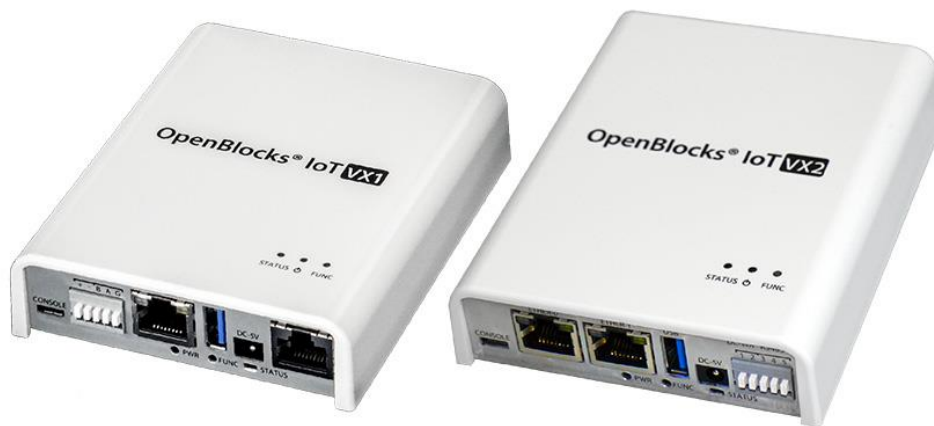# OpenBlocks IoT Family
Camera Function Guide

Ver.3.2.0

Plat'Home Co., Ltd.

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Table of contents

Chapter 1 General

This manual describes how to use the streaming function and motion detection using USB or WEB cameras that can be installed in OpenBlocks IoT Family.

Chapter 2 Camera function advance preparation

2-1. Installing camera function

At the time of shipment from our factory, Docker, camera function is not installed in this product. To install camera function, using the **[Maintenance]-[Enhancements]** tab.
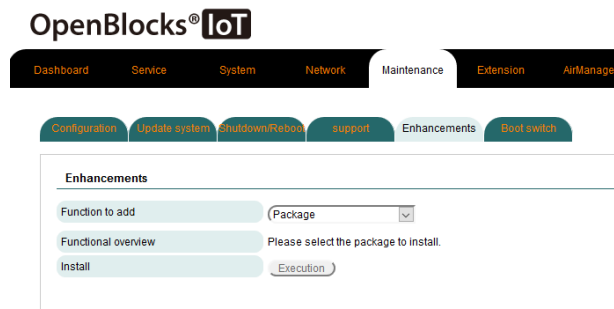
When choosing the **[Maintenance]** tab of WEB UI and clicking on the **[Enhancements]** tab, it is possible to choose a package for extensions.
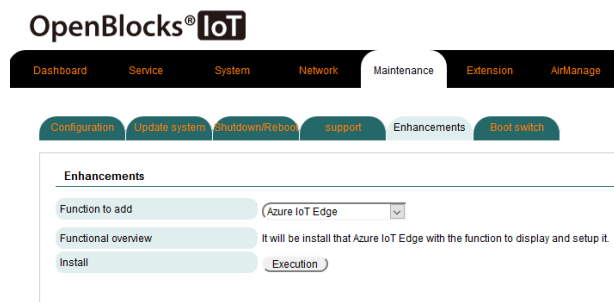

From the pull-down menu showing a list of packages to be installed, choose "Camera".
Press the Execution button to install the program.

After completing installation, the unit will require rebooting to make the installation effective. Choose the Shutdown/Reboot tab from the Maintenance tab to reboot the unit.

2-2. Setup camera function

When the camera package has been installed, link of camera function will be displayed in the **[Service]-[Basic]** tab.
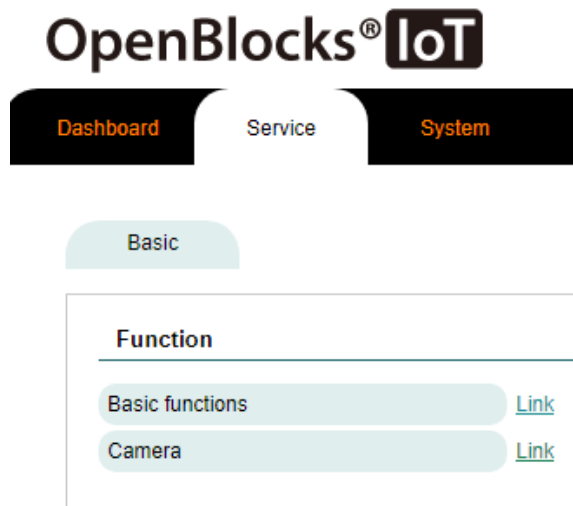
Choose the Service tab and click on the **Camera** link in the **[Basic]** tab. The root tab will be switched to display the **[Dashboard]**, **[Basic]** and **[Camera]** tabs for service.

