Release notes for weCat3D GigEVision 2.0.1

Version 2.0.1

Previous version 1.2.0

Release date 27.01.2021

Software description

The weCat3D GigE Vision Interface allows the communication between a GigE Vision compatible software and the weCat3D sensor.

More details about GigE Vision is given here https://www.visiononline.org/vision-standards-details.cfm?type=5

Supported operation systems

- Windows 7 (x64) or higher

New Features

Support of GigE Vision 2.1

This version is 100% compatible with the standard GigE Vision 2.1. This means that every third party software can be used which supports this standard.

https://www.visiononline.org/vision-standards-details.cfm?type=5

Timeout option -t in command line

Sets the profile receive timeout. If the weCat3DGigEInterface did not receive a profile from the sensor within timeout the weCat3DGigEInterface sends the GigE image to the network without waiting for the height of the image to complete. The weCat3DGigEInterface fills the missing scans and chunk data with zeros. Default value for timeout is 1000 ms. Set timeout to 0 to disable timeout.

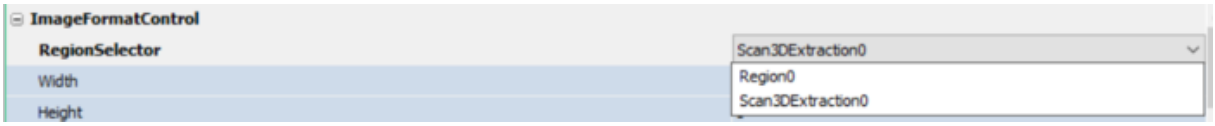
Example:

Here the sensor IP is 192.168.100.1 and the IP of the network interface on the IPC is 192.168.100.133.

```
weCat3DGigEInterface.exe -t 10000 -s 192.168.100.133 -i 192.168.100.1
```

Multi region support RegionSelector

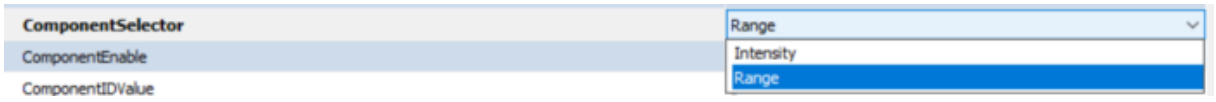
Command	RegionSelector
Access Mode	Read/write
Parameter	Scan3DExtraction0/Region0
Description	If Region0 is selected, the features Width, Height, OffsetX and OffsetY defne the size of the ROI on the 2D camera chip in pixels. If Scan3DExtraction0 is selected, the features Width, Height, OffsetX and OffsetY control the size of the output image transfered to the client. RegionSelector implementation is compatible with GeniCam standard naming convention (version 2.4)



Multi component support ComponentSelector

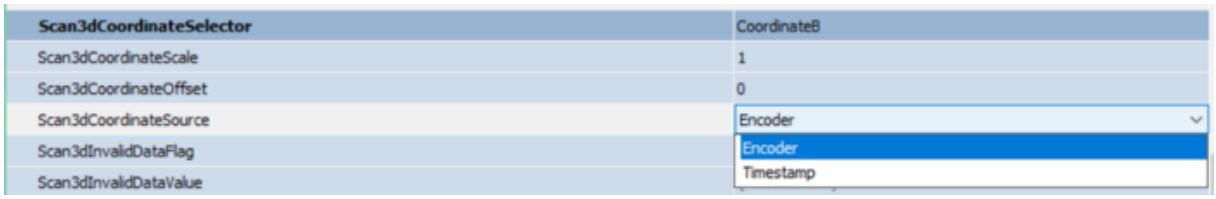
Command	ComponentSelector
Access Mode	Read/write
Parameter	Intensity/Range
Description	Selects the component to be transmitted in the output frame. • Intensity: The interface sends the intensity values of the scanned profile from the weCat3D profile sensor in Mono10/Mono10Packed pixel format. • Range: The interface sends the 3D points of the computed profile from the weCat3D profile sensor in Mono16 or Coord3D_ABC32f pixel format. If Mono16 in PixelFormat is selected, then weCat3DGigEInterface sends a rectifed 2.5D image which is suitable for different image processing algorithms. The following equations are needed in order to compute the X/Z coordinates in the coor dinate system of the sensor from the rectifed image: Distance Z(i) [mm] = (PixelValue(i) × Scan3dCoordinateScale[CoordinateC] + Scan3d CoordinateOffset[CoordinateC] Distance X(i) [mm] = i × Scan3dCoordinateScale[CoordinateA] + Scan3dCoordinateOff set[CoordinateA] “i” is the position of the pixel (column coordinate in image space) in each row, where each row represents an unique profle. Scan3dCoordinateScale[CoordinateA]: Scale factor of the X-axis Scan3dCoordinateScale[CoordinateC]: Scale factor of the Z-axis Scan3dCoordinateOffset[CoordinateA]: Offset factor of the X-axis Scan3dCoordinateOffset[CoordinateC]: Offset factor of the Z-axis Please refer to the Scan3dControl category for more details. If the value of a pixel at position (i) is zero, then it is invalid. Please note that profle sensors do not provide Y-coordinates. Thus an encoder value could be used to distribute the profles along the Y-direction. Please refer to the feature ExtraData or to the feature ChunkEncoderValue in ChunkDataControl category. If Coord3D_ABD32f in PixelFormat is selected, then the weCat3DGigEInterface sends the scan data of the profle sensor as a native point cloud format according to the new GigE Vision standard 2.0. The Y-coordinate in this pixel format is computed from the encoder

