

CWE WEAKNESS IDS MAPPED TO CODESONAR® 7.2 C# WARNING CLASSES



TRUSTED LEADERS OF SOFTWARE ASSURANCE AND ADVANCED CYBER-SECURITY SOLUTIONS

WWW.GRAMMATECH.COM

INTRODUCTION

The Common Weakness Enumeration (CWE™) is a list of software weakness types. Creating the list is a community initiative aimed at creating specific and succinct definitions for each common weakness type.

Every CodeSonar 7.2 warning report includes the numbers of any CWE weakness IDs that are closely mapped to the warning's class. (The close mapping for a warning class is the set of categories—including CWE weakness IDs—that most closely match the class, if any).

You can configure CodeSonar to enable and disable warning classes mapped to specific CWE weakness IDs, or use build presets to enable all warning classes that are closely mapped to any CWE weakness IDs. In addition, you can use the CodeSonar search function to find warnings related to specific CWE weakness IDs.

CodeSonar 7.2 is using CWE v4.9 (released October 13, 2022).

For more information on Common Weakness Enumeration:

<https://cwe.mitre.org/data/index.html>

The remainder of this document comprises two tables:

- A table showing the close mapping between CodeSonar C and C++ warning classes and CWE weakness IDs.
- A table showing the broad mapping between CodeSonar C and C++ warning classes and CWE weakness IDs. The broad CWE mapping for a CodeSonar warning class combines CWE weakness IDs from four sources:
 1. The close CWE mapping for the class.
 2. Other CWE weakness IDs that are related to the class in a meaningful way, but not eligible for the close mapping.
 3. For all CWE weakness IDs from sources 1 and 2, all *ancestors* in the CWE hierarchy.
 4. For all CWE weakness IDs from sources 1 and 2, all *descendants* in the CWE hierarchy.
 A separate document, [CWE Weakness IDs Mapped to CodeSonar® Java Warning Classes](#), lists the CodeSonar Java warning classes that are closely and broadly mapped to CWE weakness IDs.

GrammaTech is a leading global provider of application testing (AST) solutions used by the world's most security conscious organizations to detect, measure, analyze and resolve vulnerabilities for software they develop or use. The company is also a trusted cybersecurity and artificial intelligence research partner for the nation's civil, defense, and intelligence agencies.

CodeSonar and CodeSentry are registered trademarks of GrammaTech, Inc.
© GrammaTech, Inc. All rights reserved.



CWE CLOSE MAPPING: C# (CODESONAR V7.2)

The following table lists the CodeSonar C# warning classes that are closely mapped to CWE weakness IDs.

Category ID	Category Name	CodeSonar Class Name
CWE:20	Improper Input Validation	Disabled Input Validation (C#)
CWE:22	Improper Limitation of a Pathname to a Restricted Directory ('Path Traversal')	Tainted Path (C#)
CWE:74	Improper Neutralization of Special Elements in Output Used by a Downstream Component ('Injection')	DLL Injection (C#) DOS Injection (C#) Tainted Control (C#) Tainted Hardware Device Property (C#) Tainted Network Address (C#) Tainted Resource (C#) Tainted URL (C#) Tainted XAML (C#) Tainted XML (C#)
CWE:78	Improper Neutralization of Special Elements used in an OS Command ('OS Command Injection')	Command Injection (C#)
CWE:79	Improper Neutralization of Input During Web Page Generation ('Cross-site Scripting')	Cross Site Scripting (C#)
CWE:89	Improper Neutralization of Special Elements used in an SQL Command ('SQL Injection')	SQL Injection (C#)
CWE:90	Improper Neutralization of Special Elements used in an LDAP Query ('LDAP Injection')	Tainted LDAP Attribute (C#) Tainted LDAP Filter (C#)
CWE:94	Improper Control of Generation of Code ('Code Injection')	Code Injection (C#)
CWE:95	Improper Neutralization of Directives in Dynamically Evaluated Code ('Eval Injection')	Tainted Expression Evaluation (C#)
CWE:113	Improper Neutralization of CRLF Sequences in HTTP Headers (HTTP Request/Response Splitting)	Tainted HTTP Response (C#)
CWE:114	Process Control	DLL Injection (C#)
CWE:117	Improper Output Neutralization for Logs	Tainted Log (C#)
CWE:190	Integer Overflow or Wraparound	Cast: int Computation to long (C#)
CWE:192	Integer Coercion Error	Cast: Integer to Floating Point (C#)
CWE:197	Numeric Truncation Error	Approximate e Constant (C#) Approximate pi Constant (C#)
CWE:227	7PK - API Abuse	Ambiguous Call from Inner Class (C#) Ignored Return Value for Pure Function (C#) Inappropriate Instanceof (C#) Method Should Not Return null (C#) Non-Object compareTo Parameter (C#) Redundant Call for Integral Argument (C#) Shadowed Identifier (C#) compareTo in Non-Comparable Class (C#) equals Parameter Should Be Object (C#)
CWE:252	Unchecked Return Value	Call Might Return Null (C#) Ignored Return Value (C#)
CWE:259	Use of Hard-coded Password	Hardcoded Password (C#)
CWE:287	Improper Authentication	Hostname in Condition (C#) Missing Authentication Annotation (C#)
CWE:319	Cleartext Transmission of Sensitive Information	Tainted Message (C#)
CWE:326	Inadequate Encryption Strength	Insecure Key Derivation (C#)



