

CBC EUROPE
GANZ CONTROL
Administration
Guide

Wednesday, January 16, 2019

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Ganz CORTROL Administration Guide

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1 Software Purpose and Use Cases

CBC AMERICAS, Corp. 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.

Ganz CORTROL Prime

Ganz CORTROL Prime is a free version of the new-generation CBC AMERICAS, Corp. video management software. Delivering an outstanding quality performance, this video management system supports over 4000 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.

Ganz CORTROL Prime is a free product, and so it not covered by CBC AMERICAS, Corp. technical support services and has a much shorter list of components. Should you need a more comprehensive functional or enterprise-level video management system solution with a complete surveillance ecosystem, we suggest using the more advanced versions of the software – Ganz CORTROL Server and Ganz CORTROL Global.

Ganz CORTROL Server

Ganz CORTROL Server is a new-generation piece of VMS software from CBC AMERICAS, Corp., 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, Ganz CORTROL Server supports over 4000 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 Ganz CORTROL Global version of the software.

Ganz CORTROL Global

Ganz CORTROL 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 CBC AMERICAS, Corp. VMS, whose quality has been proven worldwide over the last decade. The new version of the software, Ganz CORTROL 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 CBC AMERICAS, Corp. flawless technical support, makes Ganz CORTROL Global a video surveillance solution you can count on.

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2 EditionOverview

The table below contains details on all currently available CBC AMERICAS, Corp. video management software editions.

Feel free to contact our sales department at cortrol@cbcamerica.com to get the latest information on prices and software availability in your region.

		Feature list per edition				(v1.2 January 2nd 2017)	
Features		Prime	Premier		Global		
General	Number of simultaneously connected cameras	9	24	48	96	Unlimited	
	Licensing type	Per server			Central server only with camera packs		
	Technical support	Not available	2 years since last available release date				
	Version updates	Free	2 years since license activation date				
	Version update subscription plans	Not applicable	+ 2, +4, +10 years				
	License upgrade option	Available			Through camera packs		
	Archive size/duration	Unlimited (storage limitations apply)					
Server/Console	Clients application connections	1 simultaneous	Unlimited				
	Web application connections						
	Android and iOS application connections						
	Local and Remote configuration management	Per each server			Centralised		
	Local and Remote user management						
	Supported video stream resolutions	FullHD and lower	Unlimited				
	Supported cameras/devices*	> 4000 models					
	Generic Device drivers: ONVIF, RTSP, HTTP	Available					
	Analog PTZ protocols (via RS-232,422,485 ports)	Available					
	32 and 64 bit versions	Both available					
	Video capture board support	Not available	Available				
	E-mail notifications						
	Advanced Events & Actions		Available within each server		Global for all connected servers		
	Recording server autodiscovery	Not applicable			Available		
	Service mode						
	Software watchdog						
	Device autodiscovery						
	Local storage support						
	Remote/network storage support						
	Storage configuration per camera						
	Camera/Device side motion detector support*						
	Camera/Device side VCA event support*						
	Software motion detector support						
	Motion information recording						Available
	Constant Video and Audio recording						
	Video and Audio recording by Motion						
	Recording profiles by Schedules						
	User permissions per each resource/component						
	Device and User grouping						
	User audit						
	System monitoring						
	API for third party integrations						
Configuration backup and restore							
Camera side multicast support							
E-maps	Not available	Available within each server		Centralised			
Recording Server failover support							
Archive replication/backup within multiple servers							
Video Wall support							
Organizations hierarchy support	Not available			Available			
Active directory & LDAP							
Remote upgrade for server, Console and Monitor applications							
Edge recoding support (for ONVIF Profile G devices)							
Support for Digital inputs*	Not available	Available					
Support for Digital outputs*							
Client application multicast support							
Software VCA support (additional license required)							
LPR and FR support							

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	32 and 64 bit versions	Both available			
	Server connections	One at a time	Unlimited		
	Live video streaming	FullHD and lower	Unlimited		
	Live video substream support (please refer link)				
	Number of supported displays	Unlimited			
Client	Instant playback	Available			
	Archive forward and backward playback				
	Playback speed controls: regular, slow and fast				
	Archive sequence explorer				
	Archive smart search				
	Build-in and custom layouts				
	Layout management				
	Layout sequences				
	PTZ, Iris and focus control				
	PTZ presets				
	PTZ tours				
	Digital PTZ				
	Fisheye and Panomorph dewarping				
	Motion detection status and overlay				
	Multiscreen setup				
	Alerts				
	Export Snapshot from live view and archive				
	Video export from archive				
	Export Library				
	Operation modes:Always on top, Exclusivity and Locked				
	Advanced Information about live video stream				
	Video maintain aspect ratio mode				
	USB Joystick Support				
	Archive Bookmarks				
	User buttons			Not available	Available
	Shared Layouts				
E-maps					
LPR and FR data support					
	Server connections	One at a time	Unlimited		
Mobile and Web	H.264 streaming to Web and Mobile applications	Available			
	Live video substream support (please refer link)				
	Up to 6 cameras per single live view for Mobile apps.				
	Up to 4 cameras per single live view for Web application				
	Hardware GPU utilization for Mobile application				
	Custom view layouts				
	Two-way audio support				
	PTZ control				
	PTZ presets				
	Archive playback				
	Save snapshots				
	Google Chromecast support				
	Video & audio streaming from mobile devices				

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Ganz CORTROL Prime

Free software version allows a limited number of channels at maximum picture resolution of 1080p. Client application - Ganz CORTROL Client - can only be connected to a single Ganz CORTROL Prime server, and streaming server (Web/mobile access), which is an integral part of the server, is limited to one connection at a time.

Advanced features like centralised server management, events & actions, external components (LPR, LFR, VCA), maps etc. are not supported for free software edition; technical support is not guaranteed.

Free version upgrade is offered for Ganz CORTROL Prime.

Ganz CORTROL Server

Ganz CORTROL Server is, alike Ganz CORTROL Prime, a single server installation with no imposed limitation on stream resolution; number of allowed cameras varies depending on the server license type: 24, 48, and 96 channel editions are available. Also, there are no restrictions for remote connection amount from Ganz CORTROL Client applications and Web/mobile clients.

CBC AMERICAS, Corp. LPR, VCA, face recognition (FR), as well as map and event/action modules are supported locally.

Free software updates are offered for 2 years since last license activation date; technical support is provided for 2 years since last version installation, making it a maximum of 4 years of support for non-renewed license. In order to obtain further updates and support, a license subscription upgrade should be acquired.

Ganz CORTROL Global

Ganz CORTROL Global edition presents a full-scale CCTV solution with centralised management and advanced enterprise features. Vast number of servers can be merged into a single surveillance system, offering transparent configuration for physically separated servers.

Unlike previous two editions, Ganz CORTROL Global solution is licensed per channel, with no theoretical limitation for total amount of cameras distributed between multiple servers.

All external modules are available via centralised management, and events/actions are shared between servers.

Free software updates are offered for 2 years since last license activation date; technical support is provided for 2 years since last version installation, making it a maximum of 4 years of support for non-renewed license. In order to obtain further updates and support, a license subscription upgrade should be acquired.

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3 Hardware Requirements

The table below details the minimum recommended hardware sets for CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp. representatives if you require help with choosing hardware.

HARDWARE RECOMMENDATION TABLE					
Installation specifications			Recommended hardware per usage scenario.		
Video Stream	Number of cameras	Motion Detector	Server only	Monitor*** only	Server + Monitor***
D1 30fps	Up to 9	None or camera-side*	CPU: Intel G1840; RAM 4GB	CPU: Intel G4500; R a.m. 4GB	CPU: Intel i3-6300; RAM 8GB
		Software HP**			
		Software HA**	CPU: Intel i5-6600; RAM 8GB		
	Up to 16	None or camera-side*		CPU: Intel G4500; RAM 4GB	CPU: Intel i3-6300; RAM 4GB
		Software HP**			
		Software HA**	CPU: Intel i3-6300; RAM 8GB		
FullHD 30fps	Up to 9	None or camera-side*	CPU: Intel G1840; RAM 4GB	CPU: Intel i5-6600; RAM 8GB	CPU: Intel i7-6700; RAM 8GB
		Software HP**	CPU: Intel G4500; RAM 4GB		
		Software HA**	CPU: Intel i5-6600; RAM 8GB		
	Up to 16	None or camera-side*	CPU: Intel G4500; RAM 4GB	CPU: Intel i7-6700; RAM 8GB	CPU: Intel i7-6700; RAM 16GB
		Software HP**	CPU: Intel i3-6300; RAM 8GB		
		Software HA**	CPU: Intel i7-6700; RAM 8GB		

Notes:

- DDR4 RAM is strongly recommended
- *Please refer to the list of CBC AMERICAS, Corp. 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

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4 Prerequisites

There are a number of requirements for the Ganz CORTROL 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 (4.6) installed
- all Windows updates should be installed (especially, this is critical for Windows 8 and newer editions and for pending updates)
- ports for remote connections should be enabled through the firewalls (default ports are 60554 for Ganz CORTROL Client and Ganz CORTROL Console and 8080 for the Ganz CORTROL Streaming Server and external services)
- installation and recording directories should be added to antivirus exception list so that they are not scanned or interfered with in any other manner
- indexing and defragmentation services must be disabled for the storage locations
- for software analytics requirements, see the corresponding section of the VCA manual (provided as a separate document)
- for Ganz CORTROL Client application, DirectX 10+ is required along with the latest stable graphics card drivers

For recording, the following recommendations apply:

- for 48+ channels and/or >20MB/s total recorded stream, RAID 5/6/10 with high speed hardware controller is strongly advisable
- defragmentation and indexing must be disabled for all storages
- every recording location, regardless of its type, must have 10-15% of free space, not used by Ganz CORTROL or any other software
- recording to the system disk is strongly not recommended
- antivirus software or any other scanners should be disabled for the storage locations
- no third-party VMS should be recording to the same location as Ganz CORTROL



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



Antivirus **scanning**, **defragmentation** and **indexing** being enabled for Ganz CORTROL files may result in dramatically decreased write speed, recording disturbances and, occasionally, database corruption. We strongly recommend that you make sure that storage locations are not affected by these processes.




CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp.).


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5 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


 We strongly advise that you keep the software versions (e.g., 1.x.x) and subversions (e.g., 1.2.x) across your system match exactly. Software build numbers (e.g., 1.2.0.xxxxx) may differ slightly in case your are using 64-bit and 32-bit editions.

 If you are not sure about what server hardware to choose, do not hesitate to use CBC AMERICAS, Corp. provided hardware calculators and/or contact CBC AMERICAS, Corp. 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.

Ganz CORTROL 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 CBC AMERICAS, Corp. product for the first time, we strongly advise you to carefully read and follow the instructions in this manual and related documentation.

 CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp.).

6 License Activation

Once you have installed the software and entered the server initialisation settings, the activation wizard will appear. In order to use the product, a valid license is required - whether this is a free, a trial 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 finalise 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.



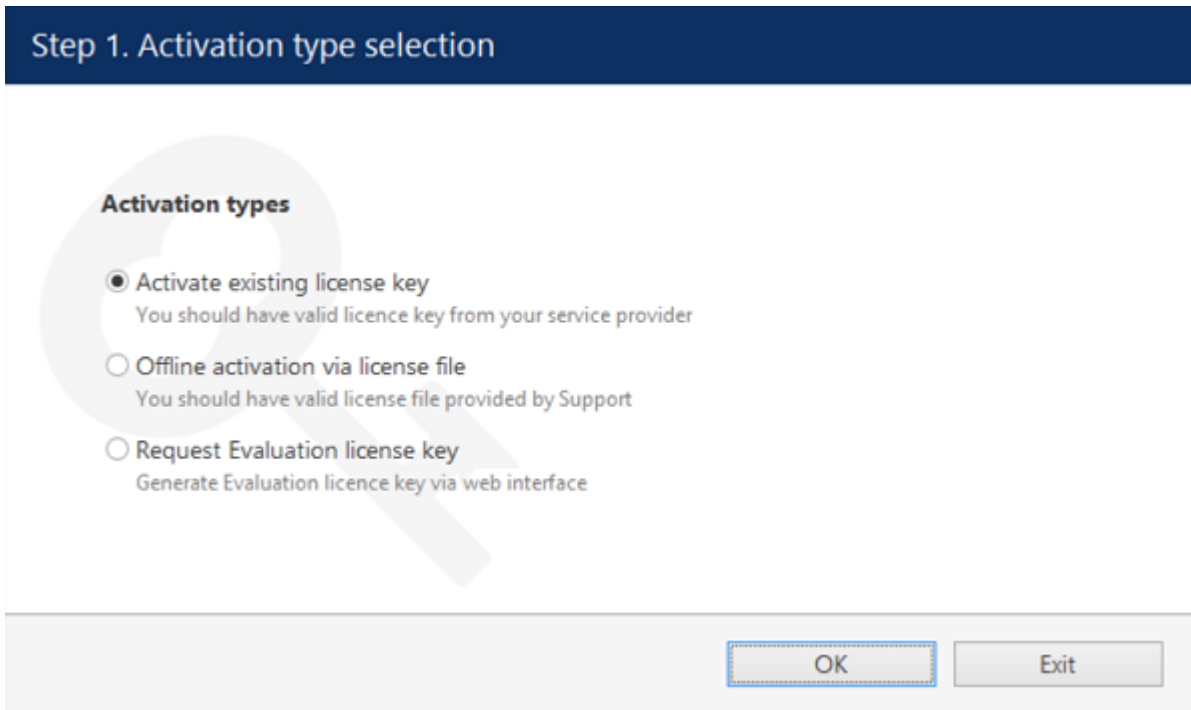
Licensing is mandatory for Ganz CORTROL Server and Ganz CORTROL Global software packages. Ganz CORTROL Recorder does not require a license as it is not an independent component but rather operates under a Ganz CORTROL Global server only.



Activation is not possible on virtual machines!

7 Online Activation

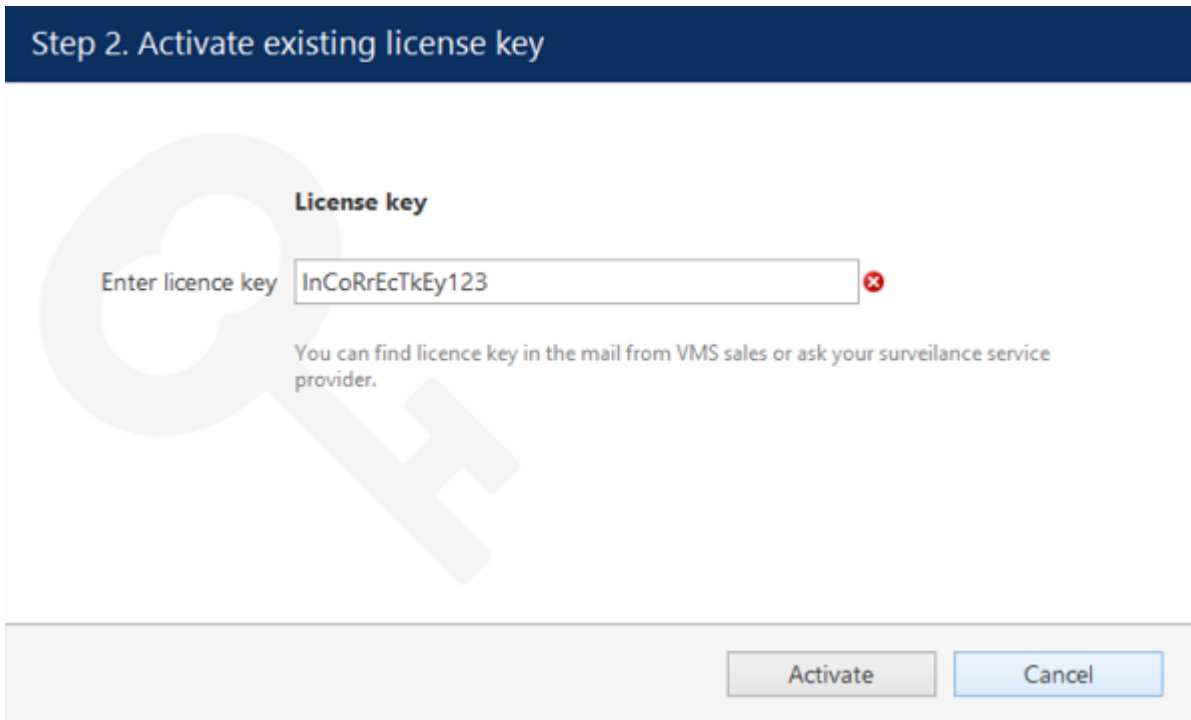
If your server has Internet connection available, you can choose online activation mode. The software will automatically connect to the activation server and register your pre-purchased license.



The screenshot shows a dialog box titled "Step 1. Activation type selection". Under the heading "Activation types", there are three radio button options: "Activate existing license key" (selected), "Offline activation via license file", and "Request Evaluation license key". Each option has a brief description below it. At the bottom right, there are "OK" and "Exit" buttons.

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.



The screenshot shows a dialog box titled "Step 2. Activate existing license key". It features a text input field labeled "Enter licence key" containing the text "InCoRrEcTkEy123". A red 'X' icon is positioned to the right of the input field, indicating an error. Below the input field, there is a note: "You can find licence key in the mail from VMS sales or ask your surveillance service provider." At the bottom right, there are "Activate" and "Cancel" buttons.

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

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different activation option, click *Cancel* to return to the activation type selection step.

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8 Offline Activation

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

Step 1. Activation type selection

Activation types

Activate existing license key
You should have valid licence key from your service provider

Offline activation via license file
You should have valid license file provided by Support

Request Evaluation license key
Generate Evaluation licence key via web interface

OK Exit

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://ganzsecurity.com/control> and fill in the form
- apply provided license file to your system

Step 2. Activate existing license

License file

System activation file

Fill activation form online
upload generated file and get signed license file.

