SCode V3.5.1

Digital Video Network Surveillance System

Kernel Technologies

Image Compression (H.264+FAC)

H.264 is the most advanced commercial image compression technology. It can support high compression rate with good image quality, Here, we also introduce a proprietary image technology, **FAC** (**SCode A**dvanced **C**oding), to reduce the image compression rate in advanced while working in the remote image transmission.

Motion Image Detection

A precise algorithm, **RDMD** (**R**eal-Time **D**ynamic **M**otion **D**etection), is used to detect accurately any image changes in real time.

- Suppress the lighting flashing problem
- Reduce the false alarm probability

RDMD recording, results in reducing required HDD space and HDD life-time will be extended. These characteristics, insuring that **SCode** systems are highly reliable, will cut maintenance costs and can be operated continuously for long extended times without human interference.

Image Data Rate

Under the recording conditions:
Resolution = CIF, PAL = 25fps or NTSC = 30fps
The below data rate will be get :
Dynamic data rate = 30 ~ 180 MB/Hour/Camera
Average data rate = 100 MB/Hour/Camera
Average data rate = 1 KB/Frame

Monitoring Speed

1 Camera : PAL = 25 fps, NTSC =30 fps
4 cameras : PAL = 100 fps, NTSC = 120 fps
8 cameras : PAL = 200 fps, NTSC = 240 fps
16 cameras : PAL = 400 fps, NTSC = 480 fps
20 cameras : PAL = 500 fps, NTSC = 600 fps
24cameras : PAL = 600 fps, NTSC = 720 fps

Recording Speed

1 Camera : PAL = 25 fps, NTSC =30 fps
4 cameras : PAL = 100 fps, NTSC = 120 fps
8 cameras : PAL = 200 fps, NTSC = 240 fps
16 cameras : PAL = 400 fps, NTSC = 480 fps
20 cameras : PAL = 500 fps, NTSC = 600 fps
24cameras : PAL = 600 fps, NTSC = 720 fps

Audio

Each camera can have one audio inputs. One 24-camera machine can support 24 audio inputs and 1 audio input used for local audio broadcast by using PC's sound card. It uses G.729 audio compression technology.
Sampling rate = 8K Hz. Data rate = 8K bps (WT700)
Sampling rate = 16K Hz. Data rate = 16K bps (WT8xx)
Sampling rate = 8K Hz. Data rate = 16K bps (WT9xx)

Unique Dual-Data-Stream

In order to send the image to the remote **SCode Client**s by through the narrow communication bandwidth, a special dual-data-channel is provided. This hardware structure can allow the recording and monitoring speed of the monitored **SCode DVR** to keep always in a real time speed (NTSC: 30 fps/camera, PAL: 25 fps/camera). But the transfer image speed of the monitored **SCode DVR**'s each camera can be adjustable by the remote observer, depended by the network speed.

Board Support

- SP-6204 (4-CH card), SP-6208 (8-CH card), SP-6216 (16-CH card)
- SP-6204D (4-CH card)

System Features

Video Monitoring

Depending on the number of installed channels, ***SCode*** can display 1/4/9/16 split windows. The date and time, the HDD status, and the working information are displayed in the user interface.

■ **Support 2 modes of Graphic User Interface (GUI)**

Provides Simple GUI and Advanced GUI

■ **Display speed**

PAL : Camera =25fps, System =24Cx25fps =600fps
NTSC : Camera =30fps, System =24Cx30fps =720fps

■ **Monitor resolution (Pixel^2)**

PAL : 176x144, 352x288, 720x567
NTSC : 176x120, 352x240, 720x480

■ **Split window**

Offer 1, 4, 16and 25 split window modes. In 4-split mode, the user can select to view 1~4, 5~8, 9~12, 13~16, 17~20, or 21~24 cameras.

■ **Full screen window**

Offers full screen mode.

■ **Page change (Auto scan)**

When the system is in the 1 or 4 split window mode, displaying of each camera window can be rotated automatically one after the other during set intervals.

