TAO
Community & Collaboration

TAO Project Deliverable D 2.2a and 2.2b

Drupal Usability Improvements (first round)

Requirements and Implementation

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Quality Assurance	
Reviewers	**Stijn Bannier (Univ. Maastricht)** **Heinrich Zimmermann (BUAS)**
Commented Summary of the Review (incl. corrective action / date of the review)	
Stijn: Short, but clear deliverable. I asked for several specifications in the text and it might be possible to include the student's work on both the issues as annexes. Comment (E.Klein, July 26, 2012): The students' theses are in German language and are thus not appended. Heinrich Zimmermann: The deliverable consists of two valuable improvements of the open source framework Drupal: link consistency and dynamic properties. The usability of "seniorweb.ch" (an online community platform for elderly users), was enhanced by this effort – as was and will be the usability (and accessibility) of many other web sites. (July 26, 2012)	
Date of acceptation of the deliverable	
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Preface

This deliverable is a combination of the deliverables D 2.2a and D 2.2b that are mentioned in the Description of Work. The deliverable was submitted in September 2011 (=M12), but has not been accepted by the midterm reviewers. The reviewers had (among others) been confused by the absence of a common layout template for all deliverables, and concerning this deliverable the following comment was given[1]:

> *D 2.2a/b is one short page on the Drupal enhancements and implementation –links and dynamic properties. It is not known how these are relevant to the elderly community nor who chose these to be the enhancements. It is also not known how complex a problem these were to solve or how it was done.*

The deliverable extends the original submission and responds to the reviewers' comments.

[1] See „Progress in technology innovation" on page 9 of the Midterm project review report from May 17, 2012

Executive Summary

Concerning the usability of online community platforms that are based on the Drupal CMS, two requirements have been identified and implemented: *link consistency* and *dynamic properties*. For both requirements, Drupal modules have been implemented; the link checker module for newsletters is already in use at the seniorweb.ch platform. Outgoing newsletters are checked with respect to broken links and images.

Although the selection process of requirements to be implemented cannot be decided by a single person or company but depends on the opinion building and decision making process within the Drupal community, MD Systems largely influenced the selection of the mentioned requirements due to experiences with the seniorweb.ch platform.

The implementation was done under guidance of MD Systems, comprising contributions of students' bachelor thesis and professional developer practice.

1 Introduction

1.1 Overview of the Deliverable

Drupal is a free and open-source content management system (CMS) and content management framework (CMF) that is used as a back-end system for around 1.5% of all websites worldwide, including personal blogs, online communities as well as corporate, political, and government sites.

Related to the TAO project, the seniorweb.ch platform is based on Drupal. The focus here is to select requirements which help to improve the usability of the platform and to implement some of the enhancements. The implementation usually results in functionality which is packaged in form of Drupal modules that are published and can be used by any Drupal user. Whenever appropriate and possible, the new modules should be integrated into the seniorweb.ch platform.

The described enhancements apply to the backend functionality of Drupal systems, and subsequently improve the user experience with respect to the supported online communities.

MD Systems as a TAO industrial partner identified the *link consistency* issue as an urgent problem for seniorweb.ch and in general for many websites. A second requirement are so-called *dynamic properties* by which a set of records can be flexible defined e.g. by content managers of online communities. For example, the handling and management of a list of learning modules could be performed more user friendly for authors: Seniorweb.ch originally reasoned about a specific section on the website where members could be offered e-learning possibilities.

Concerning this deliverable, the *linkchecker* module tackling the link consistency issue has been integrated into the seniorweb.ch platform. More specific, link extraction and validation in a newsletter are addressed before a newsletter is sent to the online community.

The dynamic properties module has not yet been integrated in seniorweb.ch, but is meanwhile used in more than 150 Drupal based platforms worldwide.

The TAO budget for this deliverable is about 1,5 PM, significant additional contributions stem from students' thesis work.

1.2 Connections to other Deliverables

Experience with the seniorweb.ch platform has led to the requirements on link checking.

1.3 Value Added by the Project TAO

Requirements have been selected and implemented which improve the situation for content managers and authors of online communities and other large websites. Starting point had been urgent issues at the seniorweb.ch platform.

