LUXRIOT EVO Administration Guide

June 16, 2016

© A&H Software House, Inc.

Luxriot EVO Administration Guide

Table of Contents

©2016. A&H Software House, Inc. All Rights Reserved.

©2016. A&H Software House, Inc. All Rights Reserved.

Software Purpose and Use Cases

Luxriot software products can be used for any type of surveillance system installation: they offer a wide and flexible choice of components and license types to suit anyone from home users to corporate customers. Different product editions can be selected depending on the application area and available resources.

Luxriot EVO

Luxriot EVO is a free version of the new-generation Luxriot VMS software. Delivering an outstanding quality performance, this video management system supports over 3500 cameras from major producers and is ideal for use at homes or small offices with surveillance networks of nine cameras or fewer. The meticulously designed interface will allow any user to quickly understand the whole process of configuration and start using the software.

Luxriot EVO is a free product, and so it not covered by Luxriot technical support services and has a much shorter list of components. Should you need a more comprehensive functional or enterprise-level video management system solutions with complete surveillance ecosystem, we suggest using the more advanced versions of the software – Luxriot EVO S and Luxriot EVO Global.

Luxriot EVO S

Luxriot EVO S is a new-generation piece of VMS software from Luxriot, which offers a fast and scalable stand-alone multiple-server solution that truly answers your company's security needs. It has been proven to be high-quality and reliable and has now been upgraded to a 64-bit version, adding an even more intuitive user interface and better functionality, as well as a long list of add-ons.

Cross-functional and modern, Luxriot EVO S supports over 3500 cameras and other network devices from major producers. The software is designed for surveillance systems with 96 or fewer cameras and also allows hybrid solutions. Looking for a complete enterprise-level solution? We suggest that you refer to the Luxriot EVO Global version of the software.

Luxriot EVO Global

Luxriot EVO Global is a complete surveillance ecosystem solution for enterprises of any size, including those distributed across multiple sites. The software was designed with the core of Luxriot VMS, whose quality has been proven worldwide over the last decade. The new version of the software, Luxriot EVO Global, not only offers 64-bit speed and all the necessary tools for setting up an absolute situational alertness system aimed at responding quickly to events, as well as introducing a central server governance hierarchy of all the components.

This is one of the most comprehensive enterprise-level VMS solutions on the market, featuring interactive maps linked to alarms; an advanced event and action manager; analytics tools; video wall support and other impressive components you will definitely appreciate. To ensure the safety of your data, the software also offers archive replication, advanced system health monitoring and failover clustering mechanism, all of which reduce the disruption of your video surveillance recordings to zero. All this, as well as the various possibilities for customisation and Luxriot flawless technical support, makes Luxriot EVO Global a video surveillance solution you can count on.

©2016. A&H Software House, Inc. All Rights Reserved.

Hardware Requirements

The table below details the minimum recommended hardware sets for Luxriot software. Please note that these specific processor models are given only as examples and are not compulsory: you can use different CPU provided that it has the same number of threads and its performance is analogous.

Calculations are given for two major configuration examples: all streams in D1 or FullHD resolution; of course, intermediate and mixed cases may also exist. Please contact Luxriot representatives if you require help with choosing hardware.

<table>
<tr><th colspan="6">HARDWARE RECOMMENDATION TABLE</th></tr>
<tr><td colspan="3">Installation specifications</td><td colspan="3">Recommended hardware per usage scenario.</td></tr>
<tr><th>Video Stream</th><th>Number of cameras</th><th>Motion Detector</th><th>Server only</th><th>Monitor*** only</th><th>Server + Monitor***</th></tr>
<tr><td rowspan="6">D1 30fps</td><td rowspan="3">Up to 9</td><td>None or camera-side*</td><td rowspan="2">CPU: Intel G1840; RAM 4GB</td><td rowspan="2">CPU: Intel G4500; R a.m. 4GB</td><td>CPU: Intel i3-6300; RAM 8GB</td></tr>
<tr><td>Software HP**</td><td rowspan="4">CPU: Intel i5-6600; RAM 8GB</td></tr>
<tr><td>Software HA**</td><td rowspan="3">CPU: Intel G4500; RAM 4GB</td><td rowspan="3">CPU: Intel i3-6300; RAM 4GB</td></tr>
<tr><td rowspan="3">Up to 16</td><td>None or camera-side*</td></tr>
<tr><td>Software HP**</td></tr>
<tr><td>Software HA**</td><td>CPU: Intel i3-6300; RAM 8GB</td></tr>
<tr><td rowspan="6">FullHD 30fps</td><td rowspan="3">Up to 9</td><td>None or camera-side*</td><td>CPU: Intel G1840; RAM 4GB</td><td rowspan="3">CPU: Intel i5-6600; RAM 8GB</td></tr>
<tr><td>Software HP**</td><td>CPU: Intel G4500; RAM 4GB</td></tr>
<tr><td>Software HA**</td><td>CPU: Intel i5-6600; RAM 8GB</td><td rowspan="3">CPU: Intel i7-6700; RAM 8GB</td></tr>
<tr><td rowspan="3">Up to 16</td><td>None or camera-side*</td><td>CPU: Intel G4500; RAM 4GB</td><td rowspan="3">CPU: Intel i7-6700; RAM 8GB</td></tr>
<tr><td>Software HP**</td><td>CPU: Intel i3-6300; RAM 8GB</td><td>CPU: Intel i7-6700; RAM 16GB</td></tr>
<tr><td>Software HA**</td><td>CPU: Intel i7-6700; RAM 8GB</td><td>CPU: Intel i7-5930K; RAM 16GB</td></tr>
</table>

Notes:

- DDR4 RAM is strongly recommended
- *Please refer to the list of Luxriot supported cameras for camera-side motion detector support
- **High Performance/High Accuracy mode
- ***System must provide:
    - DirectX 10 support
    - Graphics card with at least 256MB memory
    - Latest graphics driver version

©2016. A&H Software House, Inc. All Rights Reserved.

Prerequisites

There are a number of requirements for the Luxriot EVO host system:

- Microsoft Windows operating system (7 SP1, 8, 8.1, 10, Server 2008 R2, Server 2012 R2)
- both .NET Framework 3.5 SP1 and 4.5 installed
- defragmentation should be turned OFF for storage locations
- ports for remote connections should be enabled through the firewalls (default ports are 60554 for Luxriot Monitor and 8080 for streaming server)
- installation and recording directories should be added to antivirus exception list so that they are not scanned or interfered with in any other manner
- for software analytics requirements, see the corresponding section of the VCA manual
- for Luxriot Monitor application, DirectX 10+ is required along with the latest stable graphics card drivers

Virtualised environment is not supported for software modules that require license activation. However, virtual machines can be used as host systems for recording servers.

Antivirus scanning being enabled for Luxriot EVO files may result in dramatically decreased write speed, recording disturbances and, occasionally, database corruption.

Luxriot is not responsible for software failures and/or footage loss caused by underlying OS and/or hardware issues. It is the responsibility of the systems administrator to configure the server and provide maintenance, unless otherwise agreed (e.g., if server hardware has been shipped by Luxriot).

©2016. A&H Software House, Inc. All Rights Reserved.

Getting Started

Before starting the installation, make sure that:

- you have downloaded the correct software package
- you have acquired the corresponding valid license key
- the host operating system is stable (functioning correctly) and has all the updates and drivers installed
- server hardware matches the project requirements, taking into account all used features and planned post-deployment modifications
- host system retains all the features and configuration required for software operation

If you are not sure about what server hardware to choose, do not hesitate to use Luxriot provided hardware calculators and/or contact Luxriot representative for an accurate estimation.

We advise installing and activating the software on the ultimate server assembly, as extensive subsequent hardware changes are likely to cause software license activation failure. If this happens, undo these changes, if possible, or contact product support to find a solution.

Luxriot EVO is installed as a Windows service so please make sure that the Windows user you are logged in as has sufficient privileges; otherwise, software may not be installed correctly. Note that there is no option to install and run the software in application mode.

The following topics will guide you through the installation process, as well as providing details on product configuration. If you are using a Luxriot product for the first time, we strongly advise you to carefully read and follow the instructions in this manual.

Luxriot is not responsible for software failures and/or footage loss caused by underlying OS and/or hardware issues. It is the responsibility of the systems administrator to configure the server and provide maintenance, unless otherwise agreed (e.g., if server hardware has been shipped by Luxriot).

©2016. A&H Software House, Inc. All Rights Reserved.

License Activation

Once you have installed the software and entered the basic server settings, the activation wizard will appear. In order to use the product, a valid license is required - whether this is a free or a purchased one. Any type of license can be activated using this wizard; note that **license activation choice will differ** depending on the installation package you have selected.

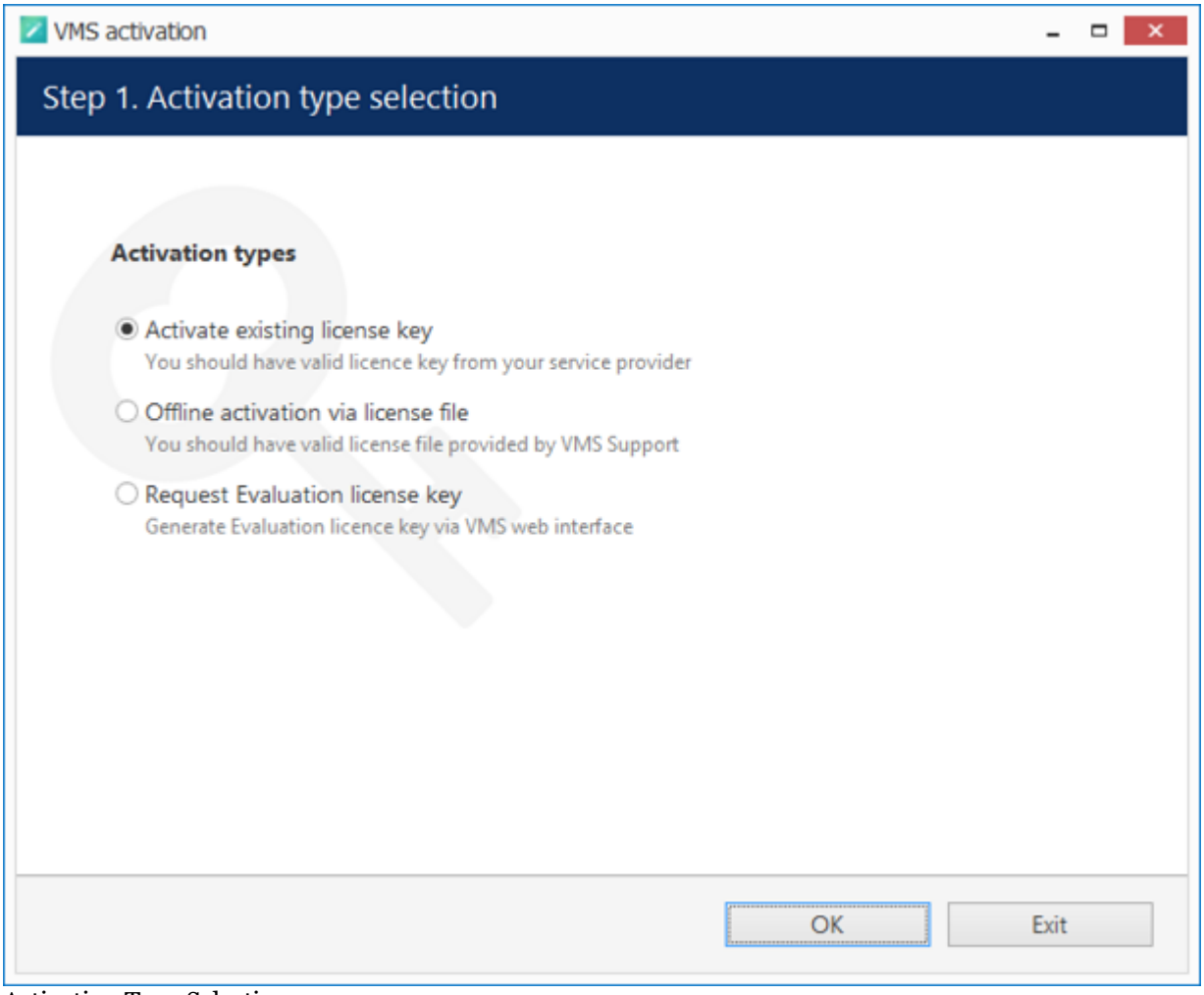
It is advisable to run hardware stability tests and finalize server hardware configuration before the license activation, as subsequent hardware changes may cause activation related issues.

Subtopics here describe every type of license activation in details.

©2016. A&H Software House, Inc. All Rights Reserved.

Online Activation

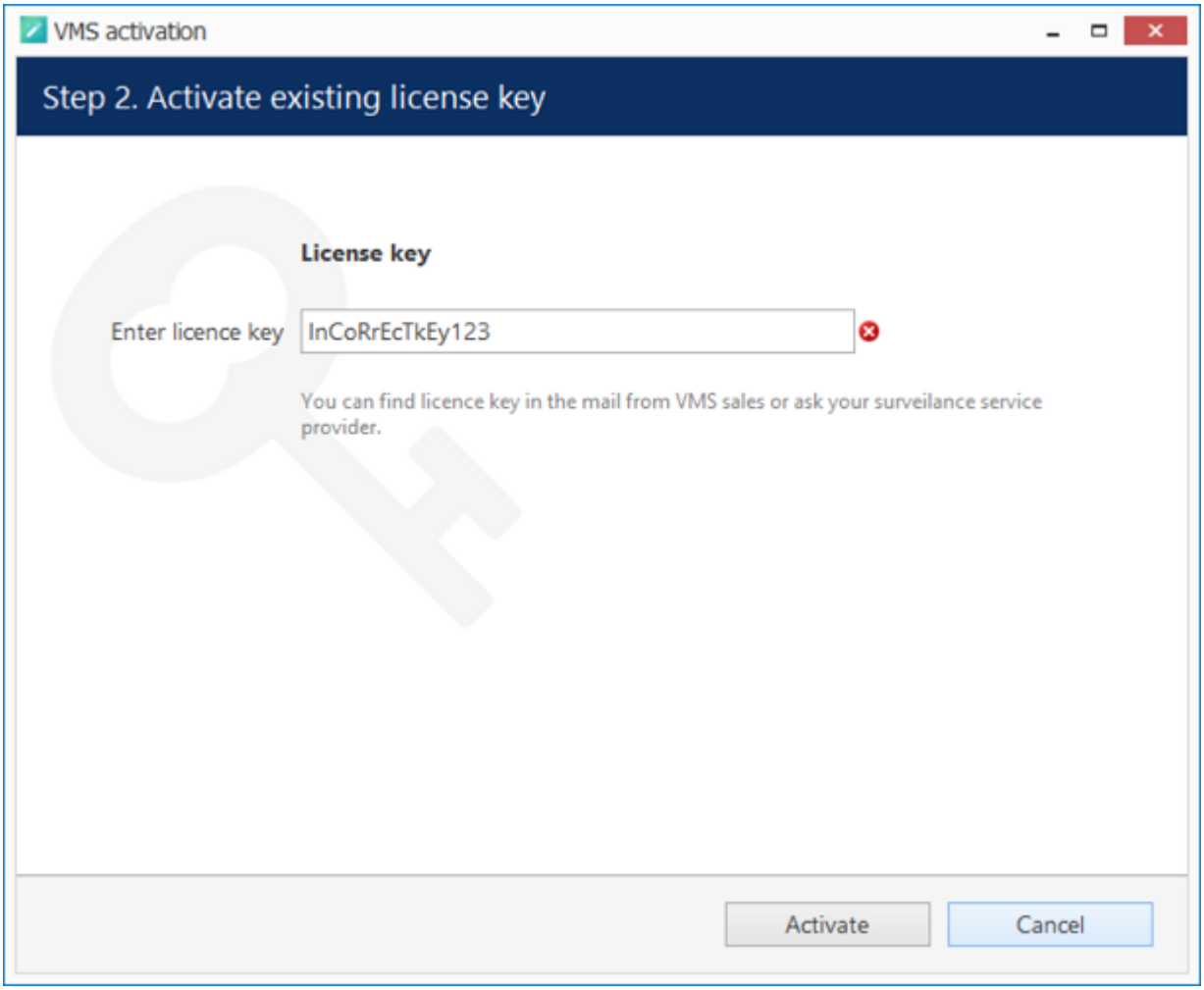
If your server has Internet connection available, you can choose online activation mode. The software will automatically connect to the activation server and register your pre-purchased license.



Activation Type Selection

Enter your product license key and hit *Activate*. If your key is incorrect, the wizard will notify you with a red *X* sign next to the key field: if this happens, double-check the key you have typed, looking out for mistyped characters and superfluous spaces at the start or end.

©2016. A&H Software House, Inc. All Rights Reserved.



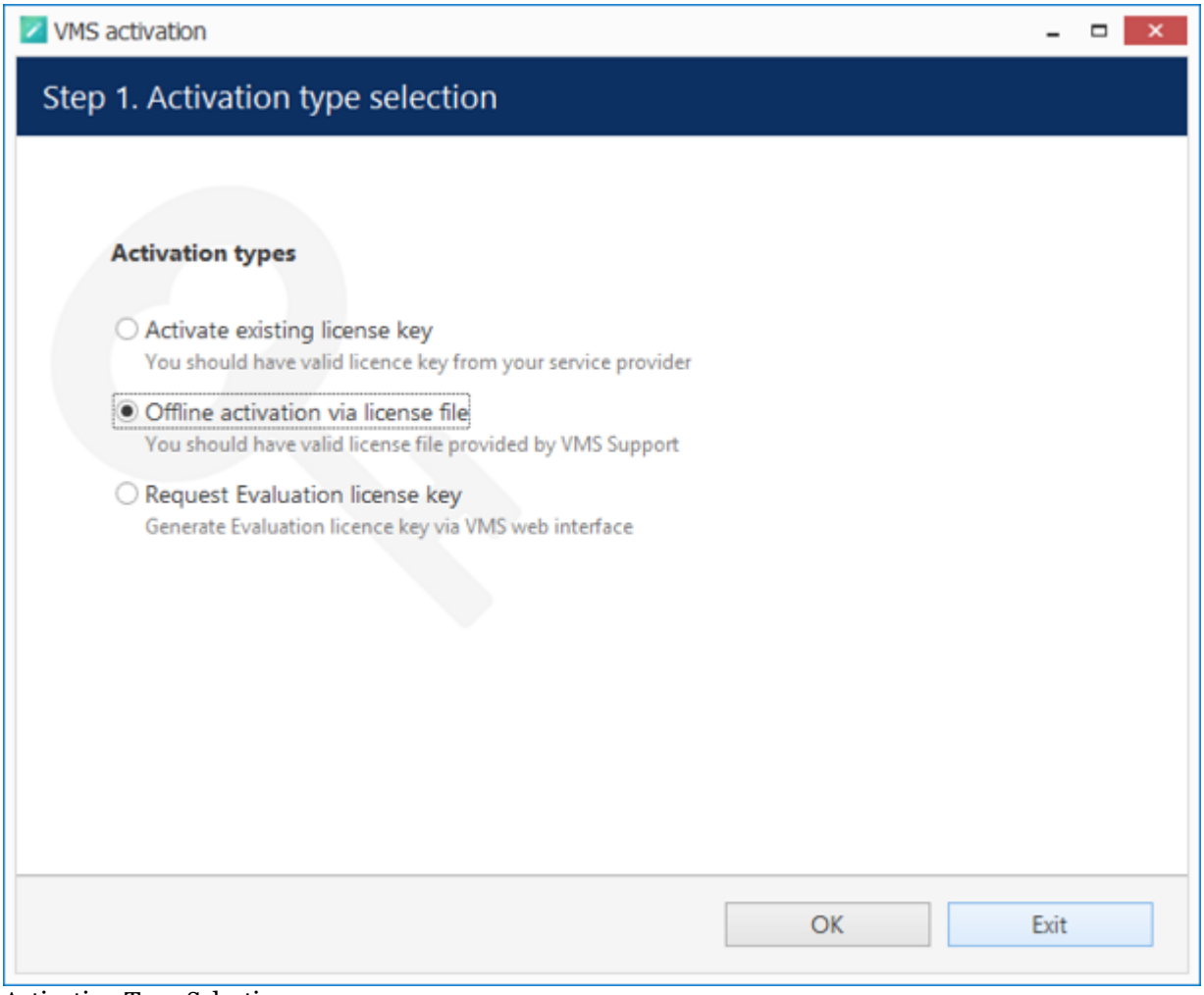
Enter License Key

When you have entered a valid license key, the wizard will activate your software. If you have decided to go with a different activation option, click *Cancel* to return to the activation type selection step.

©2016. A&H Software House, Inc. All Rights Reserved.

Offline Activation

If there is no Internet connection for security reasons and/or server disposition particularities, choose the *Offline Activation* type.

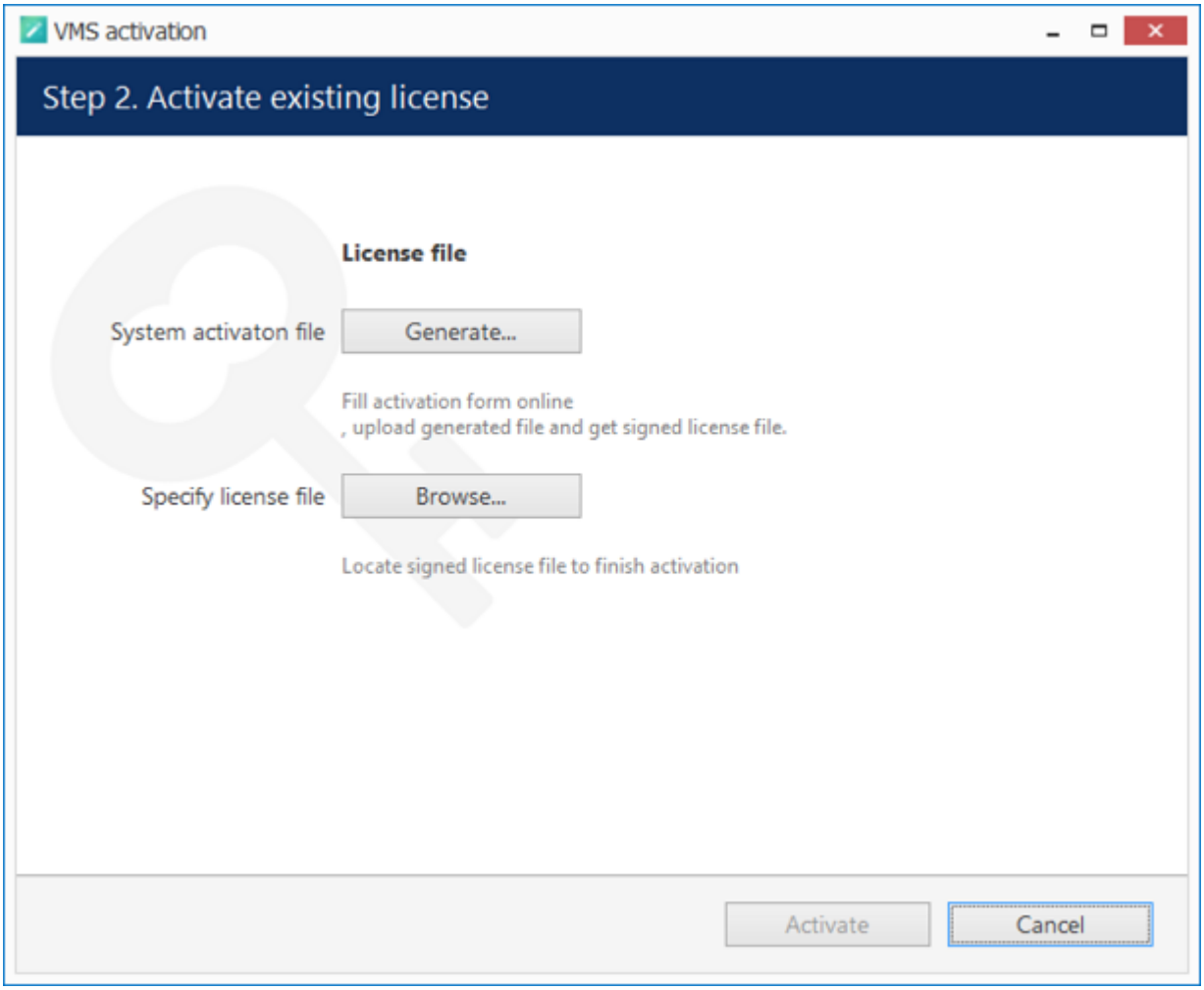


Activation Type Selection

This mode consists of three steps:

- generate the activation file on the target server
- go to the online activation system at http://www.luxriot.com/purchase/software-activation/ and fill in the form
- apply provided license file to your system

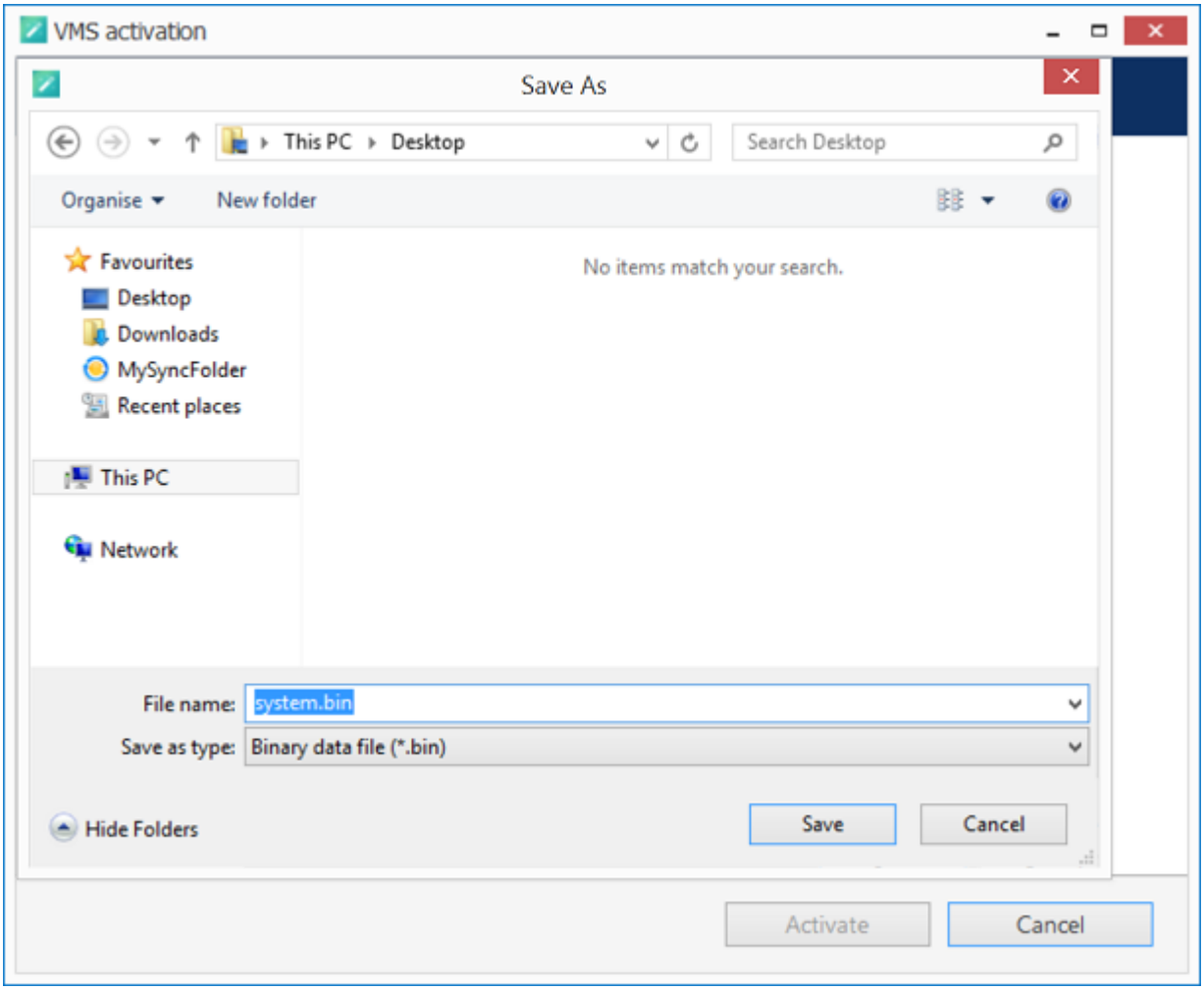
©2016. A&H Software House, Inc. All Rights Reserved.



Offline Activation Steps

Click *Generate* to create the activation file; choose a location and save it. The default file name is *system.bin* and we do not recommend changing it.

©2016. A&H Software House, Inc. All Rights Reserved.

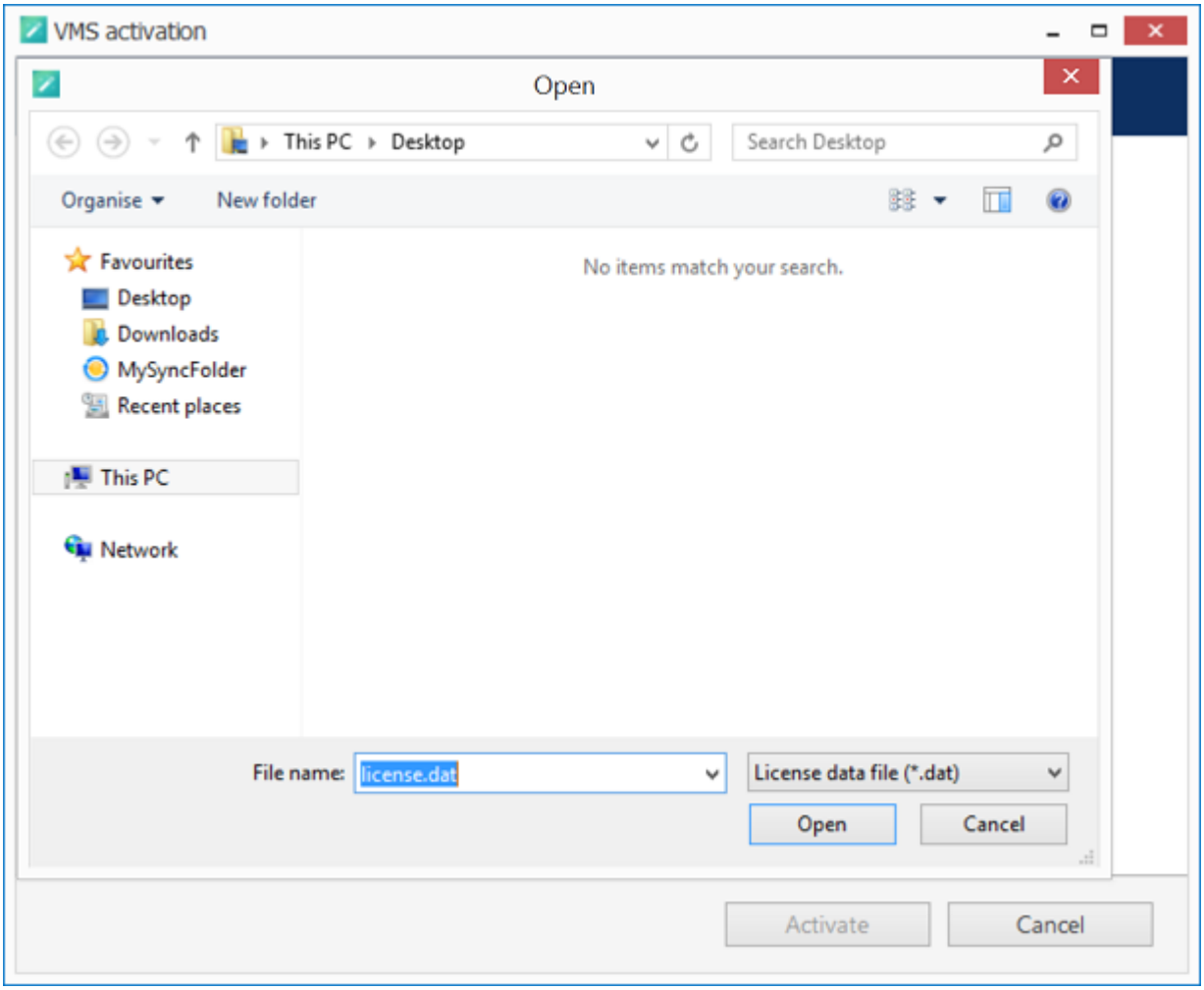


Save Activation File

Next, copy this binary file to any other computer that has Internet access, then go to the online form available at http://www.luxriot.com/purchase/software-activation/, fill in the required fields and upload the file. The activation system will process your file and allow you to download a license file. This license file will be unique and will only be valid on the same machine from which the original *system.bin* file comes.

You can close the activation wizard after creating the activation file and reopen it later to apply the license file. Click *Browse* to locate it and open the *license.dat* file provided by the activation system.

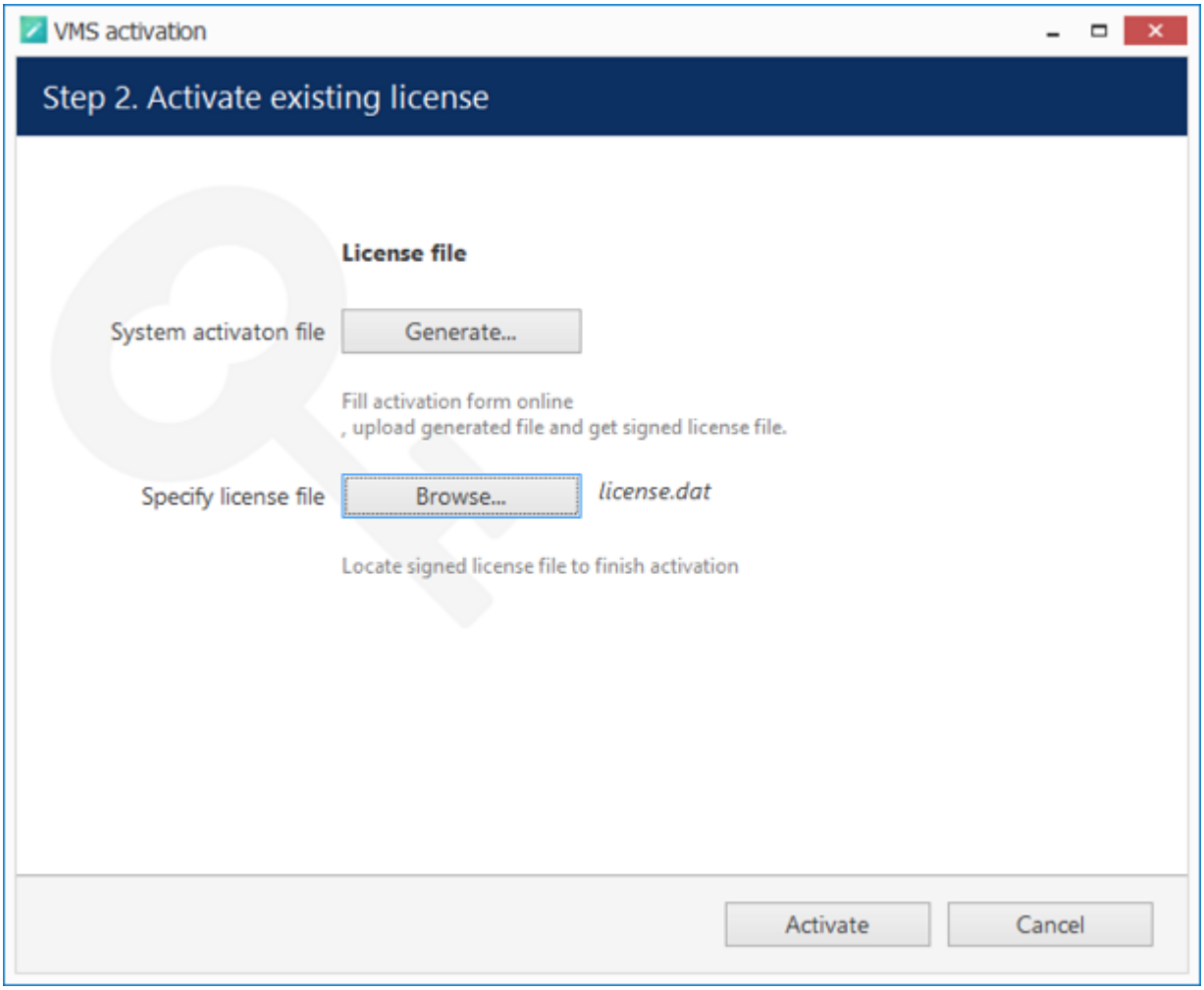
©2016. A&H Software House, Inc. All Rights Reserved.



Browse for License File

The validated license.dat file will be loaded, allowing you to finish the registration process.

©2016. A&H Software House, Inc. All Rights Reserved.



Load the License File

Click *Activate* to apply the license file. If the license is valid, you will see an activation success confirmation with the following details:

- product type
- license key
- license key expiration date, if applicable
- support subscription expiration date
- allowed channel amount

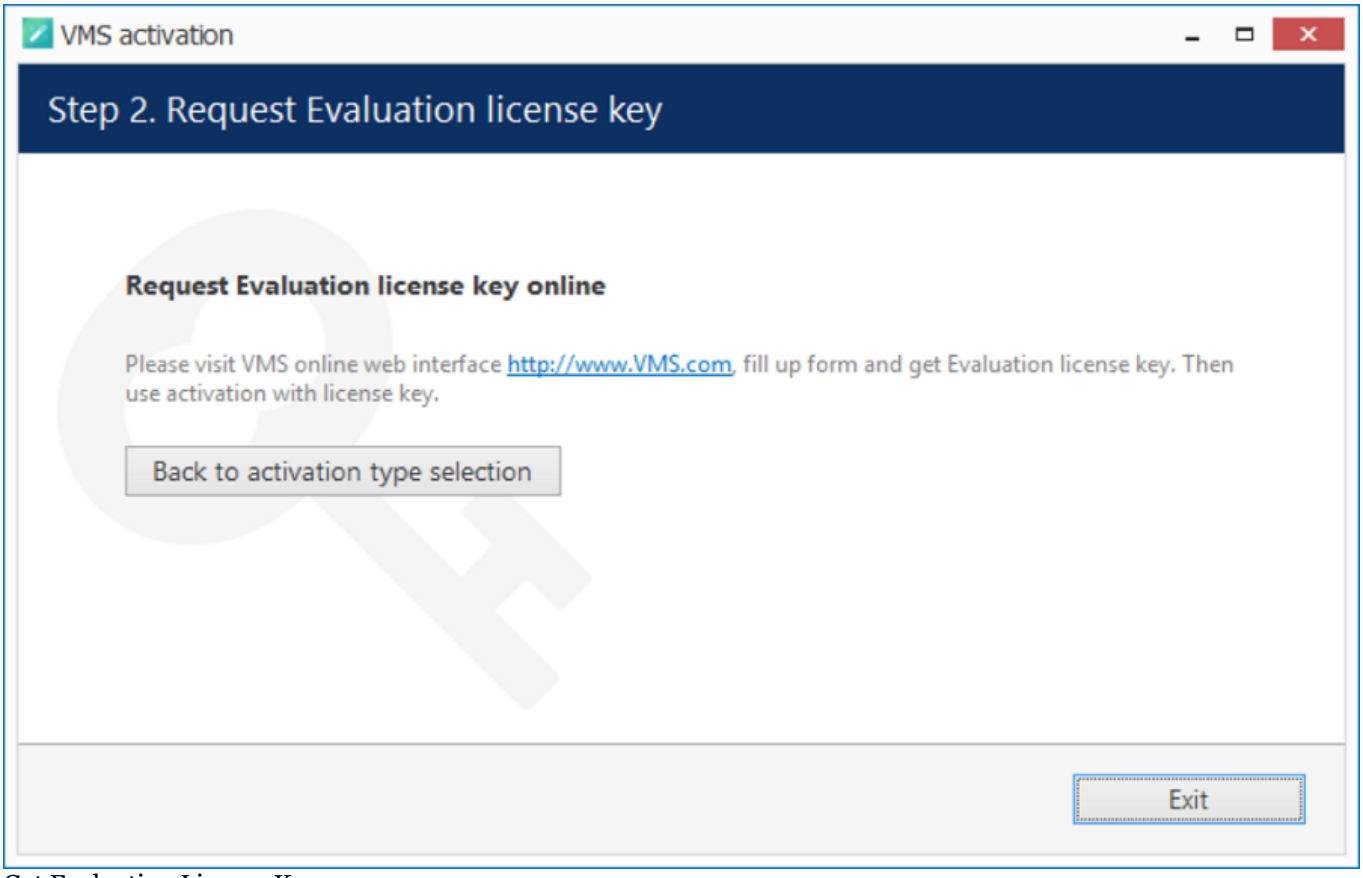
The license information will be stored on your server. However, you may wish to save a snapshot of this screen for your future reference, so that this information will be accessible in case of server OS or hardware failure.

Finally, click *Done* to exit the activation wizard or click *Start Quick Setup Wizard* to proceed with server configuration.

©2016. A&H Software House, Inc. All Rights Reserved.

Evaluation License

If you wish to evaluate the product or need to assess server performance over a specific period of time, request an evaluation license key from Luxriot. After you have done so, activate your trial key using usual online or offline activation algorithm.



Get Evaluation License Key

©2016. A&H Software House, Inc. All Rights Reserved.

Free License

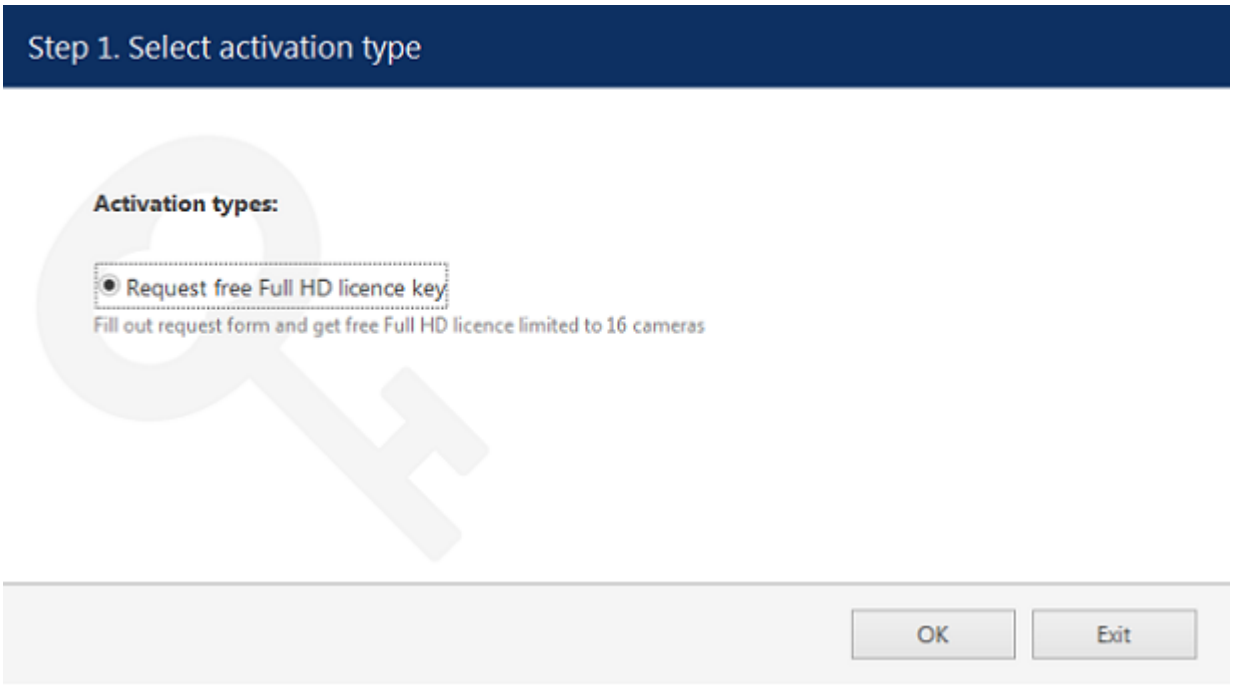
When you have installed and initialised the Luxriot EVO software, you will be given the chance to request a free license in order to activate the software and continue using it.

The conditions of a free license are as follows:

- a maximum of 9 channels
- maximal allowed resolution is FullHD
- a maximum of 1 (one) connected Luxriot Monitor at a time
- Luxriot Monitor can connect to maximum 1 (one) server with free license
- no guaranteed technical support
- no extra features (advanced Events & Actions, software VCA, video wall, maps etc.)
- no support for Active Directory
- free software updates

Unavailable features and options will be greyed out in Luxriot Console interface.

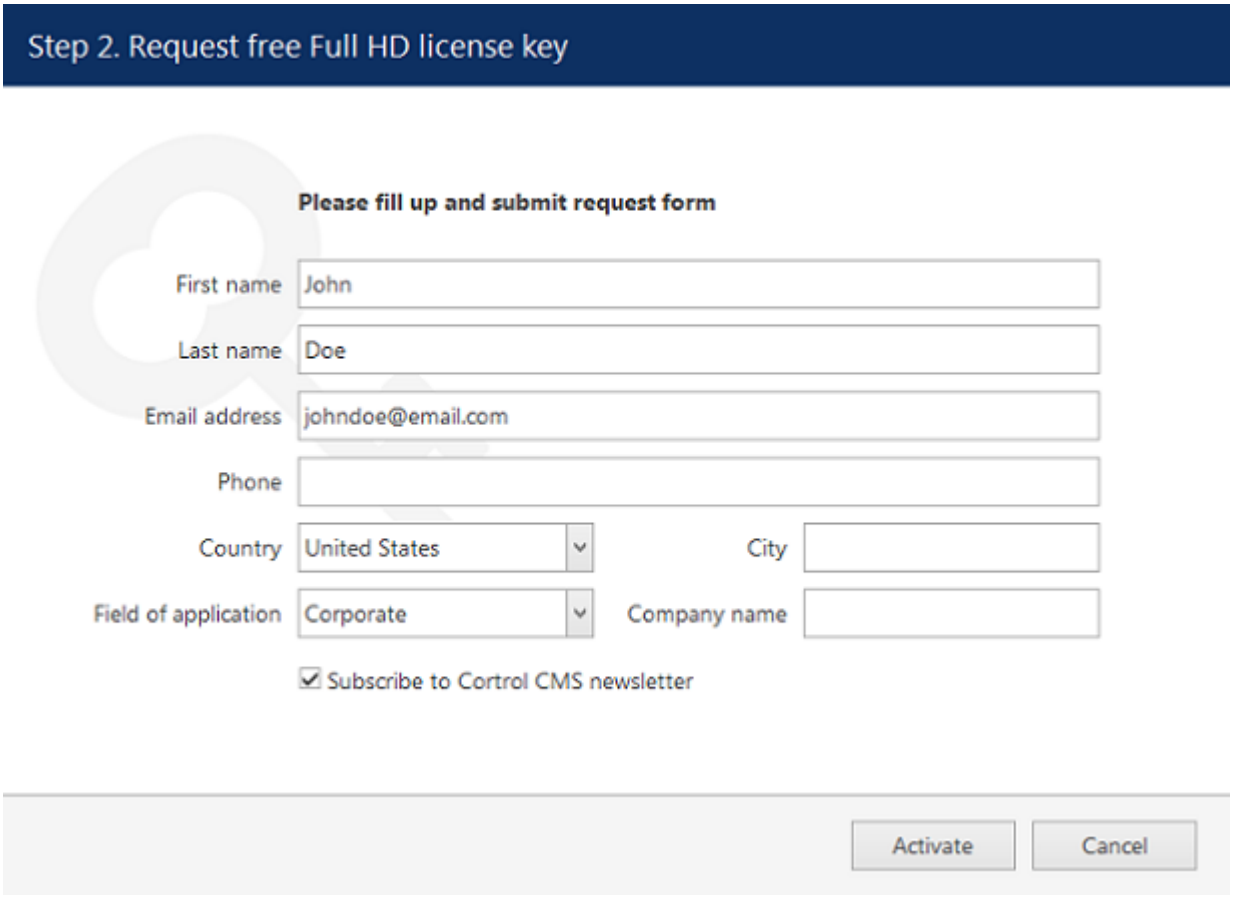
Internet connection is required for the license request.



Request free license

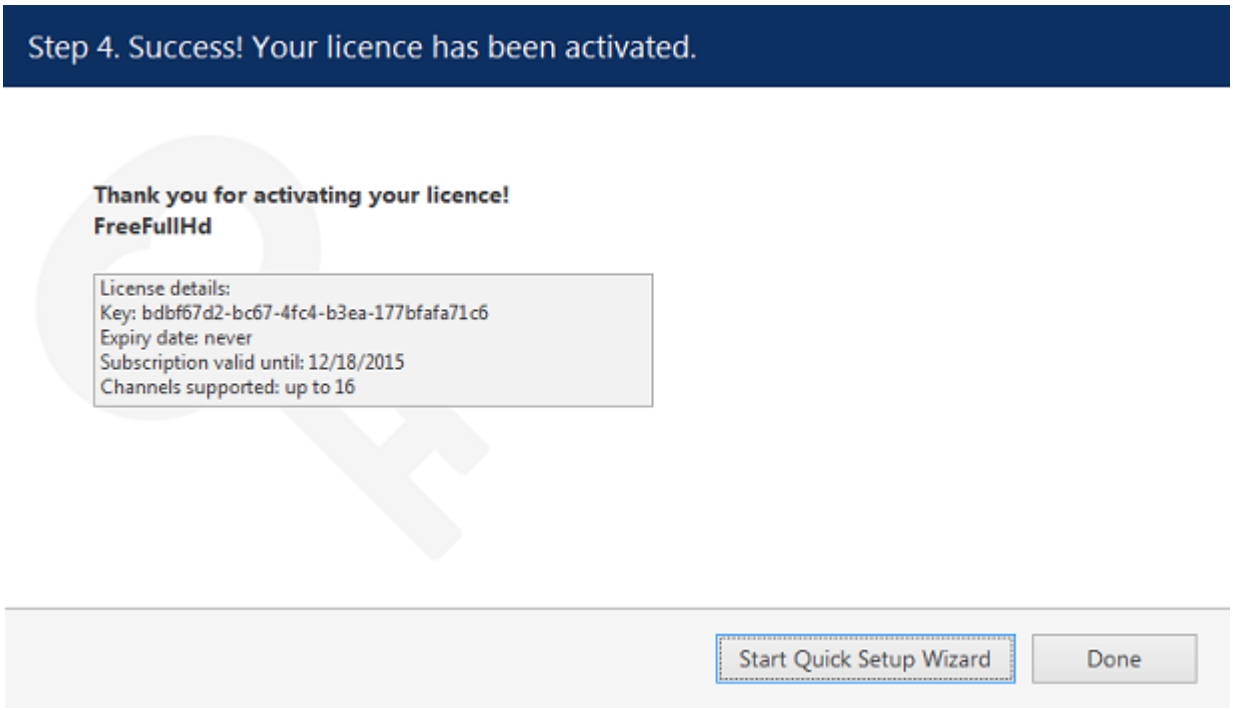
Click *OK* to proceed with the request form. Fill in all the fields and click *Activate*.

©2016. A&H Software House, Inc. All Rights Reserved.



Free license request form

The wizard will automatically connect to Luxriot activation server and retrieve the license details. If the request fails, check your Internet connection and try again.



License details retrieved

Congratulations! You are now ready to use Luxriot EVO. Click *Start Quick Setup Wizard* button below to continue with server configuration.

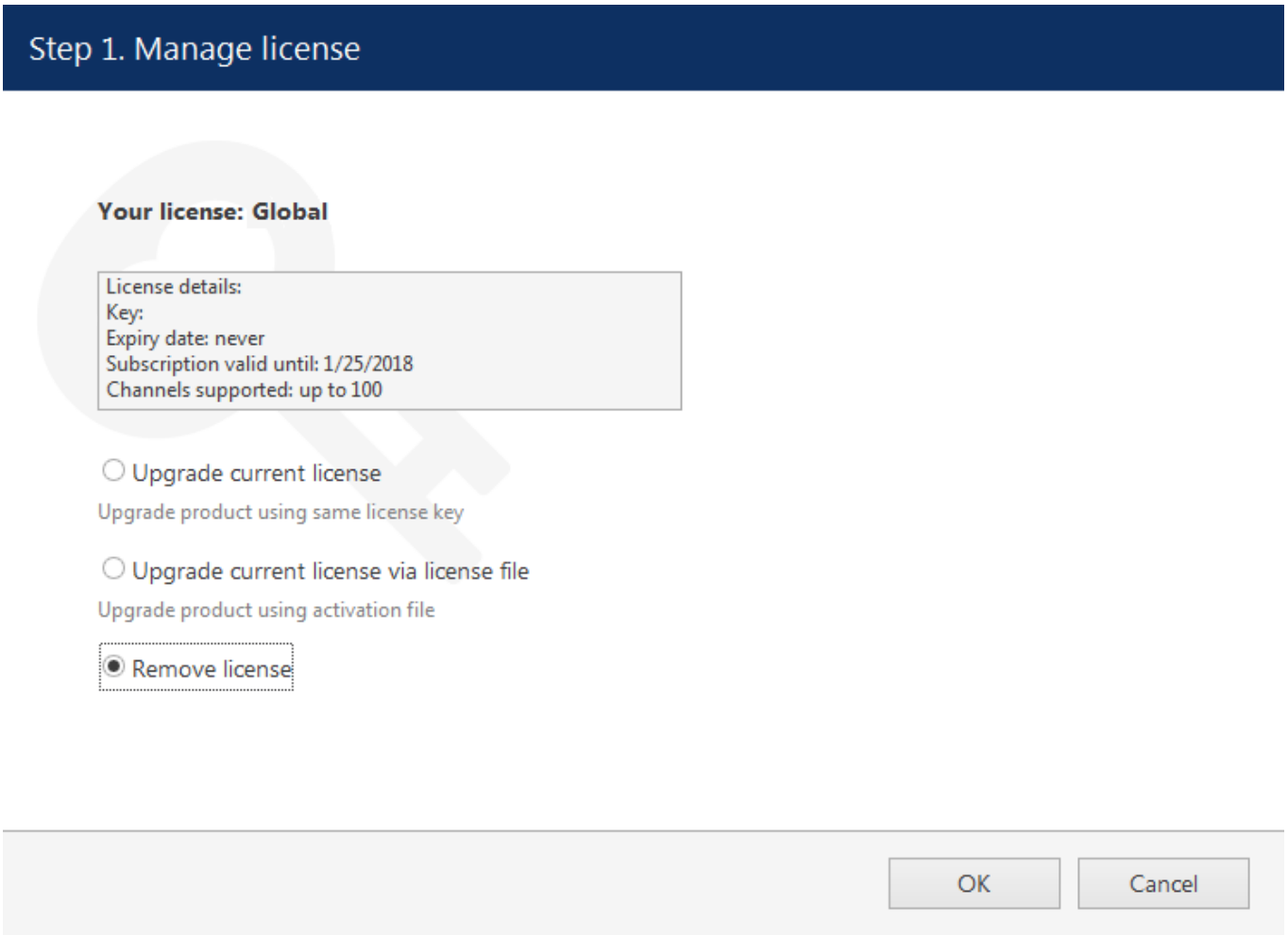
©2016. A&H Software House, Inc. All Rights Reserved.

Activation Management

When a server already has a license key installed, you can retrieve that information in two ways:

- right-click server icon in the system tray and select *About*. The dialog box will contain basic information about the product version and license type
- run the Product Activation Wizard from the Start menu

To start the wizard, go to *Start -> All Apps -> Luxriot -> Activation Wizard* (in Windows 7 and older versions, use *Start -> All Programs -> software installation folder -> Tools -> Activation Wizard*); alternatively, use Search to locate the Activation Wizard in the programs menu.



Choose an option in order to proceed

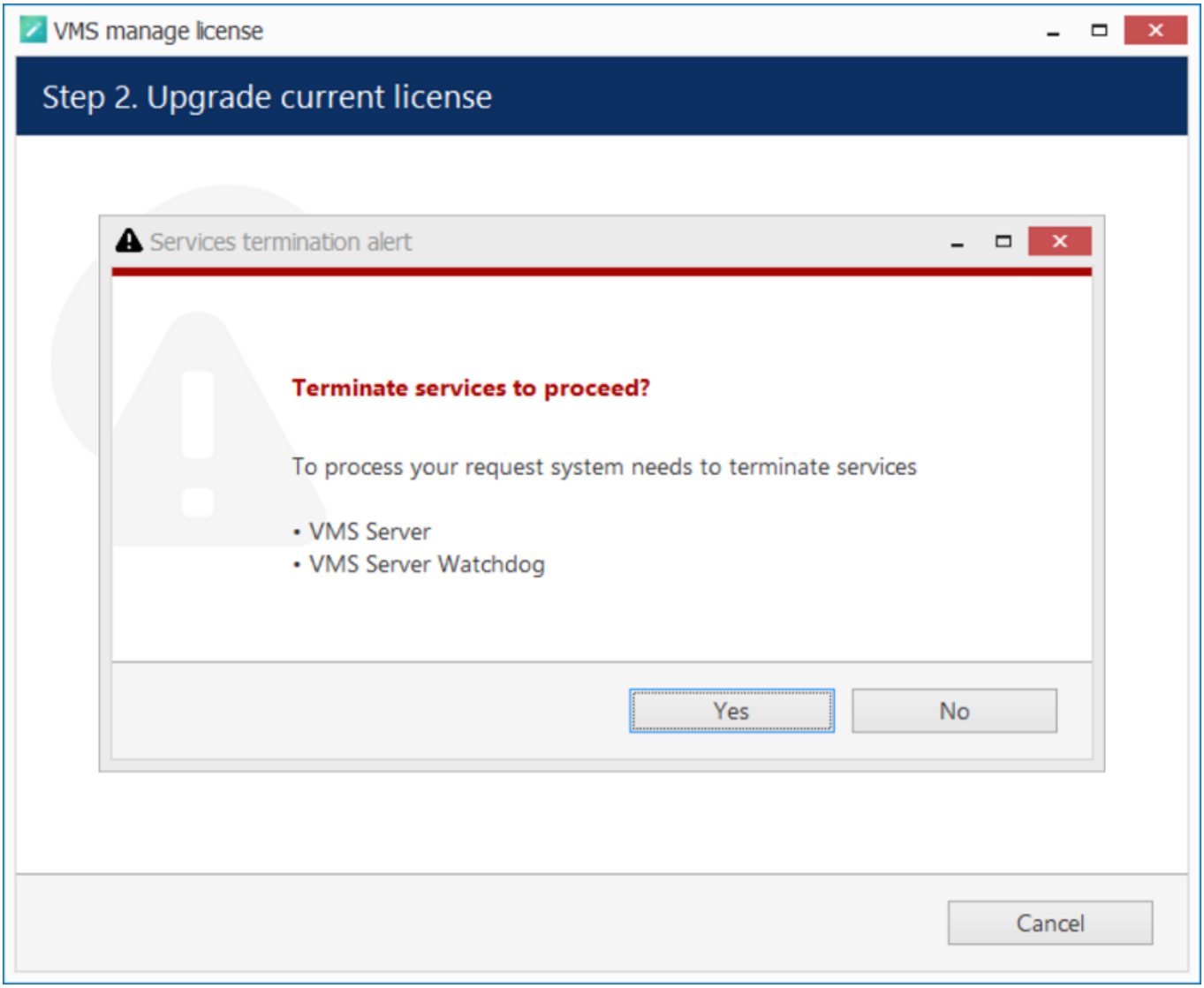
The wizard will display a summary about the currently installed license key and show the available management options.

Online license upgrade

License upgrade is available for the license keys purchased earlier. Note that all the software processes (both applications and services) must be stopped in order for the license to be applied correctly.

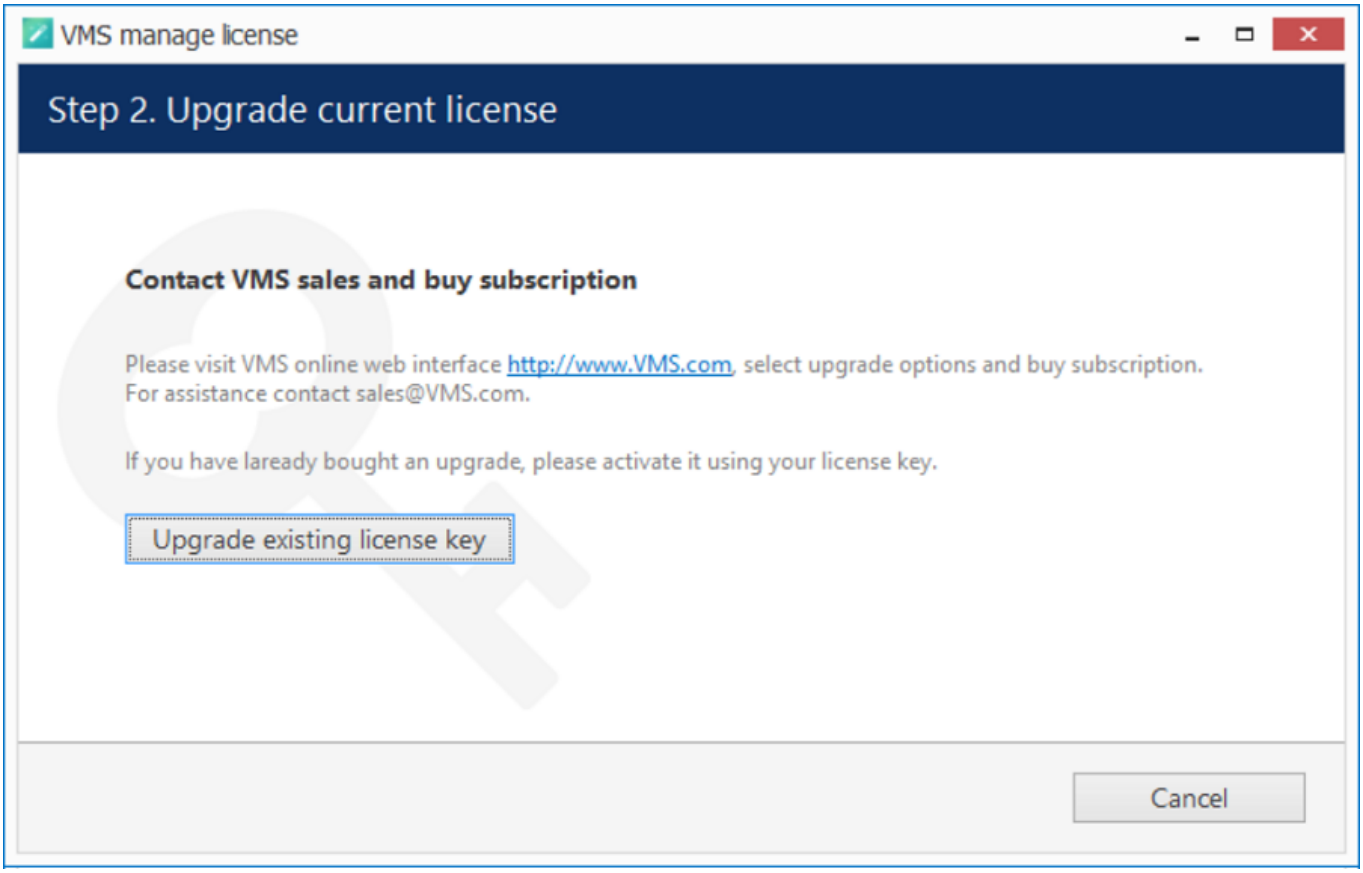
For upgrade acquisition details and assistance, please contact sales@luxriot.com.

©2016. A&H Software House, Inc. All Rights Reserved.



All software processes must be stopped in order to apply license related changes

©2016. A&H Software House, Inc. All Rights Reserved.



License upgrade option

After acquiring the upgrade from Luxriot, click *Upgrade Existing License Key* to enter it. Your license information will be synchronised with the activation server and you will be presented a license summary. Click *Cancel* to return to the beginning of the wizard.

Offline license upgrade

Offline license upgrade essentially the same as the offline license activation process: the same steps should be taken to retrieve the new license file.

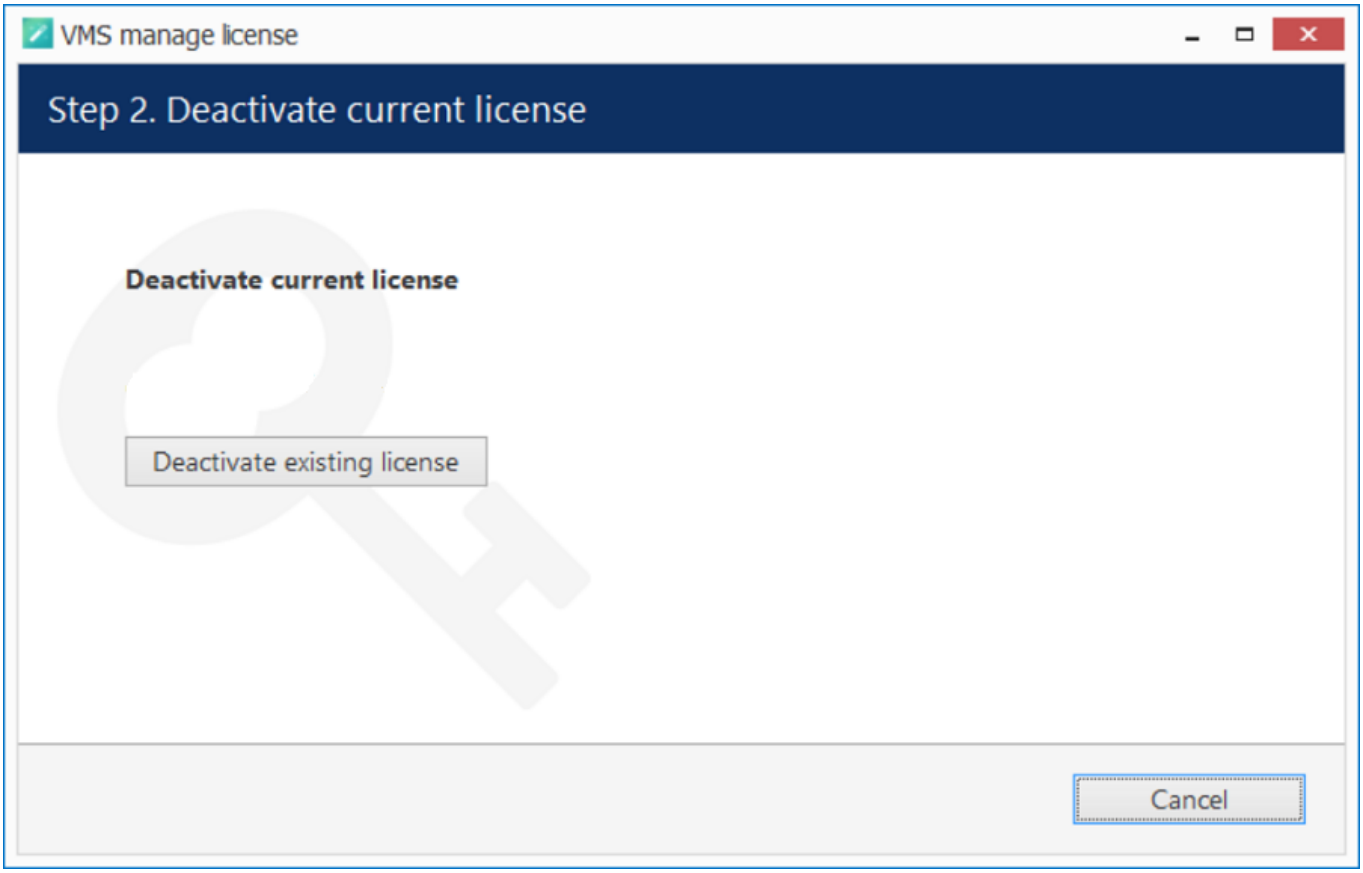
- generate activation file on the target server
- go to the online activation system at http://www.luxriot.com/purchase/software-activation/ and fill in the form
- apply provided license file to your system

Click *Cancel* to return to the beginning of the wizard.

Remove license

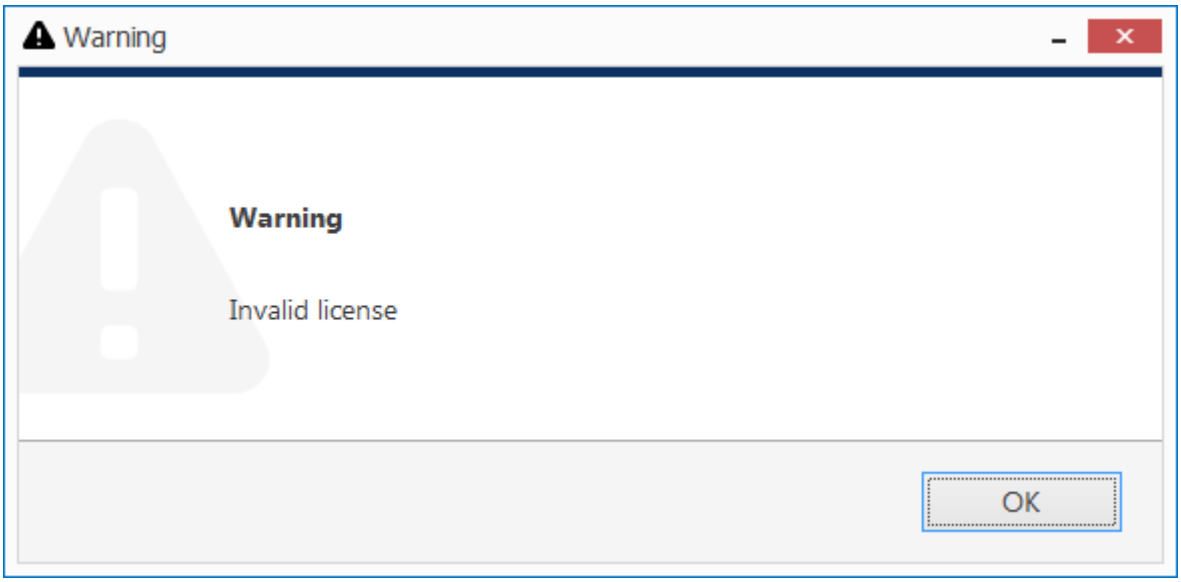
Select *Remove License* if you wish to completely delete all the license information from the server.

©2016. A&H Software House, Inc. All Rights Reserved.



Deactivate license

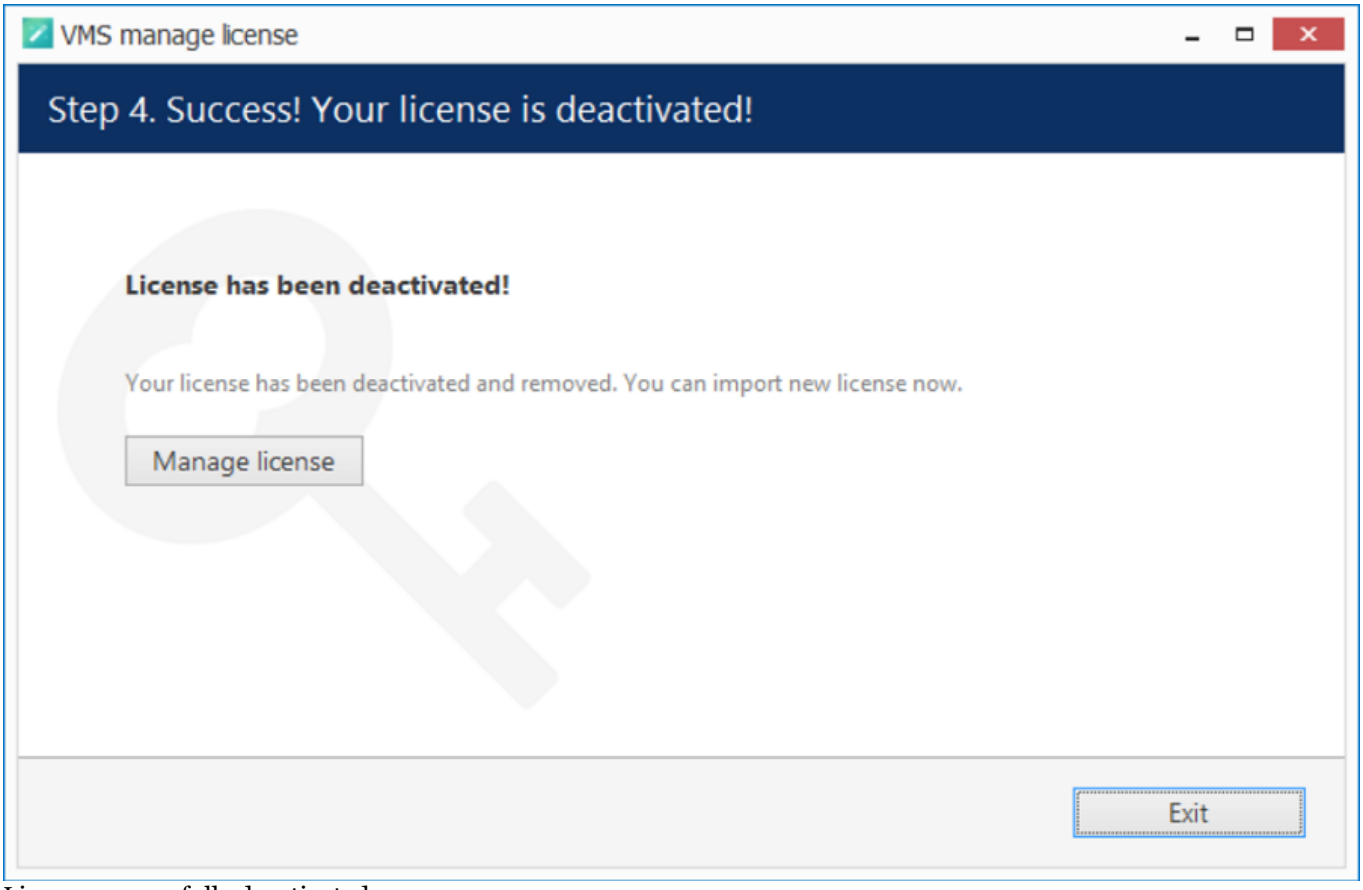
Click *Deactivate Existing License* to confirm deletion of the currently installed license. Note that you will be unable to log into Luxriot Console to access your current server configuration without a valid license of the same type; Luxriot Monitor applications will also not connect to such a server. In order to use the server again, you will have to enter the license again - either the same or a new one.



An attempt to log into Luxriot Console failed because the license is missing

Alternatively, press *Cancel* to return to the wizard start page. If you are not sure about the deactivation, consult Luxriot technical support.

©2016. A&H Software House, Inc. All Rights Reserved.



License successfully deactivated

After license deactivation, you will be offered the chance to go back to license management in order to enter a new software license.

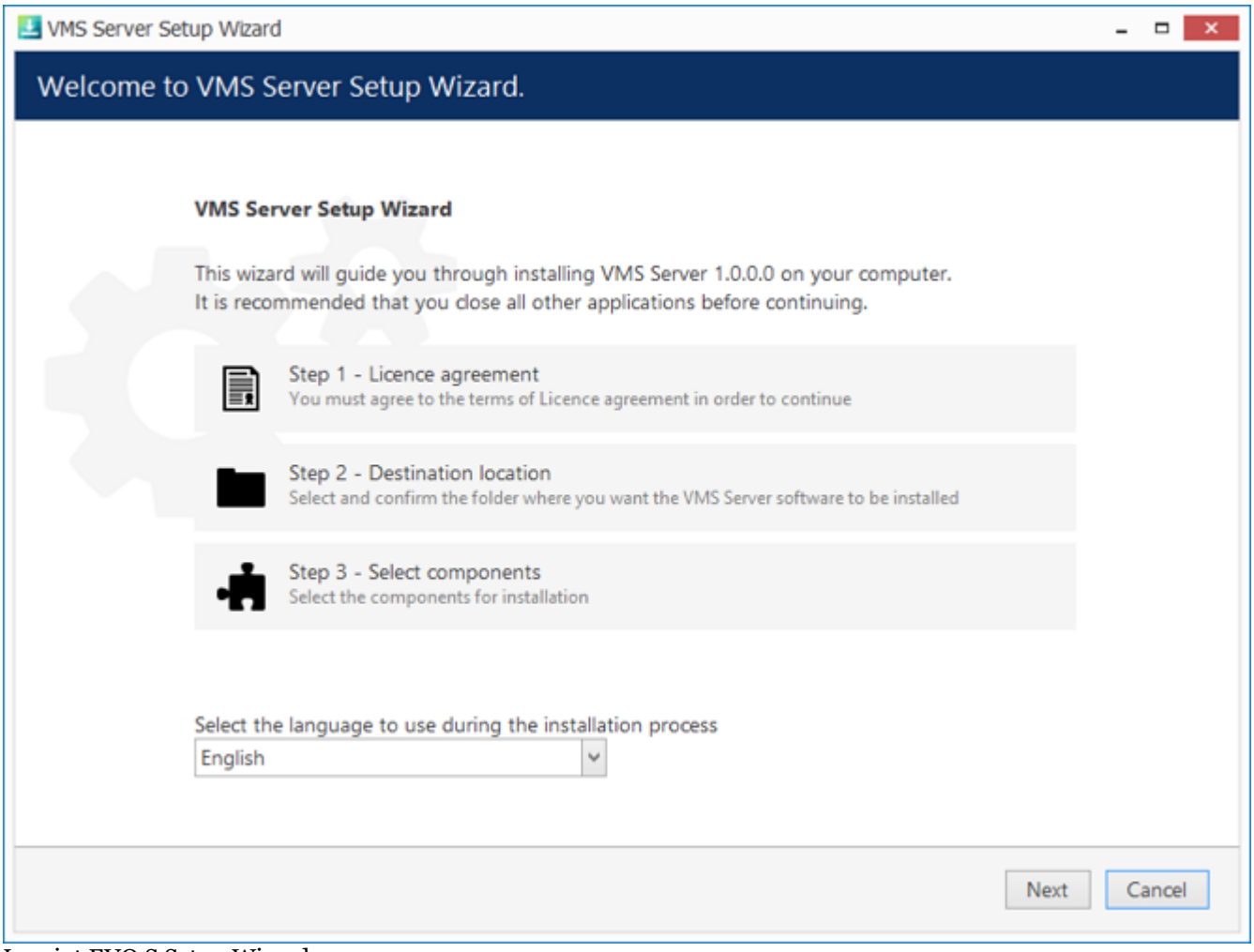
©2016. A&H Software House, Inc. All Rights Reserved.

Installation

Start the installation process by double-clicking on the Luxriot EVO S executable package file. The setup wizard will guide you through the installation process, providing available installation-time options depending on the chosen software package. Note that, depending on your Windows UAC configuration, you may have to confirm and/or provide administrative credentials.

We strongly advise that you stop all running third-party applications, as well as stopping antivirus scanning and Windows (and any other) updates during this phase, as these may interfere with the process and result in corrupt installation, which may cause unexpected behaviour and hard-to-track issues during further software operation.

The installation wizard displays an overview of the process; also, you are able to select the installation language here. You will be prompted to select the Luxriot EVO S interface language later.

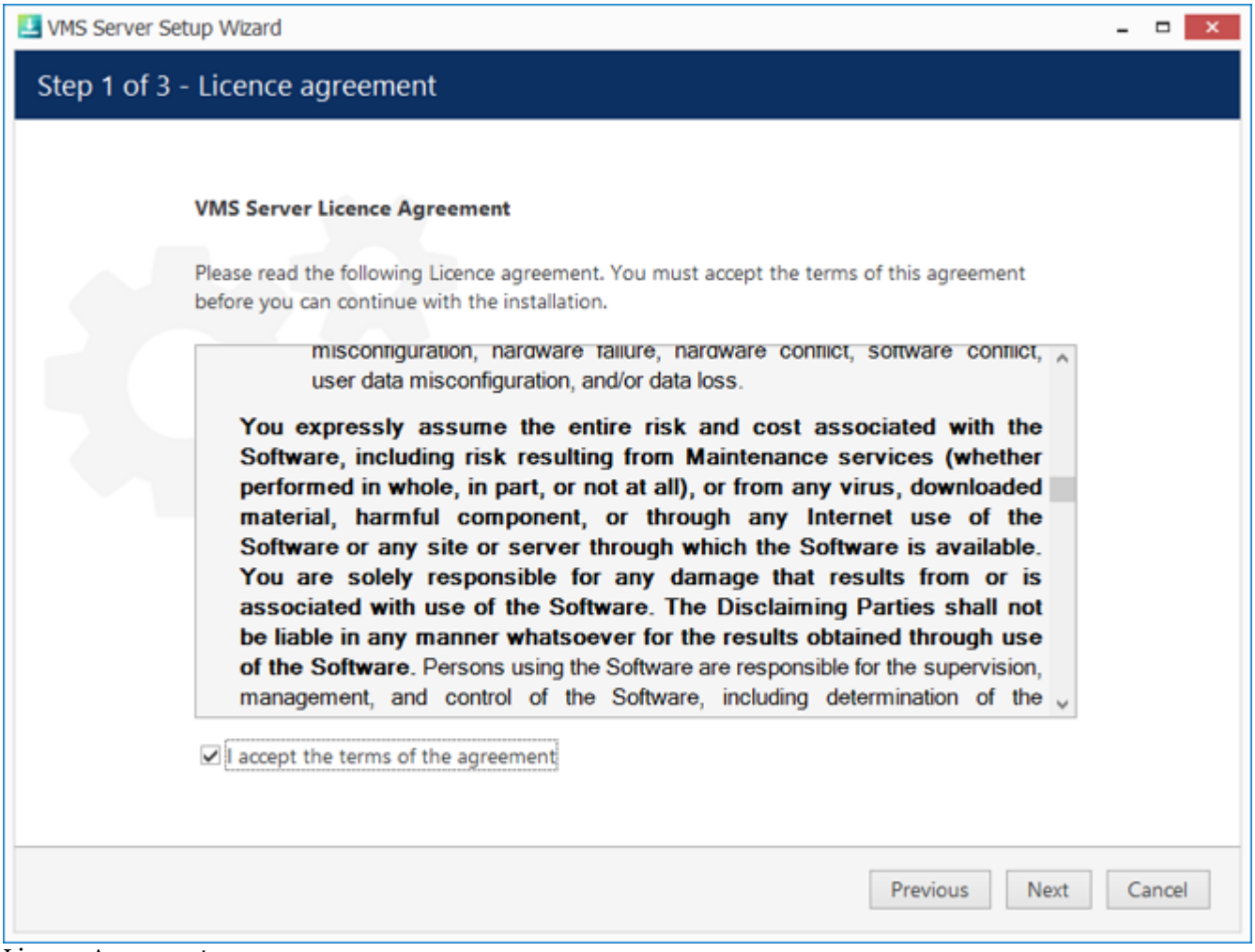


Luxriot EVO S Setup Wizard

©2016. A&H Software House, Inc. All Rights Reserved.

