```
LinksPlatform's Platform.IO Class Library
     ./csharp/Platform.IO/ConsoleCancellation.cs
   using System;
   using System.Runtime.CompilerServices;
2
   using System. Threading;
   using Platform.Disposables;
4
   using Platform. Threading;
   #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
   namespace Platform. IO
9
10
        public class ConsoleCancellation : DisposableBase
11
12
            public CancellationTokenSource Source
13
14
                [MethodImpl(MethodImplOptions.AggressiveInlining)]
15
17
            public CancellationToken Token
19
                 [MethodImpl(MethodImplOptions.AggressiveInlining)]
2.1
                get;
23
            public bool IsRequested
25
26
                 [MethodImpl(MethodImplOptions.AggressiveInlining)]
27
                get => Source.IsCancellationRequested;
28
30
            public bool NotRequested
31
32
                [MethodImpl(MethodImplOptions.AggressiveInlining)]
33
                get => !Source.IsCancellationRequested;
34
35
36
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
37
            public ConsoleCancellation()
38
39
                Source = new CancellationTokenSource();
40
                Token = Source.Token;
41
                Console.CancelKeyPress += OnCancelKeyPress;
42
43
44
45
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
46
            public void ForceCancellation() => Source.Cancel();
47
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
            public void Wait()
49
50
                while (NotRequested)
52
                     ThreadHelpers.Sleep();
53
                }
            }
56
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
            protected override void Dispose(bool manual, bool wasDisposed)
58
59
                if (!wasDisposed)
60
61
                     Console.CancelKeyPress -= OnCancelKeyPress;
62
                    Source.DisposeIfPossible();
63
                }
64
            }
65
66
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
67
            private void OnCancelKeyPress(object sender, ConsoleCancelEventArgs e)
68
                e.Cancel = true;
70
                if (NotRequested)
                {
72
                    Source.Cancel();
73
                }
74
            }
75
        }
76
   }
77
```

```
./csharp/Platform.IO/ConsoleHelpers.cs
   using System;
   using System Diagnostics;
   using System.Runtime.CompilerServices;
using Platform.Collections;
   using Platform.Collections.Arrays;
   #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
   namespace Platform. IO
10
       public static class ConsoleHelpers
11
12
            /// <summary>
13
            /// <para>Requests and expects a user to press any key in the console.</para>
14
            /// <para>Запрашивает и ожидает нажатие любой клавиши пользователем в консоли.</para>
15
            /// </summary>
16
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
            public static void PressAnyKeyToContinue()
18
19
                Console.WriteLine("Press any key to continue.");
                Console.ReadKey();
            }
22
            /// <summary>
24
            /// <para>Gets the argument's value with the specified <paramref name="index" /> from
               the <paramref name="args"/> array and if it's absent requests a user to input it in
               the console.</para>
            /// <para>Получает значение аргумента с указанным <paramref name="index"/> из массива
                <paramref name="args"/>, a если оно отсутствует запрашивает его ввод в консоли у
                пользователя.</para>
            /// </summary>
            /// <param name="index">
28
            /// <para>The ordinal number of the argument in the array.</para>
            /// <para>Порядковый номер аргумента в массиве.</para>
30
            /// </param>
31
            /// <param name="args">
            /// <para>The argument array passed to the application.</para>
33
            /// <para>Maccив аргументов переданных приложению.</para>
34
            /// </param>
3.5
            /// <returns>
            /// <para>The value with the specified <paramref name="index"/> extracted from the
37
               <paramref name="args"/> array or entered by a user in the console.
            /// <para>Значение с указанным <paramref name="index"/>, извлечённое из массива
38
               <paramref name="args"/>, или введённое пользователем в консоли.</para>
            /// </returns>
39
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
           public static string GetOrReadArgument(int index, params string[] args) =>

   GetOrReadArgument(index, $\$"\{index + 1\} argument", args);

42
            /// <summary>
43
            /// <para>Gets the argument's value with the specified <paramref name="index" /> from
            _{
ightharpoonup} the <paramref name="args"/> array and if it's absent requests a user to input it in
               the console.</para>
            /// <para>Получает значение аргумента с указанным <paramref name="index"/> из массива
45
               <paramref name="args"/>, a если оно отсутствует запрашивает его ввод в консоли у
               пользователя.</para>
            /// </summary>
46
            /// <param name="index">
            /// <para>The ordinal number of the argument in the array.</para>
            /// <para>Порядковый номер аргумента в массиве.</para>
49
            /// </param>
            /// <param name="readMessage">
            /// <para>The message's text to a user describing which argument is being entered at the
52
            moment. If the <paramref name="args"/> array doesn't contain the element with the
               specified <paramref name="index"/>, then this message is used.</para>
            /// <para>Текст сообщения пользователю описывающее какой аргумент вводится в данный
53
            _{
ightarrow} момент. Это сообщение используется только если массив  paramref name="args"/> не
               содержит аргумента с указанным <paramref name="index"/>.</para>
            /// </param>
            /// <param name="args">
5.5
            /// <para>The argument array passed to the application.</para>
56
            /// <para>Maccив аргументов переданных приложению.</para>
            /// </param>
            /// <returns>
59
            /// <para>The value with the specified <paramref name="index"/> extracted from the
