System.Int32 Structure

```
[ILAsm]
.class public sequential sealed serializable Int32 extends
System.ValueType implements System.IComparable, System.IFormattable,
System.IComparable`1<int32>, System.IEquatable`1<int32>

[C#]
public struct Int32: IComparable, IFormattable, IComparable<Int32>,
IEquatable<Int32>
```

Assembly Info:

- *Name:* mscorlib
- *Public Key:* [00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00]
- *Version:* 2.0.x.x
- *Attributes:*
  - CLSCompliantAttribute(true)

Implements:

- **System.IComparable**
- **System.IFormattable**
- **System.IComparable<System.Int32>**
- **System.IEquatable<System.Int32>**

Summary

Represents a 32-bit signed integer.

Inherits From: System.ValueType

Library: BCL

Thread Safety: This type is safe for multithreaded operations.

Description

The `System.Int32` data type represents integer values ranging from negative 2,147,483,648 to positive 2,147,483,647; that is, hexadecimal 0X80000000 to 0X7FFFFFFF.

Int32.MaxValue Field

```
[ILAsm]
.field public static literal int32 MaxValue = 2147483647

[C#]
public const int MaxValue = 2147483647
```

Summary

Contains the maximum value for the `System.Int32` type.

Description

The value of this constant is 2,147,483,647 (hexadecimal 0X7FFFFFFF).

Int32.MinValue Field

```
[ILAsm]
.field public static literal int32 MinValue = -2147483648

[C#]
public const int MinValue = -2147483648
```

Summary

Contains the minimum value for the `System.Int32` type.

Description

The value of this constant is -2,147,483,648 (hexadecimal 0X80000000).

Int32.CompareTo(System.Int32) Method

```
[ILAsm]
.method public final hidebysig virtual int32 CompareTo(int32 value)

[C#]
public int CompareTo(int value)
```

Summary

Returns the sort order of the current instance compared to the specified `System.Int32`.

Parameters

Parameter	Description
value	The `System.Int32` to compare to the current instance.

Return Value

The return value is a negative number, zero, or a positive number reflecting the sort order of the current instance as compared to *value*. For non-zero return values, the exact value returned by this method is unspecified. The following table defines the return value:

Return Value	Description
A negative number	Current instance < *value*.
Zero	Current instance == *value*.
A positive number	Current instance > *value*.

Description

[*Note:* This method is implemented to support the `System.IComparable<Int32>` interface.]

Int32.CompareTo(System.Object) Method

```
[ILAsm]
.method public final hidebysig virtual int32 CompareTo(object value)

[C#]
public int CompareTo(object value)
```

Summary

Returns the sort order of the current instance compared to the specified `System.Object`.

Parameters

Parameter	Description
value	The `System.Object` to compare to the current instance.

Return Value

The return value is a negative number, zero, or a positive number reflecting the sort order of the current instance as compared to *value*. For non-zero return values, the exact value returned by this method is unspecified. The following table defines the return value:

Return Value	Description
A negative number	Current instance < *value*.
Zero	Current instance == *value*.
A positive number	Current instance > *value*, or *value* is a null reference.

Description

[*Note:* This method is implemented to support the `System.IComparable` interface.]

Exceptions

Exception	Condition
System.ArgumentException	*value* is not a `System.Int32` and is not a null reference.

Int32.Equals(System.Int32) Method

```
[ILAsm]
.method public hidebysig virtual bool Equals(int32 obj)

[C#]
public override bool Equals(int obj)
```

Summary

Determines whether the current instance and the specified `System.Int32` represent the same value.

Parameters

Parameter	Description
obj	The `System.Int32` to compare to the current instance.

Return Value

`true` if *obj* represents the same and value as the current instance; otherwise, `false`.

Description

[*Note:* This method is implemented to support the `System.IEquatable<Int32>` interface.]

Int32.Equals(System.Object) Method

```
[ILAsm]
.method public hidebysig virtual bool Equals(object obj)

[C#]
public override bool Equals(object obj)
```

Summary

Determines whether the current instance and the specified `System.Object` represent the same type and value.

Parameters

Parameter	Description
obj	The `System.Object` to compare to the current instance.

Return Value

`true` if *obj* represents the same type and value as the current instance. If *obj* is a null reference or is not an instance of `System.Int32`, returns `false`.

Description

[*Note:* This method overrides `System.Object.Equals`.]

Int32.GetHashCode() Method

```
[ILAsm]
.method public hidebysig virtual int32 GetHashCode()

[C#]
public override int GetHashCode()
```

Summary

Generates a hash code for the current instance.

Return Value

A `System.Int32` containing the hash code for the current instance.

Description

The algorithm used to generate the hash code is unspecified.

[*Note:* This method overrides `System.Object.GetHashCode`.]

