



4/8/16 频道 DVR 用户手册

HRD-440/442/840/841/842/1641/1642



4/8/16 频道 DVR 用户手册

版权

©2017 Hanwha Techwin Co., Ltd. All rights reserved.

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

保留本文件的版权。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 尽力验证本文档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 是 “admin”，密码应在首次登录时设置。

如果要产品与无线路由器配合使用、请设置无线网络的密码。不使用密码保护或使用默认无线路由器密码可能会使视频数据受到潜在威胁。

请每隔三个月更改密码以保护个人信息并避免因信息失窃造成损失。

请注意，用户应负责安全以及密码管理不善导致的其他问题。

概述

重要安全说明

使用装置前请仔细阅读这些操作说明。

请按照下面列出的安全说明操作。

请将这些操作说明放在方便处，以供将来参考。

- 1) 请阅读这些说明。
- 2) 请妥善保管这些说明。
- 3) 注意所有警告。
- 4) 请遵循所有说明。
- 5) 切勿在近水处使用本设备，设备上不应放置诸如花瓶一类装满液体的物品。
- 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) 请勿堵塞任何通风口。根据厂商的说明进行安装。
- 8) 不要将本设备安装在任何靠近热源例如电暖炉、暖气片，或其他（包括扩音器）会产生热气的设备。
- 9) 请勿忽略极化或接地型插头的安全保护用途。极化型插头具有两边，有一边较另一边宽。接地型插头具有两边和第三端接地插脚。该宽边或第三端插脚是为您的安全而提供的。如果所提供的插头不适用于您的插座，请联系电工更换旧插座。
- 10) 保护电线以防践踏或被挤压，特别是插头处、便利插座处以及设备接出处的电线。
- 11) 只使用厂商指定的附加装置 / 附件。
- 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) 所有维修均应由合格的维修人员执行。设备在具有任何方式的损坏时需要维修服务，如电源线或插头损坏、设备内溅入液体或落入杂物、设备曾淋雨或浸水无法正常操作，或是跌落。



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天津三星泰科光电子内部验证后做成的。

某些部品包含的有害物质，按照现在的技术基准不能替代，天津三星泰科光电子一直在为改善此项而努力。

使用前须知

- Hanwha Techwin 保留对本手册的版权。
- 如果没有事先得到 Hanwha Techwin 的书面允许，严禁复制本手册。
- 如果由于使用非标准产品或不按照本手册中的说明使用产品而造成的任何损失，我们概不负责。
- 如果您要打开系统的机箱检查是否存在问题，请咨询购买产品所在商店的专家。
- 在安装其他硬盘或将 SATA 设备连接到本产品之前，请检查它与产品是否兼容。

警告

电池

- 标准电压：3V
- 标准容量：220mAh
- 放电电流：0.2mA
- 操作温度：-20°C ~ +85°C (-4°F ~ +185°F)

注意

- 将电源线连接到接地的插座。
- 将试电插头用作断开连接设备，它应该随时都可操作。
- 不应该将电池放在强热中，例如阳光下、火上或类似的物体中。
- 如果换用类型不正确的电池，那么会有发生爆炸的风险。请按照说明处置用过的电池。



仅适用于海拔2000m以下地区安全使用

«2000m ମଧ୍ୟ/ ଅନୁଗାମୀ ନିର୍ଦ୍ଦେଶ/ ଏକ ସ୍ଥିରୀ ଲକ୍ଷ୍ୟ/ ଚିହ୍ନିତ ନିର୍ଦ୍ଦେଶ
ଚିହ୍ନ/ ଅନୁଗାମୀ/»

“ཀྱུ་མཆོའི་ངོས་ལས་མཐོ་ཆོད་མྱཱོ་2000མན་གྱི་ས་ཁྲལ་ཁོ་ནར་ཉེན་མེད་པེད་
སྤྱོད་བྱས་འཇུག།”

Dan hab yungh youq gij digih haijbaz 2000m doxroengz
haenz ancienz sawjyungh.

دېڭىز يۈزىدىن 2000 مېتر تۆۋەن رايونلار دېلا بىخەتەر ئىشلەتكىلى بولىدۇ

系统关闭

如果在产品操作时关闭电源或用不允许的操作关闭电源，都可能会导致硬盘和产品损坏。您可能需要安装 UPS 系统来保证安全操作，以预防电源意外中断所导致的损坏。（有关 UPS 的任何问题，请向您的 UPS 零售商咨询。）

操作温度

本产品的允许操作温度范围是 0°C ~ 40°C (32°F ~ 104°F)。

若在低于允许温度下长时间存储，本产品将无法立即正确操作。

当要使用在低温下长时间存储后的设备时，请将产品放置在室温中一段时间，然后再运行。

必须特别注意产品中的内置 HDD，其允许温度范围是 5°C ~ 55°C (41°F ~ 131°F)。

同样，如果在低于允许温度的温度下使用，硬盘可能无法正常工作。

以太网端口

本设备供在室内使用，所有通信接线都限制为在楼宇内进行。

安全注意事项

初始管理员 ID 是“admin”，密码应在首次登录时设置。

如果要产品与无线路由器配合使用，请设置无线网络的密码。不使用密码保护或使用默认无线路由器密码可能会使视频数据受到潜在威胁。

请每隔三个月更改密码以保护个人信息并避免因信息失窃造成损失。

请注意，用户应负责安全以及密码管理不善导致的其他问题。

概述

目录

概述	3	重要安全说明
	4	使用前须知
3	6	目录
	8	特性
	10	部件名称与功能（前面）
	13	部件名称与功能（背面）
	15	遥控器
安装	17	检查安装环境
17	18	支架安装
	19	硬盘安装
连接其他设备	26	连接外部设备
26	28	连接网络
现场	30	开始使用
30	33	现场屏幕配置
	38	现场模式
	41	现场输出
	41	缩放
	42	音频打开/关闭
	42	静止
	43	事件监视
主菜单	44	系统设置
44	54	设置设备
	64	设置录制
	67	设置事件
	70	备份
	72	网络配置
	85	控制 PTZ 设备

搜索和播放

88

- 88 搜索
- 91 播放

WEB 查看器

93

- 93 Web 查看器简介
- 94 连接 Web Viewer (Windows)
- 96 使用 Live Viewer (Windows)
- 101 控制连接的网络摄像机。
- 104 使用 Search Viewer
- 107 查看器设置
- 119 信息

MOBILE VIEWER

120

- 120 iPOLIS Mobile

备份查看器

121

- 121 SEC 备份查看器

附录

124

- 124 产品规格
- 132 产品视图
- 136 默认设置
- 140 疑难解答
- 143 Open Source Announcement

概述

特性

本产品采用 4/8/16通道摄像机输入的H.264视频编码，同时支持硬盘的 4/8/16路音频的录制和播放。此外，它还支持网络连接，并通过传输视频和音频数据从远程计算机提供远程监视。

- 提供方便的用户界面
- 4/8/16 通道复合视频输入接口
- 支持 CIF/2CIF/4CIF/WD1/720P/1080P/4M 录制
- 使用特定于网络的编解码器，即可支持网络传输，不管录制条件如何
- 使用 HDD SMART 显示硬盘信息和状态
- 编解码器性能：4CH
NTSC : 高达 60fps@4MP / PAL : 高达 50fps@4MP
NTSC : 高达 120fps@1920 x 1080 / PAL : 高达 100fps@1920 x 1080
8CH
NTSC : 高达 120fps@4MP / PAL : 高达 100fps@4MP
NTSC : 高达 240fps@1920 x 1080 / PAL : 高达 200fps@1920 x 1080
16CH
NTSC : 高达 240fps@4MP / PAL : 高达 200fps@4MP
NTSC : 高达 480fps@1920 x 1080 / PAL : 高达 400fps@1920 x 1080
- 硬盘覆盖功能
- 通过高速 USB 3.0, 2.0 进行大容量存储硬盘备份
- 同时录制和播放 4/8/16 频道视频数据
- 多种搜索模式（通过时间、事件、备份、POS和动作检测进行搜索）
- 多种录制模式（连续拍摄录制、事件、定时录制）
- 警报接口
- 通过 Network Viewer、Smart Viewer 和 Mobile Viewer 提供远程监视功能
- 支持同轴和 RS-485 协议
- 篡改检查

包装内容

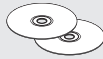
请拆开产品的包装，将产品放在平坦的位置或待安装位置。

请检查除了主装置之外，是否包括下列内容。

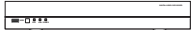
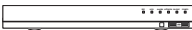


- 其组件外观可能与图片所示有所不同。
- 配件种类和数量会根据销售区域的不同而有所差异。
- 部分地区有可能没有事先安装好HDD。HDD安装用螺丝、SATA电缆的个数有可能随HDD的固定数量发生变化。

共同事项

			
电源线	适配器	用户手册或简介	
			
Network Viewer 软件/ 用户手册 CD	HDD 固定螺栓 (适用于尚未安装 HDD 的型号)	支架固定螺丝	遥控器 / 遥控器电池 (AAA)

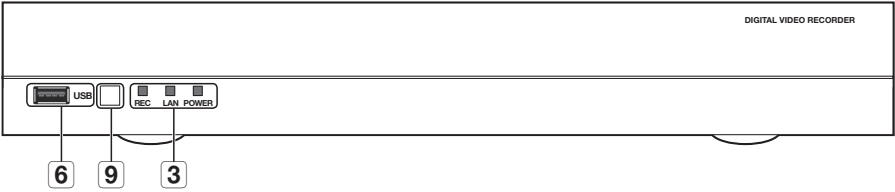
型号别更改内容

外观	HRD-440 / HRD-840	HRD-442	HRD-841 / HRD-1641	HRD-842 / HRD-1642
A:  B:  C:  DVR	A	B	B	C
 电源适配器	O	O	O	
A:  B:  支架	A	A	A	B
 接线端子	6针 2个	10针 2个	8针 2个 10针 2个	15针 1个 20针 1个
A:  B:  C:  D:  SATA 线 (适用于尚未安装 HDD 的型号)	B		A, C	HRD-842 : A, C HRD-1642 : A, D

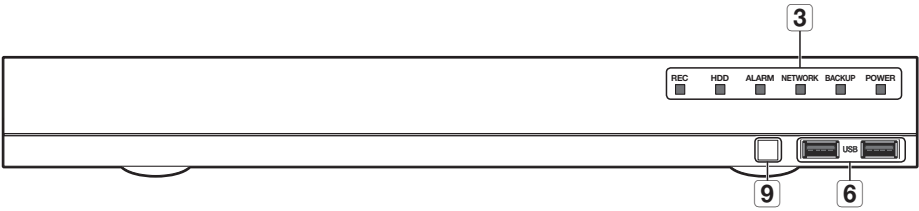
概述

部件名称与功能（前面）

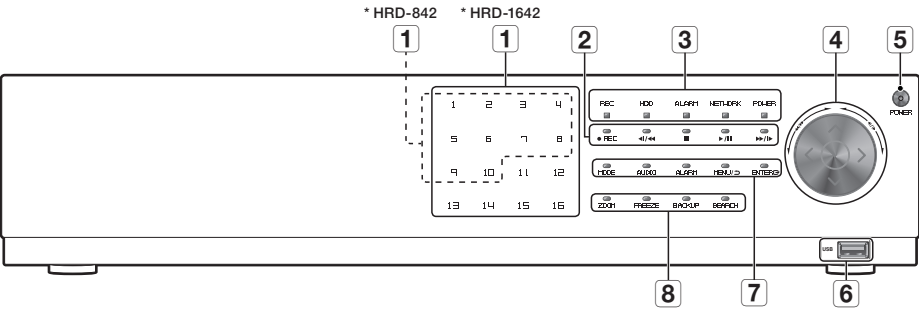
HRD-440/840



HRD-442/841/1641



HRD-842/1642

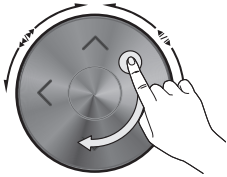
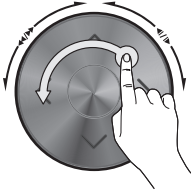
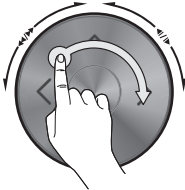
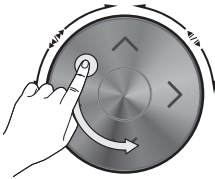


部件名称		功能
1	频道	用于在现场模式中直接选择频道编号，或在数字输入模式中输入编号。
	REC	开始或结束录制。
	◀I/◀◀	逐步倒转 (◀I)：用于在暂停时逐个屏幕向后搜索。(1/2x--1/8x) 快速倒转 (◀◀)：用于在播放时快速向后搜索。(2x--64x)
2	■	停止：用于停止播放。
	▶/II	播放/暂停：用于暂停或继续播放。
	▶▶/I▶	快进 (▶▶)：用于快速正向播放。(2x--64x) 逐步前移 (I▶)：用于在暂停时逐个屏幕向前搜索。(1/2x--1/8x)
3	LED 指示灯	REC：当正在进行录制时亮起。
		HDD：显示对硬盘的正常访问。 访问硬盘时，LED 不断闪烁。
		ALARM：发生事件时亮起。
		NETWORK/LAN：显示网络连接和数据传输状态。
		BACKUP：运行备份功能时保持开启。(HRD-442/841/1641) POWER：显示电源打开/关闭状态。
4	方向和选择按钮	用于更改设置值或上/下/左/右移动光标 (▲▼◀▶)。 选择菜单项或执行选择的菜单。
	Jog shuttle	如果滚动条出现在每个菜单中，则用作滚动。 在播放模式中，- Jog：暂停播放和步退或步进。 - Shuttle：快速正向或反向播放。
5	电源	用于打开/关闭 DVR。 ■ 仅当按住该按钮 3 秒钟才起作用。
6	USB 端口	连接 USB 设备。
7	MODE	在现场模式中每次按该按钮，都会按顺序切换屏幕模式。 在播放模式中每次按该按钮，都会按顺序切换屏幕模式。
	AUDIO	设置音频开/关。
	ALARM	在警报解除后取消报警 LED 和声音警报以及删除图标。
	MENU/↵	转至系统菜单屏幕或从下层菜单移到上层菜单。
	ENTER	运行所选的菜单功能。
8	摄像机控制	ZOOM：数字缩放。(由于摄像机分辨率存在差异，放大比例有所不同。分辨率越高，放大比例越大。)
		FREEZE：在现场模式中运行屏幕锁定功能。
		BACKUP：运行备份功能。
		SEARCH：转至搜索屏幕。
9	远程接收系统	接收来自遥控器的信号。

概述

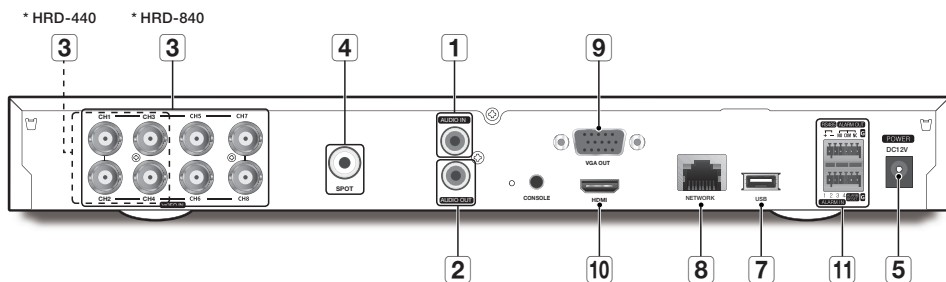
使用 jog shuttle

- Jog 始于右侧点，shuttle 起于左侧点。

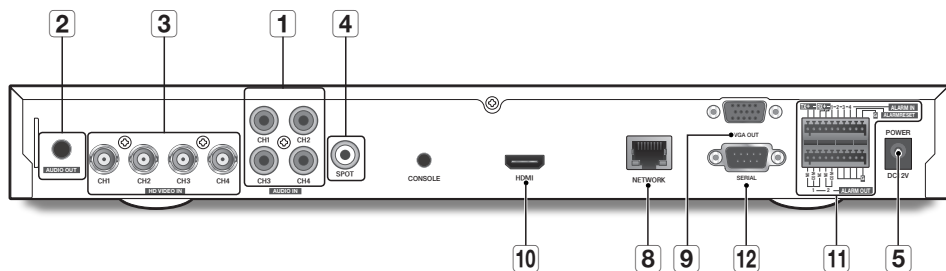
< Jog >	
	
在播放模式中，DVR 会逐帧向前播放视频。	在播放模式中，DVR 会逐帧向后播放视频。
< Shuttle >	
	
在播放模式中，DVR 会向前快速播放。	在播放模式中，DVR 会反向快速播放。

部件名称与功能（背面）

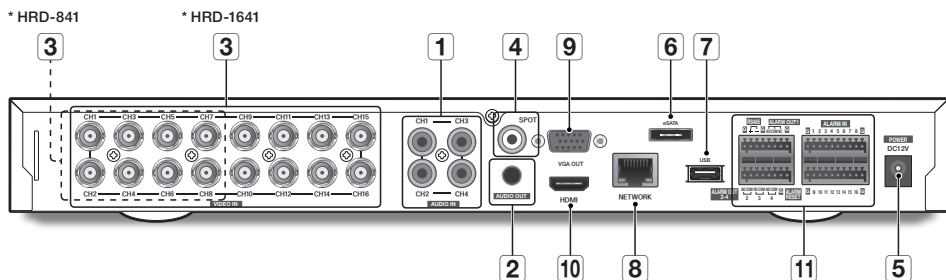
HRD-440/840



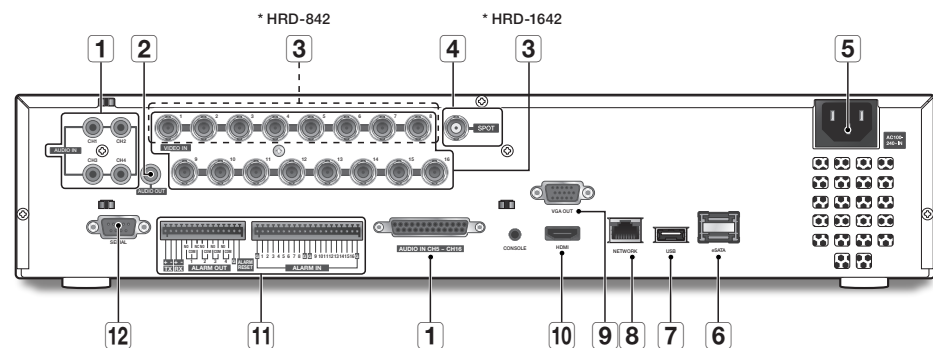
HRD-442



HRD-841/1641



HRD-842/1642



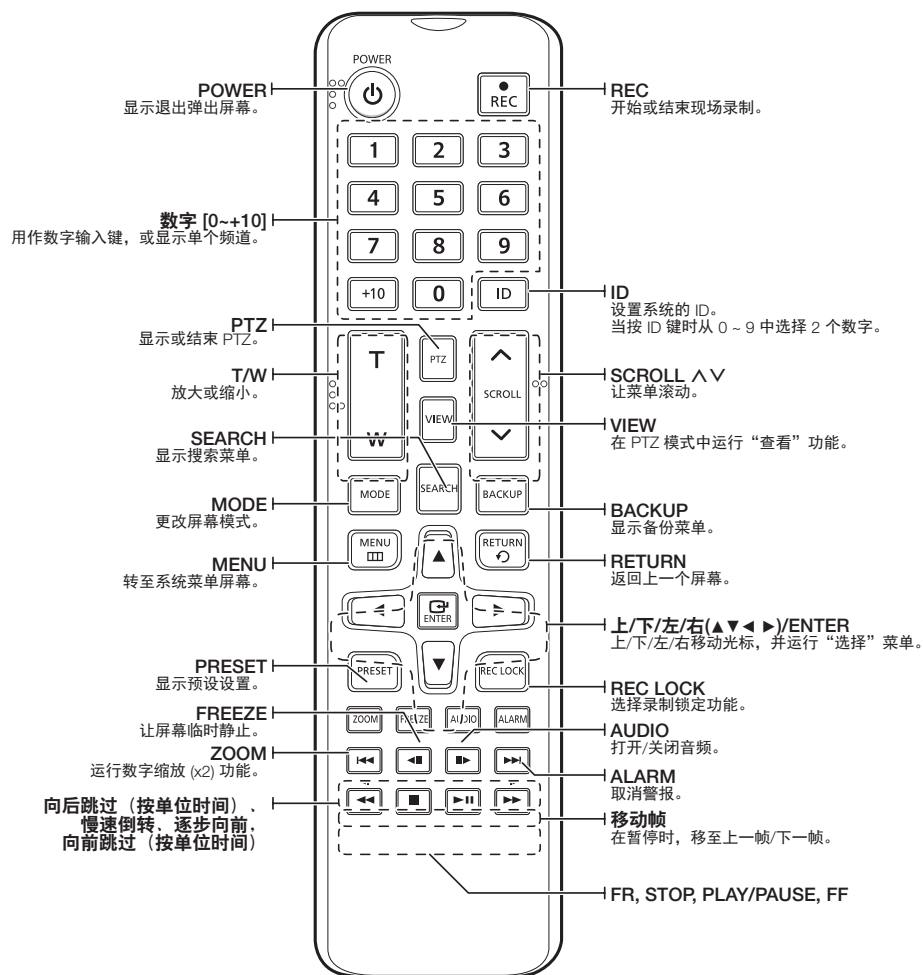
概述

部件名称		功能
1	AUDIO IN	音频输入信号端口（RCA 插孔）和备用音频延长电缆端口。
2	AUDIO OUT	音频信号输出端口（RCA 插孔）。
3	VIDEO IN	复合视频信号输入端口（BNC 类型接头）。
4	SPOT	现场信号的输出端口（BNC）。
5	电源	电源连接端口。
6	eSATA	用作外部存储设备连接的端口。
7	USB	连接 USB 设备。
8	NETWORK	网络连接器端口。
9	VGA OUT	复合视频信号输出端口（VGA）。
10	HDMI	HDMI 连接器端口。
11	ALARM	- 报警输入：报警输入端口。 HRD-440/442/840：1~4 CH HRD-841/842：1~8 CH HRD-1641/1642：1~16 CH - 报警输出：报警输出端口。 HRD-440/840：1 CH HRD-442：1~2 CH HRD-841/842/1641/1642：1~4 CH - 报警复位输入：报警重置端口。
	RS-485	用于 RS-485 通信。（TX+，TX-，RX+，RX-）
12	SERIAL	用于连接至 POS 设备的串行端口。



- [CONSOLE] 设计为仅用于维修服务。
- 为了避免高速信号串扰，建议相邻视频通道连接的电缆长度差小于300m。（以75-5同轴电缆为基准）

遥控器



安装

使用数字按钮

频道 1-9	按 1 到 9 之间的每个按钮。
频道 10	先按 [+10] 按钮，然后在 3 秒内再次按 0 按钮。
频道 11-16	先按 [+10] 按钮，然后在 3 秒内再次按 1 到 6 之间的按钮。

更改遥控器 ID

遥控器的 ID 和 DVR 的 ID 应匹配适当的操作。

1. 按遥控器上的 [ID] 按钮并检查在 DVR 屏幕上显示的 ID。
遥控器上的 ID 出厂默认值为 00。
 2. 按住遥控器上的 [ID] 按钮，同时依次输入您选择的两个数字。
 3. 完成 ID 输入后，再次按遥控器上的 [ID] 按钮检查设置。
-  ■ 如果要將遥控器 ID 更改为 08：按住遥控器上的 [ID] 按钮，同时依次按 0 和 8。
有关如何更改遥控器 ID，请参阅“远程设备”。（第 60 页）

安装

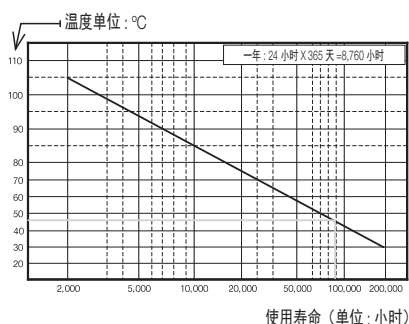
在使用产品之前，请了解下列事项。

- 切勿在室外使用本产品。
- 切勿使水或液体溅湿产品的连接部件。
- 切勿使系统处于震动或摇晃激烈的环境。
- 切勿强行拔出电源线。
- 切勿自行拆解本产品。
- 切勿超出额定的输入/输出范围。
- 仅使用通过认证的电源线。
- 对于输入接地的产品，使用接地的电源插头。

检查安装环境

本产品是顶尖的安防设备、配有高容量硬盘和其他重要的电路板。

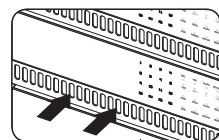
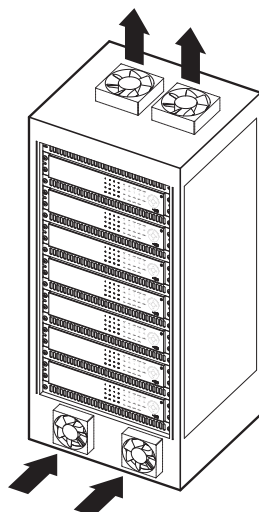
如果产品内部温度升高，产品可能会报废，产品使用寿命会缩短。
在安装之前，请留意下列建议。



[图 1]

当将本产品安装在支架上时、请按照下面的说明操作。

1. 请确保机架内部不是密封的。
2. 请确保空气可以通过进风口和出风口循环。
3. 如果象图 2 所示那样层叠安装产品或其他支架安装式设备、请确保留出通风的空间或安装通风口。
4. 为了形成空气自然对流，请将进风口放到机架的底部，将出风口放在顶部。
5. 强烈建议在进风口和出风口处安装风扇马达，加强空气循环。（请在进风口处安装滤网，过滤出灰尘或异物。）
6. 请让机架内部和周围区域的温度保持在 0°C 到 40°C (32°F 到 104°F) 之间，如图 1 所示。



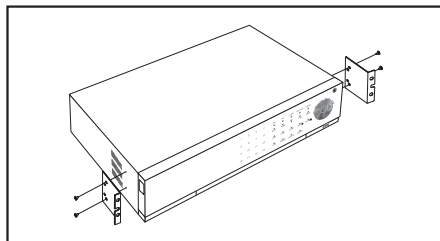
[图 2]

安装

支架安装

如图所示安装支架，然后拧紧两侧的螺钉（每侧 2 个螺钉）。

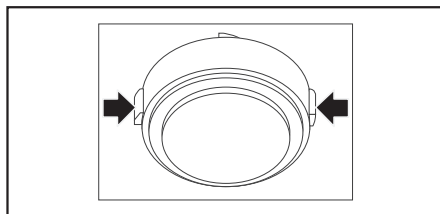
- 紧固螺钉，这样即使摇晃也不会松动。



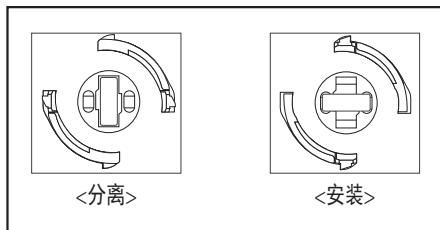
安装支架时的注意事项

为了将多个硬盘录像机安装至支架中，请先确保将每个硬盘录像机底部的支脚分离开。

1. 每个硬盘录像机底部有四个支脚。
按下每个支“脚”两端的凸起部分，并逆时针旋转。



2. 当把支“脚”旋转至紧固槽末端时，可将其与主体分离开。



硬盘安装

确保从墙上插座上拔下电源线插头，以防止遭受电击、伤害或产品损坏。
请咨询您的提供商以获得关于硬盘安装的更多信息，因为不正确的安装或设置可能会损坏产品。

- 在进行安装之前，确保从墙上插座上拔下电源线插头。



- **数据丢失注意事项（硬盘保管）**

请千万注意，避免硬盘中的数据被损坏。

在添加硬盘之前，请检查与本产品的兼容性。

由于硬盘在操作时对外部事物或震动天生敏感，所以它很容易会功能异常。

请确保硬盘不受震动或外部事件影响。

对于用户粗心或外部事件引起的硬盘损坏，我们概不负责。

- **可能会导致硬盘或记录的数据损坏的情况**

为了降低因硬盘损坏而遗失数据的风险，请尽量频繁备份数据。

在拆卸或安装 DVR 期间，可能会由于受到外部冲击力而丢失数据。

如果 DVR 在操作期间突然断电或关闭电源，可能会损坏硬盘。

如果在硬盘操作期间移动主体或受到冲击，可能会损坏硬盘或存储在其中的文件。

硬盘安装注意事项

1. 添加硬盘时，请注意不要遗失螺钉或附件，否则可能无法正常使用。
2. 在添加硬盘之前，请检查硬盘兼容性。
 - 请与离您最近的经销商联系，以获得兼容设备列表。

