Imagine the possibilities
Thank you for purchasing this Samsung product.
To receive more complete service, please register your product at www.samsung.com/register
SAFETY INFORMATION

Warning! Important Safety Instructions

Read these operating instructions carefully before using the unit follow all the safety instructions listed below all. After you print this file, you keep these operating instructions handy for future reference.

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer,
or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

The slots and openings in the cabinet and in the back or bottom are provided for necessary ventilation. To ensure reliable operation of this apparatus, and to protect it from overheating, these slots and openings must never be blocked or covered.

- Do not place this apparatus in a confined space, such as a bookcase, or built-in cabinet, unless proper ventilation is provided.
- Do not place this apparatus near or over a radiator or heat register, or where it is exposed to direct sunlight.
- Do not place vessels (vases etc.) containing water on this apparatus. A water spill can cause a fire or electric shock.

Do not expose this apparatus to rain or place it near water (near a bathtub, washbowl, kitchen sink, or pool, etc.). If this apparatus accidentally gets wet, unplug it and contact an authorised dealer immediately.

This apparatus uses batteries. In your community, there might be environmental regulations that require you to dispose of these batteries properly. Please contact your local authorities for disposal or recycling information. Do not overload wall outlets, extension cords or adaptors beyond their capacity, since this can result in fire or electric shock.

Route power-supply cords so that they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at the plug end, at wall outlets, and the point where they exit from the apparatus.

To protect this apparatus from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the set due to lightning and power line surges.

Before connecting the AC power cord to the DC adaptor outlet, make sure the voltage designation of the DC adaptor corresponds to the local electrical supply. Never insert anything metallic into the open parts of this apparatus. Doing so may create a danger of electric shock.

To avoid electric shock, never touch the inside of this apparatus. Only a qualified technician should open this apparatus.

Make sure to plug the power cord in until it is firmly seated. When unplugging the power cord from a wall outlet, always pull on the power cord’s plug. Never unplug by pulling on the power cord. Do not touch the power cord with wet hands.

If this apparatus does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorised dealer or service center.

Maintenance of Cabinet.

- Before connecting other components to this product, be sure to turn them off.
- If you move your product suddenly from a cold place to a warm place, condensation may
occur on the operating parts and lens and cause abnormal disc playback. If this occurs, unplug the product, wait for two hours, and then connect the plug to the power outlet. Then, insert the disc, and try to play back again.

Be sure to pull the power plug out of the outlet if the product is to remain unused or if you are leaving the house for an extended period of time (especially when children, elderly, or disabled people will be left alone in the house).

• Accumulated dust can cause an electric shock, an electric leakage, or a fire by causing the power cord to generate sparks and heat or the insulation to deteriorate.

Contact an authorised service center for information if you intend to install your product in a location with heavy dust, high or low temperatures, high humidity, chemical substances, or where it will operate 24 hours a day such as in an airport, a train station, etc. Failing to do so may lead to serious damage to your product.

Use only a properly grounded plug and wall outlet.

• An improper ground may cause electric shock or equipment damage. (Class 1 Equipment only)

To turn this apparatus off completely, you must disconnect it from the wall outlet. Consequently, the wall outlet and power plug must be readily accessible at all times.

Do not allow children to hang on the product.

Store the accessories (battery, etc.) in a location safely out of the reach of children.

Do not install the product in an unstable location such as a shaky self, a slanted floor, or a location exposed to vibration.

Do not drop or strike the product. If the product is damaged, disconnect the power cord and contact a Samsung service center.

To clean this apparatus, unplug the power cord from the wall outlet and wipe the product using a soft, dry cloth. Do not use any chemicals such as wax, benzene, alcohol, thinners, insecticide, air fresheners, lubricants, or detergent. These chemicals can damage the appearance of the product or erase the printing on the product.

Do not expose this apparatus to dripping or splashing. Do not put objects filled with liquids, such as vases on the apparatus.

Do not dispose of batteries in a fire.

Do not plug multiple electric devices into the same wall socket. Overloading a socket can cause it to overheat, resulting in a fire.

There is danger of an explosion if you replace the batteries used in the remote with the wrong type of battery. Replace only with the same or equivalent type.

Make sure to rest the AC/DC Adapter flat on a table or the floor. If you place the AC/DC Adapter so that it is hanging with the AC cord input facing upwards, water or other foreign substances could enter the Adapter and cause the Adapter to malfunction.

WARNING - TO PREVENT THE SPREAD OF FIRE, KEEP CANDLES AND OTHER ITEMS WITH OPEN FLAMES AWAY FROM THIS PRODUCT AT ALL TIMES.

WARNING

To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

WARNING ABOUT POWER-OFF DEVICE

The Mains plug is used as a disconnect device and shall stay readily operable.

