

Metawidget White Paper



Case Study: Flexible Dispersion Modelling

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<http://metawidget.org>

1. Introduction

This white paper presents a case study of using Metawidget to provide automatic User Interface (UI) generation for Flexible Dispersion Modelling (FDM). FDM is a cross-platform hazard modelling system developed by RiskAware.

2. Organisation and Product Overview

RiskAware are a UK company providing expertise to governments and the defence sector, primarily for chemical, biological, radiological, and nuclear hazard assessment, simulation and prediction programmes. They have been involved in a wide variety of important defence software development programmes for the UK Ministry of Defence and the US Department of Defence. More recently, they have expanded their software solutions across a range of other industry sectors including Telecommunications, Environment, Transport and Nuclear Power.

RiskAware's Flexible Dispersion Model (FDM) system is a cross-platform system for modelling a range of environmental hazards and their dispersion patterns. It takes into account terrain contours, wind profiles and other meteorological factors, and whether the hazard is a single instantaneous event or a continuous release. It is then able to provide information on the hazard's concentration, dosage and deposition at various times and locations (see Figure 1).

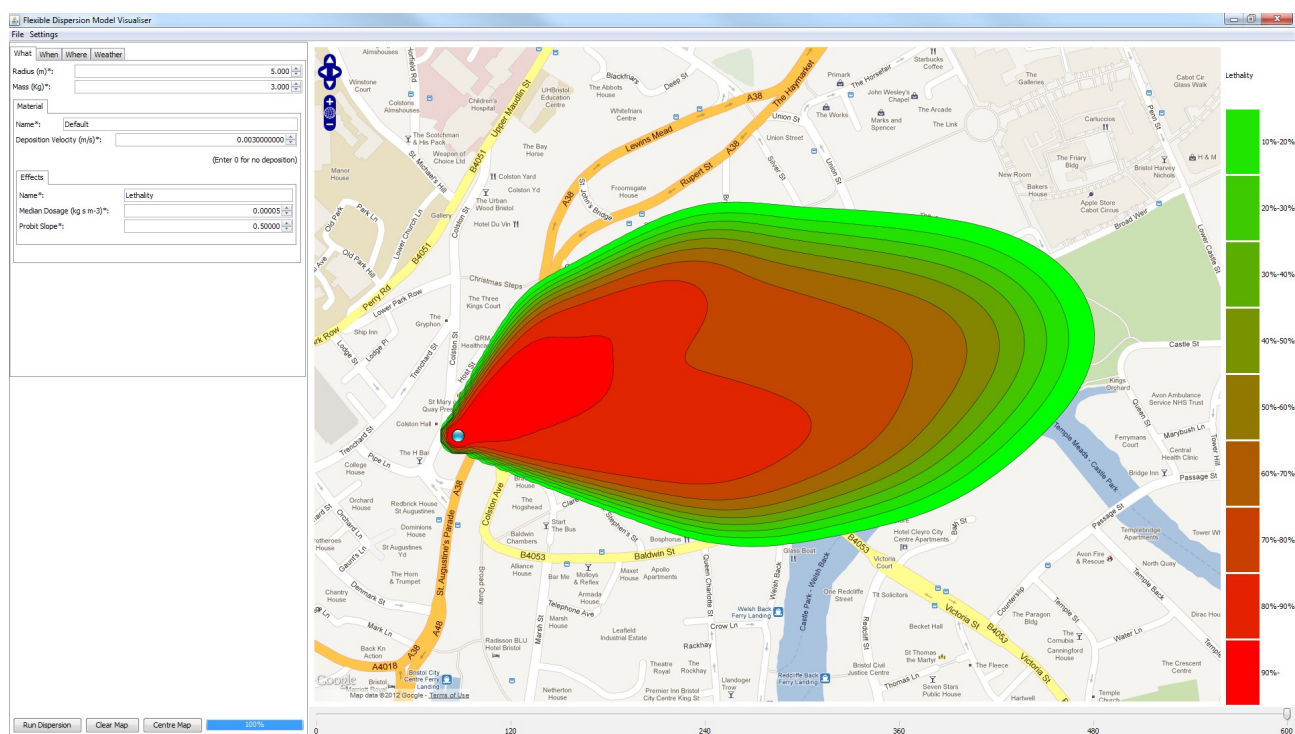


Figure 1: FDM can model hazard dispersion patterns across terrain

3. Integration of Metawidget

FDM is built upon a flexible plug-and-play architecture (see Figure 2). The modelling core can be reconfigured at run-time, and a simple interface allows for rapid integration into existing hazard prediction systems and simulation software. The FDM's flexible architecture allows for high levels of verification and

validation, as well as future modelling enhancements and interoperability extensions.

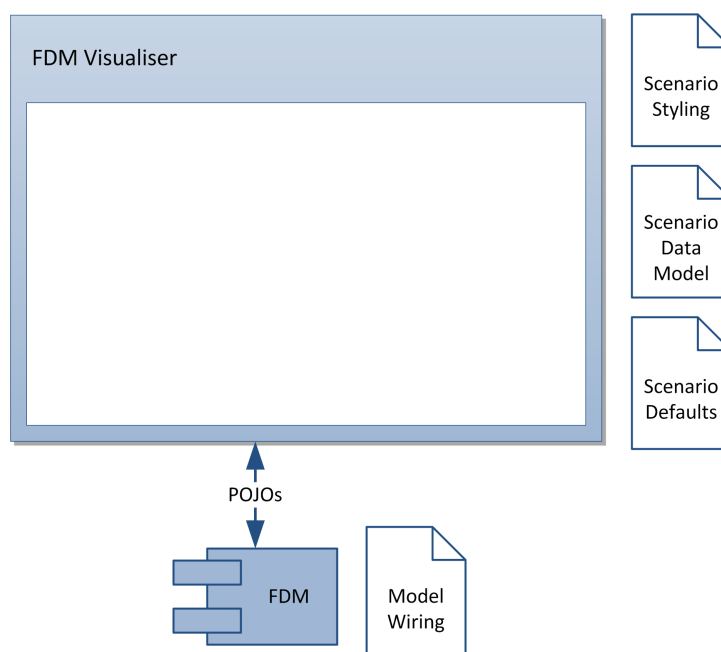


Figure 2: FDM features a flexible architecture

Tim Dudman, Principal Consultant at RiskAware, summarized the team's approach to integrating Metawidget. “The scenario panel [shown on the left in Figure 1] is auto-generated from the scenario data model JavaBeans and then externally styled using Metawidget”. Use of Metawidget “allows rapid reconfiguration of the desktop technology demonstrator for different model configurations and types of end user”.

A core tenet of Metawidget is to integrate with an application's *existing* front-end and back-end architecture, rather than try to 'own' the UI. This was important to RiskAware as they needed to incorporate a diverse range of technologies. Tim explained “the map component [shown on the right in Figure 1] uses an embedded JavaFX browser and Jetty web server to display KML hazard contours using the Javascript OpenLayers API”.

4. Conclusion

In closing, we asked the Principal Consultant how he would sum up the team's experiences with Metawidget. Tim said “the Metawidget team gave us great support”. He confirmed the integration had been a success, and the FDM system had been well received: “we demonstrated the application at the 25th International CBRN Symposium in the October, and I'm sure there will be further development over the next year.”

5. Resources

RiskAware: <http://www.riskaware.co.uk>

Metawidget: <http://metawidget.org>