Step 1

Carefully read the Luxriot license agreement: you must agree to all parts of the given document in order to proceed. If you agree, select *I agree...* in order to continue; otherwise, terminate software installation. If you have any questions regarding the contents of the present license agreement, please contact sales@luxriot.com.



License Agreement

©2016. A&H Software House, Inc. All Rights Reserved.

Step 2

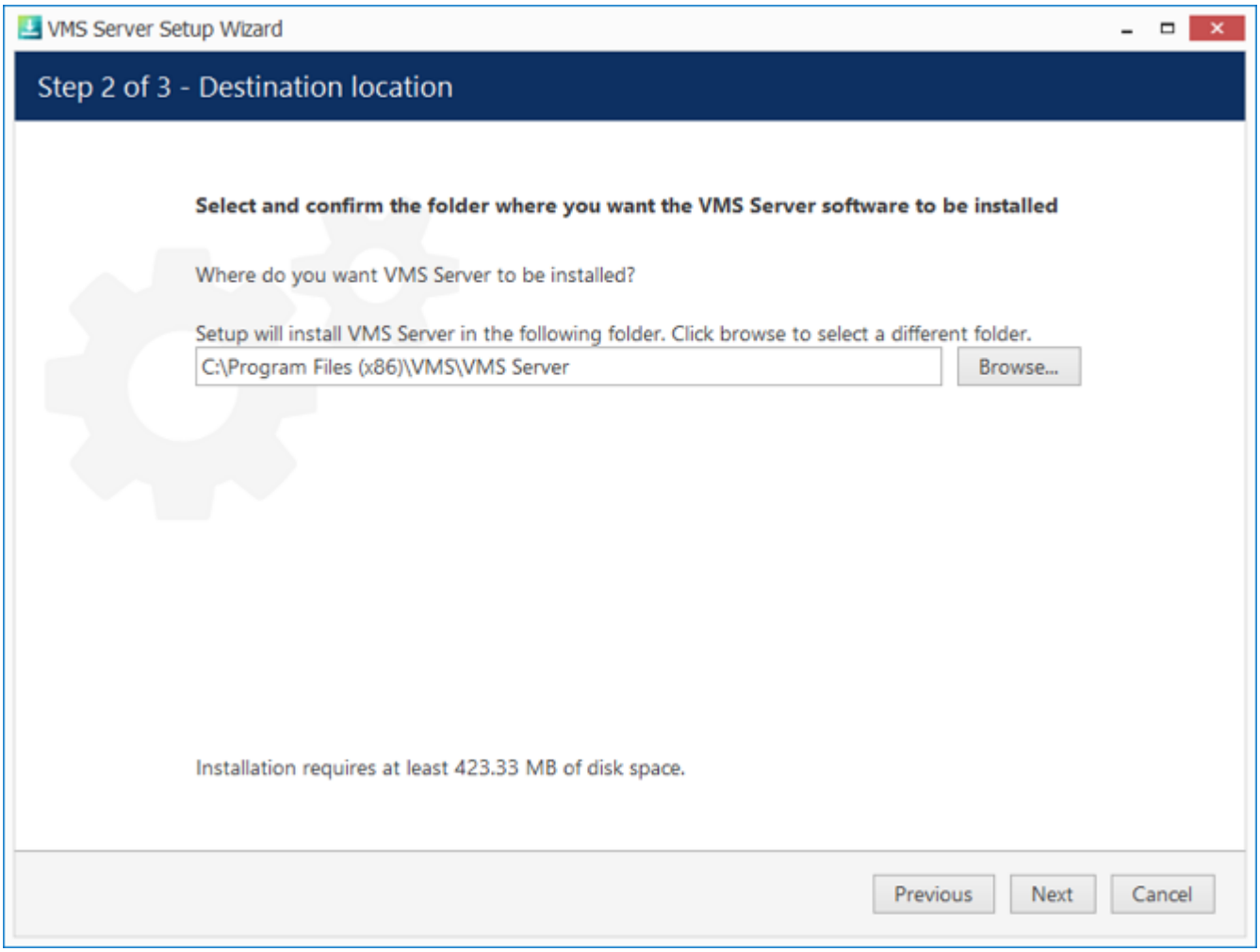
Select the destination folder you want the software to be installed in. By default, Luxriot EVO S is installed in:

32-bit: *C:\Program Files (x86)\Luxriot\Luxriot EVO S*

64-bit: *C:\Program Files\Luxriot\Luxriot EVO S*

If you are re-installing Luxriot EVO S and previously selected a non-default location, make sure to select the same destination directory, or, alternatively, completely uninstall previous Luxriot EVO S version. If unsure about this, ask for Luxriot technical support team assistance.

The setup wizards estimates how much disk space will be required. Make sure you have enough free space on the target disk. Note that low system disk space will dramatically decrease system performance and affect overall system stability.



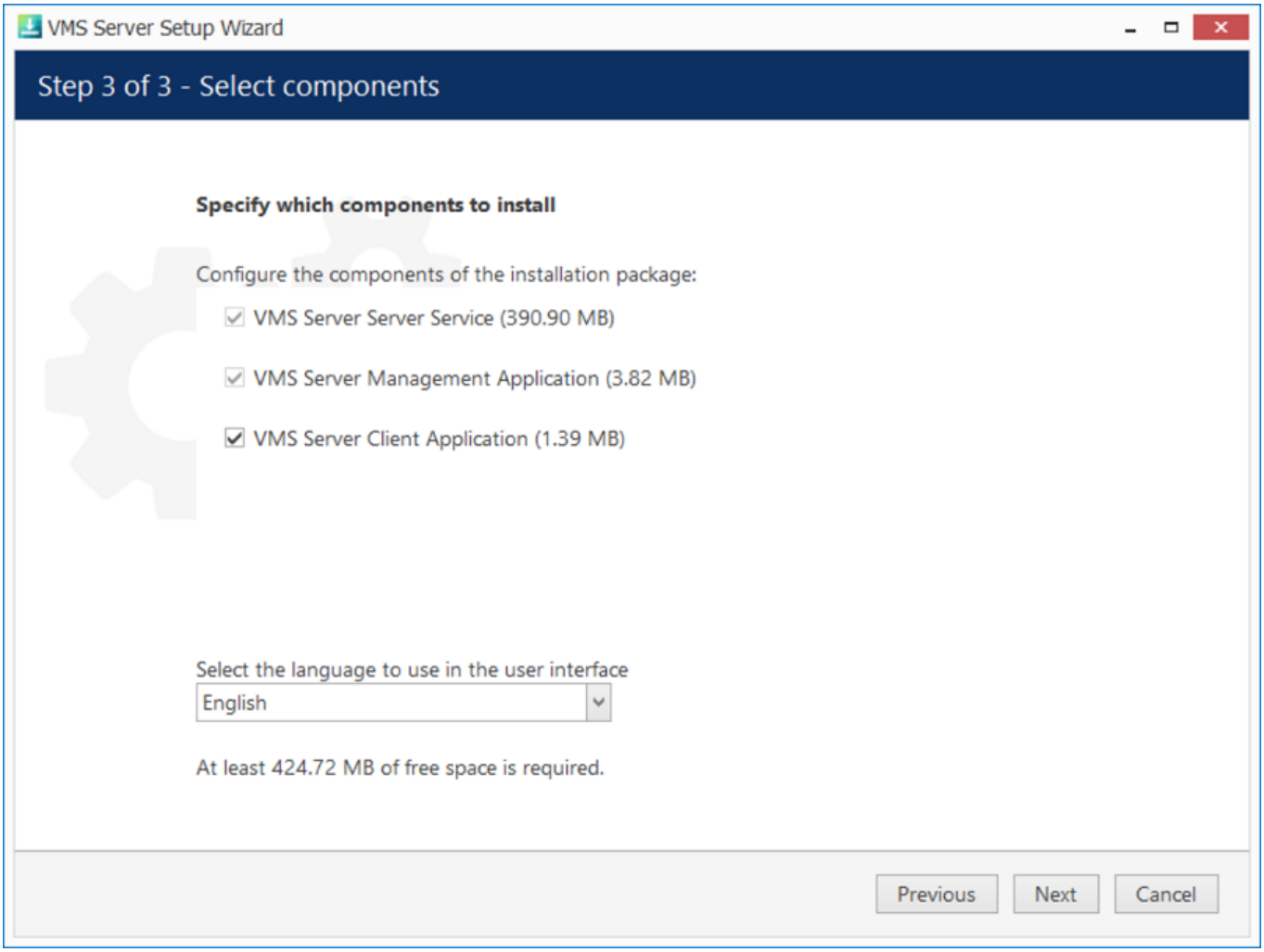
Installation Directory

©2016. A&H Software House, Inc. All Rights Reserved.

Step 3

Some components are optional and so you can choose not to install them. The main Luxriot EVO S parts are obligatory and cannot be deselected (by default, these options are selected and greyed out).

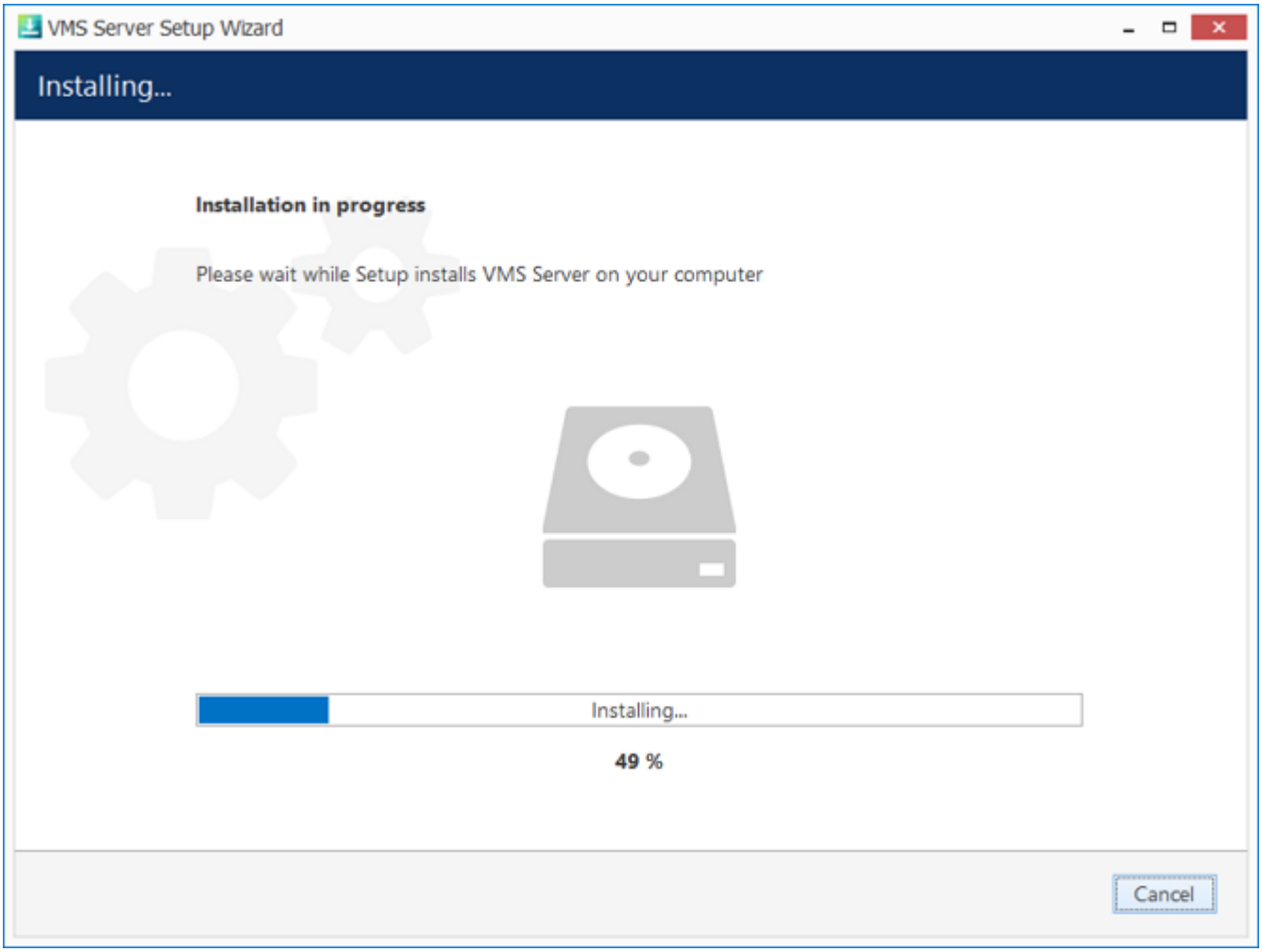
If not chosen at this stage, Luxriot Monitor can be installed separately later.



Select Software Components

If you are ready to proceed, click *Next* to begin the installation. Depending on selected components and host system condition, the process may take some time to complete, so please be patient.

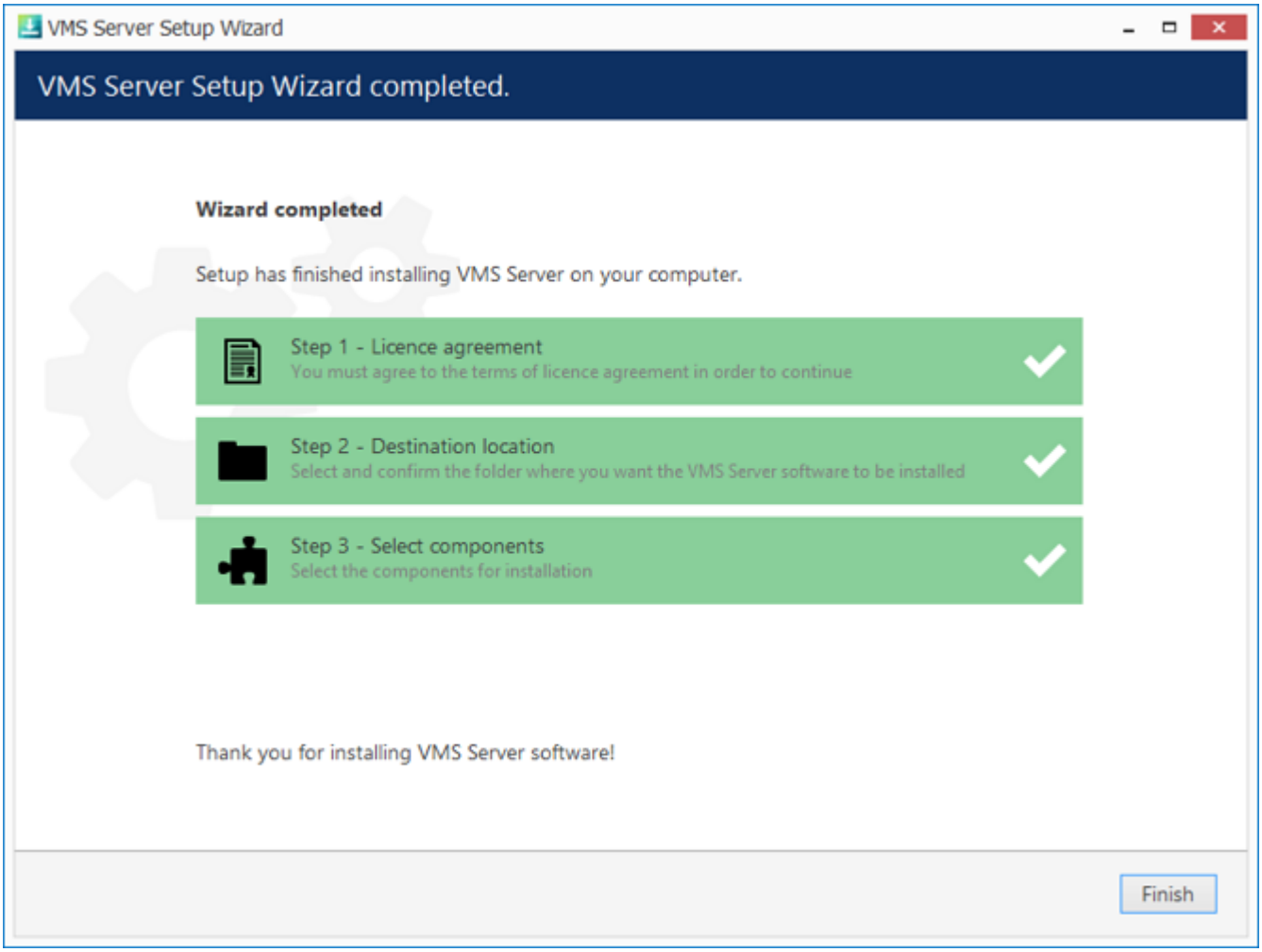
©2016. A&H Software House, Inc. All Rights Reserved.



Installation Progress

Upon completion, the setup wizard will show you an installation summary. If all the steps have been fulfilled successfully, simply click *Finish* to close the wizard.

©2016. A&H Software House, Inc. All Rights Reserved.

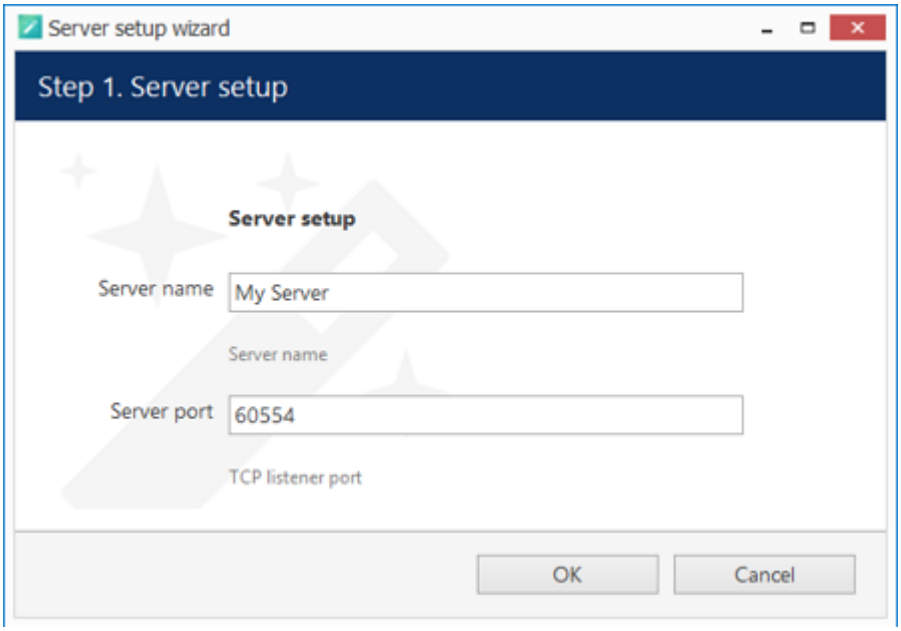


Installation Complete

©2016. A&H Software House, Inc. All Rights Reserved.

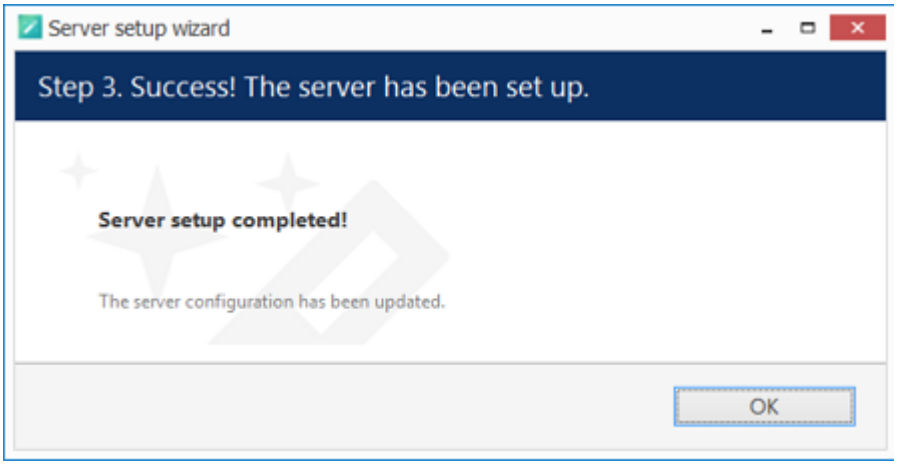
Initialisation

After completing the installation wizard, you will be offered to enter server setup. The settings selected during server setup can be changed later at any time.



Choose Server Title and TCP port

Setting	Description	Default Value
Server name	User defined server title	*Server Title* or last used title
Server port	TCP port for incoming remote Client connections	60554



Setup Completed

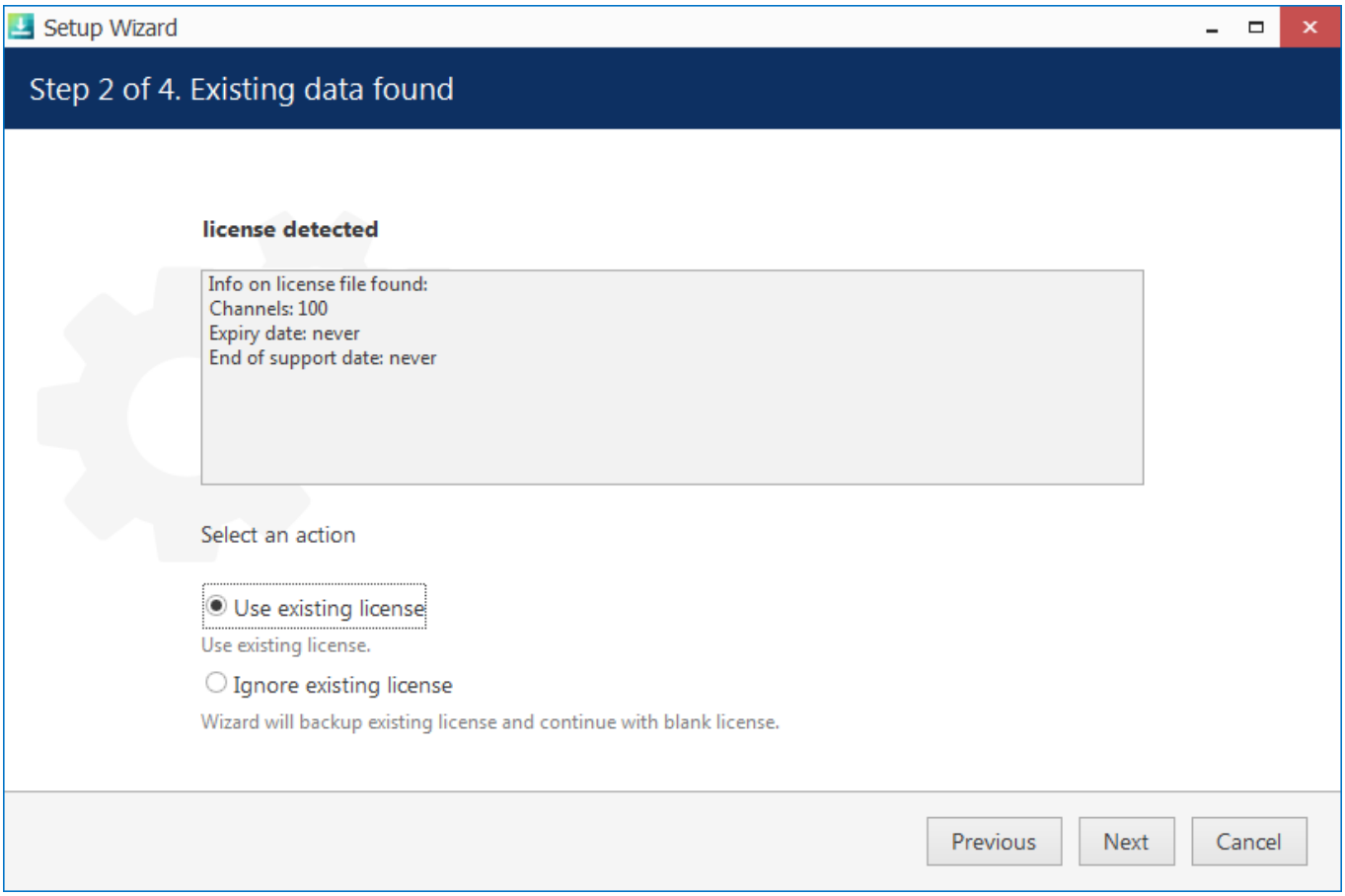
©2016. A&H Software House, Inc. All Rights Reserved.

Software Update and Uninstall

This topic provides guidelines on installation management use cases.

Update Software

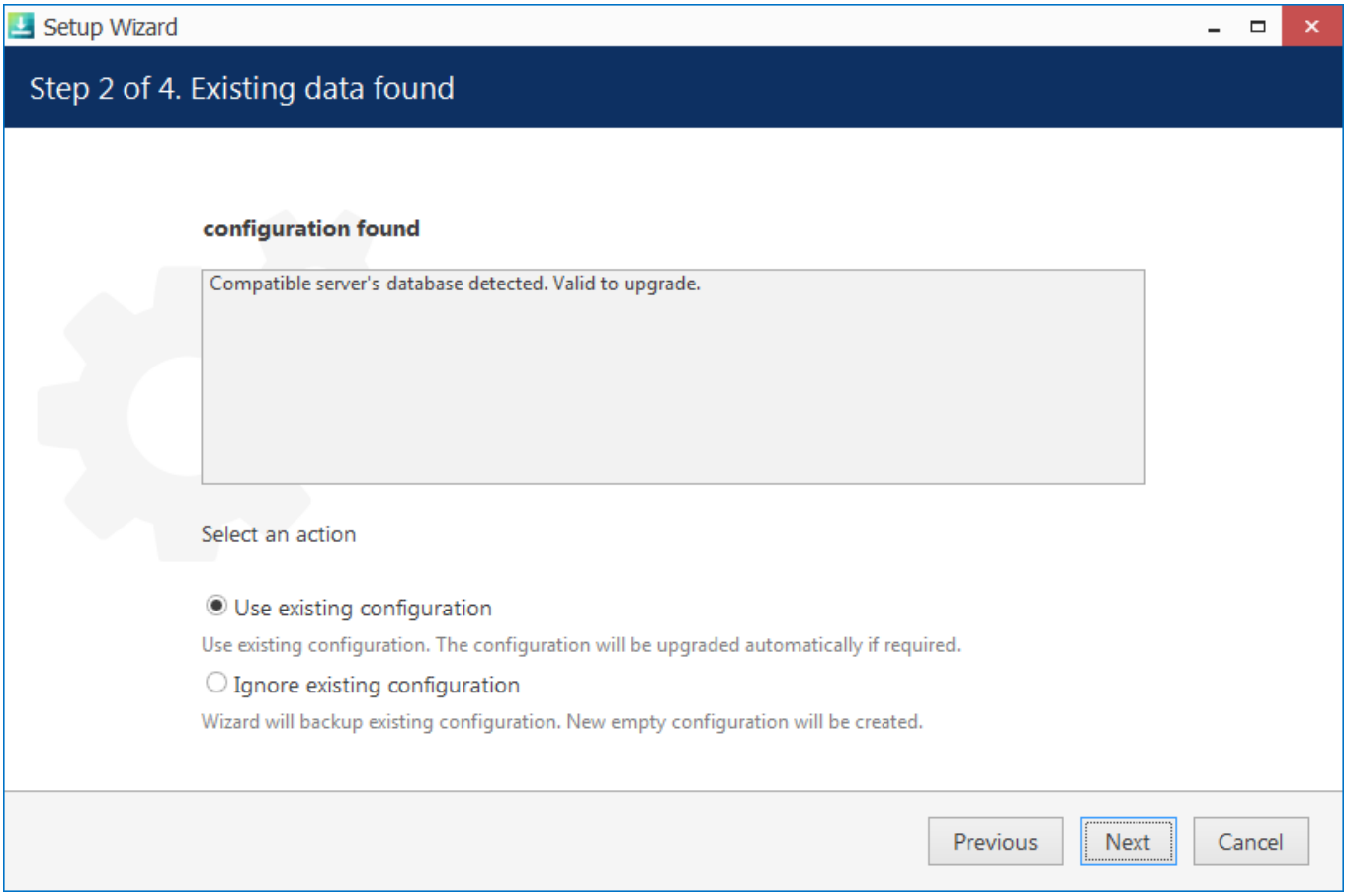
> ⚠ Before upgrading, make sure you have obtained the correct software package: 32-bit and 64-bit version configuration sets are incompatible. If you try upgrading to a different bit version, the installation wizard will not execute with "another version detected" warning.



Choose license preference for the upgrade

If you launch a newer version installation package of the same kind as the already installed Luxriot EVO edition, you will be given the option to upgrade the product. Press *Next* and complete the wizard, which is very much alike the installation wizard. At each step, read all the information displayed and press *Next* until finished.

©2016. A&H Software House, Inc. All Rights Reserved.



Use existing database configuration

> ⚠ Before starting the upgrade procedure, ensure that all Luxriot EVO processes have been terminated and that Luxriot EVO files are not in use: this is necessary in order to upgrade all files to the newer versions. This includes any Luxriot EVO processes or related applications that are running, and also any third-party applications that have access to Luxriot EVO files, e.g., antivirus scanners, third-party integrations, etc.
>
> Luxriot EVO processes can be found via Task Manager: these start with *VMS*, e.g., *VMSServer.exe*.

©2016. A&H Software House, Inc. All Rights Reserved.

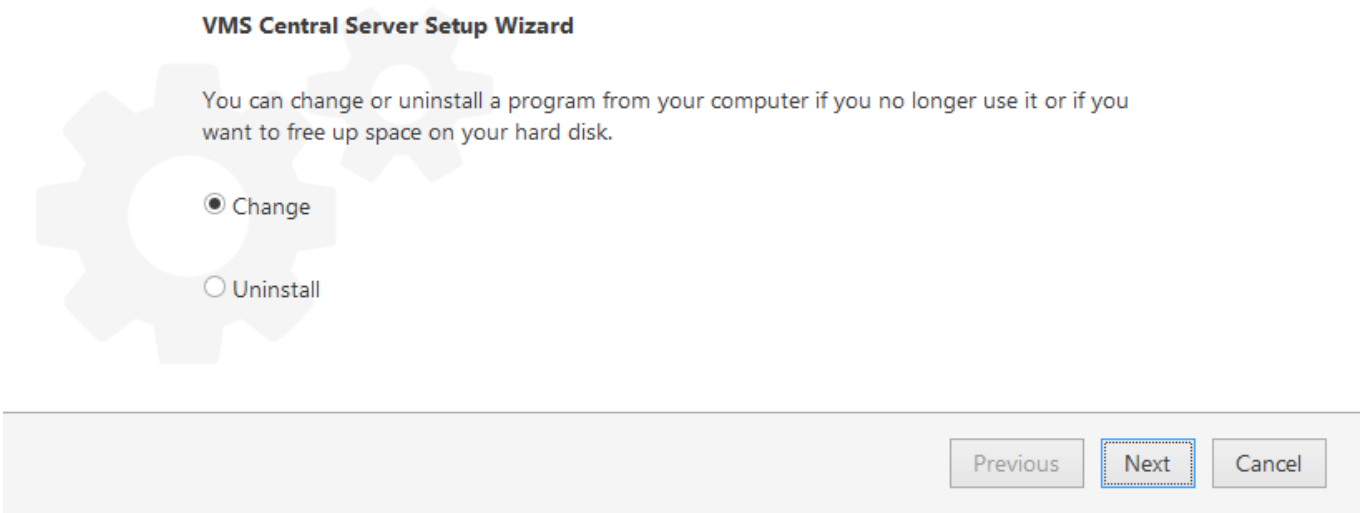
Uninstall/Change Software

Software can be uninstalled in two ways:

1. From Windows Control Panel
2. By launching the same package that was used for installation

In either case, you have a choice between changing and uninstalling the product.

> ⚠ Before making any changes to the installation, make sure to close and stop all software services and applications. If processes are not stopped, some of the software components may not be removed or replaced during the installation process.
>
> In order to check this, open Windows Task Manager, select *'Show processes from all users'* and make sure there are no processes starting with 'VMS..'. If there are any, stop them manually and then proceed with the installation changes.



Change or uninstall the product

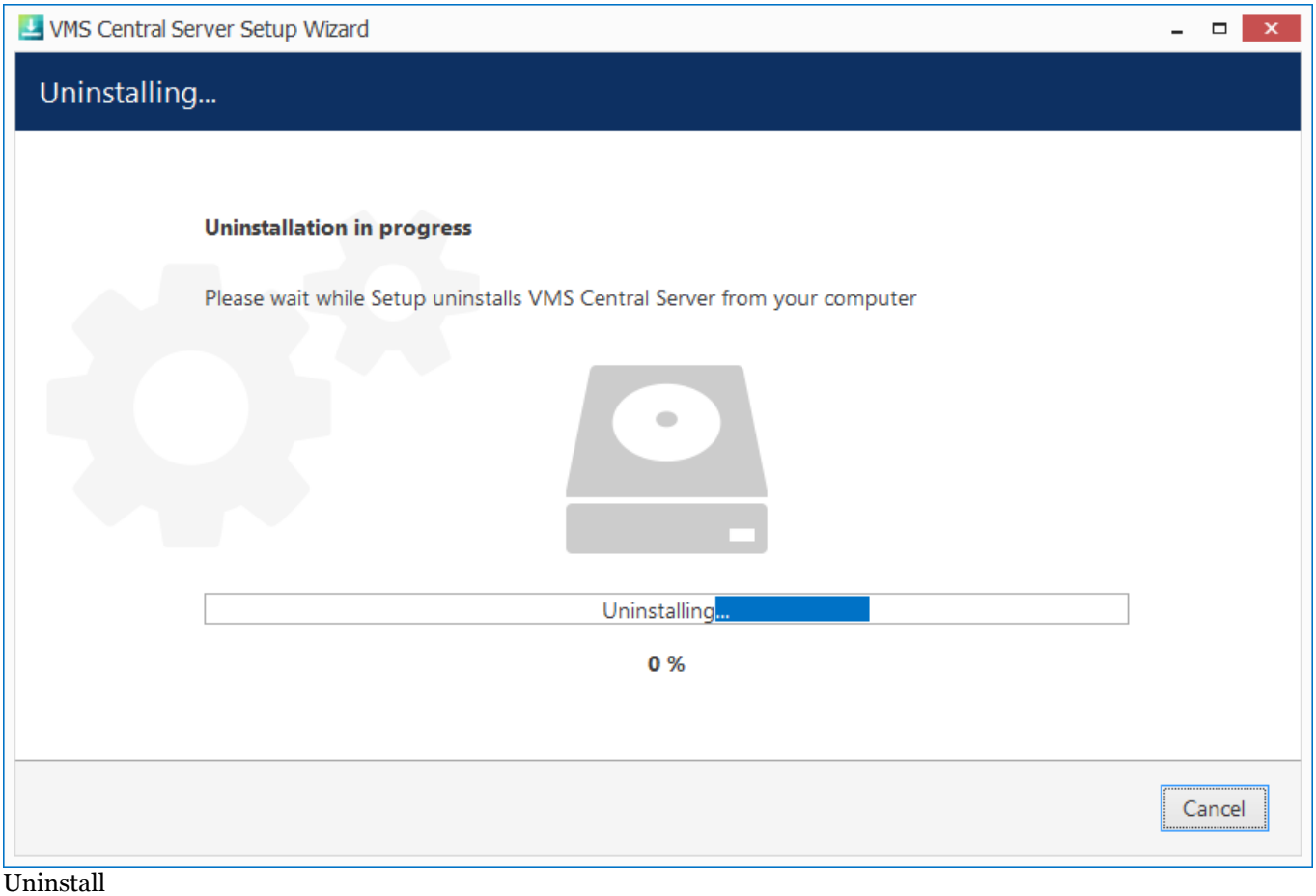
Select *Change* if you wish to re-install or add software components. The process will be similar to the initial installation.

Select *Uninstall* to remove all software components. You will be asked if you wish to keep the configuration and the current license; the following common use cases apply:

- keep the license and remove the configuration if you wish to re-configure everything from scratch after re-installation (e.g., in event of a corrupt database or having to move the server to a different system);
- keep both if you are going to clean install the software;
- remove both if you do not intend to use the software on this machine anymore.

Press *Next* to proceed with the uninstallation process. Note that you may have to confirm these changes if UAC has been turned ON.

©2016. A&H Software House, Inc. All Rights Reserved.



Uninstall

When the wizard finishes removing software components, hit *Finish* to exit.

Clean Install

Sometimes it is necessary to install software anew, i.e., to change software bit version, and also in event of major software-related troubles.

> You can perform clean install yourself if you are already familiar with the software. If you are doing it for the first time, we recommend that the procedure is supervised by a Luxriot support engineer so that you learn how to do this quickly and effectively, avoiding possible mistakes.

> Although software upgrade is not possible with different bit versions, you can migrate your installation to a different bit version by performing a clean install.

To perform a clean installation, it is crucial to make sure that no Luxriot software processes are running, whether explicitly or in the background. Follow these steps:

1. Stop all Luxriot software services and/or applications;
2. Open Windows Task Manager, click *'Show processes from all users'* and check that there are no processes starting with 'VMS..'; if there are any, stop them;
3. Uninstall software as described above, keeping your license and configuration;
4. Install [new] software version, carefully following all steps and recommendations;
5. Start software and check if the desired change has been carried out.

©2016. A&H Software House, Inc. All Rights Reserved.

Setup Wizard

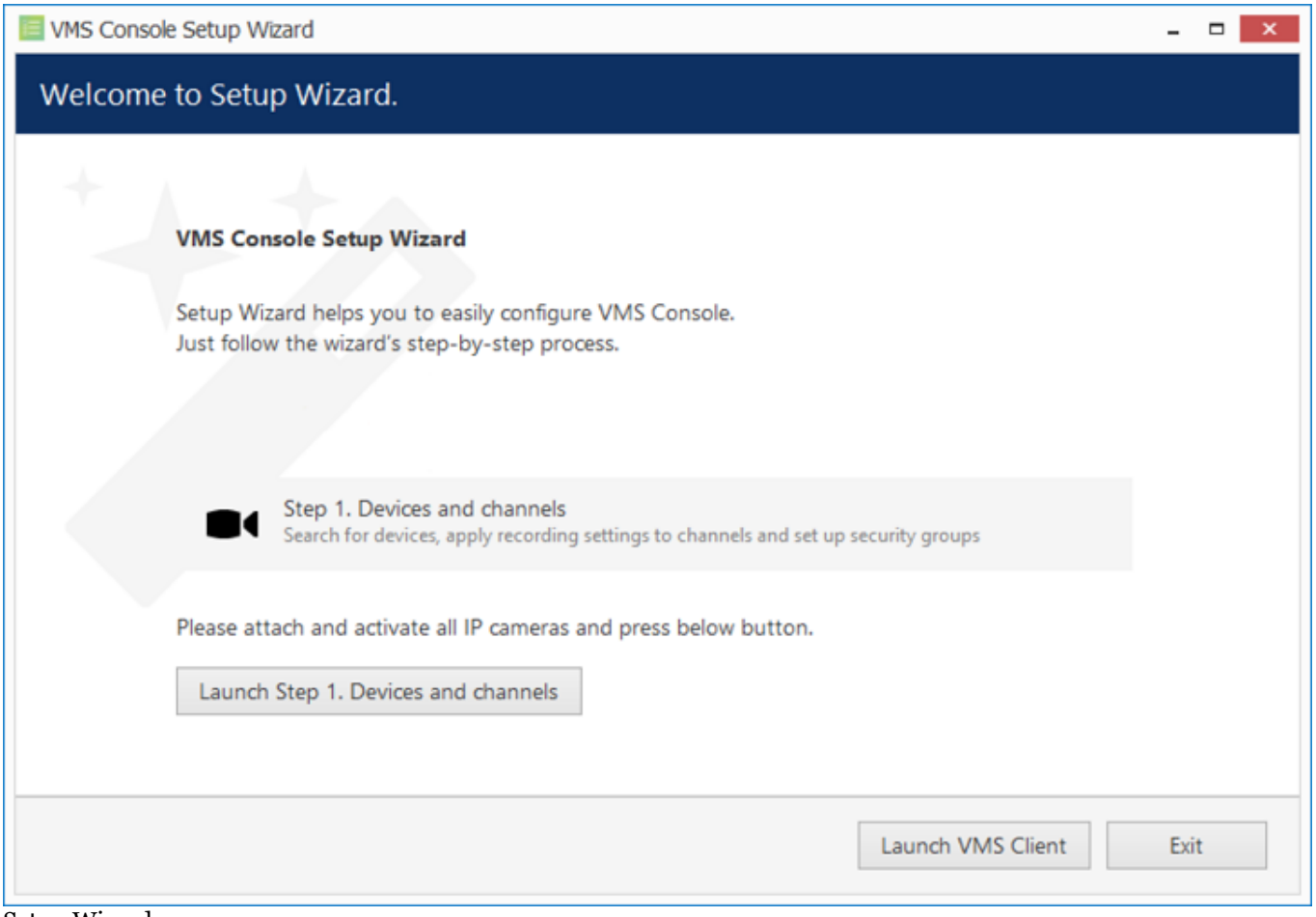
The Luxriot Console Setup Wizard is automatically started after product installation and activation is complete. You can skip the wizard at this point and launch it later anytime from the Luxriot Console upper-right-hand corner menu:

Run Setup Wizard from Luxriot Console

Setup Wizard will show you the process summary and guide you through the steps to configure the installation. To proceed with each next step, simply click the button below the step list; to exit the wizard prematurely, press either *Exit* or *Launch Luxriot Monitor* button in the bottom-left-hand corner.

Setup wizard for Luxriot EVO and Luxriot EVO S consists of just one step that covers devices and channels. Make sure you connect all devices (IP cameras and/or other video sources) before launching the wizard: it will automatically scan the network for available video sources.

Press the *Launch Step 1* button to begin.



Setup Wizard

©2016. A&H Software House, Inc. All Rights Reserved.

Scan Parameters

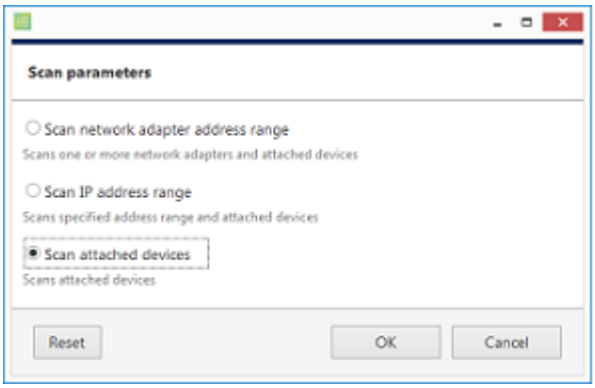
First, select scan mode; the following options are available:

- scan IP address range: specify a continuous LAN segment to be scanned
- scan network adapter address range: select one or more network interfaces to be fully scanned
- scan attached devices: the local hardware system will be scanned for capture boards and Direct Show video sources

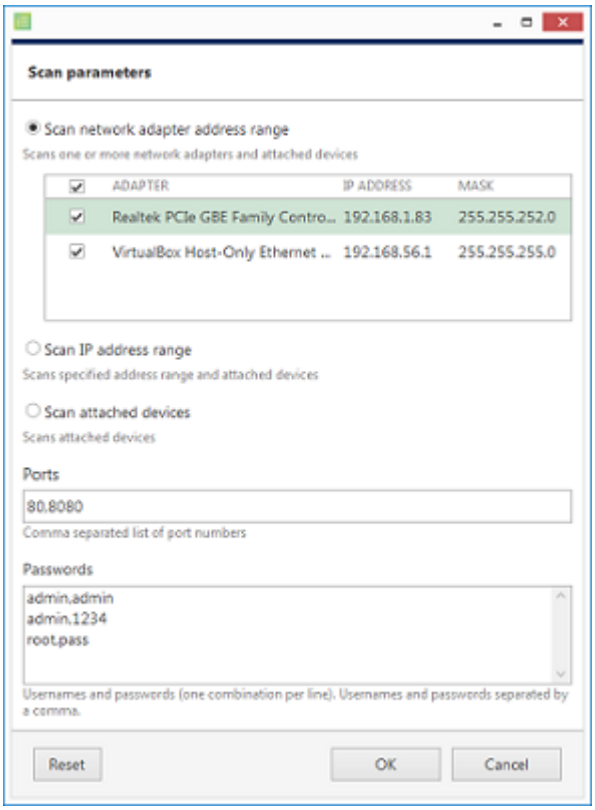
If you have chosen to search for IP video sources, you should review additional connection settings and change or update them, if required:

- ports: HTTP ports, comma separated
- user credentials: pairs of comma-separated user names and passwords, one pair per line

Use the *Reset* button below to discard all changes and start entering scan parameters again. When you are ready, press *OK* button below to begin scanning.

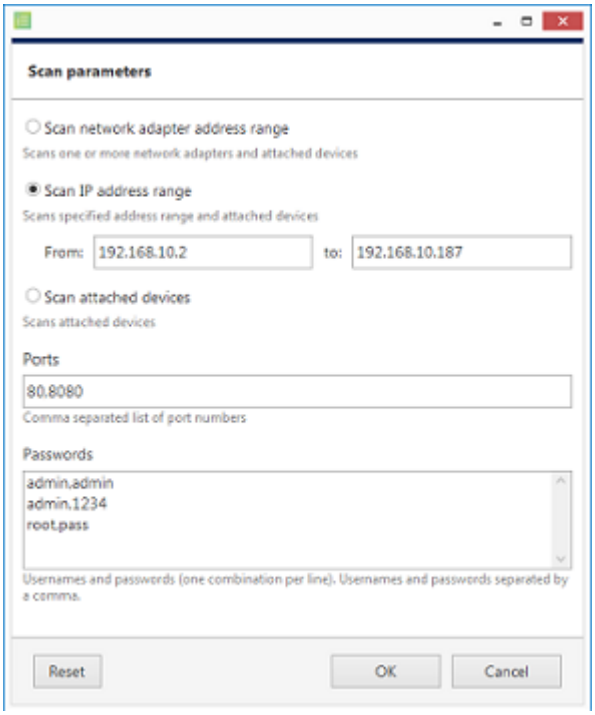


Scan attached devices



Scan network adapter address range

©2016. A&H Software House, Inc. All Rights Reserved.



Scan IP address range

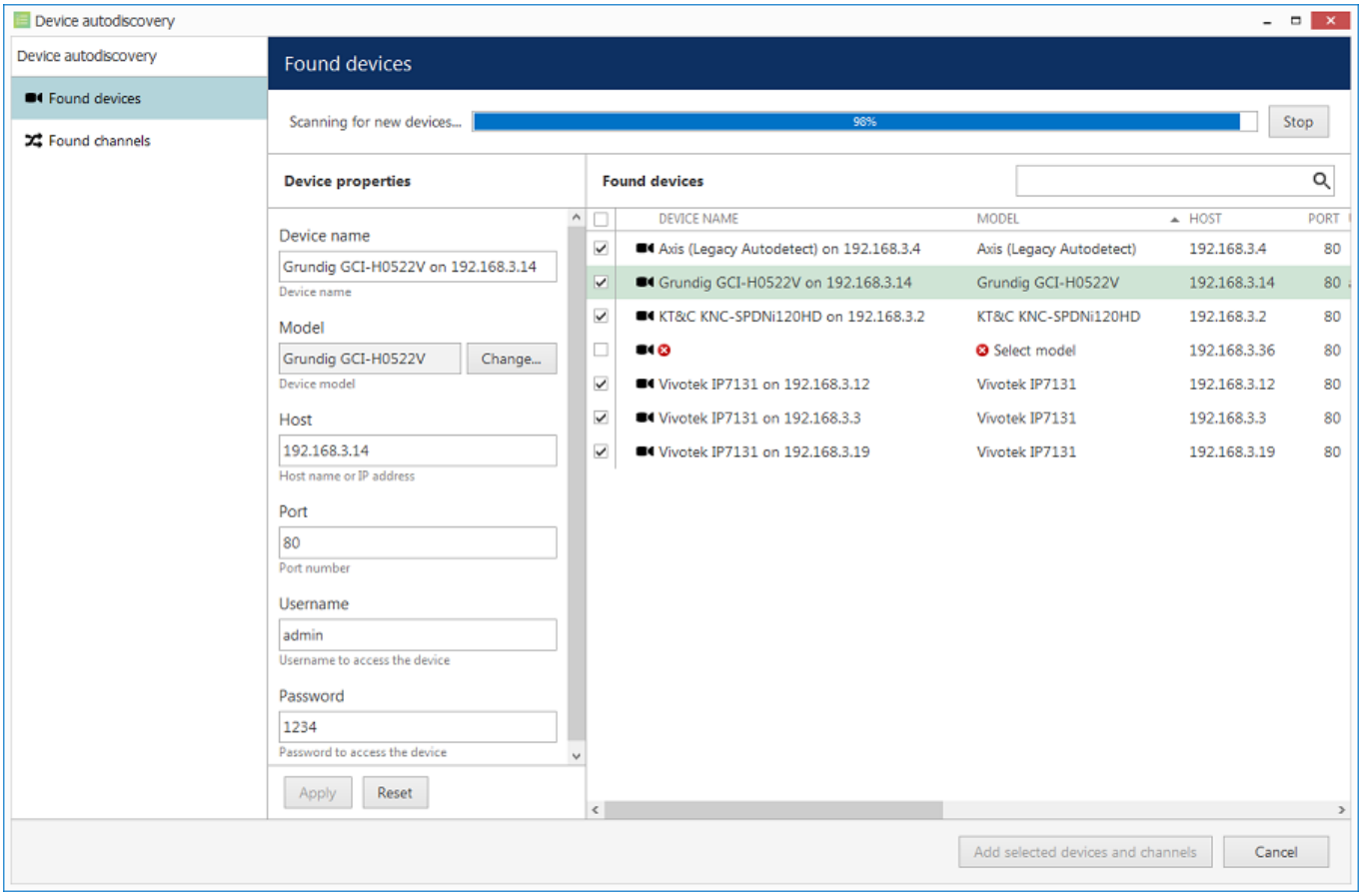
©2016. A&H Software House, Inc. All Rights Reserved.

Device Autodiscovery

After scanning has been completed, you will be taken to the Device Autodiscovery dialog box, which will allow you to review the found devices and their channels, and enter/modify related settings. Use the *Search* field in the upper-right-hand corner to find a specific device by name, model, IP, port or hardware ID (for IP devices, ID includes MAC address).

> There are two types of selection in the item list: checkboxes and colour highlight. **Checkboxes** are used to choose the items to be added to server configuration after you close the dialog box; **highlighted** items are subject to immediate properties changes. Use *CTRL+click* or *Shift+click* to select all or several items at once to change their settings.

Click a device in the item list to load its settings into the *Device Properties* window. Note that some settings may be missing for some of the automatically found devices; this depends mostly on device and whether user data was correctly provided. In such cases, simply fill in the missing data manually and click the *Apply* button below to save the configuration changes.



Set up discovered devices

©2016. A&H Software House, Inc. All Rights Reserved.

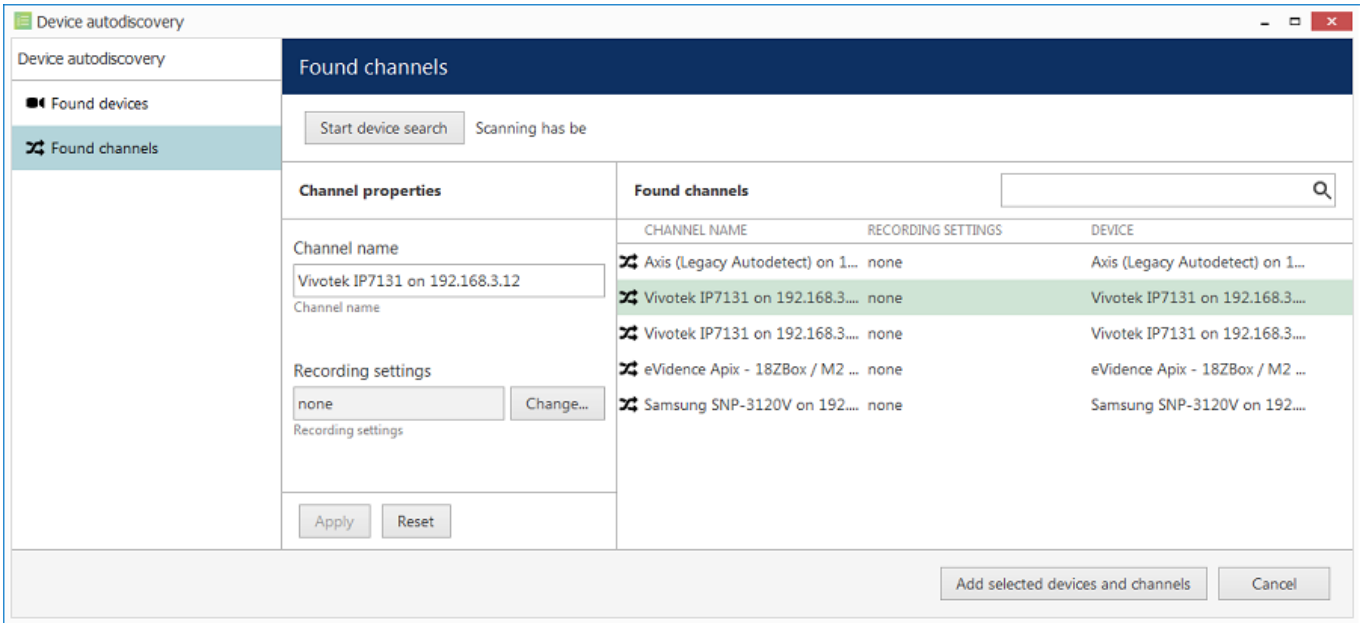
If device is not integrated with the software (native support), it may be detected as generic type (e.g., ONVIF). If you think some devices have not been discovered, check if they have different HTTP ports; also, try adding them manually.

Setting	Description	Default value
Device name	User-defined video source name	Autodetected model + IP, empty if not detected
Model	Device manufacturer and model, or generic type	Autodetected vendor and model, empty if not detected
Host	Device IP address	Autodetected
Port	Device HTTP port	Autodetected
Username	Device user credentials; note that you have to provide administrative profile credentials in order to be able to change device settings via software interface	Appropriate username from provided list or autodetected
Password	Device user password	Appropriate password from provided list or autodetected

Make sure you select all the devices you wish to add by putting a checkmark next to them. Devices with missing configuration (model and/or IP) are unchecked by default and will not be added to active server configuration.

⚠ Device models set on this step cannot be altered in future. In order to change the model further on, you will need to delete the channel attached to such a device, and then create a new channel with your desired model: see how to replace a camera for details.

Switch to *Channels* tab to review the detected video channels of the discovered devices: this is particularly important if you are using multichannel devices, e.g., capture boards and encoders. Use the *Search* field in the upper-right-hand corner to find specific channels by name or device name.



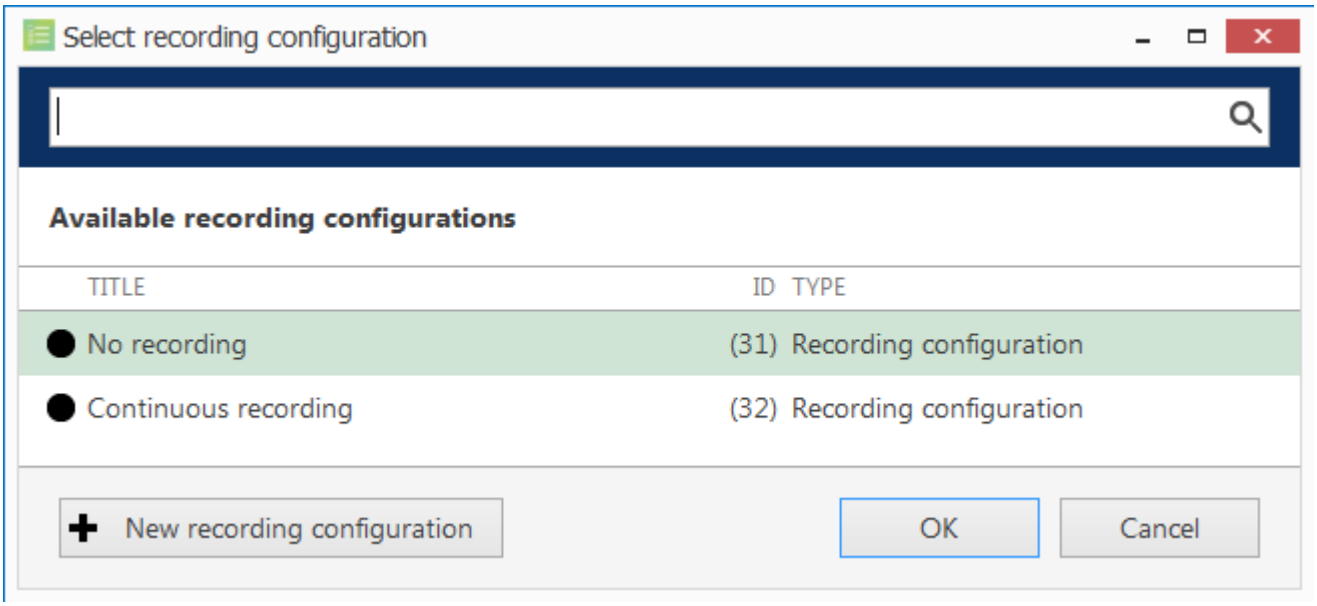
Set up discovered channels

©2016. A&H Software House, Inc. All Rights Reserved.

Here you can edit the channel name and assign recording configuration. By default, recording is enabled for all channels: click the *Change* button near *Recording settings* to manage recording profiles and assign them to your channels. To add a new recording profile, click the *+ New recording configuration* button below; you can find more details about recording profiles in the corresponding section. Click *OK* to save and return back to devices and channels; click Apply to save configuration changes.

⚠ After changing the channel recording configuration, do not forget to click *Apply*, otherwise the changes will not take effect.

Recording configuration here is assigned to the **main streams** of the target channels. In order to set up substream recording, please go to channel configuration.



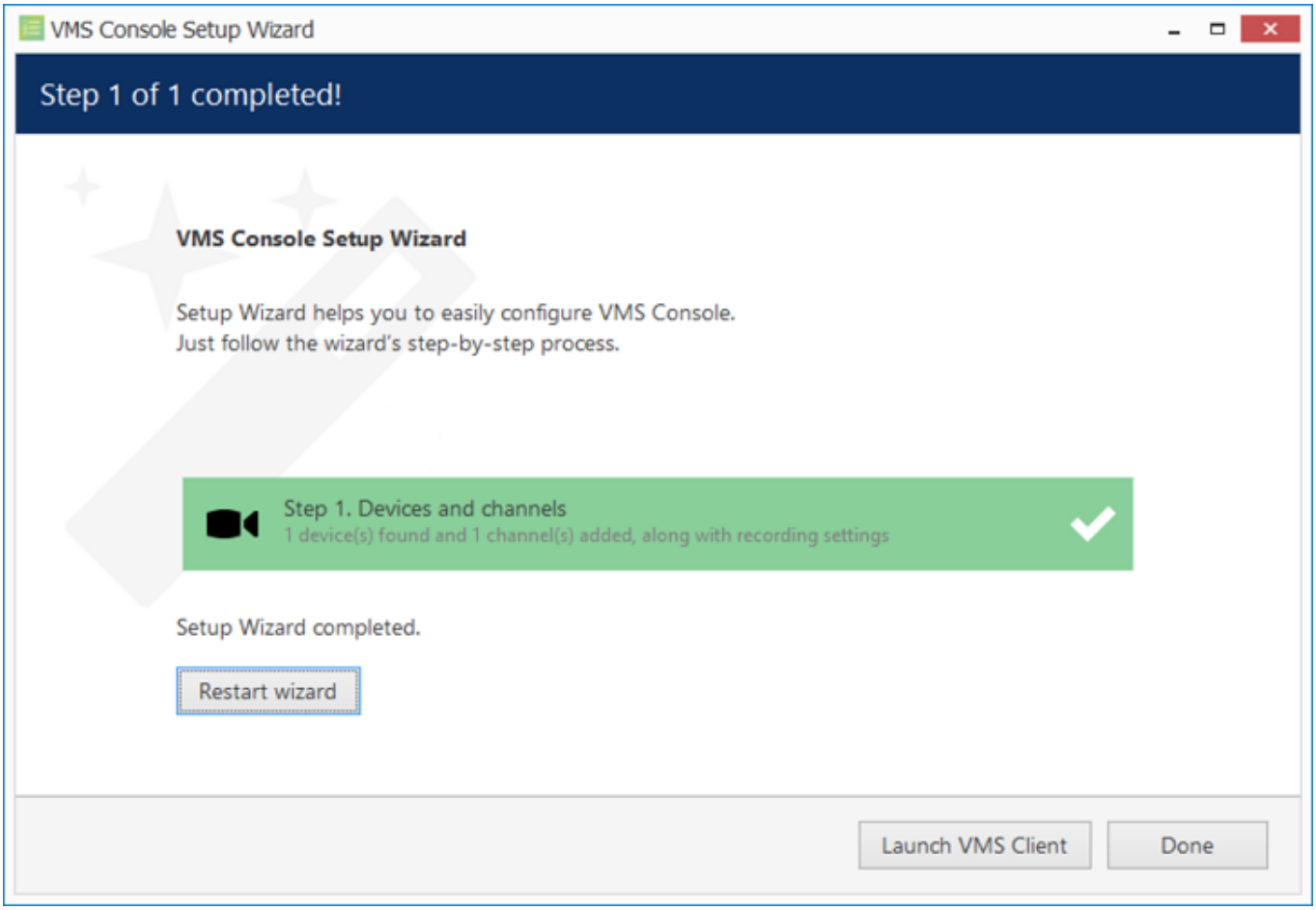
Select the recording configuration or create a new recording profile

Click the *Start device search* button above at any time to restart device discovery.

⚠ All previously discovered devices and all configuration changes will be discarded if you restart camera autodiscovery.

When you have finished with configuration, click *Add selected devices and channels* to go back to the wizard.

©2016. A&H Software House, Inc. All Rights Reserved.



Wizard completed successfully

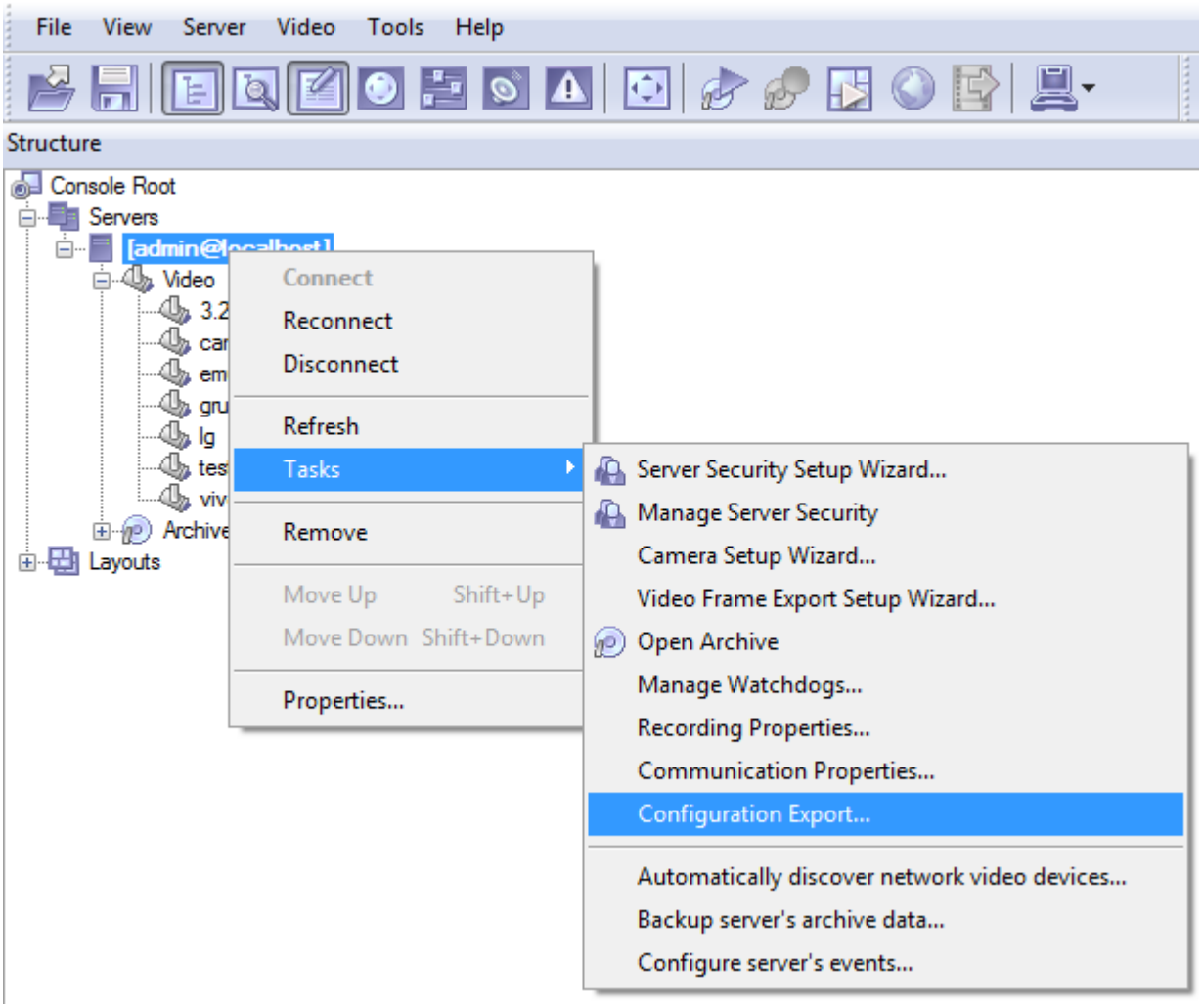
You can now either restart the wizard to cover the rest of your devices, or close it. Press the *Launch Luxriot Monitor* button to switch to the monitoring mode at once.

©2016. A&H Software House, Inc. All Rights Reserved.

Migration From Previous Product Versions

It is possible to migrate the basic configuration from the older Luxriot software version, Luxriot VMS. All you have to do is export an XML file from Luxriot VMS and then import it via Luxriot Console.

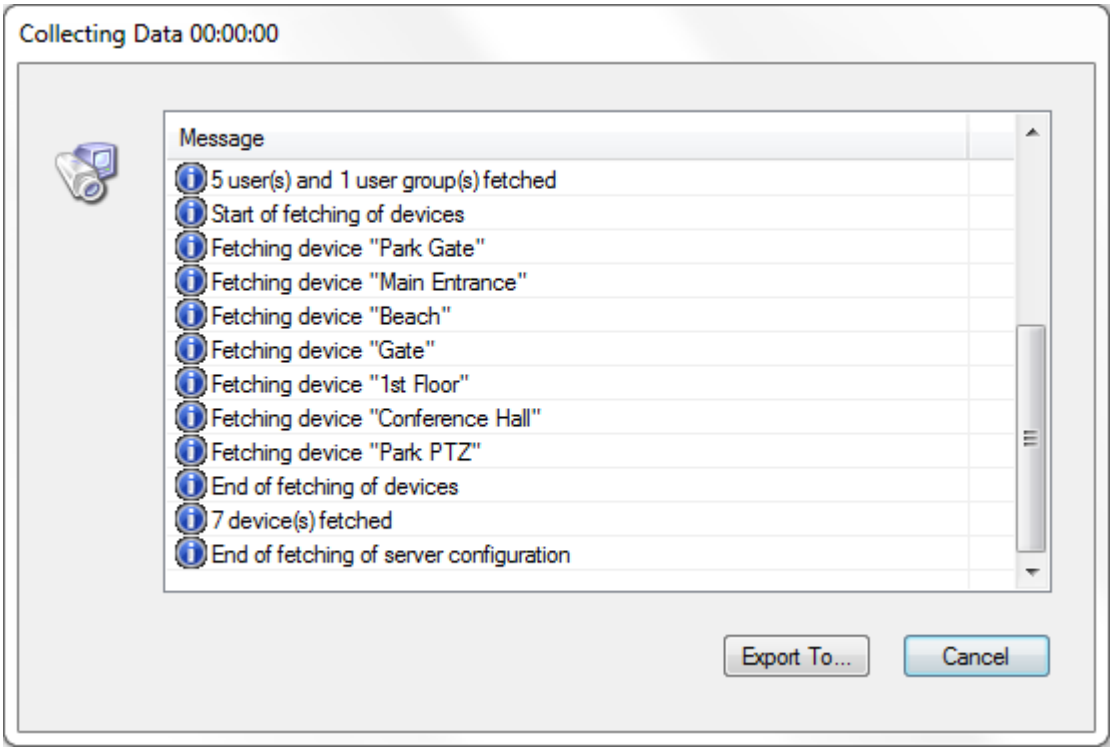
In your Luxriot VMS Client, right-click your desired server and choose *Tasks -> Configuration Export*.



Run *Configuration Export* from the server right-click menu

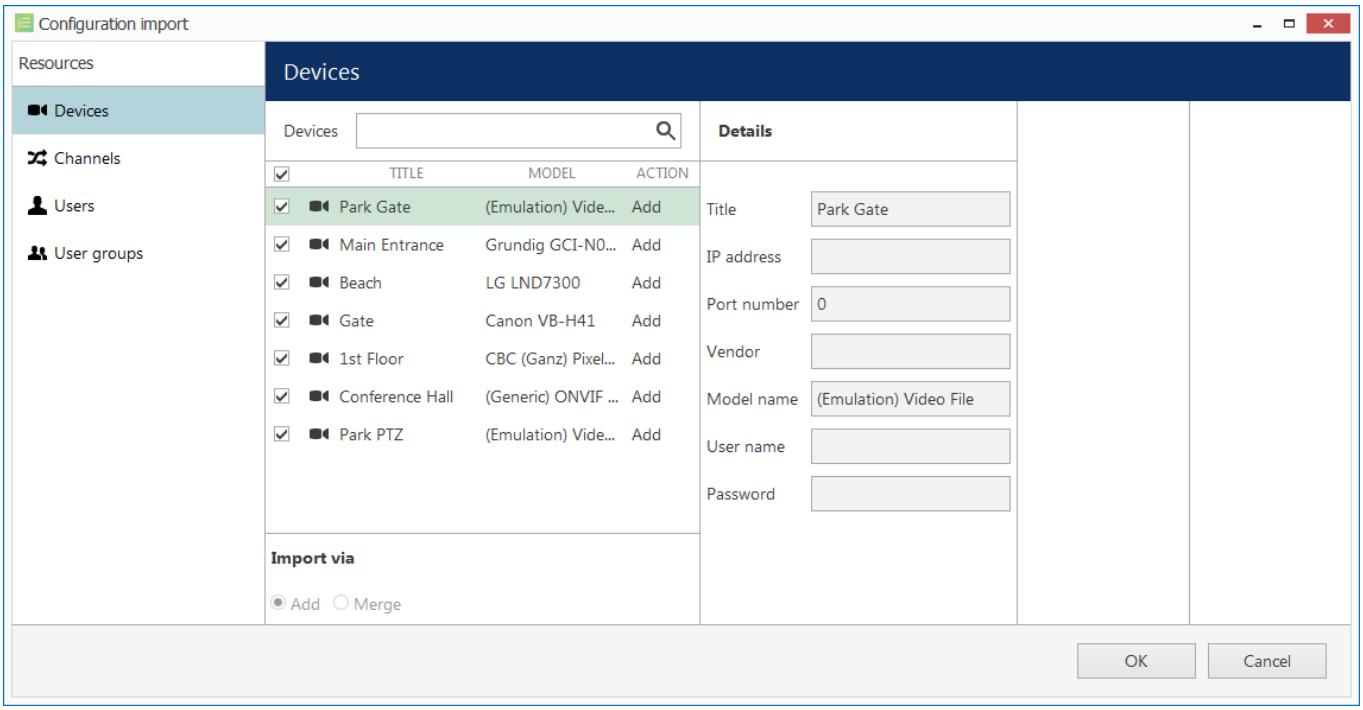
Export wizard will display a summary of all the exported resources and give you an option to save the configuration in XML format. In order to do this, click the *Export to...* button and choose a location and enter the filename, then click *Save*.

©2016. A&H Software House, Inc. All Rights Reserved.



Export tool

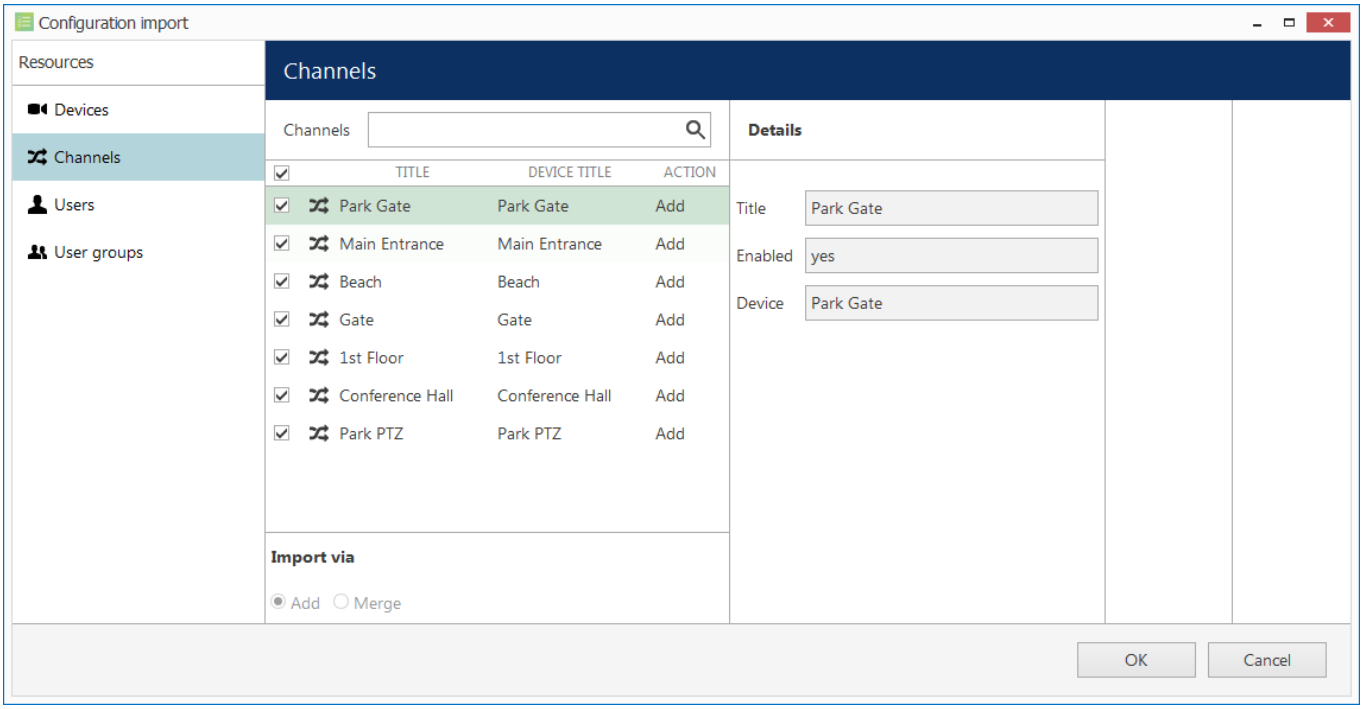
Next, switch to your Luxriot EVO installation where you want to load the configuration: open Luxriot Console and log into the target server. In Luxriot Console, click the application menu button located in the upper-right-hand corner of the Luxriot Console window and choose *Configuration import*. Locate your pre-saved XML file in the *Open file* dialog box and click *Open: Configuration import* dialog box will open, giving you the option to review the resources to be imported.



Choose devices to be imported

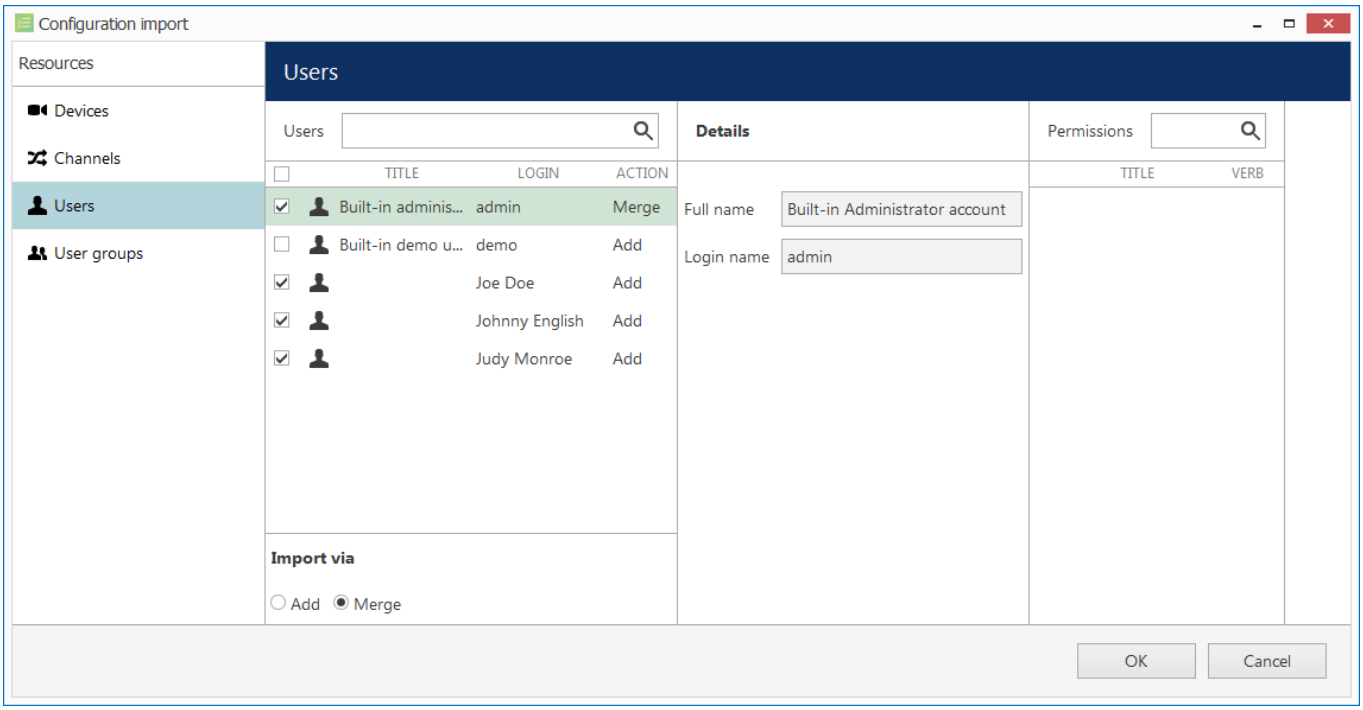
Review the list of devices to be imported from your pre-saved configuration; note that you can only view the settings but there is no option to change them. You will be able to alter device settings later, after you import the configuration. At this stage, you can choose whether or not the device will be imported: to do this, simply put a checkmark next to each device name. By default, all devices are selected for import.

©2016. A&H Software House, Inc. All Rights Reserved.



Choose channels to be imported

Next, switch to the *Channels* tab and review the channel list.

