

LinksPlatform's Platform.Threading Class Library

./ConcurrentQueueExtensions.cs

```
1 using System;
2 using System.Collections.Concurrent;
3 using System.Threading.Tasks;
4 using Platform.Collections.Concurrent;
5
6 #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
7
8 namespace Platform.Threading
9 {
10     public static class ConcurrentQueueExtensions
11     {
12         public static async Task AwaitAll(this ConcurrentQueue<Task> queue)
13         {
14             foreach (var item in queue.DequeueAll())
15             {
16                 await item;
17             }
18         }
19
20         public static async Task AwaitOne(this ConcurrentQueue<Task> queue)
21         {
22             if (queue.TryDequeue(out Task item))
23             {
24                 await item;
25             }
26         }
27
28         public static void EnqueueAsRunnedTask(this ConcurrentQueue<Task> queue, Action action)
29             => queue.Enqueue(Task.Run(action));
30     }
31 }
```

./Synchronization/ISynchronization.cs

```
1 using System;
2
3 namespace Platform.Threading.Synchronization
4 {
5     /// <summary>
6     /// <para>Represents a synchronization object that supports read and write operations.</para>
7     /// <para>Представляет объект синхронизации с поддержкой операций чтения и записи.</para>
8     /// </summary>
9     public interface ISynchronization
10     {
11         /// <summary>
12         /// <para>Executes action in read access mode.</para>
13         /// <para>Выполняет действие в режиме доступа для чтения.</para>
14         /// </summary>
15         /// <param name="action"><para>The action.</para><para>Действие.</para></param>
16         void ExecuteReadOperation(Action action);
17
18         /// <summary>
19         /// <para>Executes a function in read access mode and returns the function's
20         ///     => result.</para>
21         /// <para>Выполняет функцию в режиме доступа для чтения и возвращает полученный из неё
22         ///     => результат.</para>
23         /// </summary>
24         /// <typeparam name="TResult"><para>Type of function's result.</para><para>Тип
25         ///     => результата функции.</para></typeparam>
26         /// <param name="function"><para>The function.</para><para>Функция.</para></param>
27         /// <returns><para>The function's result.</para><para>Результат функции.</para></returns>
28         TResult ExecuteReadOperation<TResult>(Func<TResult> function);
29
30         /// <summary>
31         /// <para>Executes action in write access mode.</para>
32         /// <para>Выполняет действие в режиме доступа для записи.</para>
33         /// </summary>
34         /// <param name="action"><para>The action.</para><para>Действие.</para></param>
35         void ExecuteWriteOperation(Action action);
36
37         /// <summary>
38         /// <para>Executes a function in write access mode and returns the function's
39         ///     => result.</para>
40         /// <para>Выполняет функцию в режиме доступа для записи и возвращает полученный из неё
41         ///     => результат.</para>
42         /// </summary>
43         /// <typeparam name="TResult"><para>Type of function's result.</para><para>Тип
44         ///     => результата функции.</para></typeparam>
45     }
46 }
```

```

39     /// <param name="function"><para>The function.</para><para>Функция.</para></param>
40     /// <returns><para>The function's result.</para><para>Результат функции.</para></returns>
41     TResult ExecuteWriteOperation<TResult>(Func<TResult> function);
42 }
43 }

