IVS – System Management

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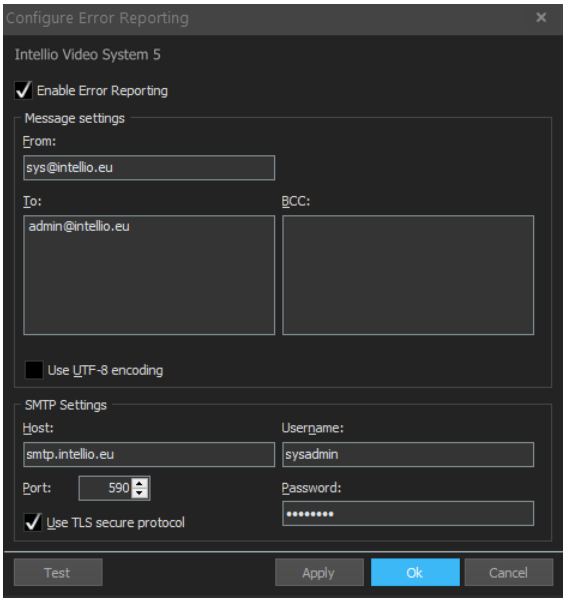
1. Introduction, important information

This guide summarizes recommendations and options for operating, optimizing, and troubleshooting the IVS system. For a complete overview of the system's setup and configuration, refer to the ***IVS Installation Manual*** documentation.

2. System Log and Error Reporting

During system message logging, the messages from each server within the SITE are stored separately. This makes it easier to track communication between servers and the sequence of events occurring on individual servers.



For a large number of cameras or multiple servers, error reporting can significantly simplify the detection of issues. Thanks to the redundant design, an operator might not immediately notice a server failure, as other servers in the system take over the tasks of the failed server. In such cases, error reporting is invaluable, allowing you to stay informed about issues without constantly reviewing server system logs.

During logging, some messages may appear as both warnings and errors. This is due to the deliberate design of the system. For instance, a brief server disconnection will not immediately trigger an error message or notify the administrator, as the SITE remains fully operational. However, if the disconnection persists and reconnection fails within a certain period, it may indicate a serious issue, at which point the system registers it as an error. A similar logic applies to the handling of lost cameras.

The system can send error messages via email over the internet. To configure this, go to **System Configuration / System / Site** and click the **Setup** button under **Error Reporting**. In the window that opens, configure the settings as you would for an email client.

In the **From** and **To** fields, you must enter email addresses, which must include the @ symbol and cannot contain any spaces.

When entering the data, make sure that all servers within the SITE can transmit information using the specified settings. In the **Configure Error Reporting** window, click the **Apply** button, then use the **Test** button to verify proper functionality. This will prompt all SITE servers to send a test message.

3. Backup and Restore System Settings

Once you have made the necessary configurations and the system is functioning as expected, creating a backup of the settings is recommended. This ensures that the system can be easily restored to its original state in the event of a system crash, and the recordings in the storage folders can still be accessed. It is also advisable to perform a backup during each system maintenance and store it in a location separate from the server.

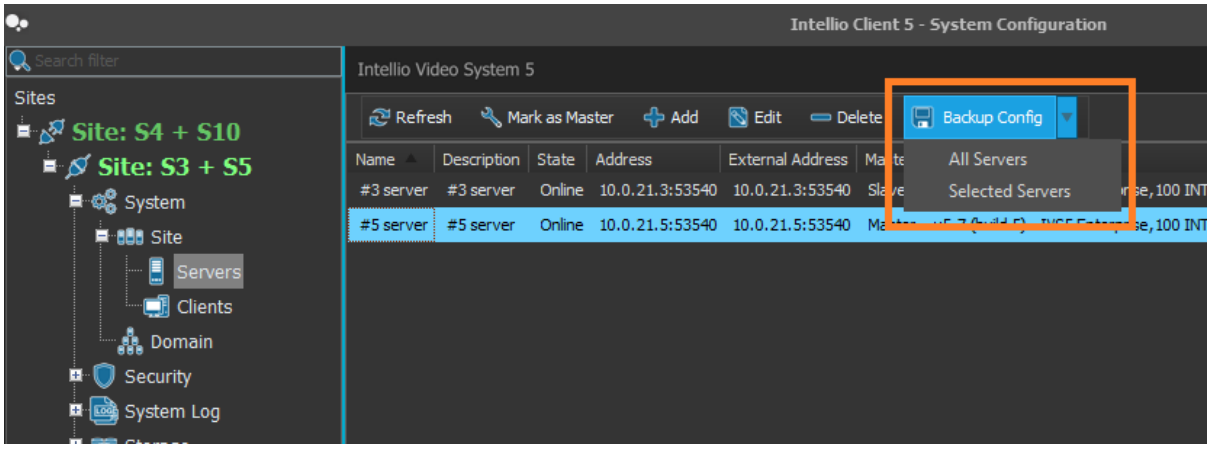
3.1. Backup

The Intellio Server stores the system settings listed below in the configuration files called **SystemConfig.rce** and **LocalConfig.rce**, such as:

