

Introduction

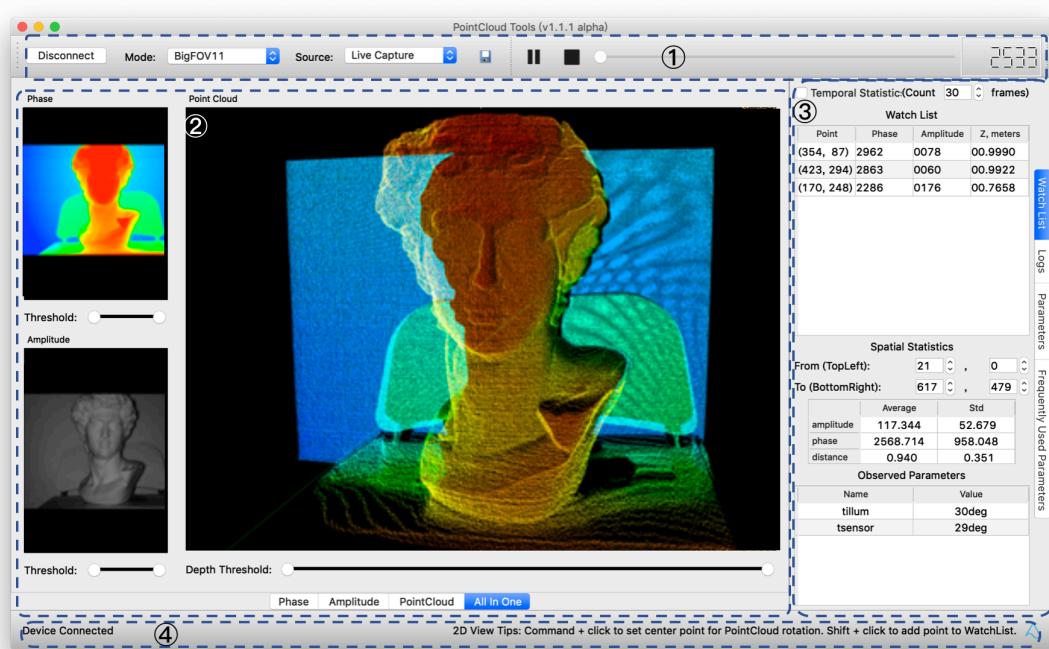
PointCloudTool is a visualization tool which is based on the libPointCloud SDK API. It can be used to display depth data for PointCloud.AI® DepthEye™ depth cameras.

Features

- Scalable and Rotating Point Clouds
 - More than ten kinds of filtering
 - Follow the mouse to display depth, light intensity and other information
 - Supporting display of multi-point's depth, light intensity and other information
 - Support to record & replay point cloud video
 - Depth, light intensity and point clouds can be displayed separately or on the same screen
 - Rendering point clouds with multiple colors based on different distances
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Operating a camera with the PointCloudTool

The application screen as shown below:



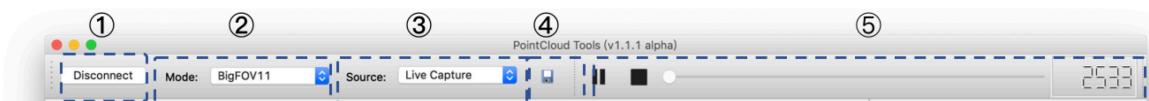
The tool will auto connect the depth camera if you connect it before you start this tool.

At first you will see the All In One tab. The tool contain four function area:

1. Top tool bar
2. Display tab
3. Sidebar
4. Bottom status bar

5.

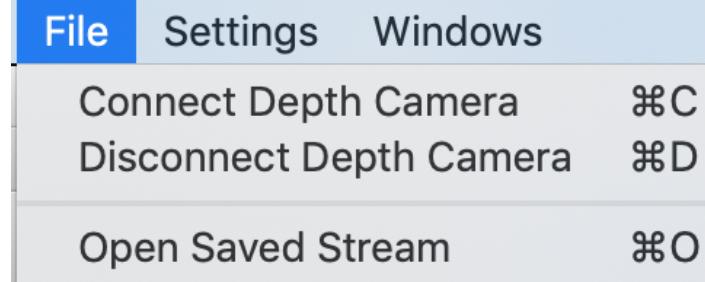
1. Top tool bar



Tool bar support below functions:

1. Disconnect and connect device button
2. Mode selection to select configuration file for different scenarios
3. Source part that show us "Live capture" when connect with camera or file name when playing a video file.
4. The save button to record live capture as a video file.
5. Final part is for play control including pause, play ,frame cout number and progress seek bar.
6. Replay the recorded video file by below action :

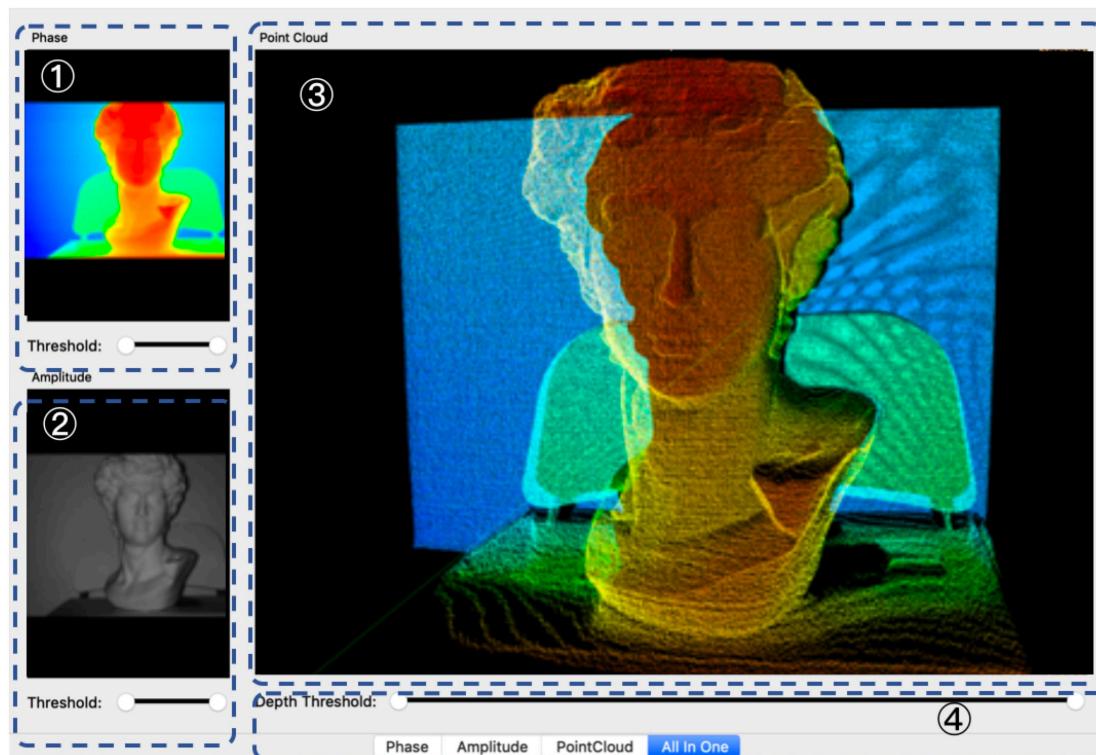
Menu -> File -> Open Saved Stream



2. Display Tab

This area contain four tab to show different image which including phase, amplitude, point cloud and three in one.

All in one tab

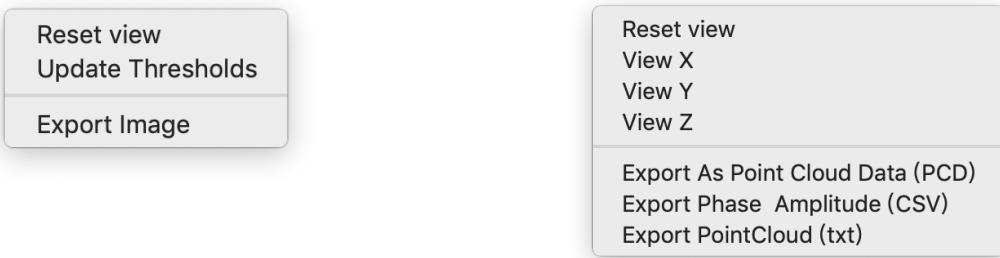


This tab include three viewer in one tab:

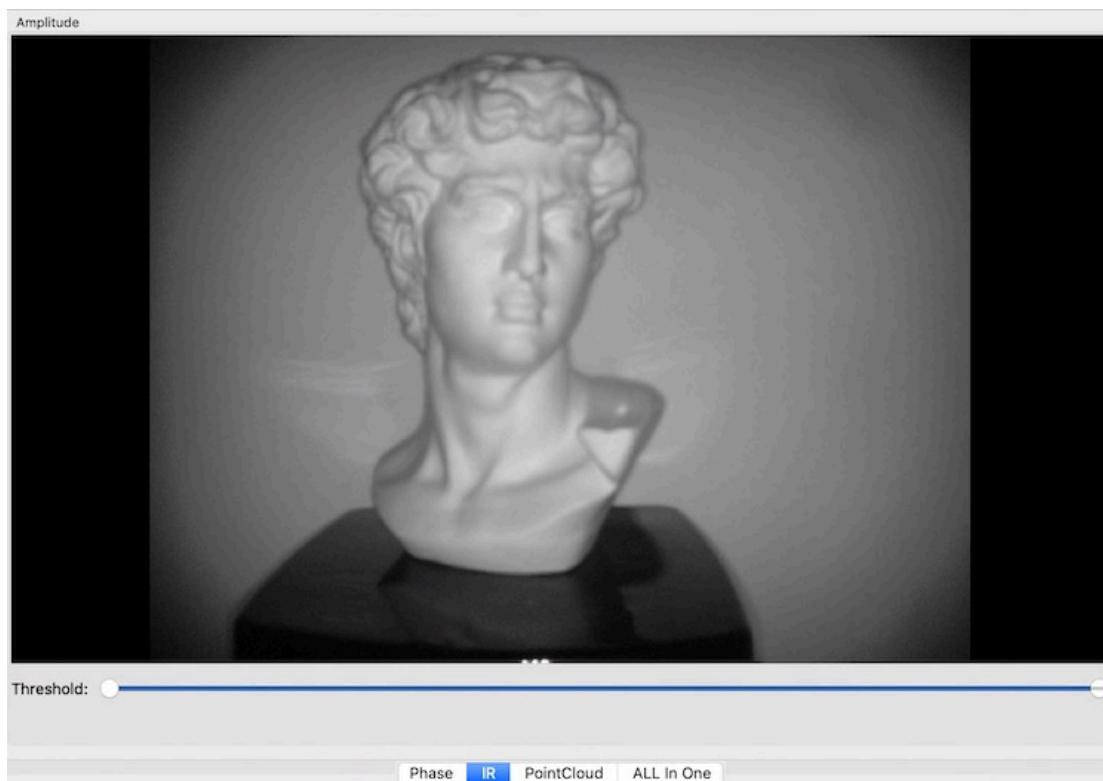
1. Depth Map (Phase corresponds to depth)
2. Amplitude Map
3. PointCloud Viewer
4. Depth Threshold slider to control which point may be displayed on the point cloud.

Tips

- The Shift + click to add point to WatchList
- You can change center point for PointCloud for rotation. On Mac OS , the key is Command + click. On Ubuntu and windows , the key is windows + click.
- Status bar will show the information of the point where your mouse hover on the amplitude image and phase image.
- The threshold slider of phase would impact the threshold slider of the point cloud viewer.
- Right-click on each image to pop up the action menu:

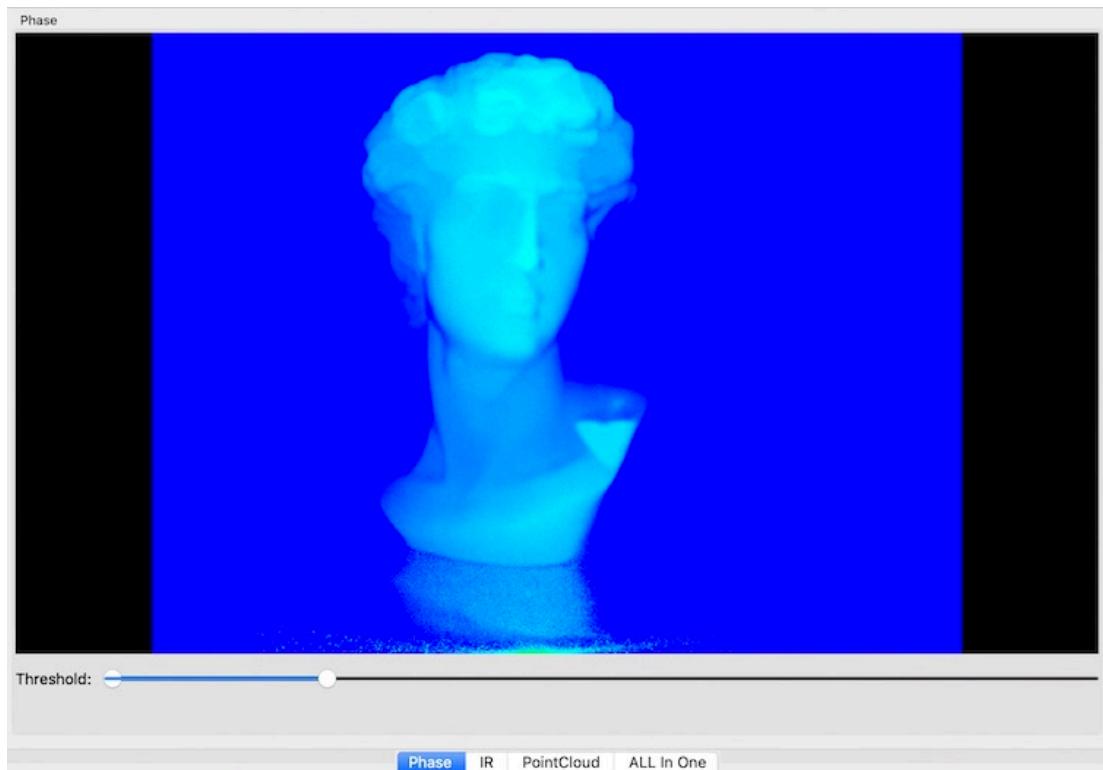


Amplitude tab



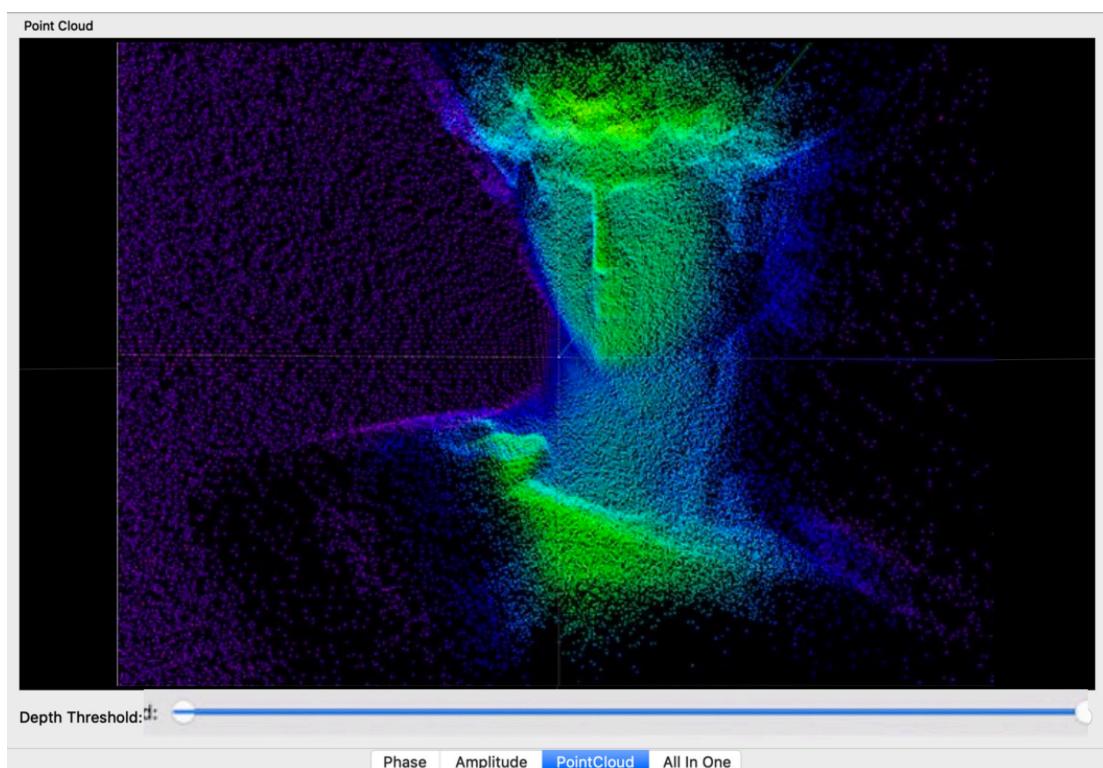
When the mouse is hovering over the threshold slider, we can see the threshold range and the current value. The value of Amplitude ranges from 0 to 4096, but it does not show when it exceeds the threshold range of the slider.

Phase tab



When the mouse is hovering over the threshold slider, we can see the threshold range and the current value.