Specify license file

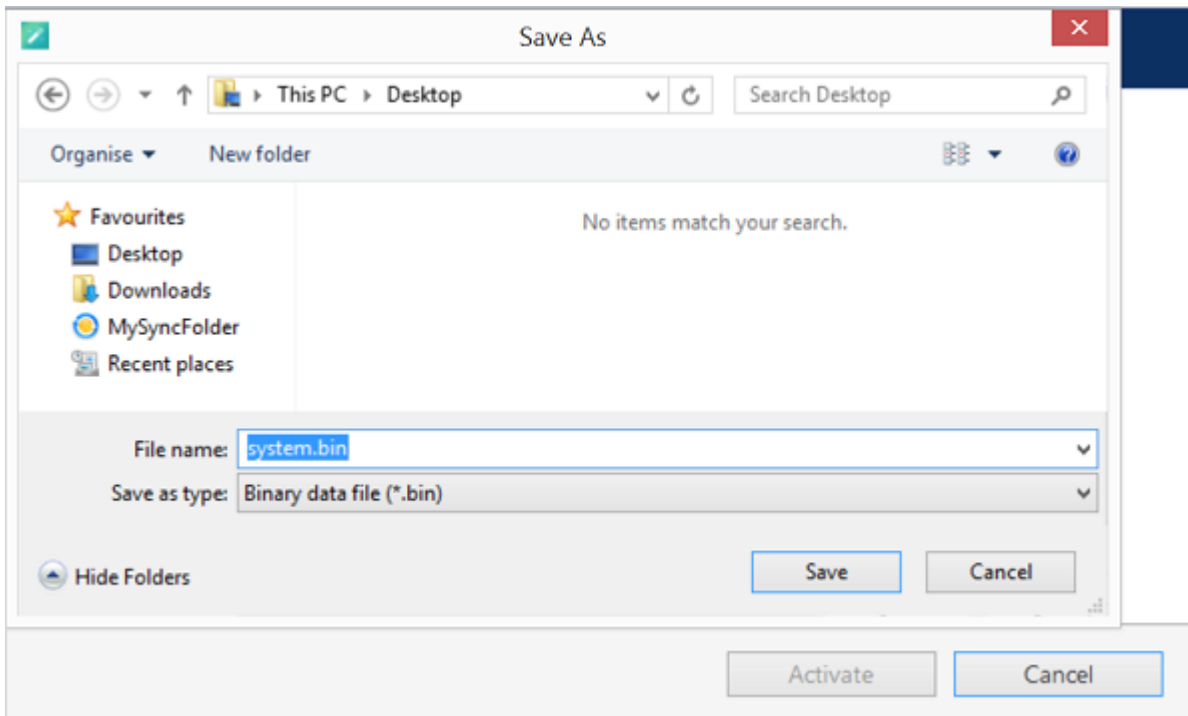
Locate signed license file to finish activation

Activate Cancel

Offline Activation Steps

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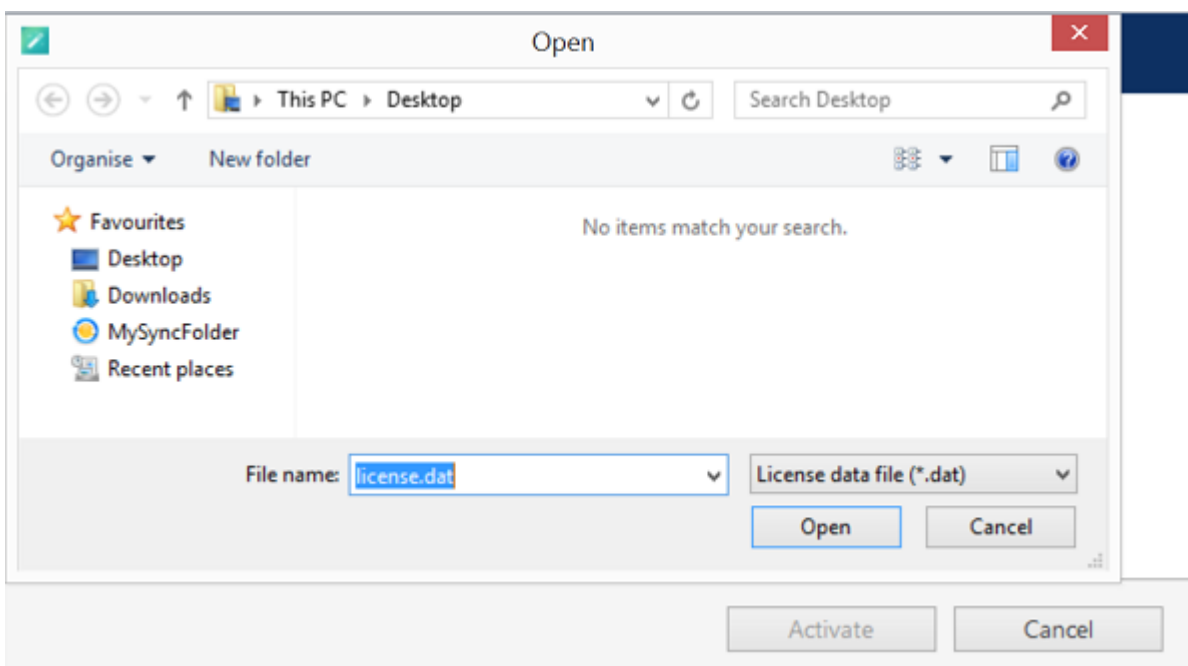
Click *Generate* to create the activation file; choose a location and save it. The default file name is *system.bin* and we do not recommend changing it.



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://ganzsecurity.com/cortrol>, 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.



Browse for License File

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

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Step 2. Activate existing license

License file

System activaton file

Fill activation form online
upload generated file and get signed license file.

Specify license file license.dat

Locate signed license file to finish activation

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:

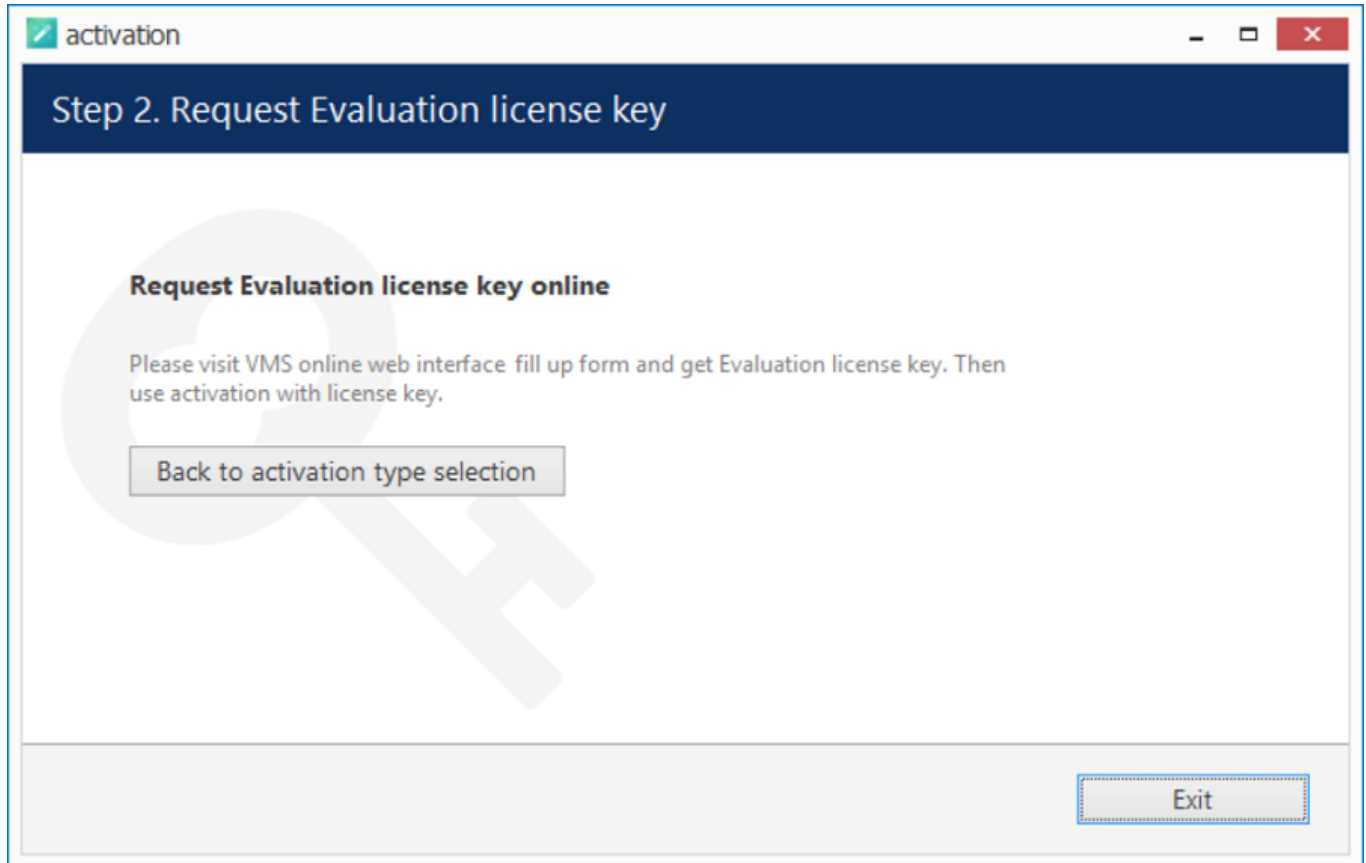
- product type
- license key
- license key expiration date, if applicable
- support subscription expiration date
- allowed channel amount

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.

9 Evaluation License

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



Get Evaluation License Key


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10 Free License

When you have installed and initialised the Ganz CORTROL Server 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:

- free software updates
- maximum 16 cameras
- of these 16 channels, a maximum of 8 can be non-CBC AMERICAS, Corp.
- maximum 1 (one) connected Ganz CORTROL Client at a time
- Ganz CORTROL Client can connect to maximum 1 (one) server with free license

 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*.



Free license request form

The wizard will automatically connect to CBC AMERICAS, Corp. 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 Ganz CORTROL Server. Click *Start Quick Setup Wizard* button below to continue with server configuration.

11 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 -> CBC AMERICAS, Corp. -> 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.

Step 1. Manage license

Your license: Global

License details:

Key:

Expiry date: never

Subscription valid until: 1/25/2018

Channels supported: up to 100

Upgrade current license

Upgrade product using same license key

Upgrade current license via license file

Upgrade product using activation file

Remove license

OK

Cancel

Choose an option in order to proceed

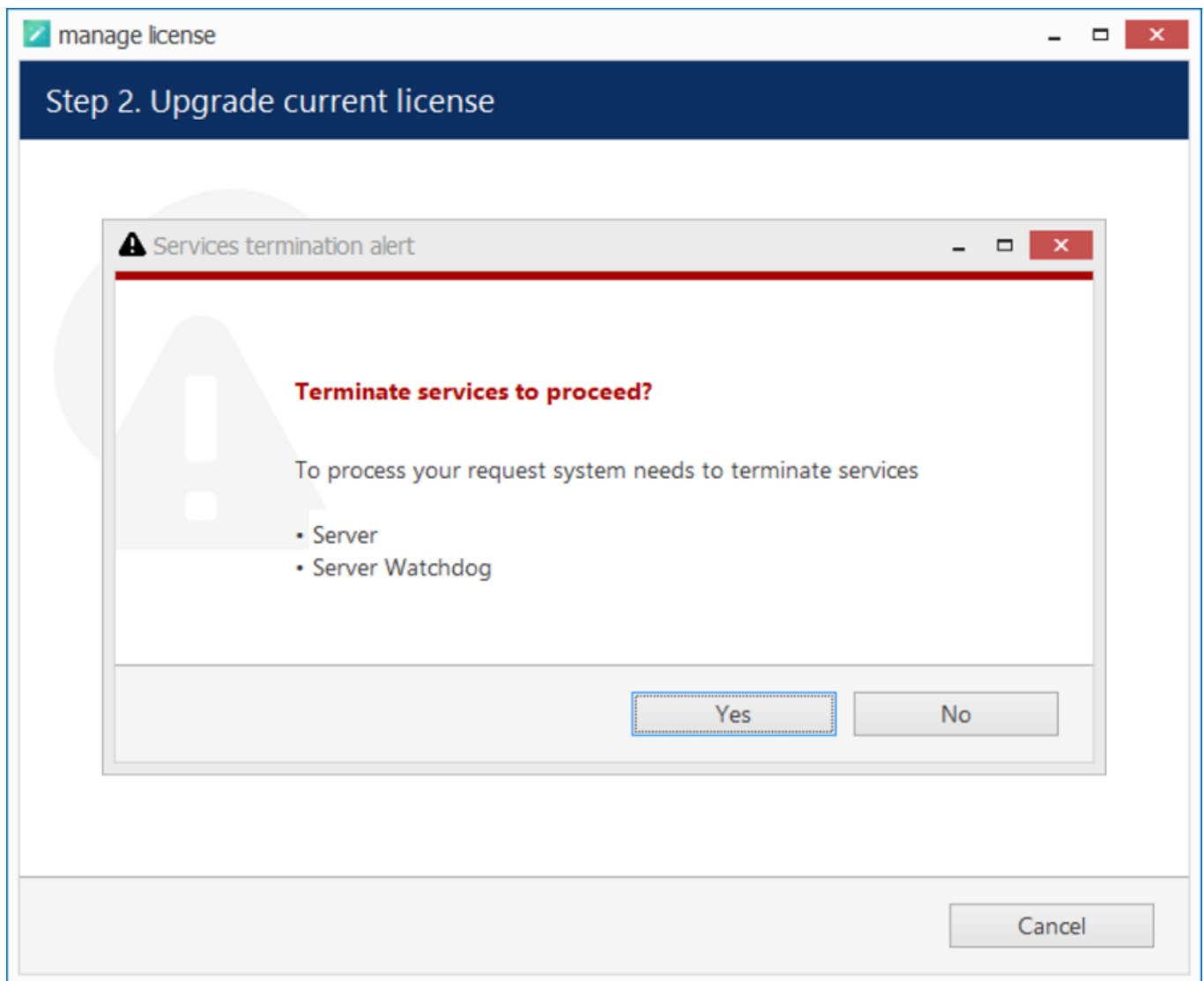
The wizard will display a summary about the currently installed license key and show the available management options.

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.

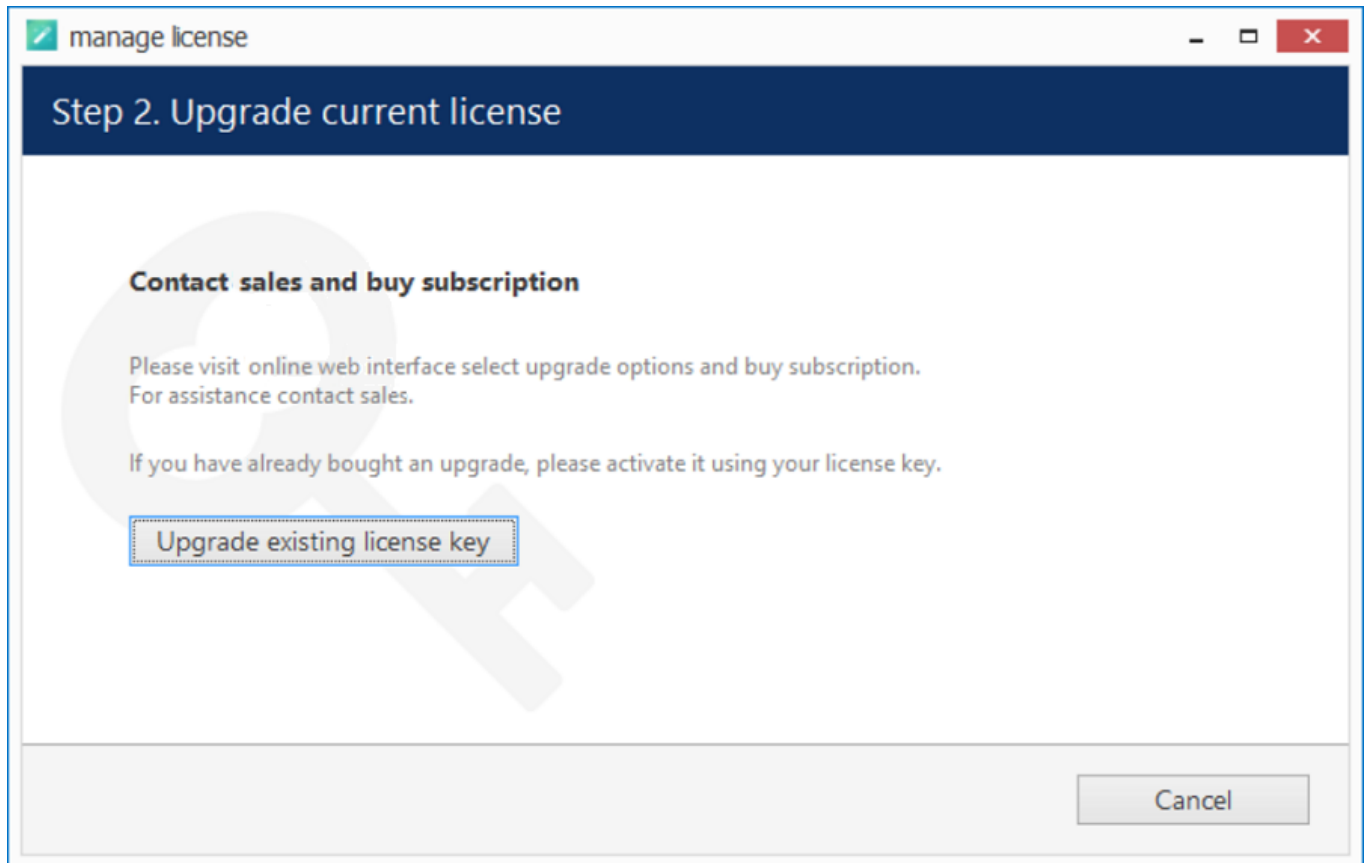
For upgrade acquisition details and assistance, please contact cortrol@cbcamerica.com.

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

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License upgrade option

After acquiring the upgrade from CBC AMERICAS, Corp., 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.

