

# JTool 2019 使用手冊

JTool 2019 User Manual

## 文件版本 (Documentation Version)

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## 函式庫簡介 (Introduction of this library)

使用 C# 7.0 (Visual Studio 2019) 撰寫的開源函式庫，提供數學、色彩、圖形的擴充功能，以及基於 WPF 的多種控制項，並提供從 WinForm 移轉至 WPF 必要的元件。

前身為 JTool.NET (VS 2010)、JLib.NET (VS 2005-2008)以及 JTools (VB 6)

This is an open source library written in C# 7.0 (Visual Studio 2019), which provides Math, Color, Shape extensions, and some WPF-based user controls. It also provides the necessary components to move from WinForm to WPF.

It's formerly known as JTool.NET (VS 2010), JLib.NET (VS 2005-2008) and JTools (VB 6).

## 使用需求 (System requirement)

.NET Framework 4.7.2

## 閱讀須知 (Reading instructions)

本文件是使用者說明手冊，基本上以提供公開 API 為主，並未提供內部成員及方法的說明，修飾字也一律略過 `public`。除非作者提供該類別或介面的主要目的是供使用者繼承或實作，才會提供相對完整的內部成員與方法的說明。

若有函式庫中的類別、功能未出現在文件中，那很有可能是未完成或未開放的部份，建議不要使用，以免造成不可預期的問題。

作者的主要語言是正體中文，如果與英文說明有歧義，則應以中文的版本為主。

This document is a user manual. Basically, it provides the description of public APIs only, without non-public members and methods. Any "public" in modifier field will be skipped. A (relatively) completed description of internal members and methods will be provided unless the author's primary purpose of providing the class or interface is for the user to inherit or implement.

If a class or method in the library does not describe in the documentation, it is likely to be unfinished. It is not recommended to use it to avoid unexpected problems.

The author's primary language is Traditional Chinese. If there's any ambiguity with the English description, the Chinese version shall prevail.

# 修訂

Revision Record

| 版本<br>Version | 摘要<br>Abstract                  | 參照<br>Reference   | 說明<br>Description  | 影響<br>Effect   |
|---------------|---------------------------------|---|--|--|
| 0.1.0         | 初版文件<br>The first revision.     |   |  |  |
| 0.2.0         | 新增功能<br>New functionalities.    | JTool.Media.Lyrics.DynamicLyric<br>JTool.Media.Lyrics.DynamicLyricItem                | 新增可用於處理動態歌詞(lrc 檔案)的類別<br>Added classes that can be used to handle dynamic lyrics (lrc files).   |  |
|               |                                 | JTool.Security.IDecryptor<br>JTool.Security.IEncryptor<br>JTool.Security.AesEncryptor | 從 JTool.NET 移植加、解密器，並提供 AES 加密器的實作<br>Porting encryptor, decryptor from JTool.NET and providing implementation of AES encryptor.   |  |
|               | 修正錯誤<br>Fix bugs.               | System.StringExtension  | 上一版的 StringExtension 誤放在 JTool.ExtensionMethods 名稱空間<br>The previous version of StringExtension was misplaced in the JTool.ExtensionMethods namespace.                                   | 請將「using JTool.ExtensionMethods」改成「using System」<br>Please change "using JTool.ExtensionMethods" to "using System" |
|               |                                 | JTool.Media.Playlists.Playlist  | 修正播放清單 Insert、Remove、Swap 等方法無法正確運作的問題<br>Fixed the issue that the Insert, Remove, and Swap methods of playlist did not work correctly.  |  |
| 0.2.1         | 新增功能<br>New functionalities.    | System.Windows.Controls.FileListBox   | 可以透過 Items 屬性取得檔案列表的複本<br>Get the copy of file list through the "Items" property.  |  |
|               | 變更功能<br>Change functionalities. | JTool.Media.Player  | 取消 protected Dispose 方法，將 public Dispose 改成抽象方法供繼承者實作<br>Remove the "protected Dispose" method, and change "public Dispose" method to an abstract method for the successor to implement. |  |

|       |                                 |  |   |   |
|-------|---------------------------------|--|---|---|
|       |                                 | JTool.Media.Lyrics.DynamicLyric                                | <p>在儲存成檔案時，可以透過參數決定是否要以緊湊的格式儲存歌詞</p> <p>When saving to file, you can decide whether to save the lyrics in a compact format through a parameter.</p>                 | <p>所有呼叫「SaveToLrc」方法的地方都應重新檢查參數</p> <p>Any of calling "SaveToLrc" method should re-check the parameter.</p>                                       |
|       | 修正錯誤<br>Fix bugs.               | System.Windows.Controls.DirListBox                             | <p>修正 FocusMode 不正常的問題</p> <p>Fix the problem that "FocusMode" is abnormal.</p>   |   |
|       |                                 | JTool.Helpers.BorderlessWindowHelper                           | <p>修正在套用部份元件（例如 Button）時，會無法順利觸發事件的問題</p> <p>Fix the problem that when some components (e.g. Button) are applied, the event will not be triggered successfully.</p> |   |
|       |                                 | JTool.Media.WindowsMediaPlayer                                 | <p>修正在開啟檔案時發生錯誤，會導致無窮迴圈的問題</p> <p>Fixed an issue that caused an infinite loop if an error occurred while opening a file.</p>  |   |
|       |                                 | JTool.Media.Lyrics.DynamicLyric                                | <p>修正讀取檔案時，無法正確解析 Length 與 Offset 的問題</p> <p>Fixed an issue where Length and Offset could not be parsed correctly when reading files.</p>                           |   |
| 0.2.2 | 重構<br>Refactoring.              | JTool.Media.Playlists.Playlist                                 | <p>將父類別從 IEnumerable&lt;string&gt; 改為 IList&lt;string&gt;</p> <p>Change the parent class from IEnumerable&lt;string&gt; to IList&lt;string&gt;.</p>                 | <p>移除指定位置的媒體檔案的方法從「Remove」變更為「RemoveAt」</p> <p>Changed the method of removing media files in the specified index from "Remove" to "RemoveAt".</p> |
|       | 修正錯誤<br>Fix bugs.               | System.Windows.Controls.FileListBox                            | <p>修正在指定 Path 前就呼叫 Refresh 方法時會出錯的問題</p> <p>Fixed an issue that would cause an error when calling the Refresh method before specifying the Path property.</p>       |   |
|       |                                 | JTool.FileSystems.PropertyControllers.<br>PropertyController<> | <p>修正若儲存在與執行檔相同目錄時會出錯的問題</p> <p>Fixed an error if it saves in the same directory as the execution file.</p>   |   |
| 0.2.3 | 變更功能<br>Change functionalities. | System.Windows.Controls.<br>DriveCombobox                      | <p>將子選項從 StackPanel 更換為標準的 ComboBoxItem</p> <p>Replace the sub-items from StackPanel to standard ComboBoxItem.</p>  | <p>WPF Style 可以正確套用在 ComboBoxItem</p> <p>WPF Style can be correctly applied to ComboBoxItem.</p>  |

|       |                              |  |  |  |
|-------|------------------------------|--|--|--|
|       | 修正錯誤<br>Fix bugs.            | JTool.Media.Lyrics.DynamicLyric                        | 修正重複呼叫 LoadFromLrc 方法造成屬性殘留先前值的錯誤<br>Fixed a bug that caused the property to retain the previous value due to call to the LoadFromLrc method repeatedly. |  |
|       |                              |  | 修正 Offset 屬性運作方式不正確的問題<br>Fixed an issue where the Offset property works incorrectly.  |  |
| 0.2.4 | 新增功能<br>New functionalities. | JTool.Helpers.GlobalHotkeyHelper                       | 新增可用於設定 Windows 全域快捷鍵的輔助元件<br>Added auxiliary components that can be used to set Windows global hotkeys.   |  |
|       | 修正錯誤<br>Fix bugs.            | System.Windows.Media.ColorExtension                    | 修正 FromHsv 方法與 FromHsl 方法的參數檢查<br>Modify the parameter check of FromHsv method and FromHsl method.   |  |
|       |                              |  | 修正 ToHsl 方法的計算公式錯誤<br>Correct the calculation formula error of ToHsl method.   |  |
|       |                              | JTool.Media.Playlists.Formatters.<br>XmlBasedFormatter | 修正在匯入、匯出播放列表時，特殊字元出錯的問題<br>Fix the problem importing and exporting playlists failed due to special characters.   | 若使用者已自行處理特殊字元，則可以移除該部份<br>If users have processed special characters themselves, they can remove them. |
| 0.2.5 | 新增功能<br>New functionalities. | Systems.Windows.FontDialog                             | 新增適用於 WPF 的字型選擇對話框<br>Add a new font selection dialog for WPF.   |  |
|       |                              | System.Windows.Controls.ColorPicker                    | 增加可以切換色彩因子的功能，包括 HSL、HSV 與 RGB<br>Add a new functionality of switching color factors, including HSL, HSV and RGB.  |  |
|       | 修正錯誤<br>Fix bugs.            | System.Windows.Controls.ColorPicker                    | 修正當未指定色彩時，alpha 通道預設為 0 的問題<br>Fix the problem that the alpha channel is preset to 0 when the color is not specified.                                    |  |
| 0.2.6 | 新增功能<br>New functionalities. | System.Windows.Controls.<br>OutlinedTextBlock          | 新增提供外框字的文字方塊<br>Added a new component that provides outlined text.   |  |
|       |                              | System.Windows.Controls.<br>RubyTextBlock              | 新增提供注音標示的文字方塊<br>Added a new text block that provides ruby annotation.   |  |

|        |                                 |  |  |  |
|--------|---------------------------------|--|--|--|
|        |                                 | System.Windows.Media.<br>AutoBrushConverter  | 新增能夠依照背景色提供適當的黑白前景色的轉換器<br>Added a converter that provides appropriate b/w colors based on the background color.                                     |  |
| 0.2.7  | 新增功能<br>New functionalities.    | JTool.Media.Lyrics.DynamicLyric  | 支援調整歌詞時間戳<br>Supports adjusting lyrics timestamp.  |  |
|        | 變更功能<br>Change functionalities. | System.Windows.Controls.<br>RubyTextBlock  | RubyTextBlock 也支援文字外框<br>RubyTextBlock also supports text outlines.  |  |
| 0.2.8  | 新增功能<br>New functionalities.    | System.Windows.Controls.<br>RubyTextBlock  | 增加 RubyBaselineOffset 屬性<br>Added RubyBaseLineOffset Property.   |  |
| 0.2.9  | 修正錯誤<br>Fix bugs.               | JTool.Media.Lyrics.DynamicLyric  | 修正當 lrc 檔案的換行字元不是\r\n 時，會導致讀檔錯誤的問題<br>Fixed an issue that would cause file reading errors when the newline character of the lrc file was not "\r\n". |  |
| 0.2.10 | 修正錯誤<br>Fix bugs.               | JTool.Helpers.GlobalHotkeyHelper   | 修正當 ModifierKeys 為 None 會導致 Hotkey 無效的問題<br>Fixed an issue that caused Hotkey to be invalid when ModifierKeys was None.                              |  |
| 0.2.11 | 修正錯誤<br>Fix bugs.               | System.Windows.Controls.<br>OutlinedTextBlock                                      | 修正未正常顯示文字中間與尾端空白的問題<br>Fixed an issue where the middle and trailing spaces of text were not displayed properly.                                      |  |
|        |                                 | System.Windows.Controls.<br>RubyTextBlock  |  |  |
|        |                                 | System.Windows.Controls.<br>RubyAnnotations.Converters.<br>GenerallyLyricConverter | 修正無法正確剖析「々」字元的問題<br>Fixed an issue where the "々" character could not be parsed correctly.  |  |
| 0.2.12 | 新增功能<br>New functionalities.    | JTool.Helpers.ScreenHelper   | 新增用於列出螢幕並測量大小與位置的輔助元件<br>Added a helper for listing screens and measuring their size and position.   |  |
|        | 修正錯誤<br>Fix bugs.               | JTool.Media.Lyrics.DynamicLyric  | 修正在 Offset 為負值時誤寫成正值的問題<br>Fixed the issue where Offset was mistakenly written as a  |  |

|        |                              |                            |  |  |
|--------|------------------------------|----------------------------|--|--|
|        |                              |                            | positive value when it was a negative value.     |  |
| 0.2.13 | 新增功能<br>New functionalities. | JTool.Helpers.ScreenHelper | 增加更多種取得螢幕的方式<br>Add more ways to get the screen. |  |

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# 資料結構類

## Data Structures

### 基礎命名空間 (Base Namespace)

System.Collections

System.Collections.Generic

### 說明 (Description)

提供常用的資料結構，如果支援泛型的話，則分類在 System.Collections.Generic；否則列於 System.Collections

Provides common data structures. If generics are supported, they are classified in System.Collections.Generic. Otherwise, they will be listed in System.Collections

#### CircularBuffer<T>

| 修飾字      | 命名空間                       | 種類    | 繼承與實作                  | 說明  |
|----------|----------------------------|-------|------------------------|---|
| Modifier | Namespace                  | Kind  | Inherit and Implements | Description   |
|          | System.Collections.Generic | class | IEnumerable<T>         | 提供一個可以存放 T 類型物件的陣列空間，此陣列有固定的容量上限。可以從陣列的頭、尾任一端放入或取出物件；當在陣列已達容量上限的情況下嘗試加入物件的話，在陣列另一端的物件會被自動拋棄<br><br>Provides an array space for T-type objects with a fixed capacity limit. Objects can be placed or removed from either the head or the end of the array. Objects that are placed at the other end of the array are automatically discarded when the array has reached the upper limit of capacity. |

#### 屬性 (Properties)

| 修飾字      | 名稱               | 型別   | 分類與存取限制                          | 說明  |
|----------|------------------|------|----------------------------------|---|
| Modifier | Name             | Type | Category and access restrictions | Description   |
|          | 索引子<br>(indexer) | T    | Get, Set                         | 索引子，取得或設定指定位置的物件<br><br>Indexer, gets or sets the object at the specified position. |

|              |                      |                |   |  |
|--------------|----------------------|----------------|---|--|
| Capacity     | int                  | Get            | 取得陣列的容量<br>Gets the capacity of the array.  |  |
| Count        | int                  | Get            | 取得陣列中物件的數量<br>Gets the number of objects in the array.                                |  |
| IsEmpty      | bool                 | Get            | 指示陣列內容是否為空<br>Indicates if the array contents are empty.                              |  |
| IsFull       | bool                 | Get            | 指示陣列內容是否已達容量上限<br>Indicates whether the array content has reached the capacity limit. |  |
| 方法 (Methods) |                      |                |   |  |
| 修飾字          | 名稱                   | 回傳型別           | 參數  | 說明   |
| Modifier     | Name                 | Return Type    | Parameters  | Description  |
|              | 建構子<br>(constructor) |                | int capacity  | 初始化陣列並指定容量上限<br>Initialize the array and specify a capacity limit.   |
|              | Dequeue              | T              |   | 取得佇列頂端第一個物件，該物件會從佇列中移除；此為語法糖，實際上相當於 RemoveFirst 和 First<br>Get the first object at the top of the queue, the object will be removed from the queue. This is syntactic sugar, which is actually equivalent to "RemoveFirst" and "First" |
|              | Enqueue              | void           | T item  | 從佇列尾端放入一個物件，若佇列已滿的話，則最頂端的物件會被拋棄；此為語法糖，實際上相當於 InsertLast<br>Put an object from the end of the queue. If the queue is full, the top object will be discarded. This is syntactic sugar, which is actually equivalent to "InsertLast".     |
|              | First                | T              |   | 取得陣列頂端第一個物件，但不改變陣列的內容<br>Get the first object at the top of the array without changing the contents of the array.  |
|              | GetEnumerator        | IEnumerator<T> |   | 使此陣列支援 foreach 語法<br>Let this array support foreach syntax.  |

|             |      |        |   |
|-------------|------|--------|---|
| InsertFirst | void | T item | <p>從陣列頂端放入一個物件，若陣列已滿的話，則最尾端的物件會被拋棄</p> <p>Put an object from the top of the array. If the array is full, the last object will be discarded.</p>   |
| InsertLast  | void | T item | <p>從陣列尾端放入一個物件，若陣列已滿的話，則最頂端的物件會被拋棄</p> <p>Put an object from the end of the array. If the array is full, the top object will be discarded.</p>  |
| Last        | T    |        | <p>取得陣列尾端第一個物件，但不改變陣列的內容</p> <p>Get the first object at the end of the array, but without changing the contents of the array.</p>   |
| Pop         | T    |        | <p>取得堆疊中最上層的物件，該物件會從堆疊中移除；此為語法糖，實際上相當於 RemoveLast 和 Last</p> <p>Get the topmost object in the stack, the object will be removed from the stack. This is syntactic sugar, which is actually equivalent to "RemoveLast" and "Last".</p> |
| Push        | void | T item | <p>放入一個物件至堆疊中，若堆疊已滿的話，則最舊的物件會被拋棄；此為語法糖，實際上相當於 InsertLast</p> <p>Push an object into the stack, if the stack is full, the oldest object will be discarded. This is syntactic sugar, which is actually equivalent to "InsertLast".</p>  |
| RemoveFirst | void |        | <p>刪除陣列頂端第一個物件</p> <p>Remove the first object at the top of the array.</p>  |
| RemoveLast  | void |        | <p>刪除陣列尾端第一個物件</p> <p>Remove the first object at the end of the array.</p>  |

| FixedSizeQueue<T> |                            |             |                                  |  |
|-------------------|----------------------------|-------------|----------------------------------|--|
| 修飾字               | 命名空間                       | 種類          | 繼承與實作                            | 說明   |
| Modifier          | Namespace                  | Kind        | Inherit and Implements           | Description  |
|                   | System.Collections.Generic | class       | Queue<T>                         | <p>提供一個可以存放 T 類型物件的佇列，且此佇列有固定的容量上限；當在佇列已達容量上限的情況下嘗試加入物件的話，在佇列中最舊的物件會被自動拋棄</p> <p>Provides a queue that can hold T-type objects, and this queue has a fixed capacity limit. When you try to add an object when the queue is full, the oldest object in the queue will be automatically discarded.</p> |
| 屬性 (Properties)   |                            |             |                                  |  |
| 修飾字               | 名稱                         | 型別          | 分類與存取限制                          | 說明   |
| Modifier          | Name                       | Type        | Category and access restrictions | Description  |
|                   | Capacity                   | int         | Get, Set                         | <p>取得或設定佇列的容量；當在指定新的容量限制時，若佇列中的物件數量已超過該限制，則會從最舊的物件依序拋棄</p> <p>Gets or sets the capacity of the queue. When the new capacity limit is specified, if the number of objects in the queue exceeds the limit, it will be discarded sequentially from the oldest object.</p>                               |
|                   | IsEmpty                    | bool        | Get                              | <p>指示佇列內容是否為空</p> <p>Indicates if the queue contents are empty.</p>  |
|                   | IsFull                     | bool        | Get                              | <p>指示佇列內容是否已達容量上限</p> <p>Indicates whether the queue content has reached the capacity limit.</p>   |
| 方法 (Methods)      |                            |             |                                  |  |
| 修飾字               | 名稱                         | 回傳型別        | 參數                               | 說明   |
| Modifier          | Name                       | Return Type | Parameters                       | Description  |
|                   | 建構子<br>(constructor)       |             | int capacity                     | <p>初始化佇列並指定容量上限</p> <p>Initialize the queue and specify a capacity limit.</p>  |
| new               | Enqueue                    | void        | T item                           | 在佇列中加入 item 物件，在佇列已達容量上限的時候，會自動拋棄最舊的   |

物件

Add the "item" object to the queue, and automatically discard the oldest object when the queue has reached the capacity limit.

