

# Scripting with VBScript

## Basic Data Types

### Points

Points are transferred as an array of 2 values. Depending on the context the points contain float or of LONG values.

### Sizes

Sizes are transferred as an array of 2 values. Depending on the context the sizes contain float or of LONG values.

### Rectangles

Rectangles are transferred as an array of 4 values. Depending on the context the sizes contain float or of LONG values.

The first 2 values are the position of the rectangle, the following 2 are the width and the height. The width and the height always have to be larger than or equal to 0.

### Ranges

A range is transferred as an array of 2 LONGs. The first one is the position of the range, the second one is its length.

## Interfaces

### IApplication

Used by *Application* object.

### Properties

| Property        | Type   | Description                                    |
|-----------------|--|--|
| ActiveDocument  | <a href="#">IPLDocument</a> *                              | The top document.                              |
| Count           | LONG   | (Read-only) The number of documents.           |
| Item(<br>index) | <a href="#">IPLDocument</a> *<br>LONG, Range [0;Count - 1] | (Read-only) The document with the given index. |
| Visible         | Boolean  | Visibility of PhotoLine                        |

### Methods

| Method  | Type  | Description  |
|---|---|--|
| GetIdentityMatrix                               | <a href="#">IPLMatrix</a> *                         | Creates an identity matrix.  |
| GetPerspectiveMatrix(<br>rectangle,<br>corners) | <a href="#">IPLMatrix</a> *<br>float[4]<br>float[8] | Creates a transformation matrix, that maps a rectangle to a quadrilateral. Returns an error, if the corners don't form a valid perspective transformation. |
| GetRotationMatrix(<br>degrees)                  | <a href="#">IPLMatrix</a> *<br>float                | Creates a rotation matrix. Optionally, it uses the given reference point as fix point.   |

| Method   | Type  | Description  |
|--|---|--|
| [, referencePoint])  | float[2] (optional)   |  |
| GetScaleMatrix(<br>scaleX,<br>scaleY<br>[, referencePoint])        | <a href="#">IPLMatrix</a> *<br>float<br>float<br>float[2] (optional)  | Creates a scaling matrix. Optionally, it uses the given reference point as fix point.  |
| GetTranslationMatrix(<br>offsetX,<br>offsetY)                      | <a href="#">IPLMatrix</a> *<br>float<br>float                         | Creates a translation matrix.  |
| Index(<br>document)  | LONG<br><a href="#">IPLDocument</a> *                                 | Returns the index of the given document.   |
| InputDialog(<br>[title<br>[, description<br>[, defaultValue]]])    | String<br>String (optional)<br>String (optional)<br>String (optional) | Query user for a value with an input dialog. You can optionally set the title of the dialog, the description of the input field and a default value. If not set or empty, the title is “PhotoLine”, the description is “Value:” and the default value is empty.<br>If the user cancels the dialog, the return value will be an empty string.   |
| Open(<br>filename<br>[, optionKey,<br>optionValue]++)              | <a href="#">IPLDocument</a> *<br>String<br>String,<br>variable        | Opens a document file and returns the resulting document. OptionKey and optionValue are optional key-value pairs, that are dependent of the file format and are parameters for the document import. Additionally, there is are the following keys:<br>- “AddToRecentFiles” as Boolean. Default: FALSE<br>- “Data” as Byte [] or Base64 string or hex string: If present, the document will be opened with this data instead of a file.<br>- “CreatePlaceholder” as Boolean: TRUE: The new document will contain a single placeholder layer containing the file/data. Default: FALSE<br>- “EmbedFile” as Boolean: If “CreatePlaceholder” is TRUE, “EmbedFile” controls whether the file data will be embedded in the new document. Default: FALSE |
| OpenAsPlaceholder(<br>filename<br>[, optionKey,<br>optionValue]++) | <a href="#">IPLDocument</a> *<br>String<br>String,<br>variable        | Opens a document file as placeholder and returns the resulting document. OptionKey and optionValue are optional key-value pairs, that are dependent of the file format and are parameters for the document import. Additionally, there is the key “EmbedFile” with a Boolean value. The default value is FALSE.  |
| OpenDialog   | String[]  | Shows an Open dialog and allows the user to select files. Returns an array of filenames as strings.  |

## IPLColor

Used by *Color* object.

If a property or method takes a IPLColor as parameter, you can usually use a float[] instead.

If the type is named “IPLColor \* (variable, count)”, the color will be created based on the number of elements in the float array:

- 1 element creates a CMGray color.
- 3 elements create a CMRGB color.

- 4 elements create a CMCMYK color.

If the type is named “IPLColor \* (variable, RGB)”, PhotoLine will create a CMRGB color. In this case the number of elements has to be 3 or 4 (with alpha).

## Properties

| Property          | Type                            | Description  |
|-------------------|---------------------------------|--|
| ApplyTransparency | Boolean                         | Only for document colors:<br>False: if applied, the colors inside the document keep their transparency.<br>True: if applied, the color inside the document get the transparency from the document color.                             |
| Gradient          | <a href="#">IPLDictionary</a> * | If the color is not a <a href="#">gradient</a> , this property is set to null/nothing.   |
| Matrix            | <a href="#">IPLMatrix</a> *     | If the color is a pattern or gradient, matrix is the transformation of the content. Otherwise it is null/nothing.  |
| Model             | <a href="#">ColorModel</a>      | The color model of the color.  |
| Name              | String                          | The name of the color.   |
| SpotColor         | Boolean                         | Only for document colors: Defines whether the color is a spot color. Spot colors must have a name.   |
| Values            | float[], default range [0;1]    | The color values of the color. The number of elements depends on the model of the color. The last element is the color's alpha value. If this property is set, the alpha value is optionally and 1 (opaque) is used if it's missing. |

## IPLColorProfile

Implemented by the *ColorProfile* object.

## Properties

| Property        | Type                            | Description   |
|-----------------|---------------------------------|---|
| Data            | Byte []                         | (Read-only) The data of the color profile.                    |
| Model           | <a href="#">ColorModel</a>      | (Read-only) The color model of the color profile.             |
| Name            | String                          | (Read-only) The name of the color profile.                    |
| RenderingIntent | <a href="#">RenderingIntent</a> | (Read-only) The rendering intent of the color profile.        |
| Path            | String                          | (Read-only) The file path of the color profile. May be empty. |

## Methods

| Method                                | Type  | Description  |
|---------------------------------------|---|--|
| Init(<br>profile,<br>renderingIntent) | None<br>variable<br><a href="#">RenderingIntent</a> | Initialize a color profile. The color profile can be initialized by<br>- another IPLColorProfile<br>- a string defining the full pathname to a color profile<br>- a string with the name of an installed color profile<br>- a byte array containing the profile data |
| IsEqual(<br>otherProfile)             | Boolean<br>IPLColorProfile *                        | Checks two color profiles for equality.  |

## IPLCurve

Implemented by the *Curve* object.

If a property or method takes a IPLCurve as parameter, you can usually use a float[] instead. In that case, PhotoLine will create a CTSpline curve and the type is named “IPLCurve \* (variable)” in this description.

### Properties

| Property | Type                      | Description  |
|----------|---------------------------|--|
| Points   | float []                  | The curve points. A normal curve has at least 2 points, resulting in an array size of 4. |
| Type     | <a href="#">CurveType</a> | The curve type.  |

## IPLDictionary

Implemented by the *Dictionary* object. It is an interface to describe data and contains key-value pairs. The key is always a string and the type of the value is variable.

### Properties

| Property   | Type               | Description                                       |
|------------|--------------------|---|
| Count()    | LONG               | (Read-only) The number of keys in the dictionary. |
| Item(key)  | variable<br>String | Access the content of a key-value pair.           |
| Key(index) | String<br>LONG     | (Read-only) The key at the given index.           |

### Methods

| Method                            | Type  | Description  |
|-----------------------------------|---|--|
| Add([dictionary]   [key, value]+) | None<br>IPLDictionary *<br>String, variable | Initialize a dictionary. The color profile can be initialized by<br>- another IPLDictionary<br>- a sequence of key-value pairs |
| Remove(key)                       | None<br>String                              | Remove a key. If the key doesn't exist, nothing is done.   |

## IPLDocument

Implemented by the *Document* object.

### Properties

| Property     | Type                              | Description   |
|--------------|-----------------------------------|---|
| ActiveLayer  | <a href="#">IPLLayer</a> *        | The active layer of the active page. May be null/nothing.                         |
| ActivePage   | <a href="#">IPLPage</a> *         | The active page.  |
| Application  | <a href="#">IApplication</a> *    | The application.  |
| ColorProfile | <a href="#">IPLColorProfile</a> * | The color profile of the document. May be null/nothing.                           |
| Colors       | <a href="#">IPLColor</a> *[]      | An array of colors assigned to the document. Every color must have a unique name. |

| Property                        | Type   | Description   |
|---------------------------------|--|---|
| Count                           | LONG   | (Read-only) The number of pages.  |
| DocumentMode                    | Boolean  | False: The document is in picture mode<br>True: The document is in document mode  |
| Item(<br>index)                 | <a href="#">IPLPage</a> *<br>LONG, Range [0;Count - 1] | (Read-only) The document with the given index.  |
| Path                            | String   | The file path of the document.  |
| Resolution                      | float  | The resolution of the document in dpi.  |
| RootLayer                       | <a href="#">IPLLayer</a> *                             | (Read-only)The root layer of the active page.   |
| SelectedLayers                  | <a href="#">IPLLayerArray</a> *                        | The selected layers of the active page. If there are entries, the first entry is always the active layer.   |
| Size                            | LONG[2]  | Size of the document in pixels.   |
| TextStyles(<br>paragraphStyles) | <a href="#">IPLDictionary</a> *[]<br>Boolean           | An array of IPLDictionaries, that describe the <a href="#">text styles</a> assigned to the document. If paragraph styles is True, it will return the paragraph styles, otherwise the character style. |

## Methods

| Method   | Type  | Description   |
|--|---|---|
| CanChangeDocumentMode  | Boolean   | Checks whether DocumentMode can be changed.   |
| Close(<br>option)  | None<br><a href="#">CloseOption</a>   | Closes the document.  |
| Copy(<br>[options]  <br>[optionKey, optionValue]+)                             | None<br><a href="#">IPLDictionary</a> *<br>String, variable   | Copy a merged image of the document to the clipboard. The available options are described <a href="#">here</a> .  |
| DeletePageContainer(<br>position)  | None<br>LONG  | Delete a page container at the given position.  |
| DoOperation(<br>operationName<br>[, options]  <br>[, optionKey, optionValue]+) | None<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable                               | Execute the operation with the given name. The options are optional and can either be set using an IPLDictionary or by using key-value pairs.   |
| Duplicate()  | IPLDocument *   | Duplicates the document.  |
| DuplicatePageContainer(<br>srcPageOrPosition,<br>destPageOrPosition)           | <a href="#">IPLPage</a> *<br><a href="#">IPLPage</a> * or LONG<br><a href="#">IPLPage</a> * or LONG | Duplicate a page container. The page container can be specified either as a position or an IPLPage. The destination position can also be either a position or a page container. In the second case the duplicated page container will be inserted after that. The result is the new page container. |
| Export(<br>filename<br>[, options]  <br>[, optionKey, optionValue]+)           | None<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable                               | Export the document with the given filename (including path). The export options are optional and can either be set using an IPLDictionary or by using key-value pairs. The available options are dependent of the file format.   |
| Index(<br>document)  | LONG<br><a href="#">IPLPage</a> *   | Returns the index of the given document.  |
| InsertPageContainer(<br>position<br>[, pageToInsert])                          | None<br>LONG<br><a href="#">IPLPage</a> *   | Insert a new page container at a given position. Optionally you can insert an already existing page container. If missing, a new page container will be created.  |
| Merge()  | IPLImage *  | Merges the document or optionally a page or a layer or  |

| Method   | Type   | Description   |
|--|--|---|
| [page]  <br>[layer]  <br>[array of layers])  | <a href="#">IPLPage</a> *<br>IPLayer *<br>IPLayer * or IPLayer *[]                               | an array of layers to a single image. The result is the newly created image or NULL, if nothing has been created.   |
| MovePageContainer(<br>srcPageOrPosition,<br>destPageOrPosition)                        | None<br><a href="#">IPLPage</a> * or LONG<br><a href="#">IPLPage</a> * or LONG                   | Move to page container to another position. The page container can be specified either as a position or an IPLPage. The destination position can also be either a position or a page container. In the second case the source page container will be inserted after that.   |
| Paste  | <a href="#">IPLayerArray</a> *   | Paste the content of the clipboard as new layers. It returns the newly created layers.<br>The new layers are inserted after the selected layers.  |
| Save()   | None   | Save the document. If the document is untitled, an error is reported.   |
| SaveAs(<br>filename<br>[, options]  <br>[, optionKey, optionValue]+)                   | None<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable                            | Save the document with the given filename (including path). The export options are optional and can either be set using an IPLDictionary or by using key-value pairs. The available options are dependent of the file format.   |
| SaveDialog(<br>[dialogTitle]<br>[, defaultFilename])                                   | String<br>String   | Show a save dialog for the document. You can set a dialog title and a default filename. If not set, default values are used.<br>It returns the selected filename or an empty string, if the dialog was left by using "Cancel".  |
| ShowOperationDialog(<br>operationName<br>[, options]  <br>[, optionKey, optionValue]+) | <a href="#">IPLDictionary</a> *<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable | Show the dialog of the operation with the given name. The operation is not executed. The return value can be used for DoOperation later on.<br>The options are optional and can either be set using an IPLDictionary or by using key-value pairs.<br>Returns the user's settings or nothing/null, if the user clicked cancel. |

## IPLImage

Implemented by the *Image* object. It is an interface, that offers access to all properties of a PhotoLine image layer.  
IPLImage inherits from [IPLL ayer](#).

