

IP Fast Dome Camera

PIH-7000/7600/7625 IP Series



Event Script API

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Chapter 1. INTRODUCTION

The Event Script provides a flexible way for an administrator to configure Merit LiLin IP Fast Dome, LAN Camera, and Video Server as automatic and intelligent devices in applications and a comprehensive set of “trigger conditions” and “action commands” which are allowed to fit in varies applications without limitation.

Chapter 2. EVENT SCRIPT FORMAT

The format of event script contains one or several entries and is entered into the editor box as in the following format:

```
# <comments>
<triggering condition> :
<action commands>;
%
```

where:

- The <comments> are optional.
- The <trigger condition> includes the following fields: <minute> <hour> <day> <month> <weekday> <optional trigger source and run option>
- The <commands> include one or several event script action commands.

Chapter 3. COMMENTS

It is a good programming practice to start each new entry with a comment for describing its function. Comments are optional but must be proceeded by a # character, as detailed below:

```
# <comment>
Example:
# This programming entry will...
```

Chapter 4. TRIGGER CONDITION

The commands contained within each specific entry are triggered by a pre-defined trigger condition. The trigger condition is specified by six separate fields and must be terminated with a colon ":".

<Minute> <Hour> <Day> <Month> <Day of the week> <(optional) Trig Source and Run Option Field >:

Chapter 4.1. Time and Date Event Field

The first five fields specify the time and date events, i.e. Minute, Hour, Day, Month, and Day of the week.

The syntax for each field within a trigger condition is managed by the following rules:

- Each time and date field can contain several numerical event variables that are delimited by commas and hyphens.
- Each field is delimited by an open space.
- An asterisk (*) represents the full range of event variables within the relative time and date field, i.e. “* * * * *” means every minute, every hour, every day, every month, and every day of the week.
- Numerical event variables separated by a hyphen indicate an inclusive range; for example, 2-6 means 2 to 6.

☛ Example:

Trigger every month between the fourth and eighth at 10.03, 12.03 and 14.03, using the 24-hour clock:

```
3 10,12,14 4-8 * * :
```

Chapter 4.2. Trig source and Run Option Field

The sixth field is a trigger source and run option field that defines the trigger source other than timer and event run options.

The table below outlines the available trigger variables:

Trigger	Description
RESET	Run the action when system resets
RUN	Run the action when script starts running
\V1	Video channel one sync signal lose
/V1	Video channel one sync signal back
\V2	Video channel two sync signals lose
/V2	Video channel two sync signals back
\V3	Video channel three sync signals lose
/V3	Video channel three sync signals back
\V4	Video channel four sync signals lose
/V4	Video channel four sync signals back
\I1	GPIN port one falling (high to low) edge
/I1	GPIN port one rising (low to high) edge

HI1	GPIN port one high level (*1)
LI1	GPIN port one low level (*1)
∕I2	GPIN port two falling (high to low) edge
/I2	GPIN port two rising (low to high) edge
HI2	GPIN port two high level (*1)
LI2	GPIN port two low level (*1)
∕I3	GPIN port three falling (high to low) edge
/I3	GPIN port three rising (low to high) edge
HI3	GPIN port three high level (*1)
LI3	GPIN port three low level (*1)
∕I4	GPIN port four falling (high to low) edge
/I4	GPIN port four rising (low to high) edge
HI4	GPIN port four high level (*1)
LI4	GPIN port four low level (*1)
∕N	Network link lose connection
/N	Network link back connection
M1	Motion Detection of video channel one
M2	Motion Detection of video channel two
M3	Motion Detection of video channel three
M4	Motion Detection of video channel four
G0	CGI to trigger, http://IP/cgitrig?cmd=0
G1	CGI to trigger, http://ip/cgitrig?cmd=0
G2	CGI to trigger, http://ip/cgitrig?cmd=0
G3	CGI to trigger, http://ip/cgitrig?cmd=0
G4	CGI to trigger, http://IP/cgitrig?cmd=4
G5	CGI to trigger, http://ip/cgitrig?cmd=0
G6	CGI to trigger, http://ip/cgitrig?cmd=0
G7	CGI to trigger, http://ip/cgitrig?cmd=0
G8	CGI to trigger, http://ip/cgitrig?cmd=0
G9	CGI to trigger, http://ip/cgitrig?cmd=0

Note *1: The GPIN level trigger could be cascaded with other trigger variable with ‘&’ symbol, e.g. HI1&/I2&LI3, when rising edge of I2 occurs, if both I1 is high and I3 is low level at that time, then proceed the action node.

Chapter 5. ACTION COMMANDS

The table below outlines the available action commands:

ALERT	Alert message to remote site through socket call
BUFFER	Ring Buffer activities include _init, _start, _stop, _del
FTP	Ftp to remote site
LOG	Log message to internal file
MAIL	Email to remote site
PTZ	Pan Tilt Zoom device control through serial port
RELAY	Relay activities
RESET	Invoke system reset
SLEEP	Produce delay in specified event
LED	LED indicator activities
MOTION	Motion detection activities include _init, _start, _stop, _del
SERIAL	Serial port message send
HTTP	Server push video stream send only when triggered

A comprehensive catalog of available programming commands, syntax, and valid options are described below:

Chapter 5.1. Alert

The alert command sends a message to a remote host.

