Collaborative Large-scale Integrating Project

OPENCOSS
Open Platform for EvolutioNary Certification Of Safety-critical Systems

OPENCOSS website and collaboration platform D9.1

<table>
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<th>WP9: Exploitation, Dissemination and Training</th>
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<td>Dissemination level:</td>
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</tbody>
</table>

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<tr>
<th>Names</th>
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### Document History

<table>
<thead>
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<th>Remarks</th>
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1 Executive Summary

The OPENCOSS project aims at having a substantial impact on the safety critical systems community by reducing costs and time for certification and promoting migration of certified subsystems across multiple applications domains (e.g., avionics, railway, automotive), as well as their fast evolution.

Dissemination plays a crucial role in creating awareness of the projects results and its benefits and supporting faster and widespread adoption both internal and external. In order to support the project’s goal, the website and the platform serve two main dissemination goals:

- Internal dissemination in order to enable effective collaborative work by sharing guides and preliminary results among project partners and alert them in the most effective way.
- External dissemination for relevant stakeholders, which includes the goals, planning and results of the project.

This document describes the public website and internal collaboration platform for the OPENCOSS project and how to maintain the website and to use the collaboration platform. It refers to the content and software, which are provided by the TU Eindhoven. Only the description of the website and the collaboration platform are part of OPENCOSS deliverable D9.1. This deliverable is provided to the public.
2 Introduction

This document contains a description of both the OPENCOSS website and the OPENCOSS collaboration platform. In order to understand the dissemination challenges, we first look at the OPENCOSS project goal. From that we list a number of dissemination objectives and give an overview of this document.

The project aims at having a substantial impact on the safety critical systems community by reducing costs and time for certification and promoting migration of certified subsystems across multiple applications domains (e.g., avionics, railway, automotive), as well as their fast evolution.

Dissemination plays a crucial role in creating awareness of the projects results and its benefits and in supporting faster and widespread adoption both internal as external. The project shall set a cornerstone in the safety culture by collecting the best practices from the different application domains, and stressing the common conceptual framework that will be the basis for common approaches and support tools leading to safe systems.

The project shall also set the basis for a safety culture enabling use of open source software. It aims to change the culture of open source community to provide for additional documentation and process evidence that allows for open source certification.

In order to support the project’s goal, the website and the platform serve a number of dissemination goals:

- Internal dissemination in order to enable effective collaborative work by sharing guides and preliminary results among project partners and alert them in the most effective way:
  - Sharing contact information between partners
  - E-mail facilities to reach focus groups
  - History of changes in documents and planning
  - Publishing guides, examples and other material supporting individual learning (this document itself is a general dissemination platform guide).

- External dissemination for relevant stakeholders, like the safety assessment community or the open source community.
  - Goal and context of the OPENCOSS project
  - Promote and disseminate the results of the project as they become available:
    - Project public deliverables
    - Scientific publications
  - Exploitation goals and results

This document describes the website and collaboration platform and how to use them. The website involves a public website for external dissemination; it includes communicating information about the project to the public and generating awareness about the OPENCOSS project. The collaboration platform facilitates internal dissemination; this includes communication within the project. In detail, the document describes:

- Website contents;
- Website maintenance;
- Mailing lists for discussion between participants;
- SVN, a Subversion version control repository for sharing documents that participants create and modify on their own computers;
- Trac, which includes:
  - a wiki, a simple website created and modified jointly by participants using their web browsers;
- an issue tracker, a web application that allows issues to be registered and kept track of. Initially the project will not need an issue tracker;
  - Refbase, to store the OPENCOSS bibliography.

The software is hosted and administered by one of the participating organizations: LaQuSo, Department of Mathematics and Computer Science, TU Eindhoven.

Please direct all your comments and questions regarding the software, its use, and this user guide, to LaQuSo’s technical contact: Reinier Post <rp@laquso.com>.
3 OPENCOSS public website: contents

Figure 1: Impression of the OPENCOSS public website home page

Figure 3 shows an impression of the website. The website is divided into sections, reachable as tab pages; at the time of delivery, January 16, 2012. Each tab page has one, two, or three columns with their own content.

