

Other .NET Core Platform Improvements



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Overview



Platform-dependent intrinsics

Interop improvements

Cryptography improvements

Linux improvements

Other new APIs and improvements



Platform-dependent Intrinsics

Provide access to
hardware-specific
instructions

Can improve
performance


Use carefully!

Can throw
PlatformNotSupportedException!



Platform-dependent Intrinsics

```
public int SumVectorized(ReadOnlySpan<int> source)
{
    if (Sse2.IsSupported)
    {
        return SumVectorizedSse2(source);
    }
    else
    {
        return SumVectorT(source);
    }
}
```



We have to
provide this
fallback...



Interop Improvements

NativeLibrary

**CoCreate COM
APIs**

**Activate WinRT
APIs**



New Ciphers

AesGcm (AES-GCM)

AesCcm (AES-CCM)

```
using var aesGcm = new AesGcm(key);  
aesGcm.Encrypt(nonce, dataToEncrypt, ciphertext, tag, associatedData);
```



Key Import/Export

Import and export both public and private keys

```
using var rsa = RSA.Create();  
var keyBytes = System.IO.File.ReadAllBytes(keyFile);  
rsa.ImportRSAPrivateKey(keyBytes, out int bytesRead);  
var rsaParameters = rsa.ExportParameters(true);
```



TLS 1.3 Support

OpenSSL 1.1.1

When available,
HttpClient and
SslStream use TLS
1.3

Linux-only!
(as of September 2019)



There is still *more*!



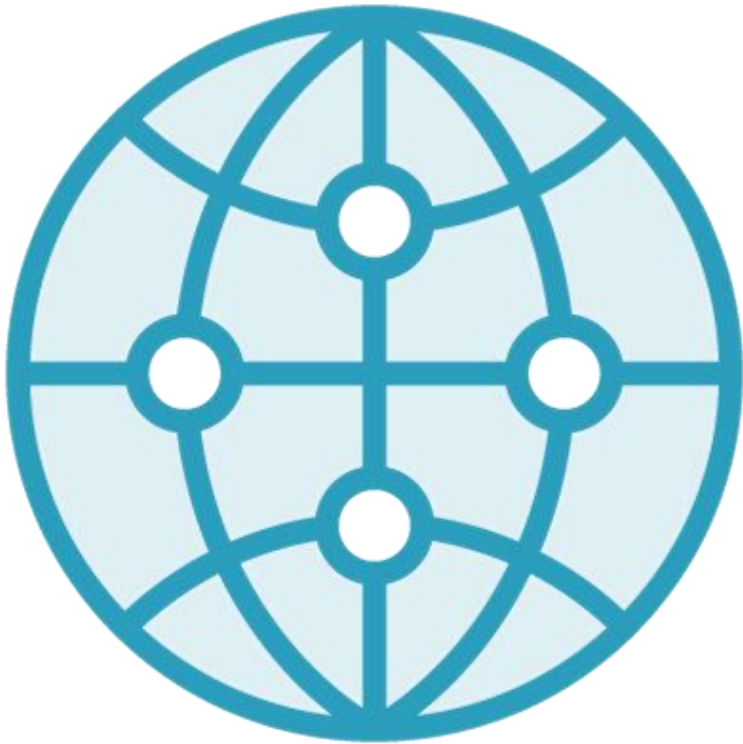
Improved Floating-point APIs

New APIs

BitIncrement	BitDecrement
MaxMagnitude	MinMagnitude
ILogB	ScaleB
Log2	FusedMultiplyAdd
CopySign	



HTTP/2 Support



Not enabled by default!

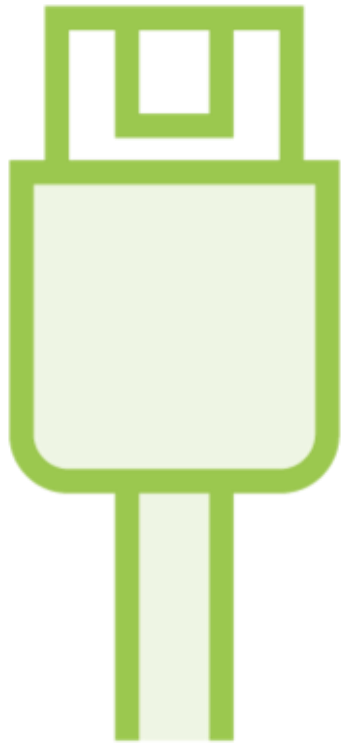
Enable per-request:

```
using var request = new HttpRequestMessage(HttpMethod.Get, url)
{
    Version = new Version(2, 0)
};
```

Enable per-client:

```
var client = new HttpClient()
{
    DefaultRequestVersion = new Version(2, 0)
};
```

SerialPort Support for Linux



New in .NET Core 3.0!

Implementation isn't **quite 100% yet...**

Status of outstanding issues:

<https://github.com/dotnet/corefx/issues/33146>



Memory Improvements



Smaller GC heap sizes



Large Page support

Opt-in only

And Windows Only!



Docker memory usage

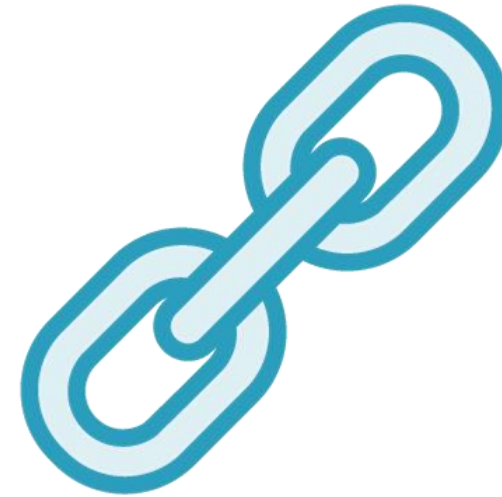
Linux-only



ARM64 Support



Primarily for IoT scenarios



Docker images available:

https://hub.docker.com/_/microsoft-dotnet-core



GPIO Support



Available via NuGet:
`System.Device.Gpio` package



Summary



Platform-dependent intrinsics

Interop improvements

Cryptography improvements

And even more:

- HTTP/2 support
- SerialPort on Linux
- Memory improvements
- GPIO support



.NET Core 3.0 and C# 8: the
latest and greatest is pretty
great!





Keep on learning!

Watch for more .NET Core 3.0 courses!



Stay in Touch!



**Course
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