



LDBC

Collaborative Project

FP7 – 317548

D1.1.5 Final version of Benchmark Development Portal

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Abstract

This deliverable reports on the final version of the LDBC Benchmark Development Portal. The Benchmark Development Portal supports the development of benchmarks and hosts the benchmarks' software and datasets. An initial version of the portal was released in M6, followed by an intermediary version in M12. The final version of the LDBC Benchmark Development Portal includes a web portal, a wiki, source code repository, a file-sharing repository and an issue tracker. In this document we report on the updates of the tools and their deployment on the ldbncouncil.org server.

Executive summary

This deliverable reports on the final version of the LDBC Benchmark Development Portal. The Benchmark Development Portal supports the development of benchmarks and host the benchmarks software and datasets. This deliverable is an updated version of D1.1.3 “Initial benchmark development portal” delivered in M6, and its follow-up version D1.1.4 “Improved benchmark development portal” delivered in M12 and describes the tools that are part of the final version of the portal, and their improvements since the initial and intermediary deployments.

The final version of the LDBC Benchmark Development Portal includes a set of tools that support users in one or multiple phases of a benchmark development process, namely:

- A web portal (www.ldbcouncil.org)
The web portal is the main point for dissemination of its benchmarking activities, benchmark software, and officially recognised, audited benchmark results.
- A forum (<https://groups.google.com/forum/#!forum/ldbcouncil>)
The forum is a very useful tool to discuss various topics related to the development of the benchmarks and not only.
- A wiki
 - the internal wiki (<http://wiki.ldbcouncil.org/display/PROJECT>)
 - the public TUC wiki (<http://wiki.ldbcouncil.org/display/TUC>)

The wiki supports the collaborative work on LDBC benchmarks especially in the design phase and can be used to share early results.

- A source code repository
 - internal source code repository
 - <http://svn.ldbcouncil.org> (bare version)
 - <http://svn.ldbcouncil.org/viewvc/ldbc/> (ViewSVN GUI)
 - public github repository
 - <https://github.com/ldbc>

The source code repository is used to share development code and distribute released benchmark software.

- A file sharing repository (<sftp.ldbcouncil.org>)
The file-sharing repository enables the sharing of potentially huge files (e.g. datasets)
- An issue tracker (<http://jira.ldbcouncil.org/>)
The issue tracker is a very useful tool to track feature requests and bugs in benchmark software.

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Abstract (for dissemination)	This deliverable reports on the final version of the LDBC Benchmark Development Portal. The Benchmark Development Portal supports the development of benchmarks and hosts the benchmarks' software and datasets. An initial version of the portal was released in M6, followed by an intermediary version in M12. The final version of the LDBC Benchmark Development Portal includes a web portal, a wiki, source code repository, a file-sharing repository and an issue tracker. In this document we report on the updates of the tools and their deployment on the ldbcouncil.org server.
Keywords	Benchmark Portal, Wiki, Source Code Repository, File Sharing, Issue Tracker, Forum

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Table of Contents

Executive summary	3
Document Information	4
Table of Contents	5
List of figures	6
List of tables	7
Abbreviations	8
1 Introduction	9
2 LDBC Benchmark Development Portal.....	10
2.1 Web Portal	10
2.1.1 Design, content and evolution of the LDBC Web Portal.....	10
2.1.2 Technologies.....	12
2.2 Wiki.....	13
2.3 Source Code Repository.....	15
2.4 File Sharing Repository	18
2.5 Issue Tracker	18
2.6 Forum.....	19
3 Conclusions	20
References	21

List of figures

Figure 1: LDBC Homepage.....	11
Figure 2: LDBC Confluence Wiki.....	14
Figure 3: LDBC SVN Source Code Repository – bare version	16
Figure 4: LDBC SVN Source Code Repository – ViewVC.....	17
Figure 5: LDBC github.....	17
Figure 6: LDBC JIRA Issue Tracker.....	18
Figure 7: LDBC Forum	19

List of tables

Table 1 List of LDBC Benchmark Development Portal tools and their URLs 10

Abbreviations

CMF – Content Management Framework

CMS – Content Management System

LDBC – Linked Data Benchmark Council

RDF – Resource Description Framework

TUC – Technical User Community

SFTP – Secure File Transfer Protocol

SVN – Apache Subversion

1 Introduction

The Linked Data Benchmark Council (LDBC) project has two major, clearly defined goals: (1) to create the first comprehensive suite of open, fair and vendor-neutral benchmarks for RDF/graph databases and (2) to setup the LDBC company which will define processes for obtaining, auditing and publishing results. To achieve the former, LDBC is developing a common benchmark methodology that will include guidelines on how to define, extract, support and analyze benchmarks coming from various usage scenarios and focusing on different features of the graph and RDF databases. The common benchmark methodology is part of the LDBC work package 1 (WP1) work and will be supported by the LDBC benchmark development environment which is also developed in WP1.

