Wiki Installation and Customization

Rajeev Kumar

Wiki is now-a-days widely used as the Content Management System in Web 2.0 world. Concept of Wiki actually revolutionized the Web 2.0 world. The present paper describes the philosophy of Wiki, one of the widely used Web Content Management System in Web 2.0 era, and various wiki tools available as well as wiki syntax. Detailed method of installation and customization of one of the widely used wiki software MediaWiki is discussed. The software is used to install Wiki at INFLIBNET Centre.

Keywords: Web 2.0, Wiki, Wiki syntax, Wiki tools, WWW, Internet, MediaWiki, TikiWiki, DokuWiki

1. Introduction to Wiki

Wiki is a powerful collaborative tool that allows the visitors themselves to easily add, remove, and otherwise edit and change some available content on-line, sometimes without the need for registration. User can also easily create new pages. If necessary it's possible to add some permission to the pages (lock pages or only identified users can modify the content of a page). The term "wiki" can also refer to the collaborative software itself (usually then it is termed as wiki engine) that facilitates the operation of such a website, or to certain specific wiki sites, including the computer science site (and original wiki), WikiWikiWeb, and the online encyclopedia Wikipedia. When used to refer to a specific site, wiki is often capitalized i.e. WIKI. Ward Cunningham invented wiki. The word wiki is a shorter form of wiki wiki (pronounced as weekie, weekie). "Wiki" (/wi˥ki˥/) is originally a Hawaiian word for "quick" or "fast". It has been suggested that "wiki" means "What I Know Is". The main purpose of wikis is to create a third space where people can collaborate in writing the same text on a single topic. The other main purpose of wikis is that of sharing knowledge for a common good.

1.1 History of Wikis

A distant precursor of the wiki concept was Vannevar Bush's vision of the "memex," a microfilm reader which would create automated links between documents. Another precursor of the wiki concept was the ZOG multi-user database system, developed in 1972 by researchers at Carnegie-Mellon University. In 1985, Xerox released Note Cards system, which is a hypertext system that features scrolling windows for each note card, combined with a separate browser and navigator window. Note Cards was the inspiration for Bill Atkinson's WildCard, which was later called HyperCard. Ward Cunningham traces the wiki idea back to a HyperCard stack that he wrote in the late 1980s. Ward Cunningham's first wiki was made

possible by the hypertext capabilities of the World Wide Web. Ward Cunningham started developing the WikiWikiWeb in 1994 as a supplement to the Portland Pattern Repository, a website containing documentation about Design Patterns, a particular approach to object-oriented programming.

The WikiWikiWeb was intended as a collaborative database, dedicated to People, Projects and Patterns in order to make the exchange of ideas between programmers easier. Cunningham wrote the software to run it using the Perl programming language. He named it using the alliterative Hawaiian word wiki-wiki, which means "quick-quick," to avoid calling it "quick-web".

Cunningham installed a prototype of the software on his company Cunningham & Cunningham's website c2.com. Cunningham dates the official start of WikiWikiWeb as March 25, 1995. This date may be considered as birth day of the concept of WIKI. The site was immediately popular within the pattern community, due to both the newness of the World Wide Web and the good slate of invited authors. Clones of the WikiWikiWeb software were soon developed. PatrickMueller wrote probably the first WikiWikiClone, using the RexxLanguage. Ward Cunningham wrote a version of wiki that could host its own source code, called Wiki Base, and announced WikiWikiGoesPublic. One of the early clones of Wiki Base was CvWiki, developed in 1997 by Peter Merel. CvWiki was the first Wiki Base clone to have functioning transclusion and backlinks. It was fully integrated with Concurrent Version System (CVS) software, thereby providing unlimited undo and no edit collisions. Inspired by the example of the WikiWikiWeb, programmers soon started several other wikis to build knowledge bases about programming topics. Wikis became popular in the free and open-source software (FOSS) community, where they were ideal for collaboratively discussing and documenting software, particularly given the loose structure of the projects. The WikiWikiWeb grew steadily from 1995 to 1998, and then snowballed between 1998 and 2000. Until 2001 wikis were virtually unknown outside of the restricted circles of computer programmers. Wikis were introduced to the general public by the success of Wikipedia, a free content encyclopaedia that can be edited by anyone. After 2002 the number of wiki engines continued to grow exponentially, as new commercial products were introduced, and as new open-source projects continually forked off of existing ones. Presently there are a number of wiki engines are available. Also there are literally thousands of wikis around the web on a diverse range of subjects and supporting many communities.

Recently INFLIBNET Centre also launched its wiki site (http://www.inflibnet.ac.in/wiki/). Any registered user can edit an existing page or create new page. For this, user should have Internet connection and knowledge of wiki syntax.

1.2   Advantages of Wikis

- ⊃ Anyone can edit
- ⊃ Easy to use and learn

- Wikis are instantaneous so there is no need to wait for a publisher to create a new edition or update information
- People located in different parts of the world can work on the same document
- The wiki software keeps track of every edit made and it's a simple process to revert back to a previous version of an article
- Widens access to the power of web publishing to non-technical users
- The wiki has no predetermined structure - consequently it is a flexible tool which can be used for a wide range of applications
- There are a wide range of open source software for installation of wiki to choose from so licensing costs shouldn't be a barrier to installing an institutional wiki

1.3 Disadvantages of Wikis

- Anyone can edit so this may be too open for some applications, for example confidential documentation. However it is possible to regulate user access.
- Authenticity of materials and facts may be questioned.
- Open to SPAM and Vandalism if not managed properly. There are easy ways to restore a page however, and on some wiki site, a user must be logged in to edit pages so this reduces vandalism by automated spam bots as implemented at INFLIBNET's Wiki
- Requires Internet connectivity to collaborate, but technologies to produce print versions of articles are improving
- The flexibility of a wiki's structure can mean that information becomes disorganised. As a wiki grows, the community plans and administers the structure collaboratively.