- Camera names
- Camera IDs
- IP addresses
- Video image and encoder settings
- Tracking and calibration settings
- Motion detector and detector settings
- Storage rules
- Site and Domain settings

To save the configuration files, go to the following menu in the Client program:

System Configuration / System / Site / Servers / Backup Config / Selected/All servers



Afterward, a window will appear where you can select where you want to save the configuration files. The two mentioned configuration files will be saved in a compressed format to the specified location. Make sure to store the files in a secure location, separate from the server.

The server automatically backs up the configuration files during every version update and at midnight every day. The default backup location is: **c:\Program Files \ Intellio Video System \ Intellio Server \ BackupConfig**. In this folder, daily backups are available for up to one week, and monthly backups are available for up to one year.

If you are using the 3D map feature in IVS, it is strongly recommended to back up the **MapData.rce** file and the **MapStore** folder as well. This file and folder contain all the settings for the 3D map. You can find this file/folder in the Intellio Server directory (default: **c:\Program Files \ Intellio Video System \ Intellio Server**). Please note that no automatic backup is made for map-related settings!

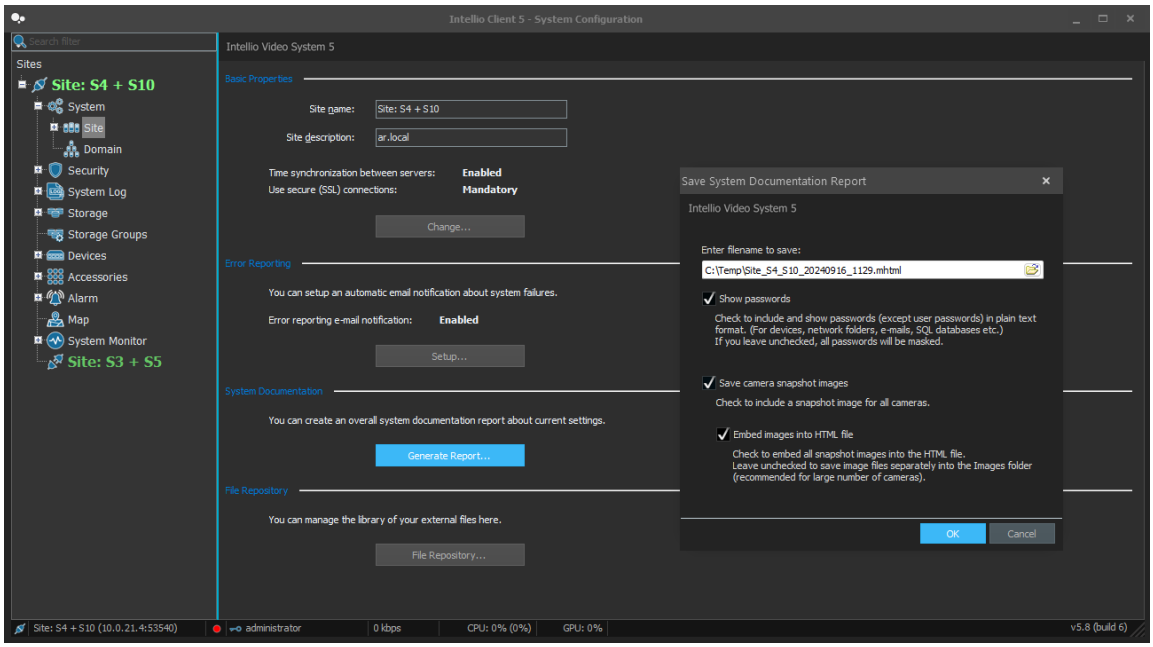
3.2. Restore

- **Install** the Intellio Server with default settings.
- •After installation, **Stop** the Intellio Video WatchDog service, then the Intellio Video Server service. Wait until the services are fully stopped; you can track this in the Windows Task Manager.
- **Copy** the configuration files mentioned above into the Intellio Server directory, overwriting the existing configuration files. (Extract the two .rce files from the zip and copy them into the server folder!)
- **Start** the Intellio Video WatchDog service. This will automatically start the Intellio Video Server service as well.

