

# wxAstroCapture

Manual and How To ...

V 0.1

20090925/BM

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# What it is ...

- Program to capture images from a variety of cameras
- Intended field of use – amateur astronomy
- Runs on Linux and Win computers
- Free to use (but not Open Source)
- Created and maintained by two guys from Norway and Switzerland
- Supporting group:  
<http://tech.groups.yahoo.com/group/wxAstroCapture/>

# Features and Functions

- Preview image stream
- Preview long exposure image stream
- Capture images from the stream into a variety of supported formats
- Guide a telescope mount through parallel or serial ports
- Guide calibration support
- Access to guiding control parameters
- LRGB Histogram of the video stream
- Supports a variety of image storage options
- Supports a variety of FITS keywords
- Time stamping of captured images
- Zoom and pan of the preview stream
- Define and capture sub frames
- Supports properties of webcams – save and load property profiles
- Supports binning of Art/ATIK cameras
- Batch processing of image capture jobs
- Preview Recticle

# Supported Environments

- MS Windows:
  - Win XP SP2 and SP3
  - Win Vista 32bit and 64bit
- Linux:
  - Kubuntu 8.04, 8.10 32bit and 64bit builds
  - SUSE Linux 10.3, 11.0 32bit and 64bit builds
  - Deb and RPM packages may run on other distributions

# Supported Capture Devices

- Webcams:
  - Philips Vesta and ToUCam CCD cameras
  - Similar SAA8116 chip based cameras from Logitech and other manufacturers
  - Long Exposure modified web cameras
  - On Win capture devices supporting the WDM driver model may work
  - On Linux capture devices hooking into the PWC or UVC driver may work
- Artemis / ATIK:
  - Artemis Model 285/429 and similar ATIK models
  - ATIK 16IC.. (hopefully will work at some point in time)

# Supported IO Devices

- Long Exposure IO Port
  - Parallel port (original port – not through USB)
    - Configurable for Frame1/2, Shutter, Amp
  - Serial port (original and various USB models)
    - Configurable RTS and DTR for Frame and Amp
  - Shoestring LXUSB
- Guiding IO Port
  - Parallel port (original port – not through USB)
    - Configurable for ST4 style interface – 4 signals
  - Serial port RS232 - protocols for various mounts
  - Shoestring GPUSB

# Output Formats

- AVI Video
  - Uncompressed YUV type video stream
    - YUV 4:2:2 – YUV2, YUYV, YVYU, UYVY
    - YUV 4:2:0 – I420, YUI2, IYUV
- FITS image format
  - 16 bit FITS image
    - 1 plane (BW)
    - 3 planes (RGB)

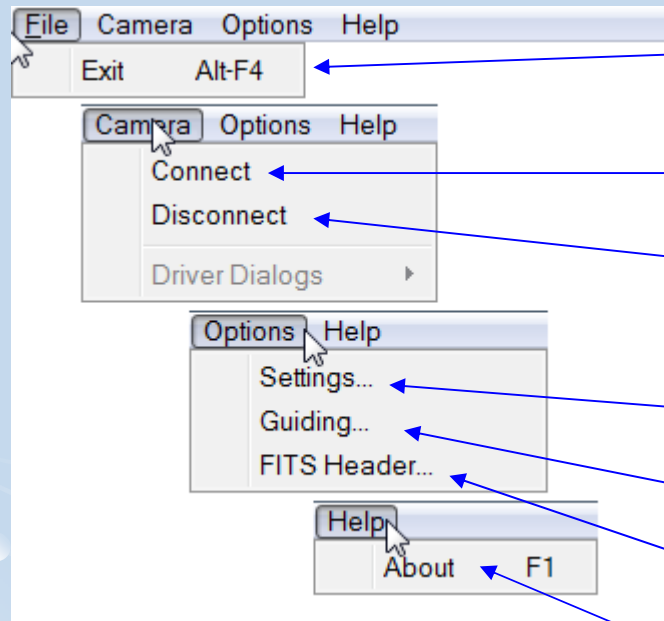
Note: the individual format depends on the capture device – in general the format with the least compression is used