## Properties

| Property       | Type                         | Description  |
|----------------|------------------------------|--|
| Alpha          | Boolean                      | (Read-only) Returns whether the picture has an alpha channel.  |
| BitsPerChannel | LONG                         | (Read-only) The bit depth of the picture (1, 8, 16 or 32).   |
| Picture        | <a href="#">IPLPicture</a> * | The picture of the image.  |
| PictureSize    | LONG[2]                      | (Read-only) The <a href="#">size</a> of the picture.   |
| PictureType    | <a href="#">PictureType</a>  | The type of the picture. This property is a combination of the values defined in PictureType. A possible value is (PTRGB   PT16Bit   PTAlpha). |

## Methods

| Method           | Type | Description  |
|------------------|------|--|
| InitPicture(<br> | None | Initialize the picture with a certain type and size. |

| Method                                    | Type   | Description   |
|---|--|---|
| pictureType,<br>size<br>[, initialValue]) | <a href="#">PictureType</a><br>LONG[2]<br>variable | Optionally you can fill the newly created picture with<br>- a single value (float)<br>- a float[] with one entry per picture channel<br>- an <a href="#">IPLColor</a> |

## IPLLayer

Implemented by the *Layer*, *Image*, *Vector* and *Text* object. It is an interface, that offers access to all basic properties of a PhotoLine layer.

## Properties

| Property                                    | Type   | Description  |
|---|--|--|
| Adjustment(<br>index)                       | IPLDictionary *<br>LONG, range [0;<br>AdjustmentsCount - 1]                | The adjustment with the given index.   |
| Adjustments                                 | <a href="#">IPLDictionary</a> *[]  | Array of dictionaries, that describe the adjustments attached to a layer. See <a href="#">Operations applicable to images and as adjustments</a> .   |
| AdjustmentsCount                            | LONG   | (Read-only) The number of adjustments attached to the layer.   |
| BlendMode                                   | <a href="#">BlendMode</a>  | The blend mode/mix mode of the layer.  |
| Bounds(<br>coordinateSystem,<br>boundsType) | float[4]<br><a href="#">CoordinateSystem</a><br><a href="#">BoundsType</a> | (Read-only) The bounds of the layer as <a href="#">rectangle</a> .   |
| ChannelMask                                 | LONG   | The color channels of the document that are modified by the layer. This is a bit mask. In a RGB document 1 is red, 2 is green und 4 is blue. So a value of 6 means, that green and blue is modified. |
| Children                                    | <a href="#">IPLLayerArray</a> *  | (Read-only) An array with the children of the layer.   |
| Clipping                                    | Boolean  | True: The layer is either a clipping layer or a layer mask.  |
| ClippingWidth                               | float  | For clipping layers, layer masks and adjustment layer and a value > 0: an optional blur applied to mask, that is created by the layer.   |
| ColorProfile                                | <a href="#">IPLColorProfile</a> *  | The color profile of the layer. This property is usually null/nothing.   |
| Count                                       | LONG   | (Read-only) The number of children.  |
| Document                                    | <a href="#">IPLDocument</a> *  | (Read-only) The layer's document.  |
| First                                       | IPLLayer *   | (Read-only) The first child of the layer or nothing.   |
| Intensity                                   | float, range [-2;2]  | The layer's intensity (1 = 100%)   |
| InvertClipping                              | Boolean  | For clipping layers, layer masks and adjustment layer: The effect of the layer is inverted.  |
| Item(<br>index)                             | IPLLayer *<br>LONG   | (Read-only) The child with the given index.  |
| Isolated                                    | Boolean  | True: The layer is drawn isolated (isn't affected by its background).  |
| Last  | IPLLayer *   | (Read-only) The last child of the layer or nothing/null.   |

| Property                                    | Type   | Description  |
|---|--|--|
| LayerMask                                   | Boolean  | If Clipping and LayerMask are true, the layer is a layer mask.   |
| MatrixToPage                                | <a href="#">IPLMatrix</a> *  | The transformation of the layer relative to the page. This value is a concatenation of MatrixToParent of the layer with the MatrixToParent of its ancestors. |
| MatrixToParent                              | <a href="#">IPLMatrix</a> *  | The transformation of the layer relative to its parent.  |
| ModifiesTransparency                        | Boolean  | True: The layer modifies the transparency of its background.   |
| Name  | String   | The layer's name.  |
| Next  | IPLayer *  | (Read-only) The layer's following layer (the layer above it) or nothing/null.  |
| Origin(<br>coordinateSystem,<br>boundsType) | float[2]<br><a href="#">CoordinateSystem</a><br><a href="#">BoundsType</a> | The position of the top left corner of a layer. This is only the top left corner in CSLayer.   |
| Page  | <a href="#">IPLPage</a> *  | (Read-only) The layer's page.  |
| Parent                                      | IPLayer *  | (Read-only) The layer's parent.  |
| PixelAlignment                              | <a href="#">Alignment</a>  | The content of the layer is aligned to the document pixels. Only used with Layer, Image and Vector.  |
| Position                                    | LONG   | The layer's index inside its parent.   |
| Previous                                    | IPLayer *  | (Read-only) The layer's preceding layer (the layer below it) or nothing/null.  |
| Quality                                     | <a href="#">Quality</a>  | The layer's rendering quality.   |
| ReferencePoint(<br>coordinateSystem)        | float[2]<br><a href="#">CoordinateSystem</a>                               | The layer's reference point. This point can be adjusted by the user, and can be used as fix point for rotations, scaling, ...                                |
| RelativeColors                              | Boolean  | True: If the layer uses pattern colors, the patterns will be transformed just the same as the layer.   |
| Root  | IPLayer *  | (Read-only) The deepest ancestor of the layer or the layer itself.   |
| Size(<br>coordinateSystem,<br>boundsType)   | float[2]<br><a href="#">CoordinateSystem</a><br><a href="#">BoundsType</a> | The size of a layer.   |
| Type  | <a href="#">LayerType</a>  | (Read-only) The layer's type.  |
| Visible                                     | Boolean  | Visibility of layer.   |

## Methods

| Method   | Type   | Description  |
|--|--|--|
| Copy(<br>[options]  <br>[optionKey, optionValue]+) | None<br><a href="#">IPLDictionary</a> *<br>String, variable                              | Copy the layer or – if it is an image – optionally the selection to the clipboard.<br>The available options are described <a href="#">here</a> . |
| CreateDocument(<br>options)                        | <a href="#">IPLDocument</a> *<br>LONG<br>( <a href="#">LayerCreateDocumentFlags</a><br>) | Duplicates the layer and creates a new document containing that duplicate.   |
| Delete()   | None   | Delete the layer.  |
| DoOperation(<br>operationName)                     | IPLayer<br>String  | Execute the operation with the given name. The options are optional and can either be set using an   |



| Method   | Type   | Description   |
|--|--|---|
| [, options]  <br>[, optionKey, optionValue]+)  | <a href="#">IPLDictionary</a> *<br>String, variable  | IPLDictionary or by using key-value pairs.<br>If the operation creates a new layer, the result is that new layer. Otherwise, the layer for which DoOperation() was called is returned.  |
| Duplicate(<br>index  <br>afterLayer)   | IPLayer *<br>LONG<br>IPLayer *   | Duplicate the layer and returns the duplicated layer. The duplicate is either inserted as child in the original's parent or behind another layer.   |
| DuplicateVirtual(<br>index  <br>afterLayer)  | IPLayer *<br>LONG<br>IPLayer *   | Duplicate the layer and returns the duplicated layer. The duplicate is either inserted as child in the original's parent or behind another layer. This other layer has to be in the same document as the original layer.  |
| Index(<br>child)   | LONG<br>IPLayer *  | The index of the given child layer. Child has to be a child of the called layer.  |
| Insert(<br>layer  <br>layers,<br>index  <br>afterLayer)                                | None<br>IPLayer *<br><a href="#">IPLayerArray</a> *(variable)<br>LONG<br>IPLayer *               | Insert one or more layers as child. The layers are either inserted at a position or after another layer.  |
| InsertAdjustment(<br>index,<br><br>[dictionary]  <br>[key, value]+)                    | None<br>LONG, range [0;<br>AdjustmentsCount]<br>IPLDictionary *<br>String, variable              | Insert a new adjustment. The adjustment can either be a IPLDictionary or a sequence of key-value pairs.   |
| Paste(<br>[index  <br>afterLayer])   | <a href="#">IPLayerArray</a> *<br>LONG<br>IPLayer *  | Paste the content of the clipboard as new layers. It returns the newly created layers.<br>The new layers are inserted as child at a given index or behind another layer.  |
| RemoveAdjustment(<br>index)  | None<br>LONG, range [0;<br>AdjustmentsCount - 1]   | Remove an adjustment.   |
| Save(<br>filename<br>[, options]  <br>[, optionKey, optionValue]+)                     | None<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable                            | Save the layer with the given filename (including path). The export options are optional and can either be set using an IPLDictionary or by using key-value pairs. The available options are dependent of the file format.  |
| ShowOperationDialog(<br>operationName<br>[, options]  <br>[, optionKey, optionValue]+) | <a href="#">IPLDictionary</a> *<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable | Show the dialog of the operation with the given name. The operation is not executed. The return value can be used for DoOperation later on.<br>The options are optional and can either be set using an IPLDictionary or by using key-value pairs.<br>Returns the user's settings or nothing/null, if the user clicked cancel. |

## IPLayerArray

Implemented by the *LayerArray* object.

If a property or method takes a IPLayerArray as parameter, you can often either use an IPLayer or an array of IPLayers instead. This is indicated by the type name "IPLayerArray \* (variable)".

## Properties

| Property | Type | Description                                    |
|----------|------|--|
| Count    | LONG | (Read-only) The number of layers in the array. |

| Property        | Type                                  | Description                   |
|-----------------|---------------------------------------|-------------------------------|
| Item(<br>index) | variable<br>LONG, range [0;Count - 1] | The layer at the given index. |

## Methods

| Method   | Type  | Description  |
|--|---|--|
| Copy(<br>[options]  <br>[optionKey, optionValue]+) | None<br><a href="#">IPLDictionary</a> *<br>String, variable | Copy the layers in the array to the clipboard.<br>The available options are described <a href="#">here</a> . |
| Index(<br>layer)                                   | LONG<br><a href="#">IPLLLayer</a> *                         | The index of the given layer or -1, if it isn't in the array.  |
| Insert(<br>layer,<br>position)                     | None<br><a href="#">IPLLLayer</a> *<br>LONG (optional)      | Insert layer in the array. If no position is given, the layer is appended.                                   |
| Remove(<br>index  <br>layer)                       | None<br>LONG<br><a href="#">IPLLLayer</a> *                 | Remove the entry at a given index or a layer..   |
| Sort()   | None  | Sort the layers in the array according to their position in the document.                                    |

## IPLLLineStyle

Implemented by the *LineStyle* object.

If a property or method takes a IPLLLineStyle as parameter, you can usually use a float instead. In that case, PhotoLine will create a line style with the given float value used as width. This is indicated by the type name “IPLLLineStyle \* (variable)”.

