IndigoVision

Camera Gateway

Administrator's Guide

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1 ABOUT THIS GUIDE

This guide is written for users of IndigoVision's Camera Gateway.

This guide provides installation and configuration information about the product, and a description of the software and specifications.

For information on how to set up third party cameras in Control Center, please see the Control Center help.

IndigoVision product documentation, including hardware guides and configuration guides, is available from the Customer Services section of the IndigoVision Partner Extranet site.

Safety notices

This guide uses the following formats for safety notices:

Warning | *Indicates a hazardous situation which, if not avoided, could result in death or serious injury.*

Caution | *Indicates a hazardous situation which, if not avoided, could result in moderate injury, damage the product, or lead to loss of data.*

Notice | *Indicates a hazardous situation which, if not avoided, may seriously impair operations.*

Additional information relating to the current section.

2 CAMERA GATEWAY OVERVIEW

The IndigoVision Camera Gateway enables third party cameras from a range of manufacturers to be connected to IndigoVision Control Center. The Camera Gateway takes video streams from third party cameras using their native protocols and enables users to view the streams in a Control Center front-end application and record them using NVRs.

The cameras do not need to support ONVIF in order to connect to the IndigoVision system, giving customers a wide choice of cameras to choose from.

The Camera Gateway supports video streams from H.264, MPEG-4 and MJPEG cameras, PTZ control, and events.

The Camera Gateway is a software service that can be installed on a Windows server, giving total flexibility. The Camera Gateway service enables multiple clients to stream video from the same camera, whilst only requiring a single stream from the camera to the Camera Gateway.

Supported devices

Cameras from a range of manufacturers are supported, including:

- 3S
- Axis
- Basler
- Bosch
- Digital Barriers
- Ganz
- Grandstream
- Panasonic
- Pelco
- Samsung
- SightLogix
- Vivotek

Supported features

This section describes the key features supported by the Camera Gateway.

Live video

- Live video streaming: MPEG4, H.264, MJPEG
- Dual streaming: select different profiles for live viewing and recording
- PTZ control and presets

- Multicast from Camera Gateway to Control Center
- Audio streaming: G711
- Video snapshots

Recording and playback

- Record video: MPEG4, H.264, MJPEG
- Record audio: G711
- Record on alarm
- Playback video and audio
- Bookmarks
- Thumbnails

Alarms and events

- Events from third party cameras: motion detection, binary input
- Network loss detection for third party cameras

Relay outputs

- Activating/deactivating relay outputs on third party cameras

Intended use

The Camera Gateway enables third party cameras from a range of manufacturers to be connected to IndigoVision Control Center. If, for example, you want to use Control Center to view a location in which third party cameras are already installed, the Camera Gateway allows you to do so without having to change the cameras.

Architecture
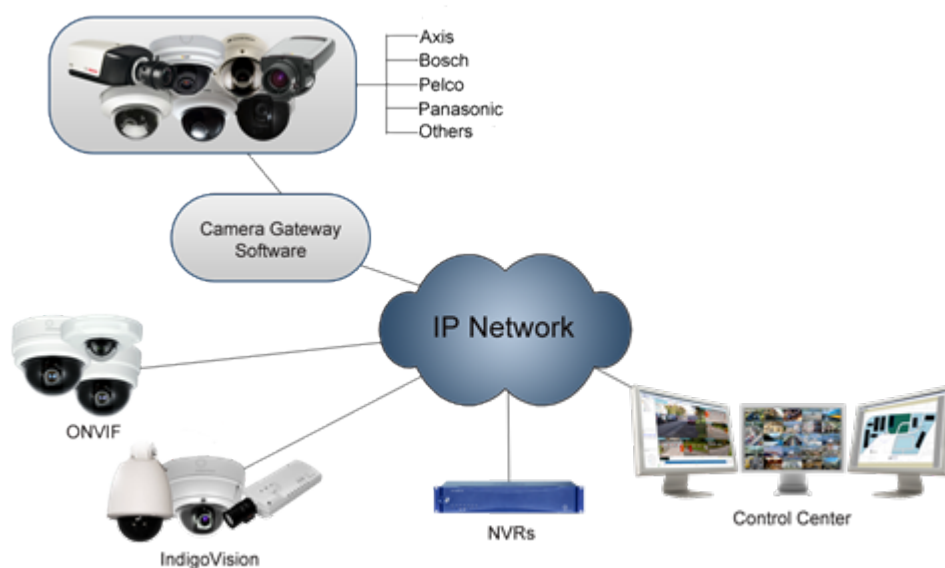
3 INSTALLATION

This section details how to install the Camera Gateway.

