

SAMSUNG

iPOLiS mobile

English

Android ver **2.8**

Hanwha's iPOLiS mobile is an android based dedicated application for smartphones and tablet PCs to remotely monitor and control Hanwha's network based products.

The iPOLiS mobile application can be downloaded freely and installed from Google Play.

- ❖ To search iPOLiS mobile application from Google Play, type "iPOLiS" or "TECHWIN" and run a search, ignoring the letter case.
- ❖ User of previous version software (v1.0) needs to register added devices to the newly installed software again. User of version 1.3 or later does not require re-registering devices after updating the software. Updating will migrate device list to the new software.
- ❖ You can download an application of a previous version on our website (<http://security.hanwhatechwin.com/>).
- ❖ If enabled with a password lock, updating for smartphone/tablet PCs other than Samsung Galaxy series may experience problems with updating. In such cases, disable password lock during updating.

0. Before Installation

To receive video by connecting your handset to the NW equipment, your handset must satisfy the following requirements.

Item	Recommended
CPU	1.6GHz OctaCore, 1.9GHz QuadCore or higher
RAM	2GB or higher
Available RAM	100MB or higher
OS	Android OS 4.4.x, 5.x, 6.x



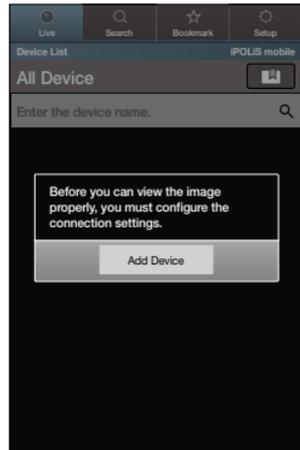
- The video service involves lots of data transmission, so if you use 3G or 4G (LTE) data communication service, excessive fees can be charged according to your service provider's policy.
- To receive reliable video support, the network speed shall be as fast as 10Mbps, and when you access the 3G network or if you are under unstable Wi-Fi connection environment, the video can be delayed or disconnected.
- iPOLiS mobile 2.8 supports Android OS 4.0 or higher; 4.4 is recommended.
- As Wi-Fi connections may not be secure, please install anti-virus software on your mobile device. The device testing environment for software quality is as follows:
 - Samsung Galaxy S4 (Android v4.4.2) series
 - Samsung Galaxy S6 (Android v6.0.1) series
 - Samsung Galaxy S7 (Android v6.0.1) series
 - Samsung Galaxy Note4 (Android v5.1.1) series
 - Samsung Galaxy Note5 (Android v5.1.1) series
 - Samsung Galaxy Note 10.1 (Android v4.4.4) series
 - Samsung Galaxy Tab S2 (Android v5.0.2) series
 - Nexus 5X (Android v6.0.1) series

1. Register and search a device

To Add a Device

1. Move to the Add Device page.

- 1 If visited with no added device for the first time, **<Add Device>** message appears.
- 2 To register a another device in the case that there is a device already registered, tap **<Device List>** in the "Register" menu and touch Add **<+>** on the right side of the device list.



2. In the **<Add Device>** screen, touch the **<Auto add>** button to launch the list of available devices. Touch your desired device.



- Once your smart phone is connected to the Wi-Fi network where the device is connected, iPOLiS automatically detects the device.
- If you are on a 3G or LTE network, you may not search for the device list.



3. Enter the device information to connect.

If your device is not found, you will need to enter the device information on your own.

- Name : Name the device as desired.
 - If you don't enter the name, the IP address or DDNS of the device to be added is used by default.
- Model : Select one from the product type listed.
 - Actual model name is not required, it's automatically assigned after adding the device.
- Address Type : Enter the IP address or DDNS of the device to connect depending on the internet environment.
 - If you select IP as the address type, enter the IP address; if you select DDNS, enter the DDNS.
- HTTP Port : Enter the connection port for the device.
- RTSP Port : Enter the RTSP port number configured for the device.
 - For DVR and HW NVR, enter the last port number of port range configured for the device. For example, if the range is 4520~4524, enter 4524.
- ID : Enter the device ID that you have specified.
- Password : Enter the password for the device that you have specified.

