

LinksPlatform's Platform.Memory Class Library

./ArrayMemory.cs

```
1 namespace Platform.Memory
2 {
3     /// <summary>
4     /// <para>Represents a memory block with access via indexer.</para>
5     /// <para>Представляет блок памяти с доступом через индекатор.</para>
6     /// </summary>
7     /// <typeparam name="TElement"><para>Element type.</para><para>Тип
8     ↪ элемента.</para></typeparam>
9     public class ArrayMemory<TElement> : IArrayMemory<TElement>
10     {
11         #region Fields
12
13         private readonly TElement[] _array;
14
15         #endregion
16
17         #region Properties
18
19         /// <inheritdoc/>
20         /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
21         ↪ path='doc/members/member[@name="P:Platform.Memory.IMemory.Size"]/*' />
22         public long Size => _array.Length;
23
24         /// <inheritdoc/>
25         /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml' path='doc/members/member[@name="P:Platform.Memory.IArrayMemory`1.Item(System.Int64)"]/*' />
26         ↪ ber[@name="P:Platform.Memory.IArrayMemory`1.Item(System.Int64)"]/*' />
27         public TElement this[long index]
28         {
29             get => _array[index];
30             set => _array[index] = value;
31         }
32
33         #endregion
34
35         #region Constructors
36
37         /// <summary>
38         /// <para>Initializes a new instance of the <see cref="ArrayMemory{TElement}" />
39         ↪ class.</para>
40         /// <para>Инициализирует новый экземпляр класса <see
41         ↪ cref="ArrayMemory{TElement}" />.</para>
42         /// </summary>
43         /// <param name="size"><para>Size in bytes.</para><para>Размер в байтах.</para></param>
44         public ArrayMemory(long size) => _array = new TElement[size];
45
46         #endregion
47     }
48 }
```

./DirectMemoryAsArrayMemoryAdapter.cs

```
1 using System;
2 using Platform.Disposables;
3 using Platform.Exceptions;
4
5 namespace Platform.Memory
6 {
7     /// <summary>
8     /// <para>Represents adapter to a memory block with access via indexer.</para>
9     /// <para>Представляет адаптер к блоку памяти с доступом через индекатор.</para>
10    /// </summary>
11    /// <typeparam name="TElement"><para>Element type.</para><para>Тип
12    ↪ элемента.</para></typeparam>
13    public unsafe class DirectMemoryAsArrayMemoryAdapter<TElement> : DisposableBase,
14    ↪ IArrayMemory<TElement>, IDirectMemory
15    where TElement : struct
16    {
17        #region Fields
18
19        private readonly IDirectMemory _memory;
20
21        #endregion
22
23        #region Properties
24
25        /// <inheritdoc/>
26        /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
27        ↪ path='doc/members/member[@name="P:Platform.Memory.IMemory.Size"]/*' />
28        public long Size => _memory.Size;
29    }
```

```

26
27     /// <inheritdoc/>
28     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
    ↳ path='doc/members/member[@name="P:Platform.Memory.IDirectMemory.Pointer"]/*' />
29     public IntPtr Pointer => _memory.Pointer;
30
31     /// <inheritdoc/>
32     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml' path='doc/members/mem_
    ↳ ber[@name="P:Platform.Memory.IArrayMemory`1.Item(System.Int64)"]/*' />
33     public TElement this[long index]
34     {
35         get => System.Runtime.CompilerServices.Unsafe.Read<TElement>((byte*)Pointer +
    ↳ (System.Runtime.CompilerServices.Unsafe.SizeOf<TElement>() * index));
36         set => System.Runtime.CompilerServices.Unsafe.Write((byte*)Pointer +
    ↳ (System.Runtime.CompilerServices.Unsafe.SizeOf<TElement>() * index), value);
37     }
38
39     #endregion
40
41     #region DisposableBase Properties
42
43     /// <inheritdoc/>
44     protected override string ObjectName => $"Array as memory block at '{Pointer}'
    ↳ address.";
45
46     #endregion
47
48     #region Constructors
49
50     /// <summary>
51     /// <para>Initializes a new instance of the <see
    ↳ cref="DirectMemoryAsArrayMemoryAdapter{TElement}" /> class.</para>
52     /// <para>Инициализирует новый экземпляр класса <see
    ↳ cref="DirectMemoryAsArrayMemoryAdapter{TElement}" />.</para>
53     /// </summary>
54     /// <param name="memory"><para>An object implementing <see cref="IDirectMemory">
    ↳ interface.</para><para>Объект, реализующий интерфейс <see
    ↳ cref="IDirectMemory" />.</para></param>
55     public DirectMemoryAsArrayMemoryAdapter(IDirectMemory memory)
56     {
57         Ensure.Always.ArgumentMeetsCriteria(memory, m => (m.Size %
    ↳ Unsafe.Structure<TElement>.Size) == 0, nameof(memory), "Memory is not aligned to
    ↳ element size.");
58         _memory = memory;
59     }
60
61     #endregion
62
63     #region DisposableBase Methods
64
65     /// <inheritdoc/>
66     protected override void Dispose(bool manual, bool wasDisposed)
67     {
68         if (!wasDisposed)
69         {
70             _memory.DisposeIfPossible();
71         }
72     }
73
74     #endregion
75 }
76