■ **Image window control**

Allow to view or hide the camera's image without influence the recording function.
Can assign different user to view the different cameras.

■ **Window editor**

Allow to the user to edit and change the camera position of the monitor window. Here offers on-screen and off-screen editing.

■ **Working status indicator**

In each image window, there is one working status LED. It will show that image window is in the monitor mode (Grey), the recording mode (Green), or the alarm mode (Red).

■ **Assign a camera name**

Sets the camera name and displays the name on the image window.

■ **Show camera's name**

Allow to show the camera number, camera name, and date & time on the image. The user can select the color and the position for optimal visibility against the background.

■ **Adjustable input video signal**

The input video signal can be adjusted for hue, saturation, contrast, and brightness.

■ **Right-click command window**

Provide the right-click command. Some often-used operation commands are collected in this command window. It can help the user to operate the system.

■ **Provide device information check**

Allows the user to edit one device information to each camera and I/O device. It helps the local user and the remote user during checks of the device data.

Video Recording

Support 1 ~ 24 camera's recording in one DVR machine. Each camera can be set up independently.

■ **Image compression technology**

H.264 combined with a proprietary image technology, **FAC** (**SCode A**dvanced **C**oding), to offer a high compression rate with good image quality.

■ **Recording speed**

PAL : Camera =25fps, System =24Cx25fps=600fps
NTSC : Camera =30fps, System =24Cx30fps=720fps
To meet variable requirements and/or different system configurations within a network, **SCode** can adjust the recording speed of each camera.

■ **Max. Recorded resolution (pixel^2)**

SP-6204/6208/6216 : PAL=352x288, NTSC=352x240
SP-6204D : PAL=704x576, NTSC=704x480
Each camera can adjust the recording resolution, and recording speed independently.

■ **Video recording control**

Allow to start or stop the recording function of all cameras, at one time. The user can also control the recording function, one camera by one camera.

■ **Adjustable recorded image quality**

21 levels of recorded image quality are offered. The user can adjust the image quality, accommodating limitations of the network or manner of file transfer.

■ **Recording mode**

Provide 5 modes : Manual recording mode, Auto recording mode, Schedule recording mode, Recording triggered by image motion detection, Recording triggered by image motion detection.

Audio recording and monitoring

Each camera can have one audio inputs. One 24-camera machine can support 24 audio inputs and 1 audio input used for local audio broadcast by using PC's sound card.
G.729 is used as the audio compression technology.
Sampling rate = 8K Hz. Data rate = 8K bps (WT7xx)
Sampling rate = 16K Hz. Data rate = 16K bps (WT8xx)
Sampling rate = 8K Hz. Data rate = 16K bps (WT9xx)

■ **Local audio function**

Support 24-channel audio monitoring and recording capability.

■ **Local voice broadcast**

Support 1 channel audio input used as the local voice broadcast.

■ **Remote audio function**

Support audio monitoring and recording capability by through digital network communication.

■ **Remote audio broadcast**

The remote user can send his voice to any one or all DVRs.

Scheduled Recording

The user can program a recording schedule for each one camera. This feature can avoid redundant daily operation.

It support 4 kinds of the repeat modes :
Only once, every day, every week, every month

File Storage

Each camera will create its own video files.

■ **Adjustable video film length**

The default recording length of the video film is set to 60 minutes. It can be adjusted by units of 1 min.

■ **Adjustable HDD reserved space**

The user can arrange HDD space (used by **SCode**) by adjusting the reserved space.

■ **Multiple HDD storage**

SCode can support unlimited number of HDD to store video files. The system will switch to the next HDD automatically, when the working HDD is full.

■ **Recyclable recording**

It enables the system to continue recording new video files when all hard disks are full. The old files will be deleted automatically in order to store new video files.

■ **HDD full alarm**

While the HDD is full, the system can play a sound to inform the user.

■ **AVI format converter**

Convert the stored video which is used the private video format to public AVI format.

Video Loss Detection

Provide video loss detection.

