



网络摄像机 用户手册

SNF-8010/SNF-8010VM



网络摄像机

用户手册

版权

©2017 Hanwha Techwin Co., Ltd. 版权所有。

商标

本文件中的每个商标均经过注册。本产品的名称以及本手册中提到的其他商标均为各自公司的注册商标。

限制

本手册受著作权保护。未经正式授权，在任何情况下均不得复制、传阅或更改本文件或其任何部分。

免责声明

Hanwha Techwin 尽力验证本文件中内容的完整性和正确性，但不能提供正式保证。

使用本文档及所产生的结果完全由用户自行负责。

Hanwha Techwin 保留更改本文档的内容而不提前通知的权利。

❖ 设计和规格可能会随时更改，恕不提前通知。

❖ 初始管理员ID为“admin”，而密码则应在首次登录时设置。

请每三个月更改一次密码，以妥善保护个人信息并防止信息泄露造成的损害。

请注意，由于没有妥善管理密码而造成安全或其他方面的问题，由用户自行承担。

概述

重要的安全说明

1. 请阅读这些说明。
2. 请您妥善保存这些说明。
3. 请您遵守所有的操作说明。
4. 请您注意所有的警告说明。
5. 请您不要在水源附近运行本机器。
6. 使用柔软干布或湿布清洁产品表面的污染区域。
(请勿使用含有酒精、有机溶剂或表面活性剂、或含油成分的清洁剂或化妆品, 此类物质可能使产品变形或受损。)
7. 请您不要堵塞通风口, 在装入机器时, 请您注意制造商的说明。
8. 请您不要将此机器放置在热源附近, 如散热器, 炉子或其它发热设备。
9. 请您绝对不要移去双线插头或有接地插头的安全装置, 双线插头有两个不同宽度的插塞接点, 接地插头有两个插塞接点和第三个接地接点。较宽的插塞接点或附加的接地接点是用来确保您的安全的, 如果随同供货的插头规格不适合您的插座, 请您委托电工更换适当的插座。
10. 请您正确铺设电源线, 使其不会被踩踏和尖角损坏。请您尤其注意插头处, 加长电缆和电线延伸到机器处必须具备充分的保护。
11. 请您使用制造商推荐的附加设备或配件。
12. 仅可使用厂商指定或随设备出售的运载车、支脚、三脚架、支架或工作台。使用运载车时, 请小心避免在移动运载车/设备组合时翻覆。
13. 在雷雨天气或长时间不用的情况下, 请拔下本设备的插头。
14. 请您委托具备资格的售后服务人员进行保养工作。出现以下情况时, 有必要进行保养, 例如当机器被损坏时(如电线或插头损坏), 有物体或液体进入到机器内部时机器受到雨淋或潮湿后, 机器运行不正常或摔落在地上时。



概述

警告

为防止火灾或电击等引起的破坏，不要把产品暴露于水中或潮湿处。请勿穿过设备上的通风栅格或其他开口插入任何金属物体。

请勿将设备放置于滴水或溅水的地方，且勿将装有水的物体（如花瓶）放在设备上面。

为了避免造成人身伤害，必须按照安装说明牢固地把本设备固定在墙壁/天花板上。

注意

	注意 不要擅自拆装机器， 避免电击	
注意： 为避免触电危险，不得取下机器后盖。 机器内部没有用户可修理的部件。 修理工作只允许由具备资格的人员进行		

图形符号说明



等边三角形内带箭头的闪电符号用于警告用户：产品机壳内存在“危险电压”，其电压量足以对人员构成电击危险。



等边三角形内的感叹号用于警告用户：产品附带的文字中包含重要的操作和维护（维修）说明。

CLASS I 构造

具有 CLASS I 构造的设备应连接到具有保护接地连接的电源插座。

电池

电池（安装的电池组或电池）不得暴露在过多的热量下（如阳光、火焰或类似物体）。

断开设备

如果设备出现故障，请拔下其电源插头。并请致电当地的维修人员。

当在美国以外使用时，可以利用所用的 HAR 代码和许可代理机构的接待处。

注意

如更换的电池类型不正确，可能发生爆炸。

按照说明妥当处理废旧电池。

这些维修说明仅供合格的维修人员使用。

为减少电击的危险，除了操作说明中所描述的之外，请勿执行其他任何维修工作，除非您合格这么做。

请将输入电源仅用于一部摄像机，并且不能连接其他设备。

ITE 只能连接到 PoE 网络，无需连接到外部设备。

产品内有害物质信息

部件名称	有毒有害物质元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 Cr (VI)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印制电路板组件	×	○	○	○	○	○
金属部品	×	○	○	○	○	○
电缆	×	○	○	○	○	○
塑料部品	○	○	○	○	○	○

○：部品中有毒有害物质含量在〈含量标准〉的标准值内。

×：部品中有毒有害物质含量超出〈含量标准〉的标准值。

本表格表明机器内部含有有害物质，数据是根据部件类型，由部件制作商提供并在Hanwha Techwin内部验证后做成的。

某些部品包含的有害物质，按照现在的技术基准不能替代，Hanwha Techwin一直在为改善此项而努力。

概述

请仔细阅读以下建议的安全预防措施。

- 请勿将本设备放置于不平的表面上。
- 请勿安装在暴露在直射阳光下、靠近供暖设备或非常寒冷区域的表面上。
- 请勿将本设备放置在传导物体附近。
- 请勿自行维修本设备。
- 请勿将一杯水放在产品上。
- 请勿安装在任何磁源附近。
- 请勿堵塞任何通风口。
- 请勿在产品上放置任何重物。

用户手册是如何使用产品的指导书。

书中所用符号的含义如下。

- 参考：用于提供产品用法的帮助信息
 - 注意：如果不遵照说明有可能对物品和人员造成任何损害
- ※ 在使用物品之前请阅读本手册以保证安全，并将它保存在安全的地方。

概述

3

- 3 重要的安全说明
- 9 产品特色
- 10 推荐 PC 技术规格
- 10 建议的 Micro SD/SDHC/SDXC 存储卡规格
- 11 NAS 建议规格
- 11 随机提供的物品
- 13 简图

安装与连接

16

- 16 安装
- 19 插入/取出 Micro SD 存储卡
- 20 存储卡信息（未包含）
- 21 与其他设备连接

网络连接和设置

28

- 28 将摄像机与局域网直接连接
- 29 将摄像机直接连接至基于 DHCP 的 xDSL/有线电视网调制解调器
- 30 直接将摄像机连接到 PPPoE 调制解调器
- 31 将摄像机与使用 PPPoE/Cable 调制解调器的宽带路由器连接
- 32 在 IP Installer 中使用的按钮
- 33 静态 IP 设置
- 37 动态 IP 设置
- 38 路由器端口设置
- 40 从共享的本地 PC 连接到摄像机
- 40 从远程 PC 通过互联网连接到摄像机

概述

WEB 查看器

41

- 41 连接到摄像机
- 43 密码设置
- 43 登录
- 44 安装 WebViewer 插件
- 46 使用现场屏幕
- 50 播放录制的视频

设置屏幕

57

- 57 设置
- 57 基础设置
- 70 视频与音频设置
- 79 网络设置
- 88 事件设置
- 93 NAS（网络连接存储器）指南
- 107 系统设置
- 112 查看配置文件信息

附录

113

- 113 规格
- 120 产品视图
- 122 故障排除
- 124 Open source license notification on the product

产品特色

- **鱼眼镜头**

该镜头具有 360° 视角并且可以录制全景视频。

如果在电脑上使用 Smart Viewer，则可以实时查看视频。

- **防尘/防水 (IP66) (SNF-8010VM)**

防尘和防水设计可让您在室外安装产品或产品受雨淋时，不必担心。

- **高清视频质量**

- **多流**

本网络摄像机可以同时使用不同的 CODEC、采用不同的分辨率和质量来显示视频。

- **基于 Web 浏览器的监视**

使用互联网 Web 浏览器在本地网络环境中显示图像

- **警报**

发生事件时，捕捉到的事件视频将发送到用户注册的电子邮件和 FTP 服务器，或者保存在 Micro SD 内存卡或 NAS 中。

- **防拆检测**

如果以任何方式中断监视，摄像机将触发事件警报。

- **视频移动探测**

从视频中探测移动，探测到便触发事件。

- **音频探测**

检测高于用户指定的特定音量的声音。

- **自动检测断开的网络**

检测网络断开连接，检测到便触发事件。

- **符合 ONVIF**

本产品支持 ONVIF Profile-S。

有关详细信息，请参阅 www.onvif.org。



Driving network video through global standardization



- 该设备是一个高分辨率视频的传输工具，它支持 2 百万像素或更高的分辨率。当使用高于 RFC2435 (JPEG 的 RTP 负载格式，现有的低分辨率规范) 所支持的分辨率传输高分辨率视频时，会使用 Onvif JPEG 扩展标头方法传输高分辨率视频。因此，当使用 Onvif 将高分辨率视频传输到外部设备或 S/W 时，您需要检查您的客户端设备或 S/W 是否支持最新规范，即 Onvif JPEG 扩展标头方法。

概述

推荐 PC 技术规格

- CPU：英特尔酷睿i5或更高版本兼容的芯片
 - Web 插件针对 SSE 4.1 指令集进行了优化。
 - 分辨率：2048X1536 像素或更高（32 位颜色）
 - RAM：2GB 或更大
 - 支持的操作系统：Windows XP / VISTA / 7 / 8, MAC OS X 10.7
 - 支持的浏览器：Microsoft Internet Explorer (版本 8~11)
Mozilla Firefox (版本 9~19)、Google Chrome (版本 15~25)、
Apple Safari (版本 6.0.2 (仅限 Mac OS X 10.8、10.7)、5.1.7) ※ 仅限 Mac OS X
 - 只在桌面模式下支持 Windows 8。
 - 既不支持测试版，也不支持开发者版，仅支持在公司官方网站发布的正式版本。
 - 为了实现 IPv6 连接，建议使用 Window 7 或更高版本的操作系统。
 - 对于 Mac OS X，只支持 Safari 浏览器。
 - 显存：256MB 或更大
-  ■ 如果显卡的驱动程序未正确安装或不是最新版本，则视频可能无法正确播放。
- 对于至少涉及 2 个监视器的多监视系统，播放性能可能会下降，具体视系统而定。

建议的 MICRO SD/SDHC/SDXC 存储卡规格

- 4GB ~ 64GB
- 对您的摄像机，我们建议您使用以下厂商制造的存储卡：
Micro SD/SDHC/SDXC 存储卡：Sandisk, Transcend
- 建议使用规格为 Class 6 或更高的存储卡。

NAS 建议规格

- 建议容量：200GB 或更高
- 同步访问：一套 NAS 可以同时接受最多十六个摄像机访问。
- 对于本摄像机，建议使用符合以下制造商规格的 NAS。

建议产品	可用尺寸
Netgear NAS	最多 16 个摄像机可同时访问。
Synology NAS	最多 16 个摄像机可同时访问。



- 使用 Netgear 公司的 NAS 设备时，不要分配要使用的容量。
- 如果使用 NAS 设备的目的不是为了保存视频，可以减少可访问摄像机的数量。

随机提供的物品

请检查产品包装内是否已包括摄像机和所有附件。

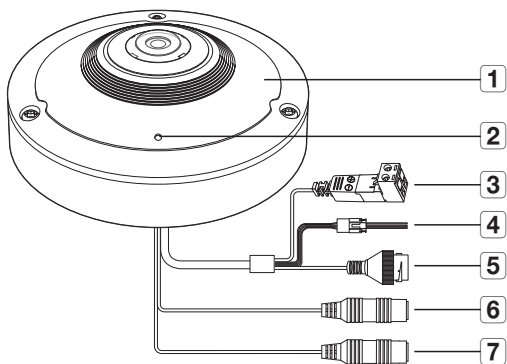
外观	项目名称	数量	说明	型号名称
	摄像机	1		SNF-8010 或 SNF-8010VM
		1		
	说明手册， Installer 软件 CD	1		SNF-8010/ SNF-8010VM
	简介（可选）	1		SNF-8010/ SNF-8010VM

概述

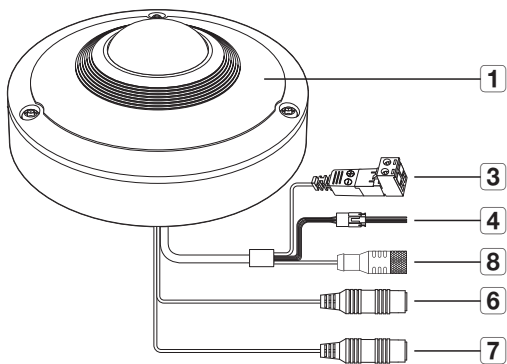
外观	项目名称	数量	说明	型号名称
	保修卡	1		SNF-8010/ SNF-8010VM
	L 型扳手	1	卸下/固定顶盖	SNF-8010/ SNF-8010VM
	模板	1	产品安装指南	SNF-8010/ SNF-8010VM
	支架螺钉	3	用于墙壁或天花板上的安装	SNF-8010/ SNF-8010VM
	塑料胀管	3	用于固定螺钉， 已插入孔中（增强固定力量）	SNF-8010/ SNF-8010VM
	机器螺钉	3	在将产品安装在管道、 墙上安装支架等上时， 用于装配圆顶盒；或者用于 堵塞孔。	SNF-8010/ SNF-8010VM
	M12-RJ45 转换线	1	使用它将摄像机的 M12 接头 连接到常规网络设备。	SNF-8010VM

简图

外观



<SNF-8010>

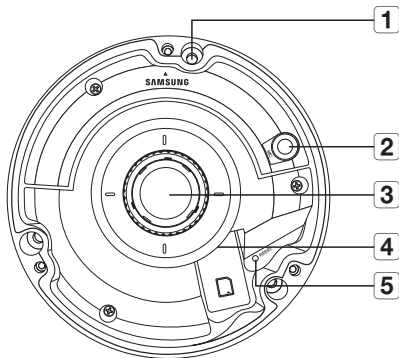


<SNF-8010VM>

概述

项目	说明	
1 顶盖	SNF-8010	用于保护主装置的箱盖。
	SNF-8010VM	用于保护镜头和主装置的外壳护盖。
2 麦克风插孔	内嵌有麦克风。 ■ 只适用于 SNF-8010 型号。	
3 电源端口	用于插入电源线。	
4 警报 I/O 端口	ALARM IN	用于连接警报输入传感器。
	ALARM OUT	用于连接警报输出信号。
	GND	用于警报器输出信号的通用端口。
5 网络端口	用于连接 PoE 或网络连接的以太网电缆。	
6 音频输出插孔	用于连接到扬声器。(绿色)	
7 音频输入插孔	用于连接到麦克风。(粉色)	
8 M12 母插头电缆	连接到 M12 公插头电缆，以进行供电和网络连接。	

内部



项目	说明
1 摄像机固定孔	用于将摄像机固定到天花板上的孔。
2 麦克风	摄像机中内置有麦克风。 ■ 只适用于 SNF-8010 型号。
3 鱼镜头	该镜头具有 360° 视角并且可以录制全景视频。
4 Micro SD 内存卡槽	用于 Micro SD 内存卡的卡槽。
5 重置按钮	该按钮会将所有摄像机设置恢复为出厂默认值。 按住约 5 秒钟可重启系统。 ! 如果复位摄像机，则会调整网络设置，以便可以启用 DHCP。如果网络中没有 DHCP 服务器，则必须运行 IP Installer 程序更改基本的网络设置，如 IP 地址、子网掩码、网关等，然后才能连接到网络。

安装与连接

安装



- SNF-8010VM 型号防水并且符合 IP66 规范，但连接到外部电缆的插孔不防水。建议您将本产品安装在屋檐下，防止电缆因暴露在外而受损。

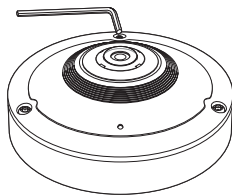
安装前注意事项

安装之前，请确保阅读下列说明：

- 选择一个至少可以承受 5 倍摄像机重量的安装地点。
- 破损或脱皮电缆可能会损坏产品或引起火灾。
- 为安全起见，让其他人远离安装地点。将个人所有物放在安装点一侧，以防万一。

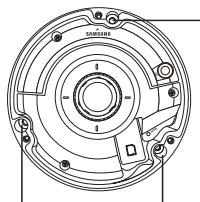
拆解

1. 使用随附的 L 型扳手向逆时针方向旋转，松开 3 个螺钉，然后取下顶盖。
 - 请注意，不必将螺钉完全松开。



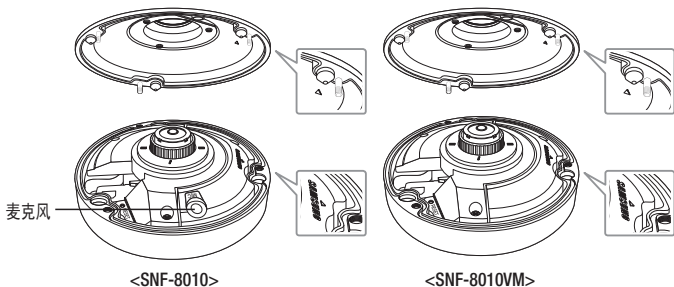
将摄像机安装在天花板上或墙壁上

1. 选择要安装摄像机的位置。
2. 将提供的螺钉插入到摄像机孔中，然后顺时针转动。



固定孔

3. 盖上顶盖并使用 L 型扳手将螺钉向顺时针方向旋转。



- 要固定盖子，您应当对齐三角形箭头以正确组装。
- 如果护盖无法牢固固定，则可能会发生防水问题。(IP66) (SNF-8010VM)

安装与连接

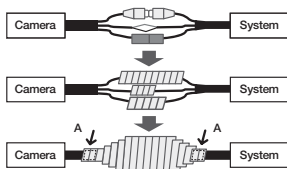
室外安装 (SNF-8010VM)

在户外安装摄像机时，应使用防水异丁橡胶带（可在商店购买）使摄像机防水，以便在户外区域连接的电缆间隙中不会漏水。

1. 连接电源、音频 I/O 以及 LAN 电缆。
2. 用防水（丁基橡胶）带包裹住黑色电缆套管（区域 A）和电缆连接区域，确保一半以上的丁基橡胶带重叠。



- 如未对电缆套管进行适当的防水操作，它可能直接导致漏水。确保使用橡胶带保护电缆。
- 防水丁基橡胶带由丁基橡胶制成，可拉伸为正常长度的 2 倍。



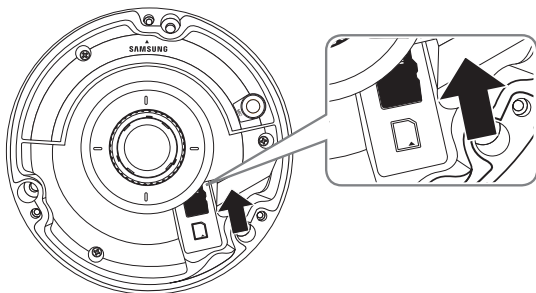
插入/取出 MICRO SD 存储卡



- 请先从摄像机拔下电源线，再插入 Micro SD 存储卡。
- 请勿在 Micro SD 存储卡倒放时用力插入。
可能会损坏 Micro SD 存储卡槽。

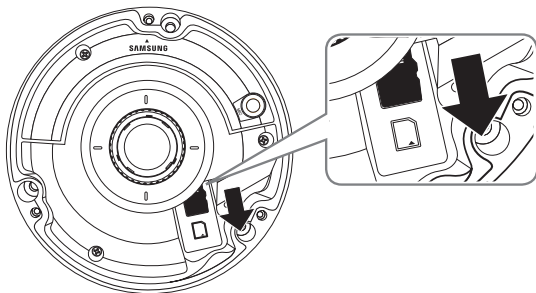
插入 Micro SD 存储卡

请按图中所示箭头方向推 Micro SD 存储卡。



取出 Micro SD 存储卡

轻轻地按压存储卡露在外面的一端，依图示的方向从卡槽中弹出存储卡。



安装与连接



- 太用力按 Micro SD 存储卡可能会导致存储卡从卡槽中松脱后猛然弹出。
- 移除微型 SD 存储卡之前，关闭摄像机或转到 <存储器>，关闭设备，然后按 [应用 (应用)] 按钮。(第 89 页) 页
- 如果关闭摄像机或取出 Micro SD 内存卡，并且其中包含来自产品的数据，则数据可能丢失或受损。