- **Syntax**

alert [-host HOST] [-port PORTNUMBER] [-message STRING];

- **Options**

- host**

Specify the host IP address of the remote host.

- port**

Specify the TCP port number in the range [0..65534].

- message**

Specify the message that will be sent to the remote host. The message must be surrounded by quotation marks. Hexadecimal coded messages must be preceded by \0x, e.g. "\0x04" for the non-printed character EOT. To include a quotation mark, it must be preceded by a backslash, e.g. \".

☛ Example

```
# This command will send the message "Alarm
# "0013" from Merit LiLin 4000" to the remote host when
# input port 1 goes high.* * * * * /I1:
alert -host 172.21.1.202 -port 2703 -message "Alarm \'0013\' from Merit
LiLin 4000";%
```

Chapter 5.2. Buffer

Chapter 5.2.1. buffer_init

The `buffer_init` command initiates and allocates memory space for the image buffer. This is needed in order to store images using the `buffer_start` and `buffer_stop` commands.

● Syntax

```
buffer_init [-cam VIDEOCHANNEL] [-fmt VIDEOFORMAT]
[-imagenum IMAGENUMBER];
```

● Options

-cam

Specify the camera source, i.e. 1- 4

-fmt

Specify the image format (HxV), where:

```
qsif=176x112,
sif=352x240 and
full=704x480
```

-imagenum

Specify the maximum number of images that can be stored in the buffer. The valid range is 1-100, although in practice is limited by the amount of available memory within the Merit LiLin LAN devices.

Chapter 5.2.2. buffer_del

The `buffer_del` command frees all allocated memory space of the image buffer. None of argument is needed.

☛ Example 1

```
# At startup, this command initiates one
# buffer for camera 1 with 25 sif images
# and one buffer for camera 2 with 5 full
# images.
* * * * * RUN:
buffer_init - cam 1 - fmt sif - imagenum 25;
buffer_init - cam 2 - fmt full - imagenum 5;
%
```

☛ Example 2

```
# This command will clear the buffer every Sunday.
0 0 * * 0 * :
buffer_del;
%
```

Chapter 5.2.3. **buffer_start**

The `buffer_start` command stores snapshots in a specific image buffer. Before the command can be used, the buffer facility must be initiated using the `buffer_init` command.

When invoked, the `buffer_start` command is executed in the background and any subsequent command in the event entry is executed immediately. Images are retrieved using the `ftp` or `mail` or `server push CGI` command.

● **Syntax**

```
buffer_start [-cam VIDEOCHANNEL] [-fmt VIDEOFORMAT]
[-interval TIME] [-duration TIME];
```

● **Options**

-cam

Specify the camera source, i.e. 1- 4.

-fmt

Specify the image format (HxV), where:

qsif = 176 x 112,
 sif = 352 x 240 and
 full = 704 x 480

-interval

Specify the time interval between consecutive snapshots in unit of 10ms system tick. If omitted, default value is 50 (i.e. 500ms).

-duration

Specify the total time for the command to run. Accept range is

-1: Infinite loop,
 0: Run Once,
 >0: Value in unit of 10ms system tick

If omitted, the default value is 0 which is issued only once. If you specify - 1 (infinite loop), the command continues to be executed until it is interrupted by any of the commands: `buffer_del`, `buffer_start` or `buffer_stop`.

☛ Example

```
# This command keeps loading full size images.
# For every 30 seconds
* * * * * :
buffer_start -fmt full -cam 3 -interval 3000-duration -1;
%
```

Chapter 5.2.4. buffer_stop

The `buffer_stop` command terminates the storage of snapshots to an image buffer. The `buffer_stop` command does not block the execution of subsequent commands in the event entry until completely terminated. Note that the `buffer_start` command behaves differently. The command is typically used with the `buffer_start` command.

● Syntax

```
buffer_stop [-cam VIDEOCHANNEL] [-fmt VIDEOFORMAT]
[-interval TIME] [-duration TIME] [-imagenum SIZE];
```

● **Options**

-cam

Specify the camera source, i.e. 1- 4

-fmt

Specify the image format (HxV), where:

qsif = 176 x 112,

sif = 352 x 240 and

full = 704 x 480

-interval

Specify the time interval between consecutive snapshots in unit of 10ms system tick. If omitted, default value is 50 (i.e. 500ms).

-duration

Specify the total time for the command to run. Accept range is

>0: Value in unit of 10ms system tick

=0: Specified the value with (interval X imagenum).

If omitted, the default value is 0 which is calculated by interval X imagenum, the command continues to be executed until it is interrupted by any of the commands: `buffer_del`, `buffer_start`.