WARNING ABOUT POWER CODE AND ADAPTER

The supplied power code and adapter must be used with samsung gateway device.
Federal Communication Commission Interference Statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against such interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the service provider or an experienced radio/television technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

For products available in the US and Canadian markets, only channels 1~11 are available. You cannot select other channels.

This device and its antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated so there is at least 8 inches (20 cm) between the radiator and your body.

FCC Compliance

This device approved by FCC or FCC Certification Program.

UL Compliance

This device approved by UL by UL Certification Program.

Recycling guide

Dispose unwanted electronics through an approved recycler.
To find the nearest recycling location, go to our website: www.samsung.com/recyclingdirect Or call, (877) 278 - 0799

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
INTRODUCTION

Purpose

This guide provides instructions and recommendations for location, setup, information display, maintaining, and troubleshooting for the Samsung DOCSIS 3.1 Advanced Wireless Gateway (AWG).

- Basically, the Gateway provides by your service provider with configuration.
- The basic settings are provided by the manufacturer and service provider.
- The manual is intended to provide a basic guide for personal settings.

Document Content and Organization

This manual consists of six Chapters, which are summarized as follow:

Chapter 1. This chapter describes the contents in the package and system requirements. It also provides an overview of the gateway’s front, rear, and bottom panels.

Chapter 2. This chapter describes how to install the gateway.

Chapter 3. This chapter describes how to configure the gateway.

Chapter 4. This chapter describes how to understand the LEDs.

Chapter 5. This chapter describes how to configure the gateway for advanced users.

Chapter 6. This chapter provides troubleshooting information you can use in the unlikely event you encounter a problem with the gateway.

ANNEX. Open Source Announcement (GX-MC990CL)
Open source list used in the AWG and its license notice.

Conventions

The following paragraph contains special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.

NOTE
Indicates additional information as a reference.
## CONTENTS

### 01 Advanced Wireless Gateway Overview
- Introduction 9
- Features 9
- What's is in the box? 10
- Front Panel 11
- Rear Panel 13
- Bottom panel - Product label (item A) 14
- Gateway for the Installation 15

### 02 Installing the Advanced Wireless Gateway
- Introduction 16
- Connect the Wireless Gateway 16
- Connect your wireless devices 17
  - How to connect your wireless devices 17
  - How to connect your wireless devices via WPS 20

### 03 Basic Gateway Configuration
- Introduction 23
- Using Web UI 23
  - Web UI Connection 23
  - Wireless Gateway Main Window 24
  - Managing Operator Account 25
  - Managing the Gateway for the Wireless Network 26

### 04 Gateway LED Status
- Introduction 31

### 05 Advanced Gateway Setup
- Introduction 33
- Virtual Servers (Port Forwarding) 33
  - Configuration using Web UI 34
- DMZ host 35
  - Configuration using Web UI 35
Contents

06 Troubleshooting the Gateway 36
   Introduction 36
   Configuration TCP/IPv4 on Windows system (XP) 36
   Reset/Restore the Gateway via the RESET button in Rear Panel 37

Annex. Open Source Announcement (GX-MC990CL) 38

LIST OF FIGURES

Figure 1.1 Advanced Wireless Gateway (AWG) Front Panel 11
Figure 1.2 Advanced Wireless Gateway (AWG) Rear Panel 13
Figure 1.3 Advanced Wireless Gateway (AWG) Bottom Label 14
Figure 2.1 Advanced Wireless Gateway (AWG) Configuration 17
Figure 2.2 Wireless Network Status 18
Figure 2.3 Wireless Network Security Key (WPA2-PSK Key: On bottom label) 19
Figure 2.4 Wireless Network Connected Status 19
Figure 2.5 Wireless Connection Window via WPS 20
Figure 2.6 Wireless Network Status 21
Figure 2.7 Wireless Network Security Key (WPA2-PSK key: On bottom label) 21
Figure 2.8 Wireless Network Connected Status 22
Figure 3.1 Web UI Login Window 23
Figure 3.2 Advanced Wireless Gateway (AWG) Main Window 24
Figure 3.3 Operator Account Management Window 25
Figure 3.4 Wireless Setup Window 26
Figure 3.5 Wireless Guests Setup Window 27
Figure 3.6 Wireless Security Setup Window 28
Figure 3.7 Wireless WPS Setup Window 29
Figure 3.8 Wireless Advanced Setup Window 30
Figure 4.1 Virtual Servers (Port Forwarding) Status Window 33
Figure 4.2 Virtual Servers (Port Forwarding) Setup Window 34
Figure 4.3 DMZ Host Setup Window 35
Figure 5.1 Wireless Network Center 36
Figure 5.2 Wireless Network Status 36
Figure 5.3 Wireless Network Protocol Setup Window 37
01 ADVANCED WIRELESS GATEWAY OVERVIEW

Introduction

This chapter provides an overview of Samsung Advanced Wireless Gateway (AWG) features, indicators, and connectors to help you become familiar with the Advanced Wireless Gateway. This chapter also lists the accessories and equipment that are provided with the Advanced Wireless Gateway so you can verify that you received all of these items.

