

NAME

cclient - Camera control client. **cclient** is the user interface to **ccserver**, Sensoray's 2412/2416 camera control server.

SYNOPSIS

cclient [-d] [-h] [-t *timeout*] *ipaddr port command*

DESCRIPTION

The **cclient** command is used to communicate with a **ccserver** installed on a Sensoray 2412/2416 device. **ccserver** accepts commands to control cameras attached to 2412/2416s. All communications between **cclient** and **ccserver** are strongly encrypted using a 128-bit Rijndael block encryption algorithm.

Options:

- d** Enables debug mode. This will cause **cclient** to display diagnostic messages.
- h** Displays a help screen.
- t *timeout*** Time to wait for a response from the 2412/2416(s) in seconds. The default is 30 s.
- ipaddr*** Destination 2412/2416 ip address in N.N.N.N format.
- port*** Ip port number at which **ccserver** is listening. If there is more than one camera attached to the 2412/2416, each camera is assigned a unique port number. Verify **ccserver** setup to determine with port is assigned to which camera.
- command*** Command to send to the 2412/2416's **ccserver** (see below).

Commands:

NOTE: Passwords are only required if passwords have been enabled. See PASSWORDS section below.

[RESTART^*password*]

Restarts the **ccserver** and all dependent subservers.

[CT^AE_CAPS^*password*]

Returns 'Y' if iris/gain auto-exposure capabilities are supported, 'N' otherwise.

[CT^AE_OFF^*password*]

Disables iris/gain auto-exposure mode.

[CT^AE_ON^*password*]

Enables iris/gain auto-exposure mode.

[CT^AE_STAT^*password*]

Returns iris/gain auto-exposure mode setting. When 0 is returned, manual mode is in effect. When 1 is returned, automatic mode is in effect.

[CT^CAMERA_INIT^password]

Initializes the camera (i.e., upon power-up)

[CT^FOCUS_AUTO_OFF^password]

Disables auto-focus mode.

[CT^FOCUS_AUTO_ON^password]

Enables auto-focus mode.

[CT^FOCUS_CAPS^password]

Returns focus capabilities. Possible return values are:

'am' both manual and automatic modes are supported.

'-m' only manual mode is supported.

'a-' only automatic mode is supported.

'--' neither automatic nor manual modes are supported.

[CT^FOCUS_GOTO^focpos^speed^password]

Moves to an absolute focus position, **focpos**, with speed, **speed**. **focpos** can range from 0.0 to 1.0, **speed** can range from 0.0 to 1.0.

[CT^FOCUS_RUN^speed^password]

Continuously changes the focus change at a fixed rate. **speed** has a range of -1.0 (max neg) to 1.0 (max pos). Use 0.0 to stop.

[CT^FOCUS_STAT^password]

Returns current focus state. This command returns two values. The first value is the current focus setting, i.e. a value between 0.0 (min) and 1.0 (max). The second value indicates whether automatic or manual focusing is used (0 – manual, 1 – auto).

[CT^GAIN_CAPS^password]

Returns gain capabilities. This command returns three values. The first value indicates the type of gain control supported, where the possible values are:

'am' both manual and automatic modes are supported.

'-m' only manual mode is supported.

'a-' only automatic mode is supported.

'--' neither automatic nor manual modes are supported.

The second value is the minimum gain possible in dB. The third value is the maximum gain possible in dB.

[CT^GAIN_GOTO^gainval^password]

Sets the gain to the value **gainval**. The allowed range of **gainval** is 0.0 (minimum gain) – 1.0 (maximum gain).

[CT^GAIN_STAT^password]

Returns the current gain setting. The range of the returned value is 0.0 (minimum gain) – 1.0 (maximum gain).

[CT^GPIO_CAPS^password]

Returns the number of general purpose I/Os.

[CT^GPIO_OFF^id^password]

Sets a general purpose I/O to the inactive state. **id** is the gpio identifier and can have a value of 0 to the number of general purpose I/Os minus 1.

[CT^GPIO_ON^id^password]

Sets a general purpose I/O to the active state. **id** is the gpio identifier and can have a value of 0 to the number of general purpose I/Os minus 1.

[CT^GPIO_STAT^id^password]

Gets the current state of general purpose I/O. **id** is the gpio identifier and can have a value of 0 to the number of general purpose I/Os minus 1. A return value of 0 indicates that the gpio is in the inactive state. A return value of 1 indicates that the gpio is in the active state.

