SCITOS – MIRA installation guide

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Prerequisites for MIRA

The following instruction explains, how to install a binary version of MIRA on a SCITOS robot. Binaries are available for the following operation systems:

- Ubuntu 12.04LTS, 32bit
- Ubuntu 12.04LTS, 64bit
- CentOS 6.x, 32bit

The installer script can be requested and downloaded via the following URL:

http://www.mira-project.org/joomla-mira/index.php/resources/installer-download

The following instructions assume, that the installer script `mira-installer-binary.sh` is already downloaded, that you're working as user `demo` and that `root` access is available on the machine.

Furthermore, these instructions will install MIRA in the directory `/opt`.

MIRA Reference documentation

The MIRA reference documentation is available via the following URL:

http://www.mira-project.org/MIRA-doc/index.html

MIRA Question & Answer forum

For questions regarding MIRA an online forum is available on the following URL:

http://www.mira-project.org/osqa/

MIRA announcement mailing list

- Announcements of updates, releases and other important MIRA news.
- Adresse: `news@mira-project.org`
- Subscribe here: `http://www.mira-project.org/mailman/listinfo/news`

Installation of MIRA

Ubuntu 12.04LTS, 32 bit:

```
> sudo bash ./mira-installer-binary.sh ubuntu-1204lts-i686
```

Please use the directory `/opt/MIRA` for installation.

```
> sudo chown -R demo.demo .config/mira
```

Ubuntu 12.04LTS, 64 bit:

```
> sudo bash ./mira-installer-binary.sh ubuntu-1204lts-x64
```

Please use the directory `/opt/MIRA` for installation.

```
> sudo chown -R demo.demo .config/mira
```

CentOS 6.x:

```
> su -
> ./mira-installer-binary.sh redhat-el6-i686
```

Please use the directory `/opt/MIRA` for installation.

Now all basic MIRA packages will be downloaded and installed on your machine.

After all packages are installed, please put the following configuration to your environment (typically you should use the file `~/.bashrc`):

```
#################################################################
# MIRA configuration
export MIRA_PATH=/opt/MIRA
export LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:/opt/MIRA/lib
export PATH=${PATH}:/opt/MIRA/bin
```

Installation of MIRA-commercial

First, a new MIRA environment for MIRA-commercial has to be created.

Ubuntu 12.04LTS:

```
> sudo -s
> source ~demo/.bashrc
> mirawizard -e MIRA-commercial /opt/MIRA-commercial
> exit
```

CentOS 6.x:

```
> su -
> source ~demo/.bashrc
> mirawizard -e MIRA-commercial /opt/MIRA-commercial
> exit
```

Now, the environment variables have to be updated as following:

```
################################################################
# MIRA-commercial configuration
export MIRA_PATH=${MIRA_PATH}:/opt/MIRA-commercial
export LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:/opt/MIRA-commercial/lib
```

In the next step, the MIRA-commercial repository must be added to mirapackage:

Ubuntu 12.04LTS, 32 bit:

```
> sudo -s
> source ~demo/.bashrc
> mirapackage –addurl \
      ftp://ftp.metralabs-service.com/repos/MIRA-commercial/ \
      ubuntu-1204lts-i686/MIRA-commercial.repo
```

Ubuntu 12.04LTS, 64 bit:

```
> sudo -s
> source ~demo/.bashrc
> mirapackage –addurl \
      ftp://ftp.metralabs-service.com/repos/MIRA-commercial/ \
      ubuntu-1204lts-x64/MIRA-commercial.repo
```

CentOS 6.x:

```
> su -
> source ~demo/.bashrc
> mirapackage –addurl \
      ftp://ftp.metralabs-service.com/repos/MIRA-commercial/ \
      redhat-el6-i686/MIRA-commercial.repo
```

Now, please start mirapackage, *Reindex* all repositories and install the desired packages. A list of recommenced packages can be found is the next section.

Note: To use the packages of the MIRA-commercial repository, a valid license file is necessary! The license file must be copied in the directory `/opt/MIRA-licenses`.

Package list for MIRA-CogniDrive

A typically installation of MIRA-CogniDrive consists of the following packages:

Toolboxes:

- CAN
- DeviceManager
- MapBuilderBase
- MapBuilderGUI
- Maps
- Mapping
- ReferencePoints

Domains:

- can/CANDriver
- localization/Poseidon
- localization/PersistentLocalization
- mapping/OccupancyGridLoader
- mapping/OccupancyGridMapper
- mapping/OccupancyGridMappingModule
- mapping/OccupancyGridMerger
- mapping/PathTransformModule
- navigation/Pilot
- navigation/PilotNogoAreas
- navigation/PilotVarResDynamicWindow
- robot/RobotModelPublisher
- robot/SCITOS
- robot/SCITOSConfigs
- sensors/RangeFinder

SCITOS Configuration File

To deal with the different possible SCITOS configuration options, a global configuration file should be used. The example configurations in the package `SCITOSConfigs` assume, that this file is located at:

`/opt/SCITOS/SCITOSRobotAttributes.xml`

Example configuration file:

```
<root>
  <!-- Type of robot [SCITOS-G3, SCITOS-A5, SCITOS-G5, SCITOS-G6, SCITOS-G6-small] -->
  <var robot="SCITOS-G5" />
  <!-- Type of mounted front laser [SickS300, LeuzeRS4, Hokuyo-URG-04LX, LZRU901] -->
  <var frontLaser="SickS300" />
  <!-- Type of mounted back laser [none, SickS300, LeuzeRS4, Hokuyo-URG-04LX, LZRU901] -->
  <var rearLaser="none" />
  <!-- Does the robot have sonar -->
  <var sonar="true" />
  <!-- Body type for G6 robots [normal, tray] -->
  <var bodyType="normal" />
  <!-- Cover type for A5 and G5 robots [2008, 2011, 2012]
       2008 = Older robots with cover with stabilizers
       2011 = Older robots with cover without stabilizers
       2012 = Newer robots with more field of view for the laser. -->
  <var coverType="2012" />
  <!-- Cover color r g b -->
  <var color="1 0 0" />
  <!-- Only for G5 robots. Does the robot have a human machine interface (display, head) -->
  <var hmi="true" />
</root>
```