

Utility Software for SVL Series
「SVLCtl」
Software Manual

Ver. 1.0

NetVision Co., Ltd

Version History

Version	Date	Description	Author
1.0	7. May., 2026	This document has been First Edition based on the SVMCtl Software Manual.	H.Amano

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1. Overview

This document is the software manual for SVLctl, the configuration software for SVL-series boards such as the SVL-03-UVC and SVL-03-GEN (hereinafter referred to as “**SVL Board**”). When using an SVL Board, you must use SVLctl to configure the SVL Board according to the specifications of the image sensor. For details on SVL Board hardware, refer to the hardware specification document for each board.

This software supports the SVL-03 series, including the capture board (UVC) and the generator board (GEN).

The screenshots in this document were captured from the Japanese-language version of the software. In localized editions of this manual, dialog boxes, messages, and menu labels may therefore appear in Japanese in figures. Please follow the on-screen text in your installed language when operating the product.

2. Installing and Uninstalling the Device Driver

To operate an SVL Board from an application, you must install the device driver. For installation instructions, refer to “**Device Driver Installation Manual.pdf**.”

3. Installing and Uninstalling the Application

3.1. Installing the Application

SVLctl is a portable application and does not require installation. Copy the “**Appl_x64**” folder to any location on your hard disk.

Note: Verify that the copied “**Appl_x64**” folder is configured with read and write permissions.

3.2. Uninstalling the Application

Delete the copied “**Appl_x64**” folder.

4. SVLctl Software Configuration Diagram

Figure 1 shows the software configuration of SVLctl.

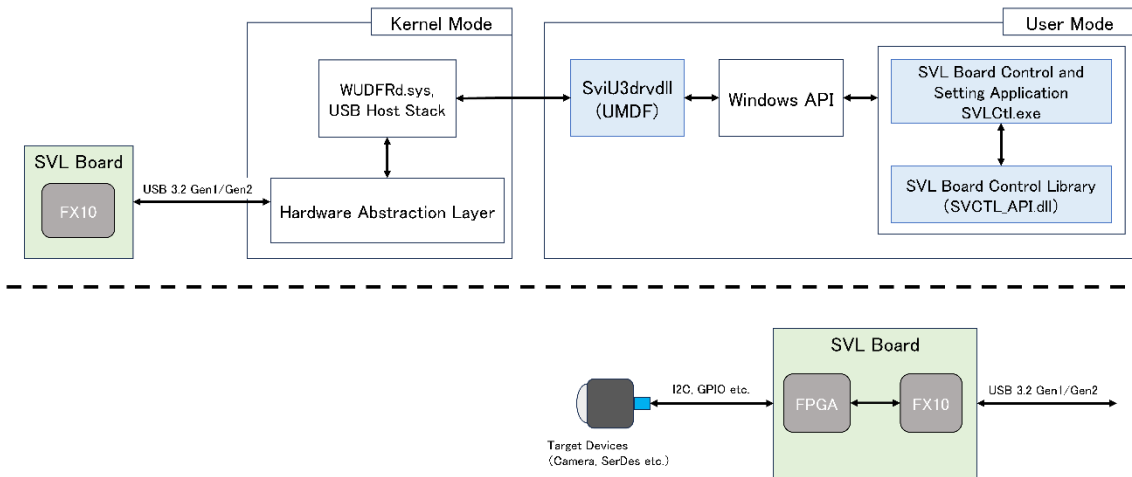


Figure 1 Software Configuration Diagram

5. SVLctl (SVLctl.exe) Details

SVLctl is a tool used to operate an SVL Board connected to a PC. It allows I2C read/write access for the camera/SerDes, confirmation of SVL Board status, and modification of board settings.

5.1. Select Board Dialog

If multiple SVL Boards are connected to the PC, the **Select Board** dialog appears as shown in Figure 2. Select the desired SVL Board and click **OK** to display the top screen for the selected board.

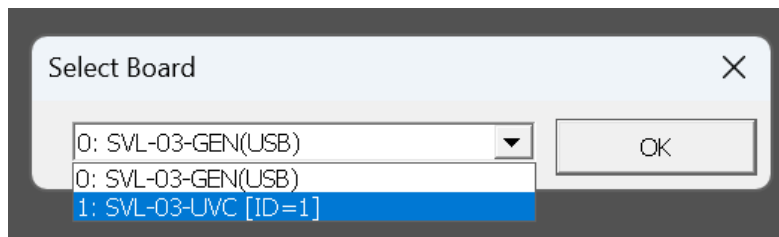


Figure 2 Select Board Dialog

5.2. Top Screen

Figure 3 shows the top screen displayed when the application starts.

The title bar displays the connected board name and the USB version. If high transfer speed is required for communication, verify that the title bar on the top screen displays **“USB 3.2 Gen 1”** or **“USB 3.2 Gen 2”** before use. If a board ID is specified, the board ID is displayed in the title bar, for example, [1].

