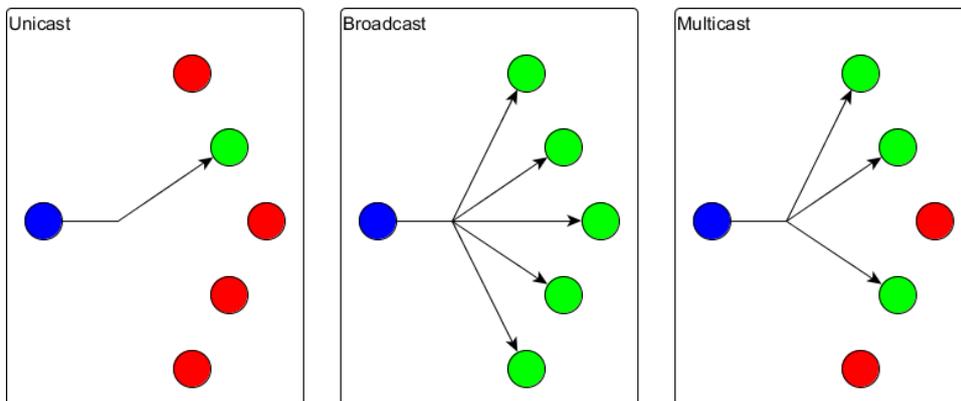


## I see something that you also see: Multicast mode for GigE uEye cameras

When you enable the multicast mode for a GigE uEye camera, the camera sends image data to a multicast address. So multiple client PCs can parallel receive and display the image data of the camera.

### Background

If a transmitter has exact one receiver in a network, this referred to as unicast. A broadcast sends data packets to all participants in a network. In contrast, a multicast sends data packets only to a specific group of participants in a network. The recipients must register at the transmitter to receive the data.



*Comparing unicast, broadcast and multicast*

The advantage of multicast is that the transmitter only requires the same data transmission rate as with a single receiver, because the data is sent only once. If required, the multiplication of the data packets is done by the distributors (router, switch) on the network.

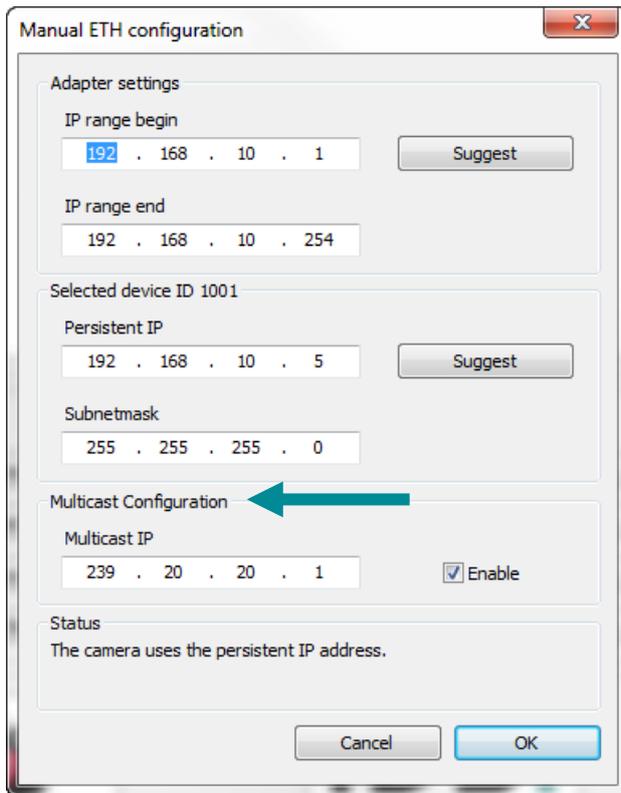
### Configuring a multicast camera as master

To enable multicast mode for a GigE uEye camera you must set a persistent IP address for the camera. Note that the persistent IP address must be in the same subnet as the network adapter.

Open the IDS Camera Manager and select the corresponding camera. Click on the “Manual ETH configuration” button. Enter a static IP address for the camera in the “Persistent IP” field. The subnet mask is added automatically. Enter a valid multicast IP address in the “Multicast IP” field. Valid multicast IP addresses are from 224.0.0.1 to 239.255.255.255. Check the “Enable” option to activate the multicast mode for the camera.

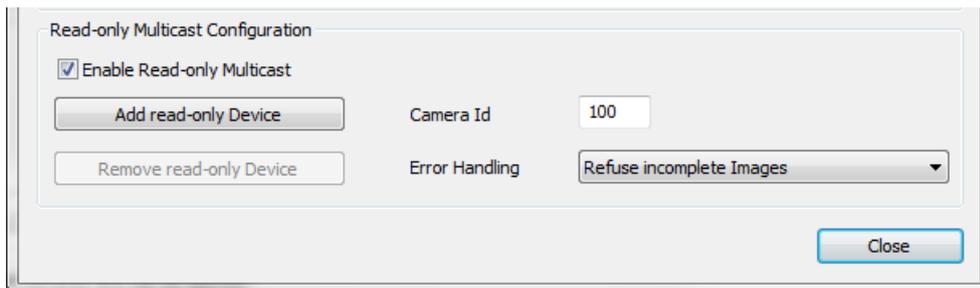
Now open the camera so that the camera sends image data.

