IVS – Intellio Download Gateway module

Table of Contents

1. Introduction, important information

This guide provides detailed information about the IVS Download Gateway settings. For a complete overview of the IVS system setup and configuration, please refer to the ***IVS Installation Manual*** documentation.

2. Intellio Download Gateway overview

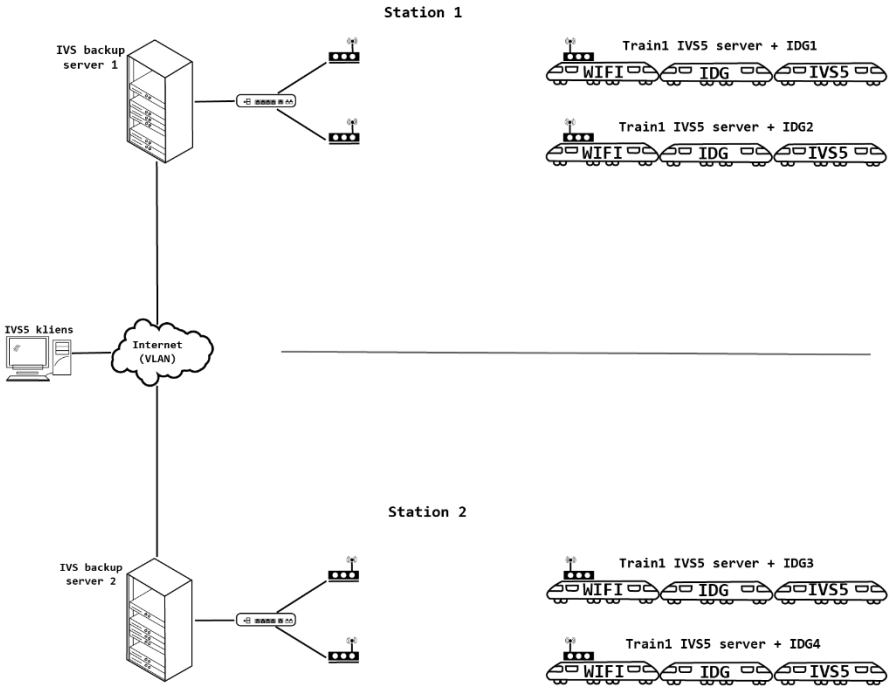
The Intellio Download Gateway (**IDG**) enables the automatic transfer of video recordings from Intellio Video System (**IVS**) servers to another IVS system functioning as a "backup" server. IDG allows multiple IVS servers to upload their recordings to a centralized location. During this transfer, only the video recordings from selected cameras are uploaded - no additional data (such as events or metadata) is transferred.

The transfer process is handled by a standard IVS server with the assistance of IDG, and the transferred recordings can be viewed using the IVS client application.

IDG is a software component that operates between IVS "backup" servers and regular IVS servers. It runs as a Windows service and does not modify the recordings. Its sole function is to forward video recordings from the configured cameras to the backup servers.

2.1. IDG structure, operation

The following diagram shows a possible simplified implementation of using the IDG.



Onboard servers installed in the vehicles run the IVS system to locally record footage from the installed cameras. Alongside IVS, each vehicle also has an instance of the IDG component, which enables access to the recorded footage from the station (backup) servers. When the vehicle arrives at a station where network access to a backup server is available, it automatically connects to the network via Wi-Fi. The backup server connects to the IDG on the vehicle and starts transferring the new recordings from the cameras, beginning from the last successfully transferred footage.

The vehicle can leave the station at any time, and upon the next connection, the download will resume from the last downloaded recording. The backup servers are organized into a single SITE, allowing previously transferred footage to be easily viewed in the IVS client application—regardless of which backup server stored the footage.

The IVS client application also allows direct connection to the mobile SITE, making it possible to view and export the live feed or recorded video from the cameras installed on the vehicle.

3. Intellio Download Gateway installation

The IDG is not included in the default server installation package. To obtain the download link, please send a request email to support@intellio.eu .

By default, the IDG should be installed on the computer that will provide the recorded footage. In a multi-server SITE, the installation can be performed on any of the SITE's servers. In special cases, a separate computer may also be dedicated to running the IDG.

For the IDG to operate properly, all servers in the mobile IVS SITE must have a valid **IVS-SDK** license.

3.1. Setting up the IVS backup system

A fully functional backup system requires three main components:

- **IVS SITE on moving (or mobile) vehicles**, which can consist of up to 4 IVS servers. This SITE handles normal video recording from cameras. The IVS SITE must have a valid IVS-SDK license to allow proper connection with the IDG. These servers can be mobile; in the example, they are installed on vehicles.
- **Intellio Download Gateway (IDG)**, which connects to the mobile IVS SITE and transfers recorded footage to the IVS backup SITE. In the example, the IDG should also be installed on the servers located on the vehicles.
- **IVS Backup SITE**, which can consist of up to 4 IVS servers. This SITE stores the recordings forwarded by the IDG. The backup servers must have at least as many Intellio camera licenses as the number of cameras whose recordings need to be stored. In the example, these servers are located at station sites.

When configuring the entire system or making changes later, always start by making modifications on the mobile IVS SITE (installed on the vehicle), then adjust the IDG settings, and finally - if needed - update the backup SITE settings accordingly.

3.2. IVS SITE (vehicle server) setup

To configure the mobile IVS SITE (vehicle server), connect directly to the server located on the vehicle using the IVS Client.

For configuration instructions, refer to the ***IVS Installation Manual*** and the related documentation.

4. Intellio Download Gateway setup

Copy the files from the IDG package into the **c:\Program Files\Intellio Video System\Intellio Server** folder. The parameters required for the operation of IDG are contained in the **IVSDownloadGateway.ini** file. For a fresh installation, the file contains the following entries:

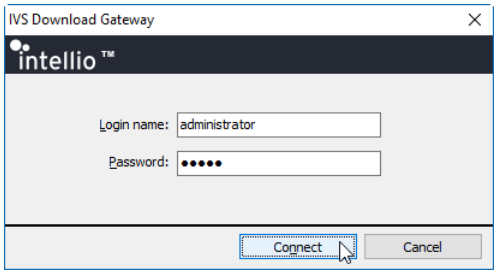
```
[Servers]
Localhost

[General]
FirstTCPPort=6501
```

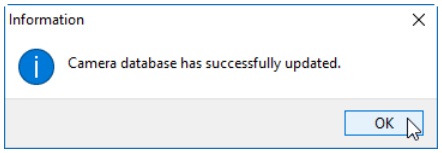
- To modify the settings, first stop the IDG service.
- The **[Servers]** section contains the addresses of the IVS MOBILE SITE servers (default value: localhost). If needed, change the IP address, and add the addresses of the other SITE servers line by line within the section (each server on a new line, using IP addresses). If necessary, the TCP port number can be specified after the IP address, separated by a colon.
- The **[General]** section contains the general settings. The **FirstTCPPort** entry defines the starting TCP port number, from which IDG begins assigning ports to the cameras whose recordings will be transferred. Backup servers access the recordings through the assigned ports.
- To update the list of cameras, run the **Refresh.bat** file as administrator (default location: **c:\Program Files\Intellio Video System\Intellio Server**). During the update, the camera list is expanded to include cameras enabled in the mobile system but not yet listed.