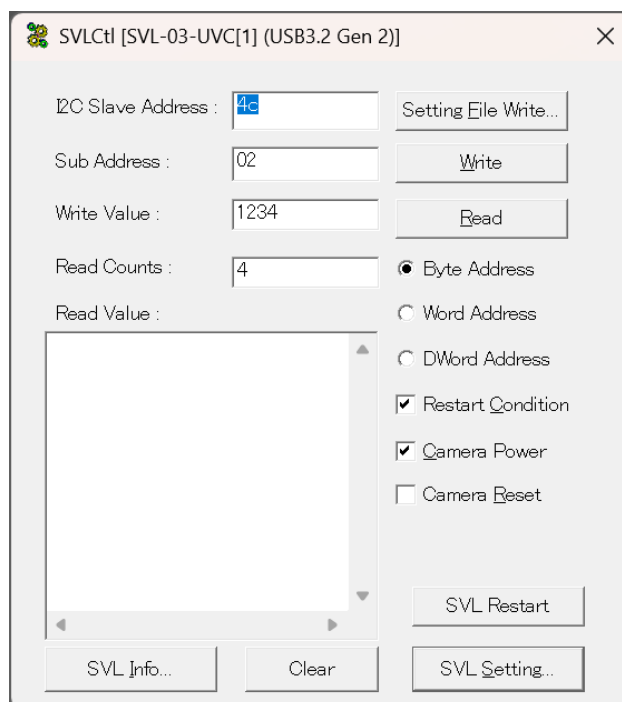


Figure 3 SVLctl Top Screen

Table 1 lists the menus available on the SVLctl top screen.

Item	Description
I2C Slave Address	Specify the device address (7-bit) of the target device in hexadecimal. Do not use addresses 0 or 1. If you specify address 8, the tool accesses FPGA registers (via SPI).
Sub Address	For I2C communication, specify the register address in hexadecimal. Depending on the selected checkboxes (Byte Address, Word Address, or DWord Address), specify an 8-bit, 16-bit, or 32-bit value, respectively. For FPGA register access, specify a 32-bit value.
Write Value	Specify the value to be transmitted in hexadecimal. Multiple bytes can be transmitted using comma-separated values. The maximum transfer size is 254 bytes. Firmware versions that extend the maximum transfer size support transfers exceeding 255 bytes.
Read Counts	Specify the number of bytes to read starting from Sub Address. The maximum value is 255 bytes. Firmware versions that extend the maximum transfer size support transfers exceeding 256 bytes.
Read Value	When you click Read, the read values are displayed as comma-separated values.
Write	Performs I2C / FPGA Register Write.
Read	Performs I2C / FPGA Register Read.
Byte Sub Address	When selected, the Sub Address value is treated as an 8-bit value for transmission and reception.

Word Sub Address	When selected, the Sub Address value is treated as a 16-bit value for transmission and reception.
DWord Sub Address	When selected, the Sub Address value is treated as a 32-bit value for transmission and reception.
Restart Condition	Sets the format for I2C reads. Refer to I2C Communication Format.
Camera Reset	Configures the reset signal to the camera. (Outputs L when selected.)
Setting File Write...	Loads a comma-separated configuration file and transmits I2C commands. For the file format, refer to Format of the Configuration File for I2C Communication.
SVL Info...	Displays the SVL Info screen. This function is used during our remote support sessions and is not typically used.
Clear	Clears the Read Value edit box.
SVL Restart	Restarts the SVL Board. Use this to apply the settings configured on the SVL Setting screen.
SVL Setting...	Displays the SVL Setting screen and allows you to modify SVL Board settings.

Table 1 Menu List on the SVLCtl Top Screen

5.3. SVL Setting Screen (UVC Board and DisplayPort Board)

SVL Setting is a configuration screen displayed when you click **SVL Setting...** on the top screen. You can use this screen to modify SVL Board settings.

The items displayed on the **SVL Setting** screen vary depending on the type of board detected. Figure 4 shows the **SVL Setting** screen when an **SVL-03-UVC** board is connected in UVC mode. The window title displays the model's name of the currently detected board.