存储卡信息(未包含)

什么是存储卡？

存储卡是一种外部数据储存设备，它的开发为使用数字设备进行录制和共享音频、视频和文本数据提供了崭新的方式。

选择一款适合您的存储卡

本摄像机支持 Micro SD/SDHC/SDXC 存储卡。

根据存储卡的型号和制作材料不同，您可能会遇到兼容性的问题。

对您的摄像机，我们建议您使用以下厂商制造的存储卡：

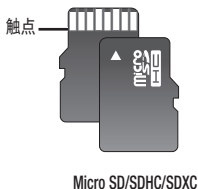
Micro SD/SDHC/SDXC 存储卡：Sandisk, Transcend

建立将 4GB ~ 64GB 的存储卡与本摄像机配合使用。

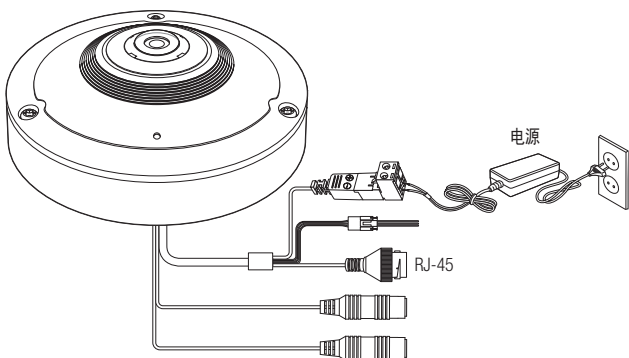
回放性能可能受存储卡速度的影响，因此，请使用高速存储卡。

建议使用规格为 Class 6 或更高的存储卡。

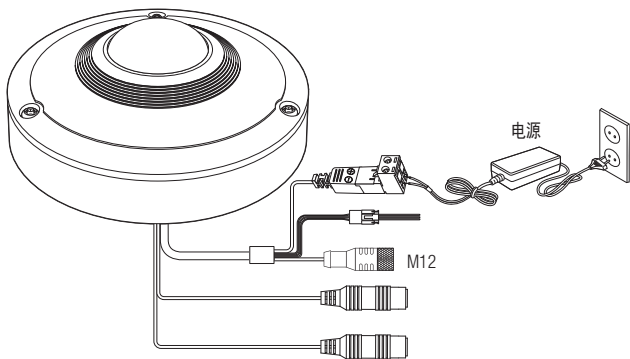
记忆卡组件



与其他设备连接



<SNF-8010>



<SNF-8010VM>

安装与连接

以太网连接

将以太网电缆连接到本地网络或互联网。

电源

使用螺丝刀将每股电源线 (+, -) 连接至摄像机的相应电源端口。



- 如果同时供应 PoE 和 DC12V，将采用来自 PoE 的电源为产品供应。
 - 您也可以使用具有 PoE 功能的路由器为摄像机供电。
 - 使用符合 IEEE802.3af 协议的 PoE。
- 在连接电源线时，切勿弄反极性。
- 如果要连接外部设备，则必须先关闭外部设备再继续进行。

连接插头电缆 (SNF-8010VM)

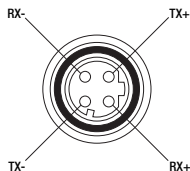
将 M12 公插头插入摄像机 M12 母插头的孔中。



- 该摄像机使用 D 型母插头。
- 支持 PoE（以太网供电）。
- 建议使用屏蔽式网络插头。

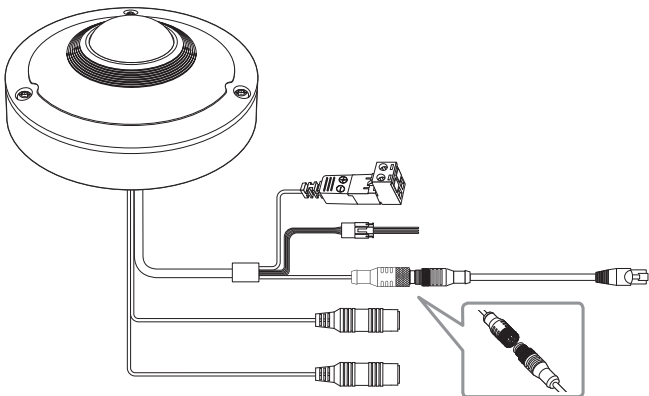


- 将该摄像机连接到屏蔽式网络电缆（STP）。
- 请使用符合 M12 规范的 4 针 D 型公插头外部电缆。
- 检查 PoE 设备是否正确接地。



使用提供的 M12-RJ45 转换线进行连接 (SNF-8010VM)

将转换线的 M12 外插头连接到摄像机的 M12 内接头的凹槽。



供电和联网 (SNF-8010VM)

将摄像机连接到 PoE 设备或将为摄像机提供的转换线的 M12-RJ45 接头连接到 PoE 设备。

-  连接方法可能会因用户的安装环境而有所不同。
- 连接到支持 POE（以太网供电）的路由器的网络端口。
- 使用符合 IEEE802.3af 协议的 PoE（以太网供电）。
只能使用通过数据引脚对 1、2、3、6 供电的 A 型 PoE 设备。
- 即使使用提供的 M12-RJ45 转换线，您也只能使用 Mode A 类型的 PoE 设备，这种设备可以给数据对引脚 1、2、3、6 供电。

安装与连接

每个型号的电源电缆规格

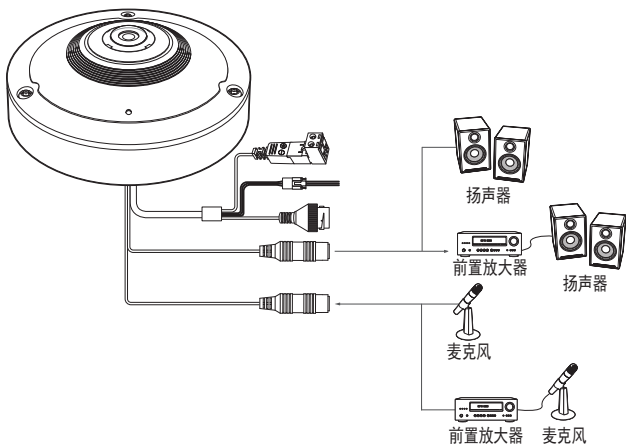
对于 DC 12V 输入:

股线类型 (AWG)	#22	#20	#18
电缆长度 (最大)	24米	38米	60米

网线规格

项目	内含物	备注
连接器	RJ45	
以太网	10/100Base-T	10/100 Mbps
电缆	UTP 超五类	
最大距离	100米	
PoE 支持	IEEE 802.3af	

连接音频输入/输出



1. 将摄像机的音频输入端口连接至麦克风或与麦克风连接的扩音器的线性输出端口。

 由于内置了麦克风，可以使用内置麦克风而不是外置麦克风。(只适用于 SNF-8010 型号。)

2. 将摄像机的音频输出端口连接至扬声器或与扬声器连接的扩音器的线性输入端口。
3. 检查音频输入的规格。

• 音频编解码器

- 音频输入：G.711 PCM（比特率：64kbps/采样频率：8kHz），G.726 ADPCM（比特率：16Kbps, 24Kbps, 32Kbps, 40Kbps/采样频率：8kHz）
- 音频输出：G.711 PCM（比特率：64kbps/采样频率：8kHz）

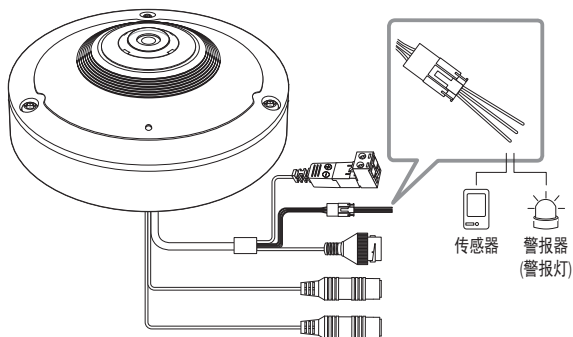
• 全双工音频

- 音频输入：单信号线路输入（最大2.4 Vpp）
- 音频输出：单信号线路输出（最大2.4 Vpp）
- 线路输出阻抗：600Ω

安装与连接

连接到 I/O 端口

将警报输入/输出电缆连接到端口盒的相应端口。



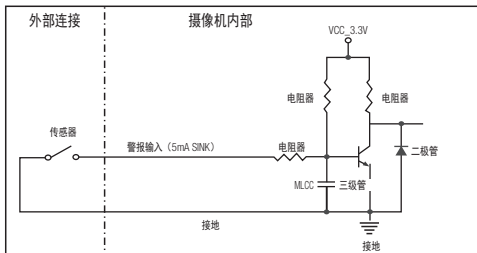
- ALARM-IN：用于连接警报输入传感器。
- ALARM-OUT：用于连接警报输出信号。
- GND：连接警报信号的公用终端。

! 如果使用开路集电极方法连接超出电压和电流规格的设备（如闪光灯和警报器），它可能导致故障。
在连接超出电压和电流规格的设备时，参考“**警报输出线路图**”。（第 27 页）

连接外接传感器

将传感器每根信号线（2 线）的一股线连接至 [ALARM IN] 端口，并将另一股线连接至 [GND] 端口。

警报输入线路图

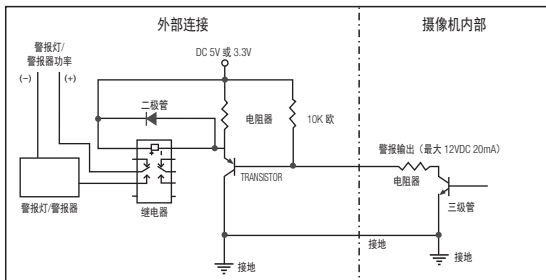


要连接警报输出

如果使用开路集电极方法连接超出电压和电流规格的设备（如闪光灯和报警器），它可能导致故障。

在连接超出电压和电流规格的设备时，参考下面的警报输出连接线路图。

警报输出线路图



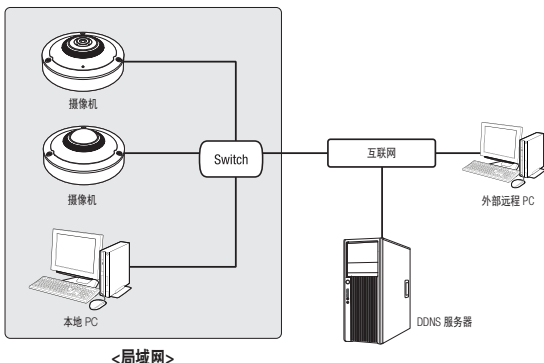
网络连接和设置

可根据您的网络配置来设置网络的设定。

将摄像机与局域网直接连接

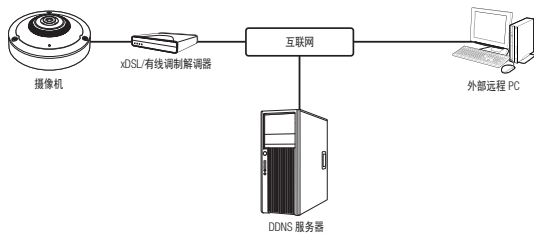
连接局域网内的本地 PC 和摄像头

1. 启动本地 PC 上的网络浏览器。
2. 在浏览器的地址栏中输入 IP 地址。



- 在正确设置防火墙或端口转发前，局域网外部的远程互联网 PC 可能无法连接安装于内部网的摄像机。
在此情况下，联系网络管理员解决问题。
- 在IP安装程序中，您可以使用初始密码“4321”来设置IP地址、子网掩码、网关、HTTP端口、VNP端口或IP类型。在更改网络接口后，为了提高安全性，请访问Web查看器并更改密码。
- 根据出厂默认值，会自动从 DHCP 服务器分配 IP 地址。
如果没有可用的 DHCP 服务器，则会将 IP 地址设置为 192.168.1.100。
要更改 IP 地址，请使用 IP Installer。
有关 IP Installer 使用的详细信息，请参阅“静态 IP 设置”。（第 33 页）

将摄像机直接连接至基于 DHCP 的 XDSL/有线电视网调制解调器



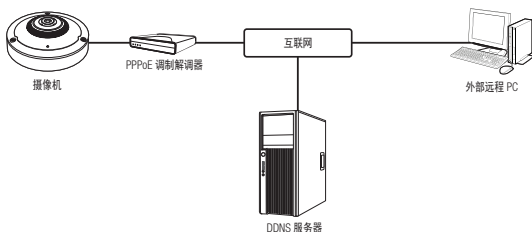
1. 直接将用户 PC 与网络摄像机连接。
2. 运行 IP Installer 并更改摄像机的 IP 地址，以便可以使用桌面上的 Web 浏览器连接至互联网。
3. 使用互联网浏览器连接至 Web Viewer。
4. 移至 [Setup] 页面。
5. 移至 [Network] – [DDNS] 并配置 DDNS 设置。
6. 移至 [Basic] – [IP & 端口]，并将网络类型设置为 [DHCP]。
7. 将摄像机（已从您的 PC 上拔下）直接连接至调制解调器。
8. 重新启动摄像机。



- 有关注册 DDNS 设置，请参阅“注册 DDNS”。（第 80 页）
- 有关配置 DDNS 设置，请参阅“DDNS”。（第 79 页）
- 请参阅“IP & 端口”部分，了解如何设置 IP。（第 65 页）

网络连接和设置

直接将摄像机连接到 PPPOE 调制解调器



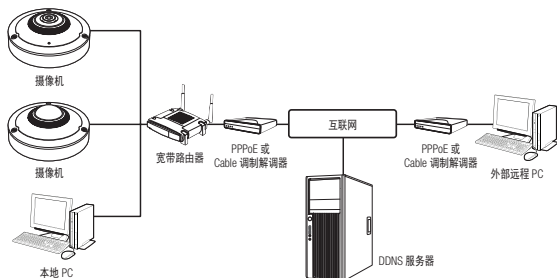
1. 直接将用户 PC 与网络摄像机连接。
2. 运行 IP Installer 并更改摄像机的 IP 地址，以便可以使用桌面上的 Web 浏览器连接至互联网。
3. 使用互联网浏览器连接至 Web Viewer。
4. 移至 [Setup] 页面。
5. 移至 [Network] - [DDNS] 并配置 DDNS 设置。
6. 转到 [Basic] - [IP & 端口] 设置页面，将网络类型设置为 [PPPoE]，然后输入网络服务的 ID 和密码。
7. 将摄像机（已从您的 PC 上拔下）直接连接至调制解调器。
8. 重新启动摄像机。



- 有关注册 DDNS 设置，请参阅“注册 DDNS”。（第 80 页）
- 有关配置 DDNS 设置，请参阅“DDNS”。（第 79 页）
- 请参阅“IP & 端口”部分，了解如何设置 IP。（第 65 页）

将摄像机与使用 PPPOE/CABLE 调制解调器的宽带路由器连接

适用于小型网络环境，如家庭、SOHO 以及普通的商店。



配置连接到宽带路由器

在配置连接到宽带路由器的本地 PC 的网络设置时，遵循以下说明。

- 选择：<网络> → <属性> → <本地连接> → <常规> → <属性> → <Internet 协议 (TCP/IP)> → <属性> → <自动获得 IP 地址> 或 <使用下面的 IP 地址>。
- 若您选择的是 <使用下面的 IP 地址>，遵照以下说明操作：

例1) 若宽带路由器的地址 (LAN IP) 为 192.168.1.1

IP 地址：192.168.1.100
子网掩码：255.255.255.0
默认网关：192.168.1.1

例2) 若宽带路由器的地址 (LAN IP) 为 192.168.0.1

IP 地址：192.168.0.100
子网掩码：255.255.255.0
默认网关：192.168.0.1

例3) 若宽带路由器的地址 (LAN IP) 为 192.168.xxx.1

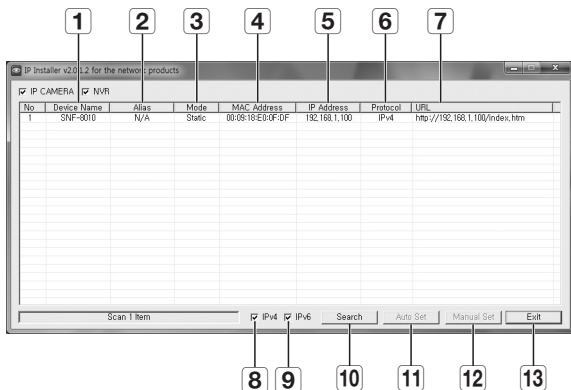
IP 地址：192.168.xxx.100
子网掩码：255.255.255.0
默认网关：192.168.xxx.1



- 关于宽带路由器的地址，请参见产品文档。
- 如需宽带路由器的正向端口的更多信息，请参阅“路由器端口设置”。(第 38 页)

网络连接和设置

在 IP INSTALLER 中使用的按钮



项目	说明
1 Device Name	已连接摄像机的型号名称。 单击此列可以按型号名称对列表进行排序。 但是，如果在搜索时单击将会停止搜索。
2 Alias	此功能当前不可用。
3 Mode	对当前网络连接状态显示 <Static>、<Dynamic> 和 <PPPoE>。
4 MAC(Ethernet) Address	已连接摄像机的以太网地址。 单击此列可以按以太网对列表进行排序。 但是，如果在搜索时单击将会停止搜索。
5 IP Address	IP 地址。 单击此列可以按 IP 地址对列表进行排序。 但是，如果在搜索时单击将会停止搜索。
6 Protocol	摄像机的网络设置。 出厂默认设置为 “IPv4”。 使用 IPv6 设置的摄像机将显示 “IPv6”。

项目	说明
7 URL	DDNS URL 地址可以从外部互联网访问。 但是, 如果 DDNS 注册失败, 此按钮将被摄像机的 <IP Address> 代替。
8 IPv4	扫描使用 IPv4 设置的摄像机。
9 IPv6	扫描使用 IPv6 设置的摄像机。 只能在符合 IPv6 的环境中激活。
10 Search	扫描当前连接到网络的摄像机。 但是, 如果没有选取 IPv4 也没有选取 IPv6, 该按钮将呈灰色。
11 Auto Set	IP Installer 自动配置网络设置。
12 Manual Set	手动配置网络设置。
13 Exit	退出 IP Installer 程序。



- 对于 IP Installer, 请仅使用在安装 CD 中提供的版本, 或者最新版本 (如果可以获得)。
可以从 Hanwha Techwin 网站下载最新版本。

静态 IP 设置

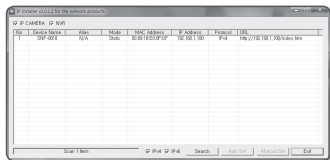
手动网络设置

运行 <IP Installer_v2.XX.exe> 以显示摄像机搜索列表。
在初始启动时, [Auto Set] 和 [Manual Set] 将呈灰色。



- 对于以 IPv6 设置为基础的摄像机, 这些按钮将呈灰色, 因为摄像机不支持此功能。

- 从搜索列表中选一个摄像机。
在摄像机的标签上检查摄像机的 MAC 地址。
将激活 [Auto Set] 和 [Manual Set] 按钮。
- 单击 [Manual Set]。
Manual Setting 对话框将会出现。
摄像机的 <IP Address>、<Subnet Mask>、<Gateway>、<HTTP Port> 和 <VNP Port> 显示在预设值中。