Features

This section provides a brief overview of the features of Samsung Gateway.

WAN connection features (DOCSIS 3.0/3.1)

• 5 Gbps Downstream at 108~1218 MHz frequency range.
• 700+ Mbps Upstream at 5 ~ 85 MHz frequency range.

LAN connection features

• MoCA 2.0 to interconnect your local MoCA devices via your coax network in home.
• Four 10/100/1000BASE-T Ethernet ports for your local home network devices.
• Wireless access point for your local home network devices via the integrated IEEE 802.11n 2.4 GHz and IEEE 802.11ac 5 GHz.
• Firewall deters hackers and protects the home network from unauthorized access via Router Function.

Wi-Fi connection features

• Dual Band Concurrent in mode 802.11a/b/g/n/ac
• Wi-Fi 5GHZ ac 4x4 mode (4Tx, 4Rx) with MU-MIMO
• Wi-Fi 2.4GHZ n 3x3 mode (3Tx, 3Rx) with MIMO

Fax/Telephony connection features

• Two-line RJ-11 telephony ports for connecting to traditional telephones or fax machines

Power consumption features

• Power On: Max. 35 W
• Power Rating: +14 V DC INPUT; 2.5 A
Advanced Wireless Gateway Overview

Design and Additional Function

- Elegant, compact cube type design
- LED status indicators on the front panel, providing an easy-to-understand display that indicates the operational status

Management

- The Web UI allows you to configure your Gateway and network via your web browser.
- Allows software upgrades by your service provider via TR-069 methods or CableModem

What’s is in the box?

When you receive Samsung AWG, you should check the equipment and accessories to verify that each item is in the box and that each item is undamaged.

Items of the box can be changed by your service provider.

Basically, the box contains the following items:

- Advanced Wireless Gateway
- Power Code
- 35 W Adapter for only Samsung Gateway
Advanced Wireless Gateway Overview

Front Panel

![Advanced Wireless Gateway (AWG) Front Panel](image)

**Figure 1.1  Advanced Wireless Gateway (AWG) Front Panel**

<table>
<thead>
<tr>
<th></th>
<th><strong>WPS (WIRELESS PROTECTED SETUP)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wireless Protected Setup in normal condition is not active. If the button is pressed, WPS is active so that a new wireless client can be added to the wireless network.</td>
</tr>
</tbody>
</table>
| 2 | **POWER**  
ON, power is applied to the Residential Gateway. OFF when power is off to the Residential Gateway. |
| 3 | **DS**  
ON, the Gateway is exchanging data with the cable network. Blinking indicates the downstream scan is in progress. |
| 4 | **US**  
ON, the Gateway is exchanging data with the cable network. Blinking indicates the upstream scan is in progress. |
| 5 | **ONLINE**  
ON, the Gateway is registered on the network and fully operational. OFF indicates the Gateway has not registered on the network. |
## Advanced Wireless Gateway Overview

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WiFi 2.4 G</strong></td>
<td>ON, the wireless access point is operational. Blinking indicates that data is being transferred over the wireless connection. OFF indicates that the wireless access point is not enabled.</td>
</tr>
<tr>
<td><strong>WiFi 5 G</strong></td>
<td>ON, the wireless access point is operational. Blinking indicates that data is being transferred over the wireless connection. OFF indicates that the wireless access point is not enabled.</td>
</tr>
<tr>
<td><strong>TEL1</strong></td>
<td>ON indicates telephony service is enabled. Blinks when line 1 is in use. OFF indicates that phone service for TEL 1 is not enabled.</td>
</tr>
<tr>
<td><strong>TEL2</strong></td>
<td>ON indicates telephony service is enabled. Blinks when line 2 is in use. OFF indicates that phone service for TEL 2 is not enabled.</td>
</tr>
<tr>
<td><strong>MoCA</strong></td>
<td>ON, MoCA is operational. Blinking indicates that data is being transferred over the MoCA connection. OFF indicates that the MoCA is not enabled.</td>
</tr>
</tbody>
</table>
Advanced Wireless Gateway Overview

Rear Panel

![Advanced Wireless Gateway (AWG) Rear Panel](image)

1. **RESET**
   A momentary pressing (5-10 seconds) of this switch restarts the device. To press this switch, insert a thin object, such as a paper clip, into the RESET port; then press and hold the switch for more than ten seconds to reset all settings to their factory-settings and then restart the device.