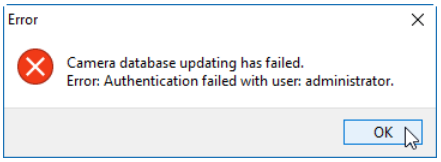
> ***Note**: the update is always additive, meaning that entries for cameras which have been disabled in the mobile system but are already in the list will not be removed.*

- In the window that appears, enter the login credentials: the username/password pair associated with the IVS MOBILE SITE servers. The camera list update will be performed using the provided user credentials. If the specified account has limited access — meaning it only has permissions for certain cameras — then the camera list will only include the cameras accessible by that account.



- A dialog box will show the result of the connection. If the connection is successful, the IDG will update the camera list. If the connection fails, the dialog box will display an error message.





- To apply the changes, restart the IDG service.

The updated **IVSDownloadGateway.ini** file will include the camera entries. Each entry starts with a number indicating the TCP port through which the IDG makes the given camera's recordings available for the central backup IVS. At the end of the line is the camera name, preceded by the timestamp of the last successfully downloaded recording.

***Important**: To ensure proper operation of the transfer, network access to the IDG must be allowed through the configured ports!*

```
[Servers]
localhost

[General]
FirstTCPPort=6501

[Cameras]
6501={9F249F1C-8A6A-41A2-ABBA-92E977976366}#20250227-114834032     ;Kamera 1
6502={BAD4293D-C6CF-424B-AA28-5B9DFED6424A}#20250227-114834032     ;Kamera 2
6503={A20990EF-F7F7-4306-A8C0-C989F6980D2F}#20250227-114834032     ;Kamera 3
6504={3E46CB5B-27FD-430E-82C4-BEC2D897AB17}#20250227-114834032     ;Kamera 4
6505={16114B31-3C35-448D-A814-1B711D612DC2}#20250227-114834032     ;Kamera 5
6506={CF7DE0AF-77C0-44C3-A5CC-2DD02F929CB4}#20250227-114834032     ;Kamera 6
6507={254B6A47-B2D4-4516-B8BB-4D64880AF075}#20250227-114834032     ;Kamera 7
```

4.1. Camera filtering

Occasionally, it may not be necessary to transfer recordings from all cameras. There are basically two ways to filter cameras:

Manual camera filtering using the IVSDownloadGateway.ini file

In this case, simply remove the cameras (the entire line containing the camera entry) from the automatically generated camera list that do not need to be transferred.

***Important**: automatically refreshing the camera list again may re-add previously removed cameras, so manual deletion might be required again.*

Camera filtering using a user account

For automatic camera list generation, use a user account that has access only to the cameras whose recordings need to be transferred.

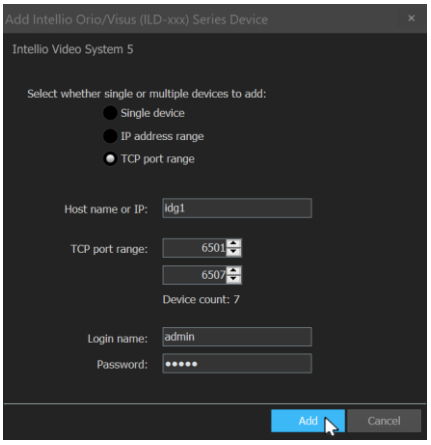
The minimal local or inherited user permissions required for saving camera recordings are as follows:

Device Manager / Manage Devices / View Devices
Cameras / Access to Cameras / SPECIFIC CAMERAS
Cameras / View / Video Playback
Alarm / Detectors / View Detectors

5. IVS „backup" SITE configuration

Install the IVS server that will operate as the backup server just like a regular IVS server. Use the **IVS Installation Manual** and the related documentation for configuration. Specify the storage locations where you want the backup server to save the transferred recordings.

5.1. Adding cameras to the backup server



- In the **System Configuration / Devices** menu, select **Add** and choose **Add Intellio ILD-xxx series...** from the dropdown list.
- In the window that appears, select the **TCP port range** option.
- In the **Hostname or IP** field, enter the address where the IDG is accessible.
- In the **TCP port range** fields, enter the first and last TCP port numbers configured for the cameras in the **IVSDownloadGateway.ini** file.
- In the **Login name** and **Password** fields, enter the login credentials that the IDG uses to connect to the IVS MOBILE SITE (these are used to access the camera recordings on the IVS MOBILE SITE).
- Click the **Add** button.
- New cameras will appear on the **Unregistered tab**.
- Once the camera status becomes online (you may need to press **F5** to refresh), you can register them. Select the cameras and use the **Register** button to register them to the server.

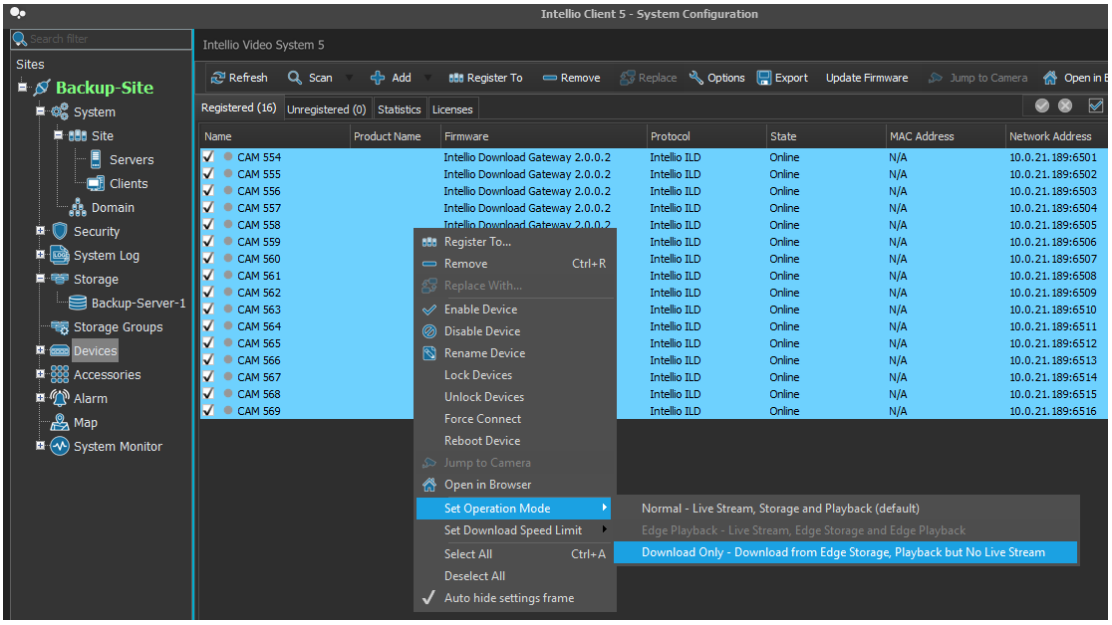
***Note**: Cameras registered through the IDG only provide access to previously stored recordings. These cameras do not provide live video, and their image or detector settings are not available.*

Cameras served by the IDG can be identified by their firmware version, which can be checked in the **System Configuration / Devices** menu. The version will appear as Intellio Download Gateway X.X.X.X (where X.X.X.X indicates the gateway version number).

