Canon

WebView Livescope provider

Version 1.0.5

User's guide

July 3, 2020

[Remarks]
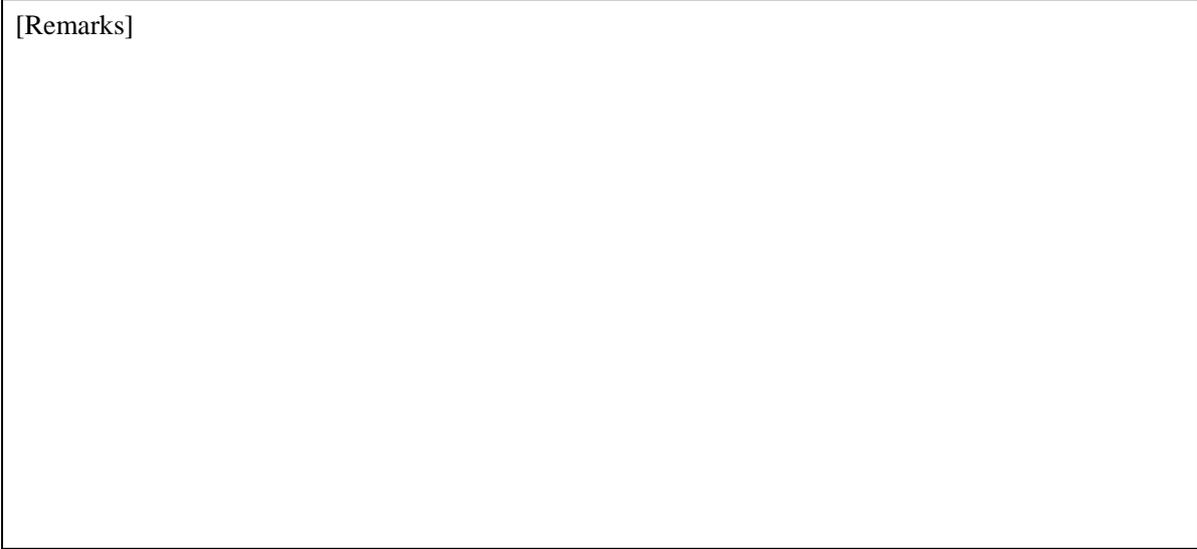
[Revision history]

Version	Date	Content
1.0.0	2013-09-10	First edition
1.0.1	2014-03-04	Added options, methods, and properties
1.0.2	2015-01-28	Added the minimum and maximum value properties for IRIS and GAIN.
	2015-03-27	Added options at AddController, Day/Night mode.
1.0.3	2018-09-12	Corresponded to the VB-M44/H45 model.
1.0.4	2018-11-19	Added option at AddController, ImageType
	2020-05-13	Add appendix.
1.0.5	2020-07-03	Fixed acquisition process when saving as BMP.

[Compatible models]

Model	Version	Note

Contents

1. Introduction

This document is a user's guide of CAO provider for WebView Livescope-series manufactured by Canon. This CAO provider (CaoProvCanonWebView.dll) is called WebView Livescope provider.

The next chapter describes the overview of WebView Livescope provider, and Chapter 3 lists the command references.

2. Overview of provider

2.1. Overview

WebView Livescope is CAO provider that absorbs WebView Livescope dependencies and offers CAO Provider interface specification-based functions. The file format is Dynamic Link Library (DLL) and it will be loaded from CAO engine automatically when it is used. Before using WebView Livescope provider, you need to install ORiN2SDK or to execute registry registration by referring to the table below.

Table 1 WebView Livescope provider

File name	CaoProvCanonWebView.dll
ProgID	CaoProv.Canon.WebView
Registry registration	regsvr32 CaoProvCanonWebView.dll
Remove registry registration	regsvr32 /u CaoProvCanonWebView.dll

2.2. Method and Property

2.2.1. CaoWorkspace::AddController method

WebView Livescope provider establishes communication by referring to the connection parameters for communication when AddController is executed. At that time, communication method is specified in option.