1.4 Pros and concs of Wiki

Like any other technologies, Wiki has also its pros and cons, which can be summarized as follows: -

1.4.1 Advantage

- Allows anyone to edit a page without the hassle of logging in
- Web-editable, from pretty much any web browser these days. This makes it very cross-platform for end users.
- No special javascripts or plugins (although some wikis to take advantage of the greater ability gifted by other technologies)
- Less thought-time from looking at a page to correcting it. (zuihitsu)
- Makes it "easier" to fix broken links, spelling, add insightful comments etc. Linkrot is less of an interest for popular topics, since many people will frequent those pages, and the wiki spirit compels readers to make additions and corrections.
- Simple layout
- Simple command structure, no special HTML knowledge necessary, although html is available for use in some cases.

- Where other systems allow one to comment, leaving a static note which isn't integrated into a greater body of work, a wiki allows one to add to a pool of knowledge and re-edit a topic.
- Important key words do not need to be formatted in bold, because the text already highlighted by coloured text to another wiki link. In this and other wikis the unwritten red links stand out, drawing your attention for a contribution.
- Principle of voluntary cooperation allows for unfinished or incomplete work to be placed in a wiki so it is shared and easily improved or added to by others at their discretion. If the original author doesn't like any alterations, they can be ignored or if the edited work is deemed better the additions can be integrated.

1.4.2   Why is Wiki bad?

- A wiki goal, manifesto or mission statement is not directly enforcable. When any user can edit freely, they are unrestricted. This can lead to the creation of pages with less coherance or community value.

- Refactoring (rewriting a topic) may be a barrier to some, who would consider such an action to be almost impolite or even arrogant. One solution is to maintain that nobody has ownership of a topic, and that it is expected that there be multiple authors all looking and contributing, even if that means correcting spelling or rewriting paragraphs.
- Many users are so used to viewing web content from a consumer-perspective that the only additions they make are comments. Users must understand that they are both a consumer (reader), and a producer (editor) and that while adding a comment is inspiring, editing the work directly has great value.
- Where multiple authors may work on a topic, there can exist conflicts of goals or personality. Politeness, patience and consideration must be effortful by all members. Also, where the wiki framework draws one into a "post first, think later" frame of mind, one may find onesself open to peer review and criticism.
- Some pages may collect cruft or linkrot after a time. While there are cases when the topic is so complete and compelling as to not require contemporizing or updating at all, in many cases this means the topic is unpopular, of less value or may simply be too intimidating for it's readers to 'fix'.
- Many wikis are so vulnerable that all data can be destroyed, disrupted or displaced by way of an automated attack. The konspire2b wiki was reported to have been attacked in early May 2003 and had to be rolled back to a Febuary 20th snapshot, almost three months earlier. Without proper security structures in place, such activities can only be prevented through 1:1 effort, where one ally's efforts undo the damage from one enemy's graffiti. Functionality like the ability to roll

back mass changes from a single attacker's IP is rarely available. Of course, regular backups would go hand-in-hand with certain security features.

2.   Features of Wikis

2.1   Collaborative Online Editing

- A wiki enables documents to be written collectively in a very simple markup language using a web browser.
- In order to make this work, owners of a wiki should think hard about wiki management policies. Educators need to carefully plan an appropriate instructional design.

2.2   A simple Editing Syntax

- Editing content on a wiki is usually very simple, users have to learn a small syntax. However, some wikis use an increasingly complex syntax. Even though, users still have the option to work with a very small subset.
- In addition, most mediawiki-based sites use a sometimes huge library of templates.
- There is no standard Wiki syntax. Each Wiki Software has its own, although some types of Wikis are very close. Some isolated Wikis even use HTML instead of the traditional Wiki Syntax or allow combination of HTML codes with wiki coding. WYSIWYG through the web editors (TTW) also start becoming popular.

2.3   Page History

- Usually either all edits are kept in history and users can undo changes or compare changes.

2.4   Wikis as Hypertext System

- Wikis are one a few true hypertext systems still alive on the Web and this explains also part of their success.
- It is very easy to link from one page to another. Originally, most Wikis used a [:Wikimedia:CamelCase | CamelCase] linking mechanism, but this syntax makes reading more difficult and certainly deviates from standard spelling.
- Some wikis add other navigational featuers, e.g. a search facility or categories.
- One can search either titles or full text ("Go" or "search" button) in the box to the left
- One can add an article to a category,

2.5   Wiki Software Architectures

Most Wikis are implemented as server-side www scripts. This includes the following components:

1.   A webserver like Apache.
2.   Most implementations are done in PHP but some use other programming/scripting languages such as Perl, Python, Java, etc.
3.   A database server like MySQL, but some Wikis use a file-based system.

Therefore, a typical Wiki runs under the LAMP (Linux Apache MySQL PHP/Perl) bundle.

Some Wikis are embedded within portals e.g. Some LMS include a wiki.

