

NuSMV-ARCTL-TLACE – CHANGELOG

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This document describes the changes made to NuSMV-ARCTL to add the functionality of generation of TLACEs (for tree-like annotated counter-examples). First an overview of changes is given, followed by the list of changed files and the details of these changes.

All the paths in this document starts in the `nusmv/src` directory.

1 Overview

To add the capability of generation of TLACEs to NuSMV-ARCTL, a new data structure, named `statenode`, has been implemented in the `mc` package. Then the algorithm of checking CTL specifications (`Mc_CheckCTLSpec` in `mc/mcMc.c`) has been modified to generate a TLACE when corresponding options are activated. These options has been added in the `opt` by modifying corresponding files. Some command line options also have been added to activate TLACEs in batch mode (see `sm/smMain.c`). Some slight modifications has been made in the `node` package to be able to output XML-compliant specifications.

2 List of modified and created files

```
mc/statenode.h
mc/statenode.c
mc/Makefile.am
mc/mc.h
mc/mcMc.c
mc/mcExplain.c
node/node.h
node/nodeXMLPrint.c
node/Makefile.am
opt/opt.h
opt/optCmd.c
opt/optInt.h
sm/smMain.c
```

3 CHANGELOG details

File	Changes
mc/statenode.h	New file — Header for the statenode data structure.
mc/statenode.c	New file — Implementation of the statenode data structure.
mc/Makefile.am	Line 43 — Add <code>statenode.c</code> in compilation process.
mc/mc.h	Lines 94-96 — Add <code>explain_tlace</code> function as part of the mc package header.
mc/mcMc.c	Lines 151-201 — Modify CTL properties check to generate a TLACE if the option is activated.
mc/mcExplain.c	Lines 121-446 — Implementation of the <code>explain_tlace</code> function.
node/node.h	Lines 175-178 — Add <code>print_node_XML</code> function and related functions to the node header.
node/nodeXMLPrint.c	New file — Implementation of the <code>print_node_XML</code> function and related functions.
node/Makefile.am	Line 42 — Add <code>nodeXMLPrint.c</code> in compilation process.
opt/opt.h	Lines 51-54 — Add macros for bit-mask operations on tlace options. Lines 230-243 — Add TLACE generation related option functions.
opt/optCmd.c	Lines 135-137 — Add TLACE options initialization. Lines 916-987 — Implementation of TLACE generation related option functions. Lines 1558-1586 — Add TLACE options related set variable command statements. Lines 1787-1797 — Add TLACE options related unset variable command statements. Lines 1891-1895 — Add TLACE options related print options statements.
opt/optInt.h	Lines 210-214 — Add TLACE options related fields in the option structure.
sm/smMain.c	Lines 335-339 — Add TLACE options in NuSMV usage printing. Lines 766-797 — Implementation of TLACE options management in batch mode