```

./FileArrayMemory.cs

```

1 using System.IO;
2 using Platform.Disposables;
3 using Platform.Unsafe;
4 using Platform.IO;
5
6 namespace Platform.Memory
7 {
8     /// <summary>
9     /// <para>Represents a memory block with access via indexer and stored as file on
    ↳ disk.</para>
10    /// <para>Представляет блок памяти с доступом через индексатор и хранящийся в виде файла на
    ↳ диске.</para>
11    /// </summary>
12    /// <typeparam name="TElement"><para>Element type.</para><para>Тип
    ↳ элемента.</para></typeparam>

```

```

13 public class FileArrayMemory<TElement> : DisposableBase, IArrayMemory<TElement> //-V3073
14     where TElement : struct
15 {
16     #region Fields
17
18     private readonly string _address;
19     private readonly FileStream _file;
20
21     #endregion
22
23     #region Properties
24
25     /// <inheritdoc/>
26     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
27     ↪ path='doc/members/member[@name="P:Platform.Memory.IMemory.Size"]/*' />
28     public long Size => _file.Length;
29
30     /// <inheritdoc/>
31     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml' path='doc/members/mem
32     ↪ ber[@name="P:Platform.Memory.IArrayMemory`1.Item(System.Int64)"]/*' />
33     public TElement this[long index]
34     {
35         get
36         {
37             _file.Seek(Structure<TElement>.Size * index, SeekOrigin.Begin);
38             return _file.ReadOrDefault<TElement>();
39         }
40         set
41         {
42             _file.Seek(Structure<TElement>.Size * index, SeekOrigin.Begin);
43             _file.Write(value);
44         }
45     }
46
47     #endregion
48
49     #region DisposableBase Properties
50
51     /// <inheritdoc/>
52     protected override string ObjectName => $"File stored memory block at '{_address}'
53     ↪ path.";
54
55     #endregion
56
57     #region Constructors
58
59     /// <summary>
60     /// <para>Initializes a new instance of the <see cref="FileArrayMemory{TElement}" />
61     ↪ class.</para>
62     /// <para>Инициализирует новый экземпляр класса <see
63     ↪ cref="FileArrayMemory{TElement}" />.</para>
64     /// </summary>
65     /// <param name="path"><para>An path to file.</para><para>Путь к файлу.</para></param>
66     public FileArrayMemory(string path)
67     {
68         _address = path;
69         _file = File.Open(path, FileMode.OpenOrCreate, FileAccess.ReadWrite);
70     }
71
72     #endregion
73
74     #region DisposableBase Methods
75
76     /// <inheritdoc/>
77     protected override void Dispose(bool manual, bool wasDisposed)
78     {
79         if(!wasDisposed)
80         {
81             _file.DisposeIfPossible();
82         }
83     }
84
85     #endregion
86 }
87
88 }

```

./FileMappedResizableDirectMemory.cs

```

1 using System;
2 using System.IO;
3 using System.IO.MemoryMappedFiles;