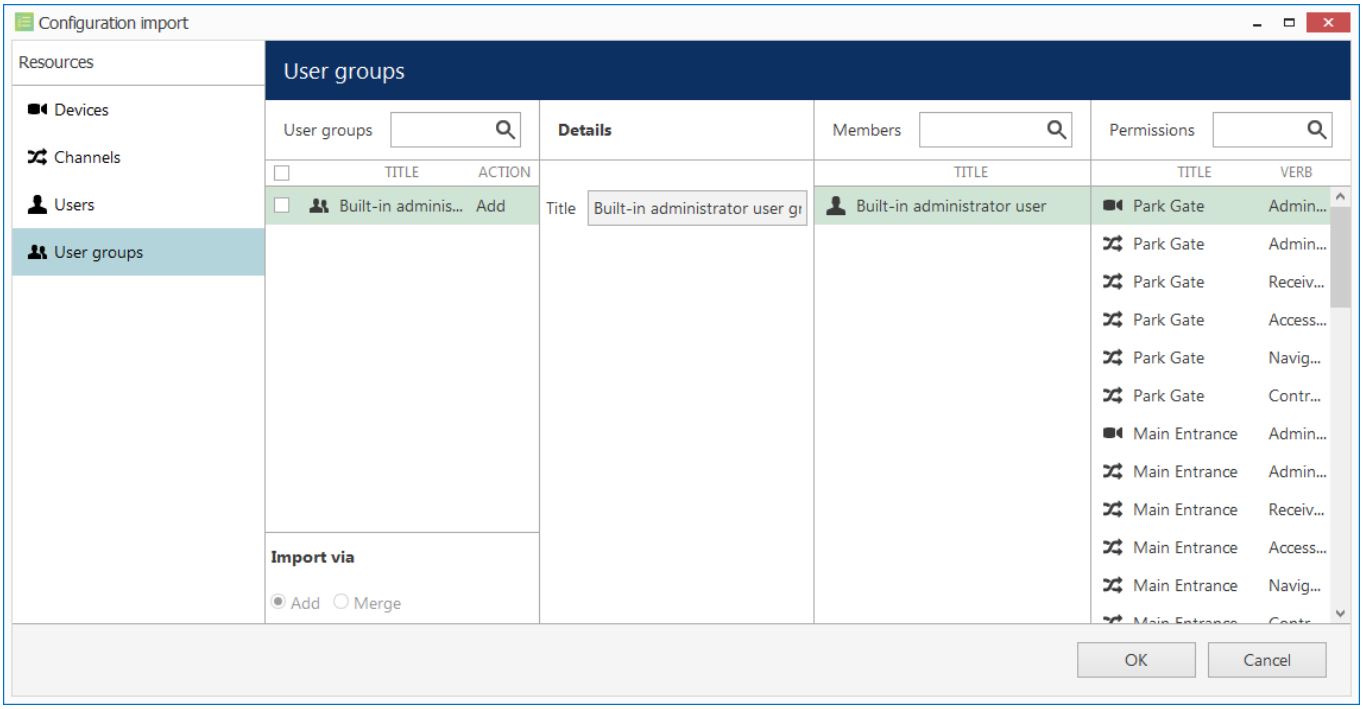


Choose users to be imported

When you have finished with devices and channels, review users and user groups to be imported.

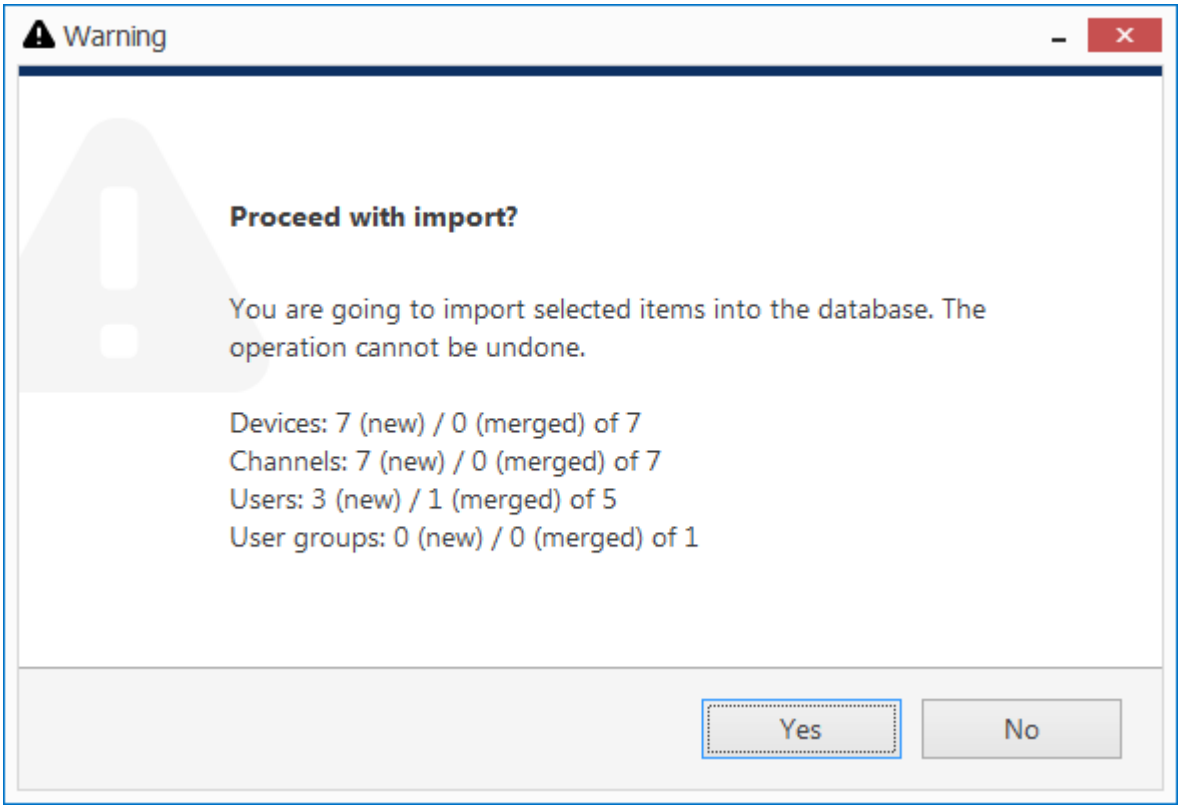
If some resource is already present in Luxriot EVO configuration, the wizard will mark the imported copy to be **merged** to the existing one; you can change this by selecting the desired resource and choosing the import type below: *Import via -> Add/Merge*. Otherwise, the import wizard will simply **add** the target resource to your configuration and action type choice will be grayed out.

©2016. A&H Software House, Inc. All Rights Reserved.



Choose user groups to be imported

When you are done, click OK to import the configuration. Luxriot EVO will show you a short summary and ask you to confirm the action.



Confirm import

After the import, you will be able to edit the newly added resources as usual via corresponding menu sections.

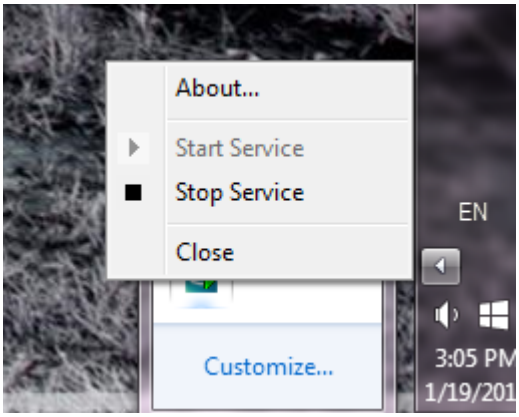
©2016. A&H Software House, Inc. All Rights Reserved.

Start & Stop Server Service

After software installation (except for the Luxriot Console or Luxriot Monitor only installations), two components are registered as Windows services: Luxriot Server service and the accompanying Watchdog service. Both these services are set to automatic start meaning that they will be launched straight after Windows start-up regardless of whether any user is logged in or not.

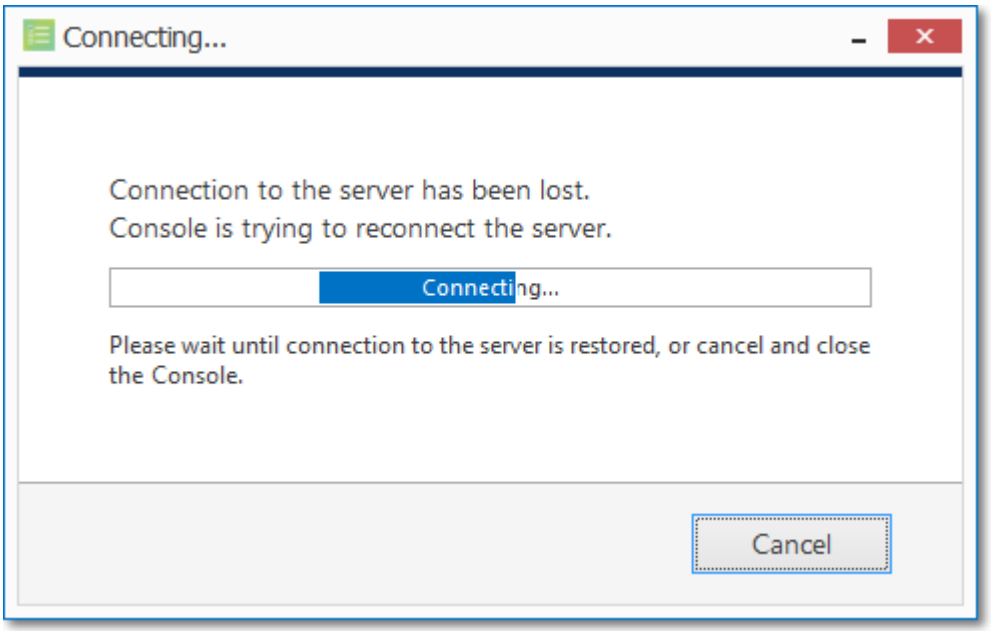
By default, the server will run in silent service mode, i.e., without any status indication other than that in the Windows Services management console; from there, both services can be stopped, started and restarted.

Double-click the server shortcut on your desktop to launch the system tray shell for the server: the server icon will appear in the system tray, allowing you to start and stop the service by right-clicking it and selecting your desired option. Luxriot EVO Watchdog service runs silently in background as an auxiliary service and has no user interface except for the settings' dialog box in Luxriot Console.



Start and stop the server service from the system tray

If the server service is stopped while Luxriot Console connections are active, the wait-for-server-connection window will appear on top of Luxriot Console, disabling any input. The same thing will happen if there are any problems with server connectivity. It will automatically disappear when the server is online again; alternatively, you can click *Close* to exit Luxriot Console at this point and open it manually later.

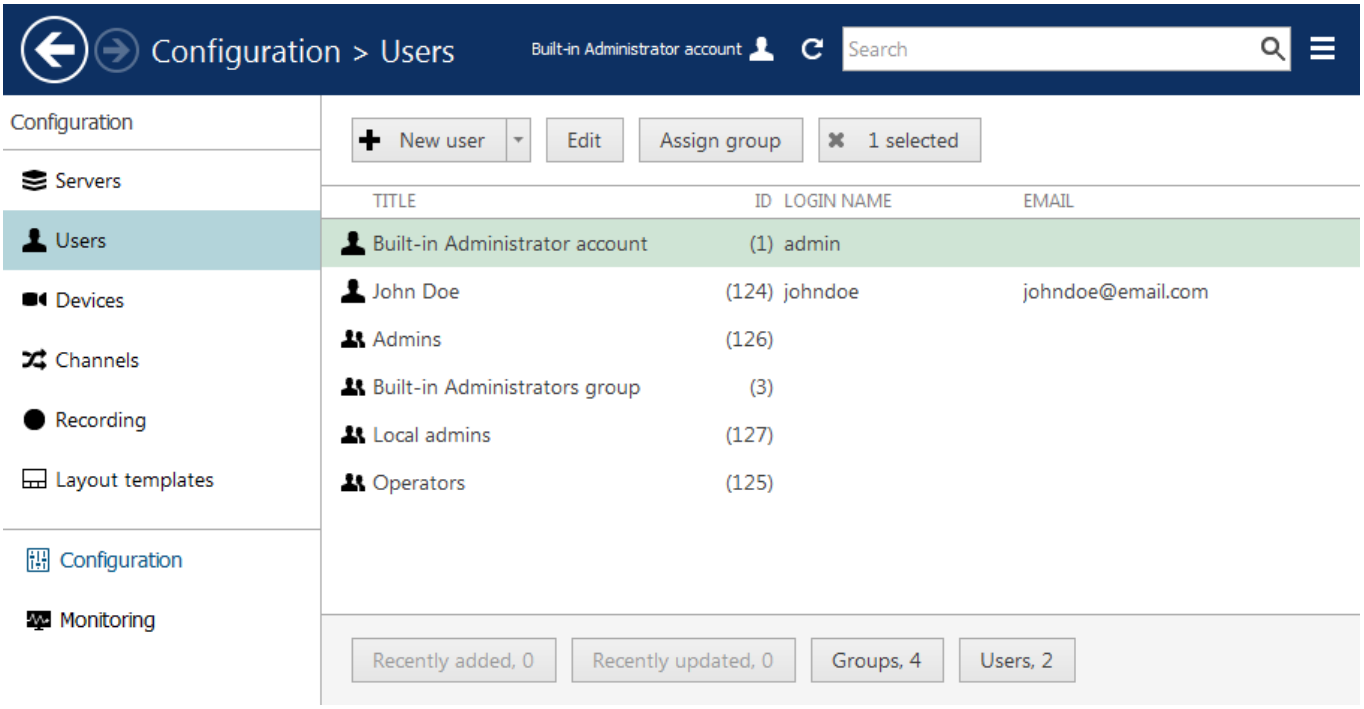


Connection lost

©2016. A&H Software House, Inc. All Rights Reserved.

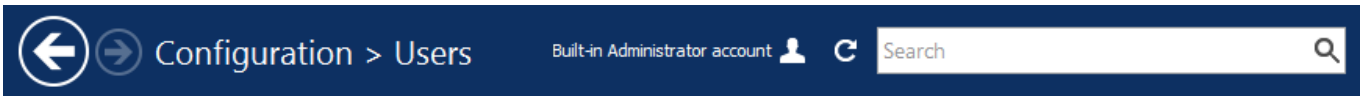
Interface Overview: Management Application

Luxriot Console is a straightforward graphics user interface tool with access to all possible server settings. To ensure comfortable and easy navigation, it is important that you become acquainted with its structure before starting to use it.



Luxriot Console management application interface

Navigation Panel



Luxriot Console Navigation Panel

The blue panel on top serves as navigation bar and its usage is similar to that of Windows Explorer. Here are its main components (from left to right):

- *Left* and *Right* arrows enable navigation through your browsing history and allow you to switch between previous and next locations; you can also use Backspace on your keyboard to go back
- Your current location is displayed right next to these arrows
- If you are in the Organisations view, an *Exit* button will appear
- Currently logged in *User account* button with options to view user profile or to log out
- *Refresh* button - reloads current item list
- *Search* field - only items matching the search criteria will be displayed in the list

©2016. A&H Software House, Inc. All Rights Reserved.

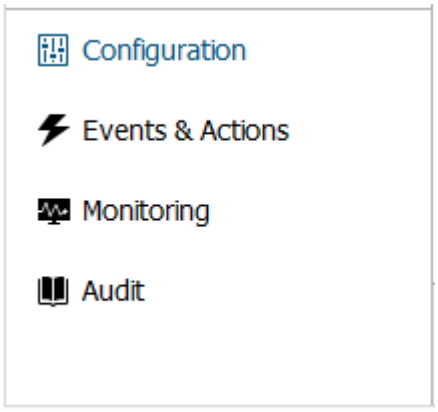
Application Menu

Application Menu, position: top right

Application menu button in the upper-right-hand corner gives you the following launches the options:

- launch the Setup Wizard
- import a pre-saved configuration from an XML file
- change console settings
- open the About section

Sections



Sections panel, position: bottom left

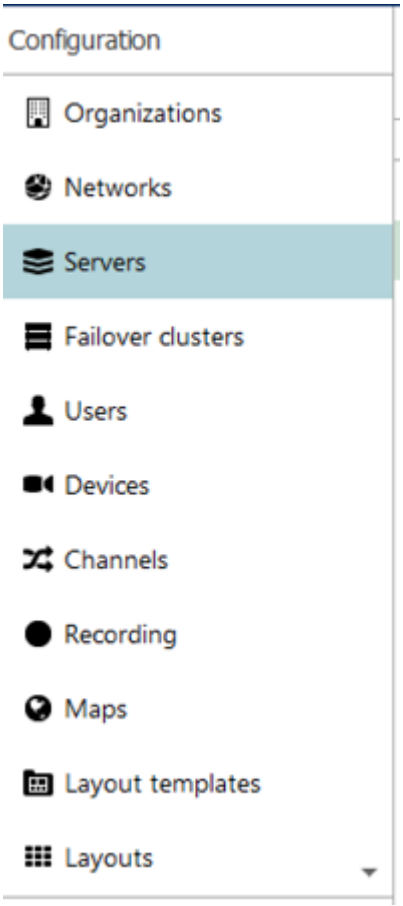
The bottom left panel allows you to switch between the four main Luxriot Console sections: Configuration, Events & Actions, Monitoring and Audit. The contents of the components panel on the left will change depending on the selected section.

Components

The panel on the left will display the list of all available configuration components based on the selected section. As a result of license limitations, some of the items may be greyed out or unavailable. The list below shows maximum available items by category:

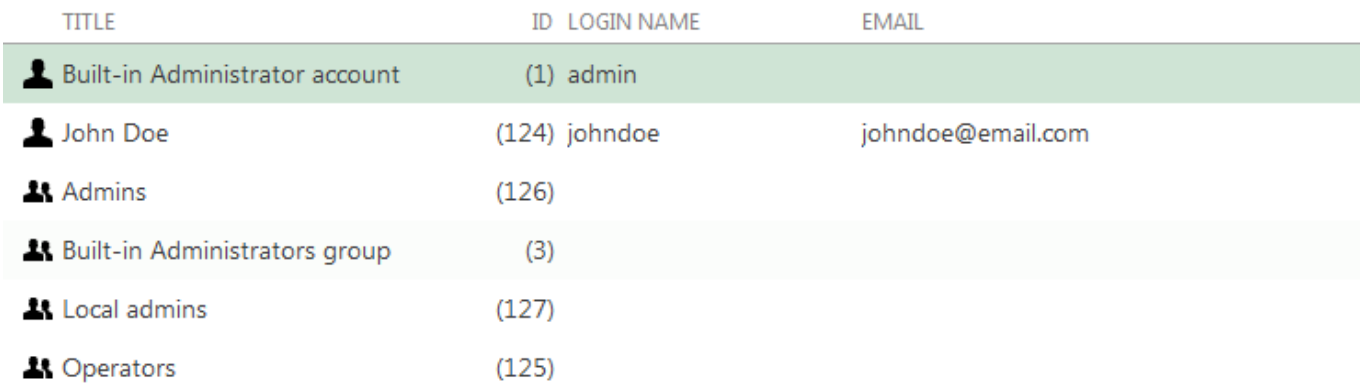
- Configuration
    - Organisations, Networks, Servers, Failover clusters, Users, Devices, Channels, Recording, Maps, Layout templates, Layouts, Visual groups
- Events & Actions
    - Rules, Events, Actions, Global Events, Conditions, Schedules, Mail servers
- Monitoring
    - Servers, Devices, Channels, User Sessions, Video Walls
- Audit
    - Servers, Users

©2016. A&H Software House, Inc. All Rights Reserved.



Components panel, position: left

Item List



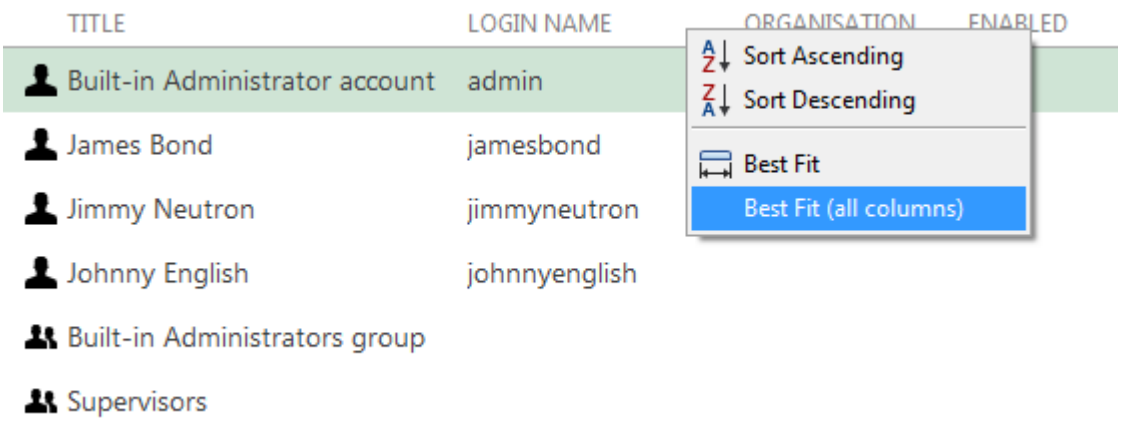
Item list, position: centre

The main part of the Luxriot Console window displays items in the selected category depending on the search and/or item filters. You can select one or more items at once using the *Shift* or *CTRL* button.

Click any column title to use is as a sorting basis for the whole item list; the little arrow near the column title indicates that it is currently being used for arrangement - either ▲ ascending or ▼ descending.

Right-click item list header for sorting options and column fit settings:

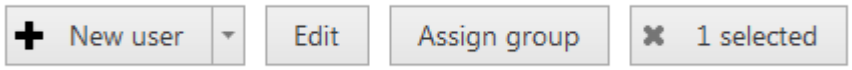
©2016. A&H Software House, Inc. All Rights Reserved.



Right-click header for additional options

If you choose to remove a column from presentation of the item list, the settings will remain in effect until the Luxriot Console restart.

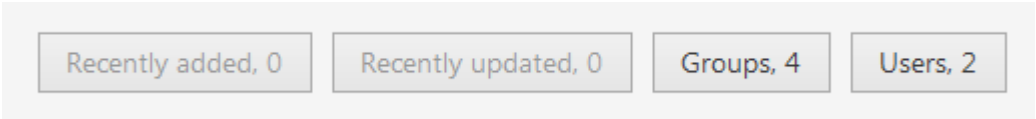
Item Actions



Item actions panel, position: top right, under Navigation panel

The panel above the item list displays the available actions, if applicable. Usually, the buttons here will allow you to create a new item, edit or delete existing ones, create or edit contiguous items, etc.

Item Filters



Item filters panel, position: bottom right

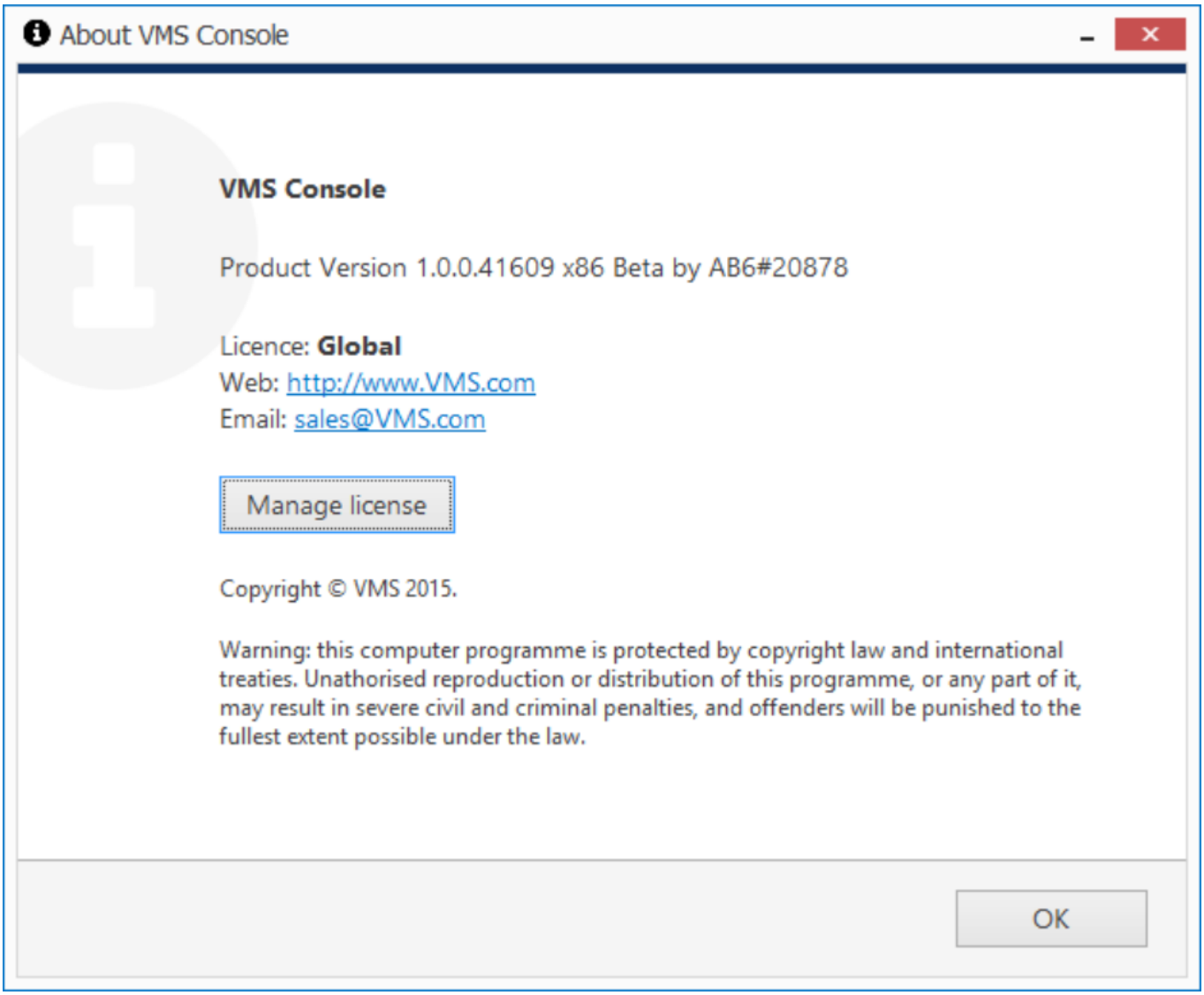
The bottom panel contains miscellaneous item filters, such as: recently added and updated, corresponding groups etc. Click any of the filters to apply them; use the *X* button to reset and display the full item list.

©2016. A&H Software House, Inc. All Rights Reserved.

About Product

Information about currently running software can be viewed from the local computer in the following ways:

- **Luxriot EVO info**: right-click the system tray icon and select *About* (if there is no tray icon, launch server shortcut to run the tray shell);
- **Luxriot Monitor info**: from Luxriot Monitor, go to the main menu, click *Help* and select *About;*
- **Luxriot Console info**: from Luxriot Console, go to the main menu, click *Help* and select *About*.



About Server

©2016. A&H Software House, Inc. All Rights Reserved.

Conventions and Keyboard Shortcuts

Mouse Gestures

Double-click item containing more entities (e.g., any group): opens item contents in the same window

Double-click non-expandable item (e.g., server, user): opens entity configuration dialog box

CTRL+click or **Shift+click**: select multiple items in a list

Keyboard Shortcuts

Backspace: browse one step back in Luxriot Console

Alt+F4: close Luxriot Console

CTRL+A: select all items

Visual Elements

General

 New item (click  drop-down arrow to see available options)

 Remove item(s)

 Deselect item(s)

 Unacceptable filed value

 More information about the item

 Refresh item list

 Search

Luxriot Console sections

 Configuration

 Events & Actions

 Health monitoring

Management

 Network (server connection), connection settings

 Server

 Server group

 Software Watchdog

 Storage

 Resources (all or any type)

 User account/session

 User group

©2016. A&H Software House, Inc. All Rights Reserved.

 General details

 Members of the current item

 Current item membership in other groups

 User and user group permissions for target item

 Device (physical equipment)

 Device group

 Channel (stream)

 Channel group

 Recording profile (core recording settings)

 Recording schedule (recording itinerary based on core recording settings)

 Recording configuration (recording interface assignable to channels)

 Motion detector

 Layout Template

 Audit Journal (software log)

 Set (period etc.)

Events & Actions

 Rules

 Events

 Actions

 Global events

 Conditions

 Event & Action schedules

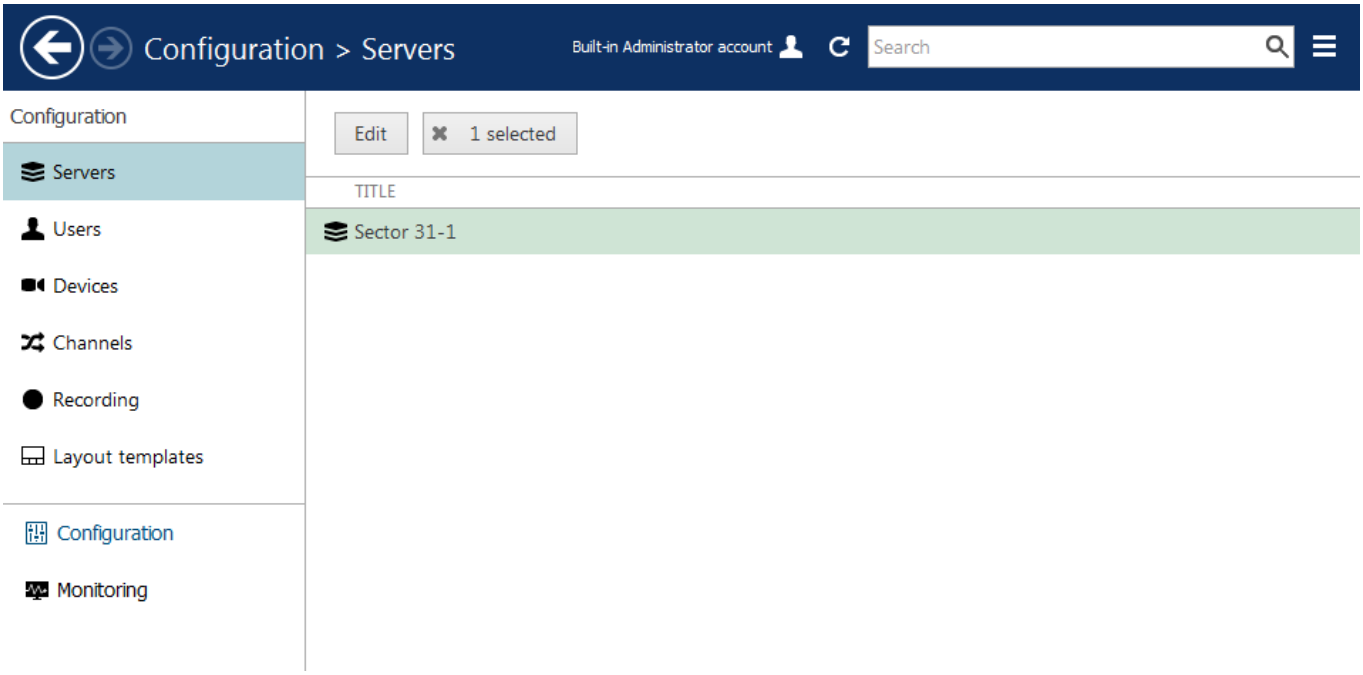
 Mail servers

 Action delay timers

©2016. A&H Software House, Inc. All Rights Reserved.

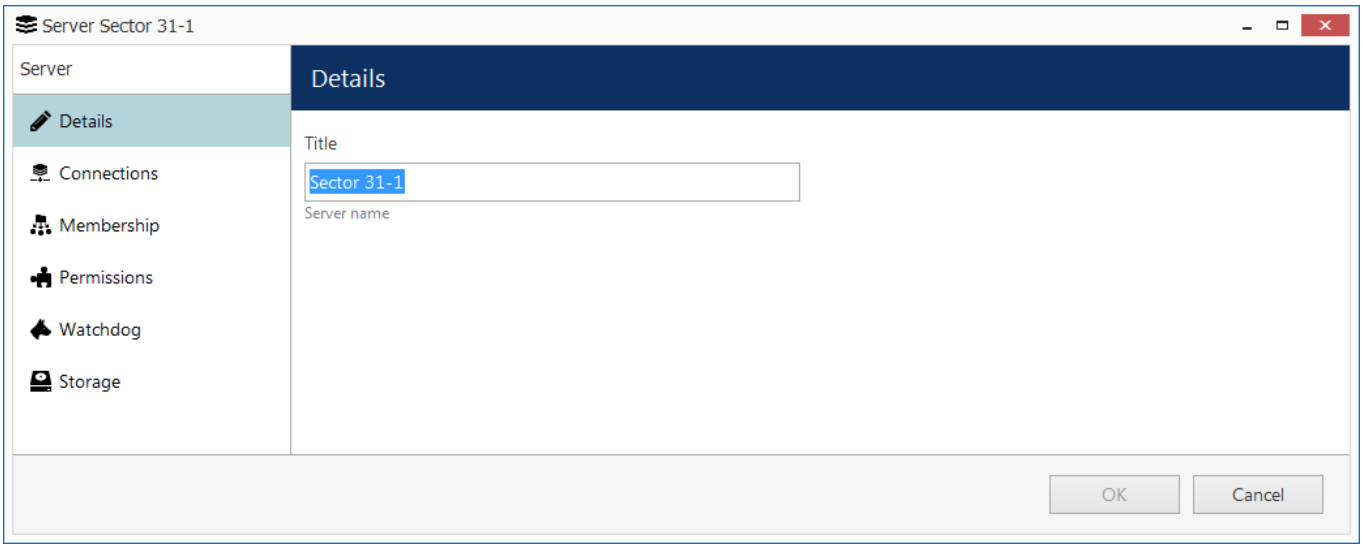
Server Settings

In order to access Luxriot EVO S server settings via Luxriot Console, select *Configuration* section and then choose *Servers* components from the menu on the left.



Configuration -> Servers

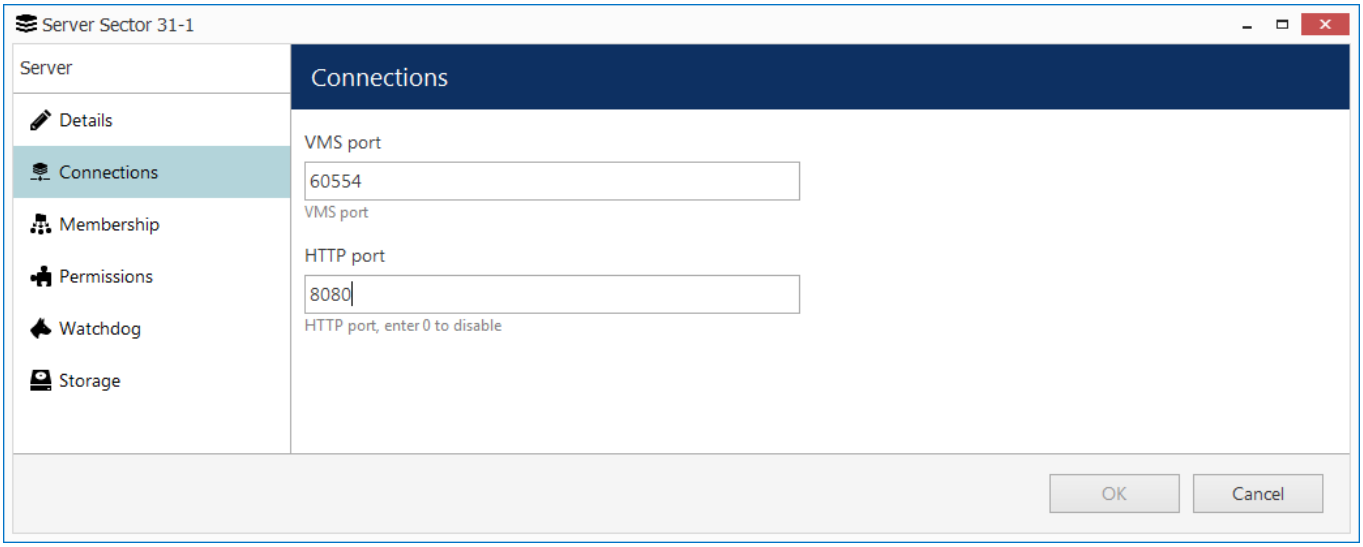
Double-click server or click the *Edit* button on the upper panel to access server configuration dialog box.



Server details

On the *Details* tab, you can change the server name: it will appear everywhere in Luxriot Console and in the connected Luxriot Monitor applications, including Web clients.

©2016. A&H Software House, Inc. All Rights Reserved.



Connection properties

The *Connections* tab allows you to define **ports** for Luxriot Monitor and Luxriot EVO Streaming Server connection; the default ports are 60554 for Luxriot Monitor and 8080 for Luxriot EVO Streaming Server (HTTP).

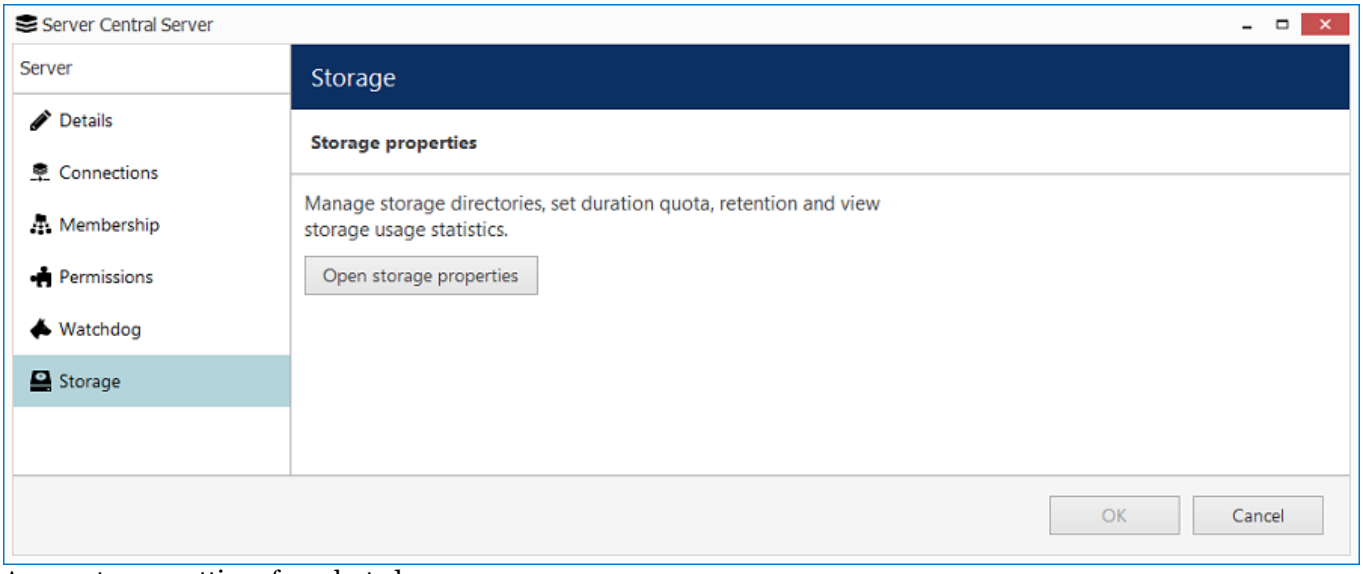
The following sections describe the remaining aspects of server settings in details.

©2016. A&H Software House, Inc. All Rights Reserved.

Storage

Server storage configuration includes storage directories, size and duration quotas, cleanup time settings and storage differentiation by name for further flexible allocation of the recorded streams.

To access the storage settings for the server via Luxriot Console, choose the *Configuration* section, then select *Servers* from the menu on the left, double-click your server and then click the *Storage* tab.



Access storage settings for selected server

Click *Open storage properties* to open the configuration dialog box.

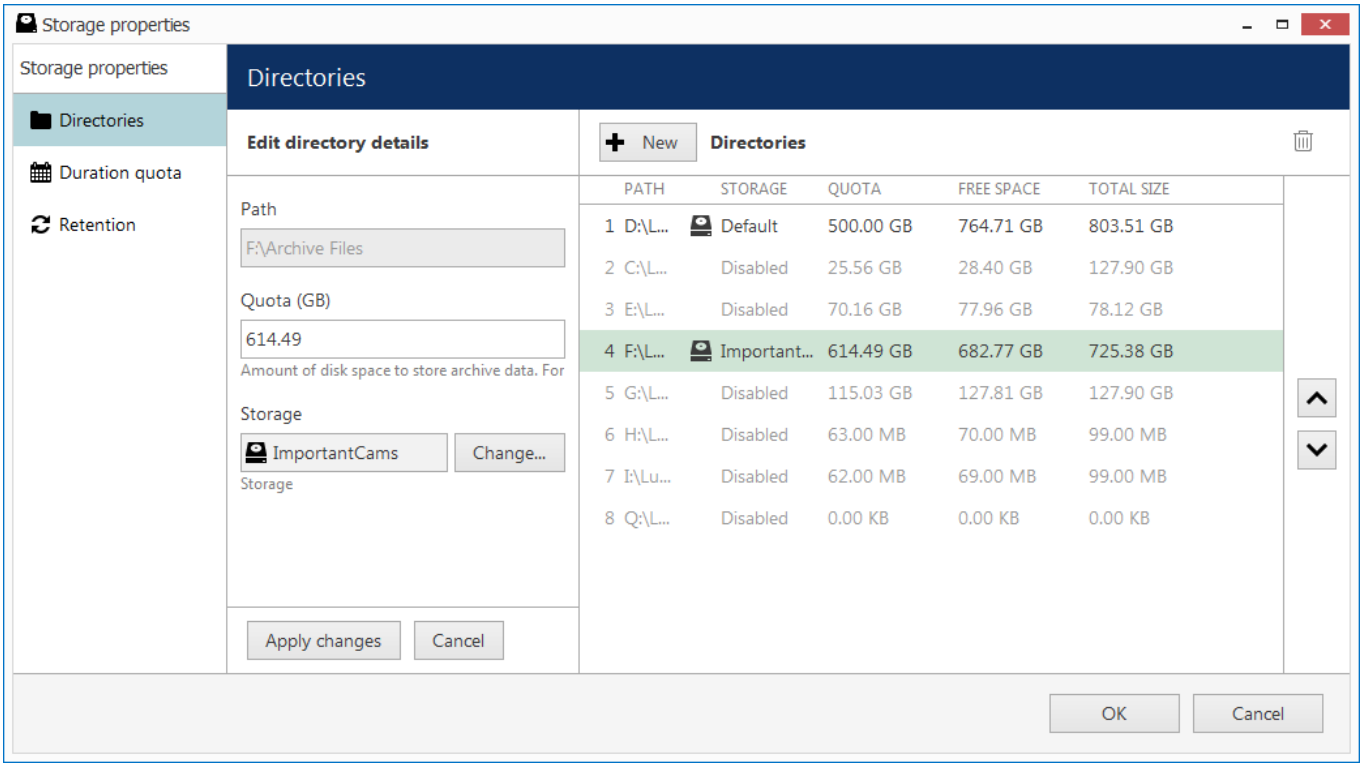
Directories

All available **local disks** (also mapped network shares that appear as drives in Windows Explorer) will be automatically listed and checked for recording with default archive directories. You can also add network paths to remote storage locations. Use UP and DOWN arrows on the right to change the disk order (priority).

For each storage location, the following information will be displayed:

- storage priority: determined by the item position in the list
- storage profile (see description below)
- current quota size
- free space on disk
- total disk size

©2016. A&H Software House, Inc. All Rights Reserved.



Configure storage directories

Each directly attached storage location will be automatically assigned a quota of 90%; each network storage will have a zero quota by default so you need to enter the quota size manually. We strongly advise that you review all the settings and make sure that all the storage locations have sufficient free space, and, if necessary, set a lower quota or free up some space. It is recommended that every recording location has 10-15% of free space: this helps avoid fragmentation effect and also allows highly loaded software to effectively enforce recording quotas.

> We advise against recording to the system drive because it is often used by other processes like defragmentation and system backup, not to mention OS itself, and thus doing so may affect recording efficiency and stability. As a result, disk C: is not selected for recording by default.

To change the disk quota, simply highlight the desired location for storage from the item list, then enter the quota size in GB and click *Apply changes*.

Storages

You can either use the *Default* storage category for all locations, or create multiple different **storage** profiles (types, names). These can be used for manually distributed streaming between storage directories:

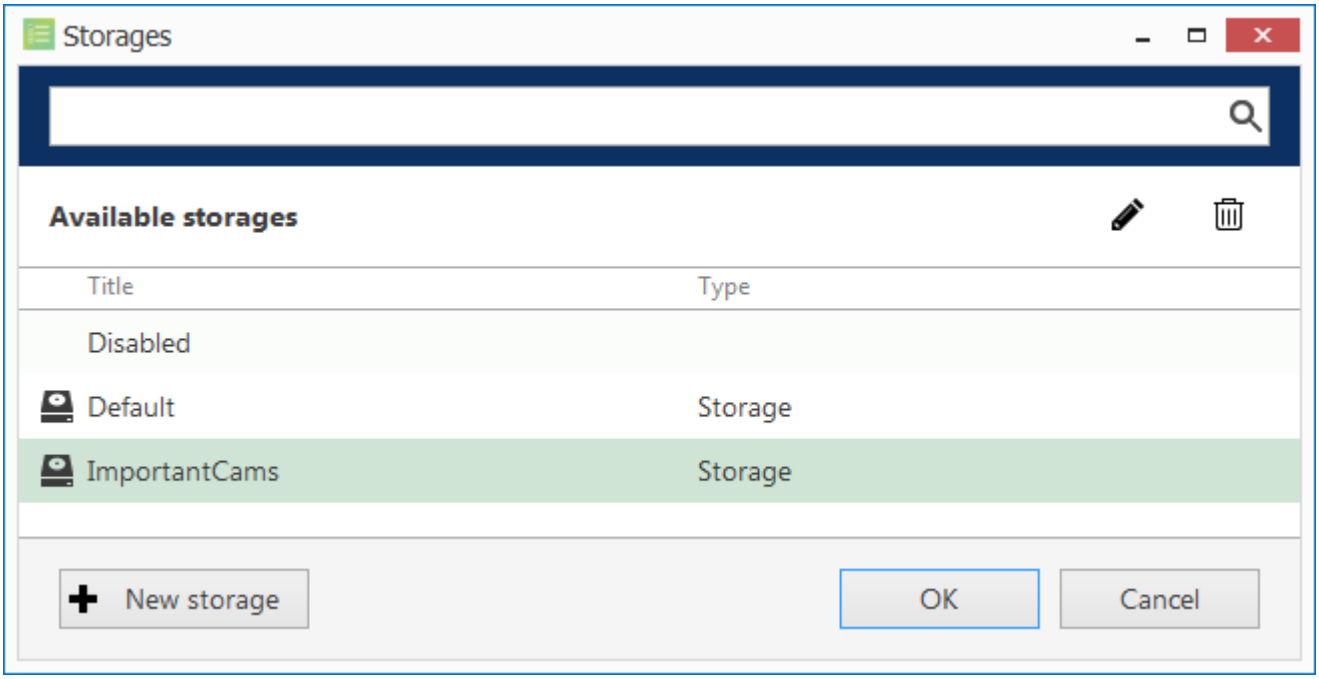
- storage directories are marked with corresponding storage tags
- each channel is assigned to a recording location

To choose a storage profile different from the *Default*, select the storage location from the *Directories* list and click the *Change* button.

Change storage

Select one of the built-in storage profiles or create and edit a new one.

©2016. A&H Software House, Inc. All Rights Reserved.



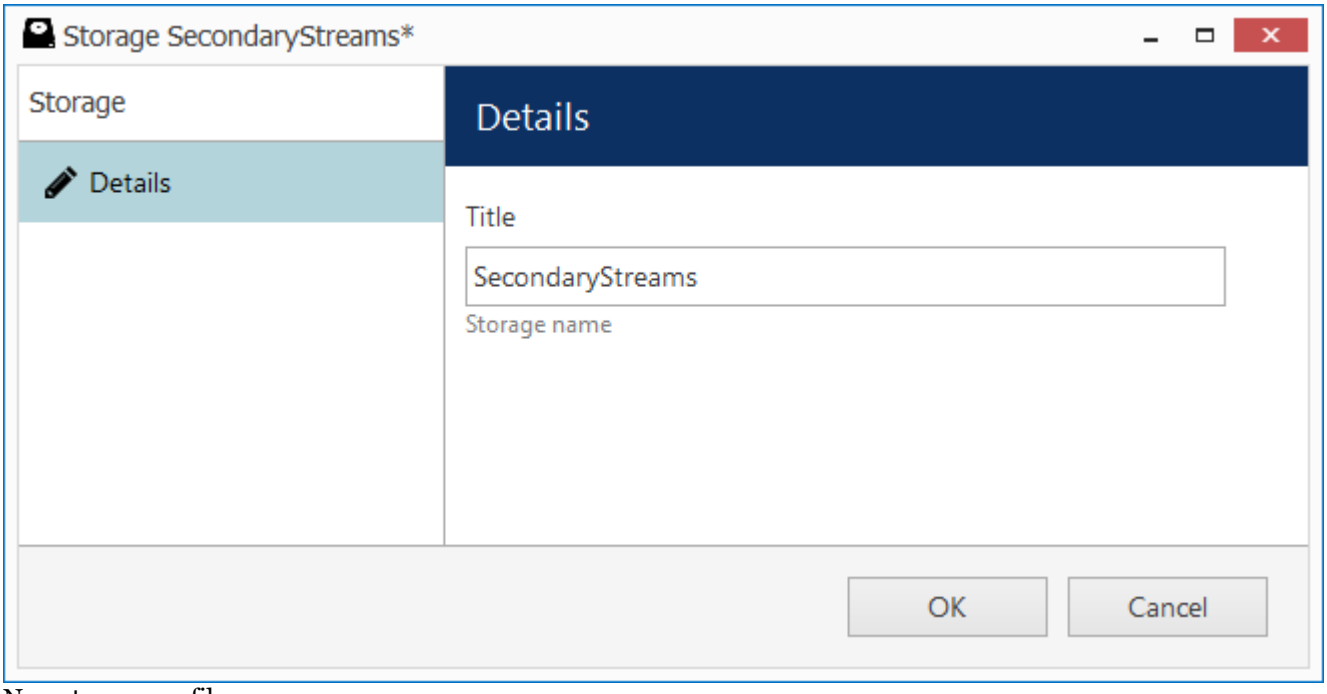
Choose storage profile

The built-in storage types are:

- Disabled: no data will be recorded
- Default

These profiles cannot be edited or removed.

Click + *New storage* button to create a new storage profile, or select an existing one and click the *Edit* button in the upper-right-hand corner to change its name.



New storage profile

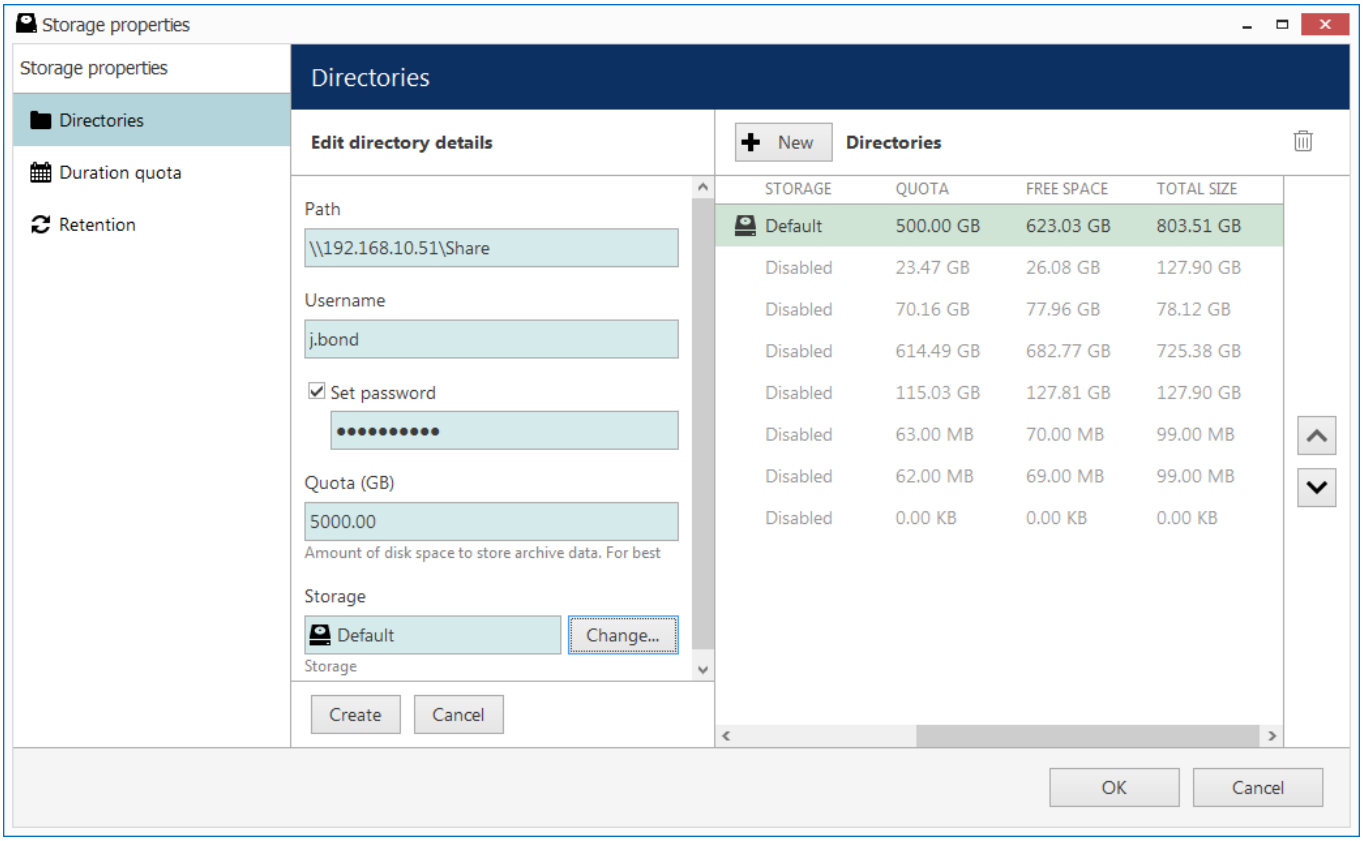
Enter the storage profile title and click *OK* to save and exit.

The storage tag you have selected or just created will appear as selected. Click the *Apply* button below to **confirm** storage configuration settings before proceeding.

©2016. A&H Software House, Inc. All Rights Reserved.

Remote storage locations

In order to add a **network storage** (NAS, SAN, network share) that is not mapped as a drive in Windows, click + *New* button on the upper panel and enter the setup details.



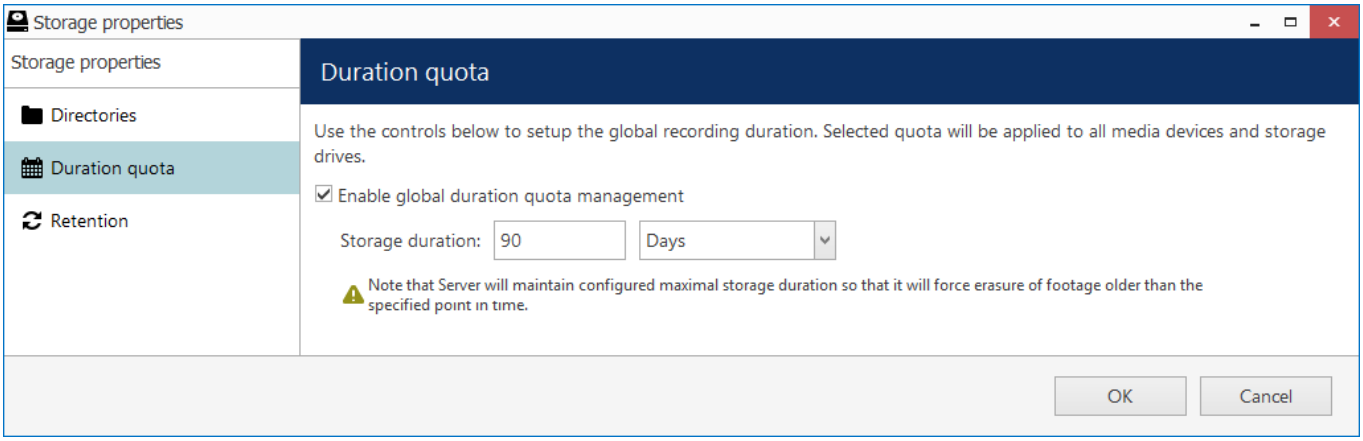
Add new storage directory

Setting	Description	Default Value
Path	Full network path to the storage directory	\\Server\Share\Luxriot\Archive Files
Username	User name to connect to the storage	[empty]
Password	Define storage access password, if applicable	[empty]
Quota	Maximum amount of storage in gigabytes to be used for recording; 85-90% is recommended	0.00
Storage	Storage profile to be assigned to the target storage directory	Disabled

Duration Quota

Set the global recording duration limit for your server here: enable quota management and then enter desired number of days. All recordings older than the number of days specified will be erased.

©2016. A&H Software House, Inc. All Rights Reserved.

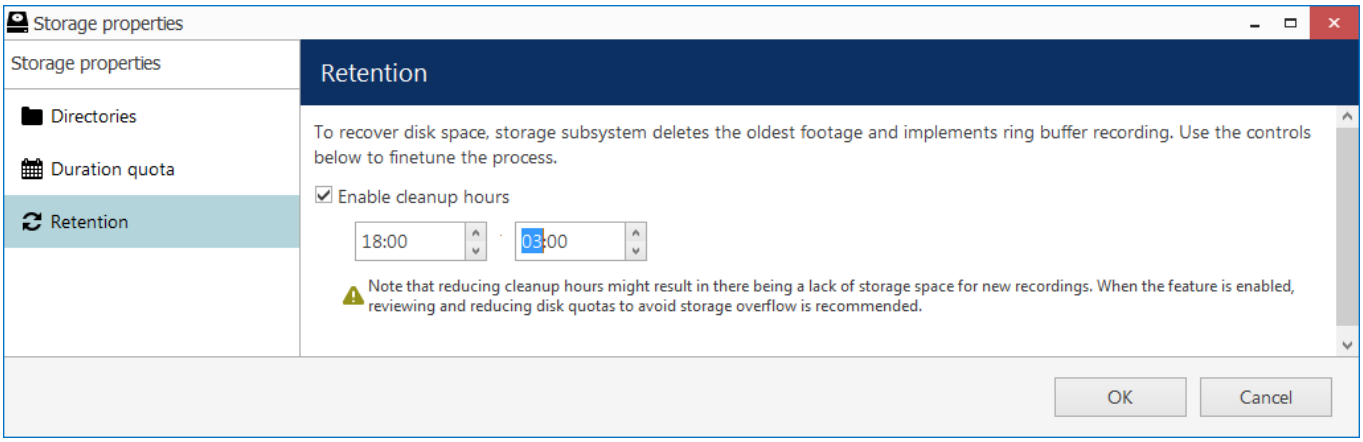


Global duration quota

Note that the global duration quota has priority over the individual (per-channel) duration quota that is set in the recording configurations.

Retention

You can set the software erasing mechanism so that it cleans up old recordings only during specific periods of time, e.g., when the recorder is less overloaded or when the quality of recordings are less important.



Set cleanup hours

To do this, enable the cleanup hours setting and specify the time period during which erasing is allowed.

> ⚠ This control has priority over the storage quota. Setting insufficient cleanup time may lead to storage overflow and result in recordings being lost. We strongly recommend that you do not enable any cleanup hours' restrictions unless you absolutely know what you are doing.

©2016. A&H Software House, Inc. All Rights Reserved.

Watchdog

General

Server Watchdog is an integral part of the server core. It protects the software from certain types of failures by automatically attempting to restart the server.

Watchdog operates based on the software and system overall health monitoring; default trigger values have been selected on the grounds of our analysis of extensive tests run on systems of different configuration and stability level.

Although it is possible to disable the Server Watchdog service, we strongly advise against doing so, as the principal role of Watchdog is to keep the software operation as stable as possible in the given circumstances.

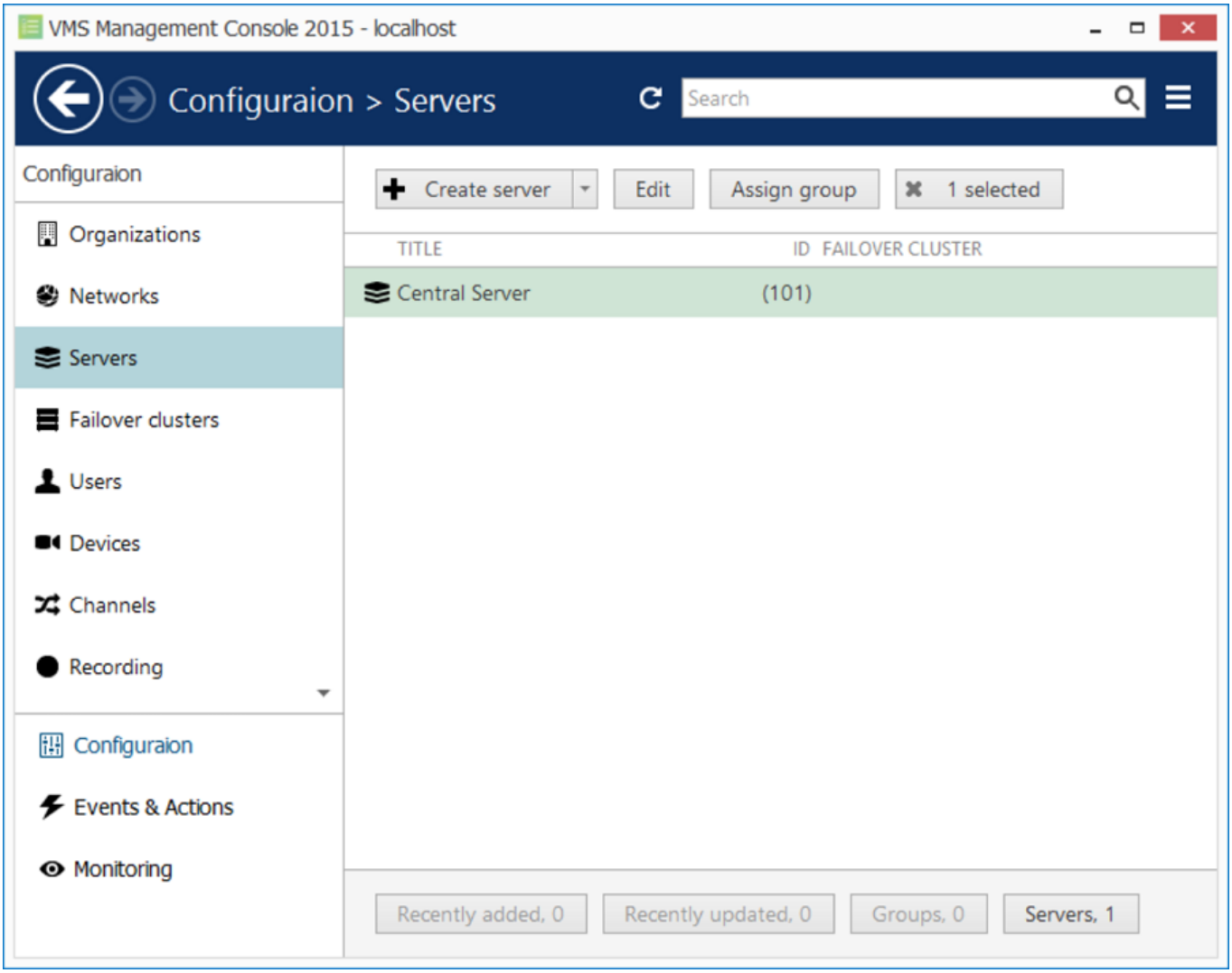
Watchdog operation can be tracked by messages in the Windows Application log. If you do experience frequent disturbances such as software restarts or server rebooting, this will be an indication of some serious issue related to the software, operating system and/or underlying hardware. In such a situation, the best course of action is to:

- carefully read the messages in the Windows Application Log, as these may already contain some indication of why Watchdog was triggered;
- refer to the relevant topic in the Troubleshooting section of this manual to read about typical causes of such cases;
- send a Problem Report from the faulty server, providing as much information as possible about the issue;
- consult the Luxriot technical support team directly via support@luxriot.com.

Configuration

Watchdog operation can be configured for each server independently. To access Watchdog settings, in Luxriot Console select *Configuration* in the bottom left menu and select *Servers* from the list on the left, then double-click the desired server or simply click *Edit* button on the top panel for the pre-selected server.

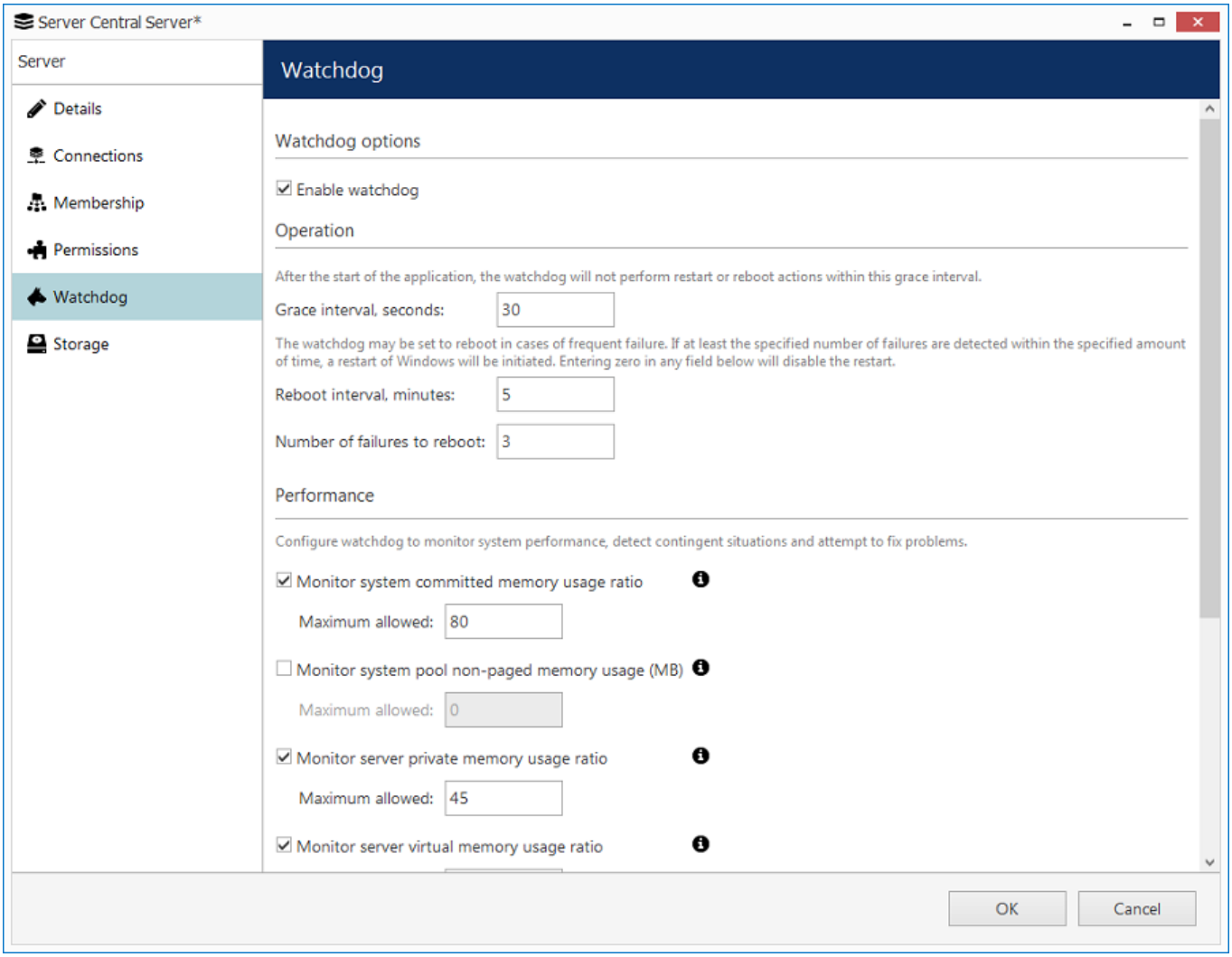
©2016. A&H Software House, Inc. All Rights Reserved.



Locate server for Watchdog configuration

In the *Server* dialog box, select Watchdog from the left menu.

©2016. A&H Software House, Inc. All Rights Reserved.



Watchdog configuration

©2016. A&H Software House, Inc. All Rights Reserved.

The table below contains a detailed explanation of Watchdog settings. Please note that for most cases default and near-default settings are recommended; it is advisable that you consult with Luxriot support if for some reason you plan to make extensive changes to these settings. Click the information icon next to each setting to read more about them.

Setting	Description	Default Value
Enable Watchdog	Enables Watchdog operation for the target server	Enabled
Grace Interval, seconds	Time interval in seconds, counting from server start, during which Watchdog will not attempt to restart the software	30
Reboot Interval, minutes	Watchdog will reboot Windows if there have been a certain number (N) of software restarts (N is specified below) in the given time interval; the default for rebooting is 3 restarts in 5 minutes; setting the specified number to 0 will disable rebooting	5
Number of Failures to Reboot	Watchdog will reboot Windows in case there have been N software restarts in the time interval specified above; the default for rebooting is 3 restarts in 5 minutes; setting the specified number to 0 will disable rebooting	3
System Committed Memory Usage Ratio, %	Watchdog will restart the software if the ratio of total system committed memory exceeds the specified percentage; this value is shown under Memory section of Performance tab in the Windows Task Manager	Enabled, 70%
System Pool Nonpaged Memory Usage, MB	Watchdog will restart software if the amount of system nonpaged pool memory exceeds the specified amount	Disabled
Private Memory Usage Ratio, %	Watchdog will restart software if the amount of private memory used by server process exceeds the specified value	Enabled, 45%
Virtual Memory Usage Ratio	Watchdog will restart software if the amount of virtual memory used by server process exceeds the specified ratio; ratio shows the amount of virtual memory used by server process versus maximum per-process virtual memory allowed by OS	Enabled, 90%
Enable Periodic Restart	Enables automatic software restart every N days or hours; use hours for troubleshooting purposes	Enabled, 7 days
Enable Periodic Restart Hours	Limit periodic restart to specific hours, e.g. only restart at night; we recommend to leave at least a 1h interval for the restarts	Disabled

©2016. A&H Software House, Inc. All Rights Reserved.

Overview of Devices and Channels

The traditional idea of cameras as surveillance software entities has been developed, resulting in the concept of devices and channels. Essentially, it represents the separation of physical and data layers for reasons of security and easier management.

"Device" refers to any piece of physical equipment that serves as a data provider; a hardware piece delivering video, audio and event streams to the server. IP cameras, video encoders, capture boards, USB web cameras - these are all examples of devices that can be added to Luxriot software. Devices do not include any data streams.

"Channel" refers to any actual video stream (with corresponding audio/event stream, if applicable) delivered to the server from any of the configured devices. Software licensing mechanism counts channels and not devices.

In Luxriot Console, devices hold camera TCP/IP and user settings, as well as actual hardware model. By contrast, channels do not possess these properties: this allows them to be handled as virtual entities, detaching and re-attaching them from/to devices. Channels feature video stream configuration settings - resolution, frame rate, bit rate and others - as well as all supplementary data streams, such as audio, motion and digital input/output events, PTZ control and camera-side analytics information.

As there are also some multichannel devices, e.g., capture boards and video encoders, each device can have one or more channels attached to it - these can either be assigned or detected automatically; maximum number of channels for each specific device is stipulated by the device model.

Devices only appear within Luxriot Console, allowing the administrator to apply all necessary configurations. Luxriot Monitor only displays the channels and does not provide any access to the devices' properties to the end users.

Both devices and channels can be grouped independently. For internal Luxriot Console management, device groups and channel groups are available; for Luxriot Monitor channel grouping, visual groups can be used.

©2016. A&H Software House, Inc. All Rights Reserved.

Add Devices Using Autodiscovery

Use automatic device discovery feature to find all available devices. This method is of great help when dealing with large amounts of cameras, and also when exact addresses of devices are not available.

To access the configuration dialog box from Luxriot Console, open *Configuration* section and select *Devices* in the menu on the left; in the upper panel, click down arrow near *New device* button and then select *Find devices*.

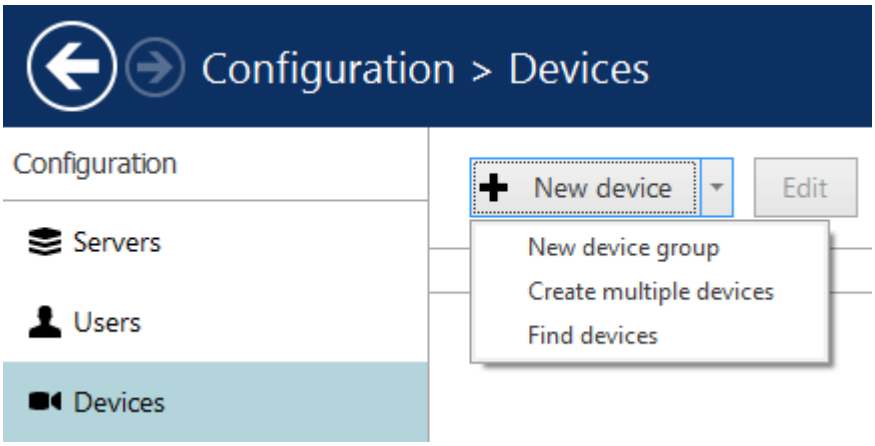


Image Title

©2016. A&H Software House, Inc. All Rights Reserved.

Scan Parameters

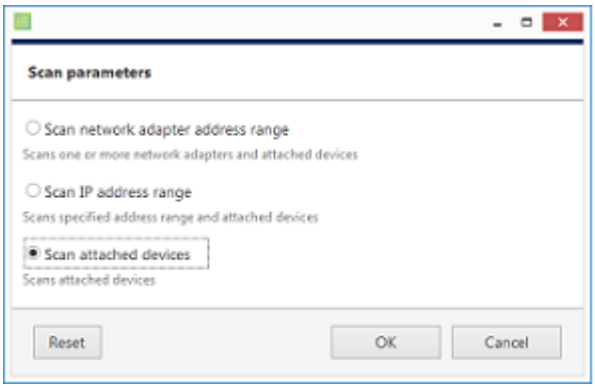
First, select scan mode; the following options are available:

- scan IP address range: specify a continuous LAN segment to be scanned
- scan network adapter address range: select one or more network interfaces to be fully scanned
- scan attached devices: the local hardware system will be scanned for capture boards and Direct Show video sources

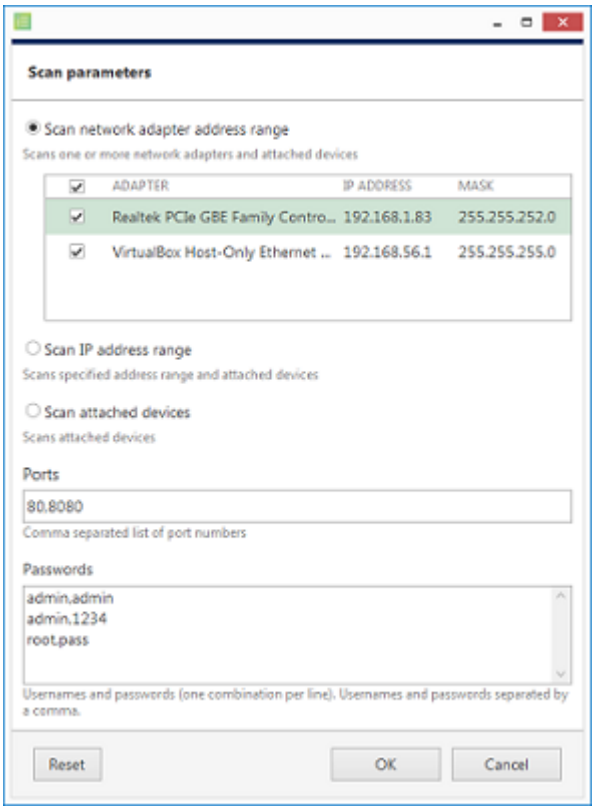
If you have chosen to search for IP video sources, you should review additional connection settings and change or update them, if required:

- ports: HTTP ports, comma separated
- user credentials: pairs of comma-separated user names and passwords, one pair per line

Use the *Reset* button below to discard all changes and start entering scan parameters again. When you are ready, press *OK* button below to begin scanning.

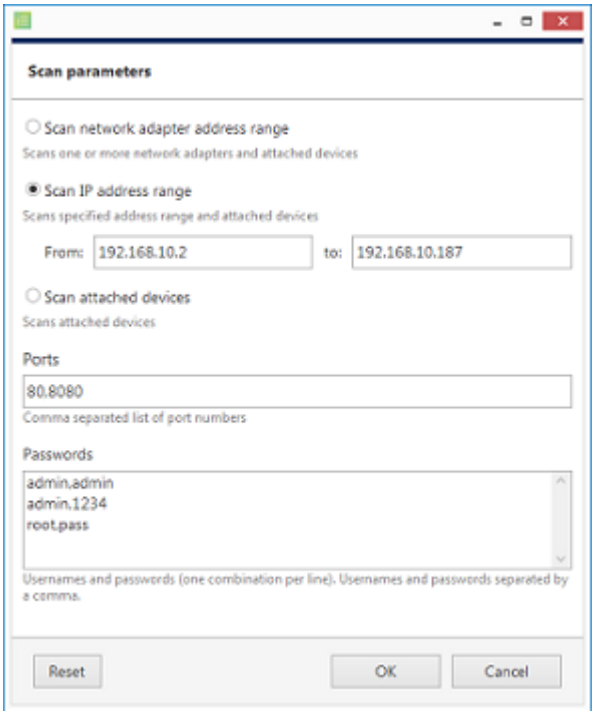


Scan attached devices



Scan network adapter address range

©2016. A&H Software House, Inc. All Rights Reserved.



Scan IP address range

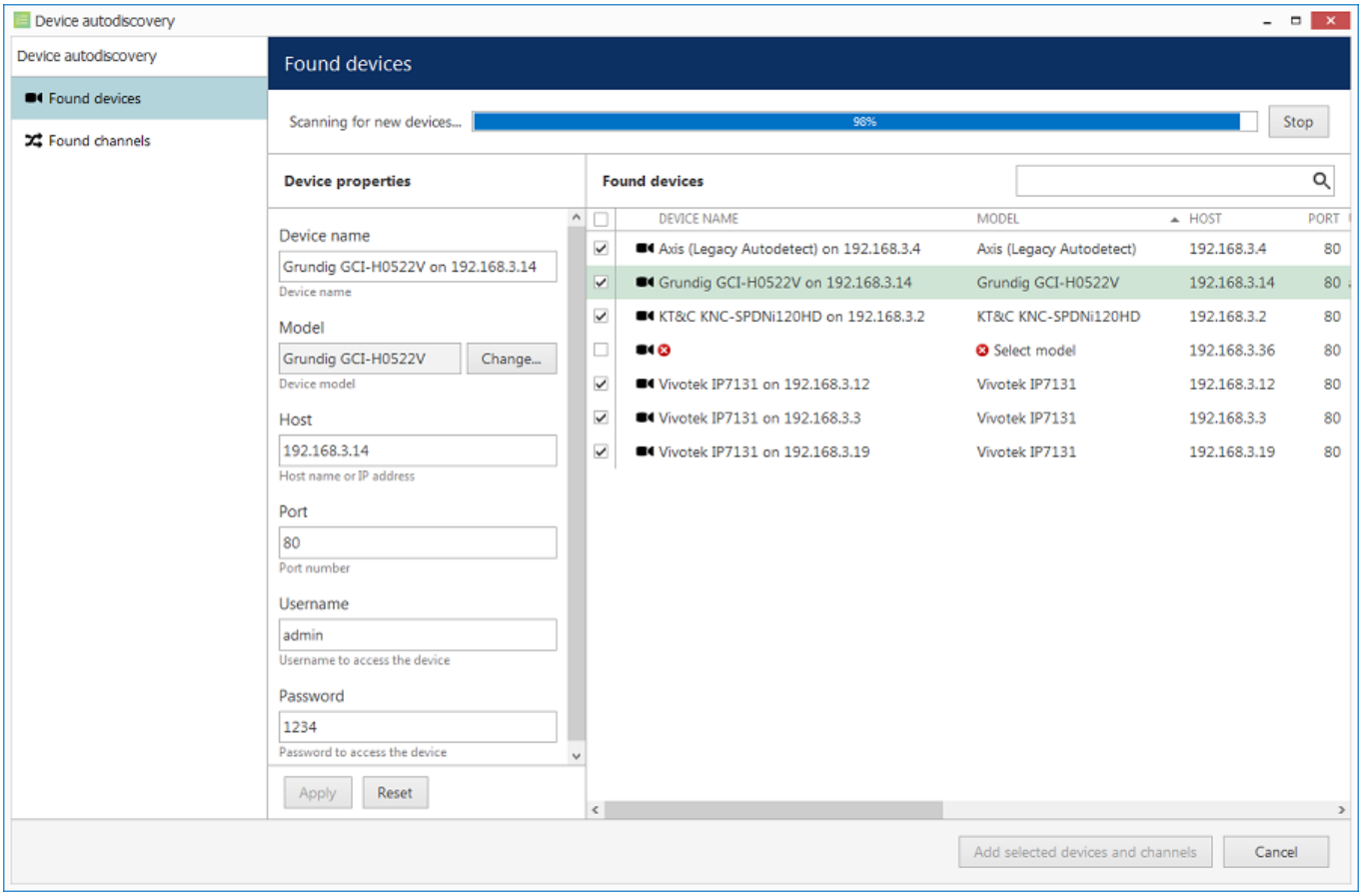
©2016. A&H Software House, Inc. All Rights Reserved.

Device Autodiscovery

After scanning has been completed, you will be taken to the Device Autodiscovery dialog box, which will allow you to review the found devices and their channels, and enter/modify related settings. Use the *Search* field in the upper-right-hand corner to find a specific device by name, model, IP, port or hardware ID (for IP devices, ID includes MAC address).

> There are two types of selection in the item list: checkboxes and colour highlight. **Checkboxes** are used to choose the items to be added to server configuration after you close the dialog box; **highlighted** items are subject to immediate properties changes. Use *CTRL+click* or *Shift+click* to select all or several items at once to change their settings.

Click a device in the item list to load its settings into the *Device Properties* window. Note that some settings may be missing for some of the automatically found devices; this depends mostly on device and whether user data was correctly provided. In such cases, simply fill in the missing data manually and click the *Apply* button below to save the configuration changes.



Set up discovered devices

©2016. A&H Software House, Inc. All Rights Reserved.