# 對話框類

## Dialogs

### 基礎命名空間 (Base Namespace)

System.Windows

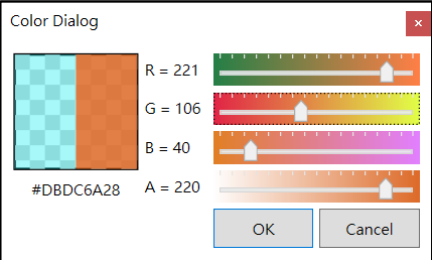
### 說明 (Description)

提供與 WinForm 相似的對話框，以彌補 WPF 缺少的對話框

Provides the dialogs similar to WinForm to make up for the missing dialogs of WPF.

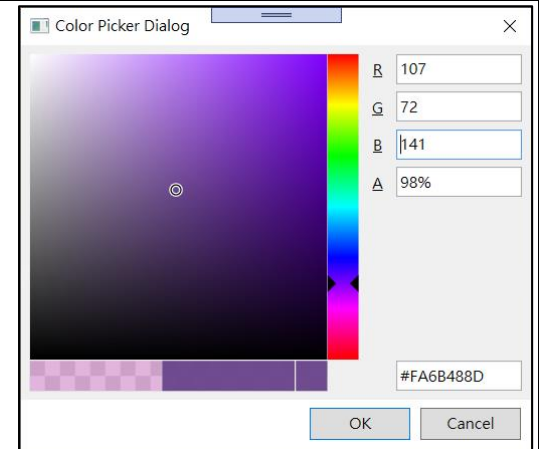
|                        |                |             |                                  |  |
|------------------------|----------------|-------------|----------------------------------|--|
| <b>IColorDialog</b>    |                |             |                                  |  |
| 修飾字                    | 命名空間           | 種類          | 繼承與實作                            | 說明   |
| Modifier               | Namespace      | Kind        | Inherit and Implements           | Description  |
|                        | System.Windows | interface   |                                  | 定義挑選色彩對話框應有的功能<br>Define the functions that should be available in the color picker dialogs. |
| <b>屬性 (Properties)</b> |                |             |                                  |  |
| 修飾字                    | 名稱             | 型別          | 分類與存取限制                          | 說明   |
| Modifier               | Name           | Type        | Category and access restrictions | Description  |
|                        | Color          | Color       | Get, Set                         | 取得或指定已挑選的色彩<br>Gets or sets the picked color.  |
| <b>方法 (Methods)</b>    |                |             |                                  |  |
| 修飾字                    | 名稱             | 回傳型別        | 參數                               | 說明   |
| Modifier               | Name           | Return Type | Parameters                       | Description  |
|                        | ShowDialog     | bool?       |                                  | 顯示對話框並等待回應<br>Display dialog and wait for a response.  |



| ColorDialog   |                      |             |                                  |  |
|---|----------------------|-------------|----------------------------------|--|
| 修飾字   | 命名空間                 | 種類          | 繼承與實作                            | 說明   |
| Modifier  | Namespace            | Kind        | Inherit and Implements           | Description  |
|   | System.Windows       | class       | Window<br>IColorDialog           | 簡單的色彩對話框<br>A simple color dialog.   |
|  |                      |             |                                  |  |
| 屬性 (Properties)   |                      |             |                                  |  |
| 修飾字   | 名稱                   | 型別          | 分類與存取限制                          | 說明   |
| Modifier  | Name                 | Type        | Category and access restrictions | Description  |
|   | Color                | int         | Get, Set                         | 取得或設定顏色<br>Gets or sets the color.   |
|   | GradientTrackBar     | bool        | Get, Set                         | 決定是否要在 R、G、B、A 調整滑塊上顯示漸層顏色<br>Decide if you want to display gradient colors on the R, G, B, A sliders. |
| 方法 (Methods)  |                      |             |                                  |  |
| 修飾字   | 名稱                   | 回傳型別        | 參數                               | 說明   |
| Modifier  | Name                 | Return Type | Parameters                       | Description  |
|   | 建構子<br>(constructor) |             |                                  | 建立對話框<br>Create dialog.  |

## ColorPickerDialog

| 修飾字      | 命名空間           | 種類    | 繼承與實作                  | 說明   |
|----------|----------------|-------|------------------------|--|
| Modifier | Namespace      | Kind  | Inherit and Implements | Description  |
|          | System.Windows | class | Window<br>IColorDialog | <p>仿 WPF 顏色挑選器的色彩對話框，最下方由左至右分別顯示「初始顏色」、「目前顏色」以及「上次挑選顏色」</p> <p>A color dialog which is like WPF color picker.</p> <p>The bottom from left to right displays "Initial color", "Current color", and "Last selected color".</p> |



### 屬性 (Properties)

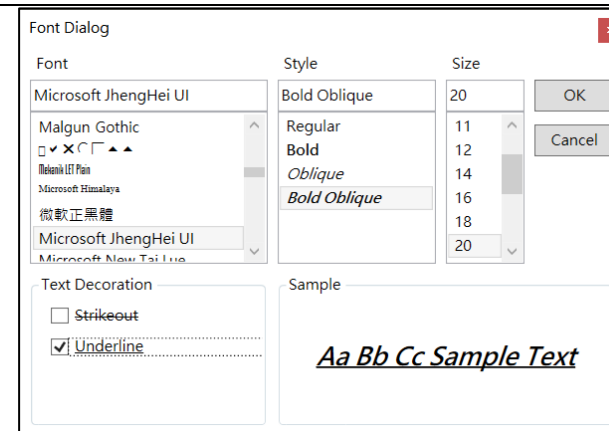
| 修飾字      | 名稱    | 型別    | 分類與存取限制                          | 說明  |
|----------|-------|-------|----------------------------------|---|
| Modifier | Name  | Type  | Category and access restrictions | Description                                   |
|          | Color | Color | Get, Set                         | <p>取得或設定顏色</p> <p>Gets or sets the color.</p> |

### 方法 (Methods)

| 修飾字      | 名稱                   | 回傳型別        | 參數         | 說明                                 |
|----------|----------------------|-------------|------------|------------------------------------|
| Modifier | Name                 | Return Type | Parameters | Description                        |
|          | 建構子<br>(constructor) |             |            | <p>建立對話框</p> <p>Create dialog.</p> |

## FontDialog

| 修飾字      | 命名空間           | 種類    | 繼承與實作                  | 說明  |
|----------|----------------|-------|------------------------|---|
| Modifier | Namespace      | Kind  | Inherit and Implements | Description   |
|          | System.Windows | class | Window                 | 仿 Windows 內<br>建的字型對話框<br><br>Imitate the<br>built-in font<br>dialog of<br>Windows. |



## 屬性 (Properties)

| 修飾字      | 名稱          | 型別                       | 分類與存取限制                          | 說明  |
|----------|-------------|--------------------------|----------------------------------|---|
| Modifier | Name        | Type                     | Category and access restrictions | Description   |
|          | Font        | string                   | Get, Set                         | 取得或設定字型<br><br>Gets or sets the font.   |
|          | FontEffects | TextDecorationCollection | Get                              | 取得文字的修飾效果，例如刪除線或底線<br><br>Gets the text decoration effects, such as strikethrough or underline.     |
|          | FontSize    | double                   | Get                              | 取得文字的大小<br><br>Gets the size of font.   |
|          | FontStretch | FontStretch              | Get                              | 取得字型的伸展度，只有少部份的字型支援此功能<br><br>Gets the stretch of the font, only a few fonts support this function. |
|          | FontStyle   | FontStyle                | Get                              | 取得字型的外觀，包括義大利體或偽斜體<br><br>Gets the appearance of the font, including italic or oblique.             |
|          | FontWeight  | FontWeight               | Get                              | 取得字型的粗細，例如粗體<br><br>Gets the font weight, such as bold.   |

| 方法 (Methods) |                      |             |            |   |
|--------------|----------------------|-------------|------------|---|
| 修飾字          | 名稱                   | 回傳型別        | 參數         | 說明  |
| Modifier     | Name                 | Return Type | Parameters | Description   |
|              | 建構子<br>(constructor) |             |            | 建立對話框<br>Create dialog.                               |
|              | ShowDialog           | bool?       |            | 顯示對話框並等待回應<br>Display dialog and wait for a response. |

# 擴充方法類

## Extension Classes and Extension Methods

### 基礎命名空間 (Base Namespace)

JTool.Extensions

### 說明 (Description)

擴充方法的實際命名空間均與其擴充對象相同，因此實際使用時不需額外的 using 語句

The actual namespace of the extension method is the same as its target class. Therefore, no additional "using" statement is required when you using these methods.

| ApplicationExtension |                |             |                        |   |
|----------------------|----------------|-------------|------------------------|---|
| 修飾字                  | 命名空間           | 種類          | 繼承與實作                  | 說明  |
| Modifier             | Namespace      | Kind        | Inherit and Implements | Description   |
| static               | System.Windows | class       |                        | 提供相容於 WinForm Application 類別的功能<br>Provides compatibility of WinForm Application class. |
| 方法 (Methods)         |                |             |                        |   |
| 修飾字                  | 名稱             | 回傳型別        | 參數                     | 說明  |
| Modifier             | Name           | Return Type | Parameters             | Description   |
| static               | DoEvents       | void        |                        | 讓應用程式處理其他事件<br>Let the Application process other events.                                |
| static               | DoEvents       | void        | this Application a     | 讓應用程式 a 處理其他事件<br>Let the Application "a" process other events.                         |

| BrushExtension  |                      |             |   |  |
|-----------------|----------------------|-------------|---|--|
| 修飾字             | 命名空間                 | 種類          | 繼承與實作                                   | 說明   |
| <i>Modifier</i> | <i>Namespace</i>     | <i>Kind</i> | <i>Inherit and Implements</i>           | <i>Description</i>   |
| static          | System.Windows.Media | class       |   | 提供常用的靜態筆刷<br>Provides commonly used static brushes.  |
| 屬性 (Properties) |                      |             |   |  |
| 修飾字             | 名稱                   | 型別          | 分類與存取限制                                 | 說明   |
| <i>Modifier</i> | <i>Name</i>          | <i>Type</i> | <i>Category and access restrictions</i> | <i>Description</i>   |
| static          | TransparentGrid      | Brush       | Get                                     | 取得樣式是 12x12 · 白、灰相間的「透明」筆刷<br>Get a "transparent" brush which style is 12x12, white and gray blocks. |

| AlphaCalculation |                      |       |                        |  |
|------------------|----------------------|-------|------------------------|--|
| 修飾字              | 命名空間                 | 種類    | 繼承與實作                  | 說明   |
| Modifier         | Namespace            | Kind  | Inherit and Implements | Description  |
|                  | System.Windows.Media | enum  |                        | <p>表示兩個色彩的 alpha 通道如何進行計算，適用於 ColorExtension</p> <p>This enumeration indicates that how to calculate the alpha channel of two colors, suitable for ColorExtension.</p> |
| 值域 (Values)      |                      |       |                        |  |
| 修飾字              | 名稱                   | 值     |                        | 說明   |
| Modifier         | Name                 | Value |                        | Description  |
|                  | Opaqueness           |       |                        | <p>一律設定成完全不透明</p> <p>Always set to opaque.</p>   |
|                  | UseSource            |       |                        | <p>使用來源色彩的 alpha 值</p> <p>Use the alpha value of the source color.</p>   |
|                  | UseTarget            |       |                        | <p>使用目標色彩的 alpha 值</p> <p>Use the alpha value of the target color.</p>   |
|                  | Calculated           |       |                        | <p>使用與目前正在進行的計算相同的方式</p> <p>Use the same way as the calculations currently in progress.</p>  |
|                  | Averaged             |       |                        | <p>使用兩者的平均值</p> <p>Use the average of the two color.</p>   |

| TricolorFlag |                      |           |                        |  |
|--------------|----------------------|-----------|------------------------|--|
| 修飾字          | 命名空間                 | 種類        | 繼承與實作                  | 說明   |
| Modifier     | Namespace            | Kind      | Inherit and Implements | Description  |
| [Flags]      | System.Windows.Media | enum      |                        | 標示 alpha、紅、綠、藍的組合・適用於 ColorExtension<br>Labeling the combinations of alpha, red, green, and blue, suitable for ColorExtension. |
| 值域 (Values)  |                      |           |                        |  |
| 修飾字          | 名稱                   | 值         |                        | 說明   |
| Modifier     | Name                 | Value     |                        | Description  |
|              | None                 | 0         |                        | 空值 / None of all   |
|              | R                    | 1         |                        | 紅 / Red  |
|              | G                    | 2         |                        | 綠 / Green  |
|              | B                    | 4         |                        | 藍 / Blue   |
|              | A                    | 8         |                        | Alpha 通道 / Alpha channel   |
|              | RG                   | R   G     |                        | 紅與綠 / Red and Green  |
|              | RB                   | R   B     |                        | 紅與藍 / Red and Blue   |
|              | GB                   | G   B     |                        | 綠與藍 / Green and Blue   |
|              | RGB                  | R   G   B |                        | 紅、綠、藍 / Red, Green, and Blue   |
|              | ARGB                 | A   RGB   |                        | Alpha、紅、綠、藍 / Alpha, Red, Green, Blue  |



| ColorExtension |                      |             |  |  |
|----------------|----------------------|-------------|--|--|
| 修飾字            | 命名空間                 | 種類          | 繼承與實作  | 說明   |
| Modifier       | Namespace            | Kind        | Inherit and Implements   | Description  |
| static         | System.Windows.Media | class       |  | 提供色彩的運算與轉換功能<br>Provides color calculation and conversion functionalities.   |
| 方法 (Methods)   |                      |             |  |  |
| 修飾字            | 名稱                   | 回傳型別        | 參數   | 說明   |
| Modifier       | Name                 | Return Type | Parameters   | Description  |
| static         | Add                  | Color       | this Color c<br>byte offset<br>AlphaCalculation alpha = UseSource                              | 將三原色通道都加上 offset 值，結果應該比原本的色彩還亮<br>Add the offset values to the three primary color channels, and the result should be brighter than the original color.   |
| static         | Add                  | Color       | this Color c<br>byte offset<br>out TricolorFlag overflow<br>AlphaCalculation alpha = UseSource | 將三原色通道都加上 offset 值，並將溢位的通道標記在 overflow 中，結果應該比原本的色彩還亮<br>Add the offset values to the three primary color channels, and mark the overflow channels in the "overflow" parameter. The result should be brighter than the original color.           |
| static         | Add                  | Color       | this Color c<br>Color target<br>AlphaCalculation alpha = Averaged                              | 將目前的色彩與 target 進行加法混色，結果應該比原本的色彩還亮<br>Mixing the current color with the target (additive color mixing), the result should be brighter than the original color.   |
| static         | Add                  | Color       | this Color c<br>Color target<br>out TricolorFlag overflow<br>AlphaCalculation alpha = Averaged | 將目前的色彩與 target 進行加法混色，並將溢位的通道標記在 overflow 中，結果應該比原本的色彩還亮<br>Mixing the current color with the target (additive color mixing), and mark the overflow channels in the "overflow" parameter. The result should be brighter than the original color. |
| static         | ArgbDifference       | double      | this Color c<br>Color target   | 計算目前色彩與 target 之間，alpha 通道與三原色的歐幾里德距離；結果介於 0 與 1 之間，0 表示兩色相同，而 1 表示完全不同  |

|        |               |       |  |  |
|--------|---------------|-------|--|--|
|        |               |       |  | Calculate the Euclidean distance of alpha channel and three primary colors between the current color and the target. The result is between 0 and 1, 0 means they are same color, and 1 means completely different. |
| static | Assign        | void  | this ref Color c<br>Color color  | 套用指定的色彩<br>Apply the specified color.  |
| static | Average       | Color | this Color c<br>Color target<br>AlphaCalculation alpha =<br>Calculated | 將兩個色彩平均混合<br>Mix two colors evenly.  |
| static | Complementary | Color | this Color c<br>AlphaCalculation alpha =<br>UseSource                  | 取得目前色彩的互補色<br>Get the complementary color of the current color.  |
| static | Desaturate    | Color | this Color c<br>AlphaCalculation alpha =<br>UseSource                  | 將目前的色彩去色調化，會得到三原色平均值的灰階色彩<br>Decolorize the current color, and return a grayscale color which is the average of three primary colors.  |
| static | FromArgb      | Color | int color  | 與 System.Drawing.Color.FromArgb 相似，將一個 32 位元的整數 color 轉換成 32 位元的 ARGB 色彩<br>Similar to System.Drawing.Color.FromArgb, convert a 32-bit integer color to a 32-bit ARGB color.                                       |
| static | FromArgb      | void  | this ref Color c<br>int color  | 與 System.Drawing.Color.FromArgb 相似，將一個 32 位元的整數 color 轉換成 32 位元的 ARGB 色彩<br>Similar to System.Drawing.Color.FromArgb, convert a 32-bit integer color to a 32-bit ARGB color.                                       |
| static | FromArgb      | Color | byte alpha<br>Color color  | 將色彩 color 與 alpha 值，組合成半透明的色彩<br>Combine the color and alpha value into a translucent color.   |
| static | FromArgb      | void  | this ref Color c<br>byte alpha<br>Color color                          | 將色彩 color 與 alpha 值，組合成半透明的色彩<br>Combine the color and alpha value into a translucent color.   |

|        |         |       |  |  |
|--------|---------|-------|--|--|
| static | FromHsl | Color | double h<br>double s<br>double v                                 | 將色相 h · 飽和度 s 與亮度 l 轉換成 RGB 色彩<br>Convert hue, saturation and lightness to RGB color.                                      |
| static | FromHsl | void  | this ref Color c<br>double h<br>double s<br>double v             | 將色相 h · 飽和度 s 與亮度 l 轉換成 RGB 色彩<br>Convert hue, saturation and lightness to RGB color.                                      |
| static | FromHsl | Color | double a<br>double h<br>double s<br>double v                     | 將 alpha 值 · 色相 h · 飽和度 s 與亮度 l 轉換成 ARGB 色彩<br>Convert alpha, hue, saturation and lightness to ARGB color.                  |
| static | FromHsl | void  | this ref Color c<br>double a<br>double h<br>double s<br>double v | 將 alpha 值 · 色相 h · 飽和度 s 與亮度 l 轉換成 ARGB 色彩<br>Convert alpha, hue, saturation and lightness to ARGB color.                  |
| static | FromHsv | Color | double h<br>double s<br>double v                                 | 將色相 h · 飽和度 s 與色值(或稱明度)v 轉換成 RGB 色彩<br>Convert hue, saturation and value (or brightness) to RGB color.                     |
| static | FromHsv | void  | this ref Color c<br>double h<br>double s<br>double v             | 將色相 h · 飽和度 s 與色值(或稱明度)v 轉換成 RGB 色彩<br>Convert hue, saturation and value (or brightness) to RGB color.                     |
| static | FromHsv | Color | double a<br>double h<br>double s<br>double v                     | 將 alpha 值 · 色相 h · 飽和度 s 與色值(或稱明度)v 轉換成 ARGB 色彩<br>Convert alpha, hue, saturation and value (or brightness) to ARGB color. |
| static | FromHsv | void  | this ref Color c   | 將 alpha 值 · 色相 h · 飽和度 s 與色值(或稱明度)v 轉換成 ARGB 色彩  |