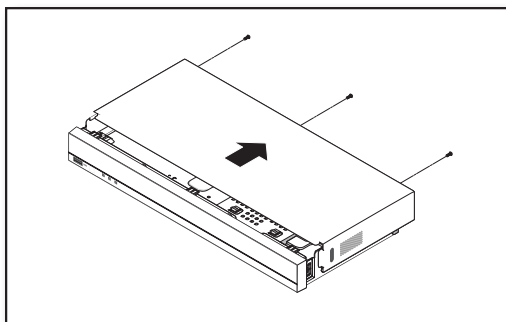
硬盘安装



- 如果其他设备已使用所安装的硬盘，则系统会自动将硬盘格式化。

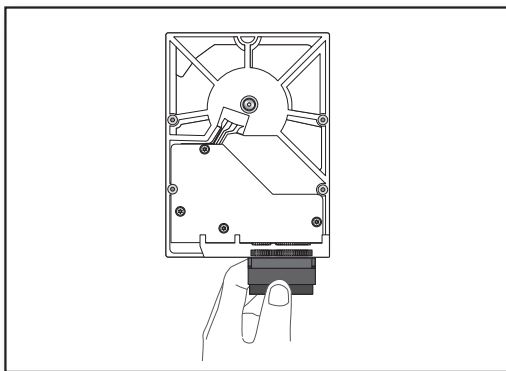
- **如果将硬盘安装到 HRD-440/840**

1. 首先松开左右两侧的螺丝和背面的螺丝，然后取下盖子。

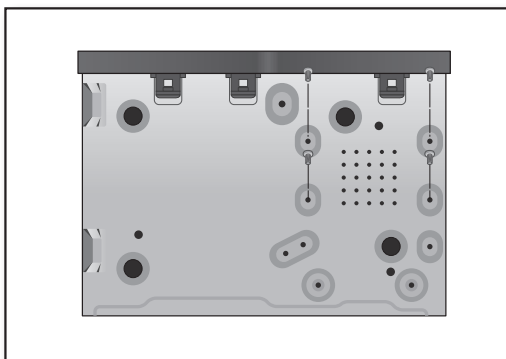


安装

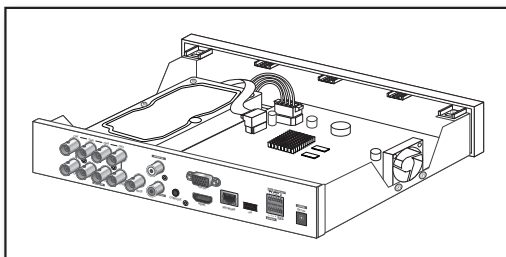
2. 链接HDD里随附的SATA电缆的一端。



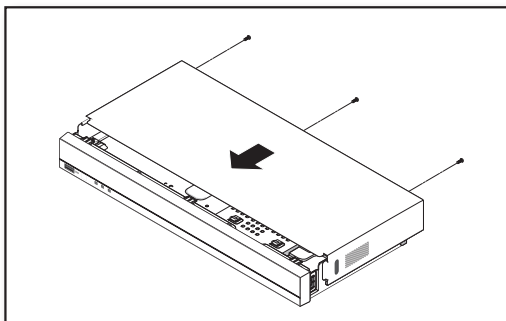
3. 使用随附的螺丝将HDD安装到底盖上。



4. 将HDD电缆的另一端连接到DVR板。

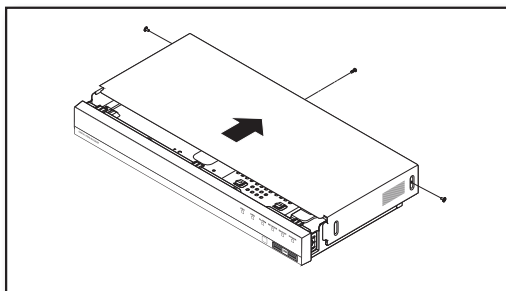


5. 盖上盖子后用螺丝固定。

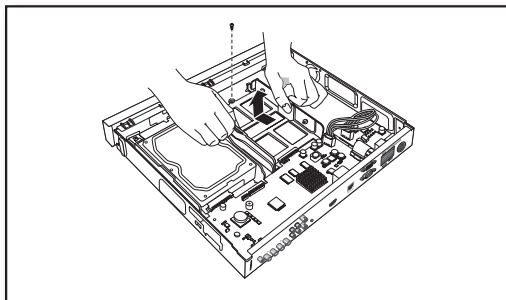


• 如果将硬盘安装到 HRD-442

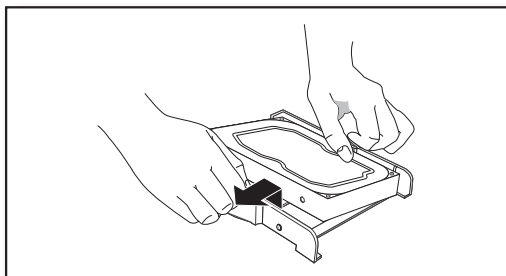
1. 松开一端以及后面的螺钉，取下盖子。



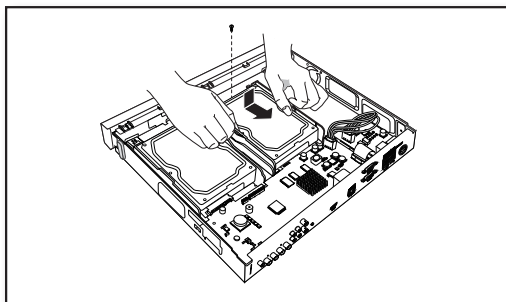
2. 松开硬盘支架上的螺钉，取下支架。
 - 按住支架两端的手柄，将其向前拉，这样便可以将主体和支架分离。



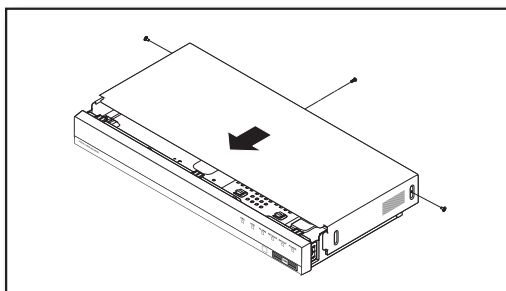
3. 首先将硬盘支架和硬盘的一端组合在一起，然后在另一端打开支架以安装硬盘。
 - 将硬盘支架中的螺钉插入到硬盘螺钉孔中。



4. 按住安装硬盘的支架并用螺钉将其固定。



5. 关上盖子并用螺钉将其固定。

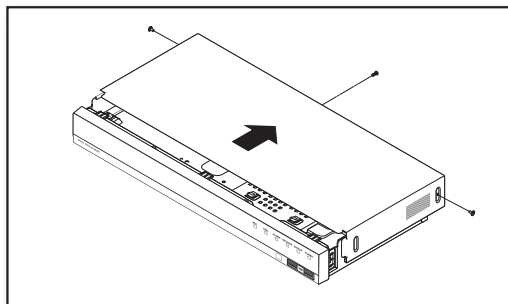


安装

- 如果将硬盘安装到 HRD-841/1641

- 下方图片以HRD-1641型号为标准。

1. 首先松开左右两侧的螺丝和背面的螺丝，然后取下盖子。

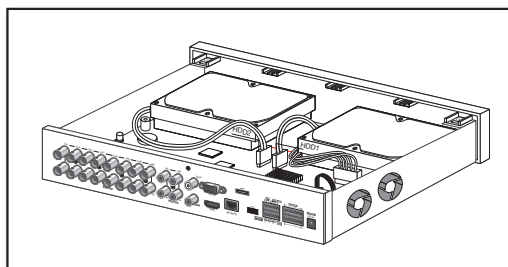
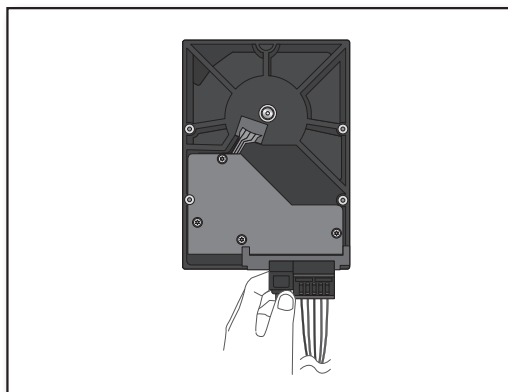


2. 将HDD电源和数据线的一端连接至HDD后，将另一端连接到主板上的连接器。

- 支架的HDD位置编号和连接器编号请参考图片。



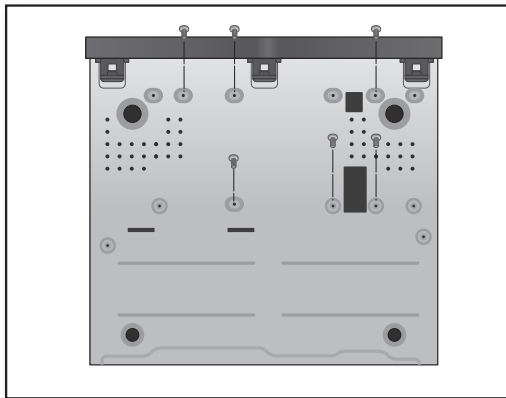
- 在卸下HDD之前，请小心按下连接器。请勿用力拉动电缆。



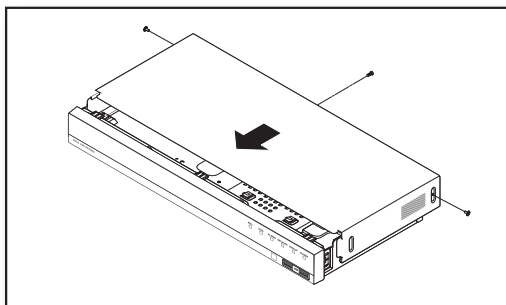
3. 使用随附的螺丝将HDD安装到底盖上。



■ 最多支持安装两个HDD。可安装的HDD数量随型号而异。



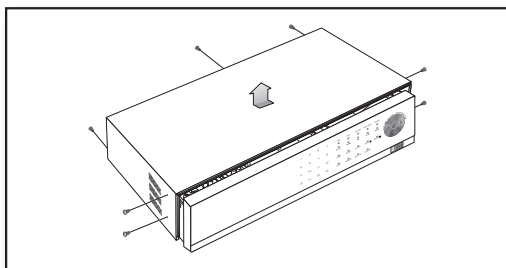
4. 请先确认产品内部的连接端子和配线没有问题后关上盖子并用螺丝固定。



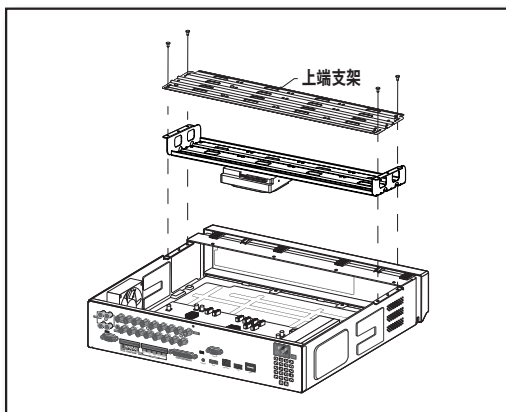
• 如果将硬盘安装到 HRD-842/1642

■ 下面的图片基于型号 HRD-1642。

1. 首先, 松开两侧的螺钉, 然后取下护盖。

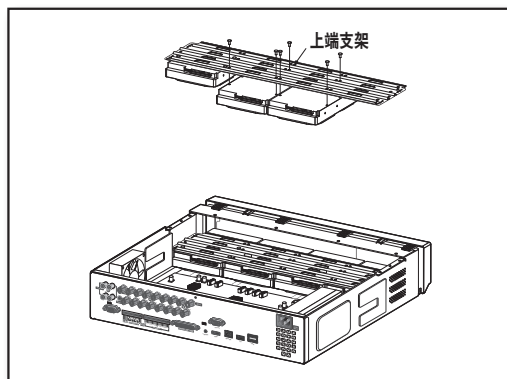


2. 拧松左/右侧和上端的螺钉(x4), 然后取下上端的支架。

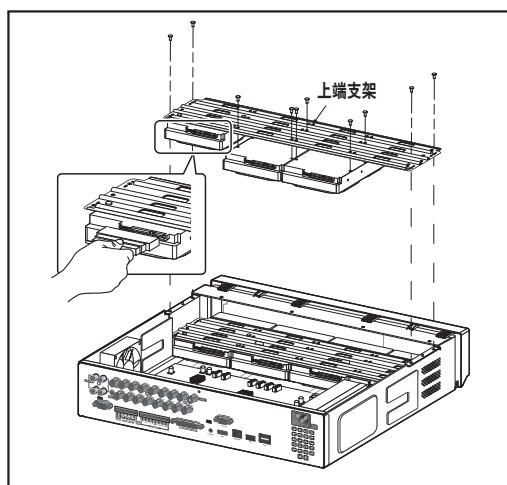


安装

3. 将硬盘(x4)安装到上端支架上并用螺钉固定。



4. 在支架上找到与 HDD SATA/电源线编号对应的 HDD 位置编号，将对应线缆与 HDD 连接起来。

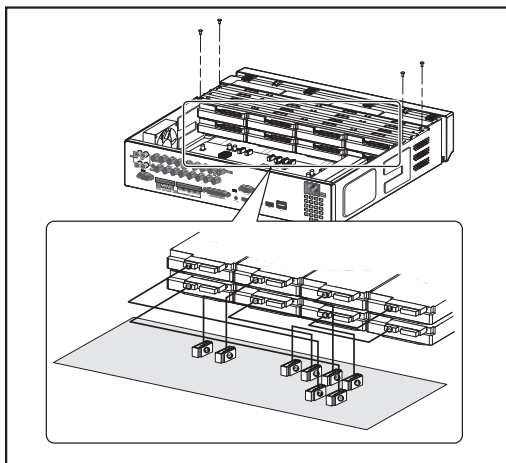


5. 将已安装有其他 HDD 的支架安装到 DVR 上，并用螺丝将其固定，然后将 SATA/电源线连接至主板上标有对应编号的连接器上。

- 请参阅下图查看支架上标注的 HDD 位置。

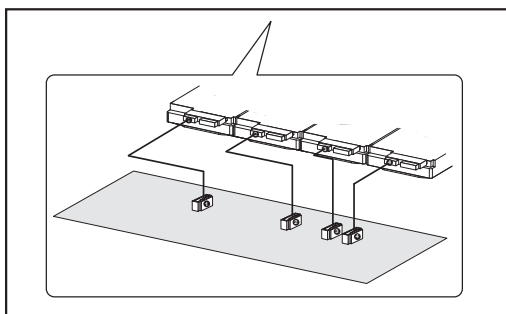


- 请勿用力拉扯电缆，在移除 HDD 之前请轻轻按住连接器。

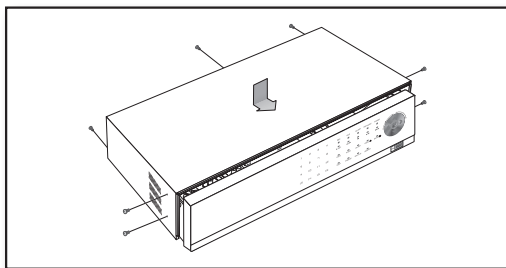


< HRD-1642 >

6. 检查接头已正确连接以及配线不存在任何问题，然后使用螺钉将其固定。



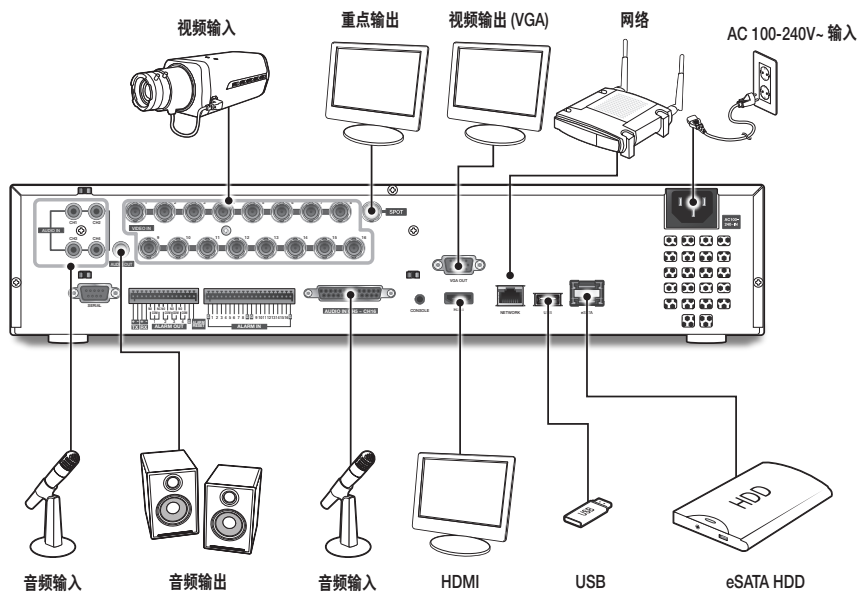
< HRD-842 >



连接其他设备

连接外部设备

■ 下面的图片基于型号 HRD-1642。



连接 USB

1. 在出厂默认状态下，会提供 USB 端口供外部连接之用。
2. USB 口可用来连接 USB HDD、USB 存储器或鼠标。
3. 如果将 USB 硬盘连接至系统，则识别和设置在“主菜单 > 设备 > 存储设备”中可用。（第 57 页）
4. 本产品支持热拔插功能，此功能允许当正在使用系统时连接/断开 USB 设备。

- ! ■ 如果用于备份的 USB 存储介质不是由产品格式化的，请使用计算机将它格式化为 FAT32 文件系统。
- 为了防止 USB 端口受到损坏，请在打开前端的盖子之前拔出 USB 设备。

连接外部 SATA HDD (eSATA)

外接 SATA 端口在后面板上提供。
如果连接至系统，则可以在“主菜单 > 设备 > 存储设备”中识别和配置外接 SATA HDD (eSATA)。

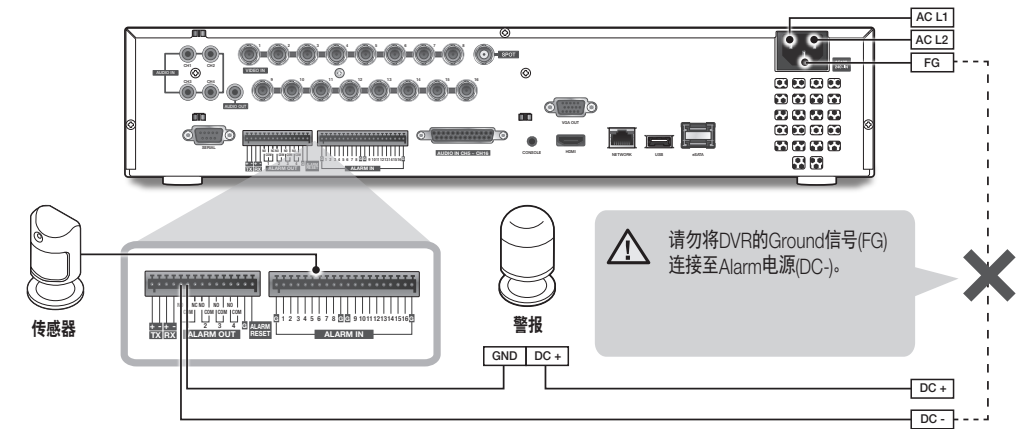
- 
- 使用短于 1 米的电线进行外部 SATA HDD (eSATA) 连接。
 - 通过 eSATA 与使用中的设备相连的连接意外断开可能会重新启动系统。请检查设备是否在使用中，然后再断开它的连接。

连接 POS 设备

当您直接使用 SERIAL 线连接时，可将 POS 设备连接至产品背面的 SERIAL 端口上。
SERIAL 端口的连接设置可在“主菜单 > 设备 > POS 设备”中提供，按 <POS 设备设置> 按钮，然后设置 <波特率、奇偶检验、数据、停止位>。（第 60 页）

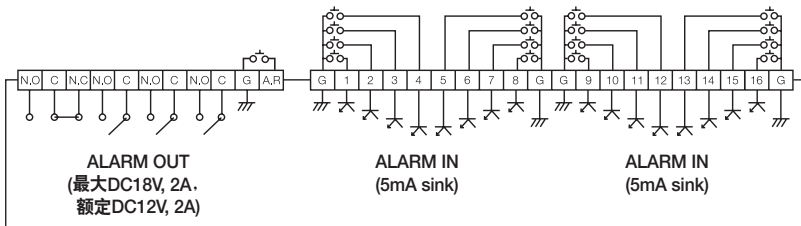
连接警报输入/输出

- 
- 下面的图片基于型号 HRD-1642。



背面的警报输入/输出端口由下列各项组成。

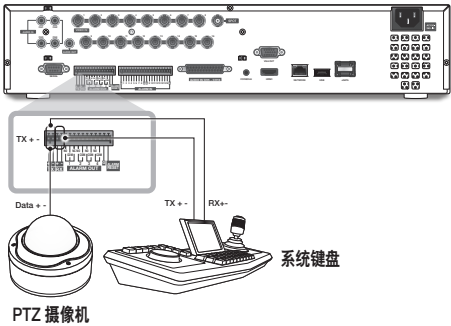
- ALARM IN 1 ~ 16：警报输入端口
- ALARM RESET：接收到“警报重置”信号时，系统取消当前警报输入并继续感应。
- ALARM OUT 1 ~ 4：警报输出端口



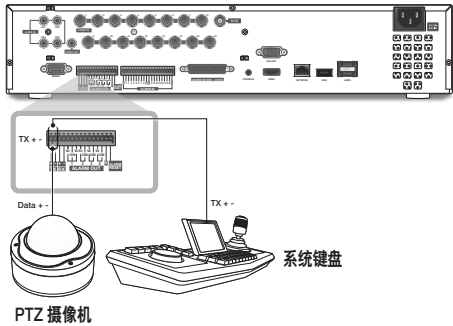
连接其他设备

连接 RS-485 设备

通过后面的端口连接 [TX/RX +, -] 设备。



<全双工>



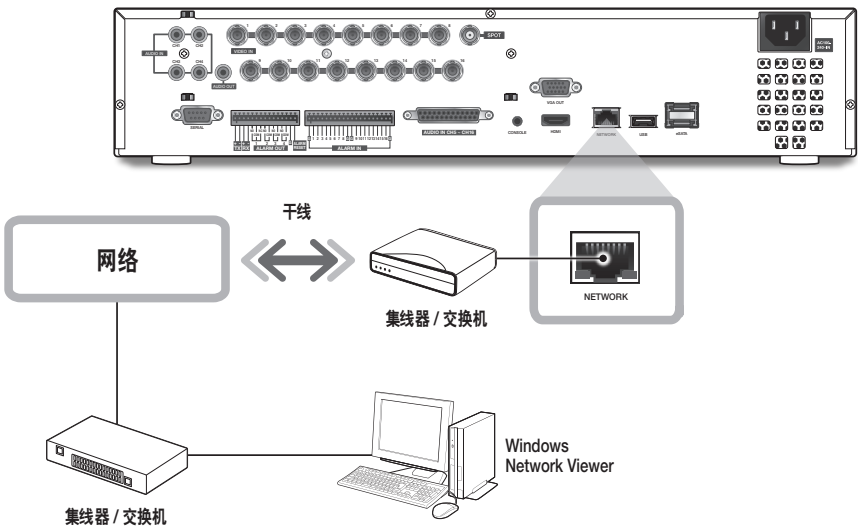
<半双工>

- 可以连接和控制支持 RS-485 通信的 PTZ 摄像机。
- 请先检查 RS-485 设备与本产品是否兼容。
- 请注意，在连接 RS-485 设备时，切勿更改它的极性 (+/-)。
- 根据摄像机的类型，连接极性可能会有不同。
有关更多信息，请参阅各自的 PTZ 摄像机文档。

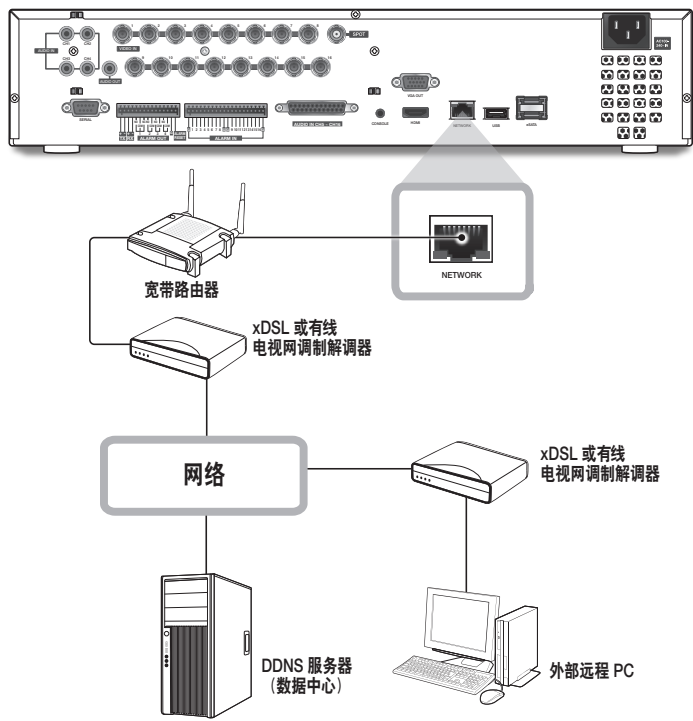
连接网络

- 下面的图片基于型号 HRD-1642。

通过以太网连接到网络 (10/100/1000BaseT)

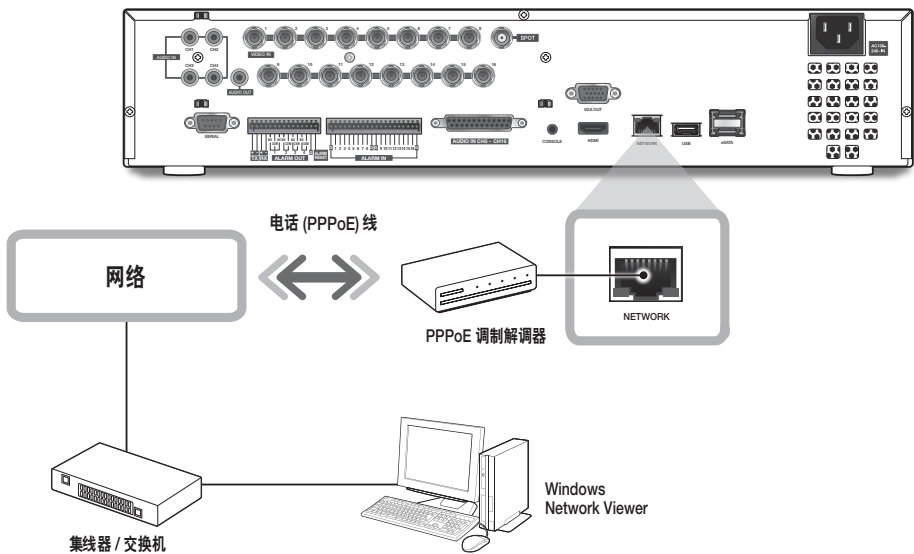


使用路由器连接到网络



● 连接其他设备

通过 PPPoE 连接到网络



现场

开始使用

启动系统

1. 将电源插头连接至产品背面。
2. 触摸并按住前面的电源按钮 3 秒钟以上。



■ 启动后，大约需要 10 秒钟来显示启动屏幕。



3. 启动屏幕将会出现。
启动大约需要 3 分钟，用带图标的进度条指示。
如果安装了新硬盘，初始化过程时间可能会更长。



4. 现场屏幕将会出现并发出哔声。



检查摄像机信号指南

这款DVR产品能自动识别摄像机信号。
由于安装环境的差异，自动识别的信号可能不同于摄像机实际连接的。
如果安装后不显示图像，请检查连接摄像机的信号类型并手动设置。



- 为了避免高速信号串扰，建议相邻视频通道连接的电缆长度差小于300m。（以75-5同轴电缆为基准）
- 一些相邻的通道同时连接CVBS 信号和1080p 信号时,会产生视频干扰,这些通道为(1/2, 3/4, 5/6, 7/8, 9/10, 11/12, 13/14, 15/16) 如果想要同时连接这两种信号,可以在除上述list之外的相邻通道连接(例如,同时连接2/3通道不会有此问题)

检查摄像机信号指南

· 这款 DVR 产品能自动识别摄像机信号。
· 由于安装环境的差异，
自动识别的信号可能不同于摄像机实际连接的。
· 如果安装后不显示图像，
请检查连接摄像机的信号类型并手动设置。

确定

关闭系统

仅当您登录至 DVR 后才能关闭系统。
如果您未作为管理员登录，则需要许可权才能关闭系统。

1. 长按正面的<电源>按钮 3 秒钟，或按一下遥控器上的电源键，也可以单击右键并在弹出的关机菜单中点击关机。
2. “关闭”确认窗口将会出现。
3. 使用遥控器或前面板上的箭头键移至<确定>并按[选择]按钮或单击<确定>。
系统将会关闭。



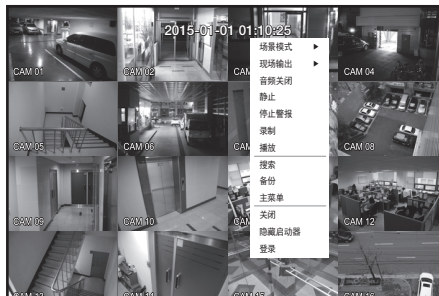
■ 有关许可权管理的信息，请参阅“许可权管理 > 设置许可权”。
(第 49 页)



登录

若要访问 DVR 或受限制的菜单，您应先登录至 DVR。

1. 在现场模式下，右键单击屏幕的任意位置。
您将会看到如右图所示的上下文相关菜单。



2. 单击<登录>。

登录对话框将会出现。

通过按遥控器或前面板上的[菜单]按钮，您也可以看到登录对话框以访问所需要的菜单。

- 当相应的菜单需要登录时，如果您按遥控器或 DVR 前面板上的菜单按钮，还会出现登录菜单对话框。
- 登录后，按遥控器上的[返回]以显示注销对话框。



■ 有关受限制的许可权限，请参阅“许可权管理 > 设置许可权”。
(第 49 页)



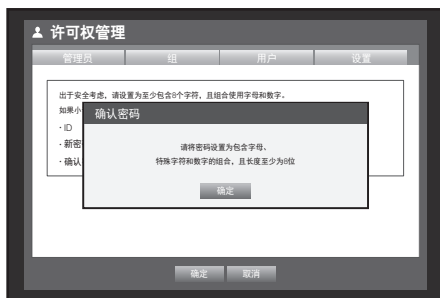
现场



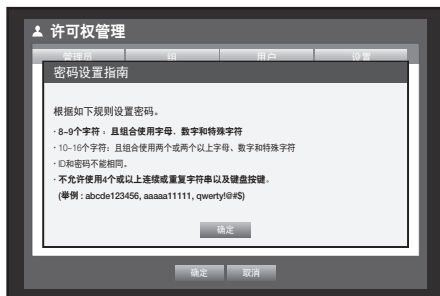
- 初始管理员 ID 是“admin”，密码应在首次登录时设置。
- 如果要产品与无线路由器配合使用、请设置无线网络的密码。不使用密码保护或使用默认无线路由器密码可能会使视频数据受到潜在威胁。
- 请每隔三个月更改密码以保护个人信息并避免因信息失窃造成损失。请注意，用户应负责安全以及密码管理不善导致的其他问题。

• 若要设置密码，请单击 < ① > 检查密码设置条件。

- 如果密码包含 7 个字符或更少字符，则会弹出 <检查密码> 屏幕。检查之后，请将密码设置为 8 个字符或更长的密码。



- 即使您输入的密码为 8 个字符或更长，但如果它不符合特定条件，则会弹出 <密码设置指南> 屏幕。检查特定设置条件之后，请再次设置密码。



锁定所有按钮

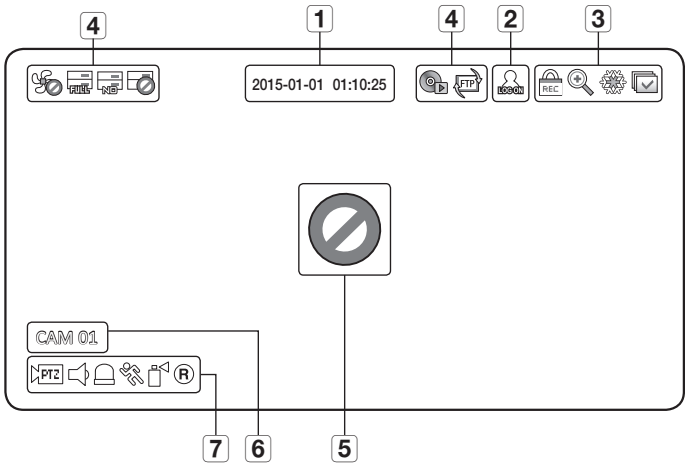
这会限制对 DVR 中提供的所有按钮的访问权。

1. 在现场模式中，按以下顺序按各按钮：[停止 (■)]-[屏幕锁定]-[停止 (■)]-[屏幕锁定]-[菜单]。 <所有密钥锁定> 确认窗口将会出现。
2. 选择 <确定>。
所有按键将会锁定。
3. 在锁定状态下，按任何按钮都可以显示一个对话框，它将提示您输入解除按钮锁定的密码。如果您输入管理员密码，将会解除按钮锁定。



现场屏幕上的图标

您可以使用现场屏幕上的图标检查 DVR 的状态或操作。



部件名称		功能
1	当前日期、时间	显示当前时间和日期。
2	登录信息	在登录时，将会显示“LOG ON”图标。
3	屏幕模式	在录制过程中显示。 ■ 如要取消录制，单击右键并在弹出的上下菜单中选择停止录制。
		在激活缩放功能时显示。
		如按下冻结 (Freeze) 按钮则显示该项。
		在“自动顺序”模式下显示，此时所有频道都以特定的时间间隔切换。
4	系统操作	冷却风扇出现问题时显示。
		硬盘空间已满和 DVR 录制空间不足时显示。
		未安装硬盘或现有的硬盘需要更换时显示。
		硬盘需要技术检测时显示。
		当备份正在进行中或者播放备份数据时显示。
		从网络中发现新固件时显示。
5	视频输入状态	摄像机设置为 <打开> 状态无任何输入时显示。
		如果摄像机设为 <关闭>，则屏幕上无任何显示。