```

./Synchronization/ISynchronizationExtensions.cs

```

1  using System;
2
3  namespace Platform.Threading.Synchronization
4  {
5      /// <summary>
6      /// <para>Contains extension methods for the <see cref="ISynchronization"/> interface.</para>
7      /// <para>Содержит методы расширения для интерфейса <see cref="ISynchronization"/>.</para>
8      /// </summary>
9      public static class ISynchronizationExtensions
10     {
11         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
12         → path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
13         → n.ExecuteReadOperation`1(System.Func{`0})"]/*'/>
14         /// <typeparam name="TParam"><para>The parameter type.</para><para>Тип
15         → параметра.</para></typeparam>
16         /// <param name="synchronization"><para>Synchronization
17         → object.</para><para>Синхронизация объекта.</para></param>
18         /// <param name="parameter"><para>The parameter</para><para>Параметр.</para></param>
19         public static TResult ExecuteReadOperation<TResult, TParam>(this ISynchronization
20         → synchronization, TParam parameter, Func<TParam, TResult> function) =>
21         → synchronization.ExecuteReadOperation(() => function(parameter));
22
23         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
24         → path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
25         → n.ExecuteReadOperation(System.Action)"]/*'/>
26         /// <typeparam name="TParam"><para>The parameter type.</para><para>Тип
27         → параметра.</para></typeparam>
28         /// <param name="synchronization"><para>Synchronization
29         → object.</para><para>Синхронизация объекта.</para></param>
30         /// <param name="parameter"><para>The parameter</para><para>Параметр.</para></param>
31         public static void ExecuteReadOperation<TParam>(this ISynchronization synchronization,
32         → TParam parameter, Action<TParam> action) => synchronization.ExecuteReadOperation(()
33         → => action(parameter));
34
35         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
36         → path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
37         → n.ExecuteWriteOperation`1(System.Func{`0})"]/*'/>
38         /// <typeparam name="TParam"><para>The parameter type.</para><para>Тип
39         → параметра.</para></typeparam>
40         /// <param name="synchronization"><para>Synchronization
41         → object.</para><para>Синхронизация объекта.</para></param>
42         /// <param name="parameter"><para>The parameter</para><para>Параметр.</para></param>
43         public static TResult ExecuteWriteOperation<TResult, TParam>(this ISynchronization
44         → synchronization, TParam parameter, Func<TParam, TResult> function) =>
45         → synchronization.ExecuteWriteOperation(() => function(parameter));
46
47         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
48         → path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
49         → n.ExecuteWriteOperation(System.Action)"]/*'/>
50         /// <typeparam name="TParam"><para>The parameter type.</para><para>Тип
51         → параметра.</para></typeparam>
52         /// <param name="synchronization"><para>Synchronization
53         → object.</para><para>Синхронизация объекта.</para></param>
54         /// <param name="parameter"><para>The parameter</para><para>Параметр.</para></param>
55         public static void ExecuteWriteOperation<TParam>(this ISynchronization synchronization,
56         → TParam parameter, Action<TParam> action) => synchronization.ExecuteWriteOperation(()
57         → => action(parameter));
58
59         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
60         → path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
61         → n.ExecuteReadOperation`1(System.Func{`0})"]/*'/>
62         /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
63         → параметра.</para></typeparam>
64         /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
65         → параметра.</para></typeparam>
66         /// <param name="synchronization"><para>Synchronization
67         → object.</para><para>Синхронизация объекта.</para></param>
68         /// <param name="parameter1"><para>The first parameter</para><para>Первый
69         → параметр.</para></param>

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40    /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
41    public static TResult ExecuteReadOperation<TResult, TParam1, TParam2>(this
    ↪ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2,
    ↪ Func<TParam1, TParam2, TResult> function) => synchronization.ExecuteReadOperation((
    ↪ => function(parameter1, parameter2));
42
43    /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation(System.Action)"]/*' />
44    /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↪ параметра.</para></typeparam>
45    /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↪ параметра.</para></typeparam>
46    /// <param name="synchronization"><para>Synchronization
    ↪ object.</para><para>Синхронизация объекта.</para></param>
47    /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↪ параметр.</para></param>
48    /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
49    public static void ExecuteReadOperation<TParam1, TParam2>(this ISynchronization
    ↪ synchronization, TParam1 parameter1, TParam2 parameter2, Action<TParam1, TParam2>