5.2. Configuring cameras for recording transfer

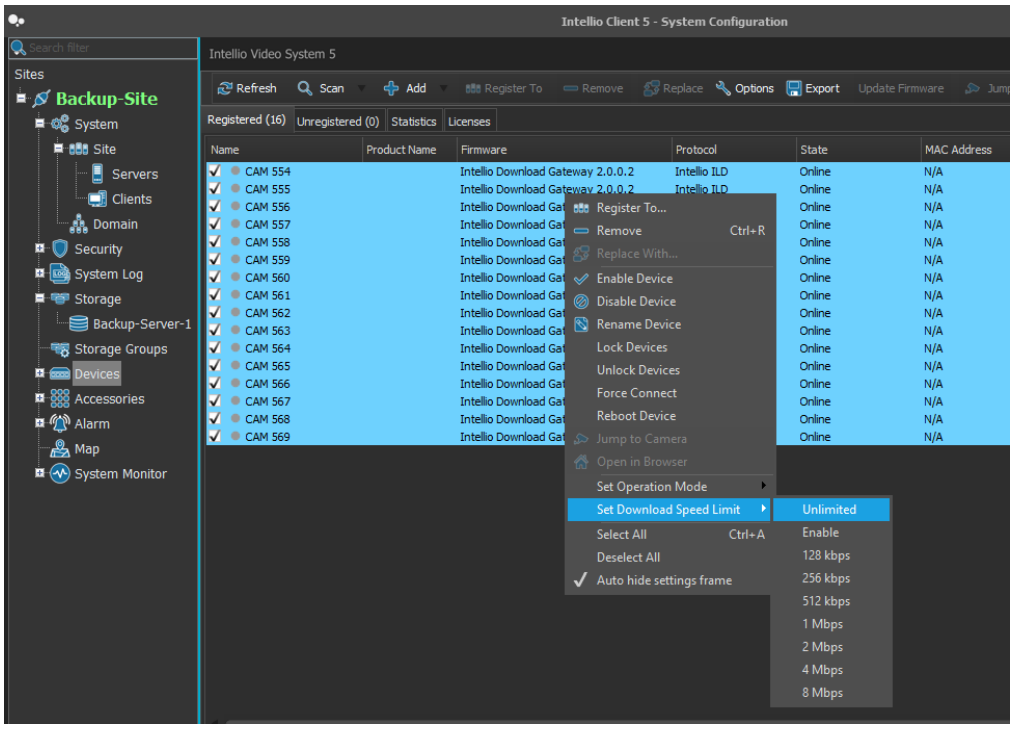
To enable the transfer of camera recordings, their operating mode must be changed from **Normal** mode to **Local Storage** mode, as follows:

- Open the **System Configuration / Devices / Cameras** page.
- Select the cameras whose operating mode you want to change (use the **Ctrl** or **Shift** keys for multiple selection, or **Ctrl+A** to select all cameras).
- **Right-click** on one of the selected cameras.
- In the pop-up menu, select **Set operation mode / Download only**.



- In the confirmation window that appears, click **Yes** to apply the new mode to the selected cameras. The camera icons will change from a monitor to a downward arrow, indicating download mode.

- To ensure maximum bandwidth, check the **Download Speed Limit** for each camera under **System Configuration / Devices / Cameras / Selected Camera**, in the **Onboard Storage** tab. To achieve maximum download speed, disable the **Download Speed Limit** option if necessary. You can also modify the download speed limit in bulk, similar to the operating mode. Simply select the desired cameras, then **right-click** and use the **Download Speed Limit** submenu to choose the desired speed.



6. System modification

6.1. Add cameras

Adding a new camera to an existing system:

- Connect to the IVS-SITE (vehicle) system using the IVS Client application, and add the new camera according to the **IVS Installation Manual**.
- Verify that the user account used for transferring recordings has access to the new camera. If necessary, update the assigned role under **System Configuration / Security / Roles**.
- Stop the IDG service.
- Run the **Refresh.bat** script with administrator privileges (default location: **c:\Program Files\Intellio Video System\Intellio Server**).
- Check the new camera settings in the **IVSDownloadGateway.ini** file and note the port number assigned to the new camera.
- Start the IDG service.

- Connect to the "backup" system using the IVS Client application and add the new camera as an ILD camera, according to the **IVS Installation Manual**. In the IP address field, enter the IP of the IDG, and for the port, use the new camera's port number from the IVSDownloadGateway.ini file. For the login credentials, use the username/password pair associated with the mobile IVS system used for transferring recordings.
- After registration, don't forget to set the new camera's operating mode and download speed as described in the previous section

6.2. Delete cameras

***Important**: If a camera is deleted from the IVS SITE (vehicle server), its recordings will no longer be available. Therefore, it is recommended to delete cameras only after all recordings have been successfully transferred.*

If a camera is deleted from the IVS SITE (vehicle), but still remains registered on the "backup" system, the backup server will attempt to transfer recordings from it - unsuccessfully. In this case, the camera must be manually removed from the IDG as follows:

- Stop the IDG service.
- Remove the entry for the specific camera (the full line with the camera's parameters) from the **IVSDownloadGateway.ini** file.
- Start the IDG service.

The "backup" server will no longer be able to connect to the deleted camera using the configured data. To prevent the backup server from repeatedly trying to connect, but still allow access to already transferred recordings, simply disable the camera under **System Configuration / Devices** by unchecking the checkbox next to the camera, or by using the **Disable Device** option from the right-click menu.

6.3. Change cameras

Occasionally, it may be necessary to physically replace cameras on the mobile IVS SITE (vehicle).

The camera replacement must always be performed using the **Replace** command located under **System Configuration / Devices**, ensuring continuity between the old and new recordings. A detailed description of the replacement process can be found in the **IVS Installation Manual** documentation.

According to the IVS Installation Manual, when a camera is replaced on the mobile IVS SITE, this change is not visible on the IVS "backup" system or within the IDG, so no further action is required on those components. The transfer of recordings from the replaced camera will continue automatically.

6.4. Camera replacement for deleted or disabled cameras

If a camera has previously been deleted or disabled on the IVS SITE (vehicle), and a new camera needs to be installed in its place, follow these steps:

- Add the new camera according to the instructions in the **IVS Installation Manual** documentation.
- Verify that the user account used for transferring the recordings has access to the new camera. If necessary, modify the assigned role under **System Configuration / Security / Roles**.
- Stop the IDG service.
- Remove the deleted camera's entry (the entire line containing the camera's parameters) from the **IVSDownloadGateway.ini** file, but take note of the port number assigned to that camera.
- Run the **Refresh.bat** command with administrator privileges (default location: **c:\Program Files\Intellio Video System\Intellio Server**).
- Locate the new camera's entry in the **IVSDownloadGateway.ini** file, and change its port number to the previously noted port of the deleted camera.
- Start the IDG service.

The IDG will now transmit the new camera's recordings using the old camera's port. If necessary, update the camera's name on the backup system. Connect to the backup system using the IVS client application, and under **System Configuration / Devices / Cameras**, select the camera and verify the continuity of the recording transfer on the **Onboard Storage** tab.

7. Questions - answers

Question: Can a single IDG be used to back up recordings from multiple SITE systems within a Domain?

Answer: No, one IDG can only be used for a single SITE. Within a Domain, a separate IDG instance is required for each SITE.

Question: I don't want to back up recordings from all cameras. What is the easiest way to back up only selected cameras?

Answer: Use a user account for the IDG connection that only has access to the cameras you want to back up.

Question: I ran the **Refresh.bat** to update the camera list, but the new cameras are still not available.

Answer: The **Refresh.bat** only updates the camera list if the IDG service is stopped. Stop the IDG service, run **Refresh.bat** again, and then restart the IDG service.

Question: In the original IVS system, audio was available with the cameras, but after transfer, it's not accessible on the backup server.

