

# Breaking changes in .NET 8

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If you're migrating an app to .NET 8, the breaking changes listed here might affect you. Changes are grouped by technology area, such as ASP.NET Core or Windows Forms.

This article categorizes each breaking change as *binary incompatible* or *source incompatible*, or as a *behavioral change*:

- **Binary incompatible** - When run against the new runtime or component, existing binaries may encounter a breaking change in behavior, such as failure to load or execute, and if so, require recompilation.
- **Source incompatible** - When recompiled using the new SDK or component or to target the new runtime, existing source code may require source changes to compile successfully.
- **Behavioral change** - Existing code and binaries may behave differently at run time. If the new behavior is undesirable, existing code would need to be updated and recompiled.

## ASP.NET Core

 Expand table

Title	Type of change
<a href="#">ConcurrencyLimiterMiddleware is obsolete</a>	Source incompatible
<a href="#">Custom converters for serialization removed</a>	Behavioral change
<a href="#">ISystemClock is obsolete</a>	Source incompatible
<a href="#">Minimal APIs: IFormFile parameters require anti-forgery checks</a>	Behavioral change
<a href="#">Rate-limiting middleware requires AddRateLimiter</a>	Behavioral change
<a href="#">Security token events return a JsonWebToken</a>	Behavioral change
<a href="#">TrimMode defaults to full for Web SDK projects</a>	Source incompatible

## Containers

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Title	Type of change
<a href="#">'ca-certificates' package removed from Alpine images</a>	Binary incompatible
<a href="#">Debian container images upgraded to Debian 12</a>	Binary incompatible/behavioral change
<a href="#">Default ASP.NET Core port changed to 8080</a>	Behavioral change
<a href="#">Kerberos package removed from Alpine and Debian images</a>	Binary incompatible
<a href="#">'libintl' package removed from Alpine images</a>	Behavioral change
<a href="#">Multi-platform container tags are Linux-only</a>	Behavioral change
<a href="#">New 'app' user in Linux images</a>	Behavioral change

## Core .NET libraries

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Title	Type of change
<a href="#">Activity operation name when null</a>	Behavioral change
<a href="#">AnonymousPipeServerStream.Dispose behavior</a>	Behavioral change
<a href="#">API obsoletions with custom diagnostic IDs</a>	Source incompatible
<a href="#">Backslash mapping in Unix file paths</a>	Behavioral change
<a href="#">Base64.DecodeFromUtf8 methods ignore whitespace</a>	Behavioral change
<a href="#">Boolean-backed enum type support removed</a>	Behavioral change
<a href="#">Drive's current directory path enumeration</a>	Behavioral change
<a href="#">Enumerable.Sum throws new OverflowException for some inputs</a>	Behavioral change
<a href="#">FileStream writes when pipe is closed</a>	Behavioral change
<a href="#">FindSystemTimeZoneById doesn't return new object</a>	Behavioral change
<a href="#">GC.GetGeneration might return Int32.MaxValue</a>	Behavioral change
<a href="#">GetFolderPath behavior on Unix</a>	Behavioral change

Title	Type of change
<a href="#">GetSystemVersion no longer returns ImageRuntimeVersion</a>	Behavioral change
<a href="#">ITypeDescriptorContext nullable annotations</a>	Source incompatible
<a href="#">Legacy Console.ReadKey removed</a>	Behavioral change
<a href="#">Method builders generate parameters with HasDefaultValue set to false</a>	Behavioral change
<a href="#">ProcessStartInfo.WindowStyle honored when UseShellExecute is false</a>	Behavioral change
<a href="#">RuntimeIdentifier returns platform for which runtime was built</a>	Behavioral change
<a href="#">Type.GetType throws exception for all invalid element types</a>	Behavioral change

# Cryptography

 Expand table

Title	Type of change	Introduced
<a href="#">AesGcm authentication tag size on macOS</a>	Behavioral change	Preview 1
<a href="#">RSA.EncryptValue and RSA.DecryptValue obsolete</a>	Source incompatible	Preview 1

# Deployment

 Expand table

Title	Type of change
<a href="#">Host determines RID-specific assets</a>	Binary incompatible/behavioral change
<a href="#">.NET Monitor only includes distroless images</a>	Behavioral change
<a href="#">StripSymbols defaults to true</a>	Behavioral change

# Entity Framework Core

[Breaking changes in EF Core 8](#)

