

RSS Reader

Dan-Costin Tuşaliu, Ovidiu Mirică, Adrian-Gabriel Neaţu

*Computers and Communications Engineering Department
Faculty of Automation, Computers and Electronics, University of Craiova
Craiova, Romania*

Abstract: This paper focuses on the new trends in the new media and on the way how information is gathered and visualized by people. Starting from here the authors want to propose an open source application in order to help people in this perspective. RSS technology is considerably more attractive to users looking for information in multiple places on multiple sites or news portals. JRSSReader will be an open-source project and everyone who knows the Java programming language can help improve the application.

Keywords: RSS, Java, XML, open source, SQL, database, HTML, web application.

1. INTRODUCTION

RSS (originally RDF Site Summary, often dubbed *Really Simple Syndication* (Ayers D., (2005)) is a family of web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardized format. An RSS document (which is called a "feed", "web feed", or "channel") includes full or summarized text, plus metadata such as publishing dates and authorship.

RSS feeds benefit publishers by letting them syndicate content automatically (Hammersly B., (2005)). A standardized XML file format allows the information to be published once and viewed by many different

programs (Hunter D., (2007)). They benefit readers who want to subscribe to timely updates from favorite websites or to aggregate feeds from many sites into one place. RSS feeds can be read using software called as "RSS reader", "feed reader", or "aggregator". There are different RSS readers that work on different operating systems, so one must choose one which is supported by its computer (Finkelstein E., (2005)).

There are several types of news readers. They can be accessed either by browser or can be downloaded. If one chooses to access the transmission RSS browser, he will be able to access the latest news from any computer. If one chooses to download an application to read RSS feeds then he can also store information on his computer as he

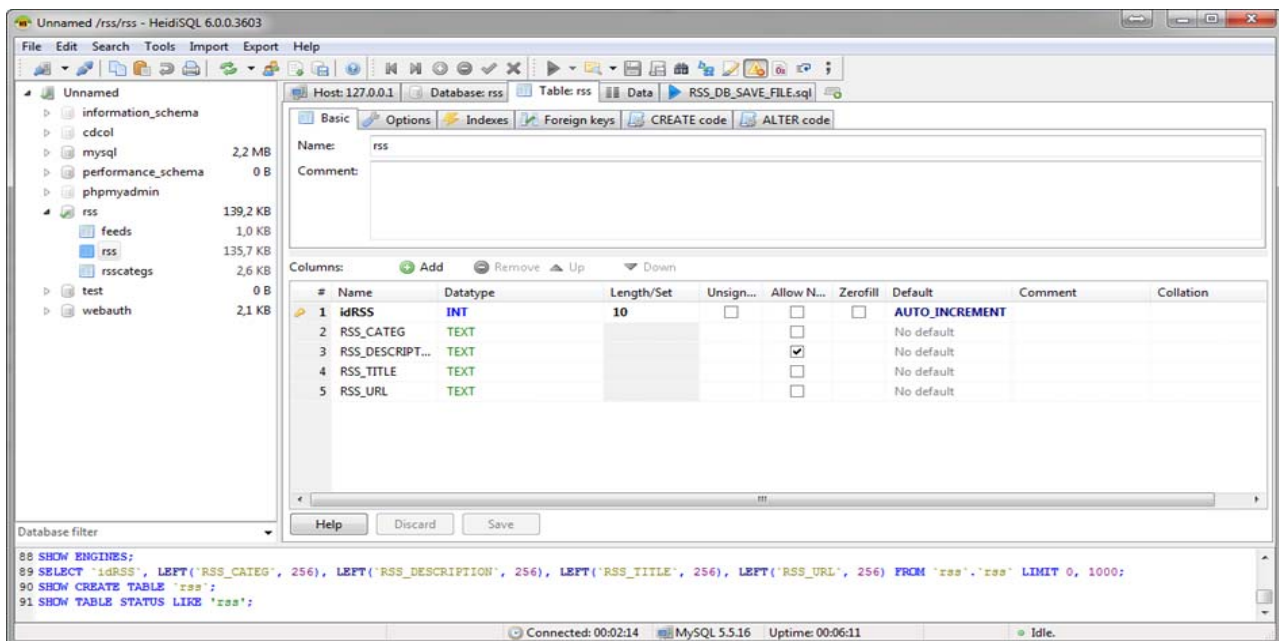


Fig.1. JRSSReader's tables view from HeidiSQL.

would with an e-mail. After a news reader was chosen, one must subscribe to RSS news feeds that present interests.