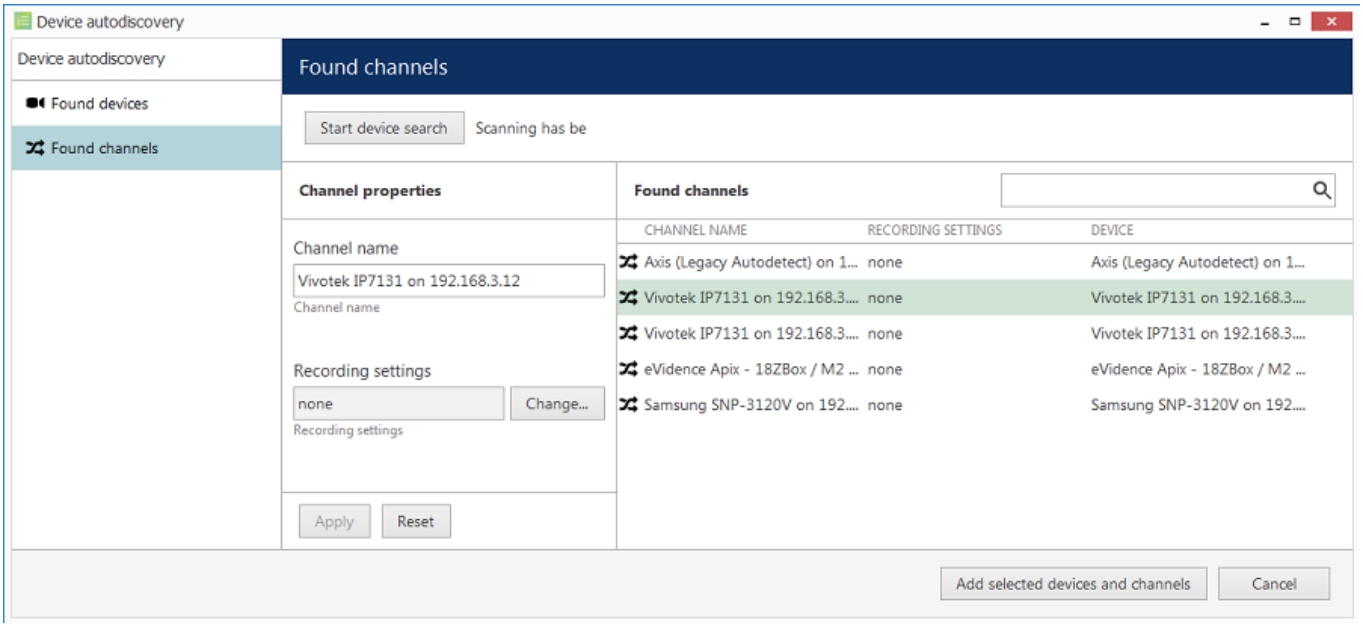
If device is not integrated with the software (native support), it may be detected as generic type (e.g., ONVIF). If you think some devices have not been discovered, check if they have different HTTP ports; also, try adding them manually.

Setting	Description	Default value
Device name	User-defined video source name	Autodetected model + IP, empty if not detected
Model	Device manufacturer and model, or generic type	Autodetected vendor and model, empty if not detected
Host	Device IP address	Autodetected
Port	Device HTTP port	Autodetected
Username	Device user credentials; note that you have to provide administrative profile credentials in order to be able to change device settings via software interface	Appropriate username from provided list or autodetected
Password	Device user password	Appropriate password from provided list or autodetected

Make sure you select all the devices you wish to add by putting a checkmark next to them. Devices with missing configuration (model and/or IP) are unchecked by default and will not be added to active server configuration.

⚠ Device models set on this step cannot be altered in future. In order to change the model further on, you will need to delete the channel attached to such a device, and then create a new channel with your desired model: see how to replace a camera for details.

Switch to *Channels* tab to review the detected video channels of the discovered devices: this is particularly important if you are using multichannel devices, e.g., capture boards and encoders. Use the *Search* field in the upper-right-hand corner to find specific channels by name or device name.



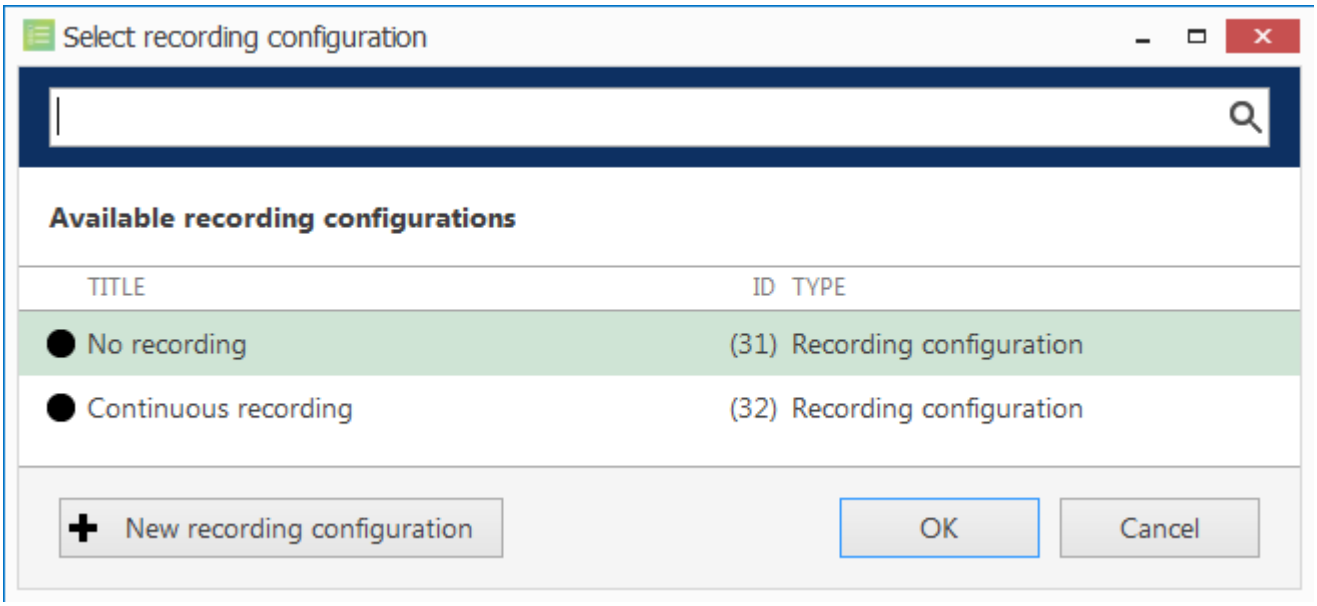
Set up discovered channels

©2016. A&H Software House, Inc. All Rights Reserved.

Here you can edit the channel name and assign recording configuration. By default, recording is enabled for all channels: click the *Change* button near *Recording settings* to manage recording profiles and assign them to your channels. To add a new recording profile, click the *+ New recording configuration* button below; you can find more details about recording profiles in the corresponding section. Click *OK* to save and return back to devices and channels; click Apply to save configuration changes.

> ⚠ After changing the channel recording configuration, do not forget to click *Apply*, otherwise the changes will not take effect.

> 💡 Recording configuration here is assigned to the **main streams** of the target channels. In order to set up substream recording, please go to channel configuration.



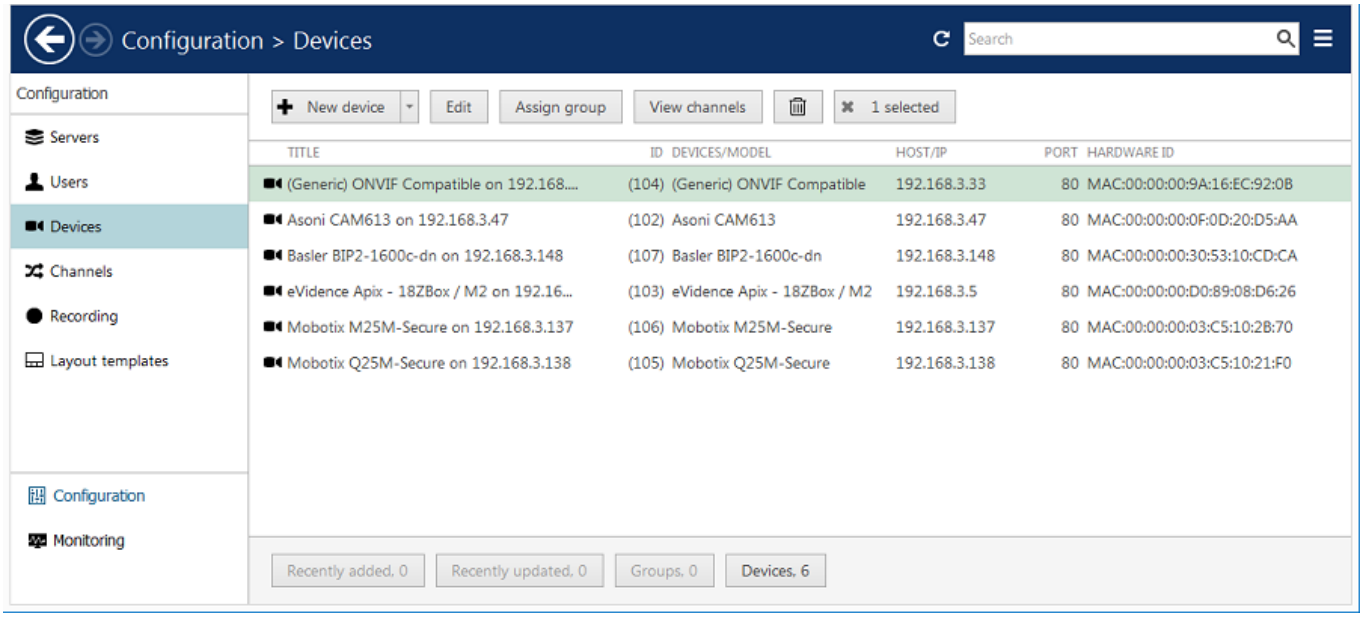
Select the recording configuration or create a new recording profile

Click the *Start device search* button above at any time to restart device discovery.

> ⚠ All previously discovered devices and all configuration changes will be discarded if you restart camera autodiscovery.

When you are ready, click the *Add selected devices and channels* button below; all checked devices will be added with selected corresponding channels. Newly added devices and channels will be added to the item list.

©2016. A&H Software House, Inc. All Rights Reserved.



Added devices will appear in the item list

Use the buttons on the upper panel to manage your devices. You can now add new devices and/or device groups, launch autodiscovery again, assign devices to groups, as well as removing both devices and groups.

> ⚠ When deleting devices, remember that corresponding channels will **not** be **removed** at the same time and therefore your newly discovered devices may not be added due to license limitation. Go to the *Channels* tab to manage them separately.

©2016. A&H Software House, Inc. All Rights Reserved.

Add Devices Manually

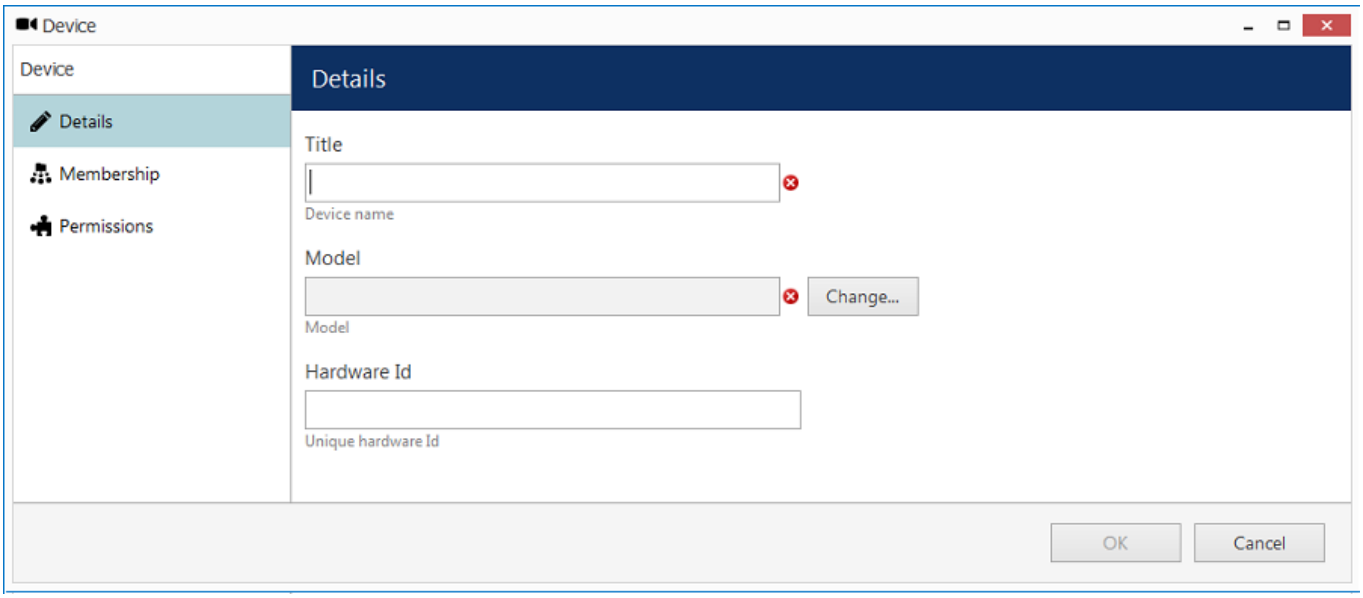
You can add devices manually instead of using autodiscovery in the following cases:

- actual devices have not been connected yet
- devices are not connected at the current stage but it is planned that they will be connected later
- the server needs to be configured while being away from its future position
- some devices in use cannot be automatically discovered

Only IP devices can be added manually. Attached devices (e.g., capture boards) require autodiscovery.

Add single device

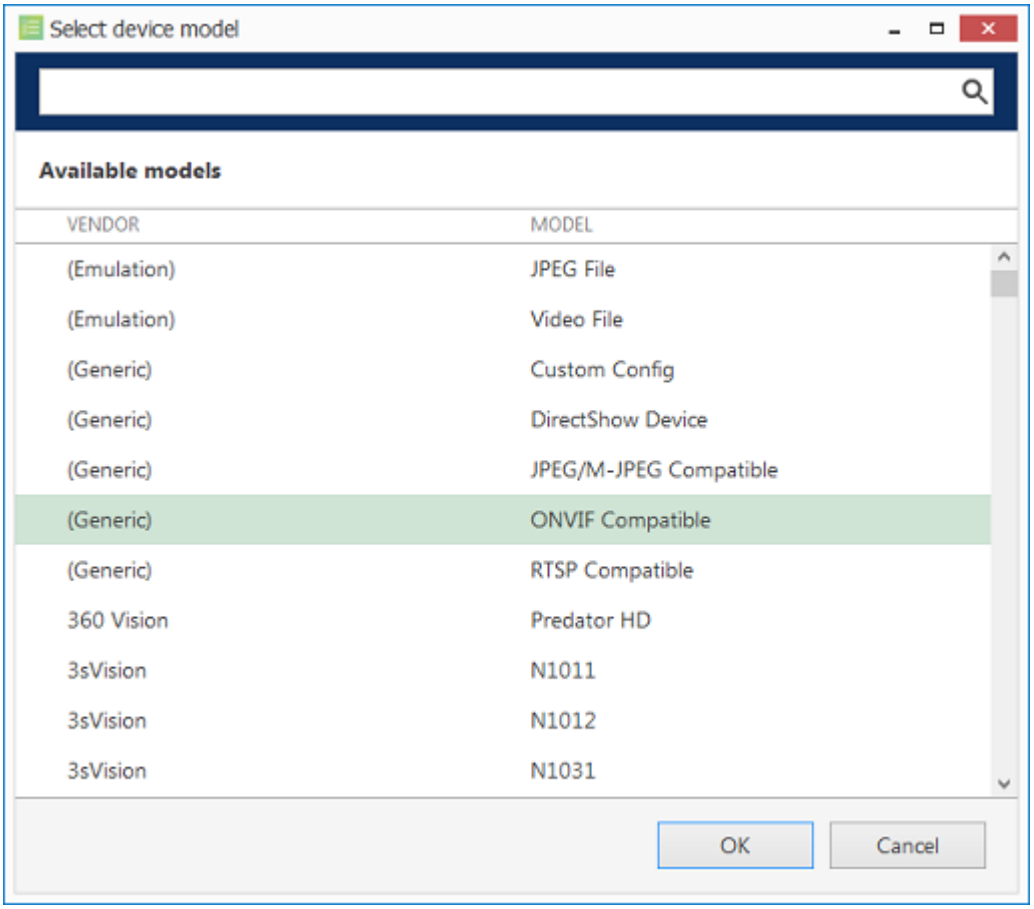
To access the configuration dialog box from Luxriot Console, open the *Configuration* section and select *Devices* in the menu on the left; in the upper panel, then click the + *New device* button.



Add new device

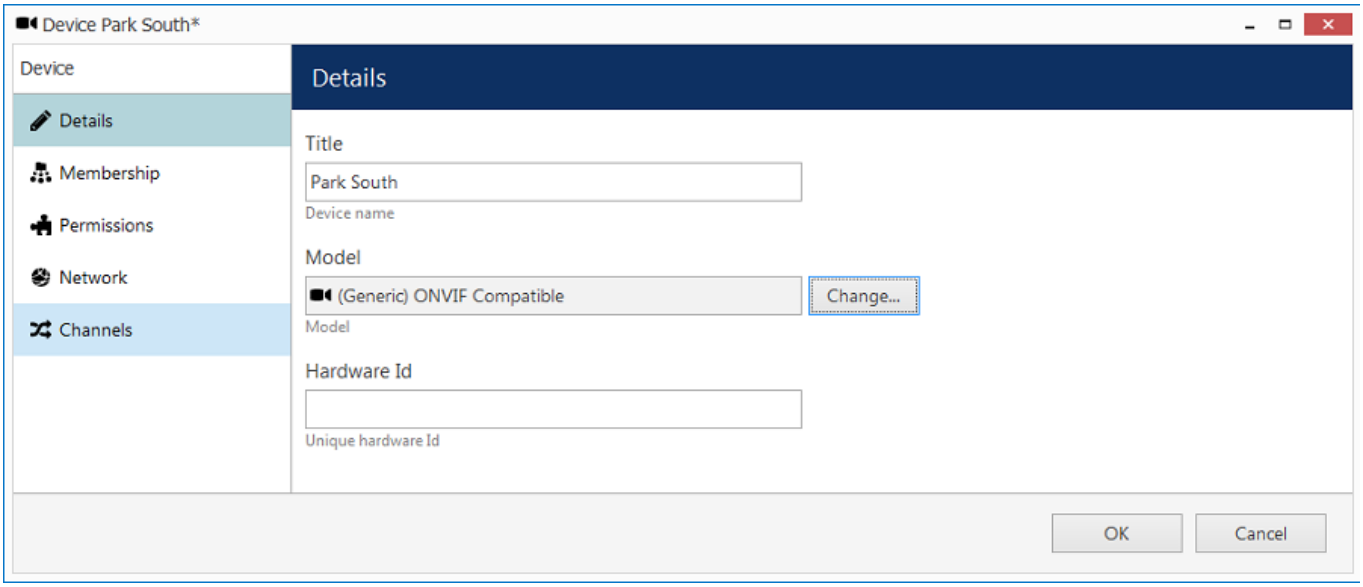
Enter a user-defined name for your new device and pick a model. If your camera model is not listed, select the closest similar model or choose a generic type.

©2016. A&H Software House, Inc. All Rights Reserved.



Select device model

After you have chosen manufacturer and model, additional tabs will become available in the main configuration dialog box: *Network* and *Channels*. These tabs are described in details later in this section.



Network and *Channels* become available after device model has been chosen

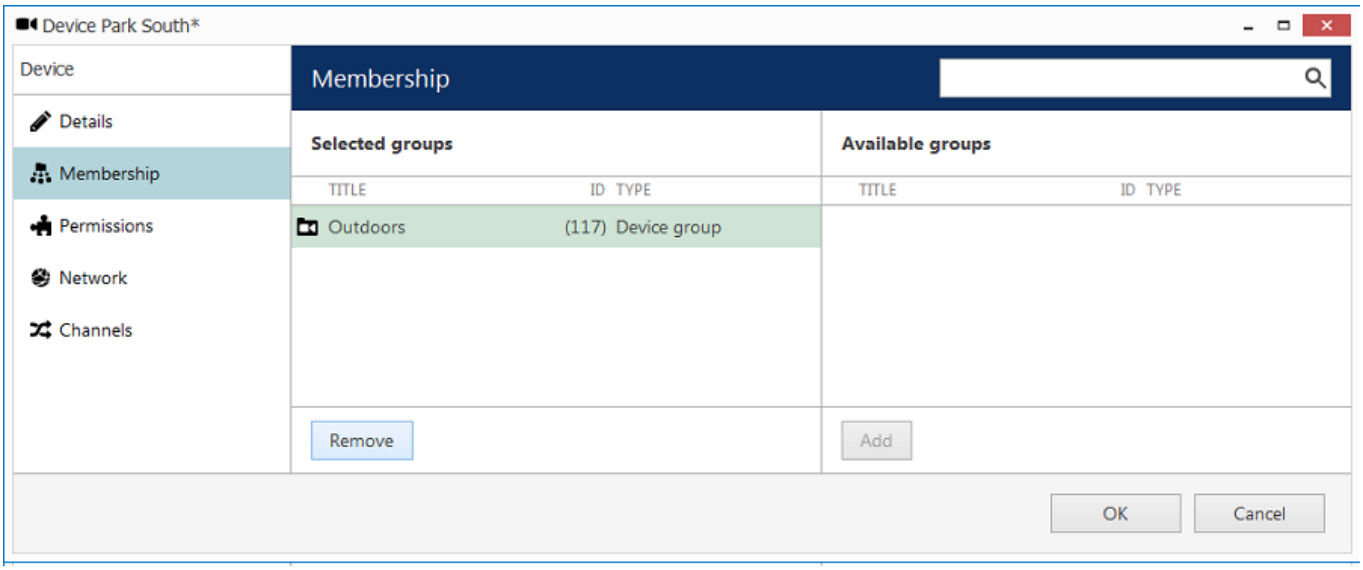
©2016. A&H Software House, Inc. All Rights Reserved.

Details

Setting	Description	Default value
Title	User-defined device name	[empty]
Model	IP device manufacturer and model, or generic type	[empty]
Hardware ID	Unique hardware identifier containing a device hardware identifier; this filed should be left empty, as it will be filled automatically later, when the device has been connected and identified	[empty]

Membership

Choose groups for the current device to become a member of. Use *Add* and *Remove* buttons below or double-click to manipulate groups. One device may belong to several groups at once.

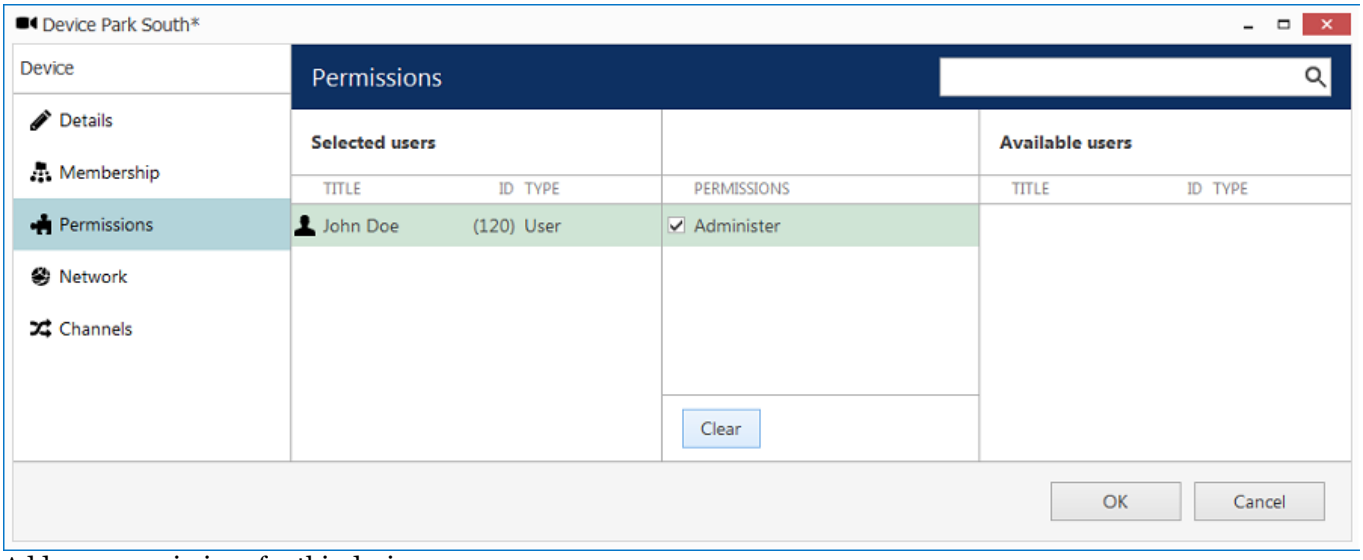


Define groups for the device being added

Permissions

Add users and/or user groups simply by checking at least one permission for the target server; remove by clearing permissions - either by deselecting them or by clicking the *Clear* button below. You can also double-click users to remove them from the list of privileged users. Devices with an empty permission list will not be available to anyone except for the root (global) administrator.

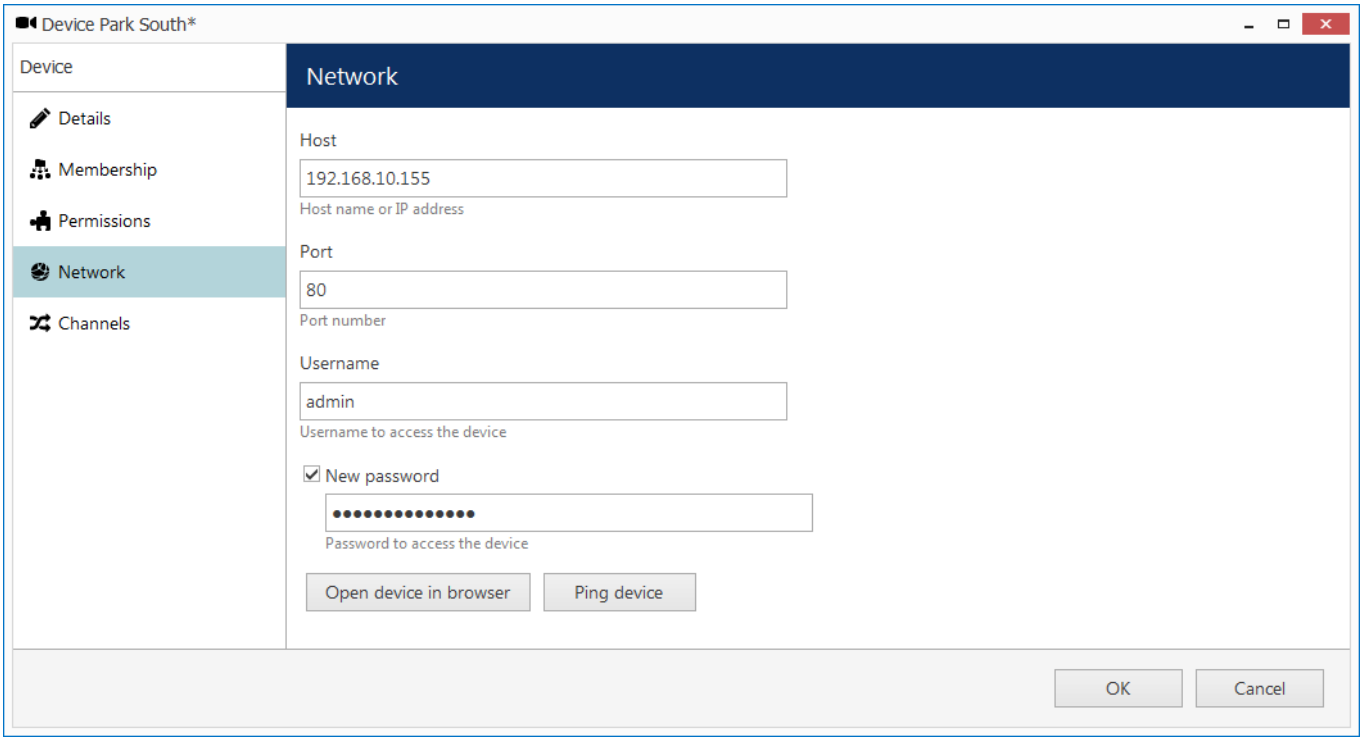
©2016. A&H Software House, Inc. All Rights Reserved.



Add user permissions for this device

Network

Enter TCP/IP settings for device access here.



Enter TCP/IP settings for device access

Before filling in the details, make sure the settings match those on the camera. If device has not been connected yet, ensure that the same settings are applied during the camera installation. You can use the *Ping Device* button to check camera availability and/or verify your settings; the *Open Device in Browser* button will try to reach your camera Web interface using you default browser.

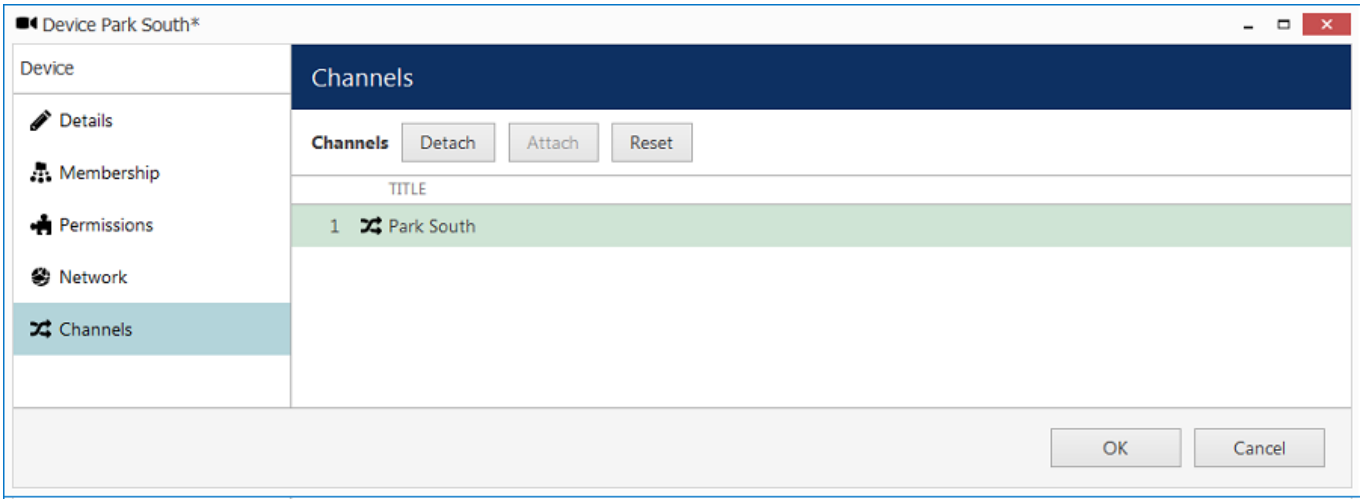
©2016. A&H Software House, Inc. All Rights Reserved.

Setting	Description	Default value
Host	Device IP address	[empty]
Port	Device HTTP port	80
Username	Device user credentials; note that you need to provide a valid administrative user profile to be able to change device settings via software	[empty]
Password	Password for camera access	Enabled

Channels

Here you can detach automatically detected channels from the device and replace them with one of the existing 'free' channels (not attached to any device). Use the *Reset* button to undo any changes made to the channels (this only works for current editing session, reset will not be available after you save the changes and reopen this dialog box).

If you wish the original camera channel(s) to stay attached to the device, just leave the channel list as it is.



Channels

Add multiple devices*

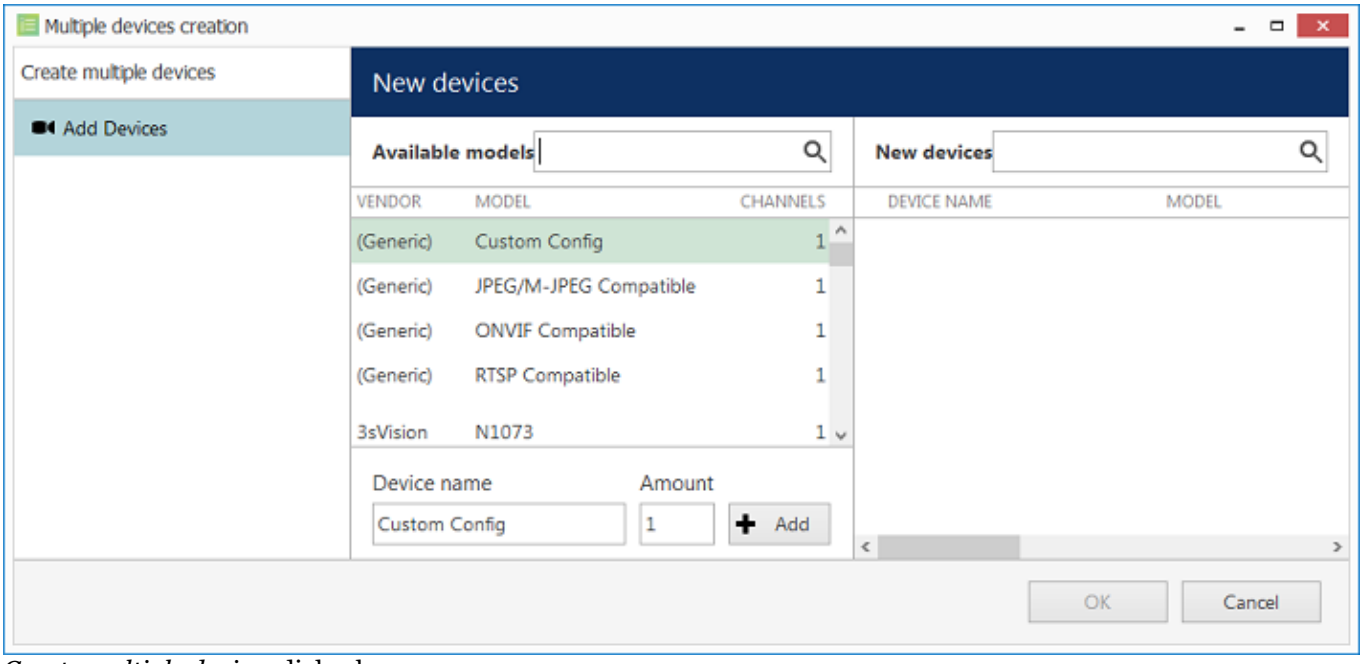
*Feature is subject to license limitations and may be unavailable in some software editions.

If you have a number of devices of the same type in your system, you can add them all at once to save time. This method is also suitable is you have multiple groups of devices of the same type.

Open the *Configuration* section and select *Devices* in the menu on the left; in the upper panel, click the little arrow next to the + *New device* button and select *Create multiple devices*.

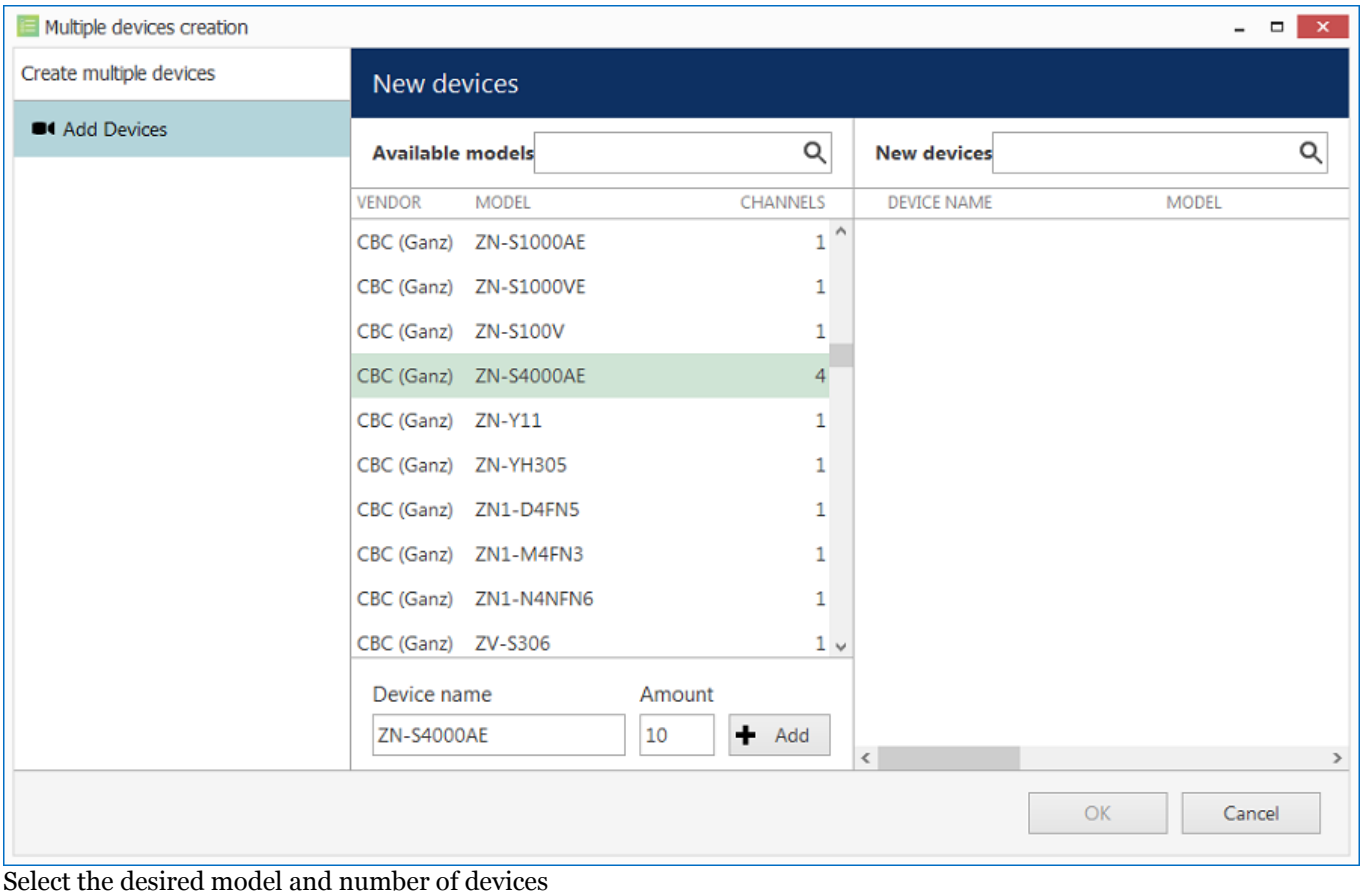
©2016. A&H Software House, Inc. All Rights Reserved.

Add devices



Create multiple devices dialog box

You can add any number of different devices here (assuming this is permitted by license limitations). First, select the device model from the list, and then enter your desired number of existing devices of the same model.

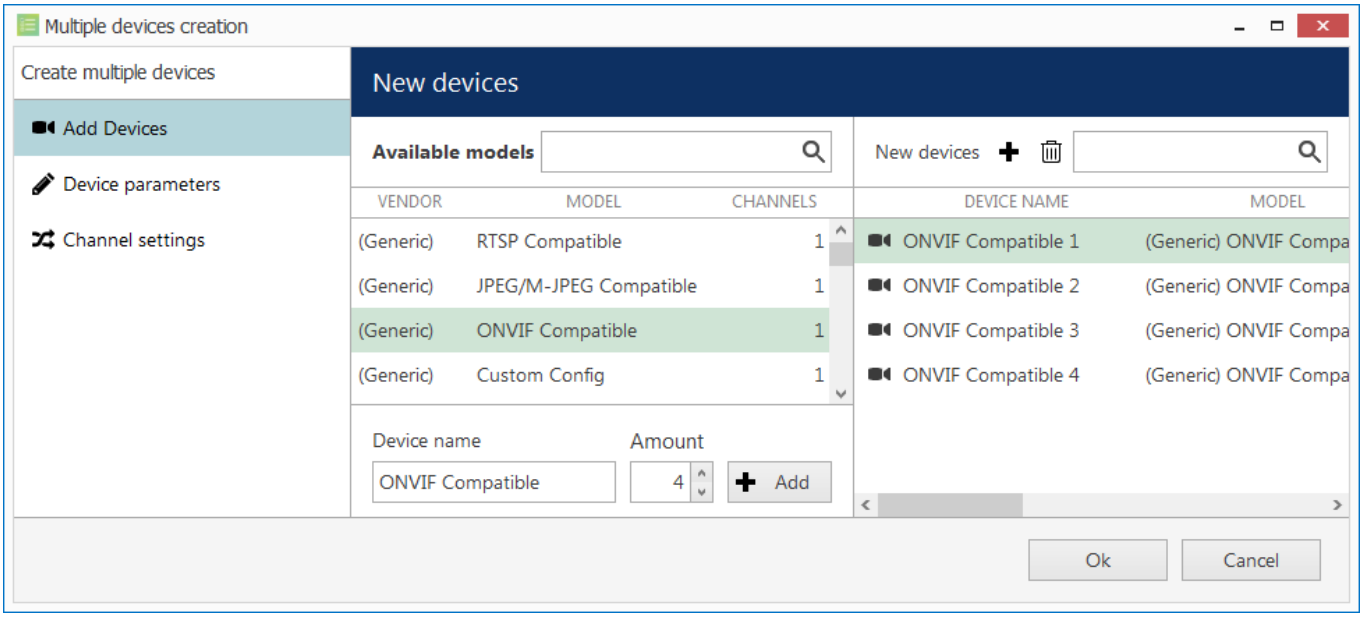


Select the desired model and number of devices

When you are ready, click the + *Add* button below to attach the camera set to the new devices list. As soon as there is at least one device, additional tabs will become available: *Device Parameters* and *Channel settings*. Device list on the right will be available in all tabs.

©2016. A&H Software House, Inc. All Rights Reserved.

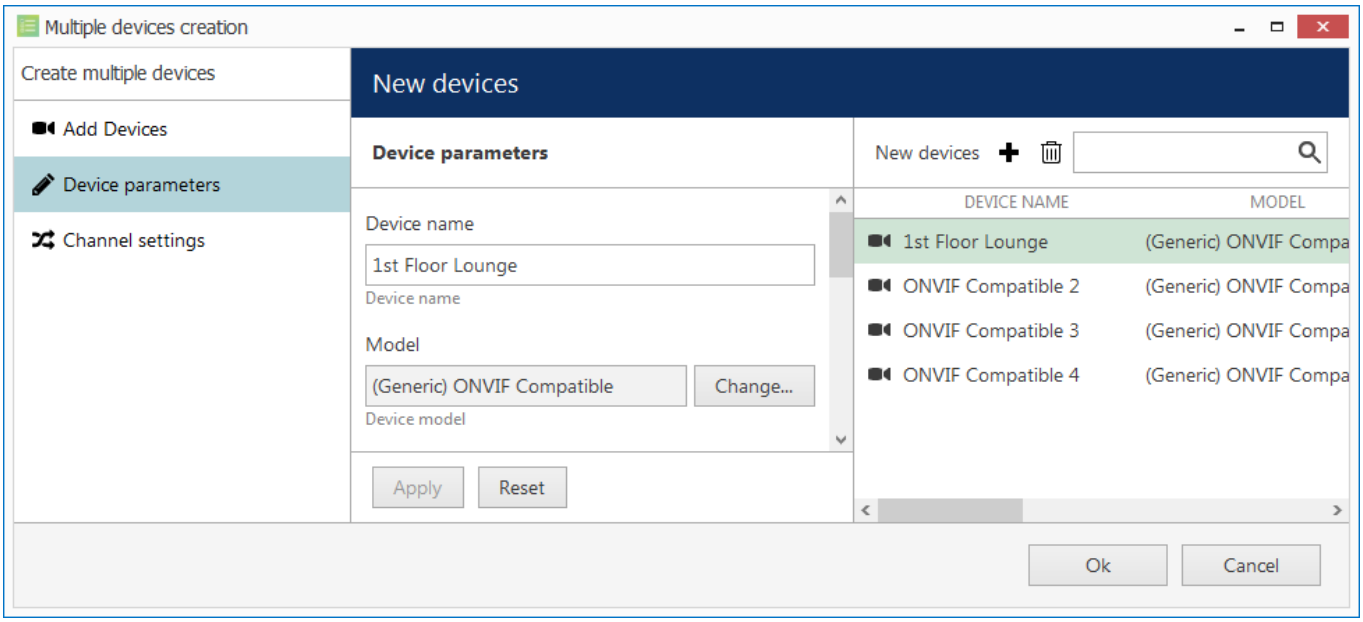
To **remove** any of the listed items, select them with your left mouse button (use *CTRL+click* or *Shift+click* to select multiple devices at once*)* and hit the *Delete* button on the upper panel or on your keyboard. Select any device and use the ✚ *Add* button on the upper panel to add a copy of that device.



Add several new devices

Device parameters

For each added device, enter corresponding settings. Note that you can skip IP and port on this step if you wish to use automatic incremental IP assigning (see *IPs and Ports* tab description below).



Modify device parameters

Select a device by clicking on it in the item list: it will become highlighted green and related available settings will be displayed in the *Device parameters* window. You can select multiple devices by holding *CTRL* or *Shift* when clicking.

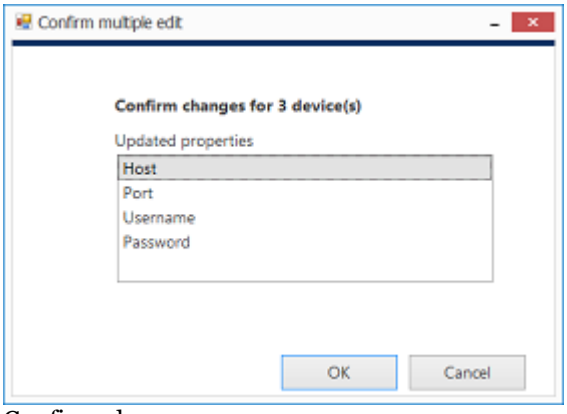
©2016. A&H Software House, Inc. All Rights Reserved.

Setting	Description	Default value
Device name	User-defined device name	Device model
Model	Device manufacturer and model, or generic type; click Change to alter	Loaded automatically
Host	Device hostname or IP address	[empty]
Port	Device HTTP port	80
Username	Device user credentials; note that you need to provide a valid administrative user profile to be able to change device settings via software	[empty]
Password	Password for camera access	[empty]
Server	Target server, to which the device will be attached	Central Server

When you have finished, click the *Apply* button below for the changes to take effect.

⚠ If you do not apply the modifications, they will be discarded when you select a different device from the item list. Remember to always click the *Apply* button.

You will be asked to review the list of modified fields and confirm the changes.

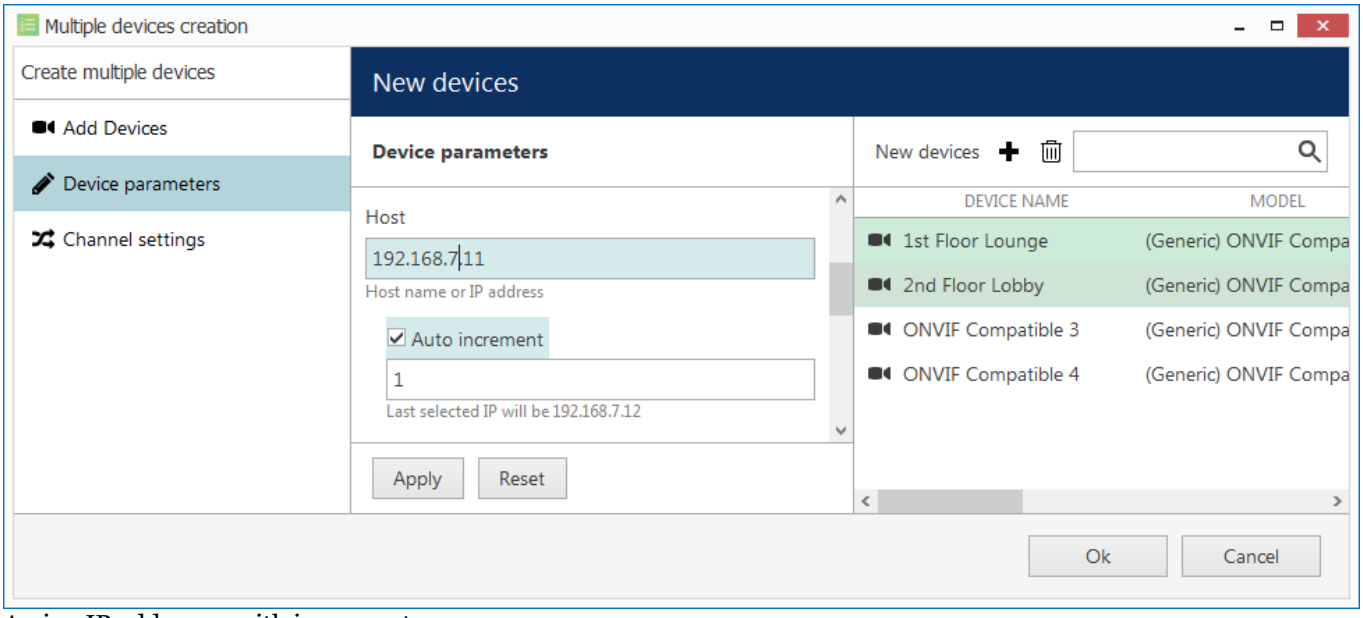


Confirm changes

Click *OK* to accept the changes and go back to the configuration dialog box.

You can select multiple devices and assign IP addresses incrementally with the defined increment. Similarly, it is possible to change the HTTP port for all devices at once, if required (port value stays the same for all selected devices, with no increment). In order to do this, select desired devices by using *CTRL+click* or *Shift+click*, then start entering the IP address: the field will expand, giving you the option to enter the increment.

©2016. A&H Software House, Inc. All Rights Reserved.



Assign IP addresses with increment

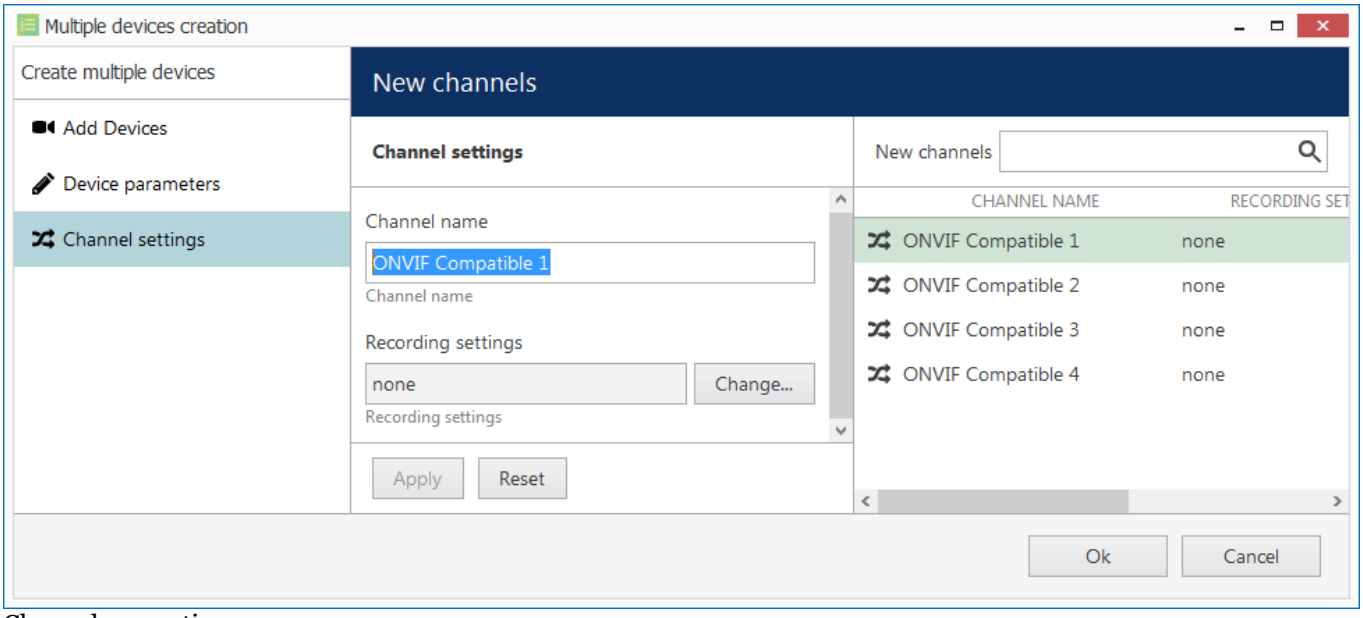
Click the *Apply* button below to save the changes, similarly to the previous step.

Channel Settings

Here you can modify channel names and recording configuration. Note that channel name is not copied from the device name.

Unlike with automatic device discovery, default recording configuration here is [none], meaning that recording is not conducted. Select one or multiple devices and then click the *Change* button in order to choose an existing recording configuration for the target devices or create a new one.

Depending on the selected device model, the number of channels may coincide with or exceed the number of devices, e.g., when device is a 4-channel encoder.



Channel properties

Select one or multiple devices and click *Change*, then select appropriate recording profile or create a new one.

When you have finished, click *OK* to add all the new devices and their channels to your server configuration.

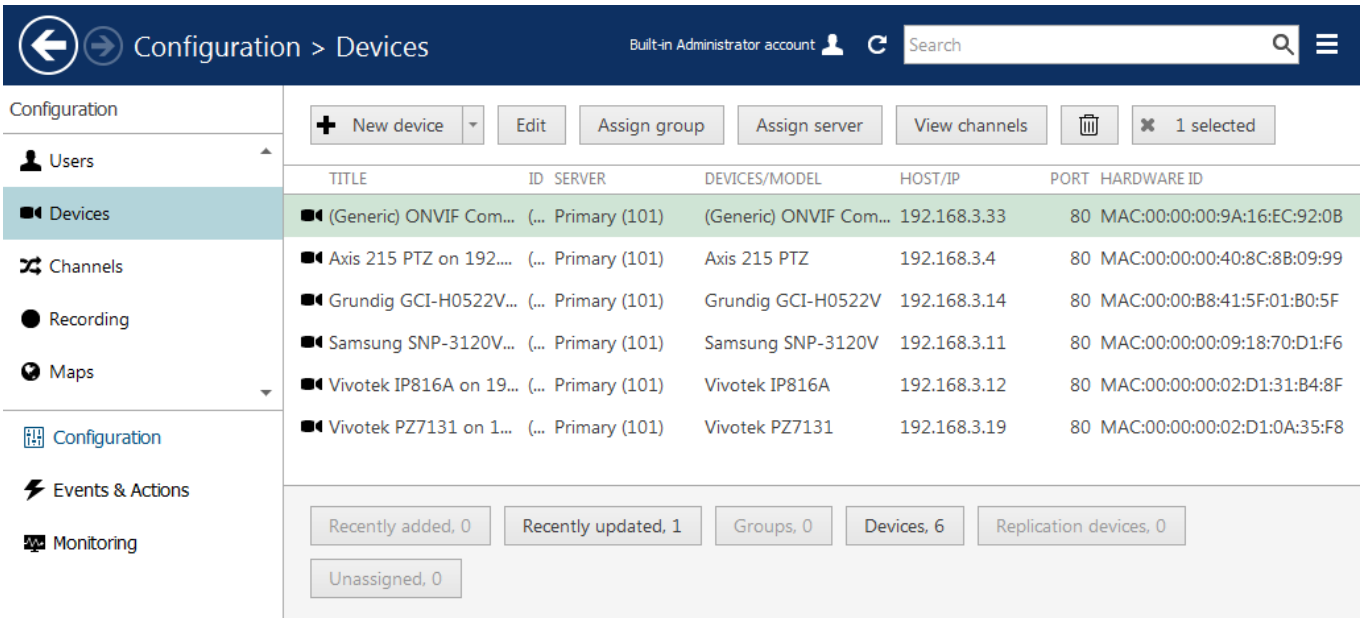
©2016. A&H Software House, Inc. All Rights Reserved.

Manage Devices and Device Groups

This topic describes general device handling as well as common use cases in device management.

Manage Devices

Device management is accessible via Luxriot Console *Configuration* section, under *Devices* category in the menu on the left.



Configuration -> Devices

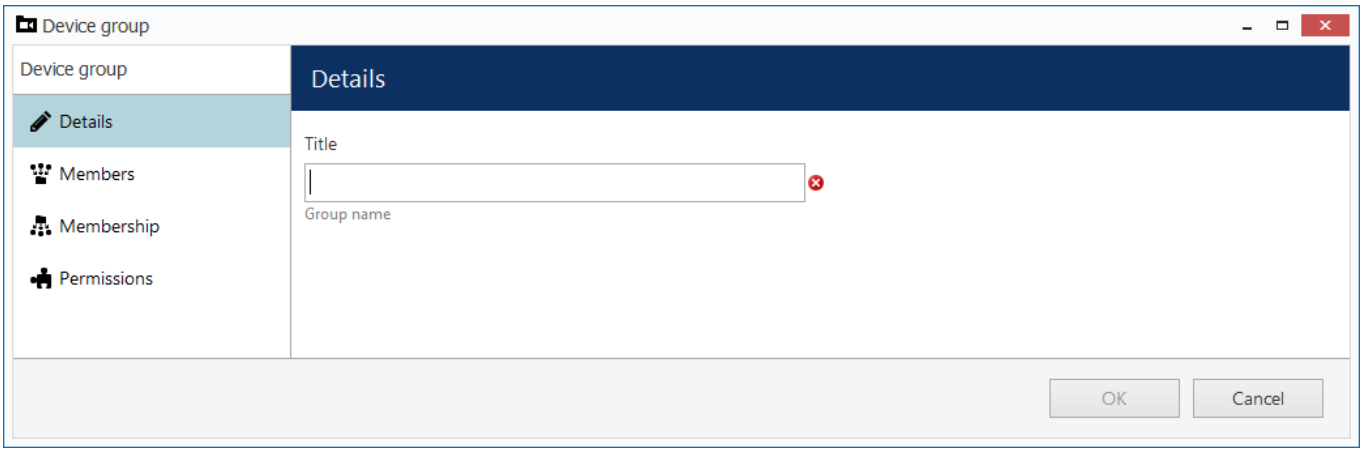
Upper panel items allow you to add devices automatically or manually, edit, view and  remove them, as well as quickly assign groups and servers. Double-click any device to open it for editing; click *View channels* on the upper panel to open channel-specific controls in the same window. If device has multiple channels, all of them will be listed.

Please refer to the *Add Devices Manually* section of this document for detailed description of all available tabs and settings.

Use bottom panel buttons to quickly filter recently added/updated devices, choose groups only or solely devices not assigned to any of the servers.

Add Device Groups

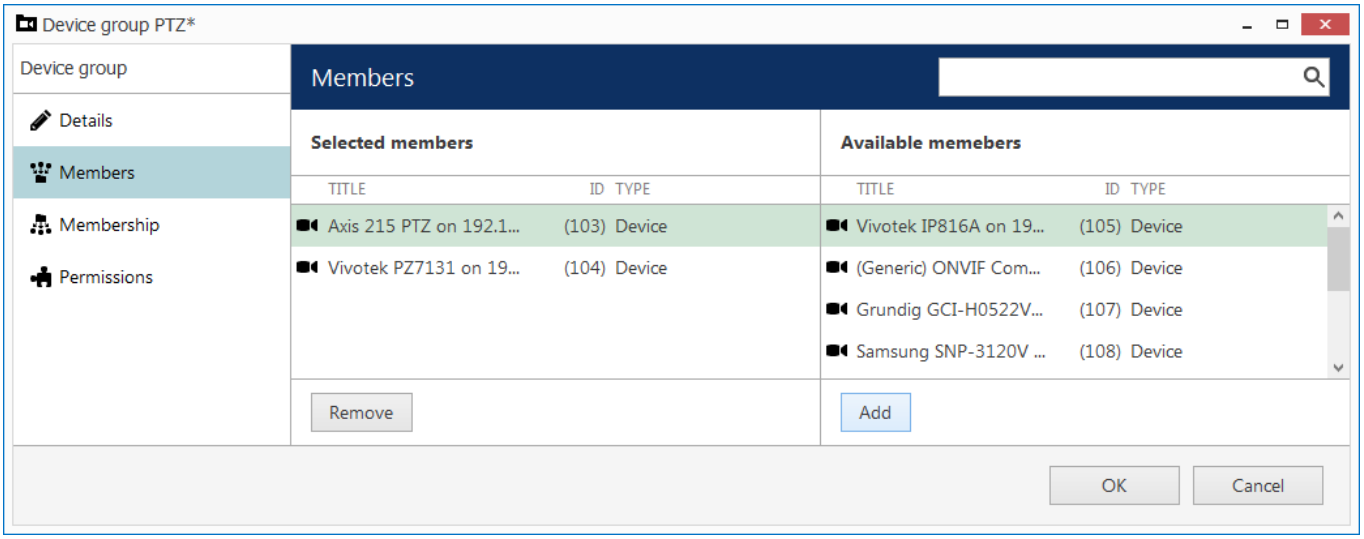
As with other resources, devices can be grouped together for easier management. Click the little arrow near *+ New device* button and select *New device group*.



©2016. A&H Software House, Inc. All Rights Reserved.

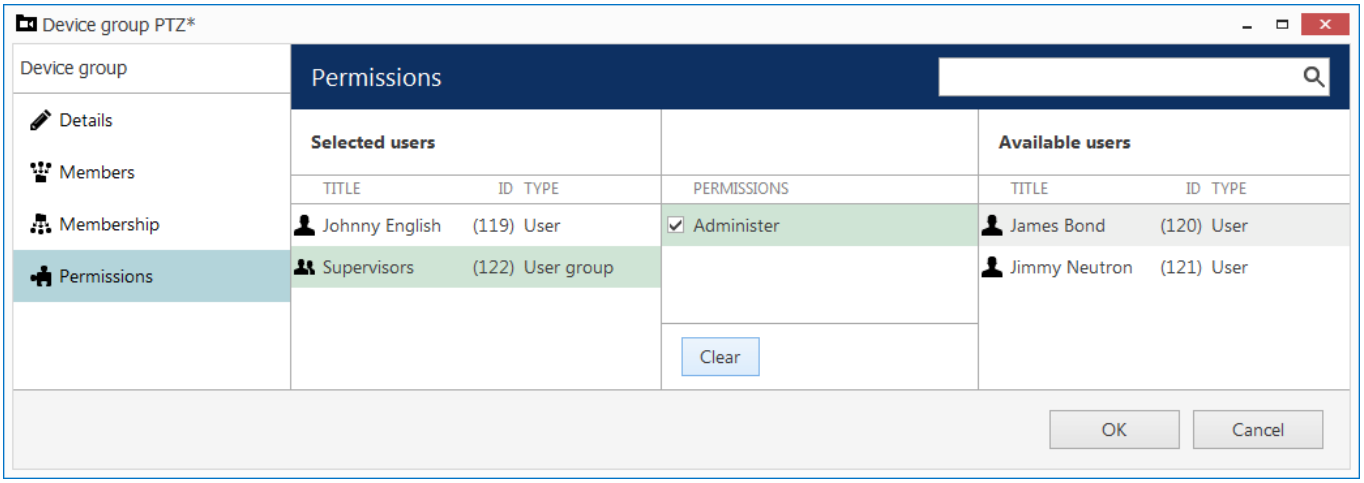
Device group details

Enter a name for the device group in the *Details* tab, then switch to the *Members* tab and choose devices to join this group. Double-click items or use the *Add/Remove* buttons below to select and deselect devices.



Device group members

In the *Membership* tab, you can select 'higher' level groups to contain this device group (nested architecture).



Device group permissions

Finally, open the *Permissions* tab to assign user privileges for this device groups: check at least one permission to select the user or user group, uncheck all or use the *Clear* button below to deselect. When you have finished, click *OK*; the newly created group will then appear in the item list.

Double-click any group to open its contents in the same window; use the buttons on the upper panel to edit/remove it. Click *Edit* to adjust group settings: procedure is similar to that of creating a new device group.

©2016. A&H Software House, Inc. All Rights Reserved.

Replace Camera

Consider the following common scenario: one of the installed cameras needs to be replaced by a device that is better/more suitable/backup/etc. while keeping the whole configuration effective. As long as the replacement device has the same model, the process is virtually unnoticed by the software. If the new camera model does differ from the original, some modifications are required to be made in Luxriot Console.

The procedure in Luxriot Console is the following:

- go to *Devices*
- open the *Device properties* of the target device, go to the *Channels* tab and detach all the channels, then close the *Device properties*
- delete old device from the *Devices* list
- create a new device with the necessary model
- open the new device's *Device Properties*, go to the *Channels* tab, detach its new channel(s) - meaning they will not be created - and attach old one(s)

As a result, the *device* part of the configuration will be replaced and all the *channel* configurations will stay untouched.

Note that video stream specific configurations - resolution, FPS, frame adjustments - are not saved when re-attaching the channel due to differences between device capabilities. However, the channel permissions, membership, recording configuration and motion detector settings are all preserved.

©2016. A&H Software House, Inc. All Rights Reserved.

Configure Channels

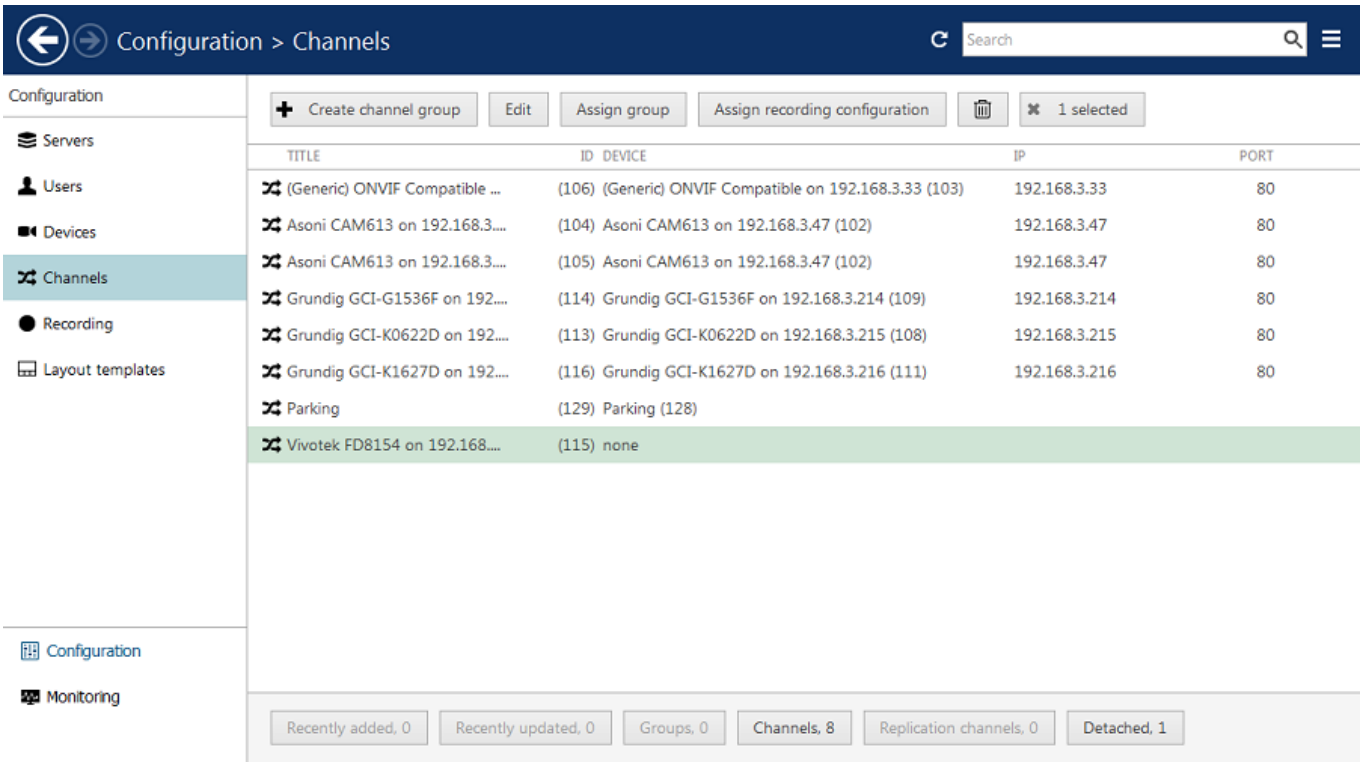
Channels are video streams received from physical devices attached to the system. Several channels can originate from a single device - in the case of multichannel devices, i.e., capture boards, but single channel can only be attached to one device at a time, as it makes no sense for a video stream to come from two cameras at once. Channels are created automatically at the same time as the source device but can later be detached and attached to different devices.

Channels include the video stream configuration settings - resolution, frame rate, bit rate and others - as well as all supplementary data streams, such as audio, motion and digital input/output events, PTZ control and camera-side analytics information. Recording configurations are assigned to channels and they are also displayed in Luxriot Monitor.

To access the channel configuration dialog box in the Luxriot Console, open the *Configuration* section and select *Channels* from the menu on the left side. Use the filters on the bottom panel to quickly access specific channel sets.

The upper panel buttons enable you to create new items in this category, as described below, and perform channel-specific actions, such as editing, assigning groups, assigning recording configuration and deleting selected channels. To select multiple items, hold *CTRL* or *Shift* and click items in the list.

⚠ Channels currently bound to devices cannot be deleted: the recycle bin button will only appear when detached channels are selected. To remove a channel, first go to *Devices*, then open the target device properties and disengage the channel on the *Channels* tab by clicking *Detach* button.



Configuration -> Channels

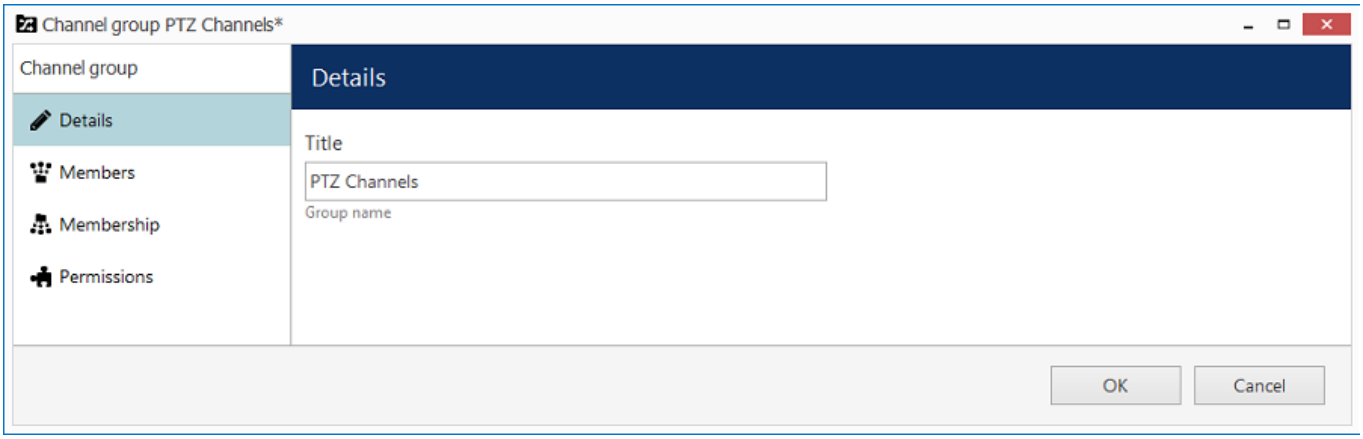
All available channels and channels groups will be listed here. The upper panel offers a range of configuration opportunities.

Create Channel Group

Channel groups can be added for easier management in Luxriot Console; by default, there exist no built-in channel groups. Click + *Create channel group* button to bring up the corresponding dialog box.

Enter the group title here, select channels to be group members and select higher level group(s) to contain target group as a member, if desired. Set user permissions for channels in this group.

©2016. A&H Software House, Inc. All Rights Reserved.



Edit Channel group properties

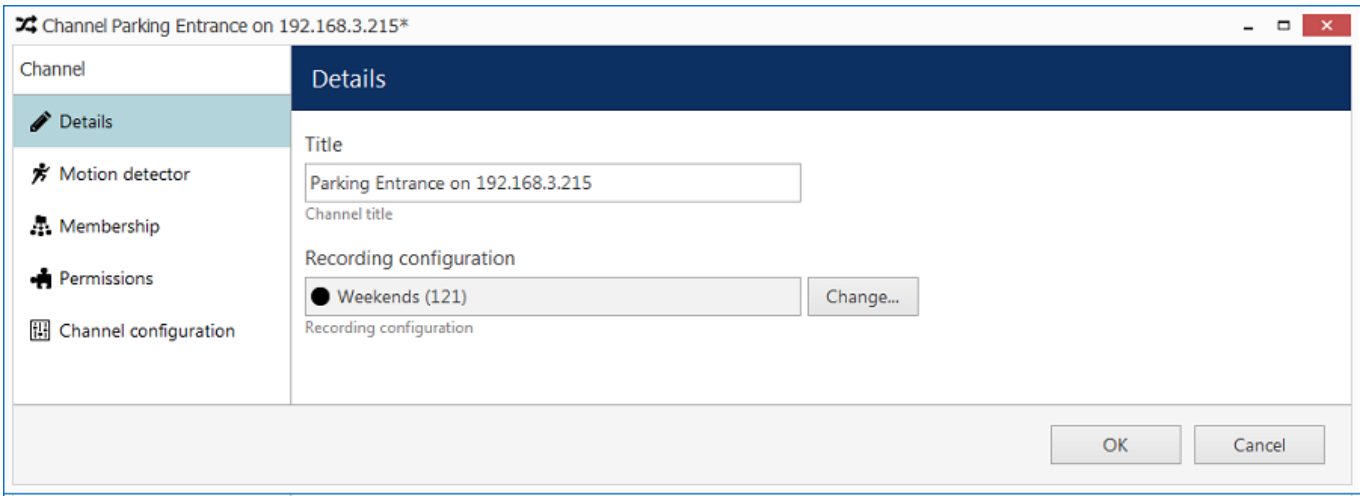
Click *OK* when you are ready: newly created group will appear in the item list.

Edit Channel Group

Double-click any existing channel group in the list or use the *Edit* button in the upper panel to bring up the configuration dialog box. Available options are analogous to the ones displayed during group creation time.

Edit Channel

Channels are automatically created together with each newly created device; it is not possible to create a channel separately. Click any channel in the list twice or use the *Edit* button on the upper panel to manage the channel properties.



Edit channel properties

The configuration dialog box enables the following changes:

- **Details tab**: change channel title and assign recording configuration
- **Motion detector tab**: choose between camera-side or software-side motion detector*, default state is disabled
- **Membership tab**: select group to the contain target channel as member
- **Permissions tab**: allow users and user groups to access and administer target channel
- **Channel configuration tab**: open an additional channel configuration dialog box to manage video stream settings, frame adjustments and DI/DO

Please refer to the Channel Settings topic for detailed description for each of the tabs.

©2016. A&H Software House, Inc. All Rights Reserved.

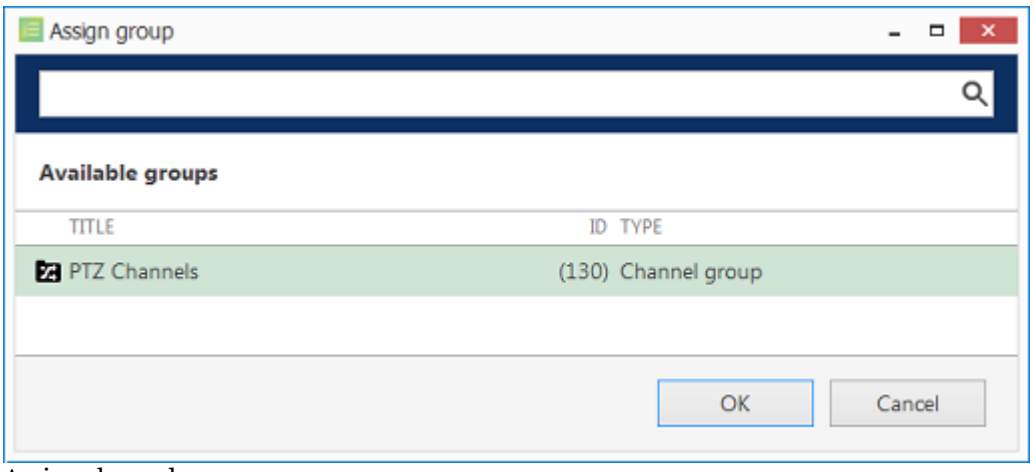
*Motion detector on the software side has two options: high performance and high accuracy:

High Performance mode: this type of analysis is performed for only key frames whose frequency can vary from several frames per second to one frame every few seconds - this is less sensitive for picture quality, but greatly affects detector operation. CPU consumption is significantly lower due to this, and it can be additionally reduced by increasing time interval between two analyzed frames.

High Accuracy mode: this mode performs motion analysis for the whole video stream, so we recommend selecting this option when you want to achieve best detection results. The lower time interval means higher precision. Keep in mind that CPU and virtual memory usage is much greater if this mode is selected.

Assign Group

Channel membership can be managed via the channel properties dialog box. To quickly assign group to any of existing channels, select desired channel(s) (use CTRL+click or Shift+click to select multiple items) and click *Assign group* button on the upper panel.



Assign channel group

Pick a group from the existing channel groups' list and click *OK* to save. If any of the channels already belonged to some group, it is not a problem: membership in multiple channel groups is allowed.

Replace Camera

Consider the following common scenario: one of the installed cameras needs to be replaced by a device that is better/more suitable/backup/etc. while keeping the whole configuration effective. As long as the replacement device has the same model, the process is virtually unnoticed by the software. If the new camera model does differ from the original, some modifications are required to be made in Luxriot Console.

The procedure in Luxriot Console is the following:

- go to *Devices*
- open the *Device properties* of the target device, go to the *Channels* tab and detach all the channels, then close the *Device properties*
- delete old device from the *Devices* list
- create a new device with the necessary model
- open the new device's *Device Properties*, go to the *Channels* tab, detach its new channel(s) - meaning they will not be created - and attach old one(s)

As a result, the *device* part of the configuration will be replaced and all the *channel* configurations will stay untouched.

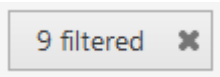
Note that video stream specific configurations - resolution, FPS, frame adjustments - are not saved when re-attaching the channel due to differences between device capabilities. However, the channel permissions, membership, recording configuration and motion detector settings are all preserved.

©2016. A&H Software House, Inc. All Rights Reserved.

Other

Select one or multiple channels/channel groups and click the *Disable* button on the upper panel to deactivate target items. **Disabled** channels will not be requested from actual physical devices, and, as a consequence, will not be recorded; neither will they be displayed in Luxriot Monitor application(s).

The filter panel at the bottom enables you to view recently added/updated items, as well as other relevant filters. The filter that is currently active is highlighted blue: click the *N filtered* button to reset all filters and display all the available items again.



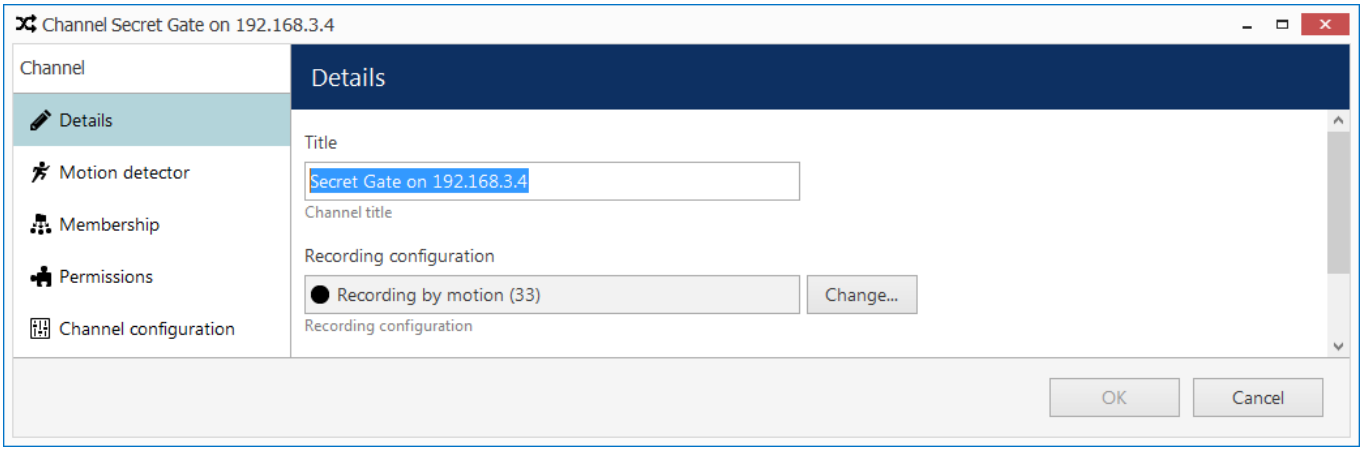
©2016. A&H Software House, Inc. All Rights Reserved.

Channel Settings

The channel configuration dialog box has several setting categories; these are described in details in this topic.

Details

Here you can change channel title and assign recording configuration.



