Random Sources Support Version 1.0

1 Introduction

The Random Sources Support plug-in allows Fairmat to use external random stream sequences as input to the Monte Carlo simulator.

This plug-in provides a general infrastructure and a file system based caching support for the random streams which allows developers to easily define new random sources by using the Fairmat extensions framework (See Section 3How to add a new random sourcesection.3 for developers oriented information).

2 How to use the plug-in

With random streams we indicate sequences of uniform distributed random numbers in the interval [0,1). Those numbers are then transformed to obtain any probability distribution.

The plug-in allows Fairmat to use different sequences of uniform random number generated by external sources. By default *Random Sources Support* allows you to select a binary raw file[1] or a text file containing the random numbers which will be used as source of randomness for all the subsequent Monte Carlo valuations.

In order to choose a random file as input for the randomness you can follow the steps below:

- Open **Settings / Fairmat Preferences / Plug-ins Preferences** select *Random Sources Settings* and select *Random numbers from file*.
- Choose the the Random Source Support plug-ins as random generator in Fairmat: go to **Fairmat Preferences / Advanced** and select "RandomSourcesSupport.RandomSourcesManager".

3 How to add a new random source

This section is dedicated to developers who wants to define a new source of randomness.

[1] The raw binary file is a sequence of double precision 8-bytes numbers.

In order to implement a new random source, you must write a class which implements the interface **DVPLI.IRandomSource** and the extension node "/RandomSourcesSupport/RandomSource".

In your implementation you must define how to generate the next random number and the Random Sources Support plug-in accounts for the rest of the work.