网络连接和设置

3. 在 <Address> 窗格中，提供必需的信息。

- MAC (Ethernet) Address：印在摄像机标签上的 MAC 地址会自动显示，不需要用户设置。



- 只有在未选中 DHCP 的情况下才能设置 IP 相关参数。

如果不使用宽带路由器

若要设置 <IP Address>、<子网掩码> 和 <Gateway>，请联系网络管理员。

4. 在 <Port> 窗格中，提供必需的信息。

- HTTP Port：用于使用互联网浏览器访问摄像机，默认值为 80。
- VNP Port：用于控制视频信号传输，默认值为 4520。

5. 输入密码。

输入用来访问摄像机的“admin”帐户的密码。



- 出于安全考虑的原因，建议您的密码使用数字、大小写字母以及特殊字符的组合。
- 如果您要更改密码，请参考用户设置的“管理员密码更改”。（第 62 页）

6. 单击 [OK]。

将完成手动网络设置。

如果使用宽带路由器

- IP Address：输入宽带路由器提供的 IP 范围内的地址。
例) 192.168.1.2~254,
192.168.0.2~254,
192.168.XXX.2~254
- Subnet Mask：宽带路由器的 <子网掩码> 将是摄像机的 <子网掩码>。
- Gateway：宽带路由器的 <本地 IP 地址> 将是摄像机的 <Gateway>。



- 设置可能因连接的宽带路由器型号而异。有关详细信息，请参阅适用路由器的用户手册。
- 如需宽带路由器的正向端口的更多信息，请参阅“路由器端口设置”。(第 38 页)

如果宽带路由器连接了多个摄像机

彼此清楚地配置 IP 相关设置和端口相关设置。

例)

类别		摄像机 1	摄像机 2
IP 相关设置	IP Address	192.168.1.100	192.168.1.101
	Subnet Mask	255.255.255.0	255.255.255.0
	Gateway	192.168.1.1	192.168.1.1
端口相关设置	HTTP Port	8080	8081
	VNP Port	4520	4521



- 如果 <HTTP Port> 设置为除 80 以外的值，您必须在互联网浏览器的地址栏中提供 <Port> 号，才能访问摄像机。
例) http://IP address: HTTP Port
http://192.168.1.100:8080

网络连接和设置

自动网络设置

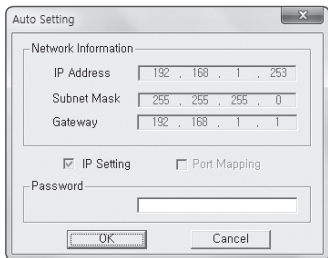
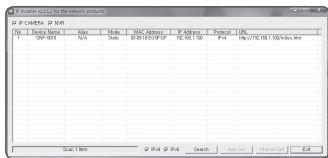
运行 <IP Installer_v2.XX.exe> 以显示摄像机搜索列表。
在初始启动时, [Auto Set] 和 [Manual Set] 将呈灰色。

■ 对于以 IPv6 设置为基础的摄像机, 这些按钮将呈灰色, 因为摄像机不支持此功能。

1. 从搜索列表中选择一个摄像机。
在摄像机的标签上检查摄像机的 MAC 地址。
将激活 [Auto Set] 和 [Manual Set] 按钮。
2. 单击 [Auto Set]。
Auto Setting 对话框将会出现。
将自动设置 <IP Address>、<Subnet Mask> 和 <Gateway>。
3. 输入密码。
输入用来访问摄像机的“admin”帐户的密码。

- ! ■ 出于安全考虑的原因, 建议您的密码使用数字、大小写字母以及特殊字符的组合。
- 如果您要更改密码, 请参考用户设置的“管理员密码更改”。(第 62 页)

4. 单击 [OK]。
将完成自动网络设置。



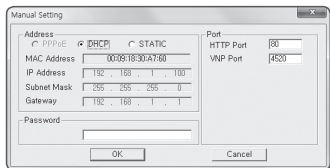
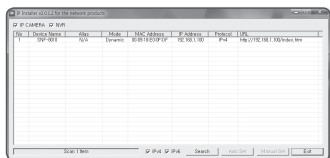
动态 IP 设置

动态 IP 环境设置

- 动态 IP 环境示例
 - 如果连接了摄像机的宽带路由器由 DHCP 服务器分配了 IP 地址
 - 如果使用 DHCP 协议将摄像机直接连接至调制解调器
 - 如果 IP 由内部 DHCP 服务器通过 LAN 分配

检查动态 IP

1. 在用户的本地计算机上运行 IP Installer。分配了 <Dynamic IP> 地址的摄像机将会显示在列表中。
2. 从搜索结果中选择摄像机。
3. 单击 [Manual Set] 按钮，然后检查摄像机的 <Dynamic IP> 地址。如果取消选择 <DHCP>，您即可将 IP 更改为 <Static>。



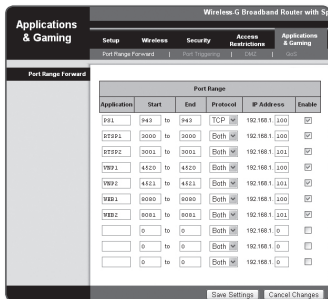
网络连接和设置

路由器端口设置

如果您安装了连接摄像机的宽带路由器，就必须在宽带路由器上设置转发的端口范围，以便远程PC可以访问其中的摄像机。

手动端口设置

1. 从宽带路由器的 Setup 菜单中，选择 <Applications & Gaming> - <Port Range Forward>。
对于第三方宽带路由器端口范围转发设置，请参阅该宽带路由器的用户手册。
2. 对连接到宽带路由器的每个摄像机选择 <TCP> 和 <UDP Port>。
宽带路由器的每个端口号都应该与在摄像机的 Web Viewer 菜单的 <Setup> - <Basic> - <IP & 端口> 中指定的端口号相符。
3. 完成后，单击 [Save Settings]。
将保存设置。



- 以上样本说明基于 CISCO 的宽带路由器。
- 设置可能因连接的宽带路由器型号而异。
有关详细信息，请参阅适用路由器的用户手册。

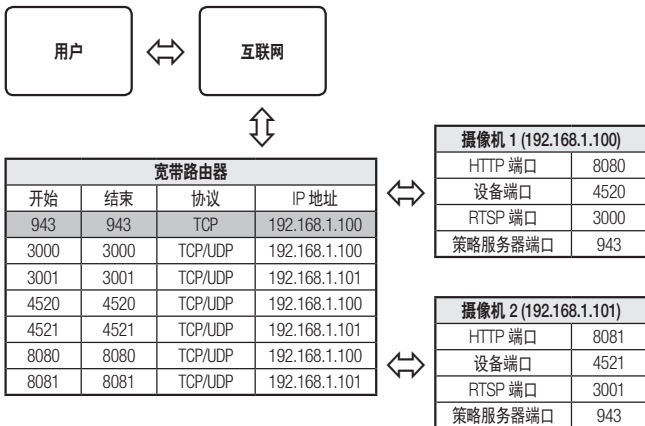
设置多个网络摄像机的端口范围转发

当多个网络摄像机连接到一个宽带路由器设备时，您应将路由器的 TCP 943 端口转发到所连接摄像机的 TCP 943 端口。

❗ 如果您没有正确设置路由器的 TCP 943 端口，则无法从摄像机的网页上获得任何视频流。

- TCP 943 端口是摄像机的 Silverlight 策略服务器端口。
- 您可通过配置网页在宽带路由器设备上设置 端口转发的规则。
- 您无法更改摄像机的 Silverlight 策略服务器端口。
- 您可通过其配置网页更改摄像机的端口，但不可更改策略服务器端口。

当摄像机 1 和摄像机 2 连接至同一路由器时：



- 🔧 如果路由器支持 UPnP（通用即插即用）功能，无需额外路由器设置即可实现端口转发。在连接网络摄像机后，在“Setup → Network → DDNS”菜单中将 <Samsung DDNS> 的 <Quick connect> 设置为 <开>。

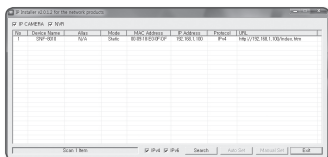
网络连接和设置

从共享的本地 PC 连接到摄像机

1. 运行 IP Installer。
它将扫描连接的摄像机，并显示摄像机列表。
2. 双击要访问的摄像机。
互联网浏览器将启动，并连接到摄像机。



- 您也可以在互联网浏览器的地址栏中键入所发现摄像机的 IP 地址的方式访问摄像机。



从远程 PC 通过互联网连接到摄像机

由于不允许在不属于宽带路由器网络群集的远程计算机上使用 IP Installer，所以用户需通过摄像机的 DDNS URL 在宽带路由器网络内访问摄像机。

1. 您应该设置宽带路由器端口范围转发，然后才能访问宽带路由器网络中的摄像机。
2. 从远程 PC 启动互联网浏览器，并在地址栏中键入摄像机的 DDNS URL 地址，或宽带路由器的 IP 地址。
例) <http://www.samsungipolis.com/> 产品 ID



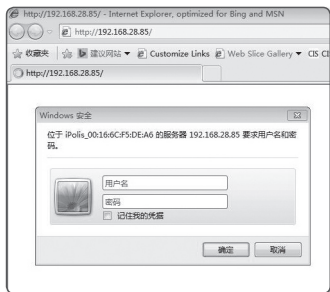
- 有关注册 DDNS 设置，请参阅“注册 DDNS”。(第 80 页)

web 查看器

连接到摄像机

通常，您应该：

1. 启动互联网浏览器。
2. 在地址栏中键入摄像机的 IP 地址。
 - 例) • IP 地址 (IPv4) : 192.168.1.100
→ http://192.168.1.100
- 将会出现登录对话框。
 - IP 地址 (IPv6) : 2001:230:abcd:ffff:0000:0000:ffff:1111
→ http://[2001:230:abcd:ffff:0000:0000:ffff:1111] - 将会出现登录对话框。



如果 HTTP 端口为除 80 以外的值

1. 启动互联网浏览器。
2. 在地址栏中键入摄像机的 IP 地址和 HTTP 端口号。
 - 例) IP 地址 : 192.168.1.100:HTTP 端口号(8080)
→ http://192.168.1.100:8080 - 将会出现登录对话框。

使用 URL

1. 启动互联网浏览器。
2. 在地址栏中键入摄像机的 DDNS URL。
 - 例) URL 地址 : http://www.samsungipolis.com/产品 ID
- 将会出现登录对话框。

! ■ 在只有 LAN 的环境中禁用网络连接。

web 查看器

通过 UPnP 连接

1. 运行支持 UPnP 协议的客户端或操作系统。
2. 单击要搜索的摄像机名称。
在 Windows 操作系统中，从网络菜单中单击要搜索的摄像机名称。
 - 登录窗口即显示出来。

通过 Bonjour 连接

1. 运行支持 Bonjour 协议的客户端或操作系统。
2. 单击要搜索的摄像机名称。
在 Mac 操作系统中，从 Safari 的 Bonjour 选项卡单击要搜索的摄像机名称。
 - 登录窗口即显示出来。

检查 DDNS 地址

如果摄像机直接连接到 DHCP 有线电视网调制解调器、xDSL 调制解调器或 PPPoE 调制解调器，每当您尝试连接到 ISP（互联网服务提供商）服务器时，您的网络 IP 地址都会更改。

在这种情况下，将不会通知您 IP 地址已被 DDNS 更改。

一旦您向 DDNS 服务器注册了基于动态 IP 的设备，当尝试访问该设备时，就可以轻松检查更改的 IP。

要向 <DDNS> 服务器注册您的设备，请访问 www.samsungipolis.com 并先注册您的设备，然后将 Web Viewer 的 <Network> - <DDNS> 设置为 <Samsung DDNS>，同时提供用于 DDNS 注册的 <产品 ID>。

密码设置

首次访问产品时，必须先注册登录密码。
出现“密码更改”窗口时，输入新密码。



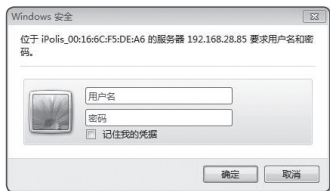
- 新密码长度必须为 8-15 个字符，至少包含大写字母，小写字母，数字以及特殊字符中的两种。
 - 允许使用的特殊字符为：
~!@#\$%^&*()_+=|{}[].?/
- 您不能将您的 ID 用作密码。您不能重复相同的字母超过两次，您不能使用三个连续的键盘按钮。
- 如果您丢失了密码，可按住[RESET]按钮初始化该产品。因此请使用记事簿写下或记住您的密码以防丢失。



登录

每当访问摄像机时，登录窗口都会出现。
输入用户 ID 和密码以访问摄像机。

1. 在 <用户名> 输入框中输入“admin”。
管理员 ID，即“admin”是固定的，无法更改。
2. 在 <密码> 输入字段中输入密码。
3. 单击 [确定]。
如果已成功登录，您将会看到 Live Viewer 屏幕。



- 访问摄像机 Web 查看器时，要特别注意是否安全，检查一下图像数据是否加密。



- 如果您在完成输入之后选中“记住我的凭据”选项，则从下次起将自动登录，而不会提示输入登录信息。
- 如果屏幕大小是 100%，则您可以体验最佳视频质量。降低该比率可能会切掉边框上的图像。

web 查看器

安装 WEBVIEWER 插件

如果首次连接到摄像机，您将会看到安装消息。然后，安装所需的 WebViewer 插件以访问摄像机并在摄像机内实时控制视频。

1. 在第一次访问监控页面时，屏幕会显示安装页面。单击 **[Click Here]** 以开始安装。

Network Camera Webviewer Plugin Installation/Update.

[Click Here](#)

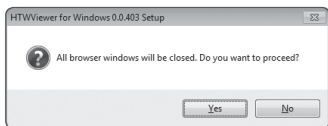


- 如果 Internet Explorer 浏览器中的插件安装文件下载状态停留在 99%，请在“工具 → SmartScreen 筛选器”中选择“释放 SmartScreen 筛选器”。

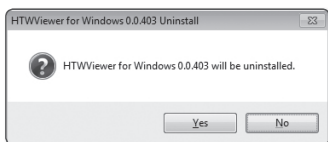
2. 在消息窗口中单击 **[Run]**。



3. 当通知窗口指示将关闭所有浏览器窗口时，单击 **[Yes]**。

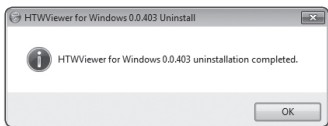


4. 如果已安装了旧版本的 Web 浏览器插件，屏幕会显示一个通知窗口以指示旧版本将被删除。在该通知窗口中单击 **[Yes]**。

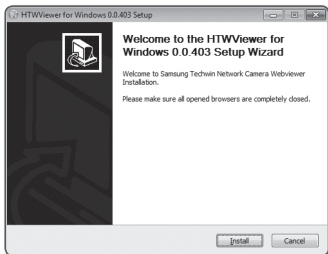


- 如果尚未安装任何 Web 浏览器插件，将跳过步骤 4 和 5。

5. 单击 [OK]。
旧版本的 Web 浏览器插件即被删除。



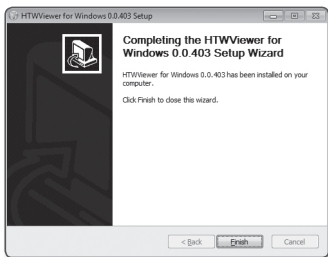
6. 单击 [Install], 开始安装 Web 浏览器插件。



7. 单击 [Finish]。
Web 浏览器插件即完成安装。



- 在您的 Internet 浏览器中, 如果在安装 webviewer 插件后移到安装屏幕, 请检查“工具 → 其他功能管理”菜单中的 webviewer_activexplugin_lib.control 是否“已启用”。如果未启用且一直有问题, 请选择“工具 → Internet 选项 → 常规”并删除所有搜索记录。



web 查看器

使用现场屏幕



项目	说明
1 正在监视	移至监视屏幕。
2 播放	移动到您可以搜索 Micro SD 存储卡或 NAS 中保存的视频录制的屏幕。
3 设置	移至设置屏幕。
4 配置文件访问信息	您可以读取配置文件信息。
5 查看器屏幕	显示屏幕上的现场视频。 ■ 在 Viewer 屏幕中，可以使用鼠标滚轮来激活数码缩放。
6 配置文件类型	可以在 <Basic> 设置菜单下的 <视频配置文件> 中选择配置文件类型。 ■ 连接 Web Viewer 后，将会显示当前使用的配置文件的信息。
7 屏幕调整	来自摄像机的视频尺寸将放大为与 Web 浏览器尺寸一样大。

项目	说明
8 固定分辨率	不管在摄像机中配置的分辨率设置如何，系统都会将分辨率设置为 640x480。再按一次它会切换回默认分辨率。
9 全屏	将当前视频切换至显示器的最大大小。
10 捕捉	将快照保存为 .jpg 格式的图像文件。
11 手动录制	您可以将视频保存到 Micro SD 卡或 NAS 存储设备中。 ■ 要手动拍摄视频，请首先更改录制设置。请参阅“存储器”部分，了解如何设置录制（第 89 页）。
12 音频/麦克风控制	启用音频和麦克风音量控制。 ■ 只能控制音频音量。
13 警报输出	激活警报输出口。
14 PTZ	控制摄像机的平移 / 倾斜 / 缩放操作。
15 隐藏上下文菜单	左上角的上下文菜单将会消失，只留下菜单图标。



- 在 WebViewer 中，视频影像角落处可能出现蓝色干扰。

web 查看器

捕捉快照

1. 在场景上单击 [捕捉 ()] 进行捕捉。
2. 保存捕捉到的视频时，会显示通知信息。
使用 Internet Explorer 时，捕捉到的视频将保存在“我的电脑/我的文档/图片”中。
对于 Mac OS，它保存在“~/Pictures”或“/Users/{用户帐户}/Pictures/”中。



- 如果您在 Windows 7 计算机上使用 IE8 时发生视频中断，请从“工具 - Internet 选项 - 安全”中取消选择“启用保护模式”。
- 如果 Windows 7 或 8 中的 IE 浏览器没有捕捉该屏幕，请使用管理员权限运行 IE 浏览器。

如何手动录制视频

1. 按[手动录制 ()]。
2. 要结束录制，再次按[手动录制 ()]。



- 开始手动录制前，在<Event> - <存储器>时，插入 SD 卡并将 SD 卡选项更改为“开”。

适合全屏

1. 单击 [全屏 ()] 按钮。
2. 这将使查看器适合全屏。
3. 要退出全屏模式，请按键盘上的 [Esc]。



- 对于 Internet Explorer 和 Google Chrome 浏览器，您可以切换至全屏。

使用音频

1. 单击 [音频 (🔊)] 图标以激活音频通信。
2. 使用 [🔊] 滑块控制音量。



- 如果设备运行中插入和拔出音频插头时没有声音，单击 [音频 (🔊)] 图标以将其再次启用。

使用麦克风

单击 [麦克风 (🎤)] 图标以激活麦克风。

控制 PTZ

1. 按 [PTZ (🔍)] 选项卡。
2. 通过控制屏幕移动垫的光标[🔍]，或者通过控制缩放或对焦，可以调整摄像机画面的显示位置。



- 有关 PTZ 使用的详细信息，请访问“DPTZ 设置”。(第 67 页)



要运行序列

- 📁：运行保存的预设。
- 📁：运行保存的组。
请参阅“配置组设置”部分，了解组设置的详细信息。(第 69 页)
- 📍：运行保存的起始位置。
请参阅“添加初始位置”部分，了解起始位置设置的详细信息。(第 68 页)



- 要使用序列功能，在<去翘曲模式>中选择<单矩形>视图，然后转至 <DPTZ 设置>并选择预设选项和分组。

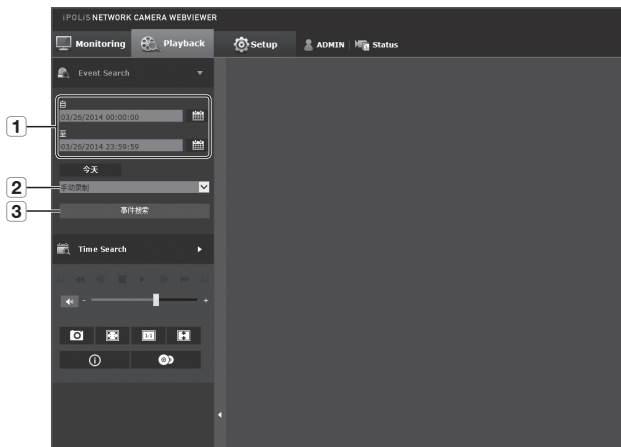
web 查看器

播放录制的视频



- 在可以播放视频之前，必须配置录制设置。有关录制设置的详细信息，请参阅“存储器”。（第 89 页）

事件搜索屏幕的名称及其功能



项目	说明
1 搜索范围设置	为 Micro SD 存储卡或 NAS 中保存的数据设置搜索日期和时间范围。
2 搜索事件设置	设置想要搜索的事件类型。
3 事件搜索	运行事件搜索。

