



PET FAQ

Frequently asked questions for PET

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1 General

1.1 What is PET?

The Participatory Extension (PET) is a web-based environment (a JEE application) developed to run multi-agent and participatory simulations. The software is part of the Multi-Agent Simulation Suite (MASS) software package.

1.2 What does participatory mean?

Participatory simulation - a branch of agent-based simulation - is a methodology building on the synergy of human actors and artificial agents, excelling in the training and decision-making support areas. In participatory simulations some agents are controlled by users, while others are software governed.

1.3 What kind of simulations can be run with PET?

PET has two separate simulation engine.

One is its native core, the Multi-Agent Core (*MAC*), which is used to run simulations written for PET.

Its other core is *Repast J* which makes it possible to run a Repast simulation under PET.

1.4 There are many simulation frameworks available. Why should I use PET?

PET differs from other simulation frameworks in some aspects. Probably the most important issue that PET is used through a Web interface. As a consequence a PET simulation can be viewed and controlled by multiple users simultaneously. Besides:

- PET is participatory (see above)
- Simulation can be replayed after execution (including the actions taken by user-controlled agents).
- Agents can be preconfigured. This means setting their individual properties and adding them to the model, before the simulation is started.

1.5 What tools do I need to Run PET? Do I need to install Tomcat? What about the database server?

For windows the PET installer contains everything which is required to run the PET web application. This includes JRE (if not exists), a pre-configured Tomcat (the application server) and a HSQLDB which is used for data storage. Installing Tomcat server and HSQLDB is not required, and you can use other application servers to run PET. However PET is only tested with Tomcat.

For other platforms you can install PET as a standard war (Web ARchive) file. In this case you need a working Web and Jsp container and a working database server.

1.6 What is a model-family? What is a model?

In PET the concept of the written simulation code, configuration files and other necessary files are called model-family. The instantiation of a model-family creates a model which is a configurable representation of the simulation. By instantiating a configured model a simulation is created which finally can be run.

1.7 Is it difficult to write a simulation for PET?

No. The framework gives exact rules and defines clear requirements against the functional PET model. You can also integrate existing Repast models into PET.

1.8 How can I install my model-family into PET? Can I simple just upload it?

In case of a native **MAC** based model-family the answer is no, however installing it is not difficult. You place your files to the proper directory and restart Tomcat. For more information on this topic please read the "PET model writing manual".

Contrarily, if the model-family is based on the **Repast** engine, the install process is simplified to a simple file upload. The file is a simple zip file with a predefined structure, containing all the necessary contents. For more information read the Repast Integration Manual and Tutorial documentation.

1.9 Are there available documentations on writing PET simulations?

Yes. Currently, there are two documentations dealing with writing of simulations for PET. Both are included in the PET distribution. The "PET model writing manual and tutorial" describes how to write a MAC based simulation, while the "Repast Integration Manual and Tutorial" helps users to integrate their Repast model into PET.

1.10 How can I create a new simulation?

If you want to create a new simulation on the user interface then click on the **Create new** button on the simulation page.

If you want to create a new simulation on the administrator interface then click on the **Build** button of the model you want to instantiate.

1.11 How can I join to a simulation?

On the main page of the user interface select the simulation that you want to join to and click on the **connect** link.

2 Repast related issues

2.1 How can I run a Repast simulation in PET?

A Repast simulation can be run after integrating it into PET. The process of integration is detailed in the "Repast Integration Manual and Tutorial" document which comes with the distribution. Integration of an existing Repast model is not difficult and usually not requires too much time.

2.2 How the integration is done?

The integrator must write an xml file which describes the integrating model, to help PET to handle it as a model-family. This xml must be copied in the proper directory. The integrator must also create a jar file which contains the class files of the model and this jar must be byte code-instrumented with a program shipped with PET. The instrumented jar file must be copied in PET's [WEB-INF/lib](#) directory. To reach some of the functionality of PET, the model should be extended with some code defined by specific interfaces which are coming with PET.

2.3 What about the visualizations of my existing Repast model. Are they shown on the screen?

Yes. Extraction of Repast visualizations is automated and the integrator must only reference them in the above mentioned xml.

2.4 Can I extend my Repast model with PET like visualizations?

Yes. The same way you would do for a native model.

2.5 Can the user control agents of a Repast model?

Yes. Provided that the integrator developer prepared the Repast model for this functionality.