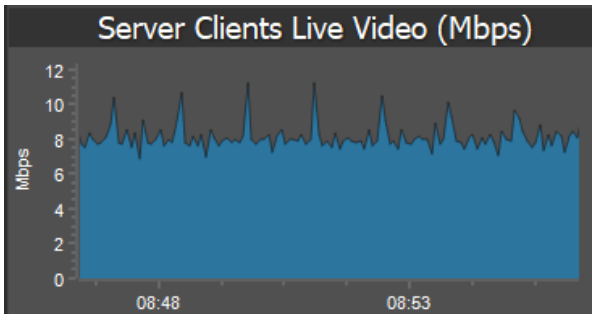
Answer: Audio recording transfer is currently not supported.

Question: The backup server cannot retrieve recordings from the cameras set up in the IDG.

Answer: Check firewall settings to ensure that the ports configured in the IDG are not blocked. Also, verify that the camera's operating mode is correctly set on the central server.

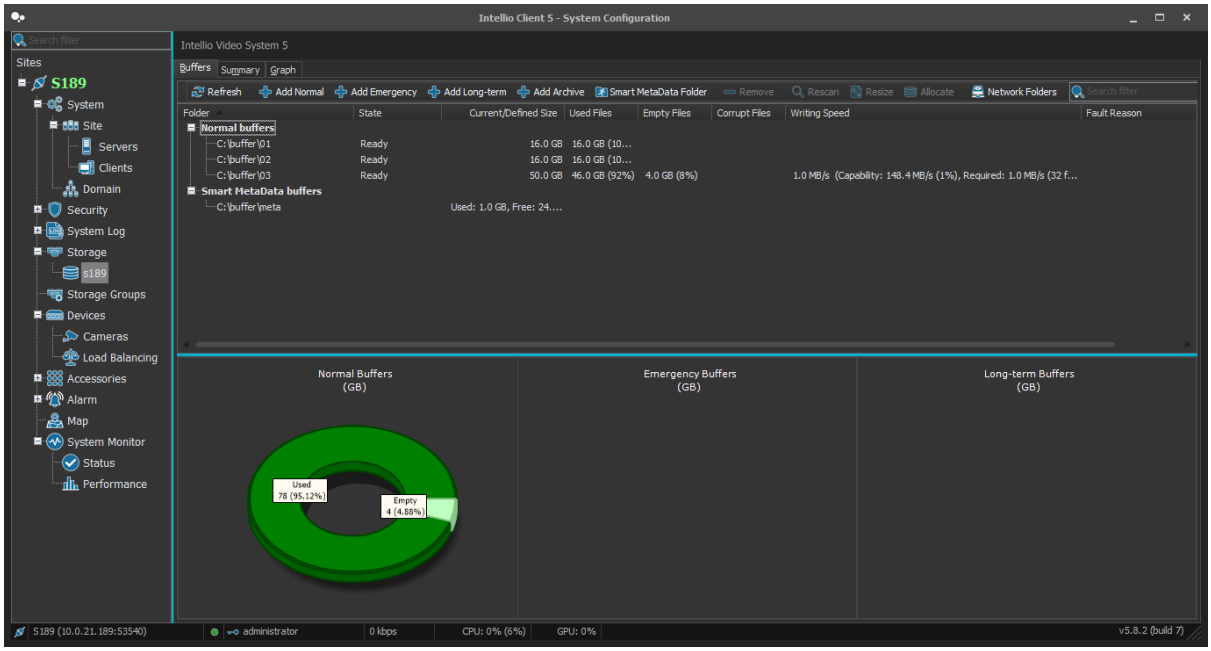
8. Example Configuration

A server installed in a vehicle is connected to 16 cameras. The server's license key includes the SDK module. The cameras have a resolution of 1920×1080, with a frame rate of 2 fps, constant bitrate set to 512 kbps, using H.264 format. This results in an average total bandwidth of 8 Mbps for all 16 cameras. If all 16 cameras are displayed, this value is visible on the Performance Monitor interface.



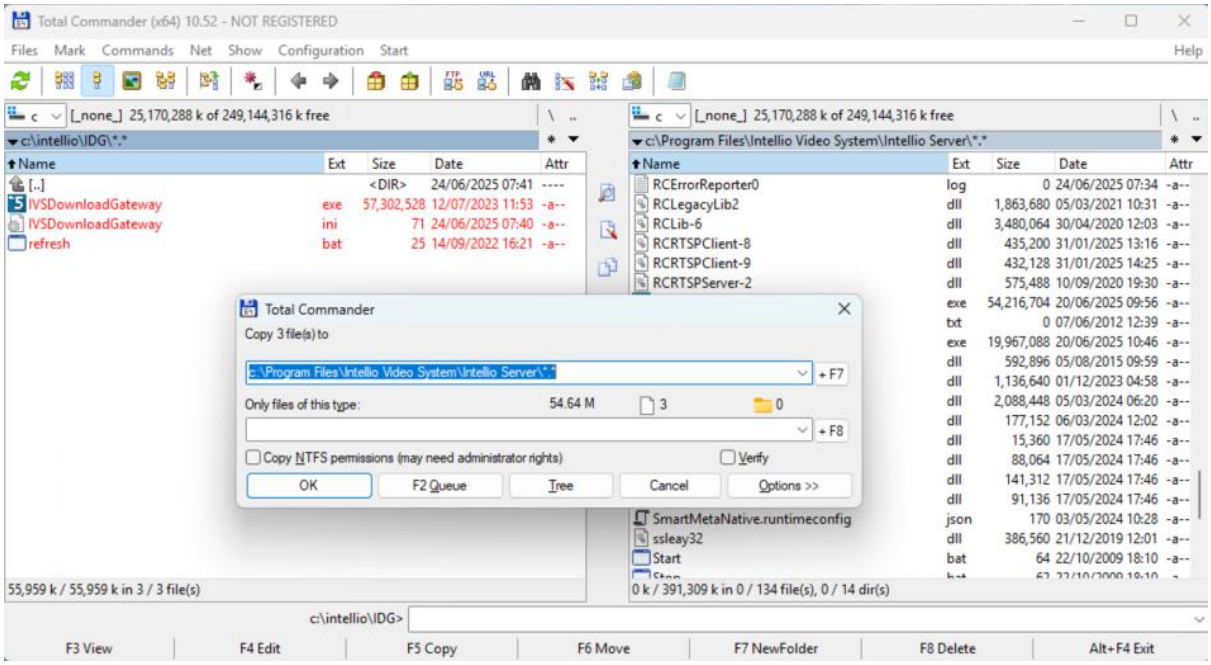
By connecting directly to the vehicle server with a client, the live camera streams can be displayed:

The recording speed of the video streams is also 1 MBps, which equals 8 Mbps:

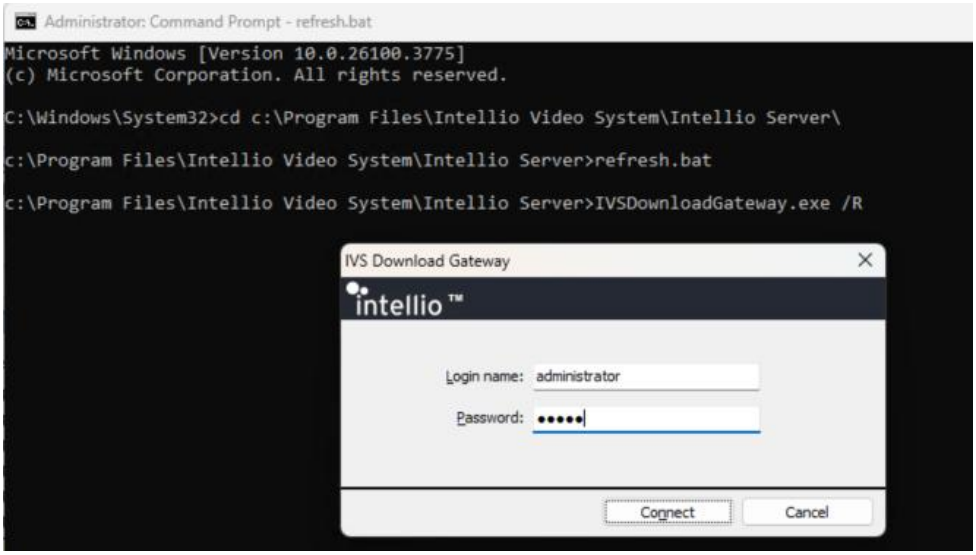


The following files must be copied into the vehicle server folder:

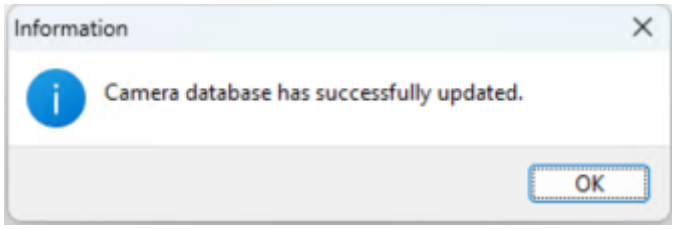
- IVSDownloadGateway.exe
- IVSDownloadGateway.ini
- refresh.bat

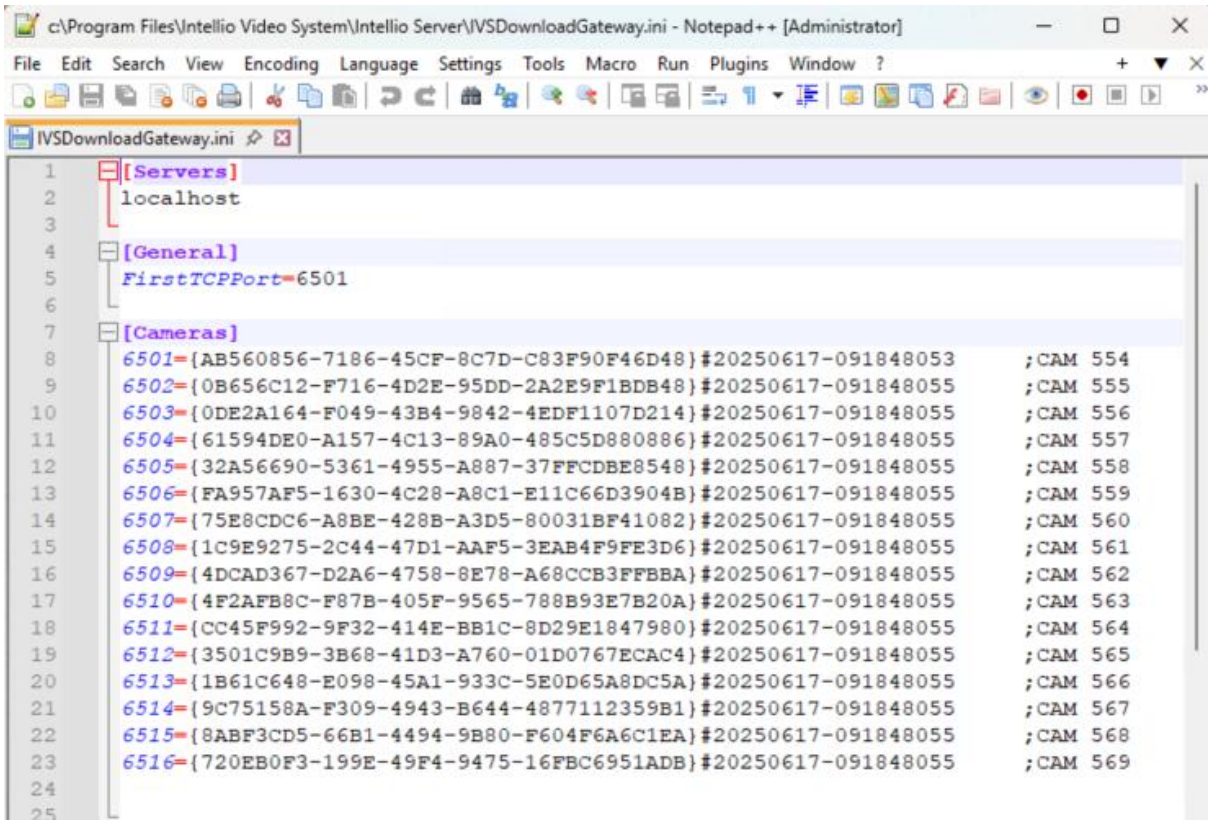


A Command Prompt must be launched with Administrator privileges, and the refresh.bat file must be executed. In the pop-up window, the access credentials must be entered:

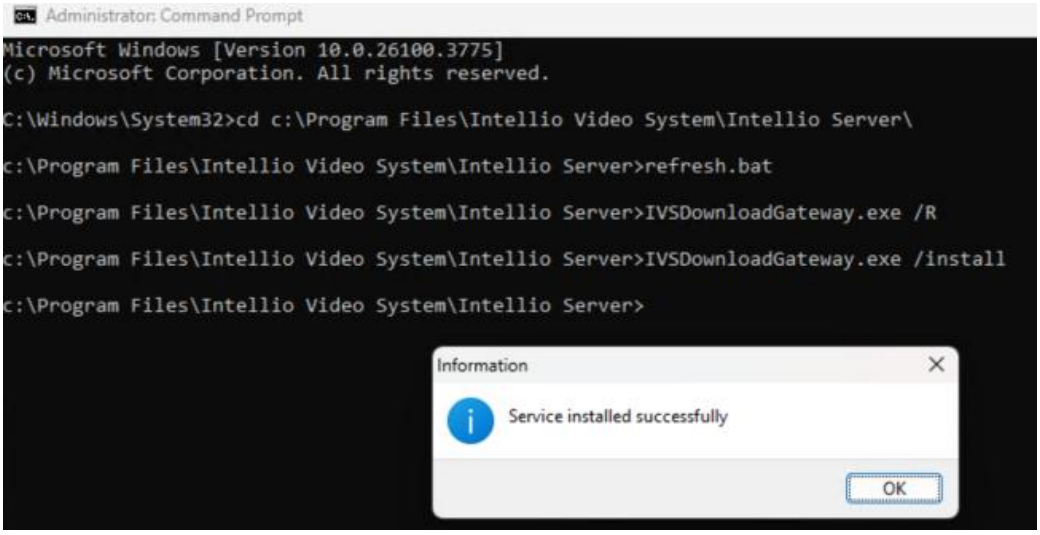


This will generate the camera list in the IVSDownloadGateway.ini file:

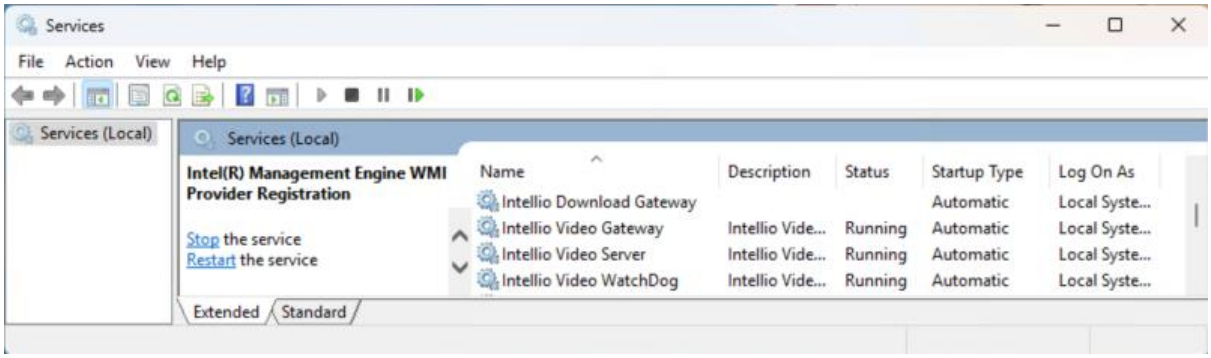




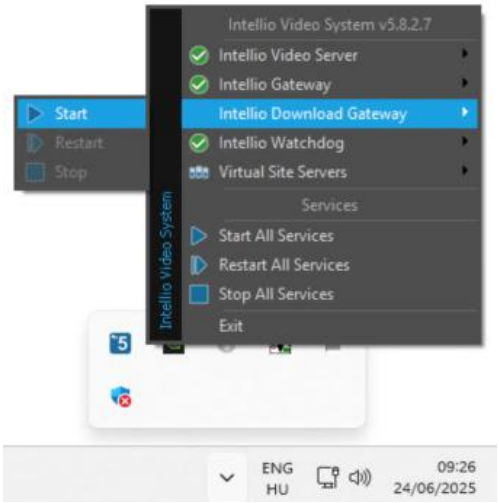
The service can be installed using the command: IVSDownloadGateway.exe /install



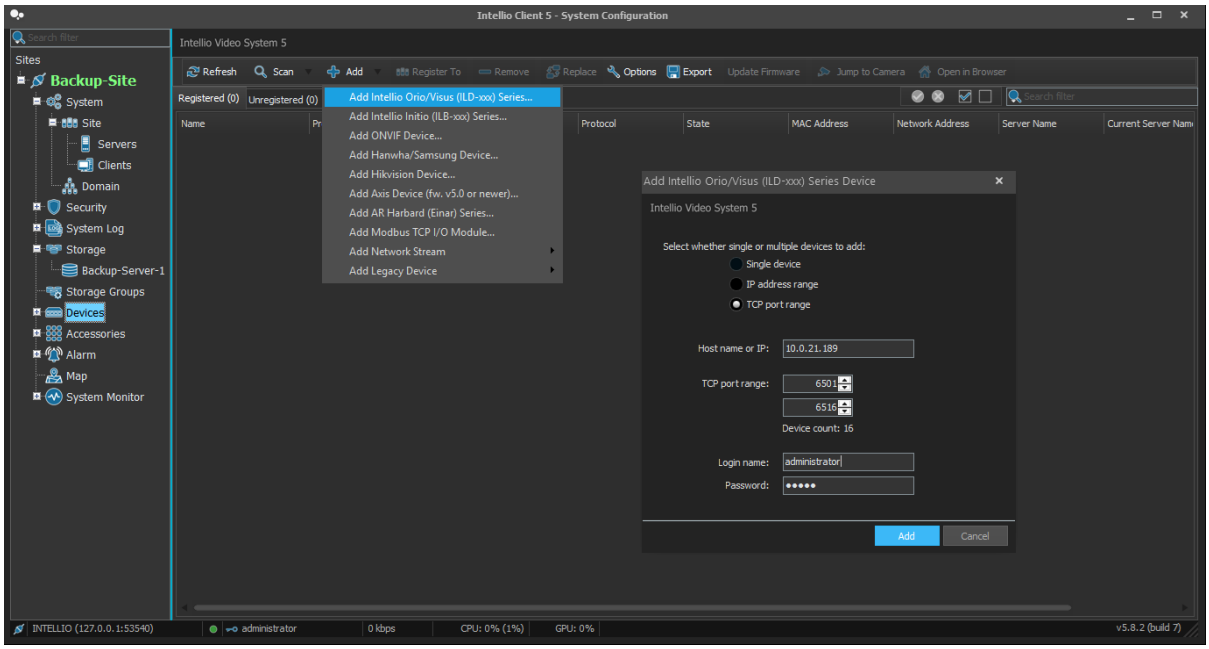
This will make the Intellio Download Gateway service appear among the Windows services (services.msc):



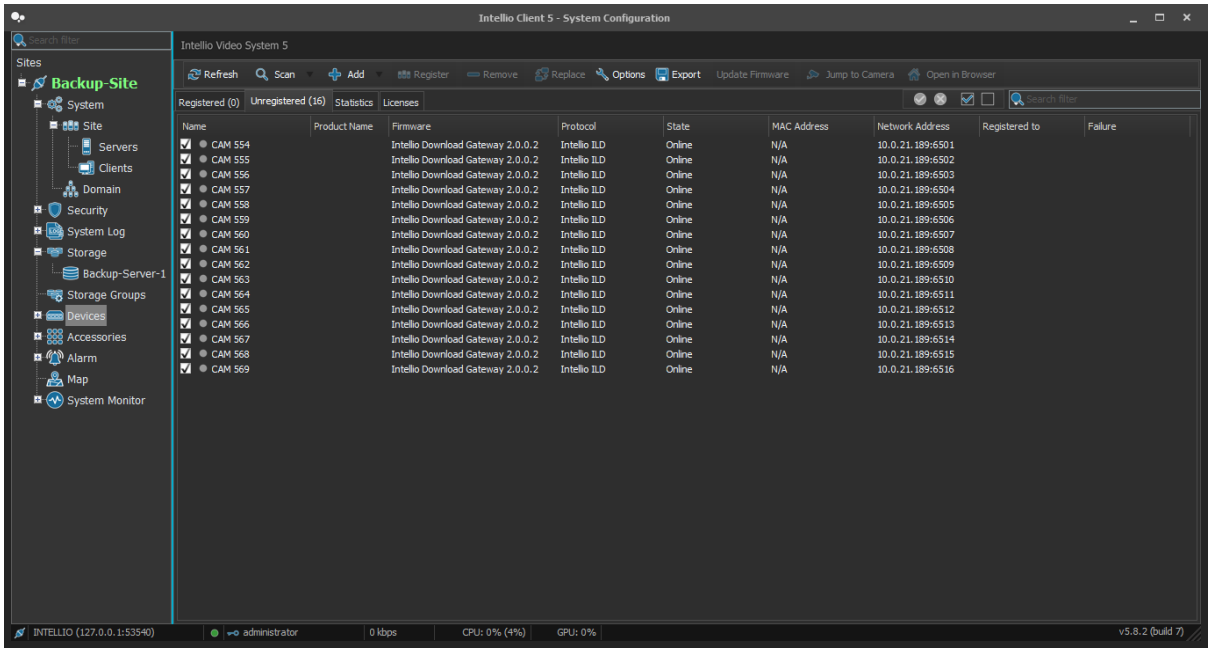
Additionally, it will become manageable (startable, stoppable) in the Intellio Agent, and the Intellio Watchdog will monitor it.



