Collaborative Project

LOD2 – Creating Knowledge out of Interlinked Data

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How-To Start with the LOD2 stack

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Abstract: A short starting guide to the LOD2 stack.

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1. Introduction

The LOD2 component stack is a collection of tools to support Linked Data publication. The stack is the result of the EU funded project LOD2 and available at http://stack.lod2.eu.

This guide describes several paths to access the LOD2 stack. We have installed an online version of the stack. For those who want to have a deeper insight in the components, a pre-installed virtual machine image is available. Finally, one can also setup a new machine and install the stack on it.

The LOD2 stack targets Ubuntu 10.01 as Operating System and Firefox as browser.

2. Online demo

For a quick start we have made the LOD2 stack and the LOD2 demonstrator available at http://demo.lod2.eu/lod2demo. Using a reduced workflow and some editing pages, the demonstrator shows how the different challenges in publishing Linked Open Data can be tackled by the components in the LOD2 stack. The demo focuses on the core functionality of the components. Most of them have much more extended capabilities than exposed by the LOD2 demonstrator.

Remark: as this is a public service to demonstrate the current state of the LOD2 stack, we do not guarantee any management of uploaded data.

3. Pre-installed virtual machines

We have created images of virtual machines with the LOD2 stack properly configured. There is a VMware image (http://www.vmware.com/) and VirtualBox image (https://www.virtualbox.org/). The login account is `lod2` with password `lod2`.

Regulary new versions will be uploaded. The image can be easily upgraded to the latest release. See section 6 for instructions.

4. Installation of a local LOD2 stack

In general, deploying the LOD2 software stack or parts of it is very easy and comfortable based on the Debian package management system. There are only two steps to be executed in order to install LOD2 stack software:

1. Add the LOD2 stack package repository to the systems repository list and update the repository index.
2. Install wanted software packages by using a graphical or text-based package management application.

The next guidelines describe the installation using command-line tools. The procedure uses apt-get, the most basic package management tool and the preferred command line front-end for non-interactive package management. Graphical frontends like Synaptic can be used too. For the usage of these, we refer to their manuals.

The first step is the installation of the LOD2 repository package.

```
# download the repository package
wget http://stack.lod2.eu/lod2repository_current_all.deb
# install the repository package
sudo dpkg -i lod2repository_current_all.deb
# update the repository database
sudo apt-get update
```

This code registers the LOD2 stack repository for the local package manager.

As the LOD2 stack component Sig.ma EE depends on the Oracle-Sun Java suite and this JJava package is not always installed by default, one has to update the repository with the following command:

```
sudo add-apt-repository 'deb http://archive.canonical.com/ `lsb_release -c -s` partner'
sudo apt-get update
```

Acceptance confirmation of the license is requested during the Oracle-Sun Java package installation. For more information see https://help.ubuntu.com/community/Java.

Next, one can choose to install individual LOD2 packages or the lod2demo package. Installing the lod2demo package will install the whole LOD2 stack as the demo depends on all LOD2 stack components.

```
sudo apt-get install lod2demo
```

If MySQL and Virtuoso are not installed yet, the root passwords for Virtuoso and MySQL will be requested. Please use the root password "dba" for Virtuoso. See section 5.1 what is required in case an alternative password is chosen.

The LOD2 demonstrator can now be accessed via http://localhost:8080/lod2demo. The LOD2 tools are accessible via the lod2demo. Section 5.3 contains a list of web addresses of each installed component.

The basic setup comes without a pre-installed dataset. However we have collected and packaged some datasets described in CKAN to enable a quick-start. The packages can be installed through the lod2 demonstrator, or manually. For instance, to install public Linked Data about contractors and suppliers of the Italian Senate in 2010, install the package ckan-dataset-linked-open-senate with

```
sudo apt-get install ckan-dataset-linked-open-senate
```

The available datasets can be also installed via the LOD2 demonstrator.

For the moment the LOD2 demo requires some manual post-configuration to make all components collaborate together. In future releases we aim at reducing the post-configuration requirements.

When new versions of the LOD2 stack components are available, the update manager will automatically inform the system administrator.

5. Configuration of the LOD2 demonstrator

5.1 Post configuration of stack components

We assume that the Virtuoso root password is "dba". In case this is chosen differently -- this is advisory when the machine will be publicly accessible -- then one has to adapt the configuration of some components like the lod2demonstrator and OntoWiki. In the future a release will be made where this password dependency is lifted.

Virtuoso iSPARQL package must be activated manually through the conductor interface. When not activated the menu option ‘querying via iSPARQL is not working properly.

5.2 Exposing the components to a wider public

The default configuration assumes a local usage of the LOD2 stack, not accessible for the outside world. If one wants to expose the LOD2 demonstrator or one of its components we advise to setup a proxy. For instance one can use the apache2 server as a proxy.

To expose the LOD2 demonstrator, its configuration graph has to be adapted to the location of the different components. The LOD2 demonstrator configuration file is the graph http://localhost/lod2democonfiguration, which must be stored in Virtuoso. The default content is available at

https://lod2-stack.googlecode.com/svn/trunk/lod2demo/src/main/configuration/ configuration.nt.

It contains the hostname prefix of the tools. By default the value is "http://localhost:8080". In case the tools are made accessible through a public LOD2 demo interface, this value has to be changed to the machines' url.

5.3 List of locally installed components

- Lod2 demonstrator: http:localhost:8080/lod2demo
- Virtuoso Conductor http://localhost:8890/conductor
- Virtuoso SPARQL endpoint: http://localhost:8890/sparql
- OntoWiki: http://localhost/ontowiki
- SigmaEE: http://localhost:8080/sigmaee
- D2r-cordis: http://localhost:8080/d2r-cordis
- Silk: http://localhost:8080/silk
- Ore: http://localhost:8080/ore

5.4 List of online components

- PoolParty: http://pilot5.poolparty.biz
- Spotlight: http://dbpedia.org/spotlight

6. Upgrading an installation to the latest release

Per default Ubuntu informs about new releases via its update maneger. To upgrade an existing setup on the command line the following steps are sufficient.

```
sudo add-apt update

sudo apt-get upgrade
```

7. More information

To get in touch with the stack responsibles for any support or questions about the LOD2 stack, contact support-stack@lod2.eu. If you want to contribute your tool to the LOD2 stack, read our How-To Contribute document.

For more information about the LOD2 stack and the LOD2 demonstrator we refer to

- http://stack.lod2.eu : the stack repository

- http://code.google.com/p/lod2-stack/source/browse/#svn%2Ftrunk%2Fdocuments: installation and configuration guides