2. **USB**
   Connects the Residential Gateway to selected devices. For models that support USB, the default is one USB port.

3. **TEL1 and TEL2**
   RJ-11 telephone ports for connecting telephones, fax machines, and/or an analog home alarm system.

4. **ETHERNET**
   Four RJ-45 Ethernet ports allow connection to the Ethernet port on your PC or network device.

5. **CABLE/MoCA**
   F-connector connects to your home coax network to provide Cable and MoCA service.

6. **POWER**
   Connects the Gateway to the Samsung only Adapter with 35 W.
Advanced Wireless Gateway Overview

Bottom panel - Product label (item A)

The label on the bottom of the Gateway contains information about your Gateway, like:

- Device information
- Wireless security settings

![Advanced Wireless Gateway (AWG) Bottom Label](image)

SSID 1 Name(2.4Ghz) is the network name of the 2.4 GHz access point and is of the following format: MC990CLXXXX-2.4G (where X is an alphanumeric character).

SSID 2 Name(5Ghz) is the network name for the 5 GHz access point and is of the following format: MC990CLXXXX-5G (where X is an alphanumeric character).

Wi-Fi Password(2.4/5G) is the WPA2-PSK password for the 2.4/5 GHz access point and is of the following format: GXMC990XXXXXX (where X is an alphanumeric character).
Gateway for the Installation

The ideal location for your Gateway is where it has access to adapter and other devices. Think about the layout of your home or office, and consult with your service provider to select the best location for your Gateway. Read this user guide thoroughly before you decide where to place your Gateway.

Consider these recommendations:

• Choose a location close to your computer if you will also use the Gateway for high-speed Internet service.
• Choose a location that is near an existing RF coaxial connection to eliminate the need for an additional RF coaxial outlet.
• Choose a location that is relatively protected from accidental disturbance or harm, such as a closet, basement, or other protected area.
• Choose a location so that there is plenty of room to guide the cables away from the Gateway without straining or crimping them.
• Choose a location that allows adequate ventilation around the Gateway.
• Choose a location for the Residential Gateway that is adjacent to your telephone equipment if you plan on connecting your phone directly to the Gateway.
02 INSTALLING THE ADVANCED WIRELESS GATEWAY

Introduction

This chapter provides how to properly install the Advanced Wireless Gateway to your service provider’s network and to connect the Advanced Wireless Gateway to your PC and your other IT devices.

Connect the Wireless Gateway

Connecting Coax Cable to your cable splitter and the Gateway

1. Choose an appropriate and safe location to install the Gateway.
2. Power off your PC and other IT device.
3. Connect the active RF coaxial cable from your service provider to the coax connector labeled CABLE/MoCA on the back of the Wireless Gateway.
4. If your Wireless Gateway supports telephone service, connect one end of a telephone jumper cable to a telephone outlet in your home. Then connect the other end of the jumper cable to the appropriate RJ-11 TEL1 or TEL2 port on the back of the Wireless Gateway.
5. Connect your PC to the Wireless Gateway using the Ethernet Connection or the Wireless Connection.
6. Connect the DC jack end of the Adapter into the DC plug on the back of the Gateway. Connect the power code to adapter and an electrical outlet.
   - The Wireless Gateway will perform an automatic search to locate and sign on to the broadband data network. This process may take up to 2-5 minutes. The Wireless Gateway will be ready for use when the Power, DS,US, and Online LEDs on the front panel of the Wireless Gateway stop blinking and remain on continuously.
7. If your wireless devices uses wireless networking, the WiFi 2.4 G or WiFi 5 GHz LED on the Wireless Gateway should be on or blinking.
8. Finally, the installation is complete, and you can begin surfing the Internet sites.
Installing the Advanced Wireless Gateway

An example of connection diagram is shown in the below figure.

![Connection Diagram](image)

Wireless Notebook Computer

Telephone

Ethernet Cable

Coaxial Cable

Power Adapter

**Figure 2.1 Advanced Wireless Gateway (AWG) Configuration**

Connect your wireless devices

The Gateway has two access points that allows you to connect wireless devices to your home network:

- The 5 GHz (4x4) IEEE 802.11ac access point offers superior transfer rates, is less sensitive to interference and allows you to connect IEEE802.11a/n/ac wireless clients.
- The 2.4 GHz (3x3) IEEE 802.11n access point allows you to connect IEEE802.11b/g/n wireless clients. Use this access point for wireless clients that don’t support 5 GHz.

How to connect your wireless devices

Requirements

Your network device must be equipped with a wireless client.