CWE:327	Use of a Broken or Risky Cryptographic Algorithm	Cryptographic Algorithm with Risky Default Cipher (C#) Cryptographic Algorithm with Weak Cipher (C#) Deprecated Cryptography Provider (C#) Risky Cipher Algorithm (C#) Risky Cipher Field (C#) Risky Cryptographic Algorithm (C#) Risky Cryptographic Field (C#) Unsafe Base64 Encoding (C#)
CWE:328	Use of Weak Hash	Weak Hash Algorithm (C#) Weak Hash Algorithm Field (C#)
CWE:330	Use of Insufficiently Random Values	Hardcoded Random Seed (C#) Insecure Random Number Generator (C#) Legacy Random Generator (C#)
CWE:338	Use of Cryptographically Weak Pseudo-Random Number Generator (PRNG)	Weak Cryptographic Value (C#)
CWE:390	Detection of Error Condition Without Action	Empty Exception Handler (C#)
CWE:395	Use of NullPointerException Catch to Detect NULL Pointer Dereference	Inappropriate Exception Handler (C#)
CWE:396	Declaration of Catch for Generic Exception	Generic Exception Handler (C#)
CWE:397	Declaration of Throws for Generic Exception	Broad Throws Clause (C#)
CWE:398	7PK - Code Quality	Empty Branch Statement (C#) Redundant Call for String Argument (C#) Static Field Assigned Non-Static (C#) Unused Class (C#) Unused Field (C#) Useless Class Cast (C#) Useless null Test (C#) Useless null Test of Field (C#) Useless null Test of Parameter (C#)
CWE:400	Uncontrolled Resource Consumption	Closeable Not Stored (C#)
CWE:412	Unrestricted Externally Accessible Lock	Synchronization on Interned String (C#)
CWE:413	Improper Resource Locking	Impossible Client Side Locking (C#) Synchronization on static (C#)
CWE:440	Expected Behavior Violation	toString on Array (C#)
CWE:456	Missing Initialization of a Variable	Field Never Written (C#) Lambda Parameter may be null (Java) Null Pointer Dereference (C#)
CWE:470	Use of Externally-Controlled Input to Select Classes or Code ('Unsafe Reflection')	Reflection Injection (C#)
CWE:476	NULL Pointer Dereference	Actual Parameter Element may be null (C#) Field Element may be null (deep) (C#) Field may be null (deep) (C#) Null Parameter Dereference (C#) Null Pointer Dereference (C#) Null Pointer Dereference (deep) (C#) Return Value may Contain null Element (C#) Return Value may be null (C#) Return null Array (C#) Unchecked Parameter Dereference (C#) Unchecked Parameter Dereference (deep) (C#) Unchecked Parameter Element Dereference (deep) (C#) null Passed to Method (deep) (C#)
CWE:480	Use of Incorrect Operator	Bitwise AND on Boolean Constant (C#) Bitwise OR on Boolean Constant (C#) Inefficient Bitwise AND (C#) Inefficient Bitwise OR (C#) Should Use == Instead of equals() (C#)
CWE:481	Assigning instead of Comparing	Assignment in Conditional (C#)