*Links and root tabs for service that appear in the **[Service]-[Basic**] tab may differ, depending on the packages installed using the **[Maintenance]-[Enhancements]** tab.

For the functions you want to use, refer to the contents below and make the appropriate settings.

2-3. Camera streeming function

In the **Web camera** menu on the **[Camera]-[Web camera]** tab, it can display the image data of the camera connected to this machine as streaming on the Web UI.

Also, if you are trying to check the streaming display on WEB UI, setup the URI proxy function in the **URI proxy** menu on the [Extension]-[URI proxy] tab.   Please use it when checking the operation of the connected camera.

Web camera

USB camera setting :

To use this function, choose "Enable." If not, choose "Disable."

Device file of USB camera :

Specify the device file detected as a USB camera. In most cases, there is no need to change it.

Resolution：

Select the resolution when the camera shoots.

* The list of resolutions displayed in this list is not linked with the camera itself.

FPS：

Specify the frame rate. Since the standard USB camera's FPS is about 30 fps, please set it between 1 and 30.

Image quality：

Specify the image quality for taking pictures between 1 and 100. The higher the image quality is, the closer you are to 100. If the image quality is high, CPU load will be high, so check the resource status before setting.

Port number of WEB for streaming：

Specify the port number for displaying streaming on the web. 8080 which is not used in this system is set by default.

* When confirming with URI proxy, please set this port number.

After completion of setting, pressing the save button activates/stops the streaming function of the camera.

When the streaming function starts up, the streaming menu will be displayed as follows.

Streaming

Streaming URI Proxy:

If there is a port number set for the URI proxy, it will be entered automatically.

Also, pressing the "Display" button displays the streaming image on the Web UI.

Display size

Select the size of the streaming image displayed on the Web UI.

* Streaming images displayed on WEB UI are displayed for 5 minutes.

2-4. Motion detection function

In the **Motion detect** menu on the **[Camera]-[Motion detect]** tab, motion detection can be performed using streaming data or a camera connected to this machine.

When moving objects are detected, scripts can be executed by storing and saving movies and saving events after detection.

In addition, streaming can be performed for this function as well as camera streaming function of the previous chapter.

*Selected IP camera

Motion detection

Motion detection setting :
To use this function, choose "Enable." If not, choose "Disable."

Input for motion detection :
Select "IP Camera" or "USB Camera" as input for motion detection.

IP camera URL : (for IP camera)
Specify the URL of the IP camera to be input.
When using the camera streaming function of the previous chapter as input, please use the URI proxy function and set as follows.
http://127.0.0.1:880/*<URI Proxy>*/?action=stream
It is also possible to use an external network camera as an input. In that case, basic authentication is supported, so please use access without authentication or basic authentication.

Device file of USB camera: (for USB camera)
specify the device file detected as a USB camera. In most cases, there is no need to change it.

Resolution : (for USB camera)
Select the resolution when the camera shoots.
* The list of resolutions displayed in this list is not linked with the camera itself.

*Selected USB camera

FPS : (for USB camera)

Specify the frame rate. Since the standard USB camera's FPS is about 30 fps, please set it between 1 and 30.

Image quality : (for USB camera)

Specify the image quality for taking pictures between 1 and 100. The higher the image quality is, the closer you are to 100. If the image quality is high, CPU load will be high, so check the resource status before setting.

Motion detection threshold :

Specify the threshold value of the difference pixel between frames recognized as moving objects. It is necessary to change according to resolution and contents to be processed.

Event end time[sec] :

Specify the time in seconds to stop moving object detection when there is no motion after moving object detection.

Destination directory :

Specify a directory for saving movie files when performing motion detection.

*As the amount of writing changes according to the detected amount of motion, we recommend on SD card.

Video saved :

When moving objects are detected, specify whether to save the movie.

Maximum video strage time[sec] : (for Video saved)

Specify the time in seconds of movies to save at maximum when saving movies.

Event trigger function : (for Video saved)

When saving movie, specify whether or not to

execute the script.

The script to be executed can be edited in the **Edit scripts** menu of **[Extension]-[Edit scripts]** tab.

Streaming Settings：

Specify whether to display the motion detection status with the streaming function.

Port number of WEB for streaming：(for Streaming Settings)

Specify the port number for displaying streaming on the web. 8080 which is not used in this system is set by default.

