**Experimentation**

**Table for puzzle name, execution, time and the number of nodes without dead-end detection**

| Puzzle Name | Execution Time | Number of generated Nodes |
| --- | --- | --- |
| regular\_5x5\_01 | 0.000 | 18 |
| regular\_6x6\_01 | 0.001 | 283 |
| regular\_7x7\_01 | 0.002 | 3317 |
| regular\_8x8\_01 | 0.272 | 409726 |
| regular\_9x9\_01 | 0.33 | 549827 |
| deadlock\_6x6\_01 | 0.000 | 202 |
| jumbo\_10x10\_01 | 0.201 | 332442 |

**Graphs for solution time and the number of generated nodes without dead-end detection**

To plot the graphs only the regular puzzles are considered.

When the size of the grid increases, solution time or the number of generated nodes will be increased exponentially. Therefore, the figure shows exponential growth.

**Table for puzzle name, execution, time and the number of nodes with dead-end detection**

| Puzzle Name | Execution Time | Number of generated Nodes |
| --- | --- | --- |
| regular\_5x5\_01 | 0.000 | 17 |
| regular\_6x6\_01 | 0.000 | 128 |
| regular\_7x7\_01 | 0.001 | 213 |
| regular\_8x8\_01 | 0.017 | 5510 |
| regular\_9x9\_01 | 0.044 | 13766 |
| deadlock\_6x6\_01 | 0.000 | 92 |
| jumbo\_10x10\_01 | 0.065 | 16365 |

**Graphs for solution time and the number of generated nodes without dead-end detection**

To plot the graphs only the regular puzzles are considered.

By using dead-end detection, solution time or the number of generated nodes is reduced significantly. But when the size of the grid increases, solution time or the number of generated nodes will be increased exponentially. Therefore, this figure also shows exponential growth. By using dead-end detection growth rate is not decreased.