2. JSSREADER

2.1 JRSSReader – database

JRSSReader will save all the news in a SQL database saved on the local machine making it possible to read news at any time. The database will contain three tables (RSS table, feeds catsg and rsscatsg).

RSS table contains information about RSS channels saved by the user. Thus, for each RSS channel saved, the user will need to enter information about the category that will be part of the title's RSS, its URL and a brief description.

Observation: Title, URL and RSS's category are required fields in order to save a RSS database. RSS's description may be missing.

Feeds table is the most important of the three tables, because it contains all the news that we receive. The table called *rsscatsg* is used to store the RSS categories. These are managed only by the user. Every time the user adds a new RSS, it must be added to a category.

2.2 JRSSReader – application

JRSSReader is a pure Java solution for receiving news in RSS format. The application is made from the scratch based on the JDK 6 and it will work on every machine that has installed the JDK version 6 or newer (Sauers M., (2010)).

The JRSSReader application was implemented using Eclipse 3.6. Eclipse is an open-source development environment written mainly in Java. As it can be seen in the Fig. 2, application is composed from packages: default package (contains the main class), GUI package (containing the useful classes for interface) and the use package (containing the useful classes to implement different type of operations needed to get and display the RSS news on the user interface) (Wittenbrink, H., (2005)).

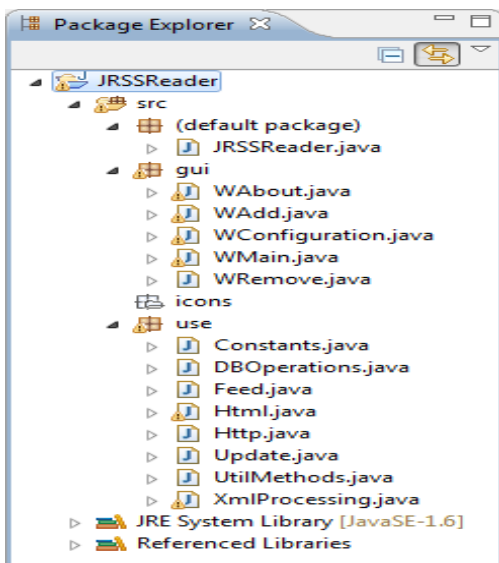


Fig.2 JRSSReader - class design.

The most important package from the application is the *use* package . It contains the following classes: *Constants* class (constants needed in the application), *DBOperations* class (useful methods needed to work with the database), *Feed* class (needed to store feed's properties), *Html* class (contains useful methods to merge two HTML files and to export news in a HTML format using a template), *Http* class (contains methods needed to make a connection to an URL), *Update* class (extends Thread class and it is used for updating news), *XmlProcessing* class (used to create XML documents, parse and extract data from them) and *UtilMethods* class (containing all the other methods needed for application development).

The main JRSSReader window can be seen in the Fig. 3. As one can see, the main window is quite simple, easy to use and very intuitive.

On the left side of the window one can see a JTree component which contains categories stored in the database. Each category contains RSS titles and the news from them could be seen by expanding the node corresponding to the selected category.

The feeds table from the right of the window is updated every time a RSS category or RSS title are selected. As one can see, the table contains only some information about each main feed: feed-title, the publication's feed, the feed source and URL feed. By selecting a row in this table (a row representing a feed from the database) will immediately display in the JEditorPanel database all information related to that feed. An example can be seen in Fig.3.

Also, one can observe the icon bar from the top of the application. On this bar there can be recognized some icons of the most important and used search engines: Yahoo, Google, Bing and Wikipedia. By selecting a row from the table in which the RSS news are displayed, the user can make a search on those search engines by the news title. This feature is very useful to anyone, because the application gives the possibility to find more information about the selected news by using this search.

The application search bar is used to find very easy news in the database by searching different keywords on the news title, description or URL. The filtered news is instantly displayed on the interface.