|        |                      |                                 |  |   |
|--------|----------------------|---------------------------------|--|---|
|        |                      |                                 | double a<br>double h<br>double s<br>double v                 | Convert alpha, hue, saturation and value (or brightness) to ARGB color.   |
| static | FromScRgb            | void                            | this ref Color c<br>float a<br>float r<br>float g<br>float b | 將使用 scRGB 色域的值轉換至 ARGB 色彩<br>Convert the values from the scRGB color gamut to ARGB color.   |
| static | FromString           | Color                           | string color   | 嘗試將字串 color 解析成色彩，若失敗的話會傳回預設值<br>Try to parse the string "color" into a color. If it fails, it will return the default value.   |
| static | FromString           | void                            | this ref Color c<br>string color                             | 嘗試將字串 color 解析成色彩，若失敗的話會設定成預設值<br>Try to parse the string "color" into a color. If it fails, the current color will set to default value.   |
| static | GetBrightestTricolor | (TricolorFlag Flag, byte Value) | this Color c   | 找出目前色彩的三原色中最亮的通道，以及其數值<br>Find the brightest channel among the three primary colors of the current color, and its value   |
| static | GetDarkestTricolor   | (TricolorFlag Flag, byte Value) | this Color c   | 找出目前色彩的三原色中最暗的通道，以及其數值<br>Find the darkest channel among the three primary colors of the current color, and its value   |
| static | Grayscale            | Color                           | this Color c<br>AlphaCalculation alpha = UseSource           | 根據心理學公式進行灰階化，三原色的比值分別是紅 38、綠 75 與藍 15<br>Grayscale according to the psychological formula. The ratio of the three primary colors is red 38, green 75 and blue 15 respectively.                                      |
| static | HslDifference        | double                          | this Color c<br>Color target                                 | 計算目前色彩與 target 之間，色相、飽和度與亮度的歐幾里德距離；結果介於 0 與 1 之間，0 表示兩色相同，而 1 表示完全不同<br>Calculate the Euclidean distance of hue, saturation and brightness between the current color and the target. The result is between 0 and 1, |

|        |               |        |   |   |
|--------|---------------|--------|---|---|
|        |               |        |   | 0 means they are same color, and 1 means completely different.  |
| static | Invert        | Color  | this Color c<br>AlphaCalculation alpha = Calculated   | 取得目前色彩的反相顏色<br>Get the inverse color of the current color   |
| static | Mix           | Color  | this Color c<br>Color target<br>double ratio<br>AlphaCalculation alpha = Calculated             | 將兩個色彩依照指定的比例混合，ratio 表示目前顏色的比例，且應介於 0 與 1 之間<br>Mix two colors according to the specified ratio, "ratio" parameter means the ratio of the current color, and should be between 0 and 1.   |
| static | Multiply      | Color  | this Color c<br>double ratio<br>AlphaCalculation alpha = UseSource                              | 將三原色通道都乘以 ratio，如果 ratio 大於 1 的話結果應該比原本的色彩還亮，否則結果會比原本的色彩還暗<br>Multiply the three primary color channels by ratio. If the ratio is greater than 1, the result should be brighter than the original color; otherwise the result will be darker than the original color.   |
| static | Multiply      | Color  | this Color c<br>double ratio<br>out TricolorFlag overflow<br>AlphaCalculation alpha = UseSource | 將三原色通道都乘以 ratio，並將溢位的通道標記在 overflow 中；如果 ratio 大於 1 的話結果應該比原本的色彩還亮，否則結果會比原本的色彩還暗<br>Multiply the three primary color channels by ratio, and mark the overflow channels in the "overflow" parameter. If the ratio is greater than 1, the result should be brighter than the original color; otherwise the result will be darker than the original color. |
| static | Multiply      | Color  | this Color c<br>Color target<br>AlphaCalculation alpha = Averaged                               | 將目前色彩的各個通道分別乘以目標的各個通道，此方法大致等於減法混色，但與 CMYK 不同；結果應該比原本的色彩還暗，並且永遠不會下溢位<br>Multiply each channel of the current color by each channel of the target. This method is roughly equivalent to subtractive color mixing, but different from CMYK. The result should be darker than the original color and never underflow.                                       |
| static | RgbDifference | double | this Color c<br>Color target  | 計算目前色彩與 target 之間，三原色的歐幾里德距離；結果介於 0 與 1 之間，0 表示兩色相同，而 1 表示完全不同  |

|        |          |   |   |  |
|--------|----------|---|---|--|
|        |          |   |   | Calculate the Euclidean distance between the three primary colors of current color and the target. The result is between 0 and 1, 0 means they are same color, and 1 means completely different.   |
| static | Subtract | Color   | this Color c<br>byte offset<br>AlphaCalculation alpha = UseSource                               | 將三原色通道都減去 offset 值，結果應該比原本的色彩還暗<br><br>Subtract the offset values from the three primary color channels, and the result should be darker than the original color.  |
| static | Subtract | Color   | this Color c<br>byte offset<br>out TricolorFlag underflow<br>AlphaCalculation alpha = UseSource | 將三原色通道都減去 offset 值，並將下溢位的通道標記在 underflow 中，結果應該比原本的色彩還暗<br><br>Subtract the offset values from the three primary color channels, and mark the underflow channels in the "underflow" parameter. The result should be darker than the original color.                    |
| static | Subtract | Color   | this Color c<br>Color target<br>AlphaCalculation alpha = Averaged                               | 將目前色彩的各個通道各自減去 target 的各個通道，結果應該比原本的色彩還暗<br><br>Subtract each channel of the current color from each channel of the target, and the result should be darker than the original color.   |
| static | Subtract | Color   | this Color c<br>Color target<br>out TricolorFlag underflow<br>AlphaCalculation alpha = Averaged | 將目前色彩的各個通道各自減去 target 的各個通道，並將下溢位的通道標記在 underflow 中，結果應該比原本的色彩還暗<br><br>Subtract each channel of the current color from each channel of the target, and mark the underflow channels in the "underflow" parameter. The result should be darker than the original color. |
| static | ToHsl    | (double A,<br>double H,<br>double S,<br>double L) | this Color c  | 將目前色彩轉換成 HSL 值<br><br>Convert current color to HSL values.   |
| static | ToHsv    | (double A,<br>double H,<br>double S,              | this Color c  | 將目前色彩轉換成 HSV/HSB 值<br><br>Convert current color to HSL/HSB values.   |

|        |          |           |   |  |
|--------|----------|-----------|---|--|
|        |          | double V) |   |  |
| static | ToInt32  | int       | this Color c                                      | 將一個 32 位元的 ARGB 色彩轉換成 32 位元的整數<br>Convert a 32-bit ARGB color to a 32-bit integer.   |
| static | ToString | string    | this Color c<br>string format<br>bool hex = false | 將色彩轉換成易讀的文字，在 format 中的「A」、「R」、「G」、「B」(注意大小寫)字元會被實際數值取代；若指定 hex 的話，會使用十六進制數值<br>Convert color to easy-to-read text. The characters "A", "R", "G", and "B" (case sensitive) in the "format" will be replaced by actual values. If "hex" parameter is true, the values will be hexadecimal. Otherwise, the values should be decimal. |

| DependencyObjectExtension |                 |             |                           |   |
|---------------------------|-----------------|-------------|---------------------------|---|
| 修飾字                       | 命名空間            | 種類          | 繼承與實作                     | 說明  |
| Modifier                  | Namespace       | Kind        | Inherit and Implements    | Description   |
| static                    | System.Windows  | class       |                           | 擴充 DependencyObject 在存取物件上的功能<br>Expand the functionality of DependencyObject on accessing objects. |
| 方法 (Methods)              |                 |             |                           |   |
| 修飾字                       | 名稱              | 回傳型別        | 參數                        | 說明  |
| Modifier                  | Name            | Return Type | Parameters                | Description   |
| static                    | GetParentWindow | Window      | this DependencyObject obj | 取得包含此物件的視窗<br>Get the window which contains this object.  |



| MathExtension |                |             |                                     |  |
|---------------|----------------|-------------|-------------------------------------|--|
| 修飾字           | 命名空間           | 種類          | 繼承與實作                               | 說明   |
| Modifier      | Namespace      | Kind        | Inherit and Implements              | Description  |
| static        | System         | class       |                                     | 提供更多的數學運算，例如模除與角度轉換<br>Provide more mathematical operations, such as modulo division and angle conversion. |
| 方法 (Methods)  |                |             |                                     |  |
| 修飾字           | 名稱             | 回傳型別        | 參數                                  | 說明   |
| Modifier      | Name           | Return Type | Parameters                          | Description  |
| static        | DegreeToRadian | double      | double d                            | 將角度轉換成弧度<br>Converts degrees to radians  |
| static        | Modulo         | decimal     | decimal dividend<br>decimal divisor | 模除，取得模數<br>Modulo division.  |
| static        | Modulo         | double      | double dividend<br>double divisor   | 模除，取得模數<br>Modulo division.  |
| static        | Modulo         | int         | int dividend<br>int divisor         | 模除，取得模數<br>Modulo division.  |
| static        | Modulo         | long        | long dividend<br>long divisor       | 模除，取得模數<br>Modulo division.  |
| static        | RadianToDegree | double      | double r                            | 將弧度轉換成角度<br>Converts radians to degrees.   |

| ShapeObjectExtension |                           |             |                        |  |
|----------------------|---------------------------|-------------|------------------------|--|
| 修飾字                  | 命名空間                      | 種類          | 繼承與實作                  | 說明   |
| Modifier             | Namespace                 | Kind        | Inherit and Implements | Description  |
| static               | System.Windows.Shape<br>s | class       |                        | 提供複製 Shape 的功能<br>Provides the functionality of clone a shape. |
| 方法 (Methods)         |                           |             |                        |  |
| 修飾字                  | 名稱                        | 回傳型別        | 參數                     | 說明   |
| Modifier             | Name                      | Return Type | Parameters             | Description  |
| static               | Clone                     | Shape       | this Shape o           | 產生一份複製的 Shape<br>Clone a shape.                                |

| StringExtension |           |             |                             |  |
|-----------------|-----------|-------------|-----------------------------|--|
| 修飾字             | 命名空間      | 種類          | 繼承與實作                       | 說明   |
| Modifier        | Namespace | Kind        | Inherit and Implements      | Description  |
| static          | System    | class       |                             | 提供簡便的字串切割功能<br>Provides easy used functionality of cutting string.                         |
| 方法 (Methods)    |           |             |                             |  |
| 修飾字             | 名稱        | 回傳型別        | 參數                          | 說明   |
| Modifier        | Name      | Return Type | Parameters                  | Description  |
| static          | Left      | string      | this string s<br>int length | 截取字串 s 最左邊的 length 個文字<br>Get the substring from the left side with a specified "length".  |
| static          | Right     | string      | this string s<br>int length | 截取字串 s 最右邊的 length 個文字<br>Get the substring from the right side with a specified "length". |

| TimeSpanExtension |                   |                    |                               |   |
|-------------------|-------------------|--------------------|-------------------------------|---|
| 修飾字               | 命名空間              | 種類                 | 繼承與實作                         | 說明  |
| <i>Modifier</i>   | <i>Namespace</i>  | <i>Kind</i>        | <i>Inherit and Implements</i> | <i>Description</i>  |
| static            | System            | class              |                               | 擴充 TimeSpan 存取不同時間單位的功能<br>Provides more time unit when accessing TimeSpan objects.       |
| 方法 (Methods)      |                   |                    |                               |   |
| 修飾字               | 名稱                | 回傳型別               | 參數                            | 說明  |
| <i>Modifier</i>   | <i>Name</i>       | <i>Return Type</i> | <i>Parameters</i>             | <i>Description</i>  |
| static            | FromCentiseconds  | TimeSpan           | double value                  | 建立一個與指定厘秒(百分之一秒)數相等的 TimeSpan.<br>Creates a TimeSpan equal to the specified centiseconds. |
| static            | TotalCentiseconds | double             | this TimeSpan t               | 取得此 TimeSpan 總計的厘秒(百分之一秒)數<br>Get the total number of centiseconds of this TimeSpan.      |

| UIElementExtension |                      |             |                        |  |
|--------------------|----------------------|-------------|------------------------|--|
| 修飾字                | 命名空間                 | 種類          | 繼承與實作                  | 說明   |
| Modifier           | Namespace            | Kind        | Inherit and Implements | Description  |
| static             | System.Windows.Media | class       |                        | 提供複製 UIElement 的功能<br>Provides the functionality of clone a UIElement. |
| 方法 (Methods)       |                      |             |                        |  |
| 修飾字                | 名稱                   | 回傳型別        | 參數                     | 說明   |
| Modifier           | Name                 | Return Type | Parameters             | Description  |
| static             | Clone                | UIElement   | this UIElement o       | 產生一份複製的 UIElement<br>Clone a UIElement.                                |

# 檔案系統類 - 格式器

## File System - Formatter

### 基礎命名空間 (Base Namespace)

JTool.FileSystems.Formatters

### 說明 (Description)

格式器是用於協助序列化，通常是搭配屬性控制器，用於將資料類別序列化並保存至檔案系統

Formatters are used to assist serialization, usually with property controllers, to serialize data classes and save to file system.

### JsonFormatter

| 修飾字      | 命名空間                         | 種類    | 繼承與實作                  | 說明  |
|----------|------------------------------|-------|------------------------|---|
| Modifier | Namespace                    | Kind  | Inherit and Implements | Description   |
| sealed   | JTool.FileSystems.Formatters | class | IFormatter             | 一個假的 Json 格式器，實際上是轉呼叫 System.Web.Script.Serialization.JavaScriptSerializer 協助進行序列化<br>A fake Json formatter which is actually call to System.Web.Script.Serialization.JavaScriptSerializer to do serialization. |

### 屬性 (Properties)

| 修飾字      | 名稱                | 型別                  | 分類與存取限制                          | 說明                                       |
|----------|-------------------|---------------------|----------------------------------|--|
| Modifier | Name              | Type                | Category and access restrictions | Description                              |
|          | Binder            | SerializationBinder |                                  | 未實作，請勿使用<br>Not implemented, do not use. |
|          | Context           | StreamingContext    |                                  | 未實作，請勿使用<br>Not implemented, do not use. |
|          | SurrogateSelector | ISurrogateSelector  |                                  | 未實作，請勿使用<br>Not implemented, do not use. |

### 方法 (Methods)

| 修飾字             | 名稱                   | 回傳型別               | 參數   | 說明   |
|-----------------|----------------------|--------------------|--|--|
| <i>Modifier</i> | <i>Name</i>          | <i>Return Type</i> | <i>Parameters</i>                          | <i>Description</i>   |
|                 | 建構子<br>(constructor) |                    | Type dataType                              | 建立格式器，並指定要進行序列化的資料類別的型別<br>Create a formatter and specify the type of data class to be serialized  |
|                 | Deserialize          | object             | Stream serializationStream                 | 透過 JavaScriptSerializer 將資料串流 serializationStream 反序列化物件<br>Deserialize the data stream "serializationStream" into an object via JavaScriptSerializer.                             |
|                 | Serialize            | void               | Stream serializationStream<br>object graph | 透過 JavaScriptSerializer 將物件 graph 序列化，並寫入資料串流<br>serializationStream<br>Serialize the object "graph" by JavaScriptSerializer and write into the data stream "serializationStream". |

| XmlFormatter    |                              |                     |                                  |   |
|-----------------|------------------------------|---------------------|----------------------------------|---|
| 修飾字             | 命名空間                         | 種類                  | 繼承與實作                            | 說明  |
| Modifier        | Namespace                    | Kind                | Inherit and Implements           | Description   |
| sealed          | JTool.FileSystems.Formatters | class               | IFormatter                       | <p>一個假的 XML 格式器，實際上是轉呼叫 System.Xml.Serialization.XmlSerializer 協助進行序列化，因此只會序列化 public 成員，並可使用 XML 序列化相關屬性控制序列化成員的方式</p> <p>A fake XML formatter which is actually call to System.Xml.Serialization.XmlSerializer to do serialization, so only public members can be serialized. Also, XML serialization-related attributes can be used to control the way of serialization.</p> |
| 屬性 (Properties) |                              |                     |                                  |   |
| 修飾字             | 名稱                           | 型別                  | 分類與存取限制                          | 說明  |
| Modifier        | Name                         | Type                | Category and access restrictions | Description   |
|                 | Binder                       | SerializationBinder |                                  | <p>未實作，請勿使用</p> <p>Not implemented, do not use.</p>   |
|                 | Context                      | StreamingContext    |                                  | <p>未實作，請勿使用</p> <p>Not implemented, do not use.</p>   |
|                 | SurrogateSelector            | ISurrogateSelector  |                                  | <p>未實作，請勿使用</p> <p>Not implemented, do not use.</p>   |
| 方法 (Methods)    |                              |                     |                                  |   |
| 修飾字             | 名稱                           | 回傳型別                | 參數                               | 說明  |
| Modifier        | Name                         | Return Type         | Parameters                       | Description   |
|                 | 建構子<br>(constructor)         |                     | Type dataType                    | <p>建立格式器，並指定要進行序列化的資料類別的型別</p> <p>Create a formatter and specify the type of data class to be serialized</p>  |
|                 | Deserialize                  | object              | Stream serializationStream       | <p>透過 XmlSerializer 將資料串流 serializationStream 反序列化物件</p> <p>Deserialize the data stream "serializationStream" into an object via XmlSerializer.</p>   |



|           |      |  |   |
|-----------|------|--|---|
| Serialize | void | Stream serializationStream<br>object graph | 透過 XmlSerializer 將物件 graph 序列化，並寫入資料串流<br>serializationStream<br>Serialize the object "graph" by XmlSerializer and write into the data<br>stream "serializationStream". |
|-----------|------|--|---|

# 檔案系統類 - 屬性控制器

## File System - Property Controller

### 基礎命名空間 (Base Namespace)

JTool.FileSystems.PropertyControllers

### 說明 (Description)

屬性控制器的主要用途是透過序列化與加密等流程，將資料類別長期保存在檔案；適用於載入軟體配置參數、保存使用者設定等情況

The main purpose of the property controller is to save data class in files for a long time through processes such as serialization and encryption. It is suitable for loading software configurations and saving user settings, etc.