CWE:485	7PK - Encapsulation	Field Too Visible (C#) Method Should be final (C#) Method Should be private (C#) Shadowed Identifier (C#) Static Field Too Visible (C#)
CWE:489	Active Debug Code	Class Enables Debug Features (C#) Debug Call (C#) Method Enables Debug Features (C#)
CWE:491	Public cloneable() Method Without Final ('Object Hijack')	clone Non-cloneable (C#) clone Subclass of Non-clonable (C#) clone not final (C#)
CWE:501	Trust Boundary Violation	Tainted Bundle (C#) Tainted Session (C#)
CWE:522	Insufficiently Protected Credentials	Password in Property File (C#)
CWE:547	"Use of Hard-coded, Security-relevant Constants"	Hardcoded Filename (C#)
CWE:547 CWE:550	"Use of Hard-coded, Security-relevant Constants" Server-generated Error Message Containing Sensitive Information	Hardcoded IP Address (C#) Exception Information Disclosure (C#)
CWE:561	Dead Code	Unreachable Instruction (C#) Unused Class (C#) Unused Method (C#)
CWE:563	Assignment to Variable without Use	Unnecessary Field (C#) Unused Value: Actual Parameter (C#) Unused Value: Variable (C#) Unused Value: Write to Parameter (C#)
CWE:567	Unsynchronized Access to Shared Data in a Multithreaded Context	Missing synchronized Statement (C#) Unguarded Field (C#) Unguarded Parameter (C#) Useless volatile Modifier (C#)
CWE:570	Expression is Always False	Impossible reference comparison (Java) Instanceof Always False (C#) Redundant Condition (C#) equals Always Fails (C#)
CWE:571	Expression is Always True	Instanceof Always True (C#)
CWE:572	Call to Thread run() instead of start()	Synchronous Call to Thread Body (C#)
CWE:573	Improper Following of Specification by Caller	Missing Call to super (C#)
CWE:581	Object Model Violation: Just One of Equals and Hashcode Defined	Defines equals but not hashCode (C#) Defines hashCode but not equals (C#)
CWE:585	Empty Synchronized Block	Useless Synchronization (C#)
CWE:595	Comparison of Object References Instead of Object Contents	equals on Array (C#)
CWE:601	URL Redirection to Untrusted Site ('Open Redirect')	Tainted URL (C#)
CWE:607	Public Static Final Field References Mutable Object	Mutable Constant Field (C#) Mutable Enumeration (C#)
CWE:609	Double-Checked Locking	Double-Checked Locking (C#)
CWE:611	Improper Restriction of XML External Entity Reference	Insecure XSLT Execution (C#) Possible XML External Entity Reference (C#)
CWE:614	Sensitive Cookie in HTTPS Session Without 'Secure' Attribute	Insecure Cookie (C#)
CWE:624	Executable Regular Expression Error	Tainted Regular Expression (C#)
CWE:628	Function Call with Incorrectly Specified Arguments	Method Names Differ Only in Case (C#)
CWE:643	Improper Neutralization of Data within XPath Expressions ('XPath Injection')	Tainted Xpath (C#)
CWE:662	Improper Synchronization	Useless volatile Modifier (C#)
CWE:665	Improper Initialization	Useless Assignment (C#) Useless Assignment to Default (C#)