The current deliverable reports on the final version of the LDBC Benchmark Development Portal and its tools. The previous versions of the LDBC Benchmark Development Portal, namely the initial and intermediary version, were described in D1.1.3 delivered at M6, respectively D1.1.4 delivered in M12. The LDBC Benchmark Development Portal includes a web portal, a wiki, source code repository, a file-sharing repository and an issue tracker. Taking into account the feedback received from the people using the LDBC Benchmark Development Portal, we have improved and extended the portal. More precisely we have:

- further developed and improved the Web Portal for the LDBC organization (<http://www.ldbcouncil.org/>);
- updated and move the LDBC Benchmark Development Portal tools (i.e. Web Portal, Wiki, Jira, SVN and SFTP) to the new server;
- integrated a new forum to facilitate discussions around development of benchmarks.

For each of the tools, we have created accounts for project members and external individuals that have shown interest in developing LDBC benchmarks.

The development of the new Web Portal, its further updates and improvements was performed by the dissemination team which had regular telecons. Minutes of these meetings are available at <http://wiki.ldbcouncil.org/display/PROJECT/Weekly+meetings>. The team worked on improving the structure of the Web Portal, updating and adding new content into the Web Portal, incorporating more Web2.0 feature to better engage with the community (e.g. social media widgets, forum, etc.), improving the logo, migrating the Web Portal to the ldbcouncil.org server, and promoting the Web Portal.

The structure of this deliverable is as follows. In Section 2 describes the improved LDBC Benchmark Development Portal and its constituent tools. To have a self-contained document, the tools that were already made available at M6 and M12 are reintroduced and the new tools and upgrades done during the last 6 months are described in more detail. Finally, Section 3 summarizes the deliverable.

2 LDBC Benchmark Development Portal

The LDBC Benchmark Development Portal consists of a set of tools that are needed in the development process of RDF and graph database benchmarks. This includes: a web portal, a wiki, source code repository, a file-sharing repository, an issue tracker and a forum. Table 1 lists the tools that are part of the improved release of the LDBC Benchmark Development Portal and their locations i.e. URLs where they are available. More details about the tools are provided in the following subsections.

Tool	URL
LDBC Web Portal	http://www.ldbcouncil.org
LDBC Forum	https://groups.google.com/forum/#!forum/ldbcouncil
LDBC Wiki	http://wiki.ldbcouncil.org/
LDBC Source Code Repository	<ul style="list-style-type: none"> • internal source code repository <ul style="list-style-type: none"> ◦ http://svn.ldbcouncil.org (bare version) ◦ http://svn.ldbcouncil.org/viewvc/ldbc/ (ViewVC GUI) • public github repository <ul style="list-style-type: none"> ◦ https://github.com/ldbc
LDBC File Sharing Repository	sftp.ldbcouncil.org
LDBC Issue Tracker	http://jira.ldbcouncil.org/

Table 1 List of LDBC Benchmark Development Portal tools and their URLs

2.1 Web Portal

As part of the WP5 activities, two website were developed for LDBC. The first is the project web page available at: www.ldbc.eu/, the second is the LDBC organization website available at: <http://www.ldbcouncil.org/>. The latter website represents the LDBC Web Portal.

2.1.1 Design, content and evolution of the LDBC Web Portal

The Web Portal has been described in D5.5.4 [4] delivered at M18. Since M18 the Web Portal has been continued updated and extended. The team working on the LDBC Web portal continued to develop and updated the portal, having the following responsibilities:

- Serge Tymaniuk. He is the Web master, developing and updating the portal,
- Dàmaris Coll. She made sure that the portal was designed and implemented correctly, reviewing and meeting with the Web master, providing insight in the design of the corporate image and web portal,
- Peter Boncz. He provided most of the content of the portal and had a very strong influence on the look of the Web Portal,
- Ioan Toma. He provided comments, working and coordinating with the Web master to make sure the Web Portal is properly developed,
- Josep Lluís Larriba Pey. He provided comments, guidelines, strategic management to the team working on the Web.

In order to design the corporate image of the LDBC Foundation and its Web Portal, the LDBC project subcontracted Berta Hernández from Begraf Studio.