60
               <paramref name="args"/> array or entered by a user in the console.</para>
```

```
/// <para>Значение с указанным <paramref name="index"/>, извлечённое из массива
61
                <paramref name="args"/>, или введённое пользователем в консоли.</para>
            [MethodImpl(MethodImplOptions.AggressiveInlining)]
            public static string GetOrReadArgument(int index, string readMessage, params string[]
64
                args)
                if (!args.TryGetElement(index, out string result))
67
                    Console.Write($"{readMessage}: ");
68
                    result = Console.ReadLine();
69
70
                if (string.IsNullOrEmpty(result))
71
                {
72
                    return "";
                }
74
75
                else
                {
76
                    return result.Trim().TrimSingle('"').Trim();
77
                }
78
            }
80
            /// <summary>
            /// <para>Outputs the <paramref name="string" /> to the console.</para>
82
            /// <para>Выводит <paramref name="string" /> в консоль.</para>
83
            /// </summary>
            /// <param name="string">
85
            /// <para>The string to output to the console.</para>
86
            /// <para>Строка выводимая в консоль.</para>
87
            /// </param>
            /// <remarks>
89
            /// <para>The method is only executed if the application was compiled with the DEBUG
90
                directive.</para>
            /// <para>Метод выполняется только в том случае, если приложение было скомпилировано с
                директивой DEBUG.</para>
            /// </remarks>
92
            [Conditional("DEBUG")]
93
            public static void Debug(string @string) => Console.WriteLine(@string);
94
95
            /// <summary>
96
            /// <para>Writes text representations of objects of the specified <paramref
            array, followed by the current line terminator, to the standard output
                stream using the specified <paramref name="format"/>.</para>
            /// <para>Записывает текстовые представления объектов заданного массива <paramref
            🛶 name="args"/>, за которым следует текущий признак конца строки, в стандартный
               выходной поток с использованием заданного <paramref name="format"/>.</para>
            /// </summary>
99
            /// <param name="format">
100
            /// <para>The composite format string.</para>
101
            /// <para>Строка составного формата.</para>
102
            /// </param>
103
            /// <param name="args">
            /// <para>The object array to write to the standard output stream using <paramref
               name="format" />.</para>
            /// <para>Maccив объектов для записи в стандартный выходной поток с использованием
106
               <paramref name="format" />.</para>
            /// </param>
107
            /// <remarks>
108
            /// <para>The method is only executed if the application was compiled with the DEBUG
109
                directive.</para>
            /// <para>Метод выполняется только в том случае, если приложение было скомпилировано с
110
                директивой DEBUG.</para>
            /// </remarks>
111
            [Conditional("DEBUG")]
            public static void Debug(string format, params object[] args) =>

→ Console.WriteLine(format, args);

        }
114
115
     ./csharp/Platform.IO/FileHelpers.cs
1.3
   using System;
 1
    using System.IO;
   using System.Runtime.CompilerServices;
    using Platform.Unsafe;
    #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
```

```
namespace Platform. IO
    public static class FileHelpers
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static char[] ReadAllChars(string path) => File.ReadAllText(path).ToCharArray();
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static T[] ReadAll<T>(string path)
            where T : struct
        {
            using var reader = File.OpenRead(path);
            return reader.ReadAll<T>();
        }
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static T ReadFirstOrDefault<T>(string path)
            where T : struct
            using var fileStream = GetValidFileStreamOrDefault<T>(path);
            return fileStream?.ReadOrDefault<T>() ?? default;
        }
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        private static FileStream GetValidFileStreamOrDefault<TStruct>(string path) where
           TStruct : struct => GetValidFileStreamOrDefault(path, Structure<TStruct>.Size);
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        private static FileStream GetValidFileStreamOrDefault(string path, int elementSize)
            if (!File.Exists(path))
            {
                return null;
            var fileSize = GetSize(path);
            if (fileSize % elementSize != 0)
                throw new InvalidOperationException($|"File is not aligned to elements with size
                return fileSize > 0 ? File.OpenRead(path) : null;
        }
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static T ReadLastOrDefault<T>(string path)
            where T : struct
            var elementSize = Structure<T>.Size;
            using var reader = GetValidFileStreamOrDefault(path, elementSize);
            if (reader == null)
            {
                return default;
            var totalElements = reader.Length / elementSize;
            reader.Position = (totalElements - 1) * elementSize; // Set to last element
            return reader.ReadOrDefault<T>();
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static void WriteFirst<T>(string path, T value)
            where T : struct
            using var writer = File.OpenWrite(path);
            writer.Position = 0;
            writer.Write(value);
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static FileStream Append(string path) => File.Open(path, FileMode.Append,
        → FileAccess.Write);
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static long GetSize(string path) => File.Exists(path) ? new FileInfo(path).Length
           : 0;
        [MethodImpl(MethodImplOptions.AggressiveInlining)]
        public static void SetSize(string path, long size)
            using var fileStream = File.Open(path, FileMode.OpenOrCreate);
```