    ↪ action) => synchronization.ExecuteReadOperation(() => action(parameter1,
    ↪ parameter2));
50
51    /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation`1(System.Func{`0})"]/*' />
52    /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↪ параметра.</para></typeparam>
53    /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↪ параметра.</para></typeparam>
54    /// <param name="synchronization"><para>Synchronization
    ↪ object.</para><para>Синхронизация объекта.</para></param>
55    /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↪ параметр.</para></param>
56    /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
57    public static TResult ExecuteWriteOperation<TResult, TParam1, TParam2>(this
    ↪ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2,
    ↪ Func<TParam1, TParam2, TResult> function) =>
    ↪ synchronization.ExecuteWriteOperation(() => function(parameter1, parameter2));
58
59    /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation(System.Action)"]/*' />
60    /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↪ параметра.</para></typeparam>
61    /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↪ параметра.</para></typeparam>
62    /// <param name="synchronization"><para>Synchronization
    ↪ object.</para><para>Синхронизация объекта.</para></param>
63    /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↪ параметр.</para></param>
64    /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
65    public static void ExecuteWriteOperation<TParam1, TParam2>(this ISynchronization
    ↪ synchronization, TParam1 parameter1, TParam2 parameter2, Action<TParam1, TParam2>
    ↪ action) => synchronization.ExecuteWriteOperation(() => action(parameter1,
    ↪ parameter2));
66
67    /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation`1(System.Func{`0})"]/*' />
68    /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↪ параметра.</para></typeparam>
69    /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↪ параметра.</para></typeparam>
70    /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↪ параметра.</para></typeparam>
71    /// <param name="synchronization"><para>Synchronization
    ↪ object.</para><para>Синхронизация объекта.</para></param>
72    /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↪ параметр.</para></param>

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73  /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
74  /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>
75  public static TResult ExecuteReadOperation<TResult, TParam1, TParam2, TParam3>(this
    ↳ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2, TParam3
    ↳ parameter3, Func<TParam1, TParam2, TParam3, TResult> function) =>
    ↳ synchronization.ExecuteReadOperation(() => function(parameter1, parameter2,
    ↳ parameter3));
76
77  /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteReadOperation(System.Action)"]/*' />
78  /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
79  /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
80  /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
81  /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
82  /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>
83  /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
84  /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>
85  public static void ExecuteReadOperation<TParam1, TParam2, TParam3>(this ISynchronization
    ↳ synchronization, TParam1 parameter1, TParam2 parameter2, TParam3 parameter3,
    ↳ Action<TParam1, TParam2, TParam3> action) => synchronization.ExecuteReadOperation(()
    ↳ => action(parameter1, parameter2, parameter3));
86
87  /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteWriteOperation`1(System.Func{`0})"]/*' />
88  /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
89  /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
90  /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
91  /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
92  /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>
93  /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
94  /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>
95  public static TResult ExecuteWriteOperation<TResult, TParam1, TParam2, TParam3>(this
    ↳ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2, TParam3
    ↳ parameter3, Func<TParam1, TParam2, TParam3, TResult> function) =>
    ↳ synchronization.ExecuteWriteOperation(() => function(parameter1, parameter2,
    ↳ parameter3));
96
97  /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteWriteOperation(System.Action)"]/*' />
98  /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
99  /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
100  /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
101  /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
102  /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>
103  /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
104  /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>

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105 public static void ExecuteWriteOperation<TParam1, TParam2, TParam3>(this
    ↳ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2, TParam3
    ↳ parameter3, Action<TParam1, TParam2, TParam3> action) =>
    ↳ synchronization.ExecuteWriteOperation(() => action(parameter1, parameter2,
    ↳ parameter3));
106