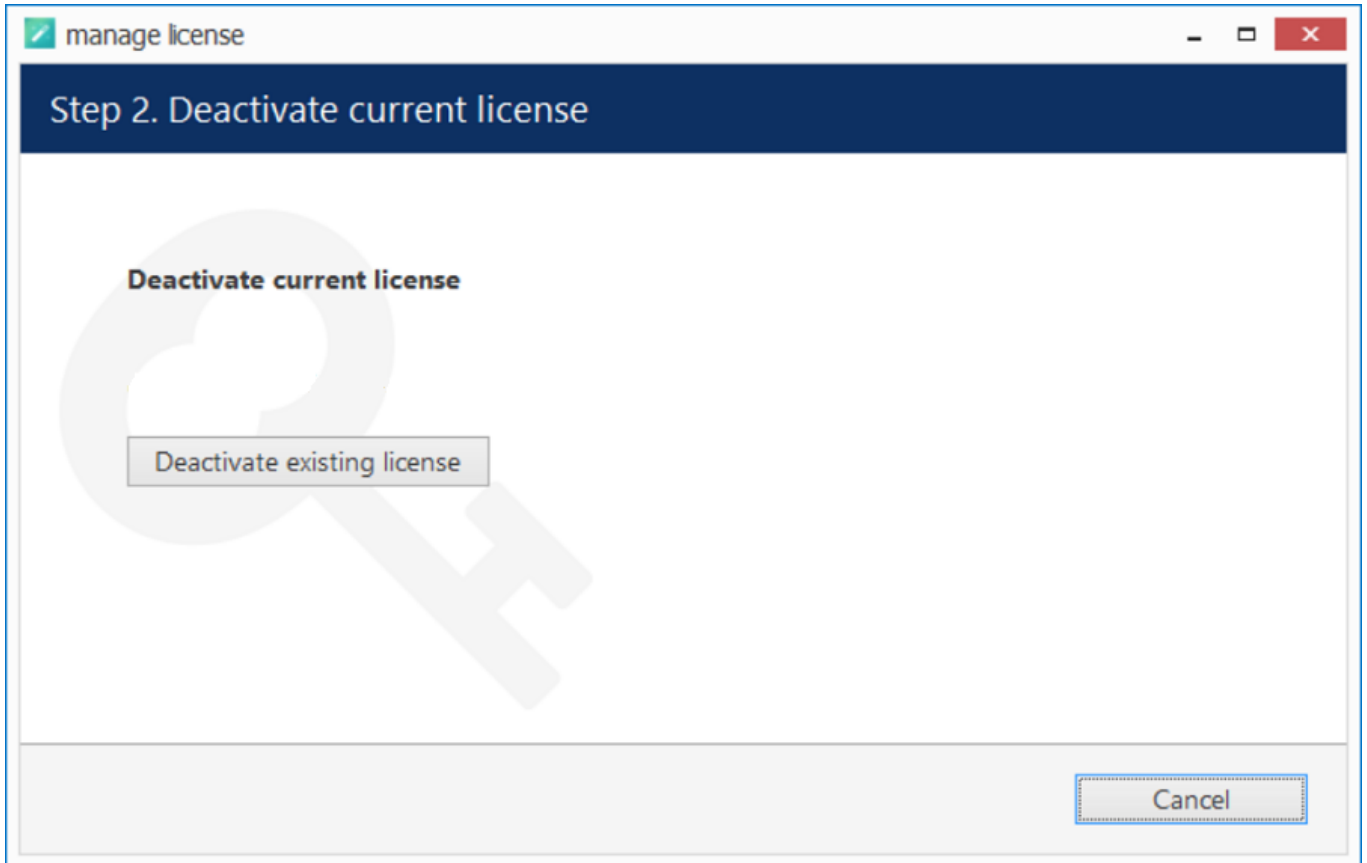
- generate activation file on the target server
- go to the online activation system at <http://ganzsecurity.com/cortrol> and fill in the form
- apply provided license file to your system

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

Remove license

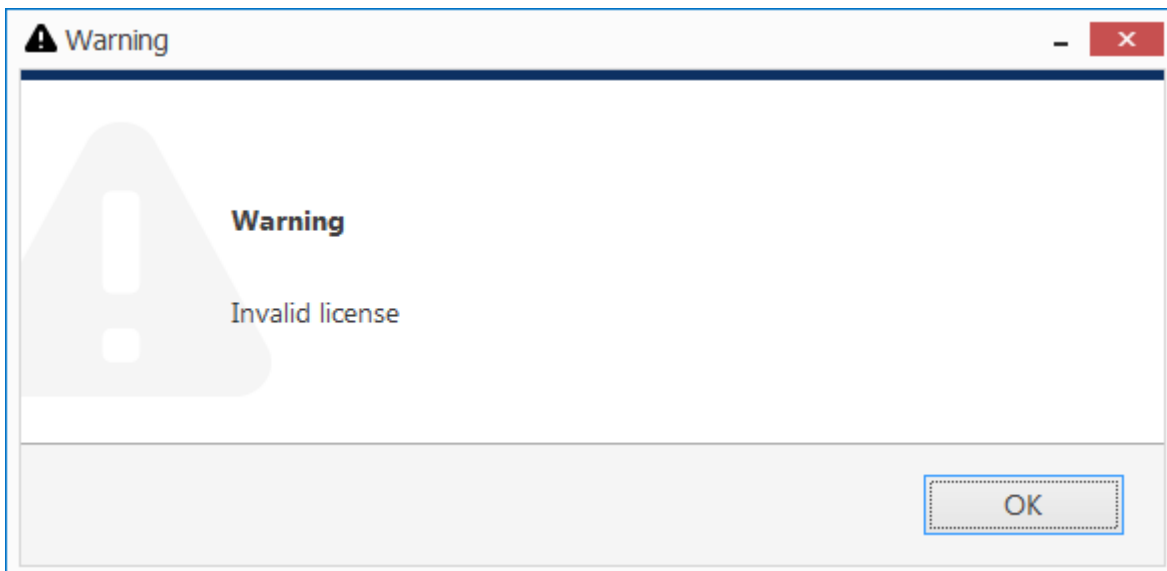
Select *Remove License* if you wish to completely delete all the license information from the server.

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Deactivate license

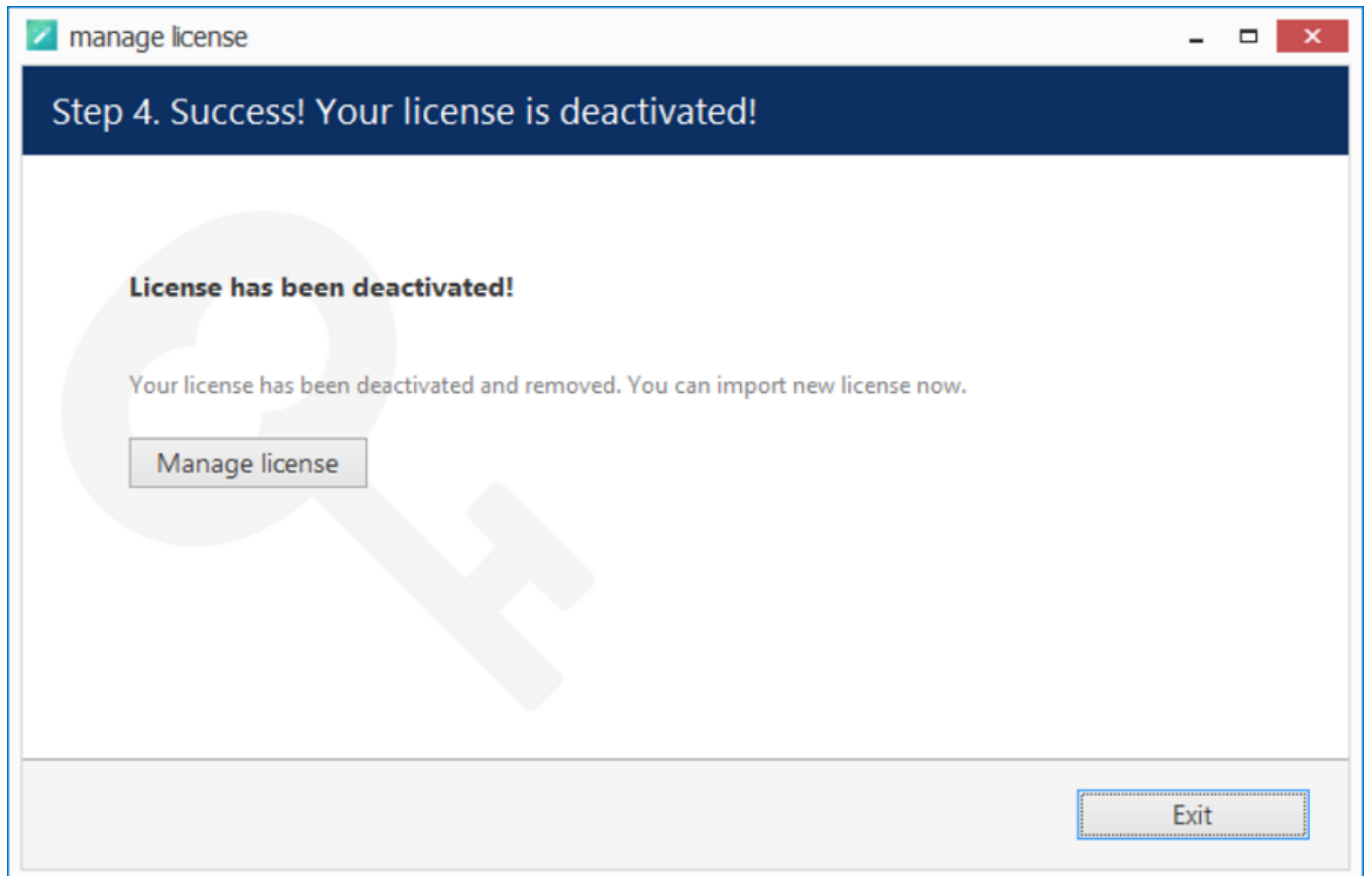
Click *Deactivate Existing License* to confirm deletion of the currently installed license. Note that you will be unable to log into Ganz CORTROL Console to access your current server configuration without a valid license of the same type; Ganz CORTROL Client applications will also not connect to such 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 Ganz CORTROL 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 CBC AMERICAS, Corp. technical support.

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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.

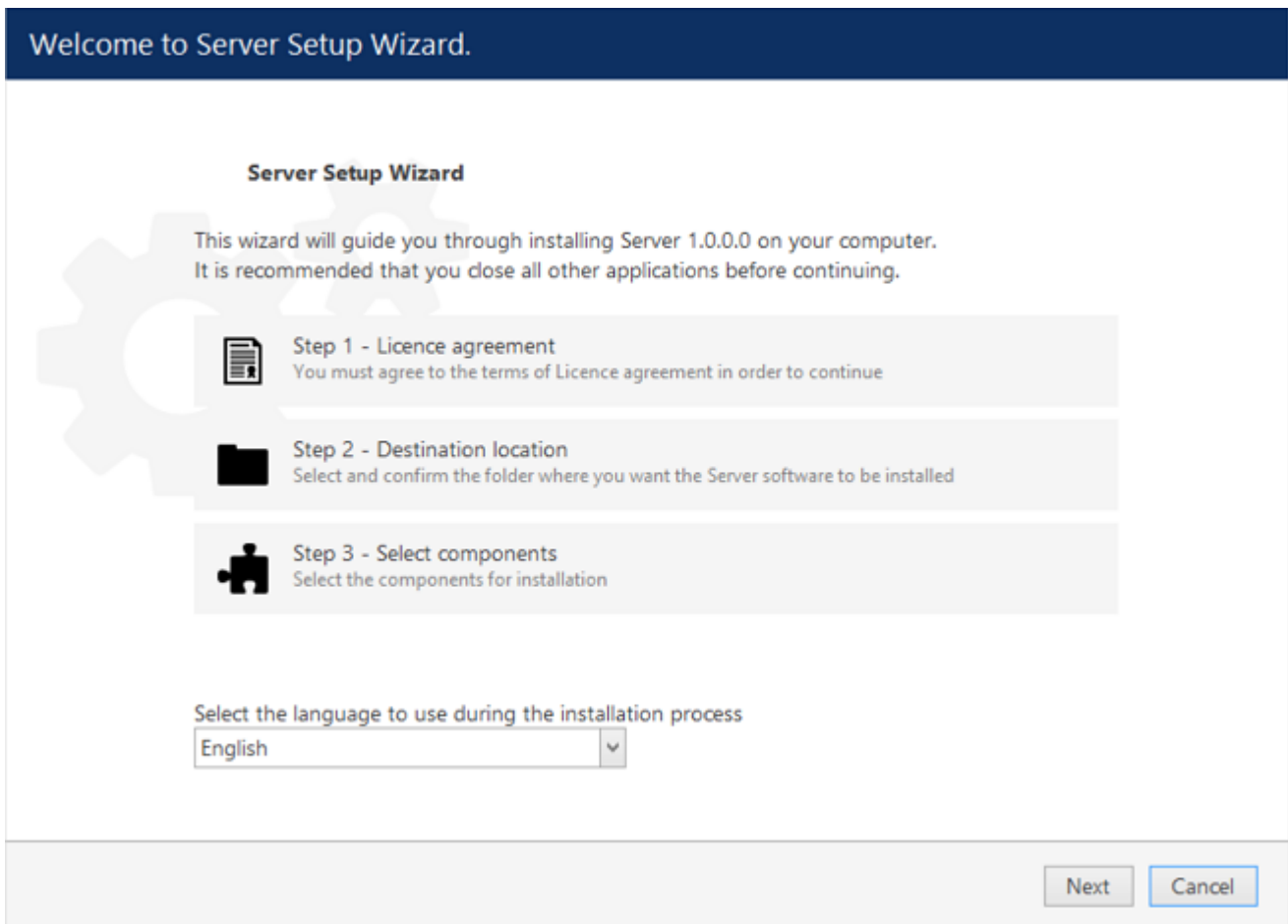
Ganz CORTROL Administration Guide

12 Installation of Ganz CORTROL Server

Start the installation process by double-clicking on the Ganz CORTROL Server 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 Ganz CORTROL Server interface language later.



Ganz CORTROL Server Setup Wizard

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Step 1

Carefully read the CBC AMERICAS, Corp. 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 control@cbcamerica.com.

Step 1 of 3 - Licence agreement

Server Licence Agreement

Please read the following Licence agreement. You must accept the terms of this agreement before you can continue with the installation.

misconfiguration, hardware failure, hardware connect, software connect, user data misconfiguration, and/or data loss.

You expressly assume the entire risk and cost associated with the Software, including risk resulting from Maintenance services (whether performed in whole, in part, or not at all), or from any virus, downloaded material, harmful component, or through any Internet use of the Software or any site or server through which the Software is available. You are solely responsible for any damage that results from or is associated with use of the Software. The Disclaiming Parties shall not be liable in any manner whatsoever for the results obtained through use of the Software. Persons using the Software are responsible for the supervision, management, and control of the Software, including determination of the

I accept the terms of the agreement

Previous

Next

Cancel

License Agreement

Ganz CORTROL Administration Guide

Step 2

Select the destination folder you want the software to be installed in. By default, Ganz CORTROL Server is installed in:

32-bit: *C:\Program Files (x86)\CBC AMERICAS, Corp.\Ganz CORTROL Server*

64-bit: *C:\Program Files\CBC AMERICAS, Corp.\Ganz CORTROL Server*

If you are re-installing Ganz CORTROL Server and previously selected a non-default location, make sure to select the same destination directory, or, alternatively, completely uninstall previous Ganz CORTROL Server version. If unsure about this, ask for CBC AMERICAS, Corp. technical support team assistance. A full description of the software upgrade procedure is available in the corresponding section of the Ganz CORTROL administration manual.

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.

Step 2 of 3 - Destination location

Select and confirm the folder where you want the VMS Server software to be installed

Where do you want Server to be installed?

Setup will install Server in the following folder. Click browse to select a different folder.

C:\Program Files (x86)\Server

Installation requires at least 423.33 MB of disk space.

Installation Directory

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Step 3

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

If not chosen at this stage, Ganz CONTROL Client can be installed separately later.

Step 3 of 3 - Select components

Specify which components to install

Configure the components of the installation package:

- Server Server Service (390.90 MB)
- Server Management Application (3.82 MB)
- Server Client Application (1.39 MB)

Select the language to use in the user interface

English

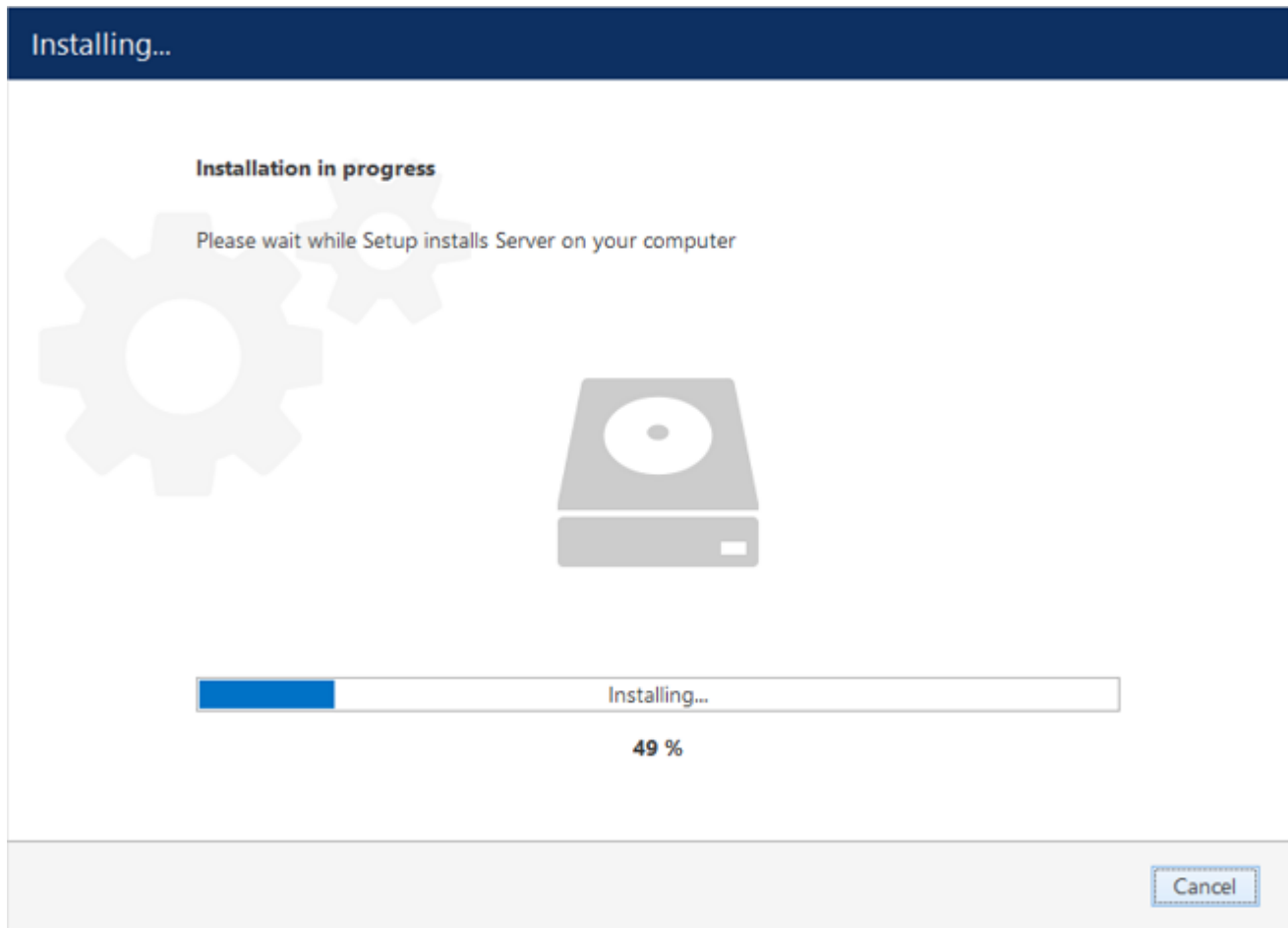
At least 424.72 MB of free space is required.