-imagenum

Specify the number of images to be stored in the buffer. This setting is taken into account only when the duration is 0 or omitted. The maximum number of images is specified by the `buffer_init` command.

☛ **Example**

```
# This command initiates the buffer to hold 60
# qsif and 5 full images. New images
# are captured until the buffer_start command is
# interrupted.* * * * * RUN :
buffer_init - cam 1 - fmt qsif - imagenum 60;
buffer_init - cam 1 - fmt full - imagenum 5;
buffer_start -fmt qsif - cam 1 -interval 100 -duration -1;
buffer_start -fmt full - cam 1 -interval 6000 -duration -1;
%
# When port 1 is triggered, an alert message is sent
# to host 1.2.3.4. Another 10 qsif images are
# captured with interval 500ms and all the images are sent to an ftp
```

```

# server with the names "qsif_1" to
# "qsif_60". Then the buffer is restarted.* * * * * /I1:
alert -host 1.2.3.4 -port 4000 -message "Alert! Input on port 1.";
buffer_stop -fmt qsif - cam 1 -imagenum 10;
ftp -host somehost -user USER -pass PASS -fmt qsif - cam 1 - filename
qsif_$r1-60 -buffer;
alert -host 1.2.3.4 -port 4000 -message "Alert! Images sent to ftp server";
%
# When port 2 is triggered, the 5 most recent# full images are sent to an ftp
server
# with the names "Picture_1" to "Picture5". Note that
# the buffer is not stopped.* * * * * /I2:
ftp -host somehost -user USER -pass PASS -fmt full - cam 1 - filename
Picture_$r1-5 -buffer;
%

```

Chapter 5.3. ftp

The ftp command uses the standard File Transfer Protocol (FTP) for transferring an image from your Merit LiLin LAN device to a remote host.

Note:

The ftp command keeps the connection open during each file transfers.

- **Syntax**

```

ftp [-host HOST] [-user USERNAME] [-pass PASSWORD] [-filename
DESTINATIONFILE][-cam VIDEOCHANNEL]
[-fmt VIDEOFORMAT] [-interval TIME] [-duration TIME] [-imagenum
IMAGENUMBER] [-buffer];

```

- **Options**

-host

Specify the IP address of the remote host (ftp server).

-user

Specify the user name for logging on to the remote host.

-pass

Specify the password for logging on to the remote host.

-filename

Specify the name and whole path of the destination file. The maximum length of a destination path/file name is 255 characters; simple file name without path must be in 30 characters.

You can add time stamps, such as time, date, and file indexes to the destination path/file name. This is useful when you are transferring a series of files. The following table lists the available time stamp variables. Every substitution must be preceded by a dollar sign "\$".

\$s

The current second in the range 00-59

\$m

The current minute in the range 00-59

\$h

The current hour in the range 00-23

\$d

The current day of the month in the range 01-31

\$n

The current month in the range 01-12

\$y

The current year without the century in the range 00-99

\$Y

The current year including the century

\$rS-E

Inserts an index number starting from number S through all the numbers including the number E. If you leave out number E, it is interpreted by a longer time.

-cam

Specify the camera source, i.e. 1- 4

-fmt

Specifies the image format (HxV), where:

qsif = 176 x 112,

sif = 352 x 240 and

full = 704 x 480

-interval

Specify the time interval between consecutive snapshots in unit of 10ms system tick.
If omitted, default value is 50 (i.e. 500ms).

-duration

Specify the total time for the command to run. Accept value is

- 1: Infinite loop,
- 0: Run Once,
- >0: Value in unit of 10ms system tick

If omitted, the default value is 0 which is issued only once. If you specify - 1 (infinite loop), the command continue to be executed until stop running command of the event script.

-imagenum

Specify the images numbers transferring to FTP.

- 0 or Omit: FTP the images with above duration setting.
- >0: Continue FTP until reaching specified image number.

-buffer

Specify the ftp operation retrieve files from Ring Buffer. If omitted, it captures the newest image to FTP.

☛ Example 1

```
# This command will log in as "user" with the
# password "pass" on the host with the Internet
# address 123.123.123.123, download a full
# image with the name "user.jpg" and put
# it in the directory "home/user" on the remote
# host.
* * * * * :
ftp -host 123.123.123.123 -user user -pass pass
-fmt full - cam 1 -filename home/user/user.jpg;
%
```

☛ Example 2

```
# This command will every hour, every five seconds
# for twenty minutes, download a sif image
# from camera 3 and save the images with a time
# stamp in the filename.
0 * * * * :
ftp -host 192.168.0.1 -user user -pass pass -fmt sif
-filename tmp/sif$h$m$.jpg -interval 500 -duration 120000 -cam 3;
%
```

☛ Example 3

```
# This command sends 1001 consecutive sif
# images to "your.host.name". The first and last
# images will be named "sifsize1000.jpg" and
# "sifsize2000.jpg", respectively.
* * * * * :
ftp -host 192.168.0.1 -user user -pass pass
-fmt sif - cam 1 - filename
home/camera1/tmp/sifsize$r1000-2000.jpg;
%
```

Chapter 5.4. log

This command writes a message to a log file.