System specifications

The IndigoVision Camera Gateway can be installed on one of the following Windows operating systems:

- MS Windows 7 (64-bit)
- MS Windows 10 (64-bit)
- MS Windows Server 2008 R2
- MS Windows Server 2012
- MS Windows Server 2012 R2

For systems with more than 16 streams it is recommended to use Windows Server 2012 R2.

IndigoVision recommends that you install Camera Gateway on a server-style system, with a server network adaptor, and the following minimum requirements:

- Server class PC
- Current generation Intel Xeon processor
- 4GB RAM
- At least 5GB of disk space

IndigoVision recommends that for Camera Gateway installations on VMWare the minimum specification is:

- 4 vCPUs
- 4GB RAM
- VMXNET3 network adapter

For improved performance, configure the VMXNET3 network adapter with the following settings:

- **Receive Side Scaling**: Enabled
- **Tx Ring Size**: 4096
- **Rx Ring #1 Size**: 4096
- **Rx Ring #2 Size**: 4096

Installation procedure

The Camera Gateway installer first checks the system for the prerequisite components:

- Microsoft .NET Framework 4.5.2
- Microsoft SQL Server 2014 Express SP1.

The installer then installs each prerequisite component required, before installing the three components of the Camera Gateway.

Prerequisites

To install and use the Camera Gateway, the Microsoft .NET framework must be enabled:

- In Windows 7 and Windows 10, click **Start > Control Panel > Programs > Turn Windows features on or off**. Verify that Microsoft .NET Framework 3.5.1 is selected.
- In Windows Server 2008 R2, click **Start > Administrative Tools > Server Manager > Roles**. Verify that the Application Server role is installed.
- In Windows Server 2012 and Windows Server 2012 R2, click **Start > Administrative Tools > Server Manager > Manage > Add Roles and Features**. Verify that the .NET Framework 3.5 feature is installed.

  Installing the Microsoft .NET Framework 3.5 on Windows Server 2012 and Windows Server 2012 R2 requires the original installation media if the machine does not have internet access for Windows Update.

  If the original installation media is required, select **Specify an alternative path** on the **Confirmation** page of the **Add Roles and Features** wizard, and specify the required path.

Installation

1. Insert the Control Center CD into the CD drive of the PC or server on which you are installing the Camera Gateway application. The Control Center install screen opens.

   If the install screen does not open automatically, double-click the **Installer.exe** file in your Windows Explorer window, or use the **Run** option on the Windows Start menu and enter the path to the **Installer.exe** file on the CD ROM.

2. Click **Other Products…**, navigate to the **CameraGateway** folder and double-click **setup.exe**.

3. If Microsoft SQL Server 2014 Express SP1 is not installed, you will be prompted to install it. Follow the on-screen instructions.

   If the Microsoft SQL Server 2014 Express SP1 installation fails to complete, you must manually remove the components.

   For more information, *see "Microsoft SQL Server 2014 Express installation fails to complete " on page 21*

4. If Microsoft .NET Framework 4.5.2 is not installed, you will be prompted to install it. Follow the on-screen instructions.

5. You may need to restart your computer. Restart the computer, then open the Control Center CD and select **Camera Gateway**.

6. The Camera Gateway Core installation wizard opens. Follow the on-screen instructions.

7. When the Camera Gateway Core is successfully installed, click **Finish**.

   The Camera Gateway Administrator installation wizard opens. Follow the on-screen instructions.

8. When the Camera Gateway Administrator is successfully installed, click **Finish**.

   The Camera Gateway Interface installation wizard opens. Follow the on-screen instructions.

9. Optionally, you can configure the password and Camera Gateway Interface IP address.

Cameras added to Camera Gateway are visible on this address.

When you first install the Camera Gateway, the default username is `admin` and the default password is `password`.

If only one IP address exists on the Windows server, the **IP Address** option is disabled.

10. When the Camera Gateway Interface is successfully installed, click ***Finish***.

4 OPERATIONS

This chapter describes common tasks required for the operation of the Camera Gateway.

