

Mephisto Documentation

SAGA-Group

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Introduction

Mephisto is a perl script that supports SAGA (Simplified API for Grid Applications) installations. SAGA is an API that provides the basic functionality required to build distributed applications, tools and frameworks so as to be independent of the details of the underlying infrastructure [1] [2]. More information on SAGA can be found on the website:

<http://www.saga.cct.lsu.edu/>

SAGA installations require to install various dependency packages. Mephisto is a tool that automates the installation of SAGA, installing all its dependencies specified for SAGA and SAGA adaptors too. The version number of all the packages and the type of packages can be specified by the user at the command line. The description of all the command line options available are described in the next section.

Example of the command line statement

```
perl mephisto install --target-dir=/home/user/saga --tmp-dir=/home/user/tmp-saga
```

Other examples with different command line options are explained in later section.

Command line options

This section discusses all the various options available at users disclosure. By default if no option is specified, mephisto pulls up the packages listed on the repositories

<http://static.saga.cct.lsu.edu/mephisto/repository/latest/INDEX>.

Expanded version of the Command to run mephisto

```
perl mephisto install/test --target-dir=/path/to/folder --tmp-dir=/path/to/folder
--with-saga-version= --with-boost-version= --with-globus-version=
--repository= --with-adaptors= --with-python-version=
--with-postgresql-version=
```

install

This can be used to install a working copy of SAGA and all its dependencies specified.

test

This option not only installs SAGA but also runs the command 'make check' to check the installation. It creates a log file displaying the test results.

target-dir

This option is used to specify the path you need to install SAGA and all packages libraries. By default, it creates a folder at tmp/meph_inst.

tmp-dir

This option is used to specify the path for a temporary folder to download all the packages and create log files. By default, it creates a folder at /tmp/meph_tmp

repository

Can be used to choose different repositories to install SAGA from. Two repositories available as of now are 'latest'

(default) and `svn_trunk`. Recommended `svn_trunk` for the most recent SAGA version.

with-saga-version

Choose saga versions available.

with-boost-version

Choose boost versions available $\geq 1.40.0$

with-globus-version

Choose globus version available ≥ 4.0 . This option would automatically invoke installations of X509, globus adaptors too.

with-adaptors

Mention any adaptors to install that would invoke globus installations along with saga-adaptors too.

with-python-version

Choose from the list of python versions available. Must be $\geq 2.6.2$

with-postgresql-version

Choose from postgresql versions available. Should be $\geq 8.4.1$

Repositories for Mephisto

Mephisto uses two different repositories for SAGA packages which have been pre-defined by the SAGA group, namely:

(i) `http://static.saga.cct.lsu.edu/mephisto/repository/latest/`

(ii) `http://static.saga.cct.lsu.edu/mephisto/repository/svn_trunk`

When the user doesn't define any repository, the default repository taken by mephisto will be `http://static.saga.cct.lsu.edu/mephisto/repository/latest/`.

The list of packages pre-defined for (i) are:

SAGA= 1.5.2;

Boost= 1.40.0;

Python=2.6.2;

Post-gre-sql=8.4 .1 ;

Sqlite=3.6.18;

SAGA-PYTHON;

SAGA-ADAPTORS-X509;

SAGA-ADAPTORS-SSH.

The list of packages pre-defined for (ii) are: SAGA= 1.5.4 (updated as of now);

Boost= 1.40.0;

Python=2.6.2;

Post-gre-sql=8.4 .1 ;

Sqlite=3.6.18;

SAGA-PYTHON.

The suggested repository to be utilized by the user will be `svn_trunk` that is updated with the latest version of SAGA as and when new version is released with bug fixes. Example to switch between repositories follows in the next section.

Example Command line options

NOTE: All examples here are tackled one at a time. They can be used interchangeably. Choice has to be made between 'install' and 'test'

- Basic Default command

```
perl mephisto install
```

This would install SAGA. All the default options will be loaded as no option was chosen here. As of now the default options are as foretold from the repository given below. As no directory was mentioned all the packages will be stored in a temporary folder created by the script.

<http://static.saga.cct.lsu.edu/mephisto/repository/latest/>

- Command with paths to folders

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder
```

This will install all packages in the folder specified.

- Install SAGA from svn_trunk repository

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --repository=svn_trunk
```

Choose snv_trunk repository to install SAGA. This will have the most recent and tested working SAGA version.

- Install SAGA with all saga, globus, boost versions specified

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-saga-version=1.5.3  
--with-boost-version=1.44.0 --with-globus-version=5.0.2  
(or)  
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-saga=1.5.3  
--with-boost=1.44 --with-globus=5.0.2
```

To install SAGA with different boost, SAGA and globus versions. Given here are two ways of defining the versions. Using all the three is not compulsory and any combination can be used. Any version not mentioned will infer default options.

- Globus installations

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-globus-version=5.0.2
```

Specifying any globus installations will also invoke globus adaptors installations which are required and necessary with globus.

- Install SAGA with Globus adaptors

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-adaptors=globus
```

To install globus adaptors. Automatically invokes globus installations which is required for adaptors. Also automates x509 adaptors installations too. This is similar to what we have in the previous example but different command line options have been given for easy usage.

- How to install a SAGA Core Pre-Release with a specific Boost version (for developers)

```
perl mephisto install --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-saga=1.5.3-pre
```

For developers, this would install the pre-release version from the given link shared in the email with boost and all other dependencies creating log files necessary for debugging.

- Install with Python versions

```
perl mephisto test --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-python-version=2.7.1
```

Install with any python version $\geq 2.6.2$. Please note that you may be thrown an error and break from the build for versions incompatibility.

- Install with postgresql version

```
perl mephisto test --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-postgresql-version=8.4.2
```

Similar to what was described earlier for python versions right above.

- Install and proceed to TEST the installations

```
perl mephisto test --target-dir=/path/to/any/desired-directory/  
--tmp-dir=/path/to/temp/folder --with-saga-version=1.5.3  
--with-boost-version=1.44.0 --with-globus-version=5.0.2
```

Choose 'test' option to first install SAGA and its dependencies and then have it continuously perform 'make check' operation and create a log file in the end.

Example of a Screen Shot after execution

Possible errors and debugging

Mephisto throws in an error saying "Failure" at the step it failed to execute. It dies with no further operation. The installation is halted with packages stored in the directory mentioned at the command line or default directory (if not mentioned). Note that the installation doesn't start where it halted. Log files are available and the path to the file is displayed on the screen for access and assessment. Possible errors and actions:

- 1) Version incompatibility: Any version incompatibility issues seen in the log files should be reported to saga-users@cct.lsu.edu and/or saga-devel@cct.lsu.edu mailing lists with the log files attached. Proper package compatible versions will be suggested or necessary changes will be made to SAGA package.
- 2) Failure to download package: This can be a serious bug in the mephisto code which means that the link is broken and necessary changes have to be made in order to have the version taken. Reporting to the above mailing lists will do the trick. Sometimes there are server problems from the website its downloading. Have few trials done with some time lapse between each run before confirming the error.
- 3) Wrong Directory Sorted(as seen in the log file) : This will mean a bug in the perl script and should be reported in the similar manner. People working on mephisto will get it fixed. Shouldn't be a problem and was not found till date.

References

- [1] [Online]. Available: <http://saga.cct.lsu.edu/>
- [2] [Online]. Available: <http://saga.cct.lsu.edu/projects/tools-and-infrastructure>