The screenshot shows the 'Add Device' screen in the IPOLIS mobile app. At the top, there are 'Auto add' and 'TIP' buttons. The form contains the following fields: 'Name' (with a placeholder 'Enter the device name.'), 'Model' (set to 'N/W Camera, Encoder' with a right arrow), 'Address Type' (set to 'IP'), 'IP' (set to '192.168.0.82'), 'HTTP Port' (set to '80'), 'RTSP Port' (with a placeholder 'Enter RTSP port.'), 'ID' (with a placeholder 'Input User ID.'), and 'Password' (with a placeholder 'Input password.'). At the bottom, there are 'Save' and 'Cancel' buttons. A small note at the bottom of the form states: 'For optimal result with live monitoring, it is recommended to configure the video profile as advised in help document.'



- If you register your device with <Auto add>, model / address type / IP and DDNS / HTTP port are automatically entered.
- SW NVR does not support the auto search function.
- Some DVR models support DDNS-based auto searches.
- If you want to use this on a 3G/LTE network, you need to either register a DDNS ID or set it up as public network.
- You can register a DDNS ID at ddns.hanwha-security.com.

4. Provide all necessary information and touch <Save> button.

5. Select a profile.

- User must select a profile for video recording if the device to be added is a network camera or an encoder. A profile's properties can be viewed and edited with Web Viewer, where iPOLiS mobile only provides selecting one that is optimal for the displaying device from existing profiles.

6. Select a channel.

- For adding a DVR/NVR, user must select a channel for the connection. A channel's properties can be viewed and edited with Web Viewer, where iPOLiS mobile only provides selecting channel to monitor, for the displaying device.

7. Once completed with connecting to the device, it is added to the device list.



- If settings of the added device are edited on the Web Viewer after adding it to your application, then iPOLiS mobile may fail to recognize changed settings. In such cases, move to the editing page of the corresponding device and touch <Save> button to revive the connection again.

❖ Recommended Profile Information

It is recommended to set the profile as shown below for optimal Live video monitoring with iPOLiS mobile.

Configuration

Device		Device Profile Setup Menu
Network Camera		Video Profile
DVR		Live Transfer
NVR	HW	Live Streaming
	SW	Live Streaming Video Source 2

Live recommended profile settings

Codec	Resolution	Frame Rate	Compression / Transmission Quality
MJPEG	320X240 / CIF	5fps	Normal (10)
H.264	320X240 / CIF	10fps	Normal (10)
H.265	320X240 / CIF	10fps	Normal (10)

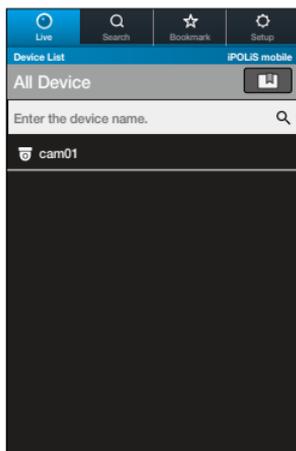


- Network camera supports up to full HD (1920 x 1080) resolution. Only supported storage devices are compatible with full HD resolution.
- If either width or height of the video is 2040 pixel or greater, it can not be monitored with MJPEG.
- According to the network stability, connection may suffer from stuttering or interruption.

Searching a device

To search a registered device in the device list on the Live/Play tab, enter the name of the device.

The list of devices containing the search word will be filtered and displayed.



2. Edit, delete and export a device list

To edit the device information

1. Touch the Settings tab.
2. Go to the "Register" menu and touch the <Device List>.
3. Select a device to edit from the list.
You can also touch < ⏪ > in the rightmost of the device item.
4. When you have completed your changes, touch <Save>.

To delete a device

1. Touch the Settings tab.
2. Go to the "Register" menu and touch the <Device List>.
3. Touch the menu button on your device.
Menu icons will appear on the bottom side of the screen.
4. Touch the Delete < 🗑️ > button.
5. Select a device to delete from the list.
6. When done, touch <OK>.
The selected device will be removed from the list.

Exporting a device

1. Touch the Settings tab.
2. In the "Register" menu, touch <Device List>.
3. Touch the Export < 📤 > to the right of the device list.
4. Set the password.



- To set a password, please refer to "Setting a Password" (page 28).

5. Select the type of email to use and enter the email address of the recipient.



- This function supports Android OS 4.0 or higher and Android OS 4.4 or higher is recommended.
- Export file contains device access information.
Please be careful about security when using the file.