# Basic User Interface





# The Menu Bar



Leave wxAstroCapture

Connect a camera

Disconnect the camera

Open the Settings Window

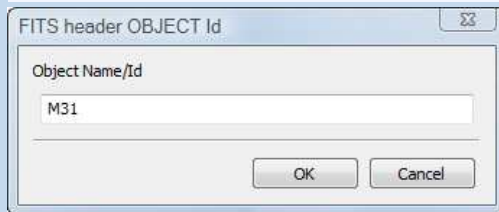
Open the Guiding Window

Open the FITS Window

Show the About Box

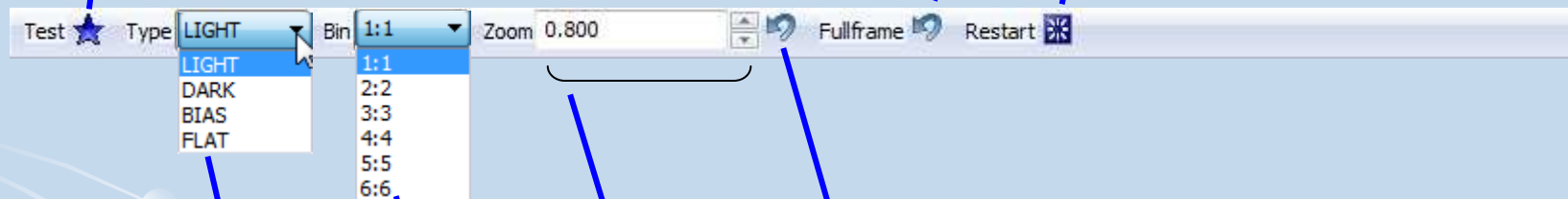
# The Tool Bar

Define the FITS keyword 'OBJECT'



Reset sub frame to full frame

Restart exposure cycle



Reset Zoom to 1.0

Define the preview zoom level (Scroll wheel)

Set the binning for Art/ATIK cameras

Define the type of exposure (FITS keyword)

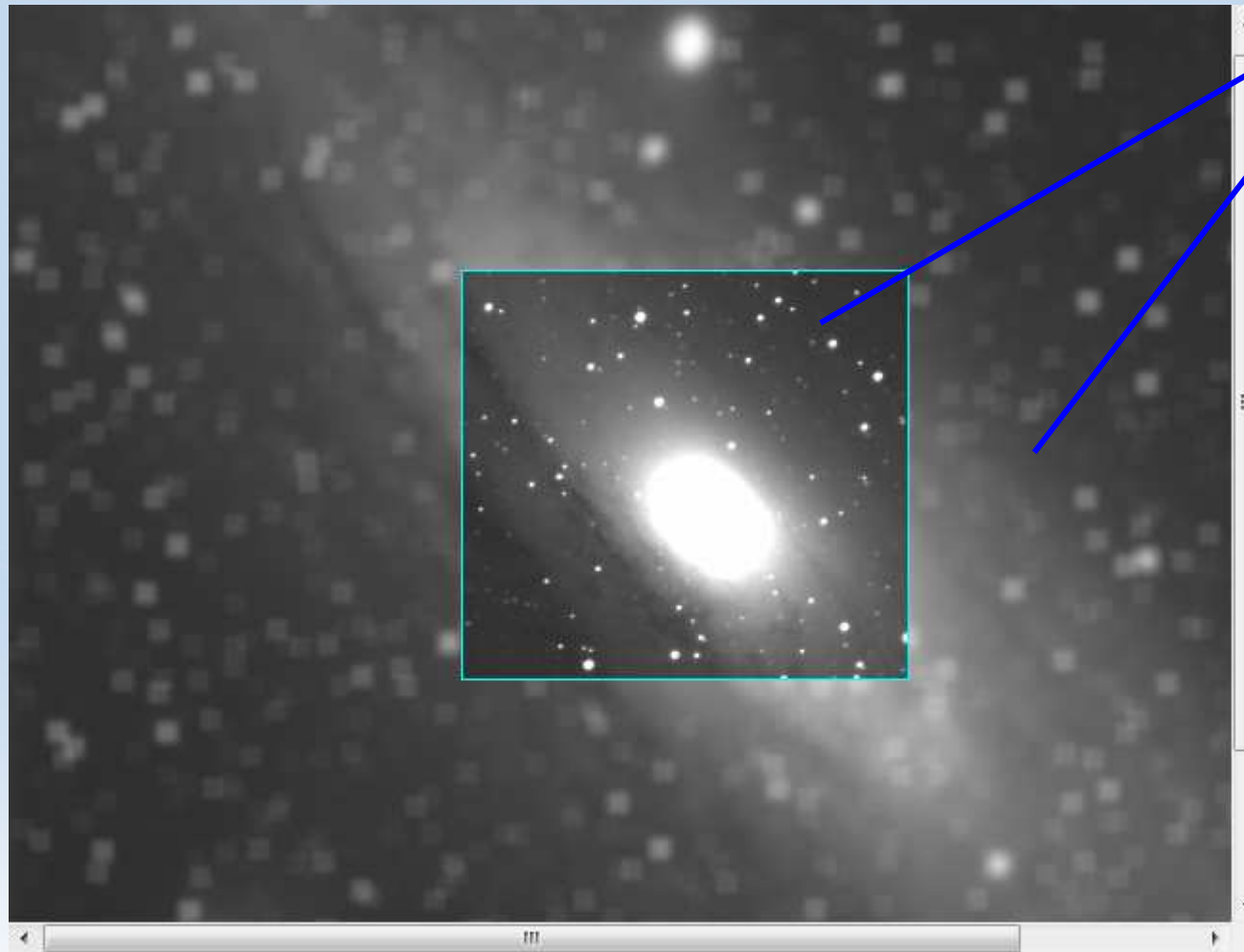
# The Preview Area



Scroll bar

- Click into the preview area and then use the scroll wheel to zoom in and out
- If the image gets larger scroll bars help to navigate
- Left click and drag to move the image around