* When confirming with URI proxy, please set this port number.

Streaming image quality :(for Streaming Settings)

Specify the image quality for streaming between 1 and 100. The higher the image quality is, the closer you are to 100.

FPS for streaming :(for Streaming Settings)

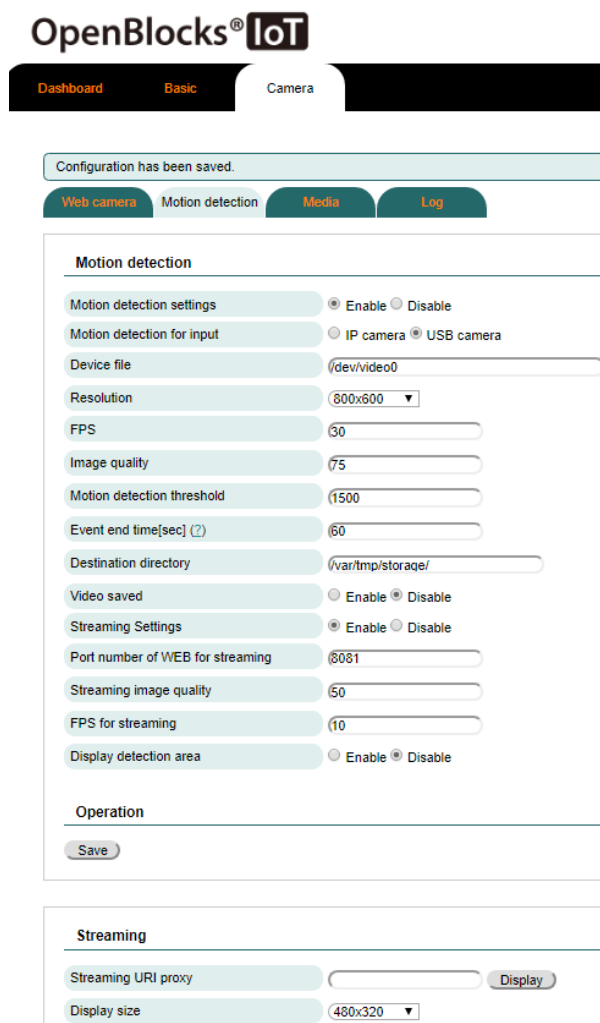Specify the frame rate for streaming.

Although it is possible to set from 1 to 100, but set a value that does not exceed the FPS of the camera.

Display detection area :

This function makes it possible to visually check the motion detection area with a rectangle. Please use it for operation check.

After completion of setting, pressing the save button activates/stops the motion detection function.

When the streaming function enabled, the streaming menu will be displayed as follows.

Streaming

Streaming URI Proxy :

If there is a port number set for the URI proxy, it will be entered automatically.

Also, pressing the "Display" button displays the streaming image on the Web UI.

Display size

Select the size of the streaming image displayed on the Web UI.

* Streaming images displayed on WEB UI are displayed for 5 minutes.

2-4-1. Detection event trigger function

Execute a script specified in advance when saving movie with motion detection.

In the script, It can select "Motion detection event" in the **Edit scripts** menu of the **[Extension]-[Edit scripts]** tab and edit it.

For this script, the environment variable MOVIE_FILE contains the file path of the movie taken at detection.

In addition, the following script for notifying for this event trigger is prepared. These pathname of scripts will be describe in the "Motion detection event" script above and call from it.

Notification method	Pathname of scripts	Remarks
SMS	/var/webui/scripts/motion_send_sms.sh	Modem and SMS compliant SIM required.
E-Mail	/var/webui/scripts/motion_send_email.sh	Internet connection required.
Unix Domain Socket	/var/webui/scripts/motion_send_socket.sh	

●SMS notification

Send SMS using modem and SIM installed in OpenBlocks.

Specify the notification destination and the message in the following file.

　　/var/webui/upload_dir/motion_cfg/sendsms.json

* Example

```
{
        "send_phone_number" : "09012345678" ,
        "send_body" : " Detected a moving object."
}
```

Key	Data type	Contents
send_phone_number	Strings	phone number of notification destination.
send_body	Strings	Message to send

●E-Mail notification

Send mail to the mail server via the Internet.

Specify the several parameters for sending mail to the following file.