Importing a device list

1. Download the attachment from the inbox.

2. Select the file in the folder in which the downloaded file is saved or run the Share function.

Select an app to run using iPOLiS mobile. If there is no app that is inter-operated, iPOLiS mobile will run automatically.



- In the case of a device in which zip file extraction is automatically activated when selecting a file, use the Share function.

3. Select iPOLiS mobile and enter the password that was set when you exported the file.

4. Touch <OK>.

5. Select the type of export.

- Append : The information of the existing registered devices is maintained and the list of devices imported is added.
- Overwrite : The information of the existing registered devices is deleted.

6. Touch <OK>.

The list of devices is imported.



- This function supports Android OS 4.0 or higher and Android OS 4.4 or higher is recommended.

3. Editing a Favorite

To add a channel to your Favorite View

Method 1) When a live video is monitored

During a live video replay, a user's preferred channels can be added to the Favorite View.

1. Select your video, then go to the upper-right corner and touch the <  > button.
2. When the Add popup appears in the Favorite View, enter a note and save it. Inserting a note is optional, and it can be saved without input.



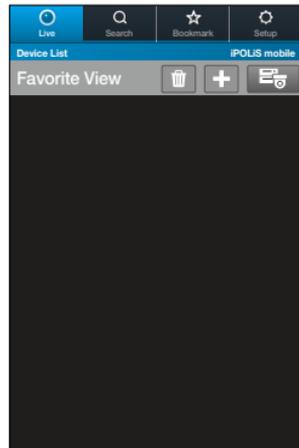
- Up to 100 items can be registered in the Favorite View. If the limit is exceeded, some items will be selectively deleted.

3. If you want to check the Favorite View, go to the Live tab and touch the <  > button. The Favorite View will pop up.

Method 2) When a new layout is configured

A user can register a device for himself and configure its layout.

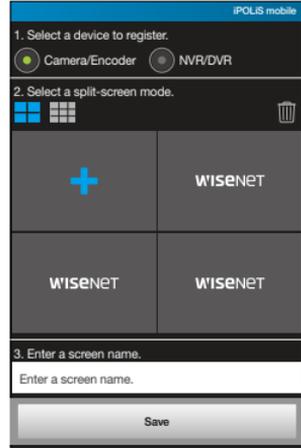
1. Touch <  > button in upper-right corner of the device list and move to the Favorite View.
2. Touch <  > button.



3. Select a device to register between Camera/Encoder and NVR/DVR.
4. Select a spit-screen mode between 4-split and 9-split modes.
5. Touch <  > button.
6. Select a device to register from the device list.
7. Enter a name for the selected Favorites screen and touch <Save>.



- If you want to change a registered channel location, change a channel tile's location by dragging and dropping it.
- If you want to delete a registered channel, move it onto <  > by dragging and dropping it.
- It is possible for a camera to combine multiple devices and form a layout. For NVR/DVR, it is possible to form a layout only using channels within a device.



To modify the Favorite View

1. Touch Edit <  > on the Favorite View screen.
Moves to List Edit screen.
 2. Can add or delete a channel. Can modify a screen name. Can change a tile's location.
-  ■ For a Favorite setup in a live video, it is possible to change the only Favorite name.

To delete the Favorite View

1. Touch the Menu button on the device.
Menu buttons pop up at the bottom of your screen.
2. Touch Delete <  >.
3. Select a Favorite to delete from the list.
4. Touch <OK>.
A selected Favorites item is deleted from the list.

4. Live Monitoring



To connect to a device

1. Run iPOLiS mobile, and touch the desired device to be connected once device list appears.
2. Selecting a network camera or encoder will display video screen in one-channel mode.
3. Selecting a DVR/NVR will display 4-split video screen in quad mode.



- 4/9 channel modes can be selected for NVR.
- Since the connection may be unstable due to the network environment, please use a recommended profile for multi-channel mode.
- If you don't register a DDNS ID for the device connected to the router, you cannot use the device on a 3G/LTE network.

To change the channel

1. If the screen is touched, control buttons pop up on the upper screen.
2. Touch the Channel Change icon <  >. The camera list appears.