PointCloud tab



The threshold range and current value of detection distance can be seen by hovering the mouse over the threshold slider. The value of point cloud corresponding to the slider ranges from 0 to the maximum distance. The specific number of meters depends on the specific module, but it is not displayed beyond the threshold range of the slider.

3. Sidebar

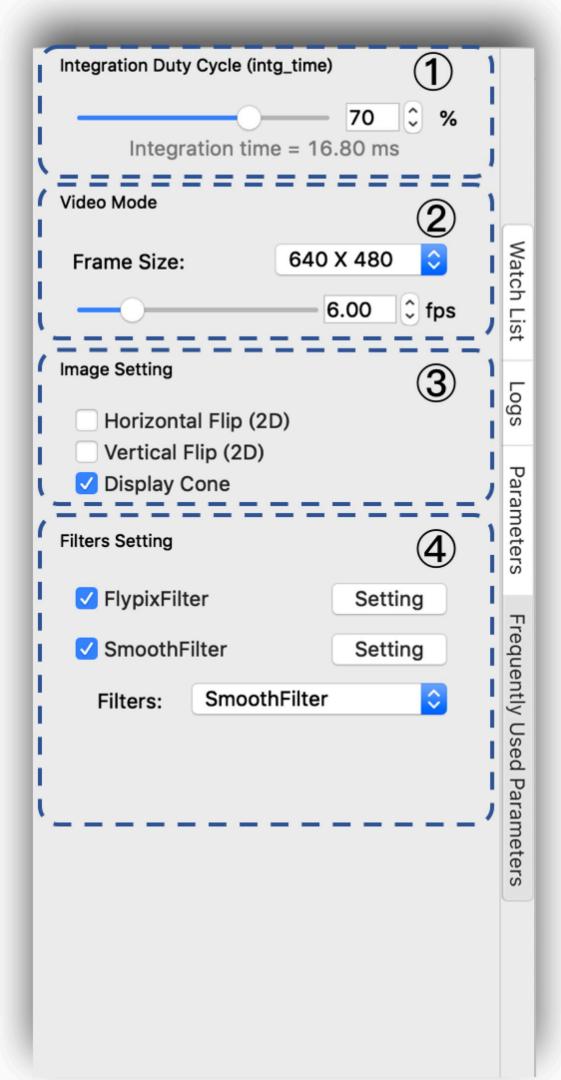
Sidebar contain below tabs:

1. Frequently Used Parameters
2. Parameters
3. WatchList
4. Log

Frequently Used Parameters

You can modify below frequently used parameters easily

1. Integratontime
2. Resolution & FPS
3. Horizontal or vertical mirroring of depth maps and gray-scale maps to control whether the lens cone is displayed or not
4. Select Filters for PointCloud display and click “setting” button to modifying filter parameters



Parameters

This tab will show you all the parameters. You can search it and modify it.

1. Search input .
When you typing some key word on it .the below list view will display the qualified result
2. Save all parameters to CSV.
3. This part is the result list.
4. Click any value and then you can modify it if it is not a read only parameter.
5. Click the table title to amend the sorting.

The screenshot shows the 'Parameters' tab of a software interface. At the top left is a search bar with the placeholder 'mod'. To the right of the search bar is a blue rectangular area containing several numbered callouts: (1) points to the search bar, (2) points to a small icon in the top right corner of the search area, (3) points to the bottom edge of the search area, (4) points to the value '60 (60Mhz)' in the table, and (5) points to the 'Name' column header in the table. Below the search area is a table with columns 'Name' and 'Value'. The table contains the following data:

Name	Value
rngchk_outmode	False
mode_sel	False
mod_freq1	60 (60Mhz)
dutof_mode	0
csi_lane_mode	1
binning_mode	0

At the bottom of the interface, there are several tabs: 'Frequently Used Parameters', 'Watch List', 'Logs', and 'Parameters'. The 'Parameters' tab is currently selected, indicated by a blue background.

Watch List

This tab is a monitoring panel. You can see below information:

1. Turn on temporary statistics for the past 30 frames. Turn this on and the following watch list panel (Part 2) and spatial statistics (Part 3) will show the statistics.

You can amend 30 frames as you want.

2. Watch list for monitoring the point which you add.

You can right click of mouse on the watch list to delete some points.