Your network device must be configured to obtain an IP address automatically. This is the default setting.
Installing the Advanced Wireless Gateway

Procedure

If you want to connect a computer using the wireless network, configure the wireless client on your computer with the wireless settings printed on the Gateway’s side or back panel label.

For the network name, two values are available:

- Network Name 1 (SSID) is the network name of the 5 GHz access point and is of the following format: MC990CLXXXX-2.4G (where X is an alphanumeric character).
- Network Name 2 (SSID) is the network name for the 5 GHz access point and is of the following format: MC990CLXXXX-5G (where X is an alphanumeric character).

The password is common for both access points.

To configure these settings on Windows 7.

Proceed as follows:

1. Click the wireless network icon in the notification area.
2. A list of available wireless networks appears.

![Figure 2.2 Wireless Network Status](image)

Double-click the Gateway access point.
The Gateway is listed with the MC990CLXXXX-2.4G and MC990CLXXXX-5G which is printed on the Gateway’s bottom side.
3. Windows prompts you to enter the security key.
   Type the **Password** which is printed on the Gateway’s bottom panel label in the Security key and click **OK**.

![Figure 2.3 Wireless Network Security Key (WPA2-PSK Key: On bottom label)](image)

4. And then, the wireless device is connected to the Gateway.

![Figure 2.4 Wireless Network Connected Status](image)
Installing the Advanced Wireless Gateway

How to connect your wireless devices via WPS

1. In the WEB-UI menu of <Wireless>, select Security Menu (<5GHz-Security> or <2.4GHz-Security>) to configure wireless networks’ WPS setup.

2. Select “Enabled” in Enable WPS and choose “Configured” in WPS AP Mode. For WPS-PBC configuration, choose “Use STA PIN” radio button and empty both STA PIN and Authorized MAC.

3. Press “Apply/Save” button to save changed configuration.

Figure 2.5 Wireless Connection Window via WPS
Installing the Advanced Wireless Gateway

To configure these settings on Windows 7.

Proceed as follows:

1. Click the wireless network icon in the notification area.
2. A list of available wireless networks appears.

![Wireless Network Status](image1)

**Figure 2.6  Wireless Network Status**

3. Windows 7 supports the PBC method. The first time you try to connect to a wireless router with WPS, Windows 7 prompts you to enter the security key or press the button.

![Wireless Network Security Key](image2)

**Figure 2.7  Wireless Network Security Key (WPA2-PSK key: On bottom label)**
Installing the Advanced Wireless Gateway

4. Press WPS button on the top of the front or press “Add Enrollee” button in Wireless – Security WEB-UI.

5. And then, the wireless device is connected to the Gateway.

Figure 2.8 Wireless Network Connected Status
03 BASIC GATEWAY CONFIGURATION

Introduction
In this chapter, the basic gateway configuration using web and how to use Web UI is described.

Using Web UI

Web UI Connection
1. Open your web browser and browse to http://192.168.0.1, using a computer or device that is currently connected to you Gateway via wireless devices.

2. The Gateway prompts you to enter the username and password. Enter your user name (default: admin) and password (default: sMFG SN!) and click OK.
MFG SN is noted on the bottom of the device which have 15 characters. Please be sure to use just 14 characters from the first character.
   - In addition to the 14 characters, prepending ‘s’ and append ‘!’ will make entire password.
     - If MFG SN (on bottom label) is “1T5PF3CJ500119J”, Password is “s1T5PF3CJ500119!”.
   - Default ID and Passwd : admin/ sMFG SN!, user/ sMFG SN!, viewonly/ sMFG SN!

Figure 3.1 Web UI Login Window
Basic Gateway Configuration

Wireless Gateway Main Window

The Gateway Main window consists of menu bar, sub-menus, and detail windows of each menu.

Figure 3.2 Advanced Wireless Gateway (AWG) Main Window
Basic Gateway Configuration

Managing Operator Account

After the first login, you go through the course of changing the password via Access Control Menu.

Configuration using Web UI

In the menu of <Management>, select <Access Control> and then select the <Passwords> menu in the sub-menus.

When you enter ID/PW values and click the <Apply/Save> button, the configuration is applied.

Figure 3.3 Operator Account Management Window
Basic Gateway Configuration

Managing the Gateway for the Wireless Network

The Gateway supports 2 primary wireless network (2.4G/5G) and 6 multiple guest networks in each one primary wireless network.

