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RMiner: A Tool Set for Role Mining

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Role Engineering

□ The goal of role engineering is

- configuring a role-based access control (RBAC) system

□ Role engineering process includes

- generating roles
- assigning roles to users
- updating role states

Motivation for Role Mining Tools

□ The role mining ecosystem

- There are many algorithms have been proposed to mine the roles.
- The role mining algorithms discover roles from the real world data set that is usually with noise.
- The role mining algorithms will not completely solve the role configuration problem.
- The administrators usually need to correct some inappropriate roles generated by role mining algorithms.

□ A possible solution may be ...

- Developing a platform to implement the role mining algorithms and providing a tool set to aid the administrators to update the role states.

Contributions

- **RMiner** provides a visual tool set platform for role mining, role state updating and role assignment.
 - Users can use RMiner to build an RABC system or carry out experiments to analyze the differences among different role mining algorithms, as well as the self-defined algorithms.
 - RMiner is a unified verification platform that simplifies the process of role mining research and experiments.

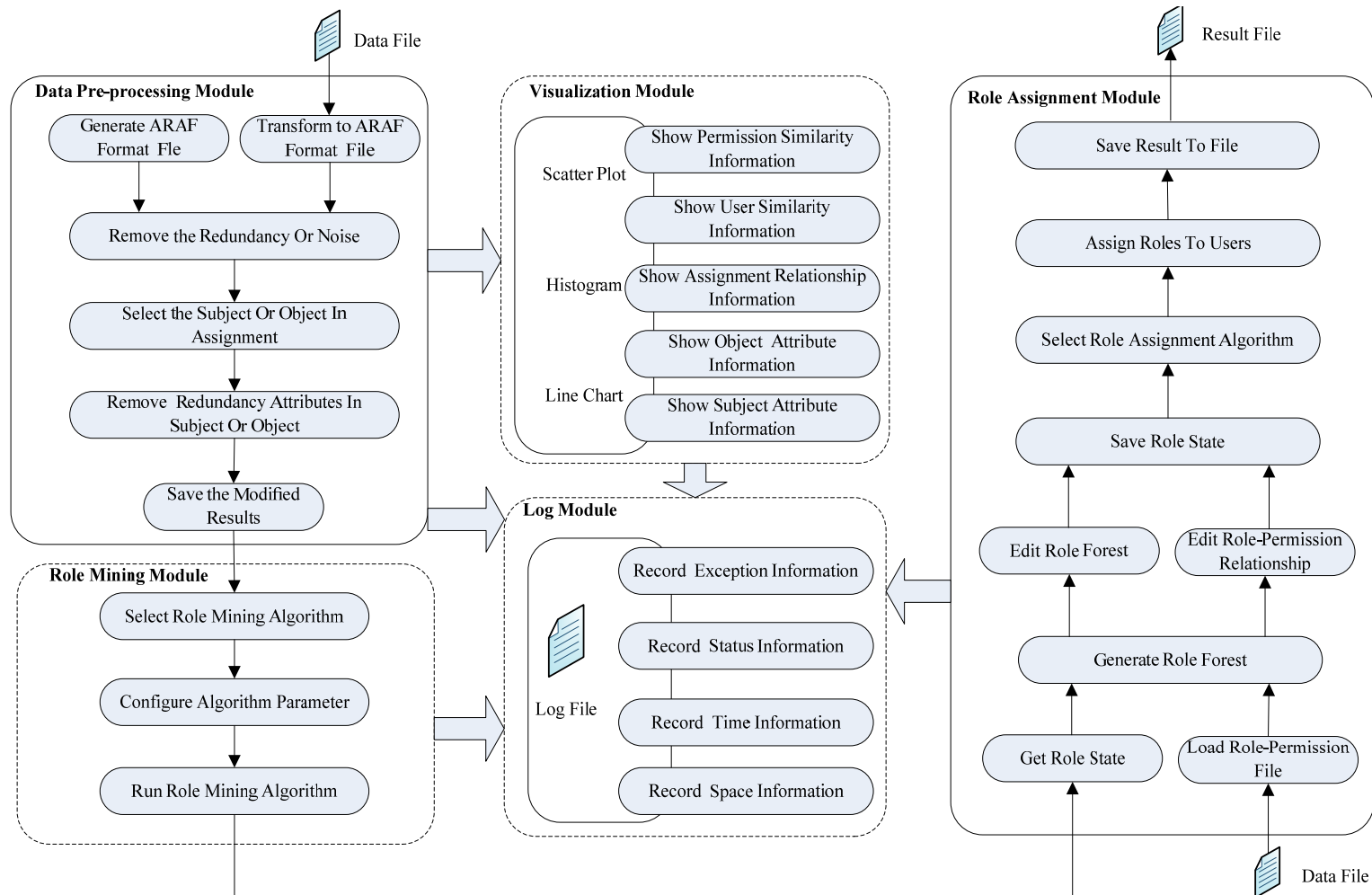
Collecting the Data Sets

- americas_large.ass
- americas_small.ass
- apj.ass
- domino.ass
- emea.ass
- firewall1.ass
- firewall2.ass
- gen_orca_role_permission.ass
