Profiling report

Math library was profiled using standard deviation calculation on sets of inputs with various sizes.

You can find detailed reports for each test run in project repository.

Some of Gathered data

Required time to complete calculation (includes loading test data)

10 inputs – 126ms

100 inputs – 151ms

1000 inputs – 470ms

Most time-consuming function

10 inputs – Tokenizer. SeparateOperatorFromText - **5.1%** of total time

100 inputs – Tokenizer.SeparateOperatorFromText - **4.5%** of total time

1000 inputs – Tokenizer. AssignOperatorDescriptionToTokens - **37%** of total time

Number of nodes

10 inputs – 85

100 inputs – 805

1000 inputs – 8005

Summary

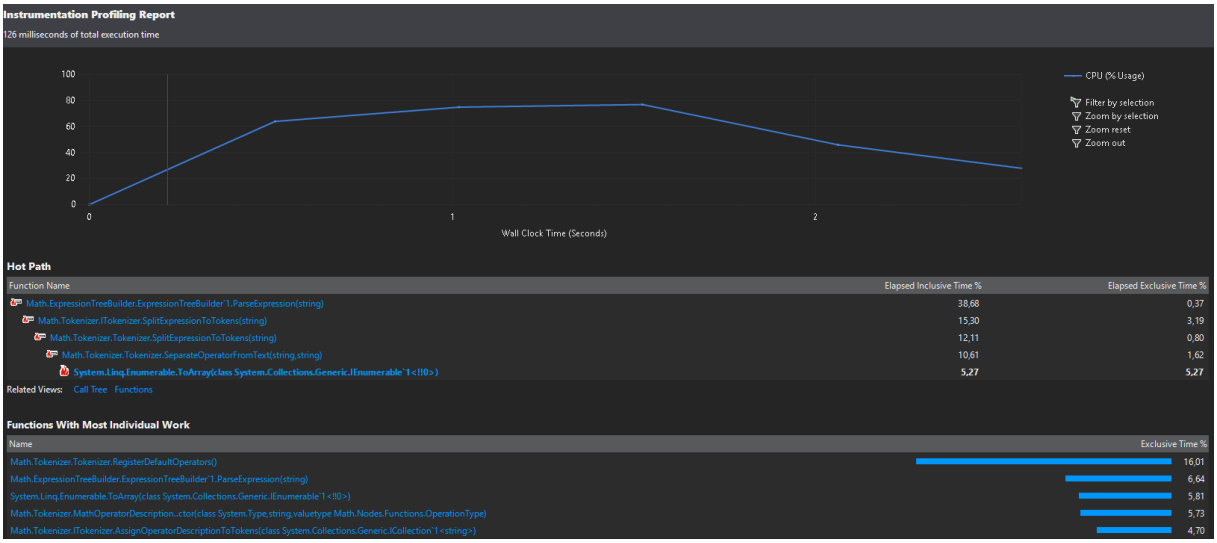
Surprisingly math library does not spend most time evaluating expression but building node tree.

Most expensive operation is to tokenize given expression.

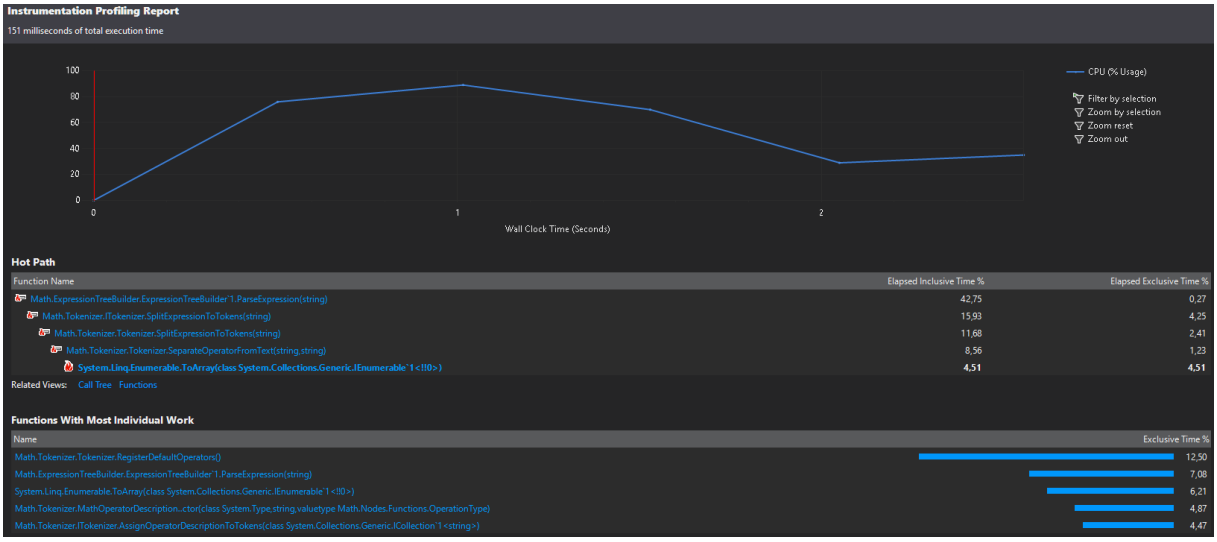
Despite out fear from slow node initialization by reflection this was not problem at all.