Int32.Parse(System.String) Method

```
[ILAsm]
.method public hidebysig static int32 Parse(string s)

[C#]
public static int Parse(string s)
```

Summary

Returns the specified `System.String` converted to a `System.Int32` value.

Parameters

Parameter	Description
s	A `System.String` containing the value to convert. The string is interpreted using the `System.Globalization.NumberStyles.Integer` style.

Return Value

The `System.Int32` value obtained from *s*.

Description

This version of `System.Int32.Parse` is equivalent to `System.Int32.Parse`(*s*, `System.Globalization.NumberStyles.Integer`, `null`).

The string *s* is parsed using the formatting information in a `System.Globalization.NumberFormatInfo` initialized for the current system culture. [*Note:* For more information, see `System.Globalization.NumberFormatInfo.CurrentInfo`.]

Exceptions

Exception	Condition
System.ArgumentNullException	*s* is a null reference.

System.FormatException	*s* is not in the correct style.
System.OverflowException	*s* represents a number greater than System.Int32.MaxValue or less than System.Int32.MinValue.

Example

This example demonstrates parsing a string to a System.Int32.

[C#]

```
using System;
public class Int32ParseClass {
  public static void Main() {
    string str = "  100   ";
    Console.WriteLine("String: \"{0}\" <Int32> {1}",str,Int32.Parse(str));
  }
}
```

The output is

```
String: " 100 " <Int32> 100
```

Int32.Parse(System.String, System.Globalization.NumberStyles) Method

```
[ILAsm]
.method public hidebysig static int32 Parse(string s, valuetype
System.Globalization.NumberStyles style)

[C#]
public static int Parse(string s, NumberStyles style)
```

Summary

Returns the specified `System.String` converted to a `System.Int32` value.

Parameters

Parameter	Description
s	A `System.String` containing the value to convert. The string is interpreted using the style specified by *style*.
style	Zero or more `System.Globalization.NumberStyles` values that specify the style of *s*. Specify multiple values for *style* using the bitwise OR operator. If *style* is a null reference, the string is interpreted using the `System.Globalization.NumberStyles.Integer` style.

Return Value

The `System.Int32` value obtained from *s*.

Description

This version of `System.Int32.Parse` is equivalent to `System.Int32.Parse` (*s*, *style*, `null`).

The string *s* is parsed using the formatting information in a `System.Globalization.NumberFormatInfo` initialized for the current system culture. [*Note:* For more information, see `System.Globalization.NumberFormatInfo.CurrentInfo`.]

Exceptions

Exception	Condition
System.ArgumentNullException	*s* is a null reference.
System.FormatException	*s* is not in the correct style.
System.OverflowException	*s* represents a number greater than `System.Int32.MaxValue` or less than `System.Int32.MinValue`.

Int32.Parse(System.String, System.IFormatProvider) Method

```
[ILAsm]
.method public hidebysig static int32 Parse(string s, class
System.IFormatProvider provider)

[C#]
public static int Parse(string s, IFormatProvider provider)
```

Summary

Returns the specified `System.String` converted to a `System.Int32` value.

Parameters

Parameter	Description
s	A `System.String` containing the value to convert. The string is interpreted using the `System.Globalization.NumberStyles.Integer` style.
provider	A `System.IFormatProvider` that supplies a `System.Globalization.NumberFormatInfo` containing culture-specific formatting information about *s*.

Return Value

The `System.Int32` value obtained from *s*.

Description

This version of `System.Int32.Parse` is equivalent to `System.Int32.Parse`(*s*, `System.Globalization.NumberStyles.Integer`, *provider*).

The string *s* is parsed using the culture-specific formatting information from the `System.Globalization.NumberFormatInfo` instance supplied by *provider*. If *provider* is `null` or a `System.Globalization.NumberFormatInfo` cannot be obtained from *provider*, the formatting information for the current system culture is used.

Exceptions

Exception	Condition
System.ArgumentNullException	*s* is a null reference.
System.FormatException	*s* is not in the correct style.
System.OverflowException	*s* represents a number greater than `System.Int32.MaxValue` or less than `System.Int32.MinValue`.

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Int32.Parse(System.String, System.Globalization.NumberStyles, System.IFormatProvider) Method

```
[ILAsm]
.method public hidebysig static int32 Parse(string s, valuetype
System.Globalization.NumberStyles style, class System.IFormatProvider
provider)

[C#]
public static int Parse(string s, NumberStyles style, IFormatProvider
provider)
```

Summary

Returns the specified `System.String` converted to a `System.Int32` value.

Parameters

Parameter	Description
s	A `System.String` containing the value to convert. The string is interpreted using the style specified by *style*.
style	Zero or more `System.Globalization.NumberStyles` values that specify the style of *s*. Specify multiple values for *style* using the bitwise OR operator. If *style* is a null reference, the string is interpreted using the `System.Globalization.NumberStyles.Integer` style.
provider	A `System.IFormatProvider` that supplies a `System.Globalization.NumberFormatInfo` containing culture-specific formatting information about *s*.