The sections contained at January 16, 2012:

- **Overview**: a general introduction with the abstract, objectives, and the impact of the OPENCOSS project;
- **Organization**: includes the structure, the consortium (the participating organizations with their expertise), and the management;
- **Industrial Cases**: the industrial cases included in the project for automotive, railway, and avionics;
- **Library**: includes the dissemination materials, the project’s deliverables, and the publications;
News & Events: News, conferences, workshops, etc., related to OPENCOSS and/or attended by its partners

Useful Links: links to the internal and external information related to the OPENCOSS project, with, for example, the contact information.

The website is implemented using a CMS (Content Management System): Drupal 7. This makes it relatively easy to add and modify content and maintain a consistent look and feel. Furthermore, it makes it easy to add interactive elements, such as polls and commenting by visitors. These facilities may be used throughout the project.
4 Website maintenance

The website is hosted and operated by one of the OPENCOSS partners: LaQuSo at TU Eindhoven. The contact person is LaQuSo’s technical support person for OPENCOSS: Reinier Post <rp@laquso.com>.

4.1 Maintenance of supporting software

Hardware, operating system (Linux), webserver (Apache with PHP support) and database (MySQL) are supported by system administration at the Department of Mathematics and Computer Science, to which LaQuSo belongs. The Content Management System (Drupal) with many optional extensions is supported by LaQuSo’s technical support person.

4.2 Content maintenance

Reinier Post and Martijn Klabbers at LaQuSo perform and coordinate content creation and maintenance. Other OPENCOSS partners have helped with content, layout and Drupal technicalities, notably Huáscar Espinoza (Tecnalia) and Eric Verhulst (Altreonic).

After initial site creation (December, 2011) and review (January, 2012) D9.1 is delivered, but the site will continually be updated until the end of the project. To this end, LaQuSo will weekly check whether updates are required and perform them if necessary. Any proposals for content updates can be sent to <rp@laquso.com>. After the project has finished successfully, the website will be used as the OPENCOSS platform.

(Details of the change management process are to be arranged.)

4.3 Activity monitoring

Website monitoring is the activity that gathers and analyses data against which the success of a website can be evaluated. To this end, the Content Management System used by the OPENCOSS website (Drupal) provides good tools to keep track of the website activity. The three most commonly used are:

- Website Activity (traffic): basically number of visits per a given period.
- Visitor Feedback: this is obtained by the “comments” in the designated OPENCOSS pages (e.g., news and events) and by the polls application of Drupal. Polls collect votes about diverse topics
related to OPENCOSS issues. The latter are revisited and created monthly together with the periodic update procedure.

- Number of external pages linking to OPENCOSS webpage. This will be measured by using Google searches.

The activity of the OPENCOSS website will be reported annually and included in the annual Dissemination activity report by the Dissemination Coordinator.

### 4.4 Quality assurance

The aim of this task is to collect the data against which the OPENCOSS website can be examined for issues of quality. This includes:

- Checking for broken links
- Checking for missing content, e.g. images
- Checking for missing browser titles
- Checking the spelling and grammar of content
- Checking for missing metadata
- Checking the file sizes of pages to ensure they are not too large
- Checking for browser compatibility
- Checking that applications are functioning correctly, e.g. polls, search, messages to project contact person.

These tasks will be performed monthly by the website maintenance team together with the periodic update procedure (see Section 4.2).

The ranking of the webpage will be improved throughout the project by creating references to the OPENCOSS website in other sites (LinkedIn, partner websites, etc.)
5 Mailing lists

5.1 Introduction

The OPENCOSS mailing lists are hosted on TU Eindhoven’s mailing list service, which uses the Mailman list management software. This section enumerates the available mailing lists, how to subscribe and unsubscribe, and how to view the archive.