3.   Some of the Popular Wiki Engines

3.1   MediaWiki (http://www.mediawiki.org)

The MediaWiki program was written for Wikipedia in 2002 by Lee Daniel Crocker, based on the user interface design of an earlier PHP wiki engine developed by Magnus Manske. Manske's PHP-based software suffered load problems due to increased use, so Crocker re-wrote the software with a more scalable MySQL database backend. As Wikipedia grew to one of the world's largest websites, achieving scalability through multiple layers of caching and database replication became a major concern for the developers. Internationalization has also received significant attention by MediaWiki developers (the user interface has been translated into more than 70 languages). One of the earliest differences between MediaWiki and other wiki engines was the use of freely formatted links instead of links in CamelCase. MediaWiki provides specialized syntax to support rich content, such as rendering mathematical formulas using LaTeX, graphical plotting, image galleries and thumbnails, and Exif metadata. MediaWiki lacks native WYSIWYG support, but comes with a graphical toolbar to simplify editing. One innovation for structuring content is "namespaces." Namespaces allow each article to contain multiple sheets with different standard names: one sheet presents the encyclopedic content, another contains the discussions surrounding it, and so on. While new namespaces can be added, the number of namespaces in a wiki typically remains low. At INFLIBNET Centre, Media Wiki is used for its wiki site (http://www.inflibnet.ac.in/wiki/)

3. 2   TWiki (http://www.twiki.org)

TWiki was created in Perl language by Peter Thoeny in 1998, based on JosWiki. Twiki was aimed at large corporate Intranets. It uses flat-files, which means that the data is stored in plain text files instead of in a database. (Flat-files allow a more rapid system than does the more complicated storage of pages in a database, but a database system can have more capabilities than a flat-file system.)

3.3 PhpWiki (http://www.phpwiki.org OR http://phpwiki.sourceforge.net/)

PhpWiki, created by Steve Wainstead in 1999 was the first wiki software written in PHP language. The initial version was a feature-for-feature reimplementation of the original WikiWikiWeb at c2.com. Subsequent versions adopted many features from UseModWiki.

3.4 TikiWiki (http://www.?tikiwiki.org)

TikiWiki was created in PHP language by Luis Argerich in 2002. It is designed as a Content Management System (CMS) and Groupware application enabling websites on the Internet and on intranets. TikiWiki is modular with components that can be individually enabled and customized by the TikiWiki administrator, and extending customization to the user with selectable skins and themes. TikiWiki is an international project, providing translations of the interface in several languages. Though developed primarily in PHP, TikiWiki has some JavaScript code. It runs on any server and supports several possible databases. Its components incorporate several other open source projects and applications.

4. Some popular wiki based Websites

As wiki is Web 2.0 Web Content Management System, a number of organizations and groups are using wiki based websites. Some of the wiki based websites are as follows: -

4.1 Wikipedia (www.wikipedia.org)

Wikipedia is a free, multilingual encyclopedia project supported by the non-profit Wikimedia Foundation. Its name is a portmanteau of the words wiki and encyclopedia. Wikipedia's 12 million articles (2.6 million in English) have been written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone who can access the Wikipedia website. Launched in January 2001 by Jimmy Wales and Larry Sanger, it is currently the most popular general reference work on the Internet. A number of the facts in this paper has been taken from this site.

4.2 Wikibooks (www.wikibooks.org)

Wikibooks (previously called Wikimedia Free Textbook Project and Wikimedia-Textbooks) is a Wikimedia Foundation wiki for the creation of free content textbooks and annotated texts that anyone can edit.

4.3 Wikiversity (www.wikiversity.org)

Wikiversity is a Wikimedia Foundation project, which supports learning communities, their learning materials, and resulting activities. It differs from more structured projects such as Wikipedia in that it instead offers a series of tutorials, or courses, for the fostering of learning, rather than formal content.

4.4   WikiHow (www.wikihow.com)

wikiHow is a wiki-based community with an extensive database of how-to guides. All of the site's content is licensed under Creative Commons (by-nc-sa) and the site uses a modified version of MediaWiki 1.12. The site started as an extension of the already existing eHow website, and has evolved to host over 49,000 how-to articles. wikiHow's mission is to build the world's largest how-to manual and help it grow. In June 2008, wikiHow had 11.4 million unique readers.

4.5   WikiAnswers (http://wiki.answers.com/)

WikiAnswers is a wiki website that is run as an online question and answer (Q&A) community that aims to offer answers to popular questions. Replies to questions are contributed by a registered community that collaborates to add, edit and improve answers, with the goal of creating one Q&A database for all to use. Previously known as FAQ Farm it was acquired by Answers Corporation in November 2006 and became the user-generated content (UGC) component of answers.com. WikiAnswers is based on a customized version of MediaWiki called "Wiki FAQs".

4.6   Wookieepedia (http://starwars.wikia.com/)

Wookieepedia, the Star Wars Wiki is an online encyclopedia for information on the Star Wars fictional universe, including information on all six films, as well as the Expanded Universe. It is a more specialized and useful wiki created to be an extensive encyclopedia of the Star Wars universe and is almost entirely in-universe. The name Wookieepedia is a portmanteau of Wookiee and Encyclopedia, being a pun on the name of Wikipedia.

4.7   WikiMapia (www.wikimapia.org)

WikiMapia is an online map and satellite imaging resource that combines Google Maps with a wiki system, allowing users to add information, in the form of a note, to any location on Earth. It was created by Alexandre Koriakine and Evgeniy Saveliev, and was launched on May 24, 2006 with the aim of describing the whole world. It now has almost 9 million places marked. While registration is not required to edit or add to WikiMapia, over 200,000 users from around the world currently are registered.