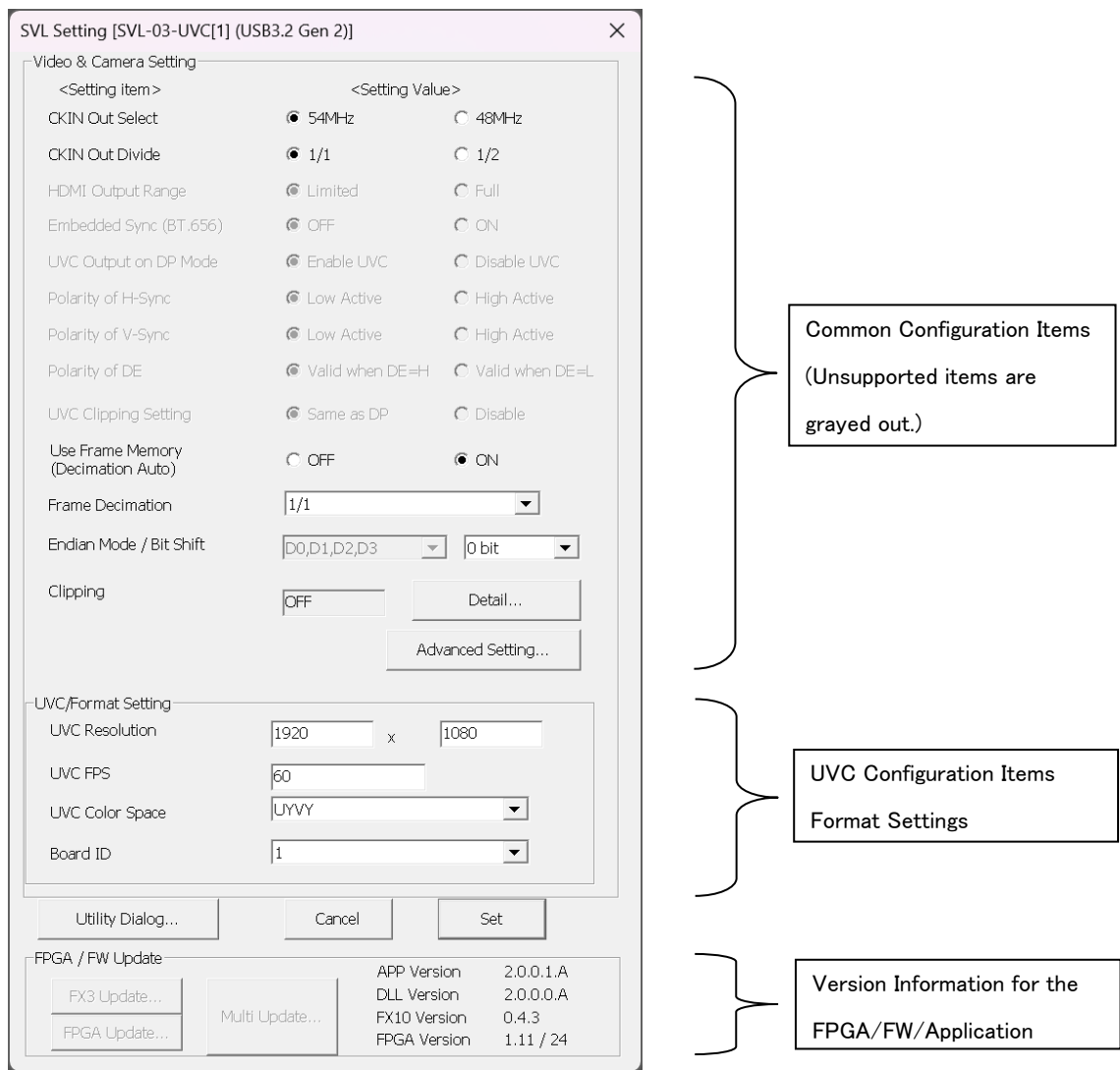


Figure 4 SVL Setting Screen

Table 2 lists the menus available on the SVLctl configuration screen, and Table 3 summarizes the descriptions of update functions and version information. Descriptions are omitted for items that cannot be configured or are not supported.

Item	Description
CKIN Out Select	Configures the drive clock supplied to the target. You can specify an arbitrary frequency in Advanced Setting.
CKIN Out Divide	Configures the clock division ratio for the drive clock supplied to the target. If the frequency setting in Advanced Setting is enabled, this setting is ignored.
Use Frame Memory (Decimation Auto)	When set to ON, frame memory is enabled as a buffer for USB frame transfer. If the input data rate exceeds USB throughput, frames that cannot be transferred in time are automatically dropped, and frames are transferred at a frame rate adjusted to the data rate that can be transferred over USB.

Item	Description
	When set to OFF, frames cannot be transferred if the input data rate exceeds USB throughput.
Frame Decimation	Configures the ratio for the frame decimation function, which can be set from 1/1 to 1/16.
Bit Shift	Configures the bit-shift width in the pre-capture stage, which is effective when the input is 8-bit. For example, if Bit Shift is set to 2 bits, 8-bit data of Pixel_Data[9:2] is captured.
Clipping	Click Detail... to configure clipping. The current clipping ON/OFF setting is also displayed in this dialog.
Advanced Setting...	Displays a dialog for modifying advanced settings.
UVC Resolution	Specifies the UVC resolution (in pixels). width must be a multiple of 4.
UVC FPS	Specifies the UVC frame rate (in FPS).
UVC Color Space	Specifies the UVC color space.
Board ID	Specifies the ID used when connecting multiple SVL Boards. Because the generator board sets the Board ID using the DIP switch, the GUI is disabled.
Utility Dialog...	reserved
Cancel	Cancels the dialog without applying the settings to the SVL Board.
Set	Applies (sets) the dialog settings to the SVL Board.

Table 2 Menu List on the SVLctl Configuration Screen

Item	Description
APP Version DLL Version FX10 Version FPGA Version	Displays the versions of the application, DLL, SVL Board firmware (FW), and FPGA currently in use. If the board is not properly connected to the PC, the FX10 and FPGA versions are not displayed correctly.

Table 3 Version Information

When starting in **DisplayPort output/input mode**, some configuration items are displayed as shown in Figure 5. Depending on the startup mode, the enabled/disabled state of configuration items in the GUI differs.

Figure 5. SVL Setting Screen When Started in Certain Modes



Figure 5 SVL Setting Screen When Started in Certain Modes

Item	Description
Set EDID/ Clear EDID ... (Only GEN DP Mode)	Writes to the SPI-ROM the settings used to advertise monitor identification information when receiving DisplayPort input as a substitute for a monitor. Use this when you need to configure a resolution other than the preset resolutions selectable via the DIP switch.
Set Timing / Clear Timing ... (GEN Board, UVC DP Mode)	This menu writes timing settings to the SPI-ROM so that the board can output video to the target side in stand-alone operation. In most cases, the same timing file (.svo file) used for USB mode can be used.
Set Timing / Clear Timing ... (Only UVC DP Mode)	In addition to DIP-switch-selectable resolutions such as 1080p and 720p, DisplayPort output can use custom resolutions. Custom resolution settings can be configured using a timing file (.svo file). Because the constraints for creating timing data differ from those for the generator board's USB output settings, refer to the documentation "How to Create User-Defined Resolutions for SVL-03" or contact support for details.
Input Color Space (Only Capture Board)	Select the input video color space from the target side and change the internal settings used to interpret it for DisplayPort output. The actual DisplayPort output color space (YUV/RGB) is determined by the DIP switch settings and the custom resolution settings. This item is common to UVC Color Space.

Table 4 List of Configuration Menus When Started in Certain Modes

5.4. Advanced Setting Screen

Figure 6 shows the **Advanced Setting** screen, which is used for advanced configuration. The available

configuration items vary depending on the board.

