



## **AgenaRisk Enterprise Edition**

### **AgenaRisk Enterprise Edition Components**

AgenaRisk is a powerful risk modeling and analysis tool. It arms users with the latest algorithms to quantify uncertainty and produce models for prediction, estimation and diagnosis, all made accessible via a sophisticated graphical user interface.

The AgenaRisk Enterprise Edition (EE) is a software development kit (SDK) that allows users to incorporate AgenaRisk into their own applications, link AgenaRisk to external data sources, export results to information portals (via a webserver) and build sophisticated application specific data structures (Meta Data).

The AgenaRisk EE comprises three components:

- AgenaRisk Enterprise Data Pack (EDP)
- AgenaRisk Java Application Program Interface (API)
- AgenaRisk Meta Data Extensions (MDE)

### **AgenaRisk Enterprise Data Pack**

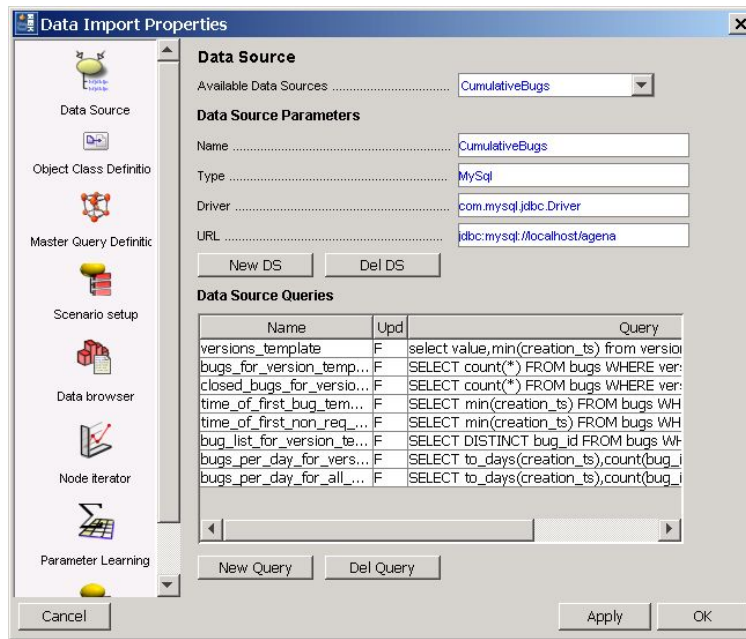
The AgenaRisk EDP extends the capability of AgenaRisk to permit the automated extraction of data from a wide variety of sources. Using the industry standard, JDBC, AgenaRisk is able to connect to any JDBC or ODBC compliant data source including:

- CSV files and Excel spreadsheets
- Personal databases such as Microsoft Access
- Open source databases such as MySQL and Postgres
- Enterprise platforms such as Oracle and SQL Server

AgenaRisk EDP supports query hierarchies, where results from parent queries parameterize child queries. Large numbers of child queries can be created and executed automatically with no user intervention. Flexible data mapping tools allow query hierarchies to span multiple databases. For example, product queries against an enterprise server, can be used to construct local queries from a sales report stored in a local spreadsheet. This unique capability allows AgenaRisk to combine data from legacy or enterprise systems, with desktop, personal and mobile information, all in a single comprehensive model.

Figure 1 shows an example screenshot of the AgenaRisk EDP data source declaration form.

Query results can be mapped to risk nodes in an AgenaRisk model and saved for future use. Data-node mappings need only be constructed once and then reloaded as needed. Minor modifications of existing data-node mappings allow modelers to experiment with different data sources for the same node, or by applying the same data source to multiple nodes.



**Figure 1 Declaring a MySQL data source in AgenaRisk EDP**

Model developers can create lookup tables to provide automated data translation between multiple source data representations and their AgenaRisk target values. Multiple tables in heterogeneous databases can therefore be used to populate a single model node.

Once data-node mappings and multiple child queries are defined, AgenaRisk (desktop or API) can be set to execute those child queries automatically. Data is gathered from all relevant data sources and applied to the AgenaRisk model. Output nodes can be monitored and results saved in any JDBC or ODBC compliant database or in MS Excel. Thousands of model data sets can now be applied at the touch of a button and the results saved for further analysis.

## AgenaRisk Java API

The AgenaRisk Java application program interface (API) is a set of routines for building and executing AgenaRisk models. The API is designed for use by programmers to makes it easier to develop a bespoke implementation of AgenaRisk or to integrate AgenaRisk into an application. Example functions available in the Java API include:

### Model class

- Create model
- Delete Model
- Calculate Model
- Link Models

### Risk Object class

- Add node
- Delete node
- Remove Evidence
- Regenerate NPTs

### Node class

- Add child/parent

- Set NPT (expressions and manual)
- Get Risk Graph
- Enter Evidence
- Set Node (Input/Output)
- Copy node
- Add constant

### State class

- Create Continuous state
- Create Interval state
- Create Labeled state
- Create Real state