Syntax   AddController(<bstrCtrlName:BSTR>,<bstrProvName:BSTR>,

<bstrPCName:BSTR>,<bstrOption:BSTR>))

The following table shows a list of option string items

Table 2 Option character string of CaoWorkspace::AddController

Option	Explanation
Server=<Connection parameter>	This must be specified. Set communication configuration and its connection parameter.
[Timeout=<Timeout period>]	Specify a timeout period (millisecond) at the receiving and sending .(Default: 500)
[User=<user name>]	Superuser name (administrator /operator)
[Password=<password>]	Superuser password
[ImageType=<image type>]	The conservation form of the image is set. 0：BMP (default) 1：JPEG

2.2.1.1. Server option

The following shows connection parameter strings for Server option. Parameters surrounded by the square bracket ("[]") can be omitted. Underlined part shows the default value when the option is not specified.

"Server=<IP Address>[:<PortNo>]"

<IP Address>: Enter IP address of WebView being connected. This item cannot be omitted.

Example:"127.0.0.1","192.168.0.1"

<PortNo>: Connection port number

Example: "127.0.0.1:80","192.168.0.1:8080"

Example

_____

```
Dim caoEng as CaoEngine
Dim caoCtrl as CaoController

Set caoEng   = New caoEngine
Set caoCtrl = caoEng.Workspaces(0).AddController("webview", "CaoProv.Canon.WebView", "",
"server=192.168.0.2, timeout=800")
```

_____

2.2.2. CaoController::Execute method

Execute method in CaoController class sends and receives commands. Set a command name to the first argument and a command parameter to the second argument.

For details about commands that are implemented by WebView Livescope provider, refer to Chapter 3.

Syntax   Execute(<bstrCommandName:VT_BSTR>[,<vntParam:VT_VARIANT>])

          <bstrCommandName >   :   [in] Command name

          <vntParam>   :   [in] Parameter

2.2.3. CaoController::AddVariable method

AddVariable method in CaoController class is a method to access a variable. In WebView Livescope provider, a system variable is used as a variable name.

For about variables implemented in WebView Livescope provider, refer to Table 3 and Table 4.

Syntax   AddVariable(<bstrVariableName:VT_BSTR>[,<bstrOption:VT_BSTR>])

          <bstrVariableName>   :   [in] Variable name

          <bstrOption>   :   [in] Option string

Example

_____

Dim oFirmware As Object

Dim FirmWare as String

Set oFirmware = caoCtrl.AddVariable("@FIRMWARE")

FirmWare = oFirmware.Value

_____

2.2.4. CaoController::AddFile method

AddFile method in CaoController class is used to access a function.

For about a function implemented in WebView Livescope provider, refer to Table 5.

Syntax   AddVariable(<bstrFunctionName:VT_BSTR>[,<bstrOption:VT_BSTR>])

_____

<bstrVariableName>	:	[in] Function name
<bstrOption>	:	[in] Option string

Example

```
Dim oDayNight As Object
Dim oDayNightMode as Object
Set oDayNight = caoCtrl.AddFile("DAYNIGHT")
Set oDayNightMode = oDayNight.AddVariable("@MODE")
oDayNightMode.Value = "manual"
oDayNight.Value = 1
```

2.3. Variable list

2.3.1. Controller class

Table 3　Controller class user variable list

Variable name	Data type	Meaning	Attribute	
			get	put
IMAGE	VT_UI1 | VT_ARRAY	Still image (bitmap or JPEG)	√	–
ZOOM	VT_I4	Zoom value	√	√
ZOOM_MAX	VT_I4	Zoom wide side control limit	√	–
ZOOM_MIN	VT_I4	Zoom telephoto side control limit	√	–
ZOOM_SPEED	VT_I4	Zoom speed	√	√
PAN	VT_I4	Pan position	√	√
PAN_MAX	VT_I4	Camera platform right side control limit	√	–
PAN_MIN	VT_I4	Camera platform left side control limit	√	–
PAN_SPEED	VT_I4	Pan speed	√	√
TILT	VT_I4	Tilt position	√	√