The application offers the possibility to export the selected news in one of the formats: XML or HTML.

If one selects only one category or just an RSS and then selects one of the types of export files, the JRSSReader will create on disk an appropriate file.

In Fig. 4 it can be seen the resulting XML file obtained by selecting the category *Art*. As it can be observed in the generated xml file the root node is the name of the category which was exported. It's children nodes are *feeds* (the nodes are also called feed) which are stored in the database related to the selected category. Each feed node format corresponds to the RSS version 2.0 format which can be very usefully because this XML document can be

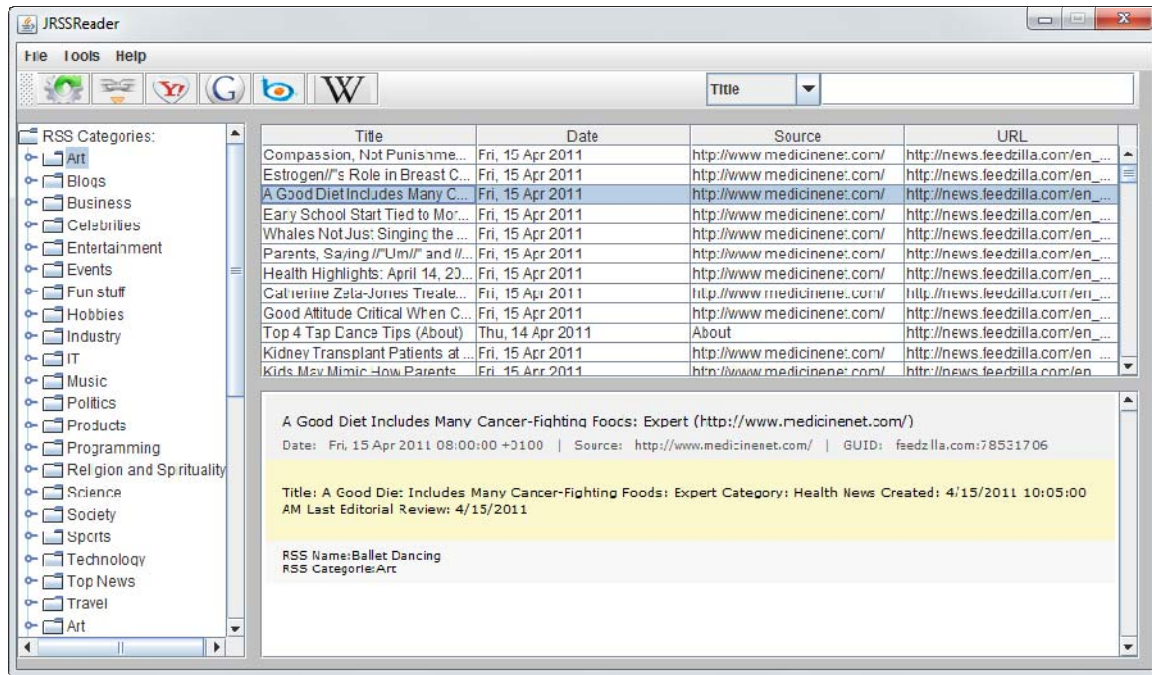


Fig.3. Main application window.