The team mentioned above (part of the dissemination team, which in addition includes the community managers) had regular telecons discussing the progress and planning actions on the development of the Web Portal. Minutes of these meetings are available at <http://wiki.ldbcouncil.org/display/PROJECT/Weekly+meetings>. The team worked on improving the structure of the Web Portal, updating and adding new content into the Web Portal, incorporating more Web2.0 feature to better engage with the community (e.g. social media widgets, forum, etc.), improving the

logo, migrating the Web Portal from the UIBK servers to the ldbcouncil.org server, and promoting the Web Portal.

The welcome page of the LDBC Web Portal can be seen in Figure 1.

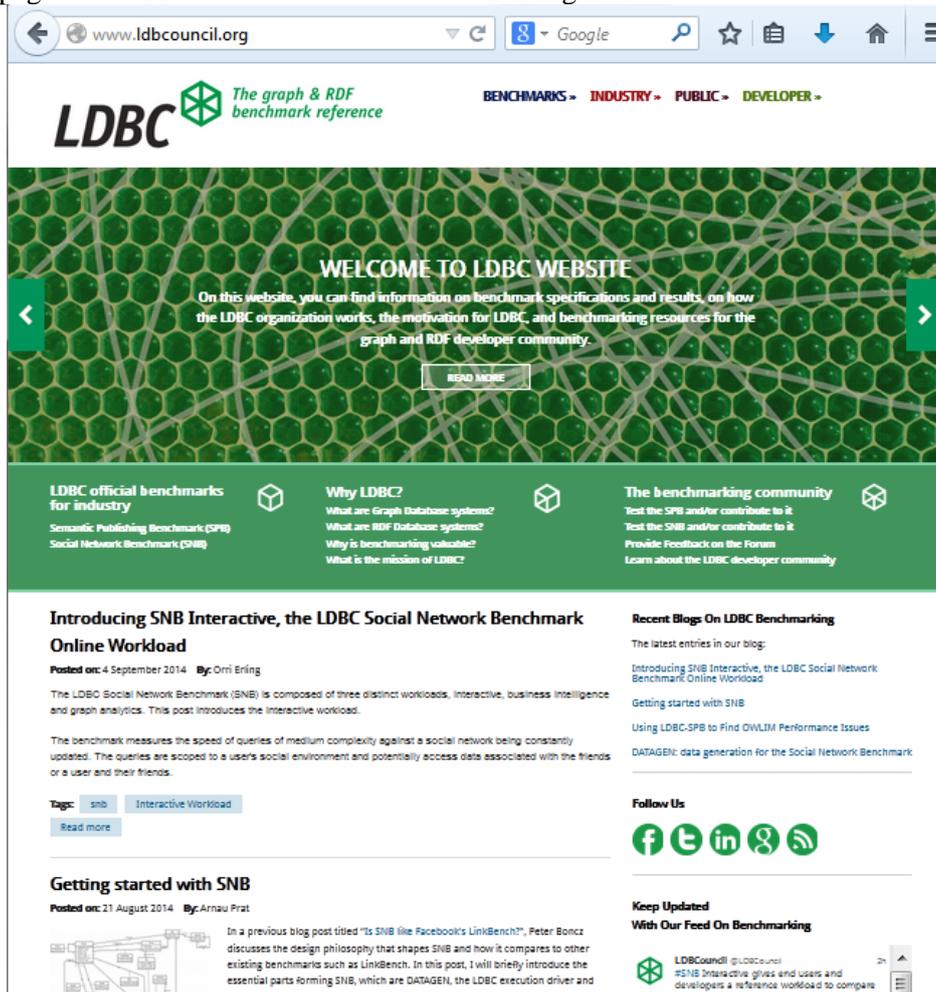


Figure 1: LDBC Homepage

Based on the feedback provided by LDBC consortium and end-users additional changes in design and functionality were implemented to further increase the presentation and usability of the website.

1. The appearance of the main links on the front page has been revised and restructured. Four main audiences of LDBCouncil were identified and each was provided with a corresponding link in the main menu. In particular, these four audiences include:
 - **benchmark result consumers**, website visitors who would like to check RDF systems comparison results based on LDBC benchmarks
 - **industry members**, end-users coming from Industry who decide whether they should join/follow the LDBC activities
 - **general public**, visitors who would like to identify what is LDBC good for them
 - **developers**, technical specialists who would like to do practical work with LDBC benchmarks

2. Sub-pages were restructured accordingly:
 - Benchmarks:
 - Semantic Publishing Benchmark
 - Social Network Benchmark
 - Industry:
 - Organization
 - Members

- Public:
 - Why RDF
 - Why Graph
 - Why Benchmarking
 - Why LDBC
 - Developer:
 - Semantic Publishing Benchmark
 - Social Network Benchmark
 - Forum
 - Community
 - Publications
3. Each audience type as defined in 1 was assigned to a certain color schema for better differentiation:
 - Separate logo was designed and applied throughout the website for each audience category
 - Separate color of main menu links, Social Media buttons, breadcrumbs for each audience type
 - Separate header images based on the dominant color scheme for each audience type
 4. The general blog feed was customized for each audience type based on categories which are specified by LDBC bloggers during blog post creation. That means if an end-user navigates to the Developer section of the website, he/she will see blog posts filtered exclusively for developers. The general LDBCouncil blog is available at <http://ldbcouncil.org/blog>.

