SAMSUNG

SSM
mobile

English iOS ver 1.4

SSM mobile is an exclusive application for smart phones and tablet PCs that can be used to perform real time control and monitoring and to search for and edit videos upon user's request by accessing the Samsung Techwin integrated monitoring system product called SSM(Samsung Security Manager).

This manual was written on the basis of the iPhone 5 handset. In case that you use a different handset, you will see that some button locations or flows are different.

SSM mobile can be downloaded and installed for free from App Store.

❖ SSM mobile can be searched by using the keywords, "**SSM mobile**", "**SSM**", or "**Techwin**". (case insensitive).

0. Before Installation

To receive videos from your handset by connecting it to the SSM system, it is recommended your handset have at least the following specification.

Item	Recommended
CPU	1.3GHz DualCore or higher
RAM	1GB or higher
Available RAM	100MB or higher
OS	iOS 6, iOS 7, iOS 8

- 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.

- The Wi-Fi environment may be weak to the security, so you will have to install a suitable vaccine program on your mobile device.

Your handset will be tested for its software quality in the following conditions.

- Apple iPhone 4 (iOS v6.1) model

- Apple iPhone 5 (iOS v8.0) model

- Apple iPhone 6 (iOS v8.1.3) model

- Apple New iPad (iOS v7.0.4) model

- Apple iPad 4 (iOS v8.0) model

1. Start

To register the server information

1. If your SSM mobile has no registered SSM, you will be directed to the <**Add Server**> page.

- ▪ Before using SSM mobile, please read this manual carefully to familiarize yourself with how the SSM (Samsung Security Manager) system is structured and how to use it.

- ▪ The SSM consists of the Console program for the client and the System Manager and Media Gateway for the server.

2. If you want to add a server to your SSM mobile, enter the following information.

- • Auto add : It will automatically search for the server connected to the same network as the handset.

- • Name : When registering a server, enter an arbitrary name.
    - ▪ If you don't enter the name, then it will use the upper most site name registered in SSM Configuration Manager.
    - ▪ Duplicated server name is not allowed. Be careful!

Add Server	Save
	Auto add	Tip
Name	Enter server name.
Address Type	Host | DDNS
Host	Enter the host name.
Port	Enter the port number.
Login ID	Enter login ID.
Password	Enter Password.
Save Login ID	⬤
Auto Login	⬤

- • Address Type : Depending on your network access environment, choose and register either <**Host**> or <**DDNS**>.
  If you enter a HOST type IP address, enter <**Host**> and <**Port**> and if you use a DDNS type, then enter <**DDNS ID**> registered at the DDNS service (www.samsungipolis.com).

- • Host / Port : Set your server PC's IP address and port number.

- DDNS ID : If your server, System Manager is registered at the DDNS, then set the corresponding DDNS ID.
  - If you select DDNS as your address type, the port input window will disappear automatically.
  - Using the hub, implement the SSM system and register it in the DDNS. In this case, proper port forwarding is required for normal operation.
- Login ID / Password : Enter your user ID and password.
  - If you activate <**Save Login ID**>, you don't have to reenter your login ID the next time you log in.
  - If you activate <**Auto Login**>, you don't have to enter your ID and password to log in next time.
  - According to our security policy, if you enter wrong password for more than certain number of times set in the Configuration Manager, you cannot log in for certain duration. Please remember you will be denied to access the system during this time even if you enter the correct password.
  - For more information, refer to Option Setup of SSM Configuration Manager.
  - If you want to access your SSM mobile, you can use the following strings for your login ID and password. If it includes a string (multilanguage) which is not supported, you need to change it in the Configuration Manager.
    - Uppercase Alphabets (A to Z) / Lowercase Alphabets (a to z)
    - 10 Basic Numbers (0 to 9)
    - Non alphabet special characters

  - If you enter prohibited letters, we cannot guarantee device additions or playing.

3. Enter all the information and touch <**Save**>.

4. If you run your SSM mobile again, you will be directed to the SSM Login screen you accessed recently.

   ▪ SSM mobile allows you to log in simultaneously with an SSM Console user using his ID, but does not allow you to log in simultaneously with another SSM mobile user using his ID.