现场

部件名称		功能	
6	摄像机名称/频道	显示摄像机名称和更改的频道，如果有。	
7	摄像机操作	 PTZ	显示在 PTZ 设置中，如果 PTZ 在操作中，会突出显示黄色。
			显示“音频打开/关闭”。 如果取消激活，不会在视频模式中显示。
			如果传感器设置为 <打开>，则在已连频道的屏幕上会显示输入信号。
			在动作检测设置为 <打开> 检测到动作时显示。
			当将篡改检查设置为 <打开> 并且检测到篡改时出现。
			显示来自录制/事件/时间表的当前录制模式。

错误信息

- 如果未连接内部 HDD，将会显示“无 HDD”() 消息；如果出现问题，将会在左上角看到“HDD 故障”() 消息。在此情况下，应与服务中心联系获取帮助，因为该情况可能会导致无法录制、播放或备份。
- 如果冷却风扇不能正常运转或出现故障，则会出现 <风扇信息> 窗口，且会在左上角显示风扇错误图标()。在此情况下，检查内部风扇运转情况。
由于风扇出错可能会缩短产品使用寿命，因此一定要联系服务中心获取帮助。

 如果您在屏幕上看到风扇出错图标或“无 HDD”、“HDD 故障”图标，请联系服务中心获取更多详情。

现场屏幕菜单

除前面板或遥控器上的按钮之外，您可以通过右键单击现场模式中的任意位置访问所需要的菜单。
右键单击以打开上下文菜单，该菜单会根据状况显示不同的菜单项，例如已登录/已注销状态、分屏模式和各种操作条件。

 根据用户权限，可以取消激活搜索、录制、备份、关闭和 PTZ。



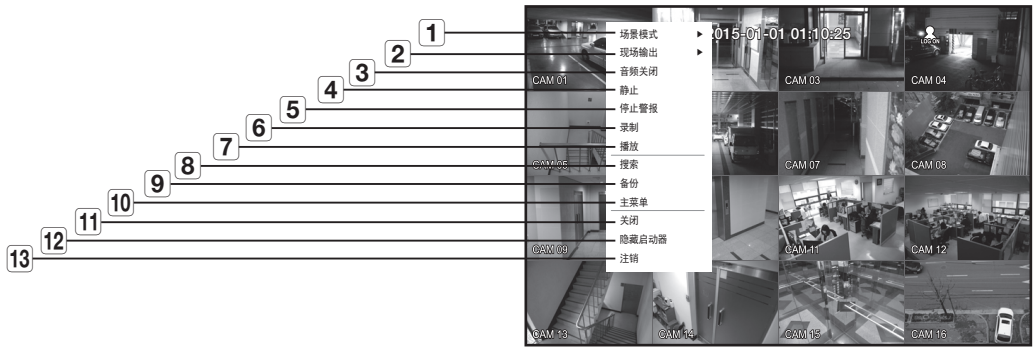
< 分屏模式菜单 >



< 单画面模式菜单 >

分屏模式菜单

分屏模式中的上下文相关菜单会有不同，取决于登录/注销状态。



菜单	功能
1	场景模式 请参阅“现场模式”。（第 38 页）
2	现场输出 请参阅“现场输出”。（第 41 页）
3	音频打开/关闭 请参阅“音频打开/关闭”。（第 42 页）
4	静止 请参阅“静止”。（第 42 页）
5	停止警报 停止报警输出和事件监视。请参阅“事件监视”。（第 43）
6	录制/停止 开始/停止标准录制。
7	播放 播放搜索结果（数据）。请参阅“搜索和播放 > 播放”。（第 91 页）
8	搜索 请参阅“搜索和播放 > 搜索”。（第 88 页）
9	备份 请参阅“主菜单 > 设置备份”。（第 70 页）
10	主菜单 访问主菜单。请参阅“使用 DVR”部分。（第 44 页）
11	关闭 关闭 DVR。
12	显示启动器/隐藏 显示或隐藏启动器。请参阅“显示/隐藏启动器菜单”。（第 37 页）
13	登录/注销 您可以登录或注销。

现场

单画面模式菜单

单画面模式菜单仅在单画面模式中可用。
单一屏幕上显示为 <场景模式> 的菜单，在分屏中只选择一个频道时显示为 <全屏幕>。



< 单画面模式菜单 >



< 在分屏中选择一个频道后的菜单 >

菜单		功能
1	全屏幕	在分屏模式中选择并单击所需的频道，以切换为所选频道的全屏幕。
2	PTZ 控制	访问“PTZ 控制”菜单。 PTZ 菜单仅在一频道现场模式中激活。（第 85 页）
3	放大	放大所选的图像。（第 41 页）

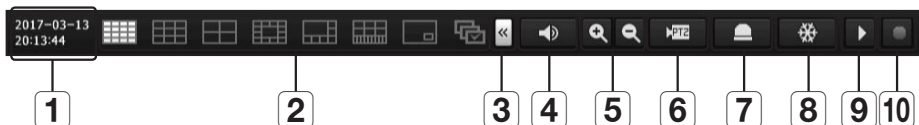
显示/隐藏启动器菜单

您可以使用在现场屏幕底部出现的启动器菜单访问。

1. 在实时模式中，右键单击以显示上下文菜单，然后选择 <显示启动器> 或 <隐藏启动器>。
如果选择 <隐藏启动器>，实时屏幕底部的启动器菜单将消失。
2. 如果选择 <显示启动器>，屏幕底部将显示启动器菜单。
如果使用鼠标单击启动器菜单，它会直接进入菜单。



- 如果在 10 秒内没有输入，菜单将消失。
- 只能使用鼠标访问启动器菜单。



菜单		功能
1	日期/时间	显示当前时间和日期。 如果您在“系统 > 日期/时间/语言 > 时间”中将时间格式设置为 12 小时制，将显示 AM/PM 指示。（第 44 页）
2	屏幕模式	按此按钮可以按顺序切换屏幕模式。 当前模式以白色突出显示。
3	菜单扩展按钮	单击会显示右侧的隐藏菜单。
4	音频	打开/关闭所选频道的声音。
5	放大/缩小	放大所选的区域。此功能仅在单画面现场模式中可用。
6	PTZ	运行“PTZ 控制”启动器。 在选择单个频道之后，PTZ 控制启动器在现场屏幕上处于活动状态。
7	警报	停止激活的警报。
8	静止	让现场屏幕临时静止。
9	播放	如果存在要播放的文件，进入播放模式，否则进入搜索模式。
10	录制	开始/结束现场屏幕录制。

现场

现场模式

从 16 个频道显示现场图像，总共 8 个分割屏幕布局。

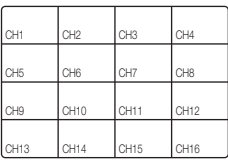
■ 下方图片已16频道型号为标准。

切换屏幕模式

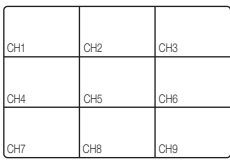
要切换分屏模式，可在启动器菜单中选择屏幕模式，或右键单击在上下文菜单中选择屏幕模式。

按前面板或遥控器上的 [监控模式] 按钮，以启动器菜单项的顺序切换模式。

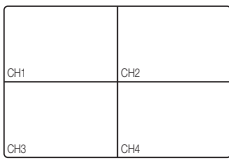
- HRD-440/442仅支持全屏，四屏，PIP屏幕和自动切换屏幕。
- HRD-840/841/842不支持16分割，16（A）分割和13分割屏幕。



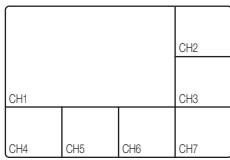
16 分屏模式



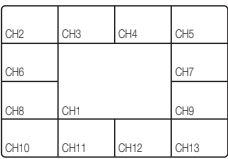
9 分屏模式



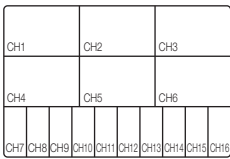
4 分屏模式



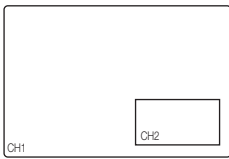
7 分屏模式



13 分屏模式



16(A) 分屏模式



PIP

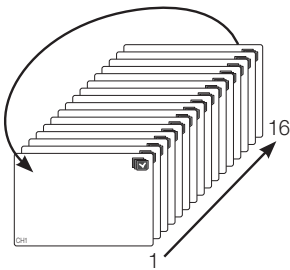


自动顺序

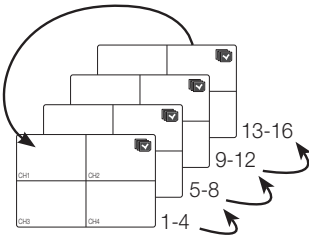
切换分屏模式

以单画面、4 分屏和 9 分屏模式的顺序显示 16 个现场图像。

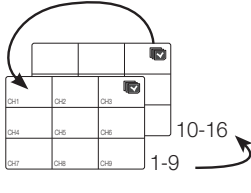
自动顺序



单画面模式



4 分屏模式



9 分屏模式



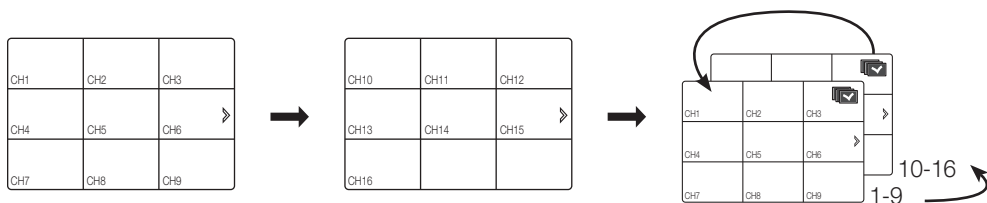
- 在单画面模式中，如果您在“**设置设备 > 摄像机**”中设置了 <帧扫描停留时间>，将以设置的时间间隔执行自动顺序。（第 54 页）
- 在分屏模式中，如果您在“**设置设备 > 监视器**”中设置了 <多频道切换时间>，将以设置的时间间隔执行自动顺序。（第 62 页）

手动切换

按前面板或遥控器上的左/右按钮，或按箭头 <◀/▶> 键移至下一个分屏模式。

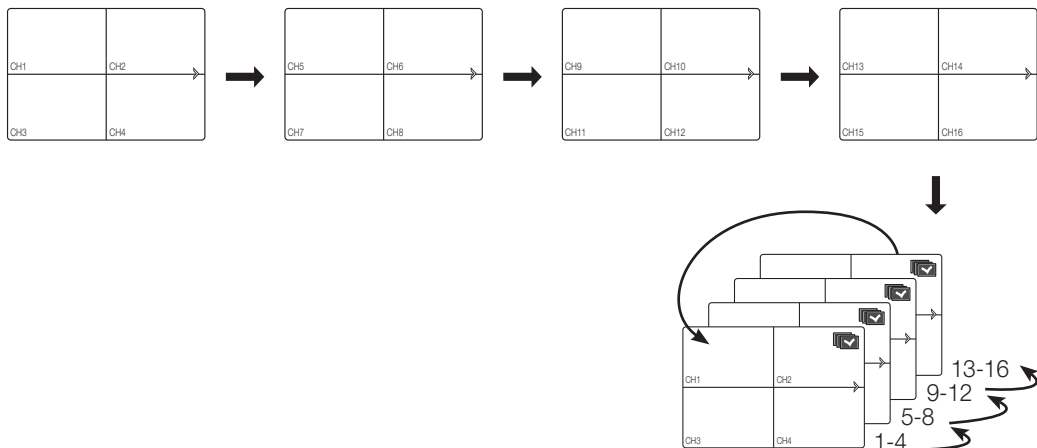
- 如果在 9 分屏模式中按右 [▶] 按钮：

9 分屏 (CH 1~9) 模式 → 9 分屏 (CH 10~16) 模式 → 自动顺序



- 如果在 4 分屏模式中按右 [▶] 按钮：

频道 (CH 1~4) → 频道 (CH 5~8) → 频道 (CH 9~12) → 频道 (CH 13~16) → 自动顺序

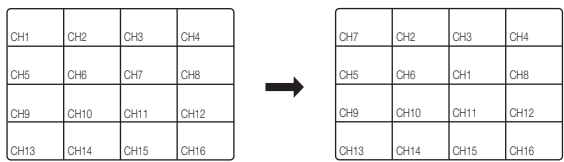


现场

频道设置

可以在分割屏幕的所需区域显示频道。

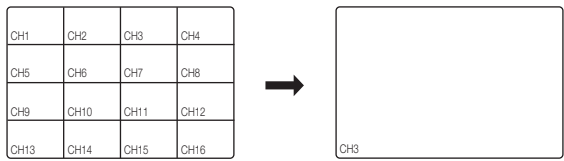
1. 将光标放在每个频道的摄像机名上面，在屏幕右侧显示 <▼> 键。
2. 单击摄像机名以显示可以选择不同频道的频道列表。
3. 选择所需的频道，然后单击。
当前频道将切换到所选的频道。
使用光标选择要移动的频道，然后将其拖放到所需的频道；这样也能更改频道位置。
 - 例如：将频道 1 切换到频道 7



切换至单画面模式

在分屏模式中，选择并双击所需的频道以切换到单画面模式。
在前面板或遥控器上按与所需频道对应的数字，切换到单画面模式。
请参阅“**遥控器 > 使用数字按钮**”。（第 16 页）

- 例如：在遥控器或前面板上双击 CH 3 或按数字“3”。



现场输出

现场输出监视独立于现场模式，可以通过现场输出端口监视特定的频道。

选择现场输出模式。

如果从与显示器连接的现场输出端口发生传感器、动作或警报等事件，您可以选择输出屏幕模式。

1. 在现场模式下，右键单击屏幕的任意位置。
现场屏幕将会出现。
2. 单击“现场输出”。
分割的屏幕会根据现场输出源出现。（第 63 页）
 - 现场输出：默认情况下，它支持自动切换和单画面模式，并且如果选择多个现场输入，则它还支持 16 分屏、9 分屏和 4 分屏模式。



缩放

仅在单实时模式下可用。在单模式下，选择所需区域，使用缩放功能即可放大图片。

1. 在右击菜单中选择 **<放大>**。
按前面板或遥控器上的 [变焦] 按钮，或仅单击启动器菜单中的 **< [Q] >**。缩放框将会出现。
2. 使用方向键，或拖放以指定要放大的区域。
3. 按 [选择] 按钮，或双击选定区域即可放大图片。
 - 在放大的图像中，使用遥控器或前面板上的方向按钮 (▲▼◀▶) 移动放大的区域。
4. 按前面板或遥控器上的 [变焦] 按钮释放缩放。
 - 由于摄像机分辨率存在差异，放大比例有所不同。分辨率越高，放大比例越大。
 - 仅需点击启动菜单中的 **< [Q] >** 即可缩小图像。



现场

音频打开/关闭

您可以根据现场模式中的频道打开/关闭声音。

在单画面幕模式中打开/关闭音频

单击屏幕上的音频图标 ()，或按前面板或遥控器上的 [音频] 按钮以将其打开/关闭。

 ■ 只有在“设备 > 摄像机”中将 <音频> 设置为 <打开> 的频道，才在现场模式中显示可以用来打开/关闭声音的图标 ()。

静止

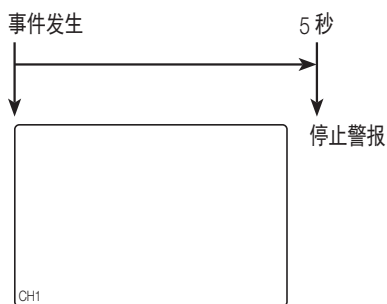
此按钮仅在暂时停止播放现场图像的现场模式中可用。

1. 按前面板或遥控器上的 [屏幕锁定] 按钮，或单击启动器菜单中的 <  >。
会暂时停止播放图像。
 - 暂停时声音会继续播放。
2. 再次按 [屏幕锁定] 按钮，或单击 <  >。
这样将释放静止。

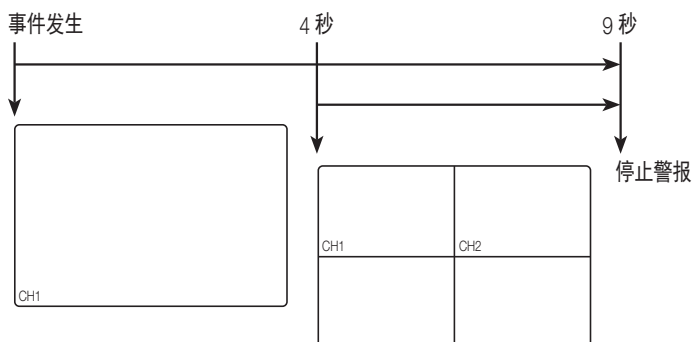
事件监视

如果出现这种情况，将与特定的事件（传感器/动作/视频丢失/篡改）同步显示频道。
在“**监视器 > 事件显示**”中，设置监视打开/关闭的事件，并指定事件显示时间。（第 62 页）

- 如果同时发生多个事件，屏幕切换为分屏模式。
 - 2~4 事件：4 分屏模式
 - 5~9 事件：9 分屏模式
 - 10~16 事件：16 分屏模式
- 如果在 <事件显示> 的设置时间内发生第二个事件，则第一个事件将持续到第二个事件终止。（第 62 页）
 - 例如：如果您将 <事件显示> 设置为 5 秒，并且在 CH1 只发生了一个事件。



- 例如：如果您将 <事件显示> 设置为 5 秒，并且在 CH1 发生第一个事件后的设置时间内在 CH2 内发生了第二个事件。



- 按 **[报警]** 按钮重设警报设置和释放事件模式。
- 如果在您设置事件录制和之前/之后警报次数条件下激活了警报，将执行事件录制。
- 这也将适用于现场输出监视器。



- 对于连续的事件，例如移动探测，切换到另一种分屏模式显示时，如果连续事件随后发生，则可能不会立即进行，即使您已停止事件警报也是如此。

主菜单

您可以设置系统属性、设备和录制、事件、备份及网络选项。

系统设置

您可以设置日期/时间/语言、许可权、系统属性和日志。

日期/时间/语言

您可以检查和设置当前日期/时间与时间相关属性，以及屏幕界面所用的语言。

设置日期/时间/语言

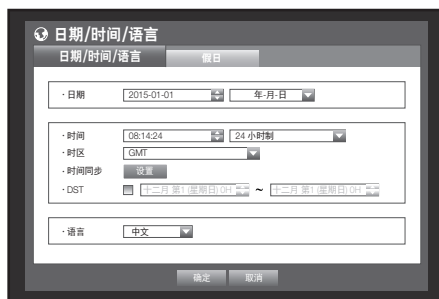
设置日期/时间/语言

使用鼠标可以帮助简化设置。

1. 按遥控器或前面板上的[菜单]按钮。
 - 如果没有登录，会出现登录窗口进行提示。
请参阅“登录”。（第 31 页）
2. 使用左/右按钮（◀▶）选择 <系统>。
将选择系统属性设置菜单。
3. 使用上/下按钮（▲▼）选择 <日期/时间/语言>，然后按[选择]按钮。
4. 选择 <日期/时间/语言>。
设置日期、时间和语言的对话框。
5. 使用方向按钮（▲▼◀▶）选择要设置和更改的项目。



- 日期：设置的日期将出现在屏幕上。
您可以选择日期格式。
- 时间：设置的时间及其格式将出现在屏幕上。
从 <24 小时制 /12 小时制 (AM/PM)> 中选择一项。
- 时区：格林威治标准时间 (GMT) 设置您所在地区的时区。
 - GMT（格林威治标准时间）是标准的世界时间和世界时区的基础。
- 时间同步：如果您选择使用 <时间服务器>，
可以定期设置与选定的 <时间服务器> 同步的 DVR 当前时间。
在此情况下，<日期/时间/语言> 设置不允许时间调整。



- 时间服务器：输入时间服务器的 IP 或 URL 地址。
- 上次同步时间：显示最近与选定的时间服务器同步的时间。
- 作为服务器激活：设置 <使用> 让 DVR 充当其他 DVR 的时间服务器。
- DST：设置夏令时在设置期内使时间比其时区内的 GMT 早 1 小时。
- 语言：选择您的语言。设置界面语言。
支持的语言：英语、法语、德语、西班牙语、意大利语、中文(简体)、俄语、韩国语、波兰语、日语、荷兰语、葡萄牙语、土耳其语、捷克语、丹麦语、瑞典语、泰国语、罗马尼亚语、塞尔维亚语、克罗地亚语、匈牙利语、芬兰、挪威、希腊语和中文(繁体)。



6. 在完成日期/时间/语言设置后，请按 <确定>。



■ 您也可以使用遥控器或前面板上的数字按钮输入日期、时间和其他数字字段的值。

设置假日

您可以根据个人喜好将特定日期设为假日。
假日也适用于 <录制计划> 和 <警报计划>。

使用鼠标可以帮助简化设置。

1. 在 <日期/时间/语言> 窗口中使用上/下按钮 (▲▼) 选择 <日期/时间/语言>，然后按 [选择] 按钮。
2. 选择 <假日>。
假日设置的日历将会出现。
3. 使用左/右 <◀ ▶> 按钮选择年份或月份，然后按 [选择] 按钮。



4. 使用方向按钮 (▲▼◀▶) 选择所需日期，然后按 [选择] 按钮。
将会看到“设置假日”屏幕。
 - 例如：选择 1 月 12 日，并仅选中 <1/12> 将每年的 1 月 12 日作为假日。同中 <1/12> 和 <一月 第2 星期一>，将每年的 1 月 12 日和 1 月的时选第二个周一作为假日。

5. 在完成假日设置后，按 <确定>。



使用日历

使用鼠标可以帮助简化设置。

- ① 选择年份和月份。
选择年份/月份左/右侧的左/右 <◀ ▶> 键，然后按 [选择] 按钮按 1 年/月调整。
- ② 使用方向按钮选择日期，然后按 [选择] 按钮。
 - 搜索有录制数据的日期将以黄色出现在系统日志、事件日志、时间搜索和事件搜索中。

主菜单

许可权管理

您可以设置每个用户对 DVR 的特定功能和设置的权限。

设置管理员

您可以设置和更改管理员的 ID 和密码。
管理员可以使用和设置所有菜单项与功能。

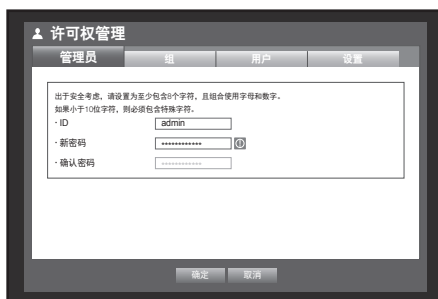
使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <许可权管理>，然后按 [选择] 按钮。
2. 选择 <管理员>。管理员 ID 和密码对话框将会出现。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置 ID 和密码。



- 初始管理员 ID 是“admin”，密码应在首次登录时设置。
- 请每隔三个月更改密码以保护个人信息并避免因信息失窃造成损失。
请注意，用户应负责安全以及密码管理不善导致的其他问题。
- 如果单击 <①>，则会显示一个有关设置密码的简单指南。

4. 在完成管理员设置后，按 <确定>。



使用虚拟键盘

- ① 对于字母数字输入，虚拟键盘窗口将会出现。
- ② 使用方向按钮 (▲▼◀▶) 移至所需字符，然后按 [选择] 按钮。
- ③ 在虚拟键盘上方的文本输入框中，会显示包含所选字符的备选字列表。
- ④ 从列表中选择字词，或使用键盘输入完整的字。
 - 如果有很多备选字，则请使用 <上/下箭头> 按钮以在其中上移和下移。
- ⑤ 选择<确定>。
会应用输入的字。
 - 对于大写字母，请使用 <大写锁定> 按钮。
 - 对于特殊的字符，请使用 <Shift> 按钮。
 - 使用虚拟键盘与您所在地区的正常键盘用法一样。
 - 只能用不区分大小写的字母数字字符输入 ID。
 - 对于密码，请使用除 <\> 和 <"> 之外的字母和特殊字符。
 - 您可以使用遥控器或前面板上的数字按钮。



设置组

您可以创建用户组，并设置用户组的许可权。

您可以在 <用户> 中为每个组注册用户。

使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <许可权管理>，然后按 [选择] 按钮。

2. 选择 <组>。

<添加>、<删除>、<重命名> 和 <组权限> 设置窗口将会出现。

3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。

• 添加、删除、重命名：您可以添加、删除、重命名组，或修改给予组的许可权。

在选择 <添加> 或 <重命名> 时，虚拟键盘将会出现。

– 添加：在首次使用管理员帐户运行 DVR 时，不存在帐户，因此除 <添加> 之外的所有按钮都被取消激活。选择 <添加> 显示虚拟键盘。输入组名。最多可以添加 10 个组。

– 删除：会删除已注册的用户组。选择 <删除> 将删除属于该组的所有用户帐户。

– 重命名：会重命名已注册的组。选择 <重命名> 显示虚拟键盘。

■ 有关输入组名的信息，请参阅“使用虚拟键盘”。(第 46 页)

• 组权限：设置访问每个组菜单项的许可权。组用户可以访问选中的功能。

4. 在完成组设置后，按 <确定>。



设置组权限

您可以根据频道设置组用户访问菜单的权限。

1. 选择分配组权限的菜单。

分配组权限的菜单将在组用户登录时出现在现场菜单中。

• 实时浏览：您可以根据频道设置访问现场屏幕的权限。

• 搜索：您可以根据频道设置访问搜索菜单的权限。

• 备份：您可以根据频道设置访问备份菜单的权限。

• 菜单：您可以设置使用特定权限可以访问的菜单。

组用户只能访问允许的菜单。

选择菜单以显示 菜单权限屏幕。

• 双向音频：您将获得使用双向音频功能的许可权。

• 录制锁定、PTZ、远程警报输出、关闭：选择项目，以便将其添加到权限。

2. 选择 <确定>。

选择并分配组用户，以便用户可以访问指定菜单。

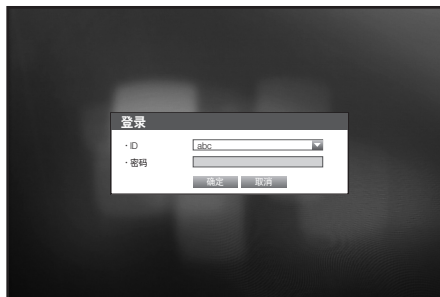


主菜单

限制用户权限

如果管理员限制添加组的所有权限，则属于该组的用户只能访问默认的最少菜单，并且只能更改用户自己的密码。

1. 启动 DVR。
如果限制了所有权限，则应该会出现登录对话框。
2. 使用注册的用户 ID 登录。



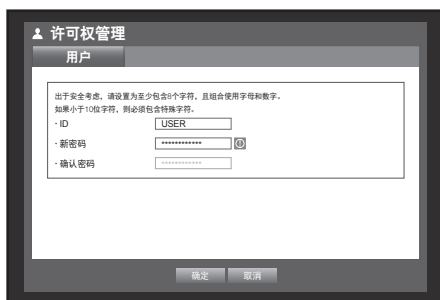
3. 右键单击屏幕的任意位置。
如果限制了所有权限，应该只会出现可访问的上下文菜单。



更改用户密码

如果您使用限制访问菜单的用户帐户登录，则只能更改自己的密码。

1. 使用帐户登录。
2. 选择 <用户菜单>。
权限管理设置屏幕将会出现。
3. 选择 <许可权管理>。
密码设置对话框将会出现。
4. 输入新密码。
5. 选择 <确定>。
将应用您对密码所做的更改。



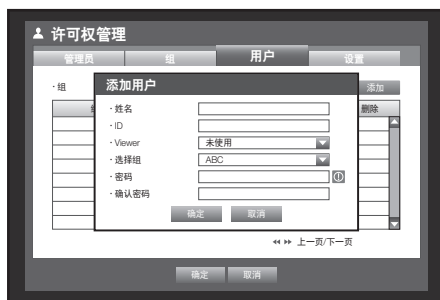
设置用户

可以添加用户并编辑已注册用户的信息。

如果在 <组> 菜单中创建组，才能添加用户。

使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <许可权管理>，然后按 [选择] 按钮。
2. 选择 <用户>。
“添加用户”窗口将会出现。
3. 使用方向按钮 (▲▼◀▶) 从窗口中选择 <添加>。
“添加用户”窗口将会出现。
4. 可以配置 Network Viewer 设置，包括名称、ID、查看器、选择组和密码。
用户设置的结果将会出现在 <用户> 窗口中。
要更改用户属性，请使用“编辑用户”。
当您在 <用户> 窗口中选择要更改的所需项目时，“编辑用户”窗口将会出现。
- 查看器：如果选择 <使用>，则可让您访问 Web Viewer 和 Network Viewer。
 - 请参阅“连接 Web Viewer”。（第 94 页）
 - 有关使用 Network Viewer 的更多信息，请参阅 Network Viewer 的用户指南。
5. 在完成用户设置后，按 <确定>。



设置许可权

您可以对所有一般用户设置受限访问。

受限项目将要求登录后再使用。

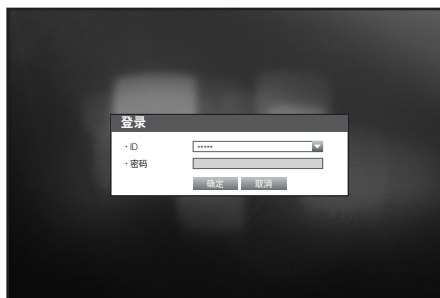
使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <许可权管理>，然后按 [选择] 按钮。
2. 选择 <设置>。
受限访问、网络访问限制、自动注销、手动输入 ID 设置屏幕将会出现。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
- 受限访问：允许用户使用的所有菜单项可以设置受限访问。
 - 已选中 (☑)：受限
 - 未选中 (☐)：可访问
 - 如果在 <受限访问> 中没有选中 (☐)，则无论是什么 <组权限> 设置，任何用户均可访问项目。
 - 如果在 <受限访问> 中选中了 (☑)，则用户只有拥有 <组权限> 设置中的许可权才能访问项目。
- 网络访问限制：限制从 <受限访问> 网络进行远程访问。
 - 全部网络：通过 Network Viewer 和 Web 查看器限制所有访问情况。
 - Web Viewer：限制通过 Web 查看器访问。
- 自动注销：如果在设置的时间内没有对 DVR 进行任务操作，将自动注销用户。



主菜单

- 手动输入 ID：提示您手动输入登录访问的用户 ID。
 - 已选中 (☒)：使用 [*] 符号将已注册的用户 ID 括起来。
 - 使用虚拟键盘输入用户 ID。
 - 触摸按钮声音：可以设置在使用前面触按钮时发出哔声。
 - 触摸按钮：您可以设置是否使用触摸按钮。
4. 在完成许可权设置后，按 **<确定>**。



系统管理

您可以检查系统版本、版本更新以及数据备份和初始化。

检查系统信息

您可以检查当前的系统版本、广播格式、MAC 地址。 您可以更新系统。
使用鼠标可以帮助简化设置。

1. 使用 **<系统>** 窗口中的上/下按钮 (▲▼) 移至 **<系统管理>**，然后按 **[选择]** 按钮。
2. 检查软件版本、广播格式和 MAC 地址。
 - 系统信息：显示当前系统的信息。
用户无法更改这些值。
 - 软件升级：将 DVR 的软件更新到最新版本。
 - DVR 名称：连接至 DVR 时，指定的名称将显示在网络查看器中。