3. Select a channel to display on the screen.



- In case of the 4 channel mode, 4 channels are grouped as one, which results displaying CH5 ~ CH8 if selected channel 7.
- In case of the 9 Channel mode, 9 channels are grouped as one, which results displaying CH10 ~ CH18 if selected channel 11.
- In case of the 4 Channel mode, you can move in a group of 4 channels.
- In case of the 9 Channel mode, you can move in a group of 9 channels.
- The 9 channel mode is provided only in NVR.



If you slide the screen with your finger from right to left while in multi-channel mode, you will move to the next split screen.

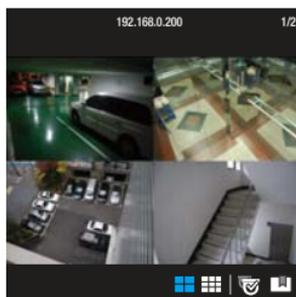
To switch to one-channel mode



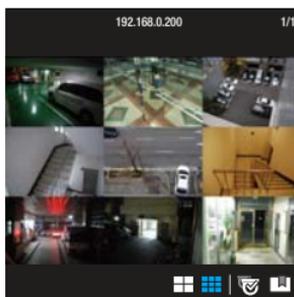
Touch and hold or double-tap one of the screens displayed in multi-channel mode to change it to 1-channel mode.



- If you want to switch to the split mode, then in the bottom of the screen, click the channel icon.



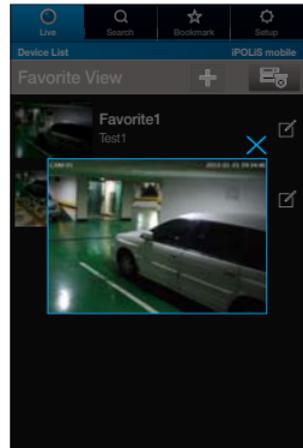
<4 Channel mode>



<9 Channel mode>

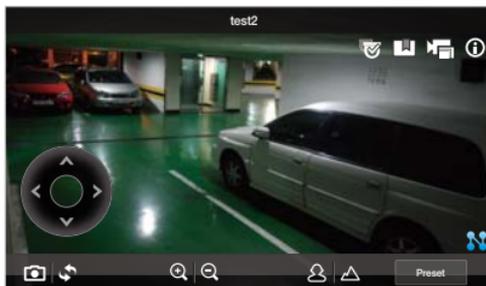
To view the video marked as favorite

1. Select Live-<  > Tab.
2. If you click a desired item in your Favorite View, the selected list's live video will be played.
3. Click the desired thumbnail image in the list to view a magnified image.



5. Controlling the Live Video

iPOLiS mobile supports video control only in one-channel mode.



To check device information

You can check the configuration information of a registered device.

1. Touch Check Information <  > icon in the upper right corner.
2. A popup window with basic information of the connected device appears.



- To change the device settings, you should make a change manually for each setting item.

To select a profile

A camera profile can be selected.

1. Touch the Profile <  > icon in the upper-right of the screen.
2. If a profile is selected from the list, a video is displayed using that profile.



- Profile selection function supports network cameras and some DVR/ NVR only.

If you want to move the channel

You can move the channel of the registered device.

1. Touch the move channel <  > icon at the upper-right area of the screen.
2. Once you select the channel you want to move to when prompted, you can move to the channel.



▪ This function is available for DVR/NVR model.

Checking the video receiving state

You can check the video receiving state using the <  > icon displayed at the bottom right of the screen.

To save the captured screen

Captures the currently displayed image and saves to the device storage as an image file.

1. Touch the screen to display menu and touch <  > icon.
2. The captured screen is saved as an image file in the device's image folder.

To flip video image displayed

You can flip video image by rotating 180°.

1. Touch the screen to display menu and touch <  > icon.
2. Touch again to revert to the original screen.

To control zooming

You can control the network camera's optical zooming remotely.

1. Touch the screen to display control buttons near the bottom.
2. For zoom-capable cameras, touching <  > icon zooms in, and touching <  > icon zooms out.



- Zooming range and level differ from camera to camera.
- The model that provides the PTZ function among box camera products displays the Zoom In/Out buttons, but these buttons do not work and the digital zoom in/out functions also do not work. The optical zoom in/out works when connected to the external Pan/Tilt drive.