**5.** If you want to log out from your user account, select the Setting tab and tap <**Logout**>.

To add a server

1. Tap the < ● > button on the right of the server name on the Login screen.

2. Once you are moved to the server list screen, tap <**Add**>.

3. Enter the information on the server you want to add in the Add Server screen.

4. If you touch <**Save**>, the server will be added to the Server List.

Back	Server List	Add
🔲 SSM		●

Cancel	Add Server	Save
	Auto add	Tip
Name	Enter server name.	
Address Type		Host DDNS
Host	Enter the host name.	
Port	Enter the port number.	
Login ID	Enter login ID.	
Password	Enter Password.	
Save Login ID		⬭
Auto Login		⬭

To edit the server information

1. In the Server List screen, touch the
   < ❯ > button on the right of the server
   name that you want to edit.

2. Upon completion of edition, touch
   <**Save**>.
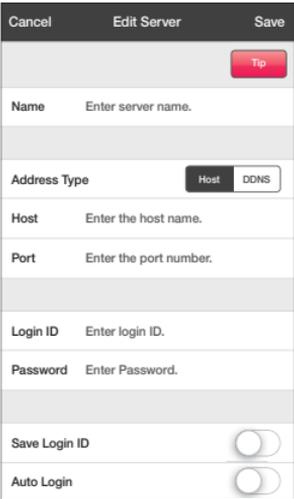
Cancel	Edit Server	Save
		Tip
Name	Enter server name.	
Address Type		Host DDNS
Host	Enter the host name.	
Port	Enter the port number.	
Login ID	Enter login ID.	
Password	Enter Password.	
Save Login ID		◯
Auto Login		◯

To delete a registered server

1. In the Server List screen, touch the < ⊙ > button on the right of the server name that you want to delete.

2. Touch the <**Delete Server**> button at the bottom of the Edit Server screen.

3. Touch <**OK**>.
   The selected server will be deleted from the list.

> ▪ If you push the server name that you want to delete in the server list to the left from the right, the Delete button will appear. Touch it to delete the server name.

Cancel	Edit Server	Save
Address Type		Host DDNS
Host	192.168.0.72	
Port	9999	

Delete Server
Will you delete the selected item?
If there is a saved bookmark or favorite list, it will all be deleted.

| Cancel | OK |

| Save Login ID | ⬤ |
| Auto Login | ⬤ |

Delete Server
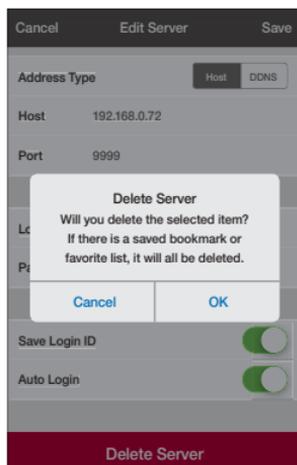
If no video is in service after server registration

1. Go to the SSM Service Manager to check the service status of the System Manager and Media Gateway.

2. In the SSM Service Manager, check the IP addresses and port setting values for the System Manager and Media Gateway.

3. Check your privilege information in the User group Information of the SSM Configuration Manager.

> ▪ Regarding the installation of the SSM, refer to the user manual.

2. Live Monitoring

To view the video marked as favorite

1. Select Live-< > Tab.

2. Touch < >.

3. Click the desired list among favorites registered in the site or layout to see the live video.


📝 ▪ If you tap the <**Edit**> button in the upper left corner, you can modify or delete the favorite list. Slide your finger from right to left to delete it.

4. Click the desired thumbnail image in the list to view a magnified image.
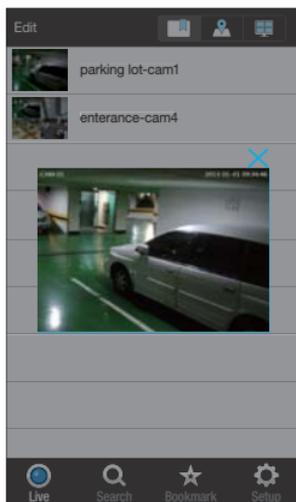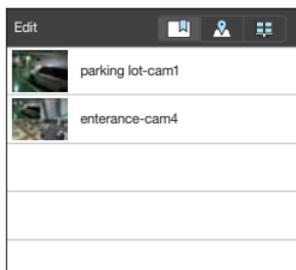
To view the video at each site

1. Select Live-< 🔘 > Tab.

2. Touch < 👤 >.

3. Select a site to view the live video.
It provides four channel video mode.

4. If you want to access the sub site, touch
the < ➲ > button.
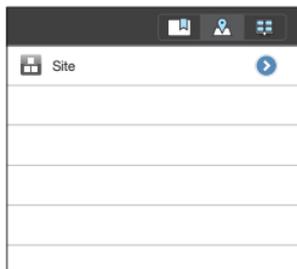
- ▪ Before you watch the NVR video, you have to register your device and activate your camera. Without activated channel, you cannot access the corresponding memory device.