Previous Next Cancel

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.

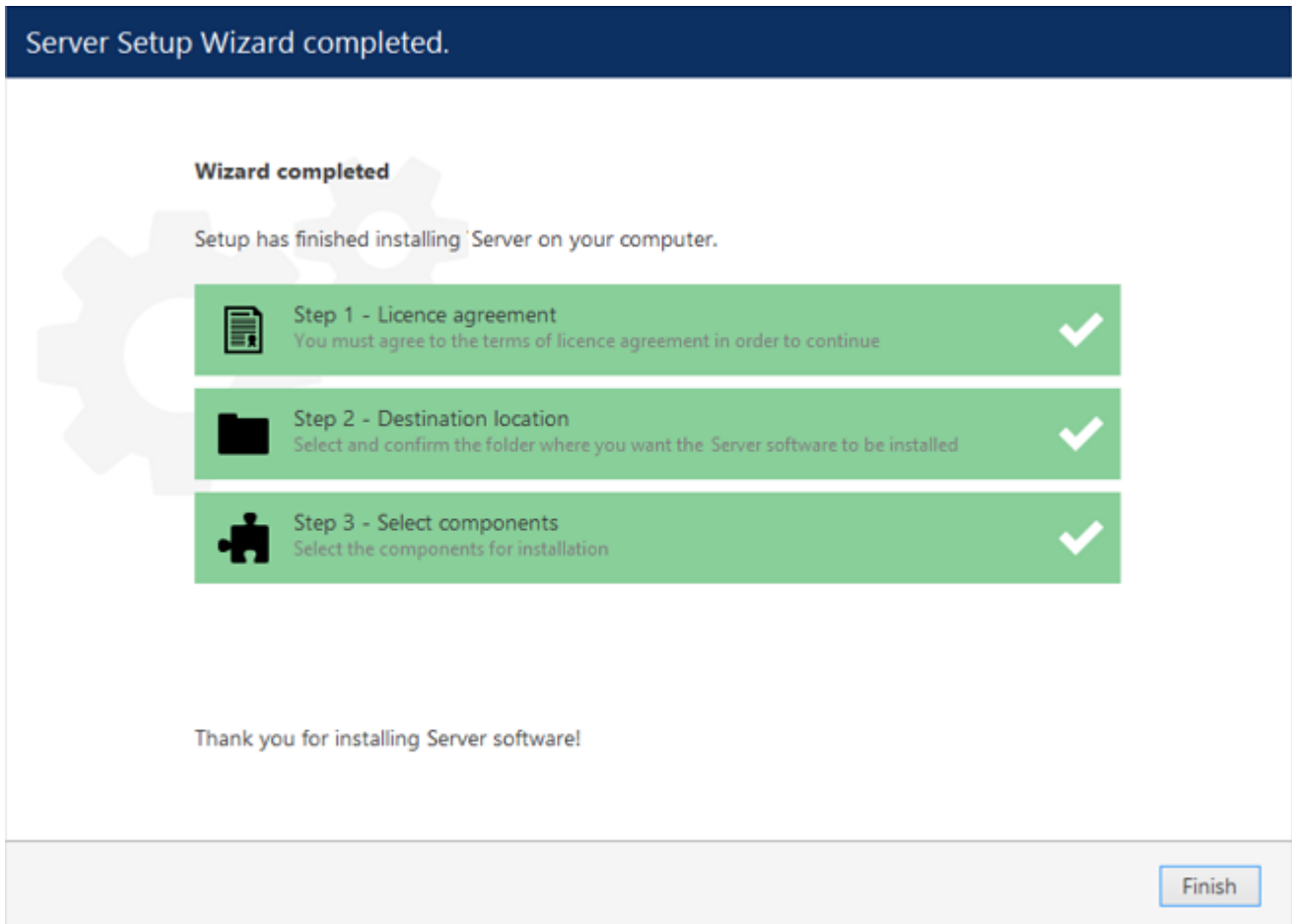
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Installation Progress

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.

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Installation Complete

After the installation has been completed, there are a few more steps necessary for you to begin using the software:

- apply server initialisation settings via *Server Setup Wizard* - it will pop up automatically after the installation in case you are doing a clean or a new installation
- activate the software - if it is not activated, the wizard will also pop up automatically
- after you run the console for the first time, you will be offered to complete the *Setup Wizard* to start the deployment, following the recommended configuration steps

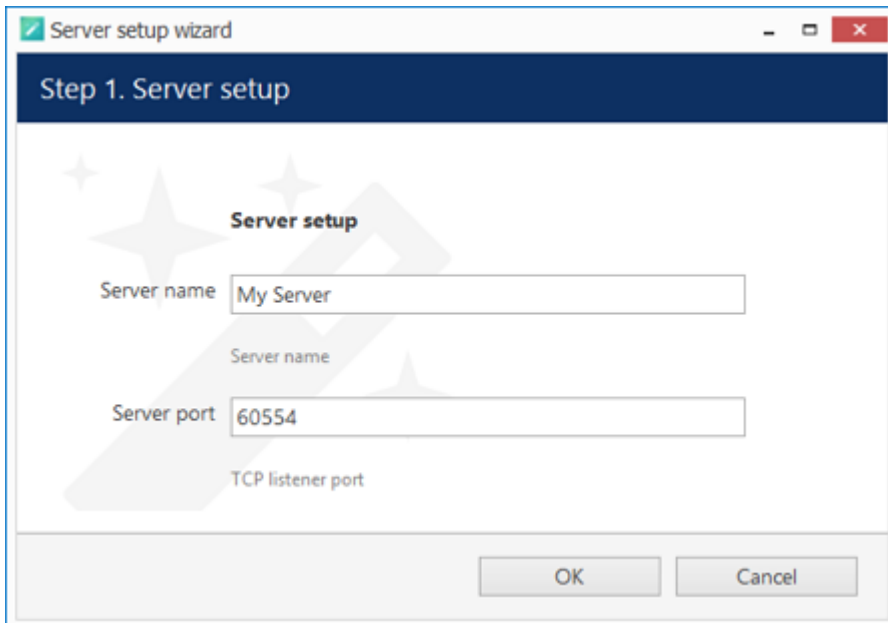
All of these steps are described in details in the full version of the Ganz CORTROL management manual, which is available right after the installation via your Start menu.

13 Initialisation and Remote Upgrade

Initialisation of Ganz CORTROL Server Server

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 via Server Setup Wizard, which will be available via your Start menu.

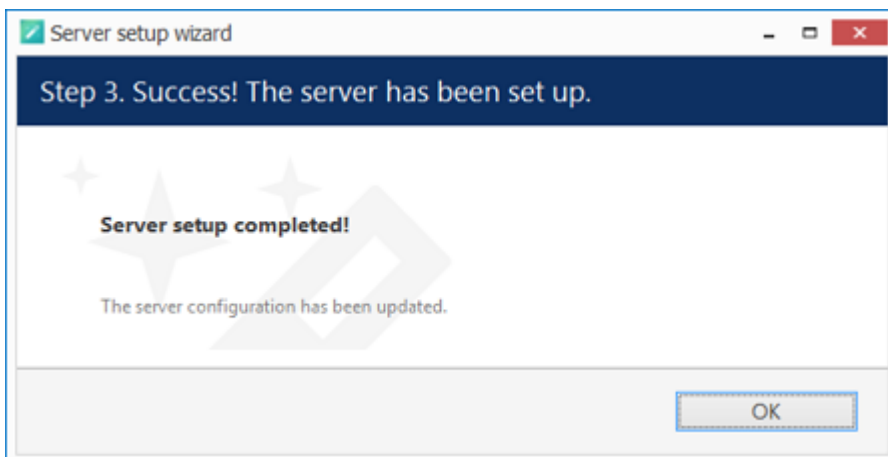
This step is **mandatory**; you will be unable to connect to your server and configure it if it has not been initialised. It is necessary to initialise the server even if you are planning to restore its configuration using the [Server Backup and Restore Wizard](#) later.



Choose Server Title and TCP port

Setting	Description	Default Value
Server name	User defined server title	<i>Server Title</i> or last used title
Server port	TCP port for the incoming remote Ganz CORTROL Client connections	60554

Note that the port defined here will be used to retrieve the server data via local Ganz CORTROL Client and Ganz CORTROL Console connections. You will need to define the external (Internet) port for your Ganz CORTROL Server via Ganz CORTROL Console in order to be able to receive video streams from remote Ganz CORTROL Client connections.



Setup Completed

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Remote Upgrade

Starting from software version 1.10.0, it is possible to apply remote upgrade to Ganz CORTROL Console and Ganz CORTROL Client components from the Ganz CORTROL Server server. This feature allows you to deploy remote client machines once and then easily handle the upgrades from any place, keeping the whole system up to date with little effort.

Once you have upgraded the Ganz CORTROL Server server to a newer version, you can then put the installation packages of the same version onto the Ganz CORTROL Server server computer. The idea is that you first define the location of the executable files and then remote Ganz CORTROL Client and Ganz CORTROL Console applications receive an update notification. The locations must be on the Ganz CORTROL Server server machine, even if you are accessing the server from a remote Ganz CORTROL Console. The installation itself is initiated from the remote client side.

To access the remote upgrade feature, open your Ganz CORTROL Console application, click the main application menu button in the upper-right-hand corner and choose the *System upgrade* option. The *System upgrade* dialog box will appear.

The screenshot shows a 'System upgrade' dialog box. The title bar reads 'System upgrade'. On the left, there is a sidebar with 'System upgrade' and 'File locations'. The main content area is titled 'Installation packages' and features an 'Edit' button. Below this, there are four rows, each representing a different component: 'Console 32', 'Console 64', 'Monitor 32', and 'Monitor 64'. Each row contains a text input field for specifying the file path, with the text 'No file selected' displayed below each field. An 'OK' button is located at the bottom right of the dialog.

Specify files for the remote upgrade

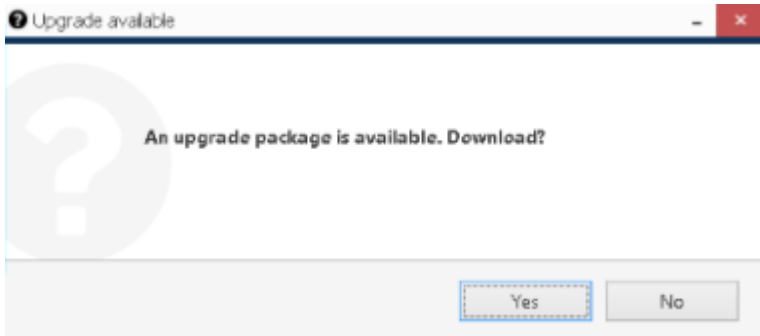
Here, you have four entries - for 32- and 64-bit editions of Ganz CORTROL Console and Ganz CORTROL Client applications. These installation files can be downloaded from <http://ganzsecurity.com/cortrol>. Specify the path to each file and click *OK* to save.

⚠ Do not use beta versions of the installation files on production servers.

Now, if a remote Ganz CORTROL Console or Ganz CORTROL Client application of an older version is used to connect to this server, it will receive a notification about the available upgrade. The notifications can be disabled in the application settings.

So, if Ganz CORTROL Console or Ganz CORTROL Client detects that an upgrade is available, it will offer you to download it straight away. If your network connection allows it, click *OK* to agree and download the upgrade package.

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Ganz CORTROL Console application offering an upgrade on startup

The upgrade package will be downloaded using your default Web browser and saved on your local computer. You can start its installation at any time, provided that your Windows user has enough privileges to run the installation. After the installation, just start the application as usual.

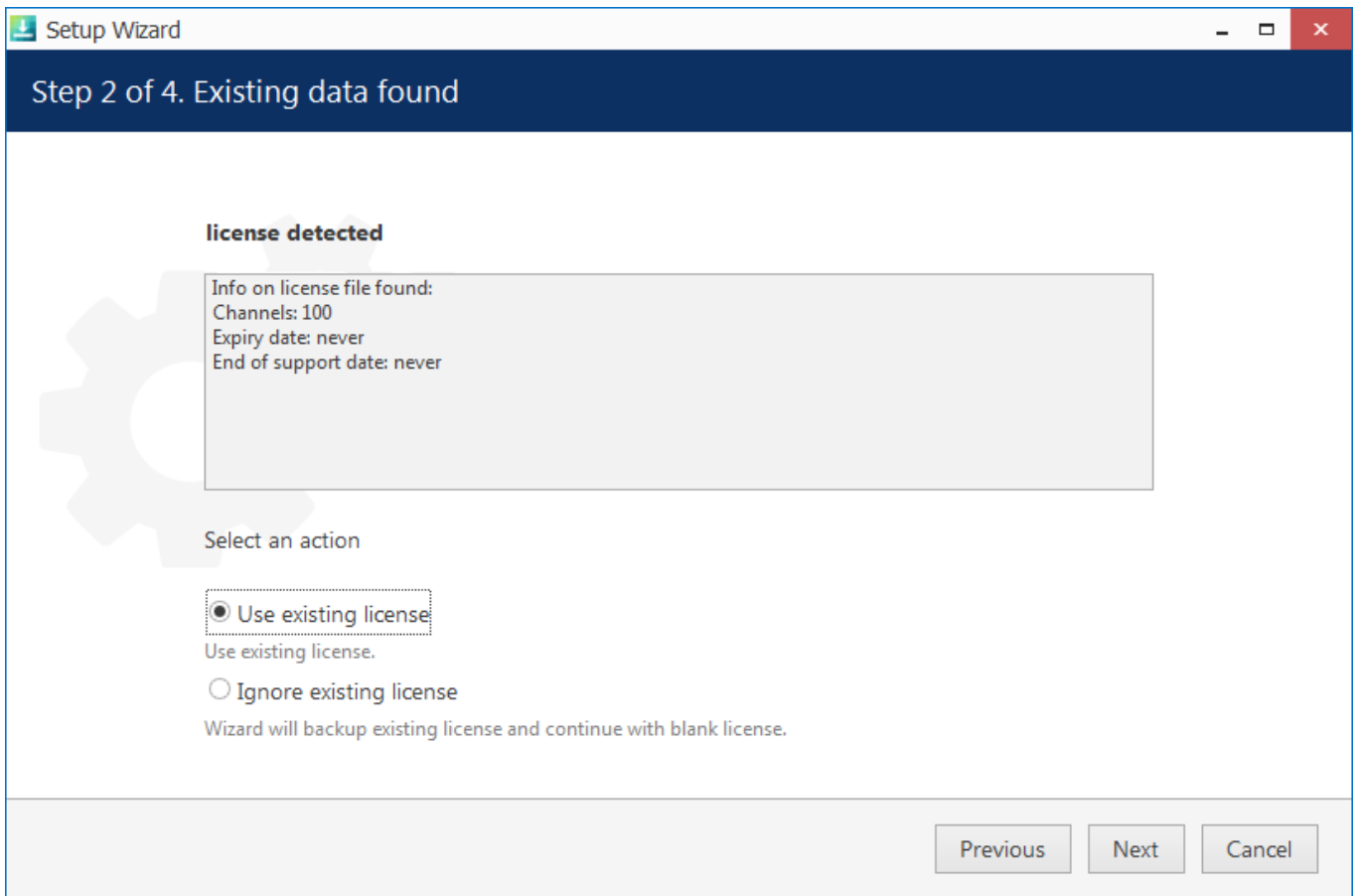
14 Software Update and Uninstall

This topic provides guidelines on installation management use cases.

 We strongly advise that you keep the software versions (e.g., 1.x.x) and subversions (e.g., 1.2.x) across your system match exactly. Software build numbers (e.g., 1.2.0.xxxxx) may differ slightly in case your are using 64-bit and 32-bit editions.