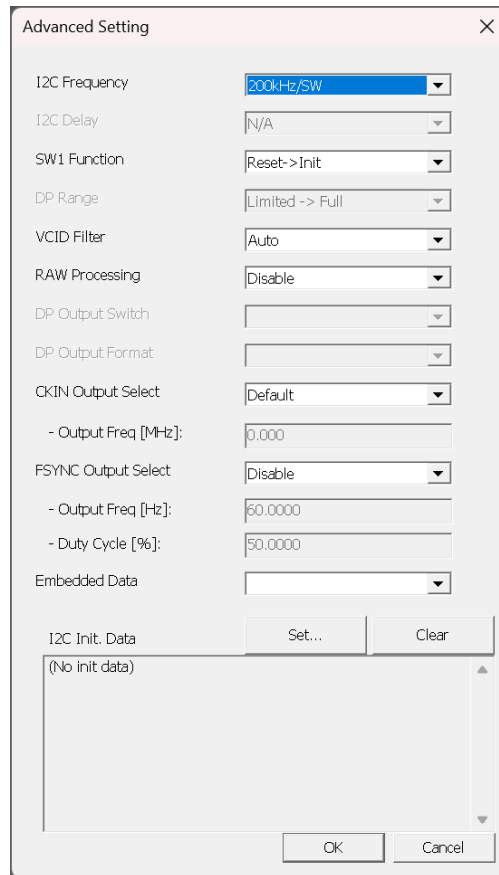



Figure 6 Advanced Setting Screen

Item	Description
I2C Frequency	<p>Configures the I2C bus communication speed.</p> <p>/SW setting: Performs I2C communication using MCU software processing. With software processing, I2C processing may be interrupted by other processing; therefore, the configured I2C frequency is provided as a guideline.</p> <p>/HW setting: Performs I2C communication using MCU hardware processing. When set to /HW, I2C communication is performed at an accurate frequency. In addition, the drive capability of the I2C pins is increased. However, if I2C processing is performed directly from software other than SVLctl via API calls, the functions SVI05API_I2COneBlockRead() and SVI05API_I2COneBlockWrite() cannot be used.</p> <p>Disable I2C: Disables the I2C function and disconnects the I2C bus between the target and the SVL Board.</p>
SW1 Function	Configures the function of switch SW1 on the board.

Item	Description
	<p>Reset Pin: Performs camera reset operation using SW1.</p> <p>Disabled: Disables the SW1 function.</p> <p>Reset -> Init: Press SW1 to assert reset. When SW1 is released, the reset is deasserted and I2C initialization data is transmitted.</p> <p>Init Setting: When SW1 is pressed and then released, I2C initialization data is transmitted.</p>
DP Range	<p>SVL-03-UVC: Configures the input/output range in DisplayPort mode. Full -> Limited is valid only when the output is YUV.</p> <p>SVL-03-GEN: Configures the video input range. This setting affects only color conversion when the input is RGB. When the input is YUV, it is processed as HDTV YCbCr Limited.</p>
VCID Filter	<p>Configures the Virtual Channel filter.</p> <p>Auto: Captures only video with VCID = 0.</p> <p>VCID = 0: Captures only video with VCID = 0.</p> <p>VCID = 1: Captures only video with VCID = 1.</p> <p>VCID = 2: Captures only video with VCID = 2.</p> <p>VCID = 3: Captures only video with VCID = 3.</p>
Raw Processing	<p>Specifies the output format for video output from the USB port when the input is Raw 8-12 bit, and the output is YUV. For behavior in DisplayPort mode, refer to the descriptions below.</p> <p>Thru: Outputs the input signal as-is at 16 bits/pixel. In SVL-03-UVC DisplayPort mode, a Raw-to-Grayscale conversion is inserted on the DisplayPort output side according to the input Data Type.</p> <p>Raw8 -> YUV Mono: When the input is RAW8, performs 8-bit to 16-bit conversion and outputs the data as a grayscale YUV 8-bit (UYVY) format.</p> <p>GrayScale: Converts the input to grayscale YUV 8-bit (UYVY) format and outputs it. Configure this together with Bit Shift on the SVL Setting screen. For RAW8 input, use Raw8 -> YUV Mono.</p> <p>Raw8 -> 16bpp: When the input is RAW8, performs 8-bit to 16-bit conversion and outputs the data as YUV 8-bit (UYVY) format. The U and V components are undefined.</p> <p>Disable: (SVL-03-UVC DisplayPort mode only) Disables Raw-to-Grayscale conversion for both UVC and DisplayPort.</p>
DP Output Switch	<p>Specifies the output behavior when no input signal is detected while operating in SVL-03-UVC DisplayPort mode.</p>