You can also zoom in by pinch open using two fingers on the screen. To zoom out, pinch close on the screen.

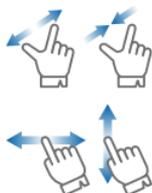
To control digital zooming

This function is for cameras not supporting optical zooming.

1. Touch the screen to display control buttons near the bottom.
2. Touch <  > button to zoom in, and touch <  > to zoom out digitally.



- Current digital zooming level is noted next to the digital zoom box, and digital zooming supports zooming up to x16.



You can also zoom in by pinch open using two fingers on the screen. To zoom out, pinch close on the screen. Touch and hold to drag the screen in any direction to reveal the hidden part of the image if enlarged bigger than the screen.

To control Pan / Tilt

Supported by PTZ cameras only.

1. Touch the screen to display Pan/Tilt control buttons on the screen.
2. Touching the direction button moves camera's pan/tilt to the next step one by one.
3. Touch and hold any of the direction buttons to pan and tilt the camera continuously in the selected direction.



- Pan/tilt range and level differ from camera to camera.
- For a model that supports the external PTZ function among box camera products, the Pan/Tilt button works when the external Pan/Tilt drive is connected.



Drag the screen in up/down/left/right direction to pan/tilt the camera. Note that iPOLiS mobile does not recognize diagonal direction, which will interpret user's dragging as the closest vertical or horizontal dragging.



- Pan/tilt control result requires time for processing, since the command should reach camera device and performed by the camera. Video data size grows as the camera moves, which may result in delayed display. In 3G networks, it may take more than a few seconds to receive video data.
- In a network environment of poor stability, using pan/tilt control with lower video quality settings may help reduce such delays.

To adjust focus

Supported by PTZ cameras only.

1. Touch the screen to display focus control buttons on the screen.
2. Use Near Focus <  > and Far Focus <  > icons to adjust the focus range.



- This function is provided for DVR/NVR models.

To listen to the Live Audio

You can hear sound if the network camera supports audio, and you can hear audio from a storage device in a single channel mode.



- In case of DVR, audio becomes not available for setting of less than 200 kbps.

To run presets

You can run the preset saved in the network camera or NVR.

1. Click the preset button to upload the saved preset list.
2. Select the desired list. You can run the preset saved in the camera or NVR.



- The preset function is provided only for the camera models that support external PTZ functions and the new CGI(SUNAPI).
- The preset function is provided only in NVR models supporting the new CGI (SUNAPI).

To control alarm out

An alarm out saved in the network camera can be executed.

1. Click the alarm out button to load the alarm out list.
2. The current status of each list can be viewed using the alarm out lists.
 - Blue : Alarm out On
 - White : Alarm out OFF
3. Select the desired list. An alarm out saved in the camera can be controlled (On/Off).



- The alarm out function is provided only for the camera models that support new CGI(SUNAPI).



6. Searching / Playing Saved Video

If you want to play based on date/time

Touch the place tab <  > in the bottom area of the screen, and you can view the list of playable devices.

1. Select the device to be played and touch it.
2. Select the channel where you want to play.
3. The date when the playable data is saved in the channel of the selected device will be displayed on the calendar. Touch < ◀, ▶ > button on the calendar's both ends of year/month indicator to traverse to the previous/next month.
4. If you touch the date when you want to play it, a circle-type time line (24 hours) will appear. Time zones where there is playable data are classified by color.



- If there are overlapping multiple data for the same time range, an overlapping list appears.
- For a network camera, the above 2, 3 channel selection processes are omitted.
- On a network camera, only the device type supporting new CGI(SUNAPI) provides a play function.

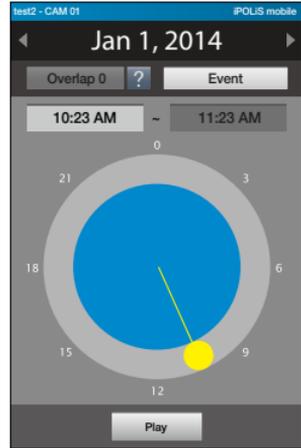
To play searched video

After searching with date/time, set the beginning time to play the selected video.

1. Check the time line and drag [●] to the play time zone you want, and set up the starting time or enter the time manually.
2. Touch the <Play> button to start video playback, and it will play for about 60 minutes from the start time.