Update Software

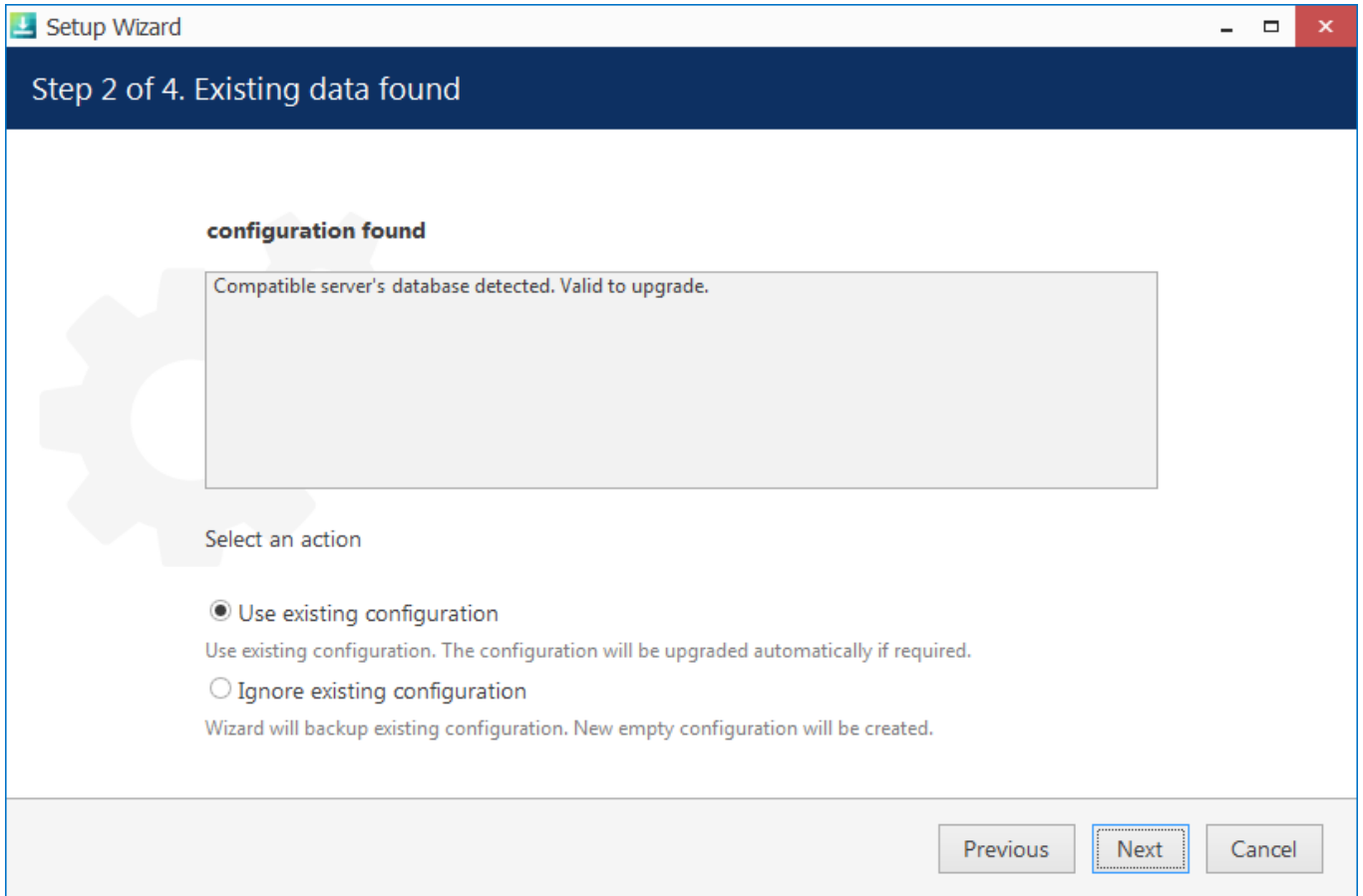
This section describes manual software update by running the installation locally. For [remote upgrades](#), see the [corresponding section](#) of this document.




Choose license preference for the upgrade

If you launch a newer version installation package of the same kind as the already installed Ganz CONTROL 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.

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Use existing database configuration

 Before starting the upgrade procedure, ensure that all Ganz CORTROL processes have been terminated and that Ganz CORTROL files are not in use: this is necessary in order to upgrade all files to the newer versions. This includes any Ganz CORTROL processes or related applications that are running, and also any third-party applications that have access to Ganz CORTROL files, e.g., antivirus scanners, third-party integrations, etc.

Ganz CORTROL processes can be found via Task Manager: these start with *VMS*, e.g., *VMSServer.exe*.


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Uninstall/Change Software

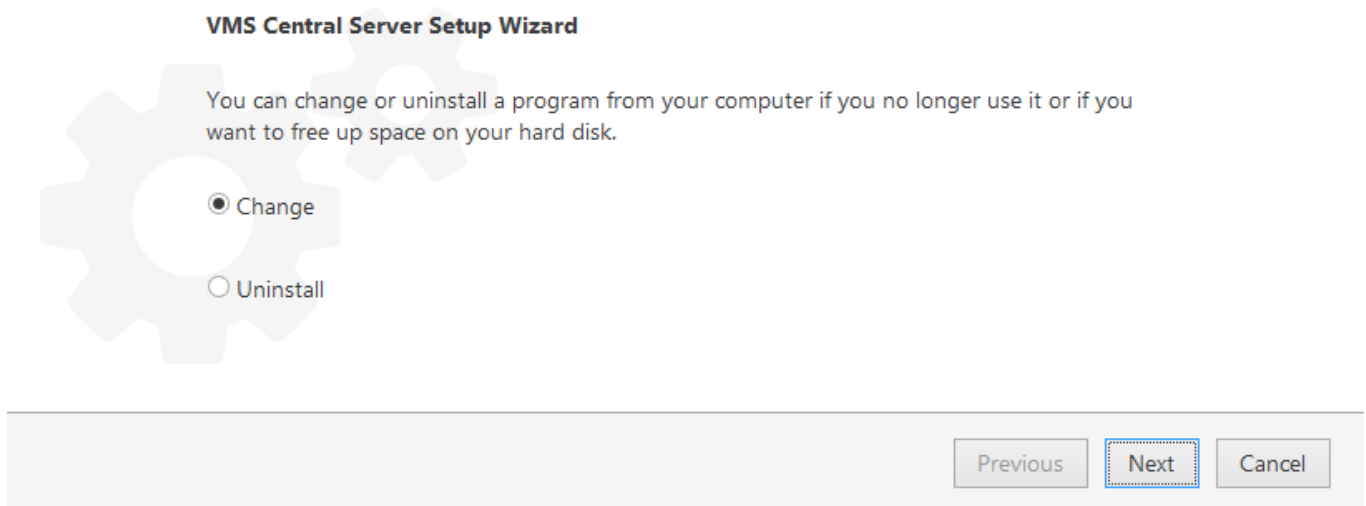
Software can be uninstalled in two ways:

1. From the 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

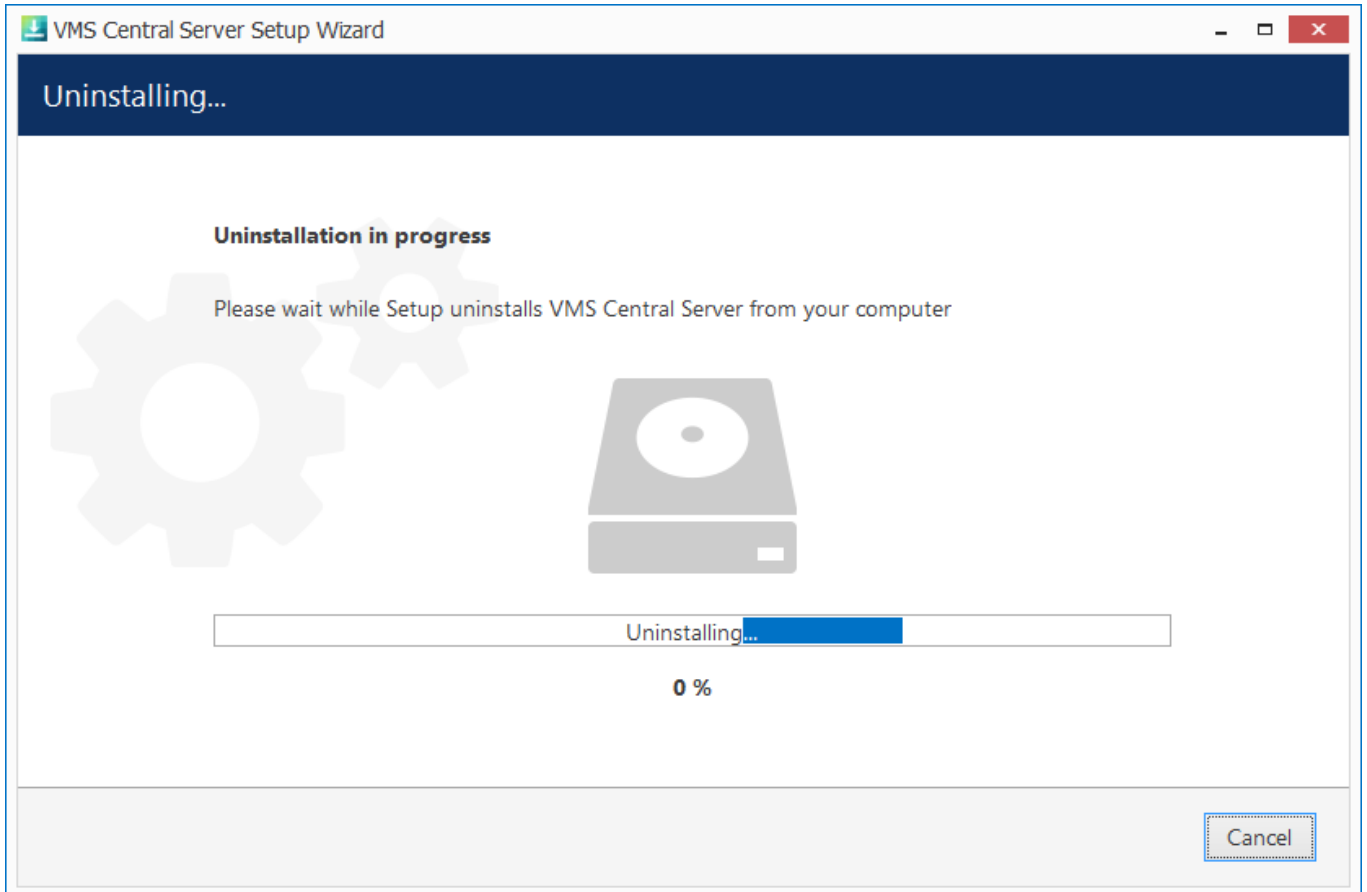
Select *Change* if you wish to re-install or add software components. The process will be similar to the initial installation.

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.

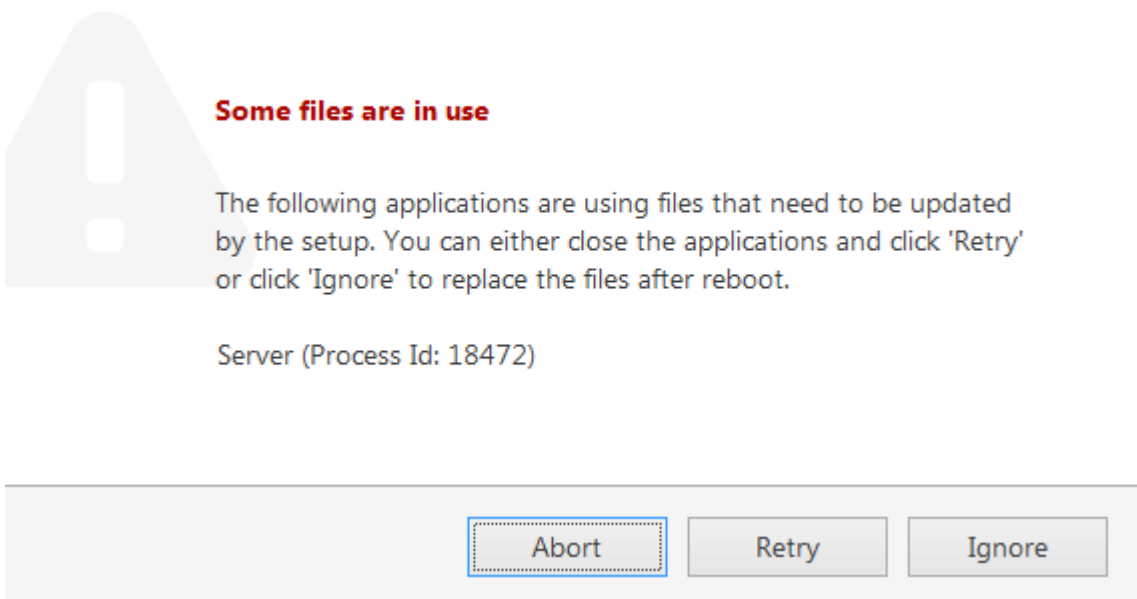
Press *Next* to proceed with the uninstallation process. Note that you may have to confirm these changes if UAC has been turned ON.

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Uninstall

If you did not stop the Ganz CORTROL server before starting the uninstall process or if some third-party software (e.g., antivirus) has locked Ganz CORTROL files, you will get a warning.



A warning about some files being locked by a process

In this case:

- choose **Abort** to cancel the uninstall process
- stop the processes manually yourself and then click **Retry**

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- click **Ignore** to let the wizard handle the files automatically (recommended)


Generally, if you see that the process mentioned in the warning is Ganz CORTROL **own process**, simply choose the **Ignore** option and let the wizard do the job.

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, roll back 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 CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp. software processes are running, whether explicitly or in the background. Follow these steps:

1. Stop all CBC AMERICAS, Corp. 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.

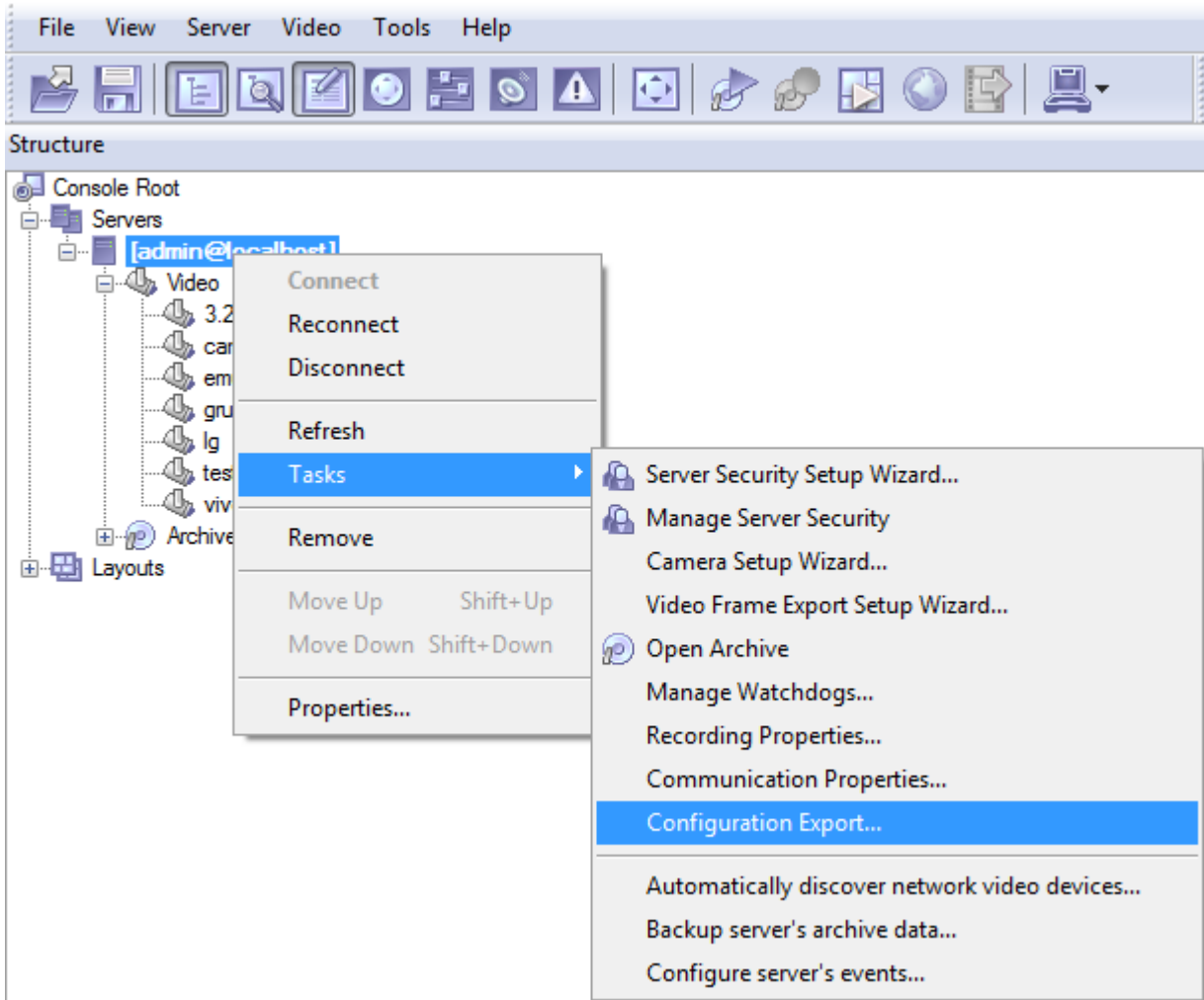
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15 Migration From Previous Product Versions

It is possible to migrate the basic configuration from the older CBC AMERICAS, Corp. software version, ZNSNVR. All you have to do is export an XML file from ZNSNVR and then import it via Ganz CORTROL Console.

⚠ In Ganz CORTROL version 1.6.0, major changes were made to permission management. As a result, configuration imported from an XML file (from ZNSNVR) will **not contain any user permissions: you will need to **review and set all user permissions after importing the configuration.****

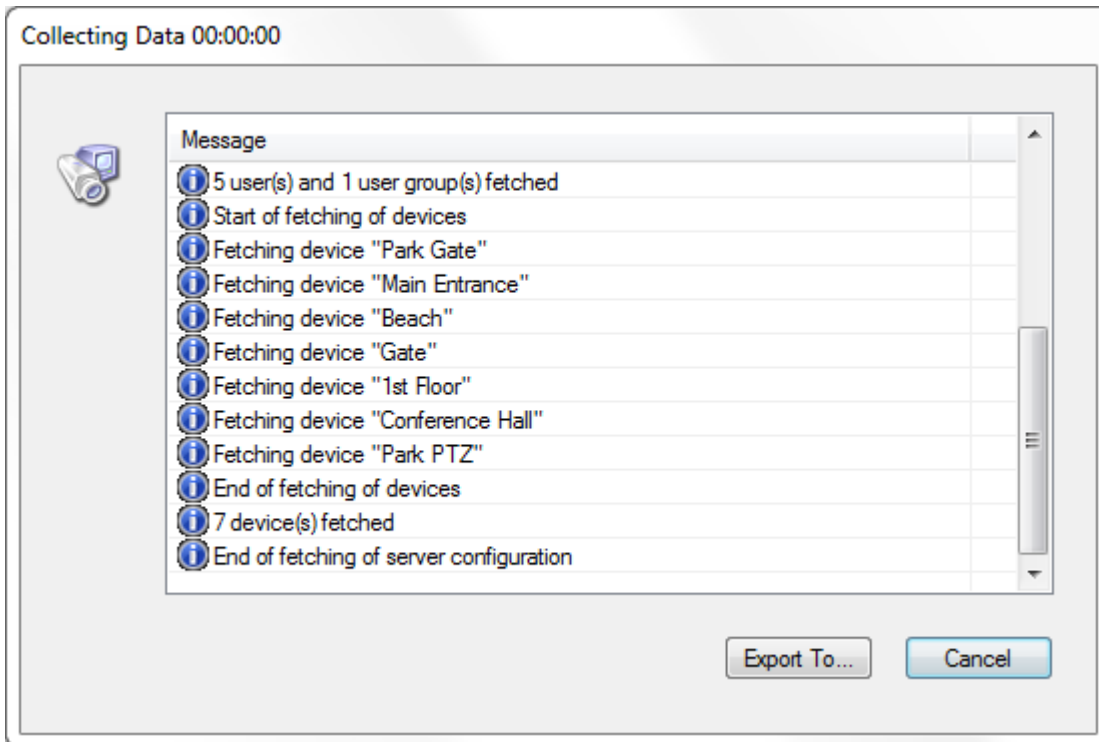
In your ZNSNVR Client, right-click your desired server and choose *Tasks -> Configuration Export*.