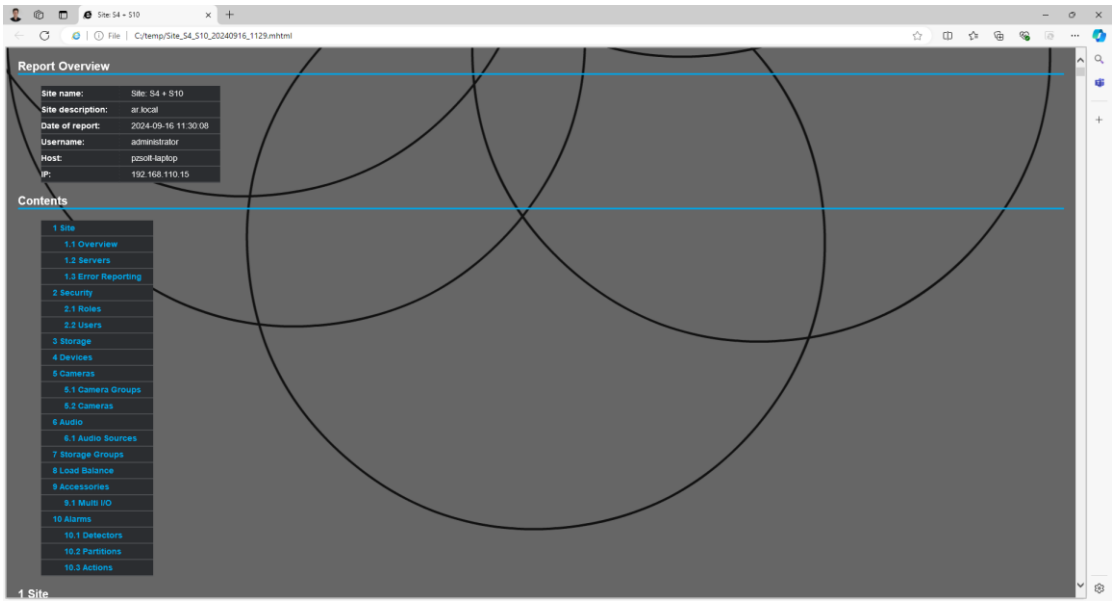
4. System documentation

On the **System Configuration / System / Site** page, you can create a comprehensive report, audit of the system's current settings in HTML/MHTML format by clicking the **Generate Report…** button. In addition to system settings, a snapshot of each camera's current image, at its original resolution, can also be saved, depending on your selection.

In the window that appears, select the location for the documentation and provide the file name.



It is possible to save in HTML format, in which case the system will store the images in a separate folder and embed them into the HTML page. The **Show Passwords** option controls whether the camera passwords are displayed (user passwords are not included in the documentation). The completed documentation will include the sections for the settings as follows:



5. System monitor

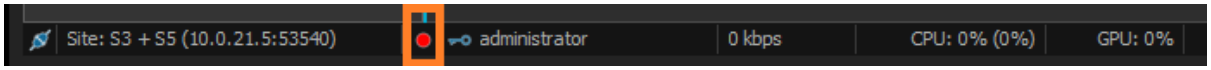
5.1. Status information

In the **System Monitor / Status** menu, you can get an overview of the SITE's state, which shows the main system components and their operational status. These include:

- The servers in the SITE and their availability
- The devices registered on each server and their connection status
- The storage buffers associated with the servers and their availability

The status of functioning elements is indicated in green, while faulty system components are displayed in red. By hovering the mouse pointer over the specific element, detailed status information will appear. Clicking on it will take you to the settings interface for that element.

In addition, the status of the logged-in SITE(s) is displayed in the lower status bar of the Intellio Client's main window. From the moment you log in, you will receive immediate feedback about their status. Green indicates properly functioning system elements, while red represents a faulty system component. Hovering the mouse pointer over the icon will immediately show a tooltip with information about the faulty system element. Clicking on it will take you directly to the specific SITE's **Status** page.



5.2. Performance monitoring

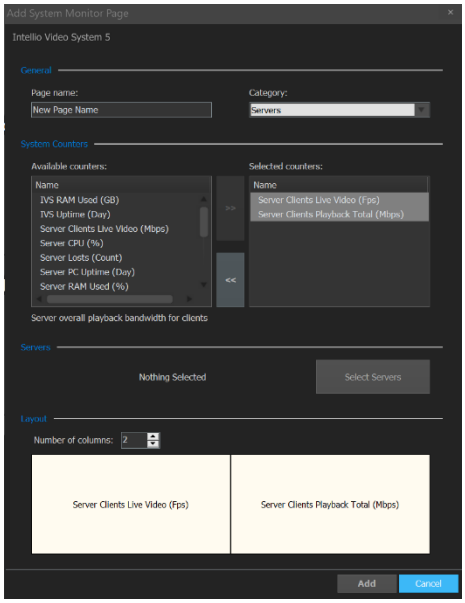
Performance monitoring provides continuous insight into the SITE's operation and performance indicators, making it easier to verify the system's proper functioning and quickly detect any potential issues. This function requires specific permission (**Site Manager/System Monitor** rights).

