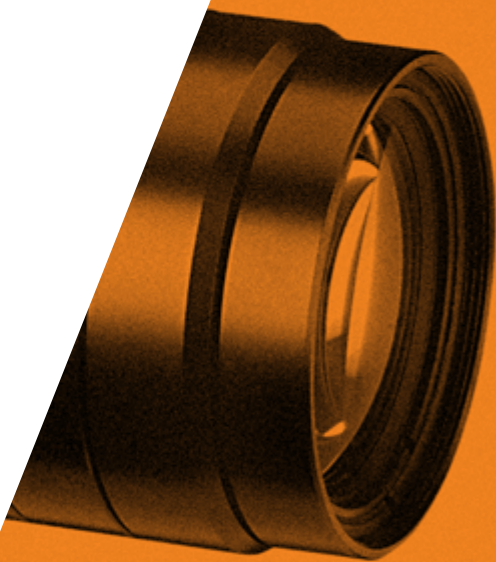


INSTALLATION GUIDE

AVT MANTA

For Swing Catalyst Studio Installations



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Installation guide AVT Manta 2013

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DOWNLOAD DRIVERS

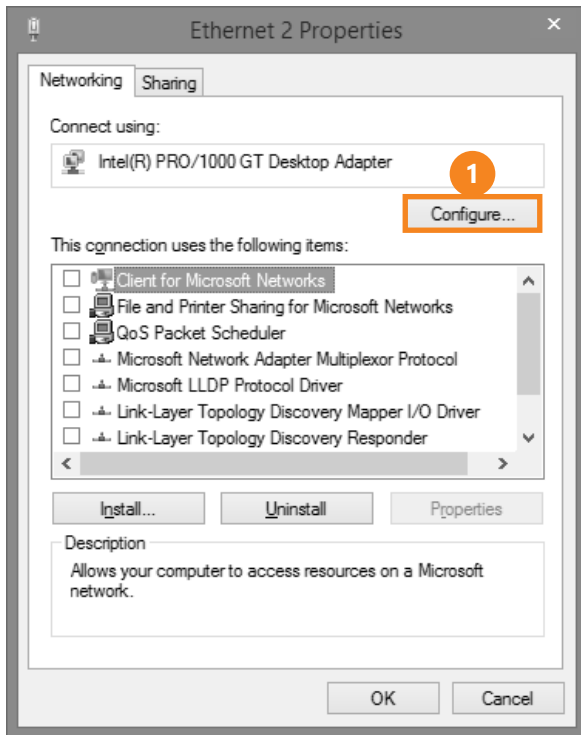


- 1 Download the drivers from:
<http://downloads.swingcatalyst.com/drivers.html> *
- 2 Install the drivers, and make sure to accept installation of the "AVT GigE Vision Filter Driver".

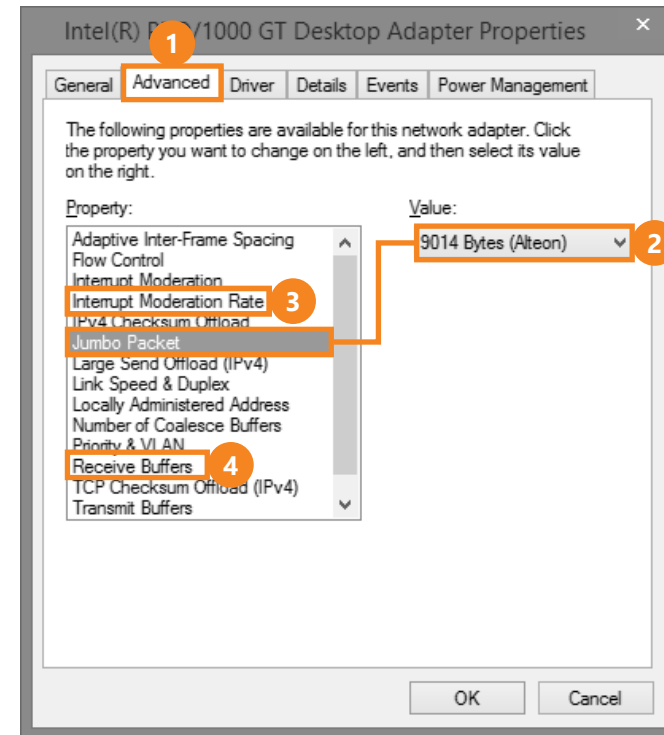
If you are unsure on how to do any of these steps please see the manufacturer guide linked underneath, which contains a comprehensive guide explaining all the steps in detail.