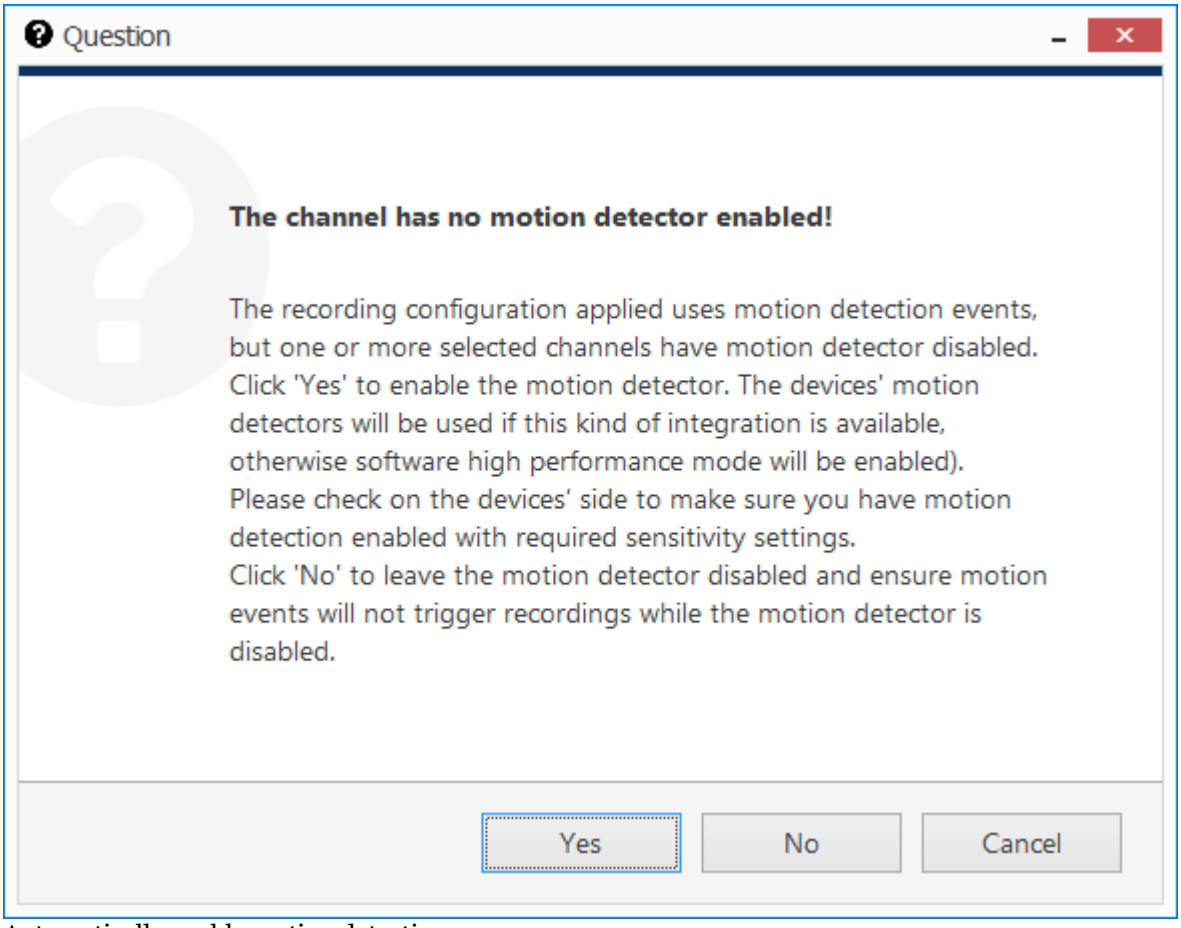
Channel details

Click the *Change* button to choose the recording configuration: you can pick an existing configuration or create a new one, or a schedule on the spot from the same dialog box.

When you assign a **motion-based recording configuration** to a channel with a disabled motion detector, the software will automatically suggest enabling motion detection for the target channel. The camera-side detector is given priority; if it is not available, the software-side detector will be enabled and set to the high-performance mode. We recommend that you **review** the motion detector settings to make sure it operates as desired, especially if the camera-side detector is in use.

Note that if you leave motion detection OFF and assign motion-based recording configuration to the target channel, no data will be recorded.

©2016. A&H Software House, Inc. All Rights Reserved.



Automatically enable motion detection

Motion detector

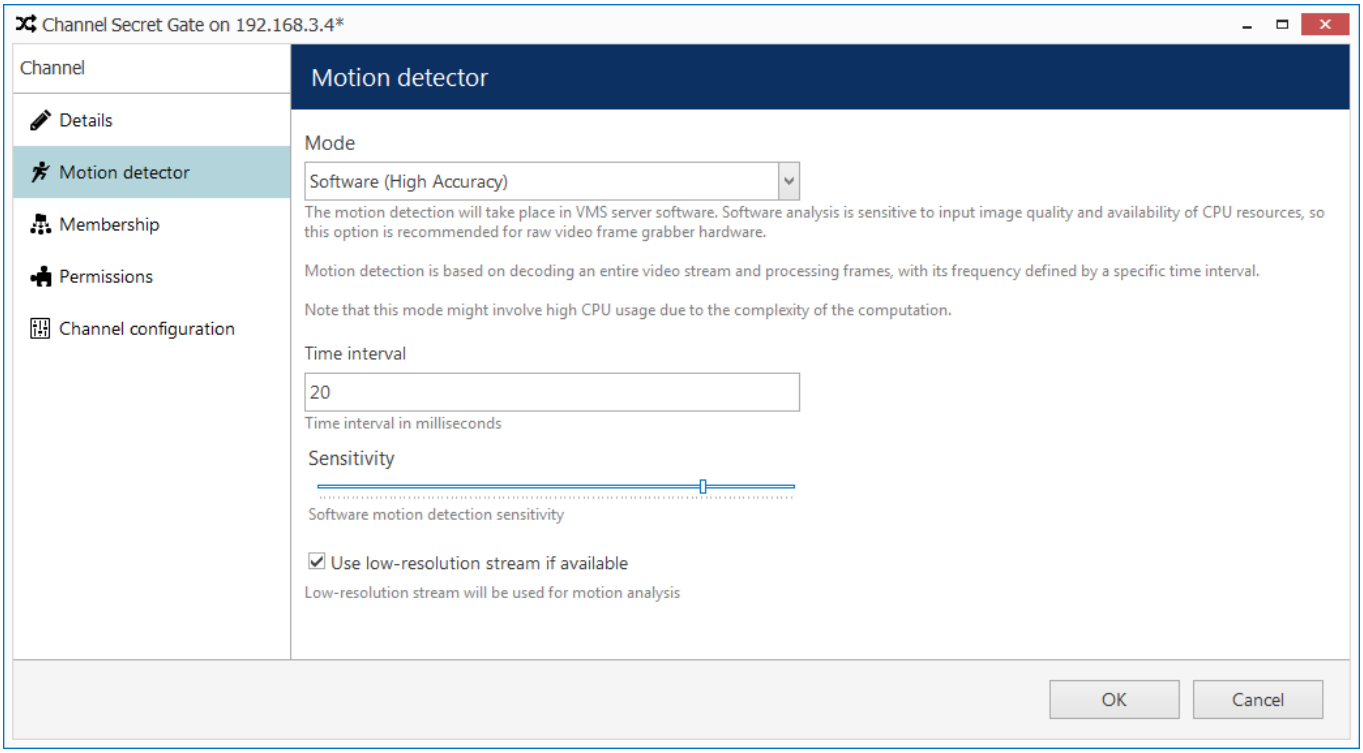
Choose between camera-side or software-side motion detectors; the detector's default state is *disabled*.

⚠ When selecting **camera-side motion detection**, make sure to go to device Web interface to enable and configure motion detector. Settings may vary depending on device manufacturer; also, check with Luxriot to make sure hardware motion detection is supported for the target device.

Camera-side motion detection is recommended for two basic reasons:

- computational load is transferred from servers to devices, decreasing server load, and
- on most devices, hardware-side motion detection is performed on raw video stream, which means superior accuracy compared to software-side detector, as software only gets access to compressed stream.

©2016. A&H Software House, Inc. All Rights Reserved.



Software-side motion detection settings

The motion detector on the software side has two options: high performance and high accuracy:

> ***High Performance*** *mode:* this type of analysis is performed for only key frames whose frequency can vary from several frames per second to one frame every few seconds - this is less sensitive for picture quality, but greatly affects detector operation. CPU consumption is significantly lower due to this, and it can be additionally reduced by increasing time interval between two analyzed frames.
>
> ***High Accuracy*** *mode:* this mode performs motion analysis for the whole video stream, so we recommend selecting this option when you want to achieve best detection results. The lower time interval means higher precision. Keep in mind that CPU and virtual memory usage is much greater if this mode is selected.

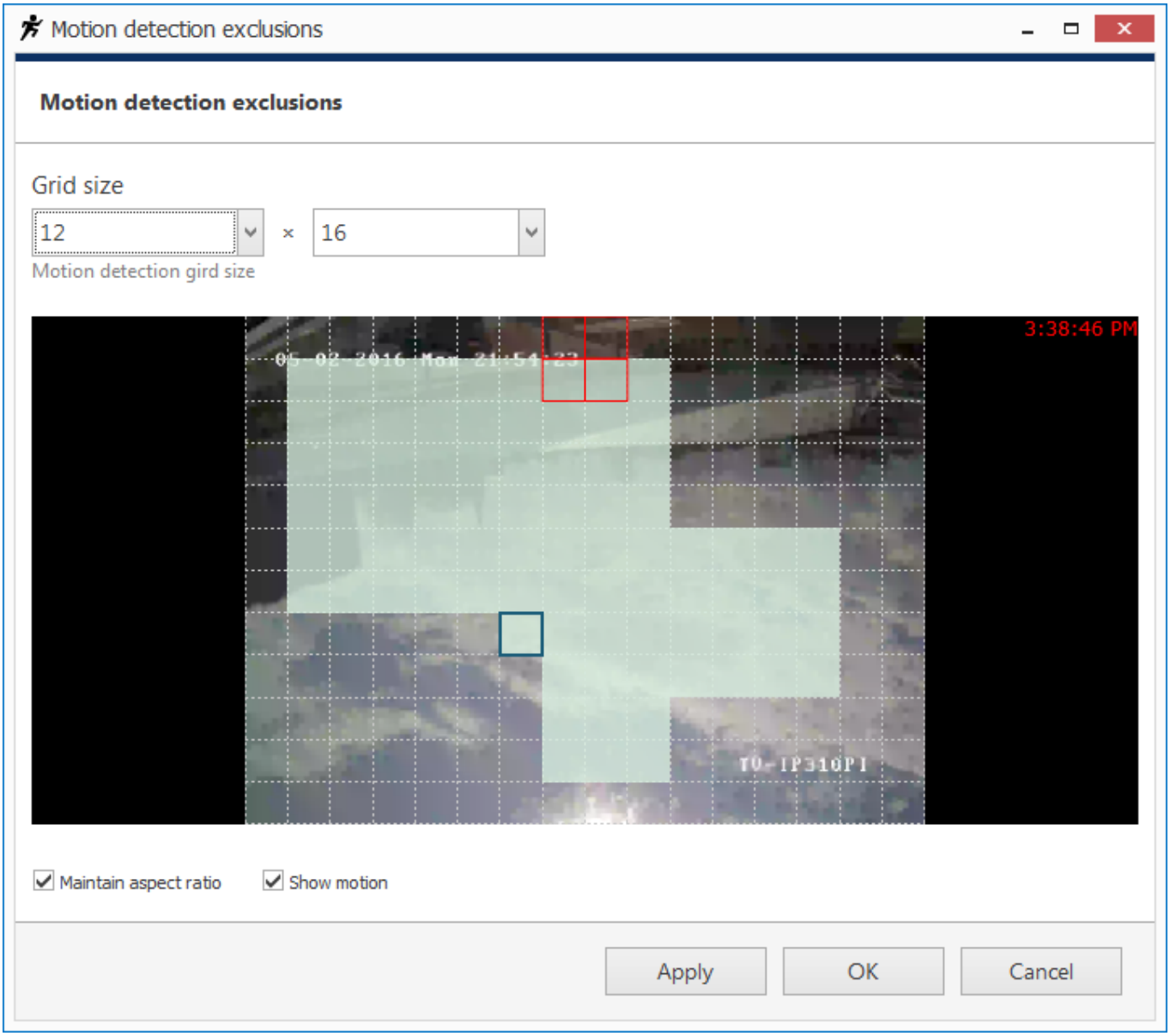
In both modes, the **level of sensitivity** can be adjusted, as can the time interval setting which defines the frequency of frame analysis.

Regardless of which mode you select, you can further decrease the amount of server-side calculations by using a **lower-resolution stream** (if available). For example, if your main stream is 3MP and your substream is D1, the motion detection engine will spend much less system resources on D1 analysis than it would spend on a 3MP image. Note that some cameras deliver lower-resolution streams as cropped high-resolution images (not resized, as it would be expected) - in such cases, using a substream for MD analysis will produce wrong results and therefore doing so is not advisable.

> Most cameras provide second stream as first stream image scaled to fit low resolution; however, some devices crop the centre of a high-resolution image to fit the small frame, and thus the substream picture appears as if it were zoomed in. Keep this in mind when you are using substream for live view and especially for software-side motion detector analysis.

Click the *Motion detection exclusions* button in order to set up **exclusion zones**. Note that these settings only cover the software-side motion detector; in order to configure the exclusions for the camera-side motion detector, go to the Web interface of the target device.

©2016. A&H Software House, Inc. All Rights Reserved.



Set up exclusion zones for the motion detector

First, choose the **grid size** for the detector: this will define the size of the smallest detection region. Minimum grid size is 2x2 cells (resulting in four detection areas), and maximum size is 64x64 cells. Then, mark your desired exclusion area simply by clicking and dragging on the viewport; you can **draw** several rectangles to form a complex polygonal area. Exclusion area(s) will be highlighted light green. In order to cancel the selection, simply draw a rectangle over it.

Settings in the bottom are here to ease the configuration process:

- Maintain aspect ratio: displays original picture proportions, if selected, or stretches the picture to fill the viewport
- Show motion: shows currently present motion, if selected

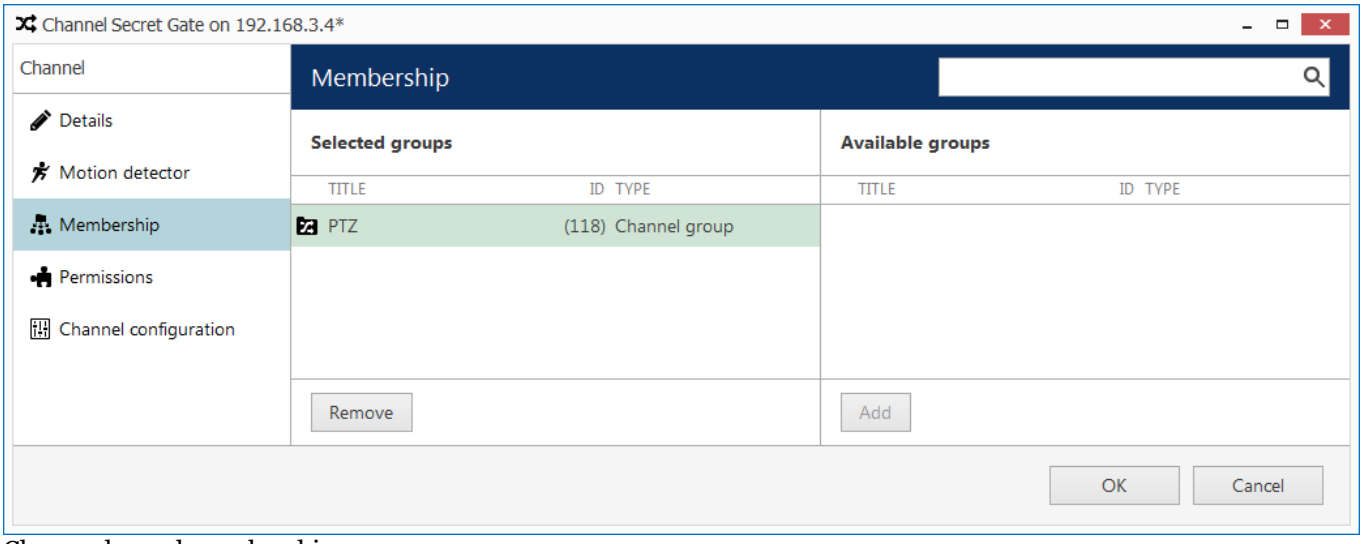
In order to test the behaviour of the selected grid size, enable the *Show motion* option, the click *Apply* and see how the detector works with your defined grid.

When you have finished, click *OK* to return to the main channel configuration dialog box.

Membership

Choose the group(s) you want to contain the target channel as a member: double-click the relevant items or use the *Add/Remove* buttons below to select/deselect.

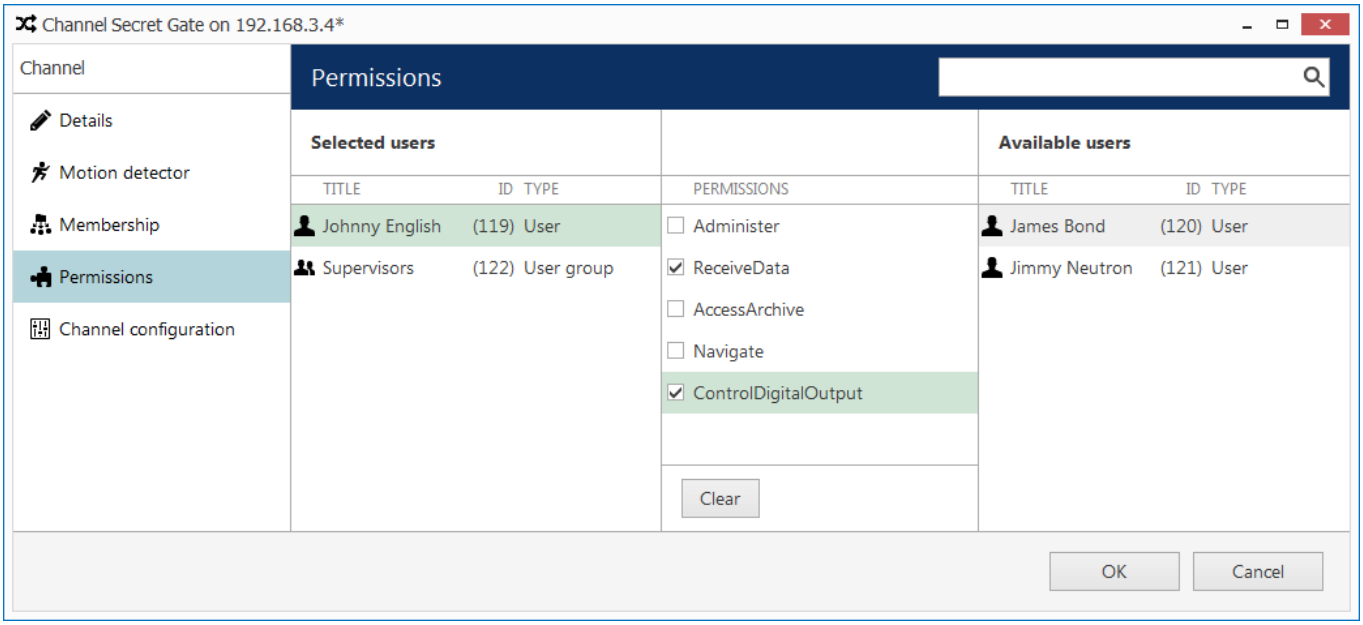
©2016. A&H Software House, Inc. All Rights Reserved.



Choose channel membership

Permissions

Allow users and user groups to access and administer target channel. To add a user or user group, simply select at least one permission, then remove all the users or user groups by clearing all permissions - either manually or by using the *Clear* button below.

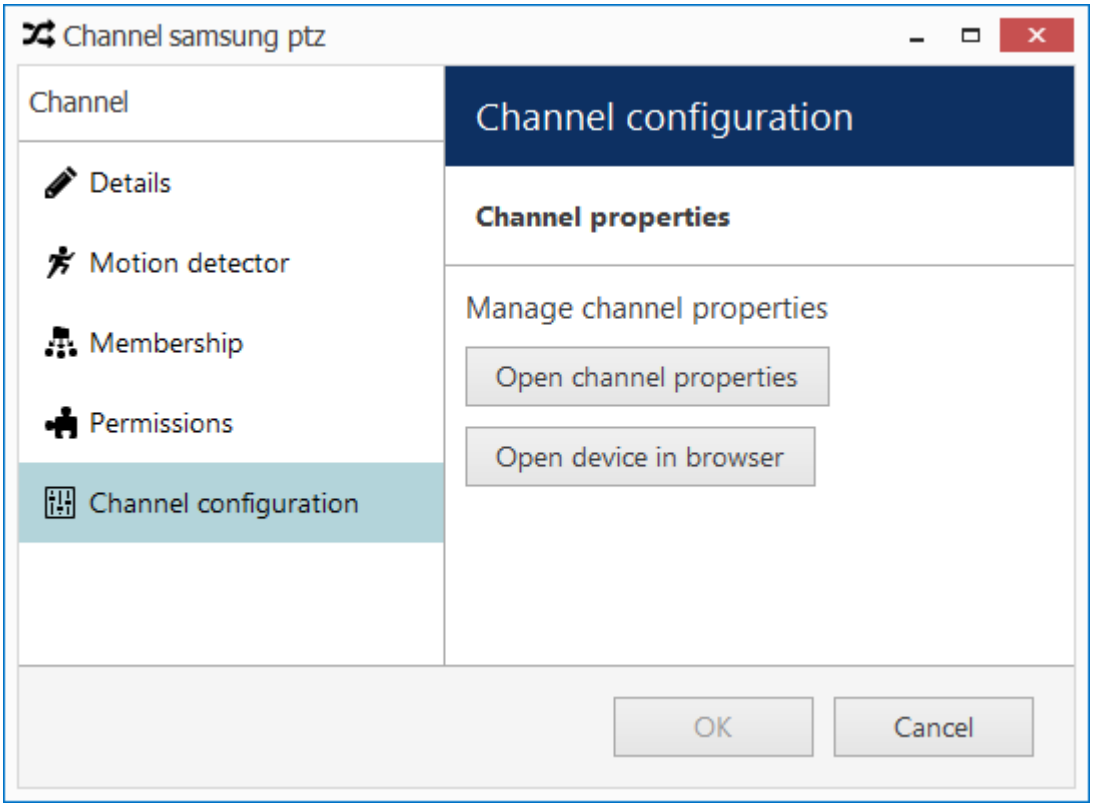


Change user privileges

©2016. A&H Software House, Inc. All Rights Reserved.

Channel Configuration

The *Channel Configuration* tab allows you to adjust advanced channel settings. Some of these can be changed via Luxriot Console but sometimes software does not cover some of the device settings, so you are also given the option to go straight to the device Web interface - simply click the *Open device in browser* button to do this.



You can open the target device in browser or go to the software provided settings' dialog box

Click *Open channel properties* to access the additional channel configuration dialog box. The available tabs depend on the device model and capabilities: for some cameras, only basic configuration options are present, while for others, advanced settings are accessible. If you see that a camera has certain capabilities that are not configurable via Luxriot Console configuration interface, go to the device's Web interface in order to change that specific setting.

- **Video Input tab**: set video transport (the available list of options depends on the device type and model; common types include HTTP, RTSP* and native transport)
- **Video Adjustment tab**: fine-tune picture settings such as brightness and contrast level
- **Substream tab:** enable second (lower resolution) stream
- **Video Configuration tab**: choose streaming settings**
- **Motion Detection tab:** with some devices, the camera-side motion detector must be explicitly enabled here
- **Events tab**: enable event generation from device digital inputs (DI)
- **External PTZ tab**: adjust external PTZ controller settings; communication port must match the communication port that the RS232/485 controller is connected to, and baud rate has to match the baud rate of your PTZ controller/analog PTZ camera
- **Digital Outputs tab**: enable control for camera digital (relay) outputs (DO)
- **RTSP tab**: appears if RTSP transport type has been chosen; set RTSP port and mode (TCP/UDP/multicast***) here
- **Dewarp tab**: configure generic dewarp settings or enable dewarp engine for the Panomorph lens

*You may have to specify the RTSP port on the corresponding tab if it differs from default (port 554 for most cameras). To do this, select the RTSP transport type and then click *Apply*: as a result, the RTSP tab will become available.

**Remember, the higher the resolution/bitrate/quality/frame rate you set, the more storage space and bandwidth it will use when recording. These settings also affect CPU/virtual memory resource consumption for live video and

©2016. A&H Software House, Inc. All Rights Reserved.

software-side motion detection.

***Multicast mode availability depends on device integration.

Note that a valid administrative account login and password for the camera should be provided in *Device* settings in order to access and set the device configuration.

©2016. A&H Software House, Inc. All Rights Reserved.

Configure Recording Profiles

This topic describes how to create and configure stream recording profiles. For global server storage settings, please see the Storage section of this document.

To access recording configuration dialog boxes in Luxriot Console, select the *Configuration* section and choose *Recording* in the menu on the left.

There are three types of resources in the *Recording* setup:

- **profile**: choose what data streams are recorded and in what mode (continuous/alert triggered)
- **schedule**: set a recording timetable based on profiles
- **configuration**: profile- or schedule-based recording configuration to be assigned to channels

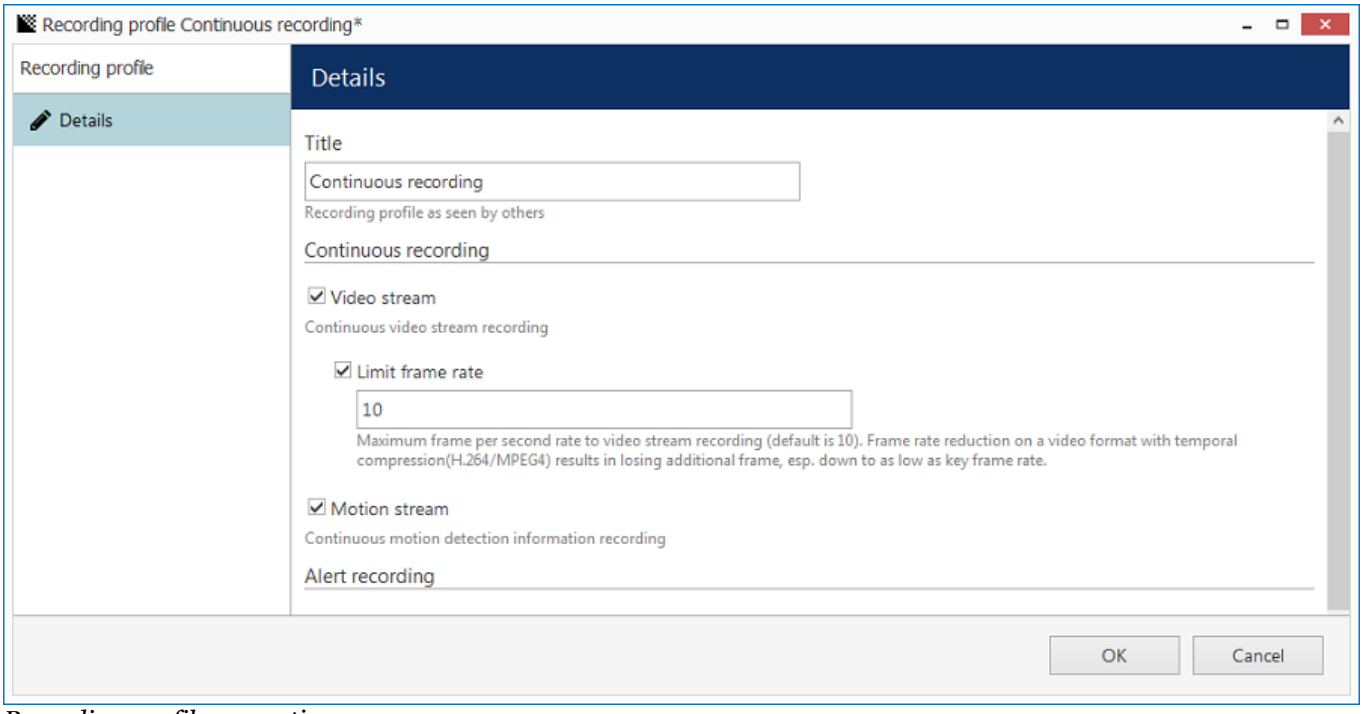
Buttons on the upper panel give the option to create, edit and remove recording resources.

> ⚠ Recording resource cannot be deleted if it is currently in use, i.e., when a recording profile is assigned to a recording configuration or a schedule, or when any of the recording resources are assigned to a channel.

Create Recording Profile

Recording profiles allow users to set which data streams are recorded and how. Profiles cannot be assigned directly to devices; rather, these are used as components for recording schedules and recording configurations. For this reason, profiles do not include such settings as pre-recording interval: this setting is defined per-channel and, therefore, is set in the recording configuration.

To add a new recording profile, click the down arrow button near + *New recording configuration* and select + *New recording profile*. The profile creation dialog box will appear.



Recording profile properties

The dialog box has two sections: for continuous and event-driven recording. Note that you only can select one mode at a time: if continuous recording is selected, alert-based recording options will be grayed out.

©2016. A&H Software House, Inc. All Rights Reserved.

To configure **motion-based recording**, enable *Video stream* in the *Alert recording* section and enable *Detected motion triggers alert* setting. If you wish to record still frames at low rate during non-motion period, keep the *Video stream* option in the *Continuous recording* section enabled and set your desired frame rate - e.g., 1FPS - then set high FPS or no limit in the *Alert recording* section. If you only wish to record while motion is present, deselect the *Video stream* option in the *Continuous recording* section.

When you assign a **motion-based recording configuration** to a channel with a disabled motion detector, the software will automatically suggest enabling motion detection for the target channel. The camera-side detector is given priority; if it is not available, the software-side detector will be enabled and set to the high-performance mode. We recommend that you **review** the motion detector settings to make sure it operates as desired, especially if the camera-side detector is in use.

Setting	Description	Default Value
Title	User-defined recording profile name	[empty]
Video stream (continuous)	Select to enable continuous video recording	Disabled
Limit frame rate (for continuous video recording)	Set frame rate restriction for recorded video; note that for compressed video streams (e.g., H.264) actual frame rate may differ due to compression algorithms	10 FPS
Video stream (alert)	Select to enable alert-driven video recording; video will only be recorded after alert generation, for the time period defined in the *Post-recording interval*	Disabled
Limit frame rate (for alert video recording)	Set frame rate restriction for recorded video; note that for compressed video streams (e.g., H.264) actual frame rate may differ due to compression algorithms	10 FPS
Post-recording interval	The time period during which alert-driven recording will be conducted after alert generation	10 seconds
Detected motion triggers alert	Motion will act as a trigger for recording; enable this setting to set up motion-based recording	Disabled

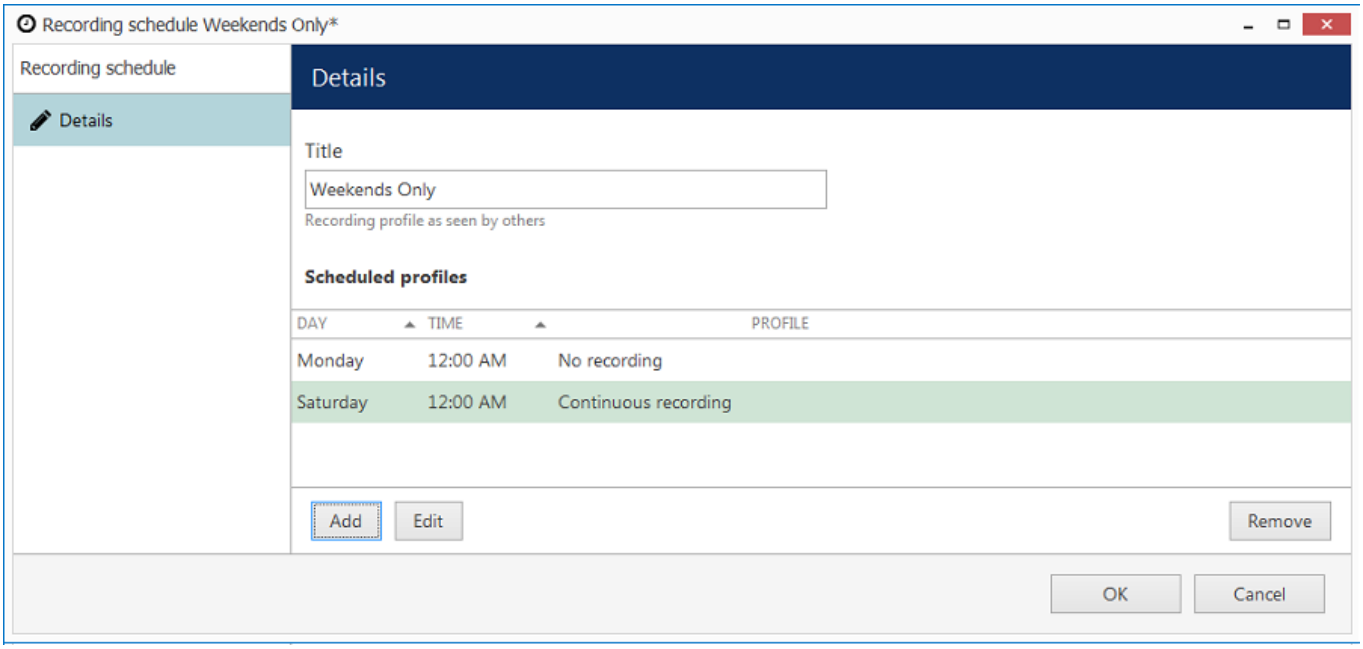
When done, click *OK* to save recording profile: it will appear in the item list of the *Recording* section. The profile is now ready for further configuration.

©2016. A&H Software House, Inc. All Rights Reserved.

Create Recording Schedule

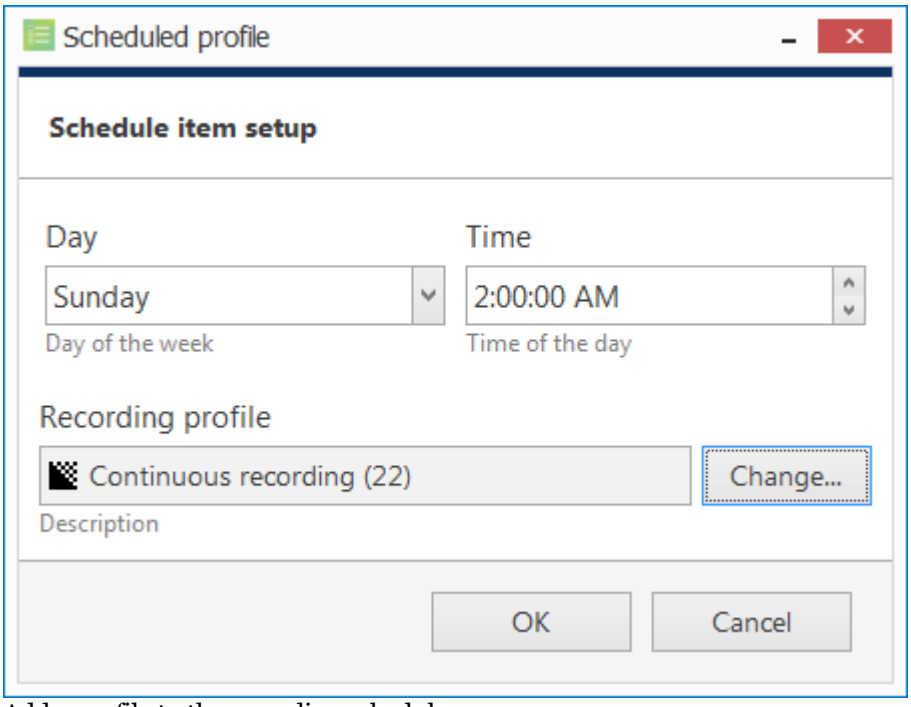
Recording schedules are sets of recording profiles that define what recording profiles are used depending on the day and time of the week.

To add a new recording schedule, click the down arrow button near + *New recording configuration* and select + *New recording schedule*. The schedule creation dialog box will appear, allowing you to enter a user-defined name for the new schedule and add multiple profiles to define recording behaviour.



Recording schedule properties

Click the *Add* button below to insert a new profile with defined start time.



Add a profile to the recording schedule

Note that only begin time is set for each added profile: the end time is determined by the start time of the next profile. For example, if you require continuous recording during weekdays and motion-driven recording during weekends, your continuous recording profile should be scheduled to start on Monday at 12 a.m. and motion-driven one - on Saturday at 12 a.m..

©2016. A&H Software House, Inc. All Rights Reserved.

Click *OK* to save and add the profile to the schedule. Multiple profiles will be automatically sorted based on their start time.

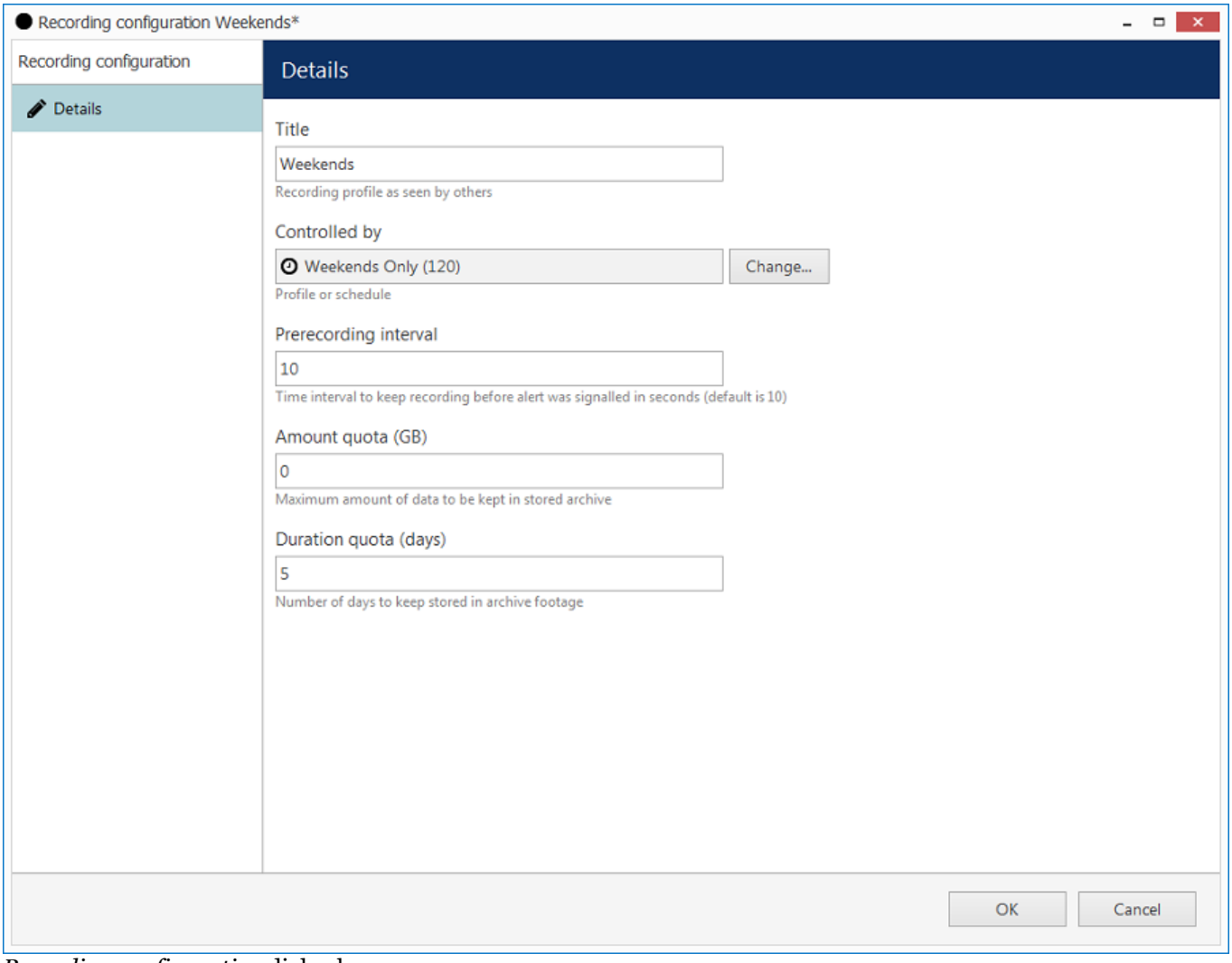
Use the *Edit* and *Remove* buttons below to manage the profiles added. When you are finished, click *OK* to save; the newly created schedule will be added to the item list in the *Recording* section.

©2016. A&H Software House, Inc. All Rights Reserved.

Create Recording Configuration

Recording configurations are global recording arrangements that can be assigned to a per-channel recording setup. Recording configurations can be based on a single recording profile or on a pre-defined recording schedule.

To add a new configuration, click the down arrow button next to + *New recording configuration*.



Recording configuration dialog box

The corresponding dialog box will then appear, allowing you to enter the configuration properties.

©2016. A&H Software House, Inc. All Rights Reserved.

Setting	Description	Default Value
Title	User-defined recording configuration name	[empty]
Controlled by	Choose existing recording profile or schedule for current configuration or create a new one from the sub-dialog	[none]
Pre-recording interval	Set the pre-recording interval for alert-driven recording, if applicable; note that large pre-recording interval will increase virtual memory usage	10 seconds
Amount quota	Storage quota in GB: the maximum amount of space that can be taken up by recordings, if the maximum size is reached, the oldest footage will deleted; set 0 to disable any limitations	0 (unlimited)
Duration quota	Duration quota in days: the maximum number of days that recordings are kept in the archive; after this, recordings will be erased; set 0 to disable any limitations	0 (unlimited)

Before setting recording limitations, make sure there is sufficient space in the server storage for all cameras. The quotas may be ignored if actual storage size is insufficient, and this will result in shorter footage durations.

Note that quotas do **not** give priority to channels that are assigned configuration. For example, if you set the duration quota to ten days, it merely means that the maximum recording duration will be ten days for a channel with given configuration; this will **not** reduce recording duration for other channels.

When you have finished, click *OK* to save and exit. Recording configuration will now be added to the item list and will become available in channel recording configuration.

©2016. A&H Software House, Inc. All Rights Reserved.

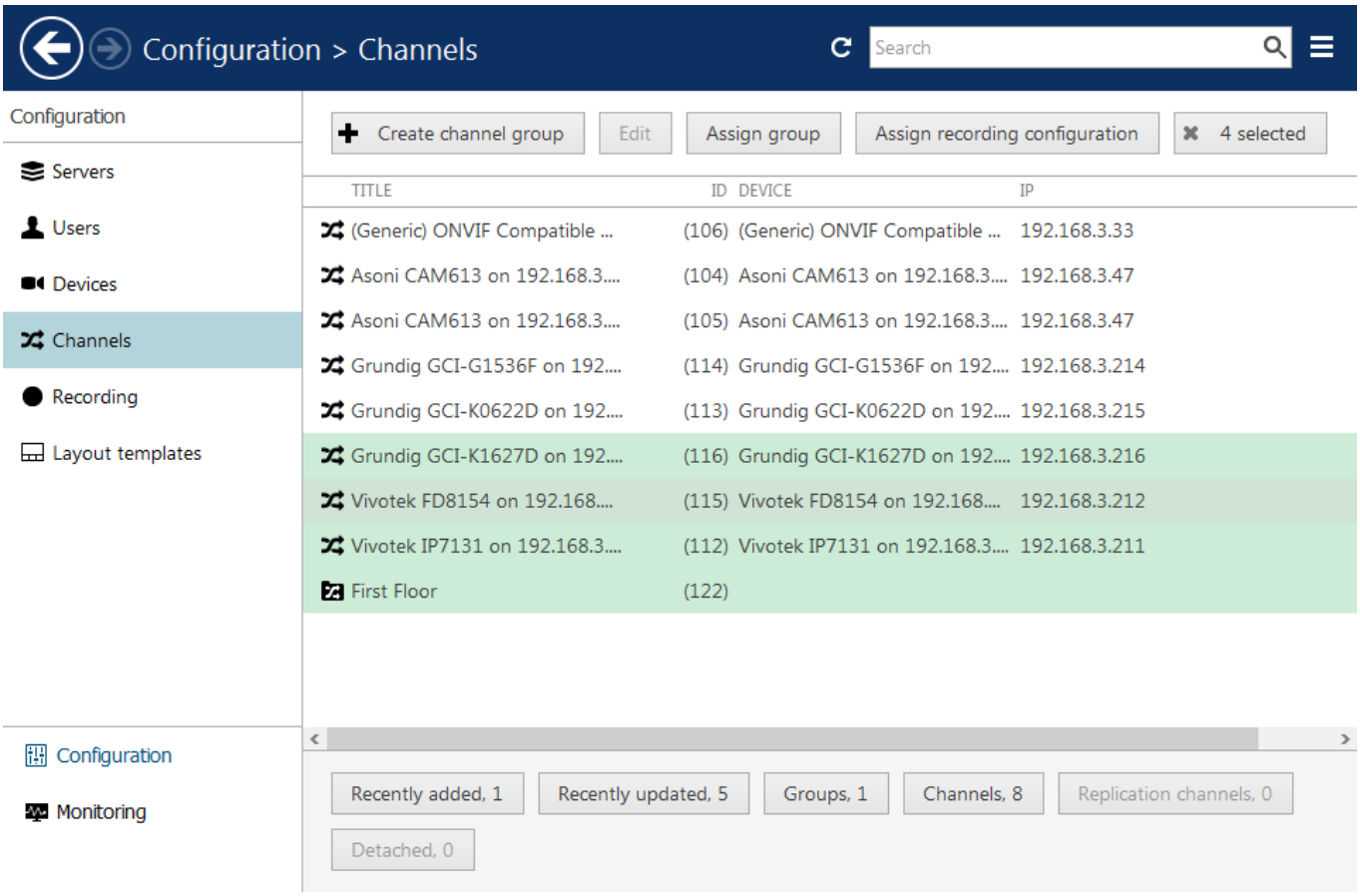
Assign Recording Profiles

Recording configurations can be assigned to channels and channel groups to define how data streams are recorded. There are several ways to assign a recording configuration:

- when using device autodiscovery: via *Found channels* tab
- when creating multiple devices: from multiple channel creation dialog box, *Channel settings* tab
- for existing channels, per channel: via *Edit channel* dialog box, *Details* tab
- for existing multiple channels: via *Channels* section, using *Assign recording configuration* button on the upper panel

Topic body below explains how to assign configurations via main Luxriot Console window (latter option). All the rest alternatives are similar: you are offered configuration selection list at once from corresponding setup window.

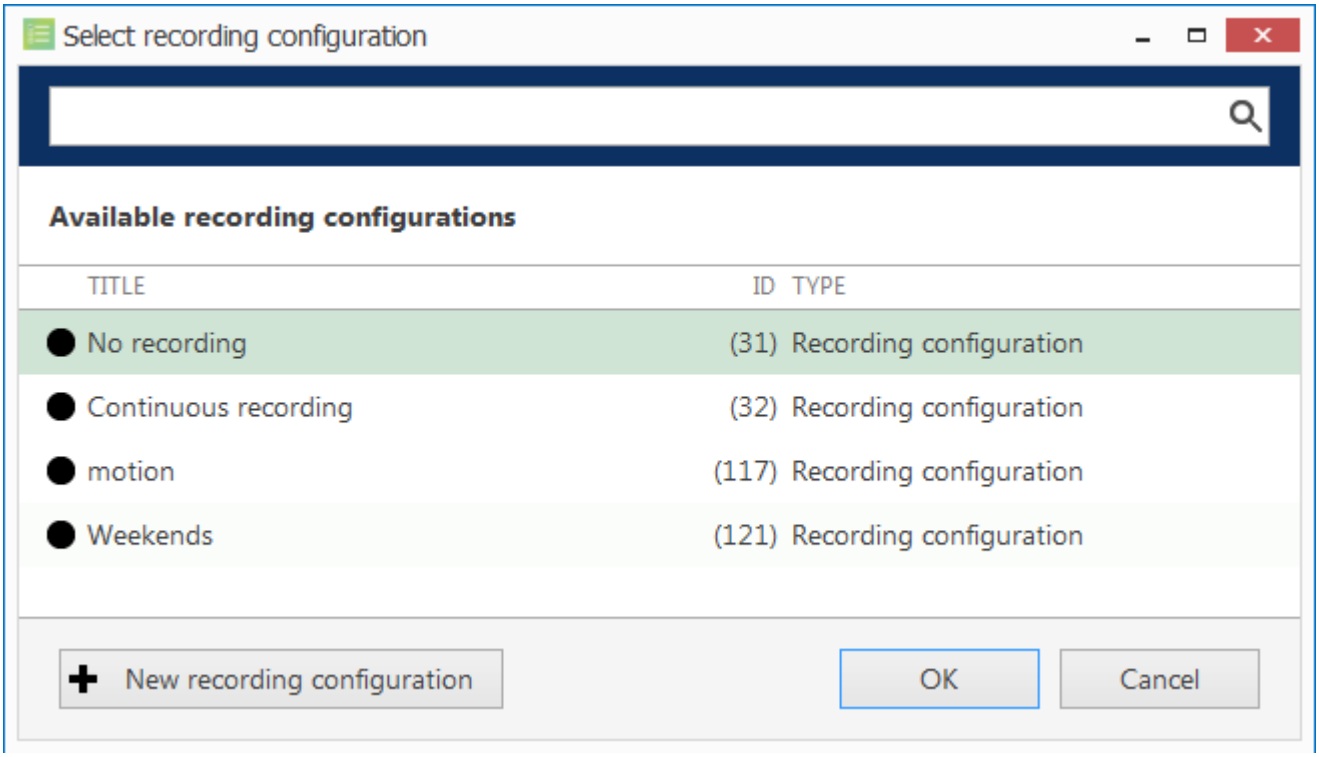
Enable Recording



Select the channels that are subject to recording configuration changes

In Luxriot Console, choose *Configuration* section and select *Channels* from the menu on the left. Select one or multiple channels and/or channel groups (use *CTRL+click* or *Shift+click* to select several items at once) and then click the *Assign recording configuration* button on the upper panel. The list of available configurations will appear.

©2016. A&H Software House, Inc. All Rights Reserved.

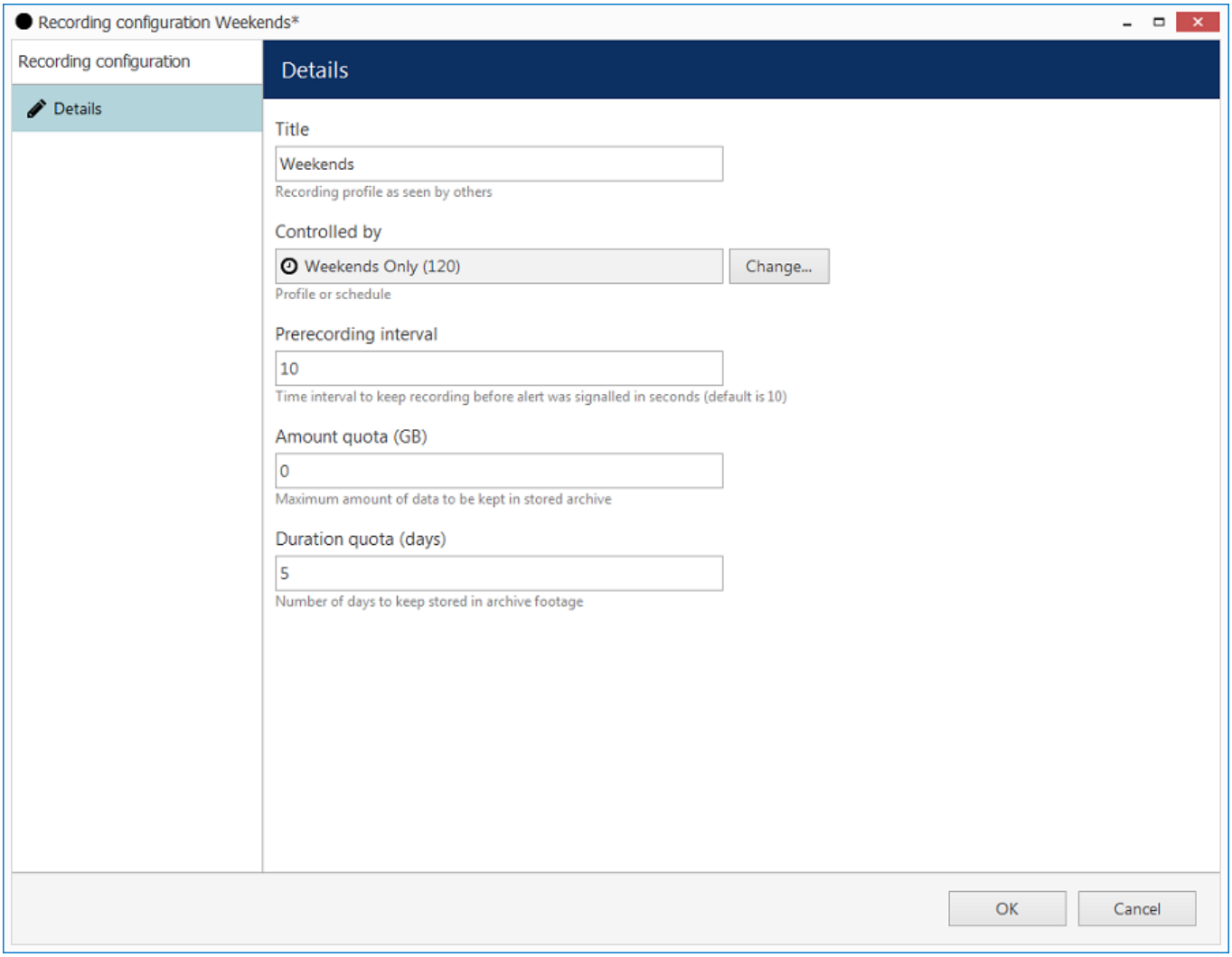


Choose a recording configuration for the channels selected

Note that you can only directly assign **configurations**, not profiles or schedules. Click the + *New recording configuration* button below to create additional configurations from existing profiles/schedules at this point.

When you assign a **motion-based recording configuration** to a channel with a disabled motion detector, the software will automatically suggest enabling motion detection for the target channel. The camera-side detector is given priority; if it is not available, the software-side detector will be enabled and set to the high-performance mode. We recommend that you **review** the motion detector settings to make sure it operates as desired, especially if the camera-side detector is in use.

©2016. A&H Software House, Inc. All Rights Reserved.



Add new recording configuration

Press *OK* to save and go back to the channel list: newly created recording configuration will be automatically assigned to channels previously selected.

Disable Recording

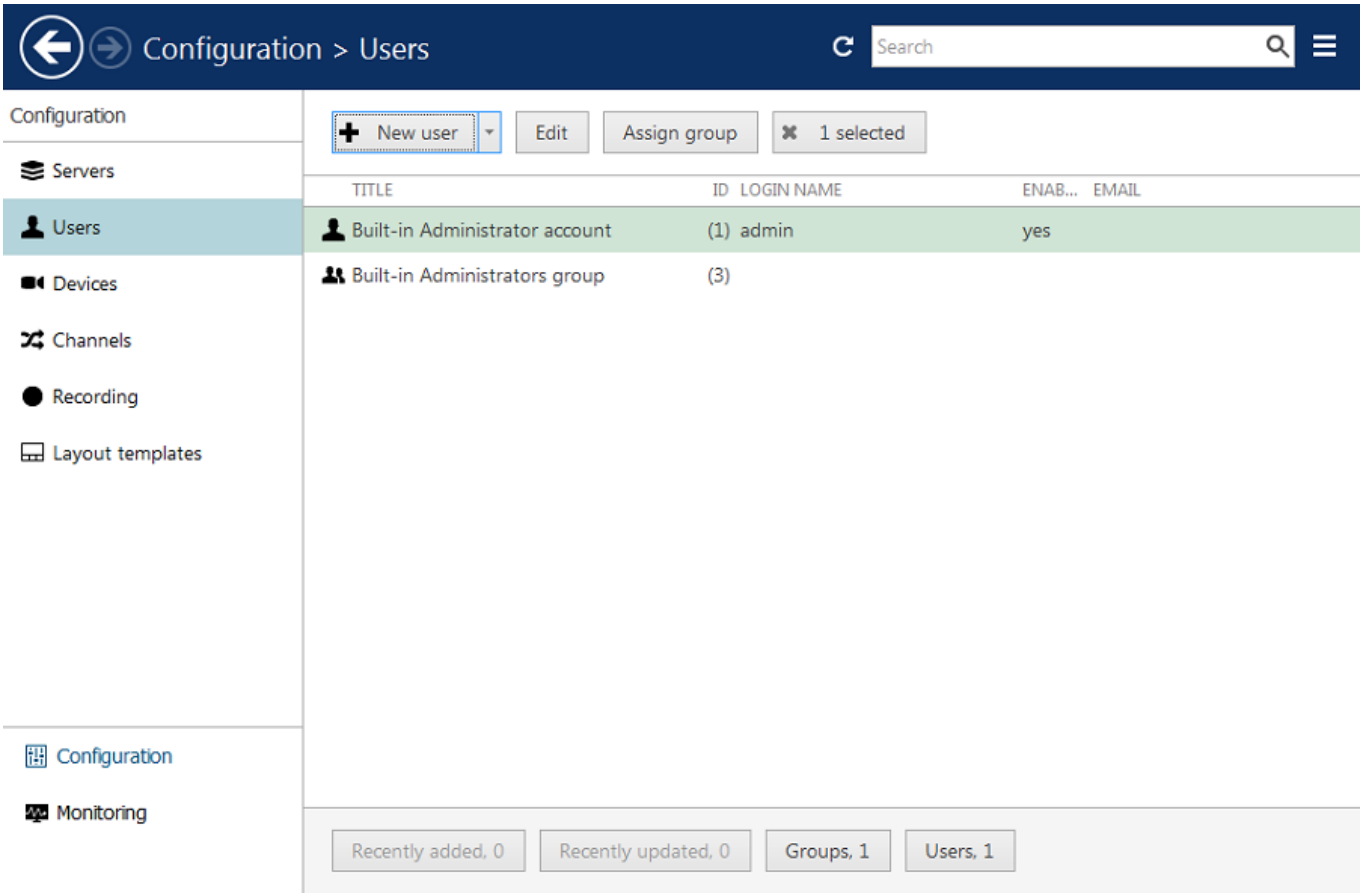
To disable recording for any channel(s), choose the *No recording* configuration, which is present in the list by default. If you have deleted it, simply create a new recording profile without any streams selected for recording and then create a recording configuration for this profile.

©2016. A&H Software House, Inc. All Rights Reserved.

Add Users and User Groups

User management is accessible via the *Users* component of the *Configuration* section. By default, the system already features a built-in global Administrator account and built-in Administrators group.

> The built-in Administrator user account and built-in Administrators group are root users with access to absolutely all the available resources. As a result, resources choice is unavailable for the Administrators group, and it is also impossible to add Administrator user to any other group.
>
> Any users added as members to the built-in Administrators group will have the same full authority as root users.



Configuration -> Users

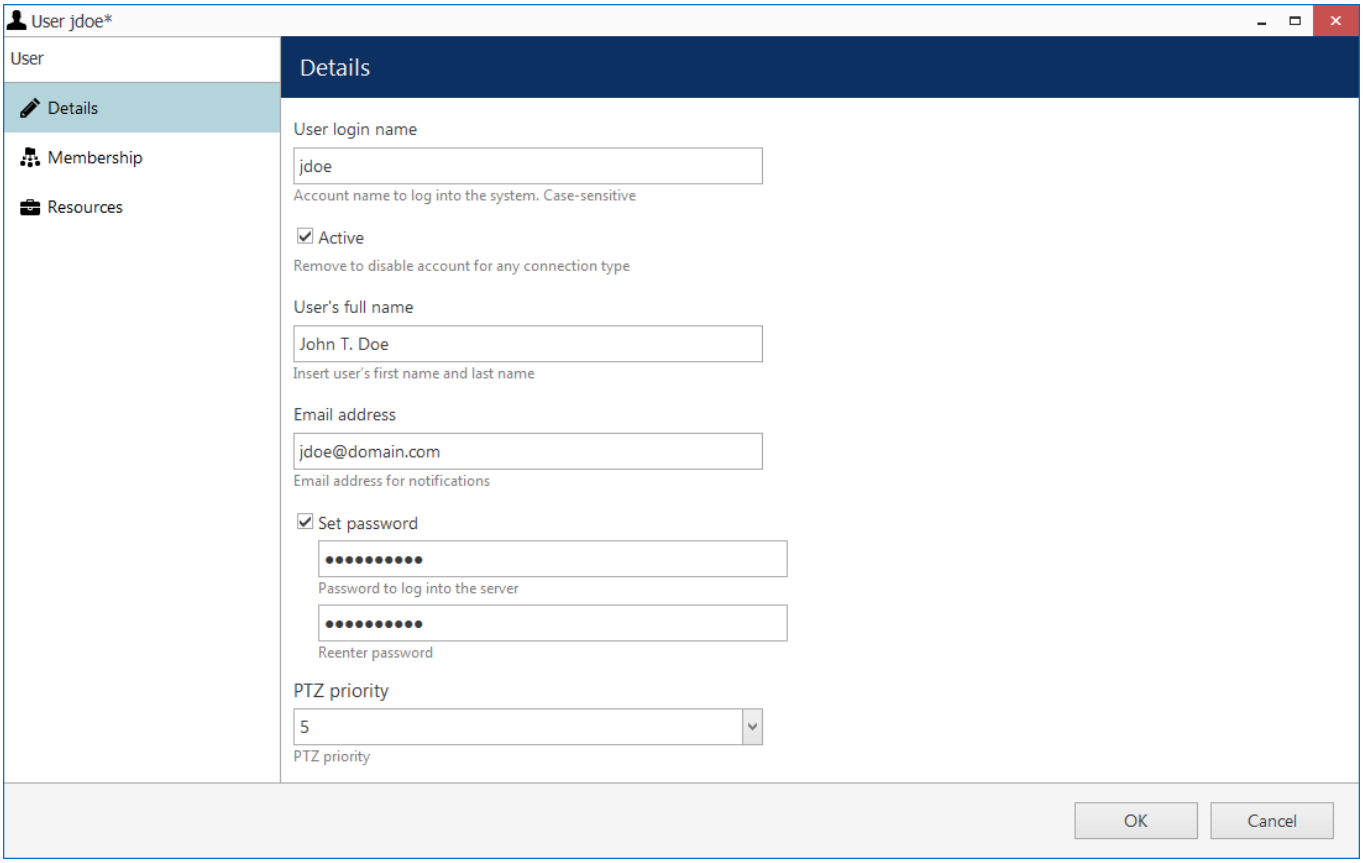
Add Users

Click the + *New user* button on the upper panel to bring up the configuration dialog box.

Details

Enter user login information here.

©2016. A&H Software House, Inc. All Rights Reserved.



Enter user details

The table below details the available settings.

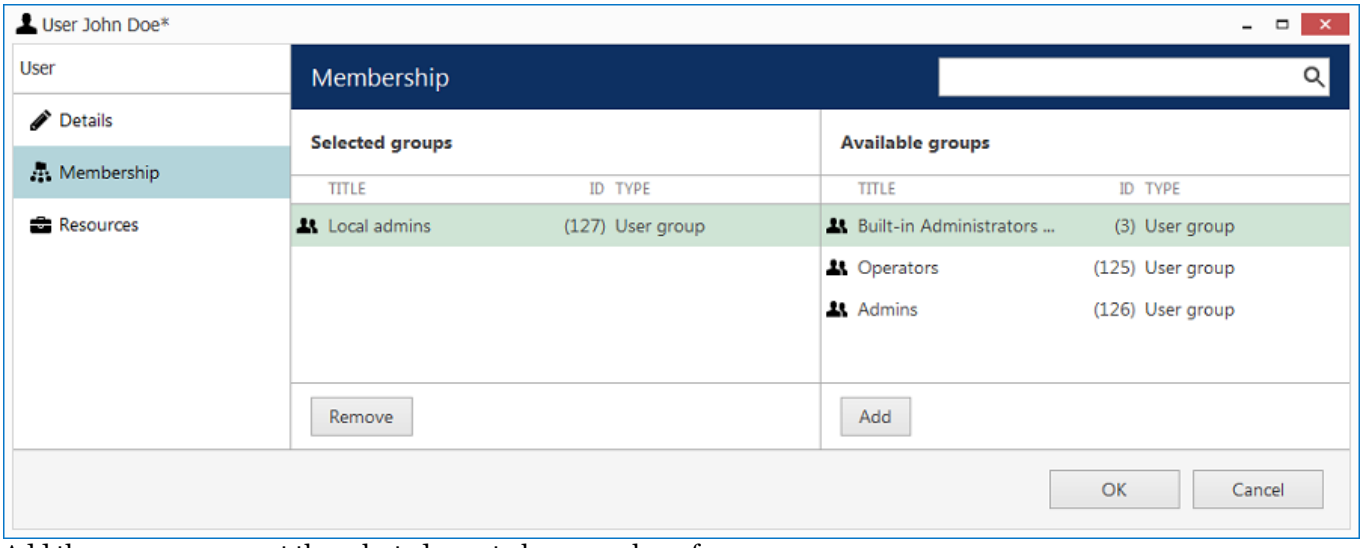
Setting	Description	Default Value
User login name	Alphanumeric user name for login, no spaces allowed	empty
Active	Allow the user to log in via Luxriot Console and Luxriot Monitor: any users who have been disabled will not be able to use software	Enabled
User full name	User full name	empty
Email address	User email address used for notifications	empty
Set/new password	Check to enter a password - his is obligatory when creating new user	empty
PTZ Priority	0 = lowest, 10 = highest	5

Deleting a user also removes all the settings related to that user; restoring these may be time-consuming. Use the *Active* setting to enable/disable users and temporarily block access for those.

©2016. A&H Software House, Inc. All Rights Reserved.

Membership

Choose which groups you want the selected user to be a member of. Every user can participate in one or multiple groups, depending on the system structure.



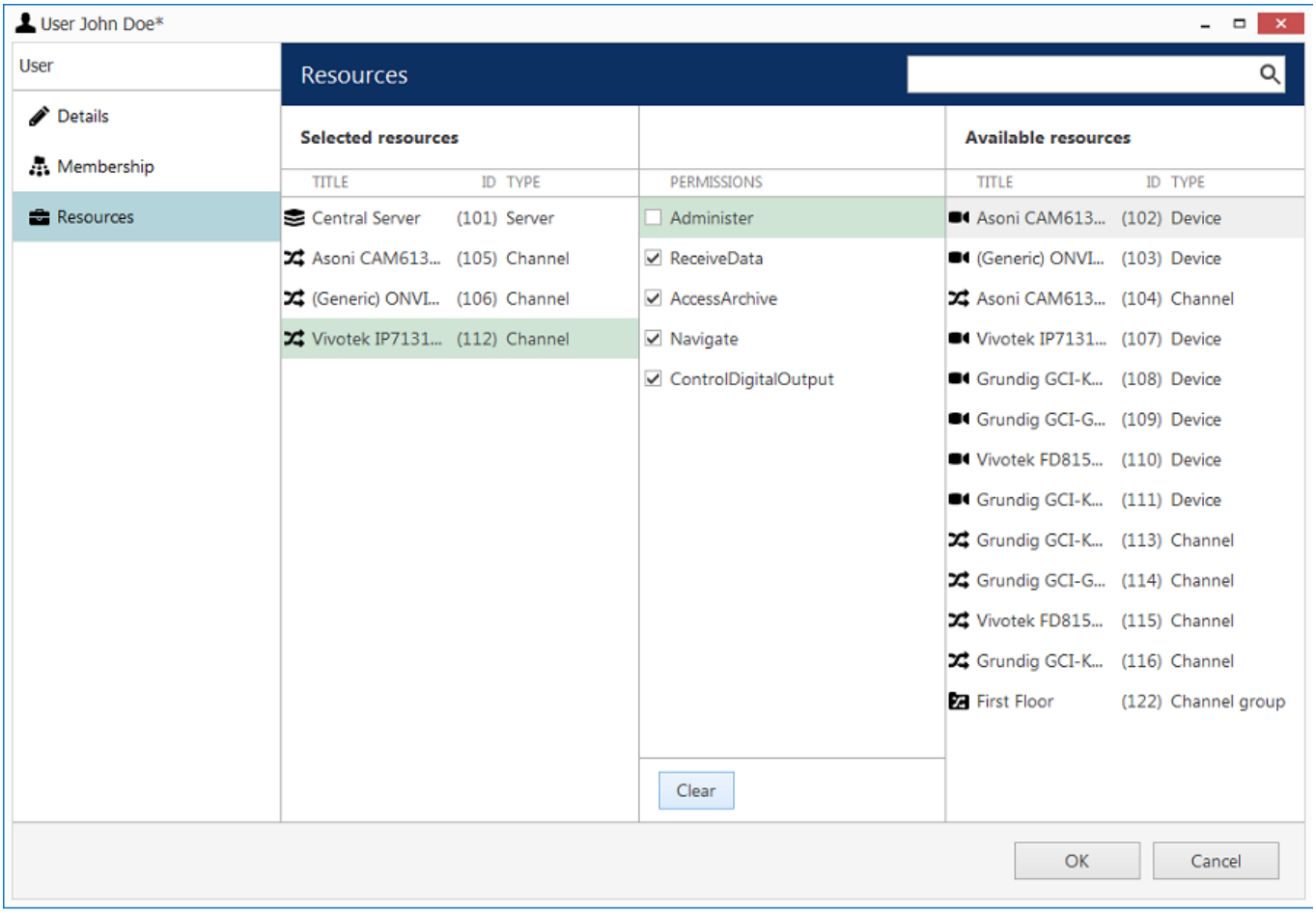
Add the groups you want the selected user to be a member of

Manipulate the groups by double-clicking a group or using the *Add/Remove* buttons below. Use the *Search* field in the upper-right-hand corner to filter the groups available.

Resources

Each user can be granted permissions for server and channel/channel group administration. Select resources by adding at least one permission; remove them by clearing permissions using the *Clear* button below, or simply by double-clicking them in the *Selected resources* list.

©2016. A&H Software House, Inc. All Rights Reserved.



Add resources for the selected user

Click *OK* when you have finished to return to *Users*; the newly created account will be added to the item list. Use the buttons on the upper panel to edit user details at any time, to quickly assign groups and remove specified users (hold *CTRL* of *Shift* to select multiple items at once).

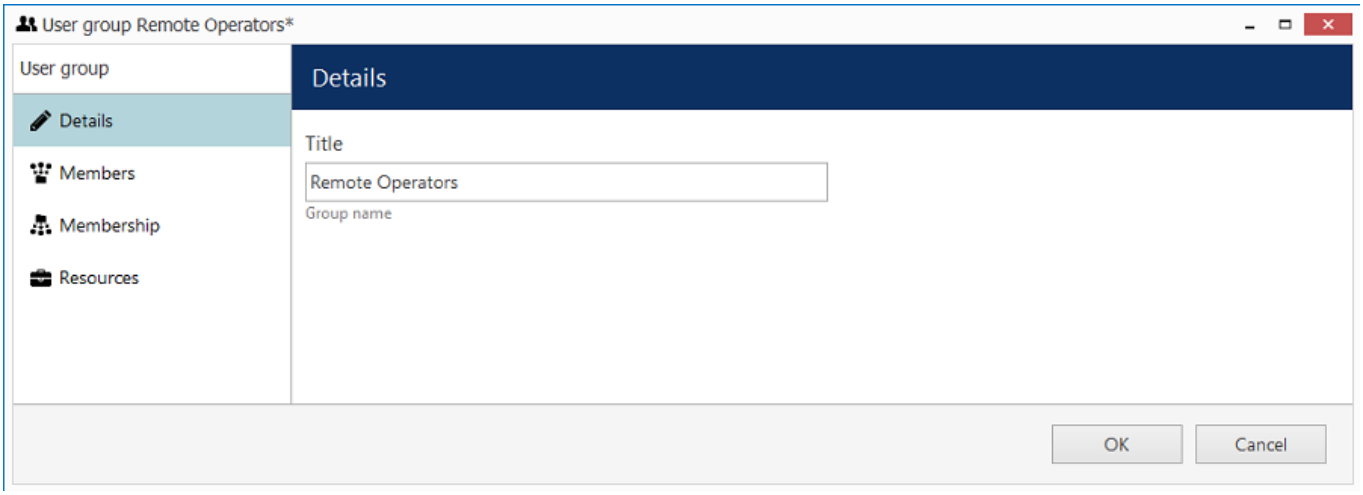
If there are a large number of user accounts, the *Search* field in the upper-right-hand corner and the content filters in the bottom panel can help you quickly find the accounts you are looking for.

Add User Groups

When the number of users is large, it may be more convenient to create multiple user groups and then distribute resources between user groups, rather than between individual users. One user can be a member of several groups.

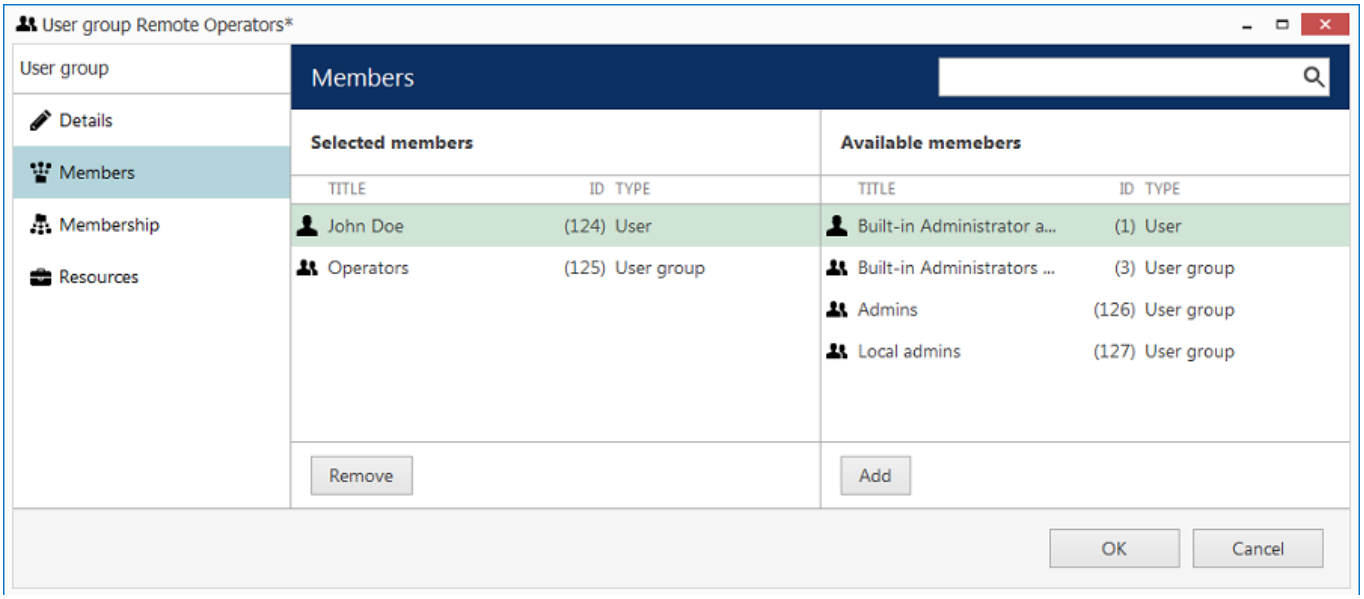
Click the down arrow near the + *Create new user* button and select *New user group* from the drop-down list to bring up the configuration dialog box.

©2016. A&H Software House, Inc. All Rights Reserved.



New user group

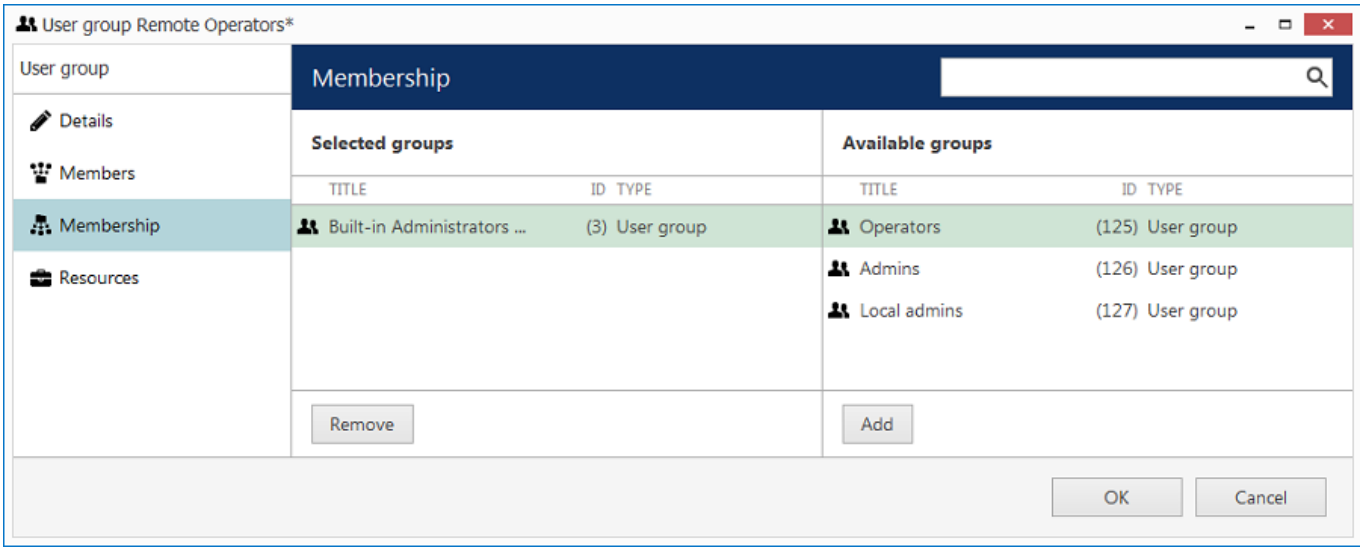
In the *Details* tab, enter group name.



Choose group members

©2016. A&H Software House, Inc. All Rights Reserved.

In the *Members* tab, choose which users and/or user groups will become members of the target group: manipulate items by double-clicking them or using the *Add/Remove* buttons below.



Choose group membership

In the *Membership* tab, select the group(s) you want to include the current group as a member: manipulate items by double-clicking them or use *Add/Remove* buttons below.

Finally, you can grant resources permissions using the *Resources* tab in a similar way to adding a single user. Select resources by adding at least one permission; remove them by clearing the permissions using the Clear button below, or simply by double-clicking them in the *Selected resources* list.

Click *OK* when you have finished to return to *Users*; the newly created group will be added to the item list. Use the buttons on the upper panel to edit the group details at any time. If there are a large number of user accounts, the *Search* field in the upper-right-hand corner and the contents filters in the bottom panel can help you to quickly find the accounts you are looking for.

©2016. A&H Software House, Inc. All Rights Reserved.

Permissions and Membership

Permissions

You can handle the user and user group permissions for channels, devices and servers via the *User* and *User group* configuration dialog box -> *Resources* tab, or via server/device/channel settings -> *Permissions* tab.

All the available resources are listed in the column on the right; double-click the items or use the *Add/Remove* buttons below to move items between columns. When you have finished, click *OK* to save and exit.

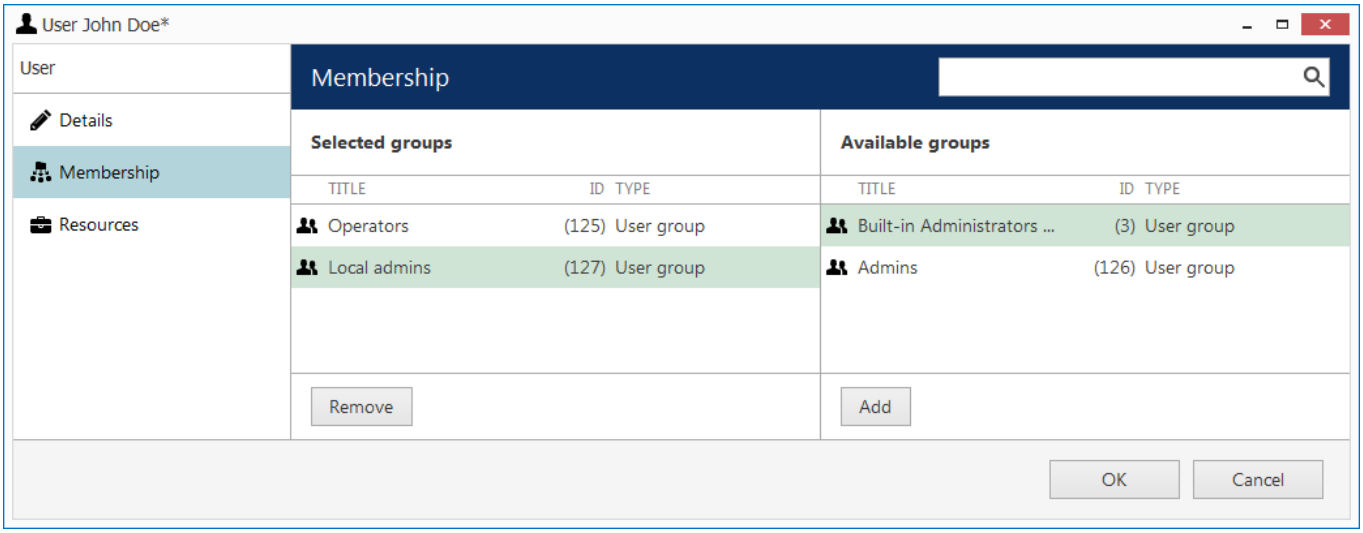
The following basic types of permissions are available:

- **Server**
  - Administer: access server configuration
  - Access archive: playback
- **Channel**
  - Administer: access channel configuration
  - Receive device data: live view
  - Access archive: playback
  - Navigate: PTZ control
  - Control digital output: send commands for DI control

Membership

Users can be grouped logically to make permissions management easier. Groups can overlap, meaning that a single user can belong to multiple groups at once, and some groups can be nested - i.e., one group can contain one or more other groups.

To manage user membership from the user configuration dialog box, double-click any user. This will open the properties window, where you can switch to *Membership* tab. Here you can pick which group - or groups - this user will be a member of.