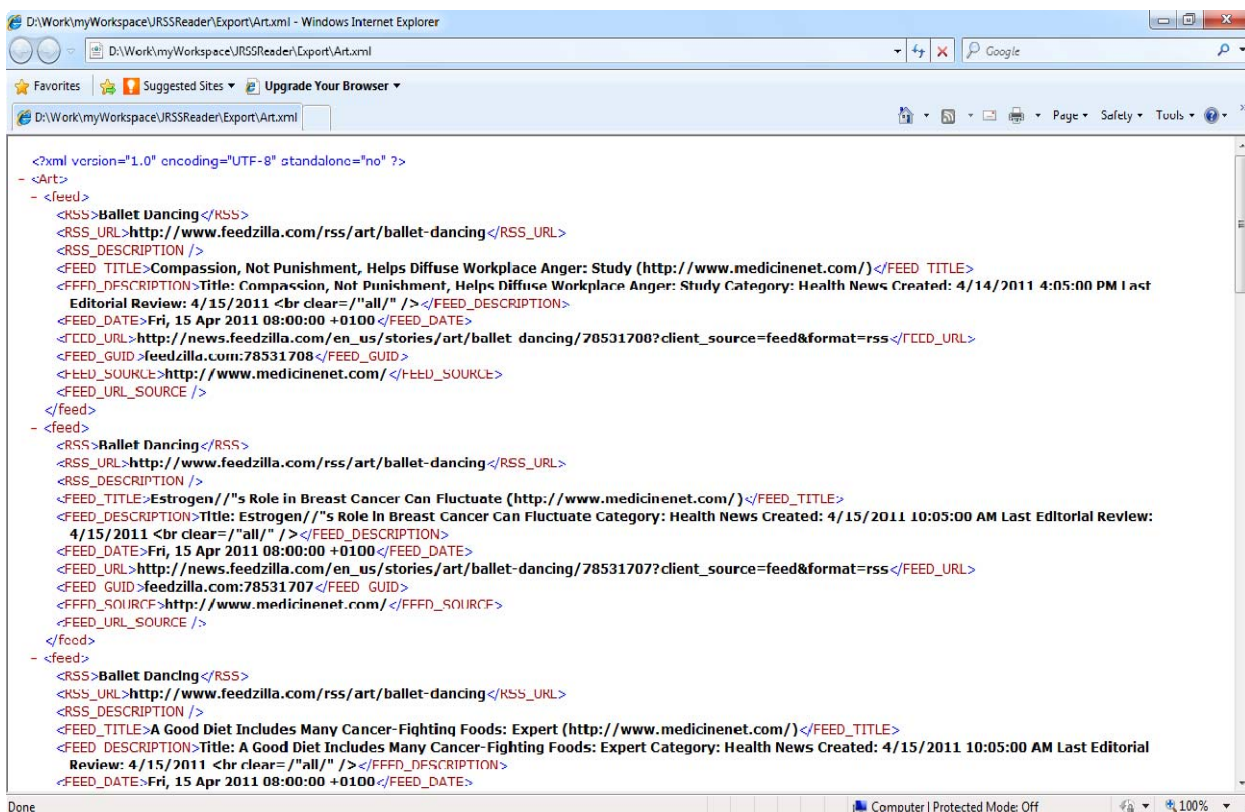


Fig. 4. Example of the exporting news in XML format

retransmitted by the user.

Also the merge function from the File menu allows linking two files exported by the same type (XML or HTML). The user must note that, in this moment, there is not possible to concatenate two files of different type. After

concatenation, the files will have the same format as the original and will contain data files.

Concatenation requires the selection of at least two files, and if the user selects only one file, then it will receive an information message.

From the *Tools menu* from the *menu bar*, user can access the configuration window which must be set in order that the application work as expected. As it could be seen, the user must set the database name and its location, the database authentication details and the main table. Also, the user can set the update type: user-defined update (application updates news only when the user needs) or boot update (the application updates news every time it is started). The user must note that the application cannot work if the database settings are set in the application and if they are not valid and in this case an error dialog message will inform him.

If the user wants to receive news from a certain site or server, he must receive from them the RSS URL. This URL used in a web browser will display the news stored at that moment at that location.

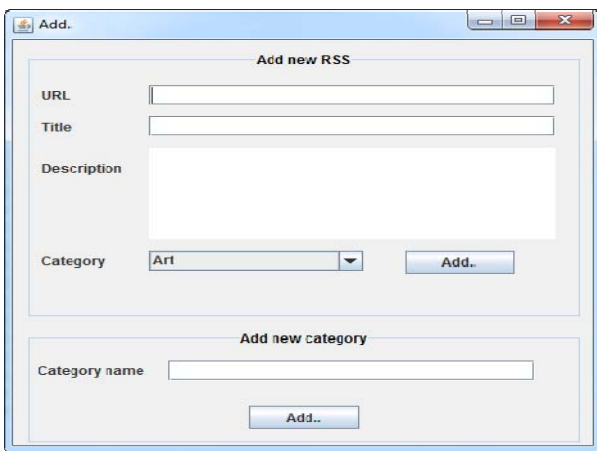


Fig. 5. Add new RSS window

To do this operation automatically with the JRSSReader the user must add the RSS URL in the RSS database. To do this, user must select from the menu bar the *Add* submenu. This submenu will open a window as it can be seen from the Fig. 5

One must note that the URL is the most important property of the RSS. Without a valid URL, the RSS news cannot be accessed by the user. Based on the RFC 1738 application will check every URL entered in the field.