Item	Description
	<p>Keep Last Frame: Outputs the last received frame.</p> <p>Stop DP Output: Stops DisplayPort output.</p>
DP Output Format	<p>Configures the DisplayPort output format during SVL-03-UVC DisplayPort mode operation (RGB, YUV444, or YUV422).</p> <p>Configures the DisplayPort output format during SVL-03-UVC DisplayPort mode operation (RGB or YUV422). This option is currently not available.</p>
CKIN Output Select	<p>Configures the CKIN output frequency. Support for this function depends on the board version.</p> <p>Default: Applies the CKIN frequency selection and the clock-division selection configured on the SVL Setting screen.</p> <p>Stop: Stops CKIN output. In this case, L is output on the reset signal line regardless of the reset output setting.</p> <p>User-defined Freq: Outputs a clock with a frequency as close as possible to the frequency specified in Output Freq.</p> <div data-bbox="639 1025 1107 1263" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Error</p> <p style="text-align: center;">  Could not generate a frequency combination that exactly matched the input values. The following approximations were set 12345.678 -> nan </p> <p style="text-align: right;">OK</p> </div> <p>If a pop-up message like the one shown above appears after configuration, the entered frequency cannot be applied exactly and an approximate value is being used. In this case, you can use PLLSetting.exe, located in the Appl_x64 folder, to set a frequency that is closer to the configured frequency and the desired value.</p>
FSYNC Output Select	<p>You can configure the SVL-03-UVC board to output an FSYNC signal with an arbitrary frequency and duty cycle on supported pins. After the settings are applied, the waveform is output starting from the next startup.</p> <p>Output Freq [Hz]: Sets the frequency of the waveform to be output. Supported range: 1 to 1000 Hz.</p> <p>Duty Cycle [%]: Sets the percentage of the High period of the waveform to be output. You can enter a value in the range of 1 to 99%.</p>
Embedded Data	<p>Selects how to handle Embedded Data (Long Packets other than YUV, RAW, and RGB) as defined by Data Type.</p> <p>Default: Embedded Data is removed. FPGA register values written from configuration files or other sources take precedence.</p> <p>Pass: Embedded Data between FS and FE is transferred as part of the video frame.</p>

Item	Description
	Remove: Embedded Data is removed.
I2C Init. Data	<p>Configures the I2C initialization data to be transmitted when the SVL Board starts up. Clicking Set... opens a file selection dialog. When you select a configuration file, the settings are written to the SPI-ROM on the board, and the initial settings will be transmitted from the next startup onward.</p> <p>The configuration file uses the same format as Setting File Write on the top screen. Clicking Clear, clears the configuration file written to the board. The edit box below displays the current initialization data read from the board.</p>

Table 5 Advanced Setting Menu List

5.5. Clipping Setting Screen

Click Detail... under Clipping to open the Clipping Setting screen.

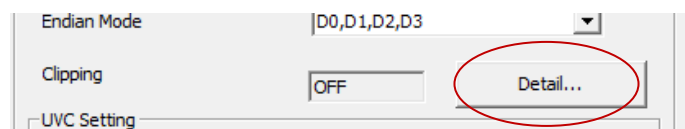


Figure 7 Clipping Setting Screen

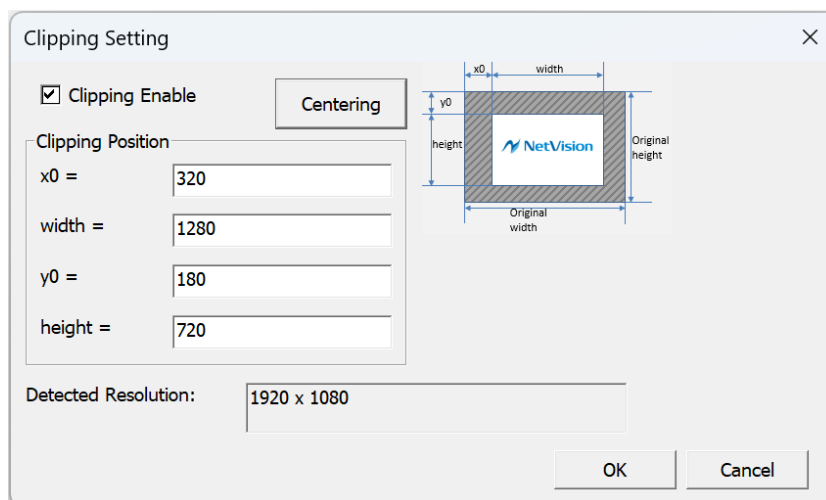


Figure 8 Clipping Setting

This screen is used to configure clipping (cropping) for input and output images in **DisplayPort mode** on the **SVL-03-UVC** and **SVL-03-GEN**. The settings are saved to the **SPI-ROM** in the same manner as other settings by clicking **Set** on the **SVL Setting** screen.

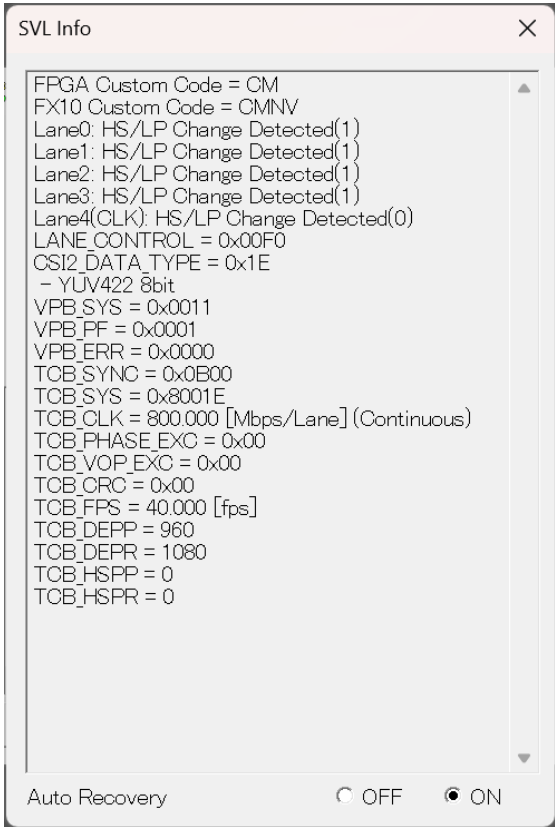
When using clipping in UVC mode, the resolution after cropping must match the UVC Resolution setting. In addition, on MIPI input boards, when the input format is RAW8, enter values that are one half of the original settings for x0 and width.