Mailing lists for OPENCOSS

<table>
<thead>
<tr>
<th>Users</th>
<th>Email Address</th>
<th>Web Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>All project members</td>
<td><a href="mailto:general-opencoss@listserver.tue.nl">general-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/general-opencoss">http://listserver.tue.nl/mailman/listinfo/general-opencoss</a></td>
</tr>
<tr>
<td>Project General Assembly</td>
<td><a href="mailto:pga-opencoss@listserver.tue.nl">pga-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/pga-opencoss">http://listserver.tue.nl/mailman/listinfo/pga-opencoss</a></td>
</tr>
<tr>
<td>Project Board</td>
<td><a href="mailto:pb-opencoss@listserver.tue.nl">pb-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/pb-opencoss">http://listserver.tue.nl/mailman/listinfo/pb-opencoss</a></td>
</tr>
<tr>
<td>All partner representatives</td>
<td><a href="mailto:stc-opencoss@listserver.tue.nl">stc-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/stc-opencoss">http://listserver.tue.nl/mailman/listinfo/stc-opencoss</a></td>
</tr>
<tr>
<td>External Advisory Board</td>
<td><a href="mailto:eab-opencoss@listserver.tue.nl">eab-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/eab-opencoss">http://listserver.tue.nl/mailman/listinfo/eab-opencoss</a></td>
</tr>
<tr>
<td>Work Package 1 team members</td>
<td><a href="mailto:wp1-opencoss@listserver.tue.nl">wp1-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp1-opencoss">http://listserver.tue.nl/mailman/listinfo/wp1-opencoss</a></td>
</tr>
<tr>
<td>Work Package 2 team members</td>
<td><a href="mailto:wp2-opencoss@listserver.tue.nl">wp2-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp2-opencoss">http://listserver.tue.nl/mailman/listinfo/wp2-opencoss</a></td>
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<td><a href="http://listserver.tue.nl/mailman/listinfo/wp3-opencoss">http://listserver.tue.nl/mailman/listinfo/wp3-opencoss</a></td>
</tr>
<tr>
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<td><a href="mailto:wp4-opencoss@listserver.tue.nl">wp4-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp4-opencoss">http://listserver.tue.nl/mailman/listinfo/wp4-opencoss</a></td>
</tr>
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<td><a href="mailto:wp5-opencoss@listserver.tue.nl">wp5-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp5-opencoss">http://listserver.tue.nl/mailman/listinfo/wp5-opencoss</a></td>
</tr>
<tr>
<td>Work Package 6 team members</td>
<td><a href="mailto:wp6-opencoss@listserver.tue.nl">wp6-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp6-opencoss">http://listserver.tue.nl/mailman/listinfo/wp6-opencoss</a></td>
</tr>
<tr>
<td>Work Package 7 team members</td>
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<td><a href="http://listserver.tue.nl/mailman/listinfo/wp7-opencoss">http://listserver.tue.nl/mailman/listinfo/wp7-opencoss</a></td>
</tr>
<tr>
<td>Work Package 8 team members</td>
<td><a href="mailto:wp8-opencoss@listserver.tue.nl">wp8-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp8-opencoss">http://listserver.tue.nl/mailman/listinfo/wp8-opencoss</a></td>
</tr>
<tr>
<td>Work Package 9 team members</td>
<td><a href="mailto:wp9-opencoss@listserver.tue.nl">wp9-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp9-opencoss">http://listserver.tue.nl/mailman/listinfo/wp9-opencoss</a></td>
</tr>
<tr>
<td>Work Package 10 team members</td>
<td><a href="mailto:wp10-opencoss@listserver.tue.nl">wp10-opencoss@listserver.tue.nl</a></td>
<td><a href="http://listserver.tue.nl/mailman/listinfo/wp10-opencoss">http://listserver.tue.nl/mailman/listinfo/wp10-opencoss</a></td>
</tr>
</tbody>
</table>

5.2 Mailinglist functionality

On the web page for a mailing list, the project participants can:
- subscribe to the list
- unsubscribe from the list
- view the message archive for the list.
The archive is only accessible to list members. At present, this functionality is broken and being repaired.

The members are supposed to be the participants for each group of users. They are listed in the Project Handbook. Once subscribed to a mailing list, you will receive all messages sent to it by other subscribers, and you can of course send your own. **Be sure to send them from the same email address with which you are subscribed.**

The software does not recognize subscribers except by their email address; if you send mail from a different address, it has no way of knowing that it comes from a valid list subscriber, so it will reject it. You can remedy this in several ways:

- subscribe with multiple email addresses (easiest, but you will receive messages twice)
- set up your mail client (e.g. Outlook) to correct your email address when sending mail to an OPENCOSS mailing list (this is more difficult to set up)

When subscribing to a mailing list, you will receive a password to access its web pages. There, you can set your preferences, view the list of subscribers, change the email address with which you are subscribed, request a new password to be sent, etcetera.