- healthcare.ass
- orca_role_permission.ass
- orca_user_permission.ass
- university_large.ass
- university_runningexample.ass

Parts of the Data Sets

DataSet	U	P	UPA	Density
Healthcare	46	46	1486	70%
APJ	2044	1164	6841	0.3%
Domino	79	231	730	4%
EMEA	35	3046	7220	6.8%
Firewall 1	365	709	31,951	12.3%
Firewall 2	325	590	36,428	19%
Americas	3477	1587	105,205	1.9%

Framework of RMiner



DEMO

Open-sourced

Source code can be downloaded from <http://code.google.com/p/rminer/>

The screenshot shows the Google Code project page for RMiner. At the top right, there are links for "My favorites" and "Sign in". The project logo "rminer" is displayed with the tagline "A Tool Set for Role Mining". A search bar with the text "Search projects" is located to the right of the logo. Below the logo is a navigation menu with tabs for "Project Home", "Downloads", "Wiki", "Issues", and "Source". The "Project Home" tab is selected. The main content area is divided into two columns. The left column contains sections for "Project Information", "Code license", "Labels", "Members", and "Links". The right column contains a detailed description of the project. At the bottom of the page, there are links for "Terms", "Privacy", "Project Hosting Help", and "Powered by Google Project Hosting".

Project Information
Recommend this on Google
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Code license
[Other Open Source](#)
See source for details

Labels
j2se, Swing, rolemining

Members
[530025...@qq.com](#)

Links
Blogs
[Rminer](#)

External links
[IDC Lab Web](#)