Further styling changes such as tuning front-page slider size, preface areas introducing each audience categories, blog post teasers, blog archive page and publications page were performed.

2.1.2 Technologies

The LDBC Web portal is based on Drupal 7. Drupal¹ is a free and open source content management system (CMS) and content management framework (CMF) written in PHP and distributed under the GNU General Public License. Part of the work done to migrate the Web Portal from UIBK servers to the ldbcouncil.org server was to setup a new Drupal 7 instance on the new server, move the content, making sure that all the redirections are properly done, etc.

In terms of updates regarding the design of the LDBC Web portal we continued to use Photoshop as described in D5.5.4. The design results were then transferred to Drupal by the Web master, by building a theme from the original image with respect to CSS² and XHTML 1.0³ validity. As a basic theme to setup the portal we used the Nexus theme⁴ which is a responsive, mobile-friendly theme. The LDBC Web portal has a responsive design. The LDBC Web portal seen on a mobile device is displayed in Figure 2. The LDBC Web portal is a HTML5 website⁵ which includes a flexible image slideshow with captions and multi-level drop-down menus.

¹ <http://drupal.org/>

² <http://www.w3.org/TR/1998/REC-CSS2-19980512/>

³ <http://www.w3.org/TR/xhtml1/>

⁴ <https://drupal.org/project/nexus>

⁵ <http://en.wikipedia.org/wiki/HTML5>

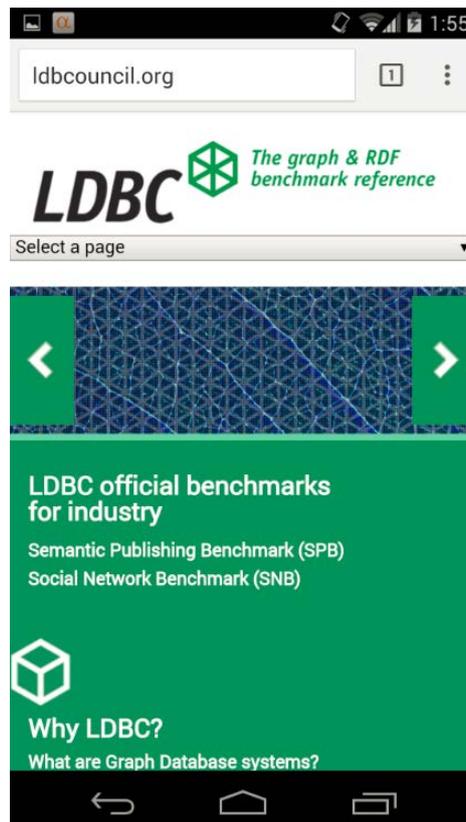


Figure 2: LDBC Web portal – Mobile version

2.2 Wiki

A wiki is a tool for allowing people to physically separate from each other to collaborate in the creation of joint work. Wikis have been in existence since 1995 [2] are in widespread use across all types of organisation. The LDBC consortium decided to use the Confluence⁶ software to run the LDBC's wiki. The LDBC Confluence Wiki was moved from www.ldbc.eu/wiki to <http://wiki.ldbncouncil.org/>. The welcome page of the LDBC Confluence wiki can be seen in Figure 3.

⁶ <http://www.atlassian.com/software/confluence/overview/team-collaboration-software>

The screenshot shows the LDBC Confluence Wiki home page. The browser address bar is wiki.ldbcouncil.org/display/PROJECT/Home. The page has a dark blue header with 'LDBC Home' and a search bar. A left sidebar contains a navigation menu with categories like 'Plenary Project Meetings', 'Partners and People', 'Deliverables', 'Community Building', 'Monthly Teleconferences', 'Publications', 'Documents and Templates', 'Benchmark Development Portal', and 'Scratch Area'. The main content area includes a welcome message, a list of project areas, and a 'Recently Updated' section with links to various documents and blogs.