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

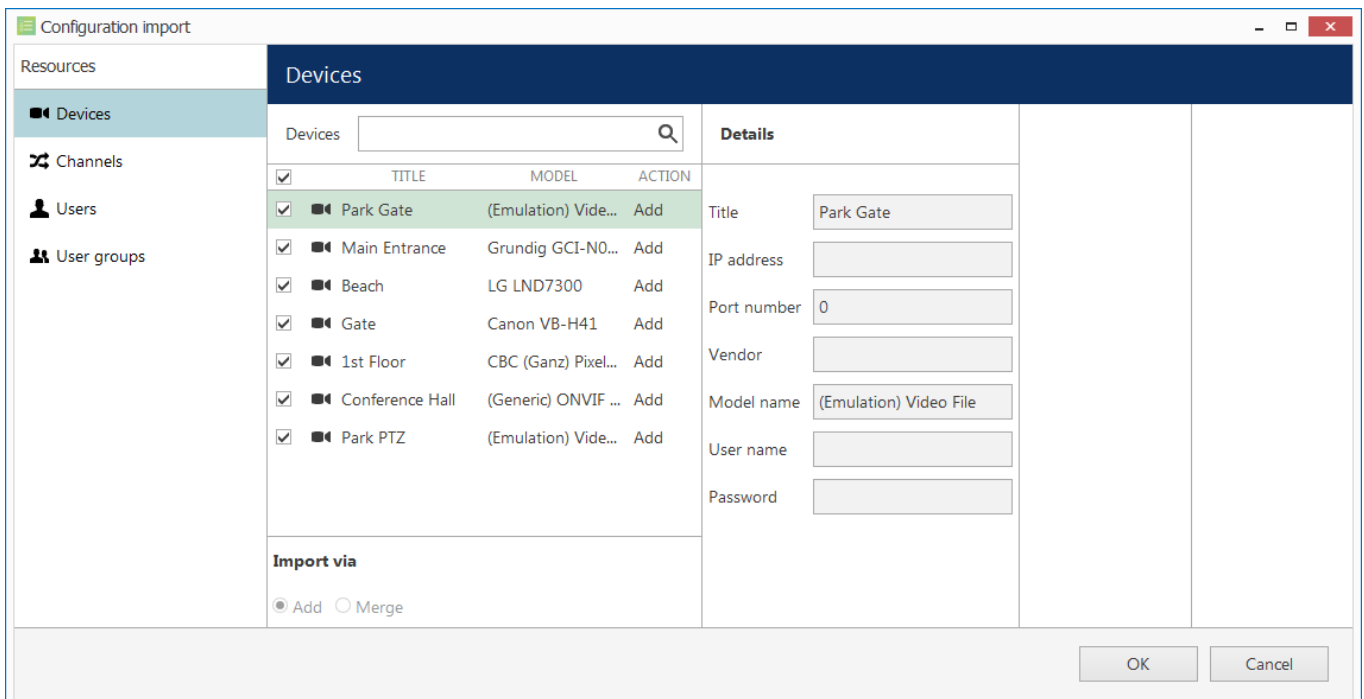
Export wizard will display a summary of all the exported resources and give you an option to save the configuration in XML format. In order to do this, click the *Export to...* button and choose a location and enter the filename, then click *Save*.

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Export tool

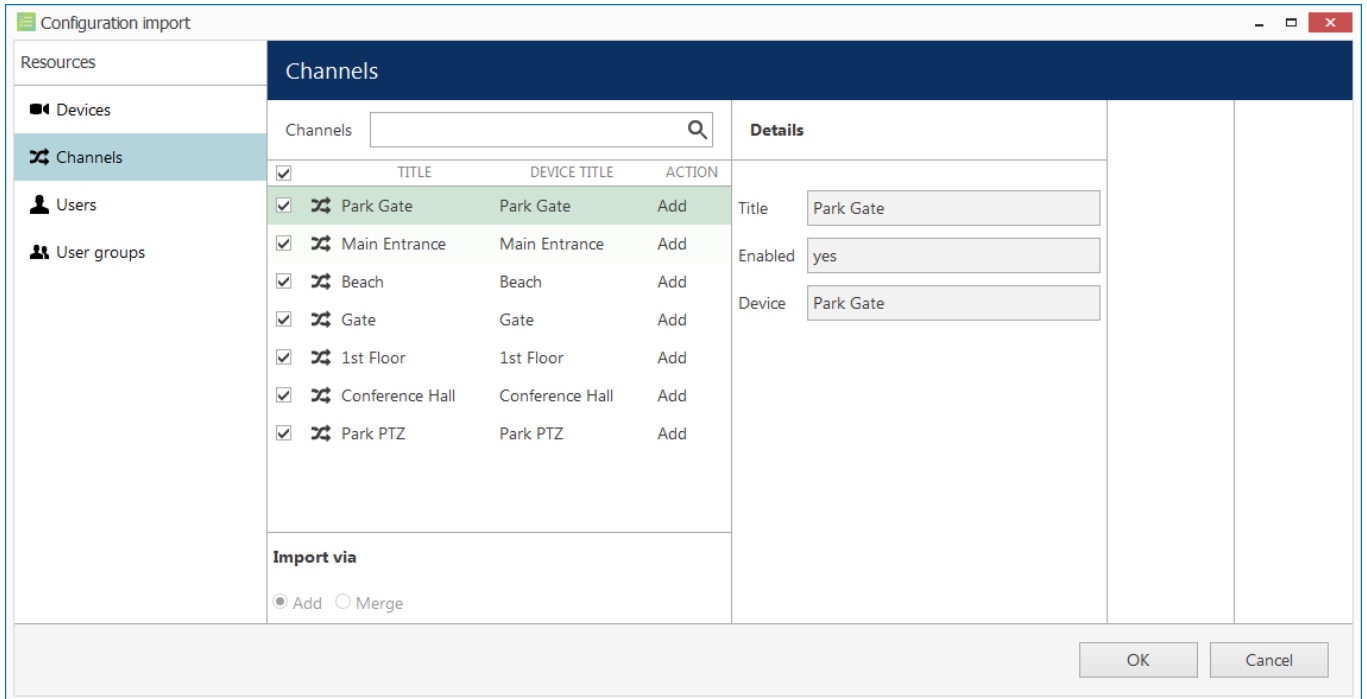
Next, switch to your Ganz CORTROL installation where you want to load the configuration: open Ganz CORTROL Console and log into the target server. In Ganz CORTROL Console, click the application menu button located in the upper-right-hand corner of the Ganz CORTROL Console window and choose *Configuration 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

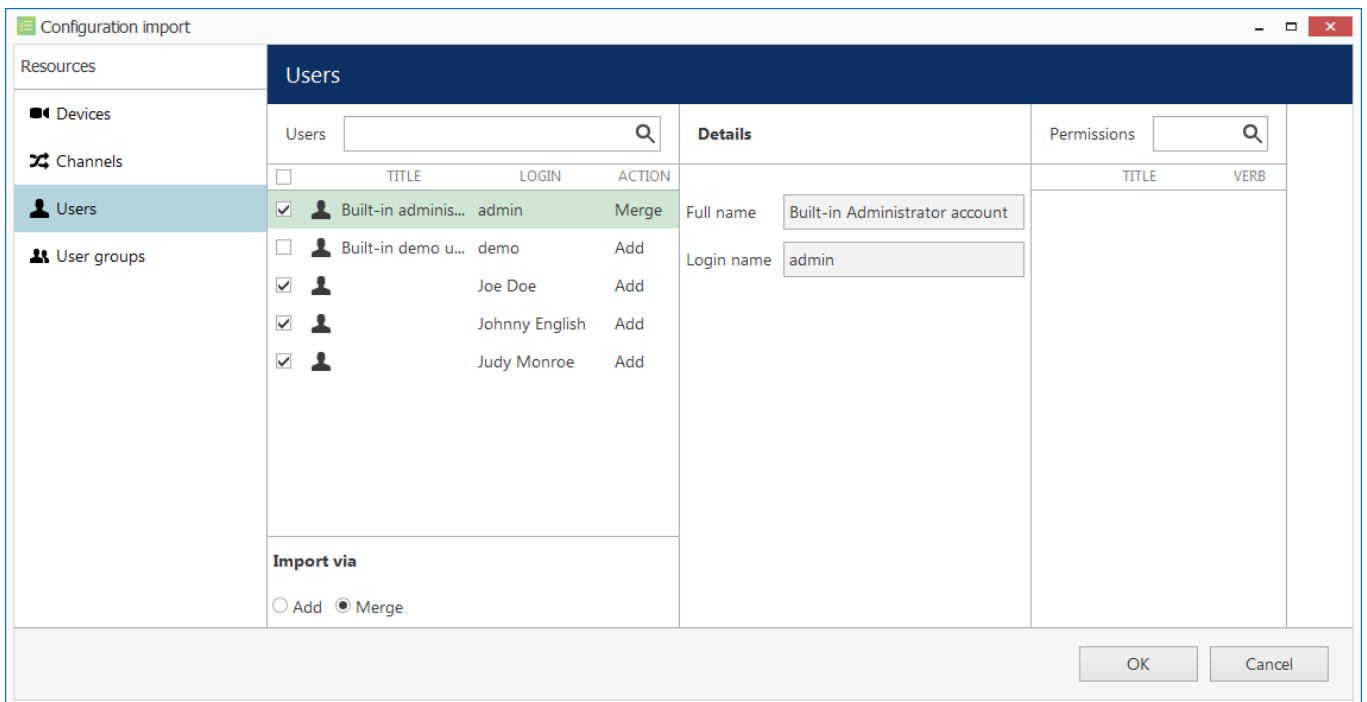
Review the list of devices to be imported from your pre-saved configuration; note that you can only view the settings but there is no option to change them. You will be able to alter device settings later, after you import the configuration. At this stage, you can choose whether or not the device will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

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Choose channels to be imported

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

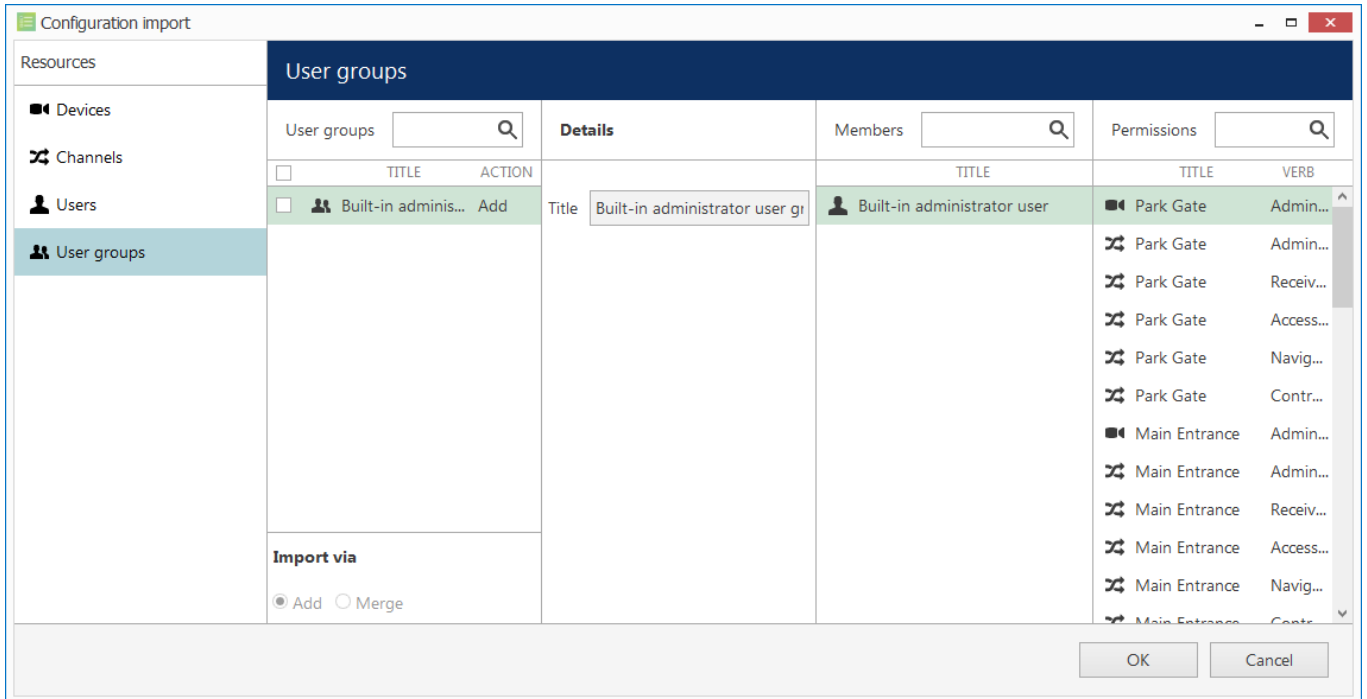


Choose users to be imported

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

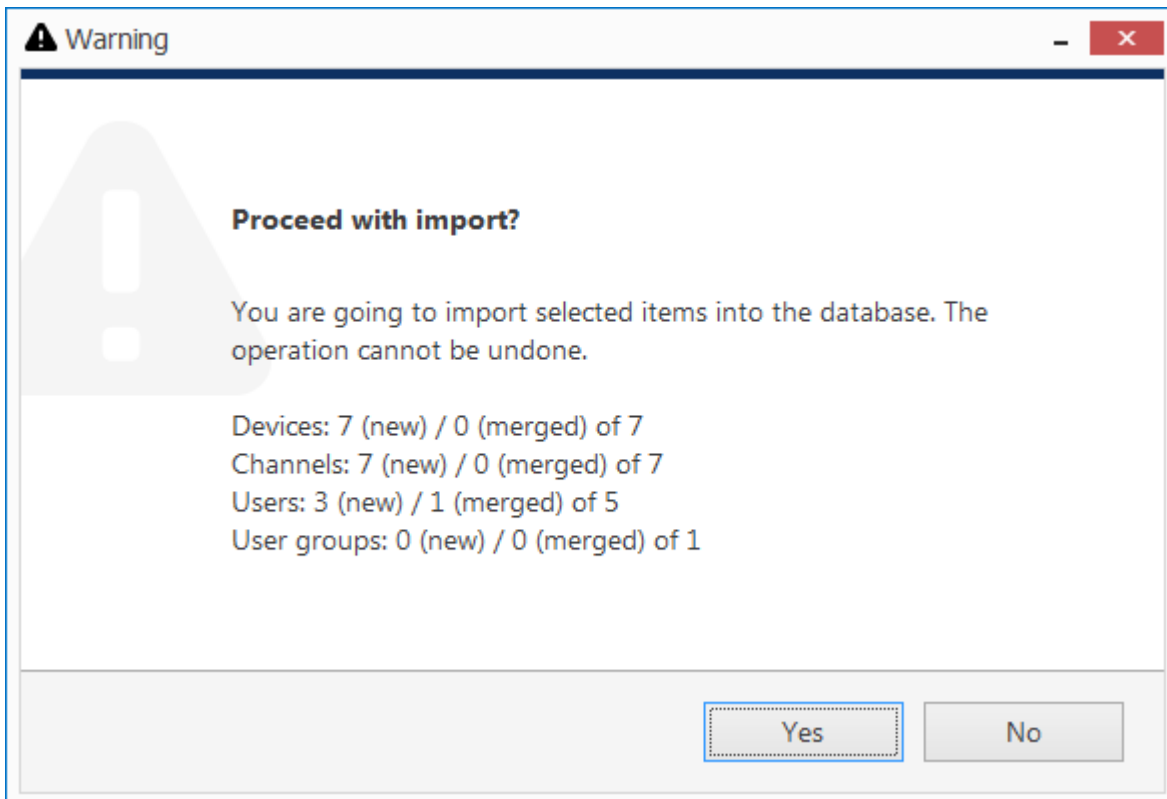
 If some resource is already present in Ganz CORTROL configuration, the wizard will mark the imported copy to be **merged** to the existing one; you can change this by selecting the desired resource and choosing the import type below: *Import via* -> *Add/Merge*. Merging means that user permissions are extended and in case of any differences Ganz CORTROL settings have priority. Otherwise, the import wizard will simply **add** the target resource to your configuration and action type choice will be grayed out.

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Choose user groups to be imported

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



Confirm import

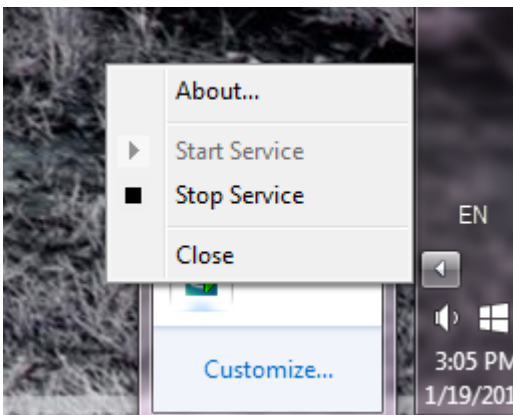
After the import, you will be able to edit the newly added resources as usual via corresponding menu sections.

16 Start & Stop Server Service

After software installation (except for the Ganz CORTROL Console or Ganz CORTROL Client only installations), two components are registered as **Windows services**: CBC AMERICAS, Corp. 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.