# Extensions

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Title	Type of change
<a href="#">ActivatorUtilities.CreateInstance behaves consistently</a>	Behavioral change
<a href="#">ActivatorUtilities.CreateInstance requires non-null provider</a>	Behavioral change
<a href="#">ConfigurationBinder throws for mismatched value</a>	Behavioral change
<a href="#">ConfigurationManager package no longer references System.Security.Permissions</a>	Source incompatible
<a href="#">DirectoryServices package no longer references System.Security.Permissions</a>	Source incompatible
<a href="#">Empty keys added to dictionary by configuration binder</a>	Behavioral change
<a href="#">HostApplicationBuilderSettings.Args respected by HostApplicationBuilder ctor</a>	Behavioral change
<a href="#">ManagementDateTimeConverter.ToDateTime returns a local time</a>	Behavioral change
<a href="#">System.Formats.Cbor DateTimeOffset formatting change</a>	Behavioral change

## Globalization

[Expand table](#)

Title	Type of change
<a href="#">Date and time converters honor culture argument</a>	Behavioral change
<a href="#">TwoDigitYearMax default is 2049</a>	Behavioral change

## Interop

[Expand table](#)

Title	Type of change
<a href="#">CreateObjectFlags.Unwrap only unwraps on target instance</a>	Behavioral change
<a href="#">Custom marshallers require additional members</a>	Source incompatible
<a href="#">IDispatchImplAttribute API is removed</a>	Binary incompatible

Title	Type of change
<a href="#">JSFunctionBinding implicit public default constructor removed</a>	Binary incompatible
<a href="#">SafeHandle types must have public constructor</a>	Source incompatible

## Networking

[Expand table](#)

Title	Type of change
<a href="#">SendFile throws NotSupportedException for connectionless sockets</a>	Behavioral change

## Reflection

[Expand table](#)

Title	Type of change
<a href="#">IntPtr no longer used for function pointer types</a>	Behavioral change

## SDK

[Expand table](#)

Title	Type of change
<a href="#">CLI console output uses UTF-8</a>	Behavioral change/Source and binary incompatible
<a href="#">Console encoding not UTF-8 after completion</a>	Behavioral change/Binary incompatible
<a href="#">Containers default to use the 'latest' tag</a>	Behavioral change
<a href="#">'dotnet pack' uses Release configuration</a>	Behavioral change/Source incompatible
<a href="#">'dotnet publish' uses Release configuration</a>	Behavioral change/Source incompatible
<a href="#">Duplicate output for -getItem, -getProperty, and -getTargetResult</a>	Behavioral change
<a href="#">Implicit using for System.Net.Http no longer added</a>	Behavioral change/Source incompatible

Title	Type of change
<a href="#">MSBuild custom derived build events deprecated</a>	Behavioral change
<a href="#">MSBuild respects DOTNET_CLI_UI_LANGUAGE</a>	Behavioral change
<a href="#">Runtime-specific apps not self-contained</a>	Source/binary incompatible
<a href="#">--arch option doesn't imply self-contained</a>	Behavioral change
<a href="#">'dotnet restore' produces security vulnerability warnings</a>	Behavioral change
<a href="#">SDK uses a smaller RID graph</a>	Behavioral change/Source incompatible
<a href="#">Source Link included in the .NET SDK</a>	Source incompatible
<a href="#">Trimming may not be used with .NET Standard or .NET Framework</a>	Behavioral change
<a href="#">Unlisted packages not installed by default for .NET tools</a>	Behavioral change
<a href="#">.user file imported in outer builds</a>	Behavioral change
<a href="#">Version requirements for .NET 8 SDK</a>	Source incompatible

# Serialization

 Expand table

Title	Type of change
<a href="#">BinaryFormatter disabled for most projects</a>	Behavioral change
<a href="#">PublishedTrimmed projects fail reflection-based serialization</a>	Behavioral change
<a href="#">Reflection-based deserializer resolves metadata eagerly</a>	Behavioral change

# Windows Forms

 Expand table

Title	Type of change
<a href="#">Anchor layout changes</a>	Behavioral change

Title	Type of change
<a href="#">Certs checked before loading remote images in PictureBox</a>	Behavioral change
<a href="#">DefaultValueAttribute removed from some properties</a>	Behavioral change
<a href="#">ExceptionCollection ctor throws ArgumentException</a>	Behavioral change
<a href="#">Forms scale according to AutoScaleMode</a>	Behavioral change
<a href="#">ImageList.ColorDepth default is Depth32Bit</a>	Behavioral change
<a href="#">System.Windows.Extensions doesn't reference System.Drawing.Common</a>	Source incompatible
<a href="#">TableLayoutStyleCollection throws ArgumentException</a>	Behavioral change
<a href="#">Top-level forms scale minimum and maximum size to DPI</a>	Behavioral change
<a href="#">WFDEV002 obsoletion is now an error</a>	Source incompatible

## See also

- [C# compiler breaking changes in C# 12 / .NET 8](#)
- [What's new in .NET 8](#)

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