## Properties

| Property         | Type                                  | Description   |
|------------------|---------------------------------------|---|
| AdjustDashLength | Boolean                               | True: The length of the dashes is adjusted, so that they fit to the corners of the path.                  |
| Alignment        | <a href="#">LineStyleAlignment</a>    | The alignment of the line on a path.  |
| ArrowLength      | Float                                 | The length of an optional arrow (1 is 100%)   |
| ArrowWidth       | Float                                 | The width of an optional arrow (1 is 100%)  |
| DashLengths      | Float []                              | An array with the lengths of the line style dashes. May be empty.   |
| DashPhase        | Float                                 | The starting position inside the dashes. Usually 0.   |
| EndCap           | LONG ( <a href="#">LineStyleCap</a> ) | The appearance of the end of the line.  |
| Join             | <a href="#">LineStyleJoin</a>         | The join type.  |
| MaximumWidth     | Float, range<br>[MinimumWidth;1]      | (Read-only) If a width curve is set, this value can be used to stretch the width of the curve. Usually 1. |
| MinimumWidth     | Float, range<br>[0;MaximumWidth]      | (Read-only)If a width curve is set, this value can be used to stretch the width of the curve. Usually 0.  |
| StartCap         | LONG ( <a href="#">LineStyleCap</a> ) | The appearance of the start of the line.  |
| Width            | float                                 | The line width. If smaller than 0, the line is invisible.   |
| WithCurve        | IPLCurve *                            | (Read-only)The shape of the line style or nothing/null.   |

## Methods

| Method   | Type  | Description   |
|--|---|---|
| SetWidthCurve(<br>curve,<br>minWidth,<br>maxWidth) | None<br><a href="#">IPLCurve</a> * (variable)<br>float (optional)<br>float (optional) | Set the width for variable width line styles. MinWidth and maxWidth can be used for scaling the line width. |

## IPLMatrix

Implemented by the *Matrix* object. It controls the transformation of layers, points, sizes and rectangles.

If a property or method takes a IPLMatrix as parameter, you can usually use a float[] instead. This is indicated by the type name “IPLMatrix \* (variable)”. In that case, PhotoLine will create transformation matrix with the given values. The number of elements has to be 6 or 9. If the values don’t result in a valid transformation, PhotoLine will return an error.

## Methods

| Method  | Type  | Description   |
|---|---|---|
| Concatenate(<br>matrix<br>[, otherMatrices]+) | IPLMatrix *<br>IPLMatrix * (variable)<br>IPLMatrix * (variable) | Concatenate the matrix with one or more other matrices. |
| Invert()                                      | IPLMatrix *   | Calculate the inverse of the matrix.                    |
| TransformPoints(<br>points)                   | float[2 * n]<br>float[2 * n]                                    | Transform n <a href="#">points</a> .                    |
| TransformRectangles(<br>rects)                | float[4 * n]<br>float[4 * n]                                    | Transform n <a href="#">rectangles</a> .                |
| TransformSizes(<br>sizes)                     | float[2 * n]<br>float[2 * n]                                    | Transform n <a href="#">sizes</a> .                     |

## IPLPage

Implemented by the *Page* object.

## Properties

| Property       | Type                              | Description  |
|----------------|-----------------------------------|--|
| ActiveLayer    | <a href="#">IPLLayer</a> *        | The active layer of the page. May be null/nothing.   |
| ColorProfile   | <a href="#">IPLColorProfile</a> * | The color profile of the page. May be null/nothing.  |
| RootLayer      | <a href="#">IPLLayer</a> *        | (Read-only)The root layer of the page.   |
| SelectedLayers | <a href="#">IPLLayerArray</a> *   | The selected layers of the page. If there are entries, the first entry is always the active layer. |
| Size           | LONG[2]                           | Size of the page in pixels.  |

## Methods

| Method   | Type  | Description  |
|--|---|--|
| Copy(<br>[options]  <br>[optionKey, optionValue]+) | None<br><a href="#">IPLDictionary</a> *<br>String, variable | Copy a merged image of the page to the clipboard. The available options are described <a href="#">here</a> . |
| DoOperation(<br>                                   | None  | Execute the operation with the given name. The options   |

| Method   | Type   | Description   |
|--|--|---|
| operationName<br>[, options]  <br>[, optionKey, optionValue]+)                         | String<br><a href="#">IPLDictionary</a> *<br>String, variable                                    | are optional and can either be set using an IPLDictionary or by using key-value pairs.  |
| Paste  | <a href="#">IPLLarray</a> *  | Paste the content of the clipboard as new layers. It returns the newly created layers.<br>The new layers are inserted after the selected layers.  |
| ShowOperationDialog(<br>operationName<br>[, options]  <br>[, optionKey, optionValue]+) | <a href="#">IPLDictionary</a> *<br>String<br><a href="#">IPLDictionary</a> *<br>String, variable | Show the dialog of the operation with the given name. The operation is not executed. The return value can be used for DoOperation later on.<br>The options are optional and can either be set using an IPLDictionary or by using key-value pairs.<br>Returns the user's settings or nothing/null, if the user clicked cancel. |

## IPLPicture

Implemented by the Picture object. It represents a pixel picture. It is the datatype contained in [IPLImages](#).

### Properties

| Property       | Type                        | Description  |
|----------------|-----------------------------|--|
| Alpha          | Boolean                     | (Read-only) Returns whether the picture has an alpha channel.  |
| BitsPerChannel | LONG                        | (Read-only) The bit depth of the picture (1, 8, 16 or 32).   |
| Size           | LONG[2]                     | The <a href="#">size</a> of the picture.   |
| Type           | <a href="#">PictureType</a> | The type of the picture. This property is a combination of the values defined in PictureType. A possible value is (PTRGB   PT16Bit   PTAlpha). |

### Methods

| Method  | Type   | Description  |
|---|--|--|
| Init(<br>pictureType,<br>size<br>[, initValue]) | None<br><a href="#">PictureType</a><br>LONG[2]<br>variable | Initialize the picture with a certain type and size. Optionally you can fill the newly created picture with<br>- a single value (float)<br>- a float[] with one entry per picture channel<br>- an <a href="#">IPLColor</a> |

## IPLText

Implemented by the Text object. It is an interface, that offers access to all properties of a PhotoLine text layer. IPLText inherits from [IPLLarray](#).

### Properties

| Property  | Type                                       | Description  |
|---|--|--|
| Attribute(<br>index,<br>attributeName<br>[, range = 0]) | Variable<br>LONG<br>String<br>LONG[2], out | Access the <a href="#">text attribute</a> with the given name at the given index. Returns the range of the attribute optionally. |
| Attributes(<br>index                                    | <a href="#">IPLDictionary</a> *<br>LONG    | Access the <a href="#">text attributes</a> at the given index. Returns the range of the attributes optionally.                   |

| Property                                | Type                                  | Description  |
|---|---------------------------------------|--|
| [, range = 0])                          | LONG[2], out                          |  |
| AutoFlowIn                              | Boolean                               | True: The text layer can create a text flow to the previous page automatically.  |
| AutoFlowOut                             | Boolean                               | True: The text layer can create a text flow to the next page automatically.  |
| NextInFlow                              | IPLText *                             | The next text layer in the text flow. This property must not be set for text text layers with AutoFlowOut equal to true.             |
| Text(<br>[index = 0]<br>[, count = -1]) | String<br>LONG<br>LONG                | Text text in the given range. Accesses the text from index 0 with no index, and accesses to the end of the text with no count.       |
| TextRange                               | LONG[2]                               | (Read-only) The range of the text in the text layer. If the text layer is not part of a text flow, this is the complete text.        |
| TextLength                              | LONG                                  | (Read-only) The length of the text in characters. If the text layer is part of a text flow, this is the length of the complete text. |
| VerticalAlignment                       | <a href="#">TextVerticalAlignment</a> | The vertical alignment of the text.  |

## Methods

| Method   | Type   | Description  |
|--|--|--|
| ParagraphRange(<br>index)                              | LONG[2]<br>LONG                                    | Returns the paragraph range for the given index.   |
| SetAttribute(<br>range,<br>attributeName,<br>newValue) | None<br>LONG[2]<br>String<br>variable              | Changes the attribute with the given name. The type of the new value depends on the attribute. If applicable, you can set partial attribute and only the set values will be transferred to the text layer. |
| SetAttributes(<br>range,<br>newAttributes)             | None<br>LONG[2]<br><a href="#">IPLDictionary</a> * | Changes the attributes in the given range.   |

## IPLVector

Implemented by the *Vector* object. It is an interface, that offers access to all properties of a PhotoLine vector layer. IPLVector inherits from [IPLL ayer](#).

## Properties

| Property             | Type                                       | Description  |
|----------------------|--|--|
| FillColor(<br>index) | <a href="#">IPLColor</a> * (variable, RGB) | Fill color in the attribute set with the given index.  |
| LineColor(<br>index) | <a href="#">IPLColor</a> * (variable, RGB) | Line color in the attribute set with the given index.  |
| LineStyle(<br>index) | <a href="#">IPLLineStyle</a> * (variable)  | Line style in the attribute set with the given index.  |
| VectorAttributes     | <a href="#">IPLDictionary</a> *[]          | The <a href="#">fill and line attributes</a> of the vector layer. Each dictionary contains an optional<br>- fill color<br>- line color<br>- line style |

| Property              | Type                            | Description                                |
|-----------------------|---------------------------------|--|
| VectorAttributesCount | LONG                            | The number of <a href="#">attributes</a> . |
| VectorPath            | <a href="#">IPLVectorPath</a> * | The vector path of the layer.              |

## Methods

| Method   | Type   | Description   |
|--|--|---|
| InsertPoints(<br>index<br>[, pointType,<br>points]+) | None<br>LONG<br>LONG<br>float[]                    | Insert a sequence of points. The index must not be inside a curve.<br>The point type has to be VPTMoveTo, VPTLineTo or VPTCurveTo.<br>If the point type is VPTMoveTo, the first point of the points array will be a MoveTo, the following ones will be LineTos.<br>If point type is VPTCurveTo, the points array must have a multiple of 3 points, resulting in a multiple of 6 float values. |
| InsertVectorAttribute(<br>index)                     | None<br>LONG, range<br>[0;VectorAttributesCount]   | Insert a new empty attribute set.   |
| RemovePoints(<br>index,<br>count)                    | None<br>LONG<br>LONG                               | Remove a range of points. You must not delete partial curves.   |
| ReplacePoints(<br>index,<br>points)                  | None<br>LONG<br>float[2 * n]                       | Replace n points at the given index with the given points.  |
| RemoveVectorAttribute(<br>index)                     | None<br>LONG, range<br>[0;VectorAttributesCount-1] | Remove an attribute set.  |

## IPLVectorPath

Implemented by the VectorPath object. It is the datatype contained in [IPLVector](#).

## Properties

| Property   | Type   | Description  |
|------------|--|--|
| Count      | LONG   | (Read-only) The number of points in the path.              |
| Points     | Float[2 * Count]                                   | (Read-only) The <a href="#">points</a> of the vector path. |
| PointTypes | BYTE[COUNT]<br>( <a href="#">VectorPointType</a> ) | (Read-only) For each point the corresponding type.         |

## Methods

| Method   | Type                            | Description   |
|--|---------------------------------|---|
| Insert(<br>index<br>[, pointType,<br>points]+) | None<br>LONG<br>LONG<br>float[] | Insert a sequence of points into a path. The index must not be inside a curve.<br>The point type has to be VPTMoveTo, VPTLineTo or VPTCurveTo.<br>If the point type is VPTMoveTo, the first point of the points array will be a MoveTo, the following ones will be LineTos.<br>If point type is VPTCurveTo, the points array must have a multiple of 3 points, resulting in a multiple of 6 float |

| Method                        | Type                         | Description   |
|-------------------------------|------------------------------|---|
|                               |                              | values.   |
| Remove(<br>index,<br>count)   | None<br>LONG<br>LONG         | Remove a range of points. You must not delete partial curves. |
| Replace(<br>index,<br>points) | None<br>LONG<br>float[2 * n] | Replace n points at the given index with the given points.    |

## Enumerations

### Alignment

| Value             | Description                   |
|-------------------|-------------------------------|
| AlignDefault = 0  | Use the inherited alignment.  |
| AlignToPixels = 1 | Align to the document pixels. |
| AlignDont = 2     | Don't align.                  |

### BarcodeType

BarcodeType is used as parameter for the [Barcode](#) operation.

