

RICOH R-GigE Provider

Version 1.0.0

User's guide

April 11, 2022

[Remarks]

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1. Introduction

This is a user's guide of R-GigE provider.

R-GigE provider, which is a CAO provider, communicates with GigE Vision camera (hereafter, GigE camera) by using R-GigE SDK that is RICOH camera control software.

To use R-GigE provider, you need to install R-GigE Package Ver2.3.0.1.

Chapter 2 shows the overview of R-GigE provider and Chapter 3 lists the command reference.

2. Overview of Provider

2.1. Overview

R-GigE provider absorbs R-GigE SDK-dependent specifications and provides CAO provider interface-based functions.

The file format of R-GigE provider is DLL (Dynamic Link Library) and it is dynamically loaded from CAO engine. To use R-GigE provider, you need to install ORiN2 SDK or register manually with the following information.

Table 2-1 R-GigE provider

File name	CaoProvR-GigE.dll
ProgID	CaoProv.RICOH.R-GigE
Registration	regsvr32 CaoProvR-GigE.dll
Deregistration	regsvr32 /u CaoProvR-GigE.dll

2.2. Method and Properties

2.2.1. CaoWorkspace::AddController method

R-GigE provider establishes communication with Gig-E camera at the timing of AddController.

Specify the connection destination camera with option character string.

Syntax AddController(<bstrCtrlName:VT_BSTR>,<bstrProvName:VT_BSTR>,
<bstrPcName:VT_BSTR> ,<bstrOption:VT_BSTR>)

<bstrCtrlName> : [in] Controller name (option)
 <bstrProvName> : [in] Provider name
 Fixed to “CaoProv.RICOH.R-GigE”
 <bstrPcName> : [in] Computer name where provider runs (option)
 <bstrOption> : [in] Option character string

The following table lists the option character strings.

Table 2-2 Option character strings of CaoWorkspace::AddController

Option	Description
Conn=Eth:<IP address>	Specify IP address of the camera connected.
Timeout[=<Timeout period>]	Specify the timeout period at the image obtainment. (Default:1000ms)

2.2.2. CaoController::Execute method

Execute a command.

To specify arguments of Execute method, use BSTR type for Command and VARIANT type array for Parameter.

For details about each command, refer to 3.1.

Syntax [<vntRet:VT_VARIANT>=]Execute(<bstrCmd:VT_BSTR>[,<vntParam:VT_VARIANT>])
 <vntRet> : [out] Return value of the specified command
 <bstrCmd> : [in] Command
 <vntParam> : [in] Parameter

2.2.3. CaoController::AddVariable method

Create a variable object.

For information about implemented system variables, refer to 2.3.1.

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

<bstrVariableName> : [in] Variable name

<bstrOption> : [in] Option character strings

Example

```
Dim aaa As Object
Dim bbb As Double

Set aaa = caoCtrl.AddVariable("@IMAGE")
bbb = aaa.Value
```

2.2.4. CaoVariable::get_Value method

Obtain the value of variable.

For details about values to obtain, refer to 2.3.

2.3. Variable list

2.3.1. Controller class

Table 2-3 Controller class System variable list

Variable name	Data type	Description	Attribute	
			get	put
@IMAGE	VT_UI1 VT_ARRAY	Obtain an image.	✓	-

2.4. Error code

In R-GigE provider, the following original error codes are defined. For information about ORiN2 common errors, refer to the chapter of error code in ORiN2 programming guide.

Table 2-4 Original error code list

Error name	Error number	Description
E_CAOP_EBUS_ERR	0x80100000 + < Return value of eBUS SDK>	eBUS SDK execution error
E_GIGE_NO_FIND_DEVICE	0x80200001	Camera device is not found.

E_GIGE_NO_CONNECT_DEVICE	0x80200002	Failed to connect with a camera device.
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3. Command reference

This chapter describes each command of CaoController::Execute method.

3.1. Controller class

The following table shows each command of CaoController::Execute method.

Table 3-1 CaoController::Execute command list

Command	Description	Page
GetImage	Obtain images	P9
ExecSoftTrigger	Run a software trigger to the connected device.	P9
PutExposureTimeRaw	Set a parameter for the exposure time.	P10

3.1.1. CaoController::Execute(“GetImage”) command

Obtain an image taken by Gig-E camera.

If any images have not been taken, this command waits for receiving images for the time specified by Timeout option of AddController().

When this command completes successfully, obtained images in Gig-E camera will be deleted.

Syntax GetImage ()

Argument : none
Return value : [out] image (VT_UI1 | VT_ARRAY)

Example

```
Dim vRes As Variant
caoCtrl.ExecSoftTrigger 'Run a software trigger
vRes = caoCtrl.GetImage 'Obtain an image
```

3.1.2. CaoController::Execute(“ExecSoftTrigger”) command

Run a software trigger for the connected device.

Images are obtained once this command completes successfully.

Syntax ExecSoftTrigger ()

Argument : none

Return value : none

Example

```
caoCtrl.ExecSoftTrigger 'Run a software trigger'
```

3.1.3. CaoController::Execute("PutExposureTimeRaw") command

Set a parameter for exposure time.

Syntax PutExposureTimeRaw (< IParam >)

< IParam > : [in] Exposure time(μ sec) (VT_I4)

Return value : none

Example

```
caoCtrl.PutExposureTimeRaw(1000) 'Set an exposure time ( $\mu$  sec)'
```

4. Sample program

The following shows a sample program for R-GigE provider.

List 4-1**Sample.pcs**

```
!'TITLE " R-GigE provider sample program"
Sub Main
  Dim strOption As String           'AddController option
  Dim objCtrl As Object            'Controller class
  Dim varImage As Variant          'Image

  ' Connect with R-GigE provider
  strOption = " Conn=Eth:169.254.160.137, Timeout=2000 "
  objCtrl = cao.AddController("R-GigE", "CaoProv.RICOH.R-GigE", "", strOption)

  ' Run a software trigger
  Call objCtrl.Execute("ExecSoftTrigger")

  ' Obtain an image
  varImage = objCtrl.Execute("GetImage")
End Sub
```