• 更新软件

1. 连接存储要更新软件的设备。（可能大约需要 10 秒钟识别设备。）

- 可升级的设备包括 USB 存储器和网络设备。
- 要更新网络，当前 DVR 应已连接到网络。
由于访问受限制，可能无法通过代理服务器升级。

2. 从 <系统> 窗口选择 <系统管理>。

3. 选择 <系统信息>。

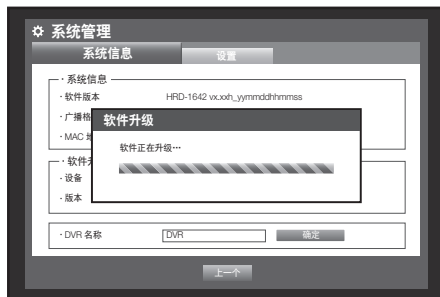
4. 按 <搜索> 按钮显示更新的图像，然后按 <搜索> 按钮切换至 <升级>。

- 只有在 <系统信息> 的 <软件版本> 等于或早于 <软件升级> 的版本时，才能激活 <升级> 按钮。

5. 按 <更新> 按钮以显示确认更新的弹出窗口。

在“系统升级”窗口中按 <确定>。

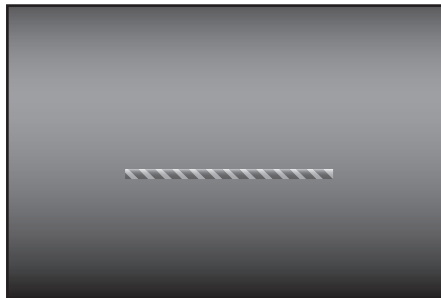
- 在更新过程中，会显示进度。



6. 在完成更新后，会自动重新启动。
在完成重新启动前，请勿关闭电源。



- 如果“升级失败”，请从步骤 4 重试。
如果继续出错，请咨询服务中心获取帮助。
- 使用 Smart Viewer 远程执行软件更新时，从 Smart Viewer 弹出确认消息起，大约需要 3 分钟来完成更新。这是为了保证 DVR 装置稳定操作。要进行更快速的更新，请使用 USB 设备连接至 DVR 装置。



主菜单

设置

您可以通过使用存储媒体复制和导入 DVR 设置。

使用鼠标可以帮助简化设置。

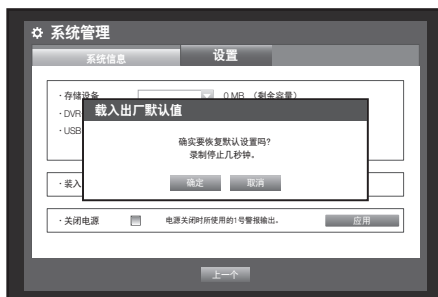
1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <系统管理>，然后按 [选择] 按钮。

2. 选择 <设置>。
存储设备和装入出厂默认值的窗口将会出现。

3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，并将设置数据导出或导入存储设备。

- 存储设备：显示连接的存储设备。
- 导出：会将记录在 DVR 中的所有日志导出到存储介质。
- 导入：从存储设备导入 DVR 设置，然后应用到 DVR。
 - 如果选中 <包括网络设置>，则还会导入网络设置。
 - 导入配置后，请重新启动 DVR 以便配置生效。
- 装入出厂默认值：如果选择了 <默认>，将会提示“装入出厂默认值”的确认对话框。按 <确定> 将系统初始化为出厂默认值。
- 关闭电源：关机时，激活“警报 1”。选中复选框之后，如果您按下 <应用> 按钮，则会释放“警报 1”输出所设置的所有事件警报。该操作之后，其他警报输出无法选择“警报 1”。
 - 如果设置了该功能，则所有警报设置屏幕中的所有复选框以及“警报 1”输出复选框都将被禁用，变为“关”状态。

4. 要移至上一菜单，请按 <上一个>。



日志信息

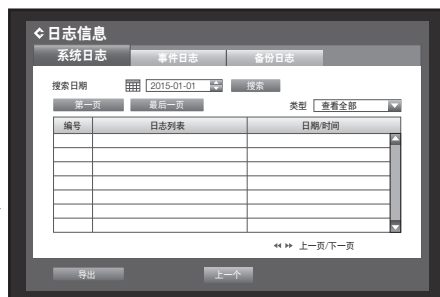
您可以浏览关于系统和事件的日志。

系统日志

系统日志显示在系统每次启动、关闭和更改系统设置时的日志和时间标记。

使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <日志信息>，然后按 [选择] 按钮。
2. 选择 <系统日志>。
 - 请参阅“使用日历”。(第 45 页)
 - 单击日历 <[图标]> 以显示日历窗口。
- 类型：当有太多日志时，您可以通过选择类型来显示所需格式的日志。
- 导出：会将记录在 DVR 中的所有日志导出到存储介质。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后按 <搜索>。



事件日志

事件日志显示关于警报、动作检测、视频丢失和篡改检查的录制事件。

它还显示日志及其时间标记。

使用鼠标可以帮助简化设置。

1. 使用 <系统> 窗口中的上/下按钮 (▲▼) 移至 <日志信息>，然后按 [选择] 按钮。
2. 选择 <事件日志>。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目。
4. 设置搜索日期、频道和类型，然后按 <搜索>。
 - 请参阅“使用日历”。(第 45 页)
 - 单击日历 <[图标]> 以显示日历窗口。

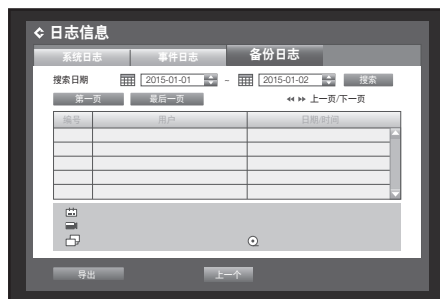


备份日志

可以了解备份者以及详细信息（备份时间、频道、要使用的设备、文件格式等等）。

使用鼠标可以帮助简化设置。

1. 在 <系统> 窗口中，按上/下 (▲▼) 按钮移至 <日志信息>，然后按 [选择] 按钮。
2. 选择 <备份日志>。
3. 使用四个方向按钮 (▲▼◀▶) 移至所需的项目。
4. 指定搜索术语，然后选择右上角中的 <搜索>。将会列出该搜索术语的备份详细信息。



主菜单

设置设备

您可以设置摄像机、存储设备、远程设备、POS设备和监视器。

摄像机

设置摄像机

您可以设置摄像机的视频、音频、频道名、帧扫描停留时间和逐行扫描。

使用鼠标可以帮助简化设置。

1. 按遥控器或前面板上的[菜单]按钮。
2. 使用左/右按钮(◀▶)选择<设备>。
将会选择设备设置菜单。
3. 使用上/下按钮(▲▼)移至<摄像机>，
然后按[选择]按钮。



4. 选择<摄像机>。
显示 视频、音频、频道名称、帧扫描停留时间、类型、
屏幕设置和隐私遮挡的设置窗口。
5. 使用方向按钮(▲▼◀▶)移至所需的项目，
然后设置数值。



- 视频
 - <打开/关闭>：您可以打开/关闭选定频道的摄像机。
 - <隐蔽1>：显示除选定频道的视频之外的信息。
 - 为保密，在继续录制时不会显示视频。
 - <隐蔽2>：在继续录制时，仅显示空白屏幕。



- 如果频道设置为<隐蔽1>或<隐蔽2>模式，频道的声音将听不到。
但是，如果频道的 音频设置设为<打开>，即使在现场模式中听不到声音，也会录制频道的声音。

- 音频
 - 如果设置为<打开>，您可以在现场屏幕上打开/关闭频道的音频。
 - 如果设置为<关闭>，现场屏幕上的频道音频会关闭，也不会录制。
 - 音频输出仅限于频道1。

- 频道名称：最多允许包括空格在内的 15 个字符。（第一个字符不能为空。）
 - 请参阅“使用虚拟键盘”。（第 46 页）

- 帧扫描停留时间：您可以对于现场屏幕和现场输出设置频道之间的停顿时间。
 - 如果设置为 <关闭>，频道就不会在自动顺序模式中列出。
- 类型：在自动模式下，将根据已连接的摄像机显示 AHD/TVI/CVI/CVBS。

- 屏幕设置：在屏幕上出现的视频可能会因频道的摄像机而异，根据您的个人喜好配置 DVR 显示。选择频道，并调整选定频道的 <☀ (亮度)>、<● (对比度)>、<🎨 (颜色)>和 <🔊 (EQ)>。
 - 在手动进行EQ等级设置时，连接的长线缆使用较大的 EQ等级，短线缆使用较小的EQ等级，EQ等级1~5。
 - 按 <初始> 将设置初始回默认 的亮度：42，对比度：53，颜色：50。
- 隐私遮挡：可以指定为了您的隐私而保护摄像机视频的某些区域。



6. 在完成摄像机设置后，按 <确定>。

设置加密区域

- ① 选择 <隐私遮挡>。
- ② 当出现“隐私遮挡”窗口时，选择检测频道并设置动作检测区域。

- 在“隐私遮挡”窗口中设置区域

在“隐私遮挡”窗口中，从 <☐ ☐ ☐ ☐ ☐ ☐> 中选择所需的 区域。

隐私遮挡

对于每个频道最多可以指定 4 个加密区域，这些区域可以用颜色标识。

1 ■ 紫色 2 ■ 绿色 3 ■ 蓝色 4 □ 黄色

- 使用 <单个> 选择设置区域

在“隐私遮挡”窗口中，可以通过使用 <单个> 选择单个单元格。

在选择 <单个> 时，“隐私遮挡”窗口会消失，同时您可以依次选择单元格。

完成动作区域设置后，右键单击以在上下文菜单中选择 <菜单>，或按遥控器上的 [菜单] 按钮，以再次显示“隐私遮挡”窗口。

- 全部删除：从加密区域中除去选择的单元格。
- 菜单：在选择单个动作区域之后，移至“隐私遮挡”窗口。
 - 如果选择 <应用于全部频道>，选取的动作区域适用于所有频道。

- ③ 完成加密区域设置之后，单击 <确定>。



全部删除
菜单

主菜单

设置 PTZ

要使用摄像机的 PTZ 功能，应该匹配每部摄像机和 DVR 的 ID 和协议。
有关其他设置，请参阅 <远程设备> 设置。（第 60 页）

使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <摄像机>，
然后按 [选择] 按钮。

2. 选择 <PTZ>。
PTZ 设置窗口将会出现。

3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后选择。

• 端口：选择连接至频道的摄像机的端口控制方法。

■ 有两个选项：<RS-485> 和 <同轴>。

• ID：设置每个频道所连摄像机的 ID。
您可以通过使用遥控器或前面板上的数字按钮很容易设置。

• 协议：设置每个频道所连摄像机的协议。



- 如果您在将摄像机连接到 DVR 后打开摄像机又关闭，可以检查摄像机的 ID 和协议。
- 当通过同轴接口连接了摄像机时，DVR 可以自动识别全高清或超清摄像机并应用恰当的协议。
ACP 协议将应用至全高清摄像机。
PELCO-C 协议将应用至超清摄像机。

4. 在完成 PTZ 设置后，按 <确定>。



设置摄像机类型

手动/自动选择此项，即可设置摄像机类型。
使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <摄像机>，然后按 [选择] 按钮。
2. 选择 <类型>。
类型设置窗口将会出现。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后选择。
 - 类型：设置连接至各通道的摄像机类型。可从 CVI、TVI、AHD 和 CVBS 中选择。
 - 分辨率：设置连接至各通道的摄像机模式。可从 4M、1080P 和 SD 模式中选择。
 - 模式：在模式选项下选择自动或手动。默认的模式设置为自动模式，当已连接的摄像机屏幕上未显示任何图像时，用户可手动设置摄像机的类型和分辨率，以显示图像。
 - EQ 等级：1、2、3、4、5
4. 选择 <Check EQ>，自动获取所有通道的 EQ 等级并保存。
5. 完成摄像机类型的设置后，按 <确定>。



存储设备

您可以检查有关存储设备的信息。

确认设备

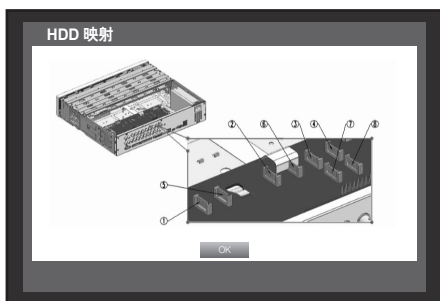
您可以检查存储设备及其可用空间、用途以及状态。
可用的设备包括硬盘和 USB 设备（存储器、硬盘）。
使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <存储设备>，然后按 [选择] 按钮。
2. 选择 <设备>。
 - 编号：显示内部硬盘的指定号。
 - 要根据号码查看硬盘的详细定位，请参阅 <HDD 映射>。
 - 已用/总共：显示存储设备的已用/总容量。
 - 使用情况：设置存储设备的用途。
 - USB 存储器仅用于备份。
 - 外部 USB 硬盘、SATA 硬盘用于扩展和备份。
 - 每个端口最多支持 2TB 的高容量 SATA HDD（例如 SVS-5R 等 RAID 设备）用于备份，最多 4TB 用于扩展。
 - SVS-5R 只支持 RAID1 和 RAID5。
 - 如果使用 eSATA 硬盘设备作为扩展存储器或用作备份，断开 eSATA 设备的连接可能会导致重新启动系统。用于备份时，如果设备未在使用中，则可以断开连接。

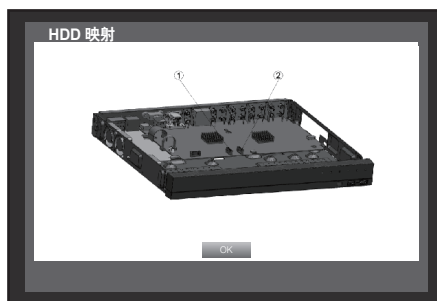


主菜单

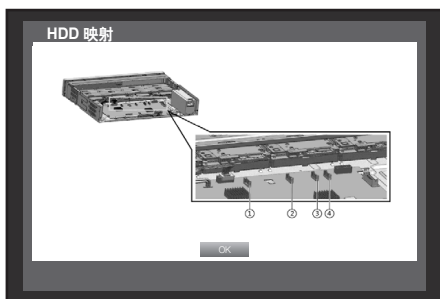
- 状态/管理：显示硬盘的当前状态，包括正常/检查/更换。
 - 正常：可以使用
 - 检查：可以使用，但建议更换
 - 更换：要求立即更换。
- HDD 映射：根据指定号显示内部硬盘的位置。
 - 请参阅这一点进行维修或其他硬盘安装。



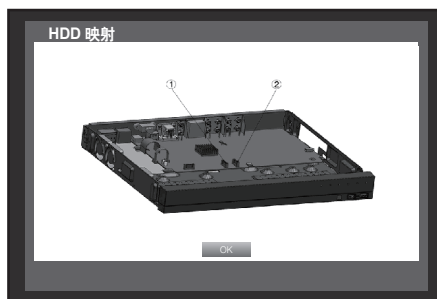
< HRD-1642 >



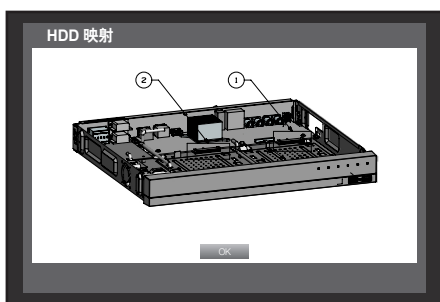
< HRD-1641 >



< HRD-842 >



< HRD-841 >



< HRD-442 >

3. 要移至上一菜单，请按 <确定>。

格式化

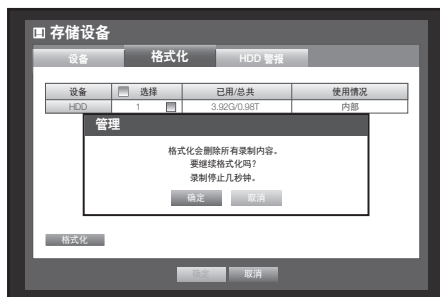
您可以格式化存储设备。

使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <存储设备>，然后按 [选择] 按钮。
2. 选择 <格式化>。
选择设备进行格式化的窗口将会出现。
3. 使用方向按钮 (▲▼◀▶) 选择要格式化的设备。



4. 选择屏幕底部的 <格式化>。
在“管理”确认窗口上按 <确定>，将开始格式化选定的设备。
5. 在完成格式化后，按 <确定>。

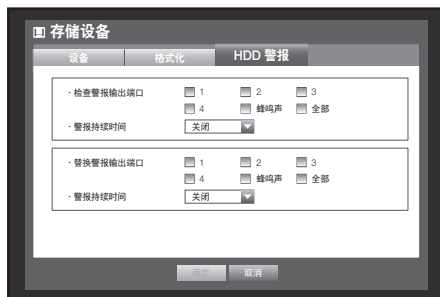


HDD 警报

您可以硬盘故障设置警报设置，如检查警报输出端口、替换警报输出端口及其持续时间。

使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <存储设备>，然后按 [选择] 按钮。
2. 选择 <HDD 警报>。
设置硬盘检查和更换输出端口及其持续时间的窗口将会出现。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目。



- 警报
 - 在选择 <1>、<2>、<3> 和 <4> 时，警报信号将通过背面的警报输出端口输出。
 - 如果选择 <蜂鸣声>，将发出哔声。
 - 如果选择 <全部>，将通过背面端口输出哔声和警报信号。
- 检查警报输出端口：如果硬盘产生检查警报，则警报信号将输出到指定的警报输出端口。
- 替换警报输出端口：如果硬盘产生更换警报，则警报信号将输出到指定的警报输出端口。
- 警报持续时间：设置警报信号和哔声的警报持续时间。
 - 检查警报、更换警报信号将通过选定的警报输出端口（1、2、3 和 4）输出。
 - 如果选择 <蜂鸣声>，将发出哔声。
 - 如果选择 <全部>，将通过背面端口输出哔声和警报信号。

主菜单

- ✎ **<检查>** 状态表示硬盘正在使用中，但它有需要技术检查的问题。
() 会出现在现场屏幕上。
- **<更换>** 状态表示硬盘有缺陷，需要立即更换。
() 会出现在现场屏幕上。
- 如果无法正确识别安装的硬盘，确认弹出窗口将会出现。

4. 在完成硬盘警报设置后，按 **<确定>**。

远程设备

您可以设置 RS-485 通过使用 PTZ 摄像机和系统键盘与 DVR 通讯。

使用鼠标可以帮助简化设置。

1. 使用 **<设备>** 窗口中的上/下按钮 (▲▼) 移至 **<远程设备>**，然后按 **[选择]** 按钮。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后按 **[选择]** 按钮。
3. 设置远程设备每个通讯设置的值。
 - 波特率：DVR、PTZ 摄像机和系统键盘的波特率设置应该匹配才能正常操作。
4. 确保匹配 DVR、系统键盘和遥控器的 ID，然后按 **<确定>**。



- ✎ 若要更改遥控器 ID，请参阅“**更改遥控器 ID**”。(第 16 页)

POS 设备 (HRD-442/842/1642)

您可以设置已连接至 DVR 的 POS 设备属性。

POS 设备连接要求频道、预设和端口/以太网设置。

使用鼠标可以帮助简化设置。

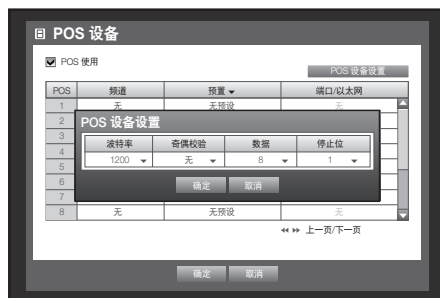
1. 使用 **<设备>** 窗口中的上/下按钮 (▲▼) 移至 **<POS 设备>**，然后按 **[选择]** 按钮。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - POS 使用：在选择 **<POS 使用>** 后，DVR 将与 POS 连接。

- ❗ 如果您更改设备设置并按 **<确定>**，却没有选中 **<POS 使用>**，将不会保存对 POS 设备的更改。

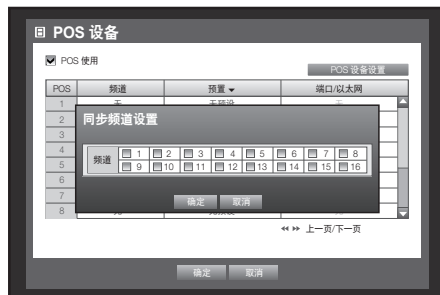


- ✎ 高清 (4MP / 1080p / 720p) 摄像机不支持 POS 功能，仅可将 DVR 连接至标清摄像机。

- POS 设备设置：设置 POS 设备和 DVR 的通讯设置。
 - 它独立于远程设备设置。



- 频道：选择要与 POS 设备同步的摄像机。
 - 如果选择了频道输入字段，“同步频道设置”窗口将会出现。
 - 一个 POS 设备最多可以与 16 部摄像机（频道）同步，一个频道也可以与多个 POS 设备同步。
 - 与 POS 设备同步的频道应该在“主菜单 > 录制 > 录制计划”中设置为“事件”。（第 64 页）



- 预置：设置接收人的姓名、开始关键字、结束关键字以进行预设。
 - 预设姓名应该唯一。
 - 使用 <添加> 按钮显示“添加预设”窗口，并设置其姓名、开始关键字、结束关键字。



- 端口/以太网：设置 DVR 和 POS 设备连接的端口号。
 - COM1：对于 RS-232C 连接
 - 7001~7016 用于以太网连接

3. 在完成 POS 设备设置后，按 <确定>。

主菜单

监视器

您可以配置要显示的信息及其现场输出监视器的格式。

设置监视器

使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <监视器>，然后按 [选择] 按钮。

2. 选择 <监视器>。

3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。

- 事件显示：当事件发生时，设置在显示器上事件频道显示的停顿时间。
如果选择 <连续>，则会显示频道，直到您按下 [报警] 按钮解除它为止。

- 显示器：仅在检查的项目位于显示屏上时显示。

- 多频道切换时间：设置在现场屏幕的 4 分屏和 9 分屏模式下自动显示切换的时间间隔。

- VGA/HDMI：将首选屏幕分辨率设置为 <VGA> 或 <HDMI>。

- HDMI 分辨率自动探测：如果将其设置为 <打开>，则会自动检测 HDMI 屏幕分辨率。
如果 HDMI 监视器没有连接，则分辨率将被设为 VGA/HDMI。
如果监视器不支持 <VGA> 或 <HDMI> 分辨率，则其可能无法显示任何东西。

4. 在完成显示器设置后，按 <确定>。



显示位置设置

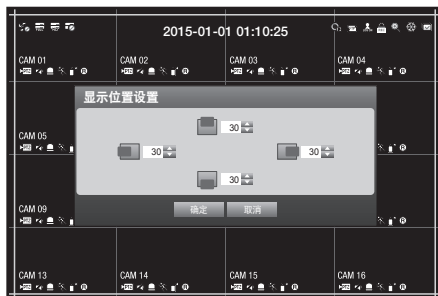
一些监视器可能无法显示有关 DVR 的信息（摄像机名称、图标、时间信息等等），视具体情况而定。然后，可以更改数据的显示位置。

1. 在 <设备> 窗口中，按上/下 (▲▼) 按钮移至 <监视器>，然后按 [选择] 按钮。

2. 选择 <监视器> 项目。

3. 选择底部的 <显示位置设置>。
将会移至 <显示位置设置> 窗口。

4. 使用四个方向按钮、前面板上的数字按钮或遥控器调整数据位置。



设置现场输出

除显示器输出之外，您还可以设置 DVR 以输出信息/视频。
使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <监视器>，然后按 [选择] 按钮。
2. 选择 <现场输出>。
 - “现场输出” 端子数因型号而异。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。



- 现场输出：默认情况下，它支持自动切换和单画面模式，并且如果选择多个现场输入，则它还支持 16 分屏、9 分屏和 4 分屏模式。
- 设置模式：“设置现场输出”窗口将会出现，您可以为它设置频道。
您可以设置在“设置设备 > 摄像机 > 帧扫描停留时间”切换时屏幕间的停顿时间。（第 54 页）
- 事件显示：设置关于事件现场输出的持续时间。
如果选择 <关闭>，事件将不会输出至现场输出。



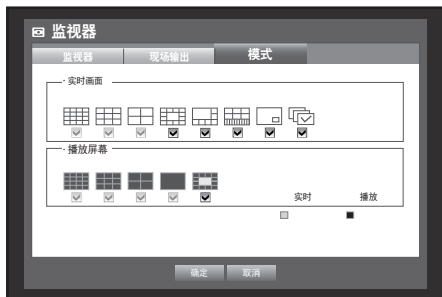
- 您可以在现场屏幕中使用鼠标右键进行设置。
请参阅“现场输出”。（第 41 页）
- 如选择多个现场，将弹出“已禁用双帧模式”警告。

4. 在完成现场输出设置后，按 <确定>。

设置屏幕模式

您可以配置现场屏幕和分割屏幕。
使用鼠标可以帮助简化设置。

1. 使用 <设备> 窗口中的上/下按钮 (▲▼) 移至 <监视器>，然后按 [选择] 按钮。
2. 选择 <模式>。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 实时画面：选择现场屏幕的分屏模式。默认包括 16 分屏、9 分屏和 4 分屏。
 - 播放屏幕：选择播放屏幕的分屏模式。
仅 13 分屏为可选。
黑色表示播放而白色表示现场屏幕。
4. 在完成屏幕模式设置后，按 <确定>。



主菜单

设置录制

您可以设置计划的录制、事件录制和其他录制相关的设置。

录制计划

预定日期和时间以便在指定的时间计划录制。

使用鼠标可以帮助简化设置。

1. 按遥控器或前面板上的[菜单]按钮。
2. 使用左/右按钮 (◀ ▶) 选择 <录制>。
选择录制菜单。
3. 使用上/下按钮 (▲ ▼) 移至 <录制计划>，然后按 [选择] 按钮。



4. 选择 <录制计划>。
计划的录制设置窗口将会出现。
 5. 使用方向按钮 (▲ ▼ ◀ ▶) 移至所需的项目，
然后设置数值。
- 频道：选择一个频道以设置录制计划时间和日期格式。
 - 录制类型：选择各个时间单元格，然后选择类型开始录制。



- 应用于全部频道：如果选择 <应用于全部频道>，
“应用于全部频道”窗口将会出现。
按 <确定> 将设置应用于全部频道中。

6. 在完成录制计划设置后，按 <确定>。



- 事件录制和计划录制会在事件/计划前约 3 秒开始，以保证录制内容完整。



录制颜色标记

颜色	部件名称	功能
白色	不录制	无计划/事件录制
橙色	连续	仅适于计划的录制
蓝色	事件	仅适于事件录制
绿色	两者(连续&事件)	适于计划/事件录制

每次按所选单元格均会通过 <不录制>-<连续>-<事件>-<两者(连续&事件)> 循环。

事件录制持续时间

您可以对事件设置录制的开始和结束点位置。

使用鼠标可以帮助简化设置。

1. 使用 <录制> 窗口中的上/下按钮 (▲▼) 移至 <事件录制持续时间>，然后按 [选择] 按钮。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 事件前：录制将保持从早于实际事件发生的事件前时间设置的点开始。
如果设置为 5 秒，则录制从事件前的 5 秒钟开始进行。
 - 事件后：录制将保持到与事件实际结束时间相比之后设置的事件后的时间点。
如果设置为 5 秒，则录制在事件之后的 5 秒钟内结束。
3. 在完成事件录制持续时间设置后，按 <确定>。



录制质量和分辨率

您可以按频道和按标准/事件的录制类型设置分辨率、FPS 和录制质量。

有关分辨率的更多信息，请参阅“产品规格”一节。(第 124 页)

设置标准录制属性

您可以设置每个频道的分辨率、质量和 FPS 以进行正常录制。

使用鼠标可以帮助简化设置。

1. 使用 <录制> 窗口中的上/下按钮 (▲▼) 移至 <录制质量和分辨率>，然后按 [选择] 按钮。
2. 选择 <标准>。
3. 在完成录制设置后，按 <确定>。



主菜单

设置事件录制属性

您可以设置每个频道的分辨率、质量和 FPS 以进行事件录制。

使用鼠标可以帮助简化设置。

1. 使用 <录制> 窗口中的上/下按钮 (▲▼) 移至 <录制质量和分辨率>，然后按 [选择] 按钮。

2. 选择 <事件>。

事件录制设置窗口将会出现。

3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后选择。

- 分辨率：设置录制屏幕的分辨率。
- 录制速率：每秒图像，指每一秒录制的帧。
- 录制质量：设置录制质量。

4. 在完成事件录制设置后，按 <确定>。



■ 估计总剩余数目表示标准和事件录制的剩余录制总数。

■ 如果当前剩余数目已达到 0，或当前其他页面上没有剩余数目，则您无法增加剩余数目。这种情况下，请减少当前页面的剩余数目，或减少同一频道上任何其他页面的剩余数目。



录制选项

当硬盘空间不足时，您可以将录制设为停止或覆盖。

使用鼠标可以帮助简化设置。

1. 使用 <录制> 窗口中的上/下按钮 (▲▼) 移至 <录制选项>，然后按 [选择] 按钮。

2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。

• 无空间模式：如果已选择 <覆盖>，录制将会继续，即使硬盘已满也能覆盖最旧的数据。

如果选择 <停止>，在硬盘满时录制就会停止。

• 无空间报警：如果选择 <停止>，则会激活按钮。如果您选中它，哔声将会在硬盘已满和录制停止时听到。

• 自动删除：如果您选中它，会激活录制时间段设置。

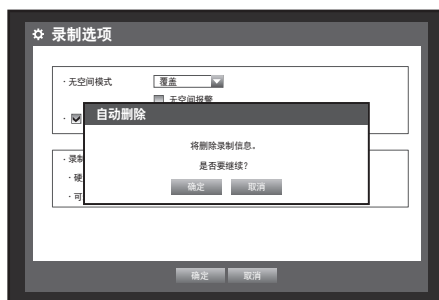
如果您指定自动删除时间段，则会自动删除该时间段之前的录制数据。

■ 仅当将无空间模式设置为 <覆盖> 时，此选项才可用。

• 硬盘可用空间：显示硬盘上剩余的可用空间/总容量。

• 可录制（天数/小时数）：根据剩余可用空间，显示估计可用于录制的剩余天数和小时数/总天数和小时数。

3. 在完成录制选项设置后，按 <确定>。



设置事件

您可以针对传感器、动作、视频丢失和篡改检查事件设置录制选项。

传感器检测

您可以设置传感器的操作条件和连接的摄像机，以及警报输出及其持续时间。

使用鼠标可以帮助简化设置。

- 1. 按遥控器或前面板上的 [菜单] 按钮。
- 2. 使用向左/向右按钮 (◀ ▶) 选择 <事件>。
将会选择事件设置菜单。



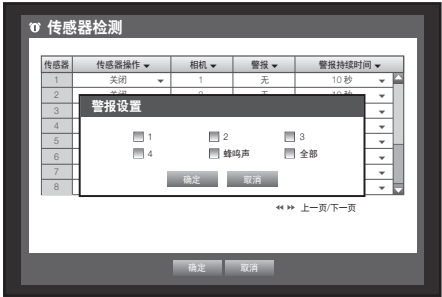
- 3. 使用上/下按钮 (▲ ▼) 移至 <传感器检测>，然后按 [选择] 按钮。
传感器检测设置窗口将会出现。