4.8   Wiki1001 (http://www.wiki1001.com/)

Wiki1001 is a directory of wikis around the world, where one can find great wikis beyond Wikipedia. Wiki enthusiasts can discover wikis of their interests while wiki organizers can promote their wikis.

4.9   Bliki

A bliki (also known as a wikiLog, wog, wikiWeblog, wikiblog, or bloki), is combination of the two Internet concepts of a blog and wiki. It combines features from both: as with blogs, posts or articles

appear in reverse chronological order on the front page, with the most recent one at the top; but editing is done in wiki style, with a version history for each page and special markup tags. As with wikis, the fact that a site is a bliki does not mean that any reader can edit any page; editing permission is at the discretion of the administrator(s). According to software expert (and bliki enthusiast) Martin Fowler, the name and concept were conceived in 2003 by wiki originator Ward Cunningham.

4.10   Wiktionary (http://www.wiktionary.org/)

Wiktionary (a portmanteau of the words wiki and dictionary) is a multilingual, Web-based project to create a free content dictionary, available in over 151 languages. Unlike standard dictionaries, it is written collaboratively by volunteers, dubbed "Wiktionarians", using wiki software, allowing articles to be changed by almost anyone with access to the website. Like its sister project Wikipedia, Wiktionary is run by the Wikimedia Foundation. Because Wiktionary is not limited by print space considerations, most of Wiktionary's language editions provide definitions and translations of words from many languages, and some editions offer additional information typically found in thesauri and lexicons. Additionally, the English Wiktionary includes Wikisaurus, a category that serves as a thesaurus, including lists of slang words and the Simple English Wiktionary, compiled using the Basic English subset of the English language.

4.11   WikiIndex. (www.WikiIndex.org)

WikiIndex is defined as a wiki of wiki, wiki people and wiki ideas, a WorkInProgress. This is part of a continued effort to self-organize information collaboratively, started by Ward Cunningham a decade ago. Since this site is also a wiki, its pages are created and edited by people.

4.12   WikiEducator (http://www.wikieducator.org)

Commonwealth Of Learning launched WikiEducator in 2006 and its use is growing rapidly with the number of registered users passing the 6,000 mark and number of visits per month now exceeding 180,000. WikiEducator creates online communities whose members participate from remote locations to create educational content collaboratively and to plan conferences and other events.

5.   Set Up of Wiki Site and Creation of Wiki Server Using Media Wiki

MediaWiki is a web-based wiki software application used by all projects of the Wikimedia Foundation, all wikis hosted by Wikia, and many other wikis, including some of the largest and most popular ones. Originally developed to serve the needs of the free content Wikipediaencyclopedia, today it has also been deployed by companies for internal knowledge management, and as a content management system. Notably, Novell uses it to operate several of its high traffic websites.

MediaWiki is written in the PHP programming language, and can use either the MySQL or PostgreSQL relational database management system (RDBMS). MediaWiki is distributed under the terms of the GNU General Public License while its documentation is released under the GFDL and partly in the public domain, making it free and open source software. Users can customize their style-sheets and configure client-side JavaScript to be executed with every page view. The entire MediaWiki user interface can be edited through the wiki itself by users with the necessary permissions (typically so-called "administrators").

MediaWiki has the user interface in different languages. A language for the wiki content itself can also be set, to be sent in the "Content-Language" HTTP header and "lang" HTML attribute.

The MediaWiki codebase contains various "hooks" using callback functions to add additional code in an extensible way. This allows developers to write extensions without modifying the core or having to submit their code for review. Installing an extension typically consists of adding a line to the configuration file, though in some cases additional changes such as database updates are required.

5.1   Installation requirements

A standard MediaWiki installation has the following requirements:

1.   PHP

PHP is required to run the software. It can be downloaded from http://www.php.net

2.   Database Server

A database server is required to store the pages and site data. MediaWiki stores all the text and data (articles, user details, system messages, etc.) in a database, which it is capable of sharing with other web-based applications (phpBB, etc.). Any one of the following database servers may be used to run the latest version of MediaWiki:

- ➲   MySQL 4.0 or later
- ➲   PostgreSQL 8.1 or later
- ➲   Ingres 2006 or later (SVN-Download)
- ➲   phpMyAdmin (MySQL) or phpPgAdmin (Postgres) may also be downloaded and installed to ad minister the database server.

3.   Web Server

A web server is required to send the generated pages to the web browser. In order to serve the generated pages to the browser, MediaWiki requires some web server software. Most installations use the Apache web server, available at the official download page http://www.apache.org/. MediaWiki has also been tested under IIS 6.0, Cherokee, and lighttpd.

Hardware requirements

The recommended minimum requirements are 256MB of RAM for a single-computer website and 40MB of storage, although this will not suffice for a busy public site or a site with uploading enabled.

5.2   Downloading and Installing MediaWiki

Mediawiki software pack can be downloaded from its official website http://www.mediawiki.org. Files are supplied in a .tar.gz archive. Even many Linux distributions provide MediaWiki in a packaged format for that distribution. Installing MediaWiki takes between 10 and 30 minutes depends upon download speed at client network and system, and involves uploading/copying files, and running the installer script to configure the software.

Steps for Installation

1. After downloading the Mediawiki software pack, Uncompress the files locally or on server. This is usually done with software such as 7-Zip (free), WinZip, WinRAR or IZArc (free) on Windows. On Linux OS, one can untar the file using this command:

    tar xvzf mediawiki-*.tar.gz

2. Upload the files to the web server's web directory either by directly copying the unzipped folder or by using an FTP client such as FileZilla (Open Source Software, Windows) or Cyberduck (OSX). If Apache is installed , the correct directory is specified in the httpd.conf file (its typically <apache-folder>/htdocs).