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7.1

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77

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81

82

```
if (fileStream.Length != size)
83
                     fileStream.SetLength(size);
85
                 }
86
            }
88
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
89
            public static void DeleteAll(string directory) => DeleteAll(directory, "*");
90
91
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
            public static void DeleteAll(string directory, string searchPattern) =>
93
             DeleteAll(directory, searchPattern, SearchOption.TopDirectoryOnly);
94
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
96
            public static void DeleteAll(string directory, string searchPattern, SearchOption
                 searchOption)
             {
                 foreach (var file in Directory.EnumerateFiles(directory, searchPattern,
                     searchOption))
                     File.Delete(file);
100
                 }
101
            }
        }
103
104
     ./csharp/Platform.IO/StreamExtensions.cs
1.4
    using System.IO;
    using System.Runtime.CompilerServices;
    using Platform. Unsafe;
 3
    #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
    namespace Platform. IO
 7
        public static class StreamExtensions
 9
10
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
            public static void Write<T>(this Stream stream, T value)
12
13
                 where T : struct
14
                 var bytes = value.ToBytes();
15
                 stream.Write(bytes, 0, bytes.Length);
             }
17
18
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
19
            public static T ReadOrDefault<T>(this Stream stream)
20
                 where T : struct
             {
22
                 var size = Structure<T>.Size;
23
                 var buffer = new byte[size];
24
                 return stream.Read(buffer, 0, size) == size ? buffer.ToStructure<T>() : default;
25
            }
26
27
             [MethodImpl(MethodImplOptions.AggressiveInlining)]
28
            public static T[] ReadAll<T>(this Stream stream)
                 where T : struct
30
                 var size = Structure<T>.Size;
32
                 var buffer = new byte[size];
33
                 var elementsLength = stream.Length / size;
                 var elements = new T[elementsLength];
35
                 for (var i = 0; i < elementsLength; i++)</pre>
36
38
                     stream.Read(buffer, 0, size);
                     elements[i] = buffer.ToStructure<T>();
39
40
                 return elements;
41
            }
42
        }
43
    }
44
     ./csharp/Platform.IO.Tests/FileHelpersTests.cs
    using System.IO;
    using Xunit;
    namespace Platform.IO.Tests
 4
    {
        public class FileHelpersTests
```

```
[Fact]
public void WriteReadTest()

var temporaryFile = Path.GetTempFileName();
var originalValue = 42UL;

FileHelpers.WriteFirst(temporaryFile, originalValue);
var readValue = FileHelpers.ReadFirstOrDefault<ulong>(temporaryFile);
Assert.Equal(readValue, originalValue);
File.Delete(temporaryFile);

File.Delete(temporaryFile);

}
```

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