Real-time data is displayed at a resolution of one second, while data storage occurs at 5-second intervals. The availability of data depends on the available storage space, but a maximum of the last 40 days can be accessed.

The performance monitor by default includes a **Dashboard** interface, where the system's most important indicators are displayed. There is also the option to create custom monitoring tabs, where various performance counters can be placed by category. The available categories are:

- **Servers**: performance counters related to individual servers (e.g., CPU, RAM, storage indicators per server, bandwidth data, etc.)
- **Global**: aggregate performance counters for the entire SITE (e.g., total storage speeds, total network bandwidth data).
- **Devices**: performance counters for individual devices (e.g., device connection loss).
- **Cameras**: performance counters for individual cameras (e.g., various camera bandwidths and frame rate data).

Creating a new Performance monitoring tab



To create a new Performance monitoring tab, click on the **Add Page** button in the **Dashboard** section.

Select the category of counters you want to display on the tab. Then, from the **Available counters** list, select the items and move them to the **Selected counters** list by clicking the **>>** button (or use the drag-and-drop method).

Next, choose the servers, devices, or cameras whose counters you want to display. You can select up to 6 counters at a time.

The **Layout** diagram at the bottom of the window shows the current arrangement. You can set the number of counters in a row by modifying the **Number of columns** value, while the order of the counters can be adjusted by rearranging the items in the **Selected counters** list (using drag-and-drop method).

The created layout can be modified using the **Modify** button found on the toolbar.

Controls on the Performance counter interface

The display of specific counter instances (such as servers, devices, and cameras) on the graphs can be toggled using the toolbar buttons. The real-time value display can be managed with the **Show/Hide Real Time Data** button.

On the graphs, you can position in time by holding the right mouse button and moving the mouse left or right. You can zoom into a detail by dragging the left mouse button from left to right, and zoom out by dragging from right to left. The default zoom and position can be reset using the **Reset Zoom** button on the toolbar.

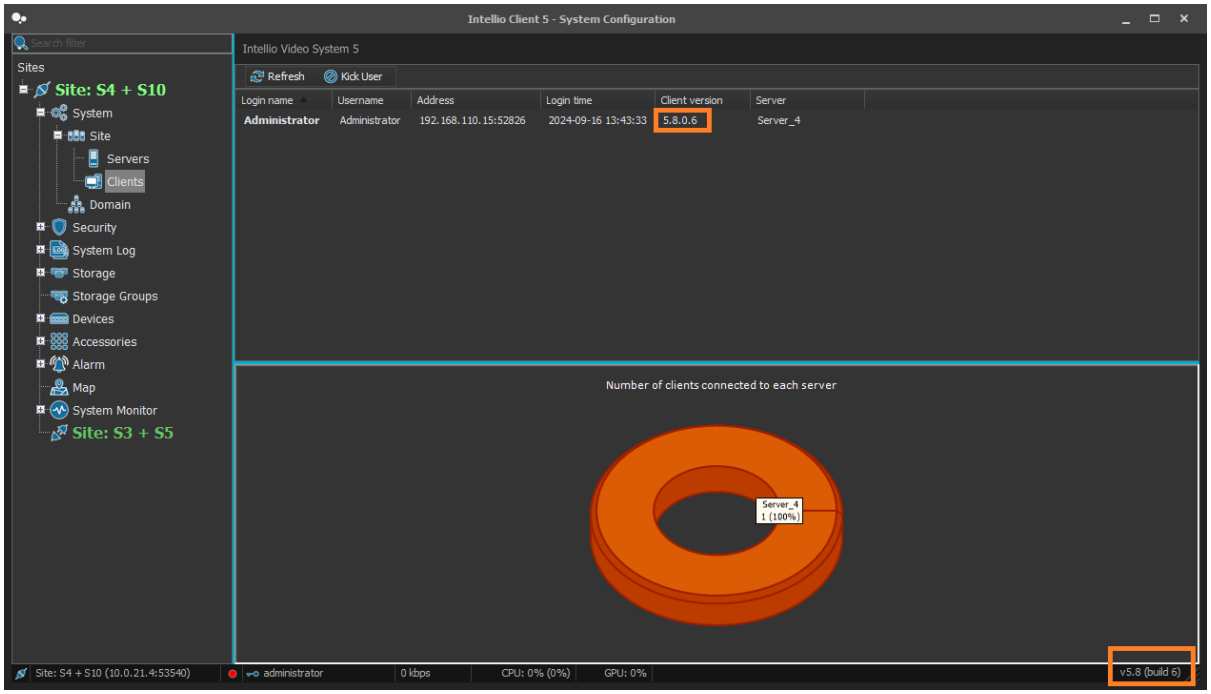
6. IVS Update

A properly installed and functioning server can be used indefinitely, provided there are no time restrictions set on it. We continuously enhance the system with new features and fix any issues in the new server and client versions typically released quarterly. Therefore, if possible, make sure to regularly update both the server and client software.