Since MD Systems is a main contributor to the Drupal CMS with large development experience, the implementation process is effective and has high maturity. Due to these core competences, most of the available time has been spent on implementation, while the selection of requirements followed

from the long-term relationship between seniorweb.ch and MD Systems. Despite little project resources for this subtask, major value could be generated.

As a side effect, the published modules are worldwide available for Drupal users and can be integrated in community websites.

2 The *link consistency* issue

2.1 Problem description

Link consistency is the assurance that a link on a Web page or in other documents references to a valid document. The longer a website is in use, the more the inconsistency increases, because pages may be deleted or moved to other locations. Since this holds also for the seniorweb.ch platform, this issue has been identified as a TAO requirement.

At seniorweb.ch a special variant of that problem occurs in the distribution of newsletters containing links and images. Although most newsletter providers try to do some form of quality assurance, it is very common that last minute changes or incomplete quality assurance workflows result in faulty documents being sent. The result - emails containing broken links may lead to frustration, unsubscriptions and lost business opportunities.

Moreover, sometimes links are valid in the web and look fine in a preview, but they do not work in the email a user receives. This is why the requirement has been extended to check newsletters for broken links or images.

2.2 Implementation issues

A link checker module has been developed that extracts links from the content when saved and periodically tries to detect broken hypertext links by checking the remote sites and evaluating the HTTP response codes. It shows all broken links in the reports/logs section and on the content edit page, if a link check has been failed. An author specific broken links report is also available.

Selected features of the module comprise the check of internal and external links, a configurable link check interval and various supported link protocols.

The solution was an enhancement of an older module which was also ported to Drupal 7.

The enhancements have been published, for demonstration purposes figure 1 contains a screenshot of its configuration section.