Figure 3: LDBC Confluence Wiki

The reasons for selecting Confluence software to run the LDBC’s wiki are:

- **spaces** – Confluence introduces the concept of ‘spaces’ where each space is a separate work area and can have its own set of user access permissions. Links between wiki pages in separate spaces are very easy to create and manage;
- **navigation** – a number of features of Confluence make managing links and navigating content much easier than other wikis. For example, renaming a page using MediaWiki⁷ is a complex operation, whereas Confluence allows any page to be renamed as part of the editing process – incoming links from all spaces are automatically updated. Confluence provides a hierarchical tree for exploring a space, which is both faster for navigation and also provides the user a clear understanding of the structure of the wiki;
- **import/export** – Confluence has built in support for importing and exporting HTML, PDF and MS Office documents. This makes it easy to develop wiki pages until completion and then export the result in most common formats in just a few seconds;
- **plug-ins** – there is a large selection of plug-ins available for Confluence that extend the feature set in a great variety of ways, e.g. there are plug-ins for extending the mark-up language to create UML diagrams, coordinate SCRUM process tasks, create diagrams, provide type-ahead search, time-tracking, etc. Many of these plug-ins are free and provided by the Confluence community;
- **personalisation** – users are able to develop their own personal spaces and apply a number of ‘gadgets’ to wiki pages as well as to embed in non-confluence web-sites;
- **integration** – as well as integrating with the other Atlassian products (Jira, Fish-eye, Crucible, etc.) Confluence provides the means to integrate with external email systems, version control systems and many other productivity tools;
- **comments and forums** – social interaction is encouraged by built in forum support and the functionality to allow viewers to leave comments on pages;

⁷ <http://www.mediawiki.org/wiki/MediaWiki>

- **page creation** – is achieved using a powerful rich text editor that makes it easy to design pages, insert macros and link to other pages, web-sites and attachments.

The LDBC Confluence Wiki has two distinct areas:

- a password protected area, intended for the internal use of the project, available at: <http://wiki.ldbcouncil.org/display/PROJECT>
- a publically open area for all those interested in participating in the LDBC Technical User Community (TUC), available at: <http://wiki.ldbcouncil.org/display/TUC>

In the last six months the LDBC Confluence Wiki was as well reorganized in order to reflect the changing needs of the project. The current structure is described below.

Under the project area of the wiki the following information areas are available:

- **Plenary Project Meetings:** This area contains information about all LDBC project meetings.
- **Partners and People:** This section lists the academic and industrial partners that are part of the project.
- **Deliverables:** This area contains a table with all deliverables to be delivered in LDBC.
- **Community building:** This area contains all the information about materials and activities related to community building, including TUC meetings planning, vendor and academic community building, public engagement planning, the new website, coordinating the blogs, and the community managers activities.
- **Monthly Teleconferences:** This area list all the LDBC monthly teleconferences including participants, agendas and actions.
- **Publications:** This area lists the LDBC publications.
- **Documents and templates:** This area contains the legal documents, deliverable and reports templates, and guides.
- **Benchmark Development Portal:** This area contains the list of tools that are part of the development portal and their URLs.

Under the publicly available area dedicated to Technical User Community the following information areas are available:

- **Benchmark Task Forces:** This area contains public information about the benchmark task forces that were set up for each benchmark being developed. This area also collects information related to the various use-case scenarios being discussed during the evolution of the TUC.
- **Events:** This area contains a list of the TUC meetings including detailed information such as agenda, slides and logistics.

2.3 Source Code Repository

A source code repository is a system that is used to maintain current and historical versions of files including source code and documentation. Project deliverables are also available in the source code repository.

The LDBC consortium decided to use the Apache Subversion⁸, shortly SVN, to run the LDBC's source code repository. LDBC SVN was moved from <http://svn.ldbc.eu/> and is now available at <http://svn.ldbcouncil.org>. The LDBC SVN is also browsable online, the starting page being displayed in Figure 4.

⁸ <http://subversion.apache.org/>

Index of /

	<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
	README.txt	08-Oct-2012 10:04	229	
	branches/	08-Oct-2012 10:05	-	
	conf/	08-Oct-2012 10:04	-	
	dav/	08-Oct-2012 20:49	-	
	db/	19-Sep-2013 21:18	-	
	format	08-Oct-2012 10:04	2	
	hooks/	08-Oct-2012 10:04	-	
	locks/	08-Oct-2012 10:04	-	
	tags/	08-Oct-2012 10:05	-	
	trunk/	08-Oct-2012 10:05	-	
	viewsvn/	31-Oct-2007 17:15	-	

Apache/2.2.16 (Debian) Server at svn.ldbc.eu Port 80

Figure 4: LDBC SVN Source Code Repository – bare version

The main reason for selecting Apache Subversion (SVN) to run the LDBC's source code repository is that Subversion is a very popular, widely used, now a top-level Apache project being built and used by a global community of contributors.