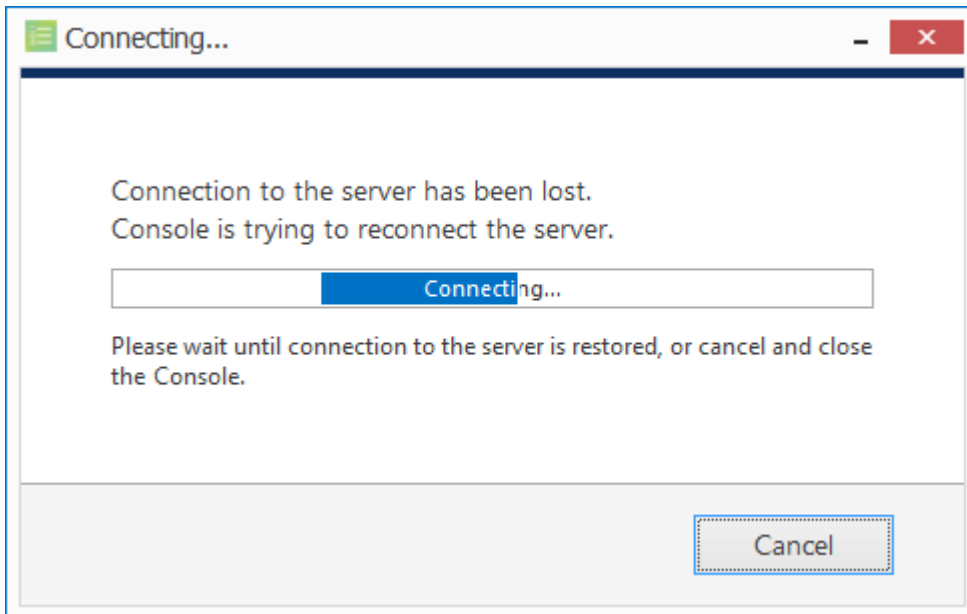
By default, the server will run in silent service mode, i.e., without any status indication other than that in the Windows Services management console; from there, both services can be stopped, started and restarted.

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. Ganz CORTROL Watchdog service runs silently in background as an auxiliary service and has no user interface except for the settings' dialog box in Ganz CORTROL Console.



Start and stop the server service from the system tray

If the server service is stopped while Ganz CORTROL Console connections are active, the wait-for-server-connection window will appear on top of Ganz CORTROL 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 Ganz CORTROL Console at this point and open it manually later.



Connection lost

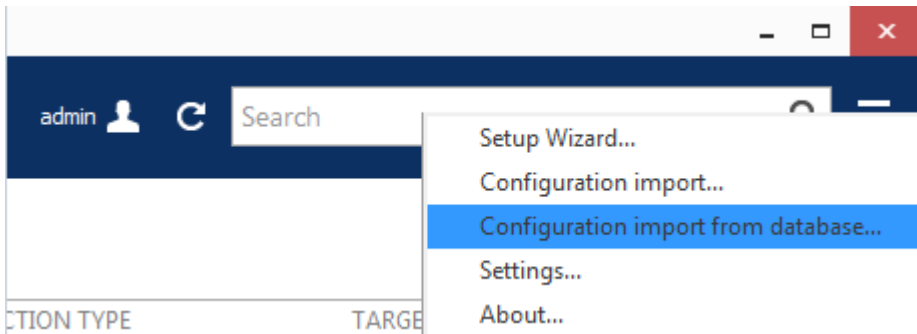
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17 Database Import

It is possible to use a Ganz CORTROL database - either coming from a different server and/or a different software edition - to import resources into your Ganz CORTROL installation. This feature allows you to add such resources as devices, channels, users and [Event&Action Configurator](#) content. It is possible to import the data from **single server** databases.


Possible scenarios for this feature may be as follows:

- combine many Ganz CORTROL Server servers into a single Ganz CORTROL Global installation
- transfer configuration from one Ganz CORTROL Server server to another



Choose the database import option from the application menu

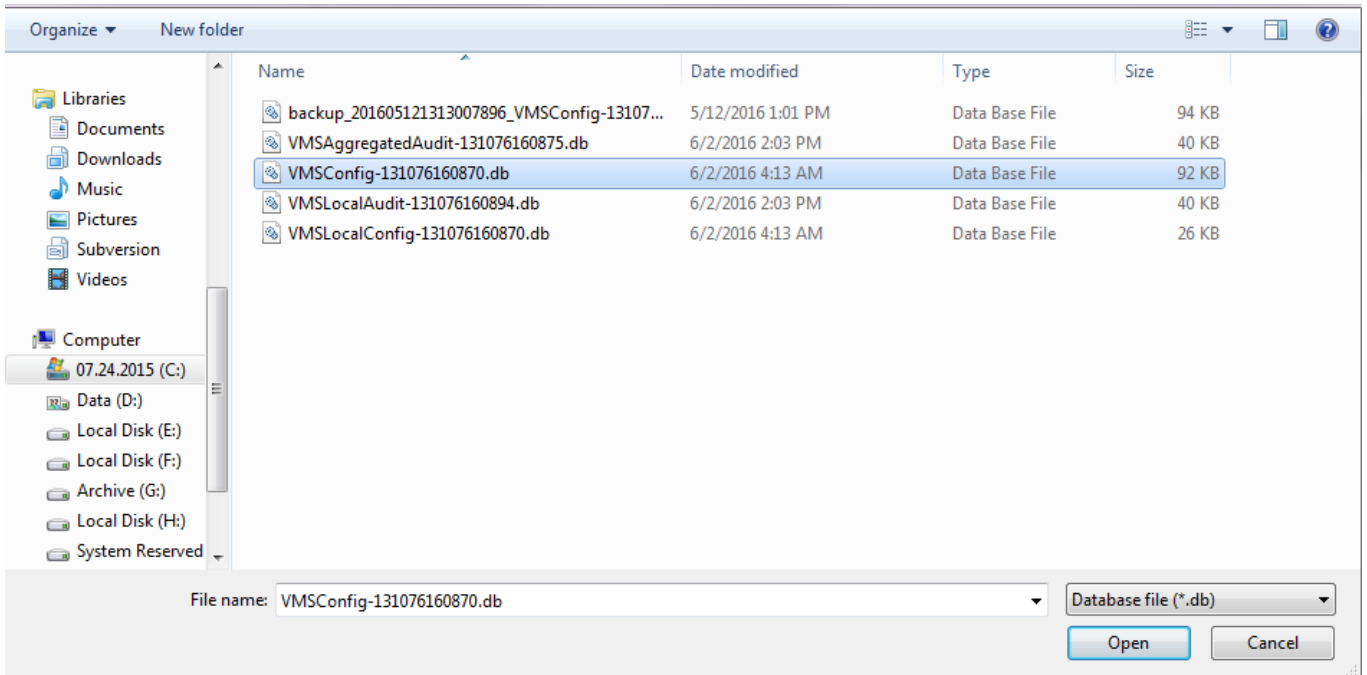
To start data import, press the application menu button in the upper-right-hand corner of the Ganz CORTROL Console window and choose the *Configuration import from a database* option.

 You can also bring a database from another server. By default, all Ganz CORTROL databases are located in the following directories:

- C:\ProgramData\CBC AMERICAS, Corp.\Ganz CORTROL Server - for the Ganz CORTROL Server product edition
- C:\ProgramData\CBC AMERICAS, Corp.\Ganz CORTROL Global - for the Ganz CORTROL Global product edition
- C:\ProgramData\CBC AMERICAS, Corp.\Ganz CORTROL Recorder - for the Ganz CORTROL Recorder component of a Ganz CORTROL Global installation

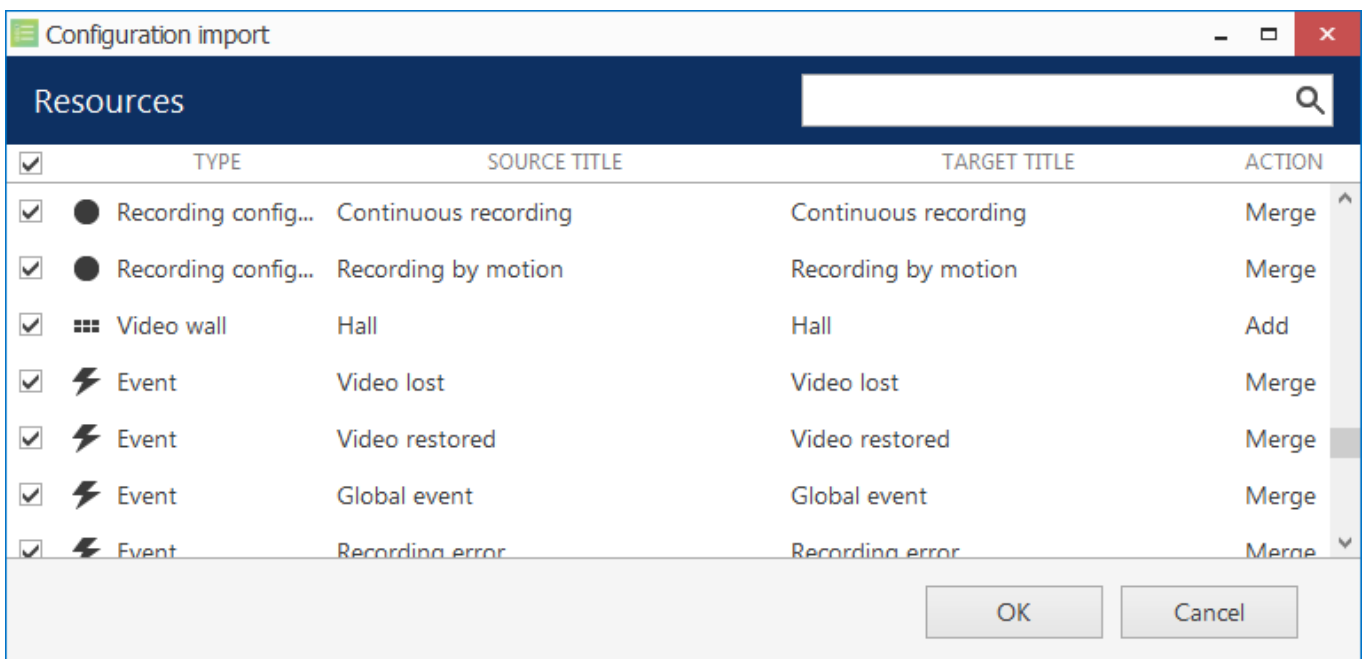
From the standard Windows Explorer *Open File* dialog box, locate the target *VMSSConfig-xxxxxxxxxxxx.db* file and open it.

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Locate the database file

The resource selection dialog box will appear. Choose the items to be imported using checkmarks in the left column; use the search field in the upper right corner to filter the items by type or by any other text field. In case the imported entities already exist on the host server (e.g., built-in recording profiles), their import action will be *Merge*; otherwise, the action will be marked as *Add*. When resources are merged, their permissions are merged as well. All types of resources can be imported.



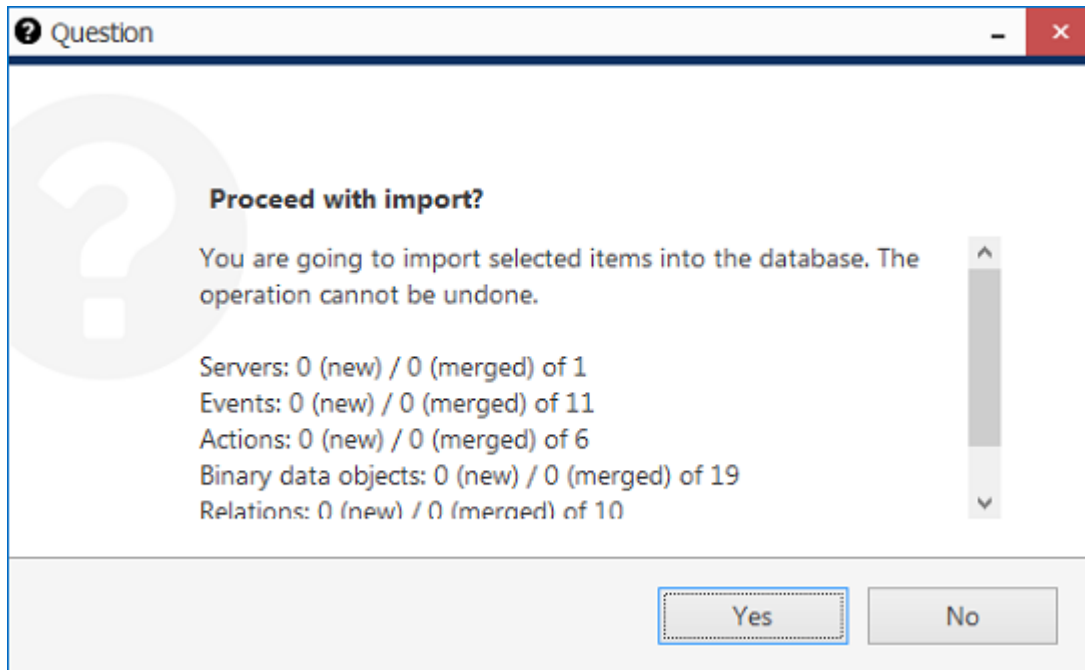
Choose resources to be imported

When you have finished with resource selection, click *OK* to proceed.

Important: this action cannot be undone. Before confirming, make sure to review all the changes you wish to apply.

Before applying all the changes, review your import summary and click *OK* to confirm and finish the import.

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Review the summary and confirm configuration import

All selected items will be added to the server configuration immediately and you will be able to work with them normally.

18 Configuration Backup

Server configuration is a time-consuming process and it is wise to save a copy of your Ganz CORTROL database after certain changes so that you have something to start the server with in case the main database becomes corrupt because of a hard disk failure or some other reason. Ganz CORTROL provides several options for database backup and we strongly recommend that you create configuration restore points to save the trouble of re-configuring the server from scratch.

Automatic Backup

Automated configuration backup allows you to save your Ganz CORTROL database based on a schedule. To access the settings via Ganz CORTROL Console, click the application menu button in the upper-right-hand corner and choose *Automated backup configuration*.

The screenshot shows a Windows-style dialog box titled "Automated backup configuration". The window has a dark blue header with the title "Automated backup configuration" and standard window controls (minimize, maximize, close). Below the header is a sidebar with "Settings" selected and "Status" below it. The main content area is titled "Settings" and contains the following configuration options:

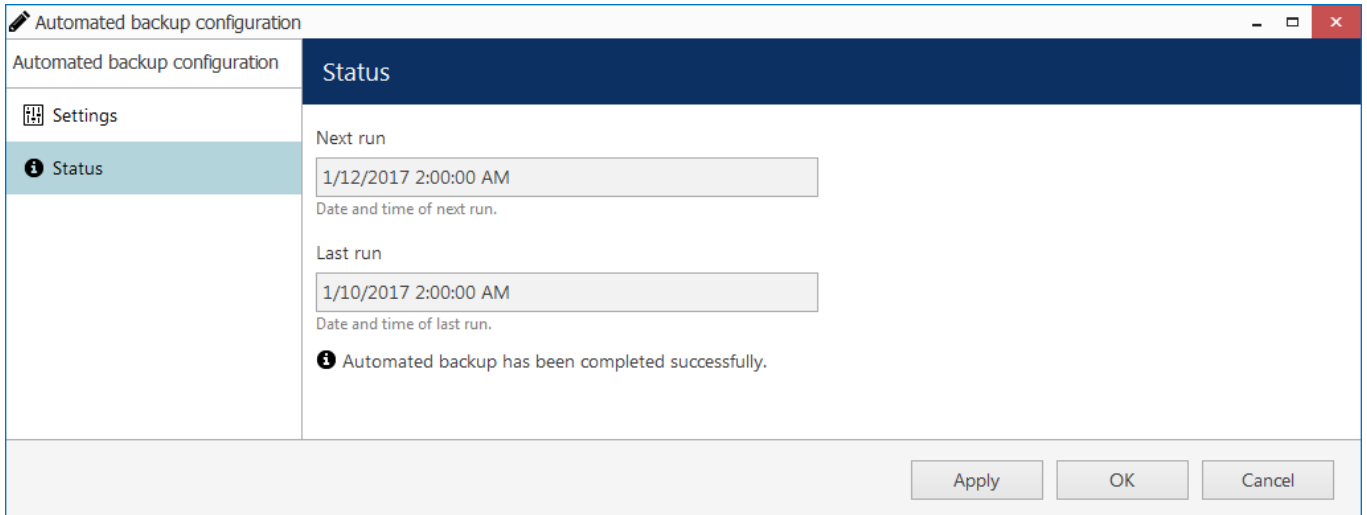
- Mode:** A dropdown menu set to "Enabled".
- Preferred time:** A time picker set to "2:00:00 AM". Below it is the text: "Preferred time when the automated backup is scheduled to run."
- Interval:** A text box containing "2" and a dropdown menu set to "Days". Below it is the text: "Interval between automated backups".
- Maximum files to keep:** A text box containing "15". Below it is the text: "Maximum number of files to keep in the backup folder."
- Directory:** A text box containing "C:\ProgramData\CustomBackupFolder" and a "Change..." button. Below it is the text: "Directory where backup files are stored."

At the bottom of the window are three buttons: "Apply", "OK", and "Cancel".

Set automatic database backup preferences

Automated backup is enabled by default with the following settings: a restore point is created every two days at 2AM, with a maximum of 15 files to be kept. You can either leave the default settings, including the default location, or define your own backup time and frequency in the *Settings* tab.

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Backup status

In the *Status* tab, you can see the date of the last backup attempt and the next scheduled backup time.

Backup and Restore Wizard

Additionally to the automated backup, it is possible to create a configuration restore point manually at any time. The same wizards provides an opportunity to start the Ganz CORTROL with an earlier database version.

Run the *Backup and restore wizard* from your Windows Start menu: *Start -> All Apps -> CBC AMERICAS, Corp. -> CBC AMERICAS, Corp. Server Backup and Restore Wizard*. In Windows 7 and older versions, use *Start -> All Programs -> software installation folder -> Tools -> CBC AMERICAS, Corp. Server Backup and Restore Wizard*; alternatively, use Cortana/Search to locate the wizard in the programs menu.