Configuration Primary Wireless Network

![Wireless Setup Window](image)

**Figure 3.4  Wireless Setup Window**

1. In the menu of `<Wireless>`, select Primary Wireless Network `<5GHz-Basic>` or `<2.4GHz-Basic>` to configure.

2. Check/Uncheck “Enable Primary Network” check box to turn ON or OFF primary wireless network.

3. Check “Hide Access Point” check box to block broadcasting and hide primary wireless network.

4. Enter new SSID to change primary wireless network’s name in SSID field.
   - 32 characters maximum (letters, numbers and/or special characters)

5. Click `<Apply/Save>` button to apply and save the changed configuration.
Basic Gateway Configuration

Configuration Guest Wireless Network

1. To enable guest network, check “Enabled” check boxes.
2. Enter new SSID to change guest wireless network’s name in SSID field.
   - 32 characters maximum (letters, numbers and/or special characters)
3. Check “Hidden” check box to block broadcasting and hide guest wireless network.
4. Click <Apply/Save> button to apply and save the changed configuration.
Basic Gateway Configuration


1. In the menu of <Wireless>, select Security Menu (<5GHz-Security> or <2.4GHz-Security>) to configure wireless networks’ security settings.

2. Select one of the following Network Authentication:
   - **Open**: allows access to the wireless network without security key.
   - **B.WPA2**: uses an authentication server to generate keys or certificates.
   - **WPA2-PSK**: use Pre-Shared key(PSK) for encryption.
   - **Mixed WPA2/WPA**: combination Wi-Fi Protected Access version 2 and Wi-Fi Protected Access with using an authentication server to generate keys or certificates.
   - **Mixed WPA2/WPA-PSK**: combination Wi-Fi Protected Access version 2 with Pre-Shared Key and Wi-Fi Protected Access with Pre-Shared Key.

3. **WPA/WAPI passphrase**: Enter wireless network's password.

4. **WPA/WAPI Encryption**:
   - **AES (Advanced Encryption Standard)**: enhanced encryption type to WPA2 over WPA.
   - **TKIP+AES (Temporal Key Integrity Protocol and Advanced Encryption Standard)**: TKIP and AES encryption types are capable to access wireless network.
5. Protected Management Frame: Select “Capable or Required” to protect management frames such as authentication, de-authentication, association, dissociation.

6. Click <Apply/Save> button to apply and save the changed configuration.

Configuration Wireless Network Security – WPS (WiFi Protected Setup) Setup

1. In the menu of <Wireless>, select Security Menu (<5GHz-Security> or <2.4GHz-Security>) to configure wireless networks’ WPS setup.

2. Select “Enabled” to Enable WPS.
   - For WPS-PIN configuration, choose “Use STA PIN” radio button and enter Client’s PIN number. Press “Add Enrollee” button and start Client’s WPS PIN.
   - For WPS-PBC configuration, choose “Use STA PIN” radio button and empty both STA PIN and Authorized MAC. Press “Add Enrollee” button and start Client’s WPS PBC.
Basic Gateway Configuration

Configuration Wireless Network Channel/Bandwidth

1. In the menu of <Wireless>, select Advanced Menu (<5GHz-Advanced> or <2.4GHz-Advanced>) to configure wireless networks’ radio configuration.

2. Select “Channel” and “Bandwidth” to improve wireless network interference and throughput performance.
04 GATEWAY LED STATUS

Introduction

This chapter provides LED’s status of front panel when the Advanced Wireless Gateway is power on, provisioning, normal status, and abnormal status.

Gateway LED indicates the various statuses of system. Each LED displays the following information:

POWER LED status is below table.

<table>
<thead>
<tr>
<th>POWER</th>
<th>LED State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>The Gateway is power on when the DC input supplied</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>The Gateway is power off when the DC input don’t supplied</td>
<td></td>
</tr>
</tbody>
</table>

CableMode start up LED sequence is table below.

<table>
<thead>
<tr>
<th>CableModem</th>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS</td>
<td>ON</td>
<td>Downstream looking is in completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Downstream looking is in progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The Gateway is power off</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>ON</td>
<td>Upstream looking is in completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Downstream looking is in progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The Gateway is power off</td>
<td></td>
</tr>
<tr>
<td>ONLINE</td>
<td>ON</td>
<td>Downstream and Upstream looking are completed. The connection is completed on internet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>Downstream and Upstream looking are in progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The Gateway is power off</td>
<td></td>
</tr>
</tbody>
</table>
Gateway LED Status

Wi-Fi connection LED sequence is table below.

<table>
<thead>
<tr>
<th>Wi-Fi</th>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WiFi 2.4G</td>
<td>ON</td>
<td>The Wi-Fi 2.4 Ghz service is enabled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>The data is being transferred in 2.4 Ghz over the wireless connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The 2.4 Ghz Wi-Fi service is disabled</td>
<td></td>
</tr>
<tr>
<td>WiFi 5G</td>
<td>ON</td>
<td>The Wi-Fi 5 Ghz service is enabled</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>The data is being transferred in 5 Ghz over the wireless connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The 5 Ghz Wi-Fi service is disabled</td>
<td></td>
</tr>
</tbody>
</table>

Telephony and MoCA connection LED sequence are table below.