3. Spatial Statistics.

This part show you the statistics for pixels of interest. Enter the coordinates of the upper left and lower right corners to specify the pixel areas to be counted

4. Observed Parameters.

Some key parameters like chip temperature

The screenshot shows a software interface for monitoring data. On the right side, there is a vertical navigation bar with tabs: Watch List (selected), Logs, Parameters, and Frequently Used Parameters. The main area is divided into four sections, each with a dashed blue border and a circled number indicating its function:

- ① Temporal Statistic:** A checkbox labeled "Temporal Statistic (Count 30 frames)" is shown.
- ② Watch List:** A table titled "Watch List" displays three rows of data:

Point	Phase	Amplitude	Z, meters
(354, 87)	2962	0078	00.9990
(423, 294)	2863	0060	00.9922
(170, 248)	2286	0176	00.7658
- ③ Spatial Statistics:** A section for specifying pixel areas with "From (TopLeft)" and "To (BottomRight)" coordinates (21, 0 to 617, 479). Below it is a table of statistics:

	Average	Std
amplitude	117.344	52.679
phase	2568.714	958.048
distance	0.940	0.351
- ④ Observed Parameters:** A table showing current parameter values:

Name	Value
tillum	30deg
tsensor	29deg

Log

This tab show the log related information:

1. Default Log Level.

You can select other log level to do filter.

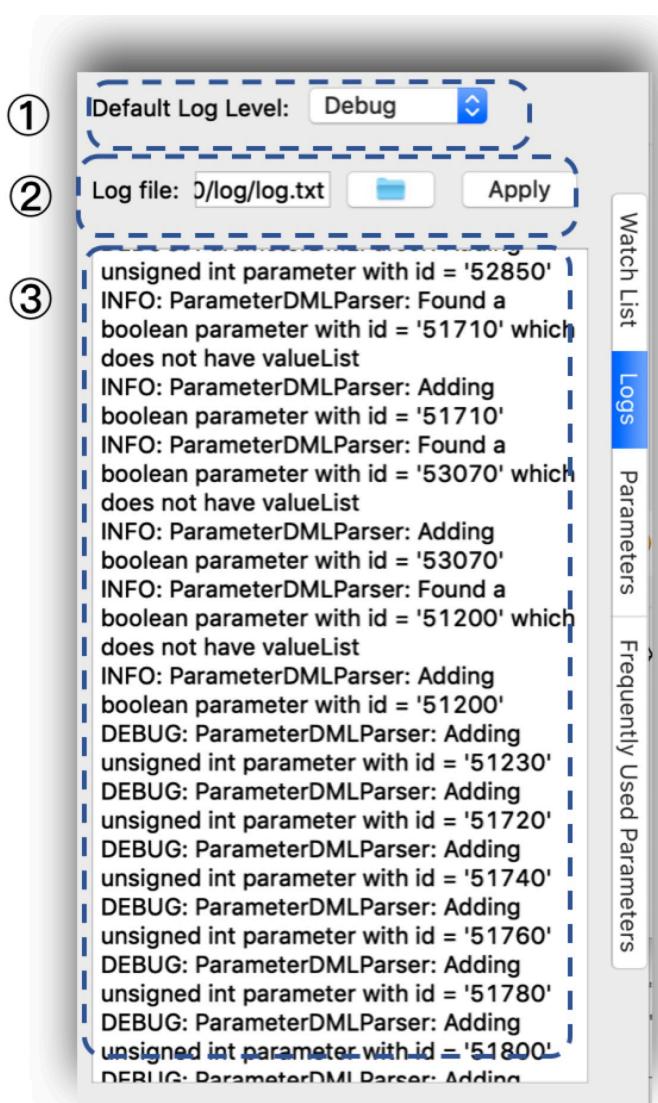
2. Log file path setting.

You can change default log file to other folder by click the folder icon. And then click the Apply button to confirm your change.

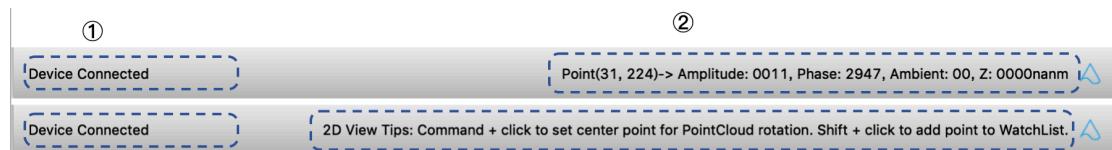
3. The final part is the content of the log

4. Click any value and then you can modify it if it is not a read only parameter.

5. Click the table title to amend the sort



4. Bottom status bar



Status bar include two parts:

1. Device connection status
2. Information of the point which mouse hover and some action tips