SYNOPSYS®

Coverity Support
for ISO/IEC TS 17961

Fully ensure the safety, reliability, and security of software written in C

Overview

The technical specification ISO/IEC TS 17961 is a set of well-documented and well-enforced coding rules for the C programming language. It is an important milestone in introducing best practices for ensuring the safety, reliability, security, and integrity of software written in C. Notably, the specification is designed to be enforceable by software code analyzers using static analysis techniques. This greatly reduces the cost of compliance by way of automation.

Adhering to coding standards is a crucial step in establishing best coding practices. Standards adherence is particularly important in safety-critical, high-impact industries, such as automotive, medical, and networking. Software defects in products coming from these industries manifest themselves physically and tangibly—often with life-threatening consequences.

Synopsys provides a comprehensive solution that checks for all secure coding rules specified in the ISO/IEC TS 17961 standard.

ISO/IEC TS 17961

ISO/IEC TS 17961 is defined by two publications from the International Organization for Standardization:

- ISO/IEC TS 17961:2013: Information technology—Programming languages, their environments and system software interfaces—C secure coding rules (https://www.iso.org/standard/61134.html)
- ISO/IEC TS 17961:2013/Cor 1:2016: Information technology—Programming languages, their environments and system software interfaces—C secure coding rules, Technical Corrigendum 1 (https://www.iso.org/standard/72086.html)

The technical specification defines secure coding rules for C. These rules are designed to provide a check against programming flaws that lead to vulnerabilities, regardless of whether the code is deployed in a security-critical environment.

The specification is focused on security vulnerabilities. Some rules pertain to data taint analysis: tracing data propagation from sources to sinks. Tainted data should be sanitized before being used. Coverity by Synopsys, with its state-of-the-art dataflow analysis techniques, can accurately identify such vulnerabilities in source code.

Technical Specifications

Rule	Name	Supported
5.1	ptrcomp	Yes
5.2	accfree	Yes
5.3	accsig	Yes
5.4	boolasgn	Yes
5.5	asyncsig	Yes
5.6	argcomp	Yes
5.7	sigcall	Yes
5.8	syscall	Yes
5.9	padcomp	Yes
5.10	intptrconv	Yes
5.11	alignconv	Yes
5.12	filecpy	Yes
5.13	funcdecl	Yes
5.14	nullref	Yes
5.15	addrescape	Yes
5.16	signconv	Yes

Rule	Name	Supported
5.17	swtchdflt	Yes
5.18	fileclose	Yes
5.19	liberr	Yes
5.20	libptr	Yes
5.21	insufmem	Yes
5.22	invptr	Yes
5.23	dblfree	Yes
5.24	usrfmt	Yes
5.25	inverrno	Yes
5.26	diverr	Yes
5.27	ioileave	Yes
5.28	strmod	Yes
5.29	libmod	Yes
5.30	intoflow	Yes
5.31	nonnullcs	Yes
5.32	chrsgnext	Yes

Rule	Name	Supported
5.33	restrict	Yes
5.34	xfree	Yes
5.35	uninitref	Yes
5.36	ptrobj	Yes
5.37	taintstrcpy	Yes
5.38	sizeofptr	Yes
5.39	taintnoproto	Yes
5.40	taintformatio	Yes
5.41	xfilepos	Yes
5.42	libuse	Yes
5.43	chreof	Yes
5.44	resident	Yes
5.45	invfmtstr	Yes
5.46	taintsink	Yes

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The Synopsys difference

Synopsys helps development teams build secure, high-quality software, minimizing risks while maximizing speed and productivity. Synopsys, a recognized leader in application security, provides static analysis, software composition analysis, and dynamic analysis solutions that enable teams to quickly find and fix vulnerabilities and defects in proprietary code, open source components, and application behavior. With a combination of industry-leading tools, services, and expertise, only Synopsys helps organizations optimize security and quality in DevSecOps and throughout the software development life cycle.

For more information, go to www.synopsys.com/software.

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