在按事件搜索后播放内容

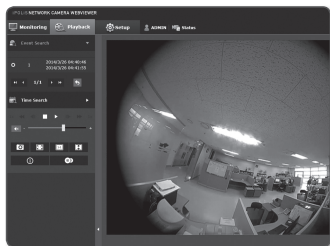
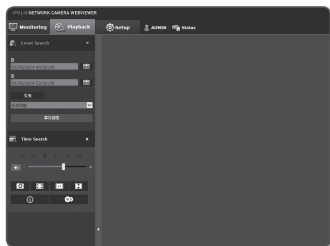
1. 单击 [Playback (🎞️)] 按钮。
2. 指定搜索的开始和结束时间。
3. 选择指定时间段内搜索的事件类型。
4. 单击 [事件搜索] 按钮。
搜索结果将显示在列表中。



- 如果在搜索时间段内录制了超过 800 个事件，则搜索将限制为录制第 800 个事件的日期。

例如，如果搜索时间段在一个月的第 10 天和第 15 天之间，并且在第 10 天到第 11 天录制了超过 800 个事件，则搜索将限制为最多第 11 天（共 800 个事件），将找不到之后（从第 12 天开始）的事件。

5. 在搜索列表中选择要播放的数据项目。
6. 单击 [播放 (▶)] 按钮。
7. 要停止播放视频，请单击 [停止 (■)]。
8. 要返回到搜索屏幕，请单击 [退出 (↶)]。



web 查看器

时间搜索屏幕的名称及其功能



项目	说明
1 时间条	通过移动时间条播放特定时间段的视频。
2 搜索日期设置	使用日历设置搜索日期。 如果这一天有数据保存到 Micro SD 存储卡或 NAS 中，则会在日历上将这一天标记为一个方框。
3 音频	若要收听录制视频中的语音信号（如果有），则需要在播放时激活语音信号图标。
4 屏幕调整	转换摄像机图像，使它适合 Web 浏览器窗口。
5 固定分辨率	不管在摄像机中配置的分辨率设置如何，系统都会将分辨率设置为 800x600。 再按一次它会切换回默认分辨率。
6 捕捉	当前图像保存为 .jpg 图像文件。
7 全屏	转换当前图像，使它覆盖显示器的最大尺寸。

项目	说明
8 视频信息	屏幕上将显示回放视频的时间数据。
9 备份	设置对保存在Micro SD内存卡或 NAS中的视频创建备份。 ■ 最多可设置为 5 分钟。

在按时间搜索后播放

- 单击 [Time Search (🔍)]。
- 在日历中单击所需日期。
将会播放指定日期上的视频。
- 如果视频播放已停止，请选择时间，
然后单击 [播放 (▶)]。
将会播放所选日期上的视频。
- 播放视频时，将会显示当前视频的录制时间。
- 向前或向后搜索视频，并控制播放速度。
 - 如何控制播放间隔
 - ▶▶：选择该按钮可前移 1 帧。
 - ◀◀：选择该按钮可后移 1 秒。
 - 控制播放速度
 - 如果选择 ▶▶，按钮将切换为 x1, x2, x4, x8，并且播放速度相应提高。
 - 如果选择 ◀◀，播放速度降至 -x1, -x2, -x4, -x8，并且播放速度逐渐放慢。随后，快速播放速度恢复为正常速度，反向播放速度增加。
 - 控制播放方向
 - 如果您看到显示 ▶▶ 按钮和播放速度，将会向前播放视频；而如果您看到显示 ◀◀ 按钮和播放速度，将会向后播放视频。
 - 如何设置时间条
 - 如果按 [⏏] 按钮，则可以查看时间条部分的详细信息。
 - 如果按 [⏏] 按钮，则可以查看更广的时间范围并且可以更轻松地选择所需的时间。

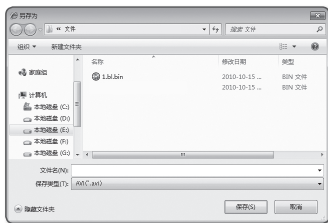


web 查看器

6. 先将 [时间滑块 (■)] 移至视频的所需时间点再播放。
包含标准录制文件的时间将以蓝色突出显示；包含事件录制内容的时间将以红色突出显示。

备份搜索到的视频

1. 在播放期间，在场景上单击 [📷] 进行备份。
备份开始和结束时间的计划窗口将会出现。
2. 单击 [📷] 按钮。
另存为窗口将会出现。
3. 确认保存路径，然后单击 [保存(S)] 按钮。
备份的视频数据将备份到指定的路径中。



播放备份视频

备份的视频数据保存为 .avi 格式。建议使用兼容该格式的 Gom Player、VLC Player 或 Window Media Player 媒体播放器。

- ✎ 如果使用 Windows Media Player，请在使用前从 www.windows7codecs.com 下载最新的编解码器，然后安装。

播放 AVI 文件

(1) Micro SD 存储卡

1. 从摄像机取出 Micro SD 存储卡。

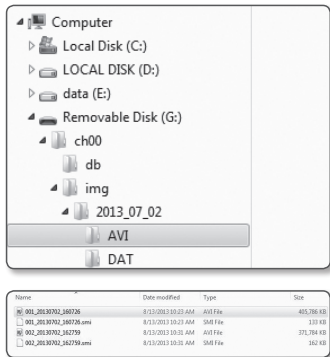
■ 在取出 Micro SD 存储卡前，将“Setup → Event → 存储器”菜单中的 <启用> 设置为 <关>。

2. 将 Micro SD 存储卡插入 PC。

3. 使用媒体播放器播放“\\ch00\img\YYYY_mm_DD\AVI”目录中的 AVI 文件。



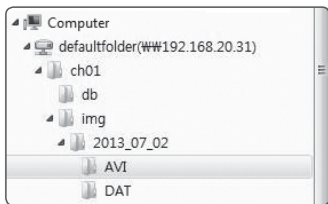
- 文件名以“001_YYYYMMDD_HHMMSS.avi”的格式开始，其中文件编号逐一递增。
YYYYMMDD_HHMMSS 表示数据保存的开始时间。
- “001_YYYYMMDD_HHMMSS.smi”文件是一个字幕文件，如果它与关联 AVI 文件位于相同目录，就可以查看它。
- 每个 AVI 文件的最大录制时间是 5 分钟。
- 如果受损，Micro SD 存储卡中的数据将无法在 Web Viewer 的 [Playback] 中播放。



web 查看器

(2) NAS（网络连接存储器）

1. 在 Windows 浏览器中，使用 \\<ip address>\ 来访问。
ex) \\192.168.20.31\defaultfolder\ch01\img\2013_07_02\AVI
2. 转到 <Computer> → <Network drive connection> → 输入 1。
3. 已连接到 NAS。
该目录结构与 Micro SD 存储卡使用的目录结构相同。



- 文件名以“001_YYYYMMDD_HHMMSS.avi”的格式开始，其中文件编号逐一递增。

YYYYMMDD_HHMMSS 表示数据保存的开始时间。

Name	Date modified	Type	Size
001_20130702_140726	8/13/2013 10:23 AM	AVI File	455,786 KB
001_20130702_140726.smi	8/13/2013 10:23 AM	SMB File	120 KB
002_20130702_142759	8/13/2013 10:31 AM	AVI File	372,768 KB
002_20130702_142759.smi	8/13/2013 10:31 AM	SMB File	162 KB

- “001_YYYYMMDD_HHMMSS.smi” 文件是一个字幕文件，如果它与关联 AVI 文件位于相同目录，就可以查看它。
- 每个 AVI 文件的最大录制时间是 30 分钟。
- 如果自行更改或损坏所保存数据，它将无法正常播放或保存。

设置屏幕

4. 选择每个配置文件属性。
如需更多信息，请参阅“**添加/更改视频配置文件**”。（第 60 页）
5. 单击每个项目的输入框，并输入/选择所需的值。
 - 上下文菜单可能因所选的编解码器类型而异。
 - 默认配置文件：如果在使用 Web Viewer 时未选择配置文件，则会应用默认视频配置文件。
 - 电子邮件/FTP配置文件：将传送至指定的电子邮件或 FTP 站点的视频配置文件。
 - 只能将 MJPEG 编解码器设置为电子邮件/FTP 配置文件。
 - 录制配置文件：这是应用于视频录制的配置文件。
 - 音频输入：设置是否使用音频进行视频录制。
6. 根据您的情况，设置 ATC（自动传输控制）模式。
 - ATC 模式：它可以根据网络带宽的变化调整视频属性，以控制比特率。



根据 ATC 模式调整比特率。

- 控制帧速率：如果网络带宽下降，则降低帧速率。
- 控制压缩：如果网络带宽下降，则控制压缩率。
压缩调整可能会导致图像质量下降。

- 如果 <比特率控制> 设置为 <CBR>，则根据 ATC 模式，按如下所示固定编码优先级：

比特率控制/ATC 模式	控制帧速率	控制压缩
CBR	帧速率	压缩

- ATC 灵敏度：根据网络带宽的变化影响传输速率。
如果带宽为 <非常高>，传输速率将调整为最高，如果带宽为 <非常低>，则调整为最慢。
- ATC 限制：如果调整帧速率的质量，此属性将更改为针对上一设置值 (100%) 的应用值 (%)。
请注意，如果您将此属性值降低太多，屏幕上可能会闪烁。因此，建议在阈值范围内调整该值。



- 建议您仅对支持 ATC 的摄像机应用 ATC 控制。
- 在网络带宽变化较大的网络环境中，将 ATC 灵敏度设置为 <非常低>。
- 如果网络连接不稳定，屏幕可能会闪烁。

7. 完成后，请单击 **应用** ()。



- 扭曲补偿的视图模式可能会影响视频分辨率。

设置屏幕

添加/更改视频配置文件

根据录制条件，可以添加或修改配置文件设置来适应不同的配置文件。

1. 选择 <视频配置文件> 选项之一。
2. 提供名称并选择编解码器。
3. 指定将应用编解码器的条件。
4. 选择鱼眼视图的类型。
 - 源视图：显示摄像机的原始视频影像。
 - 去翘曲视图：校准系统，显示视频影像的 360 度环绕视图。
5. 指定所选编解码器的详细信息，包括分辨率和帧率。
单击 <高级> 以显示上下文。
 - 分辨率：设置 H.264 和 MJPEG 文件的视频大小。
 - 帧率：设置每秒的最大视频帧数。
 - 最大比特率：当比特率控制设置为 VBR 时设置视频的最大比特率。



- 由于比特率可以根据清晰度、帧频和屏幕复杂性进行有限的调整，所以实际比特率可能比最大比特率要大。所以在设定值时必须考虑使用环境。

- 目标比特率：当比特率控制设置为 CBR 时设置目标比特率。
- 比特率控制：您可从恒定比特率和可变比特率中选择一种方式进行压缩。固定比特率意味着改变视频质量或帧速率时网络传输的比特率是固定的，可变比特率意味着改变比特率时优先考虑视频质量。



- 为比特控制设置固定比特率之后，如果选择视频质量优先模式，则为了保证对于给定的比特率获得最佳的视频质量，实际传输的帧速率可能会与帧速率设置有所不同（取决于屏幕的复杂程度）。

- 编码优先权：可以将视频传输的优先级设置为帧速率或压缩。
- 视频组长度：当 H.264 编解码器被选择时指定一个视频序列中两个连续 I 帧之间的距离（按照多个帧）。
- 多播 (SVNP)：指定使用 SVNP 协议。
 - IP 地址：输入可用于连接至 IPv4 网络的 IPv4 地址。
 - 端口：指定视频通信端口。
 - TTL：为 SVNP 数据包设置 TTL。
- 多播 (RTP)：指定 RTP 协议的使用。
 - IP 地址：输入可用于连接至 IPv4 网络的 IPv4 地址。
 - 端口：指定视频通信端口。
 - TTL：可为 RTP 数据包设置 TTL。



- 如果您将多播地址设置为 224.0.0.0~224.0.0.255，则多播不能在所有环境中都正常工作。鉴于这种情况，我们建议您更改多播地址。

什么是视频组长度？

视频组(视频对象平面组)是用于 H.264 压缩的视频帧,表示从初始图像帧(关键帧)到下一个图像帧的帧集合。视频组由 2 类帧组成: I 帧和 P 帧。

I 帧是压缩的基本帧,也称为关键帧,包含一幅完整图像的数据。P 帧仅包含与先前的 I 帧相比发生了变化的数据。

对于 H.264 编解码器,您可以决定视频组长度。(1~160)

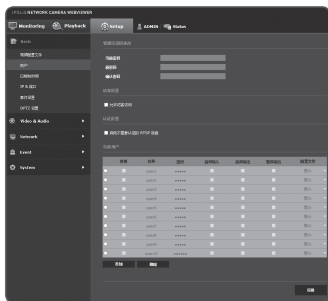
设置屏幕

用户

1. 从设置菜单，选择 <Basic ()> 选项卡。
2. 单击 <用户>。
3. 提供必要的用户信息。
 - 管理员密码更改：更改管理员的密码。



- 出于安全考虑的原因，建议您的密码使用数字、大小写字母以及特殊字符的组合。
- 建议每三个月更改密码一次。
- 密码长度和限制如下所示。
 - 至少两种类型的大写字母、小写字母、数字和特殊字符的组合：8 到 15 个字符。
 - 密码应与 ID 不同。
 - 不能重复相同的字母、特殊字符的次数超过三次。
 - 不能使用三个连续字母（例如 abc、123、321 或升序或降序的 ASCII 代码值）
 - 允许使用的特殊字符为：~!@#\$\$%^&*()_+=|{}[].?/
 - 重置为出厂默认值后第一次访问摄像机网页时，会显示更改密码菜单。用户帐户和密码均已设置为 user 1 到 user 10。
 - 在首次或者初始化后访问摄像机网页时，您将转到管理员密码设置菜单。
 - 在此菜单中，您需要先使用新密码再次登录，然后再使用摄像机网页菜单。



- 如果现有密码不匹配，则更改管理员密码时，无法更改该密码。
 - 在更改密码后，如果有摄像机连接到 CMS 或 NVR 客户端，则需要使用新更改的密码重新注册。如果仍使用相同的密码连接摄像机，则帐户可能被锁定，因为客户端使用的是以前的密码。
 - 如果您尝试使用注册的帐户登录，5 次或更多次连续密码验证失败，则帐户可能会被锁定三十秒钟。
 - 在更改密码时，如果从 PC 发出多个活动状态连接，则浏览器可能功能不正常。在此情况下，请重新连接到服务器。
 - 访客设置：如果选择了 <允许访客访问>，则访客帐户可以访问 Web Viewer 屏幕，但是只能查看 Live Viewer 屏幕。
 - 访客帐户的 ID/密码是 <guest/guest>，无法更改。
 - 认证设置：如果您选择了 <启用不需要认证的 RTSP 连接>，则您不需要登录就可以访问 RTSP 并查看视频。
 - 当前用户：如果您选择了 <使用>，则您可以设置或更改用户权限。
 - 管理者可以设置音频输入/输出和警报输出。
 - 配置文件：如果您选择了 <默认>，则您只能查看默认配置文件视频；如果选择了 <全部>，则您可以查看全部配置文件视频。
-  ■ 允许使用已注册 ONVIF 功能的用户限制为那些已授予许可权的用户。
- 视频传输和更改视频信息：将配置文件设置为 <全部>，并设置 音频输入 和 音频输出。
 - 视频传输、更改视频信息、视频输出：将配置文件设置为 <全部>，并根据偏好选择其余内容。
4. 完成后，请单击 [应用 ()]。

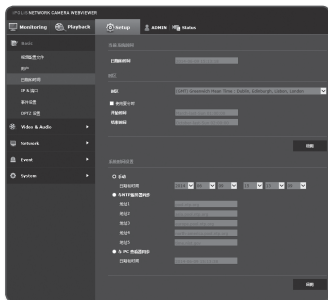
设置屏幕

日期和时间

1. 从设置菜单，选择 <Basic ()> 选项卡。
2. 单击 <日期和时间>。
3. 指定将应用于摄像机的时间和日期。
 - 当前系统时间：显示系统的当前时间设置。
 - 时区：指定本地基于 GMT 的时区。
 - 使用夏令时：如果选中将在指定的时间段内将时间设置成比当地时区早一小时。
仅在应用夏令时的地区显示此选项。
 - 系统时间设置：指定将应用于您的系统的时间和日期。
 - 手动：手动指定时间。
 - 与 NTP 服务器同步：与指定的服务器地址的时间同步。
 - 与 PC 查看器同步：设置为连接计算机的时间。
4. 完成后，请单击 [应用 ()]。



- 如果您选择 <与 PC 查看器同步>，则应该将标准时区设置为与计算机中的当前时区相同。



IP & 端口

1. 从设置菜单，选择 <Basic ()> 选项卡。

2. 单击 <IP & 端口>。

3. 配置 <IPv4 设置>。

- IP 类型：选择 IP 连接类型。
 - 手动：指定 IP 地址、子网掩码、网关、DNS1 和 DNS2。
 - DHCP：指定 DNS1 和 DNS2。
 - PPPoE：指定 DNS1、DNS2、ID 和密码。
- 如果将其设置为 <手动>，则应手动指定 IP、子网掩码、网关和 DNS 1 和 2。

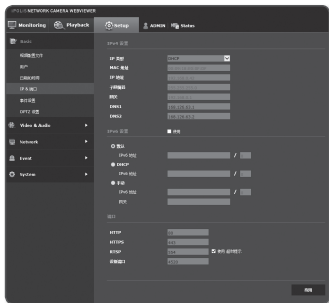
- MAC 地址：显示 MAC 地址。
- IP 地址：显示当前 IP 地址。
- 子网掩码：显示所设 IP 的 <子网掩码>。
- 网关：显示所设 IP 的 <网关>。
- DNS1/DNS2：显示 DNS（域名服务）服务器地址。

4. 配置 <IPv6 设置>。

- 设置为 <使用> 以使用 IPv6 地址。
- 默认：使用默认 IPv6 地址。
- DHCP：显示并使用从 DHCP 服务器获取的 IPv6 地址。
- 手动：手动输入 IP 地址和网关并使用它。



- IP 寻址系统将默认为 DHCP。如果未找到 DHCP 服务器，将自动恢复之前的设置。
- 完成编辑之后，单击 [应用 ()] 以应用更改，并且浏览器将会退出。一小会之后，使用更改后的 IP 再次连接。



设置屏幕

- 在端口菜单的每个项目中键入所需信息。
 - 0 至 1023 之间的端口范围和端口 3702 都不可用。
 - HTTP：用于通过 Web 浏览器访问摄像机的 HTTP 端口。默认值是 80(TCP)。
 - 安全策略不允许将 Safari 和 Google Chrome 浏览器的 HTTP 端口设置为 65535。
 - HTTPS：在这个版本中，加强了 Web 通信协议 HTTP 的安全性。在 SSL 中设置 HTTPS 模式时可以使用该端口。初始值设置为 443(TCP)。
 - 可用的设置范围为 1024~65535。(为了安全起见，在您的 Safari 或 Google Chrome 浏览器中，可以不使用 65535 作为您的 HTTPS 端口。)
 - RTSP：用于以 RTSP 模式传输视频，默认值为 554。
 - 使用 超时提示：连接到 RTSP 时，如果一段时间内没有响应，此功能会重置连接。
 - 设备端口：设置用于根据 Samsung 协议传输视频信号的端口。



- 如果更改了 HTTP 端口，则浏览器会退出。此后，地址应该在 IP 后面包含新分配的 HTTP 端口。
例) IP 地址：192.168.1.100, HTTP 端口：分配了 8080 → http://192.168.1.100:8080
(如果将 HTTP 端口设置为 80，则不需要指定端口号)