Also, another important field needed for adding a RSS is the title. This RSS title must be very suggestive for user because the title will appear on the interface and it must be very representative for the news that will be received.

In conclusion, title and URL are required fields in order to be able to add new RSS news in the application.

The new RSS can be added to an existing category by selecting it from the drop-box or one can add a new category and then add the RSS to the new created category.

At the same time, the application gives the possibility to remove any RSS added in the database. User can remove an entire category of RSS, or he can remove only some RSS by selecting them in the table (Fig. 6). To delete one or more RSS sites from a category, one must select the category first, and afterward he must select RSS from the table. To select multiple RSS sites, user must hold down the CTRL key, and then with one click on the corresponding row's RSS feed he can select all the desired sites. The application allows the deletion of a category by selecting it and then pressing the appropriate button, i.e. the button *Remove categ* .

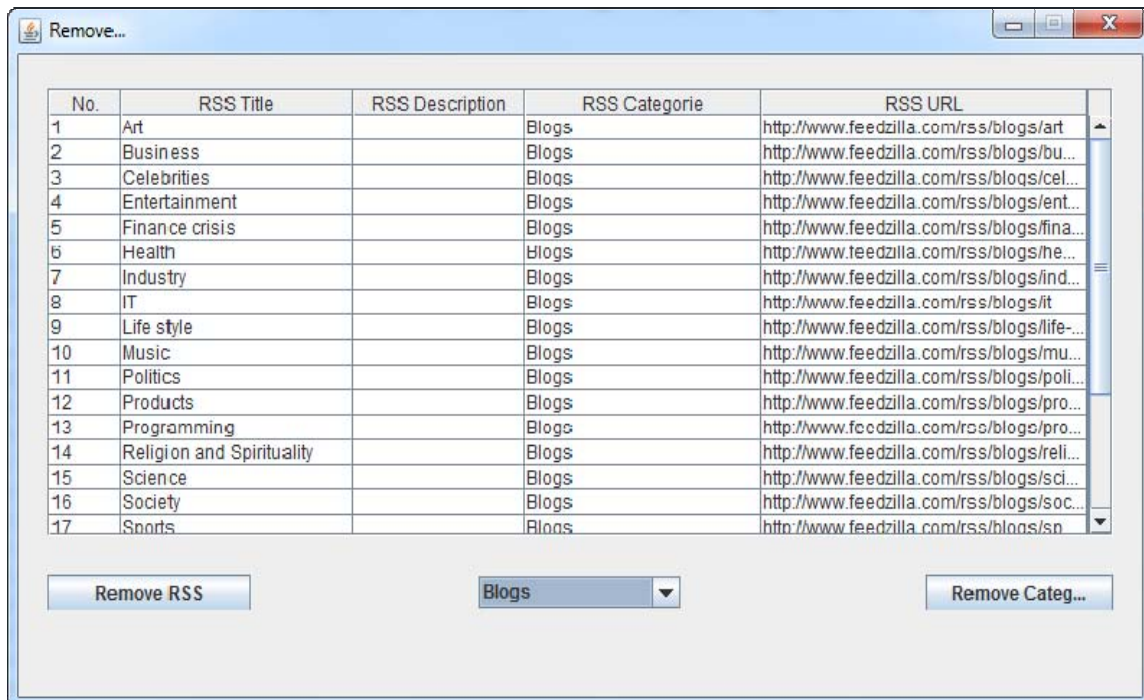


Fig. 6. Remove RSS window



Fig. 7. Icon bar







When the user presses the button *Remove categ*, a new message will appear which notifies that if he wants to delete the category, the application will delete all RSS sites in the database corresponding to the category.

Help menu allows the user to have access very quickly to the application JRSSReader User Manual. By simply accessing the menu, it will open the application manual in PDF format.