To improve the usability of the file-sharing repository we have provided better means to browse the source code repository by installing ViewVC⁹. The ViewVC installation for LDBC SVN is available at <http://svn.ldbcouncil.org/viewvc/ldbc>, the starting page being displayed in Figure 5.

⁹ <http://www.viewvc.org/>

/[ldbc]

Index of /



Files shown: 0
Directory revision: [851](#) (of [851](#))
Sticky Revision:

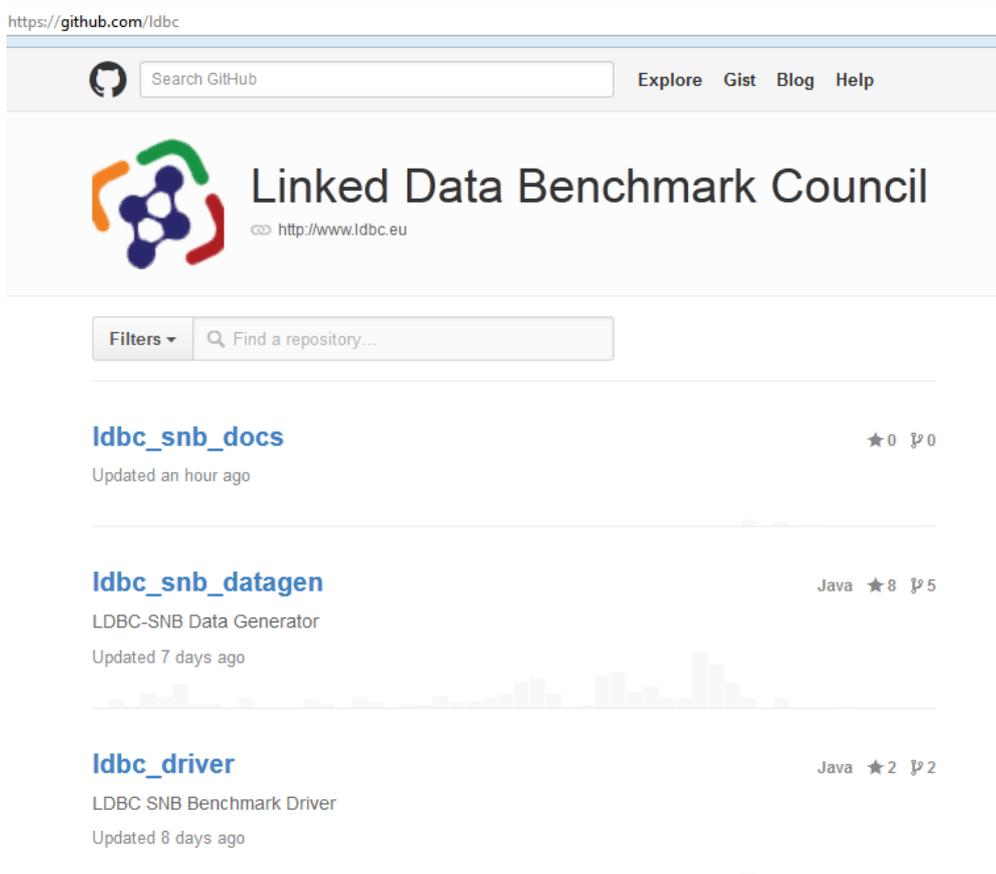
File ^	Rev.	Age	Author	Last log entry
branches/	1	11 months	barbis	
tags/	2	11 months	barbis	
trunk/	851	5 hours	renang	

[ViewVC Help](#)

Powered by [ViewVC 1.1.5](#)

Figure 5: LDBC SVN Source Code Repository – ViewVC

In addition to the internal source code repository described above, the LDBC consortium has decided to setup a public source code repository. In consequence a github repository was created where the public source code produced in LDBC should be kept. The LDBC github repository is available at: <https://github.com/ldbc>. The LDBC github starting page is displayed in Figure 6.



https://github.com/ldbc

Search GitHub Explore Gist Blog Help



Linked Data Benchmark Council

<http://www.ldbc.eu>

Filters Find a repository...