You can download the latest official server and client versions from the https://intellio.eu/downloads/ page, where the official version numbers are also displayed.

6.1. Client update

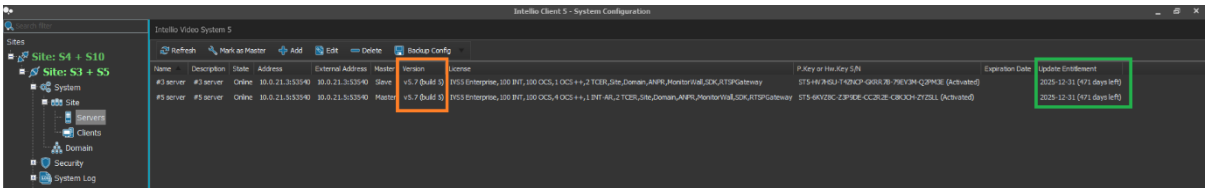
The version of the client(s) in use can be viewed in the **System Configuration / System / Site / Clients** menu. Additionally, the version number of the Client program currently in use is displayed in the bottom right corner.



In case of an update, launch the downloaded Client installer and follow the installation steps. The client settings and saved connections will be automatically transferred to the new version.

6.2. Server update

You can check the version of the server installed on your system in the IVS Client under **System Configuration / System / Site / Servers**, as shown in the image below, highlighted in orange.



It is recommended to update a functioning server following these steps:

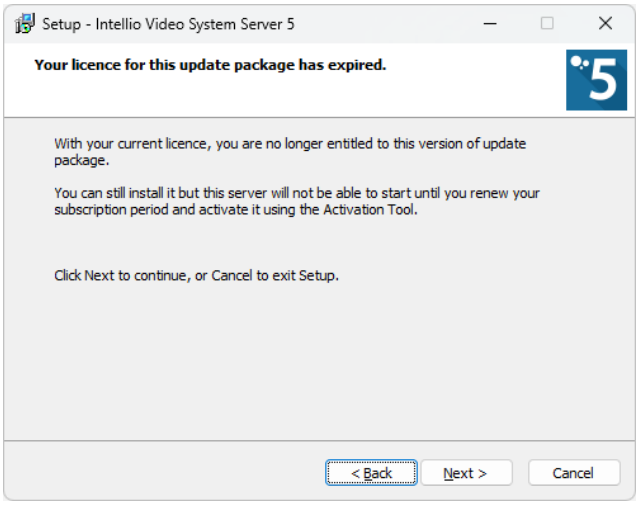
- **Backup Configuration files**: As described in the **Backup and Restore System Settings** section, create backups of the configuration files and map settings. This is a precautionary step since the new version automatically retains all settings.
- **Install the new server version**: Install the new server version on the **Master** server. The **Installation, initial settings** documentation provides detailed steps for this process.

- **Activate the Product Key**: If necessary, use the **Intellio Activation Tool** to activate the product key, then restart the server service. (First, install the server and then run the Intellio Activation Tool, not the other way around.)
- **Verify Server Operation**: Ensure the server is functioning correctly (camera connections are restored, storage has started, live monitoring is operational, previous recordings can be retrieved, etc.).
- **Update Slave Servers**: Update the **Slave** servers one at a time, following the same procedure as for the Master server.

When updating servers, ensure that all servers within the SITE are running the same version. Perform the update during the least busy period (when there is minimal activity in front of the cameras), as servers with the updated version will not connect with those running older versions. This means cameras will be managed by both the updated and older servers until all servers are updated to the same version, at which point the SITE's operation will stabilize.

Before updating, it is advisable to check the **Update Entitlement** (indicated in green in the image) and only run a server installer with a release date earlier than the one displayed.

If your update entitlement has expired and you attempt to run a server installer with a newer release date, a warning window will appear during the installation. In this case, only proceed with the installation if you are confident that the server will function afterward, such as when you have already extended the update permission on the product key and plan to activate it after the installation.

