

VectorCAST Option to Limit Recursive Parameter Search

Version 1.0

2026-04-02

Application Note AN-ACT-1-117

Author Yue, Jeanne

Restrictions Public Document

Abstract Description of New Option to Limit Recursive Parameter Search.

Table of Contents

1.0 Overview	1
2.0 Use Cases	2
2.1 Access the Options Dialog	2
2.2 Adjust the Maximum Expansion Depth	2
2.3 Save the Changes	3
2.4 Observe the Progress Dialog	3
3.0 Additional Resources	3
4.0 Trademarks	3
5.0 Contacts	3

1.0 Overview

VectorCAST allows engineers to create test cases for C/C++ units through the Test Case Editor. When a unit under test contains recursive data structures — classes or structs whose members directly or indirectly reference the same type — the parameter tree could enter an infinite expansion loop. This caused the application to freeze and eventually exhaust memory when the user searched for a parameter, expanded a node, or used "Expand All" on the parameter tree.

A new option introduces a configurable Maximum Expansion Depth setting under the Test Case Editor Options. A depth limit is now enforced during all tree operations (search, expand, collapse), and a progress dialog with a Cancel button provides responsive feedback and an abort mechanism for long-running operations.

Use this new option when:

- Unit under test contains recursive or mutually recursive structs/classes.
- Searching for a parameter name in the Test Case Editor takes an unusually long time or hangs
- Memory usage grows significantly when the Test Case Editor is open.
- Need to tune the trade-off between full parameter visibility and performance.

Limitations:

- The depth limit applies only to the on-screen parameter tree hierarchy. Test data already saved is not affected by changing this setting.
- If the depth is set too low for a non-recursive unit, some deep parameters may not be reachable via Expand All. Use Expand on the specific subtree node to navigate further.
- Platform-specific behavior: the effective depth may differ slightly between Windows and Linux builds due to stack allocation differences. The default of 20 is safe on both platforms.
- The setting is per-user; it is stored in .vcastqt.ini and is shared across all environments opened by the same user.

2.0 Use Cases

2.1 Access the Options Dialog

Open an environment in the VectorCAST Test Case Editor, then select Tools -> Options or click the Options toolbar button. Navigate to the GUI tab and then to the Test Case Editor Options sub-tab.

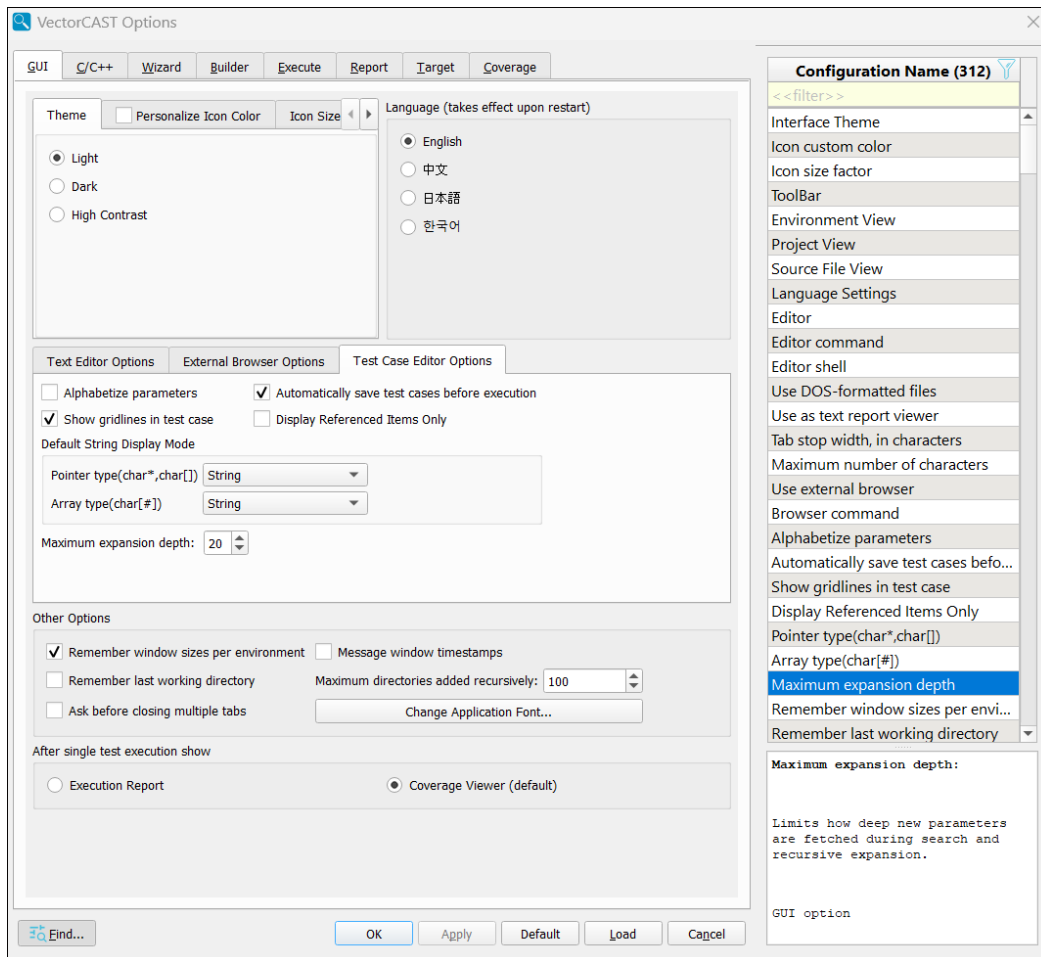


Figure 1: GUI Options

2.2 Adjust the Maximum Expansion Depth

Locate the Maximum expansion depth spin box. The default value is 20. Increase the value to see more levels of nested parameters; decrease it to prevent the tree from going too deep into recursive structures.

NOTE: The minimum allowed depth is 5 and the maximum is 50. For units with deeply nested — but non-recursive — hierarchies you may want to increase the depth. For units with infinite recursion a depth of 10–20 is usually sufficient.

2.3 Save the Changes

Click OK to apply the new setting. The value is written to .vcastqt.ini under the key testcase/maxParameterChildDepth and takes effect immediately for subsequent expand and search operations.

2.4 Observe the Progress Dialog

When you search for a parameter (Ctrl+F in the parameter tree) or use Expand All / Collapse All, a modal progress dialog appears showing real-time progress. Click Cancel at any time to stop the operation.

Parameter	Type	Input Values	Expected Values
▶ INST USER_GLOBALS_VCAST			
▼ SBF uut			
▼ <<GLOBAL>>			
Database Instance	Clas...	<<choose a sub...	<<choose a sub...
▼ Database::mDatabase	class		
bar	int		
Database::mDatab...	class		
bar	int		
Database::mD...	class		
bar	int		
Database:...	class		
bar	int		
Datab...	class		
bar	int		
D...	class		
int			
class			
int			
class			

Figure 2: Expanded parameter tree limited by Maximum expansion depth

3.0 Additional Resources

Some additional resources you may find helpful:

> [VectorCAST Product Page](#)

4.0 Trademarks

All mentioned names are either registered or unregistered trademarks of their respective owners.

5.0 Contacts

For a full list with all Vector locations and addresses worldwide, please visit <http://vector.com/contact/>.