CWE:674	Uncontrolled Recursion	Potential Infinite Recursion (C#)
CWE:676	Use of Potentially Dangerous Function	Method Disables Security Setting (C#)
CWE:682	Incorrect Calculation	Abs on random (C#)
CWE:686	Function Call With Incorrect Argument Type	Non-overriding Method Signature (C#)
CWE:697	Incorrect Comparison	Asymmetric compareTo (C#) compareTo without equals (C#) compareTo/equals mismatch (C#)
CWE:704	Incorrect Type Conversion or Cast	Risky Class Cast (C#) Risky array store (C#)
CWE:710	Improper Adherence to Coding Standards	Naming Style Violation (C#)
CWE:749	Exposed Dangerous Method or Function	Security Annotation Conflict (C#)
CWE:757	Selection of Less-Secure Algorithm During Negotiation ('Algorithm Downgrade')	Deprecated Transfer Protocol (C#)
CWE:768	Incorrect Short Circuit Evaluation	Bitwise AND on Boolean (C#) Bitwise OR on Boolean (C#)
CWE:820	Missing Synchronization	Unguarded Method (C#)
CWE:833	Deadlock	Blocking in Critical Section (C#)
CWE:909	Missing Initialization of Resource	Empty zip File Archived (C#)
CWE:913	Improper Control of Dynamically-Managed Code Resources	Deserializable Class (C#) Nonserializable Field (C#) Nonserializable Field Element (C#) Nonserializable Outer Class (C#)
CWE:915	Improperly Controlled Modification of Dynamically-Determined Object Attributes	Reflection Modifies Member Accessibility (C#)
CWE:916	Use of Password Hash With Insufficient Computational Effort	Inadequate Salt (C#)
CWE:922	Insecure Storage of Sensitive Information	Certificate Added to Root Store (C#)
CWE:1023	Incomplete Comparison with Missing Factors	Missing Equals Override (C#)
CWE:1024	Comparison of Incompatible Type	== Always Fails Because Types Always Different (C#)
CWE:1077	Floating Point Comparison with Incorrect Operator	Floating Point Equality (C#)
CWE:1126	Declaration of Variable with Unnecessarily Wide Scope	Unnecessary Field (C#)
CWE:1164	Irrelevant Code	Unused Object (C#) Field Never Read (C#)
CWE:1176	Inefficient CPU Computation	Single-use Random Number Generator (C#)
CWE:1204	Generation of Weak Initialization Vector (IV)	Weak Initialization Vector Field (C#) Weak Initialization Vector Value (C#)
CWE:1339	Insufficient Precision or Accuracy of a Real Number	Approximate e Constant (C#) Approximate pi Constant (C#)
CWE:1390	Weak Authentication	Anonymous LDAP Authentication (C#)
CWE:1391	Use of Weak Credentials	Do not hard-code encryption key (C#)



CWE IDS BROADLY MAPPED TO ONE OR MORE CODESONAR C# WARNING CLASSES(CODESONAR V7.2)

The following table lists the CWE IDs that are broadly mapped to one or more CodeSonar C# warning classes.

CWE:19	CWE:20	CWE:22	CWE:73	CWE:74
CWE:77	CWE:78	CWE:79	CWE:89	CWE:90
CWE:91	CWE:93	CWE:94	CWE:95	CWE:113
CWE:114	CWE:116	CWE:117	CWE:133	CWE:136
CWE:137	CWE:189	CWE:190	CWE:192	CWE:197
CWE:199	CWE:200	CWE:209	CWE:221	CWE:227
CWE:252	CWE:253	CWE:254	CWE:255	CWE:259
CWE:265	CWE:284	CWE:287	CWE:310	CWE:311
CWE:319	CWE:326	CWE:327	CWE:328	CWE:330
CWE:338	CWE:344	CWE:361	CWE:388	CWE:389
CWE:390	CWE:392	CWE:395	CWE:396	CWE:397
CWE:398	CWE:399	CWE:400	CWE:404	CWE:405
CWE:411	CWE:412	CWE:413	CWE:435	CWE:436
CWE:438	CWE:440	CWE:456	CWE:465	CWE:470
CWE:471	CWE:476	CWE:477	CWE:480	CWE:481
CWE:485	CWE:489	CWE:491	CWE:501	CWE:522
CWE:547	CWE:550	CWE:557	CWE:561	CWE:563
CWE:567	CWE:569	CWE:570	CWE:571	CWE:572
CWE:573	CWE:581	CWE:585	CWE:595	CWE:597
CWE:601	CWE:607	CWE:609	CWE:610	CWE:611
CWE:614	CWE:624	CWE:628	CWE:629	CWE:635
CWE:642	CWE:643	CWE:657	CWE:662	CWE:664
CWE:665	CWE:667	CWE:668	CWE:670	CWE:671
CWE:674	CWE:676	CWE:681	CWE:682	CWE:684
CWE:686	CWE:691	CWE:693	CWE:697	CWE:699
CWE:700	CWE:703	CWE:704	CWE:705	CWE:706
CWE:707	CWE:710	CWE:711	CWE:712	CWE:713
CWE:714	CWE:715	CWE:717	CWE:718	CWE:719
CWE:720	CWE:722	CWE:723	CWE:724	CWE:725
CWE:727	CWE:728	CWE:729	CWE:730	CWE:731
CWE:734	CWE:735	CWE:736	CWE:737	CWE:738
CWE:739	CWE:740	CWE:741	CWE:742	CWE:743
CWE:744	CWE:745	CWE:746	CWE:747	CWE:748
CWE:749	CWE:750	CWE:751	CWE:752	CWE:753
CWE:754	CWE:755	CWE:757	CWE:768	CWE:771
CWE:772	CWE:798	CWE:800	CWE:801	CWE:802
CWE:803	CWE:808	CWE:809	CWE:810	CWE:811
CWE:812	CWE:813	CWE:815	CWE:816	CWE:818
CWE:819	CWE:820	CWE:821	CWE:833	CWE:844
CWE:845	CWE:846	CWE:847	CWE:848	CWE:849
CWE:850	CWE:851	CWE:852	CWE:853	CWE:854
CWE:855	CWE:857	CWE:858	CWE:859	CWE:861
CWE:864	CWE:865	CWE:866	CWE:867	CWE:868
CWE:871	CWE:872	CWE:873	CWE:874	CWE:875
CWE:876	CWE:877	CWE:878	CWE:879	CWE:880
CWE:882	CWE:883	CWE:884	CWE:885	CWE:886
CWE:887	CWE:888	CWE:889	CWE:890	CWE:892
CWE:893	CWE:894	CWE:895	CWE:896	CWE:897
CWE:898	CWE:899	CWE:900	CWE:902	CWE:903
CWE:905	CWE:906	CWE:907	CWE:909	CWE:913
CWE:915	CWE:916	CWE:922	CWE:928	CWE:929
CWE:930	CWE:931	CWE:932	CWE:933	CWE:934
CWE:938	CWE:943	CWE:944	CWE:947	CWE:950
CWE:957	CWE:958	CWE:959	CWE:960	CWE:961
CWE:962	CWE:963	CWE:966	CWE:971	CWE:975