| Value             | Description    |
|-------------------|----------------|
| BarcodeI25 = 0    | I25 barcode    |
| BarcodeEAN8 = 1   | EAN8 barcode   |
| BarcodeEAN13 = 2  | EAN13 barcode  |
| BarcodeUPCA = 3   | UPCA barcode   |
| BarcodeUPCE = 4   | UPCE barcode   |
| BarcodeISBN = 5   | ISBN code      |
| BarcodeC39 = 6    | C39 barcode    |
| BarcodeEAN128 = 7 | EAN128 barcode |
| BarcodeC93 = 8    | C93 barcode    |
| BarcodeC128 = 9   | C128 barcode   |
| BarcodeQR = 10    | QR code        |
| BarcodeC39E = 11  | C39E barcode   |

### BlendMode

| Value           | Description |
|-----------------|-------------|
| BMNormal = 0    | Normal      |
| BMMultiply = 1  | Multiply    |
| BMDissolve = 2  | Dissolve    |
| BMScreen = 3    | Screen      |
| BMOverlay = 4   | Overlay     |
| BMSoftLight = 5 | Soft light  |

| Value               | Description      |
|---------------------|------------------|
| BMHardLight = 6     | Hard light       |
| BMColorDodge = 7    | Color dodge      |
| BMColorBurn = 8     | Color burn       |
| BMDarken = 9        | Darken           |
| BMLighten = 10      | Lighten          |
| BMDifference = 11   | Difference       |
| BMExclusion = 12    | Exclusion        |
| BMLinearDodge = 13  | Linear dodge/add |
| BMRemove = 14       | Remove           |
| BMLinearBurn = 15   | Linear burn      |
| BMHardMix = 16      | Hard mix         |
| BMLinearLight = 17  | Linear light     |
| BMVividLight = 18   | Vivid light      |
| BMPinLight = 19     | Pin light        |
| BMLighterColor = 20 | Lighter color    |
| BMDarkerColor = 21  | Darker color     |
| BMSubtract = 22     | Subtract         |
| BMDivide = 23       | Divide           |
| BMHue = 24          | Hue              |
| BMSaturation = 25   | Saturation       |
| BMColor = 26        | Color            |
| BMLuminance = 27    | Luminance        |

## BoundsType

BoundsType defines various types of bounds used in combination with [IPLLayers](#).

| Value           | Description   |
|-----------------|---|
| BTGeometric = 0 | The geometric bounds define the base coordinate system of a layer. With vector layers, these bounds include the vector path, but not the outline. With text, these bounds are the rectangle, that can contain the text. |
| BTLAYOUT = 1    | The layout bounds are used by PhotoLine for setting the position and size of a layer.   |
| BTAlignment = 2 | The alignment bounds are used by PhotoLine for aligning layer next to each other.   |
| BTContent = 3   | The content bounds are the area occupied by the content of a layer. With vector layers, the outline is included. With text, the content is only the area containing text.   |

## CloseOption

CloseOption is used as parameter for [IPLDocument::Close](#).



| Value          | Description  |
|----------------|--|
| COSave = 0     | If the document has unsaved changes, it will be saved before closing. If the document is untitled, an error will be reported.      |
| CODontSave = 1 | The document will be closed without saving.  |
| COAsk = 2      | If the document has unsaved changes, the user will be prompted for saving. If the user cancels closing, an error will be reported. |

## CoordinateSystem

The coordinate system defines, how sizes or positions are set or returned by an [IPLLayer](#).

| Value       | Description   |
|-------------|---|
| CSPage = 0  | The page coordinate system. To convert values from CSLayer to CSPage, the values have to be multiplied with the layer's MatrixToPage.                   |
| CSGroup = 1 | The coordinate system of a layer's parent. To convert values from CSLayer to CSGroup, the values have to be multiplied with the layer's MatrixToParent. |
| CSLayer = 2 | The layer's native coordinate system.   |

## ColorModel

The ColorModel is used for [IPLColor](#).

| Value      | Description |
|------------|-------------|
| CMGray = 0 | Gray        |
| CMRGB = 1  | RGB         |
| CMCMYK = 2 | CMYK        |
| CMHIS = 10 | HIS         |
| CMHSV = 11 | HSV         |
| CMLab = 12 | Lab         |

## ColorSpaceMode

The ColorSpaceMode can be used with gradients and some operations. It defines how pixels or color data are written.

Most operations allow only a subset of these modes.

| Value         | Description   |
|---------------|---|
| CSMNative = 0 | Data will be written using the native color space of the destination. |
| CSMHIS = 1    | HIS   |
| CSMHSV = 2    | HSV   |
| CSMLab = 3    | Lab   |
| CSMRGB = 4    | RGB   |
| CSMCYMK = 5   | CMYK  |
| CSMGray = 6   | Grays   |

## CurveType

The CurveType is used for [IPLCurve](#).

| Value          | Description                     |
|----------------|---------------------------------|
| CTBezier = 0   | Interpolation by bezier curves. |
| CTSpline = 1   | Interpolation by splines.       |
| CTLagrange = 2 | Use Lagrange interpolation.     |
| CTLinear = 3   | Use linear interpolation.       |

## EXIFPreviewMode

| Value               | Description   |
|---------------------|---|
| EPMAAlways = 0      | Always create an EXIF preview.                                  |
| EPMKeepExisting = 1 | If there is already an EXIF preview, create an updated version. |
| EPMNever = 2        | Never create an EXIF preview.                                   |

## EXRCompression

| Value            | Description                               |
|------------------|---|
| ECNone = 0       | No compression.                           |
| ECRLE = 1        | Run length encoding.                      |
| ECZIP = 2        | Deflate for single scanlines.             |
| ECZIPBlock16 = 3 | Deflate for scanline block with 16 lines. |
| ECPIZ = 4        | Wavelet compression.                      |
| ECPXR24 = 5      | 24 bit deflate.                           |
| ECB44 = 6        | Lossy compression.                        |
| ECB44A = 7       | Extended B44.                             |

## GradientInterpolation

GradientInterpolation defines the interpolation of gradient colors.

| Value        | Description           |
|--------------|-----------------------|
| GILinear = 0 | Linear Interpolation. |
| GICubic = 1  | Cubic Interpolation.  |

## GradientSpread

GradientSpread defines the interpolation of gradient colors.

| Value          | Description   |
|----------------|---|
| GIContinue = 0 | The gradient will continue with the end color.        |
| GIReflect = 1  | The colors will repeat reflected at the gradient end. |
| GIRepeat = 2   | The colors will repeat at the gradient end.           |

## GradientType

| Value            | Description                |
|------------------|----------------------------|
| GTLLinear = 0    | Linear gradient.           |
| GTCircle = 1     | Circular gradients.        |
| GTRadial = 2     | Radial gradient.           |
| GTRadialFull = 3 | Reflected radial gradient. |

## InterpolationMode

InterpolationMode defines several types of interpolations.

| Value                   | Description  |
|-------------------------|--|
| IMNextPixel = 0         | No Interpolation.  |
| IMBilinear = 1          | Bilinear.  |
| IMLanczos3 = 2          | Lanczos 3.   |
| IMLanczos8 = 4          | Lanczos 8.   |
| IMMitchellNetravali = 5 | Mitchell-Netravali.  |
| IMCatmullRom = 6        | Catmull-Rom.   |
| IMCubicSpline = 7       | Cubic Spline.  |
| IMLiquid = 8            | Only available for the <a href="#">Scale</a> operation in combination with images. |

## LayerCreateDocumentFlags

| Value            | Description                      |
|------------------|----------------------------------|
| LCDInvisible = 1 | The new document is not visible. |

## LayerType

| Value              | Description                        |
|--------------------|------------------------------------|
| LTImage = 1        | An image layer.                    |
| LTVector = 2       | A vector layer.                    |
| LTText = 4         | A text layer.                      |
| LTGroup = 8        | A group.                           |
| LTVirtualCopy = 16 | The virtual copy of another layer. |
| LTPlaceholder = 32 | A placeholder.                     |

## LineStyleAlignment

| Value               | Description                          |
|---------------------|--------------------------------------|
| LSAAlignCenter = 0  | The line lies on the vector path.    |
| LSAAlignInside = 1  | The line is inside the vector path.  |
| LSAAlignOutside = 2 | The line is outside the vector path. |

## LineStyleCap

| Value             | Description   |
|-------------------|---|
| LSCButtCap = 0    | Butt cap.   |
| LSCRoundCap = 1   | Round cap.  |
| LSCSquareCap = 2  | Square cap.   |
| LSCArrowCap = 128 | The start/end is an arrow. Used in combination with the other values. |

## LineStyleJoin

| Value            | Description |
|------------------|-------------|
| LSJMiterJoin = 0 | Miter join. |
| LSJRoundJoin = 1 | Round join. |
| LSJBevelJoin = 2 | Bevel join. |

## MakeSelectionMode

Modes for combining a new selection with the current one.

| Value            | Description   |
|------------------|---|
| MSMSet = 0       | The new selection replaces the current one.                                 |
| MSMAdd = 1       | The new selection is added.   |
| MSMSub = 2       | The new selection is subtracted..   |
| MSMIntersect = 3 | The resulting selection is the intersection of the current and the new one. |

## NoiseType

| Value            | Description      |
|------------------|------------------|
| NTNone = 0       | No noise.        |
| NTTurbulence = 1 | Turbulence.      |
| NTFractalSum = 2 | Sum of fractals. |
| NTNoise = 3      | Simple noise.    |

## ParagraphAlignment

| Value              | Description   |
|--------------------|---|
| PALeft = 0         | Left aligned text.                                      |
| PARight = 1        | Right aligned text.                                     |
| PACenter = 2       | Centered text.  |
| PAJustified = 3    | Justified text.   |
| PAJustifiedAll = 4 | Justified text, including the last line of a paragraph. |

## ParagraphRegister

| Value      | Description                              |
|------------|--|
| PRNone = 0 | No line is aligned to the line register. |

| Value                | Description  |
|----------------------|--|
| PRWholeParagraph = 1 | All lines of the paragraph are aligned.              |
| PRFirstLine = 2      | Only the first line is aligned to the line register. |

## PDFColorMode

PDFColorMode controls, how color data inside a document is converted on export.

| Value           | Description  |
|-----------------|--|
| PDFDocument = 0 | Color data is not converted.                                 |
| PDFCMYK = 1     | Color data is converted to CMYK. Gray data is not converted. |
| PDFGray = 2     | Color data is converted to gray.                             |
| PDFX1a = 3      | Colors are converted conforming to PDF/X1a.                  |
| PDFX3 = 4       | Colors are converted conforming to PDF/X3.                   |

## PDFCompressionMode

PDFCompressionMode controls the compression of colored images.

| Value                    | Description  |
|--------------------------|--|
| PDFFlate = 0             | Flate compression (Zlib).                                  |
| PDFJPEGHighQuality = 1   | High quality JPEG (not allowed for TextCompressionMode).   |
| PDFJPEGMediumQuality = 2 | Medium quality JPEG (not allowed for TextCompressionMode). |
| PDFJPEGLowQuality = 3    | Low quality JPEG (not allowed for TextCompressionMode).    |
| PDFFlateFast = 4         | Faster, but weaker flate compression.                      |
| PDFUncompressed = 5      | No compression.  |

## PDFFontEmbedding

| Value                      | Description   |
|----------------------------|---|
| PDFNoEmbedding = 0         | Fonts are not embedded.   |
| PDFEmbedOptionalVector = 1 | If allowed, fonts are embedded. Otherwise they are converted to vector. This is the only allowed option for PDF/X1a and PDF/X3. |
| PDFEmbed = 2               | Allowed fonts are embedded.   |
| PDFConvertToVector = 3     | All fonts are converted to vector.  |

## PDFTransparencyMode

PDFTransparency controls, how transparency is converted on export.

| Value                         | Description  |
|-------------------------------|--|
| PDFReplaceWithBackground = -1 | Transparency is replaced by an opaque image.               |
| PDFDitherBayer = 0            | Dither transparency, thus creating bileveled transparency. |
| PDFDitherCoarse = 1           | Dither transparency, thus creating bileveled transparency. |

| Value                      | Description  |
|----------------------------|--|
| PDFDitherVertical = 2      | Dither transparency, thus creating bileveled transparency.   |
| PDFDitherHorizontal = 3    | Dither transparency, thus creating bileveled transparency.   |
| PDFDitherFine = 4          | Dither transparency, thus creating bileveled transparency.   |
| PDFDitherOrdered = 5       | Dither transparency, thus creating bileveled transparency.   |
| PDFDitherOrderedFat = 6    | Dither transparency, thus creating bileveled transparency.   |
| PDFDither45 = 7            | Dither transparency, thus creating bileveled transparency.   |
| PDFDitherThreshold = 8     | Use a threshold for transparency, thus creating bileveled transparency.  |
| PDFFullTransparency = 1000 | If possible, export transparency unmodified. This option does not work in combination with the <a href="#">PDF color modes</a> PDFX1a and PDFX3. |