Image motion detection (RDMD)

This real-time image motion detection mechanism checks each incoming video frame. It triggers the recording function and executes alarm functions like, sounding alarm, take pictures, enlarge the video window on screen, or enable its external output port. 16 sensitivity levels are offered by the system.

■ **Sensitivity adjustment**

16 sensitivity levels are offered by the system.

■ **Alarm mask**

In each camera, the user can set 1 ~ 8 alarm masks.

Image Mask

Allow to hide part of the image by using the image mask function.

■ **Multiple image masks**

Every one camera can be set 1 ~ 8 image masks。

■ **Recording mask**

The use can choose whether the recorded video can be hidden with the image masks or not。

Snapshot

The user can take pictures while the system is in the monitor mode, recording mode, and playback mode. The picture will include date, time, and camera name. And, every camera can have its own storage folder.

eMAP

Supports an eMAP to locate camera positions. They are shown on floor maps and show their working status.

PTZ Control

By RS232/485 converter, 1~16 camera plates or speed domes can be controlled.
Plate control : Auto, Pan, Tilt
Lens control : Zoom, Focus, Light
Speed control : Zoom, Pan Tilt
External control : Wiper, Heater, Fan, Lighter

■ **Available PTZ controllers**

Paten PT846M, Lilin, Chiper

■ **Available speed dome**

Lilin, Dynacolor, Philips, TOA, Pelco D, Pelco P, Ganz, Kalatel, VSD128, JY2000, AD

I/O Control

Using the I/O controller by through RS232/485 converter, the system can interact with external devices like IR sensors, vibration sensors, relays, etc. to enhance the detection capability of the system and to extend the control capability.

■ **Available I/O controllers**

Paten PT811M, P16R16 / P8R8, Jabsco, DCTRLS, Mainvan, S88RM

Alarm

If the camera detect the image changed or the external sensor detect one event, it will trigger the alarm functions

■ **Alarm detector**

Provide the motion image detection of camera and external sensor to detect the alarm event.

■ **Alarm log**

If the machine detects an alarm event, the system will write this alarm event with the related information into an alarm log book.
It can execute alarm actions like: Play an alarm sound (Every device can have its own alarm sound), Trigger the system to record, Take a picture Enlarge the monitoring image, Activate the external equipments.

■ **Remote alarm function**

It can execute alarm actions like: Require remote SCode Clients to sound a pre-pointed alarm, Send live video images to remote SCode Clients.
Once the camera or external sensor detects an event, it can inform the multiple remote SCode Client

machines. One camera or one detector can send multi-camera's live image to the remote SCode Client.
It also can request the remote SCode client to sound the different pre-point alarm.

■ **Send alarm to remote telephone**

At an alarm event, the SCode DVR can inform remote telephones or mobile phones by a recorded voice message through the modem.

■ **Send alarm by emails**

At an alarm event, the SCode DVR can send a mail to multiple email addresses.

■ **Alarm schedule**

Users can setup a schedule to activate the alarm functions. It supports 4 kinds of repeat modes:
Only once, every day, every week, every month

■ **Play an alarm sound on requested by remote user**

SCode DVR's can accept commands sent by remote SCode Clients to sound an alarm, stored in its sound bank.

Instant Playback

When the DVR is in recording, it is allowed the user to re-play the video immediately without having to wait first before the video file is created or run the playback program.

Playback

Allow to play 1 ~ 16 video films, simultaneously.

■ **File search**

Allow to search the films by time, camera name, camera number, and file name.

■ **File statistics**

Allow to count the total file number and total file size of the selected files or one day's recording, automatically.

■ **Multi- film playback capability**

Allow to play 1 ~ 16 video which are located in different time, simultaneously.

■ **Operation**

Skip foreword, Skip backward, Pause, and Step (Frame by frame) operations are offered.
It is allowed to control the playing videos together, or one by one.

■ **Scroll bar control**

Quickly access a special time in one video file, by moving the scroll bar, directly.
It is allowed to control the playing videos together, or one by one.

■ **Change the camera information's color**

Allow to change the text color of the camera information shown on the image window.