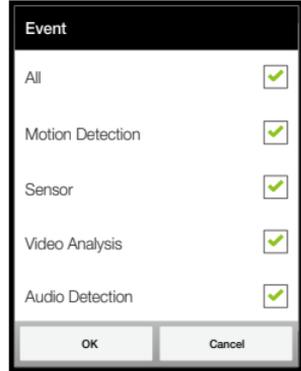
- If the recorded video being played has interval of having no video, playback skips such interval and continues from the next existing position. The displayed play time may be different than the actual recording time depending on performance of network and playing device.
- To ensure smooth playback, audio is not supported.



To play event searched video

After searching based on date/time, set up the start/end time to check the video.

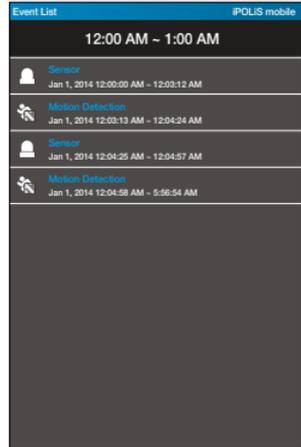
1. Touch the <Event> button to select a desired event and touch <OK>.
2. Check out the time line and drag [●] to the play time zone you want, and set up the starting/ending time or enter the time manually.
 - The start and end time should be set to less than 60 minutes.



3. Touch the <Search> button to show the list of events within the designated time period.
4. Select the desired list to play video.

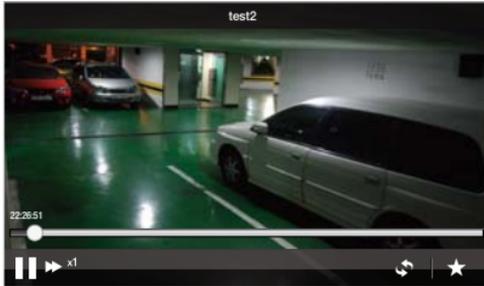


- If the video ends earlier than 60 minutes from the beginning, it will skip to the next existing video and continue playback. Displayed playback time may be slightly different from the actual recording time due to the network or the decoding performance of the playback device.
- To ensure smooth playback, audio is not supported.



To control playback

It provides basic playback control.



1. Touch the screen to display control buttons near the bottom.
2. To stop playback, touch < || > button. Then playback pauses and the button switches to < ▶ >.
3. To resume again, touch < ▶ > button.
4. To control playback speed, touch < ►► > button and the playback speed indicator appears.
5. The video is played at the selected play speed.
6. Touch < ↺ > icon to flip video image by rotating 180°.

To use the Timeline

You can jump to a certain point of playback by selecting time point on the timeline.

1. Touch the screen to display 60-minute timeline.
2. Touch the time picker <  > on the timeline, and drag it to a desired time point to skip to that point.
3. Touching the timeline automatically pauses the video playback. Move the time picker and touch <  > button to resume playing.

To use Bookmark

You can bookmark a certain playback point on the video as a starting point.

1. While playing a video, touch <  > button at a desired point to create a bookmark.
2. The Add Bookmark popup appears, enter a note of the bookmark and save it. Bookmark will be saved even if you don't enter a memo.



- Up to 100 bookmarks can be added, and selectively deleted once exceeded.

3. To play a video from a bookmarked point, move to the Bookmark <  > tab on top of the main screen.

4. Select a desired bookmark from the list.



- Playback control for bookmarked video is the same as that of searched video.
- While playing the bookmark, you can use the bookmark function again.

❖ Amount of Network Data Transfer for stored video

Codec	Resolution	Frame Rate	Compression	Bandwidth
H.264	640 x 480	10fps	10	0.69 Mbps
H.264	640 x 480	20fps	10	1.30 Mbps
H.264	800 x 600	10fps	10	1.10 Mbps
H.264	800 x 600	20fps	10	1.90 Mbps



- Above network data transmission is calculated based on SNB-7000.
- Network camera supports up to full HD (1920 x 1080) resolution. Only supported storage devices are compatible with full HD resolution.
- For smooth and proper playback of stored recordings, it requires downloading **bandwidth** more than the specified minimum bandwidth in case the network has interference.