- 4. 使用方向按钮 (▲ ▼ ◀ ▶) 移至所需的项目，然后设置数值。
- 传感器操作：设置传感器的操作模式。
 - <关闭>：传感器没有操作。
 - <常开>：传感器处于打开状态。
如果传感器被关闭，会发出警报。
 - <常闭>：传感器处于关闭状态。
如果传感器受到中断而打开，会发出警报。
- 摄像机：选择要连接至传感器的频道。
如果选择摄像机，“摄像机预设设置”窗口会出现。
选择频道，并设置预设。
- 在 PTZ 模式下可进行预设设置。
请参阅“预设设置”。（第 87 页）



- 警报：设置警报输出方式。
 - 有关警报输出的详细信息，请参阅“HDD警报 > 警报”。（第 59 页）
 - 警报持续时间：设置警报信号和警报声音的持续时间。
5. 在完成传感器检测设置后，按 <确定>。



主菜单

动作检测

您可以设置目标检测区域和动作，以及警报信息输出。
当设置动作检测区域时，它会在该区域内检测动作。

使用鼠标可以帮助简化设置。

1. 使用〈事件〉窗口中的上/下按钮（▲▼）移至〈动作检测〉，
然后按〔选择〕按钮。
动作检测区域设置窗口将会出现。

2. 使用方向按钮（▲▼◀▶）移至所需的项目，
然后设置数值。

- 模式：设置是否激活动作检测。
- 灵敏度：设置动作检测的灵敏度级别。
- 警报：设置警报输出方式。
 - 有关警报输出的详细信息，请参阅“HDD警报 > 警报”。（第 59 页）
- 警报持续时间：设置警报信号和警报声音的持续时间。

3. 在完成动作检测设置后，按〈确定〉。



设置动作检测区域

① 选择〈动作地区〉。

② 当出现“动作地区”窗口时，选择检测频道并设置动作检测区域。

- 在“动作地区”窗口中设置区域

在“动作地区”窗口中，从 < [] [] [] [] [] >
中选择所需的区域。

- 使用〈单个〉选择设置区域

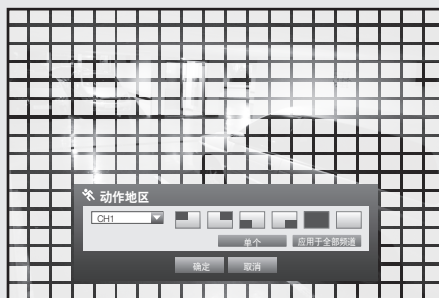
在“动作地区”窗口中，可以通过使用〈单个〉选择单个单元格。

在选择〈单个〉时，“动作地区”窗口会消失，同时您可以依次选择单元格。当进行动作区域设置时，

按屏幕上的〈菜单〉或遥控器或前面板上〔菜单〕按钮以再次显示“动作地区”窗口。

- 选择：选择的单元格被设为动作检测区域的一部分。
- 取消选择：从动作检测区域删除选择的单元格。
- 翻转：取消选择单元格被设为动作检测区域。
- 菜单：在选择单个动作区域之后，移至“动作地区”窗口。
 - 如果选择〈应用于全部频道〉，选取的动作区域适用于所有频道。

③ 在完成动作检测设置后，按〈确定〉。



- ✓ 选择
- 取消选择
- 翻转
- 菜单

视频丢失检测

您可以设置在摄像机断开时产生警报，这样会引起视频丢失。
使用鼠标可以帮助简化设置。

1. 使用 <事件> 窗口中的上/下按钮 (▲▼) 移至 <视频丢失检测>，然后按 [选择] 按钮。
会出现视频丢失检测区域设置窗口。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 视频丢失状态：设置是否激活视频丢失检测。
 - 警报：设置警报输出方式。
 - 有关警报输出的详细信息，请参阅“HDD警报 > 警报”。
 - 警报持续时间：设置警报信号和警报声音的持续时间。
3. 视频丢失检测设置完成后，按 <确定>。



篡改检查

您可以设置为检测篡改尝试并触发事件，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。
使用鼠标可以帮助简化设置。

1. 使用 <事件> 窗口中的上/下按钮 (▲▼) 移至 <篡改检查>，然后按 [选择] 按钮。
防拆检测设置屏幕将会出现。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 模式：设置是否使用篡改检查。
 - 灵敏度：设置篡改检查的灵敏度级别。
 - 警报：设置警报输出方式。
 - 警报持续时间：设置警报信号输出及其停留时间。
3. 完成防拆检测设置并选择 <确定>。



- 由于篡改检查设计和优化取决于用户定义的灵敏度等级，在一般检测情况，变动的灵敏度条件下，可能不会呈现显著差异。
- 当篡改检测模式设置为<打开>时，建议将相应频道的事前记录时间设置为至少10秒。

主菜单

警报计划

您可以设置计划警报的条件和操作时数。

使用鼠标可以帮助简化设置。

1. 使用 <事件> 窗口中的上/下按钮 (▲▼) 移至 <警报计划>，然后按 [选择] 按钮。

2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。

• 警报：设置警报输出方式。

- 有关警报输出的详细信息，请参阅“HDD警报 > 警报”。（第 59 页）

• <打开>：以桔黄色标记，而且总是以计划的时间生成警报。

• <关闭>：以白色标记，即使发生事件时也不会产生警报。

• 事件同步：以蓝色标记，仅当发生事件时产生警报。

• 应用于所有警报：将配置的计划应用于所有警报。



■ 当警报在计划的时间内产生时，您可以通过取消计划停止警报。

3. 在完成警报计划设置后，按 <确定>。



备份

您可以按频道或时间检查备份设备和设置备份计划。

本产品仅支持 USB HDD 外部存储器。（第 124 页）

设置备份

您可以将所需的数据备份到连接的设备上。

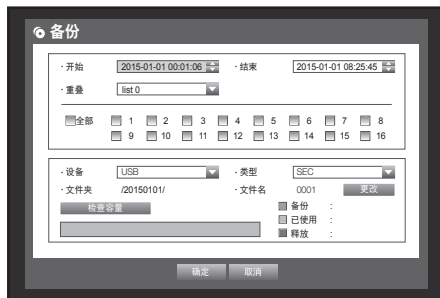
使用鼠标可以帮助简化设置。

1. 按遥控器或前面板上的 [菜单] 按钮。

2. 使用左/右按钮 (◀▶) 选择 <备份>。即选择备份菜单。



3. 按 [选择] 按钮。
会出现备份窗口。
您可以从“现场屏幕菜单”直接访问它。（第 34 页）



4. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 备份范围：设置备份的 <开始> 和 <结束> 时间。
 - 频道：设置要备份的频道。
可以选择多个频道。
 - 设备：从识别的设备中选择备份设备。
 - 类型：设置备份数据格式。
 - DVR：保存的数据只能通过 DVR 播放。
 - AVI：保存由 DVR 通过录制数据提供的 CODEC 信息，而且保存的数据可使用外部查看器（如 Windows Media Player）在电脑上播放。
 - 如果需要在 Windows 中安装编解码器，则运行备份 AVI 文件时创建的编解码器文件夹中的 x264_dvr.exe 文件。
 - SEC：以带有内置查看器的 Hanwha Techwin 专有格式保存数据，其支持在电脑上直接播放。
 - 文件名：您可以设置备份文件名。
 - 请参阅“使用虚拟键盘”。（第 46 页）
 - 检查容量：显示所选备份数据的大小、所选备份设备的已用和可用容量。
 - 重叠：相同时间的两段录像重叠数据列表。
当一个频道在特定的时间点（由于时间改变或时区变化等）有多个数据时出现。
 - 请参阅“设置日期/时间/语言”的时间和时区。（第 44 页）
5. 在完成备份设置后，按 <确定>。
 - 如果没有可识别的设备用于备份，则 <确定> 按钮不会被激活。



- 在备份期间，应用程序运行速度可能会降低。
- 当存储器设备用作备份时，由于系统消耗了其部分容量，因此备份不会用到媒体的全部容量。
- 您可以在备份过程中切换到菜单屏幕进行操作，但数据播放不可用。
- 将存储设备用于备份时，因系统占用部分容量，可能无法利用介质的全部容量。
- 如果备份失败，请选择“设备 > 存储设备”，并检查硬盘的可用空间，同时检查是否正确连接硬盘。



- 在备份期间按 <退出> 将会返回至上一个菜单，而不会继续备份。

主菜单

网络配置

它从远程位置提供现场屏幕的网络监控，同时根据事件支持邮件转寄功能。 您可以配置支持此类功能的网络环境。

连接模式

您可以设置网络连接路由和协议。

设置连接

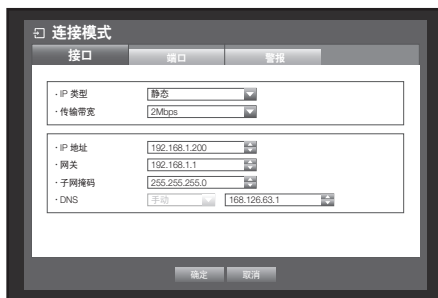
设置网络的通讯协议和环境。

使用鼠标可以帮助简化设置。

1. 按遥控器或前面板上的 [菜单] 按钮。
2. 使用左/右按钮 (◀ ▶) 选择 <网络>。
会选择网络菜单。
3. 使用上/下按钮 (▲ ▼) 移至 <连接模式>，然后按 [选择] 按钮。



4. 选择 <接口>。
会出现连接模式设置窗口。
 5. 使用方向按钮 (▲ ▼ ◀ ▶) 移至所需的项目，
然后设置数值。
- IP 类型：设置网络连接模式。
 - 传输带宽：设置需要传输的最大数据流。（上传速度）
选项将视选择的连接模式而异。
 - 对于 <静态>、<DHCP>：从 50 kbps ~ 2Mbps 和 “无限制” 中选择一个。
 - 对于 <PPPoE>，从 50 kbps ~ 600 kbps 中选择一个。



- IP 地址、网关、子网掩码和 DNS
 - 对于 <静态>：您可以直接输入 IP 地址、网关、子网掩码和 DNS。
 - 对于 <DHCP>：将会自动设置 IP 地址、网关和子网掩码。
 - 对于 <PPPoE>：将会自动设置 IP 地址、网关和子网掩码。
- ID、密码：如果您选择 PPPoE，则需提供“ID”和“密码”。



- 对于 <DHCP> 和 <PPPoE> 的 DNS 服务器仅在选择 <手动> 时由用户设置。



6. 在完成连接设置后，按 <确定>。

设置端口

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <连接模式>，然后按 [选择] 按钮。
2. 选择 <端口>。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。



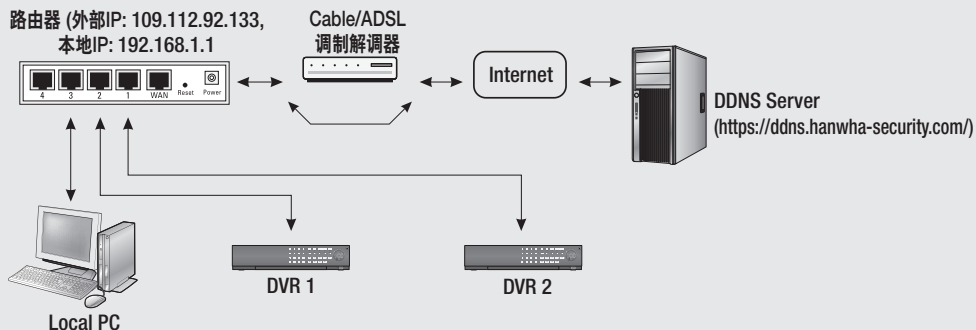
- 协议类型：选择 TCP 和 UDP 间的协议类型。
 - TCP：如果与 UDP 比较，TCP 连接更稳定，但速度较慢。建议用于互联网连接。
 - UDP：如果与 TCP 比较，UDP 稳定性略低，但速度较快。建议在 LAN 环境中使用。
 - 如果选择 UDP，则会激活设备端口、UDP 端口和单播/多播。
 - 如果将连接模式设置为 PPPoE，则不能选择 UDP 作为协议类型。
 - 设备端口：在开始时，设置 <4520~4524>。按 5 的倍数增加/减少。
 - TCP：与 UDP 相比，它具有更好的稳定性和较低速度，建议用于互联网环境。
 - UDP 端口：在开始时，设置 <8000~8160>。按 160 的倍数增加/减少。
 - 单播/多播：在 UDP-单播 和 UDP-多播 中选择一个。
 - 如果选择多播，则会激活多播 IP 和 TTL。
 - UDP-单播：将数据包传输至个别客户端。
 - UDP-多播：允许与多个客户端进行数据通信，导致网络不能容纳其他流量。
 - 多播 IP 地址：用户可直接输入。
 - 多播 TTL：从 0 ~ 255 中选择，TTL 的初始值设为 <5>。
 - HTTP 端口：输入 Web 查看器的端口号。在开始时，它被设为 <80>。
 - 安全视频传输：对视频加密并进行传输。
 - 如果将其设置为 <打开>，则可以限制网络性能。
 - 备份带宽：选择网络备份速度。
4. 在完成协议设置后，按 <确定>。

主菜单

注意

- 在多浏览器环境下，网络端口应设置为80.(专用端口)
对于RTSP, 从4505和4530中选择一个。

• 网络概要



System	DVR 1		DVR 2	
	WEB	RTSP	WEB	RTSP
IP	192.168.1.200	192.168.1.200	192.168.1.202	192.168.1.202
协议	TCP	TCP	TCP	TCP
专用端口	80	4520~4524	81	4525~4529
公共端口	80	4520~4524	81	4525~4529

连接模式

接口 端口 警告

· IP 类型: 静态

· 传输带宽: 2Mbps

· IP 地址: 192.168.1.200

· 网关: 192.168.1.1

· 子网掩码: 255.255.255.0

· DNS: 手动 168.126.63.1

确定 取消

连接模式

接口 端口 警告

· IP 类型: 静态

· 传输带宽: 2Mbps

· IP 地址: 192.168.1.202

· 网关: 192.168.1.1

· 子网掩码: 255.255.255.0

· DNS: 手动 168.126.63.1

确定 取消

连接模式

接口 端口 警告

· 协议类型: TCP

· 设备端口: 4520 ~ 4524

· UDP 端口: 5000 ~ 8100

· 单播/多播: UDP-Unicast

· 多播 IP 地址: 224.126.63.1

· 多播 TTL: 0

· HTTP 端口: 80

· 安全视频传输: ☒ 打开 ☐ 关闭

· 备份带宽: ☒ 低 ☐ 中 ☐ 高

确定 取消

连接模式

接口 端口 警告

· 协议类型: TCP

· 设备端口: 4525 ~ 4529

· UDP 端口: 5000 ~ 8100

· 单播/多播: UDP-Unicast

· 多播 IP 地址: 224.126.63.1

· 多播 TTL: 0

· HTTP 端口: 81

· 安全视频传输: ☒ 打开 ☐ 关闭

· 备份带宽: ☒ 低 ☐ 中 ☐ 高

确定 取消

• 第一台DVR 端口映射设置

端口映射为 4520~4524
(4520, 4521, 4522, 4523, 4524)

端口映射为 80

• 第二台DVR 端口映射设置

端口映射为 4525~4529
(4525, 4526, 4527, 4528, 4529)

端口映射为 81

主菜单

连接和设置网络

网络可能具有不同的连接方式，请在设置连接模式之前先检查您的环境。

如果没有使用路由器

• 静态 模式

- 互联网连接：静态 IP PPPoE、租用线路和 LAN 环境支持 DVR 和远程用户间的连接。
- DVR 网络设置：将已连 DVR 的 <连接> 菜单中的 <接口> 设置为 <静态>。
 - 请咨询您的网络管理员以获取 IP 地址、网关和子网掩码。



• DHCP 模式

- 互联网连接：将 DVR 直接连接至有线电视网调制解调器、DHCP PPPoE 调制解调器或 FTTH 网络。
- DVR 网络设置：将已连 DVR 的 <连接> 菜单中的 <接口> 设置为 <DHCP>。

• PPPoE 模式

- 互联网连接：PPPoE 调制解调器直接连接至 DVR，此时 PPPoE 连接需要用户 ID 和密码。
- DVR 网络设置：将已连 DVR 的 <连接> 菜单中的 <接口> 设置为 <PPPoE>。
 - <ID> 和 <密码> 应与 PPPoE 用户信息相同。
如果您不知道 ID 和密码，请咨询您的 PPPoE 服务提供商。



如果使用路由器



■ 为避免 IP 地址与 DVR 的静态 IP 发生冲突，请对以下进行检查：

• 设置带有静态 IP 的 DVR

- 互联网连接：您可以将 DVR 连接至与 ADSL/Cable 调制解调器连接的路由器上或连接至在局域网 (LAN) 环境中的路由器上。

• 设置 DVR 网络

1. 将已连 DVR 的 <连接> 菜单中的 <接口> 设置为 <静态>。
2. 检查设置的 IP 地址是否在宽带路由器提供的静态 IP 范围之内。
IP 地址、网关、和子网掩码：请咨询您的网络管理员。
 - 检查设置的 IP 地址是否在宽带路由器提供的静态 IP 范围之内。



■ 如果 DHCP 服务器配置了开始地址 (192.168.0.100) 和结束地址 (192.168.0.200)，您应在配置的 DHCP 范围 (192.168.0.2 ~ 192.168.0.99 和 192.168.0.201 ~ 192.168.0.254) 之外设置 IP 地址。

3. 检查网关地址和子网掩码是否与设置在宽带路由器中的相同。

• 设置宽带路由器的 DHCP IP 地址

1. 要访问宽带路由器配置，在连接到宽带路由器的本地计算机上打开 Web 浏览器，然后输入路由器地址（如：http://192.168.1.1）。
2. 在此阶段，按下例配置本地计算机的 Windows 网络：
 - 例如) IP 地址：192.168.1.2
 - 子网掩码：255.255.255.0
 - 网关：192.168.1.1
- 在连接到宽带路由器之后，会提示输入密码。虽然在“用户名”字段中什么也不用输入，但要在密码字段中输入“admin”，并按 <确定> 访问路由器配置。
- 访问路由器的 DHCP 配置菜单和设置其 DHCP 服务器激活，并提供开始和结束地址。
设置开始地址 (192.168.0.100) 和结束地址 (192.168.0.200)。



■ 以上步骤可能根据厂商的路由器设备而有所不同。

主菜单

• 设置路由器的正向端口

1. 将协议设置为 <TCP>。
2. 外部端口范围：将 TCP 端口设置输入到已连 DVR 的 <端口> 菜单中的 <设备端口>。
如果多个 DVR 与路由器连接，则 TCP 端口可能会不同。
3. 内部 PC IP 地址：将 IP 地址设置输入到已连 DVR 的 <接口> 菜单中的 <IP 地址> 中。
4. 内部端口范围：设置与“外部端口范围”相同。



■ 以上步骤可能根据厂商的路由器设备而有所不同。
当您访问从路由器的网络外部连接该路由器的 DVR 时需要正向端口。



警报设置

1. 在 <网络> 设置窗口中，按上下 (▲▼) 按钮以便移动到 <连接模式> 模式，然后按 [ENTER] 按钮。
2. 选择 <警报> 菜单。
3. 按上/下/左/右 (▲▼◀▶) 按钮以便切换设置并设置您的首选项。
 - 断开与警报输出端口的连接：选择终止网络连接时输出警报的方法。
 - 如果选择 <1>, <2>, <3> 或 <4>, 则会从后面的警报输出终端输出信号。
 - 如果选择 <蜂鸣声>, 则会播放警报声音。
 - 如果选择 <全部>, 警报信号输出和后方警报音将同时响起。
 - 警报持续时间：选择警报信号输出和警告声音的持续时间。
 - 警报会输出到在连接取消警报输出端口中选择的警报输出终端。
 - 如果选择 <蜂鸣>, 则会播放警报声音。
 - 如果选择 <全部>, 警报信号输出和后方警报音将同时予以设定。
4. 设置完警报之后，选择 <确定>。



DDNS

您可以为远程用户的网络连接设置 DDNS 站点。
使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <DDNS>，
然后按 [选择] 按钮。
DDNS 设置屏幕将会出现。



2. 使用虚拟键盘输入 <产品 ID>。
 - 请参阅“使用虚拟键盘”。(第 46 页)
 - 如果选择 <关闭> 则会取消激活输入字段。
 - 如果选择了 <hanwha-security.com>，将会禁用服务器名称字段。
- DDNS 站点：设置是否使用 DDNS，并选择 DDNS 站点（如果已启用）。
- 服务器名称：输入所选 DDNS 站点的服务器名称。
- 产品 ID：输入向 DDNS 站点注册的产品 ID。
- Quick Connect：如果将 <DDNS 站点> 设置为 <hanwha-security.com>，则会出现。
要使用此功能，请将 DVR 连接至 UPnP 路由器并设置为 <使用>。



- 如果在处理期间取消了 quick connect 设置，则系统会自动将它设置为 <未使用>。

3. 在完成 DDNS 设置后，按 <确定>。

主菜单

DDNS 设置

DDNS 上动态域名命名系统 (Dynamic Domain Naming System) 的缩写形式。

DNS (域名系统) 是一种服务, 它将包括用户友好特征 (如: www.google.com) 的域名发送至包括 (64.233.189.104) 数字的 IP 地址。

DDNS (动态 DNS) 是一种通过 DDNS 服务器注册域名和浮动 IP 地址的服务, 以便使域名不会发送至 IP 地址中, 即使 IP 在动态 IP 系统进行更改的情况下。

• 在 DVR 中设置 DDNS

将已连 DVR 的 <端口> 菜单中的 <协议类型> 按如下进行设置:

例如) 协议类型: TCP

设备端口: 4520~4524

DDNS 站点: hanwha-security.com

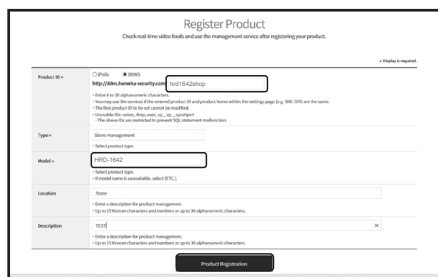
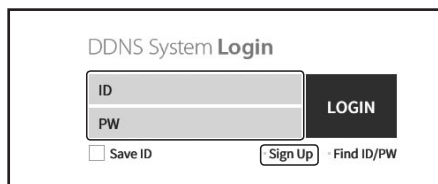
• 路由器的 DDNS 设置

选择路由器网络传输协议的相应菜单。

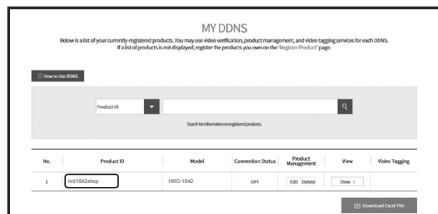
• 设置 Hanwha Techwin DDNS

转到你的电脑

1. 打开浏览器, 转到 <https://ddns.hanwha-security.com/>, 然后单击 <LOGIN>。
2. 首先, 需要创建一个帐户。
单击 <SIGN UP>。
3. 按照网站上的帐户注册说明进行注册。
4. 完成帐户注册后, 登录帐户。
5. 将 DVR 添加到帐户中。单击 <Register Product>。
6. 为 DVR 创建一个名称 (“产品 ID”)。使用 4 到 20 个字母数字字符, 不带空格。选择 DVR 的类别、型号, 然后单击 <Product Registration>。



7. 注册后, 会在列表中看到产品。



No.	Product ID	Model	Connection Status	Product Management	View	Video Tagging
1	test1642nnp	HRD-1642	OFF	EDIT DELETE	VIEW	

返回 DVR

1. 在“网络”选项卡中，单击 <DDNS>。



2. 在“DDNS 站点”下，选择 <hanwha-security.com>。



3. 在“产品 ID”下，输入在 Hanwha Techwin DDNS 网站上创建的产品 ID。
在“Quick Connect”下，选择 <使用>，然后单击 <确定>。



- 如果连接未成功，则路由器可能不支持 UPNP。
有关在路由器上启用 UPNP 的详细信息，请参阅路由器手册。



主菜单

当前传输

设置从 DVR 传输至网络的图像质量。

使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <当前传输>，然后按 [选择] 按钮。
现场传输窗口将会出现。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 分辨率：显示所选网络配置文件的分辨率设置。
 - 质量：显示所选网络配置文件的图像质量设置。
3. 在完成现场传输后，按 <确定>。



邮寄服务

您可在特定的时间间隔或在事件发生时向 DVR 注册的用户发送电子邮件。



- 如果摄像机的视频设置为 <关闭> 的频道发生事件，则将仅有文本通知发送到适用的电子邮件地址。



- 如果将电子邮件通知的间隔设置得太短，电子邮件服务器可能会将它视为垃圾邮件，无法正常传输。

SMTP 设置

设置 SMTP 邮件服务器。

使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <邮寄服务>，然后按 [选择] 按钮。
2. 选择 <SMTP>。
将看到 SMTP 设置窗口。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 服务器类型：显示已连接的服务器类型。
 - 服务器地址：输入要与之连接的服务器。
 - 端口：设置通讯端口。
 - 使用认证：检查以确定 SMTP 服务器是否使用了用户验证。
将会激活帐户输入框。
 - ID：当连接至 SMTP 服务器时输入要使用验证的用户。
 - 密码：输入 SMTP 服务器用户的密码。

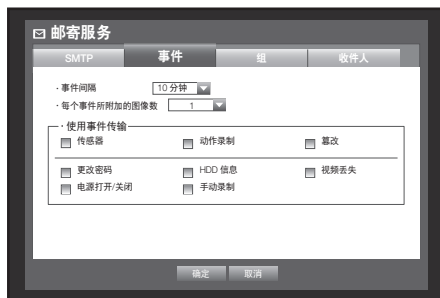


- 安全传输：从 <从不> 和 <TLS（如果可用）> 中选择一个。
 - 发件人地址：使用虚拟键盘输入发件人的电子邮件地址。
 - 请参阅“使用虚拟键盘”。（第 46 页）
 - 电子邮件测试：对服务器设置进行测试。
4. 在完成 SMTP 设置后，按 <确定>。

事件设置

您可以设置将会发送至用户的事件的时间间隔和类型。
使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮（▲▼）移至 <邮寄服务>，然后按 [选择] 按钮。
 2. 选择 <事件>。
 3. 使用方向按钮（▲▼◀▶）移至所需的项目，然后设置数值。
- 事件间隔：设置事件间隔。
 - 如果发生一系列事件，则会以特定的时间间隔，而不是按每个事件发送电子邮件。
 - 每个事件所附加的图像数：设置发生事件时发送的电子邮件中附加的图像数量。
 - 可以附加 1 到 5 个图像。
 - 使用事件传输：在事件发生时，选择要发送的事件类型。
如果发生选择的事件，将会向具有接收权限的小组发送电子邮件。
4. 在完成事件设置后，按 <确定>。



组设置

您可以设置发送电子邮件的组，并为每个组指定权限。
您可以在 <收件人> 菜单项中为每个组添加收件人。
收件人分别从 DVR 用户组中设置。
使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮（▲▼）移至 <邮寄服务>，然后按 [选择] 按钮。
 2. 选择 <组>。
 3. 使用方向按钮（▲▼◀▶）移至所需的项目，然后设置数值。
- 添加：选择 <添加> 并使用虚拟键盘添加组。
 - 请参阅“使用虚拟键盘”。（第 46 页）
 - 删除：删除选择的组。
 - 重命名：您可以对已有的组重新命名。
 - 接收人许可权：设置接收人组的许可权。
4. 在完成组设置后，按 <确定>。



主菜单

接收人设置

您可以根据需要，将收件人添加至指定的组，或者从指定的组中删除收件人，还可以编辑组。
使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <邮寄服务>，然后按 [选择] 按钮。
2. 选择 <收件人>。
3. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。



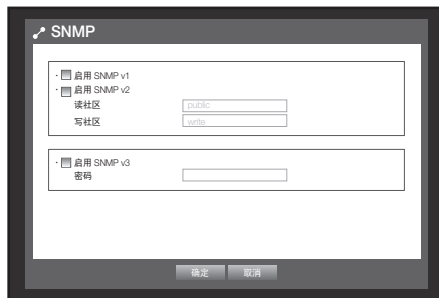
- 添加：您可以选择收件人名称、电子邮件地址或组。
在将用户添加到组之前，您应在 <组> 菜单项中创建组。
 - 有关输入收件人名称和电子邮件地址的信息，请参阅“使用虚拟键盘”。（第 46 页）
- 4. 在完成收件人设置后，按 <确定>。



SNMP

您可以配置 SNMP 协议的设置。
使用鼠标可以帮助简化设置。

1. 使用 <网络> 窗口中的上/下按钮 (▲▼) 移至 <SNMP>，然后按 [选择] 按钮。
SNMP 设置屏幕将会出现。
2. 使用方向按钮 (▲▼◀▶) 移至所需的项目，然后设置数值。
 - 启用 SNMP v1：SNMP V1 将处于活动状态。
 - 启用 SNMP v2：SNMP V2 将处于活动状态。
 - 读社区：读取社区，可于其中访问支持 SNMP 协议的对象。
 - 写社区：写入社区，可于其中访问支持 SNMP 协议的对象。
 - 启用 SNMP v3：使用 SNMP 版本 3。
 - 密码：设置 SNMP 版本 3 初始用户密码。
3. 完成加密区域设置之后，单击 <确定>。



控制 PTZ 设备

DVR 能使您将 PTZ 摄像机和普通设备的设置调整为您所喜好的设置。

PTZ 设备

PTZ 设备仅在选择与 PTZ 摄像机连接的频道时激活。

开始使用 PTZ

PTZ 摄像机仅在通过以下方式选择频道时可用：

- 使用遥控器按钮
按遥控器上的 [PTZ] 按钮。
- 使用启动器菜单
单击 < PTZ > 显示现场启动器。
- 在现场模式中使用鼠标右键单击菜单
使用鼠标右键单击屏幕的任意位置显示上下文菜单，然后选择 <PTZ 控制>。
- 使用现场屏幕上的图标
单击现场屏幕上的 <PTZ> 图标。
- PTZ 功能仅在连接 PTZ 摄像机以在屏幕上显示 <PTZ> 图标时可用。



主菜单

使用 PTZ 摄像机

您可以使用一个摄像机执行平移、倾斜和缩放的所有功能以监视多个位置，并且可对所需模式的喜好进行预设。

1. 启动 <PTZ 控制> 菜单。

当右下角的 <PTZ> 图标变为黄色时，

您可以访问“PTZ 控制”模式以显示“PTZ 控制”菜单。



- 请务必在操作之前配置 PTZ 工作环境，因为即使在 PTZ 尚不可操作之前，也可能会激活 PTZ 正在工作（活动）标记。

2. 在启动器菜单中使用 PTZ 滚轮调整监视区域，或者使用遥控器上的方向按钮（▲▼◀▶）将摄像机移至所需位置。

- PTZ 滚轮：单击离中心较近的点将向该方向缓慢移动；单击离中心较远的点将快速移动。

- 不断单击左边将以逆时针方向旋转镜头；不断单击右边将以顺时针方向旋转镜头。

- 缩放 (🔍🔍)：您可以使用 PTZ 摄像机的缩放功能。
- 光圈 (🔆🔆)：调整光圈的光线强度。
- 对焦 (👁👁)：可让您手动调节对焦设置。
- 摆动：在预设起始点和结束点之间移动。
- 组：通过结合预设、模式和自动平移在指定的路径中移动。
- 跟踪：在预先定义的路径中移动摄像机的取景框。
- 预置：设置摄像机取景框的预设位置并在选择所需预设时移动到指定的预设位置。
- 巡视：通过结合多个分组在指定的路径中移动。
 - 对于同轴通信，操作可能会因协议而异。