<table>
<thead>
<tr>
<th>Telephony</th>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL1/TEL2</td>
<td>ON</td>
<td>The telephone or fax is not in use (on-hook)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blinking</td>
<td>The telephone or fax is in use (off-hook)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>The telephony service is disabled</td>
<td></td>
</tr>
</tbody>
</table>

| MoCA      | ON        | The MoCA service is enabled                        |
|           | Blinking  | The MoCA network has traffic                       |
|           | OFF       | The MoCA service is disabled                       |

Ethernet connection LED sequence of rear panel are table below.

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>Orange</td>
<td>Blinking</td>
<td>Blinking while data exchanging</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF</td>
<td>No data exchanging</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Green</td>
<td>ON</td>
<td>Link connection display</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF</td>
<td>No link connection</td>
</tr>
</tbody>
</table>
05 ADVANCED GATEWAY SETUP

Introduction

This chapter describes the setup procedures for the security related setting such as parental control and port control for IP application. It includes blocking or open function, remote access, firewall function, and more.

Virtual Servers(Port Forwarding)

Port forwarding opens certain ports on your home or small business network, usually blocked from access by your router, to the Internet. Opening specific ports can allow games, NAS servers, BitTorrent clients, and other applications to work through the usual security of your router that otherwise does not permit connections to these ports.

The port forwarding has 32 entries.

![Figure 4.1 Virtual Servers(Port Forwarding) Status Window](image)
Advanced Gateway Setup

Configuration using Web UI

In the menu of <Advanced Setup>, select <NAT> and then select the <Virtual Servers> menu in the sub-menus.

When you click the <Add> button in the Virtual Servers window, the servers creation window is displayed. When you enter a configuration value and click the <Apply/Save> button, the configuration is applied.

Figure 4.2 Virtual Servers (Port Forwarding) Setup Window
**Advanced Gateway Setup**

**DMZ host**

A DMZ (demilitarized zone) on a gateway refers to a DMZ Host. A gateway DMZ host is a host on the internal network that has all UDP and TCP ports open and exposed, except those ports otherwise forwarded. They are often used a simple method to forward all ports to another firewall/NAT device.

**Configuration using Web UI**

In the menu of <Advanced Setup>, select <NAT> and then select the <DMZ Host> menu in the sub-menus.

When you enter a configuration IP value and click the <Apply/Save> button, the configuration is applied.

![Figure 4.3 DMZ Host Setup Window](image)
06 TROUBLESHOOTING THE GATEWAY

Introduction
In this chapter, troubleshooting method are described.

Configuration TCP/IPv4 on Windows system (XP)

1. Open Network Connections by clicking the Start button, and then clicking Control Panel.

2. Selecting Network and Sharing Center, click View network connections as below.

![Wireless Network Center](image1)

**Figure 5.1** Wireless Network Center

3. Selecting the connection, you can see status as below.

![Wireless Network Status](image2)

**Figure 5.2** Wireless Network Status
4. Selecting the Properties, you can see networking protocol and then click **Internet Protocol Version 4 (TCP/IPv4)**.

![Figure 5.3 Wireless Network Protocol Setup Window](image)

**Reset/Restore the Gateway via the RESET button in Rear Panel**

To reset the Gateway to factory defaults, you should press and hold the RESET button on the rear panel of Gateway for more five or six seconds. You can also need to do this if a misconfigurations has locked out all access.

1. Make sure that the Gateway is turned on.
2. If you want to:
   - Reset the Gateway, use a pen or an unfolded paperclip to push the recessed Reset button on the back panel of the Gateway for approximately 5~10 seconds and then release it.
   - Restore the factory default settings of the Gateway, use a pen or an unfolded paperclip to push the recessed Reset button on the back panel of the Gateway for at least 10 seconds and then release it.
3. The Gateway can restart.
ANNEX. OPEN SOURCE ANNOUNCEMENT
(GX-MC990CL)

Some software components of this product incorporate source code covered under the GNU General Public License (GPL), the GNU Lesser General Public License (LGPL) etc.

Acknowledgement:

The software included in this product contains copyrighted software that is licensed under the GPL/LGPL etc. You may obtain the complete Corresponding Source code from us for a period of three years after our last shipment of this product by sending email to: oss.request@samsung.com

If you want to obtain the complete Corresponding Source code in the physical medium such as CD-ROM, the cost of physically performing source distribution may be charged.

You may also find a copy of the source at http://opensource.samsung.com/

This offer is valid to anyone in receipt of this information.

Below is the list of components covered under GNU General Public License, the GNU Lesser General Public License etc.