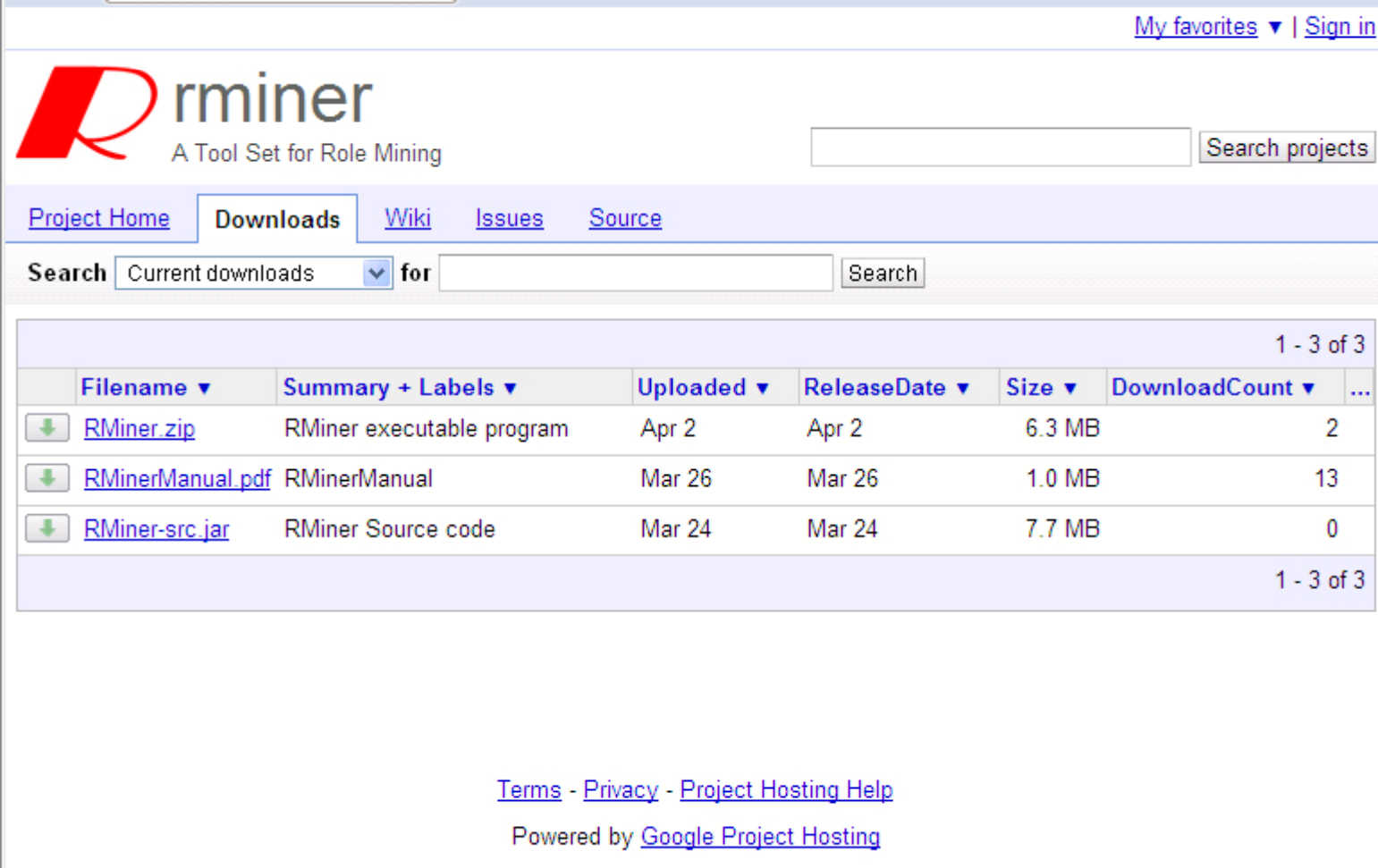
RMiner is based on the core of WEKA, an open source data mining tool. RMiner implements most of the classic and latest role mining algorithms and provides interactive tools for administrator to update role states.

In this demonstration, we show a role mining platform, namely RMiner. In RMiner, we implement most of the classical role mining algorithms, such as ORCA, HierarchicalMiner, CompleteMiner, FastMiner, StateMiner, GraphOptimization, MinimalPerturbation, and WeightedRoleMinning and so on. RMiner also provides a role state editor for updating the role state generated by the role mining algorithms. In addition, RMiner offers some abstract interfaces that the users can easily add new role mining algorithms, and discover the difference of the new algorithms compared with others using the visualization tools.

[Terms](#) - [Privacy](#) - [Project Hosting Help](#)
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Open-sourced

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The screenshot shows the RMiner project page on Google Code. The page title is "rminer" with the subtitle "A Tool Set for Role Mining". The "Downloads" tab is selected, showing a table of three files:

Filename	Summary + Labels	Uploaded	ReleaseDate	Size	DownloadCount	...
RMiner.zip	RMiner executable program	Apr 2	Apr 2	6.3 MB	2	
RMinerManual.pdf	RMinerManual	Mar 26	Mar 26	1.0 MB	13	
RMiner-src.jar	RMiner Source code	Mar 24	Mar 24	7.7 MB	0	

At the bottom of the page, there are links for "Terms", "Privacy", and "Project Hosting Help", and a note "Powered by Google Project Hosting".

Questions?

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