    /var/webui/upload_dir/motion_cfg/sendmail.json

* Example

```
{
        "smtp_server" : "smtp.example.com" ,
        "smtp_port" : 465 ,
        "auth" : TRUE,
        "auth_user" : "exampleuser" ,
        "auth_pass" : "password" ,
        "to" : "from@example.com" ,
        "from" : "from@example.com" ,
        "subject" : " Motion detection " ,
        "body" : "Detected a moving object. Please check the saved movie from WEB UI."
}
```

Key	Data type	Contents
smtp_server	Strings	SMTP server.
smtp_port	Integer	Port number of SMTP.
auth	Boolean	Whether to use SMTP-AUTH or not.
auth_user	Strings	User ID for authentication.(for SMTP-AUTH)
auth_pass	Strings	Password for authentication.(for SMTP-AUTH)
to	Strings	Destination E-Mail address
from	Strings	Source E-Mail address.
subject	Strings	Subject.
body	Strings	Message to send.

●Unix Domain Socket notification

Send a message to the process that is waiting for Unix Domain Socket running on this machine.

Specify the few parameters for unix domain socket to the following file.

/var/webui/upload_dir/motion_cfg/sendsocket.json

* Example

```
{
        "socket_path" : "/pd_repeater/userdev_0000001.sock " ,
        "abstract_flag" : TRUE ,
        "send_body" : "Detected a moving object."
}
```

Key	Data type	Contents
socket_path	Strings	Pathname of Unix Domain Socket.
abstract_flag	Boolean	Whether to use abstract socket or not.
send_body	Strings	Message to send.

The format of the message sent with this function is JSON.

The message sample is as follows.

* Message sample

{ "time" : ""2018-07-17T09:32:15.864+09:00" , "message" : "Detected a moving object." }

In addition, It can extend the JSON message by preparing the following PHP file library.

/var/webui/upload_dir/motion_cfg/extendsocket.lib.php

*Example of extend PHP file

```
<?
        // Default Data Setting from $data

        $data['extend'] = "extend message" ;

?>
```

*Message sample with avobe extend

{ "time" : ""2018-07-17T09:32:15.864+09:00" , "message" : "Detected a moving object." , "extend" : "extend message" }

2-5. Media function

On the **[Camera]-[Media]** tab, It can display and download image data which saved directly under the specified directory.
The file descriptor of image data that can be displayed is as follows.

Data type	Supported file descriptor
Still image	.svg、.apng、.bmp、.png、.jpeg、.jpg
Motion image	.mp4、.ogg、.webm
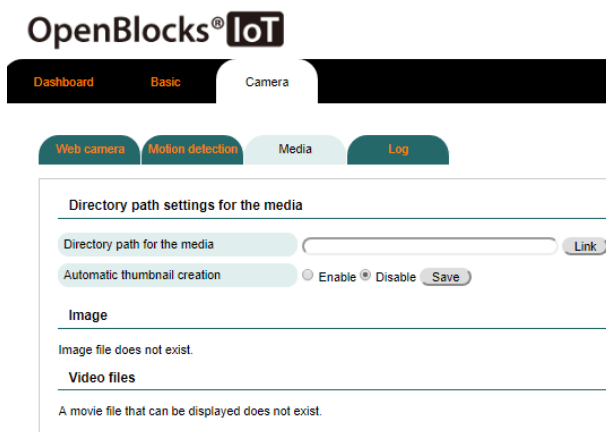
Directory path setting for the media

Directory path for the media：

Specify the directory specified as the save destination by moving object detection etc.
After specified the directory path, please press "link" button.

Automatic thumbnail creation：

Select whether to generate thumbnail images for images file in the media directory path.
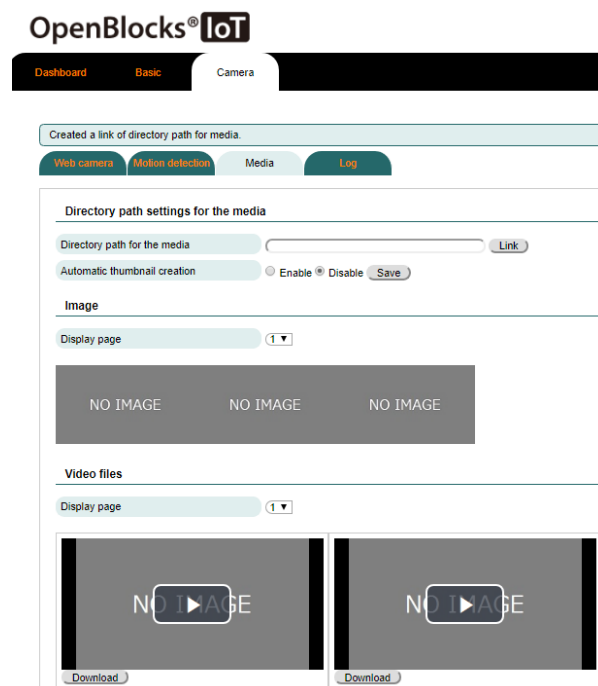After specified the directory path, please press "Save" button.