Note:

To display the log file, you type the following in the address/location field of your Web browser: <http://IP/evscript?showlog=filename> , where filename indicate the LOGFILENAME below.

● *Syntax*

```
log [-filename LOGFILENAME]
[-message LOGMESSAGE];
```

- **Options**

- filename

- Specify the file name to log, note that the file should be placed in “Sys” directory.

- message

- The message string must be surrounded by quotation marks.

- ☛ **Example:**

```
# This command writes a message to the log file when
# network is lose.* * * * * \N :
log "The Network lose link." ;
%
```

Chapter 5.5. mail

This command uses the Simple Mail Transfer Protocol (SMTP) for sending images and files from your Merit LiLin LAN device to e-mail addresses.

Note:

The IP address of the mail server and a valid return address on the TCP/IP page must be specified when using the mail command.

- **Syntax**

- mail [-host SMTPSERVER] [-filename ATTACHFILENAME] [-msgbody MAILMESSAGEBODY] [-returnaddr RETURNADDR] [-recipient RECIPIENTS] [-subject MAILSUBJECT] [-cam VIDEOCHANNEL] [-fmt VIDEOFORMAT] [-interval TIME] [-duration TIME] [-imgnum ATTACHNUMBEROFIMAGE] [-buffer];

- **Options**

- host:

- Specifies the SMTP Server name or IP address, e.g. “mail.meritlilin.com” or “61.220.235.170”

- filename

- Attachment filename, such as FTP filename, and accept time stamp character variable.

- msgbody

- Text message contain in email body

-returnaddr

Return mail address, if omitted, default is webcam@meritlilin.com.

-recipient

Destination address to receive this e-mail, it could be multiple address separated by a semicolon “;” .

-subject

Specifies email subject string.

-cam

Specifies the camera source, i.e. 1- 4

-fmt

Specifies the image format (HxV), where:

qsif =176 x 112,
sif =352 x 240 and
full =704 x 480.

-interval

Specifies the time interval between consecutive snapshots in unit of 10ms system tick. If omitted, the default value is 50 (i.e. 500ms).

-duration

Specifies the total time for the command to run. Accept value is

-1: Infinite loop,
Omit or 0: Run Once,
>0: Value in unit of 10ms system tick.

If omitted, the default value is 0 which is issued only once. If you specify - 1 (infinite loop), the command continues to be executed until stop running command of the event script.

-imagenum

Specifies the image number of attachment to mail

0 or Omit: If buffer disable, just mail the message body without attachment, if buffer enable, mail the complete Ring Buffer as attachment.

>0: If buffer enable, Mail with imagenum of attachment, if buffer disable, this setting will force to one attachment and mail frequency determined by above interval/duration setting.

-buffer

Specifies the mail operation retrieve files from Ring Buffer. If omitted, it captures the newest image to mail. If enable buffer, the interval, and duration are disabled that

it is just mailed once with the imagenum of attachment from Ring Buffer.

☛ Example 1

```
# This command sends an e-mail with the
# subject "Hello" and the attached file
# sif size to someone@company.com
* * * * * :
mail -subject Hello -fmt sif - cam 1 -recipient someone@company.com
-host mail.company.com - filename test.jpg - imagenum 1;
%
```

☛ Example 2

```
# This command sends an e-mail with the
# subject "This "sif size" was sent from my
# Merit Lilin" to two recipients.
* * * * * :
mail -subject "This \"fullsize.jpg\" was sent from my Merit LiLin LAN
devices" -fmt sif - cam 1 -recipient " someone@meritlilin.com;
anotherone@meritlilin.com" - host mail.meritlilin.com;
%
```

☛ Example 3

```
# This command sends an e-mail with two attachments from buffer.
* * * * * :
mail - fmt sif - cam 1 - host mail.home -recipient me@home
-imagenum 2 -buffer;
%
```

Chapter 5.6. ptz

This command sends PTZ control protocol through serial port. Supported model of PTZ devices should be configured within administration page in advance.

Note: This command is not applicable for Merit LiLin IP Fast Dome. Merit LiLin IP Fast Dome uses COM2 to communicate for PTZ commends.

● Syntax

```
ptz [-cam VIDEOCHANNEL] [-speed SPEED] [-preset PRESET] [-pan - 1|+1]
[-tilt - 1|+1] [-zoom - 1|+1];
```

- **Options**

- cam

- Specifies the camera source, i.e. 1- 4.

- speed

- Set the move speed of PTZ camera, range 1(slowest) ~ 9(fastest).

- preset

- Move PTZ camera to preset position, range 1~20.

- pan

- Specify the pan factor of PTZ camera, -1 means pan left, and +1 means pan right.

- tilt

- Specify the tilt factor of PTZ camera, -1 means tilt down, and +1 means tilt up.