■ **Playback speed control**

Playback speed : 1/8, 1/4, 1/2, 1, 2, 4, 8 times.
It is allowed to control the playing videos together, or one by one.

■ **Zoom in**

The playing video can be zoomed (3 sizes).

■ **Export video files to CD-R/RW**

The user can select and export the interested files to the CD-R/RW, directly. While in export the video files, the user can make a copy of the playback program into the CD disk.

System Information Check

Allow the user to check the below system information :

■ HDD status
■ System operation history
■ System login history
■ Alarm log history

Password Protection

■ **User authorization**

The system administrator can authorize different users with different operation functions and view the different cameras. The setup includes authorization settings for local and remote operations.

■ **Local password protection**

The password protect mode can avoid unauthorized access at the local site.

■ **On-line to change login in name**

It is allowed to change the login name without closing the program.

■ **Remote password protection**

If users want to access a SCode DVR from remote site, the system will check for authorized user passwords.

Automatic Function

■ **Auto power-on execution**

The system can be launched automatically, after powered on.

■ **Auto execute recording**

The system can execute the recording function automatically after it is launched.

■ **Auto shut down**

The system can be shut down at a preset time automatically.

■ **Auto reboot**

The system can be rebooted at a preset time automatically.

■ **Auto close machine**

The DVR machine can be closed automatically after the DVR program is quitted.

■ **Auto link to server**

After the system launched, DVR can link to SCode Server automatically.

Keyboard Control

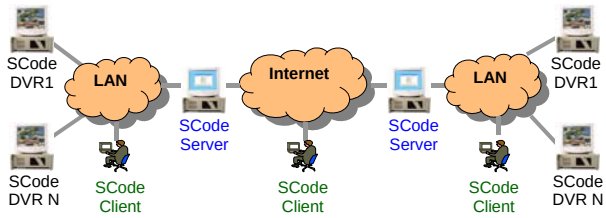
■ **Keyboard lock**

Provide keyboard lock function to avoid unexpected persons who try to access the Windows OS.

Remote Access

Using an existing data network, the system can expand from a local point to a network system. This networking capability can link all **SCode DVR**s to act as a single surveillance system. Using this remote access feature, a user can construct a centralized security center.
There are 6 unites **SCode CMS (C**entral **M**onitoring **S**ystem**)**:

- SCode DVR
- SCode Client : Central Monitoring System program
- SCode Simple Client : Remote access program
- SCode Server : Communication server program
- SCode Central Server : Central server program
- SCode IE Viewer : Remote viewing by IE browser



Network Capability

- **High transparent in network**

  SCode Client can pass through NAT devices (Route, Gateway, and IP router, etc.). This feature can allow the user to access the local and remote SCode DVRs which are located in the different networks.

- **Multi-server network structure**

  Provide the multi-server structure. It allows to link the **SCode** security network system into be a big network.

- **Central-server network structure**

  All of the SCode server can link to one SCode Center Server to build a centralized network structure.

- **Multi-point network access capability**

  For anyone **SCode Client**, it can access different SCode DVRs which are located in different networks, simultaneously.
  Or, anyone SCode DVR's camera can be accessed by the different **SCode Client**s which are located in different networks, simultaneously.

- **Multi-camera access capability**

  SCode Client allows to access 1 ~ 64 remote cameras from 1 ~ 64 different remote SCode DVRs, simultaneously.

- **Communication protocol**

  Provide TCP/IP and UDP/IP. These 2 protocols can work in **SCode Server**, together.

- **Auto link to SCode Server**

  SCode DVR can link to the **SCode Server** after the machine is powered on.

- **Support static/floating IP**

  SCode DVR and **SCode Client** can use static or floating IP.

- **Support physic/virtual IP**

  SCode DVR and **SCode Client** can use physic or virtual IP.

- **Support Domain Name Access (DNA)**

  SCode server can be accessed by the domain name.

- **Image transmission rate of one SCode DVR**

- **Image compression technology**

  Use (MPEG4 + FAC) and H.264.

