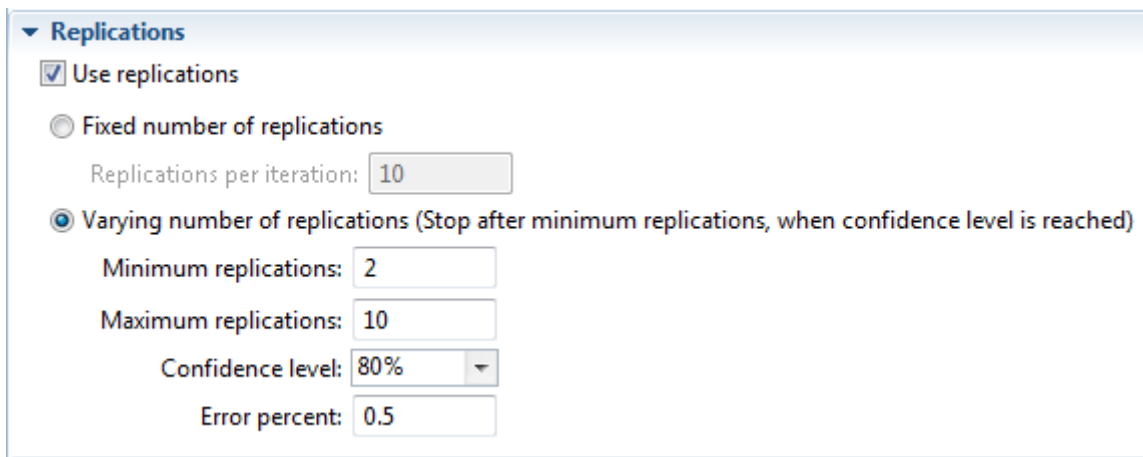


Optimizing stochastic models

If your model is stochastic, the results of the single model run may not be representative. The OptQuest Engine supports objective values that are based on experimentation through the General Replication Algorithm. This feature allows the user to provide the OptQuest Engine with results of multiple replications per simulation/iteration. The OptQuest Engine allows you to run a fixed number of replications per simulation or a varying number of replications per simulation.

When running a varying number of replications, you will specify minimum and maximum number of replications to be run. The OptQuest Engine will always run the minimum number of replications for a solution. OptQuest then determines if more replications are needed. The OptQuest Engine stops evaluating a solution when one of the following occurs:

- The true objective value is within a given percentage of the mean of the replications to date.
- The current replication objective value is not converging.
- The maximum number of replications has been run.



The screenshot shows the 'Replications' section of a software interface. It features a 'Use replications' checkbox which is checked. Below it are two radio button options: 'Fixed number of replications' and 'Varying number of replications (Stop after minimum replications, when confidence level is reached)'. The second option is selected. Under the selected option, there are four input fields: 'Replications per iteration' (set to 10), 'Minimum replications' (set to 2), 'Maximum replications' (set to 10), and 'Confidence level' (set to 80% with a dropdown arrow). At the bottom, there is an 'Error percent' field set to 0.5.

Optimization experiment's properties view. Replications section

To schedule fixed number of replications

1. In the **Projects** view, select the optimization experiment.
2. In the **Replications** section of the **Properties** view, select the **Use Replications** check box.
3. Choose the **Fixed number of replications** option.
4. Specify the number of **Replications per iteration** in the edit box.

To schedule varying number of replications

1. In the **Projects** view, select the optimization experiment.
2. In the **Replications** section of the **Properties** view, select the **Use Replications** check box.
3. Choose the **Varying number of replications (Stop replications after minimum replications, when confidence level is reached)** option.
4. Specify the minimum number of replications in the **Minimum replications** edit box.
5. Specify the maximum number of replications in the **Maximum replications** edit box.
6. Define the **Confidence level** to be evaluated for the objective.
7. Specify the percent of objective for which the confidence level is determined in the **Error percent** field.