- 在进入 PTZ 设备控制模式之前，在 <设置 PTZ> 菜单中设置 PTZ 设备的数值。（第 56 页）
- 有关 PTZ 通讯支持的详细信息，请参阅网站中的适用摄像机规格。



预设设置

预设是 PTZ 摄像机的一组指定的目标点，且每个摄像机最多可存储 127 个预设。使用鼠标可以帮助简化设置。

1. 在 PTZ 控制模式中，使用方向按钮将摄像机调整到所需的方向。

2. 选择 **<保存>** 键。

输入预设的虚拟键盘将会出现。

■ 请参阅“使用虚拟键盘”。（第 46 页）

- 保存：您可以添加和保存预设。
- 重命名：您可以重新给现有预设命名。
- 删除：删除选择的预设。
- 全部删除：删除全部现有的预设。



■ 如果您将存储预设列表频道的摄像机更换为一部新摄像机，则应随之重新进行预设。

3. 按 **<确定>**。

预设将保存为您所输入的名称。

摄像机设置

PTZ 摄像机具有其自己的菜单系统。根据 DVR 优化 PTZ 摄像机。

使用鼠标可以帮助简化设置。

• 选择 PTZ 控制菜单中的 **<摄像机设置>**。

摄像机特定菜单将会出现。

- 您可以对支持 Samsung-E/Samsung-T/Pelco-D/Pelco-p/ Panasonic/ Phillips/AD/DIAMOND/ERNA/KALATEL/VCL TP/VICON/ ELMO/GE 协议的摄像机的设置项进行配置。
- 如果您要在摄像机菜单中设置自动平移或模式，将适当的按钮按住一定时间，以便使按钮操作能够与正常 PTZ 设置有所不同。



搜索和播放

搜索

您可以按照时间或搜索条件（如事件）对录制的数据进行搜索。
您可以在现场模式中直接访问 <搜索> 菜单。

1. 在现场模式下，使用鼠标右键单击屏幕的任意位置。
现场屏幕将会出现。
2. 选择 <搜索>。
或者，按遥控器或前面板上的 [搜索] 按钮。



3. “搜索” 菜单将会出现。
 - 如果您在“主菜单 > 设备 > POS 设备”菜单中没有选中“使用 POS”，
则搜索菜单不会包括“POS 搜索”项目。（第 60 页）
4. 该搜索可能受自动删除功能限制。
请参阅“设置录制 > 录制选项”。（第 66 页）

-  ■ 重叠数据：它仅在特定时间存在重叠数据时出现，是由于 DVR 的时间设置更改产生的。从 <列表0> 看，最新的数据出现在最前面。
它不会出现在 <备份搜索> 中。



时间搜索

您可以搜索所需时间的录制数据。
由于显示的时间可能因时区和 DST 标准时间而异，以同一时间录制的数据时间可能在显示上有所不同，这取决于时区和 DST 设置。
使用鼠标可以帮助简化设置。

1. 在 <搜索> 菜单中选择 <时间搜索>。
2. 选择要搜索的日期。
 - 请参阅“使用日历”。（第 45 页）
3. 将会列出现在特定日期录制的的数据。
根据日期类型显示栏会有所不同。
检查数据类型以确定左方格中的颜色。
4. 使用方向按钮 (▲▼◀▶) 设置搜索条件，然后按 [选择] 按钮。
 - 转至第一：移至最早的日期。
 - 转至末尾：移至最近的日期。
 - 时间：输入时间以执行搜索或使用上/下按钮 <◆> 选择一个。
 - 上一页/下一页：移至上一页/下一页。（使用遥控器或前面板上的按钮。）



- 放大：映射会详细放大。
它将依次按 24 小时、16 小时、8 小时、4 小时的顺序进行切换。
- 缩小：映射将以上述详细模式相反的顺序进行切换。
它将依次按 4 小时、8 小时、16 小时、24 小时的顺序进行切换。



■ 双击所需的时间将其放大/缩小。

- 预览：单击 **<频道>** 并在 **<持续时间>** 中选择（单击、拖动）一次以显示该部分的静态图像。
– 如果所选的图像不包括任何录制的数据，它将会标记为黑色。
- 5. 选择数据项目并单击 **<播放>**。
屏幕将切换到数据播放模式。



事件搜索

您可以按频道搜索事件，然后进行播放。
使用鼠标可以帮助简化设置。

1. 在 **<搜索>** 菜单中选择 **<事件搜索>**。
2. 使用方向按钮 (▲▼◀▶) 设置搜索条件，然后按 **[选择]** 按钮。
 - 将会找到在特定日期进行的所有录制事件。
(包括正常/计划录制)
- 日期/时间预览：如果您选择此列表中的数据项目，所选数据的静态图像将会显示在左预览窗格中。
- 事件：显示已发生的事件类型。
3. 选择数据项目并单击 **<播放>**。
屏幕将切换到事件数据播放模式。



备份搜索

搜索已连接备份设备中的备份数据。
只有 DVR 格式的数据才包括在搜索中。
请参阅“**备份 > 设置备份**”中的 **<类型>**。（第 70 页）
使用鼠标可以帮助简化设置。

1. 在 **<搜索>** 菜单中选择 **<备份搜索>**。
2. 使用方向按钮 (▲▼◀▶) 设置搜索条件，然后按 **[选择]** 按钮。
 - 录制时间段：显示录制时间段。
 - 频道信息：显示已录制的频道。
 - 播放开始时间：选择开始播放的时间。
3. 选择数据项目并单击 **<播放>**。
屏幕将切换到备份数据播放模式。



搜索和播放

POS 搜索 (HRD-442/842/1642)

您可以搜索与 DVR 连接的 POS 设备中的数据。

您还可以使用鼠标选择相关的项目。

1. 在〈搜索〉菜单中选择〈POS 搜索〉。
2. 使用方向按钮 (▲▼◀▶) 设置搜索条件, 然后按 [选择] 按钮。
 - 您可以输入特定文字以精确搜索。
 - 关键字: 使用虚拟键盘输入关键字。
 - 搜索条件:
 - 〈区分大小写〉: 如果选择, 则会按区分大小写进行搜索。
 - 〈全文匹配〉: 如果选择, 只会找到完全匹配的关键字。
 - 预览: 选择表中的数据项目以显示预览图像。有关图像的信息将会显示在屏幕底部。
 - [◀▶] [▶▶]: 如果存在巨大的搜索结果列表, 您可以使用这些按钮加快搜索。
3. 选择数据项目并单击〈播放〉。
屏幕将切换到 POS 数据播放模式。

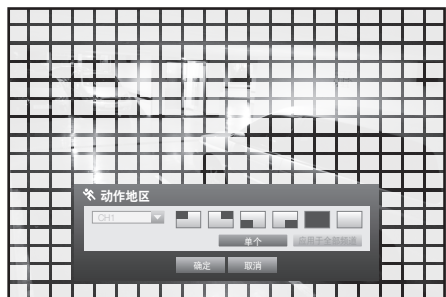


动作搜索

如果在每个频道中检测动作, 您可以设置所需的区域执行搜索。

您还可以使用鼠标选择相关的项目。

1. 在〈搜索〉菜单中选择〈动作搜索〉。
2. 使用方向按钮 (▲▼◀▶) 设置搜索条件, 然后按 [选择] 按钮。
 - 如果您将动作区域设为〈手动区域〉, 则会激活〈设置〉按钮。
 - 动作地区: 选择要执行搜索的区域。
 - 所有区域: 搜索所选频道的所有区域。
 - 当前区域: 搜索在“动作检测 > 设置动作检测区域”中指定的每个频道的动作区域。(第 68 页)
 - 手动区域: 您可以手动设置动作区域。
 - 设置: 仅当将动作区域设置为“手动”时才会激活“设置”按钮。按下该按钮以显示区域设置窗口。
 - 日期/时间: 日期/时间将会自动按小时设置, 同时结束时间将会自动设为迟于设置的开始时间(如果设置)一小时。
 - 预览: 选择表中的数据项目以显示项目的静态图像。
3. 选择数据项目并单击〈播放〉。
屏幕将切换到动作数据播放模式。



播放

您可以播放硬盘中存储的数据和备份所需的数据部分。
使用鼠标可以帮助简化设置。

1. 在现场模式中，单击鼠标右键后再单击 **<播放>**，
或单击启动器菜单中的 **<▶>**，
或按遥控器或前面板上的播放按钮。
2. 使用上/下按钮 (▲▼) 选择菜单。
 - 有关数据搜索的信息，请参阅 **<搜索>**。（第 88 页）



3. 选择数据项目并单击搜索菜单中的 **<播放>**。
播放所选的数据，且播放启动器会出现在屏幕上。
 - 如果存在现有数据，**<播放>** 会立即开始而不进行搜索。
- 播放信息：在顶角会显示当前数据的日期和时间。

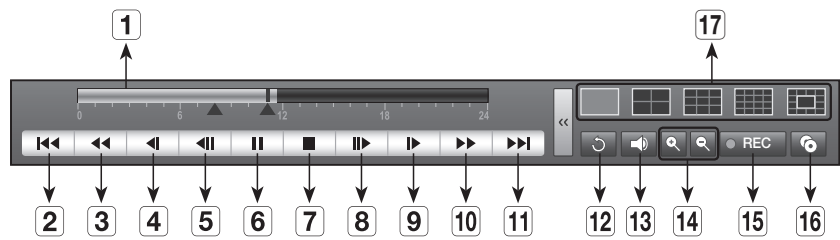


- 备份：单击 **<⏮>** 将当前时间设为备份的开始时间；
您可以使用鼠标（黄色三角形）指定备份区域。
再次单击 **<⏮>** 将当前时间设为备份的结束时间，同时
会出现“**备份范围**”窗口。
- 类型：支持AVI、DVR、SEC。
请参阅“**备份设置**”中的格式列表。（第 70 页）
- 设备：选择备份设备。
- 检查容量：可让您检查所选存储设备的容量。
- 4. 如果您想返回到播放模式中的现场屏幕，单击启动器菜单中的 **<■>**，或按遥控器或前面板上的 **[■]** 按钮。



搜索和播放

使用播放按钮



部件名称		功能
1	播放时间线	指示当前播放点，并可用于移动。
2	向后跳过	向后移动单位时间。（按 10 分钟移动）
3	向后快速播放	用于在播放时快速向后搜索。（2 – 64 倍速）
4	向后慢速播放	用于在暂停时逐个屏幕向后搜索。（1/2 - 1/8 倍速）
5	逐帧向后	向后移动，一次一帧。
6	暂停	临时停止播放当前视频。
7	停止	停止播放并移至现场屏幕。
8	逐帧向前	向前移动，一次一帧。
9	向前慢速播放	确保以低速度同时向前播放最多 4 个频道。（1/2 - 1/8 倍速） ■ 在分屏模式中，可能不支持实时播放，这取决于录制质量、分辨率和频道数。可能会支持一些帧速率。
10	向前快速播放	用于快速正向播放。（2 – 64 倍速）
11	向前跳过	向前移动单位时间。（按 10 分钟移动）
12	返回	返回到搜索设置屏幕。
13	音频	设置音频开/关。
14	放大 / 缩小	放大或缩小所选频道的当前视频。
15	录像	以现场模式录制所有频道。
16	部分备份	开始备份正在播放的视频的选定区段（具有指定的起点/终点）。
17	模式切换	单击所需的播放模式，或者按 [监控模式] 以按顺序切换屏幕模式。 ■ 13 分屏模式中心的灰色区域会播放现场频道。 现场模式的默认频道为 CH1，可以稍后进行更改。

Web 查看器

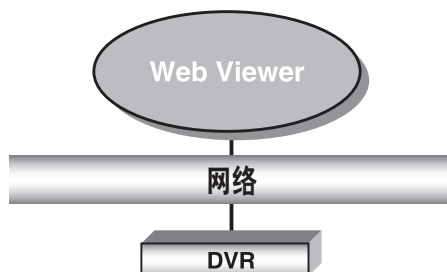
WEB 查看器简介

什么是 Web 查看器？

Web 查看器允许远程访问 DVR。您有权访问现场视频、已归档的视频、PTZ 控制（如果已配置）等等。

产品特点

- 从标准浏览器进行远程访问
- 支持 PTZ 摄像机控制
- 支持 1、4、9 和 16 个摄像机查看格式（列表中最多 16 个摄像机）。
- 获取 JPEG 格式图像以“打印或保存 JPEG 格式图像”。
- 以 AVI 格式录制视频 — 与流行的媒体播放器兼容。（需要 H.264 编解码器）



系统要求

下面列出运行 Web 查看器所需的推荐建议硬件和操作系统要求。

操作系统	Windows XP SP3 或更高版本 Windows Vista Windows 7、8、10
Web 浏览器	Windows 操作系统：Internet Explorer 8、9、10、11（启用ActiveX）
CPU	Intel Core i7 3.4Ghz
内存	4 GB 或更高版本
图形卡	如用户想支持 1080p 16 通道显示，建议使用 R9 270 4GB 或更高配置的图形卡，以保证图片显示效果。
HDD	50 MB（所需的安装空间） * 录制需要额外的 HDD 空间。 录制的文件大小可能会根据录制质量设置而有所不同。

Web 查看器

连接 WEB VIEWER (Windows)

1. 打开 Web 浏览器并在 URL 地址框中输入 DVR 的 IP 地址或 URL。



- “192.168.1.200” 为默认情况下设置的 IP 地址。
- 在 IP Installer 或“网络 > 连接模式”中设置为可用的 IP 地址。
- 仅当已完成 DDNS 连接设置时，URL 连接才可用。



2. 具有管理权限的用户应该提供管理 ID 和密码。已注册的用户应该提供用户 ID 和密码。

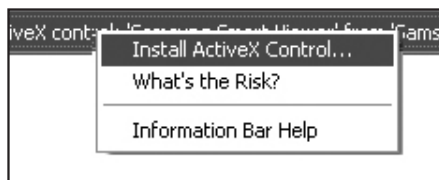


- 初始管理员 ID 是“admin”，密码应在首次登录时设置。
- 如果要产品与无线路由器配合使用，请设置无线网络的密码。不使用密码保护或使用默认无线路由器密码可能会使视频数据受到潜在威胁。
- 请每隔三个月更改密码以保护个人信息并避免因信息失窃造成损失。请注意，用户应负责安全以及密码管理不善导致的其他问题。
- 如果 PC 有多个 LAN 卡，则可以使用接口矩阵值较小的 LAN 卡接收视频。

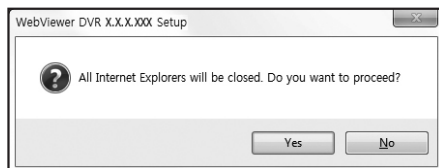


- 允许10个用户同时登录，搜索可以3个用户同时登录。
- 它不允许管理员用户多重登录。
- 管理员和一般用户的密码可在 DVR 的 <许可权管理> 菜单中进行更改。
- 在连接至 Web Viewer 之前，普通用户应已在 <许可权管理> 下面将 <查看器> 设置为“使用”。（第 49 页）
- 所有设置根据 DVR 的设置得以应用。
- 如果在登录到 Web Viewer 的情况下更改许可权设置，则可以返回到登录屏幕。

3. 单击 <Install ActiveX Control...>。



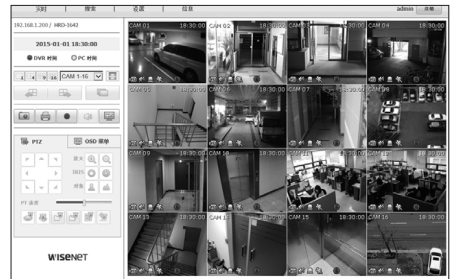
4. 显示安装确认消息时，单击 [Yes] 按钮。将关闭所有窗口 (IE)。



5. 显示程序安装向导窗口时, 按 [Install] 按钮以安装程序。



6. 安装程序时, 会再次打开 Web 查看器进行登录。
再次打开 Web 查看器窗口以登录。
安装好程序之后成功登录时, Live Viewer 的主要屏幕将会出现。



Web 查看器

使用 LIVE VIEWER (Windows)

Live Viewer 屏幕包含下列各项。



菜单		功能
1	选择菜单	通过单击每个菜单切换到相应的菜单屏幕。
2	地址、名称、时间	显示已连接 DVR 的 IP、型号名称和时间等等。
3	DVR 时间、PC 时间	对于 Live Viewer 的 OSD 时间信息显示设置，选择 <DVR 时间> 或 <PC 时间>。
4	选择分屏模式	选择分屏的类型并指定在显示窗格中显示的频道。
5	更改频道	切换到上一个/下一个频道或执行“自动顺序”。 单击“自动顺序”按钮可以显示“选择时间间隔”菜单。
6	捕捉	在指定的路径中保存所选频道的当前视频图像。
	打印	通过指定的打印机打印所选频道的当前视频图像。
	另存为 AVI	在指定的路径中以 AVI 文件格式录制现场视频，然后停止录制。 在录制期间，录制状态图标会显示在屏幕上。
	声音	将连接到每个频道的声音设置为“打开”/“关闭”。
	OSD	选择可以显示的 OSD 信息格式。

菜单		功能
7	PTZ	控制连接 PTZ 摄像机。
	菜单	转至摄像机的相关菜单屏幕，此屏幕支持 OSD 菜单和更改菜单。
8	显示窗格	显示连接到 DVR 的摄像机的视频。
9	注销	执行注销过程。
10	ID	显示已连接的用户 ID。

-  双码流选择：如果您在 Web 查看器现场屏幕中右键单击某个通道，则会显示下拉菜单“网络流/录制流”。默认设置为“网络流”。在该设置中，以“网络流”分辨率显示视频。如果选择“录制流”，则以“录制流”分辨率显示视频。

OSD 信息显示

- 1 显示已连接 DVR 的频道号码。
- 2 将根据 <DVR 时间> 或 <PC 时间> 中所选的时间信息显示设置，显示当前日期和时间。
- 3 此项显示 PTZ 控制是否活动。
- 4 显示音频打开/关闭状态。
- 5 当发出警报时，警报图标将会出现。
按 DVR 的 [报警] 按钮后，警报图标就会消失。
- 6 显示录制状态。

-  如果为 DVR 设置了 PTZ 摄像机，“PTZ”将显示在屏幕上。
选择 PTZ 摄像机频道并使用 [PTZ] 按钮控制摄像机。



已连接的 DVR

此项显示连接的 DVR 的 IP 地址和状态。

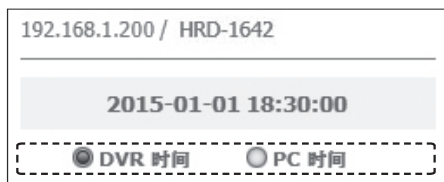
-  连接失败消息
 - 无响应：当 DVR 不响应时出现。
 - 访问被拒绝：当超出最大用户数时出现。
- 同时连接数限制为 10 个。



设置 OSD 时间信息的显示

对于 OSD 时间信息显示设置，选择 <DVR 时间> 或 <PC 时间>。

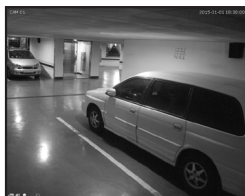
- DVR 时间**：基于所连接 DVR 的时间。
- PC 时间**：基于当前使用 Web Viewer 的计算机的时间。



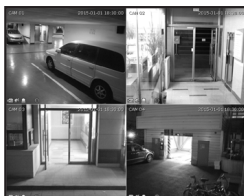
Web 查看器

分割屏幕

可以通过单击每个数字图标来更改分割屏幕模式。



单画面模式



四画面模式



九画面模式



十六画面模式

切换至全屏模式

单击 <  >。

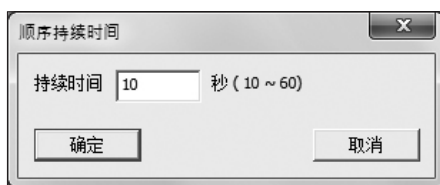
当前分屏会以全屏显示。

按 [ESC] 键可以退出全屏模式。



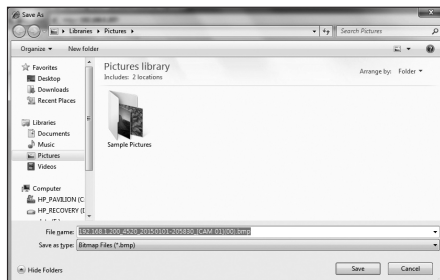
更改现场屏幕模式

- 16 分屏模式不支持“顺序”、“上一个”和“下一个”。
- ：如果单击此按钮，上一个屏幕将会出现。
 - 在单画面模式中，频道号码以逆向顺序切换。
 - 在四画面模式中，按类似如下的顺序切换屏幕：第 1 组 4 个频道 (1~4) → 第 2 组 4 个频道 (5~8) → 第 3 组 4 个频道 (9~12) → 第 4 组 4 个频道 (13~16)。
 - 在九画面模式中，画面从 9 个频道 (1~9) 切换到 7 个频道 (10~16)。
- ：如果单击此按钮，下一个屏幕将会出现。
 - 在单画面模式中，频道号码从 1 到 16 按顺序切换。
 - 在四画面模式中，按类似如下的顺序切换屏幕：第 1 组 4 个频道 (1~4) → 第 2 组 4 个频道 (5~8) → 第 3 组 4 个频道 (9~12) → 第 4 组 4 个频道 (13~16)。
 - 在九画面模式中，画面从 9 个频道 (1~9) 切换到 7 个频道 (10~16)。
- ：如果单击此按钮，就会以预设的间隔切换屏幕。
 - 在单画面模式中，频道号码从 1 到 16 按顺序切换。
 - 在四画面模式中，按类似如下的顺序切换屏幕：第 1 组 4 个频道 (1~4) → 第 2 组 4 个频道 (5~8) → 第 3 组 4 个频道 (9~12) → 第 4 组 4 个频道 (13~16)。
 - 在九画面模式中，画面从 9 个频道 (1~9) 切换到 7 个频道 (10~16)。
- 默认设置时间 (10 秒)



捕捉屏幕

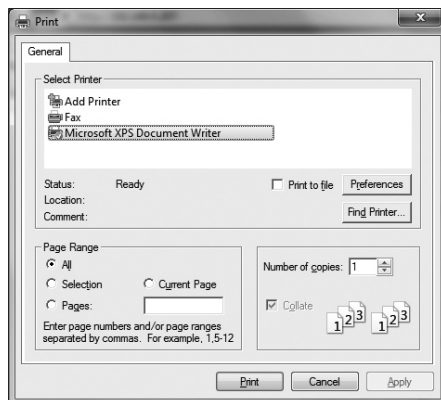
1. 单击  按钮。
弹出窗口出现时，选择所捕捉图像的保存路径。
 2. 选择路径并命名文件。然后单击 <Save> 按钮。
 3. 将当前摄像机的视频图像为保存 bmp、.jpg 或 .png 文件。
- ! ■ 如果浏览器未在管理模式下运行（对于 Windows vista/7），则当将捕获文件保存为 bmp、jpg 或 png 格式时可能会遇到问题。



Web 查看器

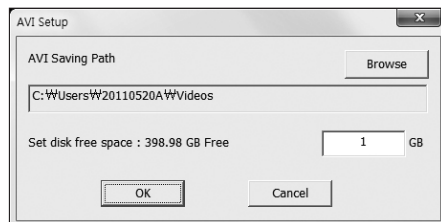
打印屏幕

1. 单击  按钮。
2. 使用连接到运行 Web Viewer 的计算机的打印机，打印当前摄像机的视频图像。



另存为 AVI

1. 单击  按钮。
当“AVI 设置”窗口出现时，选择录制保存路径和容量。
 2. 选择所需的路径，输入最大录制容量，然后单击 <确定> 按钮。
 - 将当前频道的视频另为 .avi 文件。为了播放视频剪辑，您可以使用免费的视频播放器来播放此视频。
(例如：GOM Player、KM Player 等等)
 - 保存 AVI 文件后，当在 Windows Media Player 中播放它时会安装编解码器。
 - 但是，视频可能无法正常播放，具体视播放器是否符合编解码器而定。
至少需要 1GB 可用空间才能进行录制。
- ! ■ 当在 Web Viewer 中录制当前数据时，您无法选择“分屏模式”按钮、切换到上一个/下一个屏幕或激活“自动顺序”功能。
- 如果在 Windows Vista/7 中运行查看器但不具有管理员的许可权，则您在将视频保存为 AVI 文件时可能无法切换文件夹。



音频

- ：将每个已连接频道的音频设置为 打开/关闭。

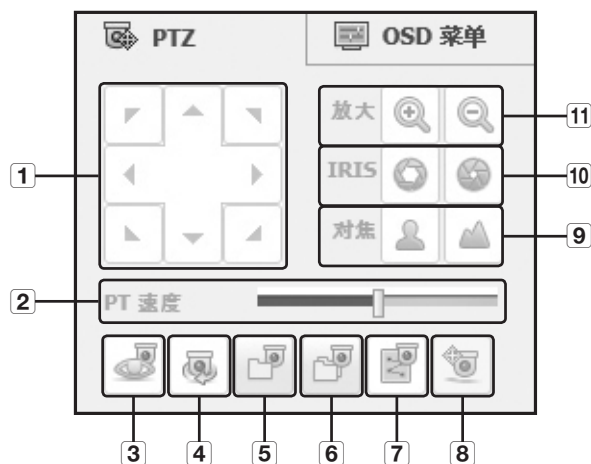
OSD

- ：将在现场屏幕上选择 显示 OSD。

控制连接的网络摄像机。

控制 PTZ

如果已连接 PTZ 摄像机，<PTZ> 图标会出现在屏幕上。当选择相应的摄像机频道时，会提供 PTZ 选项卡以允许您控制 PTZ。



部件名称		功能
1	方向调整	调整摄像机的方向。
2	PT 速度	调整平移和倾斜反应速度。
3	预设	设置摄像机取景框的预设位置并在选择所需预设时移动到指定的预设位置。
4	摆动	在预设起始点和结束点之间移动。
5	分组	通过结合预设、模式和自动平移在指定的路径中移动。
6	巡视	通过结合多个分组在指定的路径中移动。
7	跟踪	在预先定义的路径中移动摄像机的取景框。
8	功能强大的 PTZ	单击或在屏幕上拖动以控制 PTZ。
9	对焦	调整摄像机的焦点。
10	IRIS	通过控制摄像机的光圈来调节图像的亮度。
11	放大	通过控制摄像机的缩放来放大或缩小图像。

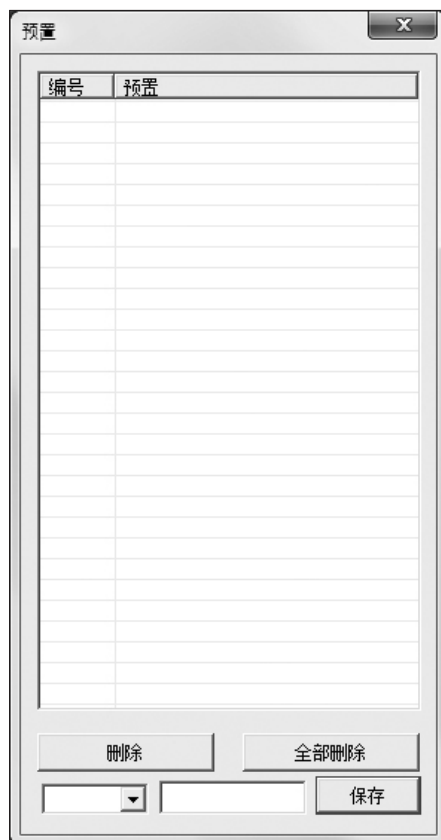
Web 查看器

设置预设

1. 单击  按钮以显示“**预置**”窗口。
2. 单击  以选择所需的预设编号。
3. 输入预设的名称。
4. 使用方向键调整摄像机对准的方向。
5. 单击 **保存** 按钮。

激活预设

1. 单击  按钮以显示“**预置**”窗口。
2. 从列表中选择要激活的所需预设。
摄像机的取景框会移至预设位置。



激活摆动、分组、巡视和跟踪

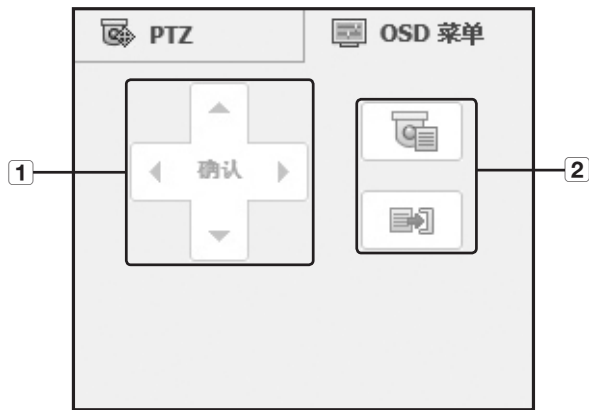
可以如同激活预设那样，以相同的方式激活列出的功能。有关更多信息，请参阅适用摄像机的相应用户手册。



- 根据摄像机，仅支持摄像机的选择性功能。

控制 OSD 菜单

如果连接的网络摄像机支持 OSD 菜单，则按 < **菜单打开** > 可以进入摄像机的菜单屏幕以更改其设置。



部件名称		功能
1	方向调整	您可以转至所需的菜单。
	确认	选择所需的项目。
2	菜单打开/关闭	您可以使用/停止摄像机的 OSD 菜单设置。

-  有关摄像机的 OSD 菜单的更多信息，请参阅每个摄像机的相应用户手册。

Web 查看器

使用 SEARCH VIEWER

Search Viewer 屏幕包含下列各项：

- 最多 3 个用户可同时访问。



Menu		功能
1	选择菜单	通过单击每个菜单切换到相应的菜单屏幕。
2	地址、名称、时间	显示已连接 DVR 的 IP、型号名称和时间等等。
3	选择分屏模式	选择分屏的类型并选择在“显示窗格”中显示的频道。
4	捕捉	在指定的路径中保存所选频道的当前视频图像。
	打印	通过指定的打印机打印所选频道的当前视频图像。
	另存为 AVI	在指定的路径中以 AVI 文件格式录制现场视频，然后停止录制。 在录制期间，录制状态图标会显示在屏幕上。
	声音	将连接到每个频道的声音设置为“打开”/“关闭”。
5	OSD	选择可以显示的OSD信息格式。
	日历	视频录制日期显示为蓝色，当天日期显示为白色。点击蓝色日期，将在时间轴中显示录制视频的信息。
6	重叠的数据	显示并放大/缩小录制的视频数据。如果发现重叠的数据，此功能会选择其中一项数据来播放。

Menu	功能
7 播放控制	调整当前视频的播放速度和播放时间位置。
8 录制颜色	如果您将鼠标光标放置在该区域上，则会根据录制的数据类型，显示相应的颜色。
9 显示窗格	如果您选择搜索结果，则在屏幕上播放相应的数据。
10 注销	执行注销过程。
11 ID	显示已连接的用户 ID。

在日历中搜索录制的视频

含有已录制视频的日期将以蓝色标记。
单击以蓝色标记的日期以在时间线上显示视频信息。单击
< 今天 >，会使它与当前计算机的系统时间（日期）同步。

按日期搜索

您可以使用日历选择搜索日期。

- 单击 < << > 或 < >> > 以选择要搜索的年。
- 单击 < < > 或 < > > 以选择要搜索的月。
包含数据的日期显示为蓝色，今天显示为红色。
- 在日历中单击要搜索的日期。
在该日期上搜索到视频数据的第一个图像会显示在屏幕上，而数据会显示在时间线中。
- 搜索今天的视频数据，请单击 < 今天 >。
将会选择今天的日期。（PC 时间）



调整时间线

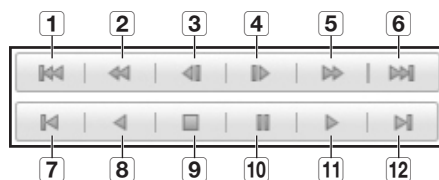
如果搜索到的数据重叠，您可以选择所需的数据，移动其播放时间点，然后放大/缩小时间线。

- 如果数据重叠，请选择要搜索的数据的编号。
仅当数据重叠时，它才会出现，并且为最近的日期分配 <0>。
- 在时间线上单击要播放的所需时间点。
将会移动播放起始点。
- 单击 < + > / < - > 可放大/缩小缩放系数以显示时间。
- 在放大状态下要显示上一个/下一个时间线，请单击 < < > 或 < > > 以转至左边或右边。

Web 查看器

播放按钮的名称和功能

- ❶ 从当前的播放点向后移动 10 分钟。
- ❷ 以双倍速度反向播放。播放速度将会翻倍，最多提高 64 倍。
- ❸ 从当前的播放点向后移动 1 秒钟。
- ❹ 从当前的播放点向前移动 1 秒钟。
- ❺ 以双倍速度播放。播放速度将会翻倍，最多提高 64 倍。
- ❻ 从当前的播放点向前移动 10 分钟。
- ❼ 在相应的时间线中移至录制起始点。
- ❽ 反向播放。
- ❾ 停止播放。当恢复播放时，会从录制起始点播放。
- ❿ 暂停播放。当恢复播放时，会从停止点播放。
- ⓫ 正常播放。
- ⓬ 在相应的时间线中移至录制结束点。



查看器设置

您可以通过网络远程配置 DVR 设置。

要配置 DVR 设置，请单击 <设置>。

系统

您可以配置 DVR 系统的各种设置。

日期/时间/语言

有关详情，请参阅 <系统设置> 菜单中的 <日期/时间/语言>。（第 44 页）

1. 在系统菜单中，选择 <日期/时间/语言>。

2. 根据系统环境配置 DVR 设置。

• 日期/时间

设置日期和时间。



• 时间同步设置

设置时间同步。

• 显示器

日期格式：设置日期类型。

时间：选择要显示在屏幕上的日期格式。

• DST（夏令时）

DST 提前时区标准时间一小时显示。

• 语言

选择 DVR 的首选语言。



假日

您可以根据个人喜好将特定日期设为假日。

有关详细信息，请参阅 <系统设置> 菜单中的 <设置假日>。（第 45 页）



Web 查看器

许可权管理

有关详细信息，请参阅〈系统设置〉菜单中的〈许可权管理〉。（第 46 页）

• 管理员

您可以更改管理员 ID 或密码。

- 只能输入含有字母数字的 ID。
- 对于密码，请使用除 <\> 和 <"> 之外的字母和特殊字符。
- 如果单击 < ⓘ >，则会显示一个有关设置密码的简单指南。



• 组

将用户分类为组，然后根据组来设置许可权。

- 首先，添加组。



• 用户

您可以添加、更改或删除一个或多个用户。



• 设置

您可以设置用户权限。



系统管理

有关详细信息，请参阅 <系统设置> 菜单中的 <系统管理>。（第 50 页）

• 系统信息

您可以看到当前系统的信息。

检查软件版本、广播格式和 MAC 地址。



设备

您可以检查与 DVR 连接的设备列表，并配置必要的设置。

在菜单屏幕上单击 <设备>。

有关详细信息，请参阅“设置设备”。（第 54 页）

摄像机

• 摄像机

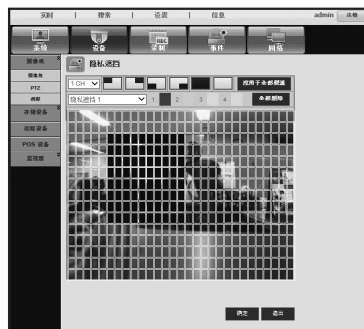
您可以配置与 DVR 连接的摄像机设置。



Web 查看器

• 隐私遮挡

可以指定为了您的隐私而保护摄像机视频的某些区域。



• PTZ

您可以配置与 DVR 连接的 PTZ 摄像机的设置。
设置 ID 和通讯协议。



• 类型

카메라 타입을 수동/자동으로 선택하여 설정할 수 있습니다.