- 完成后，请单击 [应用 (应用)]。

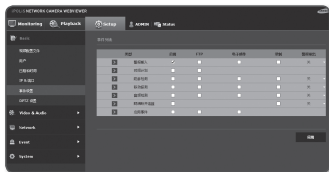
事件设置

您可以轻松设置事件探测项，并移到具体设置。

- 从设置菜单，选择 <Basic (Basic)> 选项卡。
- 单击 <事件设置>。
- 激活“事件列表”中的所需项。
- 完成后，请单击 [应用 (应用)]。



- 要进行具体的事件设置，单击所需设置。转到具体的<Event>设置。



DPTZ 设置

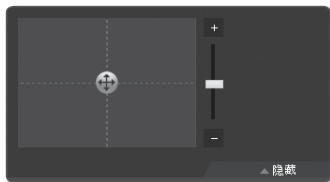
使用此设置页面移动摄像机视图并执行数字缩放。

1. 从设置菜单，选择 <Basic ()> 选项卡。
2. 单击 <DPTZ 设置>。
3. 单击[▼ 显示]。
 - 四元：在“扭曲补偿”视图中，选择要放置划分屏幕的位置。



- 要使用 <DPTZ 设置> 功能中的预设和分组，从 <去翘曲模式> 中选择 <单矩形> 视图。
- DPTZ 方法可能因<视频配置文件>中的 <去翘曲模式>和<去翘曲视图>不同而异。
有关如何使用从功能，请参阅“去翘曲模式”。(第 71 页)

4. 单击屏幕移动垫上的光标[]，可控制屏幕移动。
 - 移动屏幕：朝期望方向滚动光标。
 - 控制屏幕移动速度：光标距离屏幕中心越远，屏幕移动得越快。
5. 控制缩放移动。
 - 放大：上移UI右侧的栏，或按[]按钮。栏距离中心越远，屏幕放大得越快。
 - 缩小：下移UI右侧的栏，或按[]按钮。栏距离中心越远，屏幕缩小得越快。



- 在高温或低温情况下执行序列操作时，系统的反应速度可能低于精准序列操作的设置速度。

设置屏幕

添加初始位置

1. 移至所需起始屏幕点并按 []。
该点将设置为返回位置。
2. 单击返回位置中的 [] 您将移至预先确定的返回位置
3. 完成设置并重启摄像机后，屏幕位于起始位置。（如果摄像机之前在进行另一个序列操作，将执行该序列。）



- “要激活起始位置功能，从 <去扭曲模式> 中选择“单矩形”。

添加预设

1. 选择要添加的预设编号。
2. 设置预设的名称。
3. 按下 [ 添加] 按钮。

删除预设

1. 选择要删除的预设编号。
2. 按下 [ 删除] 按钮。

移动到所需预设

1. 选择想要移动的预置编号。
2. 按下 [ 前往] 按钮。

配置组设置

组功能让您可以为各种预置分组，然后可以按顺序调用它们。
6 个组中的每个组共可以保存 128 个预设。

1. 选择组设置模式。
2. 按下 [**添加**] 按钮。
已在底部列表中输入。
3. 如果您想删除已添加的某个预设，请将其选中并按 [**删除**] 按钮。
4. 按下 [**设置**] 按钮。
已保存在底部列表中。
5. 按下 [**开始**] 按钮。
它执行分组操作。
6. 按下 [**停止**] 按钮。
正在运行的分组将停止。
7. 按下 [**删除**] 按钮。
将删除所选的组数据。



设置屏幕

视频与音频设置

视频设置

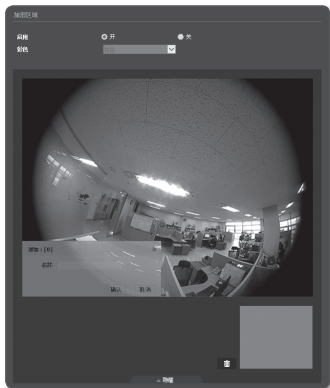
1. 从设置菜单，选择 <Video & Audio ()> 选项卡。
2. 单击 <视频设置>。
3. 选择 <视频源> 模式。
 - 翻转：将摄像机影像上下翻转。
 - 镜像：将摄像机影像的左右侧互换。
4. 指定隐私区域。
5. 完成后，请单击 [应用 ()]。



设置加密区域

可以指定为了您的隐私将保护摄像机视频的某些区域。

1. 将其设置为 <开>。
2. 选择所需加密区域的遮挡颜色。
3. 完成后，请单击 [应用 ()]。
4. 单击[▼ 显示]。
5. 将光标放在视频中的某个点上并将其拖动到所需位置。
6. 检查屏幕上显示的区域与目标区域相符，键入名称，然后单击[确认]按钮。如果显示的区域与设置区域不符，单击[取消]并重置此区域。
7. 如果想删除列表中的某个名称，请将其选中并单击 [删除 ()]。



去翘曲模式

设置摄像机位置，为用户程序提供信息。

1. 从设置菜单，选择 <Video & Audio (🔧)> 选项卡。

2. 单击<去翘曲模式>。

3. 设置<摄像机安装模式>。

- 天花板：为吸顶式摄像机选择此项。
- 地面：为落地安装的摄像机选择此项。
- 墙壁：为挂壁安装的摄像机选择此项。

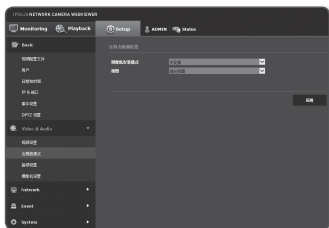
4. 设置<视图>。

- 四元视图：同时显示四个单矩形屏幕。但是，四元视图在[Monitoring]时不支持 DPTZ。它在 <DPTZ 设置>中不允许对选定区域反转或缩放影像。挂壁式、吸顶式和落地式模式中可使用四元视图。
- 双全景：显示区域的 360 度环绕视图的校准视频影像，这些区域适用挂壁和吸顶模式。可在[Setup]菜单中设置初始位置。可通过 <DPTZ 设置>水平翻转影像。挂壁和吸顶模式中可用。
- 单全景：显示区域的 360 度环绕视图的校准视频影像，这些区域适用挂壁模式。可在[Setup]菜单中设置初始位置，但不支持 DPTZ 功能。挂壁模式中可用。
- 单矩形：校准特定场景，为查看器进行优化。可以在[Monitoring]中调整 DPTZ，允许在 <DPTZ 设置>中对选定区域进行影像反转或缩放。挂壁、吸顶和落地模式中可用。

5. 完成后，请单击 [应用 (应用)]。



- 更改摄像机安装模式后，摄像机会自动重启。



设置屏幕

音频设置

可以配置摄像机的音频源的 I/O 设置。

1. 从设置菜单，选择 <Video & Audio (🔊)> 选项卡。

2. 单击 <音频设置>。

3. 设置音频输入值。

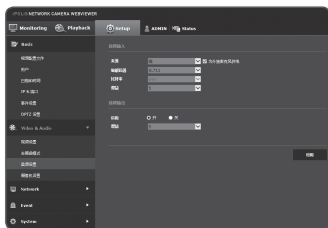
- 来源：设置音频输入。
 - 线：将电缆连接到音频设备。
 - 内置麦克风：摄像机中内置的麦克风。（只适用于 SNF-8010 型号。）
 - 外部麦克风：3.5 pi(φ) 插孔类型外部麦克风。
- 为外部麦克风供电：如果连接的外部麦克风没有独立的电源，请选中此选项以将摄像机设置为向连接的外部麦克风供电。如果选择了 <外部麦克风>，则此选项可用。
- 编解码器：指定音频编解码器。
 - G.711：一种音频编解码器标准，它使用 64 Kbps PCM（脉冲编码调制）编码。ITU 标准音频编解码器，对于在 PSTN 网络或通过 PBX 进行的数字语音传输而言已经足够。
 - G.726：ITU 标准音频编解码器，将可变比特率 40/32/24/16 Kbps 的 ADPCM（自适应差分脉冲编码调制）应用于 64 Kbps PCM 编码。
- 比特率：如果使用 G.726 编解码器，则设置比特率以区分压缩比。
- 增益：指定音频输入放大倍数。

❗ 如果声源的音量或增益值设置过度，可能会发生音质下降或振鸣。

4. 设置音频输出级别。

- 启用：设置是否使用音频输出。
- 增益：指定音频输出放大倍数。

5. 完成后，请单击 [应用 (应用)]。



摄像机 设置

可以根据摄像机所在的环境更改摄像机设置。

1. 从设置菜单，选择 <Video & Audio (📷)> 选项卡。
2. 单击 <摄像机 设置>。
3. 根据需要配置以下各项的设置：
SSDR、白平衡、背光、曝光、附加菜单、日夜、OSD
4. 完成后，请单击 [应用 (🔧)]。
■ 如果在更改设置之后经过一定的时间未按 [应用 (🔧)] 按钮 (超时：240 秒)，则不会应用您的更改。



设置 SSDR (Samsung 超级动态范围)

在明暗差异非常大的场景中，您可以单独增加黑暗区域的亮度以调整总亮度。

1. 选择 <SSDR>。
2. 将 <模式> 设置为 <开>。
3. 配置必要的 <级别> 和 <范围> 设置。
 - 级别：调整动态范围的级别。
 - 范围：选择动态范围的幅度区域。



设置屏幕

设置白平衡

在任何照明条件下，可以基于白色校正图像颜色。

1. 选择 <白平衡>。

2. 选择 <模式>。

- 自动追踪白平衡：自动校正摄像机视频的颜色。
- 手动：可以手动调整摄像机视频的红色和蓝色增益。
- 自动白平衡：根据当前照明条件和屏幕模式进行优化，校正摄像机视频的颜色。要获得当前照明的最佳条件，请将摄像机的焦点对准白纸，然后按 [设置] 按钮。
- 室外：根据室外环境进行优化，自动校正摄像机的视频颜色。
- 室内：根据室内环境进行优化，自动校正摄像机的视频颜色。



- 在自动白平衡模式中，如果要保留当前图像的白平衡级别，请单击 [设置] 按钮。



- 在下列情况下，白平衡可能无法正常工作：
在这种情况下，请切换到“自动白平衡”模式。
 - 如果物体的周围环境条件超出测试校正范围
示例) 清澈的蓝天，日落
 - 如果物体的周围环境黑暗
 - 如果摄像机的焦点直接面对荧光灯照明，或者如果将摄像机安装在照明变化的位置，白平衡操作可能会不稳定。

设置背光补偿

可以手动在视频上指定想要的区域和设置要更清晰显示的区域。

1. 选择 <背光>。
2. 将 <模式> 设置为 <背光补偿>。
3. 设置 <背光补偿级别>。
可以更改等级以调整监视区域的亮度。
4. 设置 <顶部，底部，左边，右边> 等级
以指定目标区域。



- 设置背光补偿时，绿框在屏幕上显示 15 秒。
- 为了避免在背光补偿设置时出现故障，背光补偿区域的纵向空间应大于 40 且低于 60，而横向空间应大于 30 且低于 60。

设置屏幕

设置曝光

可以调整摄像机的曝光级别。

1. 选择 <曝光>。

2. 选择各项并进行正确设置。

- 亮度：调整屏幕亮度。
- 最小快门：最长曝光时间的限值。
 - 快门是用于设置传感器曝光时间范围的模式，该范围指定了电子快门移动的上限和下限。
- 最大快门：最短曝光时间的限值。
- 防闪烁：用于防止周围光线和频率之间不协调引起的屏幕闪烁。
- SSNR：选择“启用”或“禁用”视频噪点消除功能。
 - 当自动增益模式设置为<关>后，无法使用 SSNR。
- SSNR 级别：调整降噪级别。
- 自动增益：选择自动增益控制模式。

调整视频的增益值（即，具体地说，在低对比度场景中录制且亮度级别低于正常）以控制视频亮度。

 - 当自动增益模式设置为<关>后，无法使用 SSNR 和日夜模式的<自动>功能。



- 根据快门设置范围，图像曝光可能饱和。

设置附加菜单

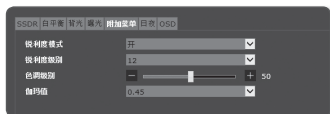
1. 选择 <附加菜单>。

2. 选择各项并进行正确设置。

- 锐利度模式：调整图像的总清晰度。

如果选择了 <开>，您可以调整图像的清晰度。

- 锐利度级别：级别越高，图像轮廓变得越清晰和越清楚。
- 色调级别：调整视频颜色的强度。
- 伽玛值：调整图像的对比度。



设置日夜

1. 选择 <日夜>。

2. 选择各项并进行正确设置。

- 日夜：“模式”用于将颜色调整为彩色或黑白。

- 彩色：始终以彩色输出视频。
- 黑白：始终以黑白输出视频。
- 自动：正常亮度下以彩色模式显示，但在夜晚低亮度时切换为黑白模式。

- 如果 <曝光> 菜单中的 AGC 设置为 <关>，无法将日夜模式设置为 <自动>。

- 计划：设置摄像机以彩色模式工作的时间段。

- 等待时间：必须保持所选亮度条件，以便在日夜之间切换光照模式的时间段。
- 转换条件：指定光照模式转换的时间间隔。
- 激活时间：指定彩色模式工作的时间计划。
 - 如果设置此项，从开始时间 00 秒 到结束时间 59 秒 会保持彩色模式。



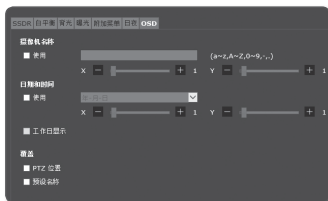
设置屏幕

设置 OSD

1. 选择 <OSD>。

2. 选择各项并进行正确设置。

- 摄像机名称：指定是否在屏幕上显示摄像机标题。
 - 最多可输入 15 个字符作为标题。
- 摄像机名称 X, Y：指定摄像机标题在屏幕上显示的坐标。
- 日期和时间：您可以设置日期和时间以及它们是否应显示在屏幕上。
- 日期和时间 X, Y：设置时间在屏幕上的显示位置。
- 工作日显示：您可以在屏幕中显示日期。
- PTZ 位置：是否在屏幕上显示 PTZ 位置。
- 预设名称：指定是否在屏幕上显示预设名称。



- 如果位置可调整项目与另一固定 OSD 项目重叠，则前者（摄像机标题、日期和时间）可能不会正常显示。
- PTZ 位置显示在屏幕左下角，它无法移到其他区域。在屏幕上放置其他物品时，请使用此信息。

网络设置

DDNS

DDNS 是动态域名服务的缩写，该服务将摄像机的 IP 地址转换成一般主机名，以便用户可以轻松记住它。

■ 您只有在接通互联网时才能使用 DDNS 服务。

1. 从设置菜单，选择 <Network (网络)> 选项卡。

2. 单击 <DDNS>。

3. 选择 <DDNS> 连接类型。

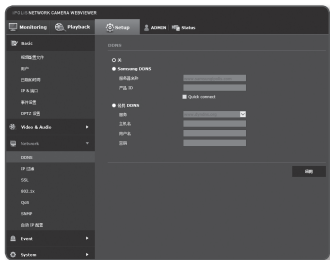
4. 根据所选类型键入 DDNS 项目。

- Samsung DDNS：如果使用 Hanwha Techwin 提供的 DDNS 服务器，请选择此项。

- 产品 ID：输入向 Samsung DDNS 服务注册的产品 ID。

- Quick connect：当与支持 UPnP

（通用即插即用）的路由器配合使用时，它会自动设置端口转发。



■ 如果想使用 DDNS 服务而不使用支持 UPnP 功能的集线器，则需要转到集线器菜单并激活集线器的端口转发。

有关如何设置集线器端口转发的详细信息，请参阅“路由器端口设置”。（第 38 页）

- 公共 DDNS：使用公共 DDNS 服务器时，可从所提供的公共 DDNS 服务器中选择一个。

- 服务：选择所需的公共 DDNS 服务器的服务器。

- 主机名：输入向 DDNS 服务器注册的主机的名称。

- 用户名：输入 DDNS 服务器的用户名。

- 密码：输入 DDNS 服务器的密码。

5. 完成后，请单击 [应用 (应用)]。

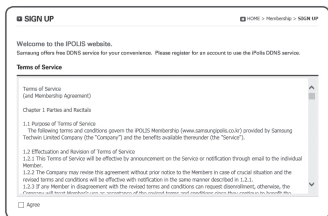
■ 如果选择了 <Quick connect>，请确保选择 Samsung DDNS 服务。

设置屏幕

注册 DDNS

向 Samsung DDNS 注册您的产品

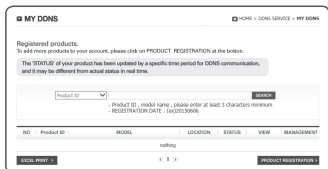
1. 访问 iPOLiS 网站 (www.samsungipolis.com) 并用已注册的帐户登录。



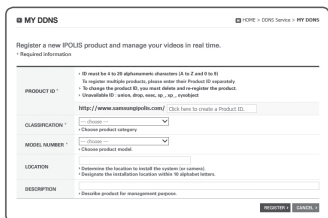
2. 从顶部的菜单栏，选择 <DDNS SERVICE> - <MY DDNS>。



3. 单击 [PRODUCT REGISTRATION]。
4. 输入产品 ID。
 - 必须重复检查您输入的 ID。

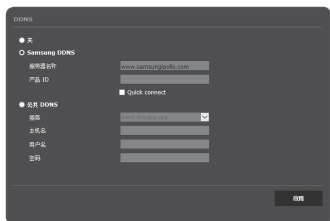


5. 选择 <CLASSIFICATION> 并指定 <MODEL NUMBER>。
6. 指定产品位置及说明（如有必要）。
7. 单击 [REGISTRATION]。
产品将添加至产品列表，您可以对其进行检查。



在摄像机设置中连接至 Samsung DDNS

1. 从 DDNS 设置页面，将 <DDNS> 设置为 <Samsung DDNS>。
2. 提供向 DDNS 网站注册产品 ID 时指定的 <产品 ID>。
3. 单击 [应用 (应用)]。
成功进行连接后，屏幕上将显示消息 <(成功)>。



在摄像机设置中配置公共 DDNS

1. 打开 DDNS 设置页面并为 <DDNS> 选择 <公共 DDNS>。
2. 输入相应站点的主机名、用户名和密码。
3. 单击 [应用 (应用)] 按钮。
如果正确建立连接，<(成功)> 将会出现。
4. 完成后，请单击 [应用 (应用)]。



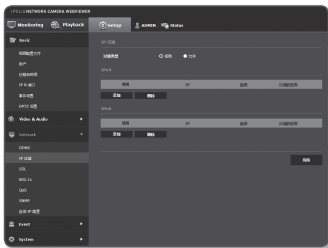
- 要正确使用 DDNS 服务，需要 DDNS 设置和路由器的端口转发设置。
对于端口转发设置，请参阅“[路由器端口设置](#)”。(第 38 页)

设置屏幕

IP 过滤

可以创建想要授予或拒绝访问权限的 IP 列表。

1. 从设置菜单，选择 <Network ()> 选项卡。
2. 单击 <IP 过滤>。
3. 选择 <过滤类型>。
 - 拒绝：如果选择此项，将限制过滤列表的那些 IP 进行的访问。
 - 允许：如果选择此项，将只接受过过滤列表的那些 IP 进行的访问。
4. 单击 [添加 ()] 按钮。
将会创建 IP 列表。
5. 提供想要授予或拒绝访问权限的 IP。
输入 IP 地址和前缀时，可用的 IP 地址列表将出现在右侧过滤范围列中。



-  ■ 如果为 IP 过滤 选择了 <允许> 并且 <IP & 端口> 的 <IPv6 设置> 设为 <使用>，则应该分配当前计算机配置的 IPv4 和 IPv6 地址。
- 不能将用于当前设置的计算机的 IP 地址添加至 <拒绝>，应该将它添加至 <允许>。
- 只有设置为 <使用> 的 IP 地址才会显示在过滤器列中。
6. 从列表中选择要删除的 IP。
单击 [删除 ()] 按钮。
 7. 完成后，请单击 [应用 ()]。