## PictureType

The type of a pixel picture is defined by the values of PictureType. There are 3 sections in this enumeration:

- the color model
- the bit depth
- a flag whether there is an alpha channel

So examples for valid picture types are “PTGray + PT8Bit + PTAAlpha” or “PTCMYK + PT16Bit”.

| Value           | Description                                      |
|-----------------|--|
| PTGray = 0      | Gray   |
| PTRGB = 1       | RGB  |
| PTCMYK = 2      | CMYK   |
| PTBitmap = 3    | 1 bit image                                      |
| PTLab = 10      | Lab  |
| PTMask = 255    | Mask to get the color model from a picture type. |
| PT8Bit = 0      | 8 Bit image                                      |
| PT32Bit = 4096  | 32 bit (float) image                             |
| PT16Bit = 8192  | 16 bit image                                     |
| PTAlpha = 16384 | Image with alpha                                 |

## Quality

| Value                  | Description                            |
|------------------------|--|
| QualityDefault = 0     | Use the inherited/default quality.     |
| QualityAntialias = 1   | Always use antialiasing/interpolation. |
| QualityNoAntialias = 2 | Never use antialiasing/interpolation.  |

## RenderingIntent

RenderingIntent declares the possible rendering intents for ICC color profiles.

| Value                      | Description  |
|----------------------------|--|
| RIAAutomatic = -1          | Use the default rendering intent of the color profile. |
| RIPerceptual = 0           | Perceptive.  |
| RIRelativeColorimetric = 1 | Relative colorimetric.                                 |
| RISaturation = 2           | Saturation.  |
| RIAbsoluteColorimetric = 4 | Absolute Colorimetric.                                 |

## ResizeMode

SizeMode is used as parameter for the [Resize](#) operation.

| Value             | Description  |
|-------------------|--|
| ResizeNormal = 0  | The resize parameter will define the new size.   |
| ResizeResize = 1  | The resize parameter will be added to the original size.   |
| ResizeFormula = 2 | The new size and the position of the original content will be expressed as formulas. “w” and “h” are the original size, “dw” and “dh” are the document size. |

## ResizeHorizontalAlignment

SizeMode is used as parameter for the [Resize](#) operation.

| Value                        | Description   |
|------------------------------|---|
| ResizeLeft = 0               | The original content will be aligned left inside the new area.  |
| ResizeRight = 1              | The original content will be aligned right inside the new area. |
| ResizeHorizontalCentered = 2 | The original content will be centered inside the new area.      |
| ResizeHorizontalAbsolute = 3 | There is no automatic alignment.                                |

## ResizeVerticalAlignment

SizeMode is used as parameter for the [Resize](#) operation.

| Value                      | Description  |
|----------------------------|--|
| ResizeTop = 0              | The original content will be aligned top inside the new area.    |
| ResizeBottom = 1           | The original content will be aligned bottom inside the new area. |
| ResizeVerticalCentered = 2 | The original content will be centered inside the new area.       |
| ResizeVerticalAbsolute = 3 | There is no automatic alignment.                                 |

## ScaleMode

Scale is used as parameter for the [Scale](#) operation.

| Value        | Description   |
|--------------|---|
| SMNormal = 0 | The resulting size is set in pixels by the parameters “ValueX” and “ValueY”. With documents, “DPI” can be used to set the resolution. |

| Value         | Description  |
|---------------|--|
| SMDPI = 1     | “DPI” is used as new dpi value.  |
| SMPercent = 2 | “ValueX” and “ValueY” are the scaling values in percent (100: no scaling).   |
| SMWidth = 3   | “ValueX” is the new width.   |
| SMHeight = 4  | “ValueY” is the new height.  |
| SMFit = 5     | The object is scaled proportionally to fit in “ValueX” and “ValueY”.   |
| SMUnused = 6  | Unused   |
| SMFormula = 7 | “FormulaX”, “FormulaY” and “FormulaDPI” are formulas for the new width, height and dpi. “w”, “h” and “d” can be used as constant for the original width, height and dpi. |

## SVGCompressionMode

| Value            | Description                         |
|------------------|-------------------------------------|
| SVGPNGFast = 0   | Fast, but weaker PNG compression.   |
| SVGPNGStrong = 1 | Strong, but slower PNG compression. |
| SVGJPEGLow = 2   | Low quality, small size JPEG.       |
| SVGJPEGMid = 3   | Medium quality, medium size JPEG.   |
| SVGJPEGHHigh = 4 | High quality, large size JPEG.      |

## TabType

| Value          | Description                                      |
|----------------|--|
| TTRLeft = 0    | Left aligned tab.                                |
| TTRight = 1    | Right aligned tab.                               |
| TTCentered = 2 | Centered tab.                                    |
| TTDecimal = 3  | Tab with alignment to a decimal point character. |

## TextVerticalAlignment

TextVerticalAlignment defines the options for vertical alignment of text layer.

| Value         | Description  |
|---------------|--|
| TVATop = 0    | The text is at the top of the layer frame (default). |
| TVACenter = 1 | The text is centered.                                |
| TVABottom = 2 | The text is at the bottom.                           |

## VectorPointType

Each point in a [IPLVectorPath](#) has an associated type. This type is a combination of three parts:

- the point type
- if a point is part of a curve, the subindex of the point (from 0 to 2)
- a flag whether the point is selected



| Value             | Description  |
|-------------------|--|
| VPTMoveTo = 0     | The start of a (sub) path, a “Move To”.  |
| VPTLineTo = 1     | A line point.  |
| VPTCurveTo = 2    | A point, that is part of a curve. A curve always has 3 points: the control point 1 (index 0), the control point 2 (index 1) and the end point (index 2). |
| VPTTypeMask = 3   | The and-mask to isolate the point type.  |
| VPTIndexMask = 12 | If a point is a curve point, VPTIndexMask and VPTIndexShift can be used to get index of the curve point: (type & VPTIndexMask)>>VPTIndexShift            |
| VPTIndexShift = 2 | See VPTIndexMask.  |
| VPTSelected = 128 | If set, the point is selected. With curve points you must not select the control points (the ones with the index 0 and 1).                               |

## Operations

Operations can be executed on [documents](#), [pages](#) and [layers](#). Every operation has a unique name and optional parameters. The parameters can either be set by using a single [IPLDictionary](#) or by key-value pairs.

If key-value pairs are used, the key is always a string and is the name of the parameter. The value is dependent of the type of parameter.

## Operations applicable to all objects

All of the operations have the optional parameter “ShowDialog”. If it is set to true, PhotoLine will show the dialog of the operation before executing it.

## Action

This operation executes an action. You can either execute an action installed in PhotoLine by using its name or a saved action by passing its path or its binary data.

| Parameter | Type                                   | Description                                   |
|-----------|--|---|
| Data      | Byte [] or Base64 string or hex string | (Optional) The binary data of a saved action. |
| Name      | String                                 | (Optional) The name of the action.            |
| Path      | String                                 | (Optional) The path of a saved action.        |

## Barcode

This operation creates a barcode layer.

| Parameter | Type           | Description  |
|-----------|----------------|--|
| Font      | String         | (Optional) The font used for the description of the barcode. Not used, if ShowText is FALSE. Default: “Arial”          |
| Position  | float[4]       | The rectangle defining the position of the barcode.  |
| ShowText  | LONG (boolean) | (Optional) The barcode operation can display the value of the barcode below the actual barcode as text. Default: FALSE |

| Parameter | Type                                 | Description  |
|-----------|--------------------------------------|--|
| Type      | LONG ( <a href="#">BarcodeType</a> ) | (Optional) The type of the barcode. Default: QR code (BarcodeQR) |
| Value     | String                               | The content of the barcode. Must not be empty.                   |

## Resize

Resize can operate with [documents](#), [pages](#) and [images](#) und changes the size of that object.

| Parameter                              | Type  | Description  |
|--|---|--|
| Color                                  | <a href="#">IPLColor</a> * (variable, count)  | (Optional) For documents the color that will be used for new areas. Default: white   |
| FormulaX, FormulaY, FormulaW, FormulaH | String  | If Mode is Formula (2): The new size of the object and the position of the original content in this new area as formula. The formulas can use the values “w” and “h” (original size) and “dw” and “dh” (document size).                                      |
| Mode                                   | LONG (ResizeMode)   | (Optional) The resize mode:<br>0: Normal mode (the new size will be the value of Size).<br>1: Resize mode (the new size will be the original size plus the value of Size).<br>2: Formula mode (the size and position are defined by formulas).<br>Default: 0 |
| Horizontal, Vertical                   | LONG ( <a href="#">ResizeHorizontalAlignment</a> or <a href="#">ResizeVerticalAlignment</a> ) | (Optional) The alignment of the original content inside the new area.<br>Default: 3<br>(ResizeHorizontalAbsolute/ResizeVerticalAbsolute:use Position)  |
| Position                               | float[2]  | (Optional) If Mode is 3, the position of the original content inside the new area. Default: (0; 0)   |
| Size                                   | float[2]  | The new size.  |

## Rotate

| Parameter     | Type                                       | Description  |
|---------------|--|--|
| Angle         | float                                      | The rotation angle in degrees (counter-clockwise). Either that or “Radiant” has to be set.     |
| Crop          | LONG (boolean)                             | (Optional) TRUE: The result will be cropped removing parts not filled by the original content- |
| Interpolation | LONG ( <a href="#">InterpolationMode</a> ) | The interpolation mode used for scaling images.  |
| Radians       | float                                      | The rotation angle in radians (counter-clockwise). Either that or “Angle” has to be set.       |

## Scale

| Parameter     | Type                                       | Description  |
|---------------|--|--|
| Mode          | LONG ( <a href="#">ScaleMode</a> )         | The scale mode.  |
| Interpolation | LONG ( <a href="#">InterpolationMode</a> ) | The interpolation mode used for scaling images.  |
| ValueX        | float                                      | For the modes SMNormal, SMPercent, SMWidth and SMFit the new width. SMPercent expects percent values, the rest pixels. |
| ValueY        | float                                      | For the modes SMNormal, SMPercent, SMHeight and SMFit the new height. SMPercent expects percent                        |

| Parameter                          | Type   | Description  |
|------------------------------------|--------|--|
|                                    |        | values, the rest pixels.   |
| ValueDPI                           | float  | For the modes SMNormal and SMDPI the new dpi value.  |
| FormulaX<br>FormulaY<br>FormulaDPI | String | The new width/height/dpi as formula. “w”, “h” and “d” can be used as the original width, height and dpi. |

## Operations applicable to images and as adjustments

### AdaptiveSharpen

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

### AdaptiveSoften

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

### ChannelMixer

| Parameter | Type                   | Description   |
|-----------|------------------------|---|
| Mode      | LONG (boolean)         | (Optional) False: normal, channel-wise mode.<br>True: Brightness mode: Factor1 and Offset1 are the values for the new brightness.<br>Default: False |
| Factor1   | Float[4], range[-2;+2] | The factors for each channel of the image, that will be   |

| Parameter                                | Type                | Description   |
|--|---------------------|---|
| Factor2<br>Factor3<br>Factor4            |                     | used to produce the new channel value.<br>Example with RGB and Factor1 values {0.7, 0.2, 0.1}:<br>$\text{newR} = \text{oldR} * 0.7 + \text{oldG} * 0.2 + \text{oldB} * 0.1$ |
| Offset1<br>Offset2<br>Offset3<br>Offset4 | Float, range [-2;2] | (Optional) Offset that will be added the new channel value.<br>Default: 0   |

## ChromaticAberration

| Parameter         | Type                  | Description   |
|-------------------|-----------------------|---|
| BlueShift         | float, range [-10;10] | (Optional) Scaling of the blue channel in pixels.<br>Default: 0   |
| Center            | Float[2], range [0;1] | (Optional) Relative center of scaling. Default: (0.5;0.5)   |
| RedShift          | float, range [-10;10] | (Optional) Scaling of the red channel in pixels. Default: 0   |
| WidthCompensation | LONG (boolean)        | (Optional) True: Depending on the size of the image a different scaling factor may be applied to x and to y.<br>Default: Falses |