- ▪ You can view and change the camera profile at 'Camera' tap of SSM Configuration Manager. SSM mobile requests videos suitable for the profile setup with a lower resolution.

- ▪ If you changed the site or video codec, then log out from the SSM mobile SW and relogin to apply setting. Otherwise, the existing video codec will remain activated to affect your simultaneous access.

❖ **Recommended Profile Information**

For more stable live video monitoring, the following profile setting is recommended.

Codec	Resolution	Frame Rate	Compression / Transmission Quality
MJPEG	320X240 / 640X480	5fps	Normal (10)
H.264	320X240 / 640X480	10fps	Normal (10)
H.265	320X240 / CIF	10fps	Normal (10)

> ▪ The MPEG4 video codec is not supported.
>
> ▪ A video, if sized greater than 2 mega pixels, is not supported.
>
> ▪ As for a video sized over 640X480, only the main frames will be provided.

If you want to view the video of each device

1. Select Live-< ◉ > Tab.

2. Touch < 👤 >.

3. Tap the < ❯ > button to move to the sub list.
You can select individual channels.

4. If you select the Network Camera or Encoder, the video will be provided in the 1 Channel mode. And select DVR or NVR to see video in 4 channel mode.
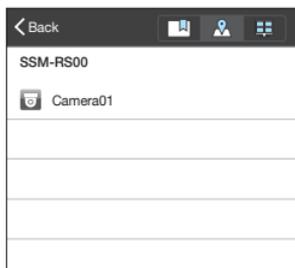
> ▪ Can change the display from 4 channels to 9/16 channels.

To view the video of each layout

1. Select Live-< ⊙ > Tab.

2. Touch < ▦ >.

3. Displays the list of layouts set in the SSM.

4. Tap the list of the desired layouts. You will be moved to the screen showing the list of layouts connected to the described layout.

5. Tap the < ● > button to move to the sub layout list screen.

> ▪ The map layout is not provided.
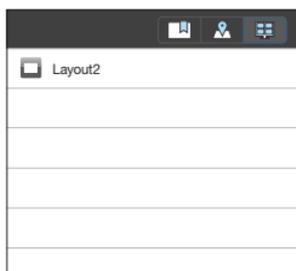
To change the channel

1. Touch the screen to display control buttons near the bottom.

2. Touch the Channel Change icon < ▽ >.
It will display the list of channels you can move to.

3. Select a channel to display on the screen.

> ▪ In multi-channel mode, specified split channels are configured to a group and moved.

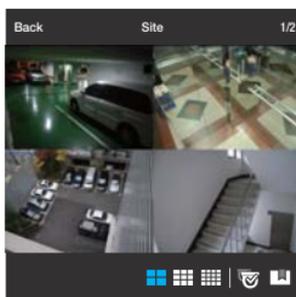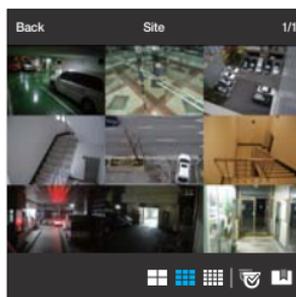|	In multi-channel mode, if you drag a screen from left to right using your finger, the screen is changed to the next split screen.

To switch to one-channel mode

Please push for a while or touch a screen of a selected channel twice among screens in multi-channel mode.