SSL

可以选择安全连接系统或安装公共证书用于此目的。

1. 从设置菜单，选择 <Network ()> 选项卡。

2. 单击 <SSL>。

3. 选择安全连接系统。

- 若要使用 HTTPS 模式访问摄像机，您必须以 `https://<Camera_IP>` 形式键入摄像机的 IP 地址。

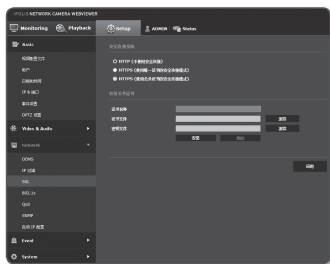
如果未在 Internet Explorer 中以 HTTPS 模式配置 Web Viewer 设置，请按如下所示编辑 Internet 选项：<菜单 → 工具 → Internet 选项 → 高级 → 安全 → 取消选择 TLS 1.0 并选择 TLS 1.1、TLS 1.2>

4. 搜索要安装在摄像机上的公共证书。

要将证书安装在摄像机上，需要提供证书名称（可由用户随意分配）、认证机构颁发的证书文件以及密钥文件。

- 仅当安装了公共证书，<HTTPS (使用公共证书的安全连接模式)> 项目才会活动。

5. 完成后，请单击 [应用 ()]。



安装证书

1. 输入证书名称。
2. 单击 [浏览 ()] 按钮,选择要安装的公共证书文件和密钥文件，然后单击 [安装 ()] 按钮。

删除证书

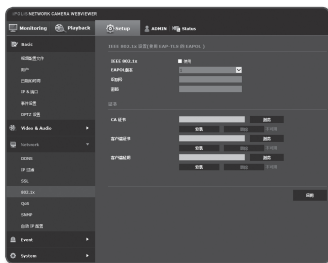
1. 单击 [删除 ()] 按钮。
2. 要删除公共证书，应该在 <HTTP (不使用安全连接)> 或 <HTTPS (使用唯一证书的安全连接模式)> 模式下访问网络视频解码器。

设置屏幕

802.1x

连接网络时，您可以选择是否使用 802.1x 协议，然后安装证书。

1. 从设置菜单，选择 <Network ()> 选项卡。
2. 单击 <802.1x>。
3. 设置 <IEEE 802.1x 设置 (使用 EAP-TLS 的 EAPOL)>。
 - IEEE 802.1x：指定使用 802.1x 协议。
 - EAPOL版本：选择版本 1 或 2。
 - 识别号：输入客户机证书 ID。
 - 密码：输入客户机专用密钥密码。如果密钥文件未加密，则不需要输入密码。



❗ 如果连接的网络设备不支持 802.1x 协议，那么即使您设置了该协议，它也不会正常执行。

4. 安装/移除证书。
 - CA 证书：选择包含公共密钥的公共证书。
 - 客户端证书：选择包含客户端证书密钥的公共证书。
 - 客户端私钥：选择包含客户端私钥的公共证书。
5. 完成后，请单击 [应用 ()]。

安装/删除与 802.1x 相关的证书

1. 按每个项目的 [浏览 ()] 按钮并选择要安装的证书。
2. 如果未安装任何证书，则会看到“不可用”出现在所选项目旁边。
3. 按 [安装 ()] 按钮以开始安装，并在项目旁边显示消息“已安装”。
4. 按 [删除 ()] 按钮以删除证书。

QoS

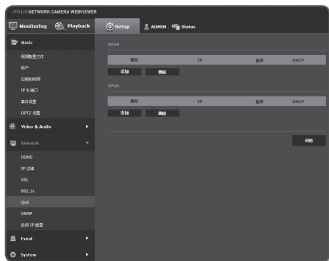
您可以指定优先级以确保特定 IP 的传输率稳定。

1. 从设置菜单，选择 <Network ()> 选项卡。
2. 单击 <QoS>。
3. 单击 [添加 ()] 按钮。
将会创建 IP 列表。
4. 输入将应用 QoS 的 IP 地址。



- 默认前缀对于 IPv4 是 32；
对于 DSCP，默认值设置为 63。
- 只能为设置为 <使用> 的 IP 地址设置优先级。

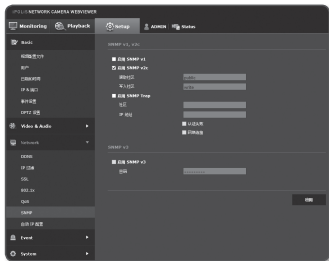
5. 从列表中选择要删除的 IP。
单击 [删除 ()] 按钮。
6. 完成后，请单击 [应用 ()]。



SNMP

通过 SNMP 协议，系统或网络管理员可以监视远程站点上的网络设备，以及配置环境设置。

1. 从设置菜单，选择 <Network ()> 选项卡。
2. 单击 <SNMP>。
3. 指定 <SNMP>。
 - 启用 SNMP v1：SNMP V1 将处于活动状态。
 - 启用 SNMP v2c：SNMP V2c 将处于活动状态。
 - 读取社区：提供读取社区的名称，可在其中访问 SNMP 信息。
默认名称为 <public>。
 - 写入社区：提供写入社区的名称，可在其中访问 SNMP 信息。默认名称为 <write>。



设置屏幕

- 启用 SNMP Trap：SNMP Trap 用于将重要事件和情况发送到管理员系统。
 - 社区：输入用于接收消息的 Trap 社区名称。
 - IP 地址：输入消息将发送到的 IP 地址。
 - 认证失败：指定当社区信息无效时是否生成事件。
 - 网络连接：指定当网络断开后恢复连接时是否生成事件。
- 启用 SNMP v3：SNMP V3 将处于活动状态。
 - 密码：指定 SNMP V3 的默认密码。
 - 默认密码可能会向黑客线程公开，因此建议您在安装产品之后更改该密码。请注意，未更改密码导致的安全和其他相关问题，用户自己承担责任。
 - 密码长度应该为 8 - 16 个字符。

4. 完成后，请单击 **应用** ()。



- 仅当安全连接模式是 HTTPS 时，才能设置 SNMP v3。
请参阅“SSL”。(第 83 页)

自动 IP 配置

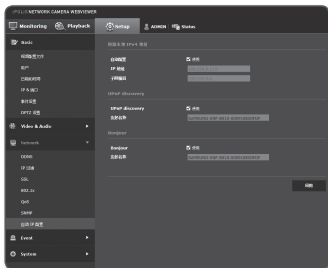
您可以自动设置可用于访问和摄像机搜索的 IP。

1. 从设置菜单，选择 <Network ()> 选项卡。

2. 单击 <自动 IP 配置>。

3. 设置 <链路本地 IPv4 地址>。
可以分配一个额外的 IP 地址以从链路本地网络访问摄像机。

- 自动配置：指定“启用”或“禁用”链路本地 IPv4 地址。
- IP 地址：显示所分配的 IP 地址。
- 子网掩码：显示所分配 IP 的子网掩码。



4. 设置 <UPnP discovery>。
可以在支持 UPnP 协议的客户端和操作系统中自动搜索摄像机。

- UPnP discovery：指定“启用”或“禁用”UPnP 发现。
- 友好名称：显示摄像机名称。
友好名称的显示格式为 WISENET- <型号名称>-<MAC 地址>。



- 在基本支持 UPnP 的 Windows 操作系统中，连接到网络的摄像机机会显示出来。

5. 设置 <Bonjour>。

可以在支持 Bonjour 协议的客户端和操作系统中自动搜索摄像机。

- Bonjour：指定“启用”或“禁用”Bonjour 发现。
- 友好名称：显示摄像机名称。
友好名称的显示格式为 WISENET- <型号名称>-<MAC 地址>。



- 在默认支持 Bonjour 的 Mac 操作系统中，已连接的摄像机机会自动显示在 Safari 网络浏览器的 Bonjour 书签中。
如果 Bonjour 书签没有显示出来，请在“首选项”菜单中检查书签设置。

6. 完成后，请单击 [应用 ()]。

设置屏幕

事件设置

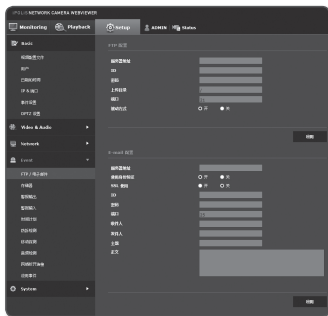
FTP / 电子邮件

可以配置 FTP/电子邮件服务器设置，以便在事件发生时可以将使用摄像机拍摄的图像传输到您的计算机。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <FTP / 电子邮件>。
3. 选择 <FTP 配置> 或 <E-mail 配置> 并输入/选择所需的值。

- FTP 配置

- 服务器地址：输入您将警报或事件图像传输到的 FTP 服务器的 IP 地址。
- ID：输入用于登录 FTP 服务器的用户 ID。
- 密码：输入用于登录 FTP 服务器的用户帐户密码。
- 上传目录：指定警报或事件图像将传输到的 FTP 路径。
- 端口：FTP 服务器的默认端口为 21；但是，可以根据 FTP 服务器设置使用不同的端口号。
- 被动方式：如果由于防火墙或 FTP 服务器设置需要以被动模式连接，请选择 <开>。



• E-mail 配置

- 服务器地址：输入您将警报或事件图像传输到的电子邮件服务器的 IP 地址。
- 使用身份验证：选择是否使用身份验证。
- SSL 使用：指定使用 SSL。
- ID：输入用于登录电子邮件服务器的用户 ID。
- 密码：输入用于登录电子邮件服务器的用户帐户密码。
- 端口：电子邮件服务器的默认端口为 25；但是，可以根据电子邮件服务器设置使用不同的端口号。
- 收件人：输入电子邮件收件人的地址。
- 发件人：输入电子邮件发件人的地址。如果发件人地址不正确，来自发件人的电子邮件可能会被电子邮件服务器分类为垃圾邮件，这样可能不发送。
- 主题：输入电子邮件的主题。
- 正文：为邮件提供文本。将警报或事件图像附加至准备的电子邮件。

4. 完成后，请单击 [应用 (应用)]。

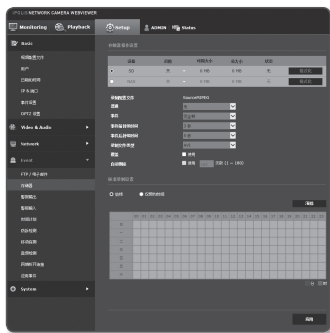
存储器

您可以在设备上激活录制，选择录制条件，检查已保存数据占用的容量，对设备自身进行格式化。

1. 从设置菜单，选择 <Event ()> 选项卡。
2. 单击 <存储器>。
3. 选择用来保存数据的设备。



- 如果设备正在正确录制数据，将显示“录制”。
- 如果显示“错误”信息，请检查以下各项：
 - 检查存储器，确认它已连接到设备。
 - 检查存储器中的文件，确认它们是否受损。
 - 检查存储器，确认它们是否受到物理损伤。
- 如果按照说明操作后依然显示“错误”信息，请更换 Micro SD 卡。



设置屏幕

在 Micro SD 存储卡上进行录制

1. 检查存储卡的 <可用大小> 和 <总大小>。
2. 请检查已存储的数据，如果发现它们不重要，则单击 <格式化> 以格式化 Micro SD 存储卡。
 - 如果 Micro SD 存储卡以低于建议值的速度运行，可能会跳过某些帧。
如需更多信息，请参阅“[建议的 Micro SD/SDHC/SDXC 存储卡规格](#)”。(第 10 页)
 - 对于大容量的 Micro SD 存储卡，格式化将相应变慢。
 - 将摄像机设置为较高分辨率、较高位速率或较高帧率时，数据流量会增大。
如果数据流量较大，可能会跳过某个帧，但仍会将其全帧存储。
 - 发生跳帧时，将以最低每秒一幅图像的速度保存图像。
3. 指定存储操作。
 - 录制配置文件：显示录制配置文件的编解码器类型。
 - 普通：未发生事件时的录制类型。
 - 事件：设置发生的特定事件的录制类型。
 - 事件前持续时间：指定警报发出之前的时间点；从该时间点开始，将传输图像。最多可以指定警报发出之前 5 秒。
 - 事件后持续时间：指定警报发出之后的时间点；将传输图像到指定的时间点为止。最多可以指定警报发出之后 120 秒。
 - 录制文件类型：指定所录制图像的文件格式。
如果插入的 Micro SD 卡用其他文件类型 (AVI/STW) 保存文件，需要在使用前将其格式化。
 - STW：Hanwha Techwin 的独特文件格式。
 - AVI：传统的 avi 格式。
 - 覆盖：如果 Micro SD 存储卡已满，这将删除旧数据并存储新数据代替。
 - 自动删除：删除指定时间段的数据，不删除其他数据。
可以设置的范围是 1 到 180 天。



- 如果超出保留时间段，将自动删除相应数据并录制新数据。数据一旦删除即无法恢复。

4. 指定 <标准录制设置>。

- 始终：始终将录制的视频保存在 Micro SD 存储卡中。
 - 如果设置为始终，则激活时间无法更改。
- 仅预约时间：仅在指定星期几的指定时间录制。
- [清除(清除)]：清除选择选定的时间。

5. 完成后，请单击 [应用 (应用)]。

如果希望录制到 NAS 中

1. 设置保存操作和基本录制。

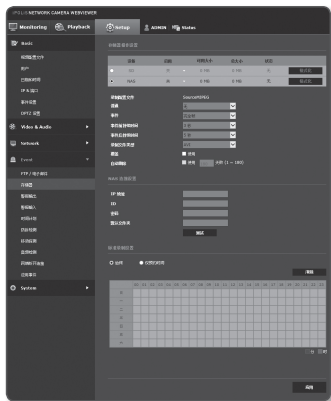
- 只有 NAS 符合建议规格，才能支持自动删除。

2. 输入在 NAS 中注册的信息。

- IP 地址：为 NAS 分配的具有唯一性的 IP 地址。
- ID：这是 NAS 中注册的一个 ID。
- 密码：NAS 中注册的密码。
- 默认文件夹：指定用来保存数据的 NAS 用户文件夹。

3. 单击 [测试] 按钮来查看是否可以成功连接到 NAS。

- 如果显示成功消息，则意味着您可以成功地将数据保存到 NAS 中。
- 如果显示失败消息，请检查以下方面。
 - 确认 NAS 的 IP 地址有效。
 - 确认 NAS 的 ID/密码有效。
 - 确认您可以访问使用 NAS 的 ID 指定为基本文件夹的文件夹。
 - 确认 NAS 的 SMB/CIFS 项已被取消选中。



设置屏幕

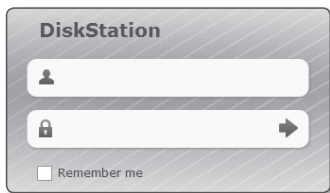
- 确认 NAS IP 地址和摄像机 IP 地址的格式正确。
Ex) NAS 和摄像机子网掩码的初始值是 255.255.255.0。
如果 IP 地址是 192.168.20.32, NAS IP 地址的范围应该是 192.168.20.1~192.168.20.255。
 - 检查是否作为其他用户尝试访问, 而没有对所保存和使用的基本文件夹进行格式化。
 - 确认使用了建议的 NAS 设备。
4. 一旦完成设置, 将 NAS 的设置从 <关> 更改为 <开>, 然后单击 [应用 ()] 按钮。
 5. 访问 NAS 来检查可用容量和总容量。
 6. 如果容量不够, 请检查数据, 然后单击 [格式化] 按钮来自行对 NAS 进行格式化。
 - 由于网络访问错误, 可能暂时无法保存到 NAS。
 - 将摄像机设置为较高分辨率、较高位速率或较高帧率时, 数据流量会增大。
如果数据流量较大, 可能会跳过某个帧, 但仍会将其全帧存储。
 - 发生跳帧时, 将以最低每秒一幅图像的速度保存图像。

NAS(网络连接存储器)指南

- 在使用 NAS 时，可能会由于暂时的网络断开而无法保存数据。
- 如果设置允许同时连接和使用 Micro SD 存储卡和 NAS，NAS 享有较高录制优先级。
- 如果正将数据保存到 NAS，在插入其他摄像机使用的 Micro SD 存储卡时，可能无法保存数据。
- 如果通过将覆盖设置为 <开> 激活覆盖并且可用容量低于 1%，则将其保存在 Micro SD 卡中。
- NAS 建议规格：请参阅“NAS 建议规格”（第 11 页）
- 如果在数据保存到 NAS 期间更改 NAS 保存设置，该更改将不会立即在系统中反映出来。
- 如果在数据保存期间移除 NAS 设备，或者网络断开，NAS 保存操作将异常终止。
- 根据经验，建议为每个摄像机使用一个 NAS 共享目录，而不应重复使用。

下面描述了如何按照 Synology NAS（建议产品之一）方法使用 NAS 保存数据。

1. 作为管理员访问 Synology NAS。
在本例中，NAS IP 地址设置为 [192.168.20.253]。

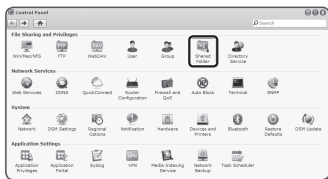


2. 如果作为管理员访问，将显示以下屏幕。单击 [Control Panel]。

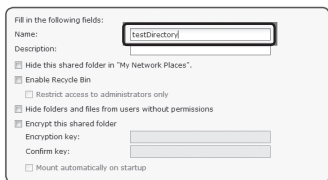


设置屏幕

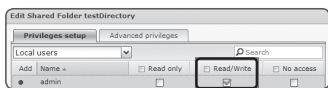
3. 在文件共享和权限菜单中单击 <Shared Folder>。



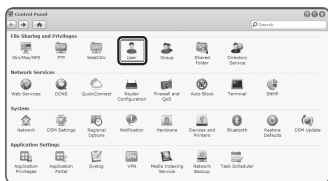
4. 单击 [Create] 按钮。
5. 在输入共享文件夹名称 (ID) 后，单击 [OK] 按钮来创建共享文件夹。在本例中，共享文件夹名称是 [testDirectory]。



6. 在 Windows 中，针对 NAS 访问，如下设置共享文件夹的权限。选中管理员的 [Read/Write] 权限。



7. 在文件共享和权限菜单中单击 <User>。



8. 单击 [Create] 按钮后，输入名称 (ID) 和密码。

在本例中，名称 (ID) 设置为 [testID]，密码设置为 [testID]。

- 根据 NAS 建议，在使用 Netgear 的 NAS 设备时，不要分配要使用的容量。

9. 在 Windows 中，设置 NAS 访问的权限。

为第 4 步中创建的名称为 “testDirectory” 的共享文件夹，选中 [Read/Write] 权限。

10. 至此 NAS 中的基本设置已完成。
将摄像机连接到实际 NAS。
如下所示，输入 NAS 连接设置项。

11. 在输入项目 10 后，选中 <开>。

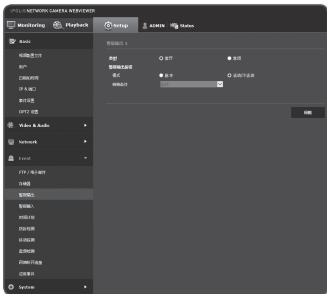
12. 单击 [应用 (应用)] 按钮。
通过使用 NAS 来完成保存。

设备	启用	可用大小	总大小	状态	
SD	关	0 MB	0 MB	无	格式化
NAS	开	741.58 GB	912.45 GB	录制	格式化

设置屏幕

警报输出

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <警报输出>。
3. 设置摄像机的警报输出类型。
 - 如果您更改警报输出类型，监视页面上的警报输出按钮和事件设置页面上显示的警报输出类型会相应地更改。
 - 类型
 - 常开：如果将警报输出设备“开路”状态视为正常，当触发警报事件时，则变成“闭路”状态。
 - 常闭：如果将警报输出设备“闭路”状态视为正常，当触发警报事件时，则变成“开路”状态。
4. 设置警报输出按钮。
 - 模式：设置警报输出方式。
 - 以下是在禁用时单击警报输出按钮时操作之间的差异。
 - 脉冲：在持续时间（切换间隔）指定的时间段内激活，然后自动变成不活动。
 - 活动/不活动：它保持为已激活，直到用户再次单击按钮以使它不活动为止。
 - 转换条件：如果模式设置为脉冲，则设置保持激活的警报持续时间：1 到 15 秒。
5. 完成后，请单击 [应用 (🔧)]。