# Using Sub Frames



Active sub frame

Inactive area (blurred)

- Click into the preview area then right click and drag the green preview rectangle to the desired size and position
- Release the mouse
- The chosen sub frame gets a blue frame and the inactive part of the image gets blurred

Note: sometimes it needs a second attempt to get it working, with long exposure or Art/ATIK cameras the sub frame will only appear after the next capture cycle – so be patient and try a bit around

# The Feature Tabs

The image displays three side-by-side screenshots of a software interface, each showing a different tab: Rec, Guide, and Batch. Each tab has a title bar with 'Rec', 'Guide', and 'Batch' buttons. The 'Rec' tab includes sections for Video Device (Properties..., Show Reticle), Capture (Capture, Pause, 116), Long exposures (Long exposure, Exposure [sec] 0.6), and Exposure Meter (Channel L, Histogram (disabled), Enable 0.1). The 'Guide' tab includes Guide star tracking (Pick guide star, Ra: N/A, Dec: N/A, Mag: N/A), Guiding commands (Guide telescope, Reverse RA DEC, Dec None), and Aggressiveness (RA (k) 20, DEC (k) 30, Advanced...). The 'Batch' tab includes Batch Processing (Start Batch, Pause Batch), Status (Batch not running), and Batch Setup (Run Time [s] Num table).

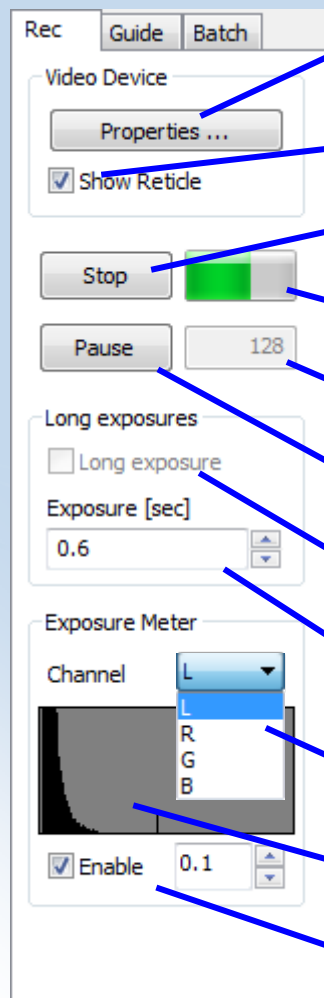
Run	Time [s]	Num
<input type="checkbox"/> 1	<input type="text" value="128"/>	<input type="text" value="128"/>
<input type="checkbox"/> 2	<input type="text" value="64"/>	<input type="text" value="64"/>
<input type="checkbox"/> 4	<input type="text" value="32"/>	<input type="text" value="32"/>
<input type="checkbox"/> 8	<input type="text" value="16"/>	<input type="text" value="16"/>
<input type="checkbox"/> 16	<input type="text" value="8"/>	<input type="text" value="8"/>
<input type="checkbox"/> 32	<input type="text" value="4"/>	<input type="text" value="4"/>
<input type="checkbox"/> 64	<input type="text" value="2"/>	<input type="text" value="2"/>

**Rec:**  
Provides access to capture features

**Guide:**  
Provides access to guiding features

**Batch:**  
Contains the batch job items

# The Rec Feature Tab



Opens the camera Properties (the content depends on the camera type)

Switches the preview recticle on and off

Start and Stop capturing images to the disk

Capture activity indicator

Next image number (can be changed when not capturing)

Pause / Resume capturing (into the same store)

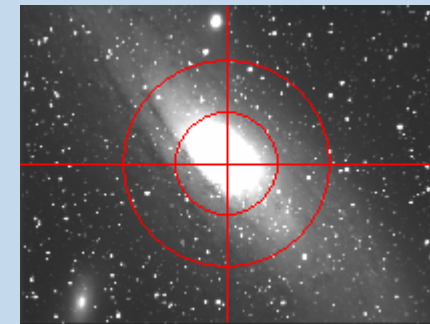
Switches long exposure on and off (only webcams)

Exposure time

Histogram channel chooser

Histogram display

Switches the histogram display on and off



# Properties of the camera

## The Rec Feature Tab

Rec Guide Batch

Video Device

Properties ...

☒ Show Reticle

Stop

Pause 128

Long exposures

☐ Long exposure

Exposure [sec]

0.6

Exposure Meter

Channel L

☒ Enable 0.1

Art/ATIK Properties

Art 429 Sim

Display

Black 0

White 8318

Gamma 0

GLog 1

☒ Auto histo. stretch

Reset Gamma

Close

Webcam Properties

Art 429 Sim

Display

Black 0

White 8318

Gamma 0

GLog 1

☒ Auto histo. stretch

Reset Gamma

Close

Black level (if Auto is off)

White level (if Auto is off)

Gamma level (-10 .. +10)

GammaLog level (0 .. +10)

Reset Gamma to zero level