo_77/platformid/bin**.

The CLI can be made accessible to users in two ways. Read the following section, and select

the method that best suites your computing environment.

1. Create a symbolic link in a directory that is normally found in a users PATH, linked directly to the **madymo_cli** executable. Since **madymo_cli** is platform dependent, a link must be created for every platform that is installed. This method is best suited to computing environments that support only one or two platforms.

```
% cd /usr/local/bin
% ln -s madymodir/madymo_77/platformid/bin/madymo_cli madymo77
```

2. Add the directory **madymodir/madymo_77/share/run** to the PATH environment variable. A wrapper script called **madymo77** was created in this directory during the installation. This script first determines the platformid of the computer in use, and starts the correct madymo_cli executable. This method may be appropriate for sites that support MADYMO on many different machine architectures.

```
% setenv PATH ${PATH}:madymodir/madymo_77/share/run
```

5 Installation of MADYMO/MPP

5.1 Installation of MADYMO/MPP

Supported platforms to run MADYMO in MPP mode are shown in Appendix B.

MADYMO/MPP uses the Message Passing Interface (MPI) library to exchange data between parallel processes. For details on specific platforms, please see Section 5.2.

For the linux platforms (linux26-x86_64), MADYMO uses IBM/Platform MPI (pmpi) which is downloadable separately from the download section on www.tassinternational.com or on the IBM website at www.ibm.com/developerworks/downloads/im/mpi.

To start a parallel simulation with MADYMO/MPP, the user has to specify the option **-mpp** and the number of CPUs using the MADYMO command line interface **madymo77-mpp -nrproc n** where n is the number of CPUs. Please make sure that **madymodir/madymo_-77/share/run** is appended to the PATH environment variable and that the MADYMO command line interface is executed in a directory that is accessible by all CPUs. Otherwise, not all MADYMO/MPP processes will be able to read the input file and the simulation will be aborted. Please only use the MADYMO commandline interface to run MADYMO/MPP and do not directly use the **mpirun** program.

5.2 Linux Clusters

Before installing MADYMO/MPP on a linux cluster, please make sure that the cluster is set up correctly. When installing MADYMO/MPP, the installation directory madymodir has to be accessible by all CPUs in the cluster.

IBM/Platform MPI V9.1.2 is not included in the MADYMO installation for 64-bit Linux systems (platformid linux26-x86_64) and must be installed seperately. For detailed information on IBM/Platform MPI see: www.ibm.com/systems/platformcomputing/products/mpi/.

To perform MPP computations, the environment variables MPIRUN and MPI_ROOT have to be set to:

```
% setenv MPI_ROOT /path/to/pmpi
% setenv MPIRUN "$MPI_ROOT/bin/mpirun -hostfile myhostfile"
```

where $MPI_ROOT point to the top level directory where pmpi is installed (for example: /usr/local/mpp/pmpi912) and the file 'myhostfile' contains a (user-defined) list of node names and number of CPUs available in each node.

Furthermore, the MPI_REMSH environment variable need to be set to **rsh** if **ssh** is not available. Please also adapt the .rhosts file accordingly.

By default, PMPI uses the fastest interconnect available. If you want to use another interconnect than the default one selected by PMPI, append the following string to the MPIRUN environment variable (see above):

- for Gigabit Ethernet: **-TCP**
- for Myrinet: **-GM**

For more options see the P-MPI documentation, or run: '`$MPIRUN --help`'.

A System Requirements

1. As of January 1st 2013, all new MADYMO software releases will be using FlexNet Tamper Resistant Licensing. For this reason, all MADYMO software license keys supplied as of 2012 have been prepared to work with FlexNet Tamper Resistant Licensing.

   This security upgrade means that FlexNet version 11.6.1 or higher will be required to be able to run any MADYMO product version released after January 1st 2013. In order to avoid migration issues in 2013, TASS International strongly recommends customers who still use older versions of FlexNet licensing tools to migrate to version 11.6.1 or higher as soon as possible.

2. The MADYMO software is developed and validated using the hardware and operating system configurations as specified in Appendix B. Newer versions of the operating system may work correctly with MADYMO, but there is no guarantee. Even when the software installs and runs, reference simulation results might differ beyond quality tolerances on unsupported hardware or operating systems.

   Normally operating system vendors provide binary compatibility in the sense that executables generated on a certain version of the operating system will also run on newer (sub-)versions of that operating system. If problems are encountered due to this, install the specified operating system or upgrade to a later version. No support for issues can be given on unsupported hardware or operating systems.

3. MADYMO requires at least 256 Mb RAM to run satisfactorily. However, 512 Mb RAM or more is strongly recommended. However, it strongly depends on the size of the simulation runs, the larger or longer, the more memory is needed.

4. To be able to read the on-line MADYMO manuals, Adobe Acrobat Reader version 4.0 or higher, or xpdf, must be installed. Also the executable acroread (AcroRD32.exe on Windows) must be found within the PATH environment variable. Acrobat Reader can be downloaded from www.adobe.com.

5. On Windows, FLEXnet license management requires a network transport protocol driver to be installed. Systems that report a hostid of 0 or FFFFFFFF need to install either the NETBEUI or NW Link (IPX/SPX) Transport Protocol driver. These are included on the distribution CD of the operating system. To install, Put the Windows system disk in the CDROM drive. Select 'Main'. Select 'Control Panel'. Select 'Network'. Select 'Add'. Add the NWLink IPX SPX or NetBEUI driver.

6. Anti-aliasing is a feature, implemented for example in the Hybrid III series, that requires more intermediate output for the filtering algorithms. The output is written in temporary files stored in the location set by the environment variable TMPDIR. If the directory set by TMPDIR is limited in its size, the MADYMO Solver cannot write the intermediate output and aborts.

7. On linux, MADYMO may abort without error message or stall, due to a too high virtual

memory settting. Also error messages from OOM (Out of Memory Killer) may point in this direction.

This vmemory setting may be changed by the user (csh example: limit vmemoryuse 4G, where 4G is roughly the size of the physical memory). The system administrator can limit this through a global limit setting for all users, or through adapting the memory allocation strategy (see the manpage for malloc for more information).

B Supported Solver platforms

This appendix provides information about the supported platforms.

In a separate table is shown what commands can be used to retrieve the version information for the platform of interest.

Windows platforms:

Platform-ID[1]	Platform	Hardware architecture	Operating system[2]	Parallel
em64t-win	Windows (64-bit)	Intel/AMD	Windows Server 2008, 2012, Windows 7, 8, 8.1, 10	SMP

Linux platforms

Platform-ID[1]	Platform	Hardware architecture	Operating system[2]	Parallel
Linux26-x86_64[3]	Linux x86_64	Intel/AMD	SLE 11, 12, RedHat 6, 7	SMP, MPP

[1] The **Platform-ID** relates to the machine on which the solver is built and tested.

[2] See Appendix A for more information on other OS versions.

[3] If your Linux distribution has Security-enhanced Linux (SELinux) enabled, you may get the error *cannot restore segment prot after reloc: Permission denied*. The error is given because the offending library requires *text relocation* and SELinux does not allow this. The solution is to allow these libraries to perform text relocation. The command to do this is:

```
chcon -t textrel_shlib_t '<full-.so-path>'
```

For example:

```
chcon -t textrel_shlib_t
'/home/tass/madymo_77/linux26-x86_64/ext/lib/libirc.so'
```

How the version information can be retrieved for each platform is shown in the next table:

Platform-ID	**Platform**	**Operating system** command for version *additional information*
linux26-x86_64	Linux x86_64	cat /etc/*release *uname -rm*
em64t-win	Windows	