#### IPropertyController<DataType>

| 修飾字      | 命名空間                                      | 種類        | 繼承與實作                  | 說明  |
|----------|---|-----------|------------------------|---|
| Modifier | Namespace                                 | Kind      | Inherit and Implements | Description   |
|          | JTool.FileSystems.<br>PropertyControllers | interface |                        | 定義屬性控制器的主要方法，用於讀取或寫入 DataType 資料類別；其中 DataType 必須是類別，而且實作 ISerializable 介面<br>Defines the methods of property controller for loading or saving the "DataType" data class, where the DataType must be a class and implement the ISerializable interface. |

#### 方法 (Methods)

| 修飾字      | 名稱           | 回傳型別        | 參數  | 說明  |
|----------|--------------|-------------|---|---|
| Modifier | Name         | Return Type | Parameters  | Description   |
|          | LoadProperty | DataType    | string filename<br>IDecryptor decryptor<br>object key | 讀取 filename 位置的檔案，並轉換成 DataType 物件；如果該檔案被加密，則必須指定正確的解密器 decryptor 以及密鑰 key<br>Read the file at "filename" and convert it into a DataType object. If the file is encrypted, you must specify the correct ""decryptor" and "key". |
|          | SaveProperty | bool        | DataType data   | 將指定的 data 儲存至 filename，並透過 overwrite 決定當檔案已存在時該   |

|                      |  |
|----------------------|--|
| string filename      | 如何處理；另外，若指定加密器 encryptor 與密鑰 key 的話，會將保存的檔                               |
| bool overwrite       | 案加密  |
| IEncryptor encryptor | Save the specified "data" to "filename" and use "overwrite" to decide    |
| object key           | what to do when the file already exists. In addition, if you specify the |
|                      | "encryptor" and "key", the saved file will be encrypted.                 |

| PropertyController<DataType> |   |             |  |   |
|------------------------------|---|-------------|--|---|
| 修飾字                          | 命名空間                                      | 種類          | 繼承與實作  | 說明  |
| Modifier                     | Namespace                                 | Kind        | Inherit and Implements   | Description   |
|                              | JTool.FileSystems.<br>PropertyControllers | class       |  | 以泛型實作的屬性控制器，用於讀取或寫入 DataType 資料類別；其中 DataType 必須是類別，而且實作 ISerializable 介面<br><br>Property controller implemented with generics for loading or saving "DataType" data classes, where DataType must be a class and implement the ISerializable interface.   |
| 方法 (Methods)                 |   |             |  |   |
| 修飾字                          | 名稱  | 回傳型別        | 參數   | 說明  |
| Modifier                     | Name                                      | Return Type | Parameters   | Description   |
|                              | 建構子<br>(constructor)                      |             | IFormatter formatter   | 初始化屬性控制器，並指定格式器 formatter<br><br>Initialize the property controller and specify the "formatter".  |
|                              | LoadProperty                              | DataType    | string filename<br>IDecryptor decryptor<br>object key                                    | 讀取 filename 位置的檔案，並轉換成 DataType 物件；如果該檔案被加密，則必須指定正確的解密器 decryptor 以及密鑰 key<br><br>Read the file at "filename" and convert it into a DataType object. If the file is encrypted, you must specify the correct ""decryptor" and "key".   |
|                              | SaveProperty                              | bool        | DataType data<br>string filename<br>bool overwrite<br>IEncryptor encryptor<br>object key | 將指定的 data 儲存至 filename，並透過 overwrite 決定當檔案已存在時該如何處理；另外，若指定加密器 encryptor 與密鑰 key 的話，會將保存的檔案加密<br><br>Save the specified "data" to "filename" and use "overwrite" to decide what to do when the file already exists. In addition, if you specify the "encryptor" and "key", the saved file will be encrypted. |

# 輔助功能類

## Helper Classes and Helper Methods

### 基礎命名空間 (Base Namespace)

JTool.Helpers

### 說明 (Description)

輔助功能類似 WinForm 的元件類型，用於協助改變其他控制項的功能，或用於提供額外的功能，以達成特定的目標

Helpers similar to WinForm components, used to assist in changing the functionality of other controls, or provides additional functionality, to achieve a specific goal.

#### BorderlessWindowHelper

| 修飾字      | 命名空間          | 種類    | 繼承與實作                  | 說明  |
|----------|---------------|-------|------------------------|---|
| Modifier | Namespace     | Kind  | Inherit and Implements | Description   |
|          | JTool.Helpers | class |                        | 協助一個無邊框的視窗，實現移動、最大化、最小化、關閉及變更大小的功能<br>This helper assists a borderless window for moving, maximizing, minimizing, closing and resizing. |

#### 屬性 (Properties)

| 修飾字      | 名稱           | 型別        | 分類與存取限制                          | 說明   |
|----------|--------------|-----------|----------------------------------|--|
| Modifier | Name         | Type      | Category and access restrictions | Description  |
|          | BottomBorder | UIElement | Get, Set                         | 取得或設定相當於視窗底部邊框的 UIElement，拖曳此 UIElement 即可調整視窗大小<br>Get or set the UIElement equivalent to the bottom border of the window. Drag the UIElement to resize the window. |

|                   |           |          |   |
|-------------------|-----------|----------|---|
| BottomLeftCorner  | UIElement | Get, Set | <p>取得或設定相當於視窗左下角的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the bottom left corner of the window. Drag the UIElement to resize the window.</p>     |
| BottomRightCorner | UIElement | Get, Set | <p>取得或設定相當於視窗右下角的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the bottom right corner of the window. Drag the UIElement to resize the window.</p>    |
| Close             | UIElement | Get, Set | <p>取得或設定相當於關閉鈕的 UIElement，點擊此 UIElement 即可關閉視窗</p> <p>Gets or sets the UIElement equivalent to the close button, click this UIElement to close the window.</p>                          |
| LeftBorder        | UIElement | Get, Set | <p>取得或設定相當於視窗左側邊框的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the left border of the window. Drag the UIElement to resize the window.</p>           |
| Maximize          | UIElement | Get, Set | <p>取得或設定相當於最大化鈕的 UIElement，點擊此 UIElement 即可最大化或還原視窗</p> <p>Gets or sets the UIElement equivalent to the maximize button, click on this UIElement to maximize or restore the window.</p> |
| Minimize          | UIElement | Get, Set | <p>取得或設定相當於最小化鈕的 UIElement，點擊此 UIElement 即可最小化視窗</p> <p>Gets or sets the UIElement equivalent to the minimize button, click this UIElement to minimize the window.</p>                  |
| RightBorder       | UIElement | Get, Set | <p>取得或設定相當於視窗右側邊框的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the right border of the window. Drag the UIElement to resize the window.</p>          |
| Title             | UIElement | Get, Set | <p>取得或設定相當於標題列的 UIElement，拖曳此 UIElement 即可移動視窗</p>  |

|                     |                      |                    |                   |   |
|---------------------|----------------------|--------------------|-------------------|---|
|                     |                      |                    |                   | Gets or sets the UIElement equivalent to the title bar, drag this UIElement to move the window.   |
|                     | TopBorder            | UIElement          | Get, Set          | <p>取得或設定相當於視窗頂部邊框的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the top border of the window.</p> <p>Drag the UIElement to resize the window.</p>     |
|                     | TopLeftCorner        | UIElement          | Get, Set          | <p>取得或設定相當於視窗左上角的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the top left corner of the window.</p> <p>Drag the UIElement to resize the window.</p> |
|                     | TopRightCorner       | UIElement          | Get, Set          | <p>取得或設定相當於視窗右上角的 UIElement，拖曳此 UIElement 即可調整視窗大小</p> <p>Get or set the UIElement equivalent to the top right corner of the window. Drag the UIElement to resize the window.</p>       |
| <b>方法 (Methods)</b> |                      |                    |                   |   |
| <i>修飾字</i>          | <i>名稱</i>            | <i>回傳型別</i>        | <i>參數</i>         | <i>說明</i>   |
| <i>Modifier</i>     | <i>Name</i>          | <i>Return Type</i> | <i>Parameters</i> | <i>Description</i>  |
|                     | 建構子<br>(constructor) |                    | Window owner      | <p>初始化幫手，並指定其協助的視窗，不可為 null</p> <p>Initialize the helper and specify it's owner window, this could not be null.</p>   |

| GlobalHotkeyHelper |               |                     |                                  |  |
|--------------------|---------------|---------------------|----------------------------------|--|
| 修飾字                | 命名空間          | 種類                  | 繼承與實作                            | 說明   |
| Modifier           | Namespace     | Kind                | Inherit and Implements           | Description  |
|                    | JTool.Helpers | class               | IDisposable                      | 提供一個 Windows 全域熱鍵組合，並在熱鍵被按下時觸發事件<br>Provides a Windows global hotkey combination and triggers an event when the hotkey is pressed. |
| 事件 (Events)        |               |                     |                                  |  |
| 修飾字                | 名稱            | 型別                  | 分類                               | 說明   |
| Modifier           | Name          | Type                | Category                         | Description  |
|                    | Pressed       | HandledEventHandler | Behavior                         | 當熱鍵被按下時，觸發此事件<br>Triggers this event when the hotkey is pressed.   |
| 屬性 (Properties)    |               |                     |                                  |  |
| 修飾字                | 名稱            | 型別                  | 分類與存取限制                          | 說明   |
| Modifier           | Name          | Type                | Category and access restrictions | Description  |
|                    | ID            | int                 | Get                              | 代表此元件的 ID<br>Identifier of this component.   |
|                    | Key           | Key                 | Get, Set                         | 按鍵組合中的一般鍵，例如字母、數字與符號<br>General keys in key combinations, such as characters, numbers, and symbols.                                |
|                    | Modifier      | ModifierKeys        | Get, Set                         | 按鍵組合中的修飾鍵，包括 Ctrl, Alt, Shift 與 Windows<br>Modifier keys in key combinations, including Ctrl, Alt, Shift and Windows.              |
|                    | Registered    | bool                | Get                              | 指示是否已經註冊為全域熱鍵<br>Indicates whether it has been registered as a global hotkey.  |
|                    | Valid         | bool                | Get                              | 指示目前的按鍵組合是否有效<br>Indicates whether the current key combination is valid.   |
| 方法 (Methods)       |               |                     |                                  |  |



| 修飾字             | 名稱                   | 回傳型別               | 參數                | 說明   |
|-----------------|----------------------|--------------------|-------------------|--|
| <i>Modifier</i> | <i>Name</i>          | <i>Return Type</i> | <i>Parameters</i> | <i>Description</i>   |
|                 | 建構子<br>(constructor) |                    | Window owner      | 初始化幫手，並指定其協助的視窗，不可為 null<br>Initialize the helper and specify it's owner window, this could not be null.   |
|                 | Dispose              | void               |                   | 釋放資源，包括已註冊的全域熱鍵<br>Release resources, including registered global hotkey.  |
|                 | Register             | bool               | IntPtr handle     | 將目前的按鍵組合註冊為一組 Windows 全域熱鍵，並關連到指定的視窗 handle<br>Register the current key combination as a set of Windows global hotkey, and associate to the specified window handle. |
| override        | ToString             | string             |                   | 將按鍵組合轉換成文字<br>Convert key combinations to text.  |
|                 | Unregister           | void               |                   | 註銷已註冊的全域熱鍵<br>Unregister the registered global hotkey.   |

| ScreenHelper    |               |              |                                  |   |
|-----------------|---------------|--------------|----------------------------------|---|
| 修飾字             | 命名空間          | 種類           | 繼承與實作                            | 說明  |
| Modifier        | Namespace     | Kind         | Inherit and Implements           | Description   |
| static          | JTool.Helpers | class        |                                  | 提供一個類似 System.Windows.Forms.Screen 的輔助工具<br>Provide an auxiliary tool similar to System.Windows.Forms.Screen  |
| 屬性 (Properties) |               |              |                                  |   |
| 修飾字             | 名稱            | 型別           | 分類與存取限制                          | 說明  |
| Modifier        | Name          | Type         | Category and access restrictions | Description   |
| static          | Count         | int          | Get                              | 取得螢幕的數量<br>Get the number of screens.   |
| static          | Screens       | List<Screen> | Get                              | 取得所有螢幕的資料；要注意的是，取得的螢幕位置與大小尚未進行 DPI 修正<br>Obtain data for all screens. Please note that the obtained screen positions and sizes have not been DPI corrected.   |
| 方法 (Methods)    |               |              |                                  |   |
| 修飾字             | 名稱            | 回傳型別         | 參數                               | 說明  |
| Modifier        | Name          | Return Type  | Parameters                       | Description   |
| static          | GetScreen     | Rect?        | int number                       | 取得 number 指定的螢幕進行 DPI 修正過的邊界<br>Get the DPI corrected bounds for the screen specified by number.  |
| static          | GetScreen     | Rect?        | Point point<br>bool nearest      | 取得 point 位置所在的螢幕進行 DPI 修正過的邊界，若 point 不屬於任何螢幕，則依照 nearest 的指示傳回最近的螢幕或是 NULL<br>Get the DPI corrected bounds for the screen where the point position is located. If the point does not belong to any screen, return the nearest screen or NULL according to "nearest" parameter. |
| static          | GetScreen     | Rect?        | Window window<br>bool nearest    | 取得 window 所屬的螢幕進行 DPI 修正過的邊界，若 window 不屬於任何螢幕，則依照 nearest 的指示傳回最近的螢幕或是 NULL<br>Get the DPI-corrected bounds of the screen to which the window   |

|        |                   |       |  |
|--------|-------------------|-------|--|
|        |                   |       | belongs. If the window does not belong to any screen, return the nearest screen or NULL according to the "nearest" parameter.  |
| static | GetScreenByCursor | Rect? | <p>取得滑游標所在的螢幕進行 DPI 修正過的邊界，若滑鼠游標不存在於任何螢幕中，則依照 nearest 的指示傳回最近的螢幕或是 NULL</p> <p>Get the DPI-corrected bounds of the screen where the mouse cursor is located. If the mouse cursor does not exist on any screen, return the nearest screen or NULL according to "nearest" parameter.</p> |

# 多媒體類

## Multimedia

### 基礎命名空間 (Base Namespace)

JTool.Media

### 說明 (Description)

提供影、音播放相關及圖像繪製相關功能

Provide video, audio playback related and image rendering related functions.

### Coloration

| 修飾字      | 命名空間        | 種類    | 繼承與實作                  | 說明  |
|----------|-------------|-------|------------------------|---|
| Modifier | Namespace   | Kind  | Inherit and Implements | Description   |
|          | JTool.Media | class |                        | 提供一個調色盤，可以指定主要顏色與次要顏色，並提供透過將此兩種顏色進行混色後的一系列配色<br>This is a color palette that specifies primary and secondary colors, and provides a range of color combinations by blending the two colors. |

### 屬性 (Properties)

| 修飾字      | 名稱                   | 型別    | 分類與存取限制                          | 說明  |
|----------|----------------------|-------|----------------------------------|---|
| Modifier | Name                 | Type  | Category and access restrictions | Description   |
|          | BrightGlossyColor    | Color | Get                              | 取得適用於較暗物體的光澤色彩<br>Gets the glossy color suitable for darker objects.  |
|          | DarkGlossyColor      | Color | Get                              | 取得適用於較亮物體的光澤色彩<br>Gets the glossy color suitable for brighter objects.  |
|          | MixedBackgroundColor | Color | Get                              | 取得與混合顏色同色系，並且適合當背景色的顏色<br>Gets the color which is same hue as the mixed color, and suitable to be the background color. |

|                              |       |          |   |
|------------------------------|-------|----------|---|
| MixedBrightColor             | Color | Get      | <p>取得與混合顏色同色系，並且較亮的顏色</p> <p>Get the color which is same hue as the mixed color with brighter brightness.</p>                                     |
| MixedColor                   | Color | Get      | <p>取得此調色盤主要顏色與次要顏色的平均混色</p> <p>Gets the average mixed color of the primary and secondary colors of this color palette.</p>                        |
| MixedDarkColor               | Color | Get      | <p>取得與混合顏色同色系，並且較暗的顏色</p> <p>Get the color which is same hue as the mixed color with darker brightness.</p>                                       |
| MixedGlossyColor             | Color | Get      | <p>取得適用於混合顏色物體的光澤色彩</p> <p>Gets the glossy color suitable for mixed color objects.</p>  |
| MixedMiddleColor             | Color | Get      | <p>取得與混合顏色同色系，並且亮度適中的顏色</p> <p>Get the color which is same hue as the mixed color with moderate brightness.</p>                                   |
| MixedTextColor               | Color | Get      | <p>取得當以混合顏色為底色時，適合當前景色的顏色</p> <p>Gets the color that is appropriate for foreground color when the mixed color is used as the background color</p> |
| PrimaryBackgroundColor<br>or | Color | Get      | <p>取得與主要顏色同色系，並且適合當背景色的顏色</p> <p>Gets the color which is same hue as the primary color, and suitable to be the background color.</p>              |
| PrimaryBrightColor           | Color | Get      | <p>取得與主要顏色同色系，並且較亮的顏色</p> <p>Get the color which is same hue as the primary color with brighter brightness.</p>                                   |
| PrimaryColor                 | Color | Get, Set | <p>取得或設定此調色盤的主要顏色</p> <p>Gets or sets the primary color of this color palette.</p>  |
| PrimaryDarkColor             | Color | Get      | <p>取得與主要顏色同色系，並且較暗的顏色</p> <p>Get the color which is same hue as the primary color with darker brightness.</p>                                     |

|                          |       |          |   |
|--------------------------|-------|----------|---|
| PrimaryGlossyColor       | Color | Get      | 取得適用於主要顏色物體的光澤色彩<br>Gets the glossy color suitable for primary color objects.   |
| PrimaryMiddleColor       | Color | Get      | 取得與主要顏色同色系，並且亮度適中的顏色<br>Get the color which is same hue as the primary color with moderate brightness.                                      |
| PrimaryTextColor         | Color | Get      | 取得當以主要顏色為底色時，適合當前景色的顏色<br>Gets the color that is appropriate for foreground color when the primary color is used as the background color.   |
| SecondaryBackgroundColor | Color | Get      | 取得與次要顏色同色系，並且適合當背景色的顏色<br>Gets the color which is same hue as the secondary color, and suitable to be the background color.                 |
| SecondaryBrightColor     | Color | Get      | 取得與次要顏色同色系，並且較亮的顏色<br>Get the color which is same hue as the secondary color with brighter brightness.                                      |
| SecondaryColor           | Color | Get, Set | 取得或設定此調色盤的次要顏色<br>Gets or sets the secondary color of this color palette.   |
| SecondaryDarkColor       | Color | Get      | 取得與次要顏色同色系，並且較暗的顏色<br>Get the color which is same hue as the secondary color with darker brightness.  |
| SecondaryGlossyColor     | Color | Get      | 取得適用於次要顏色物體的光澤色彩<br>Gets the glossy color suitable for secondary color objects.   |
| SecondaryMiddleColor     | Color | Get      | 取得與次要顏色同色系，並且亮度適中的顏色<br>Get the color which is same hue as the secondary color with moderate brightness.                                    |
| SecondaryTextColor       | Color | Get      | 取得當以次要顏色為底色時，適合當前景色的顏色<br>Gets the color that is appropriate for foreground color when the secondary color is used as the background color. |

