

# Detecting Concurrency Errors with JPF

<http://d3s.mff.cuni.cz>

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Dependable  
Systems



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# Configurations

- Default JPF: exhaustive search (DFS)
  - Threads scheduled in the order given by their IDs

- Random search order

```
+cg.randomize_choices=VAR_SEED
```

- Preemption bounding

```
+vm.scheduler.sync.class=gov.nasa.jpf.vm.  
    schedule.ContextBoundingSyncPolicy  
+vm.scheduler.sharedness.class=gov.nasa.jpf.vm.  
    schedule.ContextBoundingSharednessPolicy  
+contextbound.max_number_of_preemptions=<N>
```

# Configurations

- **Breadth first search (BFS)**  
`+search.class=gov.nasa.jpf.search`  
`.heuristic.BFSHeuristic`  
`+search.heuristic.queue_limit=-1`
- **Maximize thread preemption**  
`+search.class=gov.nasa.jpf.search`  
`.heuristic.Interleaving`
- **Minimize preemption**  
`+search.class=gov.nasa.jpf.search`  
`.heuristic.MinimizePreemption`
- **Maximize blocked threads**  
`+search.class=gov.nasa.jpf.search`  
`.heuristic.MostBlocked`