- ldbc_snb_docs** ★0 📄0
Updated an hour ago
- ldbc_snb_datagen** Java ★8 📄5
LDBC-SNB Data Generator
Updated 7 days ago
- ldbc_driver** Java ★2 📄2
LDBC SNB Benchmark Driver
Updated 8 days ago

Figure 6: LDBC github

2.4 File Sharing Repository

A file sharing repository is a system that supports the distribution or access to digitally stored information, such as computer programs, multimedia (audio, images and video), documents, or electronic books.¹⁰ The LDBC consortium decided to use a Secure File Transfer Protocol server¹¹, shortly SFTP, to run the LDBC's file sharing repository. LDBC SFTP was moved from sftp.ldbc.eu to sftp.ldbcouncil.org. One can use any SFTP client to access the LDBC file sharing repository.

The file-sharing repository enables the sharing of potentially huge files (e.g. datasets) that are part of the benchmarks. There is a difference in scope between the file sharing repository and the source code repository. The file sharing repository is used to share the potentially huge data, while the source code repository is used to share and manage the source code and documentation.

2.5 Issue Tracker

An issue tracker or issue tracking system, also known as ITS, trouble ticket system, support ticket or incident ticket system, is a computer software package that manages and maintains lists of issues, as needed by an organization¹². The LDBC consortium decided to use the JIRA¹³ software to run the LDBC issue tracker. LDBC JIRA was available before at <http://www.ldbc.eu:8085/>, has been moved to the new server and is now available at <http://jira.ldbcouncil.org>. The welcome page of the LDBC JIRA can be seen in Figure 7. The issue tracking system was upgraded to a version that supports 25 users.

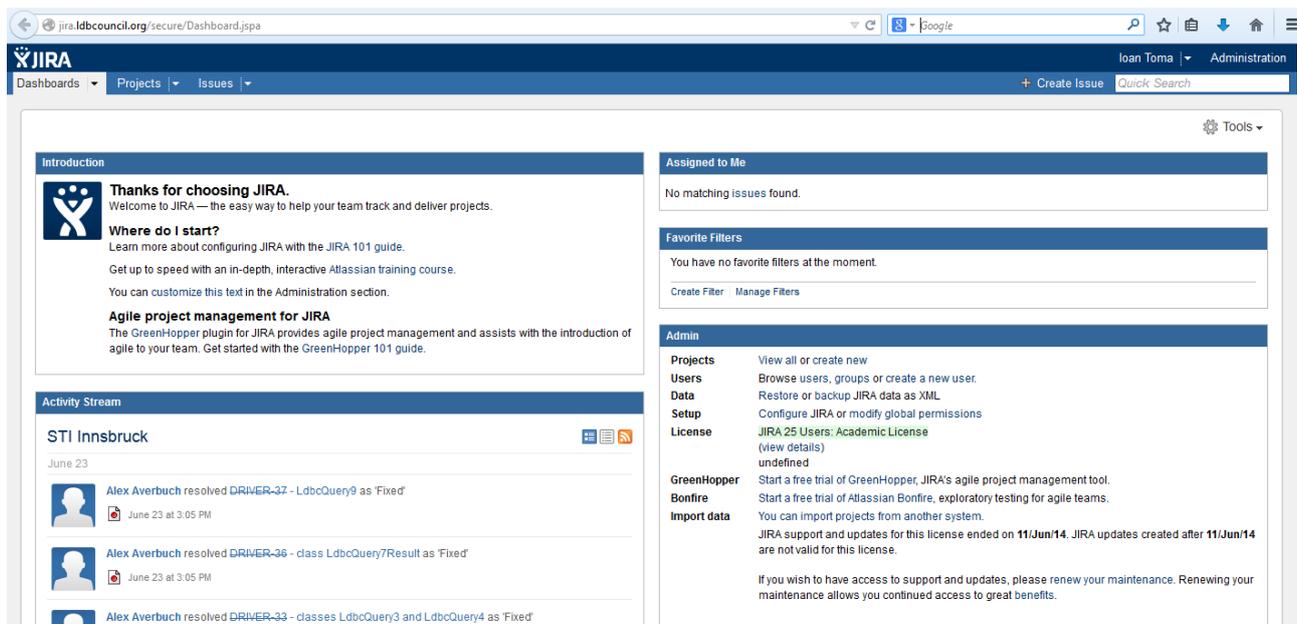


Figure 7: LDBC JIRA Issue Tracker

One main reason for selecting JIRA software to run the LDBC's issue tracker is the **integration with Confluence Wiki**. Being also a product of Atlassian, JIRA nicely integrates with Confluence Wiki. Confluence content can be viewed in JIRA and the other way around, both systems can have an integrated user management, etc. For more details about the integration of the two systems the reader can have a look at [1].

Additional reasons for selecting JIRA as an issue tracker are described in [2] and include **polished user experience, customizable workflows, search and reporting, flexible agile planning and easy-to-use importers**.