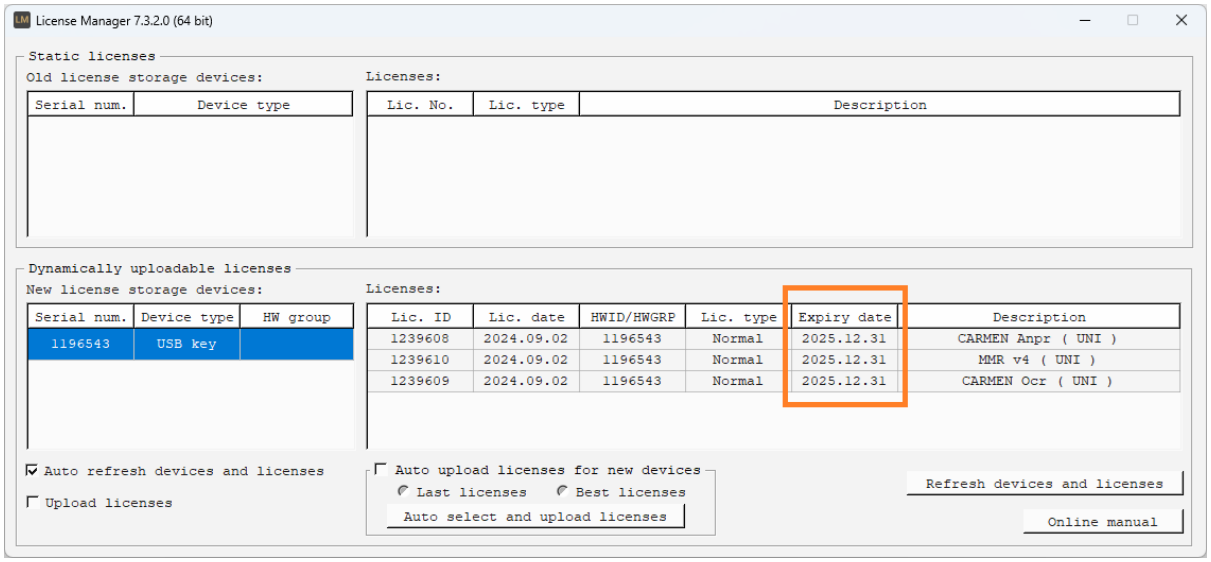


In most cases, however, it is advisable to extend your subscription for updates and then perform the installation.

7. License plate recognition engine update

The license plate recognition engine may need to be updated together with the IVS server update, or even independently.

First, use the Carmen package's **License Manager** program installed on the server to check which engines are authorized for use and until what date.



If you were already using any version of IVS5, simply download the newer ANPR framework and the required engine from the Adaptive Recognition Carmen FreeFlow documentation page and run the installers. Only install an engine with a release date earlier than the expiration date mentioned above, as only those can be used. The installed engines can be managed with the **Engine Manager** program.

If you are using MMR recognition as well, you can find the latest engine on the Carmen MMR page.

After installing the framework, check the license using the Carmen **Demo for Images** program on the server to ensure the license recognition is working properly. If everything is fine, switch to the newer engine for license plate recognition in IVS.

If you are upgrading from a previous IVS version (IVS2, -3, -4) to IVS5, it is essential to update the USB key, the framework, the ANPR licenses, and the engines. Additionally, it is important to note that for IVS5, the 64-bit Carmen installers are required for proper functionality.

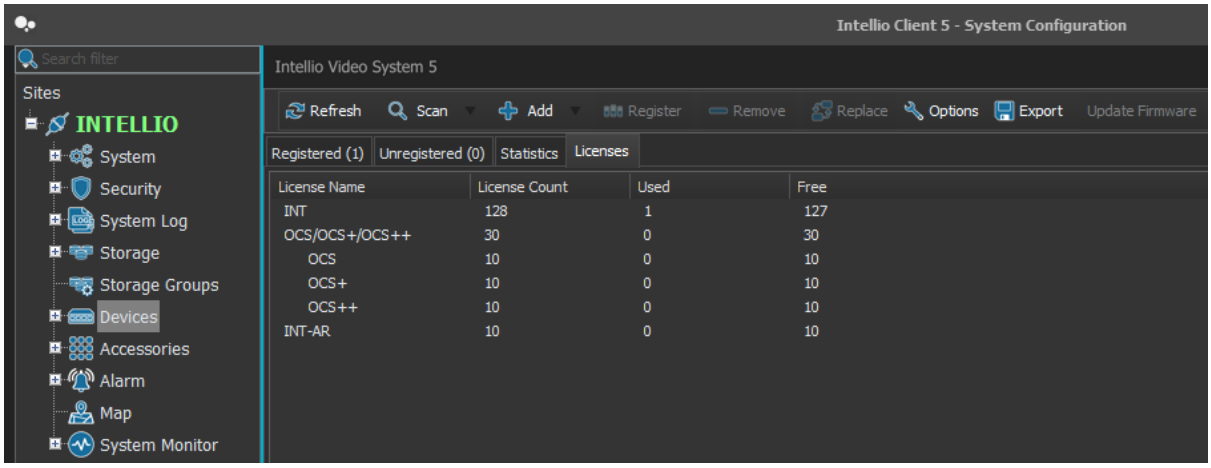
If you are using GPU-based pre-filter for license plate recognition, check if there is a newer release of the **ANPR Acceleration** software module available on the https://intellio.eu/downloads/ page.