[CT^INVERT_CAPS^password]

Returns 'Y' if the camera has image inversion capabilities. Return 'N' otherwise.

[CT^INVERT_OFF^password]

Disable image inversion.

[CT^INVERT_ON^password]

Enable image inversion.

[CT^INVERT_STAT^password]

Get current image inversion state. A return value of 0 indicates that the image is not inverted. A return value of 1 indicates that the image is inverted.

[CT^IRIS_CAPS^password]

Returns the camera's iris capabilities. This command returns three values. The first values indicates the type of iris control supported, where the possible values are:
'am' both manual and automatic modes are supported.
'-m' only manual mode is supported.
'a-' only automatic mode is supported.
'__' neither automatic nor manual modes are supported.
The second return value is the minimum fstop (e.g., 0.0) supported. The third return value is the maximum fstop (e.g., 1.8) supported.

[CT^IRIS_GOTO^val^password]

Sets the iris to a normalized fstop value, **val**. **val** ranges from 0.0 (minimum fstop) to 1.0 (maximum fstop).

[CT^IRIS_STAT^password]

Gets the current normalized fstop value. The return value ranges from 0.0 (minimum fstop) to 1.0 (maximum fstop).

[CT^MOVE_CAPS^password]

Returns the pan and tilt range of the camera. This command returns four values where the first is the maximum negative pan limit, the second is the maximum positive pan limit, the third is the maximum negative tilt limit, and the fourth is the maximum positive tilt limit. These values are all expressed in degrees.

[CT^MOVE_GOTO^pan_pos^tilt_pos^pan_speed^tilt_speed^password]

Moves to an absolute pan/tilt position with specified speeds. (**pan_pos**, **tilt_pos**) is the desired pan/tilt positions in degrees. **pan_speed** is the pan speed and **tilt_speed** is the tilt speed. The speed values can range from 0.0 (minimum speed) to 1.0 (maximum speed).

[CT^MOVE_RESET^password]

Move (via pan/tilt) to the reset reference position.

[CT^MOVE_RUN^pan_speed^tilt_speed^password]

Requests continuous pan/tilt movement where **pan_speed** and **tilt_speed** are values between -1.0 (maximum negative movement) and 1.0 (maximum positive movement). 0.0 means no movement.

[CT^MOVE_STAT^password]

Returns current pan/tilt position in degrees. The first value returned is the pan position, the second value returned is the tilt position.

[CT^LENS_CAPS^password]

Returns the maximum lens identifier number. This return value plus one gives the total number of lenses attached to the camera. The minimum lens identifier is 0.

[CT^LENS_GOTO^lens_id^password]

Switches the lens with lens identifier **lens_id** into the optical path.

[CT^LENS_STAT^password]

Return the identifier number for the currently active lens.

[CT^POWER_CAPS^password]

Returns the power capabilities. A return value of 'Y' indicates that the camera supports standby mode, a 'N' indicates standby mode not support.

[CT^POWER_OFF^password]

Go to power saving standby mode.

[CT^POWER_ON^password]

Go to full power (operating) mode.

[CT^POWER_STAT^password]

Get current power state. A return value of 0 indicates standby mode is active. A return value of 1 indicates that the camera is fully powered.

[CT^PRESET_CAPS^password]

Returns the number of presets available. This value can be 0 or greater than 1. The value 1 is not allowed.

[CT^PRESET_GOTO^preset_id^password]

Move the camera to a preset position, identified by **preset_id**. **preset_id** is a number between 0 and the number of presets available minus one.

[CT^PRESET_SAVE^preset_id^password]

Save the current camera position to a preset identified by **preset_id**. **preset_id** is a number between 0 and the number of presets available minus one.

[CT^PRESSURE_CAPS^password]

Returns 'Y' if the camera has pressure measurement capabilities. Return 'N' otherwise.

[CT^PRESSURE_STAT^password]

Returns the camera's fill pressure. The returned value can range from 0.0 (no pressure) to 1.0 (full pressure).

[CT^RAW^hexbytes^password]

Sends a string of untranslated bytes, **hexbytes**, directly to a camera and returns a response consisting string of untranslated bytes. This is used to support commands that cclient/ccserver do not directly support. **hexbytes** and the response are in the form of a packed ASCII hex string. Example of packed ASCII hex string are 7369676E (=sign) and 4F4B (=OK).

[CT^RAWB^hexbytes^password]

Sends a string of untranslated bytes, **hexbytes**, directly to all daisy-chained cameras and returns their untranslated responses. See **[CT^RAW...** for details.