存储设备

您可以检查和更改存储设备的设置。

• 设备

您将会看到与 DVR 连接的存储设备列表。

您可以检查设备的类型、已用/总共、用途及状态。



• HDD警报

您可以设置出错时的警报输出频道和警报持续时间。



远程设备

您可以看到远程设备列表（包括与 DVR 的 RS-485 端口连接的 PTZ 摄像机和系统键盘），并配置必要的设置。



Web 查看器

POS 设备

您可以设置与 DVR 连接的 POS 设备的频道、预设和通讯端口。

 用远程不能设定POS.



监视

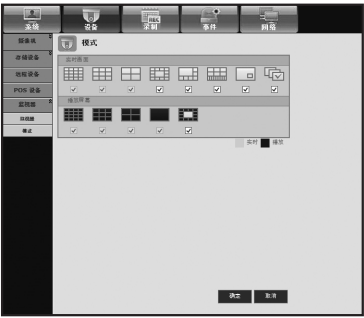
• 监视

您可以配置监视屏幕设置和设置输出系统。



• 模式

您可以在现场模式和播放模式间进行切换。

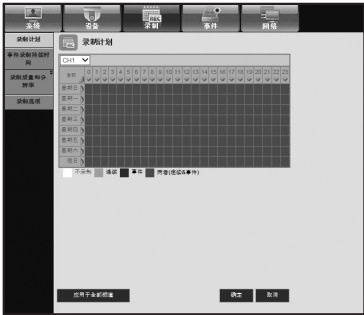


录制

有关详细信息，请参阅 <设置录制>。（第 64 页）

录制计划

如果您针对特定日期和时间制定录制计划，则会在特定时间开始录制。



-应用于全部频道：单击 <应用于全部频道> 以显示确认窗口。



事件录制持续时间

您可以设置当发生事件时将被激活的录制时间前与事件后的时间。



Web 查看器

录制质量和分辨率

• 标准/事件

您可以设置分辨率、帧速率和每个频道的录制质量。



录制选项

您可以设置磁盘结束模式。



事件

有关详细信息，请参阅 <设置事件>。（第 67 页）

传感器检测

您可以设置传感器操作模式和同步的摄像机以及警报输出类型与持续时间。



Web 查看器

警报计划

您可以根据一周内的每一天和时间来计划警报输出情况。
默认设置是事件同步，它仅在事件发生时激活警报。



网络

有关详细信息，请参阅 <网络配置>。（第 72 页）

连接模式

远程用户可以通过网络访问 DVR 以检查当前模式和 IP 地址。

• 接口

您可以设置网络连接路由。



• 端口

您可以配置与设置相关的协议。



- 警报
设置警报。



DDNS

您可以检查 DDNS 设置。



当前传输

您可以设置网络摄像机的网络传输设置。

- 当前传输
远程用户可设置已传输数据的图像分辨率。



Web 查看器

邮寄服务

您可以指定在事件发生时发送邮件的 SMTP 服务器，并设置接收人组与用户。

- SMTP

您可以设置发送邮件的服务器并在使用认证过程时指定。

- 事件

您可以设置事件时间间隔，并指定服务器将发送哪类事件的邮件。

• 组

您可以在事件发生时添加接收邮件的小组，并为每个小组设置接收事件邮件的许可权。

The screenshot shows a Windows XP desktop environment. The Start menu is open, displaying a list of programs and folders. The taskbar at the bottom includes the Start button, several open application icons, and a system tray with a clock showing 11:58 AM on 11/11/2005.

• 收件人

您可以添加接收邮件的一个或多个用户。



SNMP

您可以配置 SNMP 协议的设置。



信息

单击 <信息>。
将显示已连接的 DVR 的型号名称和 Web 查看器的版本。

MOBILE VIEWER

IPOLIS MOBILE

什么是 iPOLiS mobile ?

iPOLiS mobile是一种可以通过Mobile远程访问DVR（Digital Video Recorder）控制实时视频和PTZ（如果已配置）的软件。

主要特性

- 通过智能电话远程访问
- 语音识别
- 在 Live Viewer 中支持全屏和 4 分屏模式。
- 支持单频道搜索功能。
- 使用触摸式 LCD 面板切换频道
- 支持 PTZ 摄像机操作
（符合所连接 DVR 的协议）

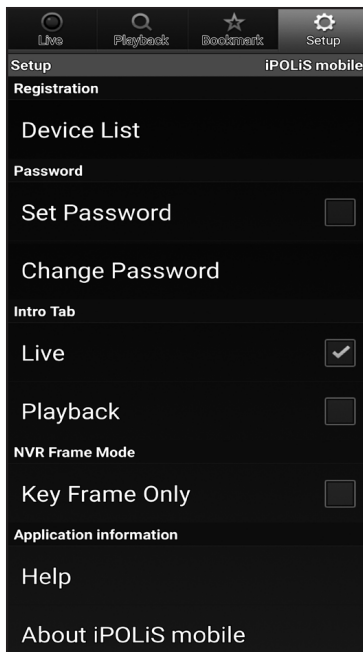
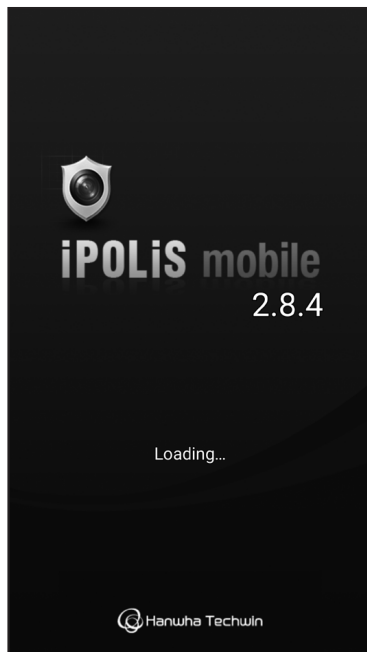
兼容的智能手机

- iOS 9或更高版本
- 安卓 4.4或更高版本
- 最适用于安卓 v6.x
- 对多分割视图使用低分辨率。



■ 详细内容请参考说明。

- iOS > App Store > iPOLiS mobile
- 安卓 > Play Store > iPOLiS mobile



备份查看器

SEC 备份查看器

您可以播放以 SEC 格式备份的文件。

以 SEC 格式备份会产生备份数据文件、库文件和自行执行的查看器文件。

如果您运行备份文件查看器、备份数据文件将会播放。

建议的系统要求

低于以下建议规格配置的计算机可能无法正常支持前进/后退功能和高速播放。

PC 规格

- 最低要求
 - CPU : Intel Core 2 Quad 2.5GHz
 - RAM : 2GB 或更高
 - HDD : 200GB 或更高
 - VGA 内存 : 512MB 或更高
 - 显示分辨率 : 1280x1024
- 建议使用的
 - CPU : Intel i7 (3.5GHz) 或更高
 - RAM : 4GB 或更高
 - HDD : 500GB 或更高
 - GPU : GTX940 或更高
 - VGA 内存 : 2GB 或更高
 - 显示分辨率 : 1920x1080 或更高
- OS
 - Windows 7、8、10

备份查看器



部件名称			功能
1	分屏		设置要显示的屏幕宽高比。
			屏幕会切换为所选分屏模式。
2	数字变焦		将图像最大放大为当前大小的 100 倍。 按 放大 () 按钮可放大图像; 按 缩小 () 按钮可缩小图像。 还可以在弹出窗口中使用滑块 () 来放大/缩小。 在大小已更改的视频上按 () 可恢复默认缩放系数 (100%)。 如果将图像放大超过 200%、则会在数字缩放屏幕上标记放大的区域。单击标记的区域并将它移至所需位置。 数字缩放可应用于所有备份查看器。取消数字缩放时, 视频大小将恢复默认比率 100%。

部件名称			功能
3	屏幕打印输出		将当前视频的图像保存为图像文件。支持 JPEG 文件格式。
			打印输出当前屏幕。在打印输出屏幕之前，您应安装适当的打印机驱动程序。
4	音频		切换按钮。每次按下此按钮时，音频输出均会在激活和取消激活之间进行切换。
			您可以按从 0 到 100 的级别调节音量。
5	水印		按该按钮可允许进行文件篡改检测，以检测文件伪造。
6	Deinterlace		可启用去隔行功能。
7	显示 OSD		选中 OSD 复选框以在备份播放屏幕上显示 OSD 信息。 将在屏幕上显示备份日期、星期几、时间、型号名称和频道编号等信息。
8	保持纵横比/全屏		保持播放屏幕纵横比不变。
			全屏播放视频。
9	放大/缩小时间线		折叠显示在存储时间范围栏上的时间范围。您可以折叠范围栏，直到整个范围缩短到 24 小时。
			放大显示在存储时间范围栏上的时间范围。您可以扩大范围栏直到整个范围延长到 1 分钟。
10	还原时间线		将时间线还原为默认值。
11	显示存储时间范围		显示存储的视频文件的时间范围。 您可以移动范围栏的网格线选择播放的时间点。
12	播放控制		您可以调整时间轴，执行视频回放功能。



- 如果录制速率较高并且在备份查看器中以 16 或更高倍速播放，实际播放速度可能无法达到装置的播放速度。

附录

产品规格

• HRD-440/840/841/1641

项目		详细信息				
		HRD-440	HRD-840	HRD-841	HRD-1641	
视频	输入	4 通道 BNC	8 通道 BNC		16 通道 BNC	
		AHD(1MP, 2MP, 4MP), TVI (2MP), CVI(2MP), NTSC/PAL				
现场	帧速率	120fps, 100fps	240fps, 200fps		480fps, 400fps	
	分辨率	2560x1440, 1920 x 1080, 1280 x 720, 960 x 480, 704 x 480, 960 x 576, 704 x 576				
	多屏幕显示	1/4//PIP/顺序	1/4/7/9/PIP/顺序		1/4/7/9/13/16/16A/ PIP/顺序	
性能						
操作系统	嵌入式	Linux				
录制	Compression	H.264				
	录制速率	• HRD-440 NTSC : 高达 60fps@4MP / PAL : 高达 50fps@4MP NTSC : 高达 120fps@1920 x 1080 / PAL : 高达 100fps@1920 x 1080 NTSC : 高达 120fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 PAL : 高达 100fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288 • HRD-840/HRD-841 NTSC : 高达 120fps@4MP / PAL : 高达 100fps@4MP NTSC : 高达 240fps@1920 x 1080 / PAL : 高达 200fps@1920 x 1080 NTSC : 高达 240fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 PAL : 高达 200fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288 • HRD-1641 NTSC : 高达 240fps@4MP / PAL : 高达 200fps@4MP NTSC : 高达 480fps@1920 x 1080 / PAL : 高达 400fps@1920 x 1080 NTSC : 高达 480fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 PAL : 高达 400fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288				
		模式	手动、时间表(连续/事件)、事件(之前/之后)、跳时(1~30 fps(N), 1~25fps(P))			

项目		详细信息			
		HRD-440	HRD-840	HRD-841	HRD-1641
录制	事件	视频丢失、动作（等级1-10）、传感器、篡改（低、中、高水平）			
	覆盖模式	连续			
	事件前	最长 30秒 (5、10、20、30秒)			
	事件后	最长 6 小时。(5、10、20、30秒、1、3、5、10、20 分钟、1、2、3、4、5、6 小时)			
搜索与播放	搜索模式	日期/时间、事件、备份、移动			
	播放功能	快进 / 快退 (x2,x4,x8,x16,x32,x64) ※ 回放只播放I帧, 慢进 / 慢退 (x1/2,x1/4,x1/8) 步进 / 步退 ※ 回放只播放I帧			
	同步播放	4 通道 (本地显示器, CMS)	8 通道 (本地显示器, CMS)		16 通道 (本地显示器, CMS)
网络 (IPv4)	传输速度	录制（主）流式）4MP：15fps/CH, 1080p/720p/WD1/4CIF/CIF：30fps/CH(N), 25fps/CH(P) 网络（子）流式）WD1/4CIF：12fps/CH, 4CIF/2CIF/CIF/QQVGA：30fps/CH(N), 25fps/CH(P)			
	最多远程用户数	最高 64Mbps			
	带宽控制	可选			
	流	录制流和网络流可选（适用于监控查看器）			
	最大远程用户数	搜索 (3)/现场单播 (10)/现场多播 (20)			
	协议支持	TCP/IP, DHCP, PPPoE, SMTP, NTP, HTTP, DDNS, RTP, RTSP, SNMP			
	Web 浏览器	Window OS：Internet Explorer 8、9、10、11（启用ActiveX）			
	查看器软件	SSM, Webviewer, SmartViewer, iPOLiS mobile			

附录

项目		详细信息			
		HRD-440	HRD-840	HRD-841	HRD-1641
智能电话	智能手机	Android, iOS			
	协议支持	RTP, RTSP, HTTP			
	控制	实时（8 通道）：支持多配置文件 播放（1 通道）			
	最大远程用户数	搜索 (1), 现场单播 (10), 多播 (20)			
存储设备	内部硬盘	最多 1 SATA HDD (最多 : 6TBx1 = 6TB)		最多 2 SATA HDDs (最多 : 6TBx2 = 12TB)	
	外部硬盘 (e-SATA Interface)	USB(for Backup)		e-SATA, USB(for Backup)	
	文件格式 (备份)	BU（DVR 播放）、SEC（包括播放器）、AVI			
安全	密码保护	1 个管理员、10 组、每组 10 个用户			
	数据验证	水印			
接口					
监视器	VGA	1 VGA (1920x1080, 1280x1024, 1280x720)			
	HDMI	1 HDMI (4K(3840 x 2160), 2K(2560 x 1440), 1920x1080, 1280x1024, 1280x720)			
	合成 (现场)	SPOT（1个）※ 摄像机名称显示，支持分割模式			
	回路输出	-			
音频	输入/输出	1 / 1		4 / 1	
	压缩	G.711			
	采样率	8KHz			
警报	输入/输出	4个输入端子 (NO/NC) / 1个中继输出 (NO/NC)		8个输入端子 (NO/NC) / 4个中继输出 (NO/NC)	16个输入端子 (NO/NC) / 4个中继输出 (NO/NC)
		最大DC18V, 2A, 额定DC12V, 2A			
	远程通知	通过电子邮件进行远程通知			

项目		详细信息			
		HRD-440	HRD-840	HRD-841	HRD-1641
连接	以太网	1 RJ45 10/100/1000 Base-T			
	串行接口	RS-485 Half Duplex (PTZ, 系统键盘) ※ POS界面 (VSI-Pro)			
	USB	1 个 端口(USB 3.0, 背面), 1 个 端口(USB 2.0, 前面)		1 个 端口(USB 3.0, 背面), 2 个 端口(USB 2.0, 前面)	
	e-SATA	-		1	
	应用程序支持	鼠标、IR 遥控器			
	协议支持(RS-485)	Samsung-E/Samsung-T/Pelco-D/Pelco-p/Panasonic/ Phillips/ AD/ DIAMOND/ ERNA/ KALATEL/ VCL TP/VICON/ ELMO/GE			
	协议支持(Coaxial)	NTSC/PAL : Pelco-C (Coaxitron) AHD : ACP(AHD Coax 协议支持)			
常规					
电气	输入电压/电流	DC12V 适配器(100~250V AC ±10% , 50/60Hz)			
	功耗	最大 36W		最大 50W	最大 52W
环境	工作温度/湿度	+0° C 至 +40° C (+32° F 至 +104° F) / 20% 至 85% RH			
机械	尺寸 (宽 x 高 x 深)	宽300.0x 高51.9 x 深208.7 (11.81” x 2.04” x 8.22”)		宽370.0x 高50.7 x 深320 (14.57” x 2.0” x 12.6”)	
	重量 (With hard disks)	约 1.77公斤(3.9 lb)		约 3公斤 (6.61 lb)	
语言		韩文、日语、中文(简体)、英语、法语、德语、西班牙语、意大利语、俄语、波兰语、捷克语、土耳其语、荷兰语、葡萄牙语、瑞典语、丹麦语、泰语、罗马尼亚语、塞尔维亚语、克罗地亚语、匈牙利语、希腊语、中文(繁体)、芬兰、挪威 (25 语言)			

附录

• HRD-442/842/1642

项目		详细信息		
		HRD-442	HRD-842	HRD-1642
视频	输入	4 通道 BNC	8 通道 BNC	16 通道 BNC
		AHD(1MP, 2MP, 4MP), TVI(2MP), CVI(2MP), NTSC/PAL		
现场	帧速率	120fps, 100fps	240fps, 200fps	480fps, 400fps
	分辨率	2560x1440, 1920 x 1080, 1280 x 720, 960 x 480, 704 x 480, 960 x 576, 704 x 576		
	多屏幕显示	1/4//PIP/顺序	1/4/7/9/PIP/顺序	1/4/7/9/13/16/16A/PIP/顺序
性能				
操作系统	嵌入式	Linux		
录制	Compression	H.264		
	录制速率	• HRD-442 - NTSC : 高达 60fps@4MP / PAL : 高达 50fps@4MP - NTSC : 高达 120fps@1920 x 1080 / PAL : 高达 100fps@1920 x 1080 - NTSC : 高达 120fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 - PAL : 高达 100fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288 • HRD-842 - NTSC : 高达 120fps@4MP / PAL : 高达 100fps@4MP - NTSC : 高达 240fps@1920 x 1080 / PAL : 高达 200fps@1920 x 1080 - NTSC : 高达 240fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 - PAL : 高达 200fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288 • HRD-1642 - NTSC : 高达 240fps@4MP / PAL : 高达 200fps@4MP - NTSC : 高达 480fps@1920 x 1080 / PAL : 高达 400fps@1920 x 1080 - NTSC : 高达 480fps @ 1280 x 720, 928x480, 704X480, 704X240, 352X240 - PAL : 高达 400fps @ 1280 x 720, 928x576, 704x576, 704x288, 352x288		
	模式	手动、时间表（连续/事件）、事件（之前/之后）、跳时（1~30 fps(N), 1~25fps(P)）		

项目		详细信息		
		HRD-442	HRD-842	HRD-1642
录制	事件	视频丢失、动作（等级1-10）、传感器、篡改（低、中、高水平）		
	覆盖模式	连续		
	事件前	最长 30秒 (5、10、20、30秒)		
	事件后	最长 6 小时。(5、10、20、30秒、1、3、5、10、20 分钟、1、2、3、4、5、6 小时)		
搜索与播放	搜索模式	日期/时间、事件、备份、POS（仅标清）、移动（※所有搜索都包含预览功能）		
	播放功能	快进 / 快退 (x2,x4,x8,x16,x32,x64) ※ 回放只播放I帧, 慢进 / 慢退 (x1/2,x1/4,x1/8) 步进 / 步退 ※ 回放只播放I帧		
	同步播放	4 通道 (本地显示器, CMS)	8 通道 (本地显示器, CMS)	16 通道 (本地显示器, CMS)
网络 (IPv4)	传输速度	录制（主）流式）4MP：15fps/CH, 1080p/720p/WD1/4CIF/CIF：30fps/CH(N), 25fps/CH(P) 网络（子）流式）WD1/4CIF：12fps/CH, 4CIF/2CIF/CIF/QQVGA：30fps/CH(N), 25fps/CH(P)		
	最多远程用户数	最高 64Mbps		
	带宽控制	可选		
	流	录制流和网络流可选（适用于监控查看器）		
	最大远程用户数	搜索 (3)/现场单播 (10)/现场多播 (20)		
	协议支持	TCP/IP, DHCP, PPPoE, SMTP, NTP, HTTP, DDNS, RTP, RTSP, SNMP		
	Web 浏览器	Window OS: Internet Explorer 8、9、10、11（启用ActiveX）		
	查看器软件	SSM, Webviewer, SmartViewer, iPOLiS mobile		

附录

项目		详细信息		
		HRD-442	HRD-842	HRD-1642
智能电话	智能手机	Android, iOS		
	协议支持	RTP, RTSP, HTTP		
	控制	实时（4 通道）：支持多配置文件 播放（1 通道）	实时（8 通道）：支持多配置文件 播放（1 通道）	
	最大远程用户数	搜索 (3), 现场单播 (10), 多播 (20)		
存储设备	内部硬盘	最多 2 SATA HDDs 最多：6TBx2 = 12TB	最多 4 SATA HDDs 最多：6TBx4 = 24TB	最多 8 SATA HDDs 最多：6TBx8 = 48TB
	外部硬盘 (e-SATA Interface)	USB(for Backup)	e-SATA, USB(for Backup)	
	文件格式 (备份)	BU（DVR 播放）、SEC（包括播放器）、AVI		
安全	密码保护	1 个管理员、10 组、每组 10 个用户		
	数据验证	水印		
接口				
监视器	VGA	1 VGA (1920x1080, 1280x1024, 1280x720)		
	HDMI	1 HDMI (4K(3840 x 2160), 2K(2560 x 1440), 1920x1080, 1280x1024, 1280x720)		
	合成 (现场)	BNC(1CH) ※ 已包括 OSD 在屏幕上, 支持多种模式		
	回路输出	-		
音频	输入/输出	4 / 1	8 / 1	16 / 1
		-	内置 4CH, 选项：音频延长电缆	
	压缩	G.711		
	采样率	8KHz		
警报	输入/输出	4个输入端子 (NO / NC) / 报警输出1中继 (NO / NC), 2 中继 (NO)	8个输入端子 (NO / NC) / 报警输出1中继 (NO / NC), 2 - 4 中继 (NO)	16个输入端子 (NO / NC) / 报警输出1中继 (NO / NC), 2 - 4 中继 (NO)
		最大DC18V, 2A, 额定DC12V, 2A		
	远程通知	通过电子邮件进行远程通知		

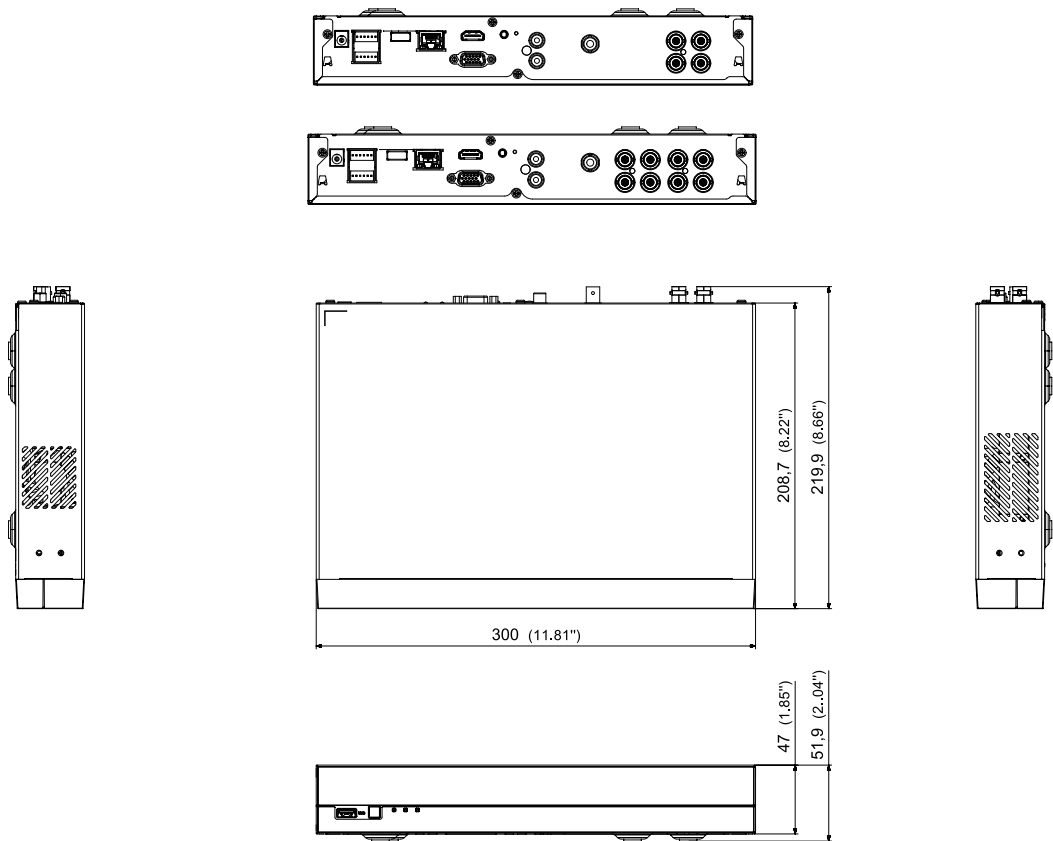
项目		详细信息		
		HRD-442	HRD-842	HRD-1642
连接	以太网	1 RJ45 10/100/1000 Base-T		
	串行接口	RS-485 Full Duplex（PTZ，系统键盘）※ POS界面（VSI-Pro）		
	USB	2 个 端口(USB 2.0, 前面)	1 个 端口(USB 3.0, 背面), 1 个 端口(USB 2.0, 前面)	
	e-SATA	-	2 External SATA 端口	
	应用程序支持	鼠标、IR 遥控器		
	协议支持(RS-485)	Samsung-E/Samsung-T/Pelco-D/Pelco-p/Panasonic/ Phillips/ AD/ DIAMOND/ ERNA/ KALATEL/ VCL TP/VICON/ ELMO/GE		
	协议支持(Coaxial)	NTSC/PAL : Pelco-C (Coaxitron) AHD : ACP(AHD Coax 协议支持)		
常规				
电气	输入电压/电流	DC12V 适配器(100~250V AC ±10% , 50/60Hz)	100 ~ 240 VAC ±10%; 50/60 Hz	
	功耗	最大 18W(4TB HDD x1)	最大 34W (4TB HDD x1)	最大 47W (4TB HDD x1)
环境	工作温度/湿度	+0° C 至 +40° C (+32° F 至 +104° F) / 20% 至 85% RH		
机械	尺寸（宽 x 高 x 深）	宽370.0x 高44.0 x 深320 (14.57” x 1.73” x 12.6”)	宽440x 高88 x 深384.8(17.32” x 3.46” x 15.15”)	
	重量 (With hard disks)	2.9公斤 (4TB HDD x1)	5.3公斤 (4TB HDD x1)	5.9公斤 (4TB HDD x1)
语言		韩文、日语、中文(简体)、英语、法语、德语、西班牙语、意大利语、俄语、波兰语、捷克语、土耳其语、荷兰语、葡萄牙语、瑞典语、丹麦语、泰语、罗马尼亚语、塞尔维亚语、克罗地亚语、匈牙利语、希腊语、中文(繁体)、芬兰、挪威 (25 语言)		