For more detailed information about license plate recognition settings, refer to the ***License Plate Recognition*** documentation.

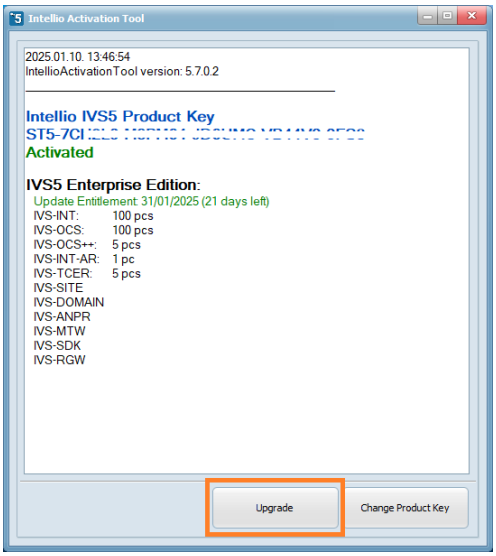
8. IVS server expansion

License expansion is necessary when you want to increase the number of cameras managed by the server or enable new features. Only previously activated licenses can be expanded, meaning that the "**Activated**" status must be visible for the server in the **Intellio Activation Tool** or in the IVS **System Configuration / System / Site / Servers** menu. You can also check the number of available camera licenses and the enabled features in these locations.

The total available, already used, and free camera licenses can be checked in the **System Configuration / Devices** menu, under the **Licenses** tab:



First, contact the sales partner from whom you purchased the system and acquire the necessary expansions. Once your purchase is confirmed, press the **Upgrade** button in the **Intellio Activation Tool** and enter the activation key received during the purchase. If the server has internet access, you can also use the Online Activation option.

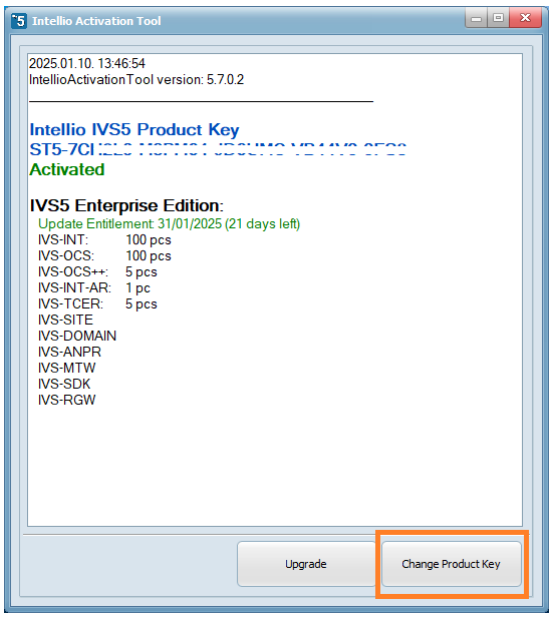


During the expansion, you will not receive a new product key; instead, the content assigned to the original product key will change in the background. In the case of online activation, the Intellio Activation Tool connects to the Intellio license server available on the internet and

retrieves the updated license data. For offline activation, the activation key modifies the content of the product key.

9. Product Key replacement

If you wish to replace the product key—whether upgrading from a trial version to a permanent one or for other reasons—you need to provide the new product key. This process can be initiated by pressing the **Change Product Key** button in the **Intellio Activation Tool** program.



During the replacement process, online activation is also possible.

10. Expanding the IVS System with additional servers

If you want to increase the overall redundancy of your system or the growing number of cameras necessitates expansion, you can add more servers to your system.

Up to 4 servers can be connected per Site; if more servers are required, the Sites should be organized into a Domain structure for simpler and easier management of the entire system.

To add a new server, install it, activate the product key, add it to the existing Site, and then register cameras to it.

For more details on adding additional servers and the specifics of Site and Domain structures, refer to the ***Connect more servers – Site and Domain configuration*** documentation.

11. Server relocation, hardware replacement

Each IVS product key activated on a server is tied to that server's hardware and software identifiers, meaning a single product key can only be used on one server machine. However, in certain cases, such as a server failure or a server hardware upgrade, it may be necessary to transfer the product key from one server machine to another.

In such cases, please contact us at support@intellio.eu, providing the affected product key and details of the server/hardware replacement. We will inform you of the necessary steps via email.

12. Troubleshooting

12.1. Enabling detailed Event Log

Sometimes, the **System Log** available in the Client (System Configuration / System Log) might not provide enough information to identify the cause of an abnormal operation. In such cases, a more detailed event log may be required. Only enable this detailed logging if an issue has arisen with the IVS operation, as activating this feature adds extra load to the server.

