The use of the TWiki Web in ATLAS

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Abstract. The ATLAS Experiment, with over 2000 collaborators, needs efficient and effective means of communicating information. The Collaboration has been using the TWiki Web at CERN for over three years and now has more than 7000 web pages, some of which are protected. This number greatly exceeds the number of “static” HTML pages, and in the last year, there has been a significant migration to the TWiki. The TWiki is one example of the many different types of Wiki web which exist. In this paper, a description is given of the ATLAS TWiki at CERN. The tools used by the Collaboration to manage the TWiki are described and some of the problems encountered explained. A very useful development has been the creation of a set of Workbooks (Users’ Guides) – these have benefitted from the TWiki environment and, in particular, a tool to extract pdf from the associated pages.

1. The ATLAS Experiment
The ATLAS Experiment [1] is a huge particle physics experiment based at the CERN laboratory in Geneva, Switzerland. It sits on the Large Hadron Collider (LHC) accelerator which is designed to collide protons at an energy of 14 TeV every 25 ns. Over 2000 physicists work on the experiment, the aim of which is to understand the fundamental constituents of nature and how they interact [2]. In particular, the experiment hopes to discover the Higgs boson – this is believed to be responsible for giving mass to matter. ATLAS is 46 m long and weighs 7,000 tonnes. The experiment is ready and looking forward to first collisions in 2009.

2. The TWiki
The TWiki [3] is one example of the many different types of Wiki web which exist. “Wiki wiki” means “quick” in Hawaiian. The shuttle at Honolulu Airport is called the “Wiki wiki” bus, which is where the original Wiki web got its name. The best known example of a Wiki web is Wikipedia. TWiki was created by Peter Thoeny in 1998. “TWiki” is short for “TakeFive Wiki”, the name of the company where Thoeny worked. TWiki is used by: Disney, British Telecom, SAP, Wind River, Motorola.

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TWiki’s parsing engine is written in Perl. It reads a text file, and converts TWiki text into standard HTML on the fly. Features include:

- Direct editing of pages through a web browser.
- Easy syntax with a basic style defined. This produces pages with a fairly uniform appearance (HTML can be used simultaneously, although this is largely discouraged).
- Easy linking by use of WikiWords: Words concatenated to form page names which can be linked, eg. AtlasComputing.
- Revision control, provided by CVS [4].

The code is open source and freely available. To enhance the functionality, the user community helps develop plugins.

CERN started using the TWiki in 1999. Most of the CERN TWiki [5] can be viewed by anyone; however only CERN users registered within the TWiki system can edit pages – this is handled by CERN’s Single Sign-on protocol [6].

3. The ATLAS TWiki

ATLAS has many “standard” or “static” web pages containing HTML, and the higher-level pages (“portal” pages) use the cascading style sheet (css) mechanism [7] to format them. ATLAS started using the TWiki in 2005. While the top ATLAS Web page [8] is in HTML, most of the new pages developed are now in the TWiki format. The two principle TWiki Webs in ATLAS are:

- Atlas – public web [9], containing technical information about ATLAS.
- AtlasProtected – private web, for physics preparations and results.

AtlasProtected is a new development in preparation for LHC data-taking. Once an ATLAS user is authenticated and authorised, there is no problem to move transparently between the two webs. It was a substantial amount of work to transfer files from the unprotected to the protected web: in particular to ensure that all the links were respected. It turned out that the TWiki tools were not well-suited to moving O(1600) pages and new tools had to be developed by CERN/IT Department.

The representation of TWiki pages is as a completely flat structure (single directory) on a linux server: each page corresponds to one file (accompanied by a CVS history file). The web links define a structure which is tree-like, although there are many cross-links and circular linkage. The TWiki system includes the concept of “parents” and this does provide a well-defined tree-structure, where each page is “parented” by another TWiki page. Most pages are between 3 and 5 levels below the top page, going to a maximum of 10 levels.

A standard TWiki feature is the LeftBar – a separate list of key links contained in a panel on the left-hand side of the page. For ATLAS, the LeftBars have been customised for each domain and then common LeftBars can be included for all pages within that domain.