## Clouds

| Parameter          | Type                                       | Description   |
|--------------------|--|---|
| Color1             | <a href="#">IPLColor</a> * (variable, RGB) | (Optional) The first cloud color. Default: black.   |
| Color2             | <a href="#">IPLColor</a> * (variable, RGB) | (Optional) The second cloud color. Default: white.  |
| Contrast           | Float, range [0;1]                         | (Optional) Contrast of the created clouds. 0.5 is the neutral value. Default: 0.5                           |
| Intensity          | Float, range [0;1]                         | (Optional) Intensity of the created clouds. 0.5 is the neutral value. Default: 0.25                         |
| NoiseAmplitudeStep | Float, range [1;4]                         | (Optional) Amplitude scaling of the additional noises for NTTurbulence and NTFractalSum. Default: 2         |
| NoiseDetail        | Float, range [1;256]                       | (Optional) Resolution of clouds, higher values create more fine grained clouds. Default: 4                  |
| NoiseDetailStep    | Float, range [1;8]                         | (Optional) Detail scaling of the additional noises for NTTurbulence and NTFractalSum. Default: 2            |
| NoiseScaleX        | Float, range [1;64]                        | (Optional) Additional scaling of NoiseDetail in x direction. Default: 1                                     |
| NoiseScaleY        | Float, range [1;64]                        | (Optional) Additional scaling of NoiseDetail in y direction. Default: 1                                     |
| NoiseSteps         | LONG, range [1;6]                          | (Optional) Number of overlapped noise functions for NTTurbulence and NTFractalSum. Default: 4               |
| NoiseType          | LONG ( <a href="#">NoiseType</a> )         | (Optional) Noise type, that is the base of the cloud creation. NTNone is not allowed. Default: NTFractalSum |

## ColorBalance

| Parameter | Type                      | Description  |
|-----------|---------------------------|--|
| Data      | LONG[9], range [-100;100] | Three groups of three values.<br>0 to 2: cyan-red correction |

| Parameter | Type           | Description  |
|-----------|----------------|--|
|           |                | 3 to 5: magenta-green correction<br>6 to 8: yellow-blue correction.<br>The first value corrects the shadows, the second the midtones and the third the highlights. |
| Preserve  | LONG (boolean) | (Optional) Preserve luminosity. The default value is false.  |

## ColorCorrection

| Parameter     | Type                      | Description   |
|---------------|---------------------------|---|
| BlueYellow    | float, range [-0.25;0.25] | (Optional) Shift along the blue-yellow axis. Default: 0   |
| GreenRed      | float, range [-0.25;0.25] | (Optional) Shift along the green-red axis. Default: 0   |
| FixWhitePoint | LONG (boolean)            | (Optional) True: Don't change bright areas, the effect on saturated colors is stronger. Default: True |

## ColorLookup

| Parameter | Type  | Description  |
|-----------|---|--|
| Profile   | <a href="#">IPLColorProfile</a> * (variable)   String | Either a color profile or a file path to 3D look-up table. |

## ColorTemperature

| Parameter   | Type                     | Description  |
|-------------|--------------------------|--|
| Temperature | LONG, range [2000;13000] | Color temperature.   |
| WorkMode    | LONG (boolean)           | (Optional) False: Set the given temperature. The color profile of the image defines the source color temperature.<br>True: The given temperature is the source color temperature. The color profile defines the destination temperature.<br>Default: False |

## ColorToTransparency

| Parameter          | Type   | Description  |
|--------------------|--|--|
| Color              | <a href="#">IPLColor</a> * (variable, count) | The color, that will be made transparent.  |
| SimpleMode         | LONG (boolean)                               | (Optional) False: Convert a color range to transparent. True: Use a simple calculation.<br>Default: True                   |
| HueSize            | Float, range [0°;180°]                       | (Optional) If SimpleMode is false: The hue range, that will be made transparent.<br>Default: 30°                           |
| BrightnessStrength | Float, range [0;2]                           | (Optional) If SimpleMode is false: The strength with which the transparency is influenced by the brightness.<br>Default: 1 |
| SaturationStrength | Float, range [0;2]                           | (Optional) If SimpleMode is false: The strength with which the transparency is influenced by the saturation.<br>Default: 1 |
| SaturationFilter   | LONG (boolean)                               | (Optional) If SimpleMode is true: Controls whether the saturation influences the result.<br>Default: True                  |

| Parameter             | Type               | Description   |
|-----------------------|--------------------|---|
| LowLimit<br>HighLimit | Float, range [0;1] | (Optional) Used range of the calculated transparency.<br>Default: 0 and 1 |

## CorrectHighlights

CorrectHighlights is an adjustment, that will only be created by the import of raw files. Over exposed raw files often create magenta highlights, and it is CorrectHighlights job to fix that.

| Parameter | Type               | Description   |
|-----------|--------------------|---|
| Limit     | float, range [0;1] | (Optional) Brightness values above this limit will be corrected. Default: 1 |

## Curves

| Parameter       | Type                                  | Description  |
|-----------------|---------------------------------------|--|
| PictureType     | LONG ( <a href="#">PictureType</a> )  | (Optional) The picture type which the curves are defined for. If not set, it is assumed to be the picture type of the image. |
| Contrast        | LONG, range [0;100]                   | (Optional) The contrast.   |
| Brightness      | LONG, range [0;100]                   | (Optional) The brightness.   |
| Gamma           | float, larger than 0                  | (Optional) The gamma value.  |
| CurveMain       | <a href="#">IPLCurve</a> * (variable) | (Optional) The curve that controls the brightness.   |
| Curve1 – Curve4 | <a href="#">IPLCurve</a> * (variable) | (Optional) The curves for the channels 1 to 4.   |

## Custom

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Bias      | LONG                                    | (Optional) Offset added to the result of the filter kernel.<br>Default: 0   |
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| Clamp     | LONG (boolean)                          | (Optional) True: The end result of “filter kernel / divider + bias” is clamped to the range [0;255]. Default: False   |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Data      | Float[9]   float[25]                    | The values of a 3x3 or a 5x5 filter kernel.   |
| Divider   | LONG                                    | (Optional) Divider for the result of the filter kernel.<br>Default: 1   |
| Intensity | Float, range [0;1]                      | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |

## Denoise

| Parameter          | Type               | Description  |
|--------------------|--------------------|--|
| IntensityIntensity | Float, range [0;1] | (Optional) Intensity of intensity noise reduction.<br>Default: 1 |

| Parameter          | Type                | Description   |
|--------------------|---------------------|---|
| ThresholdIntensity | Float, range [0;1]  | (Optional) Threshold for intensity noise reduction. Default: 0.04   |
| SizeColor          | Float, range [0;20] | (Optional) Filter size for color noise reduction. If absent, no color noise reduction. Default: no value.         |
| SizeIntensity      | Float, range [0;20] | (Optional) Filter size for intensity noise reduction. If absent, no intensity noise reduction. Default: no value. |

## Dither

| Parameter  | Type                   | Description                                     |
|------------|------------------------|---|
| Angle      | Float, range [0°;360°] | (Optional) Angle of dither pattern. Default: 0° |
| RasterSize | Float, range [4;100]   | (Optional) Size of dither pattern. Default: 32  |

## Exposure

| Parameter  | Type                    | Description                  |
|------------|-------------------------|------------------------------|
| Brightness | Float, range [-150;150] | (Optional) Brightness        |
| Contrast   | Float, range [-50;100]  | (Optional) Contrast          |
| Exposure   | Float, range [-20;20]   | (Optional) Exposure.         |
| Gamma      | Float, range [0;9]      | (Optional) Gamma. Default: 1 |
| Offset     | Float, range [-0.5;0.5] | (Optional) Offset            |

## FalseColor

| Parameter | Type   | Description        |
|-----------|--|--------------------|
| Gradient  | IPLDictionary * ( <a href="#">Gradient</a> ) | The gradient used. |

## GaussianBlur

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab. Default: CSMNative   |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

## Grain

| Parameter | Type           | Description  |
|-----------|----------------|--|
| Channels  | LONG, bit mask | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values: |

| Parameter | Type                                    | Description   |
|-----------|---|---|
|           |   | 0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative                                  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1             |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The grain density.  |

## GrayMixer

| Parameter | Type                       | Description  |
|-----------|----------------------------|--|
| Tint      | LONG (boolean)             | (Optional) True: The result will be tinted.<br>Default: False        |
| Color     | IPLColor * (variable, RGB) | (Optional) If Tint is true, this is the color of the tint.           |
| Factors   | Float[8], range [-1;1]     | The factors with which the single color ranges influence the result. |

## Highpass

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |

## Histogram

| Parameter                                  | Type                           | Description   |
|--|--------------------------------|---|
| Auto                                       | LONG (boolean)                 | (Optional) True: The parameters are preset with values calculated from the image (cannot be used with adjustments). |
| Gamma                                      | float[]   float, larger than 0 | (Optional) The gamma values to be set.  |
| PicMin<br>PicMax<br>OutputMin<br>OutputMax | float[]   float, range [0;1]   | (Optional) [PicMin;PicMax] is the picture range, that will be mapped to [OutputMin;OutputMax].                      |

If you use float arrays for Gamma, PicMin, PicMax, OutputMin and OutputMax, the values will be applied to the corresponding channel. With RGB pictures, float[3] will be used for the sum channel. With gray it is a bit weird: float[3] controls the gray channel. This way RGB values can be used for gray and viceversa.



With gray and RGB you can set a single float value instead of an array. With RGB this will control the sum channel, with gray it will control the single image channel.

## HorizontalEdge

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | Float, 1.5 or 2.5                       | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

## HueEditor

| Parameter  | Type                                    | Description  |
|------------|---|--|
| ColorMode  | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMHIS, CSMHSV, CSMLab or CSMRGB.<br>The default value is CSMHSV. |
| Brightness | <a href="#">IPLCurve</a> * (variable)   | (Optional) The correction curve for brightness.                              |
| Hue        | <a href="#">IPLCurve</a> * (variable)   | (Optional) The correction curve for hue.                                     |
| Saturation | <a href="#">IPLCurve</a> * (variable)   | (Optional) The correction curve for saturation.                              |

## HueSaturation

| Parameter  | Type                    | Description   |
|------------|-------------------------|---|
| Colorize   | LONG (boolean)          | (Optional) True: Colorize mode. The default value is false.s  |
| Hue        | float                   | (Optional) Colorize: Hue in the range [0;1]<br>Other: Hue change in the range [-0.5;0.5]  |
| Saturation | float                   | (Optional) Colorize: Saturation in the range [0;1]<br>Other: Saturation change in the range [-1;1]  |
| Brightness | float                   | (Optional) Colorize: Intensity in the range [0;1]<br>Other: Intensity change in the range [-1;1]  |
| Ranges     | float[7*n], 0 <= n <= 6 | (Optional) If not in colorize mode, Ranges describes the modifications applied to up to 6 hue ranges.<br>Every sequence has a length of 7 floats: The first 4 floats define the hue range, that will be modified. The other 3 are the hue, saturation and intensity change. |

## LightShadow

| Parameter | Type           | Description   |
|-----------|----------------|---|
| Auto      | LONG (boolean) | (Optional) True: The parameters are preset with values calculated from the image (cannot be used with adjustments). |

| Parameter       | Type               | Description   |
|-----------------|--------------------|---|
| LightGamma      | Float, range [0;1] | (Optional) Gamma applied to the lights. Default: 1  |
| LightIntensity  | Float, range [0;1] | (Optional) Stretching of the lights. 0: No stretching. Default: 0                           |
| LightMin        | Float, range [0;1] | (Optional) Amount of lights range, that will be clipped. 0: Nothing is clipped. Default: 0  |
| ShadowGamma     | Float, range [1;2] | (Optional) Gamma applied to the shadows. Default: 1   |
| ShadowIntensity | Float, range [0;1] | (Optional) Stretching of the shadows. 0: No stretching. Default: 0                          |
| ShadowMin       | Float, range [0;1] | (Optional) Amount of shadows range, that will be clipped. 0: Nothing is clipped. Default: 0 |

## Median

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab. Default: CSMNative   |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius. The diameter is rounded to the next odd integer value.   |

## OptimizeHDR

OptimizeHDR maps the pixel values of a 32-bit-HDR image to a [0;1] range.

| Parameter  | Type                 | Description  |
|------------|----------------------|--|
| Gamma      | float, larger than 0 | (Optional) The gamma value to be set.                |
| Min<br>Max | float                | The pixel value range, that will be mapped to [0;1]. |

## MatchColors

| Parameter                    | Type                  | Description   |
|------------------------------|-----------------------|---|
| DestinationAverage           | float[3], range [0;1] | Average of the destination pixel values.  |
| DestinationDeviation         | float[3], range [0;1] | Deviation of the destination pixel values.  |
| DestinationReadFromSelection | LONG (boolean)        | (Optional) UI setting. True: Read destination pixel values from the selection only. |
| SourceAverage                | float[3], range [0;1] | Average of the source pixels values.  |
| SourceDeviation              | float[3], range [0;1] | Deviation of the source pixel values.   |
| SourceReadFromSelection      | LONG (boolean)        | (Optional) UI setting. True: Read source pixel values from the selection only.      |
| Strength                     | float[3], range [0;2] | Strength of the adjustment, float[0] controls the                                   |

| Parameter | Type           | Description  |
|-----------|----------------|--|
|           |                | brightness, float[1] and float[2] control the color.                                     |
| UseMask   | LONG (boolean) | (Optional) True: Edit only in the selection area.<br>Default: Use the PhotoLine setting. |

## Maximum

Maximum is a square, channel-wise maximum filter.