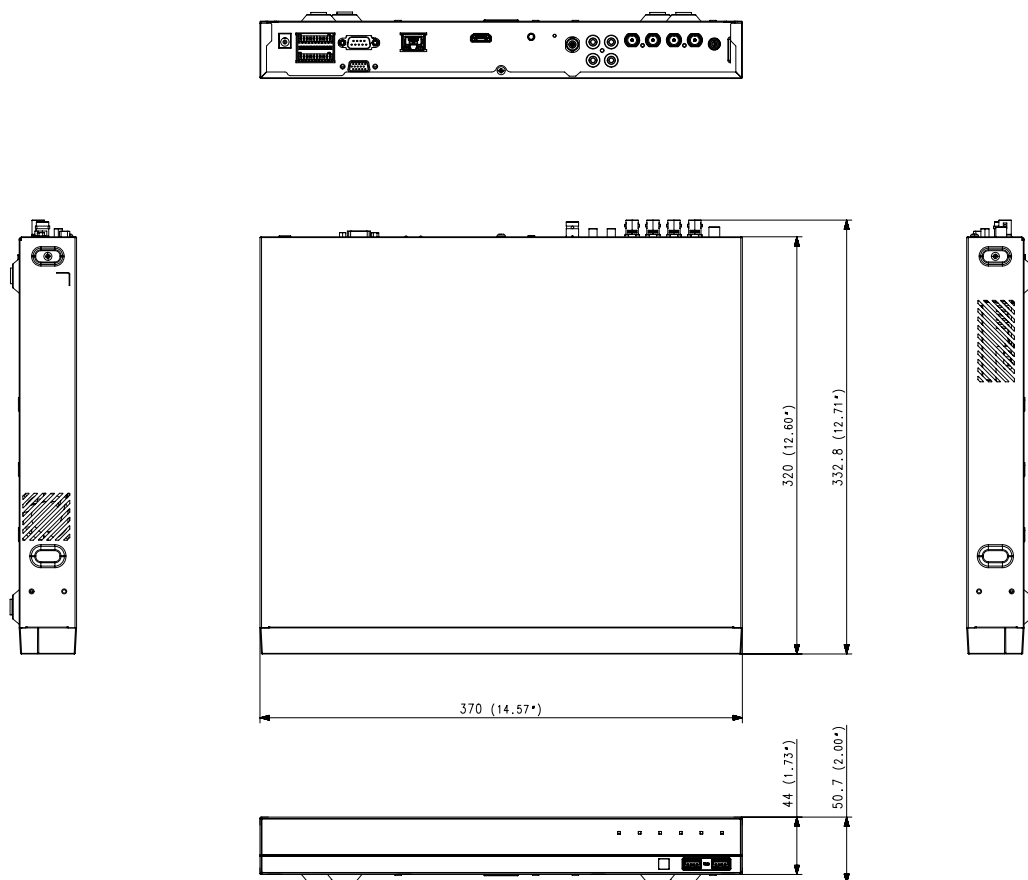
附录

产品视图

• HRD-440/840

单位：毫米（英寸）

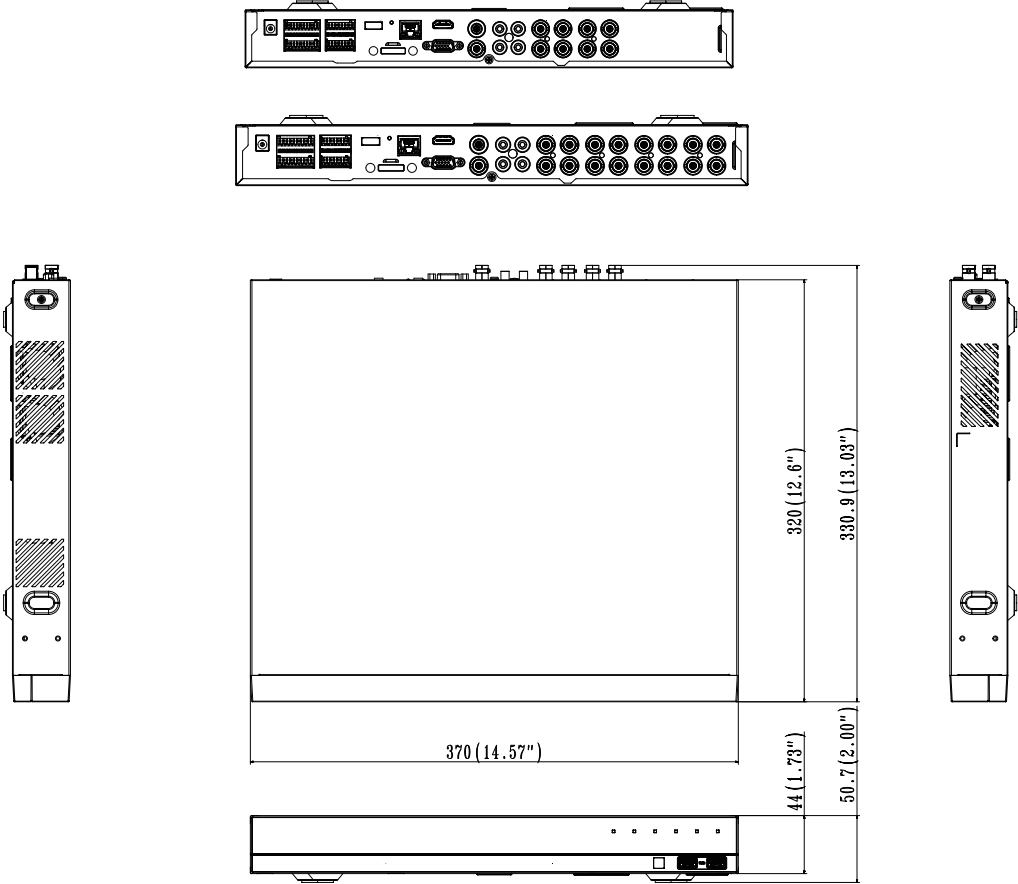


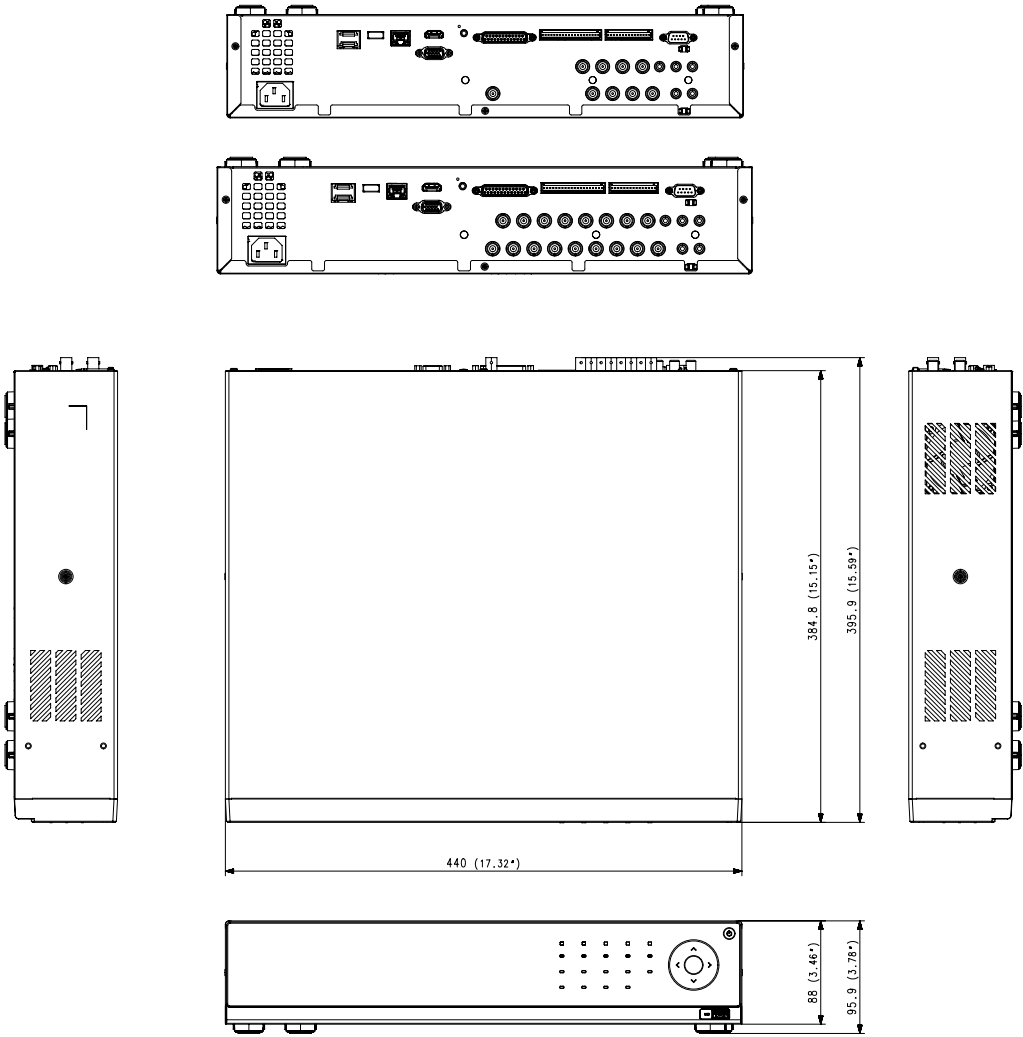


附录

• HRD-841/1641

单位：毫米（英寸）





附录

默认设置

这将恢复出厂默认设置。

所进行的设置如下所示：

- 使用菜单中的“系统/装入出厂默认值”。
 - 下面的默认设置基于型号 HRD-1642。
 - 初始管理员 ID 是“admin”，密码应在首次登录时设置。
 - 请每隔三个月更改密码以保护个人信息并避免因信息失窃造成的损失。
请注意，用户应负责安全以及密码管理不善导致的其他问题。

类别	详细信息			出厂默认值
系统设置	日期/时间/语言	日期/时间/语言	日期	YYYY-MM-DD
			时间格式	24 小时
			时区	GMT
			时间同步	关闭
			DST	关闭
			语言	中文
	许可权管理	管理员	ID	admin
		用户	组	所有组
		设置	受限访问	备份/录制锁定/搜索/ PTZ/远程警报输出/关闭
			自动注销	关闭
			手动输入 ID	关闭
			触摸按钮声音	打开
			触摸按钮	打开
	系统管理	系统信息	广播格式	PAL
设备	摄像机	摄像机	视频	打开
			音频	关闭
			频道名称	CAM 01 ~ CAM 16
			帧扫描停留时间	5 秒
		屏幕设置	类型	AHD
			亮度	48
			对比度	53
			颜色	53
			EQ	3
		PTZ	端口	RS-485
			ID	摄像机编号
			协议	无

类别	详细信息			出厂默认值
设备	摄像机	类型	类型	AHD
			分辨率	4M
			模式	自动
			EQ	3
	存储设备	硬盘警报	检查警报输出端口	关闭
			警报持续时间	关闭
			替换警报输出端口	关闭
			持续时间	关闭
	远程设备	波特率		9600
		奇偶校验		无
		数据		8
		停止位		1
		系统键盘		关闭
		遥控器		打开(0)
	POS 设备			打开
	监视器	监视器	事件显示	关闭
			显示器	全部
			多频道切换时间	5 秒
			VGA/HDMI	1920 x 1080
			HDMI 分辨率自动探测	打开
		现场输出	多个现场	关闭
			现场输出	单一
			事件显示时间	关闭
		模式	现场模式	全部
			播放模式	全部

附录

类别	详细信息			出厂默认值
录制	录制时间表	频道1 ~ 频道16		两者(连续&事件)
	事件录制持续时间	事件前		关闭
		事件后		1 分钟
	录制质量和分辨率	标准	分辨率	4M
			帧速率	15 fps
			录制质量	级别 4
			类型	HD
		事件	分辨率	4M
			帧速率	15 fps
			录制质量	级别 4
			类型	HD
	录制选项	磁盘结束模式	设置	覆盖
			无空间报警	关闭
事件	传感器检测	自动删除		关闭
		传感器操作		关闭
		摄像机		摄像机编号
		警报		无
	动作检测	警报持续时间		10 秒
		模式		关闭
		灵敏度		级别 10 (高)
		警报		无
		警报持续时间		10 秒
		动作地区		所有区域
	视频丢失检测	视频丢失状态		关闭
		警报		无
		警报持续时间		10 秒
	篡改检查	模式		关闭
		灵敏度		中
		警报		无
		警报持续时间		10 秒
	警报计划	警报 1		事件同步

类别	详细信息			出厂默认值
网络	连接模式	接口	IP 类型	静态
			传输带宽	2Mbps
			IP 地址	192.168.1.200
			网关	192.168.1.1
			子网掩码	255.255.255.0
			DNS	168.126.63.1
		端口	协议类型	TCP
			设备端口	4520~4524
			HTTP 端口	80
			安全视频传输	关闭
			备份带宽	高
		警报	断开与警报输出端口的连接	关闭
			警报持续时间	关闭
	DDNS	DDNS 站点		关闭
	当前传输		分辨率	CIF
			质量	低
	邮寄服务	SMTP	服务器	关闭
			端口	25
			使用身份验证	关闭
			安全传输	从不
		事件	事件间隔	10 分钟
			每个事件所附加的图像数	1
			使用事件传输	关闭
		组	组	关闭
			接收人许可权	关闭
	SNMP		启用 SNMP v1	关闭
			启用 SNMP v2	关闭
			启用 SNMP v3	关闭

附录

疑难解答

症状	对策
系统打不开，且前面板上的指示器根本不工作。	• 检查电源系统是否已正确连接。 • 检查系统以查看电源的输入电压是否适当。 • 如果在您采取以上措施之后问题仍存在，请检查电源，必要时更换新电源。
一些频道即使接收到了视频源也只显示黑色屏幕。	• 检查与系统连接的摄像机显示图像是否正常。有时，出现此问题可能是因为摄像机没有正确地与视频源连接。 • 检查摄像机是否与电源正确连接。 • 有时，出现此问题可能是因为在频道上从连接至多个系统的视频分配器获得的视频信号过弱。在此情况下，直接将摄像机的视频源输入 DVR 中。这样可能会找到原因并解决问题。
如果我按下前面板上的[录像]按钮，REC 指示器不闪烁，而且播放器也没有开始录制。	• 检查硬盘上是否有可用的空间以供录制。 • 检查录制模式是否在录制模式设置中设为“打开”。
屏幕重复显示徽标图像。	• 此情况可能因主板问题引起，或是相关的软件被破坏。请联系就近的服务中心以获取更多信息。
频道按钮在现场屏幕上无法使用。	• 如果当前屏幕处于事件监视模式，频道按钮就无法使用。在事件监控屏幕中，按[报警]按钮退出屏幕，然后选择频道。
当我开始日历搜索时，光标不会移到“开始”按钮上。	• 检查您想播放的频道和日期是否标注了V 符号。在开始使用“开始”按钮进行播放之前，应检查频道和日期。
当听到警报声时，我按下前面板上的[报警]按钮解除警报，但不起作用。警报声仍存在，而且我无法以任何方式将其设为关闭。	• 按前面板上的[菜单]按钮，按以下方式解除警报： 1) 解除事件监视模式：监视模式 - 将事件监视的持续时间设为“关闭”。 2) 解除警报声音：事件录制模式 - 警报（动作检测/视频丢失/篡改检查） - 取消激活警报声音。 3) 解除事件：事件录制模式 - 警报（动作检测/视频丢失/篡改检查） - 将该模式设为“关闭”。
即使我按下现场屏幕上的[录像]按钮也无任何反应。	• 菜单 → 摄像机 → 检查 PTZ 设备中的当前协议和其他设置是否根据 PTZ 摄像机进行了正确配置。

症状	对策
当我将多个外部硬盘连接到 DVR 上时，发现 DVR 不能识别安装的那么多磁盘。	DVR 需要时间来识别多个外部硬盘。请稍后重试，如果问题（无法识别所连接的那么多硬盘）仍然存在，可能是因为安装硬盘的机器错误。使用不同的硬盘重试。
“需要重设日期/时间。”的消息 会出现在屏幕上。	当内部时钟的时间设置出现问题或时钟本身出错时会显示该消息。请联系零售商或服务中心以获取更多信息。
时间条没有显示在搜索模式中。	时间线可以在正常和扩展模式间进行切换。在扩展模式下，时间条可能不会显示在当前时间线中。切换至正常模式或使用向左或向右按钮浏览时间条。
显示“无硬盘”图标和错误消息。	检查硬盘是否连接正常。如果在正常情况下仍出现此问题，请联系就近的服务中心让服务专业人士检查硬盘。
我已在 DVR 上安装了其他硬盘，但是它无法识别硬盘。	请查看兼容性列表以检查 DVR 是否支持其他硬盘。有关兼容性列表，请联系您购买 DVR 的零售商。
我已将外部存储设备（外部 SATA HDD）连接至 DVR，但是 DVR 好像无法识别。	请查看外部存储设备的兼容性列表以检查连接的设备是否受 DVR 支持。有关兼容性列表，请联系您购买 DVR 的零售商。
如果我在 Web 查看器的全屏模式下按 ESC 键，系统不能切换至正常的分割模式。	按 ALT+TAB 键选择 ‘ACTIVE MOVIE’，然后再按 ESC 键。系统将会切换到正常的分割模式。
如果使用默认搜索、备份和路由器设置，我发现很难配置网络设置。	- 有关详情，请参阅用户手册。 - 如果您使用路由器来进行网络连接，请参阅本手册中的“使用路由器连接至互联网”一节。
我忘记了密码。	请与 DVR 安装人员联系，或致电给我们。
PC 或 DVR 无法播放备份数据。	- 备份数据时，您可以选择以下播放器：PC 或 DVR。请先选择再继续。 - 如果要使用 PC 来播放数据，则备份文件的格式应为 SEC。 - 如果要使用 DVR 来播放数据，应由 DVR 编制备份文件的格式。
在播放时，我的播放器不能切换到现场模式。	按 DVR 或遥控器上的停止 [■] 按钮，或者单击启动器上的 [] 图标以切换到现场模式。

附录

症状	对策
录制不起作用。	• 如果播放器根本就不显示现场图像，则表示录制不起作用，因此请先检查您是否能在屏幕上看到图像。 • 如果未正确配置录制设置，则录制不起作用。 1) 手动录制：按 DVR 前面板上或遥控器上的[录像]按钮以开始录制。 2) 计划录制：在“菜单” - “录制” - “录制计划”中指定所需的时间。录制将在指定的时间开始。 - <连续> 录制：在任何条件下，录制都会指定的时间进行。 - <事件> 录制：当发生警报、动态检测、视频丢失和篡改检测事件时，将进行记录。如果未发现任何事件，将不会执行录制。 - <连续/事件> 录制：如果未发现任何事件，将会执行连续录制。然而，如果发生事件，将会执行事件录制。
录制数据的图像质量不佳。	• 在“菜单 - 录制 - 质量/分辨率”中提高分辨率和质量级别。 1) 分辨率：当指定录制大小时指定较大的大小。(720P/1080P>WD1>4CIF>2CIF>CIF) 采用 CIF 格式的录制图像显示降低的质量，因为它从小尺寸图像放大的。 2) 录制质量：为录制质量指定较高的级别。 • 如果提高分辨率和录制质量，数据大小也会相应增大。因此，HDD 将会更快填满。 覆盖 将会覆盖现有数据，因此录制将以较短的间隔进行。

OPEN SOURCE ANNOUNCEMENT

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.



■ For more details about Open Source, refer to the CD.

- GPL Software : linux kernel, Sysvinit, dosfstools, wget, msmtp, busybox, cdrtools, dvd+rw-tools, iconv, smartctl, uboot, minicom, openssl, bash, lm_sensors, parted, procs, util-linux 2.19.1, xfsprogs 3.1.7
- LGPL Software : glibc, vmstat, inetutils, calendarview.js, libiconv
- OpenSSL License : OpenSSL
- Boost Software License: Boost-1.43.0 (<http://www.boost.org/>)
- COMMON DEVELOPMENT AND DISTRIBUTION LICENSE: cdrtools 2.01.01
- FreeType Project LICENSE: freetype2

- RSA MD4 or MD5 Message-Digest Algorithm License : MD5 Message Digest Code
- MIT License : JQuery, Prototype JavaScript framework, FJCore

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 "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

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

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

one line to give the program's name and 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 what you want to do, use the GNU Lesser General Public License instead of this License.

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright © 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 danger 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.

The 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 general-purpose 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, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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

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

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

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

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

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

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

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

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

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

You may charge a fee for the physical act of transferring a copy, and

you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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

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

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

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

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

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

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

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

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

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

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

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten

lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

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

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

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

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

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

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

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for

copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

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

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

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

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

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

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

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

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

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source 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.

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 (eay@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 publicly 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.

Boost Software License

Boost Software License - Version 1.0 - August 17th, 2003 Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following : The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

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, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE Version 1.0

1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

- A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;
- B. Any new file that contains any part of the Original Software or previous Modifications; or
- C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

- a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and
- b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).
- c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.
- d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

- a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

- b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).
- c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.
- d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each

version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL

DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

For Covered Software in this distribution, this License shall be governed by the laws of Germany (excluding conflict-of-law provisions).

Any litigation relating to this License shall be subject to the jurisdiction and the courts of Berlin Germany, with venue lying in Berlin Germany.

The FreeType Project LICENSE

2002-Apr-11

Copyright 1996-2002 by

David Turner, Robert Wilhelm, and Werner Lemberg

Introduction

The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its main points are that:

- We don't promise that this software works. However, we will be interested in any kind of bug reports. ('as is' distribution)
- You can use this software for whatever you want, in parts or full form, without having to pay us. ('royalty-free' usage)
- You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in

your documentation that you have used the FreeType code. ('credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products. We disclaim all warranties covering The FreeType Project and assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a credit/disclaimer to use in compliance with this license. We thus encourage you to use the following text:

"Portions of this software are copyright © 1996-2002 The FreeType Project (www.freetype.org). All rights reserved."

Legal Terms

1. Definitions

Throughout this license, the terms 'package', 'FreeType Project', and 'FreeType archive' refer to the set of files originally distributed by the authors (David Turner, Robert Wilhelm, and Werner Lemberg) as the 'FreeType Project', be they named as alpha, beta or final release.

'You' refers to the licensee, or person using the project, where 'using' is a generic term including compiling the project's source code as well as linking it to form a 'program' or 'executable'. This program is referred to as 'a program using the FreeType engine'.

This license applies to all files distributed in the original FreeType Project, including all source code, binaries and documentation, unless otherwise stated in the file in its original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

2. No Warranty

THE FREETYPE PROJECT IS PROVIDED 'AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

3. Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display, copy, create derivative works of, distribute and sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

- o Redistribution of source code must retain this license file ('FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.
- o Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

4. Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission.

We suggest, but do not require, that you use one or more of the following phrases to refer to this software in your documentation or advertising materials: 'FreeType Project', 'FreeType Engine', 'FreeType library', or 'FreeType Distribution'.

As you have not signed this license, you are not required to accept it. However, as the FreeType Project is copyrighted material, only this license, or another one contracted with the authors, grants you the right to use, distribute, and modify it. Therefore, by using, distributing, or modifying the FreeType Project, you indicate that you understand and accept all the terms of this license.

5. Contacts

There are two mailing lists related to FreeType:

o freetype@freetype.org

Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

o devel@freetype.org

Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.

o <http://www.freetype.org>

Holds the current FreeType web page, which will allow you to download our latest development version and read online documentation.

You can also contact us individually at: David Turner (david.turner@freetype.org) Robert Wilhelm (robert.wilhelm@freetype.org) Werner Lemberg (werner.lemberg@freetype.org)

RSA MD4 or MD5 Message-Digest Algorithm License

Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All rights reserved.

License to copy and use this software is granted provided that it is identified as the "RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing this software or this function.

License is also granted to make and use derivative works provided that such works are identified as "derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either the merchantability of this software or the suitability of this software for any particular purpose. It is provided "as is" without express or implied warranty of any kind.

These notices must be retained in any copies of any part of this documentation and/or software.

The MIT License

Copyright 2008 Jeffrey Powers for Fluxcapacity Open Source.

Copyright 2011, John Resig

Copyright 2005-2009 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 above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

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

Some software components of this product incorporate source code covered under the BSD license as follows.

Component Name	License	License URL
lighttpd 1.4.26	BSD 2.0	http://www.opensource.org/licenses/bsd-license.html

lighttpd is a secure, fast, compliant, and very flexible webserver that has been optimized for high-performance environments. It has a very low memory footprint compared to other web servers and takes care of cpuload.

Its advanced feature-set (FastCGI, CGI, Auth, Output-Compression, URL-Rewriting and many more) make lighttpd the perfect webserver-software for every server that suffers load problems.

For more additional information, send email to help.cctv@hanwha.com.

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.

Component Name	License	License URL
librt 1.20	BSD 2.0	http://www.opensource.org/licenses/bsd-license.html

For more additional information, send email to help.cctv@hanwha.com.

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.

Component Name	License	License URL
net-snmp-5.4.1	BSD	http://www.net-snmp.org/about/license.html

Simple Network Management Protocol (SNMP) is an Internetstandard protocol for managing devices on IP networks. It is used mostly in network management systems to monitor the devices attached to the network for conditions that need administrative attention. Net-SNMP is a suite of applications used to implement SNMP v1, SNMP v2c and SNMP v3 using both IPv4 and IPv6.

For more additional information, send email to help.cctv@hanwha.com.

Various copyrights apply to this package, listed in various separate parts below. Please make sure that you read all the parts.

Part 1: CMU/UCD copyright notice: (BSD like)

Copyright 1989, 1991, 1992 by Carnegie Mellon University

Derivative Work - 1996, 1998-2000

Copyright 1996, 1998-2000 The Regents of the University of California

All Rights Reserved

Permission to use, copy, modify and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of CMU and The Regents of the University of California not be used in advertising or publicity pertaining to distribution of the software without specific written permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Part 2: Networks Associates Technology, Inc copyright notice (BSD)

Copyright (c) 2001-2003, Networks Associates Technology, Inc

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

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS 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.

Part 3: Cambridge Broadband Ltd. copyright notice (BSD)

Portions of this code are copyright (c) 2001-2003, Cambridge Broadband Ltd.

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. The name of Cambridge Broadband Ltd. 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 HOLDER "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 HOLDER 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.

Part 4: Sun Microsystems, Inc. copyright notice (BSD)

Copyright © 2003 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A.

All rights reserved.

Use is subject to license terms below. This distribution may include materials developed by third parties. Sun, Sun Microsystems, the Sun logo and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. 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. Neither the name of the Sun Microsystems, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS 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.

Part 5: Sparta, Inc copyright notice (BSD)

Copyright (c) 2003-2009, Sparta, Inc

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

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS 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.

Part 6: Cisco/BUPTNIC copyright notice (BSD)

Copyright (c) 2004, Cisco, Inc and Information Network Center of Beijing University of Posts and Telecommunications.

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. Neither the name of Cisco, Inc, Beijing University of Posts and Telecommunications, nor the names of their 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 HOLDERS 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.

Part 7: Fabasoft R&D Software GmbH & Co KG copyright notice (BSD)

Copyright (c) Fabasoft R&D Software GmbH & Co KG, 2003
oss@fabasoft.com

Author: Bernhard Penz

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. The name of Fabasoft R&D Software GmbH & Co KG or any of its subsidiaries, brand or product names 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 HOLDER "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 HOLDER 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.

Part 8: Apple Inc. copyright notice (BSD)

Copyright (c) 2007 Apple Inc.

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. Neither the name of Apple Inc. ("Apple") 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 APPLE AND ITS 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 APPLE 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.

Part 9: ScienceLogic, LLC copyright notice (BSD)

Copyright (c) 2009, ScienceLogic, LLC

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. Neither the name of ScienceLogic, LLC 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 HOLDERS 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.

Component Name	License	License URL
miniupnpc 1.5	BSD 2.0	http://miniupnp.free.fr/

For more additional information, send email to help.cctv@hanwha.com.

Copyright (c) 2005-2009, 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:

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 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.

Component Name	License	License URL
ppp 2.4.5	BSD 2.0	http://packages.debian.org/changelogs/pool/main/p/ppp/ppp_2.4.5-5.1/ppp-udeb.copyright

For more additional information, send email to help.cctv@hanwha.com.

Copyright (c) 2003 Paul Mackerras.

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. The name(s) of the authors of this software must not be used to endorse or promote products derived from this software without prior written permission.
3. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by Paul Mackerras <paulus@samba.org>".

THE AUTHORS OF THIS SOFTWARE DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (c) 1995 Pedro Roque Marques.

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. The names of the authors of this software must not be used to endorse or promote products derived from this software without prior written permission.
4. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by Pedro Roque Marques <pedro_m@yahoo.com>".

THE AUTHORS OF THIS SOFTWARE DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (c) 1995 Eric Rosenquist.

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. The name(s) of the authors of this software must not be used to

endorse or promote products derived from this software without prior written permission.

THE AUTHORS OF THIS SOFTWARE DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (c) 2002 Google, Inc.

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. The name(s) of the authors of this software must not be used to endorse or promote products derived from this software without prior written permission.

THE AUTHORS OF THIS SOFTWARE DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (c) 2001 by Sun Microsystems, Inc.

All rights reserved.

Non-exclusive rights to redistribute, modify, translate, and use this software in source and binary forms, in whole or in part, is hereby granted, provided that the above copyright notice is duplicated in any source form, and that neither the name of the copyright holder nor the author is used to endorse or promote products derived from this software.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Copyright (c) 1999 Tommi Komulainen.

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. The name(s) of the authors of this software must not be used to endorse or promote products derived from this software without prior written permission.
4. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by Tommi Komulainen <Tommi.Komulainen@iki.fi>".

THE AUTHORS OF THIS SOFTWARE DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright (c) 1984-2000 Carnegie Mellon University.

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. The name "Carnegie Mellon University" must not be used to endorse or promote products derived from this software without prior written permission. For permission or any legal details, please contact Office of Technology Transfer Carnegie Mellon University 5000 Forbes Avenue Pittsburgh, PA 15213-3890 (412) 268-4387, fax: (412) 268-7395 tech-transfer@andrew.cmu.edu
4. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by Computing Services at Carnegie Mellon University (<http://www.cmu.edu/computing/>)."

CARNEGIE MELLON UNIVERSITY DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL CARNEGIE MELLON UNIVERSITY BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Component Name	License	License URL
hdparm-9.39	BSD-License	http://www.opensource.org/licenses/bsd-license.html

Copyright (c) 2008 Mark Lord

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. Neither the name of the copyright holder 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.



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。



正确处理本产品（废旧电气和电子设备）

（适用于欧盟和其他采用分类回收系统的欧洲国家。）

此标志出现在产品或其印刷物中，它表示当本产品使用寿命结束时不能与其他废弃生活垃圾一同进行处理。为防止处理不当可能对环境或人类健康造成的伤害，请将本产品与其他类型的垃圾分开并对其进行回收，以便提高资源的可持续利用。

家庭用户应联系本产品的零售商或地方政府办公室，以便了解安全环保地回收本产品的地方和方法。

商业用户应联系其供应商并检查购买合约的条款和条件。本产品不应该与其他商业垃圾混合处理。



正确处理本产品中的电池

（适用于欧盟和其他采用分类电池回收系统的欧洲国家。）

电池、手册或包装上的此标志表示该产品中的电池不能与其他废弃生活垃圾一同进行处理。标志处的化学符号 Hg、Cd 或 Pb 表示该电池所包含的汞、镉或铅的含量超过 EC 标准 2006/66 的参考水平。如果未能对电池进行正确处理，这些物质可能会对人类健康或环境造成伤害。

为保护自然资源并促进资源再利用，请将该电池与其他类型的垃圾分开，并通过当地的免费电池回收系统进行回收。

用户不可自行更换本产品中使用的可充电式电池。有关更换电池的信息，请联系您的服务提供商。

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