Remote Link Operation

- **Manual link**

  The user can view the remote camera one by one or view all cameras of one SCode DVR at one time.

- **Group link**

  This function can allow the user directly to access the different cameras which are installed in different DVR machines located in different **SCode Server**s by one time operation.

- **On-screen setup of Group link**

  Allow the user to save the linking status while in monitoring the remote cameras. It can reduce the setting procedure of the group link.

- **Group scan**

  Allow the user to view the different group link at a preset scheduled timing table.

- **Auto speed up the image transmission rate**

  The system will auto speed up the image transfer rate after the user enlarges the image window.

- **Auto update the linking status**

  The linking status table will be automatically updated in time, if any change is happened in **SCode** network.

- **Monitor the current data flowing rate**

  It offers the information of the receiving data rate to the user. It can help the administrator to arrange the communication bandwidth. It offer 2 kinds of this information : fps and Kb/s.

Remote Audio Monitoring

SCode Client can monitor the remote DVR's live audio.

Remote Audio Broadcast

SCode Client can send the sound to any one or all DVRs.

Remote Play Alarm Sound

SCode Client can request the remote SCode DVR to play an alarm sound which is stored in the remote DVR's sound bank.

Remote Control

- **Adjust the transmitted frame speed**

  Allow to change the transmitted frame speed of each

camera from **SCode Client**, independently.

■ **Adjust the transmitted image quality**

Allow to change the transmitted image quality of each camera from **SCode Client**, independently.

■ **Adjust the camera signal**

Allow to adjust the camera's video signal (brightness, saturation, contrast, and hue) remotely.

■ **Remote PTZ control**

Provide PTZ control from a remote site.

■ **Remote I/O control**

Users can control the I/O controllers of one DVR machine from a remote site.

Remote Data Retrieve

■ **Remote file download**

Downloads the video files from remote SCode DVR.

■ **Remote information check**

Allows the user to check the remote DVR's information : System operation history, System login history, Alarm log history.

■ **Remote device information check**

Allow SCode Client to retrieve the camera's device information from the remote DVR.

Remote System Setup

■ **Remote user management**

Allow to change the user setup of remote DVRs.

■ **Remote auto function setup**

Allow to change the auto function of remote DVRs.

■ **Remote recording schedule setup**

Manage the recording schedule of remote DVRs.

■ **Remote alarm schedule setup**

Allow to change the alarm schedule of remote DVRs.

■ **Remote alarm function setup**

Users can change alarm settings of remote DVR's.

Remote Alarm

SCode Client can receive the alarm event sent by the remote SCode DVR machine. SCode DVR machine can inform multiple SCode Clients at the same time.

■ **Video Alarm**

SCode Client can automatically receive and store the living video sent by from one remote DVR which has an alarm event happened.

■ **Audio Alarm**

After SCode Client receives one remote alarm from the remote DVR, it can play a pre-appointed sound to different camera or external sensors.

■ **Alarm indicator**

After SCode Client receives one remote alarm, it can turn on one LED indictor to inform the user.

■ **Alarm log table**

After SCode Client receives one remote alarm, it will write this alarm event into one alarm log table.

Instant Playback

Allows to re-play the video immediately without running the playback program.

Local Operation

■ **Split window**

Offer 1, 4, 9, 16, 36, 49, and 64 split window modes.

■ **Video recording**

Allow to record the incoming video while in remote monitoring.

■ **Take pictures**

Allow to take pictures while in remote monitoring.

■ **Remote audio recording**

Support audio monitoring and recording capability by through digital network communication.

System Record Check

Allows the user to check the below system records :

■ System operation history

■ System login history

■ Alarm log history

Password Protection

■ **User authorization**

The system administrator authorizes different users for different operation functions. It includes setup of local and remote operations.

■ **Local password protection**

Multi password protect modes avoid unauthorized access at the local site.