#### 方法 (Methods)

| 修飾字             | 名稱                   | 回傳型別               | 參數                               | 說明  |
|-----------------|----------------------|--------------------|----------------------------------|---|
| <i>Modifier</i> | <i>Name</i>          | <i>Return Type</i> | <i>Parameters</i>                | <i>Description</i>  |
|                 | 建構子<br>(constructor) |                    |                                  | 建立調色盤，並使用預設的配色(灰色與黑色)<br>Create a color palette and use preset colors (gray and black). |
|                 | 建構子<br>(constructor) |                    | Color primary<br>Color secondary | 建立調色盤，並指定主要顏色與次要顏色<br>Create a color palette and specify primary and secondary colors.  |

| PlayerState |             |       |                        |   |
|-------------|-------------|-------|------------------------|---|
| 修飾字         | 命名空間        | 種類    | 繼承與實作                  | 說明  |
| Modifier    | Namespace   | Kind  | Inherit and Implements | Description   |
|             | JTool.Media | enum  |                        | 表示多媒體播放器的狀態<br>Indicates the status of the multimedia player. |
| 值域 (Values) |             |       |                        |   |
| 修飾字         | 名稱          | 值     |                        | 說明  |
| Modifier    | Name        | Value |                        | Description   |
|             | Error       | -1    |                        | 錯誤 / Error  |
|             | Unknown     | 0     |                        | 未知、未定義狀態 / Unknown, undefined state                           |
|             | NoMedia     |       |                        | 未載入媒體 / Media not loaded                                      |
|             | Loading     |       |                        | 載入媒體中 / Loading media   |
|             | Stopped     |       |                        | 已載入媒體，未播放 / Media loaded, not playing                         |
|             | Playing     |       |                        | 播放媒體中 / Playing media   |
|             | Paused      |       |                        | 暫停播放 / Pause playback   |
|             | Searching   |       |                        | 尋找、跳躍到指定的位置 / Jumping to the specified location               |



| ErrorEventArgs  |                      |             |                                  |  |
|-----------------|----------------------|-------------|----------------------------------|--|
| 修飾字             | 命名空間                 | 種類          | 繼承與實作                            | 說明   |
| Modifier        | Namespace            | Kind        | Inherit and Implements           | Description  |
|                 | JTool.Media          | class       | EventArgs                        | 播放器錯誤事件專用引數類型<br>Specific argument type for player error event.                                  |
| 屬性 (Properties) |                      |             |                                  |  |
| 修飾字             | 名稱                   | 型別          | 分類與存取限制                          | 說明   |
| Modifier        | Name                 | Type        | Category and access restrictions | Description  |
|                 | ID                   | int         | Get                              | 取得錯誤 ID<br>Gets the error ID.  |
|                 | Message              | string      | Get                              | 取得錯誤訊息<br>Gets the error message.  |
| 方法 (Methods)    |                      |             |                                  |  |
| 修飾字             | 名稱                   | 回傳型別        | 參數                               | 說明   |
| Modifier        | Name                 | Return Type | Parameters                       | Description  |
|                 | 建構子<br>(constructor) |             | int ID<br>string message         | 用指定的錯誤 ID 與錯誤訊息初始化此引數<br>Initialize this argument with the specified error ID and error message. |

| StateChangedEventArgs |                      |             |                                       |   |
|-----------------------|----------------------|-------------|---------------------------------------|---|
| 修飾字                   | 命名空間                 | 種類          | 繼承與實作                                 | 說明  |
| Modifier              | Namespace            | Kind        | Inherit and Implements                | Description   |
|                       | JTool.Media          | class       | EventArgs                             | 播放器狀態變化專用引數類型<br>Specific argument type for player state changed event.       |
| 屬性 (Properties)       |                      |             |                                       |   |
| 修飾字                   | 名稱                   | 型別          | 分類與存取限制                               | 說明  |
| Modifier              | Name                 | Type        | Category and access restrictions      | Description   |
|                       | LastState            | PlayerState | Get                                   | 取得播放器之前的狀態<br>Gets the last state of player.                                  |
|                       | State                | PlayerState | Get                                   | 取得播放器新的狀態<br>Gets the new state of player.                                    |
| 方法 (Methods)          |                      |             |                                       |   |
| 修飾字                   | 名稱                   | 回傳型別        | 參數                                    | 說明  |
| Modifier              | Name                 | Return Type | Parameters                            | Description   |
|                       | 建構子<br>(constructor) |             | PlayerState last<br>PlayerState state | 用指定的播放器狀態初始化此引數<br>Initialize this argument with the specified player states. |

|                        |                   |                               |   |  |
|------------------------|-------------------|-------------------------------|---|--|
| <b>Player</b>          |                   |                               |   |  |
| <i>修飾字</i>             | <i>命名空間</i>       | <i>種類</i>                     | <i>繼承與實作</i>                            | <i>說明</i>  |
| <i>Modifier</i>        | <i>Namespace</i>  | <i>Kind</i>                   | <i>Inherit and Implements</i>           | <i>Description</i>   |
| abstract               | JTool.Media       | class                         | IDisposable                             | 抽象類別，定義多媒體播放器的基本功能<br>Abstract class, define the basic functions of a multimedia player.   |
| <b>事件 (Events)</b>     |                   |                               |   |  |
| <i>修飾字</i>             | <i>名稱</i>         | <i>型別</i>                     | <i>分類</i>                               | <i>說明</i>  |
| <i>Modifier</i>        | <i>Name</i>       | <i>Type</i>                   | <i>Category</i>                         | <i>Description</i>   |
|                        | Error             | PlayerErrorHandler            |   | 當播放器內部出現錯誤時，觸發此事件<br>Triggers this event when an error occurs inside the player.   |
|                        | PlaybackCompleted | EventHandler                  |   | 當目前載入的媒體播放完成時，觸發此事件<br>Triggers this event when the currently loaded media is finished playing.  |
|                        | StateChanged      | PlayerStateChange<br>dHandler |   | 當播放器的狀態變化時，觸發此事件<br>Triggers this event when the state of player changed.  |
| <b>屬性 (Properties)</b> |                   |                               |   |  |
| <i>修飾字</i>             | <i>名稱</i>         | <i>型別</i>                     | <i>分類與存取限制</i>                          | <i>說明</i>  |
| <i>Modifier</i>        | <i>Name</i>       | <i>Type</i>                   | <i>Category and access restrictions</i> | <i>Description</i>   |
|                        | Balance           | float                         | Get, Set                                | 取得或設定立體聲的平衡度，-1.0 表示只有左聲道，而 1.0 表示只有右聲道；此屬性依賴於 GetBalance 與 SetBalance 方法的實作<br>Get or set the stereo balance, -1.0 means only the left channel, and 1.0 means only the right channel. This property depends on the implementation of the "GetBalance" and "SetBalance" methods. |
|                        | Length            | int                           | Get                                     | 取得已載入的媒體的長度，單位為毫秒；此屬性依賴於 GetLength 方法的實作<br>Gets the length of the loaded media in milliseconds. This property depends on the implementation of the "GetLength" method.  |
|                        | LengthString      | string                        | Get                                     | 取得人類易讀的媒體長度  |

|                |             |          |   |
|----------------|-------------|----------|---|
|                |             |          | Gets the media length with human-readable format.   |
| Path           | string      | Get      | 取得已載入的媒體的檔案路徑<br>Gets the file path of the loaded media.  |
| Position       | int         | Get, Set | 取得或設定媒體播放的位置，單位為毫秒；此屬性依賴於 GetPosition 與 SetPosition 方法的實作<br>Gets or sets the location of the media playback in milliseconds. This property depends on the implementation of the "GetPosition" and "SetPosition" methods. |
| PositionString | string      | Get      | 取得人類易讀的媒體播放位置<br>Gets the location of the media playback with human-readable format.  |
| PreviousState  | PlayerState | Get      | 取得播放器上一個狀態<br>Gets the previous state of the player.  |
| State          | PlayerState | Get      | 取得播放器目前的狀態<br>Gets the current state of the player.   |
| Speed          | float       | Get, Set | 取得或設定播放器的播放速度，有效範圍為 0.1 到 2.0 之間；此屬性依賴於 SetSpeed 方法的實作<br>Gets or sets the playback speed of the player, the valid range is between 0.1 and 2.0. This property depends on the implementation of the "SetSpeed" method.    |
| TimeFormat     | string      | Get, Set | 取得或設定將媒體長度、播放位置轉換成人類易讀的格式<br>Gets or sets the format to convert the media length and playback position into human-readable format.  |
| Volume         | float       | Get, Set | 取得或設定播放器的音量，有效範圍為 0.0 到 1.0 之間；此屬性依賴於 SetVolume 方法的實作<br>Gets or sets the volume of the player, the valid range is between 0.0 and 1.0. This property depends on the implementation of the "SetVolume" method.            |

## 方法 (Methods)

| 修飾字<br><i>Modifier</i> | 名稱<br><i>Name</i> | 回傳型別<br><i>Return Type</i> | 參數<br><i>Parameters</i> | 說明<br><i>Description</i>   |
|------------------------|-------------------|----------------------------|-------------------------|--|
| protected              | ChangeState       | void                       | PlayerState state       | 變更播放器的狀態；所有 Player 的繼承者應該使用此方法來變更狀態，而不要直接修改 State 與 PreviousState 屬性<br>Changes the state of the player. All inheritors should use this method to change the state instead of directly modifying the "State" and "PreviousState" properties. |
|                        | Close             | bool                       |                         | 關閉並卸載媒體；此方法依賴於 InternalClose 方法的實作<br>Closes and unload the media. This method relies on the implementation of the "InternalClose" method.   |
| abstract               | Dispose           | void                       |                         | 可由繼承者覆寫，釋放播放器內部資源的方法<br>This method can be overridden by the inheritor to release the internal resources of the player.  |
| protected abstract     | GetLength         | int                        |                         | 需由繼承者實作，實際取得媒體長度的方法；並回傳媒體的長度，單位為毫秒<br>Needs to be implemented by the inheritors to actually obtain the length of the media. And returns the length of media, in milliseconds.  |
| protected abstract     | GetPosition       | int                        |                         | 需由繼承者實作，實際取得播放位置的方法；並回傳播放位置，單位為毫秒<br>Needs to be implemented by the inheritors to actually obtain the playback position. And returns the playback position, in milliseconds.   |
| protected abstract     | InternalClose     |                            |                         | 需由繼承者實作，實際卸載媒體的方法，並回傳是否成功<br>Needs to be implemented by the inheritors, the actual method of unloading the media. And then return this action is successful or not.  |
| protected abstract     | InternalOpen      |                            | string path             | 需由繼承者實作，實際將媒體載入播放器的方法，並回傳是否成功<br>Needs to be implemented by the inheritors, the actual method of loading the media into the player. And then return this action is successful or not.  |
| protected abstract     | InternalPause     |                            |                         | 需由繼承者實作，實際暫停播放媒體的方法，並回傳是否成功  |

|                    |                     |      |                         |   |
|--------------------|---------------------|------|-------------------------|---|
|                    |                     |      |                         | Needs to be implemented by the inheritors, the actual method of pause playback of media. And then return this action is successful or not.                                      |
| protected abstract | InternalPlay        |      |                         | <p>需由繼承者實作，實際播放媒體的方法，並回傳是否成功</p> <p>Needs to be implemented by the inheritors, the actual method of playing the media. And then return this action is successful or not.</p>    |
| protected abstract | InternalStop        |      |                         | <p>需由繼承者實作，實際停止播放媒體的方法，並回傳是否成功</p> <p>Needs to be implemented by the inheritors, the actual method of stop playing media. And then return this action is successful or not.</p> |
| protected          | OnError             | void | ErrorEventArgs e        | <p>觸發 Error 事件，並提供必要的引數 e</p> <p>Triggers the "Error" event and provides the necessary arguments "e".</p>   |
| protected virtual  | OnPlaybackCompleted | void | EventArgs e             | <p>觸發 PlaybackCompleted 事件，並提供必要的引數 e</p> <p>Triggers the "PlaybackCompleted" event and provides the necessary arguments "e".</p>   |
| protected virtual  | OnStateChanged      | void | StateChangedEventArgs e | <p>觸發 StateChanged 事件，並提供必要的引數 e</p> <p>Triggers the "StateChanged" event and provides the necessary arguments "e".</p>   |
|                    | Open                | bool | string file             | <p>載入指定的媒體；此方法依賴於 InternalOpen 方法的實作</p> <p>Loads the specified media file. This method relies on the implementation of the "InternalOpen" method.</p>                          |
|                    | Pause               | bool |                         | <p>暫停播放媒體；此方法依賴於 InternalPause 方法的實作</p> <p>Pauses playback of media. This method relies on the implementation of the "InternalPause" method.</p>                               |
|                    | Play                | bool |                         | <p>播放已載入的媒體；此方法依賴於 InternalPlay 方法的實作</p> <p>Plays loaded media. This method relies on the implementation of the "InternalPlay" method</p>                                      |
| protected abstract | SetBalance          | bool | float balance           | <p>需由繼承者實作，實際設定立體聲平衡的方法</p> <p>Needs to be implemented by the inheritors, the actual method of setting the stereo balance.</p>  |

|                    |             |      |             |  |
|--------------------|-------------|------|-------------|--|
| protected abstract | SetPosition | bool | int pos     | <p>需由繼承者實作，實際設定播放位置 pos 的方法，單位為毫秒</p> <p>Needs to be implemented by the inheritors, the actual method of setting the playback position "pos", and the unit is milliseconds.</p>  |
| protected abstract | SetSpeed    | bool | float speed | <p>需由繼承者實作，實際設定播放速度的方法</p> <p>Needs to be implemented by the inheritors, the actual method of setting the playback speed.</p>  |
| protected abstract | SetVolume   | bool | float vol   | <p>需由繼承者實作，實際設定播放音量的方法</p> <p>Needs to be implemented by the inheritors, the actual method of setting the playback volume.</p>   |
|                    | Stop        | bool |             | <p>停止播放媒體並將播放位置歸零；此方法依賴於 InternalStop 方法的實作</p> <p>Stops playing media and zero the playback position. This method relies on the implementation of the "InternalStop" method</p> |

| WindowsMediaPlayer |                      |             |                        |   |
|--------------------|----------------------|-------------|------------------------|---|
| 修飾字                | 命名空間                 | 種類          | 繼承與實作                  | 說明  |
| Modifier           | Namespace            | Kind        | Inherit and Implements | Description   |
|                    | JTool.Media          | class       | Player                 | <p>基於 Microsoft Windows Media Player 實作的播放器；基本操作請參考 Player 類別的公開屬性與方法</p> <p>A player implements base on Microsoft Windows Media Player. For basic operations, please refer to the public properties and methods of the "Player" class.</p> |
| 方法 (Methods)       |                      |             |                        |   |
| 修飾字                | 名稱                   | 回傳型別        | 參數                     | 說明  |
| Modifier           | Name                 | Return Type | Parameters             | Description   |
|                    | 建構子<br>(constructor) |             |                        | <p>建立播放器實體</p> <p>Create a player instance.</p>   |
| override           | Dispose              | void        |                        | <p>關閉媒體並釋放播放器資源</p> <p>Close media and release player resources.</p>  |



# 多媒體類 - 歌詞

## Multimedia - Lyrics

### 基礎命名空間 (Base Namespace)

JTool.Media.Lyrics

### 說明 (Description)

提供讀寫或修改各種歌詞檔案的功能

Provides functions to read, write or modify various lyrics files.

### DynamicLyric

| 修飾字      | 命名空間               | 種類    | 繼承與實作                  | 說明  |
|----------|--------------------|-------|------------------------|---|
| Modifier | Namespace          | Kind  | Inherit and Implements | Description   |
|          | JTool.Media.Lyrics | class |                        | 動態歌詞是一種在歌詞的每一行標註時間戳記的的歌詞形式。通常會儲存成 lrc 檔案。<br>Dynamic lyrics is a form of lyrics with timestamp marked on each line of the lyrics, usually stored as a *.lrc file. |

### 屬性 (Properties)

| 修飾字      | 名稱               | 型別     | 分類與存取限制                          | 說明  |
|----------|------------------|--------|----------------------------------|---|
| Modifier | Name             | Type   | Category and access restrictions | Description   |
|          | 索引子<br>(indexer) | string | Get, Set                         | 取得或設定在指定時間點的歌詞內容<br>Gets or sets the lyric content at a specified time. |
|          | Album            | string | Get, Set                         | 取得或設定專輯名稱<br>Gets or sets album name.                                   |
|          | Artist           | string | Get, Set                         | 取得或設定演出者(歌手)名稱<br>Gets or sets artist (singer) name.                    |
|          | Author           | string | Get, Set                         | 取得或設定作詞者的名稱   |

|                     |                               |                    |                               |  |
|---------------------|-------------------------------|--------------------|-------------------------------|--|
|                     |                               |                    |                               | Gets or sets the name of the lyricist.   |
| Creator             | string                        | Get, Set           |                               | 取得或設定動態歌詞的作者名稱<br>Gets or sets the author name of the dynamic lyrics.  |
| Editor              | string                        | Get                |                               | 取得歌詞製作軟體的名稱<br>Gets the name of the lyric maker software.  |
| Length              | int                           | Get, Set           |                               | 取得或設定歌曲的長度<br>Gets or sets the length of the song.   |
| Lyrics              | IEnumerable<DynamicLyricItem> | Get                |                               | 取得所有的歌詞項目<br>Get all the lyric items.  |
| Offset              | int                           | Get, Set           |                               | 取得或設定歌詞時間的偏移值，單位為毫秒<br>Gets or sets the offset value of the lyrics time in milliseconds.   |
| Title               | string                        | Get, Set           |                               | 取得或設定歌曲名稱<br>Gets or sets the song name.   |
| Version             | string                        | Get                |                               | 取得歌詞製作軟體的版本<br>Gets the version of the lyric maker software.   |
| <b>方法 (Methods)</b> |                               |                    |                               |  |
| <i>修飾字</i>          | <i>名稱</i>                     | <i>回傳型別</i>        | <i>參數</i>                     | <i>說明</i>  |
| <i>Modifier</i>     | <i>Name</i>                   | <i>Return Type</i> | <i>Parameters</i>             | <i>Description</i>   |
| Add                 |                               | bool               | int time<br>string lyric      | 在指定的時間點 time 加入一行歌詞 lyric，時間單位為厘秒(百分之一秒)<br>Add a line of "lyric" at the specified "time", the time unit is centiseconds (hundredths of a second).         |
| Add                 |                               | bool               | TimeSpan time<br>string lyric | 在指定的時間點 time 加入一行歌詞 lyric<br>Add a line of "lyric" at the specified "time".  |
| CalibrateTimestamp  |                               | void               |                               | 根據目前的 Offset 屬性調整所有的時間戳記，調整完後 Offset 會歸零<br>Adjust all timestamps according to the current "Offset" property. Offset will return to zero after adjustment. |
| LoadFromLrc         |                               | bool               | string filename               | 載入檔案名稱為 filename 的 lrc 檔案<br>Load lrc file in "filename".  |

|           |      |  |   |
|-----------|------|--|---|
| Remove    | bool | int time   | 刪除位於指定的時間點 time 的歌詞・時間單位為厘秒(百分之一秒)<br>Delete the line of lyric at the specified "time", the time unit is centiseconds (hundredths of a second).   |
| Remove    | bool | TimeSpan time                                      | 刪除位於指定的時間點 time 的歌詞<br>Delete the line of lyric at the specified "time".  |
| SaveToLrc | bool | string filename<br>bool compress<br>bool overwrite | 儲存目前的歌詞到 filename・並根據 overwrite 決定當檔案已經存在時該如何處置；如果有設定 compress 的話・將會以較緊湊的格式儲存歌詞<br>Save the current lyrics to "filename" and decide what to do when the file already exists according to "overwrite". If "compress" is set, the lyrics will be stored in a more compact format. |

| DynamicLyricItem |                    |             |                                  |   |
|------------------|--------------------|-------------|----------------------------------|---|
| 修飾字              | 命名空間               | 種類          | 繼承與實作                            | 說明  |
| Modifier         | Namespace          | Kind        | Inherit and Implements           | Description   |
|                  | JTool.Media.Lyrics | class       |                                  | 此類別用於表示動態歌詞中，其中一個時間點的一行歌詞<br>This class is used to represent a line of lyrics at a specified time in dynamic lyrics.  |
| 屬性 (Properties)  |                    |             |                                  |   |
| 修飾字              | 名稱                 | 型別          | 分類與存取限制                          | 說明  |
| Modifier         | Name               | Type        | Category and access restrictions | Description   |
|                  | Lyric              | string      | Get, Set                         | 取得或設定位於此時間點的歌詞<br>Gets or sets the lyric at this timestamp.   |
|                  | Timestamp          | int         | Get, Set                         | 取得或設定這一行歌詞的時間戳記，單位為厘秒(百分之一秒)<br>Gets or sets the timestamp of this line of lyric in centiseconds (hundredths of a second).  |
|                  | TimestampString    | string      | Get                              | 取得這一行歌詞的時間戳記，並以人類可讀的格式表示(mm:ss.cc)；若時間戳記為負值的話會傳回「ERROR」<br>Gets the timestamp of this line of lyric and represent it in a human-readable format (mm:ss.cc). Returns "ERROR" if the timestamp is negative.           |
|                  | TimestampTag       | string      | Get                              | 取得這一行歌詞的時間戳記，並以 lrc 時間標記的格式表示([mm:ss.cc])；若時間戳記為負值的話會傳回「ERROR」<br>Gets the timestamp of this line of lyric and represent it in lrc timestamp tag format ([mm:ss.cc]). Returns "ERROR" if the timestamp is negative. |
| 方法 (Methods)     |                    |             |                                  |   |
| 修飾字              | 名稱                 | 回傳型別        | 參數                               | 說明  |
| Modifier         | Name               | Return Type | Parameters                       | Description   |
|                  | 建構子                |             | int time                         | 初始化項目並指定時間 time 與歌詞 lyric，時間單位為厘秒(百分之一秒)  |

|          |               |              |  |
|----------|---------------|--------------|--|
|          | (constructor) | string lyric | Initialize this item and specify "time" and "lyric", the time unit is centiseconds (hundredths of a second). |
| override | ToString      | string       | 將時間戳記與歌詞轉換成人類易讀的格式<br>Convert the timestamp and lyric into human-readable format.                            |