Return Value

The `System.Int32` value obtained from *s*.

Description

The string *s* is parsed using the culture-specific formatting information from the `System.Globalization.NumberFormatInfo` instance supplied by *provider*. If *provider* is

`null` or a `System.Globalization.NumberFormatInfo` cannot be obtained from *provider*, the formatting information for the current system culture is used.

Exceptions

Exception	Condition
System.ArgumentNullException	*s* is a null reference.
System.FormatException	*s* is not in the correct style.
System.OverflowException	*s* represents a number greater than `System.Int32.MaxValue` or less than `System.Int32.MinValue`.

Int32.ToString(System.IFormatProvider) Method

```
[ILAsm]
.method public final hidebysig virtual string ToString(class
System.IFormatProvider provider)

[C#]
public string ToString(IFormatProvider provider)
```

Summary

Returns a System.String representation of the value of the current instance.

Parameters

Parameter	Description
provider	A System.IFormatProvider that supplies a System.Globalization.NumberFormatInfo containing culture-specific formatting information.

Return Value

A System.String representation of the current instance formatted using the general format specifier, ("G"). The string takes into account the formatting information in the System.Globalization.NumberFormatInfo instance supplied by *provider*.

Description

This version of System.Int32.ToString is equivalent to System.Int32.ToString("G", *provider*).

If *provider* is null or a System.Globalization.NumberFormatInfo cannot be obtained from *provider*, the formatting information for the current system culture is used.

Int32.ToString(System.String, System.IFormatProvider) Method

```
[ILAsm]
.method public final hidebysig virtual string ToString(string format,
class System.IFormatProvider provider)

[C#]
public string ToString(string format, IFormatProvider provider)
```

Summary

Returns a System.String representation of the value of the current instance.

Parameters

Parameter	Description
format	A System.String containing a character that specifies the format of the returned string.
provider	A System.IFormatProvider that supplies a System.Globalization.NumberFormatInfo instance containing culture-specific formatting information.

Return Value

A System.String representation of the current instance formatted as specified by *format*. The string takes into account the formatting information in the System.Globalization.NumberFormatInfo instance supplied by *provider*.

Description

If *provider* is null or a System.Globalization.NumberFormatInfo cannot be obtained from *provider*, the formatting information for the current system culture is used.

If *format* is a null reference, the general format specifier "G" is used.

[*Note:* For a detailed description of formatting, see the System.IFormattable interface.

This method is implemented to support the System.IFormattable interface.

]

The following table lists the characters that are valid for the `System.Int32` type.

Item	Description
"C", "c"	Currency format.
"D", "d"	Decimal format.
"E", "e"	Exponential notation format.
"F", "f"	Fixed-point format.
"G", "g"	General format.
"N", "n"	Number format.
"P", "p"	Percent format.
"X", "x"	Hexadecimal format.

Exceptions

Exception	Condition
System.FormatException	*format* is invalid.

Int32.ToString() Method

```
[ILAsm]
.method public hidebysig virtual string ToString()

[C#]
public override string ToString()
```

Summary

Returns a `System.String` representation of the value of the current instance.

Return Value

A `System.String` representation of the current instance formatted using the general format specifier ("G"). The string takes into account the current system culture.

Description

This version of `System.Int32.ToString` is equivalent to `System.Int32.ToString (null, null)`.

[*Note:* This method overrides `System.Object.ToString`.]

Int32.ToString(System.String) Method

```
[ILAsm]
.method public hidebysig instance string ToString(string format)

[C#]
public string ToString(string format)
```

Summary

Returns a System.String representation of the value of the current instance.

Parameters

Parameter	Description
format	A System.String that specifies the format of the returned string. [*Note:* For a list of valid values, see System.Int32.ToString(System.String, System.IFormatProvider).]

Return Value

A System.String representation of the current instance formatted as specified by *format*. The string takes into account the current system culture.

Description

This method is equivalent to System.Int32.ToString(*format*, null).

If *format* is a null reference, the general format specifier "G" is used.

Exceptions

Exception	Condition
System.FormatException	*format* is invalid.

Example

This example demonstrates converting a System.Int32 to a string.

[C#]

```
using System;
public class Int32ToStringExample {
   public static void Main() {
      Int32 i = 32;
      Console.WriteLine(i);
      String[] formats = {"c", "d", "e", "f", "g", "n", "p", "x" };
      foreach(String str in formats)
         Console.WriteLine("{0}: {1}", str, i.ToString(str));
   }
}
```

The output is

```
32


c: $32.00


d: 32


e: 3.200000e+001


f: 32.00


g: 32


n: 32.00


p: 3,200.00 %


x: 20
```