- zoom

- Specify the zoom factor of PTZ camera, -1 means zoom in, and +1 means zoom out.

- Note that above PTZ control (preset, pan, tilt, zoom) should be run just one option at a time, multiple options may produce unpredictable result.

- ☛ **Example**

```
# This command sets the PTZ camera to preset position 5 when GPIO
Input
# one is triggered:
* * * * * /11 :
ptz - cam 1 - preset 5;
%

#This command pan left with middle speed for every one minute
* * * * *:
ptz - cam 1 - speed 5 - pan - 1;
%
```

Chapter 5.7. relay

This command sets the relay on or off within the Merit LiLin LAN device.

- **Syntax**

- relay [-on | -off | -toggle | -onoff ONTIME | -offon OFFTIME];

- **Options**

- on

- Set the relay on.

- off

- Set the relay off.

- toggle

- Toggle the relay

- onoff

- Set the relay to on when start trigger, after ONTIME, set back to off, ONTIME is time in unit of 10ms system tick.

- offon

- Set the relay to off when start trigger, after OFFTIME, set back to on, OFFTIME is time in unit of 10ms system tick.

- ☛ **Example**

```
# This command sets the relay ON and after 3 seconds back to OFF
# when digital input 1 goes high:
* * * * /I1 :
relay - onoff 300;
%
```

Chapter 5.8. reset

This command resets the Merit LiLin LAN device.

- **Syntax**

- reset [-flag FLAG];

- **Options**

- flag

- Specify the reboot flag

- 0: Do nothing.

- 1: Reboot system immediately.

☛ Example

```
# This command resets the hardware once a day.  
* * * :  
reset - flag 1;  
%
```

Chapter 5.9. sleep

This command adds a pause to the programming script execution. The command is typically used if you want to assure that the previous command is finished before continuing the next script.

- **Syntax**

sleep [-time PAUSETIME];

- **Options**

- time

Specify the time in unit of 10ms system tick to wait before proceeding with the next action command in the event entry.

☛ Example

```
# This command will result in a 30 seconds pause in the programming script  
execution.* * * * * :  
sleep - time 3000;  
%
```

Chapter 5.10. led

This command changes the status of the LED indicator, there are two indicators in Merit LiLin LAN device--one is Power/Status and the other is Network. Both indicators could be changed by Action commands

- **Syntax**

led [-on | -off | -toggle | -norm | -blinkfast | -blinkslow]

- **Options**

- on:

Set the P/S LED to on state; the color becomes orange.

- off:

Set the P/S LED to off state; the color becomes red.

-toggle

Toggle the P/S LED between orange and red.

-norm

Set both the P/S and Network LED back to factory default state.

-blinkfast

Set the Network LED to fast blinking.

-blinkslow

Set the Network LED to slow blinking.

Chapter 5.11. motion

This command controls the motion detection mechanism. Prior to generate motion detection trigger, it must enable (init and start) the motion detection in background. Due to the motion detection task takes system overhead and resources, the task should be disabled when no use of motion detection.

Note: Before start up event script, it must select the detection area in user interface of motion detection setting, otherwise below motion script does take into account.

Chapter 5.11.1. motion_init

The motion_init command initiates and allocates memory space for the motion detection image buffer. This is needed in order to detect image change using the motion_start commands.

● **Syntax**

motion_init [-cam VIDEOCHANNEL] [-sensitivity SENSITIVITY];

● **Options**

-cam

Specify the camera source, i.e. 1- 4

- sensitivity

Specify the sensitivity of motion detection. If omitted, it defaults to value 5 which is less sensitive.

Chapter 5.11.2. motion_del

The motion_del command frees all allocated memory space and stops the running task of the motion detection. No argument is needed.

Chapter 5.11.3. motion_start

The motion_start command starts the motion detection task in the background. Once the device detects the difference between images (motioned), it activates the action command.

- **Syntax**

```
motion_start [-cam VIDEOCHANNEL] [-interval TIME]
             [-duration TIME] [-holdtime TIME];
```

- **Options**

- cam**

Specify the camera source, i.e. 1- 4.

- interval**

Specify the time interval between consecutive snapshots in unit of 10ms system tick. If omitted, the default value is 50 (i.e. 500ms).

- duration**

Specify the total time for the command to run. Accept range is

omitted: -1 or 0: Infinite loop,

>0: Value in unit of 10ms system tick

If you specify infinite loop, the command continues to be executed until it is interrupted by motion_start, motion_del.

- holdtime**

Specify the pause time when detecting the image changes after the holdtime, it restarts the motion detection task. If omitted, normally image change detects twice (IN and OUT of object), this option is used to improve system performance and to avoid double alarm when detect the image changes.

- ☛ **Example**

```
# This command initializes motion detection when start event
* * * * * RUN:
motion_init -cam 1;
motion_start - cam 1 - interval 500 - duration - 1;
%
```

Chapter 5.11.4. motion_stop

For real-time system, to avoid consuming system performance or to stop motion detection in certain period, use motion_stop to suspend the motion detection task.