# 多媒體類 - 播放清單

## Multimedia - Playlists

### 基礎命名空間 (Base Namespace)

JTool.Media.Playlists

JTool.Media.Playlists.Formatter

### 說明 (Description)

提供各種不同格式的播放清單

Provides playlists in a variety of different formats.

| Playlist        |                       |        |                                  |   |
|-----------------|-----------------------|--------|----------------------------------|---|
| 修飾字             | 命名空間                  | 種類     | 繼承與實作                            | 說明  |
| Modifier        | Namespace             | Kind   | Inherit and Implements           | Description   |
|                 | JTool.Media.Playlists | class  | IList<string>                    | 提供一個可以存放多個媒體路徑的播放清單，並且可以載入或儲存成各種不同檔案格式<br>Provides a playlist that can hold multiple media paths and can be loaded or saved into a variety of different file formats. |
| 屬性 (Properties) |                       |        |                                  |   |
| 修飾字             | 名稱                    | 型別     | 分類與存取限制                          | 說明  |
| Modifier        | Name                  | Type   | Category and access restrictions | Description   |
|                 | 索引子<br>(indexer)      | string | Get, Set                         | 索引子，取得或設定指定位置的媒體路徑<br>Indexer, gets or sets the media path at the specified position.   |
|                 | Count                 | int    | Get                              | 取得播放清單中媒體的數量<br>Gets the number of media in the playlist.   |
|                 | IsEmpty               | bool   | Get                              | 指示播放清單內容是否為空<br>Indicates if the playlist contents are empty.   |

| 方法 (Methods) |                      |                     |  |   |
|--------------|----------------------|---------------------|--|---|
| 修飾字          | 名稱                   | 回傳型別                | 參數                                     | 說明  |
| Modifier     | Name                 | Return Type         | Parameters                             | Description   |
|              | 建構子<br>(constructor) |                     | IEnumerable<string> list               | 以指定的媒體檔案路徑清單 list 建立播放清單<br>Create a playlist with the specified media file path list.  |
|              | Add                  | bool                | string path                            | 在播放清單中加入指定的媒體檔案路徑 path<br>Add the specified media file path to the playlist.  |
|              | Add                  | bool                | IEnumerable<string> paths              | 在播放清單中加入指定的數個媒體檔案路徑 paths<br>Add the specified number of media file paths to the playlist.  |
|              | Clear                | void                |  | 清除播放清單中的所有媒體檔案<br>Clear all media files in the playlist.  |
|              | GetEnumerator        | IEnumerator<string> |  | 使播放清單支援 foreach 語法<br>Let playlist support foreach syntax.  |
|              | IndexOf              | int                 | string path                            | 取得指定的媒體檔案路徑在播放清單中的索引位置<br>Get the index of the specified media file path in the playlist.   |
|              | Insert               | bool                | int index<br>string path               | 在播放清單中的 index 位置插入指定的媒體檔案路徑 path<br>Insert the specified media file path in the index position in the playlist.   |
|              | Insert               | bool                | int index<br>IEnumerable<string> paths | 在播放清單中的 index 位置插入指定的數個媒體檔案路徑 paths<br>Insert the specified number of media file paths in the index position in the playlist.   |
| static       | Load                 | Playlist            | string path<br>IFormatter formatter    | 從指定的路徑 path 載入符合 formatter 格式的播放清單。如果沒有指定 formatter，則會嘗試自動判斷檔案格式<br>Loads a playlist in the "formatter" format from the specified path. If no formatter is specified, it will try to automatically determine the file format. |
|              | RemoveAt             | bool                | int index                              | 從播放清單移除指定 index 位置的媒體檔案路徑<br>Remove the media file path for the specified index position from the playlist.   |

|        |          |          |  |   |
|--------|----------|----------|--|---|
|        | RemoveAt | bool     | int index<br>int count   | 從播放清單的指定 index 位置開始，移除指定數量的媒體檔案路徑<br>Remove the specified number of media file paths starting from the specified index position of the playlist.  |
|        | Remove   | bool     | string path  | 從播放清單移除指定的媒體檔案路徑<br>Remove the specified media file path from the playlist.   |
| static | Save     | bool     | string path<br>Playlist playlist<br>IFormatter formatter<br>bool overwrite | 將播放清單依照指定的 formatter 格式儲存到指定的路徑 path，並指示當檔案已存在時是否要覆寫它<br>Saves the playlist to the specified path in the specified "formatter" format and indicate whether to overwrite the file when it already exists |
|        | Swap     | bool     | int a<br>int b   | 交換位於 a 與 b 的媒體檔案路徑<br>Exchange media file paths located in a and b.   |
|        | ToArray  | string[] |  | 將播放清單中的所有媒體檔案路徑輸出成字串陣列<br>Output all media file paths in the playlist as a string array.  |



| IFormatter      |                                      |                     |   |   |
|-----------------|--------------------------------------|---------------------|---|---|
| 修飾字             | 命名空間                                 | 種類                  | 繼承與實作   | 說明  |
| Modifier        | Namespace                            | Kind                | Inherit and Implements                                    | Description   |
|                 | JTool.Media.Playlists.For<br>matters | interface           |   | 定義使播放清單支援多種儲存格式的格式化程序介面<br>Defines a formatter interface that enables playlists to support multiple file formats.                                     |
| 屬性 (Properties) |                                      |                     |   |   |
| 修飾字             | 名稱                                   | 型別                  | 分類與存取限制   | 說明  |
| Modifier        | Name                                 | Type                | Category and access restrictions                          | Description   |
|                 | FormatName                           | string              | Get   | 取得格式化程序的名稱，僅用於辨識不同的格式化程序<br>Gets the name of this formatter, used only to identify different formatters.  |
| 方法 (Methods)    |                                      |                     |   |   |
| 修飾字             | 名稱                                   | 回傳型別                | 參數  | 說明  |
| Modifier        | Name                                 | Return Type         | Parameters  | Description   |
|                 | Export                               | bool                | string path<br>IEnumerable<string> list<br>bool overwrite | 將檔案列表匯出到指定的路徑 path，並指示當檔案已存在時是否要覆寫它<br>Exports the file list to the specified path and indicate whether to overwrite the file when it already exists. |
|                 | Import                               | IEnumerable<string> | string path   | 從指定的路徑 path 匯入檔案列表<br>Imports the file list from the specified path.  |

| PlanTextBasedFormatter |                                      |        |                                  |  |
|------------------------|--------------------------------------|--------|----------------------------------|--|
| 修飾字                    | 命名空間                                 | 種類     | 繼承與實作                            | 說明   |
| Modifier               | Namespace                            | Kind   | Inherit and Implements           | Description  |
| abstract               | JTool.Media.Playlists.For<br>matters | class  | IFormatter                       | <p>所有循序讀入，且不採用標記語言樣式的播放清單檔案格式化程序的基底類別；只要繼承此類別並重寫所有屬性，即可以簡易的支援新播放清單格式檔案的讀寫功能</p> <p>The base class of the playlist file formatter that are read and write in sequential, and do not use the markup language style. As long as you inherit this class and override all the properties, you can implement read and write capabilities of new playlist file type easily.</p> |
| 屬性 (Properties)        |                                      |        |                                  |  |
| 修飾字                    | 名稱                                   | 型別     | 分類與存取限制                          | 說明   |
| Modifier               | Name                                 | Type   | Category and access restrictions | Description  |
| protected abstract     | CommentStartWith                     | string | Get                              | <p>取得註解的開始符號；在匯入檔案時，會自動忽略註解符號後的整行資料</p> <p>Get the symbol of the annotation or comment. When importing the file, the entire line of data after this symbol is automatically ignored.</p>   |
| protected abstract     | Footer                               | string | Get                              | <p>取得此播放清單格式結尾的固定內容，在匯出時會自動輸出到檔案末端處</p> <p>Get the fixed content at the end of this playlist format, which will be automatically output to the end of the file when exporting.</p>   |
| abstract               | FormatName                           | string | Get                              | <p>取得格式化程序的名稱，僅用於辨識不同的格式化程序</p> <p>Gets the name of this formatter, used only to identify different formatters.</p>  |
| protected abstract     | Header                               | string | Get                              | <p>取得此播放清單格式開頭的固定內容，在匯入時會自動略過，而在匯出時會自動輸出到檔案開頭處</p> <p>Get the fixed content at the beginning of this playlist format. It will be skipped automatically when importing, and will be automatically output to the beginning of the file when exporting.</p>   |

| 方法 (Methods)           |                   |                            |   |   |
|------------------------|-------------------|----------------------------|---|---|
| 修飾字<br><i>Modifier</i> | 名稱<br><i>Name</i> | 回傳型別<br><i>Return Type</i> | 參數<br><i>Parameters</i>                                   | 說明<br><i>Description</i>  |
|                        | Export            | bool                       | string path<br>IEnumerable<string> list<br>bool overwrite | 將檔案列表匯出到指定的路徑 path，並指示當檔案已存在時是否要覆寫它<br>Exports the file list to the specified path and indicate whether to overwrite the file when it already exists. |
|                        | Import            | IEnumerable<string>        | string path   | 從指定的路徑 path 匯入檔案列表<br>Imports the file list from the specified path.  |

| XmlBasedFormatter  |                                      |                    |                                  |   |
|--------------------|--------------------------------------|--------------------|----------------------------------|---|
| 修飾字                | 命名空間                                 | 種類                 | 繼承與實作                            | 說明  |
| Modifier           | Namespace                            | Kind               | Inherit and Implements           | Description   |
| abstract           | JTool.Media.Playlists.For<br>matters | class              | IFormatter                       | 所有採用基於 XML 的播放清單檔案格式化程序的基底類別；只要繼承此類別並重寫所有屬性，即可以簡易的支援新播放清單格式檔案的讀寫功能<br><br>The base class of the playlist file formatter that are based on XML. As long as you inherit this class and override all the properties, you can implement read and write capabilities of new playlist file type easily. |
| 屬性 (Properties)    |                                      |                    |                                  |   |
| 修飾字                | 名稱                                   | 型別                 | 分類與存取限制                          | 說明  |
| Modifier           | Name                                 | Type               | Category and access restrictions | Description   |
| protected abstract | ExportFooterXml                      | string             | Get                              | 取得此播放清單格式結尾的固定 XML 內容，匯出時會自動輸出到檔案末端處<br><br>Gets the fixed XML content at the end of this playlist format, which will be automatically output to the end of the file when exporting.  |
| protected abstract | ExportHeaderXml                      | string             | Get                              | 取得此播放清單格式開頭的固定 XML 內容，匯出時會自動輸出到檔案開頭處<br><br>Gets the fixed XML content at the beginning of this playlist format, which will be automatically output to the beginning of the file when exporting.  |
| protected abstract | ExportItemXml                        | string             | Get                              | 取得在匯出時描述媒體檔案路徑的 XML 內容，其中{0}將替換成真正的路徑<br><br>Gets the XML content which describing the media file path at the time of export, where {0} will be replaced with the real path.  |
| abstract           | FormatName                           | string             | Get                              | 取得格式化程序的名稱，僅用於辨識不同的格式化程序<br><br>Gets the name of this formatter, used only to identify different formatters.  |
| protected abstract | ImportNameSpace                      | (string, string)[] | Get                              | 取得 XML 名稱空間的定義；第一個字串表示名稱空間的關鍵字，第二個字串表示名稱空間 URI<br><br>Gets the definition of the XML namespace. The first string represents   |

|                     |             |                     |   |   |
|---------------------|-------------|---------------------|---|---|
|                     |             |                     |   | the keyword of the namespace, and the second string represents the namespace URI.   |
| protected abstract  | ImportXPath | string              | Get   | 取得可以在匯入時取出媒體檔案路徑的 XPath<br>Gets an XPath that can take the media file path when importing.  |
| <b>方法 (Methods)</b> |             |                     |   |   |
| <i>修飾字</i>          | <i>名稱</i>   | <i>回傳型別</i>         | <i>參數</i>   | <i>說明</i>   |
| <i>Modifier</i>     | <i>Name</i> | <i>Return Type</i>  | <i>Parameters</i>   | <i>Description</i>  |
|                     | Export      | bool                | string path<br>IEnumerable<string> list<br>bool overwrite | 將檔案列表匯出到指定的路徑 path，並指示當檔案已存在時是否要覆寫它<br>Exports the file list to the specified path and indicate whether to overwrite the file when it already exists. |
|                     | Import      | IEnumerable<string> | string path   | 從指定的路徑 path 匯入檔案列表<br>Imports the file list from the specified path.  |

| AutoFormatter   |                                      |                     |   |  |
|-----------------|--------------------------------------|---------------------|---|--|
| 修飾字             | 命名空間                                 | 種類                  | 繼承與實作   | 說明   |
| Modifier        | Namespace                            | Kind                | Inherit and Implements                                    | Description  |
|                 | JTool.Media.Playlists.For<br>matters | class               | IFormatter  | <p>可以根據檔案內容自動判斷格式的檔案格式化程序，支援 ASX、M3U、WPL、XSPF 等四種格式</p> <p>This file formatter can automatically judge the format of the file according to file content, and supports ASX, M3U, WPL, XSPF formats.</p>   |
| 屬性 (Properties) |                                      |                     |   |  |
| 修飾字             | 名稱                                   | 型別                  | 分類與存取限制   | 說明   |
| Modifier        | Name                                 | Type                | Category and access restrictions                          | Description  |
|                 | FormatName                           | string              | Get   | <p>取得實際的格式化程序的名稱；如果尚未匯入過檔案，則會回傳 NULL</p> <p>Get the name of the actual formatter. If no file has not been imported yet, it will return NULL</p>  |
| 方法 (Methods)    |                                      |                     |   |  |
| 修飾字             | 名稱                                   | 回傳型別                | 參數  | 說明   |
| Modifier        | Name                                 | Return Type         | Parameters  | Description  |
| virtual         | Export                               | bool                | string path<br>IEnumerable<string> list<br>bool overwrite | <p>將檔案列表匯出到指定的路徑 path，並指示當檔案已存在時是否要覆寫它；如果尚未匯入過檔案，則會造成 InvalidOperationException</p> <p>Exports the file list to the specified path and indicate whether to overwrite the file when it already exists. If no file has not been imported before, it will cause an InvalidOperationException.</p> |
| virtual         | Import                               | IEnumerable<string> | string path   | <p>從指定的路徑 path 匯入檔案列表，並嘗試自動判斷檔案的格式</p> <p>Import the file list from the specified path and try to automatically determine the actual formatter.</p>  |

|                        |                                      |             |   |   |
|------------------------|--------------------------------------|-------------|---|---|
| <b>AsxFormatter</b>    |                                      |             |   |   |
| <i>修飾字</i>             | <i>命名空間</i>                          | <i>種類</i>   | <i>繼承與實作</i>                            | <i>說明</i>   |
| <i>Modifier</i>        | <i>Namespace</i>                     | <i>Kind</i> | <i>Inherit and Implements</i>           | <i>Description</i>  |
|                        | JTool.Media.Playlists.For<br>matters | class       | XmlBasedFormatter                       | 支援 Advanced Stream Redirector 格式的檔案格式化程序<br>File formatter for Advanced Stream Redirector format. |
| <b>屬性 (Properties)</b> |                                      |             |   |   |
| <i>修飾字</i>             | <i>名稱</i>                            | <i>型別</i>   | <i>分類與存取限制</i>                          | <i>說明</i>   |
| <i>Modifier</i>        | <i>Name</i>                          | <i>Type</i> | <i>Category and access restrictions</i> | <i>Description</i>  |
|                        | FormatName                           | string      | Get                                     | 取得識別名「Advanced Stream Redirector」<br>Gets the identify name "Advanced Stream Redirector".         |

|                             |                                      |             |   |  |
|-----------------------------|--------------------------------------|-------------|---|--|
| <b>ExtendedM3UFormatter</b> |                                      |             |   |  |
| <i>修飾字</i>                  | <i>命名空間</i>                          | <i>種類</i>   | <i>繼承與實作</i>                            | <i>說明</i>  |
| <i>Modifier</i>             | <i>Namespace</i>                     | <i>Kind</i> | <i>Inherit and Implements</i>           | <i>Description</i>   |
|                             | JTool.Media.Playlists.For<br>matters | class       | PlanTextBasedFormatter                  | 支援擴展式 MP3 URL 格式的檔案格式化程序；可以匯入 ASCII 版的 M3U，<br>但會一律匯出成支援萬國碼版本的 M3U8<br>File formatter for Extended MP3 URL forma. It can import ASCII version<br>of M3U, but will be remitted to export M3U8 (Unicode version) only. |
| <b>屬性 (Properties)</b>      |                                      |             |   |  |
| <i>修飾字</i>                  | <i>名稱</i>                            | <i>型別</i>   | <i>分類與存取限制</i>                          | <i>說明</i>  |
| <i>Modifier</i>             | <i>Name</i>                          | <i>Type</i> | <i>Category and access restrictions</i> | <i>Description</i>   |
|                             | FormatName                           | string      | Get                                     | 取得識別名「Extended MP3 URL」<br>Gets the identify name " Extended MP3 URL".   |

| GeneralPlaylistFormatter |                                      |        |                                  |   |
|--------------------------|--------------------------------------|--------|----------------------------------|---|
| 修飾字                      | 命名空間                                 | 種類     | 繼承與實作                            | 說明  |
| Modifier                 | Namespace                            | Kind   | Inherit and Implements           | Description   |
|                          | JTool.Media.Playlists.For<br>matters | class  | PlanTextBasedFormatter           | 支援通用清單格式的檔案格式化程序，將檔案中的每一行都當成有效的媒體檔案路徑<br><br>File formatter for general list format, treating each line in the file as a valid media file path. |
| 屬性 (Properties)          |                                      |        |                                  |   |
| 修飾字                      | 名稱                                   | 型別     | 分類與存取限制                          | 說明  |
| Modifier                 | Name                                 | Type   | Category and access restrictions | Description   |
|                          | FormatName                           | string | Get                              | 取得識別名「General Playlist」<br><br>Gets the identify name "General Playlist".   |

| WplFormatter    |                                      |        |                                  |  |
|-----------------|--------------------------------------|--------|----------------------------------|--|
| 修飾字             | 命名空間                                 | 種類     | 繼承與實作                            | 說明   |
| Modifier        | Namespace                            | Kind   | Inherit and Implements           | Description  |
|                 | JTool.Media.Playlists.For<br>matters | class  | XmlBasedFormatter                | 支援 Windows Media Player 播放清單格式的檔案格式化程序<br><br>File formatter for Windows Media Player Playlist format. |
| 屬性 (Properties) |                                      |        |                                  |  |
| 修飾字             | 名稱                                   | 型別     | 分類與存取限制                          | 說明   |
| Modifier        | Name                                 | Type   | Category and access restrictions | Description  |
|                 | FormatName                           | string | Get                              | 取得識別名「Windows Media Player Playlist」<br><br>Gets the identify name "Windows Media Player Playlist".    |



| XspfFormatter   |                                      |        |                                  |   |
|-----------------|--------------------------------------|--------|----------------------------------|---|
| 修飾字             | 命名空間                                 | 種類     | 繼承與實作                            | 說明  |
| Modifier        | Namespace                            | Kind   | Inherit and Implements           | Description   |
|                 | JTool.Media.Playlists.For<br>matters | class  | XmlBasedFormatter                | 支援 XML Shareable 播放清單格式的檔案格式化程序<br>File formatter for XML Shareable Playlist format.            |
| 屬性 (Properties) |                                      |        |                                  |   |
| 修飾字             | 名稱                                   | 型別     | 分類與存取限制                          | 說明  |
| Modifier        | Name                                 | Type   | Category and access restrictions | Description   |
|                 | FormatName                           | string | Get                              | 取得識別名「XML Shareable Playlist Format」<br>Gets the identify name "XML Shareable Playlist Format". |

# 安全類

## Security

### 基礎命名空間 (Base Namespace)

JTool.Security

### 說明 (Description)

提供與資訊安全相關的功能

Provides information security related features.