Access the Camera Gateway Administrator

Use the Camera Gateway Administrator application to manage the Camera Gateway.

1. Click *Start > IndigoVision > Camera Gateway > Camera Gateway Administrator*
2. Enter your username and password.

   When you first install the Camera Gateway, the default username is `admin` and the default password is `password`.

⚠️ **Caution**

For security, you must change the default password. For more information, see see "Change the Camera Gateway Administrator password" on page 13

Change the Camera Gateway Administrator password

You can change the Camera Gateway Administrator password using the Service Configuration Tool .

1. Click *Start > IndigoVision > Camera Gateway > Camera Gateway Service Configuration Tool*.
2. Enter the current administrator password, followed by the new password twice to confirm the change.

Change the Camera Gateway Interface IP address

Choose the IP address that cameras should be visible on within Control Center using the Service Configuration Tool.

1. Click *Start > IndigoVision > Camera Gateway > Camera Gateway Service Configuration Tool*.
2. Select the IP address from the drop down box and click *OK*.

   If only one IP address exists, the **IP Address** option is disabled.

Add a camera to the Camera Gateway

There are two methods of adding a device to the server. Many manufacturers' devices can be added using autodiscovery. This depends on which discovery protocols they support and

whether the network allows discovery information to be transmitted. Those that cannot be added in this way must be added manually.

Add a third party camera to the Camera Gateway using autodiscovery

The Camera Gateway can scan the network for available third party cameras and list the devices which it finds. To use a third party PTZ camera, you need to specify that the camera is a PTZ once you have added it to the Camera Gateway.

Notice   *Multicast-based discovery may not detect cameras on computers that have Internet Protocol version 6 (IPv6) enabled. Ensure IPv6 is disabled.*

1. In the Camera Gateway Administrator, open the required IndigoVision server.
2. Click *Device Management*.
3. Click *Discover Devices*.

   A list of all devices is shown.
4. Select a device and click *Add*.
5. The device details appear in the main screen. Edit these as required. Please note the following:
   - The device name and location are limited to 64 characters each.
   - Only alphanumeric characters, spaces, and underscores can be used for the device name and location.
   - If you are adding a device which needs to use a particular port number to support video streaming,for example, RTSP, add it after the IP address, in the format 192.168.1.2:1234.
   - If you are using a Domain Name Server (DNS), you can add a host name, and port number, if required, instead of an IP address.
   - Where available, ensure that the correct codec and transport options are selected for each device, as the default option may not be applicable to all device types.
   - If the device uses a separate port number for configuration and information purposes, such as events, specify this in the *Configuration Port* field.
6. If applicable, enter the device's username and password, then click *Apply*.

Add a third party camera to the Camera Gateway manually

If the Camera Gateway does not autodiscover a third party camera during a network scan, you can add it manually. To use a third party PTZ camera, you need to specify that the camera is a PTZ once you have added it to the Camera Gateway.

1. In the Camera Gateway Administrator, open the required IndigoVision server.
2. Click *Device Management*.
3. Click *Manually Add Device*.
4. Enter a camera name.

   Please note that the camera name is limited to 64 characters, and only alphanumeric characters, spaces, and underscores can be used.
5. Enter a location for the camera. This can be left blank but, if used, allows you to group cameras.
6. Choose from the list of device types.

When adding an IP camera or encoder, ensure that the device has been configured so that the device type selected in the Camera Gateway matches the operational parameters of that device.

7. Enter the Network Address. Please note the following:
   - If you are adding a device which needs to use a particular port number to support video streaming, for example, RTSP, add it after the IP address, in the format 192.168.1.2:1234.
   - If your device requires a connection URL instead of a simple IP address, you should enter this here.
   - If you are using a Domain Name Server (DNS), you can add a host name, and port number, if required, instead of an IP address.

8. For devices that require authenticated access (configured on the device itself):
   a. Enter the user name for the device.
   b. Enter the password for that user.

9. If the options are available for your selected device type, select the appropriate video format and transport type.

   Where available, ensure that the correct codec and transport options are selected for each device, as the default option may not be applicable to all device types.

10. If the device uses a separate port number for configuration and information purposes, such as events, specify this in the **Configuration Port** field.

11. Click **Apply**.

Set up a third party camera in the Camera Gateway

You can configure a camera through the Camera Gateway once you have added it to the server.