Image：

Displays still images. Click on the image to pop up. To download the image, please use the browser function to popup the image.
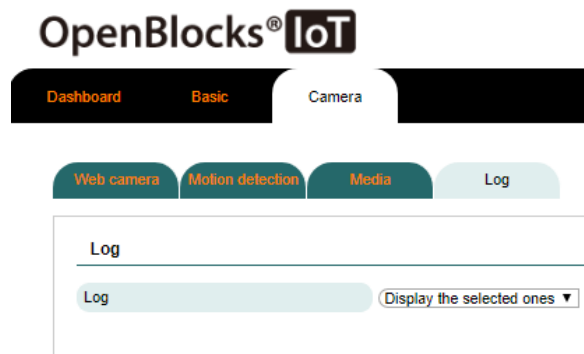
Video files：

Displays moving images. Click on the video to pop up. You can download images by pressing the "download" button.

2-6. Logging function

In the **Log** menu of the **[Camera]-[Log]** tab, It can show the log of streaming function and motion detection function.
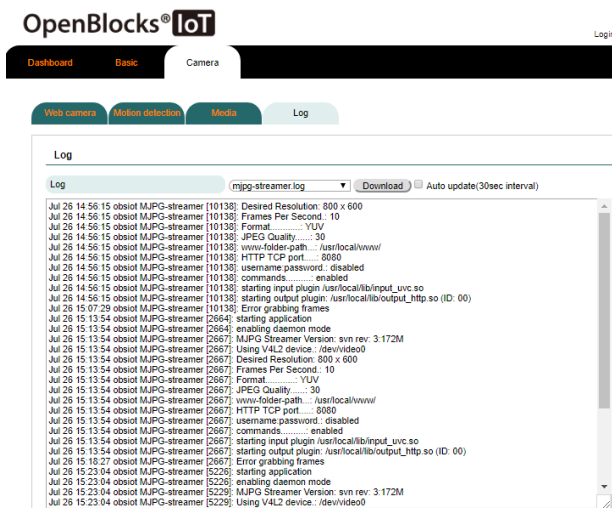

Log

Log:

The log file list of camera streaming function and motion detection function is displayed.
By selecting the log file you want to show, the log file is displayed.

If you select a log file, the download button will be displayed. Please press to download the log file.

Chapter Other

3-1. User account for viewing images

When this function is installed, a user account to access the WebUI who is permitted only viewing the image of the camera function is created.
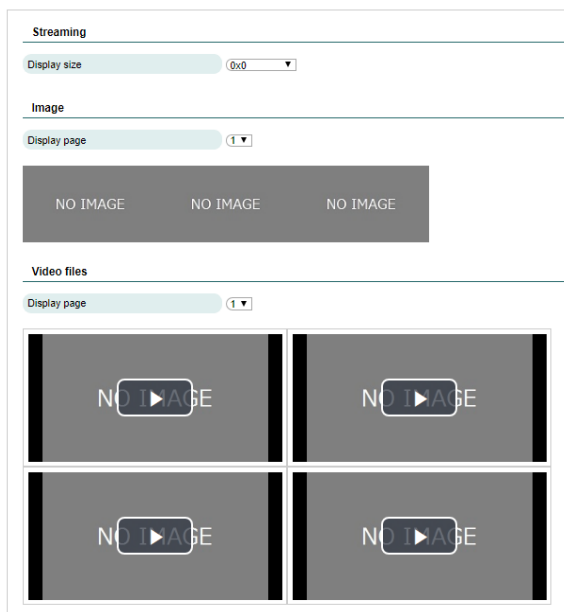
This user account is a images browsing only the camera function and can not access the entire OpenBlocks system.

Item	Description
User Name	It is specified as "cam_user".
Password	The default is "0BSI0T". (0 is the number 0).

* Password can be changed in the **WEB user** menu of **[System]-[WEB user]** tab.
However, it is not possible to change the level of user authority.

Streaming

Display size :

Select the image size of the streaming data displayed on the web. The default is 0x0.

*It is not displayed when 0x0

Image :

The still image data list of the path set by the media function is displayed.

Video files :

The motion image data list of the path set by the media function is displayed. There is no download function in this function.

3-2. Camera connection to OpenBlocks IoT VX series

When connecting a USB camera to the OpenBlocks IoT VX series, we recommend connecting via a USB hub. When connecting directly to the USB type-A port, operation of the USB camera may become unstable.

OpenBlocks IoT Family Camera Function Guide

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