GraphWorX64
Camera Control

APPLICATION NOTE

August 2014

Description: Guide to connecting a camera control to an IP camera.
General Requirement: Basic knowledge of GraphWorX64.

Introduction

In addition to various other controls, GraphWorX64 provides a Camera control to view IP Camera stream in your GraphWorX64 display.

This application note will walk you through all the necessary steps to view camera streams.

Setting Security Credentials

For security reasons cameras require a client to authenticate. Hence you need to specify the username and password for the communication between the camera and the FrameWorX Server, which plays the client role.

1. Open Platform Services Configuration e.g. via Workbench
2. Go to Passwords tab and add FWX → Camera item
3. Fill in the username and password which should FrameWorX server use when connecting to the camera.

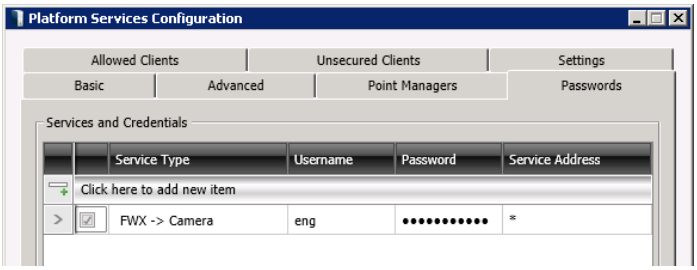

Figure 1 - Specify Security Credentials for Camera Access

Adding Video Control to GraphWorX64

1. Open a GraphWorX64
2. Select Controls ribbon and then click on Camera Control.
3. Click and drag anywhere on the display to create a new Video Control in GraphWorX64 display.
4. In the properties you need to fill in the appropriate URL.
   - **VideoUrl** – Fill in the IP camera address or name such as rtsp://172.16.0.40:554/axis-media/media.amp or http://172.16.0.40/mjpg/video.mjpg.
   - **OnvifUrl** – If you want to control the camera you need to specify the appropriate Url the camera exposes for remote control such as http://172.16.0.40/onvif/device_service.

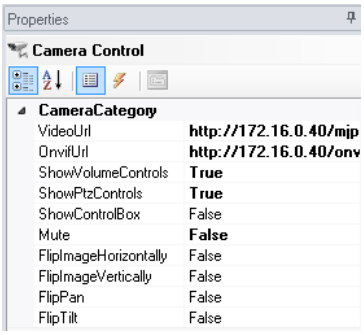

Figure 2 - Camera Properties

5. You may decide to show the GUI for remote control or enable audio.

NOTE: Volume control is not supported for MJPEG protocol.

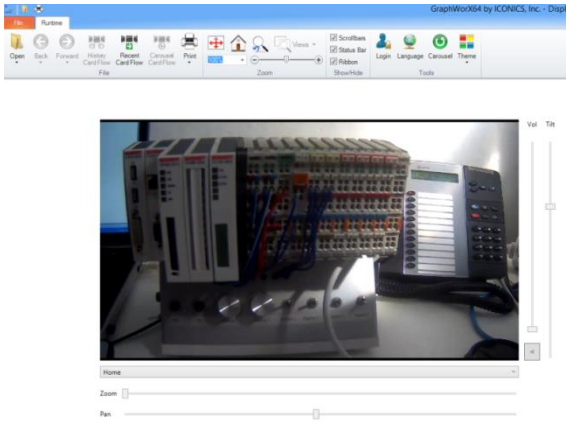

Figure 3 - Camera Control in GraphWorX64

Supported Formats and Limitations

There are several requirements and limitations which should be considered before you deploy a camera. Below you can see the list of protocols that are supported for normal and Silverlight version of GraphWorX64 and few more requirements.

Standard version of GraphWorX64

- RTSP (h264) protocol streaming
  a. Direct access in local network or via VPN
  b. For access from different network you need to run RTSP proxy by Streamcoders
- MJPEG protocol streaming
  a. Direct access in local network or via VPN

   b. For access from different network you need to use Mjpeg proxy
   c. Does not support Audio
- PTZ (Pan-Tilt-Zoom)
   a. Supported
   b. Possible to create new presets

NOTE: Mjpeg proxy is installed into IIS server automatically with GENESIS64

Silverlight version of GraphWorX64

- RTSP (h264) protocol streaming
   a. For all connections, remote or local, requires RTSP proxy by Streamcoders
- MJPEG protocol streaming
   a. Direct access in local network or via VPN
   b. For access from different network you need to use Mjpeg proxy
   c. Does not support Audio
- PTZ (Pan-Tilt-Zoom)
   a. Supported
   b. Possible to create new presets

Remote control – PTZ

For PTZ control ONVIF requires the time difference between a client and the camera to be the maximum of 5 seconds.

NOTE: ONVIF is an open industry forum for the development of a global standard for the interface of IP-based physical security products. The ONVIF specification will ensure interoperability between products regardless of manufacturer.

In our case the client is our FrameWorX server and hence you need to synchronize the time of the FrameWorX server machine with the camera time. Cameras typically allow synchronization with an NTP server or you can manually synchronize the time using the web interface of the camera. In case the time is not synchronized, TraceWorX will post a "Bad request" message on the level of 400. However, please note that this message could be posted for another reason as well.

NOTE: It is only the FrameWorX Server which communicates with the camera; therefore remote clients to the FrameWorX server do not have to synchronize time with the camera.

NOTE: If the camera requires Digest authentication, there is no way to make it work properly with FIPS enabled. FIPS does not support MD5 hash that is used in Digest to authenticate the user, therefore if the camera is password protected, the user will not be verified and it will not work.

There are two options how to solve it:

1) Disable password encryption on the camera. This option means the camera will use Basic authentication instead of Digest. NOTE: This will result in sending the user name and password as plain text over the network!

2) Make Video stream and Onvif publicly available.

In case your camera supports Motion and Noise detection, you will be able to connect an AlarmWorX Viewer to the camera and read these alarms.

Compatible Hardware

All devices which use the supported protocols can be connected. ICONICS tested the control with the following cameras:

- **Axis M5014** – PTZ, RTSP, MJPEG
- **Planet ICA-HM126** - RTSP