```

```

4 using Platform.Disposables;
5 using Platform.Exceptions;
6 using Platform.Collections;
7 using Platform.IO;
8
9 namespace Platform.Memory
10 {
11     /// <summary>
12     /// <para>Represents a memory block stored as a file on disk.</para>
13     /// <para>Представляет блок памяти, хранящийся в виде файла на диске.</para>
14     /// </summary>
15     public unsafe class FileMappedResizableDirectMemory : ResizableDirectMemoryBase
16     {
17         #region Fields
18
19         private MemoryMappedFile _file;
20         private MemoryMappedViewAccessor _accessor;
21
22         /// <summary>
23         /// <para>Gets path to memory mapped file.</para>
24         /// <para>Получает путь к отображенному в памяти файлу.</para>
25         /// </summary>
26         protected readonly string Path;
27
28         #endregion
29
30         #region DisposableBase Properties
31
32         /// <inheritdoc>
33         protected override string ObjectName => $"File stored memory block at '{Path}' path.";
34
35         #endregion
36
37         #region Constructors
38
39         /// <summary>
40         /// <para>Initializes a new instance of the <see
41         ↪ cref="FileMappedResizableDirectMemory"/> class.</para>
42         /// <para>Инициализирует новый экземпляр класса <see
43         ↪ cref="FileMappedResizableDirectMemory"/>.</para>
44         /// </summary>
45         /// <param name="path"><para>An path to file.</para><para>Путь к файлу.</para></param>
46         /// <param name="minimumReservedCapacity"><para>Minimum file size in
47         ↪ bytes.</para><para>Минимальный размер файла в байтах.</para></param>
48         public FileMappedResizableDirectMemory(string path, long minimumReservedCapacity)
49         {
50             Ensure.Always.ArgumentNotEmptyAndNotWhiteSpace(path, nameof(path));
51             if (minimumReservedCapacity < MinimumCapacity)
52             {
53                 minimumReservedCapacity = MinimumCapacity;
54             }
55             Path = path;
56             var size = FileHelpers.GetSize(Path);
57             ReservedCapacity = size > minimumReservedCapacity ? ((size /
58             ↪ minimumReservedCapacity) + 1) * minimumReservedCapacity :
59             ↪ minimumReservedCapacity;
60             UsedCapacity = size;
61         }
62
63         /// <summary>
64         /// <para>Initializes a new instance of the <see
65         ↪ cref="FileMappedResizableDirectMemory"/> class.</para>
66         /// <para>Инициализирует новый экземпляр класса <see
67         ↪ cref="FileMappedResizableDirectMemory"/>.</para>
68         /// </summary>
69         /// <param name="address"><para>An path to file.</para><para>Путь к файлу.</para></param>
70         public FileMappedResizableDirectMemory(string address) : this(address, MinimumCapacity)
71         ↪ { }
72
73         #endregion
74
75         #region Methods
76
77         private void MapFile(long capacity)
78         {
79             if (Pointer != IntPtr.Zero)
80             {
81                 return;
82             }
83         }
84     }
85 }

```

```

75     _file = MemoryMappedFile.CreateFromFile(Path, FileMode.Open, mapName: null,
76     ↪ capacity, MemoryMappedFileAccess.ReadWrite);
77     _accessor = _file.CreateViewAccessor();
78     byte* pointer = null;
79     _accessor.SafeMemoryMappedViewHandle.AcquirePointer(ref pointer);
80     Pointer = new IntPtr(pointer);
81 }
82 private void UnmapFile()
83 {
84     if (UnmapFile(Pointer))
85     {
86         Pointer = IntPtr.Zero;
87     }
88 }
89 private bool UnmapFile(IntPtr pointer)
90 {
91     if (pointer == IntPtr.Zero)
92     {
93         return false;
94     }
95     if (_accessor != null)
96     {
97         _accessor.SafeMemoryMappedViewHandle.ReleasePointer();
98         Disposable.TryDisposeAndResetToDefault(ref _accessor);
99     }
100     Disposable.TryDisposeAndResetToDefault(ref _file);
101     return true;
102 }
103
104 #endregion
105
106 #region ResizableDirectMemoryBase Methods
107
108 /// <inheritdoc>
109 /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
110 ↪ path='doc/members/member[@name="M:Platform.Memory.ResizableDirectMemoryBase.OnReserv
111 ↪ edCapacityChanged(System.Int64,System.Int64)"]/*' />
112 protected override void OnReservedCapacityChanged(long oldReservedCapacity, long
113 ↪ newReservedCapacity)
114 {
115     UnmapFile();
116     FileHelpers.SetSize(Path, newReservedCapacity);
117     MapFile(newReservedCapacity);
118 }
119
120 /// <inheritdoc>
121 /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
122 ↪ path='doc/members/member[@name="M:Platform.Memory.ResizableDirectMemoryBase.DisposeP
123 ↪ ointer(System.IntPtr,System.Int64)"]/*' />
124 protected override void DisposePointer(IntPtr pointer, long usedCapacity)
125 {
126     if (UnmapFile(pointer))
127     {
128         FileHelpers.SetSize(Path, usedCapacity);
129     }
130 }
131
132 #endregion
133 }