It is useful when event frequently suspended and reactivated of motion detection.

- **Syntax**

```
motion_stop [-cam VIDEOCHANNEL];
```

- **Options**

- cam

Specify the camera source, i.e. 1- 4

- ☛ **Example**

```
# This command will init motion detection when start event
* * * * * RUN:
motion_init -cam 1;
motion_start - cam 1 - interval 500 - duration - 1;
%
# Suspend motion detection for 10 seconds when GPIN 1 triggered
* * * * * /I1:
motion_stop - cam 1;
sleep - time 1000;
motion_start - cam 1 - interval 500 - duration - 1;
%
```

Chapter 5.12. serial

The serial command sends a message to the serial COM port.

- **Syntax**

```
serial [-comport COM] [-message STRING];
```

- **Options**

- comport

Specify the COM port in range [1..2]. if omit, default is COM2.

-message

Specify the message that is sent to the remote host (LAN device). The message must be surrounded by quotation marks. Hexadecimal coded messages must be preceded by \0x, e.g. "\0x04" for the non-printed character EOT. To include a quotation mark, it must be preceded by a backslash, e.g. \".

Note: COM2 is reserved for IP Fast Dome PTZ commands.

☛ Example

```
# This command will send the message "Alarm
# "0013" from Merit LiLin LAN device" to COM2 when
# input port 1 goes high.
* * * * * /I1:
serial -port 2 -message "Alarm \"0013\" from Merit LiLin LAN device ";
%
```

Chapter 5.13. http

The http command builds an identifier used for server push image request, and it indicates the connection information. Please refer to chapter Server Push Image Request, for more information regarding server push. This command could send out images through server push image request only when trigger comes.

● Syntax

```
http [-id IDENTIFIER] [-delay TIME] [-interval TIME][-duration TIME] [-buffer];
```

Where

-id

Specify the HTTP image request identifier. It feeds out video stream through HTTP. Valid range is from 0~9. e.g. http://IP/getimage?id=0

-delay

Specify delay time between frames when -buffer is turn on, where

=0: No delay (default)

>0: Value in unit of 10ms system tick.

-interval

Valid without -buffer option, it specifies the time interval between consecutive snapshots in unit of 10ms system tick. Default value is 50 (i.e. 500ms).

-duration

Valid without -buffer option, it specifies the total time for the command to run.

Accept range is

Omit or 0: Just once,

- 1: Infinite loop,

>0: Value in unit of 10ms system tick

☛ Example

```
#Activate when motion detected
* * * * * M1:
#Send out complete buffer image through HTTP id 0, delay 100ms
between images
#This could be pre-alarm images http - id 0 - buffer - delay 10;
#Send out currently images for 10 seconds, interval 250ms (4 fps)
#This could be post-alarm images
http - id 1 - interval 25 - duration 1000;
%
```

Chapter 5.14. PPP (Beta Version)

The PPP command can dial up to your ISP (Internet Service Provider) so that a serial-line TCP/IP connection can be established. This dial up is made through external modem, so COM1 of Merit LiLin LAN device should be connected to external modem, which is dialed through a regular telephone line with an ISP account.

Note: Not applicable for IP Fast Dome

● Syntax

```
ppp [-phone PHONE_NUMBER] [-user USERNAME] [-pass PASSWORD] [-close];
```

Where

-phone

Specify ISP phone number which the device dials up.

-user

Specify the username so that you can log on your ISP dial-up account.

-pass

Specify the password so that you can log on your ISP dial-up account.

-close

Disconnect the PPP and hang up the phone.

Note:

1. In this beta version, PPP connections and disconnections are limited no more than 3 times. If exceeding this number of times, please restart the system and try again.
2. Before issue PPP -close, you must use "sleep" command to reserve enough time for action nodes to complete transmission.

☛ Examples

```
# PPP Demonstration1
# Dial up to connect an ISP to establish a PPP connection if GPIN4 is from High
  to Low.
# Then send a mail with a picture attached.
# The system pauses for 3 seconds to send one mail and then disconnect.
* * * * \I4 :
ppp -phone 4125678 -user username -pass password;
mail -host mail.meritlilin.com -msgbody hello -recipient someone@meritlilin.com
-returnaddr receiver@meritlilin.com
-subject "I4 triggered" -cam 1 -fmt sif -imagenum 1 -filename I4$h$m$.jpg;sleep
-time 3000;
ppp -close;
%

# PPP Demonstration2
# Dial up to connect an ISP to establish a PPP connection if ethernet lose link.
# Then send a mail with a picture attached.
# Reset system when ethernet link is back.
* * * * \N :
ppp -phone 4125678 -user username -pass password;
mail -host mail.meritlilin.com -msgbody hello -recipient someone@meritlilin.com
-returnaddr receiver@meritlilin.com -subject "Network Lose" -cam 1 -fmt sif
-imagenum 1 -filename N$h$m$.jpg;
%* * * * \N:
reset - flag 1;
%
```

Chapter 6. RELATED CGI COMMANDS

To access Merit LiLin LAN device event system from CGI command which provides a convenient way for system integration by System Integrators.