¹⁰ http://en.wikipedia.org/wiki/File_sharing

¹¹ http://en.wikipedia.org/wiki/SSH_File_Transfer_Protocol

¹² http://en.wikipedia.org/wiki/Issue_tracking_system

¹³ <http://www.atlassian.com/software/jira/overview>

In LDBC, the issue tracker will be used to track feature requests and bugs in benchmark software. For each benchmark issues will be created and assigned to/by members of the benchmarks development teams. Once solved by the developers, the issues will be closed. One can closely track the development of the LDBC benchmarks by having a look at the issues tracker and by checking the wiki page: <http://wiki.ldbcouncil.org/display/TUC/Benchmark+Task+Forces>.

2.6 Forum

A forum is an online discussion site where people can hold conversations in the form of posted messages. Messages on forum are temporarily archived. Moreover, depending on the access level of a user or the forum set-up, a posted message might need to be approved by a moderator before it becomes visible. Discussions on forum are developing on specific topics. In the improved version of the LDBC development portal, we have made available a forum in order to allow people (both from the project and outside the project) to hold public conversations on graph and RDF benchmarks related topics. For the final version of LDBC Benchmark Development Portal was decided to have the forum at a more visible place. The forum is now available at <https://groups.google.com/forum/#!forum/ldbcouncil>. The main page of the forum can be seen in Figure 8.

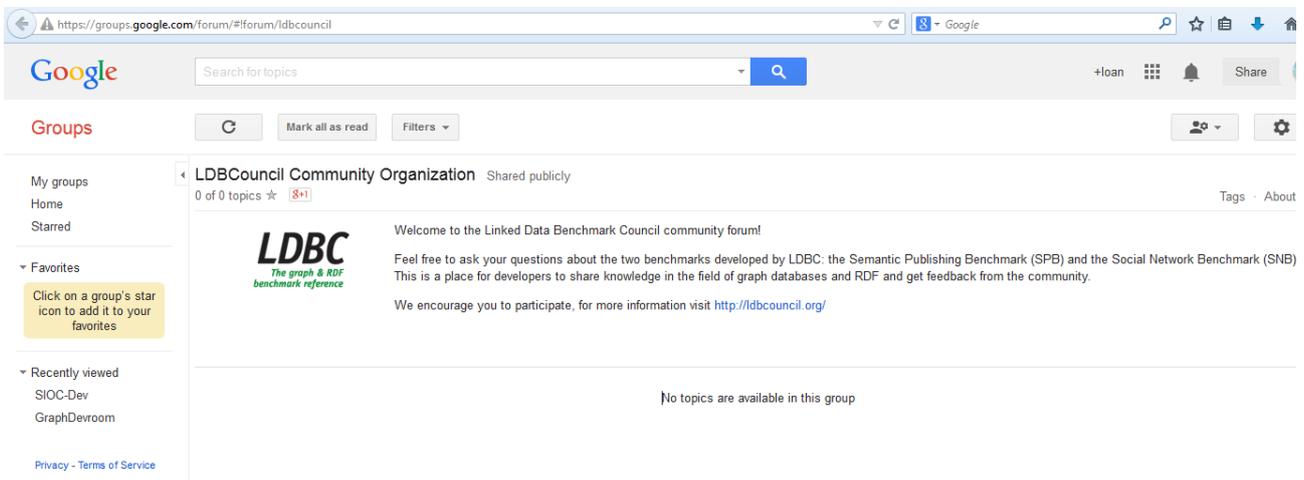


Figure 8: LDBC Forum

3 Conclusions

This deliverable reports on the final version of the LDBC Benchmark Development Portal. We installed several tools that are essential in supporting the collaborative development of benchmarks. We have made available a web portal, a wiki, source code repository, a file-sharing repository, an issue tracker and a forum. We have improved and extended the portal by: (1) further developing and improving the Web Portal for the LDBC organization (<http://www.ldbcouncil.org/>), (2) updating and moving the LDBC Benchmark Development Portal tools (i.e. Wiki, Jira, SVN and SFTP) to the new LDBC server and (3) installed a new forum to facilitate discussions around development of benchmarks.

Most of the tools that are part of the improved LDBC Benchmark Development Portal are free for use. The exception is the Wiki and issue tracker, Confluence products, for which the consortium has decided to purchase licenses. The LDBC Benchmark Development Portal tools will be administrated and maintained after the end of the project by the LDBC organization.

References

- [1] Integrating JIRA and Confluence. Available at: <https://confluence.atlassian.com/display/DOC/Integrating+JIRA+and+Confluence>
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