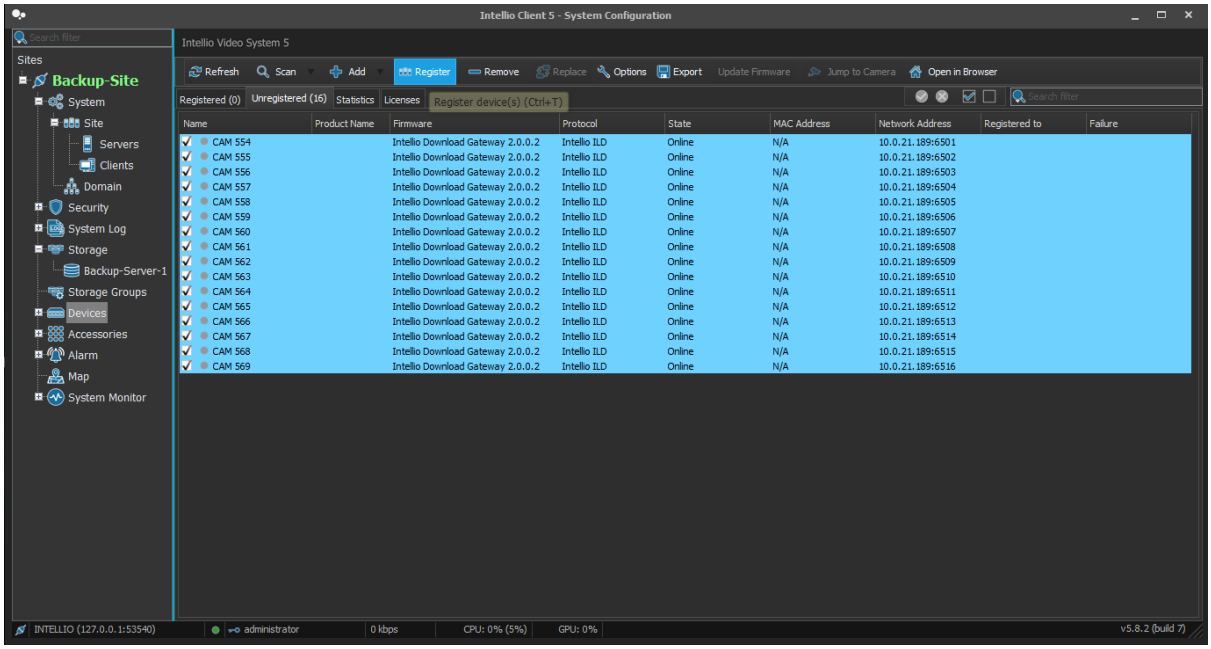
On the ground (backup) server, the camera channels accessible via the Intellio Download Gateway service must be added using the port numbers listed in the ini file:



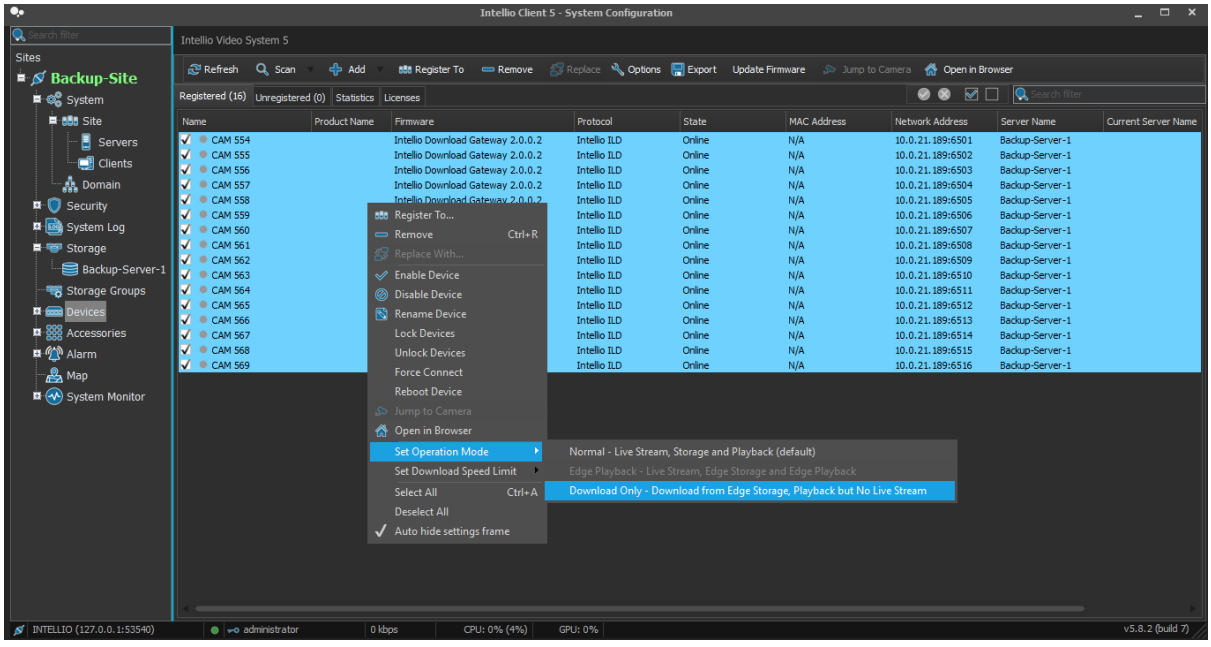
After pressing the **Add** button, the newly added devices will be listed under the **Unregistered** tab:



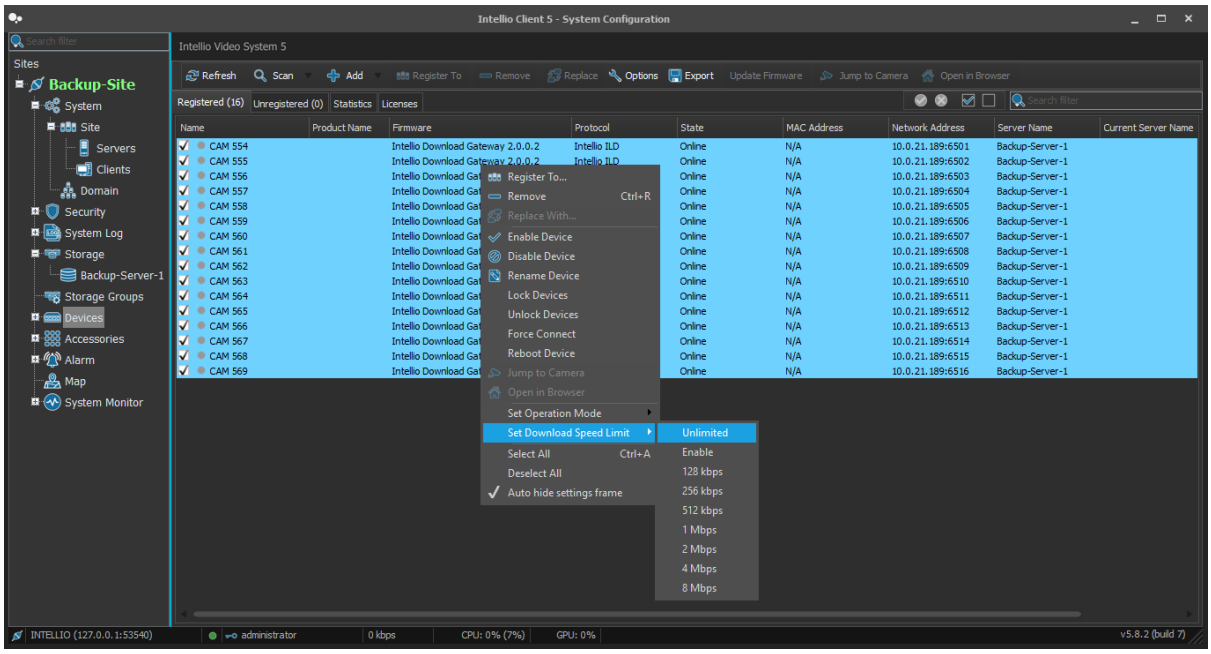
You need to register them:



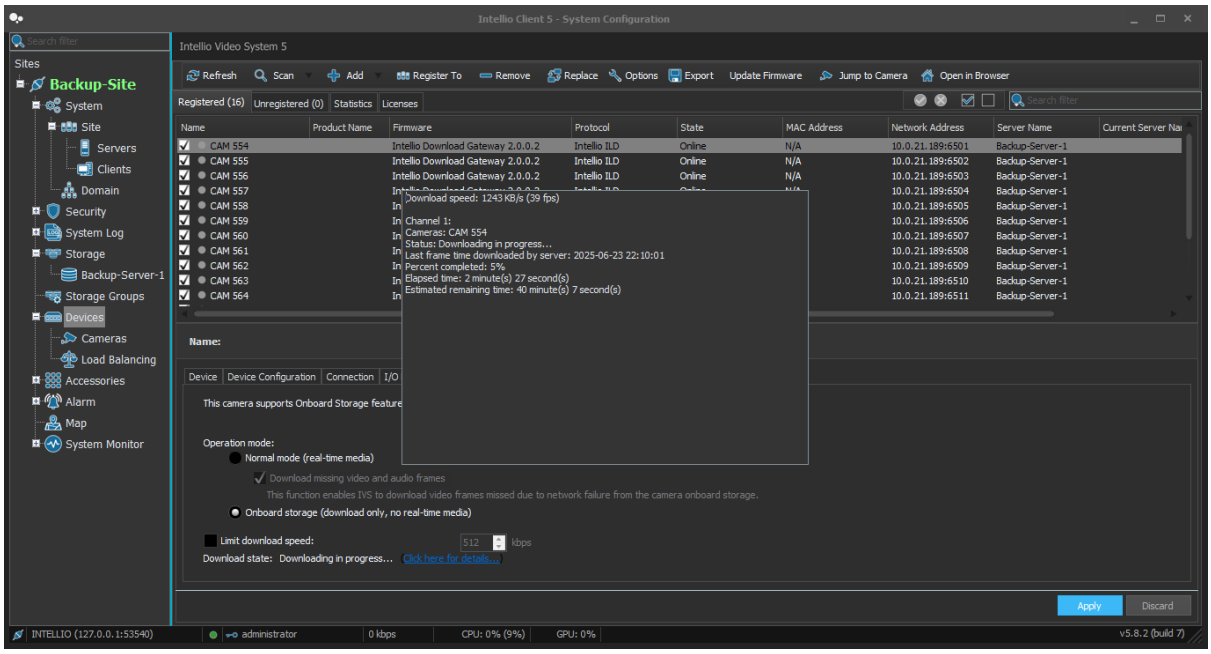
After registration, you need to change the Devices' operation mode from **Normal** to **Download only**:



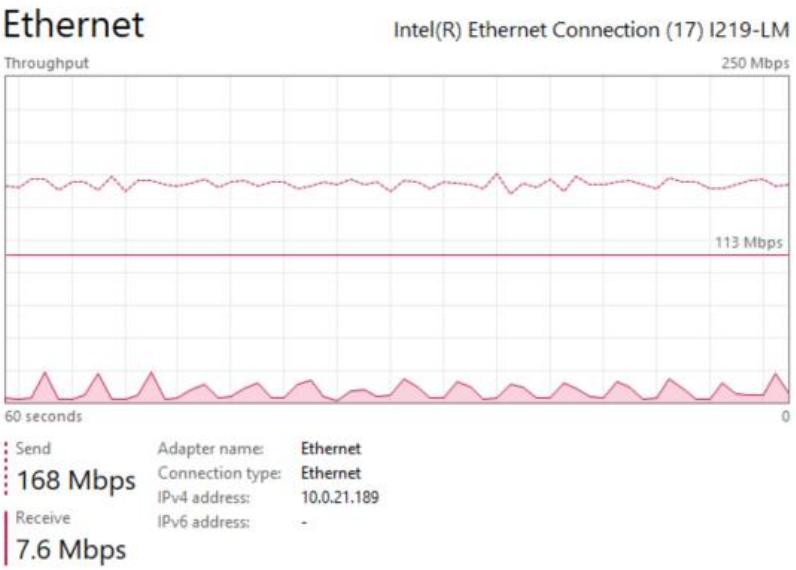
It is possible to set the maximum download speed individually for each camera:



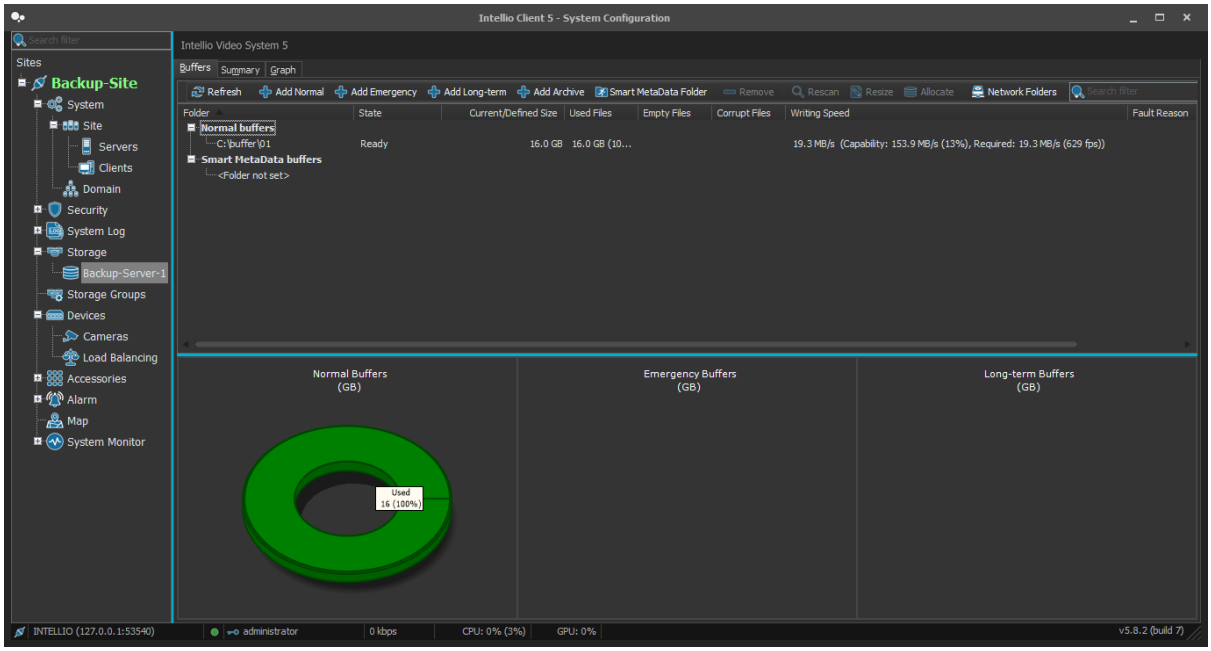
If the network connection between the vehicle server and the ground (backup) server is established, the transfer will start (or resume) automatically. The status of the transfer (speed, estimated time, etc.) can be checked on the **Onboard Storage** tab:



On the vehicle server's network speed graph, it is visible that the transfer has started. Data from the cameras arrive at approximately 8 Mbps, and the transfer takes place at a maximum speed of 160 Mbps to ensure that neither the network nor the storage performance on either server is hindered.



The ground (backup) server is receiving the data:



As a result of the transfer, the camera footage can be played back on the ground server:

9. Further steps

For an overview of additional system settings, please refer to the ***IVS Installation Manual*** documentation.