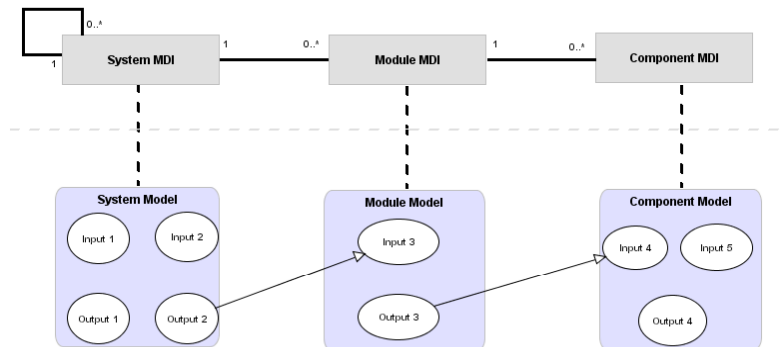
## AgenaRisk Meta Data Extensions

The AgenaRisk Meta Data Extensions (MDE) are a set of routines that extend the risk object structure that can be created in AgenaRisk by introducing meta data rules to govern how and under what conditions risk objects can connect to each other. This in effect transforms AgenaRisk into a bespoke application where pre-defined template models can be imported, linked and executed.

The AgenaRisk MDE functionality includes:

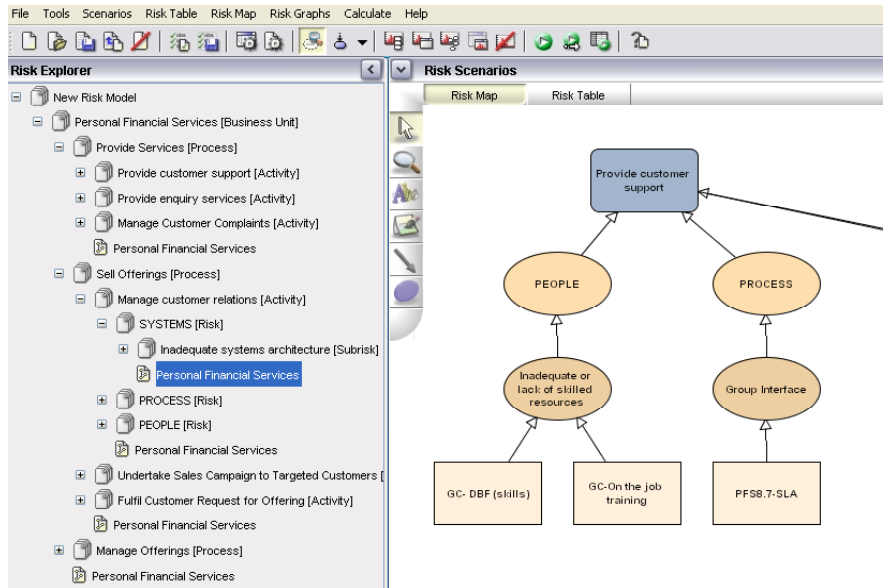
- Declaration of relational meta data configuration structure in a text file
- Assignment of default template models to the meta data objects
- Populate the AgenaRisk Risk Explorer view with instances of meta data objects
- Assign commands to edit/add/delete properties of meta data objects
- Automatically join risk objects (E.g. aggregation of risks)
- Automatic import template model(s) assigned to meta data object
- Autolayout of the resulting model

An example of the specification of meta data is shown in Figure 2. In the top layer of the diagram we have three meta data items (MDI): a system, composed of modules, which are in turn composed of components. The self referencing link shows that a system can also be composed of other systems. The bottom layer shows the risk objects allocated to each MDI and the legal input-output node connections between them.



**Figure 2: Example Meta Data specification diagram**

Once the meta data has been specified and configured the resulting application can be executed in AgenaRisk desktop or via the AgenaRisk API. Figure 3 shows an example banking application, running in AgenaRisk desktop.



**Figure 3: Example Application design using the AgenaRisk MDE**

In Figure 3 the Risk Explorer shows a hierarchy of business unit and process meta data items and the Risk Map shows the risk object associated with the “Personal financial Services” meta data item selected in the Risk Explorer.

## Notes

The components in the AgenaRisk EE are not available off-the-shelf and may require some extension and configuration to meet a client’s exact requirements. Agena consulting and programming staff are available to support this process, or alternatively, can train/assist in-house or outsourced developers.

Note that commercial deployment of the AgenaRisk EE is normally licensed under an OEM agreement.

## Contact Details

Agena Limited  
 32-33 Hatton Garden  
 London EC1N 8DL  
 United Kingdom

Tel: +44 (0) 20 7404 9722 (between 0900 and 1700 UK time)

Fax: +44 (0) 20 7404 9723

E-mail (Sales & Enquiries): [sales@agena.co.uk](mailto:sales@agena.co.uk)

E-mail (Support): [support@agena.co.uk](mailto:support@agena.co.uk)

E-mail (Evaluation Feedback): [feedback@agena.co.uk](mailto:feedback@agena.co.uk)

Skype: agena\_software