警报输入

可以设置警报输入类型、激活时间和工作模式。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。

2. 单击 <警报输入>。

3. 设置是否 <启用>。

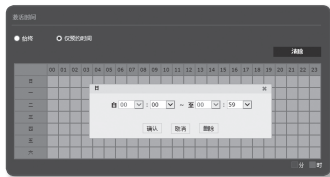
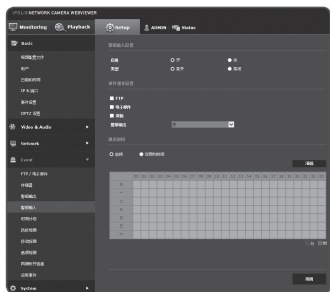
4. 选择类型。

- 常开：它通常是打开的，但是如果关闭，将触发警报。
- 常闭：它通常是关闭的，但是如果打开，将触发警报。

5. 指定 <激活时间>。

- 始终：当警报发出时，将始终检查。当警报发出时，它将在运行的模式下激活。
 - 如果设置为 <始终>，激活时间将无法更改。
- 仅预约时间：警报发出时，在一周指定的一天检查指定的时间长度。当警报发出时，它将在运行的模式下激活。
- [清除(🗑️)]: 重置全部设置。
- 分：单击“激活时间”中的某个区域并以分钟为单位设置时间。
- 时：在“激活时间”上拖动鼠标并以小时为单位设置时间。

- ! ■ 传输间隔设置值必须小于预设激活间隔才能成功进行图像传输。



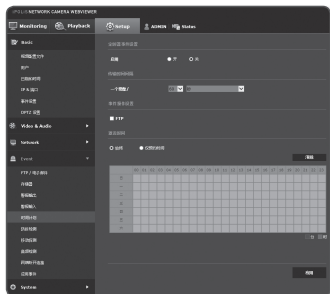
设置屏幕

6. 指定警报发出时将执行的操作。
 - FTP：在警报输入设置中指定使用 FTP 传输。
 - 有关详细信息，请参阅“FTP / 电子邮件”。（第 88 页）
 - 电子邮件：在警报输入设置中指定电子邮件传输的使用。
 - 有关详细信息，请参阅“FTP / 电子邮件”。（第 88 页）
 - 录制：在警报输入设置中指定录制的使用。
 - 在 <存储器> 中将 <录制> 设置为 <开>。（第 89 页）
 - 警报输出：选择如果警报进入是否设置警报输出，并指定警报输出时间。
7. 完成后，请单击 [应用 ()]。

时间计划

可以设置为根据计划以特定间隔保存视频数据，而不考虑事件的实际出现情况。

1. 从设置菜单，选择 <Event ()> 选项卡。
2. 单击 <时间计划>。
3. 设置是否 <启用>。
4. 指定 <传输时间间隔>。
5. 指定 <激活时间>。
 - 始终：始终在设置的时间间隔内以运行的模式激活。
 - 仅预约时间：在指定的时间和日期定期以运行的模式激活。
6. 指定激活条件。
 - FTP：指定事件发生时 FTP 传输的使用。
 - 有关详细信息，请参阅“FTP/电子邮件”。（第 88 页）
7. 完成后，请单击 [应用 ()]。

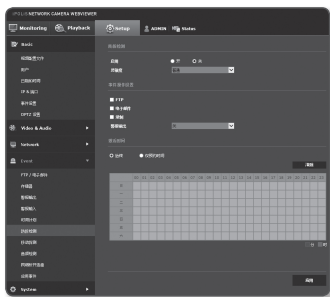


设置屏幕

防拆检测

您可以设置为检测拆离尝试并触发事件，例如摄像机取景框方向突然发生变化、镜头被蒙住以及视频的其他整个场景变化。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <防拆检测>。
3. 设置是否 <启用>。
4. 设置防拆检测灵敏度。
灵敏度越高，越能检测最小的拆离尝试。
5. 指定激活时间和激活条件。
 - 有关 <激活时间> 和 <动作> 的详细信息，请参阅“警报输入”。(第 97 页)
6. 完成后，请单击 [应用 (🔧)]。

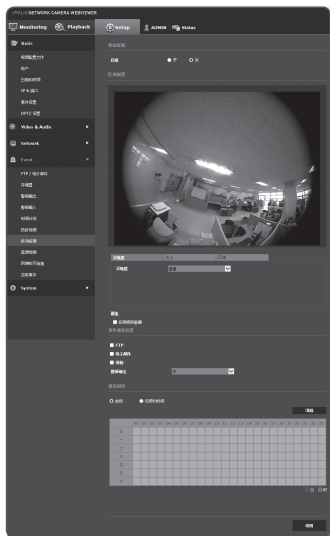


- 防拆检测需要依赖<视频配置文件>的源视图屏幕的状态。
源视图屏幕中出现篡改时，即使扭曲补偿视图中未发生篡改，也会发出警报。
- 在下列情况下，默认防拆检测功能可能无法正常工作：
 - 在简单背景或低照度以及夜晚情况下，可能会降低检测灵敏度。
 - 摄像机摇晃严重或照明激烈变化会导致错误地视为拆离。
 - 防拆检测可能会在拆离发生之后的一定时间（最多 5 秒）进行。
 - 一旦检测到拆离，摄像机将继续在特定稳定性时间（大约 5 秒）之后继续标准操作，在此稳定性期间不会执行任何检测。

移动探测

可以设置移动探测的事件来触发事件信号输出。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <移动探测>。
3. 设置是否 <启用>。
4. 设置 <灵敏度>、<大小> 和 <地区>。
5. 设置是否使用 <探测规则重叠>。
检测到移动时，会在屏幕上以矩形标出其大小和位置。
 - 绿色：所有目标都检测为移动。
6. 指定激活时间和激活条件。
 - 有关 <激活时间> 和 <动作> 的详细信息，请参阅“警报输入”。(第 97 页)
7. 完成后，请单击 [应用 (🔧)]。



设置屏幕



- 移动探测需要依赖<视频配置文件>的源视图屏幕的状态。
源视图屏幕中出现移动时，即使扭曲补偿视图中未发生移动，也会发出警报。
- 在使用之前，设置最小和最大移动大小以适合要探测的所需移动范围。
- 物体的探测到大小与实际大小可能会有差异，视其形状而定。
- 从屏幕顶部开始，最多可以显示 16 个物体。
- 在以下情况下，移动探测的有效功能可能会下降或导致不正确的探测结果。
 - 拍摄对象的颜色或亮度与背景类似。
 - 摄像机视野边界区域周围的小活动。
 - 由于场景变化、照明快速变化或其他原因，多次移动随机连续发生。
 - 固定的对象在一个位置连续不断地移动。
 - 位置变化不大的移动，例如逐渐靠近摄像机或从摄像机中慢慢消失。
 - 移动的对象离摄像机太近
 - 对象隐藏在其他对象后面。
 - 2 个或更多对象重叠，或者 1 个对象被分成多个对象。
 - 对象速度太快（若要探测，一个对象应该在邻近的帧之间重叠）。
 - 由于太阳直射、照明或头灯等强光而出现反射 / 视线模糊 / 阴影。
 - 在大雪、大雨、大风或黎明 / 黄昏环境中。

使用移动探测

它会探测满足灵敏度、大小和区域指定的所有条件的移动。

1. 选择 **<灵敏度>** 选项卡以设置灵敏度级别。可以设置传感器的灵敏度以检测监视视频中脱离背景的移动。

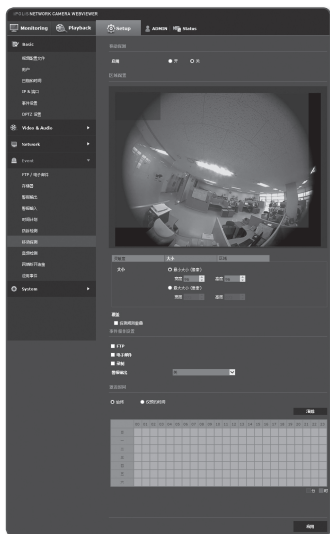
- 在可以清楚区分物体与背景的情况下，将此项设置为低灵敏度级别。在难以区分物体的相反情况下，如低照度环境中，请将此项设置为高级别。

2. 选择 **<大小>** 选项卡。
您可以限制要探测的移动的最小/最大大小。

- 最小大小：要设置被探测移动的最小大小，请选择 **<最小大小>**，然后使用鼠标指向屏幕上的位置并拖动至所需大小。
- 最大大小：要设置被探测移动的最大大小，请选择 **<最大大小>**，然后使用鼠标指向屏幕上的位置并拖动至所需大小。

- 无法探测小于指定最小大小或大于最大大小的移动。为了避免杂音导致的意外探测，请根据环境相应地设置最小/最大大小。

请注意，相同位置处的相同移动在其检测大小方面可能会检测到不同；建议您在设置最小/最大探测大小时，考虑并包括允差。



设置屏幕

3. 选择 <地区> 选项卡。

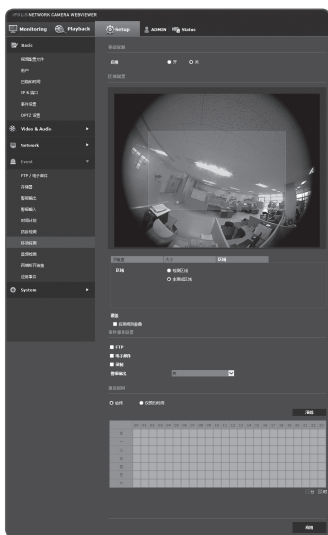
您可以指定屏幕上要包括到探测中或从探测中排除的区域。

您最多可以指定 4 个区域。

- **检测区域**：将整个屏幕设置为从探测中排除，并将指定的区域添加为移动探测区域。将鼠标拖到屏幕上可设置要检测的区域。
- **非测试区域**：将整个屏幕设置为移动探测区域，并排除指定的区域作为不探测的区域。将鼠标拖到屏幕上可设置不需要检测的区域。

4. 要删除区域，请右键单击屏幕以打开弹出窗口上下文菜单，然后选择删除和 [确认] 按钮。

5. 完成后，请单击 [应用 (应用)]。



音频检测

可以设置为探测超过指定音量的声音并相应地触发事件。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <音频检测>。
3. 设置是否 <启用>。
4. 选择音频探测的音量。
音量越低，可探测到的声音变化越小。



- 设计了自动探测级别，为的是将输入数据规范为介于 1 和 100 之间的值，并且探测大于该阈值级别的信号。它与 分贝 (dB) 级别无关。

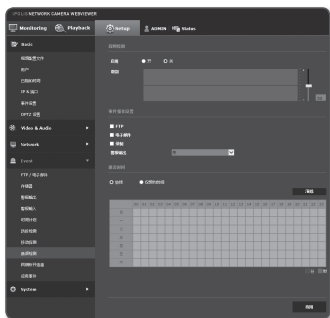
5. 指定激活时间和激活条件。

- 有关 <激活时间> 和 <动作> 的详细信息，请参阅“警报输入”。(第 97 页)

6. 完成后，请单击 [应用 (🔧)]。



- 选择 <Video & Audio> - <音频设置> 并为麦克风设置适当的音量作为音频输入源，以便音频探测功能能够正常工作。
- 如果探测到的音量太低，请在 <音频设置> 中将音频输入增益设置为较高级别。
- 当摄像机连接到音频输入设备时，可使用音频探测功能。

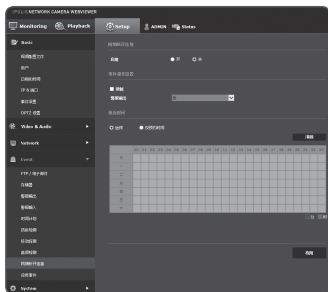


设置屏幕

网络断开连接

断开网络连接时，将视为事件进行保存。

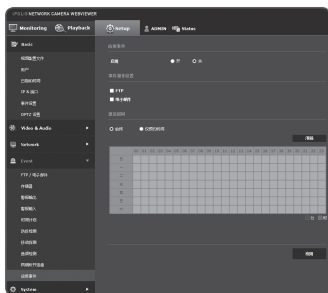
1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <网络断开连接>。
3. 设置是否 <启用>。
4. 指定激活时间和激活条件。
 - 有关 <激活时间> 和 <动作> 的详细信息，请参阅“警报输入”。（第 97 页）
5. 完成后，请单击 [应用 (应用)]。



应用事件

可以将系统设置为发生应用中已定义事件时生成信号。提供的事件信号因应用功能不同而异。

1. 从设置菜单，选择 <Event (🔔)> 选项卡。
2. 单击 <应用事件>。
3. 设置是否 <启用>。
4. 指定激活时间和激活条件。
 - 有关 <激活时间> 和 <动作> 的详细信息，请参阅“警报输入”。（第 97 页）
5. 完成后，请单击 [应用 (应用)]。



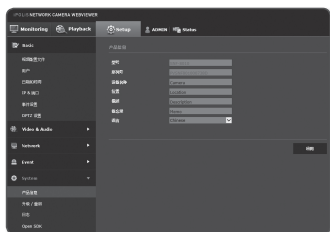
系统设置

产品信息

1. 从设置菜单，选择 <Event ()> 选项卡。
2. 单击 <产品信息>。
3. 检查摄像机信息，或根据网络环境提供详细信息。
 - 型号：产品的型号名称。
 - 序列号：产品序列号。
 - 设备名称：提供将在现场屏幕上显示的设备名称。
 - 位置：指定安装摄像机的位置。
 - 描述：提供有关摄像机位置的详细信息。
 - 备忘录：提供有关摄像机的说明以便更好地理解。
 - 语言：选择 Web 查看器 OSD 的首选语言。

 ■ 默认语言设置为 <中文>。

4. 完成后，请单击 [应用 ()]。



设置屏幕

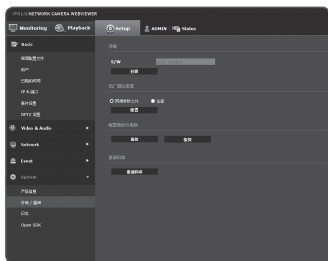
升级 / 重启

1. 从设置菜单，选择 <System ()> 选项卡。

2. 单击 <升级 / 重启>。

3. 选择所需的项目并进行适当设置。

- 升级：执行系统升级。
- 出厂默认设置：将系统重置为出厂默认值。
 - 网络参数之外：重置除网络设置之外的所有设置。
 - 全部：重置包括摄像机设置在内的所有设置。(但是，将不重置日志信息)
 - 如果重置摄像机，IP 寻址系统将默认为 DHCP。如果未找到 DHCP 服务器，将自动恢复之前的设置。
- 配置备份与恢复：在执行恢复流程之前，备份当前的系统设置。备份或恢复之后，系统会自动重新启动。
- 重新启动：重新启动系统。



执行升级

1. 单击 [升级]。

2. 单击 [浏览] 并指定要升级的文件。

3. 单击 [发送]。



4. “升级”对话框出现，其底部将显示进度。

5. 完成升级之后，浏览器将会退出，并且摄像机将重新启动。

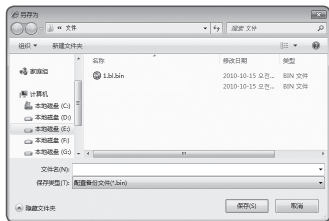




- 升级过程大约需要 10 分钟。
如果强行终止升级流程，升级将无法正确完成。
- 在重新启动系统期间，不能使用 Web Viewer 进行访问。
- 可以从 Hanwha Techwin 网站下载最新版本。

备份当前设置

1. 单击 **[备份]**。
另存为对话框将出现。
2. 指定备份路径及正确的文件名，然后单击 **[保存(S)]**。
备份文件将以“.bin”格式保存到指定的路径。

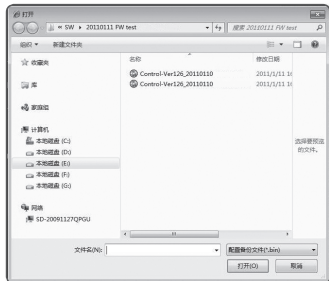


恢复备份设置

1. 要恢复备份设置，请单击 **[恢复]**。
2. 选择备份文件，然后单击 **[打开(O)]**。



- 如果执行备份或恢复，Web 浏览器将关闭，且摄像机将重新启动。
- 只能还原 SNF-8010/SNF-8010VM 型号
的备份文件。

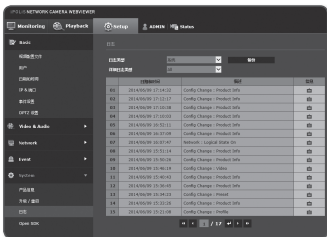


设置屏幕

日志

可以检查系统日志或事件日志。

1. 从设置菜单，选择 <System ()> 选项卡。
2. 单击 <日志>。
3. 选择日志类型。
 - 系统：您可以检查系统日志，其中记录了所有系统更改，包括时间信息。
 - 事件：可以检查事件日志，包括时间信息。
4. 从右边的日志列表，选择要搜索的项目。
 - 如果在左上角的下拉列表中选择了 <All>，将显示适用日志类型的所有日志。
5. 如果一页无法显示所有可用的日志，请使用底部按钮以移至前一个、下一个或最后一个项目。

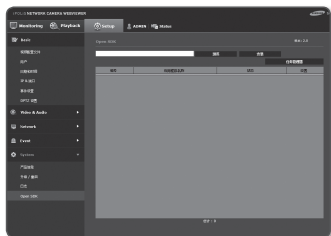


- 如果要查看日志的详细信息，请单击日志右列中的 [信息 ()]；日志信息将显示在底部窗格中。
- 每页显示 15 个日志，最新的日志显示在顶部。
- 事件/系统日志列表最多可包含 1000 个日志；之后，每当创建新日志时，将删除最旧的现有日志。

Open SDK

用户可以在摄像机上安装应用程序来执行更多功能。

1. 从设置菜单，选择 <System ()> 选项卡。
2. 单击 <Open SDK>。
3. 单击[浏览 ( 浏览)]按钮从用户文件夹选择 *.cap 文件。
4. 单击 [安装 ()] 按钮可安装应用程序。
5. 列表中显示所安装应用程序的信息。



- 卸载：删除已安装或运行中的应用程序。
- 转至应用程序：转到每个应用程序的 Web 页面。
- 启动：执行已安装的应用程序
- 停止：终止正在运行的应用程序。
- 健康：显示当前运行的应用程序的资源占用率、线程数和执行时间等。
- 优先级：设置运行中应用程序的优先级。
如果摄像机（包括主任务和应用程序）的总资源利用率超出 80%，将强制终止某个正在运行的应用程序。此时将使用用户设置的优先级，确定应首先停止哪个应用程序。
- 自动启动：当摄像机的电源或主任务开始运行时，已经激活自动执行的指定应用程序将自动运行。
- 任务管理器：显示摄像机中当前运行的应用程序的资源占用率。
 - 内存使用情况 (%)：这是每个应用程序的内存使用率。
 - CPU 使用情况 (%)：这是每个应用程序的 CPU 使用率。
 - 线程计数：这是每个应用程序创建的线程计数。
 - 持续时间：这是每个应用程序的总执行时间。
 - 终止任务：终止应用程序。
 - 使用情况总计：这是摄像机（包括主要任务和应用程序）的总资源占用率。