3. Rename the uploaded folder to whatever one would like to have in the URL. If the web server is running as http://localhost for example, uploading MediaWiki to /testwiki/ directory would mean the wiki will be accessed at http://localhost/testwiki/index.php. At INFLIBNET, the folder is renamed as wiki that is why one access the wiki page using the site address http://www.inflibne.ac.in/wiki/index.php. This (renamed) folder will now be referred as <MediaWiki-folder>.

5.2.1 Preparation of the Directories

MediaWiki needs to be able to write to the <MediaWiki-folder>/config directory when it runs its installation script. There is need to change the permission settings for the config subdirectory so that it is writable by the webserver. If a command-line interface is being used, then use 755 (Use 777 on Linux except for RedHat Linux). Alternately, one may be able to change permissions using a "control panel" provided by the web host. Depending on the server configuration, on Unix or Linux, if user has admin rights, he/she can run the command chmod 755 config in the wiki directory. MediaWiki should be installed into a subdirectory of the document root, not in the document root itself. That is, if the domain my.domain.org is for instance mapped to the document root /home/mysqld/public_html, then mediawiki should be installed into /home/mysqld/public_html/w or similar. MediaWiki will then become available under http://my.domain.org/w.

5.2.2   Creation of a Database

MySQL

- ➲ One need to create a MySQL database and a user before installing MediaWiki. One can do this using various control panels such as PhpMyAdmin, which are often available from shared hosts, or one may be able to use ssh to login to the host and type the commands into a MySQL prompt.
- ➲ Download and install MySQL 5.0. It should put itself in /usr/local/mysql
- ➲ Check and see if the database server is running ("/usr/local/mysql/bin/mysqladmin status"). Another way to start initially the MySQL server is to run the configure script available at the root of the installation. It creates the initial tables and automatically starts the mysql daemon

1. Set a password for the "root" account on the database server. /usr/local/mysql/bin/ mysqladmin –u root password yourpassword
2. Set up a user in MySQL for the Wiki—do this in terminal:
   /usr/local/mysql/bin/mysql -u root -p mysql
3. This starts up the MySQL command line client. Now, do this in the client:
   create database wikidb;
   grant create, select, insert, update, delete, alter, lock tables on wikidb.* to 'wikiuser'@'localhost' identified by 'password';

Run the Installation Script.

Once all of the above steps are complete, then the installation can be completed through web browser by following instructions: -

5.2.3 Opening the MediaWiki Installation form

In the following examples, it is assumed that website is located at http://www.abc.com/ which is physically located on the server at /home/example/web. There is need to adjust the examples to use the appropriate locations for user's situation.

1. Use the web browser to browse to the main wiki page. This is the web-accessible folder that one installed MediaWiki into, and is typically /wiki (e.g. http://www.abc.com/wiki/, assuming it is installed to /home/example/web/wiki).
2. Click on the link to begin the configuration script. This is located in the wiki's config directory (so using the example above one would go to http://www.abc.com/wiki/config/).
3. If the script spots any configuration errors then it will not allow to continue.

4.   If all the tests pass, user will be presented with a form to fill in the information that MediaWiki now requires.

5.2.4 Filling up the Form Fields

Follow the instructions on the form to fill in the required entries (refer to the Table 2) and after that click on the "Install MediaWiki!" button. The script will now populate the database and write a configuration file.

After the setup script has finished running successfully, a file called LocalSettings.php is created in the "config" directory. This file contains all the information needed by MediaWiki to run. Since it stores the specified database user's password in plain text, it is strongly suggested that there must be a wiki specific database account (i.e. not root).

1.   Move this file to the main wiki directory (if you installed MediaWiki to /home/example/web/ wiki, move it there).
2.   Set stringent permissions on the LocalSettings.php file.
    1.   Set chmod 600 and chown <webserver owner> (Owner read and write, no other per-missions).
3.   Delete the "config" directory.

Once the above steps have been done, now wiki is ready to use. Browse to the address, (in our example http://www.abc.com/wiki/) and start using.

Table 2 – Different fields in Configuration File

Field	Explanation
Database host	The host the database located on. If the database is located on the same host as the web server, use "localhost".
Database name	The name of the MySQL or Postgres database you created (see #MySQL) Note: If there is superuser account of DB Server and it is being used on this form page then just fill the name of the DB that is to be created on database server to serve your wiki. Else supply the name of the database which is created to server for wiki. Note: If there is MySQL using a different socket file (e.g. mysql on localhost, using —socket=/tmp/mysocketfile), set the database name to:"localhost:/tmp/mysocketfile".
Database username	The username used for accessing your wiki database. Note: If one has superuser account of DB Server and will be using it on this form page then simply fill the db username that he/she would

	like to be created on the database for his/her wiki. Otherwise, create the db user and ensure that the user have SELECT, INSERT, UPDATE, and DELETE permissions on the MediaWiki database. It is strongly suggested that one does not use a superuser account since the user password is stored in plain text.
Database password	The user password for accessing your wiki database. Note: If one has superuser account of DB Server and will be using it on this form page then just fill the db username that would like to be set on the database for his/her wiki. Alternately, supply a user password for the database that is already created to serve his/her wiki.
Superuser account / Superuser password	The root database user and password, if one has it. If one does not have this password, it should be left as it is. If one has the pass word, he/she may be able to skip the above stages of creating the database and user manually since this form will be able to do this for him/her.
Database table prefix	(MySQL only) An optional prefix to prepend to the name of every table that will be created within one's wiki database. If one plans to have several wikis, he/she might want use a prefix such as "w1_", so that all the tables associated with his/her first wiki will have "w1_" prepended. This allows to install multiple wikis using the same databases by making the name unique. For example the generic name "archive" becomes "w1_archive", so that it is possible to add another MediaWiki installation without overwriting the tables.
Database character set	There are currently 3 options in this section. The Backwards-compatible UTF-8 is for Upgrading pupose and for people who are very afraid of changes. The Expermiental is the new way. one is for saving in UTF-8 format. that is very readable and unicode but takes a lot of space. The Binary is also unicode but not readable.