The interface is self-explanatory:

![Figure 3: Web interface for a mailing list](image-url)
After issuing a subscription or un-subscription request, you will be sent a confirmation message by e-mail with instructions about how to confirm the request. The easiest way to confirm is to simply reply to it.

Once subscription has been confirmed, you will receive a welcome message like the one shown on the right (up to the line containing the password).

It provides a link to your subscription page for the list.

You can access it by providing the email address you are subscribed with (in the To: field of the message) and the password.

Note that this page allows you to have your password mailed to you. Note that this is pretty insecure, so be sure not to use a password you use for anything important elsewhere.

Logging in will bring you to a page that allows you to change your password and other options related to your subscription.

Note that all OPENCOSS mailing lists are separate: your subscriptions, options and passwords are managed independently from list to list. However, the options screen (shown in Figure 6) allows you to change options for all of your subscriptions at once.

We recommend to leave the options as they are – in particular, we ask you to receive messages individually rather than in batches digests. One option refers to topics, which are not used on the OPENCOSS lists.

---

**Figure 4: Example welcome message (partly)**

**Figure 5: Subscription page**
Figure 6: mailing list subscription options

<table>
<thead>
<tr>
<th>Mail delivery</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Set this option to <strong>Enabled</strong> to receive messages posted to this mailing list. Set it to <strong>Disabled</strong> if you want to stay subscribed, but don't want mail delivered to you for a while (e.g. you're going on vacation). If you disable mail delivery, don't forget to re-enable it when you come back, it will not be automatically re-enabled.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Set Digest Mode</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>If you turn digest mode on, you'll get posts bundled together (usually one per day but possibly more on busy lists), instead of singly when they're sent. If digest mode is changed from on to off, you may receive one last digest.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Get MIME or Plain Text Digests?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Your mail reader may or may not support MIME digests. In general, MIME digests are preferred, but if you have a problem reading them, select plain text digests.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receive your own posts to the list?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinarily, you will get a copy of every message you post to the list. If you don't want to receive this copy, set this option to No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receive acknowledgement mail when you send mail to the list?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a month, you will get an email containing a password reminder for every list at this host to which you are subscribed. You can turn this off on a per-list basis by selecting No for this option. If you turn off password reminders for all the lists you are subscribed to, no reminder email will be sent to you.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concel yourself from subscriber list?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>When someone views the list membership, your email address is normally shown (in an obscured fashion to thwart spam harvesters). If you do not want your email address to show up on this membership roster at all, select Yes for this option.</td>
<td></td>
<td></td>
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<thead>
<tr>
<th>What language do you prefer?</th>
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<th></th>
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<tbody>
<tr>
<td>English (USA)</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Which topic categories would you like to subscribe to?</th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>By selecting one or more topics, you can filter the traffic on the mailing list, so as to receive only a subset of the messages. If a message matches one of your selected topics, then you will get the message, otherwise you will not. If a message does not match any topic, the delivery rule depends on the setting of the option below. If you do not select any topics of interest, you will get all the messages sent to the mailing list.</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Do you want to receive messages that do not match any topic filter?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This option only takes effect if you're subscribed to at least one topic above. It describes what the default delivery rule is for messages that don't match any topic filter. Selecting No says that if the message does not match any topic filter, then you won't get the message, while selecting Yes says to deliver each non-matching message to you.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Avoid duplicate copies of messages?</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>When you are listed explicitly in the To: or cc: headers of a list message, you can opt to not receive another copy from the mailing list. Select No to avoid seeing copies from the mailing list; select Yes to receive copies.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| If the list has member personalized messages enabled and you elect to receive copies, every copy will have a x-maxim-copy-|

---

**Notes:**
- Some options have a **Set globally** checkbox. Checking this field will apply the changes to every mailing list that you are a member of on [listserv.tue.nl](http://listserv.tue.nl).
- Click on **List my other subscriptions** above to see which other mailing lists you are subscribed to.
6 Trac wiki

A wiki is a website that can be created and modified collaboratively by its users.

For the OPENCOSS project simple wiki is installed that uses Trac. Trac not only provides a wiki, but also an issue tracker and optionally other functionality. For the time being, we only use the wiki capabilities.

To access the OPENCOSS wiki, point your web browser to

https://svn.win.tue.nl/trac/opencoss/

6.1 The svn.win.tue.nl security certificate

First, you will receive a warning about the website’s security certificate not being trusted: for instance indicated in Figure 7.