TILT_MAX	VT_I4	Camera platform top side control limit	√	−
TILT_MIN	VT_I4	Camera platform bottom side control limit	√	−
TILT_SPEED	VT_I4	Tilt speed	√	√
FOCUS_MODE	VT_BSTR	Focus mode "auto": auto focus "manual": manual focus "infinity": fixed at infinity "one_shot": One-shot AF "stop": Stop "near": Move to near distance side "far": Move to far distance side	√	√
FOCUS_VALUE	VT_I4	Focus value The value is ignored if the setting of FOCUS_MODE is other than "manual".	√	√
EXPOSURE	VT_BSTR	Exposure mode "auto": auto "flickerfree": auto (flickerless) "tv": auto (shutter-priority AE) "manual": manual	√	√
SHUTTER	VT_I4	Shutter speed The value is ignored if the setting of EXPOSURE (exposure mode) is other than "manual".	√	√
IRIS	VT_I4	Aperture value The value is ignored if the setting of EXPOSURE (exposure mode) is other than "manual".	√	√
IRIS_MAX	VT_I4	The maximum iris diaphragm. The value cannot be obtained if the setting of EXPOSURE (exposure mode) is other than "manual".	√	−
IRIS_MIN	VT_I4	The minimum iris diaphragm. The value cannot be obtained if the setting of EXPOSURE (exposure mode) is other than "manual".	√	−
GAIN	VT_I4	Gain value The value is ignored if the setting of EXPOSURE (exposure mode) is other than "manual".	√	√

GAIN_MAX	VT_I4	The maximum Gain value	√	−
		The value cannot be obtained if the setting of EXPOSURE (exposure mode) is other than "manual".		
GAIN_MIN	VT_I4	The minimum Gain value	√	−√
		The value cannot be obtained if the setting of EXPOSURE (exposure mode) is other than "manual".		

Table 4　Controller class system variable list

Variable name	Data type	Meaning	Attribute	
			get	put
@ORIGIN	VT_BSTR	Address and port of the camera server	√	−
@DURATION	VT_BSTR	Remaining time in session	√	−
@PRIORITY	VT_BSTR	Session's priority level	√	−
@CONTROL	VT_BSTR	State of camera control privileges	√	−
@EPOCH	VT_BSTR	Start-up time	√	−
@HARDWARE	VT_BSTR	Model name	√	−
@FIRMWARE	VT_BSTR	Firmware version	√	−
@PROTOCOL	VT_BSTR	Protocol version	√	−
@COUNT	VT_I4	Number of cameras	√	−

2.3.2. File class

Table 5　File class funciton list

Function name	Data type	Meaning	Attribute	
			get	put

DAYNIGHT	VT_BSTR	Day/Night switching mode This setting is disregarded if other than "manual" is specified in the system variable (@MODE). "1" or "ON"：infrared cut-off filter ON "0" or "OFF"：infrared cut-off filter OFF	√	√

Table 6   File class system variable list

Variable name	Data type	Meaning	Attribute	
			get	put
@MODE	VT_BSTR	Day/Night mode "auto" : Auto mode "manual" : Manual mode	√	√

2.4. Error code

WebView Livescope provider does not have any original error code. For details about ORiN2 common errors, refer to "Error code" of "ORiN2 Programming Guide".

3. Command reference

Table 7 Command list

Category	Command	Function	
Motion			
	MoveCamera	Move a camera	P12
	OneShotFocus	One-shot AF	P12

3.1. Motion command

3.1.1. CaoController::Execute("MoveCamera") command

Move a camera to the specified position.

Syntax   MoveCamera (<CameraID >, <Pan >, <Tilt >, <Zoom >[, <Sync>])

CameraID	:	Set a Camera ID (VT_I4)
Pan	:	Pan position (VT_I4)
Tilt	:	Tilt position (VT_I4)
Zoom	:	Zoom position (VT_I4)
Sync	:	Synchronize / Unsynchronize mode (VT_I4)
		0: Unsynchronize
		1: Synchronize
Return value	:	none

Example

---

caoCtrl.Execute "MoveCamera", Array(1, 0, 0, 280, 1) 'Move a camera with the synchronize mode

---

3.1.2. CaoController::Execute("OneShotFocus") command

Bring a camera into focus at the current position.