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |

## MaximumRound

MaximumRound is a round, channel-wise maximum filter. For large radii it is significantly slower than Maximum.

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

## Minimum

Minimum is a square, channel-wise minimum filter.

| Parameter | Type           | Description   |
|-----------|----------------|---|
| Channels  | LONG, bit mask | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |

| Parameter | Type                                    | Description   |
|-----------|---|---|
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative                      |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1 |
| Radius    | float, larger than 0.5                  | The filter radius.  |

## MotionBlur

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;360[                    | (Optional) The filter direction. Default: 0   |

## OutlineFilter

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius. The diameter is rounded to the next odd integer.   |
| Special   | float, range [0;100]                    | The filter threshold.   |

## Perturbation

| Parameter   | Type                 | Description   |
|-------------|----------------------|---|
| Granularity | Float, range [0;1]   | (Optional) 0: The result is smooth, 1: the result is extremely fine grained. Default: 0.8 |
| Distance    | Float, range [0;0.5] | (Optional) The range of the effect.<br>Default: 0.2                                       |

## Relief

| Parameter | Type   | Description   |
|-----------|--|---|
| Channels  | LONG, bit mask                                   | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> )          | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                              | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | Float, 1.5   2.5                                 | The filter radius.  |
| Special   | Float, 0   45   90   135   180   225   270   315 | (Optional) The filter direction. Default: 0   |

## RemoveDirt

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius. The diameter is rounded to the next odd integer value.   |

## RemoveDisturbance

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius. The diameter is rounded to the next odd integer value.   |
| Special   | float, range [0;100]                    | The filter threshold.   |

## ReplaceColor

| Parameter            | Type                                       | Description                               |
|----------------------|--|---|
| DestinationColor     | <a href="#">IPLColor</a> * (variable, RGB) | The destination color.                    |
| DestinationTolerance | float, range [0;1]                         | The range of the destination color.       |
| SourceColor          | <a href="#">IPLColor</a> * (variable, RGB) | The color, that should be replaced.       |
| SourceTolerance      | float, range [0;1]                         | The color range, that should be replaced. |

## Roughen

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The density of the noise.   |

## SelectiveColorCorrection

SelectiveColorCorrection has 9 sets of parameters, one set for each available color range. Each set is an array of 4 floats and each of these floats corrects one color aspect:

- float[0]: cyan
- float[1]: magenta
- float[2]: yellow
- float[3]: black

| Parameter | Type     | Description        |
|-----------|----------|--------------------|
| Red       | float[4] | (Optional) Red     |
| Yellow    | float[4] | (Optional) Yellow  |
| Green     | float[4] | (Optional) Green   |
| Cyan      | float[4] | (Optional) Cyan    |
| Blue      | float[4] | (Optional) Blue    |
| Magenta   | float[4] | (Optional) Magenta |
| White     | float[4] | (Optional) White   |
| Gray      | float[4] | (Optional) Gray    |
| Black     | float[4] | (Optional) Black   |

## Sharpen

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |

## Soften

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |

## Sponge

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius. The diameter is rounded to the next odd integer value.   |

## Threshold

| Parameter | Type               | Description          |
|-----------|--------------------|----------------------|
| Threshold | float, range [0;1] | The threshold value. |

## UnsharpMasking

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

## VerticalEdge

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | Float, 1.5 or 2.5                       | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

## WhitePoint

| Parameter     | Type                                       | Description   |
|---------------|--|---|
| Auto          | LONG (boolean)                             | (Optional) True: The parameters are preset with values calculated from the image (cannot be used with adjustments).   |
| Color         | <a href="#">IPLColor</a> * (variable, RGB) | (Optional) The color that should become white.<br>Default: white.   |
| FixWhitePoint | LONG (boolean)                             | (Optional) If WhitePoint uses the gray point mode (Mode is 1), the FixWhitePoint controls whether white is a fix color, that shouldn't be modified. Default: False. |
| Gamma         | float, range [0;5]                         | (Optional) Gamma value applied to the image.<br>Default: 1  |
| Limit         | Float, range [0;1]                         | (Optional) If WhitePoint uses the gray point mode (Mode is 1), Limit controls the brightness value, that corresponds to the color. Default: 1                       |
| Mode          | LONG                                       | (Optional) 0: White point mode<br>1: Gray point mode  |



| Parameter | Type | Description |
|-----------|------|-------------|
|           |      | Default: 0  |

## Operations applicable to images

### Descreen

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | Float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;100]                    | The filter threshold.   |

### VariableBlur

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |
| Intensity | Float, range [-5;5]                     | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1   |
| Radius    | float, larger than 0.5                  | The filter radius.  |
| Special   | float, range [0;1]                      | (Optional) Contrast value applied to depth values.<br>Default: 0.5  |

### WipeEffect

| Parameter | Type                                    | Description   |
|-----------|---|---|
| Channels  | LONG, bit mask                          | (Optional) A bit mask defining the channels to filter. 1 is the first color channel, 2 the second, ... The last one is the alpha channel.<br>There are two special values:<br>0x40000000: Filter every color channel<br>0x80000000: Filter alpha<br>Default value: 0xc0000000 |
| ColorMode | LONG ( <a href="#">ColorSpaceMode</a> ) | (Optional) CSMNative, CSMHIs and CSMLab.<br>Default: CSMNative  |

| Parameter | Type                   | Description   |
|-----------|------------------------|---|
| Intensity | Float, range [-5;5]    | (Optional) Intensity, 1 corresponds to 100%. Do not use for adjustments. Default: 1 |
| Radius    | float, larger than 0.5 | The filter radius.  |
| Special   | float, range [0;360]   | (Optional) The filter direction in degrees. Default: 0                              |

## Operations Manipulating Selections

### ClearSelection

This operation clears the selection. It doesn't edit any layer and doesn't have options.

### FillSelection

This operation fills the selection of an image layer with a color. If there is no selection, the whole image is filled.

| Parameter | Type   | Description   |
|-----------|--|---|
| Color     | <a href="#">IPLColor</a> * (variable, count) | (Optional) The color used to fill the selection. If missing, the foreground color will be used. |

### InvertSelection

This operation inverts the selection. If there is no selection, it creates an empty selection.

### MakeSelection

This operation creates or modifies a selection based on the opacity of the layer it is applied to. If the operation is applied to a document or page, it will base the selection on the active layer.

| Parameter | Type  | Description                   |
|-----------|---|-------------------------------|
| Mode      | LONG<br>( <a href="#">MakeSelectionMode</a> ) | (Optional) The creation mode. |

## Dictionaries

### Dictionaries for File Exports

On saving/exporting an object, you can use customized export settings. All settings are optional. If no customized settings are used, the values set inside PhotoLine are used.

Additionally to the file format options, there are:

| Key              | Value          | Description  |
|------------------|----------------|--|
| AddToRecentFiles | LONG (Boolean) | (Optional) If true, the used filename will be added the list of recently used files. Only used in combination with the Save and Save command of <a href="#">IPLDocument</a> or with ShowDialog set to true. Default: false |
| ShowDialog       | LONG (Boolean) | (Optional) True: The file dialog is shown. Default: false  |
| Title            | String         | (Optional) A title for the file dialog.  |

## The BMP Parameters

| Key          | Value          | Description  |
|--------------|----------------|--|
| ColorDepths  | LONG           | (Optional) 0: Automatic, depending on the content, 8, 15, 16, 24 |
| Transparency | LONG (Boolean) | (Optional): True: Create transparent BMP.                        |

## The DDS Parameters

| Key         | Value          | Description                    |
|-------------|----------------|--------------------------------|
| SaveMipMaps | LONG (boolean) | (Optional) True: Save mipmaps. |

## The EXR Parameters

| Key         | Value                                   | Description                      |
|-------------|---|----------------------------------|
| Compression | LONG ( <a href="#">EXRCompression</a> ) | (Optional) The compression used. |

## The GIF Parameters

| Key       | Value          | Description                                |
|-----------|----------------|--|
| Interlace | LONG (boolean) | (Optional) True: Create an interlaced GIF. |

## The JPEG Parameters

| Key              | Value                                    | Description   |
|------------------|--|---|
| Compress         | LONG, range [0;100]                      | (Optional) The resulting image quality.   |
| Progress         | LONG (boolean)                           | (Optional) TRUE: Create a progressive JPEG.   |
| EXIFPreview      | LONG ( <a href="#">EXIFPreviewMode</a> ) | (Optional) Controls whether an EXIF preview image is created.                               |
| ColorSubsampling | LONG (boolean)                           | (Optional) False: Use standard subsampling. True: Use subsampling for better color quality. |

## The JPEG 2000 Parameters

| Key      | Value               | Description                                       |
|----------|---------------------|---|
| Compress | LONG, range [0;100] | (Optional) The resulting image quality.           |
| Lossless | LONG (boolean)      | (Optional) True: The file is compressed lossless. |

## The JPEG XR Parameters

| Key      | Value               | Description                                       |
|----------|---------------------|---|
| Compress | LONG, range [0;100] | (Optional) The resulting image quality.           |
| Lossless | LONG (boolean)      | (Optional) True: The file is compressed lossless. |

## The PDF Parameters

| Key         | Value                                 | Description   |
|-------------|---------------------------------------|---|
| Bleed       | float                                 | (Optional) The bleed width in inch.   |
| ClipImages  | LONG (boolean)                        | (Optional) True: Clipped images are cropped.  |
| ClipToBleed | LONG (boolean)                        | (Optional) True: A clipping rectangle is created, so that everything outside the bleed rect is clipped. |
| ColorMode   | LONG ( <a href="#">PDFColorMode</a> ) | (Optional) The treatment of colors.   |

| Key                | Value   | Description  |
|--------------------|---|--|
| FontEmbedding      | LONG<br>( <a href="#">PDFFontEmbedding</a> )    | (Optional) controls the embedding of fonts.  |
| MaxResolution      | LONG  | (Optional) The maximum resolution of images. Images with a higher resolution will be scaled down. 0: Don't scale any images. |
| OnlyPrintable      | LONG (boolean)                                  | (Optional) Only printable layers are exported.   |
| PictureCompression | LONG<br>( <a href="#">PDFCompressionMode</a> )  | (Optional) The compression mode for colored images.  |
| Preview            | LONG (Boolean)                                  | (Optional) If true, a small preview image is created.  |
| TextCompression    | LONG<br>( <a href="#">PDFCompressionMode</a> )  | (Optional) The compression mode for text data.   |
| TransparencyMode   | LONG<br>( <a href="#">PDFTransparencyMode</a> ) | (Optional) The treatment of transparency.  |

## The PLD Parameters

| Key      | Value | Description  |
|----------|-------|--|
| Compress | LONG  | (Optional) 0: No compression, 3: best compression, 5: faster compression |

## The PNG Parameters

| Key       | Value             | Description                                       |
|-----------|-------------------|---|
| Compress  | LONG, range [0;9] | (Optional) 0: No compression, 9: best compression |
| Interlace | LONG (boolean)    | (Optional) True: Create an interlaced PNG.        |

## The SVG Parameters

| Key              | Value  | Description  |
|------------------|--|--|
| EmbedFonts       | LONG   | (Optional) 0: Keep text unchanged, 3: convert text to vector |
| ImageCompression | LONG<br>( <a href="#">SVGCompressionMode</a> ) | (Optional) Image Compression                                 |

## The TIFF Parameters

| Key         | Value          | Description   |
|-------------|----------------|---|
| Compression | LONG           | (Optional) 1: No compression<br>3: CCITT/Fax3<br>4: CCITT/Fax4<br>32773: PackBits<br>32946: ZIP   |
| SaveLayers  | LONG (boolean) | False: The document will be reduced to a background layer before saving.<br>True: Every layer of the document will be exported as separate image. |