Once the wiki has been installed and configured using the above configuration script, any further customizations need to be made by configuring LocalSettings.php

6. Language of Wiki and Wiki Syntax

Formatting Wiki pages is a bit different from writing on a standard word processor. Instead of a strict ("what you see is what you get") approach, Wiki pages use text codes to create particular elements of the page (e.g. headings). This "language" is known as Wikitext (or Wiki-markup) and is designed for ease of editing. There are special syntax for editing wiki pages are called Wiki Syntax.

6.1 Bold and Italics

The most commonly used wiki tags are bold and italics. Bolding and italicizing are done by surrounding a word or phrase with multiple apostrophes ('):

Wiki Syntax	Effect will be	Output on wiki page is
''INFLIBNET''	Italic	INFLIBNET
''' INFLIBNET '''	Bold	INFLIBNET
'''''INFLIBNET'''''	Bold italic	INFLIBNET

6.2 Headings and subheadings

Headings and subheadings are an easy way to improve the organization of an article. If there are two or more distinct topics being discussed, the article can be broken up by inserting a heading for each section. Headings can be created like this:

Wiki Syntax	Output
== Heading ==	Heading
=== Subheading ===	Subheading

6.3 Indenting

Indenting can improve the layout of a discussion considerably, making it much easier to read. A standard practice is to indent one's reply one level deeper than the person who is being replied to. The simplest way of indenting is to place a colon (:) at the beginning of a line. The more colons you put, the further indented the text will be. A newline (pressing Enter or Return) marks the end of the indented paragraph.

For example:

> This is aligned all the way to the left.
> : This is indented slightly.
> :: This is indented more.

is shown as:

> This is aligned all the way to the left.
> This is indented slightly.
> This is indented more.

6.4 HTML

HTML code can be used in pages to produce more advanced formatting such as colors, tables, and edit page layout. However, users do not need to know HTML to use Wiki sites and follow formatting conventions.

6.5   Bulleted and Numbered Lists

There are two types of lists that can easily be created in the wiki. The first is a bulleted list (sometimes called an unordered list), and the other is a numbered list. To create them, one can do this by hand using simple syntax the following: –

Description	Wiki Syntax	Output on Wiki page
Bulleted list	* one * two ** two point one * three	• one • two • two point one • three
Numbered list	# one # two ## two point one # three	1. one 2. two 1. two point one 3. three

In short, bulleted lists are created by using asterisks (*), while numbered lists are created using hashes (#). User can also embed or nest lists within other lists by adding more asterisks or.

6.5.1   Mixing list types

It is possible to mix list types as in the example below.

Example (Output)	Wiki Syntax
1. The first item in the list	# The first item in the list
2. The second item in the list	# The second item in the list
• The first nested bullet	#* The first nested bullet
• The second nested bullet	#* The second nested bullet
3. The third item in the list	# The third item in the list

6.6   Linking

Hyperlinking can be done in wiki pages in a easy way. There are various ways to make links:

- Creating an internal link to a new page, for instance creating a link on Page A to Page C, which must still be created in the wiki;
- To create a link to a page, surround the word you wish to use as your link in double square brackets like this: *[[New Page]]*
- Creating a link from a page in the wiki to another website, which is called an external link, for instance linking Page A to the home page of INFLIBNET or UGC.

- To create a link like this just type a link and the description, separated by a space and enclosed in single square brackets: *[http://www.inflibnet.ac.in INFLIBNET Web Site]*

- Deciding which words, letters or concepts would be displayed to the user as the hyperlink text. That is the text which appears as a blue link in the browser.

- In Wiki language there is a technique called as a piped link (this syntax uses the character "|" often referred to as the pipe). It can display a more meaningful link name for an otherwise complex page address.

- Page links are case sensitive

6.7   Wiki Table

Tables may be authored in wiki pages using either HTML table elements directly, or using wikicode formatting to define the table. The benefit of wikicode is that the table is constructed of character symbols which tend to make it easier to perceive the table structure in the article editing view compared to HTML table elements.

6.7.1 Wiki table Markup Summary

{|	start table
|+	table caption, *optional;* only one per table and between table start and first row
|-	table row, *optional on first row* -- wiki engine assumes the first row
!	table header cell, *optional.* Consecutive table headers may be added on same line separated by double marks (!!) or start on new lines, each with its own single mark (!).
|	table data cell, *required!* Consecutive table data cells may be added on same line separated by double marks (||) or start on new lines, each with its own single mark (|).
|}	end table

- The above marks must start on a new line except the double || and !! for optionally adding consecutive cells to a line.