```

./HeapResizableDirectMemory.cs

```

1 using System;
2 using System.Runtime.InteropServices;
3 using Platform.Unsafe;
4
5 namespace Platform.Memory
6 {
7     /// <summary>
8     /// <para>Represents a memory block allocated in Heap.</para>
9     /// <para>Представляет блок памяти, выделенный в "куче".</para>
10    /// </summary>
11    public unsafe class HeapResizableDirectMemory : ResizableDirectMemoryBase
12    {
13        #region DisposableBase Properties
14
15        /// <inheritdoc>

```

```

16     protected override string ObjectName => $"Heap stored memory block at {Pointer}
    ↪     address.";
17
18     #endregion
19
20     #region Constructors
21
22     /// <summary>
23     /// <para>Initializes a new instance of the <see cref="HeapResizableDirectMemory"/>
    ↪     class.</para>
24     /// <para>Инициализирует новый экземпляр класса <see
    ↪     cref="HeapResizableDirectMemory"/>.</para>
25     /// </summary>
26     /// <param name="minimumReservedCapacity"><para>Minimum file size in
    ↪     bytes.</para><para>Минимальный размер файла в байтах.</para></param>
27     public HeapResizableDirectMemory(long minimumReservedCapacity)
28     {
29         if (minimumReservedCapacity < MinimumCapacity)
30         {
31             minimumReservedCapacity = MinimumCapacity;
32         }
33         ReservedCapacity = minimumReservedCapacity;
34         UsedCapacity = 0;
35     }
36
37     /// <summary>
38     /// <para>Initializes a new instance of the <see cref="HeapResizableDirectMemory"/>
    ↪     class.</para>
39     /// <para>Инициализирует новый экземпляр класса <see
    ↪     cref="HeapResizableDirectMemory"/>.</para>
40     /// </summary>
41     public HeapResizableDirectMemory() : this(MinimumCapacity) { }
42
43     #endregion
44
45     #region ResizableDirectMemoryBase Methods
46
47     /// <inheritdoc>
48     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
    ↪     path='doc/members/member[@name="M:Platform.Memory.ResizableDirectMemoryBase.DisposeP
    ↪     ointer(System.IntPtr,System.Int64)"]/*' />
49     protected override void DisposePointer(IntPtr pointer, long usedCapacity) =>
    ↪     Marshal.FreeHGlobal(pointer);
50
51     /// <inheritdoc>
52     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
    ↪     path='doc/members/member[@name="M:Platform.Memory.ResizableDirectMemoryBase.OnReserv
    ↪     edCapacityChanged(System.Int64,System.Int64)"]/*' />
53     protected override void OnReservedCapacityChanged(long oldReservedCapacity, long
    ↪     newReservedCapacity)
54     {
55         if (Pointer == IntPtr.Zero)
56         {
57             Pointer = Marshal.AllocHGlobal(new IntPtr(newReservedCapacity));
58             MemoryBlock.Zero(Pointer.ToPointer(), newReservedCapacity);
59         }
60         else
61         {
62             Pointer = Marshal.ReAllocHGlobal(Pointer, new IntPtr(newReservedCapacity));
63         }
64     }
65
66     #endregion
67 }
68 }

```

./IArrayMemory.cs

```

1     namespace Platform.Memory
2     {
3         /// <summary>
4         /// <para>Represents a memory block interface with access via indexer.</para>
5         /// <para>Представляет интерфейс блока памяти с доступом через индекатор.</para>
6         /// </summary>
7         /// <typeparam name="TElement"><para>Element type.</para><para>Тип
    ↪     элемента.</para></typeparam>
8         public interface IArrayMemory<TElement> : IMemory
9         {
10             /// <summary>