Syntax   OneShotFocus (<CameraID>)

CameraID	:	Set a Camera ID. (VT_I4)
Return value	:	none

Example

---

caoCtrl.Execute "OneShotFocus", 1 'Bring a camera into focus at the current position

---

4. Sample program

The following program will display an image in a picture box.

List 4-1	Sample.frm

```
Private Declare Function SetDIBits Lib "gdi32" (ByVal hdc As Long, _
                                        ByVal hBitmap As Long, _
                                        ByVal nStartScan As Long, _
                                        ByVal nNumScans As Long, _
                                        lpBits As Any, _
                                        lpBI As BITMAPINFO, _
                                        ByVal wUsage As Long) As Long

Private Declare Sub RtlMoveMemory Lib "kernel32" (Destination As Any, _
                                        Source As Any, _
                                        ByVal Length As Long)
Private caoEng As CaoEngine
Private caoWS As CaoWorkspace
Private WebViewCtrl As CaoController
Private WebViewPicture As CaoVariable

Private Sub Form_Load()
    'Create CAO engine and CAO workspace
    Set caoEng = New CaoEngine
    Set caoWS = caoEng.Workspaces.Item(0)

    'CAO controller of WebView Livescope camera
    Set WebViewCtrl = caoWS.AddController("Livescope", "CaoProv.Canon.WebView", "",