- XHTML attributes. Each mark, except table end, optionally accepts one or more XHTML attributes. Attributes must be on the same line as the mark. Separate attributes from each other with a single space.

o Cells and caption (| or ||, ! or !!, and |+) hold content. So separate any attributes from content with a single pipe (|). Cell content may follow on same line or on following lines.

o Table and row marks ({| and |-) do not directly hold content. Do *not* add pipe (|) after their optional attributes. If one erroneously add a pipe after attributes for the table mark or row mark the parser will delete it *and* the final attribute, if it was touching the erroneous pipe!

➲ Content may either (a) follow its cell mark on the same line after any optional XHTML attributes or (b) on lines below the cell mark. Content that uses wiki markup that itself needs to start on a new line, such as lists, headers, or nested tables, must of course be on its own new line.

Example of table

Output			Wiki code

Sl. No.	Name	Designation	`{|`
			`|  Sl. No.   ||   Name   ||   Designation`
			`|-`

1	Dr. Jagdish Arora	Director	`|  1          ||   Dr. Jagdish Arora    ||   Director` `|-`
2	Prof. S K Khanna	Chairman, GB	`|  2          ||   Prof. S  K Khanna   ||   Chairman` `|}`

6.8 Insertion / Linking of Images on the Wiki page

Inserting most media into the wiki is a two-step process that involves inserting the syntax to tell the wiki where the media should go on the page, and then uploading the media itself into the wiki.

Step – 1 : Inserting Syntax

Basic syntax

The most basic syntax for adding an image is:

[[Image:Name_of_Picture_goes_here.jpg]]

User has to insert this where he/she would like the image to appear. The image names are case-sensitive.

Explanation

1. The syntax is contained within two square brackets;
2. For images, the word "Image" is typed followed by a colon (:);
3. User must substitute the word "*Name_of_Picture_goes_here.jpg*", with the name of the image file and its extension (the letters which appear after the full stop. The extensions for the image

formats which can be used are: .gif, .jpg, .png. and .svg). For example, if one wants to insert a jpeg image called "inflibnet_logo", syntax would be typed as:

[[Image: inflibnet_logo.jpg]].

Step – 2 : Uploading the Media

The image file should be available on wiki server, otherwise it will appear in red colour which indicates that file not available on wiki server. The way to do upload is to click on the red link that has just been created by the wiki using step-1. This takes to the Upload file page where desired image can be up-loaded image into the wiki to be displayed. The Upload File page contains a form that allows to select an image (or media file) from local computer and upload it into the wiki. Clicking on the *Browse* button next to the *Source filename* field will open local computer's *standard file open dialog box*. This dialog box is used to navigate to and select the required image. The Destination filename should already be filled in and will not need to be changed. Each image actually has its own page that can be accessed by clicking on the image.

6.9   Frames & Thumbnails

The full syntax for displaying an image is:

   [[Image:file name|type|location|size|caption]]

Explanation

1.   type refers to whether user wants to display the image as a thumbnail of framed image;
2.   location allows user to specify where on the page the image should appear, for example: left, right or center
3.   size allows to specify the size at which the picture is displayed on the page;
4.   caption is where user can add a description for the image.

Only [[Image:file name]] is actually required. The other details are optional and can be placed in any order. The following table outlines the optional attributes and their effects on images:

Additional Image Attributes	Results in
thumb / thumbnail or frame	Results in an image displayed with specific formatting (see the examples below).
Location	'right', 'left', 'center' or 'none'. Determines the placement of the image on the page. Defaults to left.
Size	{width}px or {width}x{height}px, will scale the image to the given width and height, while keeping its aspect ratio.
Caption	Any element that is not identified as any one of the above is assumed to be caption text.

6.10   Inserting Portable Document Format (pdf) files

Besides inserting images in the wiki, one may want to link to a pdf file or insert a podcast in MP3 format for download.

Creating a link to a file on Wikis is similar to the process involved in uploading an image; first the associated wiki markup is placed into the content of the page concerned, then the **File upload** page is used to upload the actual file into the wiki.

The basic syntax for inserting a pdf file is:

[[media:name_of_file.pdf|Piped link text goes here]]

To upload an MP3 audio file for users to download or launch in their desktop media players. The basic syntax is similar to the pdf example above:

[[media:name_of_file.mp3|Piped link text goes here]]

There may be file limit size on Wiki Server.

6.11   Putting Mathematical Formulas on Wiki Page

MediaWiki uses a subset of TeX markup, including some extensions from LaTeX and AMS-LaTeX, for mathematical formulae. It generates either PNG images or simple HTML markup, depending on user preferences and the complexity of the expression. In the future, as more browsers are smarter, it will be able to generate enhanced HTML or even MathML in many cases.

More precisely, MediaWiki filters the markup through Texvc, which in turn passes the commands to TeX for the actual rendering. Thus, only a limited part of the full TeX language is supported.

