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## C# static code analysis

Unique rules to find Bugs, Vulnerabilities, Security Hotspots, and Code Smells in your C# code

All rules **409**

Vulnerability **34**

Bug **76**

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Code Smell **271**

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Tags

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Non-flags enums should not be used in bitwise operations

Code Smell

Inner class members should not shadow outer class "static" or type members

Code Smell

"Explicit" conversions of "foreach" loops should not be used

Code Smell

Instance members should not write to "static" fields

Code Smell

"IndexOf" checks should not be for positive numbers

Code Smell

Whitespace and control characters in string literals should be explicit

Code Smell

Properties should not make collection or array copies

Code Smell

Flags enumerations zero-value members should be named "None"

Code Smell

Overflow checking should not be disabled for "Enumerable.Sum"

Code Smell

Field-like events should not be virtual

Code Smell

Non-constant static fields should not be visible

Code Smell

Inappropriate casts should not be made

Weak SSL/TLS protocols should not be used

Analyze your code

Vulnerability Critical cwe privacy owasp sans-top25

Older versions of SSL/TLS protocol like "SSLv3" have been proven to be insecure.

This rule raises an issue when an SSL/TLS is configured at application level with an insecure version (ie: a protocol different from "TLSv1.2" or "TLSv1.3").

No issue is raised when the choice of the SSL/TLS version relies on the OS configuration. Be aware that the latest version of [Windows 10 and Windows Server 2016 have TLSv1.0 and TLSv1.1 enabled by default](#). Administrators can configure the OS to enforce TLSv1.2 minimum by [updating registry settings](#) or by applying a group policy.

### Noncompliant Code Example

```
ServicePointManager.SecurityProtocol = SecurityProtocolType.
```

For [System.Net.Http.HttpClient](#)

```
new HttpClientHandler
{
    SslProtocols = SslProtocols.Tls // Noncompliant; legacy
};
```

### Compliant Solution

```
ServicePointManager.SecurityProtocol = SecurityProtocolType.
ServicePointManager.SecurityProtocol = SecurityProtocolType.
```









For [System.Net.Http.HttpClient](#)

```
new HttpClientHandler
{
    SslProtocols = SslProtocols.Tls12 // Compliant
};

new HttpClientHandler
{
    SslProtocols = SslProtocols.None // Compliant; choice of
};
```

### See

- [OWASP Top 10 2021 Category A2](#) - Cryptographic Failures
- [OWASP Top 10 2021 Category A7](#) - Identification and Authentication Failures
- [OWASP Top 10 2017 Category A3](#) - Sensitive Data Exposure
- [OWASP Top 10 2017 Category A6](#) - Security Misconfiguration
- [MITRE, CWE-327](#) - Inadequate Encryption Strength
- [MITRE, CWE-326](#) - Use of a Broken or Risky Cryptographic Algorithm

 Code Smell	<ul style="list-style-type: none"><li>• <a href="#">SANS Top 25</a> - Porous Defenses</li><li>• <a href="#">SSL and TLS Deployment Best Practices - Use secure protocols</a></li><li>• <a href="#">Transport Layer Security (TLS) best practices with the .NET Framework</a></li></ul> <p>Available In:</p> <p><b>sonarlint</b>    <b>sonarcloud</b>    <b>sonarqube</b> </p>
<b>Constructors should only call non-overrideable methods</b>  Code Smell	
<b>"GC.Collect" should not be called</b>  Code Smell	
<b>Methods should not be empty</b>  Code Smell	
<b>Exceptions should not be thrown in finally blocks</b>  Code Smell	

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