* For Allied Vision Tech (AVT) cameras, please see the additional manufacturer documentation: AVT Manta Hardware Installation.

DRIVER CONFIGURATION

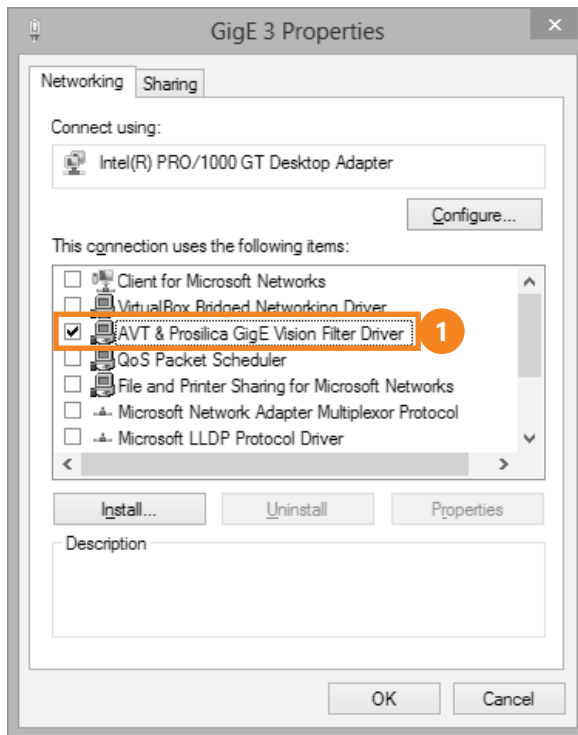


- 1 Click Configure, and navigate to the Advanced tab.



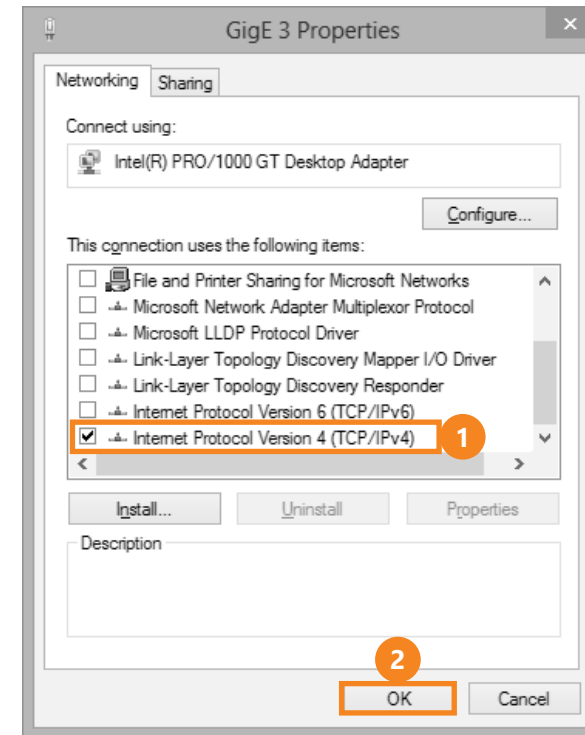
- 2 Set Jumbo Packet to 9014 Bytes.
- 3 Set Interrupt Moderation Rate to Extreme.
- 4 Set Receive Buffers to maximum. The maximum value depends on the network card. (Minimum recommended value is 512, some cards can go up to 2048).

INSTALL DRIVERS



- 1 Disable all network modules on the network card, except the AVT filter and IPv4.
- 2 Now you are done. Press OK.