107 /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteReadOperation`1(System.Func{`0})"]/*' />
108 /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
109 /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
110 /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
111 /// <typeparam name="TParam4"><para>The forth parameter type.</para><para>Тип четвёртого
    ↳ параметра.</para></typeparam>
112 /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
113 /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>
114 /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
115 /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>
116 /// <param name="parameter4"><para>The forth parameter</para><para>Четвёртый
    ↳ параметр.</para></param>
117 public static TResult ExecuteReadOperation<TResult, TParam1, TParam2, TParam3,
    ↳ TParam4>(this ISynchronization synchronization, TParam1 parameter1, TParam2
    ↳ parameter2, TParam3 parameter3, TParam4 parameter4, Func<TParam1, TParam2, TParam3,
    ↳ TParam4, TResult> function) => synchronization.ExecuteReadOperation(() =>
    ↳ function(parameter1, parameter2, parameter3, parameter4));
118
119 /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteReadOperation(System.Action)"]/*' />
120 /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
121 /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
122 /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
123 /// <typeparam name="TParam4"><para>The forth parameter type.</para><para>Тип четвёртого
    ↳ параметра.</para></typeparam>
124 /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
125 /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>
126 /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↳ параметр.</para></param>
127 /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↳ параметр.</para></param>
128 /// <param name="parameter4"><para>The forth parameter</para><para>Четвёртый
    ↳ параметр.</para></param>
129 public static void ExecuteReadOperation<TParam1, TParam2, TParam3, TParam4>(this
    ↳ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2, TParam3
    ↳ parameter3, TParam4 parameter4, Action<TParam1, TParam2, TParam3, TParam4> action)
    ↳ => synchronization.ExecuteReadOperation(() => action(parameter1, parameter2,
    ↳ parameter3, parameter4));
130
131 /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↳ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↳ n.ExecuteWriteOperation`1(System.Func{`0})"]/*' />
132 /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↳ параметра.</para></typeparam>
133 /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↳ параметра.</para></typeparam>
134 /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↳ параметра.</para></typeparam>
135 /// <typeparam name="TParam4"><para>The forth parameter type.</para><para>Тип четвёртого
    ↳ параметра.</para></typeparam>
136 /// <param name="synchronization"><para>Synchronization
    ↳ object.</para><para>Синхронизация объекта.</para></param>
137 /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↳ параметр.</para></param>

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138     /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
139     /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↪ параметр.</para></param>
140     /// <param name="parameter4"><para>The forth parameter</para><para>Чертвёртый
    ↪ параметр.</para></param>
141     public static TResult ExecuteWriteOperation<TResult, TParam1, TParam2, TParam3,
    ↪ TParam4>(this ISynchronization synchronization, TParam1 parameter1, TParam2
    ↪ parameter2, TParam3 parameter3, TParam4 parameter4, Func<TParam1, TParam2, TParam3,
    ↪ TParam4, TResult> function) => synchronization.ExecuteWriteOperation(() =>
    ↪ function(parameter1, parameter2, parameter3, parameter4));
142
143     /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation(System.Action)"]/*' />
144     /// <typeparam name="TParam1"><para>The first parameter type.</para><para>Тип первого
    ↪ параметра.</para></typeparam>
145     /// <typeparam name="TParam2"><para>The second parameter type.</para><para>Тип второго
    ↪ параметра.</para></typeparam>
146     /// <typeparam name="TParam3"><para>The third parameter type.</para><para>Тип третьего
    ↪ параметра.</para></typeparam>
147     /// <typeparam name="TParam4"><para>The forth parameter type.</para><para>Тип четвёртого
    ↪ параметра.</para></typeparam>
148     /// <param name="synchronization"><para>Synchronization
    ↪ object.</para><para>Синхронизация объекта.</para></param>
149     /// <param name="parameter1"><para>The first parameter</para><para>Первый
    ↪ параметр.</para></param>
150     /// <param name="parameter2"><para>The second parameter</para><para>Второй
    ↪ параметр.</para></param>
151     /// <param name="parameter3"><para>The third parameter</para><para>Третий
    ↪ параметр.</para></param>
152     /// <param name="parameter4"><para>The forth parameter</para><para>Чертвёртый
    ↪ параметр.</para></param>
153     public static void ExecuteWriteOperation<TParam1, TParam2, TParam3, TParam4>(this
    ↪ ISynchronization synchronization, TParam1 parameter1, TParam2 parameter2, TParam3
    ↪ parameter3, TParam4 parameter4, Action<TParam1, TParam2, TParam3, TParam4> action)
    ↪ => synchronization.ExecuteWriteOperation(() => action(parameter1, parameter2,
    ↪ parameter3, parameter4));
154 }
155 }