Enabling multicast mode



### Configuring a multicast camera as client

To configure a virtual multicast camera as a client the client must be in the same subnet as the GigE uEye camera. As a client you see in the IDS Camera Manager that the GigE uEye camera is not available. Select the camera and click on the “Additional functions” button.



Adding a virtual multicast camera

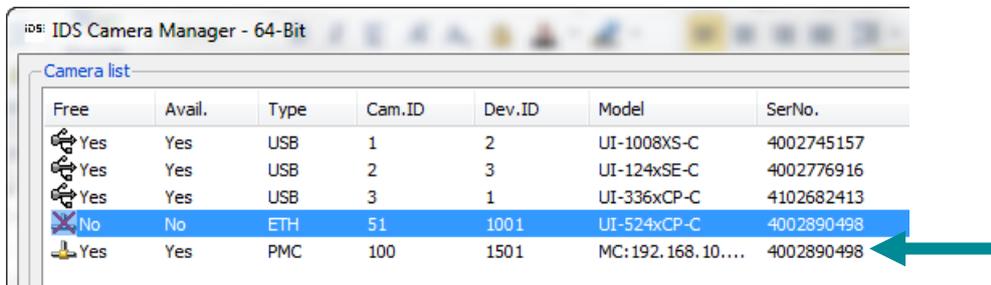
In the “Read-only multicast configuration” area you can create a new virtual multicast camera. Set a camera ID for the virtual multicast camera and define how transmission errors should be handled. An image is transferred in multiple packets over the network. Under certain circumstances single packets may be lost. The following settings are possible:

- Refuse incomplete images  
Incorrect received images are discarded.
- Ignore image errors  
Image errors are ignored, that means not received image parts are black.

- Merge mode - Release on complete  
If a packet loss occurs the image display is delayed until all packets have been received again.
- Merge mode - Release on new image  
New images are displayed immediately. For missing packets the previous image data is used.

Now click on the “Add read-only device” button to create a new virtual multicast camera. The IDS Camera Manager displays a new camera of the type “PMC” (passive multicast camera). Cameras of the type “PMC” can be opened from multiple clients with a limited set of features using for example with uEye Cockpit.

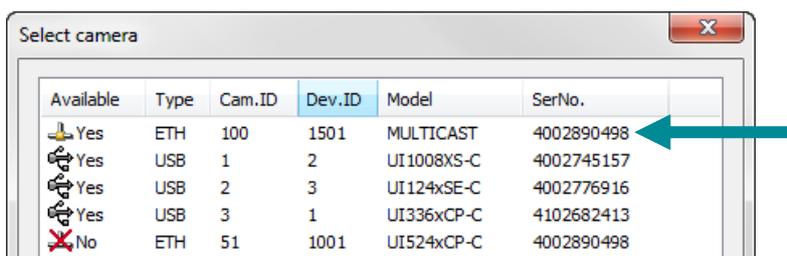
The multicast camera is displayed as free and available in the IDS Camera Manager as long as the master has opened the GigE uEye camera.



*Virtual multicast camera in the IDS Camera Manager*

## Opening a multicast camera

You open a virtual multicast camera as every other uEye camera. For example double-click on the camera in the camera list. The uEye Cockpit opens as a viewer for the multicast camera.



*Opening a virtual multicast camera in uEye Cockpit*

There are some restrictions for multicast cameras. Settings like exposure time or pixel clock can only be changed via the master PC. If the master changes the camera settings, these changes also have an effect on the client’s image.

On the client you can change camera-independent functions like software gamma, software LUT or color saturation. However, the client cannot apply the software hot pixel correction of the GigE uEye camera.

### **Application notes**

For multicast mode several items should be respected which are not directly related to the camera settings. Generally multicast mode must be possible in the network. That means that if you use a firewall, the rules must be set in that way that the application can receive network packets.

Since the distribution of the image packets takes place in the network and lost image packets are not forwarded, image may be lost without notification in the virtual multicast camera. The better the transmission quality in the network, the more reliable operates the multicast mode.

Security programs (for example antivirus programs) may have a negative impact on the performance of virtual multicast cameras.

### **Summary**

The multicast mode allows multiple clients to access the same camera at the same time and retrieve image data. Thus, additional manufacturing and quality controls are possible next to direct image processing.

The great advantage of multicast mode is that the network switch distributes the data and not the camera or the host PC. Thus, there is no additional load on the master PC.

With the uEye API function „is\_Multicast“ or the uEye .NET „Multicast“ class you can program the multicast mode and for example display the image data of the virtual multicast camera with your own viewer.

For further information on setting and programming the cameras, refer to the uEye manual at <http://en.ids-imaging.com/manuals-ueye.html>.

### **Authors**

Marion Gentele, Technical Documentation  
Patrick Schick, Product Management

### **Contact**

IDS Imaging Development Systems GmbH  
Dimbacher Straße 6-8  
74182 Obersulm  
Germany

Phone: +49 7134 96196 0

Email: [marketing@ids-imaging.com](mailto:marketing@ids-imaging.com)

Web: [www.ids-imaging.com](http://www.ids-imaging.com)

© 2014 IDS Imaging Development Systems GmbH

**More TechTips and case studies [can be found on our website.](#)**