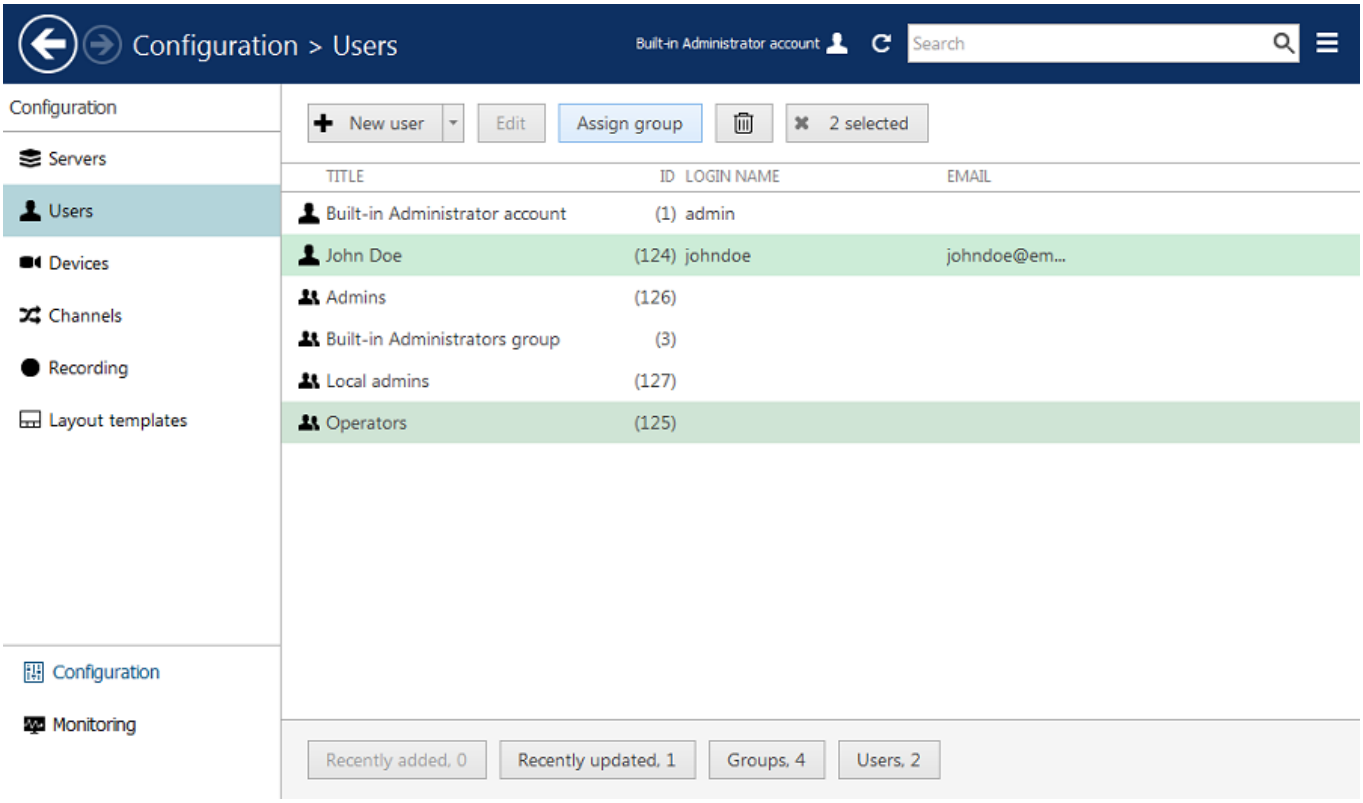


User membership

Double-click on groups or use the *Add/Remove* buttons below to move groups between columns. When you have finished, click *OK* to save changes and exit.

Alternatively, you can select one or multiple users from the users list, then click the *Assign group* button on the upper panel: a list of available groups will appear, allowing you to select one of the existing groups. After this, click *OK* to add selected users to the target group.

©2016. A&H Software House, Inc. All Rights Reserved.



Select multiple users and assign them to a group

©2016. A&H Software House, Inc. All Rights Reserved.

Streaming Server Configuration

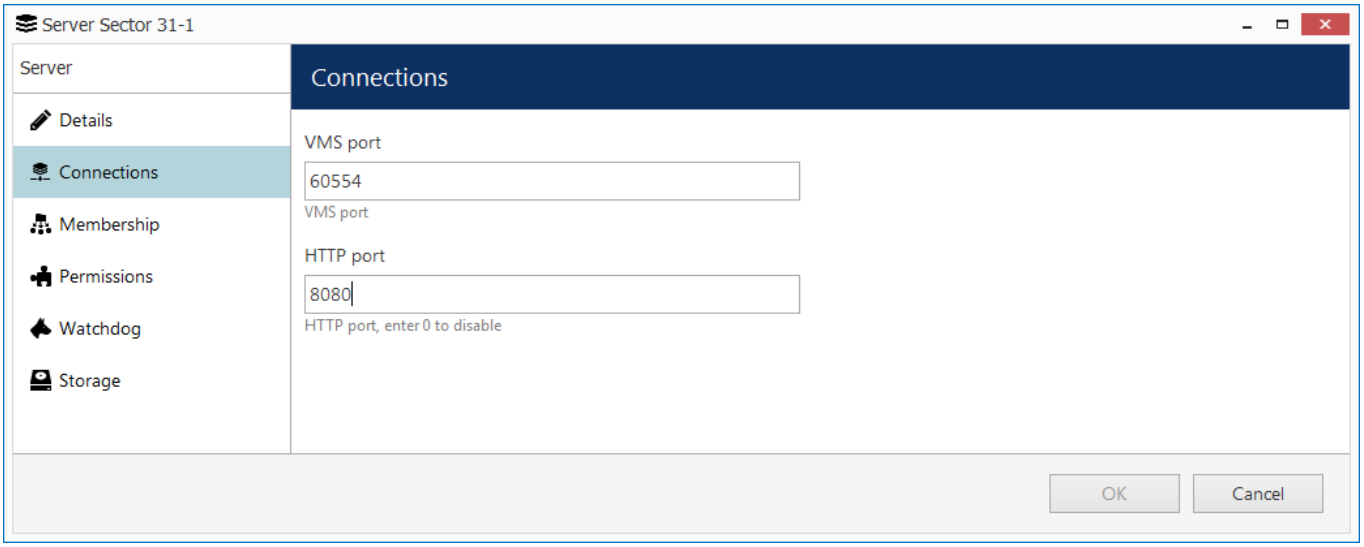
Get permanent access to live streaming and archive video, no matter where you are in the world. The Luxriot EVO Streaming Server allows quick and easy access to your cameras via web browser and/or native mobile applications.

Luxriot EVO Streaming Server is a part of Luxriot EVO software integrated into the Luxriot EVO Server core. It is designed for video streaming to multiple web-browsing platforms such as Mozilla Firefox and Google Chrome. Some major Luxriot EVO Streaming Server features are: video stream live view, archive playback, Pan-Tilt-Zoom control. The Luxriot EVO Streaming Server optimises video streaming for web or mobile clients, to a degree dependent on connection speed and device viewing capabilities.

At this point, the browsers recommended for clients are Google Chrome and Mozilla Firefox (under any operating system).

Audio and event streaming are **not** supported by the Luxriot EVO Streaming Server.

Luxriot EVO Streaming Server configuration on the Luxriot Console side is simple and only consists of HTTP port for streaming connections. To access the Luxriot EVO Streaming Server setup in Luxriot Console, go to the *Configuration* section and then click *Servers* in the menu on the left; double-click the target server to bring up the configuration dialog box and switch to the *Connections* tab.



Server setup

You only need to define a HTTP port for Luxriot EVO Streaming Server; the default port is 8080. No other settings require modification.

Please make sure that your chosen HTTP port:

- is opened on the target server firewall;
- is properly configured for port forwarding on all intermediate network equipment, if necessary;
- is not being used by any other application or service on the target server.

Once you are done with the settings, click *OK* to save and close the dialog box. Your Luxriot EVO Streaming Server will now be set up and accessible via a local - and, if used, external - IP. You can immediately check the connection at once: just open your browser and type: *<local IP>:<HTTP port>;* for example, server configuration for the snapshot above will require *192.168.1.83:8082*.

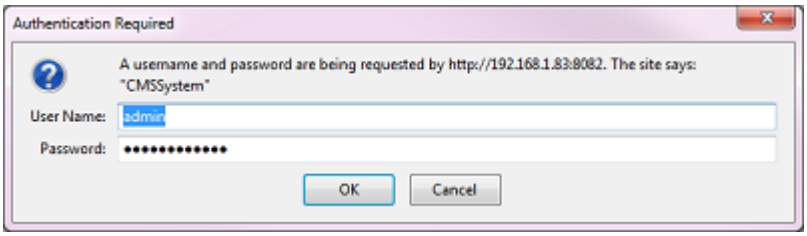
©2016. A&H Software House, Inc. All Rights Reserved.

Streaming Server User Interface

When configured, Luxriot EVO Streaming Server is accessible via browser from the server itself and from computers on the local network, and, if system is not isolated, from the Internet. To access the Luxriot EVO Streaming Server, open your browser and type:

<Server IP>:<HTTP port>

then press *Enter*. Your browser will connect to Luxriot EVO Streaming Server, and user authentication will be requested: enter your user name and password to proceed.



Authentication required

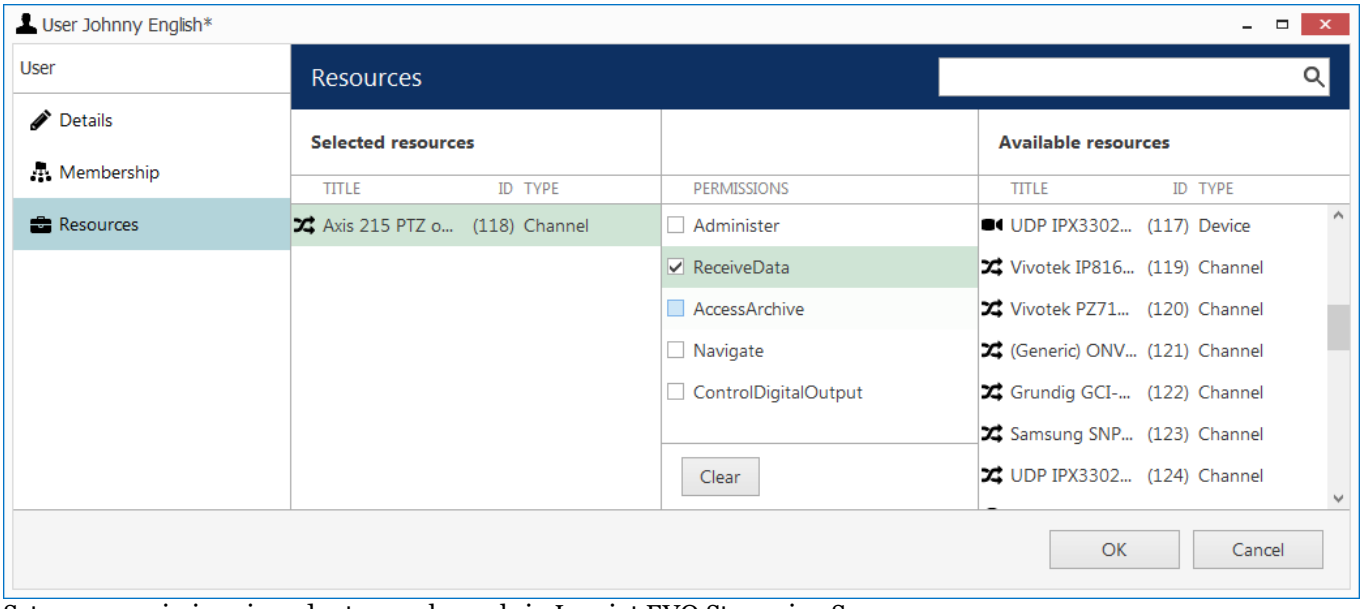
After logging in, you will see Luxriot EVO Streaming Server user interface:

- **left menu**: channel list and setup tabs
- **main window**: live-streaming area
- **upper-right-hand corner**: layout templates and layouts
- **upper-left-hand corner**: the Luxriot EVO Streaming Server logo; click the logo to extend viewing area by minimising the menu on the left

> The channel availability depends on the user permissions. The built-in administrator has access to all resources.

To allow channel access, go to *Configuration* section of Luxriot Console, choose *Users*, then select the user or user group for editing and add privileges on the *Permissions* tab:

- *Receive Device Data*: enables live view
- *Access Archive*: enables access to recorded video
- *Navigate*: enables PTZ control

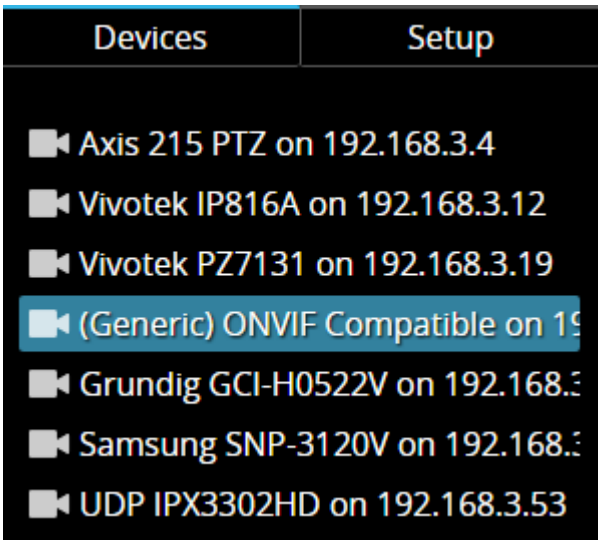


Set user permissions in order to see channels in Luxriot EVO Streaming Server

©2016. A&H Software House, Inc. All Rights Reserved.

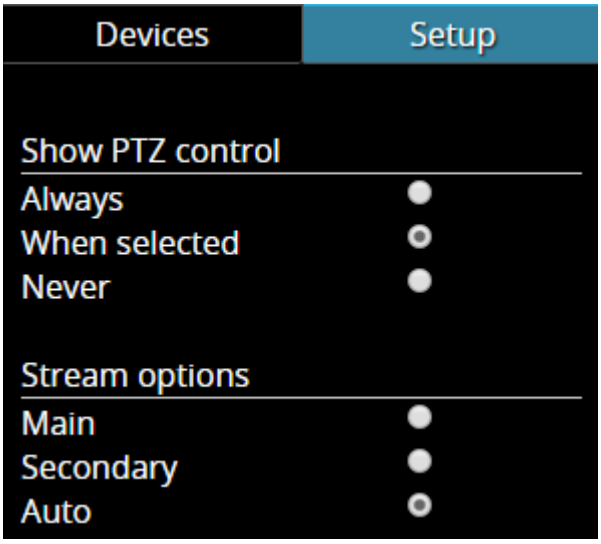
Left Menu: Configuration

The menu on the left has two tabs: *devices*, which shows which channels are available, and *setup*, which contains streaming settings. Click on the titles to switch between them.



Devices

The video sources are loaded in a single list. To start streaming from a particular device, select layout template from the menu in the upper-right-hand corner, then click your desired viewport so that it is highlighted blue, and then click a device from the list.



Setup

The *Setup* tab allows you to choose PTZ control behaviour and configure stream options:

- **PTZ controls**:
  - **Always**: if the camera supports Pan-Tilt-Zoom, virtual PTZ sphere will be always shown as overlay control
  - **When** selected: if the camera has PTZ capabilities, the virtual PTZ sphere will be shown when the corresponding stream is selected
  - **Never**: do not show PTZ controls at all, meaning that PTZ functionality will be disabled
- **Stream options**:
  - **Main**: only the first (main) stream, [usually] of a larger resolution will be used for all devices
  - **Secondary**: only the secondary stream (substream), [usually] of a smaller resolution will be used for all devices
  - **Auto**: the most appropriate stream will be selected automatically based on viewport size

©2016. A&H Software House, Inc. All Rights Reserved.

Main Window: Streams

Live

To start live-streaming, select a layout template from the upper-right-hand menu (1x1, 1x2, 2x1 or 2x2), then click your desired viewport so that a blue frame selection appears around it, and then choose the target stream from the *Devices* list on the left. To replace the existing live stream, either select it and choose a device 'on top' of it, or click the *X* button in the upper-right-hand corner of the viewport to close it and then assign a new stream to this viewport.

Notice that some images may appear with horizontal or vertical black stripes at the sides: this happens because image aspect ratio is maintained instead of it being stretched to fill the viewport. When the picture size is smaller than the target viewport, there will be a black background on either sides.

Live view with overlay PTZ controls

Each live view item contains the following information and controls:

- upper-left-hand corner: stream name (static info)
- upper-right-hand corner: archive playback (if applicable), presets button (click to load preset list), *X* button (press to close the live stream and free the viewport)
- bottom-right-hand corner: PTZ mode (if applicable), stream resolution, stream codec (MP4/JPEG/WEBM) (static info) and zoom mode ON (static info)
- centre: stream picture, virtual PTZ sphere (overlay control) (if applicable)

To **pan and tilt** the PTZ-capable cameras, use overlay PTZ controls: left-click and hold in the desired direction. By default, pan/tilt mode is enabled for PTZ cameras: notice the *PanTilt* label in the bottom-right-hand corner of live view.

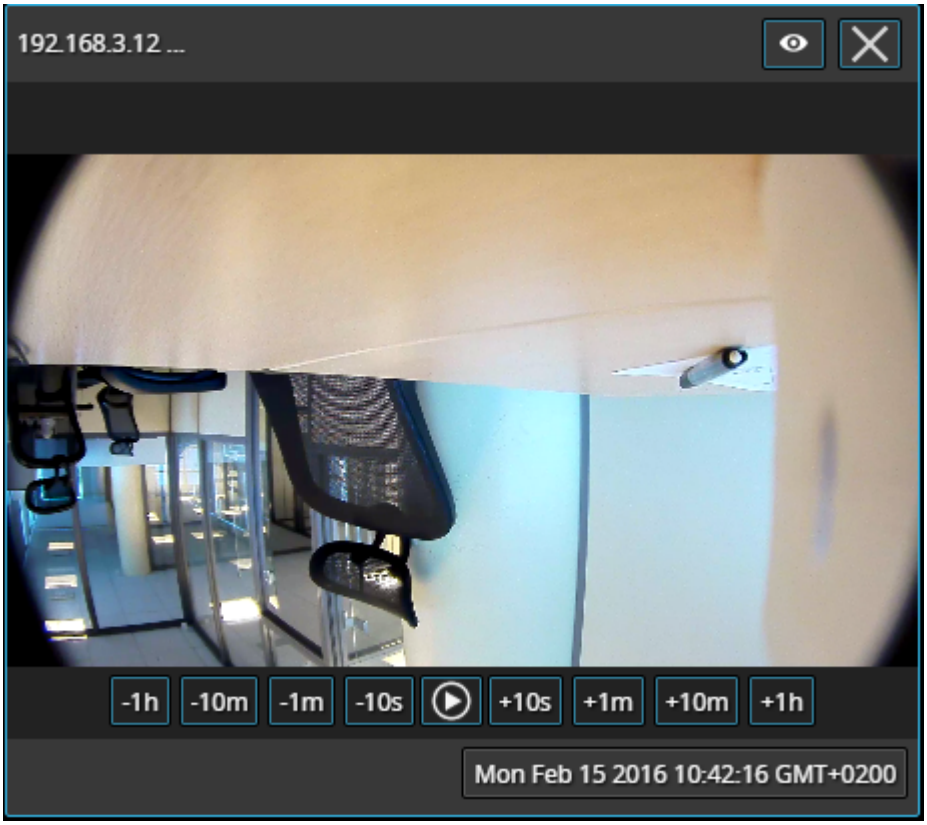
In order to **zoom** IN and OUT: first, scroll your mouse wheel DOWN to enable zoom mode - in the bottom-right-hand corner, a *Zoom* label will appear. In this mode, virtual PTZ sphere works for zoom only: click and drag UP (upper hemisphere) to zoom IN, and DOWN (lower hemisphere) to zoom OUT. To release zoom mode and go back to the pan-tilt sphere, simply scroll your mouse wheel UP until the *Zoom* label disappears.

For some cameras, you may notice that the further you drag the cursor from the sphere centre, the faster the camera goes: in this way, PTZ speed is controlled; however, for other cameras, only the constant speed is supported either by software or device itself, and the pan/tilt speed will remain constant no matter what position your mouse cursor is in.

©2016. A&H Software House, Inc. All Rights Reserved.

Archive Playback

If recording is enabled for the target channel, the stream overlay controls will include an archive playback button in the upper-right-hand corner. Press the button to begin **playback**: the target stream will be displayed in single channel mode. To switch **back to live view,** press the 'eye' button in the upper-right-hand corner; this will restore your previous layout.



Archive playback view

Playback view contains the following information and controls:

- upper-left-hand corner: stream name (static info)
- upper-right-hand corner: 'eye' icon to go back to live view, *X* button (press to close the live stream and free the viewport)
- bottom-right-hand corner: timestamp (current time and server time zone shift)
- centre: stream picture
- centre bottom: playback controls

Overlay controls allow you to start/pause playback and jump back/forward by ten seconds, one minute, ten minutes or an hour.

©2016. A&H Software House, Inc. All Rights Reserved.

Upper Right Menu: Layouts

Layout templates allow you to choose viewport layout: 1x1, 2x1, 1x2 and 2x2 are currently available options.

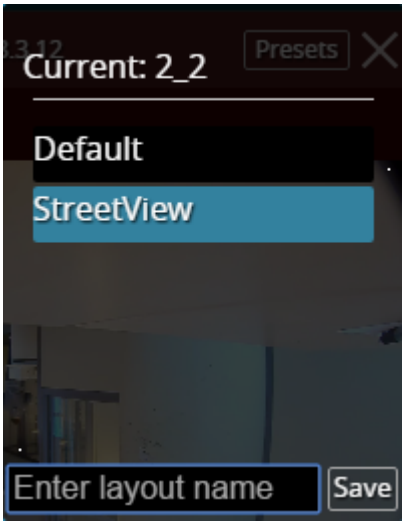
Default layout templates

Click on any thumbnail at any time to immediately load the corresponding **layout template** on the screen. If there are any active streams, they will be discarded. If the target layout template has been already used in the same browser and cookies have not been cleared, previously used channels will be loaded; if not, an empty template will be displayed.

If you wish to **save the layout** currently being displayed, click on the 'portrait' button.

Layouts menu button

The layouts menu will appear, allowing you to save your layout under a user-defined name: enter the layout name and click the *Save* button. Note that, at this point, only Latin characters [A-Za-z] and Arabic digits [0-9] are supported for layout names; special symbols or characters from non-Latin alphabets are not allowed.



Layouts menu

From here, you can also load previously saved layouts simply by clicking them; if your layout list is longer than the menu window, use the mouse wheel to scroll down.

The layouts are saved in your browser **cookies**, so:

- Luxriot EVO Streaming Server layouts cannot be transferred to other browsers, user accounts or computers
- layouts are removed when browser cookie data is cleared

©2016. A&H Software House, Inc. All Rights Reserved.

Mobile Application for Streaming Server

Install the Luxriot EVO Mobile application from Play Store (for Android users) or iTunes (for iOS users).

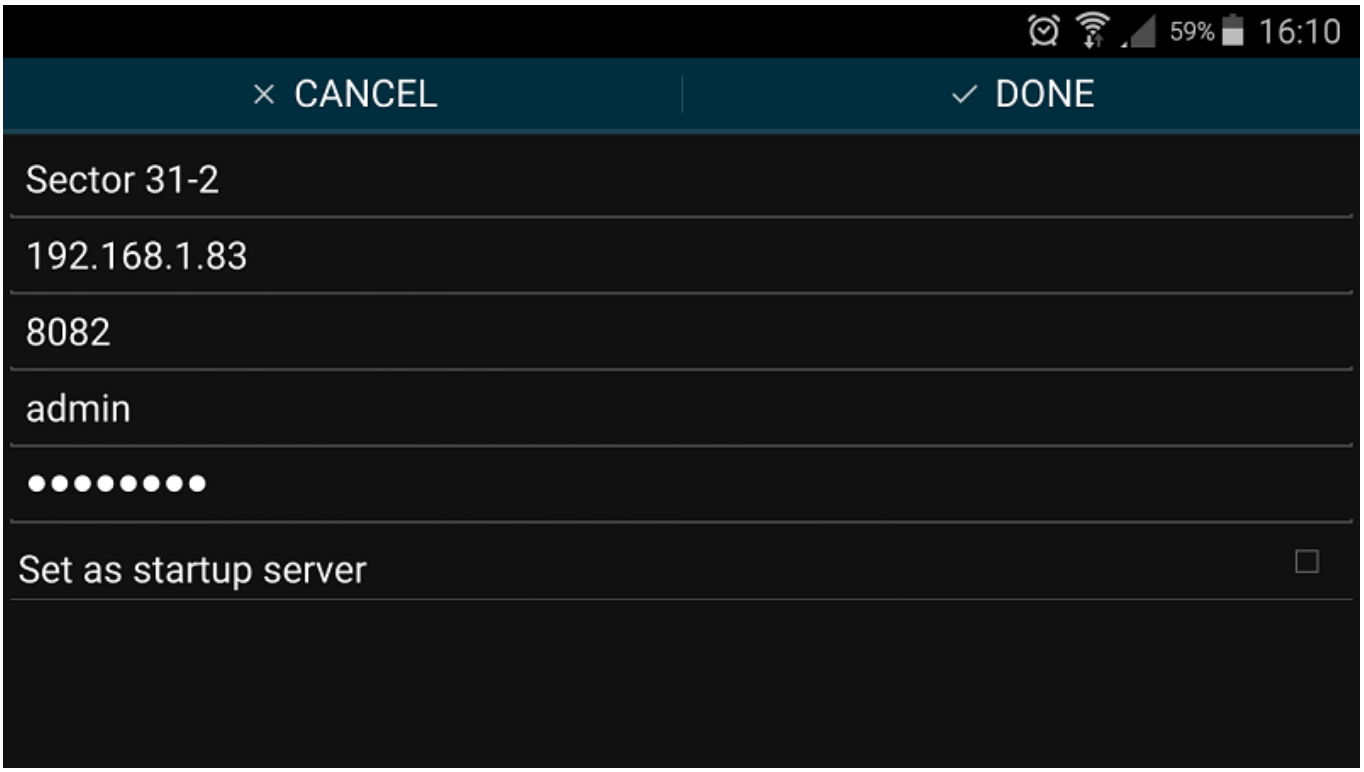
Supported OS:

- Android 4.4 and higher;
- iOS 8.2 and higher.

Add Server

Tap the *Add Server* button on the bottom panel to create a new server connection. The following parameters should be filled in:

- **Name**: server friendly name.
- **Host**: server IP or domain name.
- **Port**: HTTP port to use (must match the one configured on the server side),the default one is 8080.
- **Username and password**: user account credentials to connect to the Luxriot EVO server.
- **Startup Server**: select if you wish to automatically connect to the target server on starting the application. On startup, the app will load server list and try to connect to the selected server automatically.



Server settings

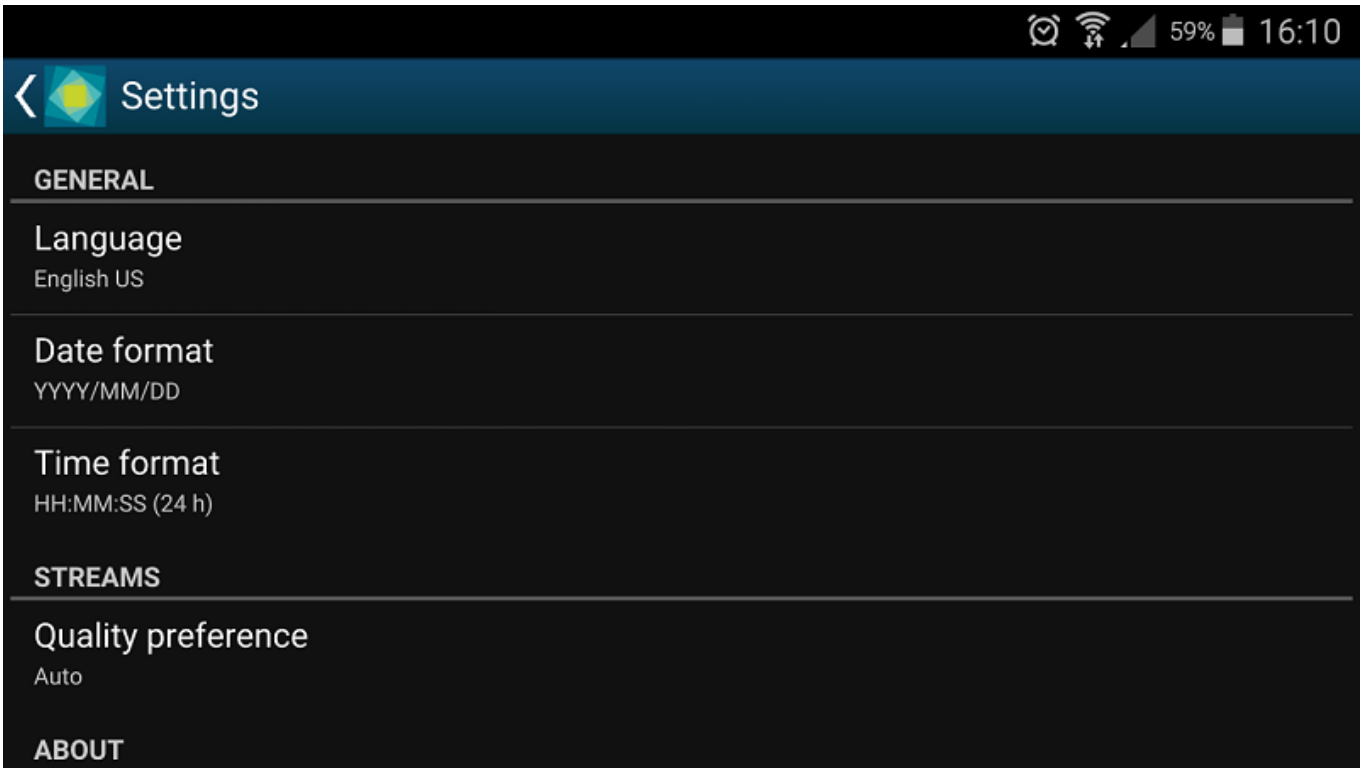
When you are ready, tap *Done* to save and exit the dialog box, or tap *Cancel* to discard the changes made and go back to the main menu. To edit the existing server settings, tap and hold the server name in the list, then release and then tap the *Edit* button that will appear in the upper-right-hand corner; existing server configurations can be removed in the same way.

©2016. A&H Software House, Inc. All Rights Reserved.

Settings

Note that these settings are global for all servers.

- **Language**: set application localisation; languages available so far are English (US), English (UK), Polish, Russian and Turkish
- **Date Format**: set the date presentation format you want the application to use, e.g., YYYY/MM/DD
- **Time Format**: set the time presentation format you want the application to use, e.g., HH:MM:SS (24h)
- **Stream Quality**:
    - **Main**: only the first (main) stream, [usually] of a larger resolution will be used for all devices
    - **Secondary**: only the secondary stream (substream), [usually] of a smaller resolution will be used for all devices
    - **Auto**: the most appropriate stream will be selected automatically based on viewport size



Application settings

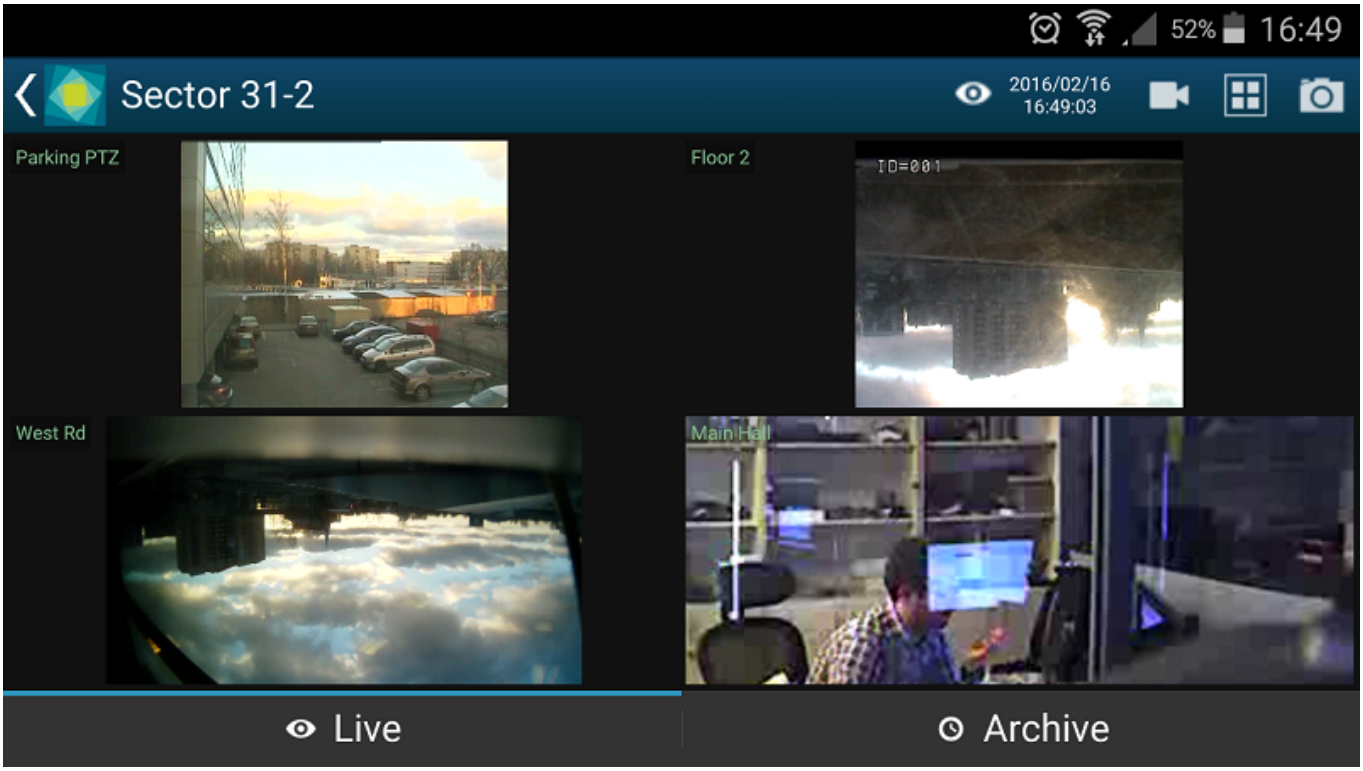
In addition to the settings, this menu section contains legal info and information about the application version..

Live View

When you connect to a server, the live view will be loaded by default. If you have previously connected to the selected server previously, live view layout from the last time it was opened will be loaded. Each camera name will be displayed in the upper-left-hand corner of the picture. Tap the camera live view video to switch to full screen; pinch to zoom IN/OUT (digital zoom).

Tap the "<" *Back* button in the upper-left-hand corner to return back; tap back once again to return to Home screen.

©2016. A&H Software House, Inc. All Rights Reserved.



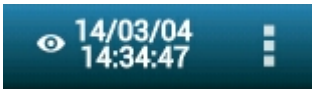
Live view

Swipe left/right to load the next set of cameras on the same layout. Tap and hold camera live view to bring available camera list (similarly to the camera selection menu, will replace selected camera).

Menu Controls

You can find the server control buttons in the upper-right-hand corner. For vertical screen orientation, all menu controls (except for the timer) collapse into a single button with drop-down list.

- **Eye icon/timer**: shows current server time. When you tap it, you are given the option to select the time (the app will automatically switch to Archive mode afterwards)
- **Cameras**: tap to select a camera from the list of available cameras. Note that every camera can only be mapped once and attempts to map cameras for the second time will result in their being placed in the new position and removed from the old one
- **Views**: tap to open layout selection. The layouts currently available are: 1x1, 2x1, 2x2, 3x2. "Add Current" enables you to save current layout under a specified name. If a larger layout has been selected, existing cameras will be mapped automatically and all the extra slots will appear blank. To add cameras, tap the "Cameras" button and pick a camera; all the slots will become marked with a blue frame, tap any of them to place a new camera there.
- **Snapshot**: tap to save a snapshot to the gallery.



©2016. A&H Software House, Inc. All Rights Reserved.

Archive Playback

To switch to Archive mode, tap click the *Archive* tab on the bottom panel. Alternatively, tap the eye/timer icon to go to a specific time: choose a point in time to begin playback at, then tap *Set*. **Timer** can be manipulated in the following manner:

- use UP/DOWN arrows or swipe UP/DOWN to change the value of each position
- switch between the *Time* and *Date* tabs by tapping them
- press *Cancel* to go back to Live mode, or tap *Set* to proceed with playback

When switching to Archive mode from a multiple camera view: all viewports will be highlighted blue - tap a camera to select it. Note that this mode enables you to view one camera at a time: selecting a larger layout will result in an automatic switch to live view.

Archive timeline controls:

- **green** colour represents data, **maroon** means there is no recorded data for that period
- tap the **Next/Previous Frame** arrows on the sides to go to the next/previous available picture
- use the **Play** button in the centre to start/pause playback
- tap the +/- labels to jump back/forward by ten seconds, one minute, ten minutes or an hour
- tap the camera icon in the bottom-left-hand corner to save a **snapshot**

Archive view

Swipe left/right to switch between cameras within the current layout; tap and hold the image to bring up the available camera list (just as in the camera selection menu, this will exit the current layout and switch to single-camera layout). Use the timeline below to browse the recorded video and use the play/stop buttons to control the playback.

©2016. A&H Software House, Inc. All Rights Reserved.

Event & Action Overview

Event and action (E&A) management is a component of Luxriot EVO, which provides additional opportunities for handling surveillance system work under certain conditions. The main task is to assign flexible device/server reactions on a user-defined basis.

Events are entities that arise when something happens in the system - namely, when system or system component states changes. These changes can be set up to trigger certain **actions** so that system administrators and/or users can react to them in a timely fashion. Additionally, there are also extra controlling entities that allow a flexible and advanced setup of event-action rules: conditions, delay times and schedules.

Using event & action management, you can specify your desired outcome for your video surveillance system's operation and determine how software reacts to any event caught on any server and how it turns them into an automated process. Send emails, activate DI/DO, interact with any other software or just bring the attention of the operator to the device that requires their immediate action. The functionality can be used not just for a single event, but on a set of sequenced events to get rid of false alarms and improve the efficiency of the surveillance system.

Possible **E&A scenarios** may be:

- sending alerts through the server of camera digital input events;
- starting or stopping video recording;
- switching to a specific camera PTZ preset, if the door sensors go off at night;
- directing the camera to a specific PTZ preset, if another camera registers the same movement;
- etc, etc.

Event & action management offers the following **functionalities**:

- event & action configurator rules
- standard (default) events
- standard (default) actions
- custom events of certain types
- custom actions of certain types
- global events
- delay timers
- special conditions
- schedules
- mail server configuration

Each of these components is described in details in the corresponding section of this document.

©2016. A&H Software House, Inc. All Rights Reserved.

Rules

All rules defined via *Event & Action Configurator* are listed in the Rules section. You can perform the following actions from the *Rules* section without opening the *E&A Configurator*:

- view the complete list of existing rules (per server)
- disable a specific rule or a set of rules
- enable a specific rule or a set of rules
- test a specific rule

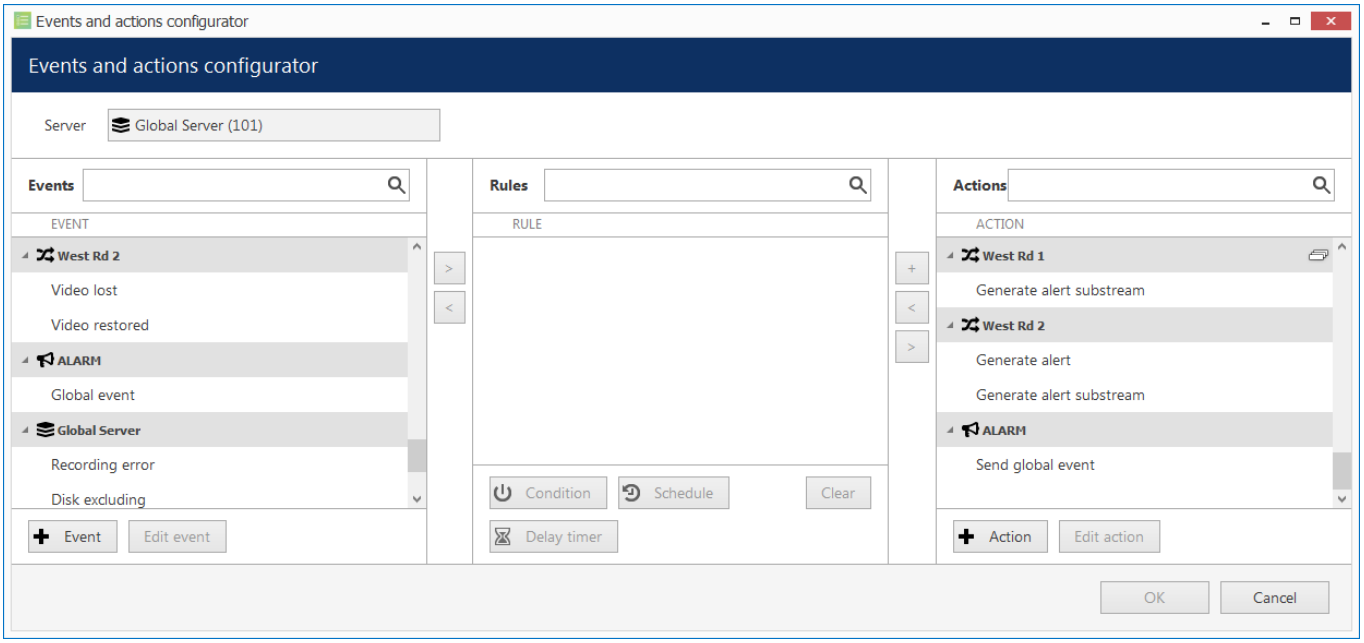
©2016. A&H Software House, Inc. All Rights Reserved.

Add Rules

All existing and added entities of E&A can be combined to create **rules** (rule map) for each server, which will define server behaviour if events are triggered. This section will guide you through related features, explain the meaning and purpose of used items and provide usage examples.

The rule map is created via the ***Event & Action Configurator***: to open it, go to the *Events & Actions* section in Luxriot Console and then click *Rules* in the menu on the left, then select the target server for which you wish to add the E&A setup, and then click the *Open configurator* button on the upper panel. To change the target server, click the *Change* button next to the server name and then pick one from the available server list.

The *Event & Action Configurator* will open in a new window; by default, no rules are defined.



Event & Action Configurator

You can pre-create all events, actions, conditions and schedules beforehand using the relevant menu sections in Luxriot Console, or create necessary items as you go from the configurator. Delay timers can only be created as you go for the specified rule and are not saved as independent entities.

Add and Edit Events

Choose the target item from the Events list and then click the + *Event* button below: configuration dialog box will then open with the target device pre-selected. Here you can add alerts from device digital inputs and VCA notifications; see the detailed description of how to create events in the Add Events section.

> Built-in (default) types of events - lost/restored video, recording errors etc. - cannot be edited. This is also the case for built-in actions.

Add and Edit Actions

Choose a target item from the Actions list and then click the + *Action* button below: the configuration dialog box will then open with the target device pre-selected. Here you can add reactions to the following types of events:

- trigger device digital output
- write to OS Application log
- activate target device's PTZ preset
- activate main/secondary stream recording profile

©2016. A&H Software House, Inc. All Rights Reserved.

- send an email notification
- run a third-party program

See the detailed description of how to create and configure actions in the Add Actions section.

Manage Rules

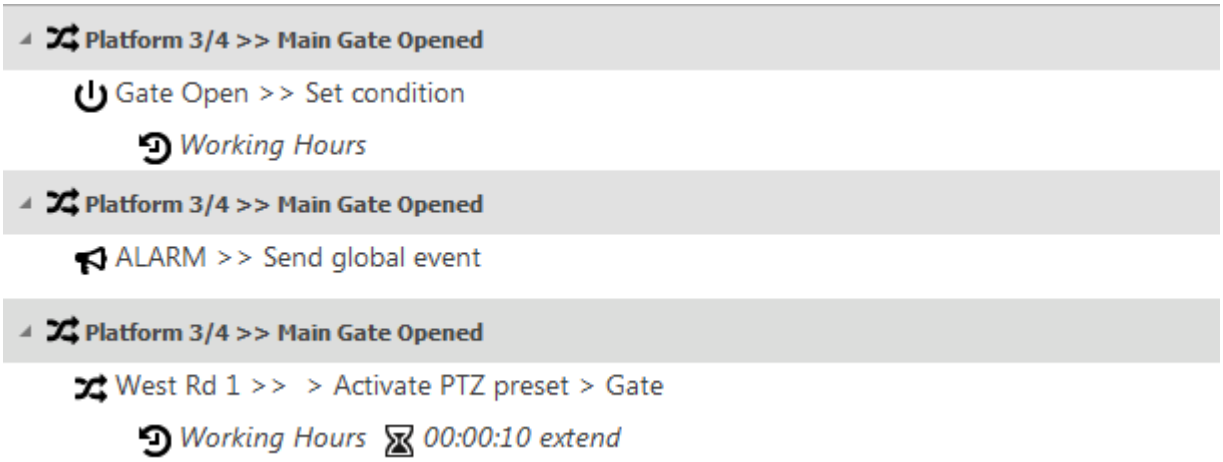
To start combining events, actions and additional controls, simply follow this scheme:

- find your desired **event** in the *Events* list - use search filter on the top panel, if required
- use the < and > arrows or double-click events to add/remove them to/from the *Rules* list
- click free space of the target rule in the *Rules* list (use CTRL or Shift to select multiple ones) - the selected rows will then become highlighted green
- find your desired **action** in the *Actions* list - use search filter on top, if required
- use the < and > arrows or double-click actions to add/remove them to/from the *Rules* list
- select desired actions and add auxiliary controls by clicking buttons on the bottom panel (see description below for details)

Useful tips:

- double-click a device (highlighted grey) to add **all** its events to the rule map
- to **replace** an action, select the target action in the *Rules* list, then select a new action in the *Actions* list and click < button
- to **add** an action to an existing rule, use the + button instead of the < button: the original event will be duplicated and new action will be added to the copy
- use the + button between *Rules* and *Actions* lists to add **multiple actions** of the same type to the selected rule(s)
- to clear *Rules* list, select all rules using Shift or CTRL+A, then press < button on the left to remove all events

The rule header displays the event source and event itself; below, related actions are listed, each with its own set of special controls. Actions of the same type are listed under the same rule header; for all other cases, the events are duplicated, resulting in a separate rule. One condition, one schedule and one delay timer can be attached to **each action**.



Example of a rule set for the same event source

Once the rule map has been created, click the *OK* button in the bottom right corner to **save and exit**. Note that simply closing the *Event & Action Configurator* is analogous to clicking *Cancel*: no changes will be saved.

©2016. A&H Software House, Inc. All Rights Reserved.

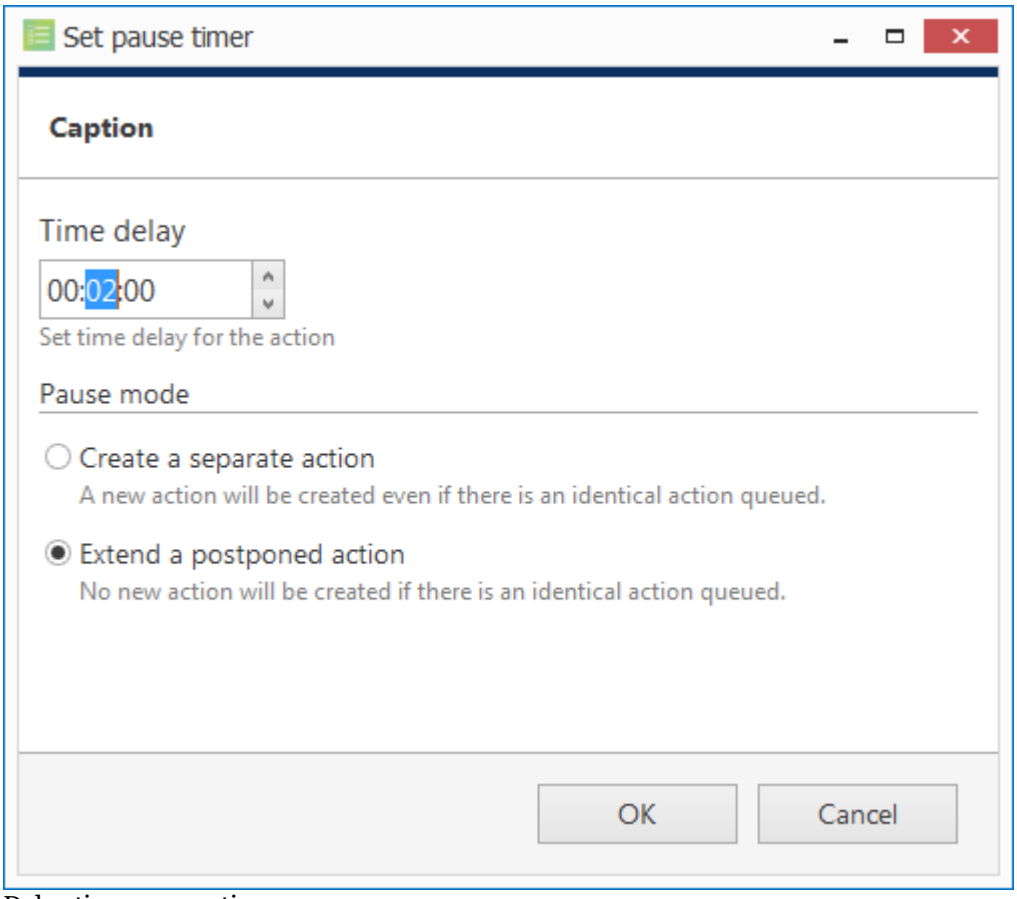
Conditions, Schedules and Delay Timers

For each event/action pair that is added to the rule map, additional options can be defined in the form of conditions, delays periods and schedules. Select one or multiple target events from the *Rules* list and then click desired control item in the bottom panel.

To remove auxiliary controls from a rule, select it in the *Rules* list and click the *Clear* button on the bottom panel. Note that all defined conditions, timers and schedules will be removed from the target rule, and it is not possible to de-attach them one by one.

Delay Timers

To add a pause timer for specific actions, select one or more of the mapped rules (use *CTRL+click* or *Shift+click* to mark multiple items) subject to delay, and then click the *Delay Timer* button on the bottom panel of the central part of the *Event & Action Configurator*.



Delay timer properties

Set the delay period for the target timer. Time can be adjusted in the following ways:

- click hours/minutes/seconds and then use the UP and DOWN arrows on the right, or
- click hours/minutes/seconds and use the mouse scroll, while still holding mouse cursor over the relevant timestamp section, or
- enter time manually using the keyboard numpad.

Next, choose pause mode:

- **Create a separate action**: new actions of the same type will be created regardless of the acting delay timer, and queued in the same way as the original delayed action
- **Extend a postponed action**: no new actions of the same type will be created during the delay period

©2016. A&H Software House, Inc. All Rights Reserved.

When you have finished, click *OK* to save and exit the dialog box. The newly created delay timer will be assigned to the pre-selected actions.

> **Extending** (postponing) **an action** allows you to accumulate triggered actions for the defined pause period. For example, if incoming events are of a *Recording Error* type, there may come too much of them at once e.g. in case of a major storage issue, causing a lot of triggered actions of the same type, while only a single action may be desirable.
>
> Say, if required action is *Write to application log*, setting a delay timer to *5 minutes + extended action* will make log entries appear once per 5 minutes; **separate action** option, on the contrary, will force logging for every single triggered event.

To remove a delay timer from rule configuration, click the timer to highlight it within the rule, and then click the *Clear* button in the bottom panel. Note that, if there are schedules and/or conditions attached to the same rule, they will be removed as well.

Schedules

Schedules are used when you wish a rule to be active based on a pre-defined itinerary. You can create any number of custom schedules via the *Conditions* section in the Luxriot Console and then use them for rule control: see Create Schedules section in this document for a detailed explanation of this.

Select one or multiple target events from the *Rules* list and then click *Schedule* button in the bottom panel.

Conditions

Conditions are supplementary variables that can allow or prevent action execution. The decision is taken based on the condition state: if the condition is **ON**, the planned action will be executed; if the condition is **OFF**, the action will not be performed regardless of the frequency of the triggered event. The condition state can be changed as a result of some other event, so ad additional rule should be added to perform this task; alternatively, you can manually set and unset conditions at your will. Thus, conditions allow the activation and deactivation of rules without requiring them to be entirely deleted.

To assign a condition to the rule, choose one or multiple target events from the *Rules* list and click the *Condition* button on the bottom panel, then either select target condition from the list or create a new one.

Please read the Conditions topic of this document if this feature is new to you: it contains detailed description and usage examples.

Examples

Here are a few examples of the *Event & Action Configurator* usage. You will find more examples in each of the related topics.

Email Notification on Video Loss

Task: send an email notification when the video stream from certain devices is not available for more than five minutes.

Preliminary setup:

- configure a mail server
- create an action: send email to the responsible person using the pre-configured SMTP server

Rules:

- the *Video lost* event from each of the target devices triggers the *Send email* action

©2016. A&H Software House, Inc. All Rights Reserved.

Email Notification on Video Loss

Note that you do not need to create the *Video lost* event as it is already built in.

Global Handling of Recording Errors

This example will cover a use case with a global event, showing how multiple servers within a single system can be involved in a more sophisticated chain of events and actions.

Task: if there are recording errors on Server A, log this event locally and also add corresponding entry to Windows Application log on the central server. The *Recording error* event is there by default and so there is no need to create it.

Preliminary setup:

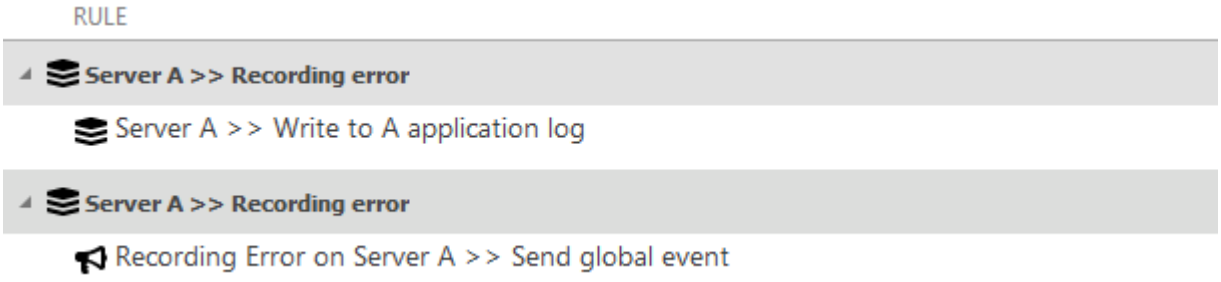
- Server A: *Write to A Application log* action
- Central Server: *Write to CS Application log* action
- Global event *Recording Error on Server A*

Rules for Server A:

- *Recording error* event triggers local *Write to A Application log* action
- *Recording error* event triggers *Send global event* action for the *Recording Error on Server A* event

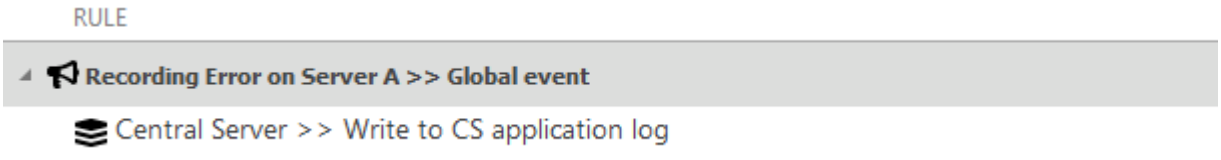
Central Server rules:

- *Recording Error on Server A* global event triggers its own *Write to CS Application log* action



Rules for the Server A

Server A generates a global alert and sends it to all servers in the system.



Rules for the Central Server

The Central Server is subscribed to the global alert and therefore reacts with the assigned action.

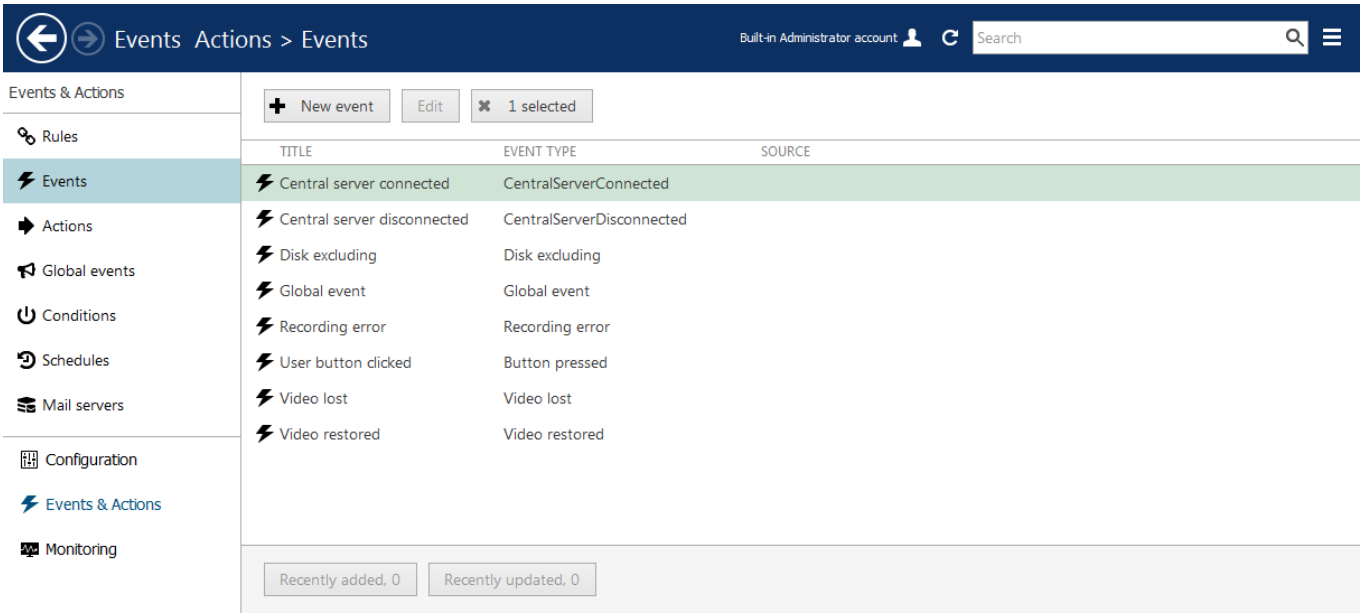
©2016. A&H Software House, Inc. All Rights Reserved.

Default Events

Events are entities that appear when something happens in the surveillance system - namely, when the system or system component state changes. These changes can be set up to trigger certain actions so that system administrators and/or users can react to them in a timely fashion.

For each Luxriot EVO server, there are a set of default events, which behave in an identical way on all servers and cannot be altered or deleted. These are:

- **Central Server Connected**: the connection with central server restored; event is available for non-central servers
- **Central Server Disconnected**: the connection with central server unavailable; event is available for non-central servers
- **Disk Excluding**: one of the storage locations has been marked as unusable and has been excluded from the recording configuration; event is available for every server
- **Global Event**: global (system-wide) event from one of the servers; event is available for all defined global events
- **Motion Started**: some motion has been detected; event is available for each channel
- **Motion Stopped**: no more motion is being detected; event is available for each channel
- **Recording Error**: problem encountered while recording video data to the storage; event is available for each server
- **User Button Clicked**: user button was pressed; event is available for all user buttons
- **Video Lost**: no video stream available for this specific channel; event is available for each channel
- **Video Restored**: video stream connection re-established; event is available for each channel



Default events

Default events are available in the *Event & Action Configurator* and can be used in the same way as user-defined events.

©2016. A&H Software House, Inc. All Rights Reserved.

Add Events

Events are entities that appear when something happens in the system - namely, when system or system component state changes. These changes can be set up to trigger certain actions so that system administrators and/or users can react to them in a timely fashion.

In addition to the the default set of events, certain types of events can be added manually.

To access event management in Luxriot Console, select the *Events & Actions* section and then select *Events* from the menu on the left.

To create an event, click + *New event* button on the upper panel; event configuration dialog box will open. It is also possible to add events as you go, from the *Event & Action Configurator*.

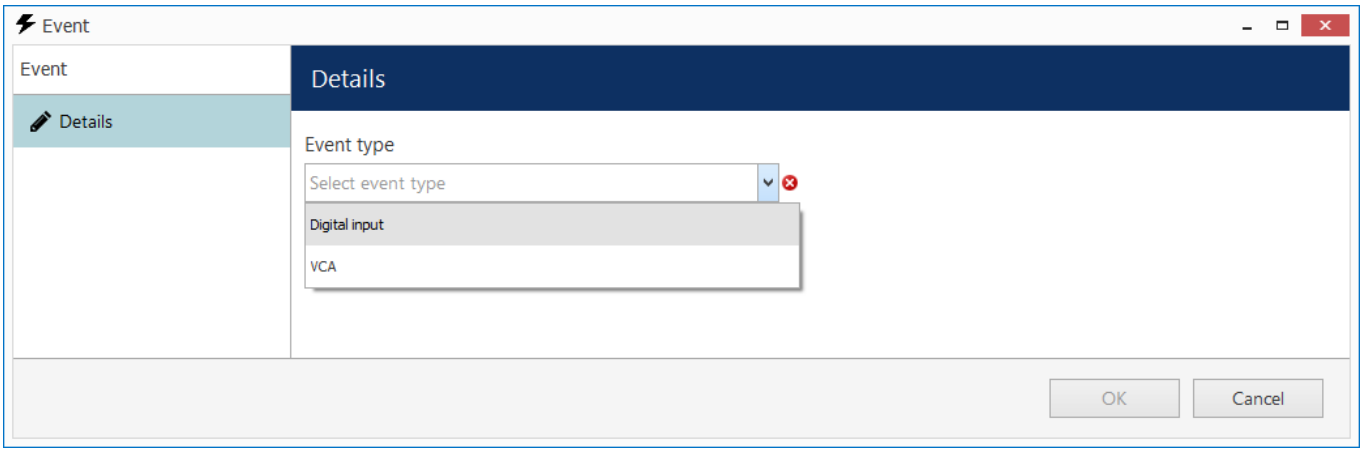
In addition to default event types, it is possible to add custom events of the following types: **digital input** (DI) and edge (camera-side) video analytics (**VCA**).

Before creating events from camera DI/VCA source, make sure to:

- DI: enable alert generation in channel settings via Luxriot Console;
- edge VCA: enable and set up rules via camera Web interface.

Without these settings, the event source will be not available for the target device in the event settings.

Removing and adding event sources (e.g., deleting and creating edge VCA rule with the same name) again may render them unusable if they are already included in the *Event & Action* configuration. Make sure to check the event operability and then re-create and re-insert the event after modifying it, if necessary.



Choose event type

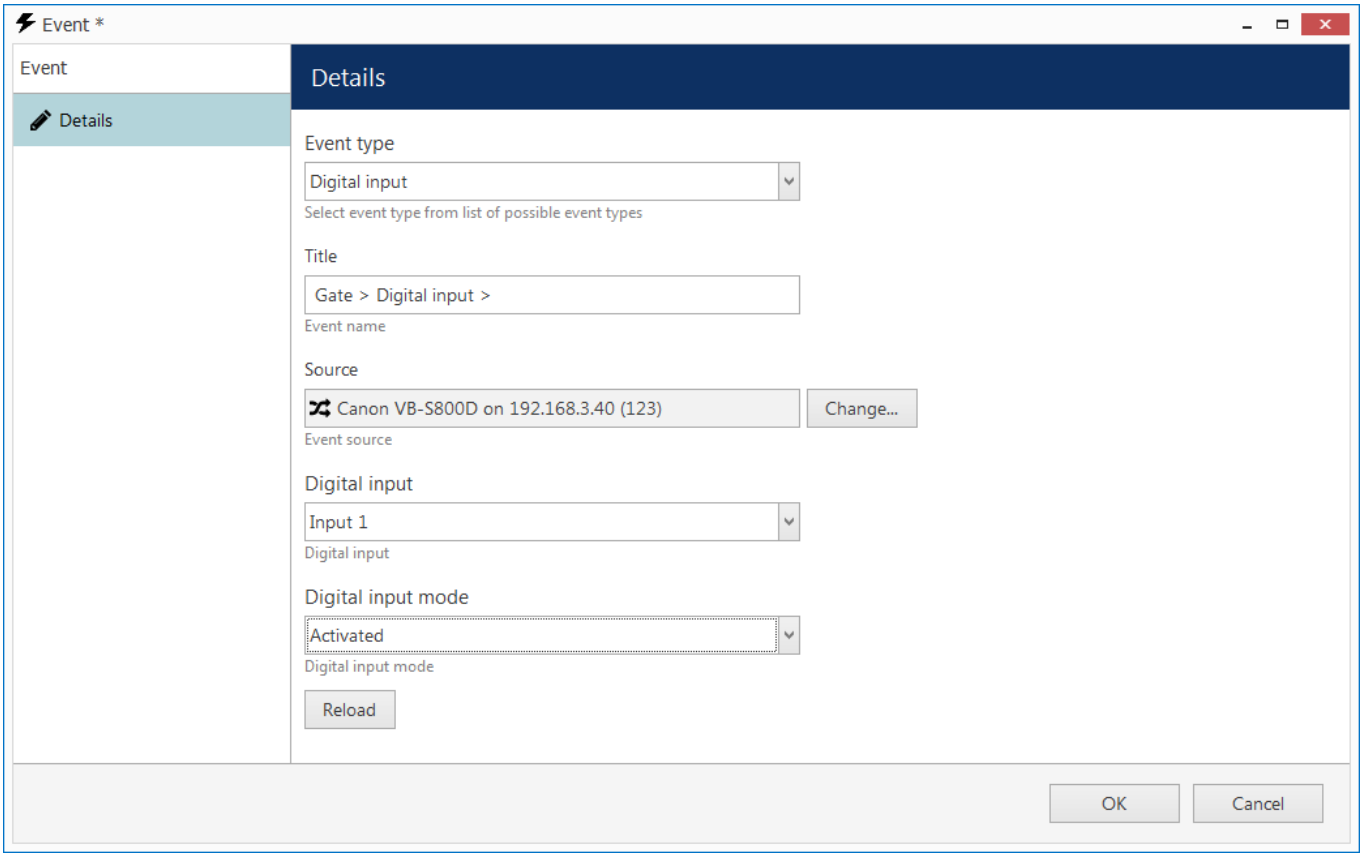
Choose type for the target event.

Digital Input

The following settings are available for *Digital Input* event:

- **Title**: a user-defined event name; by default it is > *Digital Input* >, suggesting that before and after the >> arrows you can insert device name and DI signal source - or, alternatively, you can re-define the whole title according to your own naming convention
- **Source**: choose the device from which the DI event originates; event generation must be enabled in channel settings
- **Digital Input**: select one of the DIs of the target device to serve as event trigger; the number of inputs depends on the total available and configured inputs
- **Digital Input Mode**: the binary input state to trigger alert; must conform with the DI state set up in channel settings

©2016. A&H Software House, Inc. All Rights Reserved.



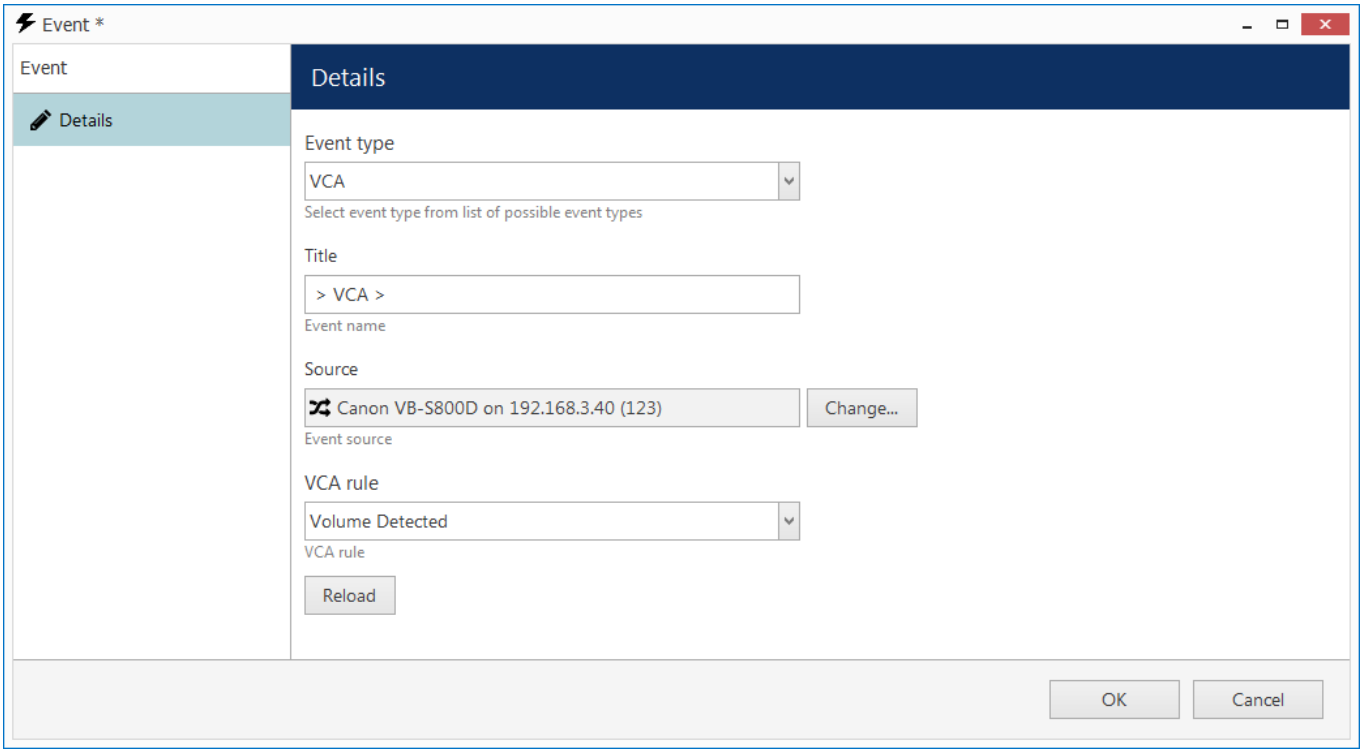
Settings for the *Digital Input* event type

VCA

For camera-side VCA events, the available settings are:

- **Title**: user-defined event name; by default it is > *VCA* >, suggesting that before and after the >> arrows you can insert the device name and VCA event source - or, alternatively, re-define the whole title according to your own naming convention
- **Source**: choose device from which the edge VCA event originates; analytics rules must be enabled via the camera Web interface (some cameras have basic VCA events enabled by default, e.g. volume detection)
- **VCA Rule**: video analytics rule to trigger event alert; available rules depend on device model, capabilities and configuration

©2016. A&H Software House, Inc. All Rights Reserved.



Settings for *VCA* event type

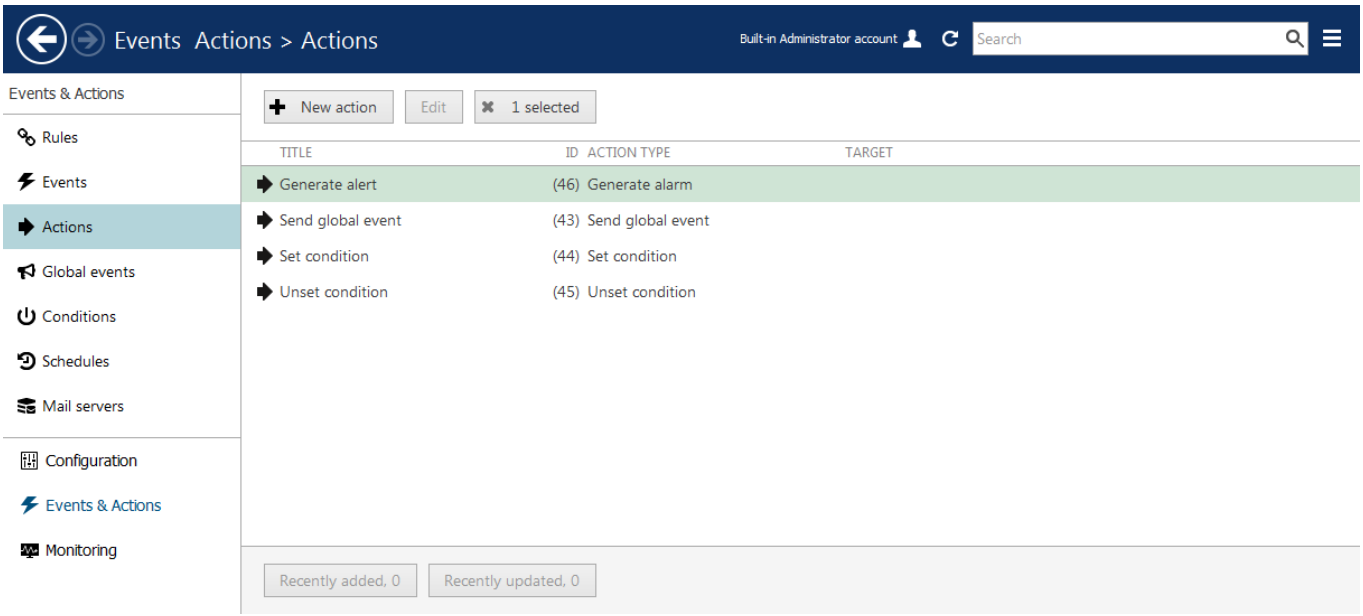
When you are finished, click *OK* to save and close the dialog box. The newly created event will appear in the item list under *Events* and will be available for setup in the *Event & Action Configurator*.

©2016. A&H Software House, Inc. All Rights Reserved.

Defaults Actions

For each Luxriot EVO server, there exists a set of default actions that have identical behaviour on all servers and cannot be altered (edited) or deleted. These are:

- **Generate Alert**: generate an alarm that can be used as recording basis in recording profiles; this action is available for each channel
- **Generate Alert Substream**: generate an alarm that can be used as recording basis in recording profiles; this action is available for each channel substream
- **Send Global Event**: send a global event notification to all servers; this action is available for each defined global event
- **Set Condition**: change the target condition state to *ON*; this action is available for each condition
- **Unset Condition**: change the target condition state to *OFF*; this action is available for each condition



Default actions

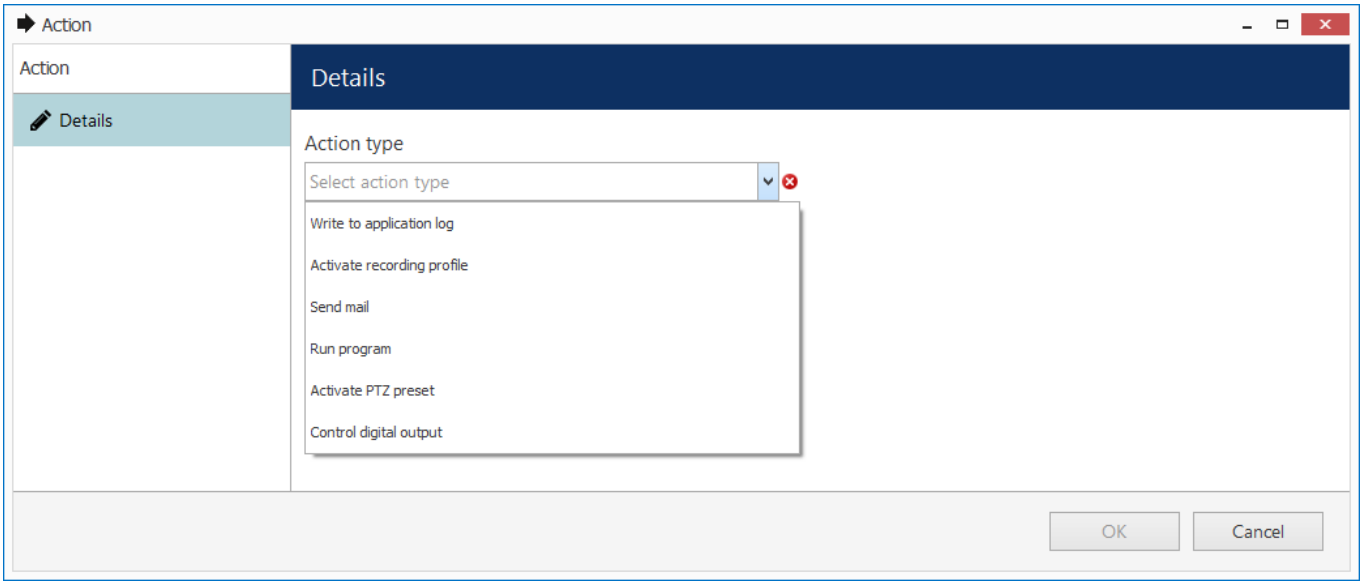
Default actions are available in the *Event & Action Configurator* and can be used in the same way as the user-defined actions.

©2016. A&H Software House, Inc. All Rights Reserved.

Add Actions

To access action management in Luxriot Console, choose the *Events & Actions* section and select *Actions* from the menu on the left.

In order to create an action, click the + *New action* button on the upper panel; an action configuration dialog box will open. It is also possible to add actions as you go using the *Event & Action Configurator*.



Choose action type

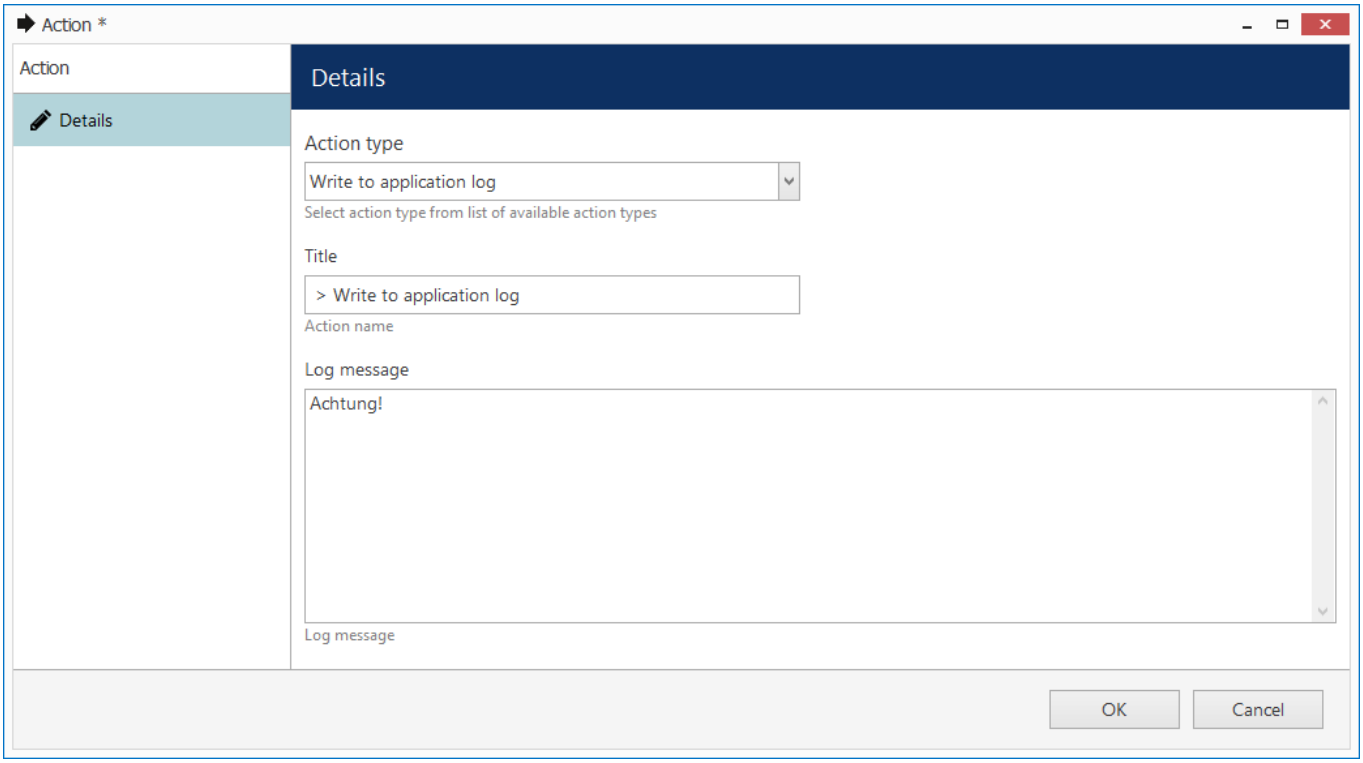
First, choose your desired action type from the drop-down menu to see action-specific settings.

Write to Application Log

The *Application log* action type allows you to write a log entry into the Windows Application log, which will be accessible via Windows Event Viewer. The log entry level is *Information* and entry source is Luxriot EVO Server. You can define:

- **Title**: a use-defined action name inside the Luxriot Console; by default it is > *Write to Application log*
- **Log Message**: the message text to appear in Windows Application log

©2016. A&H Software House, Inc. All Rights Reserved.