```

./Synchronization/ISynchronized.cs

```

1  namespace Platform.Threading.Synchronization
2  {
3      /// <summary>
4      /// <para>Represents extendable synchronized interface access gate.</para>
5      /// <para>Представляет расширяемый интерфейс шлюза синхронизированного доступа.</para>
6      /// </summary>
7      /// <typeparam name="TInterface"><para>Synchronized interface.</para><para>Синхронизируемый
    ↪ интерфейс.</para></typeparam>
8      public interface ISynchronized<out TInterface>
9      {
10         /// <summary>
11         /// <para>Gets synchronization method.</para>
12         /// <para>Возвращает способ синхронизации.</para>
13         /// </summary>
14         ISynchronization SyncRoot { get; }
15
16         /// <summary>
17         /// <para>Get source version of <typeparamref name="TInterface"/>, that does not
    ↪ guarantee thread safe access synchronization.</para>
18         /// <para>Возвращает исходную версию <typeparamref name="TInterface"/>, которая не
    ↪ гарантирует потокобезопасную синхронизацию доступа.</para>
19         /// </summary>
20         /// <remarks>
21         /// <para>It is unsafe to use it directly, unless compound context using SyncRoot is
    ↪ created.</para>
22         /// <para>Использовать напрямую небезопасно, за исключением ситуации когда создаётся
    ↪ составной контекст с использованием SyncRoot.</para>
23         /// </remarks>
24         TInterface Unsync { get; }
25
26         /// <summary>
27         /// <para>Get wrapped/decorated version of <typeparamref name="TInterface"/>, that does
    ↪ guarantee thread safe access synchronization.</para>

```

```

28     /// <para>Возвращает обернутую/декорированную версию <typeparamref name="TInterface"/>,
    ↪ которая гарантирует потокобезопасную синхронизацию доступа.</para>
29     /// </summary>
30     /// <remarks>
31     /// <para>It is safe to use it directly, because it must be thread safe
    ↪ implementation.</para>
32     /// <para>Безопасно использовать напрямую, так как реализация должна быть
    ↪ потокобезопасной.</para>
33     /// </remarks>
34     TInterface Sync { get; }
35 }
36 }

```

./Synchronization/ReaderWriterLockSynchronization.cs

```

1  using System;
2  using System.Threading;
3
4  namespace Platform.Threading.Synchronization
5  {
6      /// <summary>
7      /// <para>Implementation of <see cref="ISynchronization"/> based on <see
    ↪ cref="ReaderWriterLockSlim"/>.</para>
8      /// <para>Реализация <see cref="ISynchronization"/> на основе <see
    ↪ cref="ReaderWriterLockSlim"/>.</para>
9      /// </summary>
10     public class ReaderWriterLockSynchronization : ISynchronization
11     {
12         private readonly ReaderWriterLockSlim _rwLock = new
    ↪ ReaderWriterLockSlim(LockRecursionPolicy.SupportsRecursion);
13
14         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation(System.Action)"]/*' />
15         public void ExecuteReadOperation(Action action)
16         {
17             _rwLock.EnterReadLock();
18             try
19             {
20                 action();
21             }
22             finally
23             {
24                 _rwLock.ExitReadLock();
25             }
26         }
27
28         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation`1(System.Func`0)"]/*' />
29         public TResult ExecuteReadOperation<TResult>(Func<TResult> function)
30         {
31             _rwLock.EnterReadLock();
32             try
33             {
34                 return function();
35             }
36             finally
37             {
38                 _rwLock.ExitReadLock();
39             }
40         }
41
42         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation(System.Action)"]/*' />
43         public void ExecuteWriteOperation(Action action)
44         {
45             _rwLock.EnterWriteLock();
46             try
47             {
48                 action();
49             }
50             finally
51             {
52                 _rwLock.ExitWriteLock();
53             }
54         }
55     }