```

```

11     /// <para>Gets or sets the element at the specified index.</para>
12     /// <para>Возвращает или устанавливает элемент по указанному индексу.</para>
13     /// </summary>
14     /// <param name="index"><para>The index of the element to get or set.</para><para>Индекс
    ↪ элемента, который нужно получить или установить.</para></param>
15     TElement this[long index] { get; set; }
16 }
17 }

```

./IDirectMemory.cs

```

1 using System;
2
3 namespace Platform.Memory
4 {
5     /// <summary>
6     /// <para>Represents a memory block interface with direct access (via unmanaged
    ↪ pointers).</para>
7     /// <para>Представляет интерфейс блока памяти с прямым доступом (через неуправляемые
    ↪ указатели).</para>
8     /// </summary>
9     public interface IDirectMemory : IMemory, IDisposable
10     {
11         /// <summary>
12         /// <para>Gets the pointer to the beginning of this memory block.</para>
13         /// <para>Возвращает указатель на начало блока памяти.</para>
14         /// </summary>
15         IntPtr Pointer { get; }
16     }
17 }

```

./IMemory.cs

```

1 namespace Platform.Memory
2 {
3     /// <summary>
4     /// <para>Represents a memory block interface with size in bytes.</para>
5     /// <para>Представляет интерфейс блока памяти с размером в байтах.</para>
6     /// </summary>
7     public interface IMemory
8     {
9         /// <summary>
10        /// <para>Gets the size in bytes of this memory block.</para>
11        /// <para>Возвращает размер блока памяти в байтах.</para>
12        /// </summary>
13        long Size { get; }
14    }
15 }

```

./IResizableDirectMemory.cs

```

1 namespace Platform.Memory
2 {
3     /// <summary>
4     /// <para>Represents a resizable memory block interface with direct access (via unmanaged
    ↪ pointers).</para>
5     /// <para>Представляет интерфейс блока памяти с изменяемым размером и прямым доступом (через
    ↪ неуправляемые указатели).</para>
6     /// </summary>
7     public interface IResizableDirectMemory : IDirectMemory
8     {
9         /// <summary>
10        /// <para>Gets or sets the reserved capacity in bytes of this memory block.</para>
11        /// <para>Возвращает или устанавливает зарезервированный размер блока памяти в
    ↪ байтах.</para>
12        /// </summary>
13        /// <remarks>
14        /// <para>
15        /// If less than zero the value is replaced with zero.
16        /// Cannot be less than the used capacity of this memory block.
17        /// </para>
18        /// <para>
19        /// Если меньше нуля, значение заменяется на ноль.
20        /// Не может быть меньше используемой емкости блока памяти.
21        /// </para>
22        /// </remarks>
23        long ReservedCapacity { get; set; }
24
25        /// <summary>
26        /// <para>Gets or sets the used capacity in bytes of this memory block.</para>

```

```

27     /// <para>Возвращает или устанавливает используемый размер в блоке памяти (в
    → байтах).</para>
28     /// </summary>
29     /// <remarks>
30     /// <para>
31     /// If less then zero the value is replaced with zero.
32     /// Cannot be greater than the reserved capacity of this memory block.
33     /// </para>
34     /// <para>
35     /// It is recommended to reduce the reserved capacity of the memory block to the used
    → capacity (specified in this property) after the completion of the use of the memory
    → block.
36     /// </para>
37     /// <para>
38     /// Если меньше нуля, значение заменяется на ноль.
39     /// Не может быть больше, чем зарезервированная емкость этого блока памяти.
40     /// </para>
41     /// <para>
42     /// Рекомендуется уменьшать фактический размер блока памяти до используемого размера
    → (указанного в этом свойстве) после завершения использования блока памяти.
43     /// </para>
44     /// </remarks>
45     long UsedCapacity { get; set; }
46 }
47 }