1. In the Camera Gateway Administrator, open the required IndigoVision server.
2. Click **Device Management**.
3. Navigate to the camera you want to configure, then click **Configure**.
4. Enter the user name and password for that camera, and click **OK**.
   The camera's configuration web page opens.
5. Configure the camera as required.
6. Close the web page to continue using the Camera Gateway Administrator.

For more information, refer to the manufacturers' guides.

Configure a third party camera as a PTZ camera in the Camera Gateway

To use third party PTZ cameras using the Camera Gateway, you need to specify that the camera is a PTZ, once you have added it to the Camera Gateway.

1. In the Camera Gateway Administrator, navigate to the camera you wish to configure, and double-click to expand it.
2. In the **Profiles** folder, select the profile required, and click **Edit**.
   If the camera was added to a Camera Gateway prior to firmware version 2.0, select the profile required from the **Cameras** folder.
3. In the PTZ group, select **Enabled**, and edit the settings as required.
4. Click **Apply**.

Add a third party camera to Control Center

Third party cameras available in the Camera Gateway can be added to a Control Center site.

1. Add the camera to the Camera Gateway. You can add cameras manually, or using autodiscover.

   To use a third party PTZ camera, you need to specify that the camera is a PTZ once you have added it to the Camera Gateway.

2. Set up the camera as necessary.

3. Add the camera to the Control Center site.

   Camera Gateway cameras are displayed as ONVIF transmitters in the Control Center front-end application.

► For more information, see Control Center help.

Configure a camera for motion detection in the Camera Gateway

To use motion detection from third party cameras in Control Center, you need to enable motion detection for the camera in the Camera Gateway Administrator.

1. In the Camera Gateway Administrator, navigate to the camera you wish to configure, and double-click to expand it.

2. In the *Profiles* folder, select the profile required, and click *Edit*.

   If the camera was added to a Camera Gateway prior to firmware version 2.0, select the profile required from the *Cameras* folder.

3. In the Events group, select *Motion Detection*, if available.

4. Click *Apply*.

5. Configure the camera to send details of events, if necessary.

   ► For more information about configuring Axis cameras, see *see "Configure Axis cameras events for the Camera Gateway " on page 16*

6. Configure the camera to specify the region of interest.

   ► For more information, refer to the manufacturers' guides.

Notice	*Selecting motion detection events for more than one profile for a given camera will result in multiple motion activations being registered.*

Configure Axis cameras events for the Camera Gateway

Axis cameras do not provide the capability for the Camera Gateway to connect to them and listen for events. To receive events from this type of camera, you must carry out additional configuration to allow the cameras to connect to the Camera Gateway and send details of any events that have occurred.

The following aspects need to be configured:

1. *see "Set up Axis cameras to send events" on page 17*

2. *see "Configure motion detection settings for Axis cameras" on page 17*

3. *see "Configure binary input settings for Axis cameras" on page 18*

Set up Axis cameras to send events

For cameras running firmware version 5.20.x or earlier:

1. In the Camera Gateway Administrator, navigate to the camera you wish to configure, and click *Edit*.
2. Click *Configure TCP Client on Camera*.

   You are notified when configuration is complete.

Notice *If the camera cannot be reached and the configuration attempt fails, you are also notified. If this continues, there may be a connection problem with the camera and the Camera Gateway will be unable to receive alerts from it.*

3. Click *Configure*.

   The configuration pages for the selected camera are displayed.
4. Click *Events*, then *Event Servers*.

   In the Event Server list, ensure there is a new entry for the Camera Gateway.

For cameras running firmware later than version 5.20.x:

1. Click *Configure*.

   The configuration pages for the selected camera are displayed
2. Select *Events > Recipients*.
3. Click *Add* and enter the following details:
   - **Name**: Camera Gateway
   - **Type**: TCP
   - **Network address**: IP of the Camera Gateway PC
   - **Port number**: 29170
4. Optionally, click *Test*.

Configure motion detection settings for Axis cameras

For Axis cameras running firmware version 5.20.x, follow these steps. The names of fields and page may vary in different firmware versions.

1. In the Camera Gateway Administrator, navigate to the camera you wish to configure.
2. Select a profile on the camera and click *Edit*.
3. In the Events group, select *Motion Detection* and click *Apply*.
4. Click *Configure*.