[CT^STAT_BUSY^password]

Returns the camera "busy" status. A "0" indicates that the camera is in an idle state. A "1" indicates that the camera is busy.

[CT^TEMP_CAPS^password]

Returns 'Y' if the camera has temperature measurement capabilities. Return 'N' otherwise.

[CT^TEMP_STAT^password]

Returns the camera's temperature in degrees C.

[CT^WB_CAPS^password]

Returns the camera's white balance capabilities. The possible three character return values are:

- 'A—' Only automatic mode supported.
- '—M' Only manual mode supported.
- '—T' Only triggered mode supported.
- 'AM—' Automatic and manual modes supported.
- 'A—T' Automatic and triggered modes supported.
- '—MT' Manual and triggered modes supported.
- 'AMT' Automatic, manual and triggered modes supported.
- '— —' Not supported.

[CT^WB_MODE^mode^password]

Sets the camera's white balance mode to **mode**, where **mode** can have the following values: 0 (auto), 1 (fixed), or 2 (triggered).

[CT^WB_MODE^password]

Gets the camera's white balance mode. The return value can have the following values: 0 (auto), 1 (fixed), or 2 (triggered).

[CT^WB_TRIG^password]

Trigger white balance. Applies to triggered mode only.

[CT^WIPER_CAPS^password]

Returns 'Y' if the camera has wiper capabilities. Return 'N' otherwise.

[CT^WIPER_CYCLE^password]

Invokes a wiper cycle.

[CT^ZOOM_CAPS^password]

Returns the camera's zoom capabilities. This command returns two values. The first is the minimum magnification factor and the second is the maximum magnification factor.

[CT^ZOOM_GOTO^magnification^speed^password]

Zoom to an absolute an absolute magnification setting at a given speed. **magnification** can range from 0.0 (minimum) to 1.0 (maximum). **speed** can range from 0.0 (minimum) to 1.0 (maximum).

[CT^ZOOM_RUN^speed^password]

Zoom either in or out at a given speed. **speed** can range from -1.0 (maximum speed in negative direction) to 1.0 (maximum speed in positive direction). A speed of 0.0 means stop.

[CT^ZOOM_STAT^password]

Gets current normalized zoom setting. A return value of 0.0 indicates minimum zoom. A return value of 1.0 indicates maximum zoom.

Multiple commands can be sent at once by attaching commands together without spaces between the brackets. For example:

```
cclient 10.135.2.2 17740 [CT^ZOOM_CAPS^mypassword][CT^TEMP_CAPS^mypassword]
```

NOTE: Windows and DOS command line users may need to use ^^ instead of a single ^ and /'s may need to be escaped. Verify usage in your particular environment.

PASSWORDS

Passwords are only required if the camera control password has been enabled in the "/usr/etc/system.config" parameter file (see **cfg**). If passwords have been enabled, the user "camera" with a password must exist on the 2412/2416 system.

RETURN VALUES

Return values are via **stdout** (i.e. console). All responses from successfully executed command start with OK. Any response values follow. The response is terminated by a line feed. When multiple responses are expected, i.e. after multiple commands have been sent, each response will be on a separate line. A few examples of successful responses:

No return value	- "OK"
With return values	- "OK 0.9 0.4 "
Multiple responses	- "OK 0.9 0.4 OK OK Y"

A command error will return one of the following error messages:

ERROR_OVERFLOW	Command string exceeds max allowed byte count.
ERROR_FORMAT	Illegal command format.
ERROR_TIMEOUT	Timed out waiting for camera response.
ERROR_CAMPIPE	Timed out waiting for access to camera pipe.
ERROR_CAMCMDLEN	Camera native command size is too large.
ERROR_CAMBUSY	Camera is still executing previous command.
ERROR_REJECTED	Camera returned NAK response for command.
ERROR_TOKENCOUNT	Invalid argument count for command.
ERROR_COMMAND	Unrecognized command name.
ERROR_ARGUMENT	Invalid command argument (token).
ERROR_UNSUPPORTED	Generic command is not supported by camera.

FILES

The executable is **cclient** on Linux systems.
The executable is **ccclient.exe** on Microsoft Windows systems.

/usr/bin/cclient on a 2412/2416 system
/usr/etc/system.config on a 2412/2416 system.
/usr/sbin/ccserver on a 2412/2416 system.

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BUGS

None documented at this time. To report bugs go to <http://www.sensoray.com> for contact information.

SEE ALSO

ccserver, **cfg**