![Security Alert](image.png)

Figure 7: warning due to independent website certificate for svn.win.tue.nl
This is as expected – the svn.win.tue.nl website does not have an official certificate, but one created by the TU Eindhoven Department of Math & CS’s system administrators for use within the department. If you want to get rid of this warning, you can install the certificate on your computer – a guide for doing this can be requested at Reinier Post <rp@laquso.com>.

After doing that, or proceeding regardless of the warning, you are asked to provide your username and password.

### 6.2 Your OPENCOSS Trac / Subversion account

Your wiki account is independent from your mailing list subscription(s) discussed above.

It is, however, the very same account that is used for the Subversion version control repository, discussed below.

This is evident from the login prompt, depicted in Figure 9.

Most project participants already have a username and password.
To have a new user added, mail the user’s name and email address to \texttt{rp@laquso.com}. (Be sure to also add it to the project’s list of participants, which is maintained as an Excel document in the OPENCOSS repository at: opencoss_svn\03\_Management\Contacts\OPENCOSS\_ContactPersons. See also Section 7 Subversion repository)

After a while – some manual steps are required - the user’s name and password will be mailed to the given address.

Once your login succeeds, you can browse pages in the wiki as indicated in Figure 10.

![Figure 10: the main wiki page (shown in Google Chrome)](image)

Each page has an Edit button; press it to start editing the page. You can also create new pages, for instance, by following links that do not have a page attached to them yet; and you can delete pages. All changes can be reverted.

A Trac-specific markup language is used; for details, click the Help/Guide item in the menu strip, then in the menu appearing on the right, on \textbf{Wiki Formatting}, for details on the markup language. Its capabilities are comparable to primitive HTML. Links to other pages, headings, bulleted lists and inline images are supported, but not much else.

Trac supports a fine-grained access control system, but it is not used for OPENCOSS, yet: Every user can do everything to every page. A policy on how to use and organize this wiki within OPENCOSS is still to be determined.
7 Subversion repository

For most of the documents created within OPENCOSS, a wiki such as Trac is not very suitable, even when the documents are shared and edited by multiple project participants.

These documents are created and modified locally on the participant’s computer, for instance, using a Microsoft Word or Excel, and only when the participant is ready to issue a particular version, s/he wants to share it within the project.

This is the type of document sharing version control systems were created to handle. In OPENCOSS we use the popular Subversion version control system for this purpose. It has a good online manual:

http://tortoisesvn.net/support.html

7.1 Subversion: basic principles

7.1.1 Version control on files

Subversion keeps a repository of files accessible to all users (fine-grained access control is possible, but not used in OPENCOSS). Of each file it keeps a full version history – where a version is a state of the file any user decided to explicitly save to the repository.

- The goal of a version control system is to eliminate two anti-patterns in document management: mailing documents as email attachments, which produces heaps of email among participants with various versions of the documents somewhere in attachments, without a clear overview of the different versions and the change history.

When Report.doc is put under version control, any user can: access any version, update to the newest version, submit a new version, and make a clear overview of its change history – provided that users use Subversion and no longer save the different versions of documents under a different name or mail them to each other. It is recommended to provide each new submit with a clear and concise description of what has changed, so that other users will be able to search the right version based on this description.

7.1.2 Basic Subversion concepts

Subversion is a client/server system: to use it, you issue Subversion commands to a Subversion server, which will then attempt to execute them for you. The Subversion system will never do anything by itself: everything that happens, will happen in response to an explicit command given by you or some other user.

The Subversion server stores a repository: a versioned collection of files, organized in a directory tree. In order to work with Subversion, you will need:

- Subversion client software to issue Subversion commands; popular ones are:
  - the svn utility, used on the command line,
  - TortoiseSVN, which adds menu items to Windows explorer.
- the address of the Subversion repository that stores the files you want to work with.
On the client side (your own computer), you will have:

- a directory tree with the files you need to view and/or modify
- local bookkeeping information that tracks the relationship between your files and the contents of the Subversion repository – this is kept in a subdirectory named .svn.

A directory tree with this bookkeeping information is called a **working copy** of the repository. While some Subversion commands communicate with the repository, other commands only affect local bookkeeping.