CWE:977	CWE:978	CWE:980	CWE:981	CWE:982
CWE:984	CWE:985	CWE:986	CWE:987	CWE:989
CWE:990	CWE:991	CWE:992	CWE:994	CWE:997
CWE:998	CWE:1000	CWE:1001	CWE:1002	CWE:1003
CWE:1005	CWE:1006	CWE:1008	CWE:1009	CWE:1010
CWE:1011	CWE:1012	CWE:1013	CWE:1015	CWE:1016
CWE:1019	CWE:1020	CWE:1023	CWE:1024	CWE:1025
CWE:1026	CWE:1027	CWE:1028	CWE:1029	CWE:1030
CWE:1031	CWE:1032	CWE:1033	CWE:1071	CWE:1076
CWE:1077	CWE:1078	CWE:1126	CWE:1128	CWE:1129
CWE:1130	CWE:1131	CWE:1133	CWE:1134	CWE:1135
CWE:1136	CWE:1137	CWE:1139	CWE:1140	CWE:1141
CWE:1142	CWE:1143	CWE:1144	CWE:1145	CWE:1147
CWE:1148	CWE:1152	CWE:1154	CWE:1157	CWE:1158
CWE:1159	CWE:1161	CWE:1162	CWE:1163	CWE:1164
CWE:1165	CWE:1166	CWE:1167	CWE:1169	CWE:1170
CWE:1171	CWE:1176	CWE:1177	CWE:1178	CWE:1179
CWE:1180	CWE:1181	CWE:1182	CWE:1186	CWE:1194
CWE:1200	CWE:1204	CWE:1208	CWE:1210	CWE:1213
CWE:1228	CWE:1305	CWE:1306	CWE:1307	CWE:1308
CWE:1309	CWE:1337	CWE:1339	CWE:1340	CWE:1344
CWE:1345	CWE:1346	CWE:1347	CWE:1348	CWE:1349
CWE:1350	CWE:1353	CWE:1354	CWE:1355	CWE:1358
CWE:1359	CWE:1360	CWE:1363	CWE:1364	CWE:1366
CWE:1368	CWE:1382	CWE:1383	CWE:1387	CWE:1390
CWE:1391				