```

./ResizableDirectMemoryBase.cs

```

1  using System;
2  using System.Threading;
3  using Platform.Exceptions;
4  using Platform.Disposables;
5  using Platform.Ranges;
6
7  namespace Platform.Memory
8  {
9      /// <summary>
10     /// <para>Provides a base implementation for the resizable memory block with direct access
    → (via unmanaged pointers).</para>
11     /// <para>Предоставляет базовую реализацию для блока памяти с изменяемым размером и прямым
    → доступом (через неуправляемые указатели).</para>
12     /// </summary>
13     public abstract class ResizableDirectMemoryBase : DisposableBase, IResizableDirectMemory
14     {
15         #region Constants
16
17         /// <summary>
18         /// <para>Gets minimum capacity in bytes.</para>
19         /// <para>Возвращает минимальную емкость в байтах.</para>
20         /// </summary>
21         public static readonly long MinimumCapacity = 4096;
22
23         #endregion
24
25         #region Fields
26
27         private IntPtr _pointer;
28         private long _reservedCapacity;
29         private long _usedCapacity;
30
31         #endregion
32
33         #region Properties
34
35         /// <inheritdoc>
36         /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
    → path='doc/members/member[@name="P:Platform.Memory.IMemory.Size"]/*' />
37         /// <exception cref="ObjectDisposedException"><para>The memory block is
    → disposed.</para><para>Блок памяти уже высвобожден.</para></exception>
38         public long Size
39         {
40             get
41             {
42                 Ensure.Always.NotDisposed(this);
43                 return UsedCapacity;
44             }
45         }
46
47         /// <inheritdoc>
48         /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml'
    → path='doc/members/member[@name="P:Platform.Memory.IDirectMemory.Pointer"]/*' />

```



```

49     /// <exception cref="ObjectDisposedException"><para>The memory block is
    ↪     disposed.</para><para>Блок памяти уже высвобожден.</para></exception>
50     public IntPtr Pointer
51     {
52         get
53         {
54             Ensure.Always.NotDisposed(this);
55             return _pointer;
56         }
57         protected set
58         {
59             Ensure.Always.NotDisposed(this);
60             _pointer = value;
61         }
62     }
63
64     /// <inheritdoc>
65     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml' path='doc/members/mem_
    ↪     ber[@name="P:Platform.Memory.IResizableDirectMemory.ReservedCapacity"]/*' />
66     /// <exception cref="ObjectDisposedException"><para>The memory block is
    ↪     disposed.</para><para>Блок памяти уже высвобожден.</para></exception>
67     /// <exception cref="ArgumentOutOfRangeException"><para>Attempted to set the reserved
    ↪     capacity to a value that is less than the used capacity.</para><para>Была выполнена
    ↪     попытка установить зарезервированную емкость на значение, которое меньше
    ↪     используемой емкости.</para></exception>
68     public long ReservedCapacity
69     {
70         get
71         {
72             Ensure.Always.NotDisposed(this);
73             return _reservedCapacity;
74         }
75         set
76         {
77             Ensure.Always.NotDisposed(this);
78             if (value != _reservedCapacity)
79             {
80                 Ensure.Always.ArgumentInRange(value, new Range<long>(_usedCapacity,
    ↪                 long.MaxValue));
81                 OnReservedCapacityChanged(_reservedCapacity, value);
82                 _reservedCapacity = value;
83             }
84         }
85     }
86
87     /// <inheritdoc>
88     /// <include file='bin\Release\netstandard2.0\Platform.Memory.xml' path='doc/members/mem_
    ↪     ber[@name="P:Platform.Memory.IResizableDirectMemory.UsedCapacity"]/*' />
89     /// <exception cref="ObjectDisposedException"><para>The memory block is
    ↪     disposed.</para><para>Блок памяти уже высвобожден.</para></exception>
90     /// <exception cref="ArgumentOutOfRangeException"><para>Attempted to set the used
    ↪     capacity to a value that is greater than the reserved capacity or less than
    ↪     zero.</para><para>Была выполнена попытка установить используемую емкость на
    ↪     значение, которое больше, чем зарезервированная емкость или меньше
    ↪     нуля.</para></exception>
91     public long UsedCapacity
92     {
93         get
94         {
95             Ensure.Always.NotDisposed(this);
96             return _usedCapacity;
97         }
98         set
99         {
100             Ensure.Always.NotDisposed(this);
101             if (value != _usedCapacity)
102             {
103                 Ensure.Always.ArgumentInRange(value, new Range<long>(0, _reservedCapacity));
104                 _usedCapacity = value;
105             }
106         }
107     }
108
109     #endregion
110
111     #region DisposableBase Properties
112
113     /// <inheritdoc>
114     protected override bool AllowMultipleDisposeCalls => true;