It is recommended to set a static IPv4 address for each network interface used with the AVT Manta cameras. Please make sure you uncheck everything but the filter driver and IPv4. Depending on how many cameras you're



installing you may need additional network cards, or a network switch. Remember to set up each network card you plan to use with the AVT Manta camera. You can use up to two Manta cameras on one gigabit ethernet switch for each network card.

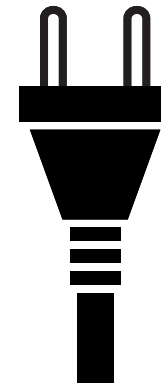
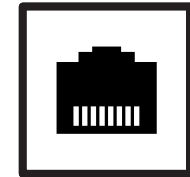
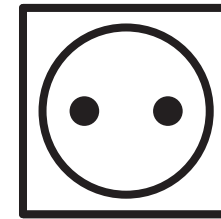
For more details on how to configure and set up the AVT Manta cameras for the best performance, please see the included documentation from AVT.

INITIAL SETUP



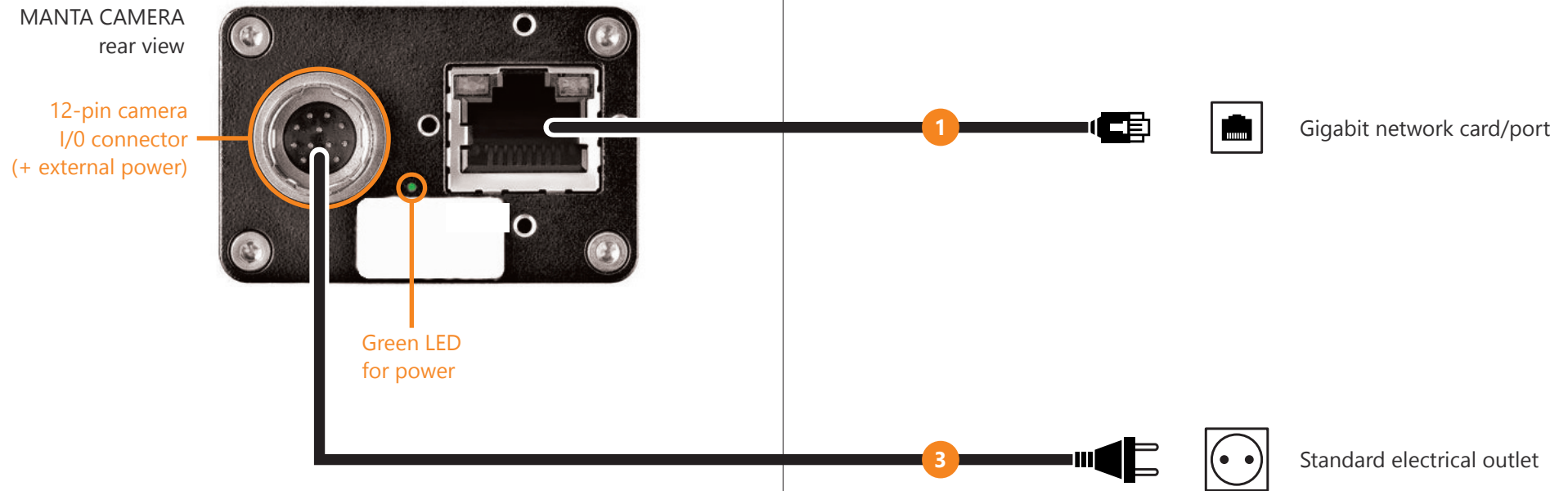
For each Manta camera you should have a power supply and lens. Depending on how many cameras you plan to use, you may need a network switch, or a network card(s).

For more information visit <http://support.swingcatalyst.com>



- 1 Mount cameras in their positions, such as *face on, down the line* and *overhead*.
- 2 Attach the lens, the power cable and the ethernet cable to the camera.
- 3 Connect each camera to power, and the ethernet cable(s) to the PC. See cabling schema on **page 12**.