```

```

56     /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation`1(System.Func{`0})"]/*' />
57 public TResult ExecuteWriteOperation<TResult>(Func<TResult> function)
58 {
59     _rwLock.EnterWriteLock();
60     try
61     {
62         return function();
63     }
64     finally
65     {
66         _rwLock.ExitWriteLock();
67     }
68 }
69 }
70 }

```

./Synchronization/Unsynchronization.cs

```

1  using System;
2
3  namespace Platform.Threading.Synchronization
4  {
5      /// <summary>
6      /// <para>Implementation of <see cref="ISynchronization"/> that makes no actual
    ↪ synchronization.</para>
7      /// <para>Реализация <see cref="ISynchronization"/>, которая не выполняет фактическую
    ↪ синхронизацию.</para>
8      /// </summary>
9      public class Unsynchronization : ISynchronization
10     {
11         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation(System.Action)"]/*' />
12         public void ExecuteReadOperation(Action action) => action();
13
14         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteReadOperation`1(System.Func{`0})"]/*' />
15         public TResult ExecuteReadOperation<TResult>(Func<TResult> function) => function();
16
17         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation(System.Action)"]/*' />
18         public void ExecuteWriteOperation(Action action) => action();
19
20         /// <include file='bin\Release\netstandard2.0\Documentation.xml'
    ↪ path='doc/members/member[@name="M:Platform.Threading.Synchronization.ISynchronizatio
    ↪ n.ExecuteWriteOperation`1(System.Func{`0})"]/*' />
21         public TResult ExecuteWriteOperation<TResult>(Func<TResult> function) => function();
22     }
23 }

```

./TaskExtensions.cs

```

1  using System.Threading.Tasks;
2
3  #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
4
5  namespace Platform.Threading
6  {
7      public static class TaskExtensions
8      {
9          public static T AwaitResult<T>(this Task<T> task) => task.GetAwaiter().GetResult();
10     }
11 }

```

./ThreadHelpers.cs

```

1  using System;
2  using System.Threading;
3
4  #pragma warning disable CS1591 // Missing XML comment for publicly visible type or member
5
6  namespace Platform.Threading
7  {
8      public static class ThreadHelpers
9      {
10         public static readonly int DefaultMaxStackSize;
11         public static readonly int ExtendedMaxStackSize = 200 * 1024 * 1024;

```



```

12     public static readonly int DefaultSleepTimeout = 1;
13
14     public static void SyncInvokeWithExtendedStack<T>(T param, Action<object> action) =>
15         ↳ SyncInvokeWithExtendedStack(param, action, ExtendedMaxStackSize);
16
17     public static void SyncInvokeWithExtendedStack<T>(T param, Action<object> action, int
18         ↳ maxStackSize) => StartNew(param, action, maxStackSize).Join();
19
20     public static void SyncInvokeWithExtendedStack(Action action) =>
21         ↳ SyncInvokeWithExtendedStack(action, ExtendedMaxStackSize);
22
23     public static void SyncInvokeWithExtendedStack(Action action, int maxStackSize) =>
24         ↳ StartNew(action, maxStackSize).Join();
25
26     public static Thread StartNew<T>(T param, Action<object> action) => StartNew(param,
27         ↳ action, DefaultMaxStackSize);
28
29     public static Thread StartNew<T>(T param, Action<object> action, int maxStackSize)
30     {
31         var thread = new Thread(new ParameterizedThreadStart(action), maxStackSize);
32         thread.Start(param);
33         return thread;
34     }
35
36     public static Thread StartNew(Action action) => StartNew(action, DefaultMaxStackSize);
37
38     public static Thread StartNew(Action action, int maxStackSize)
39     {
40         var thread = new Thread(new ThreadStart(action), maxStackSize);
41         thread.Start();
42         return thread;
43     }
44
45     public static void Sleep() => Thread.Sleep(DefaultSleepTimeout);
46 }

```

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