Additional data

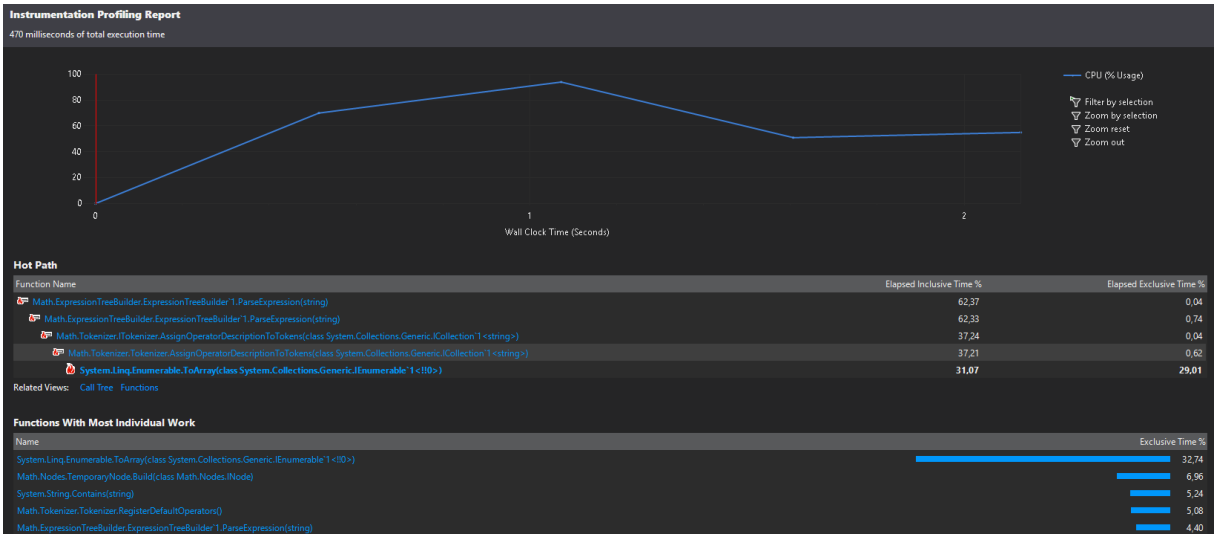
10 inputs



100 inputs



1000 inputs


Instrumentation Profiling Report
470 milliseconds of total execution time
100
80
60
40
20
0
0
1
2
Wall Clock Time (Seconds)
CPU (% Usage)
Filter by selection
Zoom by selection
Zoom reset
Zoom out
Hot Path
Function Name
Elapsed Inclusive Time %
Elapsed Exclusive Time %
Math.ExpressionTreeBuilder.ExpressionTreeBuilder`1.ParseExpression(string) 62,37 0,04
Math.ExpressionTreeBuilder.ExpressionTreeBuilder`1.ParseExpression(string) 62,33 0,74
Math.Tokenizer.ITokenizer.AssignOperatorDescriptionToTokens(class System.Collections.Generic.ICollection`1<string>) 37,24 0,04
Math.Tokenizer.Tokenizer.AssignOperatorDescriptionToTokens(class System.Collections.Generic.ICollection`1<string>) 37,21 0,62
System.Linq.Enumerable.ToArray(class System.Collections.Generic.IEnumerable`1<!!0>) 31,07 29,01
Related Views: Call Tree Functions
Functions With Most Individual Work
Name
Exclusive Time %
System.Linq.Enumerable.ToArray(class System.Collections.Generic.IEnumerable`1<!!0>) 32,74
Math.Nodes.TemporaryNode.Build(class Math.Nodes.INode) 6,96
System.String.Contains(string) 5,24
Math.Tokenizer.Tokenizer.RegisterDefaultOperators() 5,08
Math.ExpressionTreeBuilder.ExpressionTreeBuilder`1.ParseExpression(string) 4,40