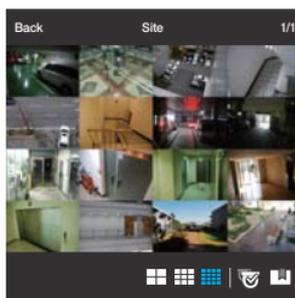■ If you want to switch to the split mode, then in the bottom of the screen, click the channel icon.
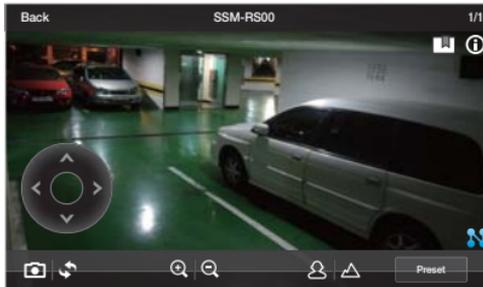

<4 Channel mode>

<9 Channel mode>

<16 Channel mode>

3. Controlling the Live Video

The video control function is available only in the 1 Channel mode.

To View Network Status

You can use the Network icon on the right side to check the live video transmission status on the network.

⚡	Shows that the network connection is good and the videos are received smoothly.
⚡	The network connection is not stable, so the videos are not received smoothly.
⚡	The network connection is not stable, so the videos are not received at all.

If you want to add it to the favorite list

Users can mark described channels as favorites.

1. In the top of the screen, tap Favorite < 📖 > Icon.

2. When the popup appears, enter the memo.

> 🖉 ▪ Up to 100 favorites can be registered and selectively deleted once exceeded.

To edit or delete favorites

Press the <**Edit**> button to modify or delete favorites.

To View Video Information

You can check the configuration information of a registered device.

1. In the top of the screen, tap Information Check < ⓘ > Icon.

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.
>
> ■ The SSM Media Gateway converts audios to the G.711 codec for transmission.

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.

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

📝
- Even a camera device without the Optical Zoom function is equipped with the PTZ Control button as long as it provides the External PTZ function. This device does not support the Digital Zoom function.

- 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 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 Optical Zoom Function

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.

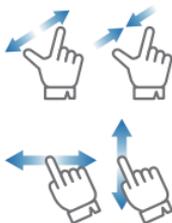You can also zoom in by pinch open using two fingers on the screen. To zoom out, pinch close on the screen.

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 adjust focus

This function allows manual adjustment of the camera focus.

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.

To run presets

This function is only provided for a camera that supports presets(executing functions set in advance)

1. Tap the screen. The < Preset > button will be displayed on the screen.

2. Tap the < Preset > button.
Select the preset number that you want to move.

> ▧ ▪ Only for the camera models that provide external PTZ without optical zooming, we provide focus and preset buttons.

To listen to the audio

As long as an Audio supporting device is connected, you will be able to listen to the Audio in the 1 Channel Video Play mode.

> ▧ ▪ Depending on the network connection, your mobile device can suffer from video or audio cut offs.

4. Searching / Playing Saved Video
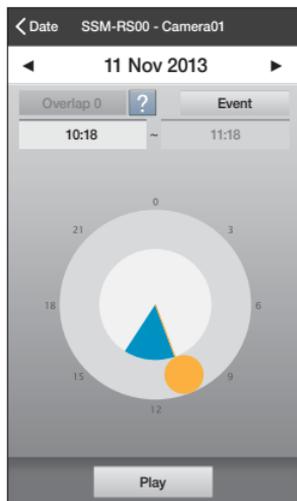
To search by date/time

1. While logged in, move to the Search tab.

Site List	
⊞ Site	›

2. Select and touch a channel to search for.

3. Dates containing data of the selected device and channel are marked in the calendar. Touch < ◄ ► > button on the calendar's both ends of year/month indicator to traverse to the previous/next month.

4. Touch a date to search video, and the circular timeline (24 hours) appears. Timeline is marked with color for time zones having recorded data to be searched.

‹ SSM-RS00	Date					
SSM-RS00 / Camera01						
◄		**Nov 2013**				►
Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7 •	8 •	9
10	11 •	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

📝 ▪ If there are overlapping multiple data for the same time range, an overlapping list appears.
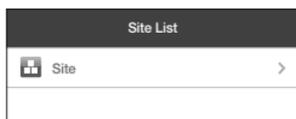
To play searched video

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

1. Check the timeline and drag [🟡] to the start time, or enter the start time on your own.

**2.** Touch the <**Play**> button to start video playback, and it will play for about 60 minutes from the start time.

To play event searched video

After searching based on date/time, set the beginning/end time to play the selected video.

1. Touch the <**Event**> button to select a desired event and touch <**Done**>.

2. Check the timeline and drag [🟡] to the start/end time or enter the start/end time on your own.

   ▪ 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 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.