Item	Description
Clipping Enable	When selected, enables clipping.
Centering	Automatically sets x0 and y0 so that cropping is performed from the center of the image based on the automatically detected resolution and the specified width and height values.
x0, y0	Specifies the coordinates of the cropping start position.
width, height	Specifies the width and height for cropping. width must be a multiple of 4.
Detected Resolution	Displays the resolution of the image data detected on the SVL Board. Resolution detection is performed when the Clipping Setting screen is opened.
OK	Applies the changes and returns to the previous screen.
Cancel	Discards the changes and returns to the previous screen.

Table 6 Clipping Setting Menu List

5.6. SVL Info Screen

【図 9】 SVL Info(MIPI) 画面



The screenshot shows a window titled 'SVL Info' with a scrollable list of parameters and their values. At the bottom, there is an 'Auto Recovery' section with radio buttons for 'OFF' and 'ON', where 'ON' is selected.

■ 主なレジスタ値の意味 (SVL-03-UVC ボードの場合)

FPGA Custom Code: FPGA identification code

FX10 Custom Code: FX10 Firmware (FW) identification code

Lane0-3: Indicates whether HS/LP transitions are present on the MIPI data lanes

Lane4: Indicates whether HS/LP transitions are present on the clock lane

LANE_CONTROL: MIPI lane usage information

CSI2_DATA_TYPE (e.g., SVL-03-UVC): MIPI CSI-2 data type

VPB_SYS: Status of the internal FPGA line buffer

VPB_PF: Frame decimation setting status

VPB_ERR: Fixed to **0x0000**

TCB_SYS: Target capture configuration status

TCB_CLK: MIPI data rate [Mbps/Lane]

TCB_PHASE_EXC: Exception status of the MIPI D-PHY chip

TCB_VOP_EXC: Exception status after MIPI signal decoding

TCB_CRC: MIPI CRC error information

TCB_FPS: Frame rate

TCB_DEPP: Horizontal resolution value

	TCB_DEPR: Vertical resolution (number of lines) TCB_HSPP: reserved TCB_HSPR: reserved Auto Recovery ON/OFF: Enables or disables automatic reset of the target capture block inside the FPGA when a MIPI error is detected.
--	---

This is a debug screen used for support purposes. Click **SVL Info...** on the main screen to display the **SVL Info** screen. This dialog shows internal status information for the SVL Board.

The values displayed for **DEPP** and **HSPP** are clock counts measured on the internal bus on MIPI-series boards; the displayed values are proportional to the resolution.

The displayed values on the **SVL Info** screen and the meaning of the register values vary depending on the board type and the SVLctl version.

5.7. How to Connect the SVL Board

Connect the PC and the SVL Board by following the procedure below.

1. Download the full package for the applicable board from the page below, and extract it to any folder on the PC.
<https://www.net-vision.co.jp/support/update.html>
2. Connect the SVL Board to a USB port on the PC.
3. When prompted to install the driver, specify the path to the downloaded folder and install the driver.

For details on driver installation, refer to “**Device Driver Installation Manual.pdf**” included in the package.

5.8. Installing the Application

Use the downloaded **Appl_x64** folder. If a custom CD-ROM or software for specific customers is included, use that instead.

5.9. Starting the Camera Using the Camera Control Application

1. Start SVLctl.exe located in the Appl_x64 folder.
2. The application starts as shown in Figure 9.

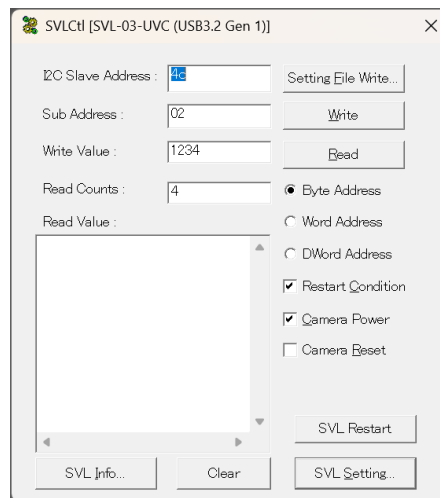


Figure 9 Application Screen

3. In I2C Slave Address, enter the camera slave address (7-bit) in hexadecimal.
4. Click Setting File Write, specify the initial configuration file for the target device, and transmit it to the target device. In the example below, selecting the initial configuration file DS90UB954_init_CH1(913) and clicking Open sends the contents of the configuration file to the target device.

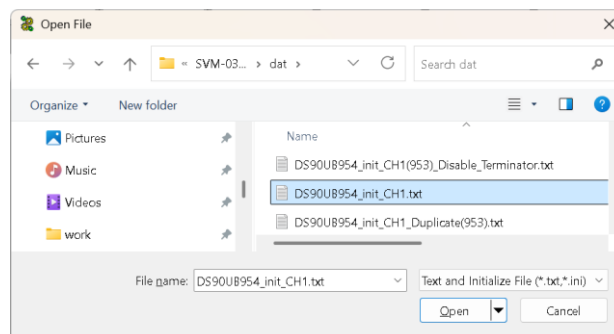


Figure 10 Setting File Write – File Selection Screen

- Files located in a path that contains multibyte characters (e.g., Japanese characters) may not be read correctly.

If an error message is displayed, check the camera connection and the SVL Board connection, and then transmit the initial configuration file again.

5. When the initial configuration file is transmitted successfully and the target device starts video output, **LED9** on the SVL Board blinks. (At high frame rates, it may appear to be dimly lit continuously.)