7. Setting the iPOLiS mobile

To Add a Device

- Refer to pages 3 ~ 6.

To set/cancel/change password

1. Touch the Settings <  > tab on the main screen. Select the <Set Password>.
2. Enter a new password.
The <Set Password> checkbox will be changed to <  >. Then, you are prompted to enter a new password.

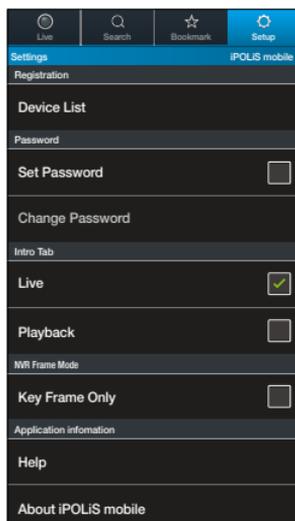


- Set a password that meets the following requirements.
 - 8~9 characters long: A combination of letters, numbers, and special characters.
 - 10~32 characters long: A combination of characters from at least two of the following groups: letters, numbers, and special characters.
 - Don't use 4 or more consecutive or repeated characters or key sequences (Examples: abcde123456, aaaaa11111, qwerty!@#)
 - Allowable special characters: -/;()&@.,?!"[]{}#%^*+=_W|~<>\$£¥

3. To cancel setting the password, touch <Set Password> again.
4. If you enter the currently registered password, the password setting will be canceled.
5. To change the password, touch <Change Password> and enter a new password.



- If you forgot password, uninstall the application and then download it to install again.



To set the starting page

1. Select the start page screen from the “**Intro Tab**” menu of the settings page, which will be displayed once iPOLiS mobile is executed.
2. Selecting the <**Live**> will display live device list where <**Playback**> will display device search at the beginning.

If you want to set up NVR Frame Mode

1. For 4/9 channel of the new CGI (SUNAPI) NVR device, you can set up 'Key Frame Only'.
2. If 'Key Frame Only' is selected, it will show the main frame of the video only.
3. If 'Key Frame Only' is not selected, it will show the full frame delivered from the device.



- Depending on the user's environment (device, network, etc.), the number of frames may be changed.

To see help screen

In the Setup tab, touch <Help>.



- iPOLiS mobile provides help in 13 different languages.

To check the software version

1. Touch <About iPOLiS mobile> in the settings page.
2. You can check the information of the current software version.



- This application uses FFmpeg under LGPL v2.1.