### IDecryptor

| 修飾字          | 命名空間            | 種類          | 繼承與實作                     | 說明   |
|--------------|-----------------|-------------|---------------------------|--|
| Modifier     | Namespace       | Kind        | Inherit and Implements    | Description  |
|              | JTool. Security | interface   |                           | 定義解密器應有的功能<br>Define what the decryptor should do.                       |
| 方法 (Methods) |                 |             |                           |  |
| 修飾字          | 名稱              | 回傳型別        | 參數                        | 說明   |
| Modifier     | Name            | Return Type | Parameters                | Description  |
|              | Decrypt         | byte[]      | byte[] data<br>object key | 使用密鑰 key 解密被加密的資料 data<br>Use the "key" to decrypt the encrypted "data". |
|              | GetEncryptor    | IEncryptor  |                           | 取得與此解密器相對應的加密器<br>Gets the encryptor corresponding to this decryptor.    |

| IEncryptor   |                 |             |                           |   |
|--------------|-----------------|-------------|---------------------------|---|
| 修飾字          | 命名空間            | 種類          | 繼承與實作                     | 說明  |
| Modifier     | Namespace       | Kind        | Inherit and Implements    | Description   |
|              | JTool. Security | interface   |                           | 定義加密器應有的功能<br>Define what the encryptor should do.                    |
| 方法 (Methods) |                 |             |                           |   |
| 修飾字          | 名稱              | 回傳型別        | 參數                        | 說明  |
| Modifier     | Name            | Return Type | Parameters                | Description   |
|              | Encrypt         | byte[]      | byte[] data<br>object key | 使用密鑰 key 加密資料 data<br>Use the "key" to encrypt "data".                |
|              | GetDecryptor    | IDecryptor  |                           | 取得與此加密器相對應的解密器<br>Gets the decryptor corresponding to this encryptor. |

| AesEncryptor |                 |             |                           |  |
|--------------|-----------------|-------------|---------------------------|--|
| 修飾字          | 命名空間            | 種類          | 繼承與實作                     | 說明   |
| Modifier     | Namespace       | Kind        | Inherit and Implements    | Description  |
|              | JTool. Security | class       | IEncryptor, IDecryptor    | 定義加密器應有的功能<br>Define what the encryptor should do.   |
| 方法 (Methods) |                 |             |                           |  |
| 修飾字          | 名稱              | 回傳型別        | 參數                        | 說明   |
| Modifier     | Name            | Return Type | Parameters                | Description  |
|              | Decrypt         | byte[]      | byte[] data<br>object key | 使用密鑰 key 解密被加密的資料 data，密鑰必須是長度為 16、24 或 32 的位元組陣列(byte array)<br>Use the "key" to decrypt the encrypted "data". The key must be a byte array of length 16, 24 or 32. |
|              | Encrypt         | byte[]      | byte[] data<br>object key | 使用密鑰 key 加密資料 data，密鑰必須是長度為 16、24 或 32 的位元組陣列(byte array)<br>Use the "key" to encrypt "data". The key must be a byte array of length 16, 24 or 32.                   |
|              | GetDecryptor    | IDecryptor  |                           | 取得與此加密器相對應的解密器，也就是這個物件本身<br>Gets the decryptor corresponding to this encryptor, which is the object itself.  |
|              | GetEncryptor    | IEncryptor  |                           | 取得與此解密器相對應的加密器，也就是這個物件本身<br>Gets the encryptor corresponding to this decryptor, which is the object itself.  |

# 文字處理類

## Text Processing

### 基礎命名空間 (Base Namespace)

JTool.Texts

### 說明 (Description)

提供文字的比對或其他功能

Provides text comparisons or other features.

### Pattern

| 修飾字      | 命名空間        | 種類    | 繼承與實作                  | 說明  |
|----------|-------------|-------|------------------------|---|
| Modifier | Namespace   | Kind  | Inherit and Implements | Description   |
| sealed   | JTool.Texts | class |                        | 用於比對字串是否符合特定的模板，支援 Windows 萬用字元「*」與「?」<br>Used to check whether a string matches a specific pattern, and supports Windows wildcard "*" and "?". |

### 屬性 (Properties)

| 修飾字      | 名稱            | 型別   | 分類與存取限制                          | 說明   |
|----------|---------------|------|----------------------------------|--|
| Modifier | Name          | Type | Category and access restrictions | Description  |
|          | CaseSensitive | bool | Get, Set                         | 取得或設定在比對字母時，是否將大、小寫視為不同的字元<br>Gets or sets that whether to treat uppercase and lowercase as different characters when matching letters.  |
|          | JIT           | bool | Get, Set                         | 取得或設定是否啟用即時編譯技術；即時編譯可以提高重複執行時的速度，但也會增加初始化需要的時間<br>Gets or sets whether to enable Just-in-time (JIT) compilation. JIT can increase the speed of repeated execution, but it also increases the time required for initialization. |

|                     |                            |                    |   |  |
|---------------------|----------------------------|--------------------|---|--|
|                     | Text                       | string             | Get, Set                                      | 取得或設定比對模板的內容<br>Get or set the content of the matching pattern.  |
| <b>方法 (Methods)</b> |                            |                    |   |  |
| <i>修飾字</i>          | <i>名稱</i>                  | <i>回傳型別</i>        | <i>參數</i>                                     | <i>說明</i>  |
| <i>Modifier</i>     | <i>Name</i>                | <i>Return Type</i> | <i>Parameters</i>                             | <i>Description</i>   |
|                     | 建構子<br>(constructor)       |                    | string text<br>bool caseSensitive<br>bool JIT | 以指定的屬性參數建立模板<br>Creates pattern according to specified properties.   |
| static              | ConvertToRegularExpression | string             | string pattern                                | 將特定的模板文字轉換成正規表達式<br>Converts specific pattern text to regular expressions.   |
| static              | CreateRegex                | Regex              | string text<br>bool caseSensitive<br>bool JIT | 建立與擁有特定屬性的模板相同功能的 Regex 物件<br>Creates a Regex object with the same functionality as a pattern with specific properties.      |
|                     | Match                      | bool               | string input<br>int start                     | 檢查 input 字串從 start 位置開始的內容是否符合本模板<br>Checks if the content of the input string from the start position matches this pattern. |

# 使用者控制項類

## User Controls

### 基礎命名空間 (Base Namespace)

System.Windows.Controls

### 說明 (Description)

提供基於 WPF 與 Xaml 的控制項或使用者控制項，可以搭配 WPF 視窗使用

Provides WPF and Xaml-based controls or user controls, which can be used with WPF windows.

### AutoValidateType

| 修飾字      | 命名空間                    | 種類   | 繼承與實作                  | 說明   |
|----------|-------------------------|------|------------------------|--|
| Modifier | Namespace               | Kind | Inherit and Implements | Description  |
|          | System.Windows.Controls | enum |                        | 表示要自動檢驗的目標類型，適用於 AutoValidateTextBox<br>Represents the type of target to be automatically validated, suitable for AutoValidateTextBox. |

### 值域 (Values)

| 修飾字      | 名稱    | 值     | 說明   |
|----------|-------|-------|--|
| Modifier | Name  | Value | Description  |
|          | Byte  |       | 無正負號的位元組<br>Unsigned byte.                                   |
|          | Int16 |       | 16 位元整數，又稱為「short」<br>16-bit integer, also known as "short". |
|          | Int32 |       | 32 位元整數，又稱為「int」<br>32-bit integer, also known as "int".     |
|          | Int64 |       | 64 位元整數，又稱為「long」<br>64-bit integer, also known as "long".   |

|         |  |
|---------|--|
| Single  | 單精確度浮點數，又稱為「float」<br>Single-precision floating-point number, also known as "float". |
| Double  | 雙精確度浮點數<br>Double-precision floating-point number.                                   |
| Decimal | 高精確度，適用於財務的數字表示法<br>High accuracy numerical representation for finance.              |



| AutoValidateTextBox          |                         |                  |                                  |  |
|------------------------------|-------------------------|------------------|----------------------------------|--|
| 修飾字                          | 命名空間                    | 種類               | 繼承與實作                            | 說明   |
| Modifier                     | Namespace               | Kind             | Inherit and Implements           | Description  |
|                              | System.Windows.Controls | class            | TextBox                          | <p>一種特製的文字方塊，會自動檢查其內容是否符合指定的數字型別的範圍</p> <p>A special text box that automatically checks if its content fits within the specified numeric type range.</p> |
| 33.3%                        |                         |                  |                                  |  |
| 關聯屬性 (Dependency Properties) |                         |                  |                                  |  |
| 修飾字                          | 名稱                      | 型別               | 分類與存取限制                          | 說明   |
| Modifier                     | Name                    | Type             | Category and access restrictions | Description  |
|                              | DecimalPlaces           | int              | Get, Set                         | <p>取得或設定小數點後的位數，最多 10 位</p> <p>Gets or sets the number of digits after the decimal point, up to 10 digits.</p>   |
|                              | UsePercentage           | bool             | Get, Set                         | <p>取得或設定是否使用百分比符號「%」</p> <p>Gets or sets whether to use the percentage symbol "%".</p>   |
|                              | ValidateType            | AutoValidateType | Get, Set                         | <p>取得或設定此文字方塊內容應該符合的型別</p> <p>Gets or sets the type that this text box content should match.</p>   |
| 方法 (Methods)                 |                         |                  |                                  |  |
| 修飾字                          | 名稱                      | 回傳型別             | 參數                               | 說明   |
| Modifier                     | Name                    | Return Type      | Parameters                       | Description  |
|                              | 建構子<br>(constructor)    |                  |                                  | <p>初始化視覺元件</p> <p>Initialize visual components.</p>  |

| ColorPicker                  |                         |             |                                  |   |
|------------------------------|-------------------------|-------------|----------------------------------|---|
| 修飾字                          | 命名空間                    | 種類          | 繼承與實作                            | 說明  |
| Modifier                     | Namespace               | Kind        | Inherit and Implements           | Description   |
|                              | System.Windows.Controls | class       | UserControl                      | <p>模仿 WPF 顏色挑選器的使用者控制項，最下方由左至右分別顯示「初始顏色」、「上次挑選顏色」、「目前顏色」</p> <p>This user controls that mimic the WPF color picker. From left to right are "Initial Color", "Last Selected Color", and "Current Color".</p>  |
| 關聯屬性 (Dependency Properties) |                         |             |                                  |   |
| 修飾字                          | 名稱                      | 型別          | 分類與存取限制                          | 說明  |
| Modifier                     | Name                    | Type        | Category and access restrictions | Description   |
|                              | Color                   | Color       | Get, Set                         | 取得或設定選取的顏色；第一個設定的顏色會成為初始的顏色，並顯示在使用者介面上  |
| 方法 (Methods)                 |                         |             |                                  |   |
| 修飾字                          | 名稱                      | 回傳型別        | 參數                               | 說明  |
| Modifier                     | Name                    | Return Type | Parameters                       | Description   |
|                              | 建構子<br>(constructor)    |             |                                  | 初始化視覺元件<br>Initialize visual components.  |

| DirListBoxFocusMode |                         |       |                        |  |
|---------------------|-------------------------|-------|------------------------|--|
| 修飾字                 | 命名空間                    | 種類    | 繼承與實作                  | 說明   |
| Modifier            | Namespace               | Kind  | Inherit and Implements | Description  |
|                     | System.Windows.Controls | enum  |                        | 表示要自動聚焦的方式，適用於 DirListBox<br>Indicates the way to autofocus, applicable to DirListBox. |
| 值域 (Values)         |                         |       |                        |  |
| 修飾字                 | 名稱                      | 值     |                        | 說明   |
| Modifier            | Name                    | Value |                        | Description  |
|                     | None                    | 0     |                        | 不變更聚焦的項目<br>Do not change focus item.  |
|                     | SelectCurrentDir        |       |                        | 自動選取目前的資料夾<br>Automatically select current directory.                                  |
|                     | SelectLastDir           |       |                        | 自動選取之前的資料夾<br>Automatically select last directory.                                     |
|                     | ScrollToLastDir         |       |                        | 選取目前的資料夾，但是捲軸捲到之前的資料夾<br>Select current directory, but scroll to previous directory.   |

| DirListBox                   |                         |                     |                                  |  |
|------------------------------|-------------------------|---------------------|----------------------------------|--|
| 修飾字                          | 命名空間                    | 種類                  | 繼承與實作                            | 說明   |
| Modifier                     | Namespace               | Kind                | Inherit and Implements           | Description  |
|                              | System.Windows.Controls | class               | ListBox                          | <p>用於顯示特定路徑中的所有子資料夾，並且可以與使用者互動，切換至其他資料夾</p> <p>Used to display all subfolders in a specific path, and can interact with users to switch to other directories.</p> <div> D:<br/> Document<br/> Visual Studio 2019<br/> Code Snippets<br/> Templates<br/> Visualizers </div> |
| 關聯屬性 (Dependency Properties) |                         |                     |                                  |  |
| 修飾字                          | 名稱                      | 型別                  | 分類與存取限制                          | 說明   |
| Modifier                     | Name                    | Type                | Category and access restrictions | Description  |
|                              | BasePath                | string              | Get, Set                         | <p>取得或設定最底層的資料夾，也可以理解成根目錄</p> <p>Gets or sets the lowest level folder, which can also be understood as the root directory.</p>   |
|                              | FocusMode               | DirListBoxFocusMode | Get, Set                         | <p>取得或設定在使用者切換資料夾後，要聚焦在哪一個項目上</p> <p>Gets or sets which item to focus on after the user switches directories.</p>  |
|                              | ItemPadding             | double              | Get, Set                         | <p>取得或設定在項目之間的空隙大小</p> <p>Gets or sets the padding space between items.</p>  |
|                              | LevelPadding            | double              | Get, Set                         | <p>取得或設定在資料夾每層深度的縮排大小</p> <p>Gets or sets the indentation of each depth level of directories.</p>  |
|                              | Path                    | string              | Get, Set                         | <p>取得或設定目前的資料夾</p> <p>Gets or sets the current directory.</p>  |
| 方法 (Methods)                 |                         |                     |                                  |  |
| 修飾字                          | 名稱                      | 回傳型別                | 參數                               | 說明   |
| Modifier                     | Name                    | Return Type         | Parameters                       | Description  |
|                              | 建構子<br>(constructor)    |                     |                                  | <p>以目前的工作目錄初始化此元件</p> <p>Initialize this component with the current working directory.</p>   |

Refresh

void

重新更新 GUI

Refresh the GUI.

| DriveComboBox                |                         |             |                                  |   |
|------------------------------|-------------------------|-------------|----------------------------------|---|
| 修飾字                          | 命名空間                    | 種類          | 繼承與實作                            | 說明  |
| Modifier                     | Namespace               | Kind        | Inherit and Implements           | Description   |
|                              | System.Windows.Controls | class       | ComboBox                         | <div>用於顯示系統中的所有邏輯磁碟機，並以圖示表示不同的磁碟機類型</div> <div>Used to display all logical drives in the system, and different drive types are represented by different icons.</div> <div> T: [Temp] ▼</div> |
| 關聯屬性 (Dependency Properties) |                         |             |                                  |   |
| 修飾字                          | 名稱                      | 型別          | 分類與存取限制                          | 說明  |
| Modifier                     | Name                    | Type        | Category and access restrictions | Description   |
|                              | DisplayVolumeLabel      | bool        | Get, Set                         | <div>取得或設定是否要顯示磁碟機標籤</div> <div>Gets or sets whether to show drive labels.</div>  |
|                              | Drive                   | string      | Get, Set                         | <div>取得或設定目前選取的磁碟機</div> <div>Gets or sets the currently selected drive.</div>  |
| 方法 (Methods)                 |                         |             |                                  |   |
| 修飾字                          | 名稱                      | 回傳型別        | 參數                               | 說明  |
| Modifier                     | Name                    | Return Type | Parameters                       | Description   |
|                              | 建構子<br>(constructor)    |             |                                  | <div>初始化視覺元件</div> <div>Initialize visual components.</div>   |
|                              | Refresh                 | void        |                                  | <div>重新整理系統磁碟機資訊，並更新 GUI</div> <div>Refresh system drive information and update GUI.</div>  |

| FileListBox                  |                         |                |                                  |  |   |
|------------------------------|-------------------------|----------------|----------------------------------|--|---|
| 修飾字                          | 命名空間                    | 種類             | 繼承與實作                            | 說明   |   |
| Modifier                     | Namespace               | Kind           | Inherit and Implements           | Description  |   |
|                              | System.Windows.Controls | class          | ListBox                          | <p>用於顯示指定資料夾中的所有檔案，並且可以透過各種屬性及模板來過濾不需要的項目</p> <p>Used to display all files in the specified folder, and can filter unwanted items through various properties and patterns.</p> | <div> JTool2019.dll<br/> JTool2019.pdb<br/> JToolTest.exe<br/> JToolTest.exe.config<br/> JToolTest.pdb </div> |
| 關聯屬性 (Dependency Properties) |                         |                |                                  |  |   |
| 修飾字                          | 名稱                      | 型別             | 分類與存取限制                          | 說明   |   |
| Modifier                     | Name                    | Type           | Category and access restrictions | Description  |   |
|                              | DisplayArchiveFiles     | bool           | Get, Set                         | <p>取得或設定是否要顯示含有「封存」屬性的檔案</p> <p>Gets or sets whether to display files with "archive" attributes.</p>   |   |
|                              | DisplayExtensionName    | bool           | Get, Set                         | <p>取得或設定是否要顯示副檔名</p> <p>Gets or sets whether to show the extension name.</p>   |   |
|                              | DisplayHiddenFiles      | bool           | Get, Set                         | <p>取得或設定是否要顯示含有「隱藏」屬性的檔案</p> <p>Gets or sets whether to display files with "hidden" attributes.</p>  |   |
|                              | DisplayNormalFiles      | bool           | Get, Set                         | <p>取得或設定是否要顯示不含有任何屬性的檔案</p> <p>Gets or sets whether to display files without any attribute.</p>  |   |
|                              | DisplayReadOnlyFiles    | bool           | Get, Set                         | <p>取得或設定是否要顯示含有「唯讀」屬性的檔案</p> <p>Gets or sets whether to display files with "read-only" attributes.</p>   |   |
|                              | DisplaySystemFiles      | bool           | Get, Set                         | <p>取得或設定是否要顯示含有「系統」屬性的檔案</p> <p>Gets or sets whether to display files with "system" attributes.</p>  |   |
|                              | FileName                | string         | Get                              | <p>取得目前選取檔案的名稱</p> <p>Get the name of the currently selected file.</p>   |   |
| new                          | Items                   | ItemCollection | Get                              | <p>取得檔案列表的複本</p> <p>Get the copy of file list.</p>   |   |


|                     |                      |                    |                   |  |
|---------------------|----------------------|--------------------|-------------------|--|
|                     | Path                 | string             | Get, Set          | 取得或設定目前的資料夾<br>Gets or sets the current directory.   |
|                     | Pattern              | string             | Get, Set          | 取得或設定用來過濾檔案名稱的模板。用逗號「,」或分號「;」分隔多個模板<br>Gets or sets the pattern for filtering file names. Separates multiple patterns with a comma "," or a semicolon ";". |
| <b>方法 (Methods)</b> |                      |                    |                   |  |
| <i>修飾字</i>          | <i>名稱</i>            | <i>回傳型別</i>        | <i>參數</i>         | <i>說明</i>  |
| <i>Modifier</i>     | <i>Name</i>          | <i>Return Type</i> | <i>Parameters</i> | <i>Description</i>   |
|                     | 建構子<br>(constructor) |                    |                   | 初始化視覺元件<br>Initialize visual components.   |
|                     | Refresh              | void               |                   | 重新更新 GUI<br>Refresh the GUI.   |



| OutlinedTextBlock            |                          |                   |  |   |
|------------------------------|--------------------------|-------------------|--|---|
| 修飾字<br><i>Modifier</i>       | 命名空間<br><i>Namespace</i> | 種類<br><i>Kind</i> | 繼承與實作<br><i>Inherit and Implements</i>             | 說明<br><i>Description</i>                        |
|                              | System.Windows.Controls  | class             | FrameworkElement                                   | 能夠顯示外框字的文字方塊<br>A text block with text outline. |
| 關聯屬性 (Dependency Properties) |                          |                   |  |   |
| 修飾字<br><i>Modifier</i>       | 名稱<br><i>Name</i>        | 型別<br><i>Type</i> | 分類與存取限制<br><i>Category and access restrictions</i> | 說明<br><i>Description</i>                        |
|                              | FontFamily               | FontFamily        | Get, Set   | 字型<br>Font of text.                             |
|                              | FontSize                 | double            | Get, Set   | 字體大小<br>Font size of text.                      |
|                              | FontStretch              | FontStretch       | Get, Set   | 文字伸展<br>Font stretch of text.                   |
|                              | FontStyle                | FontStyle         | Get, Set   | 文字樣式<br>Font style of text.                     |
|                              | FontWeight               | FontWeight        | Get, Set   | 文字粗細<br>Font weight of text.                    |
|                              | Foreground               | Brush             | Get, Set   | 文字筆刷<br>Fill brush of text.                     |
|                              | Stroke                   | Brush             | Get, Set   | 文字外框筆刷<br>Outline brush of text.                |
|                              | StrokeThickness          | double            | Get, Set   | 文字外框粗細<br>Outline thickness.                    |
|                              | Text                     | string            | Get, Set   | 文字<br>Text.                                     |
|                              | TextAlignment            | TextAlignment     | Get, Set   | 文字對齊方式  |