Action: write to application log

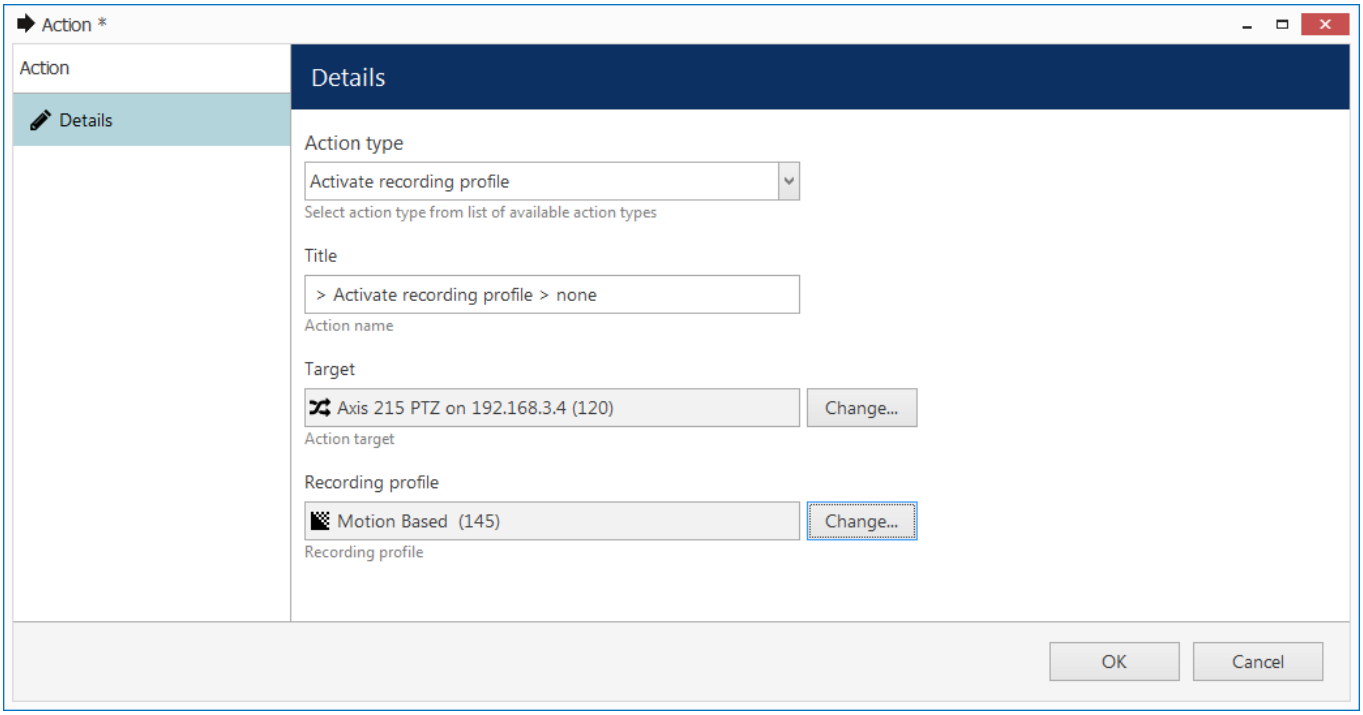
Activate Recording Profile

Any of the existing recording profiles can be activated for the device of your choice as a result of a triggered event. You can separately activate main stream and substream recording: use *Activate Recording Profile* action for main stream and *Activate Substream Recording Profile* action for secondary stream. Enter action details as follows:

- **Title**: the user-defined action name; by default it is > *Activate recording profile* > *none*, suggested that before and after >> arrows you can insert the device name and profile name - or, alternatively, re-define the whole title according to your own naming convention
- **Target**: the target device for which recording is to be activated
- **Recording profile**: the pre-configured recording profile to be activated as an action; you will find profile configuration tips further on this section of the manual

The recording profile is activated for the duration of time period defined in the profile as **post-recording time**; after that, the profile operation is terminated and target channel is returned to its normal recording configuration.

©2016. A&H Software House, Inc. All Rights Reserved.



Action: activate recording profile

Recording Profile Usage Examples

When a recording profile is activated as a result of an action, its engagement time is determined by the profile's *post-recording time* parameter. The default (built-in) recording profiles have post-recording intervals of 10 seconds, which may be fine when conducting, e.g., motion-based recording (video is recorded for 10s after motion event), but may not be suitable for other types of actions. In such case, you can pre-configure any number of different recording profiles and use them for action setup.

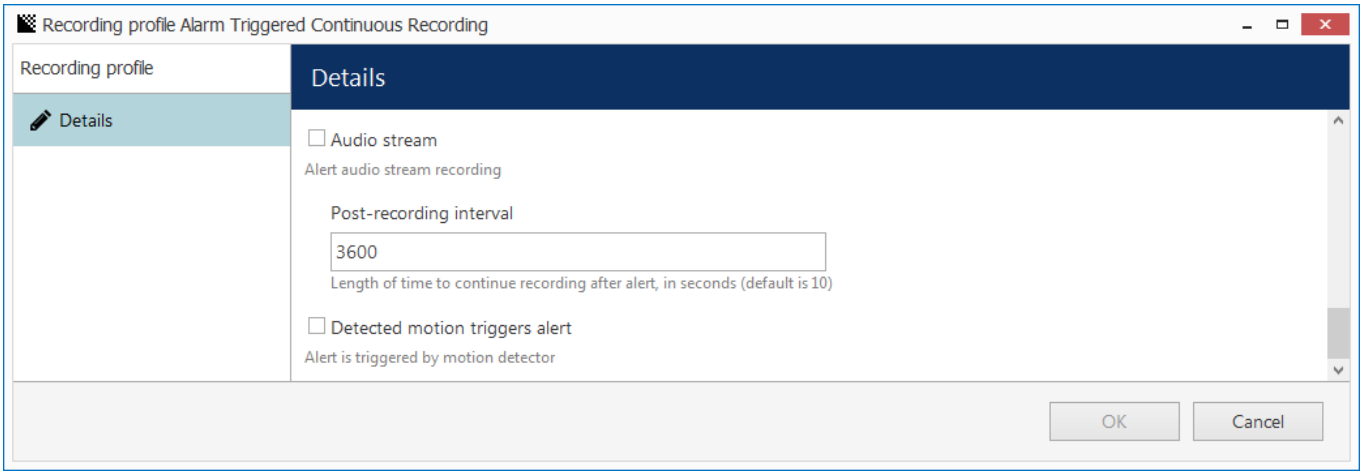
Scenario 1. The camera's recording configuration is normally motion-based. The action is intended to be used for recording based on digital input events, which are triggered when someone opens main entrance door; starting from that point, the video and audio streams will be recorded continuously for one minute.

- channel base recording configuration: motion-based video recording
- action recording profile: continuous video + audio, post-recording interval set to 60 seconds

Scenario 2. The camera normally records continuous video with low FPS during the daytime, and does not record anything at night and during weekends. If camera VCA detects fire or smoke in the area, continuous recording at full frame rate will be conducted for one hour.

- channel base recording configuration: based on schedule, continuous recording at restricted FPS + no recording
- action recording profile: continuous video without frame rate limitation, post-recording interval set to 3600 seconds

©2016. A&H Software House, Inc. All Rights Reserved.



Set desired post-recording interval in the target profile

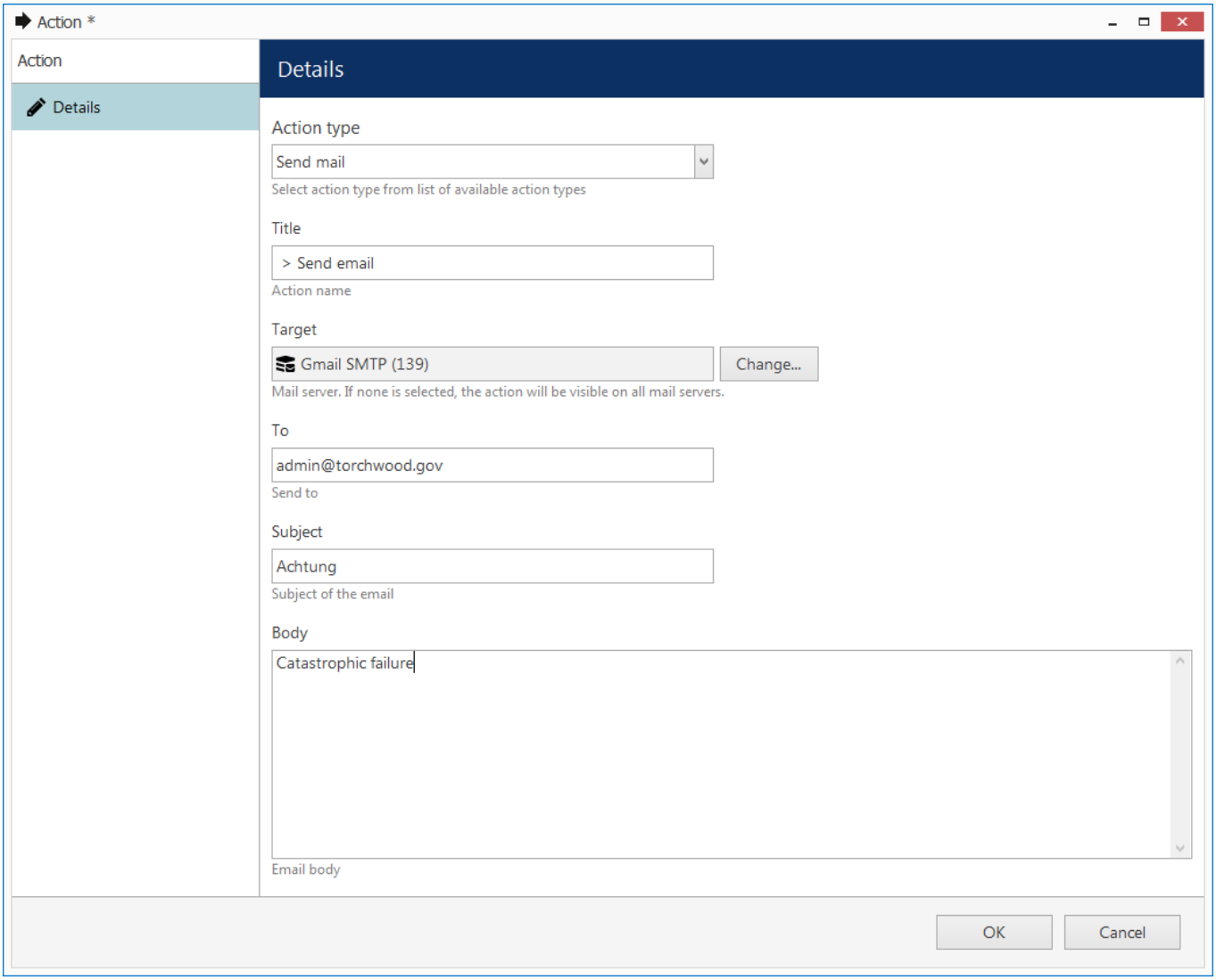
Send Email

In order to send an email notification, you are requested to define the following values in the action settings:

- **Title**: a user-defined action name; by default it is > *Send email*, suggesting that before and after >> arrows you can insert the device name and target email address - or, alternatively,you can re-define the whole title according to your own naming convention
- **Target**: specify the SMTP server to be used for email sending; if none are selected, the action will be available for selection on any of the existing configured mail servers when creating a rule
- **To**: notification recipient email address
- **Subject**: email notification subject
- **Body**: email notification body text

Configure your SMTP server(s) before creating email-related actions.

©2016. A&H Software House, Inc. All Rights Reserved.



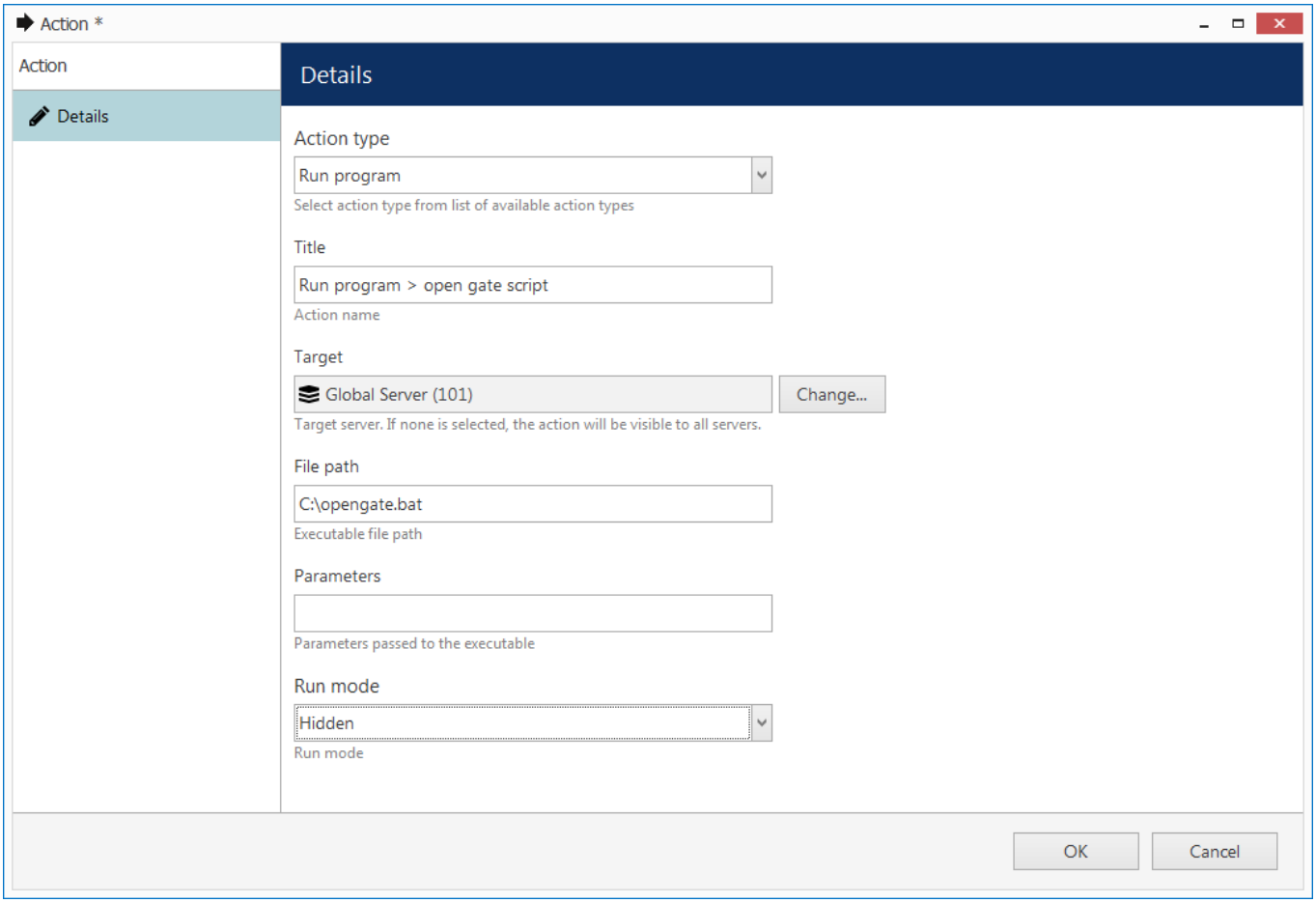
Action: send email

Run Program

***The** Run program* option gives you the opportunity to define a third-party application (script, batch or a GUI application) that will be launched as a reaction to defined camera events. The following parameters should be specified:

- **Title**: a user-defined action name; by default it is *Run program* >, suggesting that after the > arrow you can insert the target program name - or, alternatively, you can re-define the whole title according to your own naming convention
- **Target**: target Luxriot EVO server to execute program on
- **File Path**: full path to the executable file
- **Parameters**: input parameters, if the program launched accepts any (e.g., a batch file)
- **Run Mode**: execution mode - hidden (silent, invisible to server user), minimised (minimised to taskbar) or normal (program will run in its default state)

©2016. A&H Software House, Inc. All Rights Reserved.



Action: run third-party program

Activate PTZ Preset

This action type allows you to make a PTZ camera go to a specific pre-configured preset. You just need to specify:

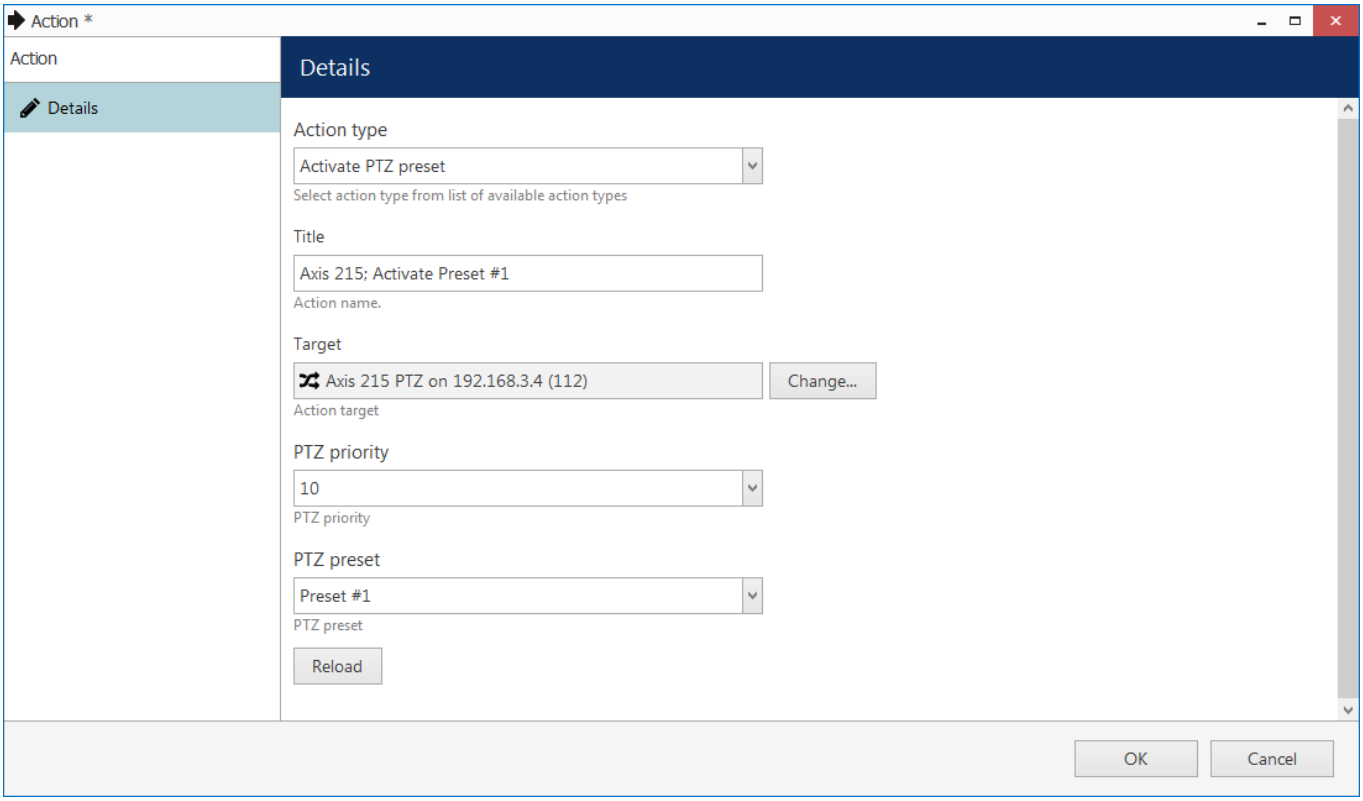
- **Title**: a user-defined action name, by default it is > *Activate PTZ preset* >, implying that before and after >> arrows you can insert the camera and preset names - or, alternatively, re-define the whole title according to your own naming convention
- **Target**: the target device which is to accept the PTZ command
- **PTZ priority**: priority to execute PTZ action with, 0 = lowest, 10 = highest
- **Preset**: pick one of the automatically loaded target device presets from the drop-down list

PTZ priority parameter is used when two or more simultaneous PTZ command requests (either from action or from direct user input) are sent at the same time. When this happens, request with a higher priority is fulfilled while request with a lower priority is delayed for ten seconds.

Default PTZ priority for all actions is equal to five (medium priority), which also coincides with the default per-user PTZ priority. You can assign any action a higher PTZ priority (six to ten) or a lower one (four to zero) by editing the *Activate PTZ Preset* action properties.

Use the *Reload* button to refresh the list of presets: this will be useful if you have created new presets while keeping the action creation dialog box open.

©2016. A&H Software House, Inc. All Rights Reserved.



Action: activate PTZ preset

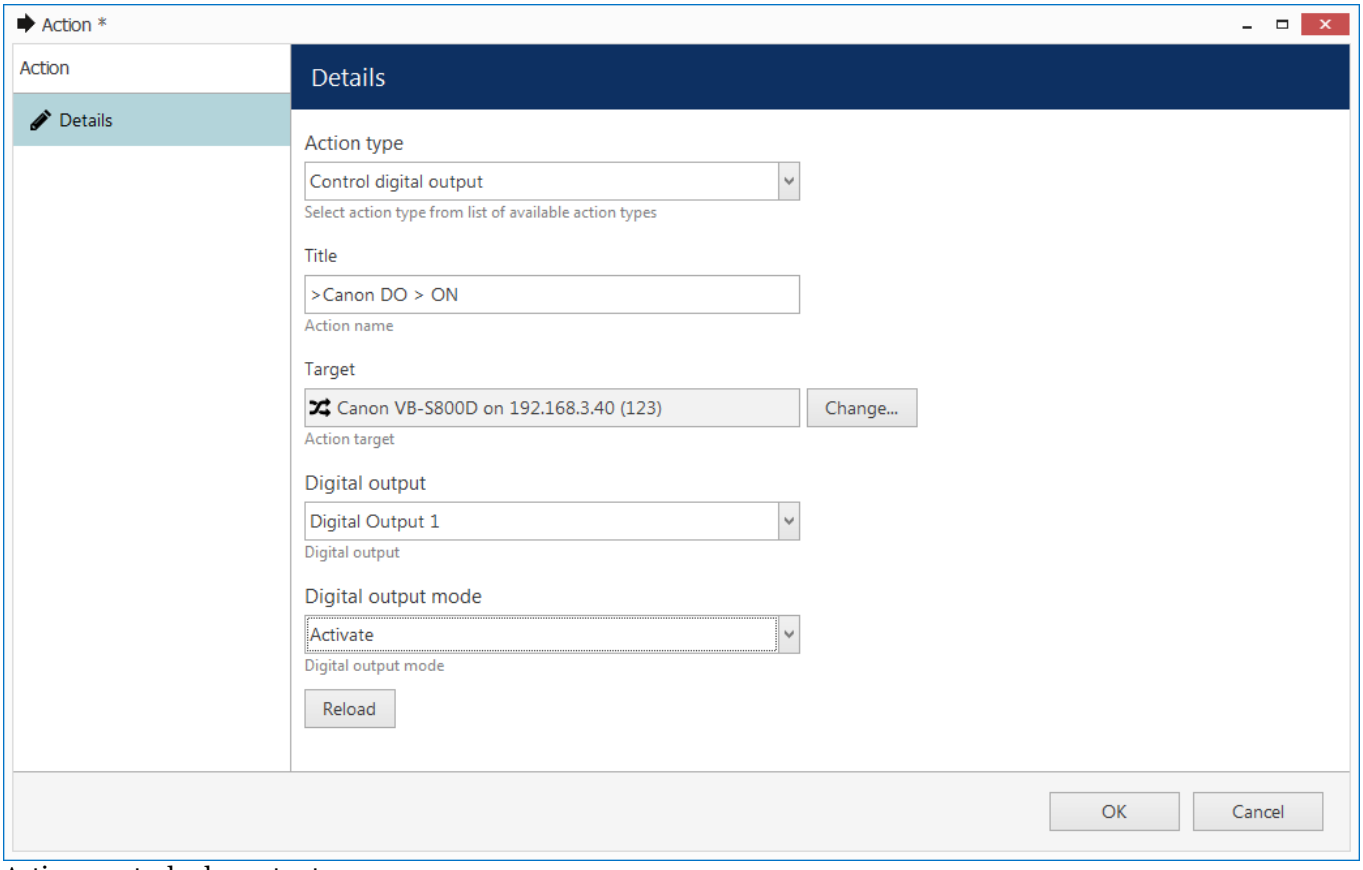
Control Digital Output

Devices having relay (digital) outputs (DOs) can have them triggered as a result of the *Control digital output* action. You are asked to enter the following details for this action type:

- **Title**: user-defined action name, by default it is > *Activate PTZ preset* >, suggesting that before and after >> arrows you can insert the camera name and DO number/target - or, alternatively, re-define the whole title according to your own naming convention
- **Target**: the target device which is to accept the digital input control command
- **Digital Output**: pick one of the available DOs of the target device to be triggered
- **Digital Output Mode**: choose whether an activation or deactivation command is sent to the target relay output

Digital output(s) must be enabled in channel settings for the target camera; otherwise, you not will see any available DOs in the drop-down list after selecting the target device.

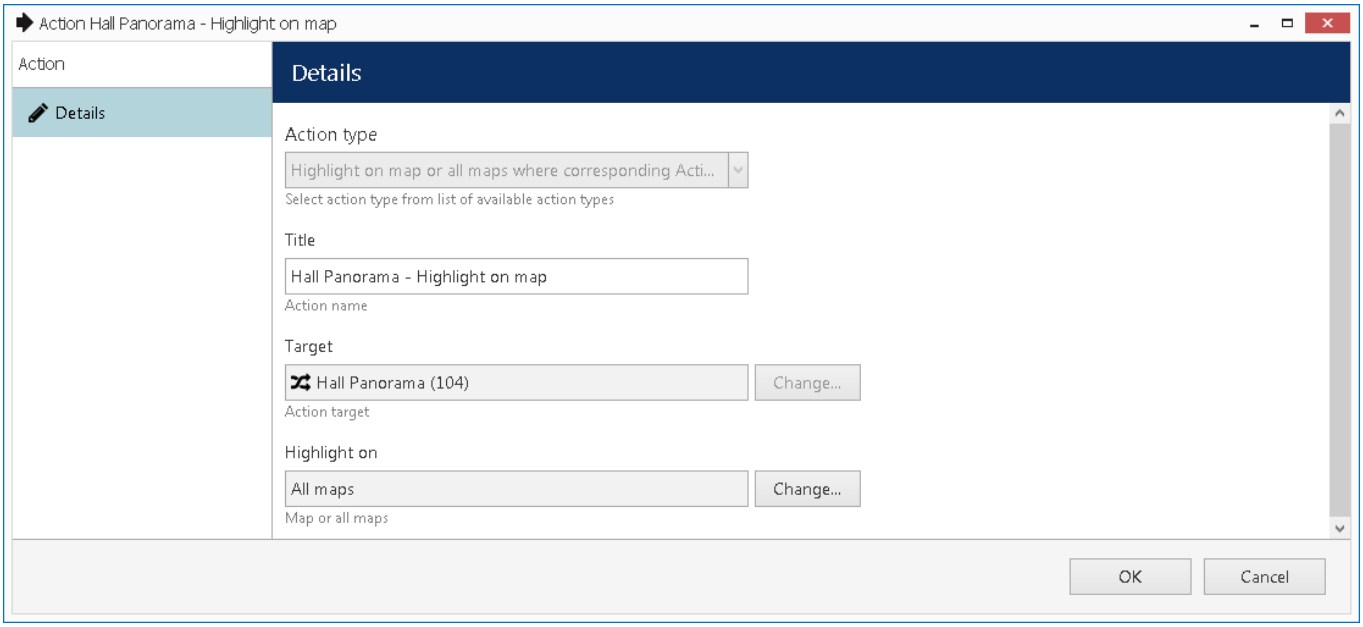
©2016. A&H Software House, Inc. All Rights Reserved.



Action: control relay output

Highlight On Map

If your target device is attached to one or more maps, you can visually accent it on the map as a result of the triggered event. It is possible to define one particular map or make the device become highlighted on all maps where is has been placed.



Action: highlight target device on a map

Action Parameters

©2016. A&H Software House, Inc. All Rights Reserved.

Actions that handle text information (log messages, send emails and run third-party program) can accept macro commands. Currently, the available parameters are:

- {EVENT_ID} - internal identifier of the triggered event
- {EVENT_TITLE} - user-defined name of the triggered event
- {EVENT_SOURCE_ID} - internal identifier of the event source
- {EVENT_SOURCE_TITLE} - user-defined name of the event source
- {EVENT_UTIME} - event UTC time
- {EVENT_UDATE} - event UTC date
- {EVENT_TIME} - event local time
- {EVENT_DATE} - event local date
- {EVENT_TIMESTAMP} - event UTC timestamp in a system-independent format YYYY-MM-DD hh:mm:ss.ms

Example of a text string containing macro: "{EVENT_TITLE} event occurred on {EVENT_UDATE} at {EVENT_UTIME}".

Event sources are listed for every rule in the *Rules* section of *Events & Actions*; typically, these are servers, devices and other resources capable of generating events (e.g., user buttons).

When you have finished, click *OK* to save and close the dialog box. The newly created action will appear in the item list under *Actions* and will be available for configuration.

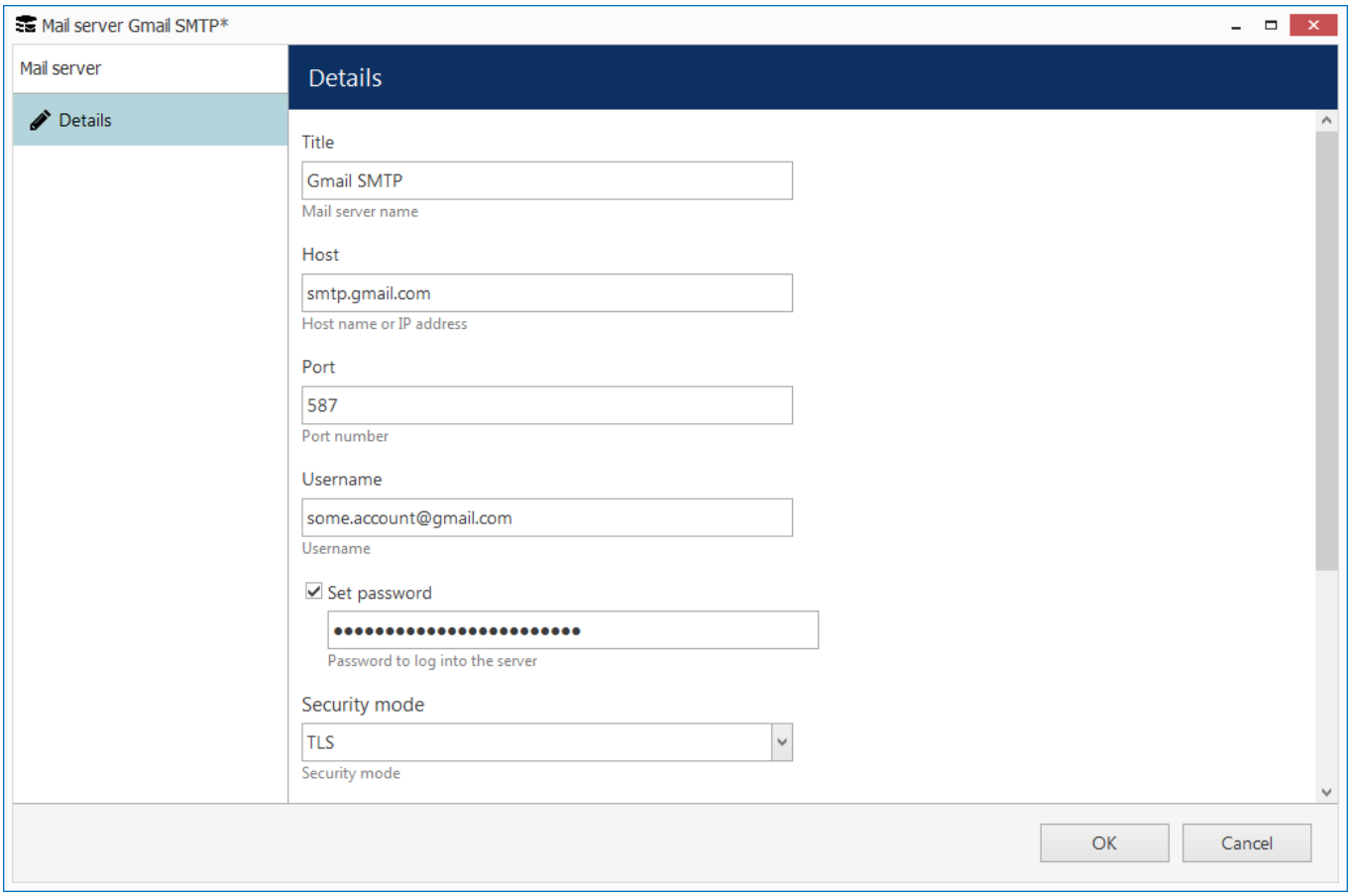
©2016. A&H Software House, Inc. All Rights Reserved.

Manage Mail Servers

One or multiple different outgoing SMTP servers can be configured in order to send alert notifications emails through them. You can use/set up your own SMTP server, if your organisation already has one and/or it is affordable for your organisation; alternatively, free Internet services can be used for this purpose.

> SMTP servers provided by popular free services and/or ISPs usually have limitations on the number/frequency of emails going through them daily. Make sure you check with SMTP service provider to learn about this.

To access mail server setup via Luxriot Console, open the *Events & Actions* section and select *Mail servers* from the menu on the left. Click the + *New mail* server button on the upper panel or double-click an existing mail server from the item list to open the configuration dialog box. Note that there are not any default (pre-configured) mail servers in Luxriot Console.



SMTP server settings

©2016. A&H Software House, Inc. All Rights Reserved.

Setup here is similar to configuring an email client. The table below contains detailed information on the available settings.

Setting	Description	Default Setting
Title	User-defined mail server name	[empty]
Host	Outgoing SMTP server IP address or hostname	[empty]
Port	Outgoing SMTP server port; default is 25, common ports for encrypted connection are 465 and 587	[empty]
Username	Enter valid user account details to log onto the target SMTP server	[empty]
Password	Enter valid user account details to log onto the target SMTP server	[empty]
Security Mode	Logon authentication type according to the SMTP server configuration requirements	none
Sender	Email address on whose behalf emails will be sent	[empty]
Aggregation* Count	Max number of notifications to be aggregated into a single email	10
Aggregation* Time	Max time period in seconds during which notifications are collected together to be sent in a single email	10

*Email aggregation can be used to accumulate alert notifications and send them in bunches rather than one at a time. This decreases SMTP server load and does not 'spam' your notification inbox, making it easier to search and analyze alerts, and is thus especially useful if the number or frequency of events is high.

Click *OK* to save mail server settings; newly created configuration will appear in the item list. Your mail server is now ready to be used for sending notifications.

Some mail servers require additional settings to be changed on the server side to allow third-party applications to send emails through their SMTP service. For example, Google security requires that you log into your account via a browser using the server that will be utilising the SMTP service in order to enable account access from that computer.

If you can successfully use SMTP settings to send emails from the same computer, Luxriot EVO will also have no trouble sending your notifications.

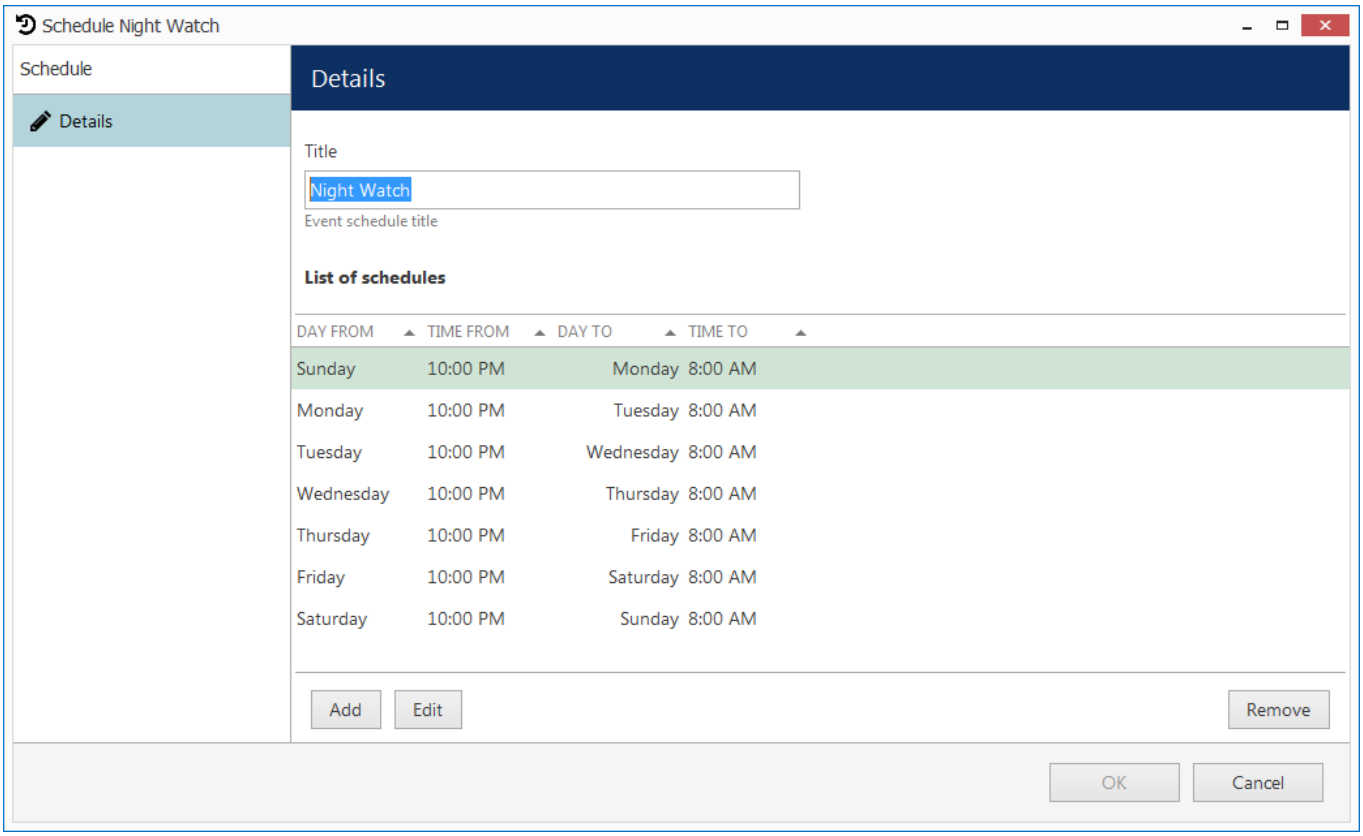
©2016. A&H Software House, Inc. All Rights Reserved.

Create Schedules

Apart from conditions and delay timers, there are **schedule** elements that determine if a rule has been executed based on a pre-defined itinerary.

To add, remove and manage event and action schedules in Luxriot Console, go to *Events & Actions* section and choose *Schedules* from the menu on the left. Schedules can be also added as you go from the Event & Action Configurator.

Click the + *New schedule* button on the upper panel to bring up schedule configuration dialog box.



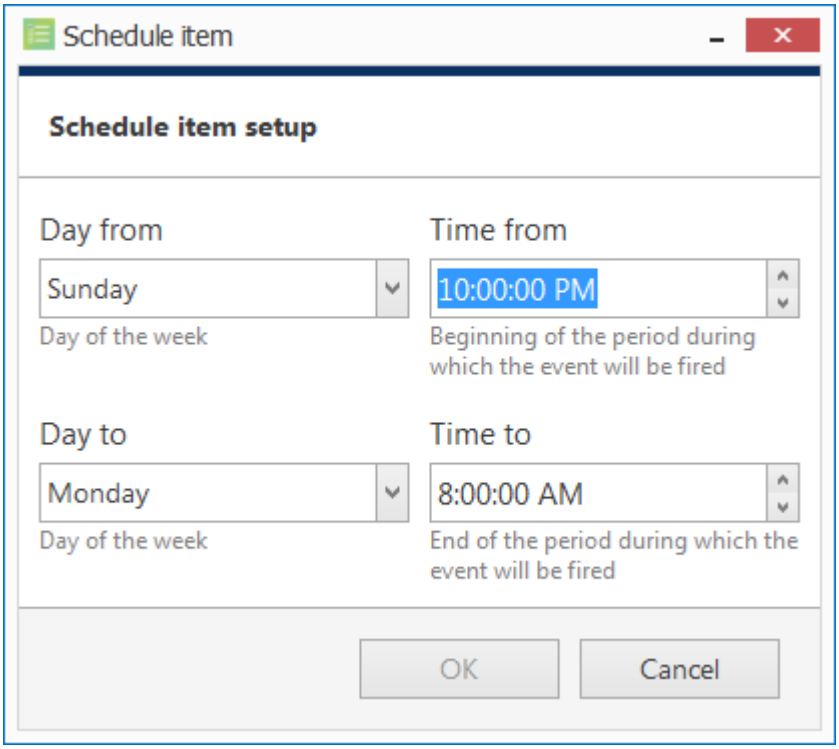
Add new schedule

Enter a user-friendly **title** for the new schedule and then add one or multiple time intervals to form the timetable. Manipulate **schedule items** with the button in the bottom panel.

For each time interval, you can define its starting point (day and time) and ending point (day and time).

Days can be selected from the drop-down list; time can be entered manually or adjusted using the arrows on the right; you can also manipulate time by selecting (highlighting) the hours/minutes/seconds and scrolling your mouse wheel up/down, while still hovering your mouse cursor over the relevant highlighted value.

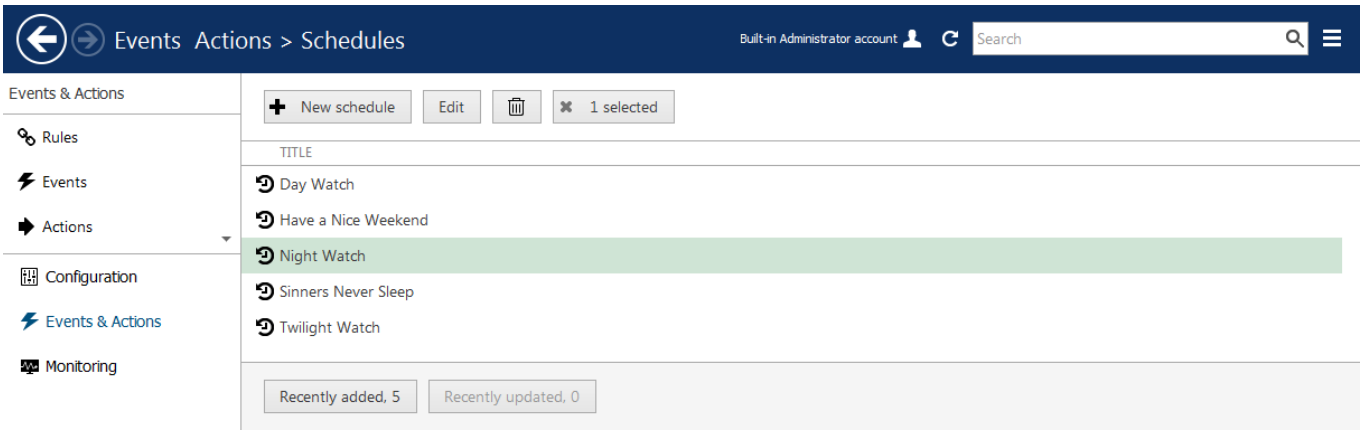
©2016. A&H Software House, Inc. All Rights Reserved.



New schedule item

Click *OK* when you have finished to save and close the dialog box. The newly created schedule will appear in the item list and will become available for selecting in the *Event & Action Configurator*.

Use the buttons on the upper panel to edit and remove the existing schedules; the filters on the bottom panel will help you load recently added or recently edited items.



Multiple schedules

©2016. A&H Software House, Inc. All Rights Reserved.

Understanding Conditions

Conditions are auxiliary controls for event/action rule operation: these are **condition variables**, 'locks' for the defined event/action mappings.

Each condition can only be in one of two states: **OFF** or **ON** (0 or 1, *false* or *true*, to put it in terms of formal logic). When applied to a rule, the condition serves as an additional clause for the action execution: the action will only be performed if attached condition is ON, and is never performed if condition is OFF - regardless of whether the event has been triggered. The condition **state** can be manipulated using the *Set condition* and *Unset condition* **actions** (these exist by default for each and every created condition), which, in their turn, can be set off by some other events.

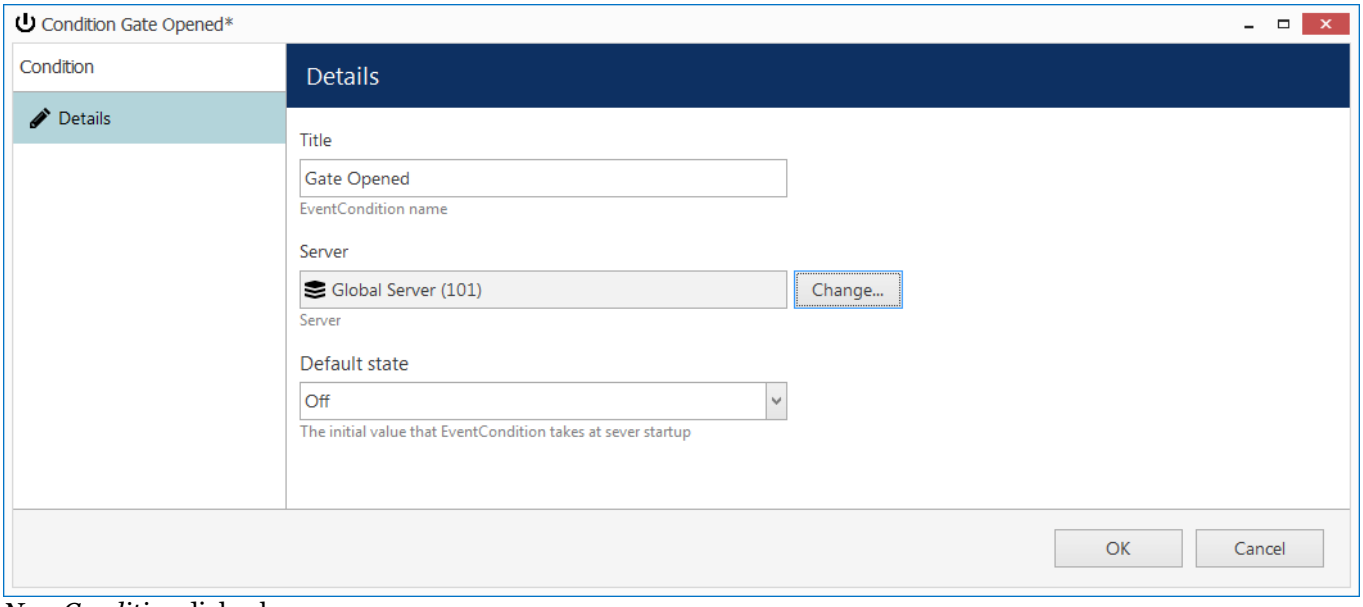
The conditions are available in the *Event & Action Configurator*: click the *Conditions* button in the bottom part of the *Rules* section to load the existing condition list or create a new one.

Add Condition

To add, remove and manage the conditions in the Luxriot Console, go to the *Events & Actions* section and choose *Conditions* from the menu on the left. Conditions can be also added as you go from the Event & Action Configurator.

Click the + *New condition* button on the upper panel to bring up the condition configuration dialog box. Here you have to:

- enter an comprehensible **title** for the condition - usually, the best ones are those which express a state, e.g., camera offline, motion present, door opened etc.
- choose the **target server** - conditions, as non-global events, are local and operate within a single server
- set condition **default state**, i.e., the state it is in before it is set or unset for the first time; this can be either ON or OFF



New Condition dialog box

When you have finished, click *OK* to save and close the dialog box; the newly created condition will appear in the item list and will become available in the *Event & Action Configurator*.

Use the buttons on the upper panel to edit and remove the conditions; the filters on the bottom panel will help you load recently added or recently edited items.

Condition Usage Examples

Consider a system that has three cameras installed: *Camera A* overlooking area A, *Camera B* overlooking area B that is just next to area A, and *Camera C,* which is a supplementary PTZ device and can be turned to view both areas and even more, and overlooks area C by default. If a person walks into area A, he/she will be detected by *Camera A's* video analytics; if he moves on, he will enter area B and the security guard will see him on *Camera B*.

©2016. A&H Software House, Inc. All Rights Reserved.

Now, imagine that *Camera B* suddenly goes offline. The security guard is OK with that, until there is someone in area B; he notices some motion in area A and takes control of *Camera C*, and makes it overlook area B, but the person of interest is long gone by that time, and there is no footage of him being present in area B. So, the task is to automate the process so that *Camera 3* serves as a backup while *Camera B* is offline; the configuration in such a case may look as follows:

- Event 1: *VCA*, source: *Camera A*
- Event 2: *Video Lost*, source: *Camera B*
- Condition: *Camera B Offline,* default state: *OFF*
- Action 1: make *Camera C* go to preset *Area B*
- Action 2*: Set Condition,* target: condition *Camera B Offline*

Rules:

- Event 2 triggers Action 2 (that switches the state of condition *Camera B Offline* to ON)
- Event 1 triggers Action 1 upon the condition *Camera B Offline*

Thus, Action 1 (go to the PTZ preset) is only actually triggered then and then only if *Camera B Offline* condition state is ON, which is not possible while *Camera B* is online.

Now, we need this to work both ways, i.e., we want to return *Camera C* to its home position and reset condition state back to *OFF* when *Camera B* comes online again. New configuration elements will be added:

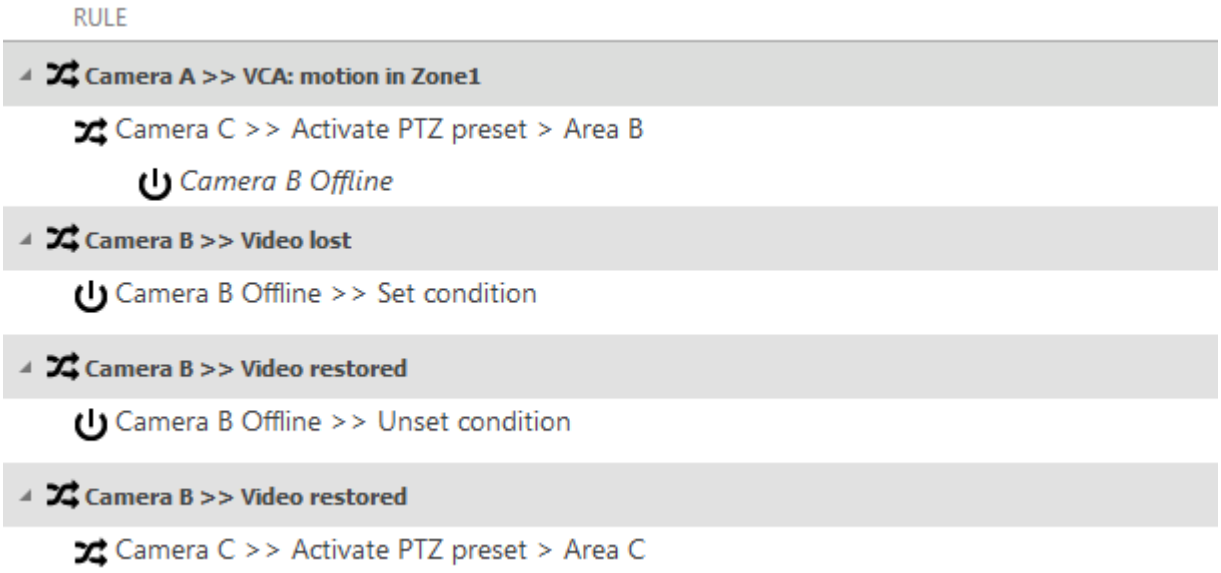
- Event 3: *Video Restored*, source: *Camera B*
- Action 3: *Unset Condition*, target: condition *Camera B Offline*
- Action 4: make *Camera C* go to preset *Area C*

Rules:

- Event 3 triggers Action 3 (that switches condition state to OFF)
- Event 3 triggers Action 4

These new rules ensure that, once *Camera B* is streaming again, *Camera C* will go back to its original position, thus terminating it as a backup device; and the condition is *OFF*, meaning that the triggering of VCA rules in area A will not make *Camera C* move.

The whole setup in *Event & Action Configurator* is as follows:

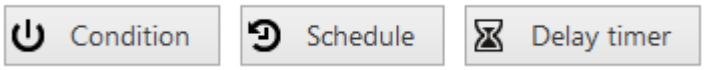


Sample rules

©2016. A&H Software House, Inc. All Rights Reserved.

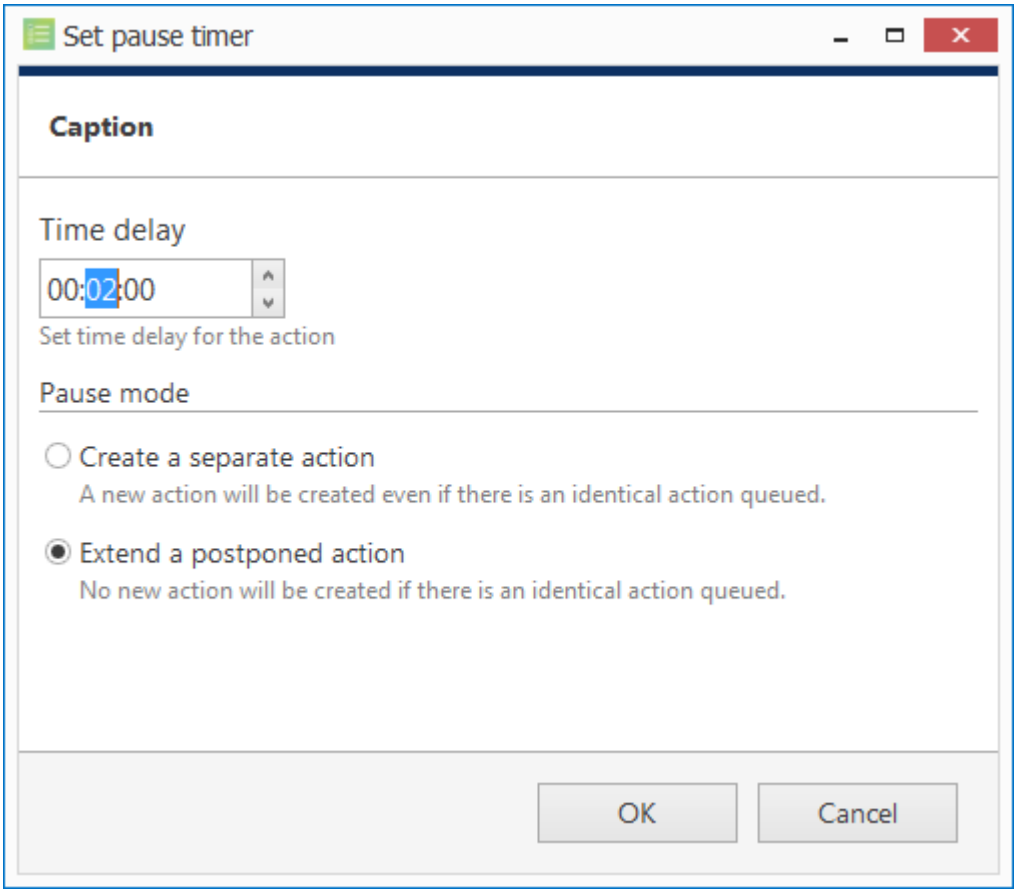
Delay Timers

Delay timers are supplementary entities for controlling action launching. Unlike conditions and schedules, timers cannot be pre-created in the main Luxriot Console *Events & Actions* section, but rather are defined as you go for each rule with the *Event & Action Configurator*, which is available via the *Rules* section.



Delay Timer button in the *Event & Action Configurator*

To add a pause timer for specific actions, select one or more of the mapped rules (use *CTRL+click* or *Shift+click* to mark multiple items) subject to delay, and then click the *Delay Timer* button on the bottom panel of the central part of the *Event & Action Configurator*.



Delay timer properties

Set the delay period for the target timer. Time can be adjusted in the following ways:

- click hours/minutes/seconds and then use the UP and DOWN arrows on the right, or
- click hours/minutes/seconds and use the mouse scroll, while still holding mouse cursor over the relevant timestamp section, or
- enter time manually using the keyboard numpad.

Next, choose pause mode:

- **Create a separate action**: new actions of the same type will be created regardless of the acting delay timer, and queued in the same way as the original delayed action
- **Extend a postponed action**: no new actions of the same type will be created during the delay period

©2016. A&H Software House, Inc. All Rights Reserved.

When you have finished, click *OK* to save and exit the dialog box. The newly created delay timer will be assigned to the pre-selected actions.

Extending (postponing) **an action** allows you to accumulate triggered actions for the defined pause period. For example, if incoming events are of a *Recording Error* type, there may come too much of them at once e.g. in case of a major storage issue, causing a lot of triggered actions of the same type, while only a single action may be desirable.

Say, if required action is *Write to application log*, setting a delay timer to *5 minutes + extended action* will make log entries appear once per 5 minutes; **separate action** option, on the contrary, will force logging for every single triggered event.

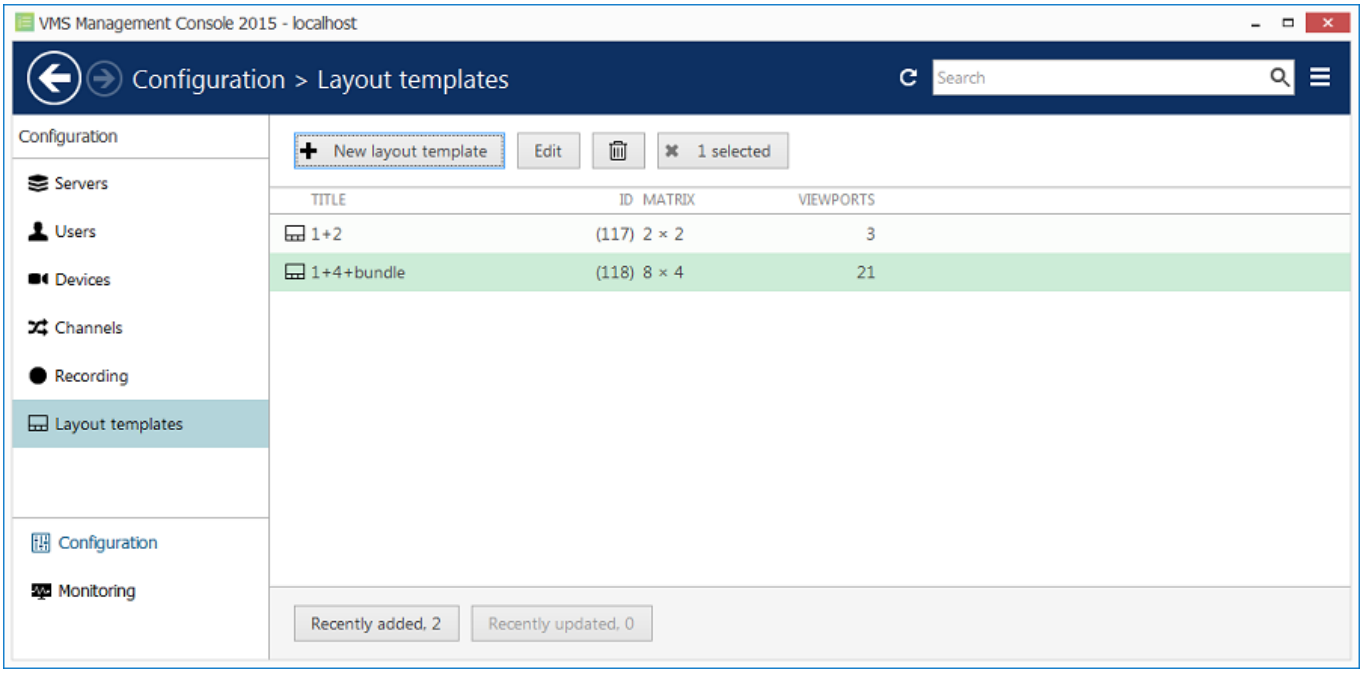
To remove a delay timer from rule configuration, click the timer to highlight it within the rule, and then click the *Clear* button in the bottom panel. Note that, if there are schedules and/or conditions attached to the same rule, they will be removed as well.

©2016. A&H Software House, Inc. All Rights Reserved.

Layout Templates

Custom layouts templates can be created and then used in any Luxriot Monitor applications connected to the target server.

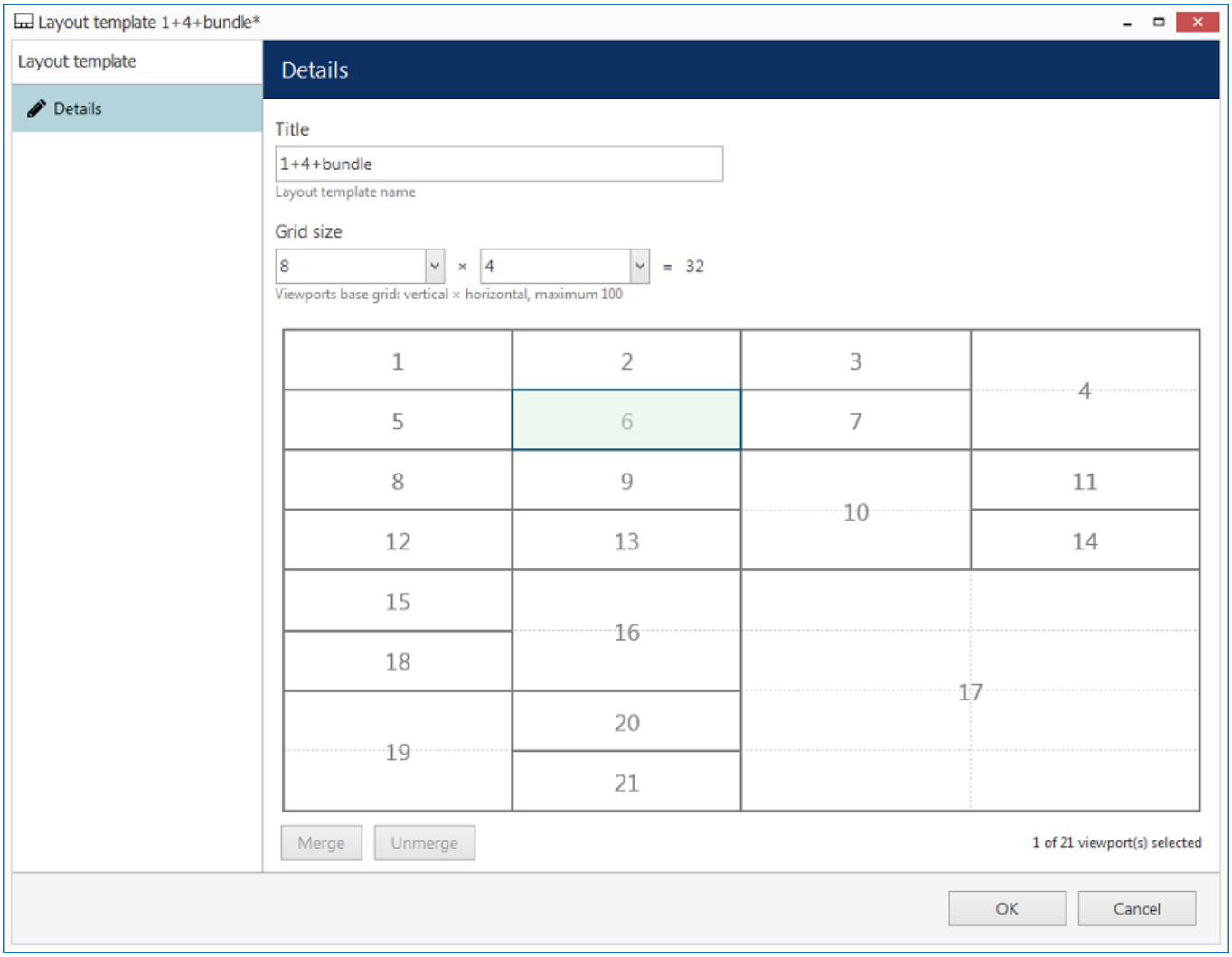
To access layout templates via Luxriot Console, go to the *Configuration* section in the bottom left panel and select the *Layout templates* component in the menu on the left. Use the *Search* field in the upper-right-hand corner to filter existing items; press *Refresh* button to reload the item list.



Layout templates

Click the + *New layout template* button on the upper panel to bring up the configuration dialog box.

©2016. A&H Software House, Inc. All Rights Reserved.



Create new custom layout template

Enter the template name, choose grid size and then modify the grid, if desired: you can select multiple cells at once with your mouse and then use the *Merge* and *Unmerge* buttons below to create custom cell combinations. Note that you can only create rectangular regions, not just any polygonal areas.

When you have finished, click the *OK* button; the newly created layout template will appear in the item list and it will also appear in any connected Luxriot Monitor applications after synchronisation.

Use the *Edit* button to alter any template at any time: modifications will immediately be synchronised with Luxriot Monitor after you save the changes and modified templates will be available for use. However, if the modified layout was already in use, its current output will not be altered, allowing you to save the old layout in Luxriot Monitor. Drag and drop the new layout template to the Luxriot Monitor live view display to load the updated template version.

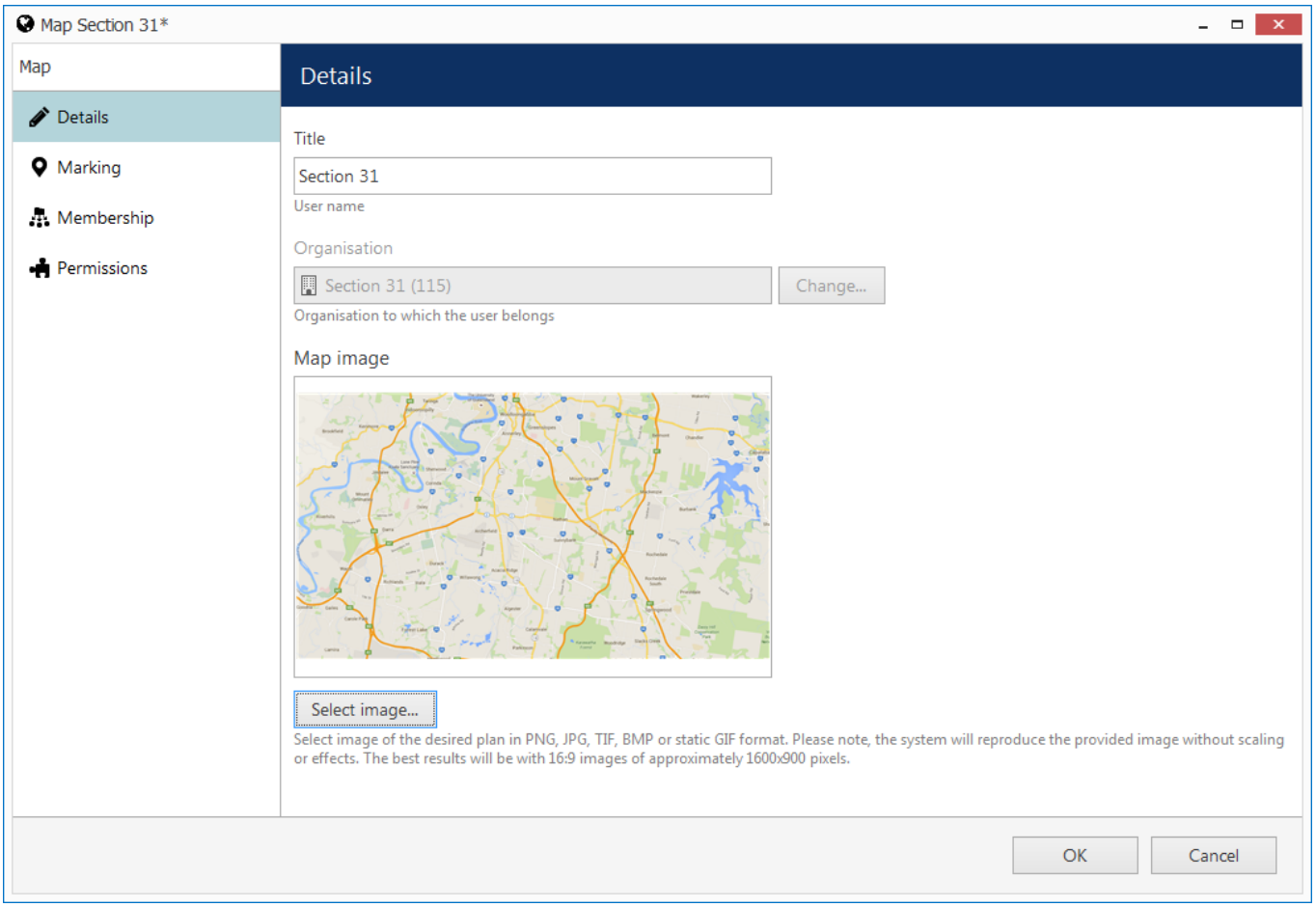
©2016. A&H Software House, Inc. All Rights Reserved.

Maps

To access map management via Luxriot Console, select the *Configuration* section from the bottom-left-hand menu and then click *Maps* in the menu on the left.

Create Map

Click the + *New map* button on the upper panel to bring up the map configuration dialog box.



Map details

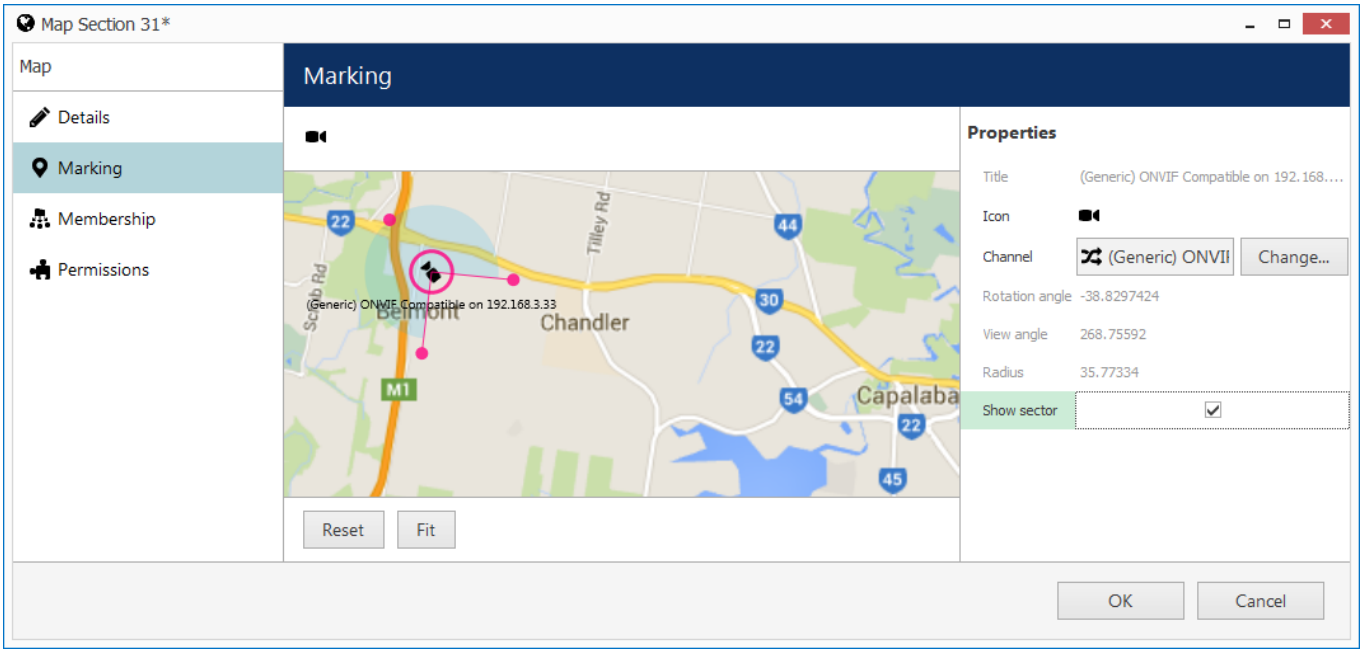
On the map *Details* tab, enter a user-friendly name for your new map, then select the organisation it represents, if applicable, and upload a picture that will be used as plan basis. All major raster picture formats are supported: JPG/JPEG, BMP, PNG, TIF/TIFF and GIF.

> ⚠ There are the following limitative requirements for the pictures loaded as maps:
>
> - picture resolution should be less than 8.25MP
> - file size should be less than 5MB
>
> Files not meeting these limitations will not be uploaded.

Place Camera Markings

Switch to the *Marking* tab to place cameras on the map.

©2016. A&H Software House, Inc. All Rights Reserved.



Map marking

Manipulate your map picture by zooming IN and OUT with the mouse wheel, dragging the picture with the left mouse button and using the *Reset* and *Fit* buttons below. *Reset* a shows non-zoomed 100% size picture (or a picture fragment, if it is larger than the window), and *Fit* zooms your picture so that it fits into the preview window.

To place a camera marker, drag the camera icon from the upper-left-hand corner and drop it on the scene. Camera markers will allow you to pop up channels by double-clicking the markers in Luxriot Monitor. The following actions are possible:

- select the camera by clicking the camera icon on the plan (and **not** the blue sector representing the viewing area)
- move the camera around by dragging it (the sensitive area is within the pink circle)
- change coverage sector by dragging two pink dots on the sides of the blue sector: drag to the sides to adjust the vertical angle, drag to/from the centre to change radius
- correct camera position: drag central pink dot to the sides to rotate camera, drag to/from the centre to change radius
- remove the marking by selecting it and pressing the *Delete* button on your keyboard

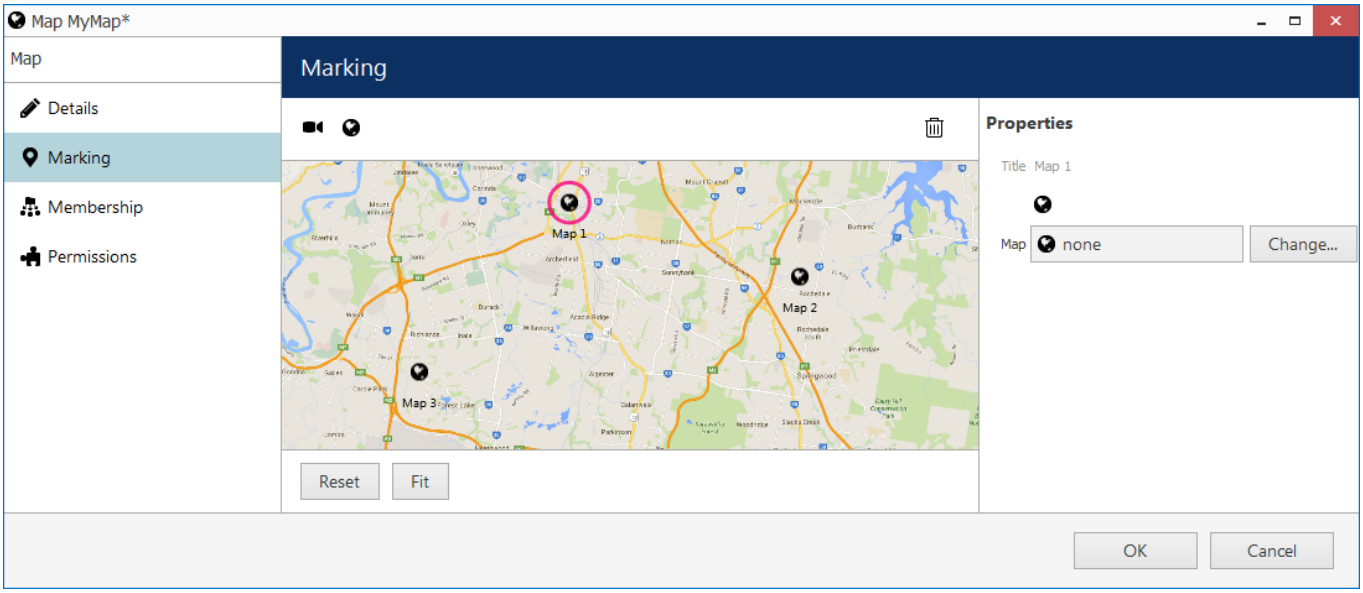
The properties window on the right enables you to:

- choose target device for the currently selected marking
- view information about marking angles and radius
- turn ON/OFF displaying of coverage area

Other Markings

It is also possible to add map markers and use them as shortcuts to other maps: target maps will pop up when corresponding map markers are double-clicked in Luxriot Monitor. To place a map marker, drag the map icon from the upper-left-hand corner and drop it onto the scene.

©2016. A&H Software House, Inc. All Rights Reserved.

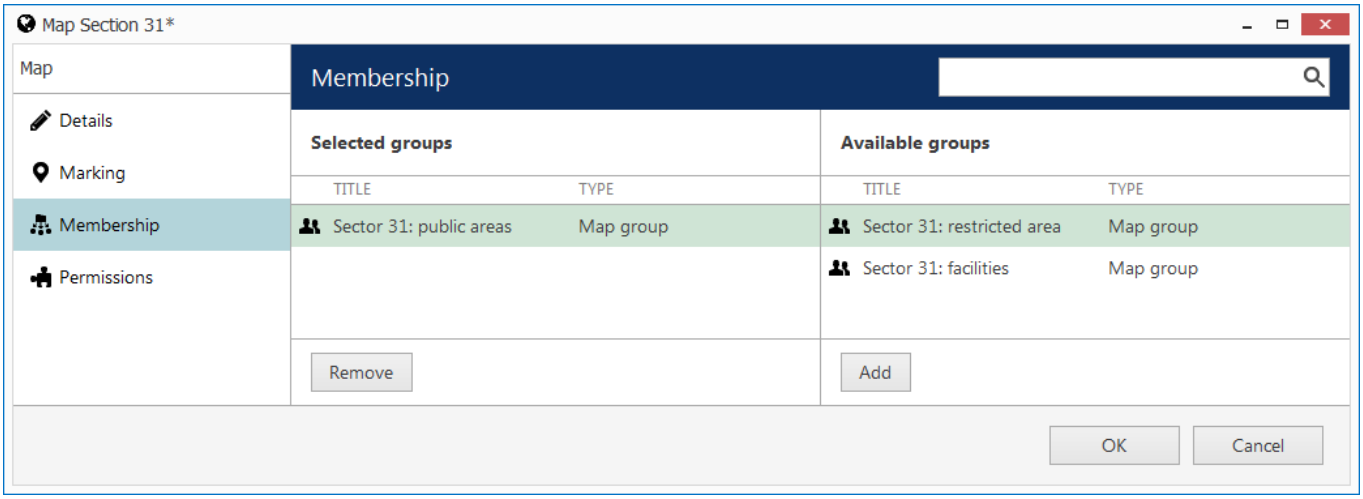


Map markings

Click a map marking and use the properties window on the right to browse for a map that you wish to be a target for the current shortcut. Remove markers by selecting them and then hitting the *Delete* button on the keyboard.

Membership And Permissions

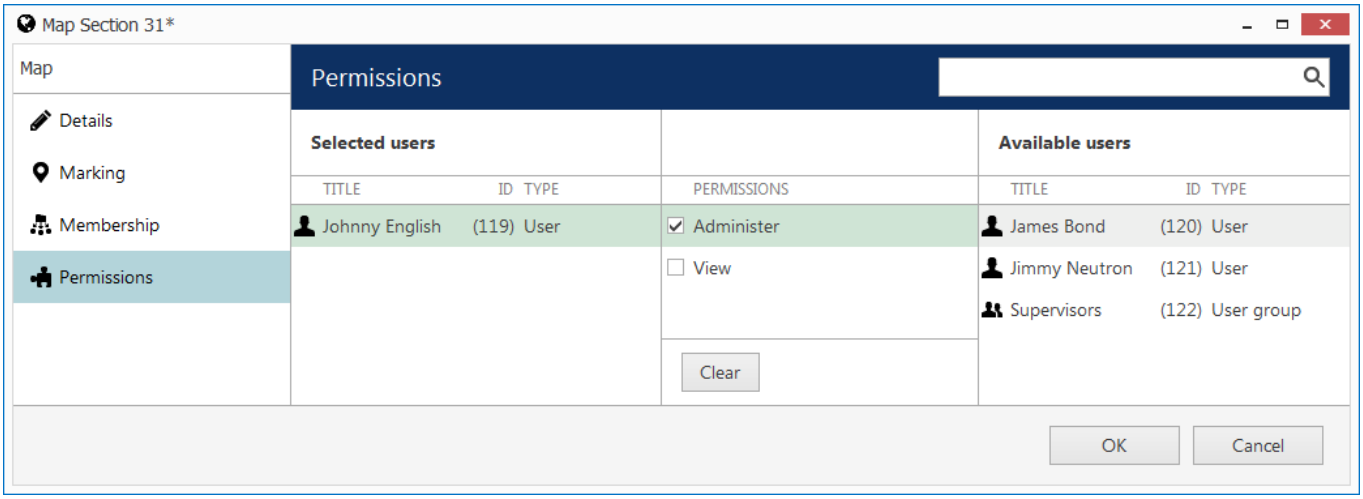
Just as other resources, maps can be grouped and assigned user permissions.



Map membership

In the *Membership* tab, you choose groups for this map to become a member of: select groups by double-clicking items in both columns or by using the *Add/Remove* buttons below.

©2016. A&H Software House, Inc. All Rights Reserved.



Map permissions

Permissions tab enables you to choose the users and user groups that will have access to this resource. Select at least one permission to select a user/user group; uncheck all manually or using *Clear* button below to deselect. *Administer* permission means user will be able to see, open and edit map via Luxriot Console, and *View* only allows user to load the map in Luxriot Monitor.