   ▪ For the efficiency, Audio is disabled during play.

   ▪ While another user is using the device, your access will be denied.
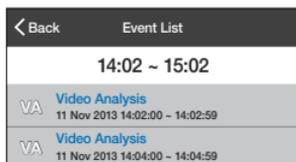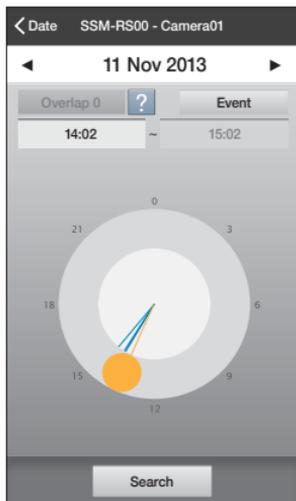
❖ Amount of Network Data Transfer for stored video

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.
- Videos of more than 2M pixels are not supported.
- For smooth and proper playback of stored recordings, it requires downloading bandwidth more than the specified minimum bandwidth in case if the network has interference.

To control playback

It provides basic playback control.
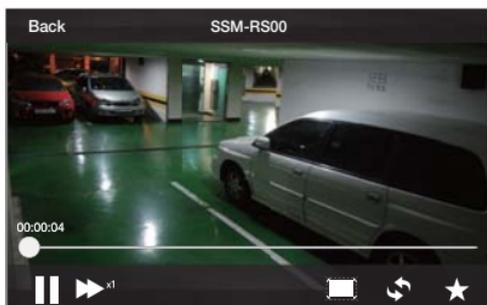
1. Touch the screen to display control buttons near the bottom.

2. To stop playback, touch < ❚❚ > button to pause and the button switches to < ▶ > once paused.

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. The timeline shows the played video's current playback time point.

3. Touch the time picker < ◯━ > on the timeline, and drag it to a desired time point to skip to that point.

4. Touching the timeline automatically pauses the video playback. Move the time picker and touch < ▶ > button to resume playing.

To use transcoding

If a video is not playing properly due to the network environment and performance of the device, the resolution of the video can be reduced, from high quality to low resolution.

1. If you touch the screen, select the pop-up buttons on the bottom of the screen.

2. Touch the < ▣ > button.

3. Select the image resolution you want.

4. An image is converted to the resolution that the user selected and then replayed.

> ■ If a recorded image has a lower resolution than a transcoding image resolution, such a case is not serviced.
>
> ■ Under a condition that CPU usage of MediaGateway exceeds a specified threshold, transcoding service is not provided.

5. To Use Bookmarks

To Register Bookmarks

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. Inserting a note is optional, bookmark will be saved without a note.
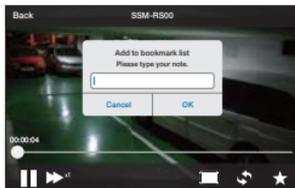
> ▪ Up to 100 bookmarks can be added, and selectively deleted once exceeded.

To Play Bookmarks

You can select a bookmark from the Bookmarks List to watch videos at a certain time at the selected bookmark.

1. After moving to the Bookmarks tab, select a bookmark from the Bookmarks List that you want to play.

2. Playback control for bookmarked video is the same as that of searched video.

> ▪ If there are overlapping multiple data for the same time range, an overlapping list appears.

If you want to edit or delete a bookmark

Tap the <**Edit**> button to modify or delete a bookmark.

6. To Use Help

To see help screen

1. In the Settings tab, touch <**Help**>.

2. The User Manual will be provided in the language which is set in your handset.

✎ ▪ Help is available in 13 different languages.

Setup
Logout ID: admin
Help 〉
About SSM mobile 〉

Live　Search　Bookmark　**Setup**
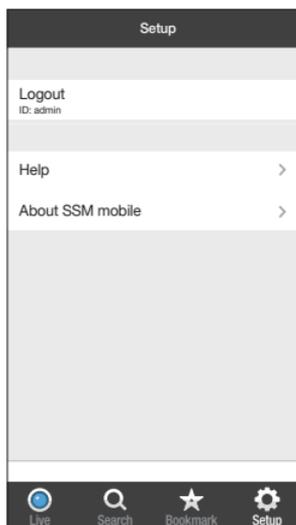
To check the software version

1. In the Settings tab, touch <**About SSM mobile**>.

2. You can check the information of the current software version.

7. 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