### 7.1.3 Basic Subversion commands

The most important Subversion commands that communicate with the repository are the following:

- **checkout**: creates a working copy in your computer from a Subversion repository,
- **update**: updates your working copy to the current state of the Subversion repository,
- **commit**: (also called **checkin**): updates the repository to the current state of your working copy.

The most important commands that act just on the working copy, registering changes to be made in the next version you will **commit** to the repository:

- **add**: adds a file or directory to the directory tree,
- **delete**: (also called **remove**): removes a file or directory from the directory tree,
- **rename**: renames a file in the directory tree,
- **revert**: gets rid of all of your uncommitted changes, adds, removes, and renames to the Subversion-controlled files/directories in your working copy, resetting it to the state after your latest **update**.

The reason these commands act on a working copy is that Subversion is a version control system: each change to a repository is a change from one version to the next, and each version is a version of the whole directory tree, not of an individual file. So these commands just locally register requests to make such changes; they will only be carried through into the repository on the next commit that you issue.

Note that when you issue a Subversion command, it notices whether you have made changes to the contents of a file – but not to the contents of a directory: it does not keep track of file additions, deletions and renames you perform in the usual way – this is why explicit Subversion commands for that purpose are required. If you delete a file or directory without using the Subversion command, Subversion will complain that it’s missing; if you rename a file or directory without using the Subversion command, Subversion will also consider it to be missing, while it won’t notice its presence under its new name, unless you add it explicitly. So never delete or rename a file or directory that is under Subversion control other than by using the Subversion commands.

The advantage to this way of working is that you can keep both Subversion-controlled files and other files together in the same working directory; the disadvantage is that it’s easy to forget to use these commands, add in particular.

### 7.1.4 Basic Subversion workflow

Because Subversion is a client/server system, all communication between users happens through their explicit interaction with the central Subversion repository. If you want to share a file through Subversion for other people to view or co-author, you must do the following:

- **checkout** a working copy of the repository (only once),
- place your file somewhere within the working copy,
- **add** it to the working copy,
• **commit** that change.

Once the file has been added, you can modify it at will, and commit each time you want to share the current version.

In order to see your latest version of the file, another user must
• **checkout** or **update** a working copy of the repository after you committed that version.

So your changes won’t be reflected in other users’ working copies automatically. They may still be looking at an old version – or may even be making modifications of their own to the same document without you knowing.

### 7.1.5 Conflict resolution

A conflict arises when the same file has been changed in two places, or when a rename by one user coincides with a change or rename by another. In Subversion, a conflict will only surface when a user tries to synchronize the repository version with its working copy:

- when a **commit** of local changes conflicts with changes made to the repository, the commit attempt will fail,
- when an **update** from the repository produces changes to the working copy that conflict with local, uncommitted changes, Subversion will attempt to merge the changes, or start up a merge tool that allows the user to interactively decide which of the changes are to be applied.

To avoid the first situation, be sure to always **update** files before making changes or trying to commit them.

It is possible to lock a file. When a user locks a file, no other user can commit changes to it until the lock is released. Users may still have copies of the file and make changes to it; therefore, a file can be given the needs-lock property, which has the effect of making local checkouts of the file read-only when the file is locked, thus reminding users that they are unable to commit any changes. None of these measures really prevent different users from making independent changes to the same file. Besides, users may forget to release a lock or forcibly break it. Therefore, Subversion’s authors recommend against this practice – see [http://tortoisesvn.net/docs/release/TortoiseSVN_en/.tsvn-dug-locking.html](http://tortoisesvn.net/docs/release/TortoiseSVN_en/.tsvn-dug-locking.html)

Regardless of whether locking is used or not, participants who work on the same file will need to coordinate their modifications, e.g. via email or instant messaging. SVN does not support concurrent editing of files.