■ 有关应用程序使用或安装的问题，请参阅 Techwin 开发人员网站。

设置屏幕

查看配置文件信息

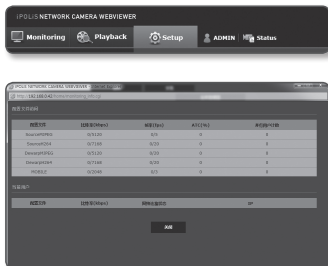
配置文件访问

您可以检查配置文件信息。

1. 单击实时屏幕中的[Status ()]。

2. 将显示配置文件信息屏幕。

- 配置文件访问：显示新添加的配置文件的信息。
 - 配置文件：显示新添加的编解码器的信息。
 - 比特率(kbps)：显示实际比特率和设置的比特率。
 - 帧率(fps)：显示实际帧速率和设置的帧速率。
 - ATC(%)：显示 ATC 状态。
 - 并行用户计数：显示访问配置文件的并行用户数。
- 当前用户：显示有关用户访问 Web Viewer 的信息并显示监视视频。
 - 配置文件：显示用户访问的配置文件的名称。
 - 比特率(kbps)：显示当前比特率。
 - 网络连接状态：它表明网络是否工作正常。
 - IP：显示当前用户的 IP 地址。



- 要检查有关当前使用的配置文件的信息，请再次单击 [Status ()] 以刷新它。应用更改需要一些时间。
- 如果许多查看器同时查看<源视图>和<去翘曲视图>，帧速可能会降到正常帧速以下。

附录

规格

项目		说明	
		SNF-8010	SNF-8010VM
视频	成像设备	1/1.8" 6M PS CMOS (IMX178)	
	总像素数	6M	
	有效像素数	2560X2048 (5.2M)	
	扫描系统	逐行扫描	
	最低照度	彩色：0.5 Lux (F2.5, 50IRE) 彩色：0.2 Lux (F2.5, 30IRE) 黑白：0.05 Lux (F2.5, 50IRE) 黑白：0.02 Lux (F2.5, 30IRE)	
	S/N 比率	-	
	视频输出	-	
镜头	焦距(变焦比率)	1.14 毫米(固定)	
	最大孔径比	F2.5	
	视野角度	H:187°, V:187°, D:187°	
	最短物距	0.3 米 ~ 无限	
	聚焦控制	手动	
	镜头类型	固定镜头	
	安装类型	板型 (M12)	

附录

项目		说明	
		SNF-8010	SNF-8010VM
操作	摄像机标题	最多显示 15 个字符	
	日夜	自动/彩色/黑白	
	背光补偿	背光补偿	
	宽动态	60dB	
	对比度增强	SSDR (Samsung 超级动态范围) (关/开)	
	数字降噪	DNR (2D+3D 噪声滤波器), 功能名称: SSNR	
	数字图像稳定器	-	
	透雾	-	
	移动探测	关/开 (4 个矩形区域)	
	隐私遮挡	关/开 (32 个区域, 含矩形)	
	增益控制	关/低/中/高	
	白平衡	ATW/AWC/手动/室内/室外 (包括 Mercury)	
	电子快门速度	2 ~ 1/12,000sec	
	数字变焦	16 倍, 数字 PTZ (预设, 分组)	
	翻转/镜像	关/开	
	智能视频分析	防拆、音频探测	
	警报 I/O	1 个输入/1 个输出	

项目		说明	
		SNF-8010	SNF-8010VM
操作	音频输入	可选（麦克风输入/线路输入）， 电源电压：2.5VDC（4 毫安）， 输入阻抗：约 2000 欧姆	
	音频输出	线路输出（3.5 毫米立体声小插孔） 最大输出电平：1 Vrms	线路输出（3.5 毫米立体声小插孔）
	警报触发	移动探测、防拆、音频探测、警报输入、网络断开连接	
	报警事件	- 通过 FTP 和电子邮件上传文件 - 通过电子邮件、TCP 和 HTTP 发送通知 - 网络断开连接以及发生事件（警报触发器）时进行本地存储（SD/SDHC/SDXC）录制 - 外部输出	
	视图组成	摄像机： 360 度视图、单全景、双全景、四元视图、单矩形， CMS： 360 度视图、单全景、双全景、四元视图、单矩形， 360 度 + 3 矩形，单全景 + 2 矩形	
网络	以太网	RJ-45（10/100BASE-T）： 母插头	M12 接头类型
	视频压缩格式	H.264（MPEG-4 Part 10/AVC），移动 JPEG	

附录

项目		说明	
		SNF-8010	SNF-8010VM
网络	分辨率	<5.2M 原装> 2560x2048, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 720x480 640x480, 320x240	
	分辨率（去扭曲视图）	1. 单矩形 800x600, 640x480, 320x240 2. 四元视图 1600x1200, 1280x960, 1024x768, 800x600, 640x480, 320x240 3. 双全景 2048x1536, 1600x1200, 1280x960, 1024x768, 800x600, 640x480, 320x240 4. 单全景 2048x768, 1600x600, 1280x480, 1024x384, 800x300, 640x240, 320x120	
	最大帧速率	* MJPEG - 源视图： 2560x2048 : 10fps 1920x1080 / 1600x1200 / 1280x1024 / 1280x960 / 1280x720 / 1024x768 : 15fps 800x600 / 720x480 / 640x480 / 320x240 : 20fps - 单全景视图 2048x768 / 1600x1200 / 1280x480 / 1024x384 : 15fps 800x300 / 640x240 / 320x120 : 20fps - 双全景视图 2048x1536 / 1600x1200 / 1280x960 / 1024x768 : 15fps 800x600 / 640x480 / 320x240 : 20fps - 四元视图 1600x1200 / 1280x960 / 1024x768 : 15fps 800x600 / 640x480 / 320x240 : 20fps - 单矩形视图 800x600 / 640x480 / 320x240 : 20fps	

项目		说明	
		SNF-8010	SNF-8010VM
网络	最大帧速率	* 在默认配置文件设置下 - 双视频流帧速率 (如果分辨率设置为 H.264 2560x2048 + H.264 800x600 或更高, 帧率可能随之降低。) H264 源信号(2560x2048): 15fps H264 解扭曲(2048x1536), 在天花板/地面, 双全景: 10fps H264 源信号(2560x2048): 19fps H264 解扭曲(1600x1200), 在天花板/地面, 四分屏: 20fps H264 源信号(2560x2048): 19fps H264 解扭曲(800x600), 在天花板/地面, 单矩形: 18fps H264 源信号(2560x2048): 17fps H264 解扭曲(2048*768), 在墙壁, 单全景: 13fps	
	视频质量调整	H.264: 目标比特率级别控制 MJPEG: 质量级别控制	
	比特率控制方法	H.264: CBR 或 VBR Motion JPEG: VBR	
	流能力	多重流 (最多 5 个配置文件)	
	音频压缩格式	G.711 u-law /G.726 可选 G.726 (ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps、24Kbps、32Kbps、40Kbps	
	音频通信	双向	
	IP	IPv4, IPv6	
	协议	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour	

附录

项目		说明	
		SNF-8010	SNF-8010VM
网络	安全	HTTPS (SSL) 登录验证 分类登录验证 IP 地址过滤 用户访问日志 802.1x 身份验证方法	
	流方法	单播/多播	
	最大用户访问量	单播模式下 10 个用户	
	内存卡槽	micro SD/SDHC/SDXC (64GB) - 可以备份在SD/SDHC/SDXC存储卡中录制的视频录像。	
	应用程序编程接口	ONVIF Profile S SUNAPI (HTTP API) v2.0 SVNP 1.2	
	网页语言	英语、法语、德语、西班牙语、意大利语、中文、韩文、俄语、日语、瑞典语、丹麦语、葡萄牙语、捷克语、波兰语、土耳其语、罗马尼亚语、塞尔维亚语、荷兰语、克罗地亚语、匈牙利语、希腊语、挪威、芬兰	
	Web 查看器	支持的操作系统：Windows XP / VISTA / 7 / 8, MAC OS X 10.7 支持的浏览器：Microsoft Internet Explorer (版本 8~11), Mozilla Firefox (版本 9~19), Google Chrome (版本 15~25), Apple Safari (版本 6.0.2(Mac OS X 10.8, 10.7 仅限), 5.1.7) * Mac OS X 仅限	
	中央管理软件	SSM、智能查看器、I-Polis 手机查看器	

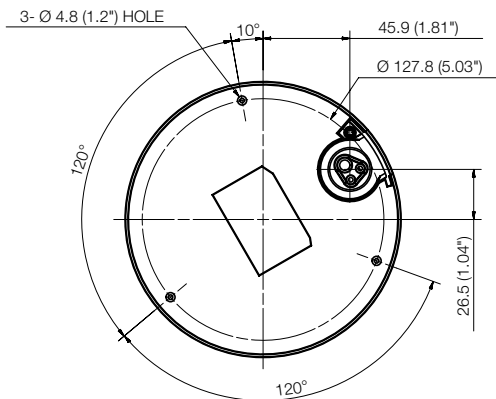
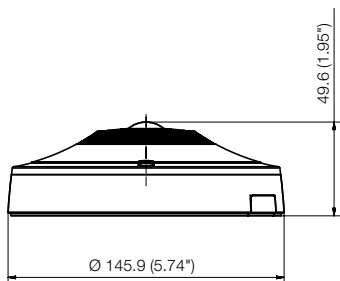
项目		说明	
		SNF-8010	SNF-8010VM
环境	工作温度/湿度	-10°C ~ +55°C (+14°F ~ +131°F) / 低于 90% RH	-30°C ~ +55°C (-22°F ~ +131°F) / 低于 90% RH * 温度在 -25°C 以上时才能启动
	贮藏温度/湿度	-30°C ~ +60°C (-22°F ~ +140°F) / 低于 90% RH	
	进入保护	-	IP66
	抵抗破坏	-	IK10
	标准认证	UL, CE, FCC, RoHS, Gost, KC	UL, CE, FCC, RoHS, Gost, KC, EN-61373, EN-50155
电气	输入电压/电流	DC12V±10%, PoE (IEEE802.3af, Class3)	DC12V±10%, PoE (IEEE802.3af, Class3) 仅限模式 A
	功耗	最大 10.3W(PoE, Class3), 最大 8.7W(DC 12V)	
机械	颜色/材料	象牙色, 铝质	象牙色, 铝质 (明亮的顶盖)
	尺寸(直径 x 高)	直径 145.9 x 高 49.6 毫米	直径 145.9 x 高 62.4 毫米
	重量	780g	800g

附录

产品视图

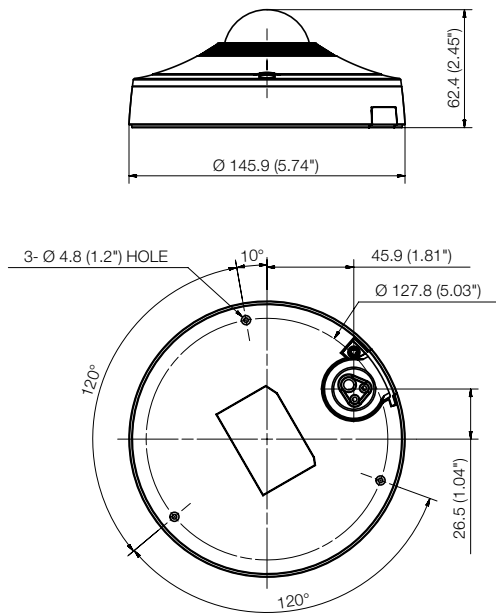
SNF-8010

单位 : 毫米(英寸)



SNF-8010VM

单位: 毫米(英寸)



附录

故障排除

故障	解决方法
无法使用网络浏览器访问摄像机。	• 检查摄像机的网络设置 是否正确。 • 检查网络缆线是否正确 连接。 • 若使用 DHCP 连接、检查摄像机是否能够 无故障地获得动态 IP 地址。 • 若摄像机与宽带路由器连接、确认是否 正确设置了端口转发。
查看器在监视期间断开。	• 已连接的查看器在摄像机或网络配置发生更改时会断开。 • 检查所有的网络连接。 • 若摄像机通过 PPPoE 网络进行连接，查看器在网络状况不佳的情况下可能会断开。
无法使用 IE 7.0 的选项卡浏览器连接系统。	• 由于共享了 cookie 数据，所以与新窗口或选项卡连接时可能出错。不要使用新窗口或选项卡，选择“文件 → 新建会话”
IP 安装程序未检测到连接至网络的摄像机。	• 关闭 PC 上的防火墙设置、再次搜索摄像机。
图像重叠。	• 检查是否将多个摄像机应当设置的不同地址设为了同一多播地址。多个摄像机共享同一地址可能会导致图像的重叠。
无图像出现。	• 如果传输方法设置为多播，请检查摄像机所连接的 LAN 中是否有路由器支持多播。

故障	解决方法
<Event> 的 <移动探测> 设置为 <启用>, 但是我没有收到通知电子邮件, 即使移动事件已发生也是如此。	- 按以下顺序验证设置 : A. 检查 <日期和时间> 设置。 B. <移动探测> 应设置为 <启用>。 C. 检查 <事件设置> 菜单的 <电子邮件> 选项是否选择为使用。
即使在产生智能视频分析事件时, 在报警输出端口也找不到信号。	检查警报输出端口设置。
无法录制到 Micro SD 内存卡。	检查内存卡是否有缺陷。
插入了 Micro SD 内存卡, 但摄像机操作不正常。	- 检查是否以正确的方向插入内存卡。不能保证本摄像机装置能正常使用由其他设备格式化的内存卡 - 在 <Setup> → <Event> → <存储器> 菜单中, 再次格式化内存卡。
无法录制到 NAS。	确认 NAS 中注册的信息正确无误。
系统报告 NAS 设置失败。	- 确认 NAS 的 IP 地址有效。 - 确认 NAS 的 ID/密码有效。 - 确认您可以访问使用 NAS 的 ID 指定为基本文件夹的文件夹。 - 确认 NAS 的 SMB/CIFS 项已被取消选中。 - 确认 NAS IP 地址和摄像机 IP 地址的格式正确。 Ex) NAS 和摄像机子网掩码的初始值是 255.255.255.0。 如果 IP 地址是 192.168.20.32, NAS IP 地址的范围应该是 192.168.20.1~192.168.20.255。 - 检查是否作为其他用户尝试访问, 而没有对所保存和使用的基本文件夹进行格式化。 - 确认使用了建议的 NAS 设备。

OPEN SOURCE LICENSE NOTIFICATION ON THE PRODUCT

The software included in this product contains copyrighted software that is licensed under the GPL/LGPL. 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 help.cctv@hanwha.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 might be charged.

- GPL Software : linux kernel, uboot, Sysinit, busybox-1.15.3 (<http://www.busybox.net/>), Net-snmp 5.4 (<http://www.net-snmp.org/>), dvtsk 2.10.01.18
 - LGPL Software : glibc-2.0 (<http://www.gnu.org/software/libc/>),
 - BSD1.0 : math-linux (<http://sourceforge.net/projects/math-linux/>)
 - BSD2.0 : lighttpd-1.4.26 (<http://www.lighttpd.net/>), MiniUPnP Project Client (<http://miniupnp.tuxfamily.org/>)
 - MIT License : Prototype JavaScript Framework-1.7 (<http://prototypejs.org/>)
 - libxml2 License : libxml2 (<http://xmlsoft.org/>)
 - OpenSSL License : openssl-0.9.8 (<http://www.openssl.org/>)
 - PHP 3.01 License : php-5.3.2 (<http://www.php.net/>)
-

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C)1989, 1991 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.

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 Lesser 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

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

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 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. 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 "ASIS" 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 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 an idea of what it does.

Copyright (C)yyyy 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 Street, 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

Lwihcaetn ysoeu want to do, use the GNU Lesser General Public instead of this License.

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

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

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works. The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users.

We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors.

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 them 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 prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others. For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. 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. Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it. For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions. Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special anger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free. We precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you".

"Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying. An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or generalpurpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source. The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you. Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey 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; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program. You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must

display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so. A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d. A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work. A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers

to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made. If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network. Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions. When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission. Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that

material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors. All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying. If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms. Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11). However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation. Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice. Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License. An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts. You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version". A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License. Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party. If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid. If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the

covered work and works based on it. A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license

- (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or
- (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007. Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If 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 convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU 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 that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation. If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program. Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

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.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS 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.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

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

USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. [This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

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

This license, the Lesser General Public License, applies to some specially designated software packages—typically libraries—of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below. When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change

the software and use pieces of it in new free programs; and that you are informed that you can do these things.

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

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights. We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library. To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license. Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library.

The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom.

The Lesser General Public License permits more lax criteria for linking other code with the library. We call this license the "Lesser" General Public License because it does less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries.

However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, nonfree 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 nonfree 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 institute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

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

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

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL,

INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

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

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

Copyright (C) year name of author

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

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

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Also add information on how to contact you by electronic and paper mail. You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names: 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.

Copyright (c) 1998-2000 University College London

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, is 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 acknowledgement: This product includes software developed by the Computer Science Department at University College London

4. Neither the name of the University nor of the Department may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS AND CONTRIBUTORS "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 AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2004, Jan Kneschke, incremental

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the 'incremental' nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

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

Copyright (c) 2004, Kneschke, incremental

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

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

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

Copyright (c) 2005-2010, Thomas BERNARD

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

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

The MIT License

Copyright (c) 1996 by Internet Software Consortium

Copyright (c) 2005-2010 Sam Stephenson

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

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT

WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

libxm2 License

Except where otherwise noted in the source code (e.g. the files `hash.c`, `list.c` and the `tree` files, which are covered by a similar licence but with different Copyright notices) all the files are:

Copyright (C) 1998-2003 Daniel Vaillard. All Rights Reserved.

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

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

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

Except as contained in this notice, the name of Daniel Vaillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

OpenSSL LICENSE

Copyright (c) 1998-2006 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: "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 (ey@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLEAY License

Copyright (C) 1995-1998 Eric Young (ey@cryptsoft.com)

All rights reserved. This package is an SSL implementation written by Eric Young (ey@cryptsoft.com). The implementation was written so as to conform with Netscapes SSL. This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com). Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package. 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 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 acknowledgement:

"This product includes cryptographic software written by Eric Young (ey@cryptsoft.com)" The word "cryptographic" can be left out if the routines from the library being used are not cryptographic related :-).

4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement: "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS

FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF

THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

PHP License

The PHP License, version 3.01

Copyright (c) 1999 - 2012 The PHP Group. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, is 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. The name "PHP" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact group@php.net.
4. Products derived from this software may not be called "PHP", nor may "PHP" appear in their name, without prior written permission from group@php.net. You may indicate that your software works in conjunction with PHP by saying "Foo for PHP" instead of calling it "PHP Foo" or "phpfoo"
5. The PHP Group may publish revised and/or new versions of the license from time to time. Each version will be given a distinguishing version number.
Once covered code has been published under a particular version of the license, you may always continue to use it under the terms of that version. You may also choose to use such covered code under the terms of any subsequent version of the license published by the PHP Group. No one other than the PHP Group has the right to modify the terms applicable to covered code created under this License.
6. Redistributions of any form whatsoever must retain the following acknowledgment:

"This product includes PHP software, freely available from [<http://www.php.net/software/>](http://www.php.net/software)".

THIS SOFTWARE IS PROVIDED BY THE PHP DEVELOPMENT TEAM "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 PHP DEVELOPMENT TEAM 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 software consists of voluntary contributions made by many individuals on behalf of the PHP Group.
The PHP Group can be contacted via Email at group@php.net.

For more information on the PHP Group and the PHP project, please see [<http://www.php.net>](http://www.php.net).
PHP includes the Zend Engine, freely available at [<http://www.zend.com>](http://www.zend.com).

MEMO

A series of horizontal dotted lines for writing.



Hanwha Techwin 在产品制造的各个环节都十分关注环境，并且采取措施以保证向客户提供更加环保的产品。

Eco 标志表明 Hanwha Techwin 致力于生产环保型产品，同时也表示该产品符合欧盟 RoHS 标准。

韩华泰科(天津)有限公司

Hanwha Techwin(Tianjin) Co.Ltd

天津市西青区津港公路微电子工业区微六路11号

No.11, wei 6 Road, Micro-Electronics Industrial Park, Xiqing District,Tianjin, 300385, China

联系电话(免费客服热线) : 800.818.1212 / 400.690.6677

www.hanwha-security.cn