<table>
<thead>
<tr>
<th>Component</th>
<th>License</th>
<th>Component</th>
<th>License</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux Kernel</td>
<td>GPL 2.0</td>
<td>glibc</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>Busybox</td>
<td>GPL 2.0</td>
<td>FFmpeg</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>binutils</td>
<td>GPL 2.0</td>
<td>uClibc</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>bridge-utils</td>
<td>GPL 2.0</td>
<td>avahi</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>cortex</td>
<td>GPL 2.0</td>
<td>JFreeChart</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>ebtables</td>
<td>GPL 2.0</td>
<td>libdaemon</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>eCos</td>
<td>GPL 2.0</td>
<td>libnet</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>e2fsprogs</td>
<td>GPL 2.0</td>
<td>liboping</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>gSOAP XML Web Service tools</td>
<td>GPL 2.0</td>
<td>libusb</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>iproute2</td>
<td>GPL 2.0</td>
<td>LZMA</td>
<td>LGPL 2.1</td>
</tr>
<tr>
<td>JFFS2 LZO</td>
<td>GPL 2.0</td>
<td>OpenSSL</td>
<td>OpenSSL License</td>
</tr>
<tr>
<td>mtd-utils</td>
<td>GPL 2.0</td>
<td>axis</td>
<td>Apache License</td>
</tr>
<tr>
<td>netfilter</td>
<td>GPL 2.0</td>
<td>websocket</td>
<td>Apache License</td>
</tr>
<tr>
<td>pptp</td>
<td>GPL 2.0</td>
<td>JPEG</td>
<td>IJG License</td>
</tr>
<tr>
<td>udhcpc</td>
<td>GPL 2.0</td>
<td>zlib</td>
<td>zlib/libpng License</td>
</tr>
<tr>
<td>zebra</td>
<td>GPL 2.0</td>
<td>libpng</td>
<td>zlib/libpng License</td>
</tr>
</tbody>
</table>

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin St, 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.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, 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 or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it. For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps:
(1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software. Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software.

If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0) This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The “Program”, below, refers to any such program or work, and a “work based on the Program” means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term “modification”.) Each licensee is addressed as “you”.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1) You may copy and distribute verbatim copies of the Program's 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 give any other recipients of the Program a copy of this License along with the Program. 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 Program or any portion of it, thus forming a work based on the Program, 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) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of the original, unmodified Program.
This License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, 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 Program, 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 Program. In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3) You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

   a) 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; or,
   b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
   c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, 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 executable. However, as a special exception, the source code 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.

If distribution of executable or 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 counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4) You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program 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.

5) 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 Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6) Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program 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 to this License.

7) 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.

ENG - 40
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 Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program 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 Program.

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.

8) If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program 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.

9) The Free Software Foundation may publish revised and/or new versions of the 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 Program 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 Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10) If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, 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

11) BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM “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 PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12) 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 PROGRAM 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 PROGRAM (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 PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), 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 Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. 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 program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program 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 General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.

This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than 'show w' and 'show c'; they could even be mouse-clicks or menu items--whatever suits your program.

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

Yoyodyne, Inc., hereby disclaims all copyright interest in the program 'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

GNU LESSER GENERAL PUBLIC LICENSE
Open Source Announcement (GX-MC990CL)

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.

**TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

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
Open Source Announcement (GX-MC990CL)

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:

Yoyodyne, 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!

OpenSSL License

Copyright (c) 1998-2004 The OpenSSL Project. All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1) Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2) 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.

3) All advertising materials mentioning features or use of this software must display the following acknowledgment: “This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)”

4) The names “OpenSSL Toolkit” and “OpenSSL Project” must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.

5) Products derived from this software may not be called “OpenSSL” nor may “OpenSSL” appear in their names without prior written permission of the OpenSSL Project.

6) Redistributions of any form whatsoever must retain the following acknowledgment:
Open Source Announcement (GX-MC990CL)

“This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED 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 OpenSSL PROJECT OR ITS 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.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Apache License, Version 2.0

Foundation Projects People Get Involved Download Support Apache Home >> Licenses

Apache License Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

“License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

“Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

“Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

“You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License.

“Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

“Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

“Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

“Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain
 separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

“Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.”

“Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices stating that You changed the files; and

You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work
To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets “[ ]” replaced with your own identifying information. (Don’t include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same “printed page” as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the “License”); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.
Contact SAMSUNG WORLD WIDE
If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center.

<table>
<thead>
<tr>
<th>Country</th>
<th>Customer Care Center</th>
<th>Web Site</th>
</tr>
</thead>
</table>

Figures and illustrations in this User Manual are provided for reference only and may differ from the actual product appearance. Product design and specifications may change without notice.