CONNECTING THE CAMERAS



- 1 Connect a CAT5 or CAT6 / RJ45 network cable to the camera, and to the gigabit network card/port on your computer.
- 2 If you wish to connect more than one camera you may use multiple network cards, network switch to connect multiple cameras to a single card.

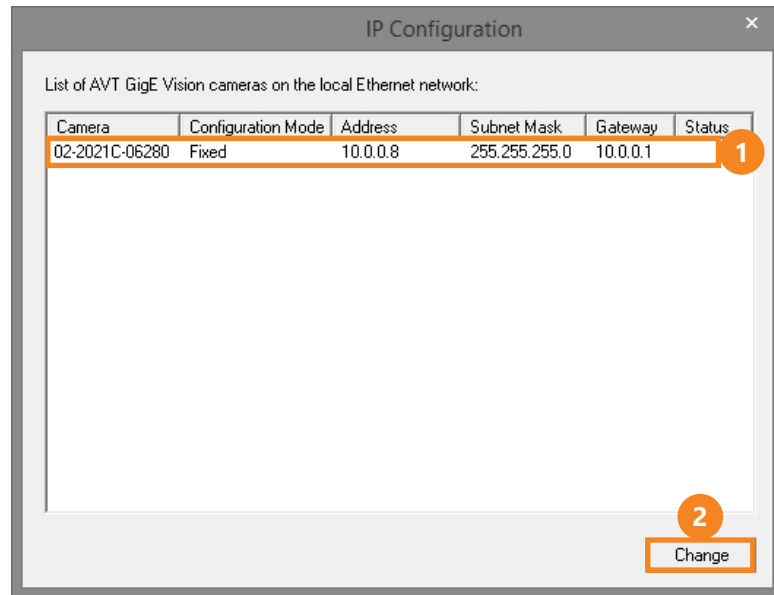
Using a network switch is only possible when the total

bandwidth of all cameras used do not exceed 1 gigabit per second. Please contact us if you are unsure if this is possible in your case.

Cameras that can be used with a network switch:
- AVT Manta G-033/G-034/G-046
- AVT Prosilica GC650

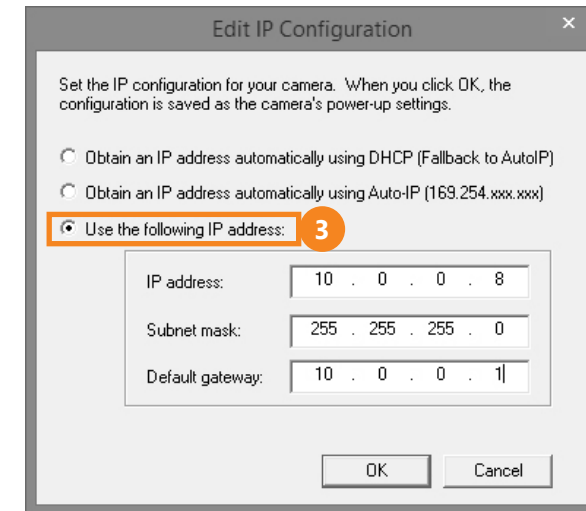
- 3 Plug the power cable(s) into the outlet(s).