To enable detailed event logging on the server, create an empty file named **RCServerSvc.debug.txt** and place it in the server directory (default path: c:\Program Files\Intellio Video System\Intellio Server\). Restart the server service. After restarting, DebugX (where X=0-9) files with .log and .bak extensions will be created in the c:\Program Files\Intellio Video System\Intellio Server\Logs folder. Additional files may also be generated in the c:\Program Files\Intellio Video System\Intellio Server\Dumps\ folder, which might be needed for troubleshooting. Once the issue occurs, compress these files into a zip archive and send them to support@intellio.eu, including as much information as possible about the circumstances under which the issue occurred.

The client can also generate detailed event logs. Place an empty file named **RCClient.debug.txt** in the client directory (default path: c:\Program Files\Intellio Video System\Intellio Client 5\). After restarting the client, similarly named files will be created in the c:\Program Files\Intellio Video System\Intellio Client 5\Logs\ folder, and additional files might appear in the c:\Program Files\Intellio Video System\Intellio Client 5\Dumps\ folder. Handle these files as described above.

To disable detailed logging, delete the aforementioned files and restart the server service or the client program.

12.2. Server is not available

If you are unable to connect to a server or Site using the Client program, consider the following troubleshooting tips before contacting support:

- Verify through **Windows Services** or the **Intellio Agent** utility that the server service is running.
- If the server service isn't running, the issue may be with the product key or corrupted configuration files (e.g., due to disk operation errors from a power outage). Check the **ErrorLog.txt** file in the server directory for the error cause. Open it with Notepad and address the issue as indicated. More details are available in the **Checking Server operational status** section of the ***Installation, initial settings*** documentation.
- If the service appears to be running, start the client program on the server and try connecting to the server using the **localhost** IP and the **correct port**. If this fails, enable detailed logging as described in previous sections and check the logs to confirm if the server is listening on the correct port (default **53540**). If local connection succeeds but fails from another network client, check **Windows firewall** settings.
- If servers within the Site can't reach each other, ensure fixed IP addresses are used as connection addresses in the **System Configuration / System / Site / Servers** menu. If using hostnames (not recommended), verify that name resolution is functioning correctly on the network.

12.3. Other issues to check for potential problems

- **Disk full**: A disk in the server or client OS, or storage directories, may be full. Check the available space on the relevant drive, and also empty the Recycle Bin. You can also run the Windows Disk Cleanup utility.
- **Write Speed Issues**: Check for error entries in the Event Log related to write speed. In the **System Configuration / Storage** page, check the write speed for each server. The actual and expected speeds should not differ significantly. If the expected speed is higher than the actual speed, the program may not be able to write at the required speed. In this case, create multiple **Storage groups** with the same settings and evenly distribute the cameras among them. Also, check the write speed of the storage directories and, for NAS, its load.

13. Maintenance

When performing maintenance on an IVS system, at least the following tasks are recommended:

- **Create System Documentation**: Before and after the maintenance, prepare documentation and hand it over to the Customer's representative.
- **Physical Inspection of Cameras**: Check the cameras for mounting, corrosion, cleanliness, fogging, etc., and clean them. For standard cameras, clean the lens cover with glass cleaner and a microfiber cloth; for thermal cameras, only use distilled water.
- **Check Live Camera Feeds**: Compare the live camera feeds with the original image and field of view.
- **Check Bandwidth and Frame Rate Settings**: Ensure the settings are correct for primary and secondary video channels.
- **Check Recorded Footage**: Review footage under various lighting conditions (daylight, night, twilight, daylight backlighting, e.g., sunlight from the front), and adjust camera settings as needed.
- **Check Maximum Storage Time and Storage Group Settings**: Ensure the maximum retention time is set and the Storage group configurations are correct.
- **Review User List and Permissions**: Verify the user list and permissions in collaboration with the Customer's representative.
- **Check Windows and IVS Event Logs**: Review any events indicating errors in the system logs.
- **Check IVS Error Reporting**: Ensure error reporting is working and configured correctly.
- **Check Storage Folders**: Verify the status and integrity of storage directories.
- **Check Drives and Volumes**: Inspect the drives and volumes housing storage folders and the OS, and review error reporting settings.
- **Check UPS (if available)**: If the system or servers are powered by an uninterruptible power supply (UPS), verify error reporting, automatic shutdown settings, and perform battery tests.
- **System Status and Performance Monitor**: Use monitoring tools to check system health and performance.
- **Backup Configuration Files**: Save configuration files and hand them over to the Customer's representative.
- **Check 3D Map**: Verify the accuracy of the 3D map.
- **Check Detectors, Partitions, and Actions**: Test detectors, partitions, and actions for correct functionality.
- **Update IVS Server and Client Versions**: Ensure the server and client software are up to date.

14. Further steps

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