To have math rendered, there is need to *set $wgUseTeX = true*; in *LocalSettings.php*.
Syntax
Math markup goes inside *$...$*.
Similar to HTML, in TeX extra spaces and newlines are ignored.
Following table gives the complete example about how to use the formulas: –

Type of Equation	Output	Wiki syntax
Quadratic Polynomial	$ax^2 + bx + c = 0$	$ax^2 + bx + c = 0$
Quadratic Formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$
Tall Parentheses and Fractions	$2 = \left(\dfrac{(3 - x) \times 2}{3 - x} \right)$	<math>2 = \left(\frac{\left(3-x\right) \times 2}{3-x} \right)</math>
Integrals	$\int_a^x \int_a^s f(y)\, dy\, ds = \int_a^x f(y)(x-y)\, dy$	<math>\int_a^x \int_a^s f(y)\,dy\,ds = \int_a^x f(y)(x-y)\,dy</math>
Summation	$\sum_{m=1}^{\infty} \sum_{n=1}^{\infty} \dfrac{m^2\, n}{3^m\,(m\,3^n + n\,3^m)}$	$\sum_{m=1}^\infty\sum_{n=1}^\infty\frac{m^2\,n}{3^m\left(m\,3^n+n\,3^m\right)}$
Limits	$\lim_{z \to z_0} f(z) = f(z_0)$	$\lim_{z\rightarrow z_0} f(z)=f(z_0)$

7.   INFLIBNET's WIKI Site

As mentioned earlier, Wiki site is lauched on INFLIBNET's Website (http://www.inflibnet.ac.in/wiki) us-ing the MediaWiki. The basic objective of this project is provide wiki related services to academic com-munity. Through this wiki site, Libraries can open their own website, if it not available, without any costing. Academicians and research scholars can put their paper and progress of their theses on this wiki page. Beside, University teachers, librarians and research scholars can use this site to open their website.
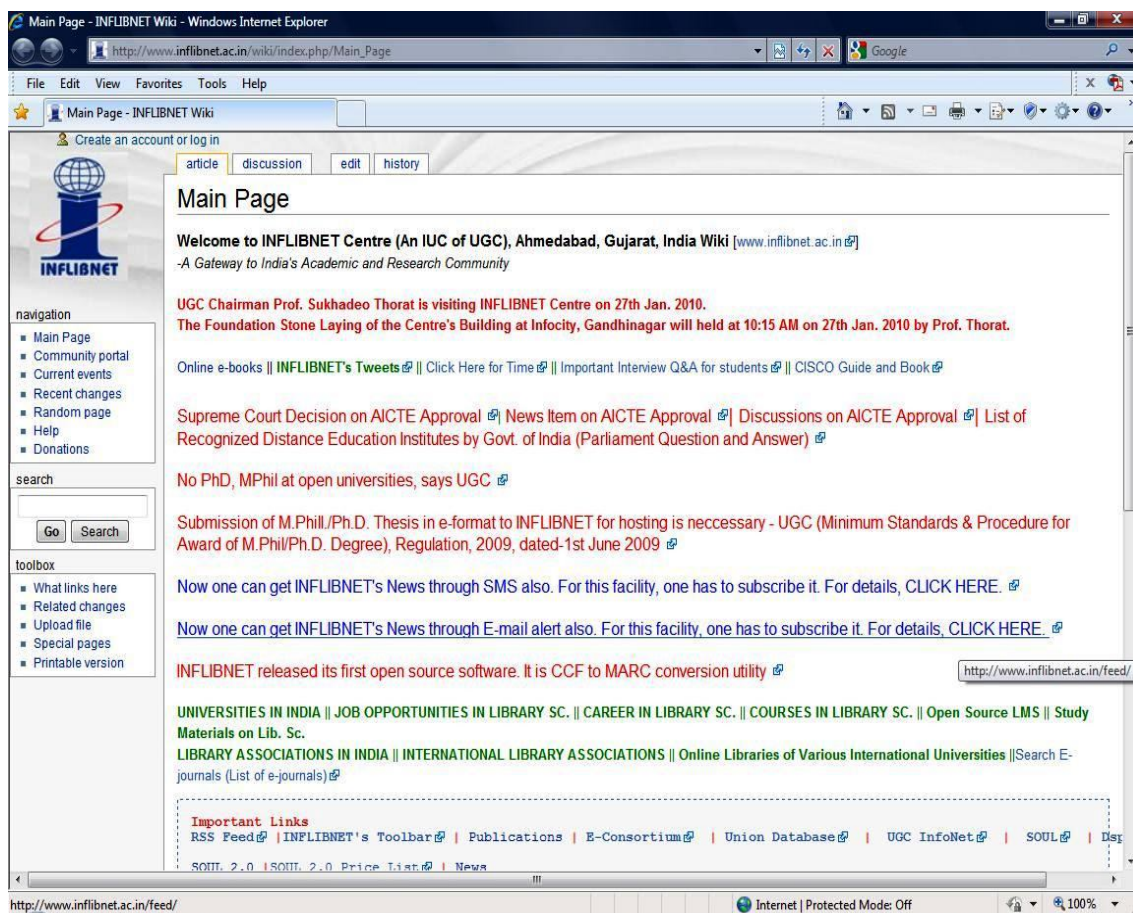
8.   Conclusion

Now-a-days Wiki sites are becoming very popular and a major source for references. However, there are question mark on authentication of facts on wiki sources, but visitors are changing the facts continuously if there is any error.

Reference

1   http://www.inflibnet.ac.in/wiki/

2   http://www.wikipedia.org

3   http://www.economist.com/surveys/displaystory.cfm?story_id=6794228

4   http://www.siteground.com/compare_best_wiki.htm

5   http://www.mediawiki.org

6   http://www.twiki.org

7   http://www.phpwiki.org

8   http://phpwiki.sourceforge.net/

9   http://www.?tikiwiki.org

10 http://www.wikibooks.org

11 http://www.wikiversity.org

12 http://www.wikihow.com

13 http://wiki.answers.com/

14 http://www.wikieducator.org

15 http://www.wiki1001.com

16 http://starwars.wikia.com/

About Author

Mr. Rajeev Kumar, Scientist–B, INFLIBNET Centre, Ahmedabad.

E–mail: rajiv@inflibnet.ac.in