CONFIGURE CAMERAS



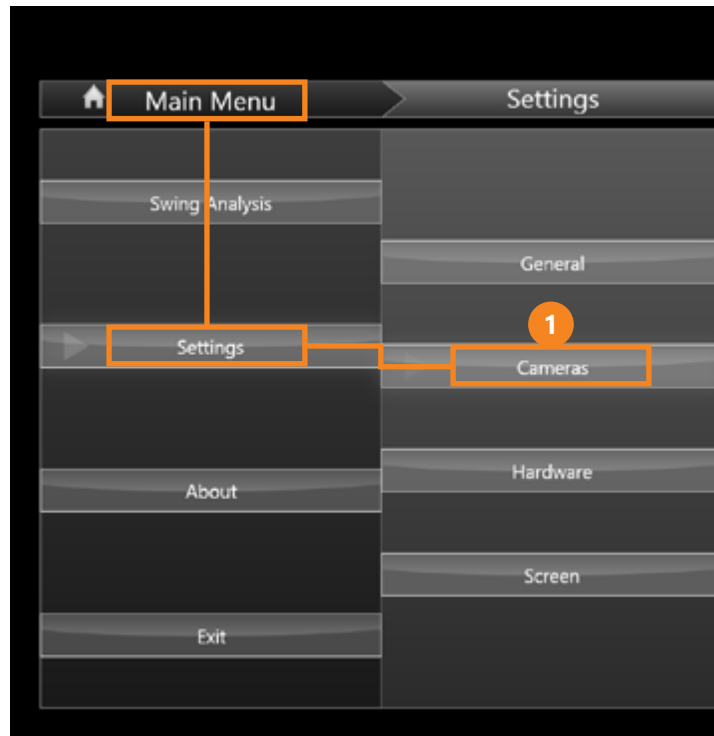
By default the AVT Manta cameras are set to Auto IP, which assigns an IP address automatically to each camera. We recommend static IP's for each camera, to improve overall stability. For a 1-2 camera setup this is not necessary, but recommended.

To assign a static IP address to your camera(s), run the GigE IPConfig program (bundled with the AVT camera driver).



- 1** Select the camera you want to edit.
- 2** Click Change.
- 3** Set an IP address of 10.0.0.2 or higher, on the first camera and 10.0.0.1 on the respective network port. Repeat these steps for the other camera(s) but for the second camera use the IP 10.0.1.2, and 10.0.1.1 on the second network port.

CAMERA SETTINGS



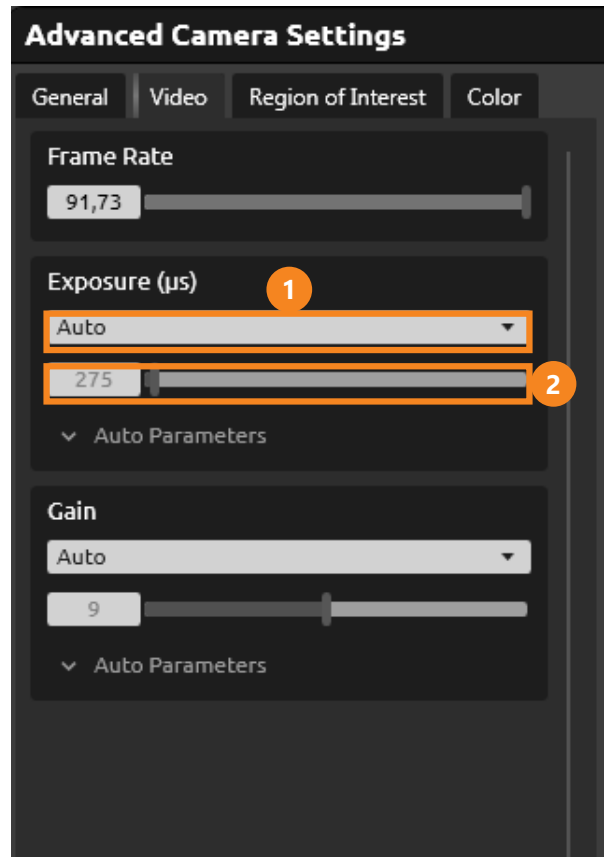
After having installed and configured the cameras they will be available in the Swing Catalyst Software.

- 1 To access the available cameras go to Main Menu - Settings - Cameras.
- 2 Click the "preview" button to see what angle the camera has.



- 3 Select the corresponding angle, for example "Down the line".
- 4 Click "Advanced" to open the camera configuration dialog.