5.10. Format of the Configuration File for I2C

The text file (extension **.txt**) used to perform I2C communication via the **Setting File Write** script is written as **one command per line**. Commands must be written in the format shown below. Using the **Setting File Write** button in SVLctl or **Advanced Setting > I2C Init Data**, you can write the file to the SPI-ROM on the SVL Board so that it is executed at startup.

(EXAMPLE)

```
; Setting file sample
; ";" indicates a comment line.
; "#" indicates a comment line.
; Commands are executed sequentially from top to bottom.
; Slave address changes, numeric base changes, etc. can be performed in the middle of the file.
# Set the sub-address field width to 8 bits
BYTE
# Use hexadecimal notation
UNIT,16
#-----
# Specify the slave address
SLAVE,2A
; SLAVE,[7-bit slave address]
# Device configuration 1
00,00
01,00,02
; [register address],[data],[data]...
; Configuration continues...
#-----
# Wait setting
# Wait 100 ms (hexadecimal notation is used)
wt,64
; wt,[value in ms using the numeric base specified by UNIT]
#-----
# Specify the slave address
SLAVE,44
; SLAVE,[7-bit slave address]
# Device configuration 2
01,90
; [register address],[data],[data]...
; Configuration continues...
#-----
# Specify the slave address
SLAVE,50
; SLAVE,[7-bit slave address]
# Set the sub-address field width to 16 bits
```

```

WORD
# Device configuration 3
00ff,01
0790,38
; [register address],[data],[data]...
; Configuration continues...

```

- The UNIT command specifies the numeric base used by the SLAVE command, write commands, and the wt command. The base can be set to "10" or "16". "10" indicates that subsequent numeric values are in decimal, and "16" indicates that subsequent numeric values are in hexadecimal.
- The SLAVE command specifies, as a 7-bit hexadecimal value, the destination device address to which write commands are sent.
- A command line that begins with (sub-address) is a write command. It performs an I2C write in the following order: (sub-address) (write value 0) (write value 1) The first (sub-address) specifies the destination register address as an 8-bit or 16-bit value. The bit length of (sub-address) is set by the BYTE command (8-bit) or the WORD command (16-bit). If no BYTE/WORD command is specified in any line preceding the write command, the state of the Word address mode checkbox is applied.
- The maximum number of write values per command is 255. In addition, each line in the configuration file must be within 16 kB.
- The wt command specifies waiting for the duration indicated by the wait value. Specify the wait value as an integer in milliseconds, up to 32767 in decimal. The numeric base of the wait value is determined by the UNIT command. When using the Setting File Write function in SVLCtl, the wait is implemented using the Windows API Sleep function; therefore, there may be a discrepancy between the specified wait value and the actual wait time.

When the data is written to the SPI-ROM on the SVL Board and executed using Advanced Setting > I2C Init Data, the wait time may differ slightly from the wait time when executed via Setting File Write.

- The BYTE command indicates that subsequent (sub-address) and (wait value) fields are 8-bit values.
- The WORD command indicates that subsequent (sub-address) and (wait value) fields are 16-bit values.
- To specify the format of (sub-address) in the configuration file, write a line containing WORD or BYTE at the beginning of the configuration file.
- A command that begins with the half-width symbol "#" or ";" is treated as a comment from that point to the end of the line, and the line is skipped. Blank lines are also skipped.
- Access to device address 8 is treated as a write to an FPGA register. In this case, (sub-address) in the write command is 32-bit, and the register value is specified across write values 0 through 3 as 8-bit chunks in MSB-first order.
- Commas or spaces can be used as field separators.

5.11. Applying Board Setting

SVL Board settings (such as video format settings and UVC settings) can be changed using both this application and the DIP switch (SW2) on the SVL Board. When you change settings on the **SVL Setting** screen and click **Set** to apply them, the setting values are saved to the SPI-ROM on the SVL Board. After clicking **Set**, the settings take effect either by restarting the device using **SVL Restart** on the main screen or by disconnecting and reconnecting the device to the PC.

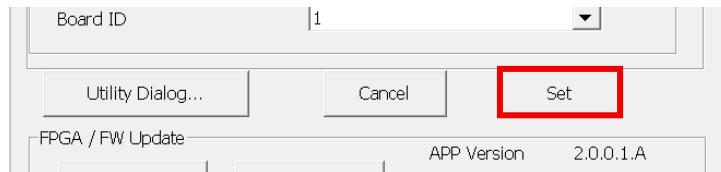


Figure 11 Set Button

The setting values stored in the SPI-ROM are loaded when the SVL Board starts up, and the firmware applies the board configuration. Once the settings have been configured using the application, you do not need to configure them again the next time or thereafter.

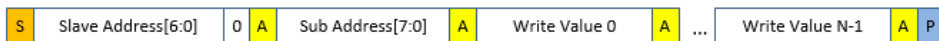
6. I2C Communication Format

explanatory note

S Start **P** Stop **A** ACK(Slave) **A** ACK(Master) **N** NACK(Master)