Observation: The JRSSReader Manual can be found in the application directory path: `{application_folder} /config/JRSSReaderUserManual.pdf`.

At the top of the window one can see a useful toolbar icon. This bar can be seen in the Fig. 7.

Functionality of each icon present on the bar is described as follows:

-  Update icon - pressing this icon will start updating RSS feeds suitable site or category selected;
-  Link icon - pressing this icon will open the feed URL selected in the system's default web-browser;
-  Yahoo icon - pressing this icon will perform a search in Yahoo search engine using as keyword the title's feed;
-  Google icon - pressing this icon will perform a search using the Google search engine and search as word title's feed;
-  Bing icon - pressing this icon will perform a search in the Bing search engine using as word title's feed;
-  Wikipedia icon - pressing this icon will perform a search in the encyclopedia Wikipedia search engine using as keyword the feed's title.

As an example of pressing search icons (Yahoo icon, Google icon, Bing icon and Wikipedia icon) which executes searches on various search engines, let's suppose that one has selected a feed as in Fig. 3 (selection of table feed). After the selection of the feed from the table, one must click on the any icon from the icon bar. As it was mentioned before, each icon searches on different search engine. In our example the Google icon was selected. Clicking this icon will generate a search URL as it can be seen below:

URL:http://www.google.ro/#sclient=psy&hl=ro&site=&source=hp&q=EnerNOC+shares+rise+on+energy+pay+ruling+%28bizjournals%29&fp=1&bav=on.2.or.gc.r_pw.&cad=b

and then it will be opened in the default Web browser on the system.

The Link icon starts an action which will open in the system's default web-browser the feed URL.

The Update icon starts the updating sequence of all the RSS found in the database. The interface will display the updates as soon as they are received and stored in the database.

Another important feature found on the icon bar is the search bar. The application offers the user a search mode which can be very useful when the user wants to find information about specific keywords. In the search text field user can enter to search single words, multi-words or phrases. The keywords are search in the database on the specific field which can be selected from the combobox (title, description, author, URL). All the results returned by the current search will be displayed by interface.

2.3 Further improvements

The lists of future improvements that will occur in future version of the application are the following:

- Automatically update the database after a certain period of time set by the user;
- Updating the database based on filters (RSS only updated sites with a particular source from a particular author, add to the database only those that are more recent than a certain date, etc.);
- Can perform searches in search engines (Google, Bing, Yahoo and Wikipedia) after other available fields (source, URL, description, etc.);
- Create a log file where you can easily see any problems arising from the use;
- Creation of RSS sites in different formats;
- RSS publishing sites on the web sites and generating corresponding HTML code;
- The ability to add new search engines and search links to save the configuration file.

3. CONCLUSIONS

The technology has evolved greatly in recent years. Keeping updated with the desired information from the Internet is becoming more difficult because daily appears new and new Web sites, and navigating on them can become difficult when one wants to receive latest news.

RSS technology is considerably more attractive to users looking for information in multiple places on multiple sites or news portals. This technology is very useful to those who struggle constantly with time and want to be kept informed. News "spread" very quickly today, an event that happened immediately if we have the technology needed; wherever we are we can be informed. JRSSReader will be an open-source project and everyone who knows the Java programming language can help

improve the application. Not necessarily need to contribute through implementation of Java code, but can be useful for application testing and reporting any problems arising. The authors wait opinions about what features users would like to appear in the next version.

4. REFERENCE

- Hammersly B., (2005), *Developing Feeds with Rss*, O'Reilly Media
- Finkelstein E., (2005), *Syndicating Web Sites with RSS Feeds For Dummies*, Wiley Publishing
- Ayers D., (2005), *Beginning RSS and Atom Programming*, Wiley Publishing
- Hunter D., (2007), *Beginning XML, 4th Edition (Programmer to Programmer)*, Wiley Publishing
- Sauers M., (2010), *Blogging and RSS: A Librarian's Guide*
- Wittenbrink H., (2005), *RSS and Atom: Understanding and Implementing Content Feeds and Syndication*, Packt Publishing
- NotePage, Inc., (2010), RSS Specifications, available at <http://www.rss-specifications.com/rss-tools.htm> ()