```

```

115 #endregion
116
117 #region Methods
118
119 /// <summary>
120 /// <para>Executed on the event of change for <see cref="ReservedCapacity"/>
121   → property.</para>
122 /// <para>Выполняется в случае изменения свойства <see cref="ReservedCapacity"/>.</para>
123 /// </summary>
124 /// <param name="oldReservedCapacity"><para>The old reserved capacity of the memory
125   → block in bytes.</para><para>Старая зарезервированная емкость блока памяти в
126   → байтах.</para></param>
127 /// <param name="newReservedCapacity"><para>The new reserved capacity of the memory
128   → block in bytes.</para><para>Новая зарезервированная емкость блока памяти в
129   → байтах.</para></param>
130 protected abstract void OnReservedCapacityChanged(long oldReservedCapacity, long
131   → newReservedCapacity);
132
133 /// <summary>
134 /// <para>Executed when it is time to dispose <see cref="Pointer"/>.</para>
135 /// <para>Выполняется, когда пришло время высвободить <see cref="Pointer"/>.</para>
136 /// </summary>
137 /// <param name="pointer"><para>The pointer to a memory block.</para><para>Указатель на
138   → блок памяти.</para></param>
139 /// <param name="usedCapacity"><para>The used capacity of the memory block in
140   → bytes.</para><para>Используемая емкость блока памяти в байтах.</para></param>
141 protected abstract void DisposePointer(IntPtr pointer, long usedCapacity);
142
143 #endregion
144
145 #region DisposableBase Methods
146
147 /// <inheritdoc>
148 protected override void Dispose(bool manual, bool wasDisposed)
149 {
150     if (!wasDisposed)
151     {
152         var pointer = Interlocked.Exchange(ref _pointer, IntPtr.Zero);
153         if (pointer != IntPtr.Zero)
154         {
155             DisposePointer(pointer, _usedCapacity);
156         }
157     }
158 }
159
160 #endregion
161
162 }
163
164 }
```

./TemporaryFileMappedResizableDirectMemory.cs

```

1 using System.IO;
2
3 namespace Platform.Memory
4 {
5     /// <summary>
6     /// <para>Represents a memory block stored as a temporary file on disk.</para>
7     /// <para>Представляет блок памяти, хранящийся в виде временного файла на диске.</para>
8     /// </summary>
9     public class TemporaryFileMappedResizableDirectMemory : FileMappedResizableDirectMemory
10     {
11         #region DisposableBase Properties
12
13         /// <inheritdoc>
14         protected override string ObjectName => $"Temporary file stored memory block at
15   → '{Path}' path.";
16
17         #endregion
18
19         #region Constructors
20
21         /// <summary>
22         /// <para>Initializes a new instance of the <see
23   → cref="TemporaryFileMappedResizableDirectMemory"/> class.</para>
24         /// <para>Инициализирует новый экземпляр класса <see
25   → cref="TemporaryFileMappedResizableDirectMemory"/>.</para>
26         /// </summary>
27         /// <param name="minimumReservedCapacity"><para>Minimum file size in
28   → bytes.</para><para>Минимальный размер файла в байтах.</para></param>
29     }
```

```

25     public TemporaryFileMappedResizableDirectMemory(long minimumReservedCapacity) :
        ↳ base(System.IO.Path.GetTempFileName(), minimumReservedCapacity) { }
26
27     /// <summary>
28     /// <para>Initializes a new instance of the <see
        ↳ cref="TemporaryFileMappedResizableDirectMemory"/> class.</para>
29     /// <para>Инициализирует новый экземпляр класса <see
        ↳ cref="TemporaryFileMappedResizableDirectMemory"/>.</para>
30     /// </summary>
31     public TemporaryFileMappedResizableDirectMemory() : this(MinimumCapacity) { }
32
33     #endregion
34
35     #region DisposableBase Methods
36
37     /// <inheritdoc>
38     protected override void Dispose(bool manual, bool wasDisposed)
39     {
40         base.Dispose(manual, wasDisposed);
41         if (!wasDisposed)
42         {
43             File.Delete(Path);
44         }
45     }
46
47     #endregion
48 }
49 }

```

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