	value or from the timestamp value, see Scan3dCoordinateSource feature. Use the features Scan3dCoordinateScale[CoordinateB] and Scan3dCoordinateOff set[CoordinateB] to setup the scale and the offset used to convert the encoder value or timestamp value into mm. Please refer to Scan3dControl category for more details. The advantage of this pixel format is that the GigE Vision client should be able to decode the received data natively into point cloud format without any extra effort from the user side.



New parameter Scan3dCoordinateSource

Command	Scan3dCoordinateSource
Access Mode	Read/write
Parameter	Encoder/Timestamp
Description	This feature is only available when CoordinateB in Scan3dCoordinateSelector is selected. This feature defnes the source to compute the Y coordinate for the Range component of the image in Coord3D_ABD32f pixel format.



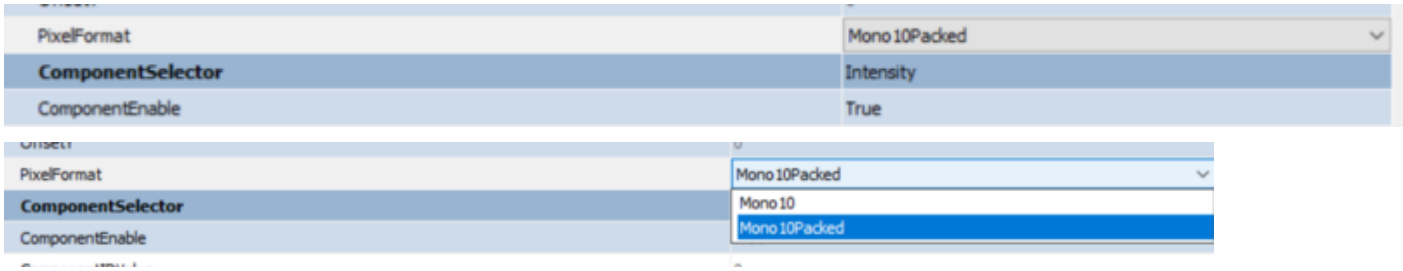
New parameter ResultingAcquisitionLineRate

Command	ResultingAcquisitionLineRate
Access Mode	Read only
Description	Shows the actual measurement rate of the sensor, updates every 1 second.

New pixel format for intensity component Mono10/Mono10Packed

Command	PixelFormat
Access Mode	Read/write
Parameter	Mono10/Mono10Packed/Mono16/Coord3D_ABC32f

Description	This command defnes the type of image sent to the client. • Mono10/Mono10Packed: Only available if Intensity component is selected. • Mono16: Only available if Range component is selected. • Coord3D_ABC32f: Only available if Range component is selected.



ASCII command allows to use all writes command from weCat3D SDK

Command	AsciiCommand
Access Mode	Write only (string)
Description	Sends an ASCII command to the weCat3D profle sensor. List of supported ASCII commands are summarized below. A detailed description is given in the SDK package of the weCat3D profle sensor which can be found on the wenglor web page. Sending an ASCII command is recommended only if the feature is not directly implemented in the GigE Vision feature tree.

Other changes

Removing of 2D representation profile / Removing Mono8 pixel format

Command	PixelFormat
Access Mode	Read / write
Parameter	~~Mono8: 2D representation of the scanned profile in Mono8 image.~~