■ **Remote password protection**

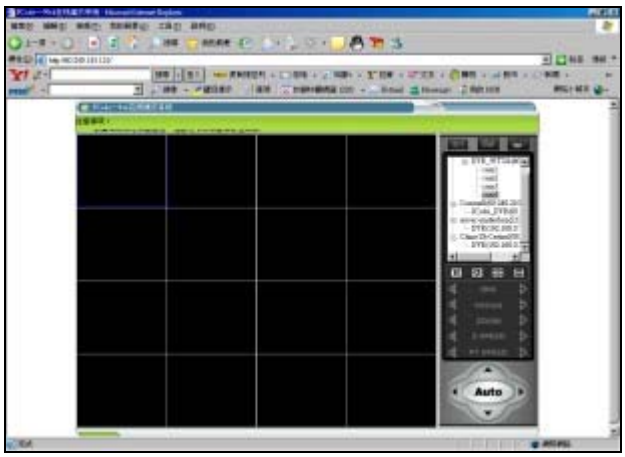
If users want to access a remote DVR, the remote DVR will check for authorized user passwords.

■ **Remote auto login**

If users want to access a remote DVR, the SCode Client can send the user name and password to the remote DVR automatically. If the user name and password is right, the remote DVR will accept this access. If not, the SCode Client will request the user to do the login job by manual.

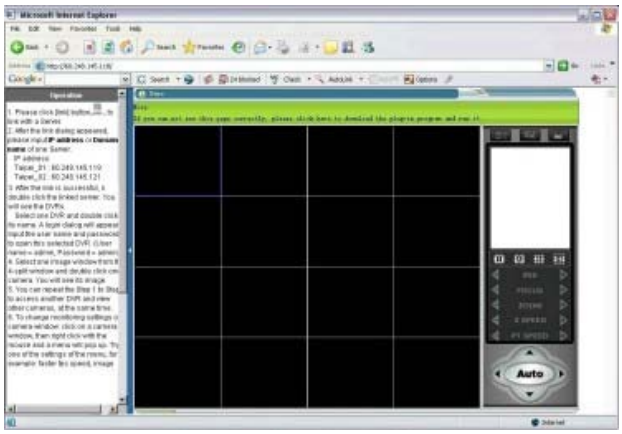
Remote eMAP

Support a multiple layer remote eMAP. The user can easy know the whole working status of the security network structure and operate it.



Support IE Browser

It is allowed to access the remote DVR by IE browser. In this way, the remote user can easy to the camera's image from internet.

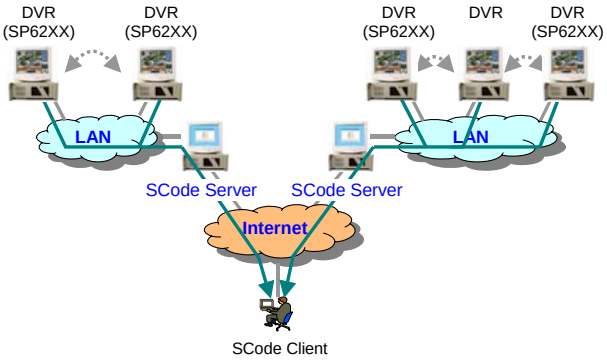


Support Web Page

It is allowed to build SCode IE Viewer into Web page.

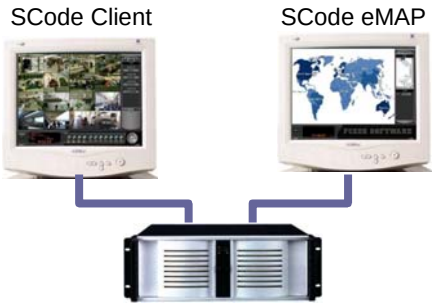
Access Different Types of SCode DVRs

- Allows to integrate SP-6204/6208/6216/6204D DVR in one network.
- Allows to view SP-6204/6208/6216/6204D DVR simultaneously.



Support Dual-Monitor

SCode Client program supports dual-monitor operation.



Operating System

- Support Windows XP, Window 2000.
- Support intel P3, P4 or other x86 CPU.
- Support DirectDraw and non-DirectDraw VGA card

DVR machine