The CGI syntax like “<http://ip/evscript?%5Bcmd%5D>”, for example. If Merit LiLin LAN device IP address is 192.168.0.101, then enter

“<http://192.168.0.101/evscript?runcmd=check>” gets result code regarding event parsing/running/bootflag status.

The event script represented as a file contain in Merit LiLin LAN device located at “Sys/scr00.txt.” Users could either update the file by FTP upload or submit from CGI command <http://IP/evscript?setscript=EVENTFILE>, the followings describe all event script related CGI command.

Note: To save any change of the event script in flash memory, one must click “save changes” in user interface or enter http://IP/eeprom_save CGI, otherwise the device restores the old settings after reset.

Chapter 6.1. Get Script File

- **Syntax**

<http://IP/evscript?getscript>

This command loads the script file “Sys/scr00.txt” and responses to browser as simple text.

Chapter 6.2. Set Script File

- **Syntax**

<http://IP/evscript?setscript=EVENTFILE>

This command receives the EVENTFILE and saves as “Sys/scr00.txt”, then it does the parsing job. The following command queries the parsing results.

Chapter 6.3. Get Script Command Return Code

- **Syntax**

<http://IP/evscript?getresult>

This command returns the result of the last parsing or start event result. To get correct result, it is recommend to delay one second before issue this CGI command that allows Merit LiLin LAN device to complete the parsing or event startup job.

The returns are:

OK

Fail

Or Text that indicates the syntax error of the script file.

Chapter 6.4. Set Script Boot Flag

- **Syntax**

`http://IP/evscript?setboot=[0/1]`

This command sets the reboot flag to indicate Merit LiLin LAN device to startup event after reset.

- 0: Do not start up event
- 1: Start up event after reset

Chapter 6.5. Start Script

- **Syntax**

`http://IP/evscript?runcmd=start`

This command loads the script file, parsing, and start running the event script.

Chapter 6.6. Stop Script

- **Syntax**

<http://IP/evscript?runcmd=stop>

This command stops the running script.

Chapter 6.7. Check Script Status

- **Syntax**

<http://IP/evscript?runcmd=check>

This command returns the status of event system. Described as below:

- Parsing=0/1: 1 means parsing done, 0 means not yet parsing or error.
- RunStatus=0/1: 1 means event started, 0 means event stop.
- BootFlag=0/1: 1 means start event after reset, 0 means not.

Chapter 6.8. Show Log File

- **Syntax**

<http://IP/evscript?showlog=FILENAME>

This command returns the log file specified by FILENAME

Chapter 7. SERVER PUSH IMAGE REQUIRE

The server push image request establishes an image link with Merit LiLin LAN device, and the Merit LiLin LAN device will continue to send out the streaming of MJPEG images. It does not require client site (a PC) to send further request until connection break.

Facilitate the server push CGI image request to combine with event trigger, such as to send only “buffer image” of pre-alarm and/or images when “motion detected” as post-alarm. This mode is used for real time recording to reduce tremendous network traffic and disk space. Also, due to HTTP server push performance is much higher than FTP and SMTP, this mode could be more efficient for system integrators to use for the on-line storage.

Chapter 7.1. HTTP URL request format

● Request Syntax

<http://ip/getimage?camera=%5BSRC%5D&fmt=%5BSIZE%5D&delay=%5BTIME%5D&id=%5B0~9%5D>

Where

camera: Specify the camera source, i.e. 1- 4, omitted default is 1.

fmt: Specify the image format (HxV), omitted default is sif in which:

qsif = 176x112,

sif = 352x240 and

full = 704x480

delay: Specify the time delay between frames, omitted default is 0 in which:

0 or Omit = No delay

>0= Frame delay value in unit of 10ms system tick

Note that if there are HTTP ID action nodes (refer to http) correspond to this CGI id (see below) with delay option, then the “delay” in HTTP id action node overrides this “delay” setting when HTTP id trigger comes.

id: Specify the http action id in event script, omitted default sends continuous MJPEG images in which:

0~9=Http action identifier, if event is started with HTTP action node, then the image stream is paused until trigger comes and matches the id inside the action node.

else=If event script stopped, send out continue images.