The top ATLAS TWiki page is shown in Figure 1 – its LeftBar can be seen. Since adopting the TWiki in 2005, ATLAS Collaborators have been creating new pages at a very uniform rate of 150 pages/month. In 2008, 1700 new pages were created, while 3400 existing pages were modified. At the start of 2009, there were 6700 ATLAS TWiki pages.
4. Managing the ATLAS TWiki

With 7000 web pages and 2000 collaborators, it is essential to manage the ATLAS TWiki else it can rapidly become chaotic with users readily able to create new pages. Common problems include pages which:

- Don’t obey the TWiki syntax (in particular the WikiWord syntax for the page name) – this can cause problems for some of the TWiki tools.
- Duplicate pages: either because people fail to find existing pages and create new ones, or because they misname a page and subsequently create new page with the correct name.
- Contain rubbish: because a person tried something and did not clean up.
- Are not completed (perpetually “Work in progress”).
- Become outdated/redundant.
- Are not linked or don’t have a correctly attributed parent.

Despite rules and in some cases mechanisms to facilitate adherence to the rules, physicists manage to bypass these. The TWiki is a “garden” which can rapidly grow out of control. Tools for managing the ATLAS TWiki include:

- Documentation reviews.
- Monitoring day-by-day via the “WikiMap” (see Figure 2) – this is constructed by a script and cached every night. (It is not a TWiki page itself.)
- Certification of good pages (see below).

It can be useful to run scripts directly on the page source files in the Linux file systems – this allows fast monitoring of the complete web and global modifications.
Figure 2. The ATLAS Wikimap – for managing TWiki pages. Red cells indicate possible problems to be addressed. The table includes fields for page name, linkage, parent page, owner, hits, dates (creation, last modification, last access). The list can be ordered by any of the fields.

4.1. Certification

To guide people as to whether the contents of a page are reliable, the information is up-to-date and the pages are of sufficient quality, pages can be given a dated “certificate” by an authorised, responsible person. 600 pages are currently certified, although certification is not appropriate or useful for all pages. The certification is indicated by a small “certificate” or icon at the top left of page. It is dated and has to be renewed after six months.

5. WorkBooks

The TWiki is particularly well-suited to the creation of user manuals or “WorkBooks”. These can be set out as any web-based manual. What is particularly valuable is that all users can easily contribute to the upkeep and development. To complement the electronic copy of the WorkBooks, a tool has been developed to create a printable pdf (portable document format) version, either for the whole WorkBook or individual chapters or pages. WorkBooks exist for:

- Computing – a general overview for software and computing systems
- Software Development – a more detailed description for developers
- Physics Analysis – an introduction to the ATLAS analysis environment
6. Problems

Problems which ATLAS Collaborators have encountered with the TWiki include:

- The “garden” readily becomes a “jungle”, requiring constant oversight.
- The search mechanism is weak, requiring the use of external tools.
- Flexible syntax for links: this allows URL’s, just bare WikiWords or links with mark-up `[[WikiWord][description]]` (plus other permutations). This leads to some confusion and poorly constructed pages.
- In principle, WikiWords are nice, but the rules concerning their syntax are not well-adapted to the kinds of names appropriate in HEP experiments. Also clashes occur with words which are not intended to be WikiWords or are part of software constructs (file or path names).
- Some of the TWiki tools are not as robust as is desirable. In particular, (as with most webs), making major structural changes without damaging links is not easy.
- Large TWiki systems can become slow, requiring upgrades to servers.
- The marriage of the TWiki with the CERN authentication system (Single Sign-on protocol) causes frequent access problems.

There are many more detailed issues in addition.
7. Conclusions

- The ATLAS Collaboration has enthusiastically embraced the TWiki.
- The use of the TWiki is not without problems, in particular in the need to manage it ... and this has consequences for the users.
- Nevertheless, the TWiki is very flexible and easy to use and its rapid growth demonstrates its popularity with the users.

Acknowledgement

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