## The WebP Parameters

| Key      | Value               | Description                             |
|----------|---------------------|---|
| Compress | LONG, range [0;100] | (Optional) The resulting image quality. |

| Key    | Value          | Description                              |
|--------|----------------|--|
| Filter | LONG (boolean) | (Optional) True: A prefilter is applied. |

## Dictionaries for IPLColor

### Gradient Dictionary

The Gradient dictionary defines the appearance of gradients. If a property or method expects an [IPLColor](#), you can usually also use a Gradient dictionary instead.

| Key           | Value  | Description   |
|---------------|--|---|
| ColorMode     | LONG ( <a href="#">ColorSpaceMode</a> )        | (Optional) The colors of the gradient will be interpolated in this color model.   |
| Colors        | IPLColor *[] (variable, RGB)                   | An array of colors defining the color stops. If this property is set, you can use an array of float arrays instead. The float array data will be interpreted as RGB.                          |
| Gammas        | Float[number of colors[ - 1]], range ]0;1[     | (Optional) Gamma value used for interpolation of two colors. The number of float values must be equal to or 1 less than the number of colors.   |
| Interpolation | LONG ( <a href="#">GradientInterpolation</a> ) | (Optional)The interpolation used to interpolate the colors.   |
| Name          | String   | (Optional)Name of the gradient.   |
| Points        | float[4]                                       | (Optional)Start and end point of gradient in a unity coordinate system. If not set, [0 0.5 1 0.5] will be used.   |
| Scale         | float  | (Optional) A circular gradient allows scaling the gradient perpendicular to the line defining it. Values smaller than 1 compress the gradient, values larger than 1 stretch it.<br>Default: 1 |
| Spread        | LONG ( <a href="#">GradientSpread</a> )        | (Optional)Repeating behavior of the gradient. Default value is GSContinue.  |
| Stops         | float[number of colors], range [0;1]           | The stop positions of the colors. The positions must be ascending.  |
| Type          | LONG ( <a href="#">GradientType</a> )          | (Optional)The type of gradient. Default value is GTLinear.  |

## Dictionaries for Text

### Text Styles Dictionary

The text styles dictionary is used to define a character or a paragraph styles. Character styles must not and paragraph styles must have a paragraph attribute.

| Key    | Value  | Description  |
|--------|--------|--|
| Name   | String | Name of the text styles. Text styles must have a unique name.  |
| Parent | String | (Optional) The name of the parent style. Attributes which are equal to the parent style, are inherited. The parent style must exist. |
| Follow | String | (Optional, only paragraph styles)The name of the following style.  |

| Key        | Value                           | Description                                       |
|------------|---------------------------------|---|
| Attributes | <a href="#">IPLDictionary</a> * | The <a href="#">text attributes</a> of the style. |

## Text Attributes Dictionary

The text styles dictionary is used to define a character or a paragraph styles. Character styles must not and paragraph styles must have a paragraph attribute.

| Key         | Value  | Description  |
|-------------|--|--|
| Attachment  | <a href="#">IPLDictionary</a> *              | (Optional) A text attribute defining an <a href="#">attachment</a> like page number, document name, ... Attachments may only be assigned to a single character with the hex value 0x02 which symbolizes attachments in the text. |
| AutoKerning | LONG   | (Optional) != 0: use the font kerning as it is defined in the font. Default value: 1   |
| Baseline    | float  | (Optional) Distance of the text to the baseline.   |
| Color       | <a href="#">IPLColor</a> * (variable, count) | The color of the text.   |
| Font        | <a href="#">IPLDictionary</a> *              | The <a href="#">font dictionary</a> defining the font.   |
| Kerning     | float  | (Optional) Manual kerning: additional distance between two characters.   |
| Ligatures   | LONG   | (Optional) != 0: use the ligatures as defined in the font. Default value: 1  |
| Outline     | <a href="#">IPLDictionary</a> *              | (Optional) <a href="#">Outline</a> dictionary. If this key exists, the text will be outlined.  |
| Paragraph   | <a href="#">IPLDictionary</a> *              | The <a href="#">paragraph</a> attribute. The paragraph attribute must not change inside a paragraph.   |
| Superscript | LONG   | (Optional) -1: subscript, 0: normal, 1: superscript  |
| TextStyle   | String                                       | (Optional) The name of the character style assigned to the text.   |
| Underline   | <a href="#">IPLDictionary</a> *              | (Optional) <a href="#">Underline</a> dictionary.   |

## Dictionaries Used in Text Attributes

### The Attachment Dictionary

Text attributes containing an attachment attribute must only be assigned to a single character and this character must be 0x02 which symbolizes text attachments in the text.

| Key  | Value  | Description  |
|------|--------|--|
| Type | String | There are the following types:<br>- Date<br>- PageNumber<br>- PageCount<br>- Document name |

The other keys in this dictionary depend on the type.

### Date

| Key       | Value  | Description   |
|-----------|--------|---|
| Date      | String | (Optional) The date has the format "day:month:year" |
| DayOffset | LONG   | (Optional) The number of days added to the date.    |

| Key         | Value | Description  |
|-------------|-------|--|
| Format      | LONG  | (Optional) != 0: Use long format. Default: Use short format. |
| MonthOffset | LONG  | (Optional) The number of months added to the date.           |
| YearOffset  | LONG  | (Optional) The number of years added to the date.            |

### DocumentName

The document name doesn't have any additional keys.

### PageCount

| Key    | Value | Description                                   |
|--------|-------|---|
| Offset | LONG  | (Optional) An offset added to the page count. |

### PageNumber

| Key    | Value | Description                                    |
|--------|-------|--|
| Offset | LONG  | (Optional) An offset added to the page number. |

## The Font Dictionary

| Key            | Value                | Description   |
|----------------|----------------------|---|
| FamilyName     | String               | The name of the font family   |
| PostScriptName | String               | The postscript name of the font.  |
| Scale          | float                | (Optional) A horizontal scaling of the font. 1 means no additional scaling, 0.5 halves the character width, 2 doubles it. |
| Size           | float                | The size of the font.   |
| Style          | LONG                 | (Optional) 0: No special style, 1: italic   |
| Weight         | LONG, range ]0;1000] | Weight of the font. 300 is light, 400 is normal/regular, 700 is bold.   |
| Width          | LONG, range ]0;1000] | Width of the font. 300 is condensed, 500 is medium and 700 is expanded.   |

If PostScriptName is set and a font with that name exists, FamilyName, Style, Weight and Width don't have to be set, because they are implicitly defined by the properties of that font.

## The Outline Dictionary

The Outline dictionary controls the appearance of outlined text.

| Key       | Value  | Description                    |
|-----------|--|--------------------------------|
| Color     | <a href="#">IPLColor</a> * (variable, count) | The color of the outline.      |
| LineStyle | IPLLineStyle *                               | The line style of the outline. |

## The Paragraph Dictionary

The Outline dictionary controls the formatting of paragraphs. It must not change inside a paragraph.

| Key       | Value | Description   |
|-----------|-------|---|
| After     | float | (Optional) An additional space after a paragraph. The default value is 0. |
| Alignment | LONG  | The alignment of the paragraph. The default value is                      |

| Key         | Value                                      | Description   |
|-------------|--|---|
|             | ( <a href="#">ParagraphAlignment</a> )     | PALeft (0).   |
| Before      | float                                      | (Optional) An additional space before a paragraph. The default value is 0.  |
| Connect     | LONG (Boolean)                             | (Optional) True: The paragraph will be on the same page as the next paragraph. The default value is false.  |
| FirstIndent | float                                      | (Optional) The indentation of the first line of the paragraph. This value must be larger than or equal to 0. The default value is 0.  |
| FixLine     | LONG (Boolean)                             | (Optionally) True: The Line key controls the distance between two baselines inside a paragraph. False: The Line key is an additional offset between two lines. The default value is false.  |
| LeftIndent  | float                                      | (Optional) The indentation of all lines of the paragraph except the first one. This value must be larger than or equal to 0. The default value is 0.  |
| Line        | float                                      | (Optional) The line distance between two lines of the paragraph. FixLine controls its exact meaning. The default value is 0.  |
| Register    | LONG ( <a href="#">ParagraphRegister</a> ) | (Optional) Controls whether the lines of the paragraph should be placed on the line register. The default value is PRNone (0).  |
| RightIndent | float                                      | (Optional) The right indentation of the paragraph. If the value is larger than 0, it is relative to the left edge of text layer. In that case it has to be larger than the left indent. If the value is smaller than 0, it is relative to the right edge of the text layer. The default value is 0. |
| StickStart  | LONG                                       | (Optional) The number of following lines, that have to be on the same page as the first paragraph line. The default value is 0.   |
| StickEnd    | LONG                                       | (Optional) The number of preceding lines, that have to be on the same page as the last paragraph line. The default value is 0.  |
| Style       | String                                     | (Optional) The name of the paragraph style assigned to the text.  |
| Tabs        | IPLDictionary *[]                          | (Optional) An array of tab dictionaries, that define the tabs for the paragraph.  |

If PostScriptName is set and a font with that name exists, FamilyName, Style, Weight and Width don't have to be set, because they are implicitly defined by the properties of that font. In other words: PostScriptName will override these settings.

## The Tab Dictionary

The Tab dictionary defines the properties of a tab..

| Key      | Value                            | Description  |
|----------|----------------------------------|--|
| Type     | LONG ( <a href="#">TabType</a> ) | (Optional) The tab type (left, right, ...) The default value is TTLeft (0).  |
| Position | float                            | The position of the tab. The position must be larger than or equal to 0.   |
| Filler   | String                           | (Optional) Fill character used for the tab space. Only the first character of the string is used. The default value is |



| Key     | Value  | Description  |
|---------|--------|--|
|         |        | no fill character.   |
| Decimal | String | (Optional) If the type is TTDecimal, the value defines the decimal character, that will be used for alignment. Only the first character of the string is used. The default value is “.”. |

## The Underline Dictionary

The Outline dictionary controls the appearance of outlined text.

| Key       | Value  | Description   |
|-----------|--|---|
| Color     | <a href="#">IPLColor</a> * (variable, count) | (Optional) The color of the outline. If absent, the text color will be used.                                    |
| LineStyle | IPLLineStyle *                               | (Optional) The line style of the outline. If absent, the default value for the font will be used as line width. |
| Position  | float  | (Optional) Offset factor for underline position. Positive values move the line up.<br>Default: 0                |

## Vector Attributes Dictionary

The vector attributes dictionary is used to define the appearance of a vector layer.

| Key       | Value                                       | Description  |
|-----------|---|--|
| FillColor | <a href="#">IPLColor</a> * (variable, RGB)  | (Optional) The fill color. If it is missing, the vector layer will not be filled.  |
| LineColor | <a href="#">IPLColor</a> * (variable, RGBs) | (Optional) The line color. If it is missing, the vector layer will not be stroked. |
| LineStyle | <a href="#">IPLLineStyle</a> * (variable)   | (Optional) The line style. If it is missing, the vector layer will not be stroked. |

## Other Dictionaries

### Copy Options Dictionary

These are the available options for copying layer data to the clipboard ([IPLDocument](#), [IPLPage](#), [IPLL ayer](#), [IPLL ayerArray](#)). Not all options are applicable in every situation.

| Key       | Value          | Description   |
|-----------|----------------|---|
| Clear     | LONG (Boolean) | (Optional) True: Delete the copied parts after copying. True is only allowed, if <ul style="list-style-type: none"> <li>used with a single image layer (<a href="#">IPLImage</a>)</li> <li>used with a layer array (<a href="#">IPLL ayerArray</a>) and “Selection” is set to false.</li> </ul> Default: false  |
| Defringe  | LONG (Boolean) | (Optional) True: Remove the color fringe at the edge of the copied selection. This is only applicable, if “Selection” is true and the command is applied to <ul style="list-style-type: none"> <li>a single image layer (<a href="#">IPLImage</a>)</li> <li>a page (<a href="#">IPLPage</a>) or documents (<a href="#">IPLDocument</a>)</li> </ul> Default: false |
| Selection | LONG (Boolean) | (Optional) False: Copy the selected layers.   |

| Key | Value | Description   |
|-----|-------|---|
|     |       | True: Copy the contents of the selection, if there is any.<br>If there is no selection, the selected layers will be copied. True is not allowed for a list of layers.<br>Default: false |

## Adjustments

Adjustments are a subset of the available operations, that can be applied to images. The parameters of the adjustments are stored in IPLDictionaries. All adjustment dictionaries contain the key “Type” whose value is the name of the operation as string. The other keys and values are the parameters of the operation.

The available adjustments are listed in [\*Operations applicable to images and as adjustments\*](#).