Chapter 7.2. HTTP traffic dump example

- a) Client sends server-push image request to server
GET /getimage?camera=1&fmt=sif HTTP/1.0
- b) Server sends reply
HTTP/1.0 200 Okay
Date: Thu, 01 Jan 1970 00:00:00 GMT
Connection: close
Content-Type: multipart/x-mixed-replace;boundary=--myboundary
- c) Server sends streaming video image header
--myboundary
Content-Type: image/jpeg
Content-Length: 008867 Stamp:07d20401 0011360e 09 0000084b

Where

--myboundary: frame boundary between images

Content-Type: identify of jpeg

Content-Length: size of following jpeg image

Stamp: Time stamp, where format with "Date" , "Time" , "Tick" , and "Sequence-number"

Date:	Field	Bits	Example
	Year, A.D.	31-16	07d2=2002 AD
	Month (1-12)	15-8	04=Apr
	Day (1-31)	7-0	01=First
Time:	Field	Bits	
	Hour (0-23)	31-16	0011=17 hr
	Minute (0-59)	15-8	36=54 min
	Second (0-59)	7-0	0e=14 sec
Tick:	Field	Bits	
	Ticks(0-99)	7-0	09=90 ms from last sec.
Seq:	Field	Bits	
	Seq (0-4294927696)	31-0	84b=2123 images since server start

- d) Server sends JPEG images which starts from 0xffd8, and end with 0xffd9
- e) Goto step c) until connection interrupted by client side or no video signal detected.

Chapter 8. EXAMPLES:

Below example demonstrates miscellaneous event including ring buffer and motion detection, the request using server-push method with Netscape.

```
#Event1
#every minutes LED toggle* * * * *:
LED -toggle;
%

#Event2
#GPIN4 falling to toggle realy->wait 3 second -> toggle relay
* * * * GO:
relay -toggle;
sleep -time 300;
relay -toggle;
%

#Event3
#GPIN3 falling to toggle relay->FTP with interval 1 second, duration 10 seconds
* * * * \I3:
relay -toggle;
ftp -host "192.168.0.5" -user "guest" -pass "guest" -fmt sif
-filename james/I3/test$h$m$s_$r.jpg -interval 100 -duration 1000 -cam 1;
%

#Event4
#buffer & motion initial at event start
* * * * RUN:
buffer_init -cam 1 -fmt sif -imagenum 50;buffer_init -cam 2 -fmt sif -imagenum 20;
buffer_start -cam 1 -fmt sif -interval 25 -duration -1;
buffer_start -cam 2 -fmt sif -interval 25 -duration -1;
motion_init -cam 1 -sensitivity 5;
motion_init -cam 2 -sensitivity 5;
motion_start -cam 1 -interval 100 -holdtime 1000;
motion_start -cam 2 -interval 100;
%

#Event5
#GPIN2 rising to FTP all buffer
* * * /I2:
```



```

ftp -host 192.168.0.5 -user guest -pass guest -fmt sif-filename james/I2/test$h$m$s$_$.jpg
-cam 1 -buffer;
%

#Event6
#GPIN1 rising to SMTP with buffer with 10 attachment
* * * * /I1:
mail -subject "Test pic from Merit LiLin" -fmt sif -recipient test@meritlilin.com -cam 1
-imagenum 10 -host 192.168.0.1 -buffer -filename Mail$h$m$s$_$.jpg -msgbody
"Hi This is Test\n\nABCDE\n\nFGHIJ
";
%

#Event7
#Motion Detect(SRC1) to Toggle the Relay and FTP
* * * * M1:
relay -toggle;
ftp -host 192.168.0.5 -user guest -pass guest -fmt sif
-filename test/motion1/test$h$m$s$_$.jpg -interval 100 -duration 1000 -cam 1;
http -id 0 -buffer -delay 0;
http -id 1 -interval 10 -duration 500;
%

#Event8
#Motion Detect (SRC2) to FTP ring buffer
* * * * M2:
relay -toggle;
ftp -host 192.168.0.5 -user guest -pass guest -fmt sif-filename
test/motion2/test$h$m$s$_$.jpg -cam 2 -buffer;
%

#Event9
#CGI trig1 to send string to COM1
* * * * G1:
serial -comport 1 -message "Hi a message send which trig from CGI G1\n";
%

#Event10
#CGI trig2 to log string to log.txt* * * * G2:
log -filename log.txt -message "Hi a log message send which trig from CGI G2\n";
%

```

```

#Event11
#CGI trig3 to reboot system
* * * * G3:
reset -flag 1;
%

#Event12
#Network Link lose to toggle relay
#* * * * \N:
#relay -toggle;
#%

```

To retrieve the buffer image when motion detected (pre-alarm) using Netscape as below:

```

<html>
<head>
<title>Live Video Demo for Netscape</title>
</head>
<body>
<H2>Merit LiLin IP FastDome for Netscape(Server Push)</H2>
<IMG SRC="http://192.168.0.101/getimage?camera=1&fmt=sif&id=0">
</body>
</html>

```

To retrieve the current image when motion detected (post-alarm).

Note that due to we set the duration as 5 seconds, so the images will continue to feed out for 5 seconds when motion detected.

```

<html>
<head>
<title>Live Video Demo for Netscape</title>
</head>
<body>
<H2>IP Fast Demo for Netscape(Server Push)</H2>
<IMG SRC="http://192.168.0.101/getimage?camera=1&fmt=sif&id=1">
</body>
</html>

```