### 7.2 Using the OPENCOSS Subversion repository

#### 7.2.1 Browsing the repository with a web browser

To browse the contents of the OPENCOSS repository without using specific Subversion client software, point your web browser to

[https://svn.win.tue.nl/viewvc/opencoss/](https://svn.win.tue.nl/viewvc/opencoss/)

You will be asked about the site’s security certificate (see Section 6.1 for details), and will be asked to log in with your user name and password (see Section 6.2 for details), unless you have taken these hurdles before.
Figure 11: viewing the repository with a web browser
Figure 12: accessing one file in the repository with a web browser

This can be useful for casual inspection.
7.2.2 Browsing the repository with a web browser II

TortoiseSVN also offers a repository browser (https://svn.win.tue.nl/trac/opencoss/browser)

![Repository browser](https://svn.win.tue.nl/trac/opencoss/browser)

Figure 13: opening the repository browser

It acts directly on the repository; you do not even need to have a working copy. The commands described in Section 7.1.3 as working on the working copy, such as `add` and `rename`, here operate directly on the repository, leaving any working copy untouched.

This utility can be very convenient. Do not get confused when using it from within a working copy.

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7.3 Using TortoiseSVN on the OPENCOSS repository

To work with the files in the repository and contribute your own changes, you need a Subversion client.

7.3.1 Installing the client

For Microsoft Windows, the most popular client is TortoiseSVN. You can download it here:

http://tortoisesvn.net/downloads.html

After installation, a reboot is required. Subversion commands can now be issued from your Windows explorer’s right-click menu.
7.3.2 Initial repository checkout

Figure 15: checking out the OPENCOSS repository with TortoiseSVN

To check out the OPENCOSS repository, you must provide its URL:

https://svn.win.tue.nl/repos/opencoss

and a local directory in which the working copy will be created. This will create a local copy on your hard disk of the latest versions of all files in the repository (see section 7.1).

The first time, you will be asked about the site security certificate (like in section 6.1) and you will be asked to log in (like in section 6.2). Once this is done, files will be copied to the working directory. As the repository grows, this process will take more and more time for large repositories, it can take many minutes. Once the working copy is there you can start working with it. TortoiseSVN will show local changes in the explorer: an item is green when it has no local modifications, red when it does have some, and blue when it has been added. Red and blue items will eventually need to be committed or reverted.

7.3.3 Updating your working copy

Figure 16: initiating an update

Figure 17: the update dialog

It is important to frequently update your copy with any changes and additions from the repository.
This can be done while local changes have been made, but that runs the risk of producing conflicts, as described in section 7.1.5; conflicts can be resolved, but are best avoided.

### 7.3.4 Using locks

To claim a file or directory tree as your working territory, lock it using the Get lock Tortoise menu item (see Figure 18). Unlock the file by checking it in, or if you decide not to edit it after all, by using the Release Lock menu item. Additionally, Subversion can automatically make a file read-only until the user has locked it. To this end, set the `svn:needs-lock` property on the (see Figure 19 and Figure 20). Within OPENCOSS, the general policy is to both use locking and set the `svn:needs-lock` property on every file.
7.3.5 Finalizing changes

To commit your changes to the repository, invoke the **commit** command. TortoiseSVN will pop up a dialog asking you to provide textual comments on the change. Use this to briefly explain the reason(s) for the change. It also allows you to select which files to commit, or to cancel on second thought.

To permanently forget about your uncommitted changes, issue a **revert**: 

7.3.6 Reviewing the change history

To get an overview of the changes to a file or to a whole directory tree, use the log viewer as depicted in Figure 25.
It not only provides an overview, but can also be used to invoke other commands - for instance, to compare the contents of two versions of a text file or of a Word document.
8 Refbase

Refbase is a web application for managing literature. In order to visit it, address your web browser at:

http://www.opencoss-project.eu/refbase/

Ensure that in your browser, cookies are enabled for this site.

![Refbase opening screen](image)

**Figure 27: the Refbase opening screen**

The Help link on the bottom right brings you to the online documentation. The bare essentials follow here.

You must log in to see or modify any contents. For this purpose, all users use the same Refbase account, which can be found in the previous, internal versions of this document.
When logged in, click Show All to see the full list of publications in the database, as displayed in Figure 28:

Figure 28: the full list of bibliography records in Refbase

The icons to the right of each item allow you to operate on it:

- **view full details**
- **edit details**
- **follow a web link, if provided**
- **download the PDF document, if provided**
To delete a record, click ⬇️ and press the Delete button that will appear at the bottom of the resulting screen:

Figure 29: editing the details of a Refbase record, or deleting it
Refbase supports importing and exporting of bibliographies in various formats. The referenced literature can be attached to an entry as a document in PDF format.

Figure 30: manually adding a record to Refbase