8. Models supporting iPOLiS mobile v2.8

Device Model		Firmware version		
NW Camera	Box/Dome	SNB-9000	v1.00 or Higher	
		SNB-5000/A, SND-5080/F, SNV-5080/R, SNV-5010, SNO-5080R	v2.10 or Higher	
		SNB-7000, SND-7080/F, SNV-7080/R, SNO-7080R	v1.20 or Higher	
		SND-1001, SND-1080, SND-1011, SNO-1080R, SNV-1080/R	v1.00 or Higher	
		SNB-3002, SND-3082, SNV-3082/F	v1.00 or Higher	
		SNB-5001, SND-5061, SND-5011, SND-5010	v1.00 or Higher	
		SNB-7001, SND-7061, SND-7011	v1.00 or Higher	
		SNB-7002, SND-7082/F, SNV-7082, SNO-7082R	v1.00 or Higher	
		SNZ-5200	v1.05 or Higher	
		SNV-3120	v1.24 or Higher	
		SNZ-6320	v1.00 or Higher	
		SNV-7082V, SND-7082V, SND-7082FV, SNO-7082RV	v1.00 or Higher	
		SNB-6004, SNB-6003, SND-6084, SND-6083, SNB-5004, SNB-5003, SNO-5084/5083, SNV-5084, SNO-5084R, SND-5084R, SNV-5084R, SNV-6012M, SNV-6084, SNO-6011R, SND-6011R	v1.00 or Higher	
		SNV-6085R, SNV-L6083R	v1.00 or Higher	
		SNO-6084R, SND-6084R, SNV-6084R	v1.00 or Higher	
		SNB-6005, SNB-6004F, SNB-6011, SNB-6010A, SNO-6095RH	v1.00 or Higher	
		SNF-7010, SNF-7010V, SNF-8010/AVM	v1.00 or Higher	
		SND-7084/R, SNO-7084R, SNV-6013, SND-6013, SNV-7084/R, SNB-6010(ATM), SNB-7004	v1.00 or Higher	
		SND-L6012, SND-L6013, SND-L6013R, SND-L6083R	v1.00 or Higher	
		VPM-4020DR, SND-L6014R, SND-K2013R, VPM-4040DR, SND-K2083R	v1.00 or Higher	
	SNO-L6013R, VPM-4020DR, SNO-L6014R, SNO-K2013R, SND-L6014RV/SK, SND-L6014RV/SK, SND-L6014RV/S1, SNO-L6014RV/S1	v1.00 or Higher		
	SNO-L6083R, VPM-4040R, SNO-K2083R	v1.00 or Higher		
	SNB-8000, SNV-8080, SNV-8081R, SNO-8081R	v1.00 or Higher		
	SNB-S202, SNB-S201, SND-S202, SND-S201, SNO-S202R, SND-S202R, SNB-S102, SNB-S101, SND-S102, SND-S101	v1.00 or Higher		
	PTZ	SNO-L5083R, SNV-L5083R, SND-L5083R, SND-L5013	v1.00 or Higher	
		SNP-3120/V/H	v1.27 or Higher	
		SNP-5200/H	v2.00 or Higher	
		SNP-5300/H	v1.00 or Higher	
		SNP-3371/H/TH	v1.01 or Higher	
		SNP-3302/H	v1.01 or Higher	
		VPM-4600RH, SNP-0232RH-00	v1.01 or Higher	
	Encoder	SPE-100, SPE-400, SPE-1600R, SPE-101	v1.04 or Higher	
	DVR	Live & Playback	SRD-1694/1685	v1.00 or Higher
			SRD-494/984	v1.00 or Higher
			SRD-1670/1650/1630/1610(D/DC), SRD-870/850/830(D/DC), SRD-470(D)	v1.12 or Higher
SRD-1652D/852D, 1650DU			v1.12 or Higher	
SRD-1671/1651/871/851/471			v1.12 or Higher	
SDR-5100, SDR-4100/4101			v1.02 or Higher	
SDR-3100			v1.09 or Higher	
SDR-5200/4200, SRD-1654D/854D, SRD-473D			v1.00 or Higher	
SRD-1673(D)/873D, 1653D			v1.01 or Higher	
SRD-476D/876D/1676D			v1.00 or Higher	
Live only		SRD-456/856/1656	v1.00 or Higher	
		SDR-3102/4102/5102	v1.00 or Higher	
		SRD-842/1642	v1.00 or Higher	
		SRD-1680D/880D	v1.00 or Higher	
		SRD-445	v1.00 or Higher	
		SRD-482	v1.00 or Higher	
		SRD-443	v1.00 or Higher	
		SRD-440	v1.05 or Higher	
		SRD-442	v1.02 or Higher	
		SRD-1640/840	v1.03 or Higher	
SRD-1641/841	v1.03 or Higher			
NVR	H/W	SDE-5001/5002/4001/4004(V)	v1.02 or Higher	
		SDE-3001/3003	v1.06 or Higher	
	SDE-4001/4002/5001/5002	v1.05 or Higher		
	S/W	SRN-4700, SRN-16700, SRN-1671, SRN-1000	v1.00 or Higher	
		SRN-4000, SRN-472S	v1.00 or Higher	
	SRN-1673S, SRN-873S, SRN-473S	v1.00 or Higher		
	NET-ware	v1.39 or Higher		

9. OPEN SOURCE ANNOUNCEMENT

OPEN SOURCE ANNOUNCEMENT

- **LGPL 2.1** : FFmpeg
- **BSD 2.0** : ed-pad
- **MIT License V2** : dlc.sh-GUI, SAS-iPad-App, TweetNow

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages—typically libraries—of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

Preamble

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - a) The modified work must itself be a software library.
 - b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
 - c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
 - d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.
(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever

changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

- 7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:
 - a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
 - b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- 8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- 9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
- 10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
- 11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

- 12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
- 13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

- 14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the library's name and an idea of what it does.

Copyright (C) year name of author

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoodyne, Inc., hereby disclaims all copyright interest in the library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

signature of Ty Coon, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

BSD 2.0

- Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The MIT License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.