EXPOSURE

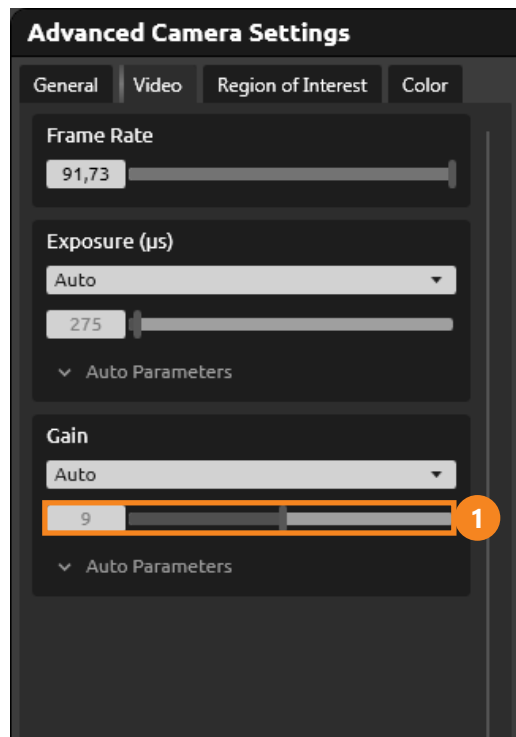


Setting the correct camera parameters is very important to ensure good image quality, but the usable camera parameters depend a lot on the amount of lighting available.

- 1 If the lighting conditions change a lot it is recommended to set the Exposure mode to Auto and use the "auto parameters" minimum/maximum exposure time to set the range of acceptable exposure values.
- 2 If the lighting does not change use Manual mode.
- 3 Ideally the exposure time should be as low as possible to eliminate motion blurring of the club shaft, but a lower exposure will also result in a darker image.

Recommended values for exposure time is 500 microseconds (μs) to 2000 microseconds (μs), this is the same as 1/2000th and 1/500th shutter.

GAIN/ISO



- 1 Higher gain values will “boost” the image brightness, but will also cause more noise in the image. If the image is too noisy try lowering the gain value, if it is too dark try increasing it.

LENS OVERVIEW



- The provided lens has 3 rings for adjustments*
- 1 Zoom
 - 2 Focus
 - 3 Iris

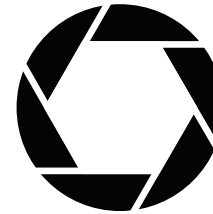
* The lenses may differ from this example.

ZOOM AND FOCUS

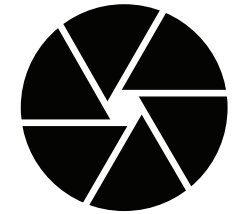
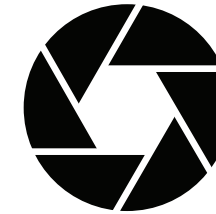


On a varifocal (zoom) lens the Zoom and Focus rings work together, so it may help to tweak both adjustment rings for good focus/zoom.

IRIS



More light.
Smaller depth
of field.



Less light.
Larger depth
of field.

The Iris adjustment ring determines the amount of light let onto the film (the "opening").

Closing the iris will result in a darker image but will help give better focus by increasing the focus depth.

If the image is over-exposed (e.g. on a very sunny day) closing the Iris is recommended.

ADDITIONAL CONFIGURATION

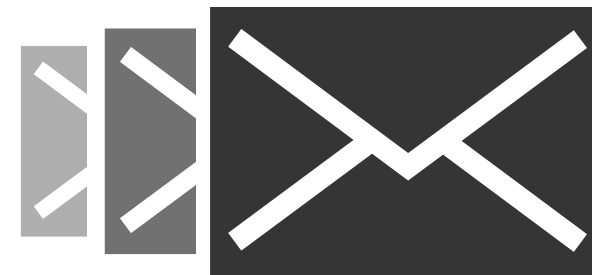


This concludes the configuration of one Manta camera.

- 1 Repeat the configuration steps for the remaining cameras:

- A. Select angle in Swing Catalyst to show live stream of another camera.
- B. Navigate the menus and set shutter speed.
- C. Adjust zoom, focus and iris.

SUPPORT



By now you should have successfully configured one or more Manta cameras for use with Swing Catalyst.

If you have any questions, please contact support:

support@swingcatalyst.com

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