   The configuration pages for the selected camera are displayed.
5. Click *Events*, then *Motion Detection*.
6. Select your motion detection preferences, and take a note of the window name.
7. Click *Event Types*, then *Add triggered...* to set up an event.
8. Enter a name for the triggered event.
9. In the Triggered by... group, select *Motion Detection*, enter the window name previously noted, and edit the timing as required.
10. In the When triggered... group, select *Send TCP notification*.
11. Select the required TCP server from the *Send to:* dropdown, as configured in see "Set up Axis cameras to send events" on page 17.

12. Enter `cs.motion` in the ***Message*** field.
13. Click ***OK***.

Configure binary input settings for Axis cameras

For Axis cameras running firmware version 5.20.x, follow these steps. The names of fields and page may vary in different firmware versions.

Only one binary input is supported per Axis device.

1. In the Camera Gateway Administrator, navigate to the camera you wish to configure, and click ***Configure***.

   The configuration pages for the selected camera are displayed.
2. Click ***Event Types***, then ***Add triggered...*** to set up an event.
3. Enter a name for the triggered event.
4. In the Triggered by... group, select ***Input Port***.
5. Choose the ***Input*** to use for binary event, and select when the event should trigger (Active, Inactive, or Change).
6. In the When triggered... group, select ***Send TCP notification***.
7. Select the required TCP server from the ***Send to:*** dropdown list, as configured in *see "Set up Axis cameras to send events" on page 17*.
8. Enter `cs.trigger` in the ***Message*** field.
9. Click ***OK***.

5   SPECIFICATIONS

This chapter details the specifications for the Camera Gateway.

Performance

The Camera Gateway can achieve the following with appropriate hardware, such as a NVR-AS 4000:

- Maximum incoming bandwidth (cameras to Camera Gateway): 150Mbps
- Maximum outgoing bandwidth (Camera Gateway to other Control Center application): 450Mbps
- Maximum number of cameras: 100 cameras
- Maximum number of motion detectors configured to monitor cameras on the Camera Gateway: 100

6 TROUBLESHOOTING

This chapter provides troubleshooting information for the Camera Gateway.

Microsoft SQL Server 2014 Express installation fails to complete

If the Microsoft SQL Server 2014 Express installation fails to complete, you must remove the following components using **Control Panel > Programs and Features** before reinstalling.

- Microsoft SQL Server 2014
- Microsoft SQL Server 2008 Native Client
- Microsoft SQL Server 2012 Native Client
- Microsoft SQL Server Setup Support Files
- Microsoft VSS Writer for SQL Server 2014
- Microsoft SQL Server Browser for SQL Server 2014
- Microsoft SQL Server 2014 Transact-SQL ScriptDom

Third party cameras are not being discovered in Control Center

If the third party cameras configured with the Camera Gateway do not appear in the Add Devices dialog, this may indicate that:

- The Control Center front-end application is running on the same machine as the Camera Gateway. Control Center can only discover Camera Gateway cameras when the Camera Gateway is running on a separate machine.
- Control Center's multicast discovery packets are not reaching the camera. This can occur if the Control Center front-end application and the Camera Gateway are on different subnets with no multicast route between them.
- The third party camera is offline. If this is the case, there is a red-cross through the camera icon in the Camera Gateway Administrator.
- There is a problem with the network.
- The Camera Gateway is offline.
- Another service is running on the Camera Gateway PC, and is causing a port conflict.
  - ► For more information, refer to the IndigoVision Firewall Requirements section of the Control Center Installation Guide

Configuring physical detectors for third party cameras

Physical detectors on third party camera trigger on both activation and deactivation. Therefore, the state of the detector cannot be determined.

This means that the physical detectors on third party cameras cannot be used to initiate an action when a detector is activated, and stopped when the detectors returns to normal.

To achieve this objective, try the following:

- Set the dwell time on the detector to the estimated duration of the action.
- It may be possible to change this behavior for the camera using the camera's configuration settings.

  For an example, see *see "Configure motion detection settings for Axis cameras" on page 17.*

  ► For more information, refer to the manufacturers' guides.

Configuring relay outputs on third party cameras

- Control Center expects third party camera relay outputs to be open when inactive, and closed when actuated.

  Therefore, it is not possible to configure a relay on a third party camera to be closed when inactive.
- Camera Gateway doesn't support the *Activate for x seconds* relay action.

  Therefore, it is not possible to create this type of action.