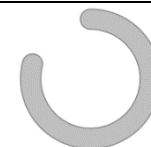


|                 |                              |          |  |                                    |
|-----------------|------------------------------|----------|--|------------------------------------|
|                 |                              |          |  | Alignment of text.                 |
| TextDecorations | TextDecorationColl<br>ection | Get, Set |  | 文字修飾<br>Text decorations.          |
| TextTrimming    | TextTrimming                 | Get, Set |  | 文字修剪方式<br>Trimming method of text. |
| TextWrapping    | TextWrapping                 | Get, Set |  | 文字換行方式<br>Warpping method of text. |

| PlayerSlider                 |                         |             |                                  |  |
|------------------------------|-------------------------|-------------|----------------------------------|--|
| 修飾字                          | 命名空間                    | 種類          | 繼承與實作                            | 說明   |
| Modifier                     | Namespace               | Kind        | Inherit and Implements           | Description  |
|                              | System.Windows.Controls | class       | Slider                           | 類似 Windows Media Player 播放進度列風格的 Slider 元件 <br>A slider component similar to the playback progress bar of Windows Media Player. |
| 關聯屬性 (Dependency Properties) |                         |             |                                  |  |
| 修飾字                          | 名稱                      | 型別          | 分類與存取限制                          | 說明   |
| Modifier                     | Name                    | Type        | Category and access restrictions | Description  |
|                              | LeftTrackBrush          | Brush       | Get, Set                         | 取得或設定用於繪製左側軌道的筆刷<br>Gets or sets the brush used to draw the left track.  |
|                              | RightTrackBrush         | Brush       | Get, Set                         | 取得或設定用於繪製右側軌道的筆刷<br>Gets or sets the brush used to draw the right track.   |
|                              | ThumbBrush              | Brush       | Get, Set                         | 取得或設定用於繪製滑塊的筆刷<br>Gets or sets the brush used to draw the slider thumb.  |
|                              | ThumbSize               | double      | Get, Set                         | 取得或設定滑塊的大小<br>Gets or sets the size of slider thumb.   |
|                              | TrackHeight             | double      | Get, Set                         | 取得或設定軌道的高度<br>Gets or sets the height of track.  |
| 方法 (Methods)                 |                         |             |                                  |  |
| 修飾字                          | 名稱                      | 回傳型別        | 參數                               | 說明   |
| Modifier                     | Name                    | Return Type | Parameters                       | Description  |
|                              | 建構子<br>(constructor)    |             |                                  | 初始化視覺元件<br>Initialize visual components.   |

| PropertyGrid   |                         |             |                                  |   |
|--|-------------------------|-------------|----------------------------------|---|
| 修飾字  | 命名空間                    | 種類          | 繼承與實作                            | 說明  |
| Modifier   | Namespace               | Kind        | Inherit and Implements           | Description   |
|  | System.Windows.Controls | class       | Grid                             | <p>提供相似於 WinForm PropertyGrid 的元件，用於顯示並修改指定物件的所有屬性</p> <p>Provides a component which similar to WinForm PropertyGrid for displaying and modifying all properties of a specified object.</p> |
| <div> <div>DirListBox</div> <div> <div> <div> </div> <div>搜尋: <input type="text"/></div> <div>清除</div> </div> <div> <div>SelectedItem</div> <div>SelectedItems (集合)</div> <div>SelectedValue</div> <div>ToolTip</div> </div> <div> <div>行為</div> <div>IsSynchronizedWith...</div> <div>IsTabStop <input type="checkbox"/></div> <div>TabIndex 2147483647</div> </div> <div> <div>其他</div> <div>AllowDrop <input type="checkbox"/></div> <div>BasePath D: <input type="text"/></div> </div> </div> </div> |                         |             |                                  |   |
| 屬性 (Properties)  |                         |             |                                  |   |
| 修飾字  | 名稱                      | 型別          | 分類與存取限制                          | 說明  |
| Modifier   | Name                    | Type        | Category and access restrictions | Description   |
|  | SelectedObject          | object      |                                  | <p>取得或設定要被列出屬性的物件</p> <p>Gets or sets the object to list properties.</p>  |
| 方法 (Methods)   |                         |             |                                  |   |
| 修飾字  | 名稱                      | 回傳型別        | 參數                               | 說明  |
| Modifier   | Name                    | Return Type | Parameters                       | Description   |
|  | 建構子<br>(constructor)    |             |                                  | <p>初始化內部元件與事件</p> <p>Initialize internal components and events.</p>   |
|  | Refresh                 | void        |                                  | <p>重更新屬性列表</p> <p>Refresh property list.</p>  |

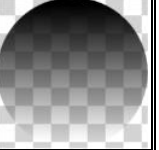
| RingProgressBar              |                         |             |                                  |  |
|------------------------------|-------------------------|-------------|----------------------------------|--|
| 修飾字                          | 命名空間                    | 種類          | 繼承與實作                            | 說明   |
| Modifier                     | Namespace               | Kind        | Inherit and Implements           | Description  |
|                              | System.Windows.Controls | class       | RangeBase                        | 圓環狀的進度條<br>A progress bar with ring appearance.                            |
| 關聯屬性 (Dependency Properties) |                         |             |                                  |  |
| 修飾字                          | 名稱                      | 型別          | 分類與存取限制                          | 說明   |
| Modifier                     | Name                    | Type        | Category and access restrictions | Description  |
|                              | RingWidth               |             | Get, Set                         | 取得或設定環的寬度<br>Gets or sets the width of the ring.                           |
| 方法 (Methods)                 |                         |             |                                  |  |
| 修飾字                          | 名稱                      | 回傳型別        | 參數                               | 說明   |
| Modifier                     | Name                    | Return Type | Parameters                       | Description  |
|                              | 建構子<br>(constructor)    |             |                                  | 建立元件，並初始化各個繪圖要素<br>Create components and initialize each drawing features. |



| RubyTextBlock                |                         |                |                                  |  |
|------------------------------|-------------------------|----------------|----------------------------------|--|
| 修飾字                          | 命名空間                    | 種類             | 繼承與實作                            | 說明   |
| Modifier                     | Namespace               | Kind           | Inherit and Implements           | Description  |
|                              | System.Windows.Controls | class          | UserControl                      | 能夠顯示注音標示(ruby)的文字方塊<br>A text block with ruby annotation.  |
| 關聯屬性 (Dependency Properties) |                         |                |                                  |  |
| 修飾字                          | 名稱                      | 型別             | 分類與存取限制                          | 說明   |
| Modifier                     | Name                    | Type           | Category and access restrictions | Description  |
|                              | RubyBaselineOffset      | double         | Get, Set                         | 注音標示的垂直偏移，越小越低<br>The vertical offset of ruby annotation, the smaller it is, the lower it is.            |
|                              | RubyConverter           | IRubyConverter | Get, Set                         | 注音標示轉換器，用於分析文字內包含的注音標示<br>Ruby annotation converter, used to analyze ruby annotations contained in text. |
|                              | RubyFontSize            | double         | Get, Set                         | 注音標示的字體大小<br>Font size of ruby annotation.   |
|                              | RubyForeground          | Brush          | Get, Set                         | 注音標示的筆刷<br>Fill brush of ruby annotation.  |
|                              | Stroke                  | Brush          | Get, Set                         | 文字外框筆刷<br>Outline brush of text.   |
|                              | StrokeThickness         | double         | Get, Set                         | 文字外框粗細<br>Outline thickness.   |
|                              | Text                    | string         | Get, Set                         | 文字<br>Text.  |

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## TransparentGridCanvas

| 修飾字                 | 命名空間                    | 種類          | 繼承與實作                  | 說明  |   |
|---------------------|-------------------------|-------------|------------------------|---|---|
| Modifier            | Namespace               | Kind        | Inherit and Implements | Description   |   |
|                     | System.Windows.Controls | class       | Canvas                 | 背景具有「透明提示格」的畫布元件<br>A special canvas with "transparent grid" in the background. |  |
| <b>方法 (Methods)</b> |                         |             |                        |   |   |
| 修飾字                 | 名稱                      | 回傳型別        | 參數                     | 說明  |   |
| Modifier            | Name                    | Return Type | Parameters             | Description   |   |
|                     | 建構子<br>(constructor)    |             |                        | 初始化視覺元件<br>Initialize visual components.  |   |

# 使用者控制項類 - 注音標示 - 轉換器

## User Controls - Ruby Annotations - Converters

### 基礎命名空間 (Base Namespace)

System.Windows.Controls.RubyAnnotations.Converters

### 說明 (Description)

提供各種不同的注音標示轉換器，用於分析文字內包含的注音標示

Provides many types of ruby annotation converter, used to analyze ruby annotations contained in text.

### IRubyConverter

| 修飾字<br><i>Modifier</i> | 命名空間<br><i>Namespace</i>                           | 種類<br><i>Kind</i>          | 繼承與實作<br><i>Inherit and Implements</i> | 說明<br><i>Description</i>   |
|------------------------|--|----------------------------|--|--|
|                        | System.Windows.Controls.RubyAnnotations.Converters | interface                  |  | 定義注音標示轉換器的主要方法<br>Defines the methods of ruby annotation converters.       |
| 方法 (Methods)           |  |                            |  |  |
| 修飾字<br><i>Modifier</i> | 名稱<br><i>Name</i>                                  | 回傳型別<br><i>Return Type</i> | 參數<br><i>Parameters</i>                | 說明<br><i>Description</i>   |
|                        | ConvertToHtml                                      | string                     | string text                            | 將包含注音標示的文字轉換成 HTML 標籤<br>Convert the ruby annotation text to html tags.    |
|                        | ConvertToXaml                                      | string                     | string text                            | 將包含注音標示的文字轉換成 XAML 物件<br>Convert the ruby annotation text to Xaml objects. |



| RubyConverters  |  |                           |                                  |  |
|-----------------|--|---------------------------|----------------------------------|--|
| 修飾字             | 命名空間   | 種類                        | 繼承與實作                            | 說明   |
| Modifier        | Namespace  | Kind                      | Inherit and Implements           | Description  |
| static          | System.Windows.Contr<br>ols.RubyAnnotations.Co<br>nverters | class                     |                                  | 提供預先定義好的多種注音標示轉換器<br>Provides pre-defined ruby annotation converters.  |
| 屬性 (Properties) |  |                           |                                  |  |
| 修飾字             | 名稱   | 型別                        | 分類與存取限制                          | 說明   |
| Modifier        | Name   | Type                      | Category and access restrictions | Description  |
|                 | AozoraBunkoStyleConv<br>erter                              | TokenConverter            | Get                              | 日本青空文庫格式轉換器・例如「   青《あお》」<br>Japanese "Aozora Bunko" style converter, e.g., "   青《あお》".   |
|                 | GeneralLyricConverter                                      | GeneralLyricConve<br>rter | Get                              | 通用歌詞格式轉換器・例如「青(あお)」<br>General lyric style annotation converter, e.g., "青(あお)".  |
|                 | JisX4052StandardConve<br>rter                              | TokenConverter            | Get                              | 日本產業規格(JIS) X 4052 標準的格式轉換器・例如「 _ ^ 青 ( あお ) ^ _ 」<br>Japanese Industrial Standards X 4052 format, e.g., " _ ^ 青 ( あお ) ^ _ ".     |
|                 | ShinChoShaStyleConver<br>ter                               | TokenConverter            | Get                              | 日本新潮社格式轉換器・例如「 #青{あお}」<br>Japanese "Shin Cho Sha" style converter, e.g., "#青{あお}".   |
|                 | UnicodeConverter   | TokenConverter            | Get                              | Unicode 行間註釋轉換器・使用 U+FFF9、U+FFFA、U+FFFB 字元<br>Unicode interlinear annotation converter, use U+FFF9, U+FFFA, and U+FFFB characters. |

| GeneralLyricConverter |  |             |                        |   |
|-----------------------|--|-------------|------------------------|---|
| 修飾字                   | 命名空間   | 種類          | 繼承與實作                  | 說明  |
| Modifier              | Namespace  | Kind        | Inherit and Implements | Description   |
|                       | System.Windows.Controls.RubyAnnotations.Converters | class       | IRubyConverter         | 將小括號中的文字轉換成注音標注的轉換器<br>Convert the ruby annotation text to HTML/XAML by parse the text enclosed in parentheses. |
| 方法 (Methods)          |  |             |                        |   |
| 修飾字                   | 名稱   | 回傳型別        | 參數                     | 說明  |
| Modifier              | Name   | Return Type | Parameters             | Description   |
|                       | ConvertToHtml                                      | string      | string text            | 將包含注音標示的文字轉換成 HTML 標籤<br>Convert the ruby annotation text to html tags.   |
|                       | ConvertToXaml                                      | string      | string text            | 將包含注音標示的文字轉換成 XAML 物件<br>Convert the ruby annotation text to Xaml objects.                                      |

| GeneralLyricConverter |  |             |  |   |
|-----------------------|--|-------------|--|---|
| 修飾字                   | 命名空間   | 種類          | 繼承與實作  | 說明  |
| Modifier              | Namespace  | Kind        | Inherit and Implements   | Description   |
|                       | System.Windows.Controls.RubyAnnotations.Converters | class       | IRubyConverter   | 將小括號中的文字轉換成注音標注的轉換器<br>Convert the ruby annotation text to HTML/XAML by parse the text enclosed in parentheses. |
| 屬性 (Properties)       |  |             |  |   |
| 修飾字                   | 名稱   | 型別          | 分類與存取限制  | 說明  |
| Modifier              | Name   | Type        | Category and access restrictions   | Description   |
|                       | IsSharingEndToken                                  | bool        | Get  | 基礎文字與注音標示是否共用結束符號<br>Whether the base text and ruby annotation share the same end token.                        |
|                       | RubyStartToken                                     | string      | Get  | 注音標示的起始符號<br>Start token of ruby annotation.  |
|                       | RubyEndToken                                       | string      | Get  | 注音標示的結束符號<br>End token of ruby annotation.  |
|                       | TextStartToken                                     | string      | Get  | 基礎文字的起始符號<br>Start token of base text.  |
|                       | TextEndToken                                       | string      | Get  | 基礎文字的結束符號<br>End token of base text.  |
| 方法 (Methods)          |  |             |  |   |
| 修飾字                   | 名稱   | 回傳型別        | 參數   | 說明  |
| Modifier              | Name   | Return Type | Parameters   | Description   |
|                       | 建構子<br>(constructor)                               |             | string textStart<br>string textEnd<br>string rubyStart<br>string rubyEnd | 依照提供的四種屬性值，建立轉換器<br>Create the converter based on the four provided properties.                                 |
|                       | ConvertToHtml                                      | string      | string text  | 將包含注音標示的文字轉換成 HTML 標籤   |

|               |        |             |  |
|---------------|--------|-------------|--|
|               |        |             | Convert the ruby annotation text to html tags.                             |
| ConvertToXaml | string | string text | 將包含注音標示的文字轉換成 XAML 物件<br>convert the ruby annotation text to Xaml objects. |

# 數值轉換器類

## Value Converters

### 基礎命名空間 (Base Namespace)

System.Windows.Media

### 說明 (Description)

在 WPF 資料繫結時，提供資料轉換的功能

Provides data conversion function when WPF data is bound.

### AutoBrushConverter

| 修飾字          | 命名空間                 | 種類          | 繼承與實作  | 說明  |
|--------------|----------------------|-------------|--|---|
| Modifier     | Namespace            | Kind        | Inherit and Implements   | Description   |
|              | System.Windows.Media | class       | IValueConverter  | 依照原始的顏色，產生高對比的黑或白色<br>Produces high-contrast black or white according to original color.  |
| 方法 (Methods) |                      |             |  |   |
| 修飾字          | 名稱                   | 回傳型別        | 參數   | 說明  |
| Modifier     | Name                 | Return Type | Parameters   | Description   |
|              | Convert              | object      | object value<br>Type targetType<br>object parameter<br>CultureInfo culture | 依照 value 的顏色，產生高對比的黑或白色，其他參數均未使用<br>Produces high-contrast black or white according to "value" color, other parameters are useless. |
|              | ConvertBack          | object      | object value<br>Type targetType<br>object parameter<br>CultureInfo culture | 依照 value 的顏色，產生高對比的黑或白色，其他參數均未使用<br>Produces high-contrast black or white according to "value" color, other parameters are useless. |

| ColorValueConverter |                      |             |  |   |
|---------------------|----------------------|-------------|--|---|
| 修飾字                 | 命名空間                 | 種類          | 繼承與實作  | 說明  |
| Modifier            | Namespace            | Kind        | Inherit and Implements   | Description   |
|                     | System.Windows.Media | class       | IValueConverter  | 將顏色轉換成 RGB、HSL 或 HSV 字串<br>Convert color value to RGB, HSL or HSB/HSV string.   |
| 方法 (Methods)        |                      |             |  |   |
| 修飾字                 | 名稱                   | 回傳型別        | 參數   | 說明  |
| Modifier            | Name                 | Return Type | Parameters   | Description   |
|                     | Convert              | object      | object value<br>Type targetType<br>object parameter<br>CultureInfo culture | 將 value 顏色，依照 parameter 的指示轉換成字串；有效的格式包括「RGB」、「HSL」、「HSB」與「HSV」<br>Convert color "value" to "RGB", "HSL", "HSV" or "HSB" string according to parameter. |
|                     | ConvertBack          | object      | object value<br>Type targetType<br>object parameter<br>CultureInfo culture | 未實作<br>Not implemented.   |