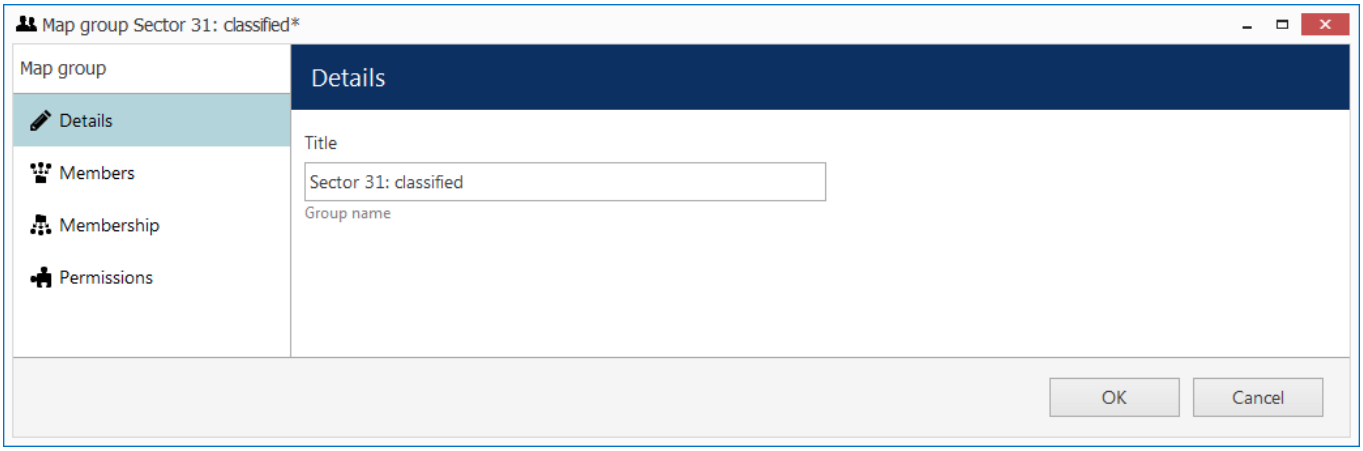
When you have finished, click *OK* to save and close the dialog box. The newly created map will appear in the item list of the *Maps* section.

Use the buttons on the upper panels to perform item-specific actions: remove, edit and quickly assign map group; the filters on the bottom panel will help you switch between recently created/updated items and display maps/map groups only.

Create Map Group

Map groups can be used for easier management in Luxriot Console. Note that map groups are not displayed in Luxriot Monitor.

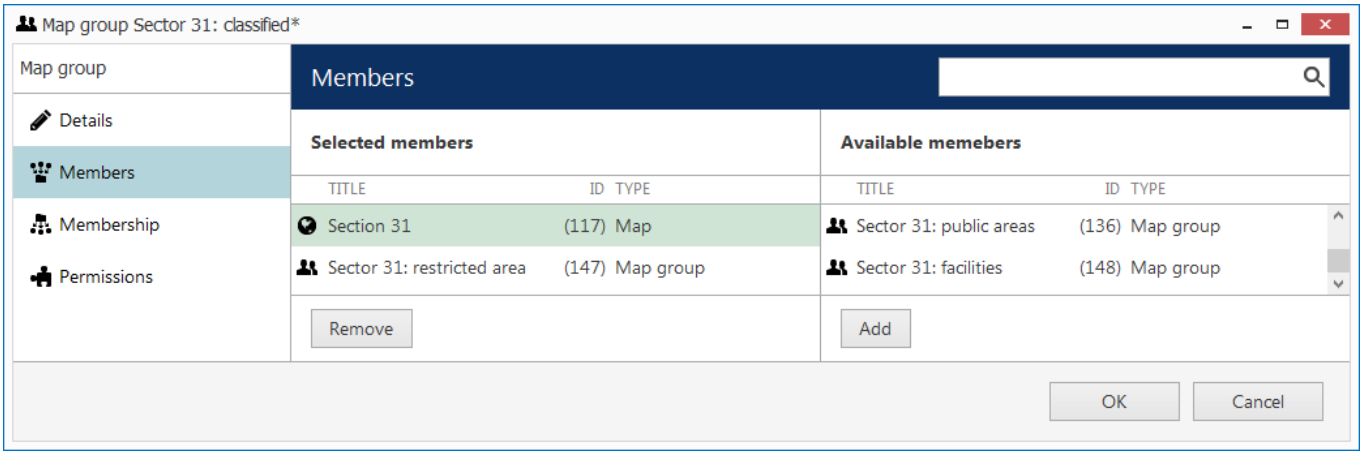
Click the drop-down arrow near the + *New map button* and select *New map group* to bring up the map configuration dialog box.



Map group details

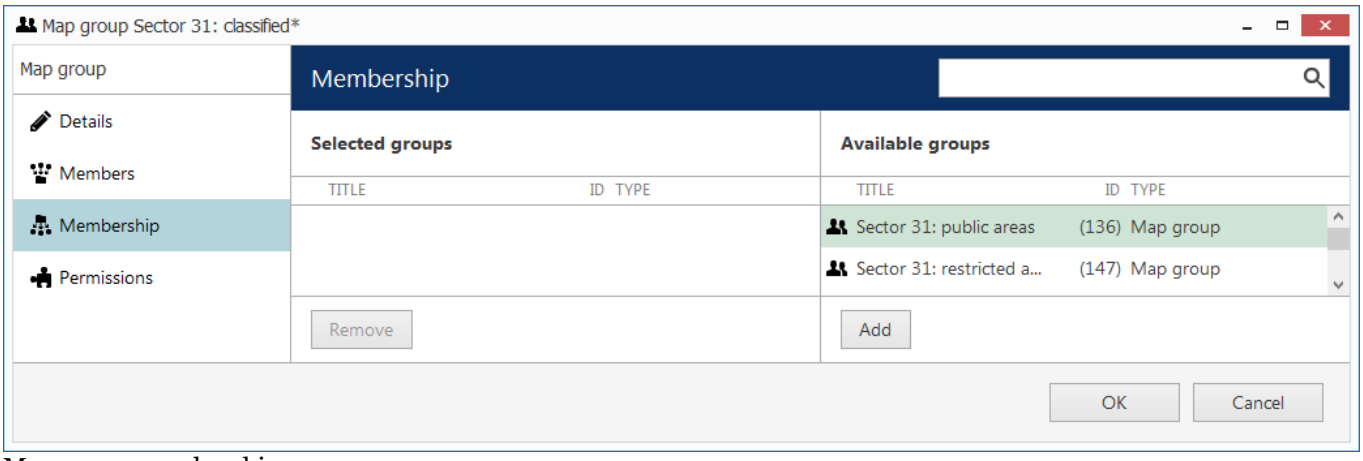
Enter group name on the *Details* tab and proceed with selecting maps for this group on the *Members* tab.

©2016. A&H Software House, Inc. All Rights Reserved.



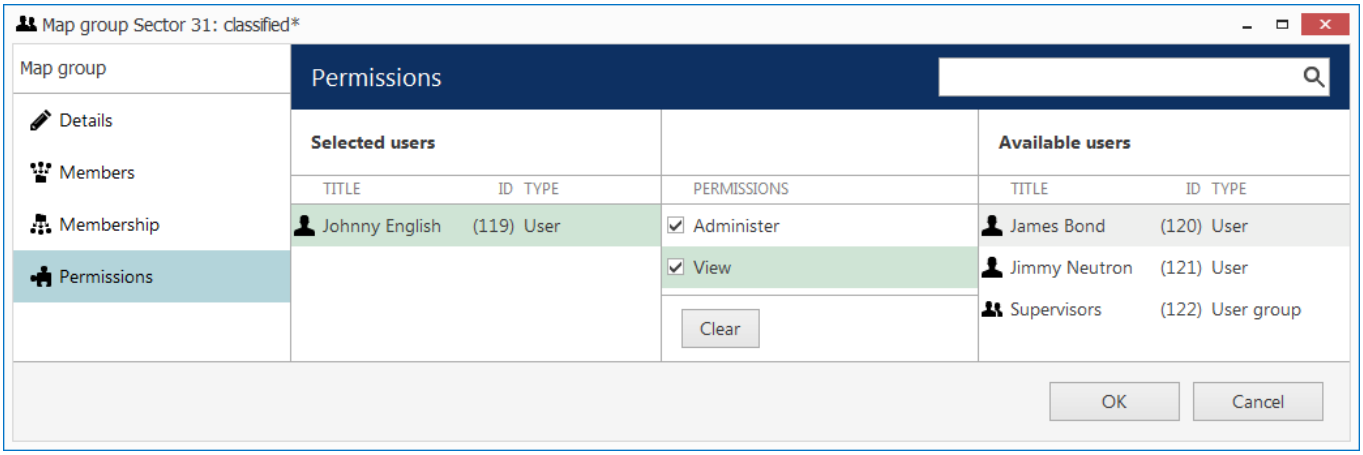
Choose members for the target map group

You can select both maps and map groups to be members of any map group.



Map group membership

On the *Membership* tab, choose groups to contain target map group as a member, thus creating nested groups.



User permissions for map group

Switch to the *Permissions* tab to assign user privileges for the target map group. Select at least one permission to select user/user group; deselect by unchecking manually or by using the *Clear* button below to remove all. *Administer* permission means user will be able to see, open and edit all maps in this and nested groups via Luxriot Console, and *View* only allows user to load the maps in Luxriot Monitor.

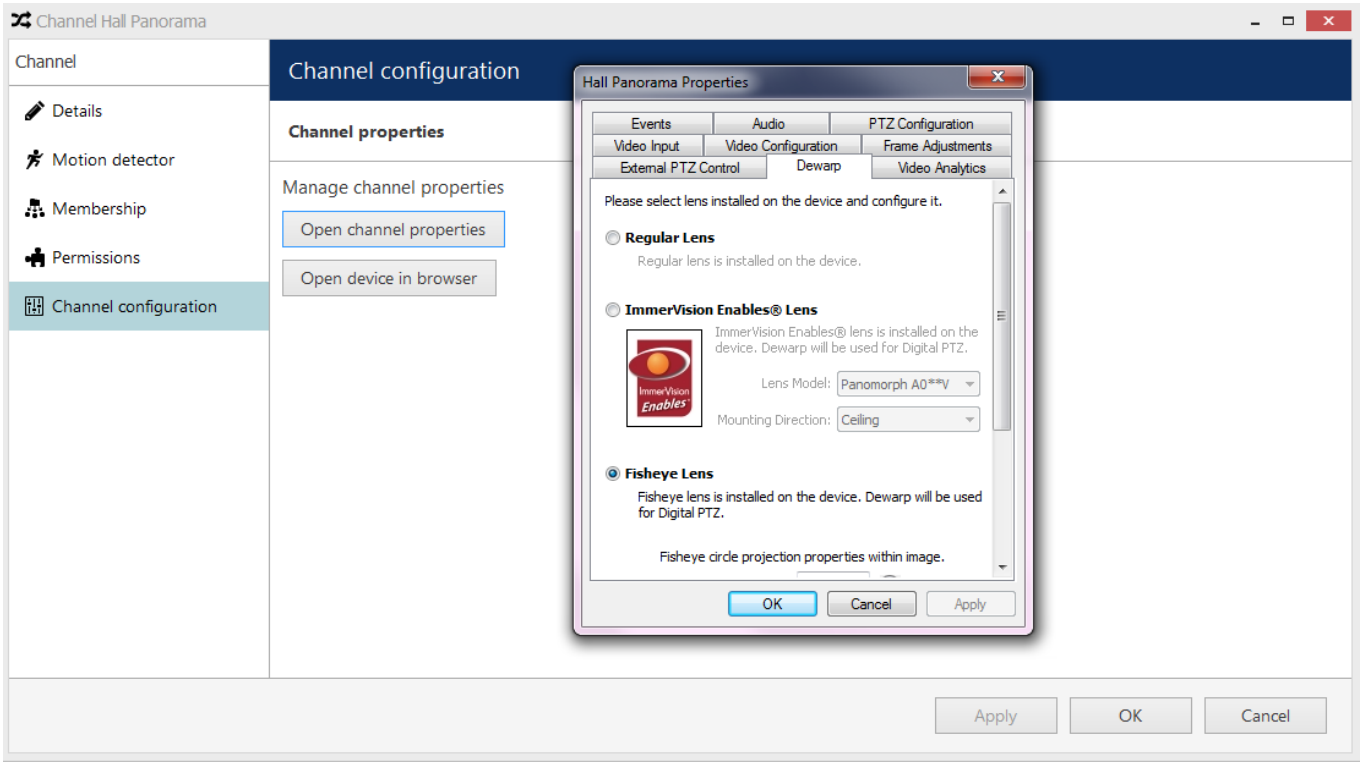
When you have finished, click *OK* to save and close the dialog box. The newly created map group will appear in the item list in the *Maps* section. Use the buttons on the upper panels to perform item-specific actions: remove, edit and quickly assign map group; filters on the bottom panel will help you switch between recently created/updated items and load maps/map groups only.

©2016. A&H Software House, Inc. All Rights Reserved.

Dewarp For Fisheye Cameras

Fisheye lens is an ultra-wide-angle lens that produces a wide panoramic image at the cost of strong visual distortion. Usually, devices with such lenses capture a 360-degree geometrically distorted image and projects it as a circle within the image frame. Fisheye lens can be either built-in by design or purchased separately and installed on your desired camera. Luxriot EVO dewarp feature allows to correct the perspective and obtain several "normal" views from a single distorted fisheye picture.

In order to access dewarp settings via Luxriot Console, open the *Configuration* section and choose *Channels* from the menu on the left. Find the channel you wish to dewarp in the list (use *Search* or filters, if necessary) and double-click it in order to open it for editing (alternatively, use the *Edit* button on the upper panel to open the dialog box), then switch to the *Channel Configuration* tab and click the *Open channel properties* button. In the *Properties* dialog box, choose the *Dewarp* tab.



Access dewarp settings via Luxriot Console

You have the following options here:

- **Regular lens**: choose this option if you wish to disable the dewarp engine
- **Immervision Enables® lens**: choose this option if your camera has a Panomorph lens installed (you can check this in the camera specification)
- **Fisheye lens**: choose this option if your camera has a regular 360-degree view lens

For devices having a Panomoph lens, choose the lens model from the drop-down list - you can find this information in your camera specification or request it from the device manufacturer. You do not need to define any parameters manually here; rather, you only need to choose your camera mounting position, and the dewarp engine will automatically produce a correct dewarping result.

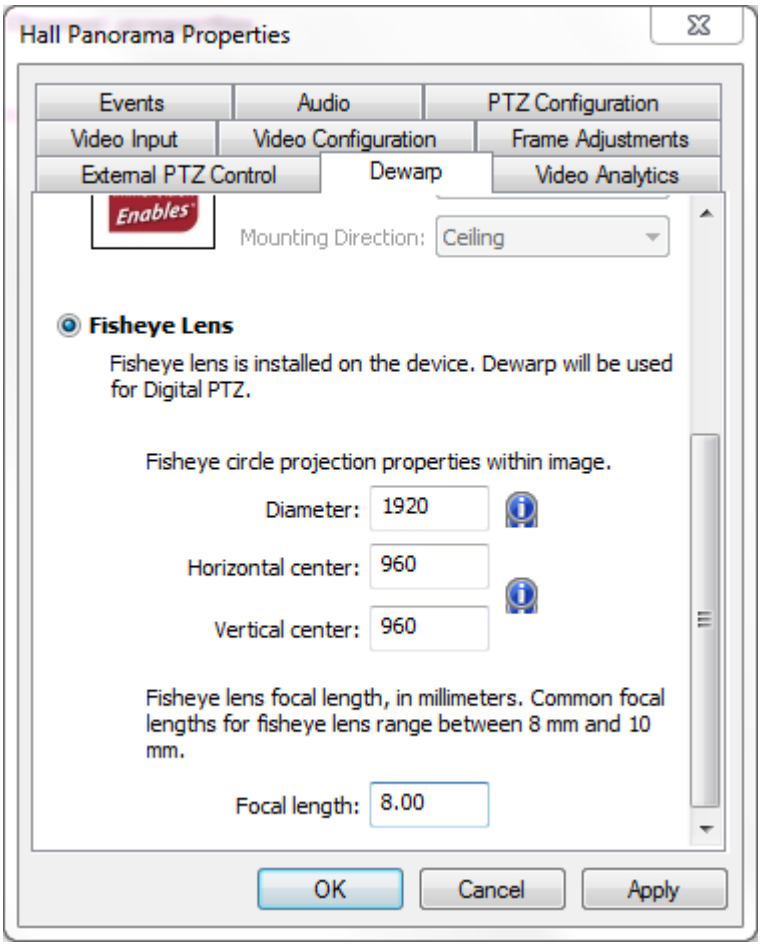
Note that the dewarp engine will fail to operate if you choose a wrong lens model. Check with your camera documentation and manufacturer for the precise lens model information.

For a regular fisheye lens, you are given the option to enter the dewarp parameters:

- Hemisphere **diameter**, in pixels: usually, it is equal to the picture side if the picture is square, and is equal to the picture shorter side if it is rectangular
- **Horizontal** and **vertical** centre, in pixels: offset of the circular projection centre from the top left picture corner (actually, from any picture corner)

©2016. A&H Software House, Inc. All Rights Reserved.

- **Focal length** of the lens: common lengths range from 8 to 10 mm



Enter parameters for the dewarp engine

Here are two examples of the dewarp setup.

1. Camera produces a 1024x1024 picture; dewarp parameters will be as follows:

- diameter = 1024px
- vertical centre = 1024/2 = 512px
- horizontal centre = 1024/2 = 512px

2. Fisheye image has dimensions of 2560x1600 pixels, the visible area is not cropped on the shorter side

- diameter = shorter picture side = 1600px
- vertical centre = half of the shorter side = 1600/2 = 800px
- horizontal centre = half of the longer side = 2560/2 = 1280px

©2016. A&H Software House, Inc. All Rights Reserved.

Audio

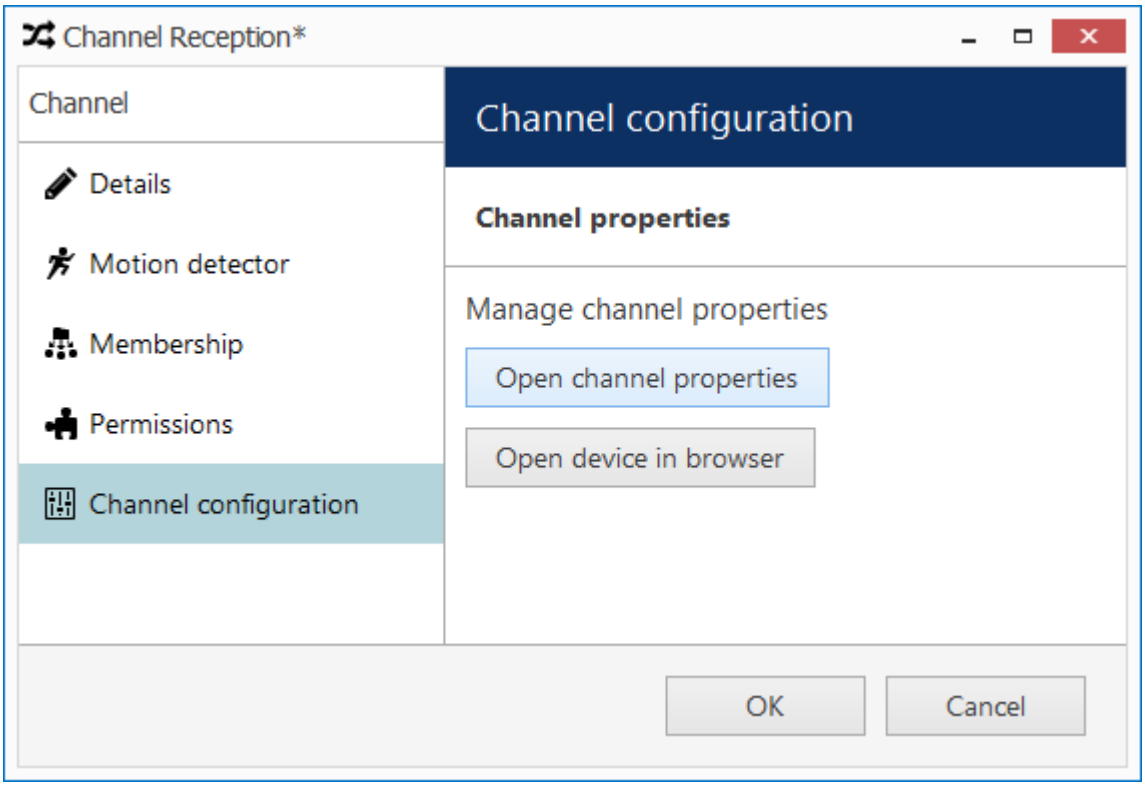
Luxriot EVO is capable of receiving audio streams from cameras, recording and playing them back, as well as sending audio back to the cameras from Luxriot Monitor stations. It is also possible to bind an external audio source to a video channel.

There are a few conditions stipulating audio feature availability:

- the target device should be capable of sending/receiving audio
- relevant additional equipment should be plugged into the device (microphone and/or speakers), if necessary (if these are not built in by design)
- one-way or two-way audio should be enabled and set up on the camera (encoder) side so that it is available via device Web interface
- selected audio codec should be G.711
- audio should be enabled in the channel settings via Luxriot Console (see the description below)
- feature should be supported by Luxriot EVO for the target device (see the list of supported devices and features provided by Luxriot)
- in order to send audio to the device, Luxriot Monitor workstation should have a microphone connected to it
- if you plan to use an external audio source, relevant audio capturing equipment should be plugged into the server, to which the target device is connected, and enabled via Windows audio settings

⚠ G.726 and AAC audio codecs, which are often implemented on the camera side, are not supported at this point, so please always select the G.711 option. Setting other codecs on the device side may result in Luxriot EVO being unable to decode the incoming video stream.

In order to enable audio capabilities for your desired device, open the *Configuration* section and choose *Channels* from the menu on the left, then open your target channel for editing - either by double-clicking it or by selecting it with a single click and clicking the *Edit* button on the upper panel. In the channel settings' dialog box, switch to the *Channel configuration* tab.



Go to the *Channel configuration* tab

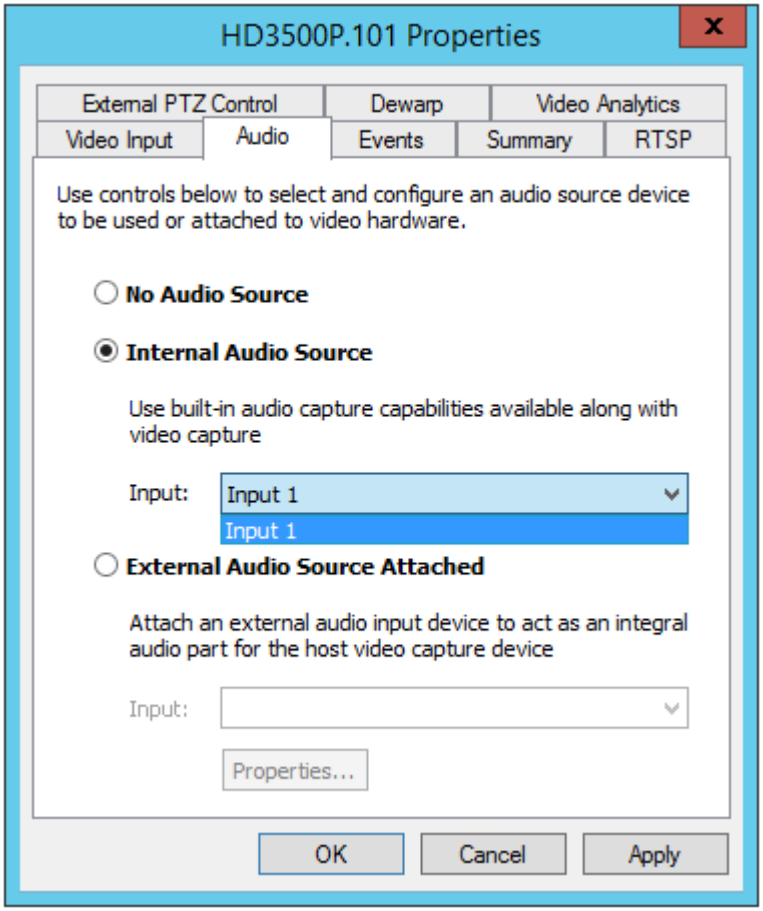
If you plan to use camera-side audio and have not checked audio configuration on the camera side yet, click the *Open device in browser* button to go to the camera Web interface and adjust the settings, then make sure that audio

©2016. A&H Software House, Inc. All Rights Reserved.

is operable in the browser preview (you may need to install an ActiveX control in order to get it working; please check with your device's user guide for tips and browser requirements).

Press the *Open channel properties* button to bring up the dialog box and switch to the *Audio* tab. Here, you have three options:

- disable audio functionality for the target device (default)
- enable audio reception from the camera side and sending the reverse audio to the camera
    - choose an audio input from the drop-down list, if the target device has multiple ones
- use an external audio source connected to the same server as the target camera
    - choose an audio input device from the drop-down list, if the target server has multiple ones connected to it



Choose the audio delivery option

When you have chosen your preferred option, click *OK* to save and exit, then close the *Channel settings* dialog box. You should now be able to listen to live audio, record it along with the video stream and talk back to your camera.

©2016. A&H Software House, Inc. All Rights Reserved.

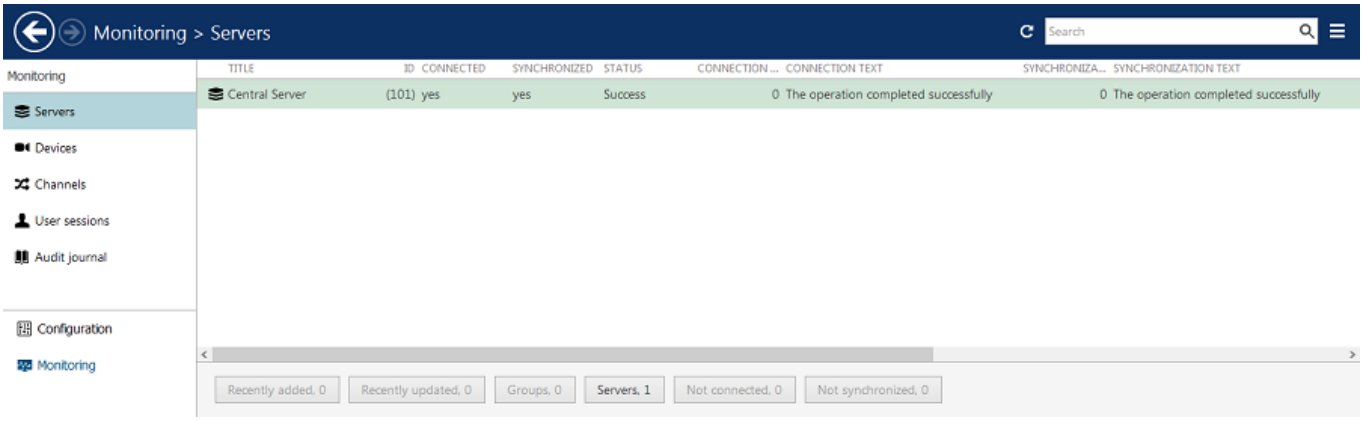
Health Monitoring

Luxriot EVO provides health monitoring data for server, devices and channels, as well as live status of connected user sessions.

To access live reports in Luxriot Console, choose the *Monitoring* section in the bottom-left-hand panel and switch between components using the menu on the left. Use the *Search* field in the upper-right-hand menu to filter the records; press the *Refresh* button to reload the item list.

Servers

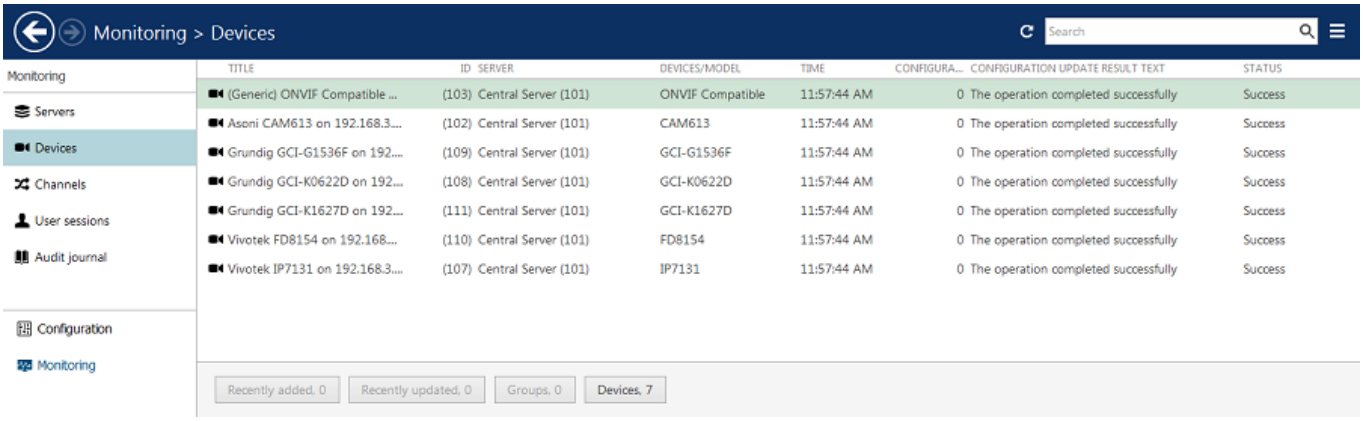
The server status includes information about connection and synchronisation: both have numeric status code and corresponding textual status.



Servers live monitoring

Devices

The device summary provides configuration update status and the time of the last communication between the server and device.



Devices live monitoring

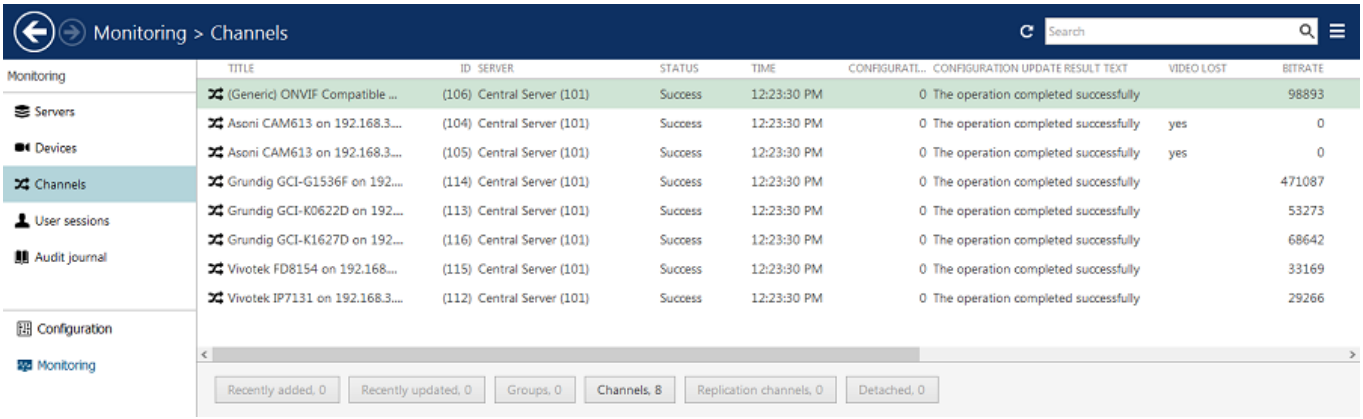
©2016. A&H Software House, Inc. All Rights Reserved.

Channels

Along with configuration update results, channel monitoring contains information about:

- video loss
- stream bit rate
- stream frame rate (FPS)
- recording status

Recording status has the following denotation: 0=currently not recording, 1=recording is active. Note that 'not recording' may both mean either that recording is not configured (disabled) or that recording has not been activated according to the schedule.



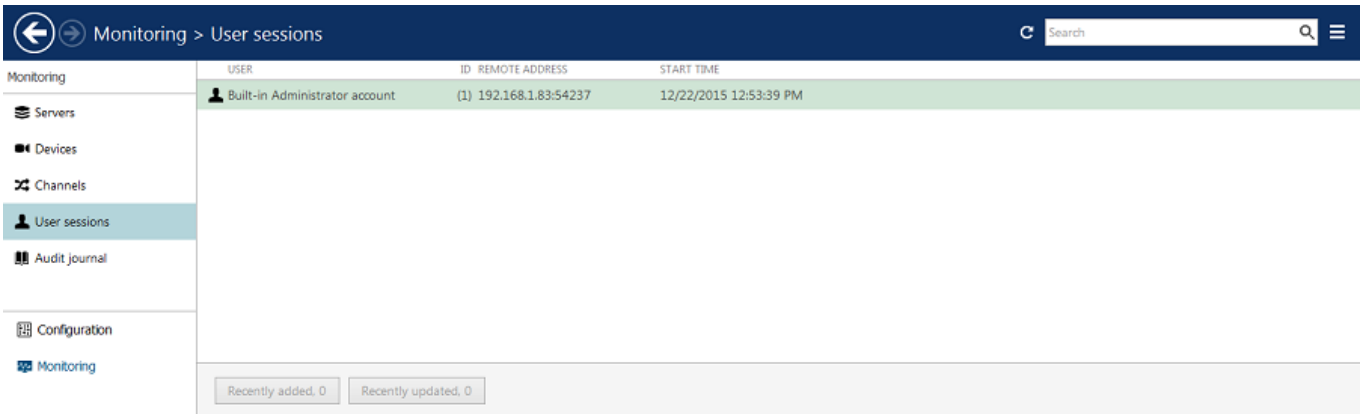
Channels live monitoring

User Sessions

This monitoring area displays currently active incoming Luxriot Monitor connections with the following details:

- user account
- remote address
- remote (outgoing) port
- session start time
- type (Luxriot Console/Luxriot Monitor)

Disconnected sessions will automatically disappear from the list.



User Sessions live monitoring

©2016. A&H Software House, Inc. All Rights Reserved.

Audit

To access the global audit log in Luxriot Console, choose *Audit* section in the bottom-left-hand panel.

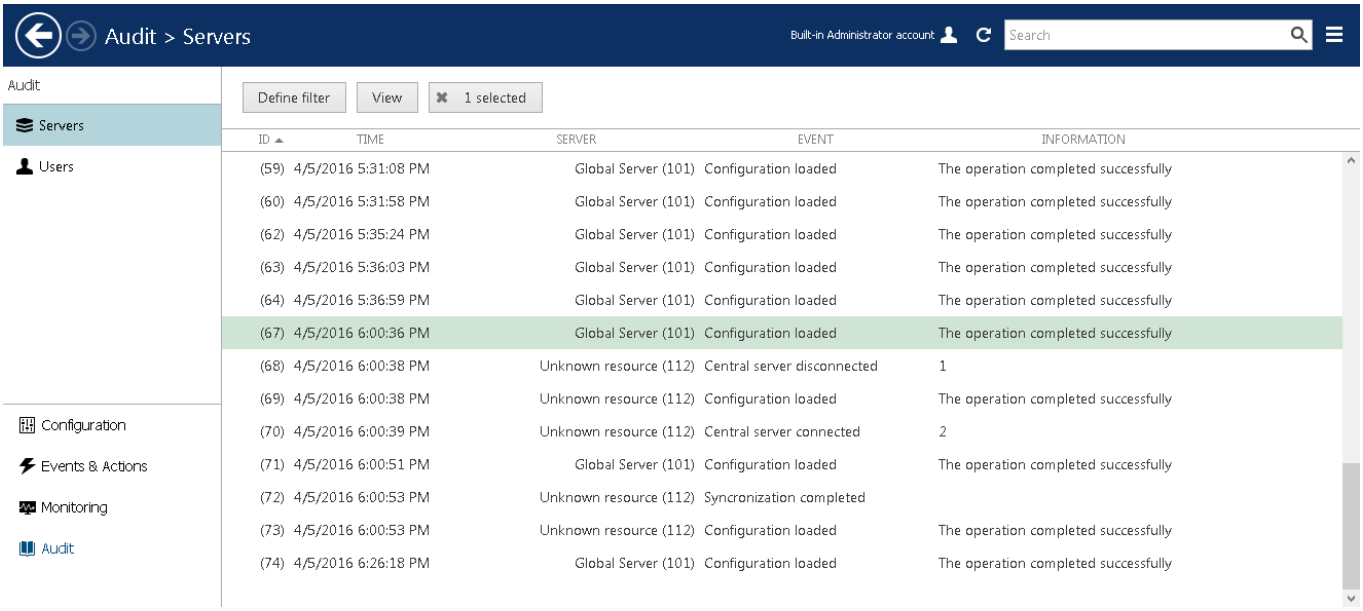
The audit log contains detailed information about the most important user activities and server events. Events are organised in a way similar to the Windows Event log, and can be filtered and sorted by any field just by clicking on the relevant field. By default, entries are sorted by time, with latest on top. Use *Search* field in the upper-right-hand menu to filter the records; press *Refresh* button to reload the item list.

The log has two sections: *Servers* and *Users*; these can be accessed by clicking the corresponding items in the menu on the left, when in *Audit* section.

Servers

Each event contains the following values (internal ID fields omitted):

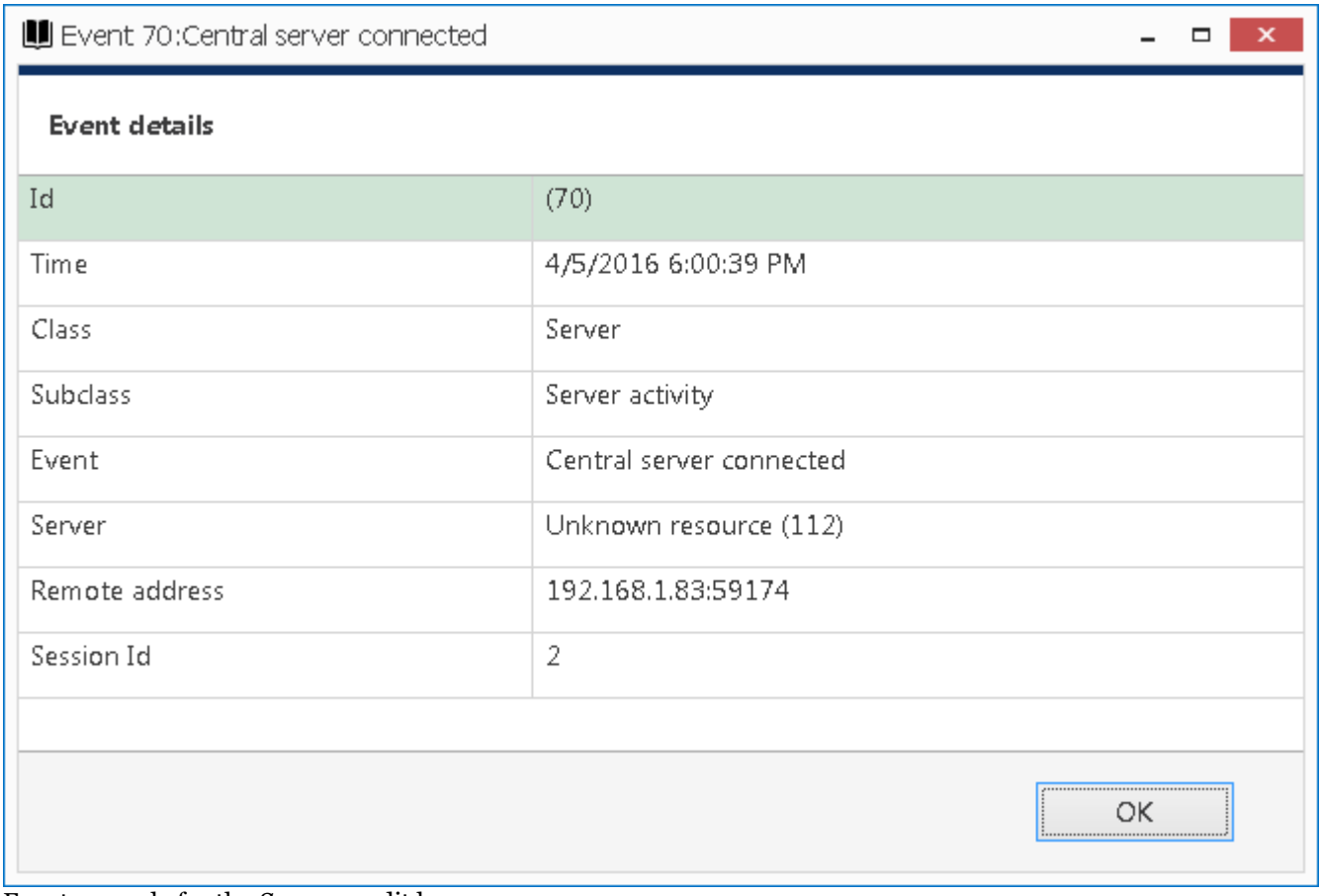
- **Time**: event timestamp in system locale-specific format
- **Server**: name of the server from which the event originates
- **Event**: a brief description of the event; there are the following types:
    - *Configuration loaded*: configuration has been successfully loaded from the database and applied to the target server
    - *Central server connected*: central server has successfully connected to the target recording server
    - *Central server disconnected*: central server has disconnected from the target recording server because the target server is offline, unreachable, has been removed from the central server configuration or has invalid configuration
    - *Synchronisation completed*: central server has successfully synchronised configuration data with the target recording server
- **Information**: additional information relevant to the event, e.g., session ID for the central server connections



Audit log, *Servers* section

Double-click any event to open it in a separate dialog box with additional information about source server, such as event classification and IP address.

©2016. A&H Software House, Inc. All Rights Reserved.



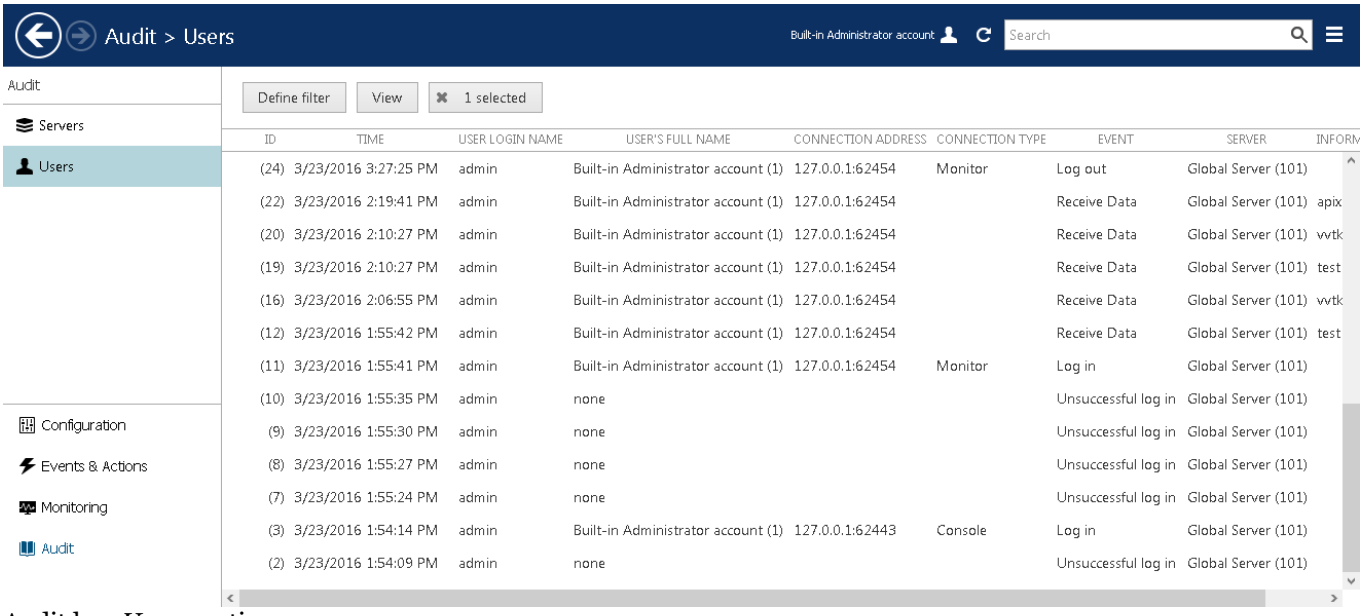
Event example for the *Servers* audit log

Users

Each event contains the following values (internal ID fields omitted):

- **Time**: event timestamp in system locale-specific format
- **User login name**: user login information, if available
- **User's full name**: full name of the user, as specified in Luxriot Console settings
- **Connection address**: remote IP and outgoing port used for connection
- **Connection type**: shows whether the user was logged in from Luxriot Console, Luxriot Monitor or mobile/browser client
- **Event**: event type
    - *Log in*: the specified user has logged in to the target server
    - *Log out*: the specified user has logged out
    - *Unsuccessful log in*: an attempt to log in was made but it failed because either username or password was incorrect
    - *Receive Data*: user has requested device data via Luxriot Monitor; target device can be found under *Information*
    - *Navigate*: user has activated device PTZ control via Luxriot Monitor; target device can be found under *Information*
- **Server**: name of the server from which the event originates
- **Information**: additional information related to the event, e.g., the device name

©2016. A&H Software House, Inc. All Rights Reserved.

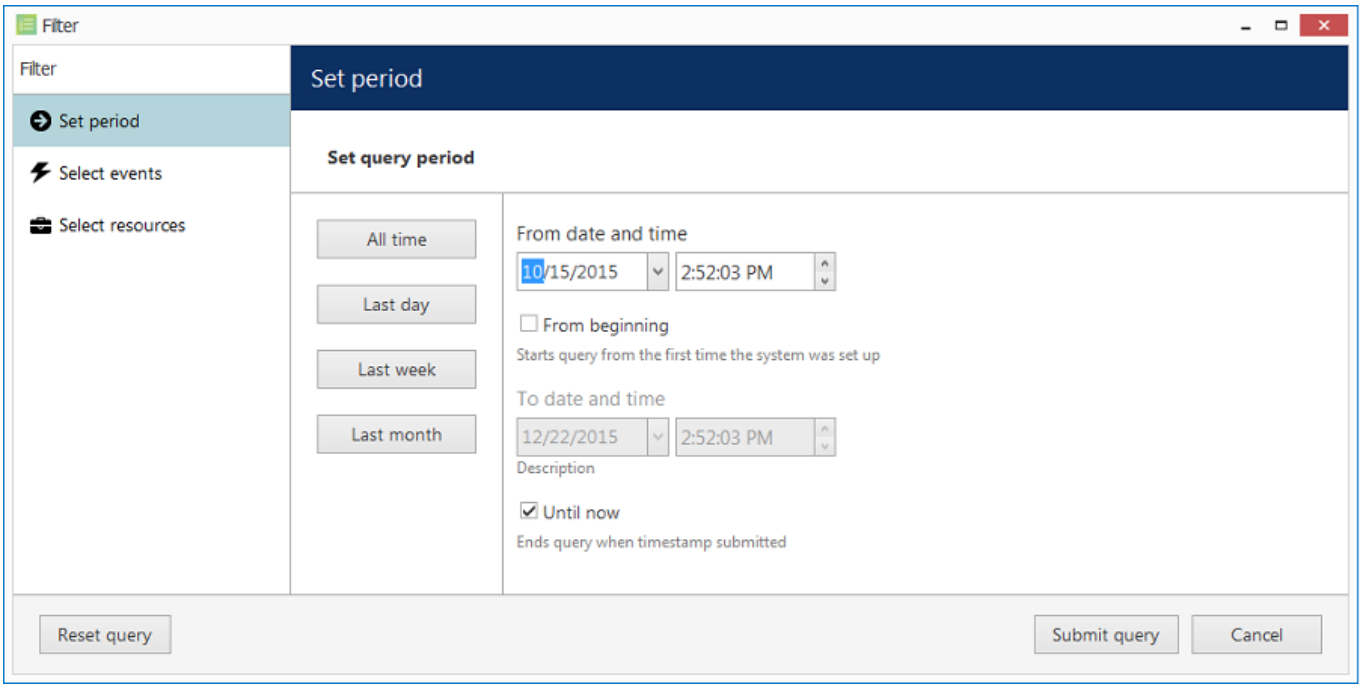


Audit log, *Users* section

Define Filter

Audit logs can be filtered for easier analysis. Click the *Define filter* button on the upper panel to bring up the dialog box.

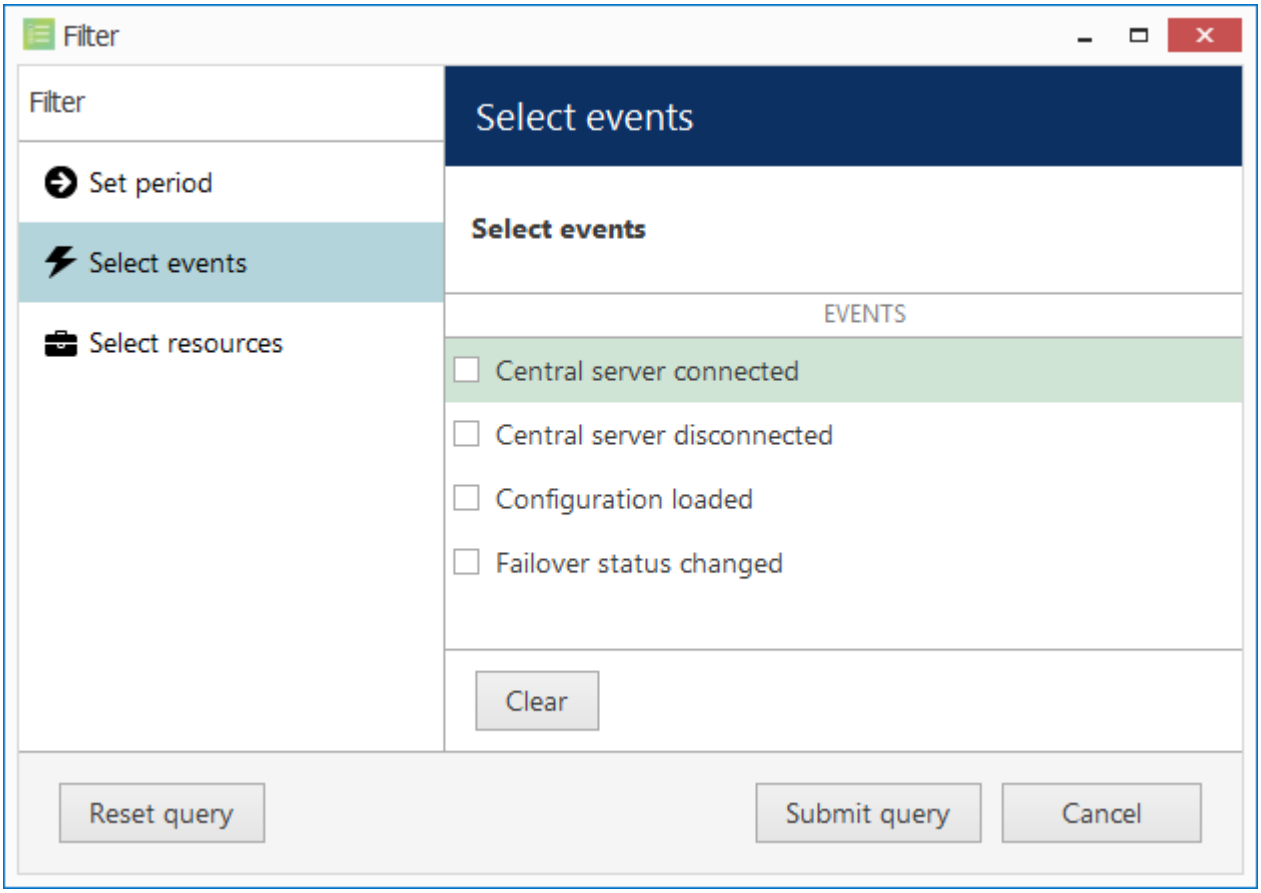
In the *Set period* tab, specify the time limits for log output. You can set the date and time manually or use automated controls for preset time boundaries: last day/week/month, the whole time, and also set start/end boundaries equal to the log beginning/end.



Set the time boundaries for audit log output

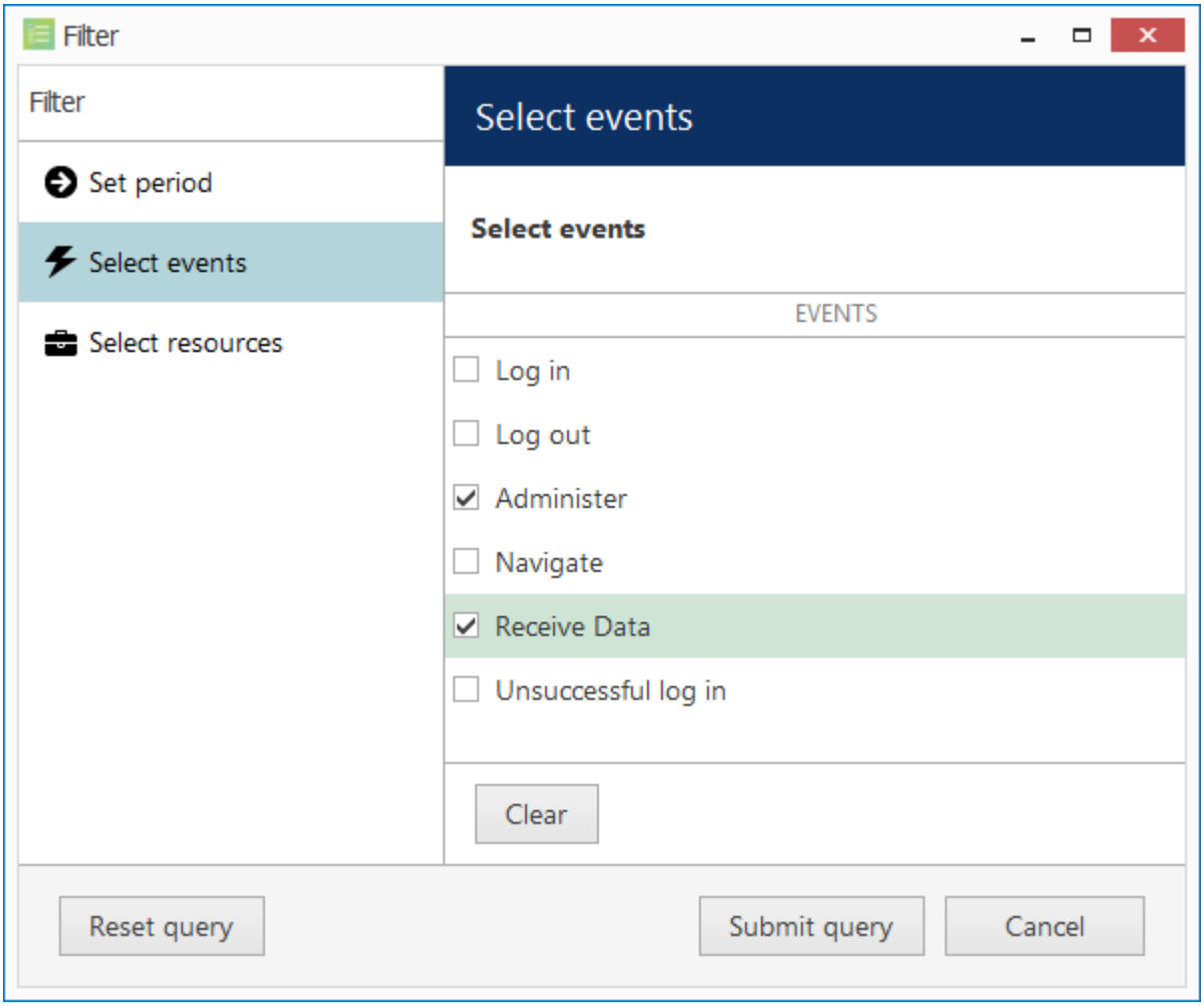
In the *Select events* tab, choose specific event types to narrow down the search. Note how the choice differs for the *Servers* and *Users* log filters.

©2016. A&H Software House, Inc. All Rights Reserved.



Specify event types for the *Servers* audit log output

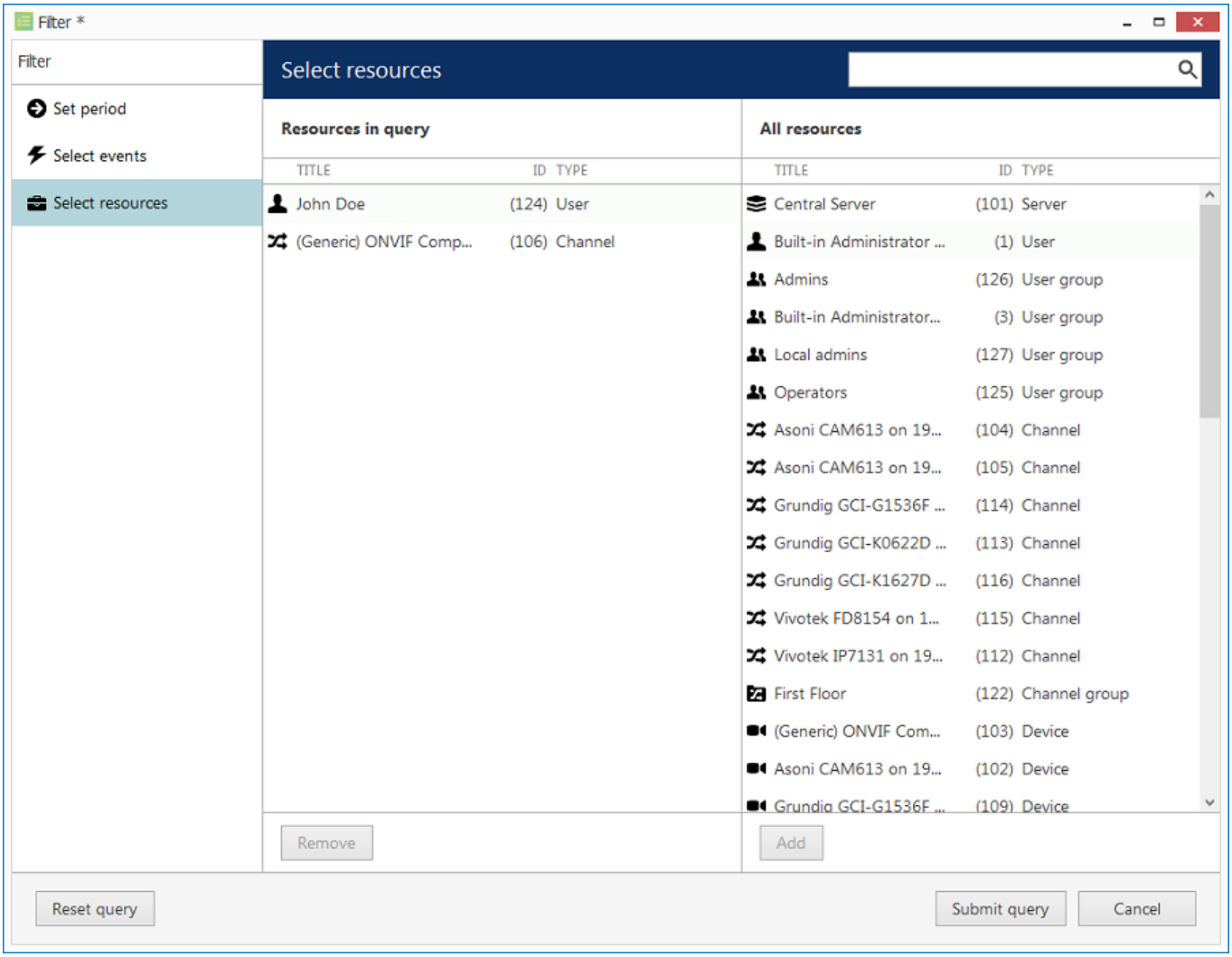
©2016. A&H Software House, Inc. All Rights Reserved.



Specify event types for the *Users* audit log output

In the *Select resources* tab, you can choose which resources will be mentioned in the log entries. Note that if multiple resources are chosen, the filter will apply *OR* logic, meaning that output log will only be displayed if it contains log entries for **at least one** specified resource, and not for the combination of all specified resources.

©2016. A&H Software House, Inc. All Rights Reserved.



Narrow down your search by specifying resources

Use the *Search* field to filter the resource list; both the list of *Resources in query* and general *All resources* will be affected by the *Search* filter. Press the *Reset query* button in the bottom left corner at any time to restart filter configuration; when you have finished, click *Submit query* to view the results. To discard filtering, simply switch to a different section in the menu on the left and then switch back to your desired section.

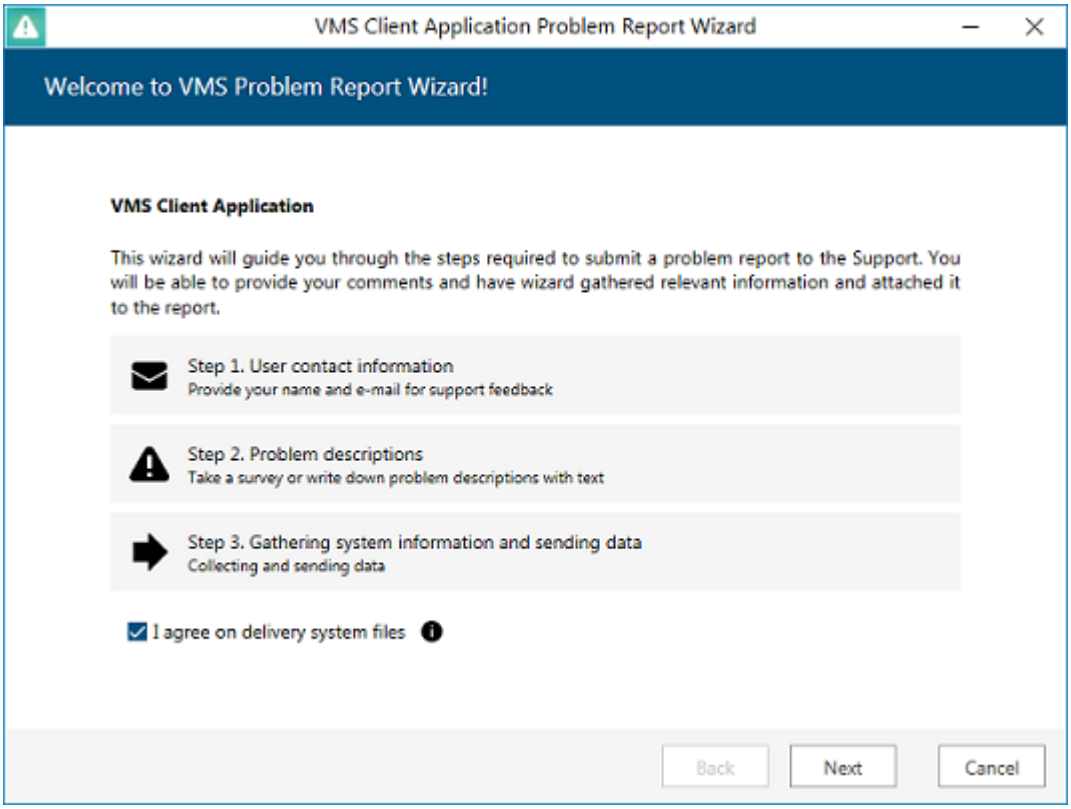
©2016. A&H Software House, Inc. All Rights Reserved.

Problem Report Wizard

Luxriot software offers a comprehensive wizard-like tool for structured and detailed problem reporting. The tool is automatically installed at the same time as the the product and is thus available on any machine on which Luxriot software is installed.

Access Problem Report Wizard via *Start -> All Apps -> Luxriot -> Problem Report Wizard* (in Windows 7 and older versions, use *Start -> All Programs -> software installation folder -> Tools -> Problem Report Wizard*); alternatively, use Windows Start Menu *Search* to locate the Problem Report Wizard in the programs menu.

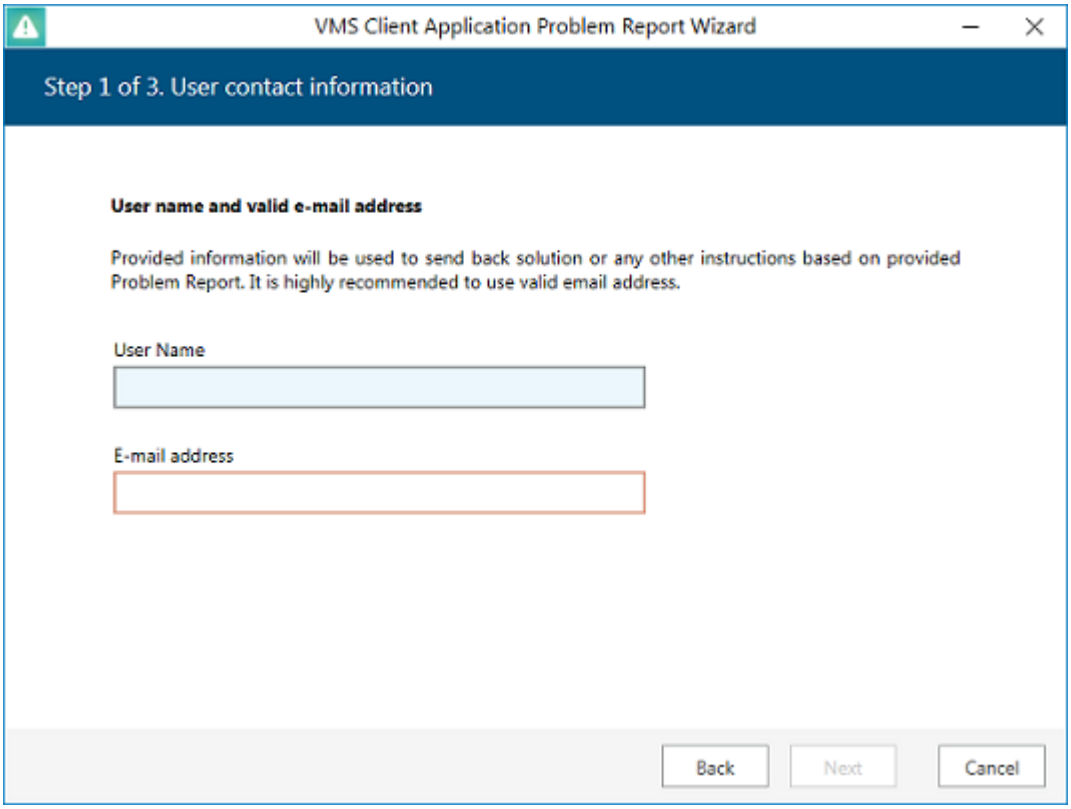
⚠ Make sure you run the Problem Report Wizard on the right computer: it gathers information from the machine it has been launched on, and **not** from any of the servers connected via Luxriot Console or Luxriot Monitor.



Run Problem Report Wizard from Windows Start menu

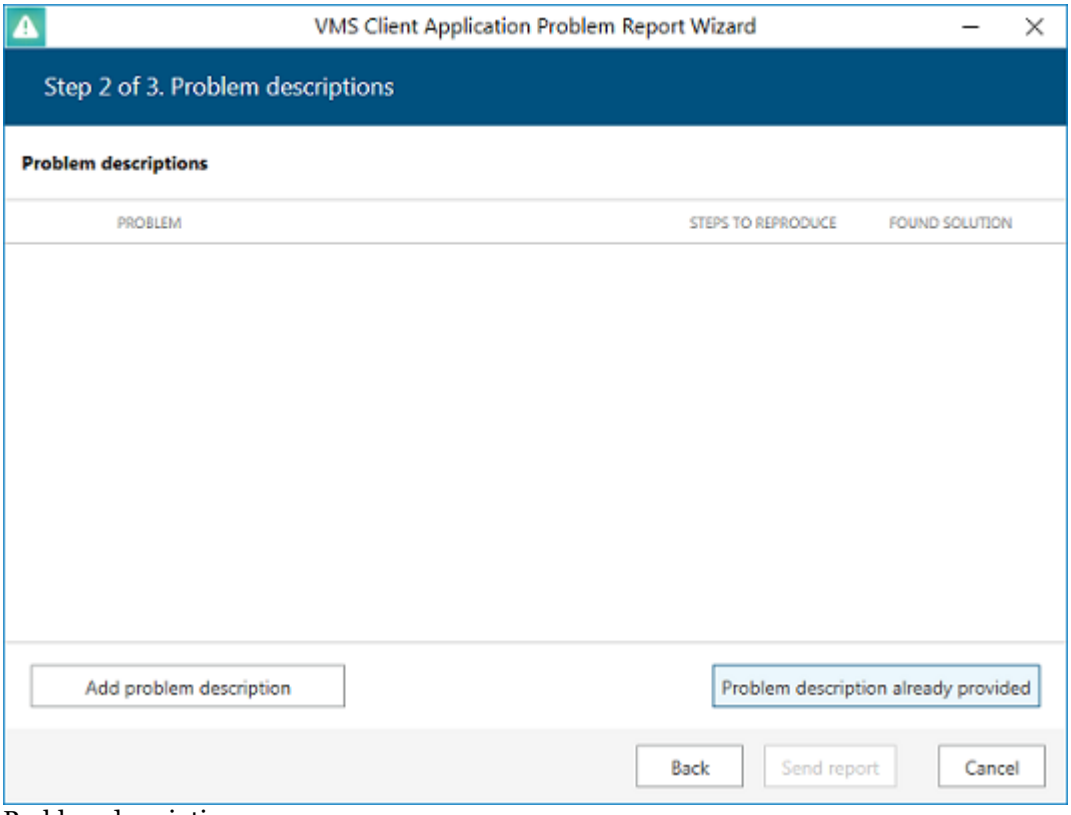
Agree to deliver system files to Luxriot support and hit *Next*. You can check which files are being taken from your system by clicking on the information button next to the agreement checkbox. Note that Luxriot will not transfer your data to any third-party companies; all the information gathered is required to help Luxriot efficiently resolve the reported problems.

©2016. A&H Software House, Inc. All Rights Reserved.



Enter your contact information

Enter your name and your email address so that the Luxriot support team can contact you. Click *Next* to proceed.

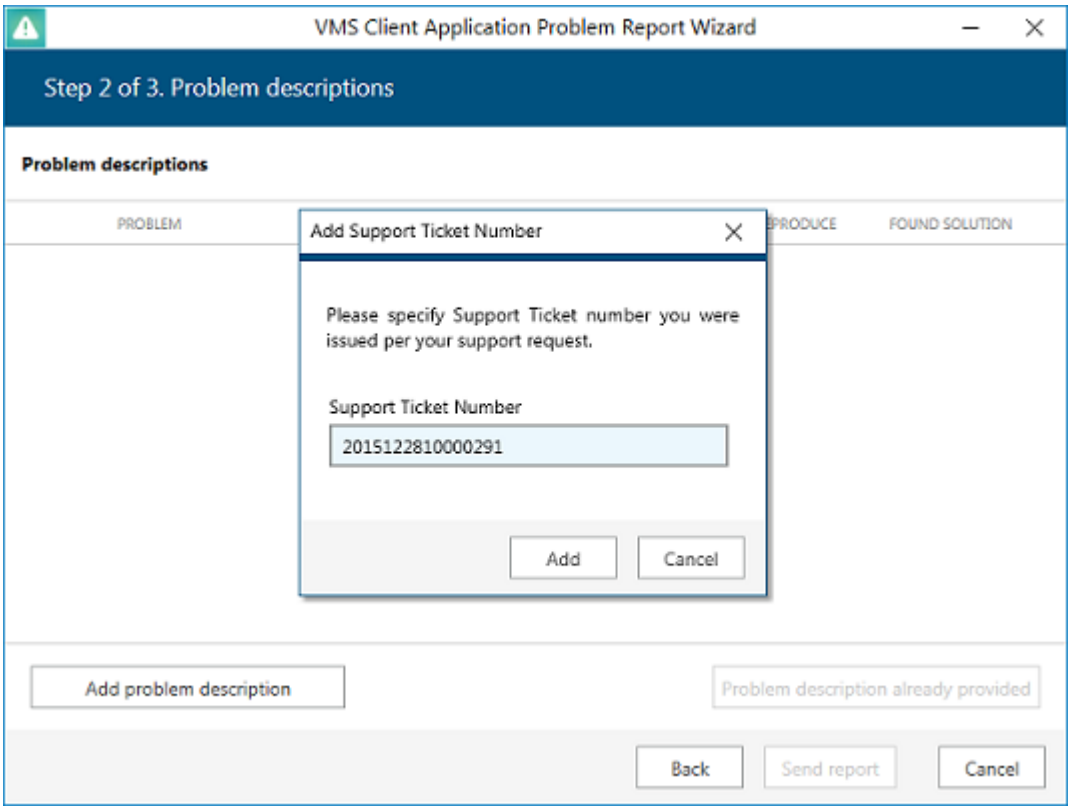


Problem description

If you were asked by support team to generate a problem report, copy the **ticket ID** from the email communication and add it to the report by clicking the *Problem description already provided* button. This will help the support team to classify your report faster, and it will also guarantee that your report will go directly to the team member

©2016. A&H Software House, Inc. All Rights Reserved.

responsible for the thread.

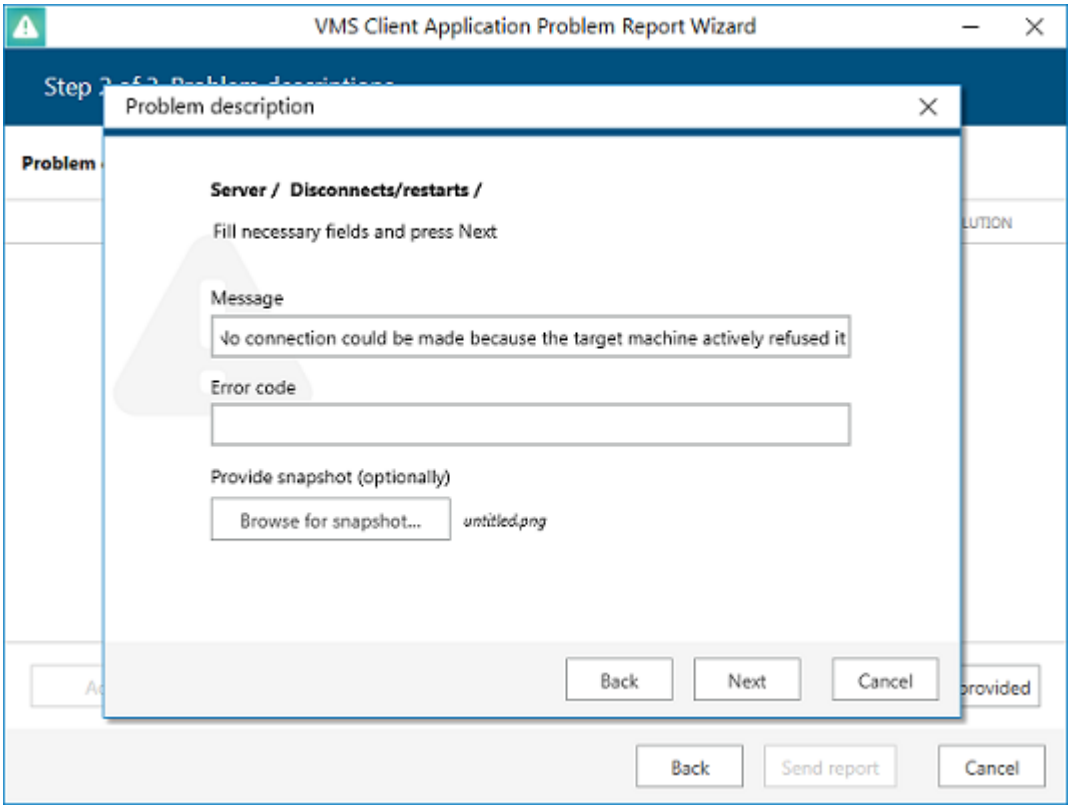


Insert ticket number

If you are applying a new, unreferenced problem report, click the *Add problem description* button.

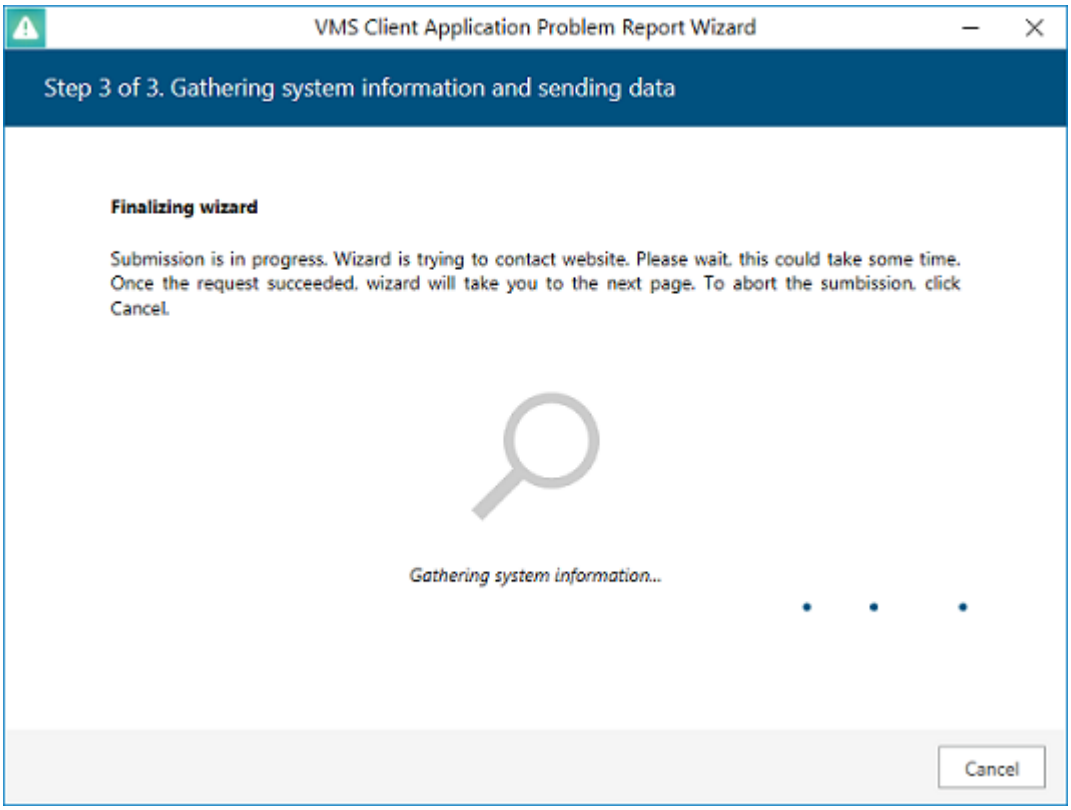
A short comprehensive wizard will guide you through the main issue categories, allowing you to choose the ones that are most applicable to your situation. You will be given the chance to enter error messages/codes, if there are any, and to attach snapshot(s). Make sure you provide the maximum amount of relevant information about the issue you are experiencing; always include **snapshots** if they are available.

©2016. A&H Software House, Inc. All Rights Reserved.



Enter problem classification and relevant details

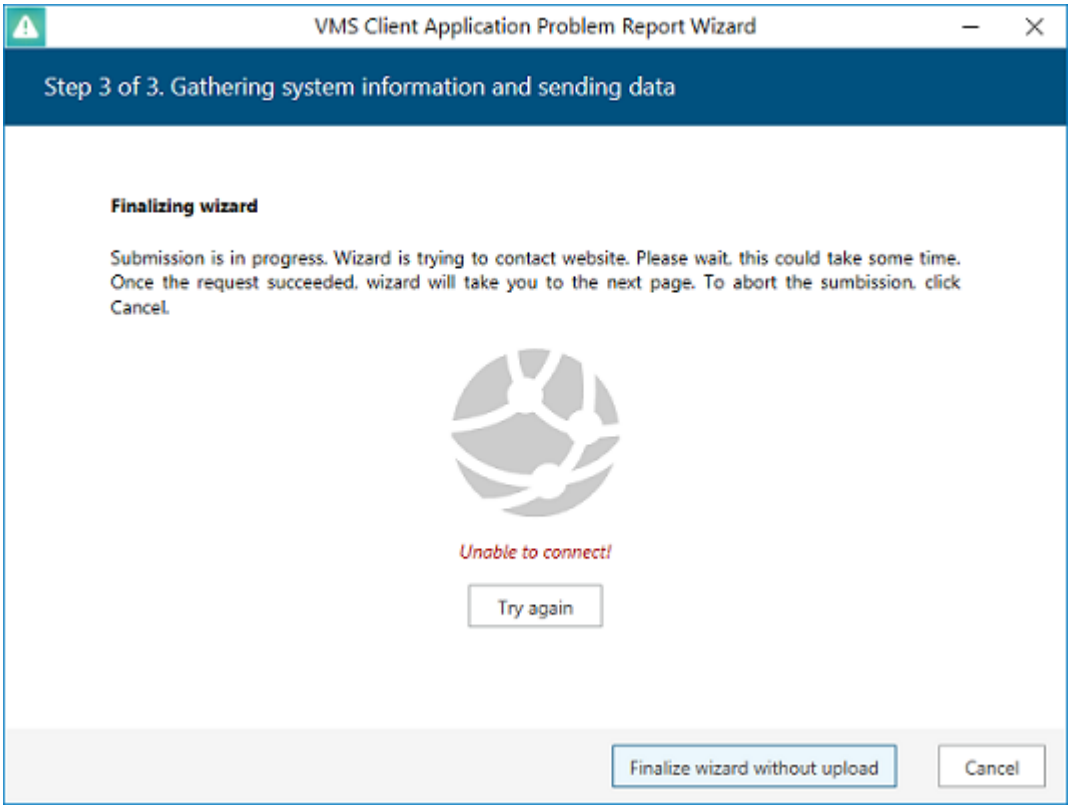
You can add **multiple** descriptions to a single report. When you are ready, press the *Send report* button; the wizard will then try to send the report automatically.



Submitting report

If the server is offline, wizard will not be able to submit the report to Luxriot; instead, you will be invited to save the generated report locally. Press the *Finalise wizard without upload* button to finish.

©2016. A&H Software House, Inc. All Rights Reserved.



Retry report submission or finish the wizard

Click *Save report as file* to save the compressed report on your computer; you are welcome to send it manually from any other computer to support@luxriot.com. Click *Exit* to close the wizard.

©2016. A&H Software House, Inc. All Rights Reserved.