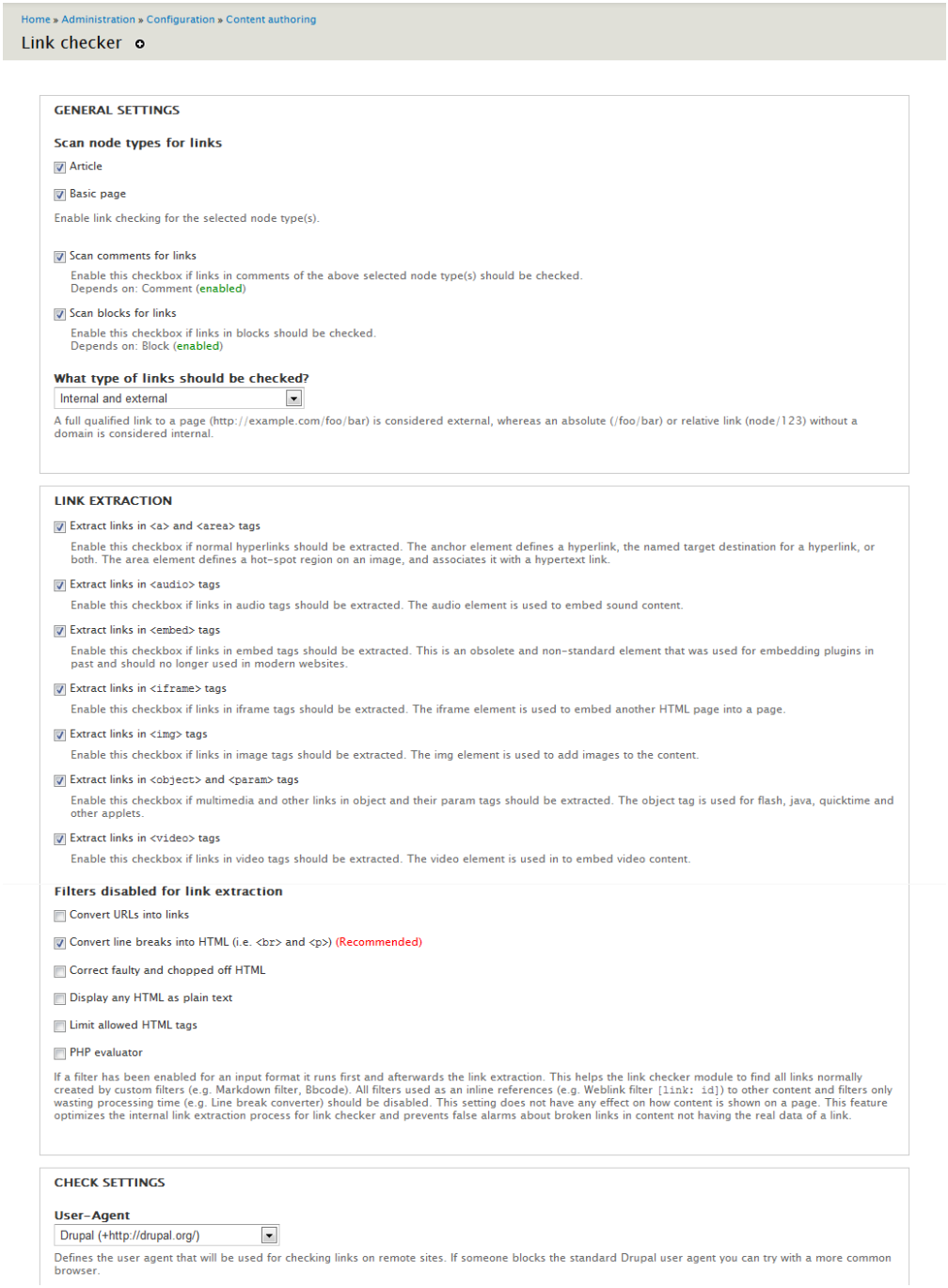

Figure 1: Link Checker Configuration Section (from http://drupal.org/project/linkchecker)

The implementation has also been extended in order to validate newsletters. This resulted in a separate *simplenews* module, which is planned to be (later) integrated in the above described base solution called *link checker module*. At the time of writing this report, 146 websites are meanwhile using the newsletter link checker module[2].

The *simplenews* module has been integrated in the seniorweb.ch platform. It has been released on Drupal 6 to seniorweb.ch and was further ported to Drupal 7.

[2] http://drupal.org/project/usage/simplenews_linkchecker

The implementation was supposed to be straight forward, but after the initial implementation, inconsistencies revealed between link representations in mail programs and online versions which required additional iterations of development.

The implementation started with the bachelor thesis of two students (Huwiler, Hüsler 2011), accompanied and followed by MD Systems' continuative work.

3 The *dynamic properties* issue

3.1 Problem description

Websites of online communities often contain a list of items, for example a list of upcoming events, a set of learning modules or a list of products with respect to the target user group. With the current Drupal functionality, the definition of these lists is restricted to a fixed set of fields for each item.

At the beginning of the TAO project, one of the ideas for the seniorweb.ch platform was to integrate an e-learning section where a list of learning modules can be offered. It turned out that content managers could be given more freedom with a more flexible approach than the one which is currently offered in Drupal. With a technical concept called *dynamic properties*, the flexible definition of item lists is possible.

Considering a set of learning modules, each module could have a fixed set of attributes associated such as title, author, date etc., and a not pre-determined number of further attributes such as certification. The level of detail of a learning module could be different, and subsequently the number and type of specific information as well.

3.2 Implementation issues

The solution for the above problem is a module providing a *dynamic properties* field that allows storing structured information. Properties are stored in a structured way so that they can be compared, indexed, processed and displayed in different ways.

Selected features are an administrative user interface, a Web 2.0 like table widget that allows easily adding properties to the content, and a fine-grained permissions system allowing users to freely choose categories and attributes or just select from pre-defined templates.[3]

Although seniorweb.ch meanwhile abandoned the idea of integrating an e-learning feature in its platform, at the time of writing this report, 164 websites are using the dynamic properties module.

The implementation was no port from Drupal 6, but has been developed from scratch for Drupal 7.

The implementation started with the bachelor thesis of two students (Grossenbacher, Stöckli 2010), accompanied and followed by MD Systems' continuative work.

[3] http://drupal.org/project/properties

4 Summary and Conclusion

In this deliverable it has been described that requirements have been selected which help to improve the usability of the Drupal platform and to implement some of the enhancements. Drupal is wide-spread and it has been chosen because it is the CMS supporting the seniorweb.ch community.

The requirements for the *link consistency* issue and the *dynamic properties* issue have been selected, and corresponding modules have been implemented and published.

The newsletter link checker module has successfully been integrated in the seniorweb.ch platform.

5 References

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seniorweb.ch

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