6.1. I2C Write

Word Address: Unchecked

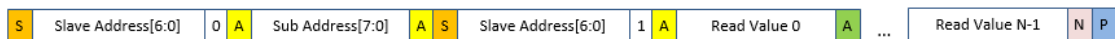


Word Address: Checked

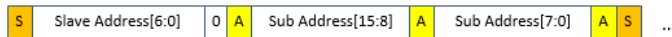


6.2. I2C Read (Restart Condition Checked)

Word Address: Unchecked

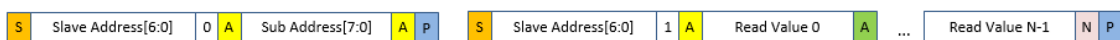


Word Address: Checked

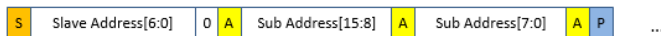


6.3. I2C Read (Restart Condition UnChecked)

Word Address: Unchecked



Word Address: Checked

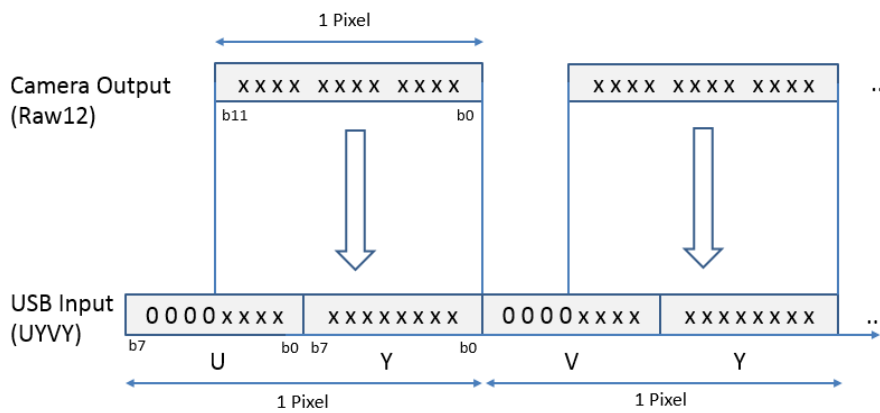


7. Processing for Raw Input

7.1. Outputting the Input Signal Without Modification

For Raw-format input, the following input formats are supported: **Raw8**, **Raw10**, **Raw12**, **Raw16**, and **Raw20**. Because the UVC standard does not support Raw formats, capture must be performed using another format, and Raw image processing is performed by software on the host PC. For **Raw8 to Raw16**, set the pixel format to **UYVY** to capture the data packed as **16 bits per pixel**.

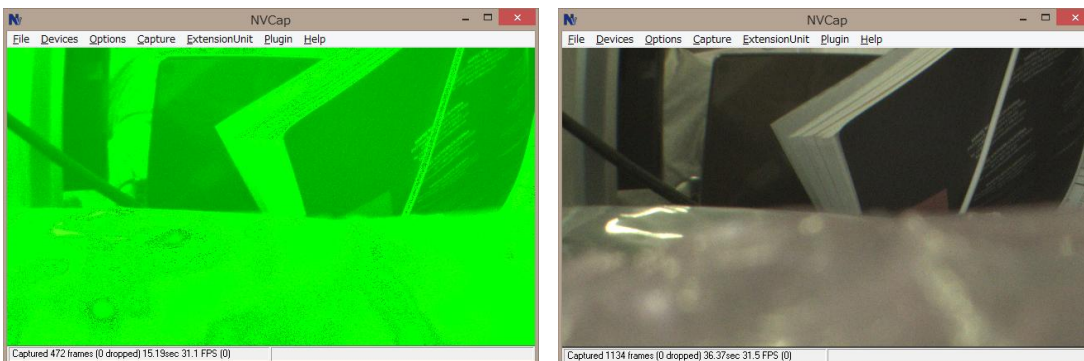
In this case, for **Raw8 to Raw12**, the input data is expanded to a 16-bit width as shown below, zeros are set in the upper bits, and the data is output to the PC. In addition, depending on the SVLctl settings, Raw input can be output as a **monochrome YUV 8-bit** format.



From the PC, the device is recognized as a camera that outputs **UYVY** or **RGB24** format. However, because the video data in Raw format is not actually UYVY or RGB24, general capture software cannot display it correctly. The bundled UVC capture software **NVCap** can perform demosaicing using its plug-in filter function, enabling both color and grayscale display.

With NVCap, recording is possible using any pixel format (UYVY or RGB24) configured on the **SVL-03-UVC** board, and the RAW data is recorded after being packed into the configured pixel format.

To pack RAW input into UYVY or RGB24 format and output it as is, configure the following settings in SVLctl.



Input	Bit Shift	RAW Processing	UVC Color Space
RAW8	0 bit	Raw8 → 16bpp	UYVY
RAW10	0 bit	Thru	UYVY
RAW12	0 bit	Thru	UYVY
RAW16	0 bit	Thru	UYVY
RAW20	0 bit	Thru	RGB24

7.2. Converting the Input Signal to Grayscale YUV Format and Outputting It

The SVL Board provides a function to convert RAW-format input to grayscale YUV format on the board. By converting and outputting the signal in grayscale YUV format, the image can be displayed as a grayscale image using general capture software. The upper 8 bits of the input data are assigned to the Y (luminance) component of the output video (UYVY format), and 0x80 is assigned to the U/V (chrominance) components.

When the grayscale output setting is used, the lower bits of the pixel data in the input video (bits 0 to 3 in the case of RAW12 input) are discarded. In addition, because no image processing such as gamma correction is performed, if the input has a high bit depth, the displayed image will appear almost completely black.

Note: This setting is not supported for RAW16 and RAW20.

To convert RAW input to grayscale YUV format and output it, configure the following settings in SVLCtl.

Input	Bit Shift	RAW Processing	UVC Color Space
RAW8	0 bit	Raw8 → YUV Mono	UYVY
RAW10	2 bit	Grayscale	UYVY
RAW12	4 bit	Grayscale	UYVY

8. Applicable Versions

– SVLCtl: Ver. 2.0.0.0 or later

Note: When an SVL Board is delivered, use the latest version of SVLCtl available on our website download page.

If you have any questions, contact our support team.