"Server=192.168.0.1")

    'Get a variable object
    Set WebViewPicture = WebViewCtrl.AddVariable("Image")

    'Refresh the display
    Dim i As Long
    Dim BMP() As Byte
    BMP = WebViewPicture.Value

    Picture1.Cls

    Dim lAddr As Long
    RtlMoveMemory lAddr, BMP(10), 4

    Dim lWidth As Long
    RtlMoveMemory lWidth, BMP(18), 4

    Dim lHeight As Long
    RtlMoveMemory lHeight, BMP(22), 4

    'Copy BMPINFO
    Dim udtBM As BITMAPINFO
    For i = 0 To lAddr - 14 - 1
        udtBM.data(i) = BMP(i + 14)
    Next

    'Display an image
    SetDIBits Picture1.hdc, Picture1.Image, 0&, -1*lHeight, BMP(lAddr), udtBM, 0&
    Picture1.Refresh

End Sub
```
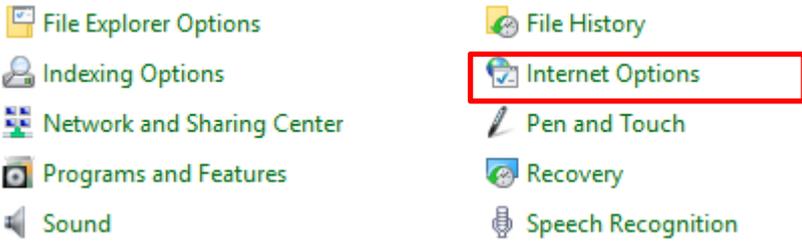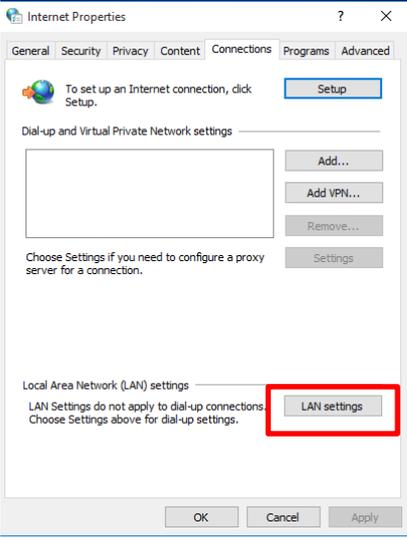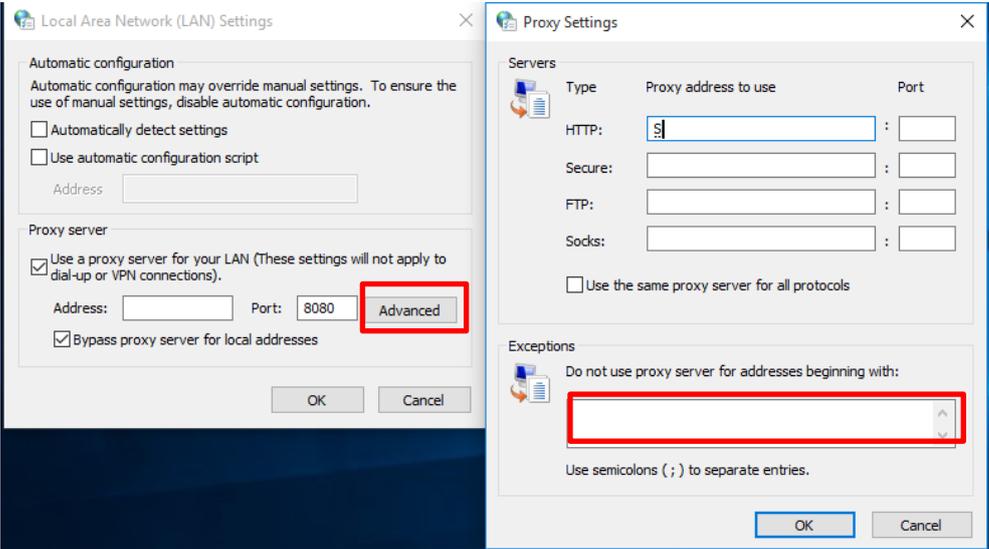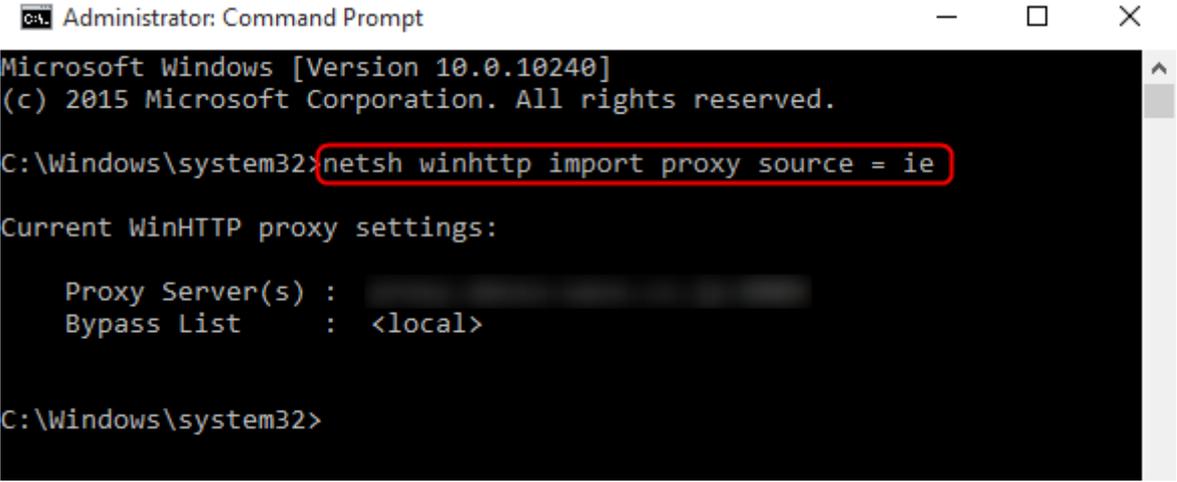
Appendix A.1. What to do if AddController fails

This section describes how to deal with error code 0x80072EE7 and 0x00000007 when adding controller.

Step	Content
1	Open Control Panel → Internet Options.
2	Click the "LAN settings" button on the connection tab.
3	Click the detail setting button and enter the IP of the camera to be connected in the exception field.

4	Start cmd.exe.
5	Execute "netsh winhttp import proxy source = ie" to apply the proxy set in step 3 to the WinHTTP proxy.