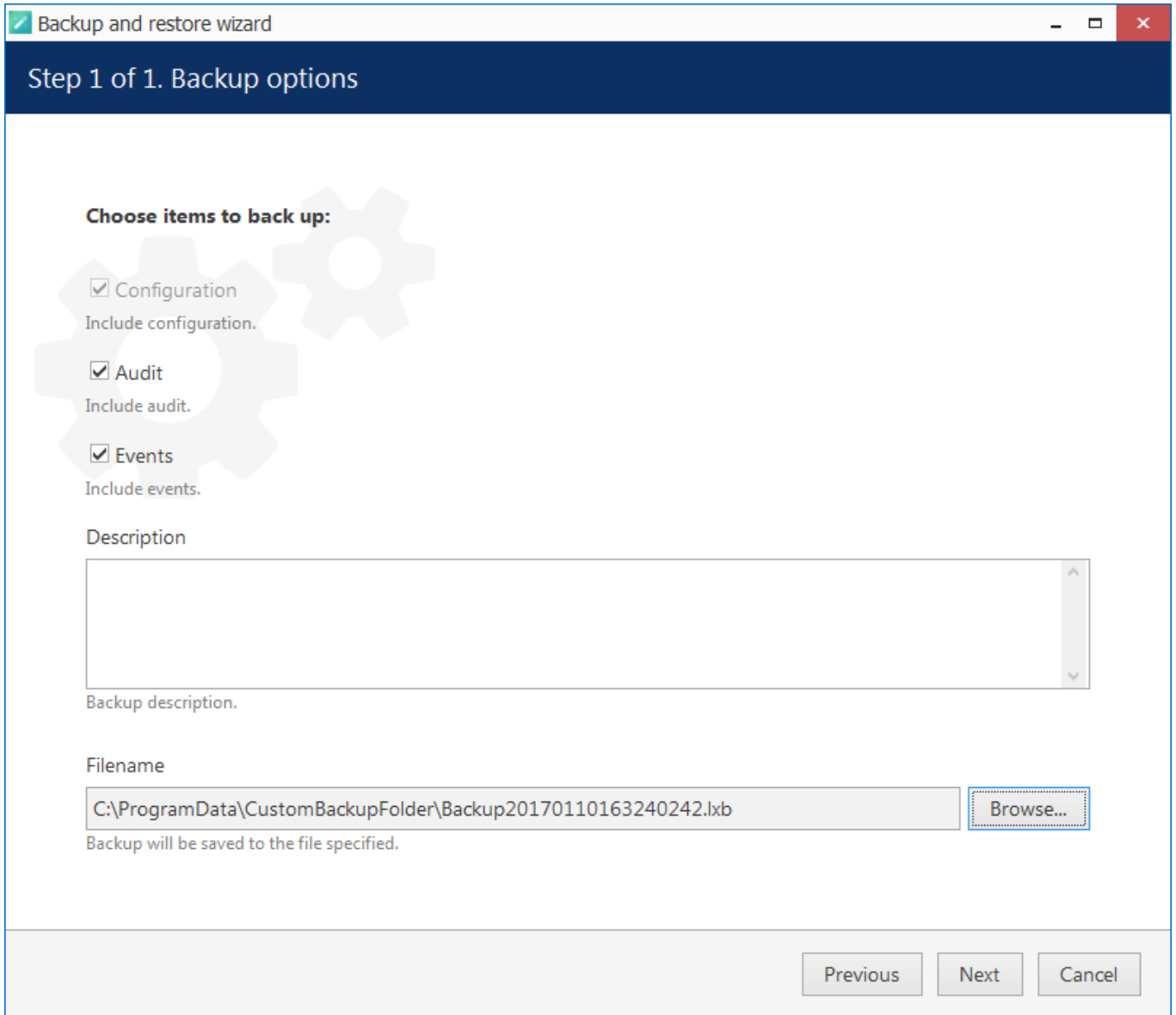


Choose whether you want to back up or restore the database

Backup

Choose the first option to back up the database contents to serve as a restore point and click *Next*.

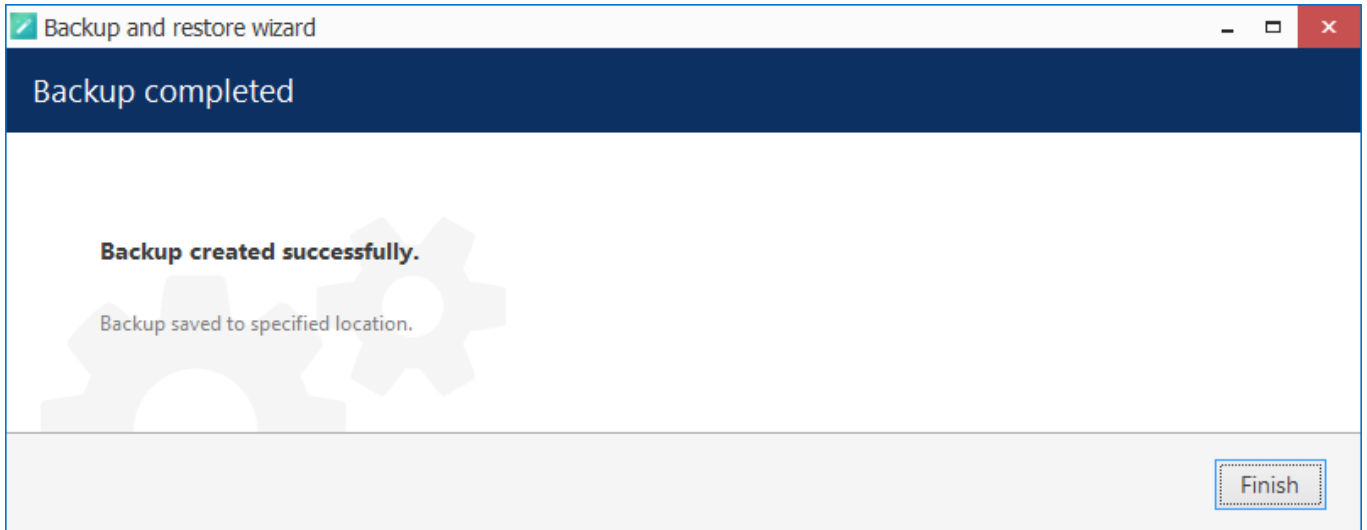
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Choose items to back up

Here, you can choose the information to be saved and also add a custom description for your future reference. You can either use the default destination folder or choose a custom one, even located on a different disk or a network drive.

Ganz CORTROL Administration Guide




Restore point successfully created

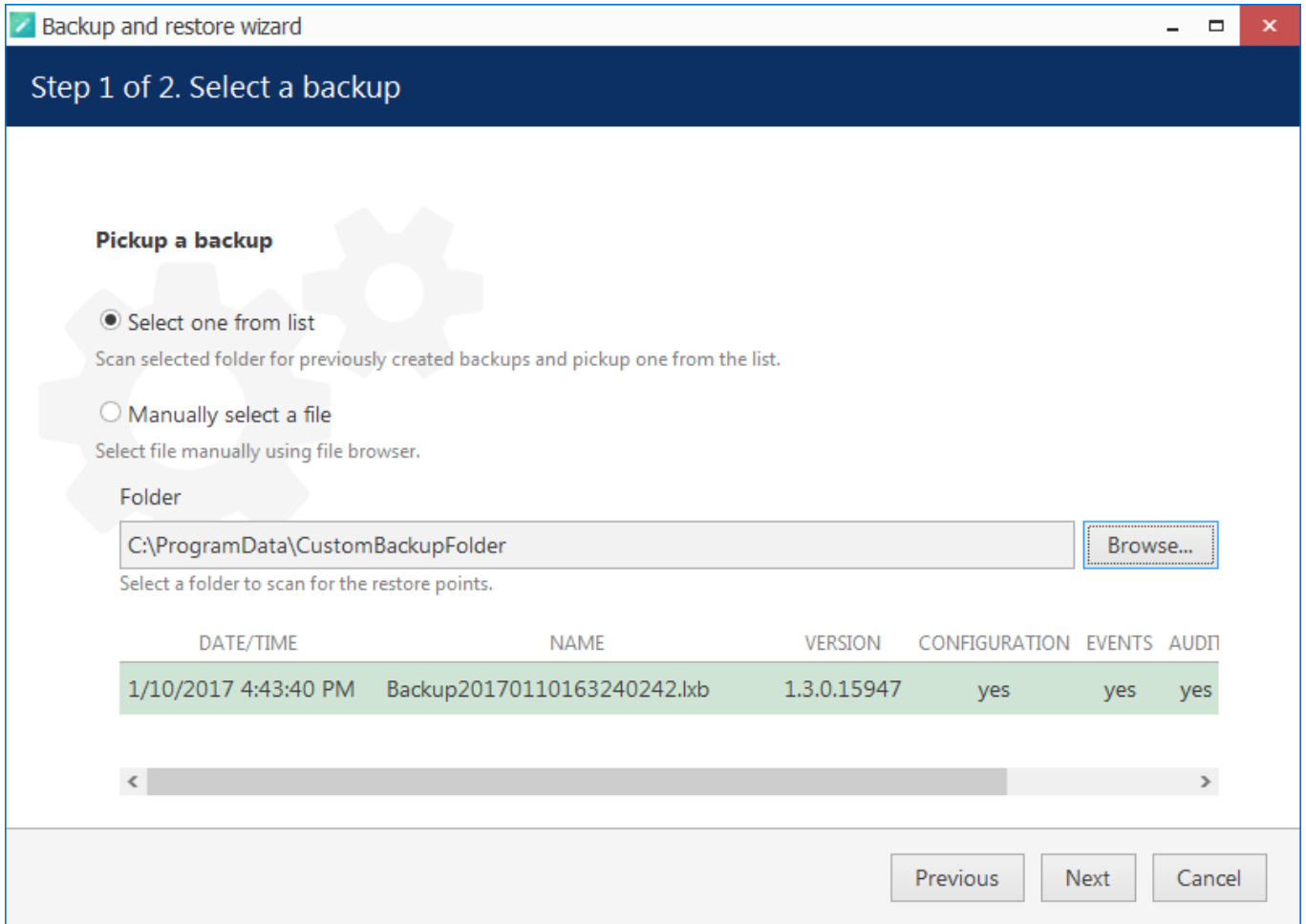
The wizard will create the backup and display a success message. Click *Finish* to exit.

Restore

Choose this option if you wish to start the Ganz CORTROL server with a database from an earlier time instead of the current configuration.

 If you have a clean Ganz CORTROL installation and wish to restore its configuration from an earlier point, make sure to initialise the server using the Server Setup Wizard, which usually pops up automatically after the installation is completed and is available via Start menu. (There is no need to do this if you upgraded the software to a newer version so that it already has been initialised earlier).

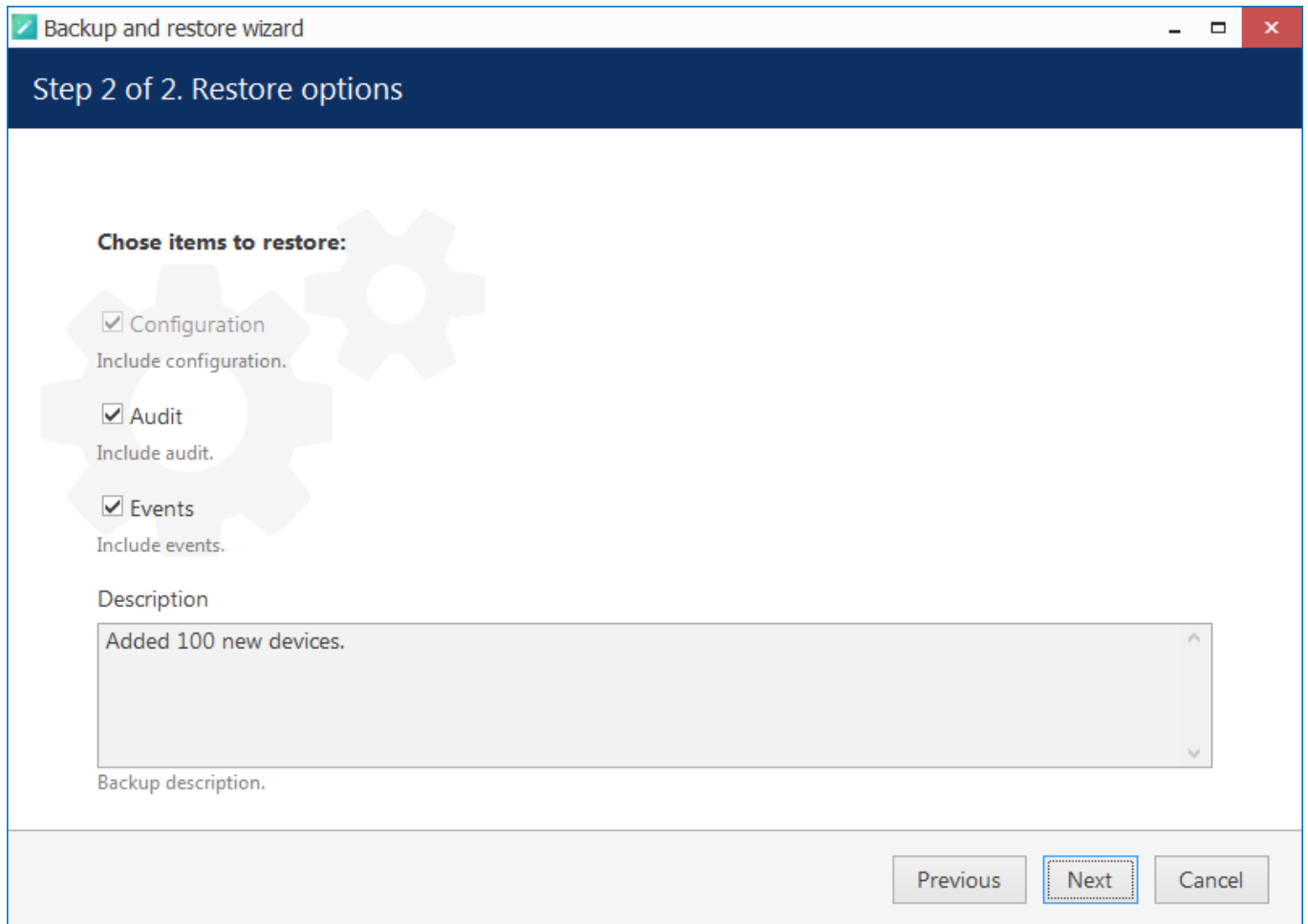
Ganz CORTROL Administration Guide



Choose a restore point

Here, you have two options: select a backup file from the list or manually locate the necessary *.lxb file. In either case, make sure you have chosen the right backup to be used and then click *Next*.

Ganz CORTROL Administration Guide



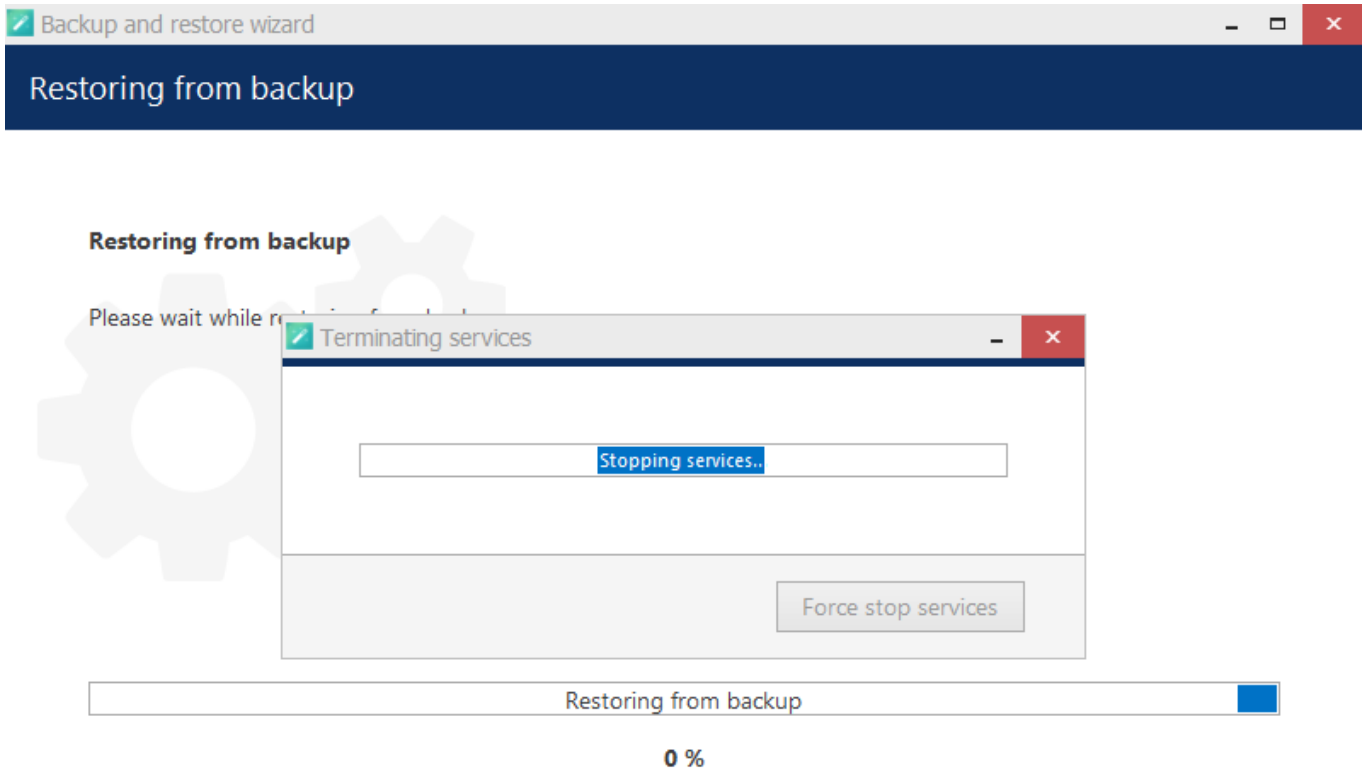
Choose items to restore

Make sure you have chosen a suitable database to be restored by reviewing the items and using your earlier comments as a reference. Click *Next* when ready.



A database from a newer software version cannot be used for this. Older database versions can be used without issues; however, we recommend that you use the latest available backup from a stable software version (not beta).

Ganz CORTROL Administration Guide



Next

Restore in progress

The wizard will ask you to stop the Ganz CORTROL services and start restoring the database after your confirmation.

Caution! This is an irreversible operation. Do not abort the process or shut down the server machine during the process.

If nothing interferes with the restore process and the backup file is intact, you will receive a success message after the wizard finishes restoring your Ganz CORTROL server configuration. Server service will be automatically started with the restored database.

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19 Setup Wizard

The Ganz CORTROL 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 Ganz CORTROL Console upper-right-hand corner menu:



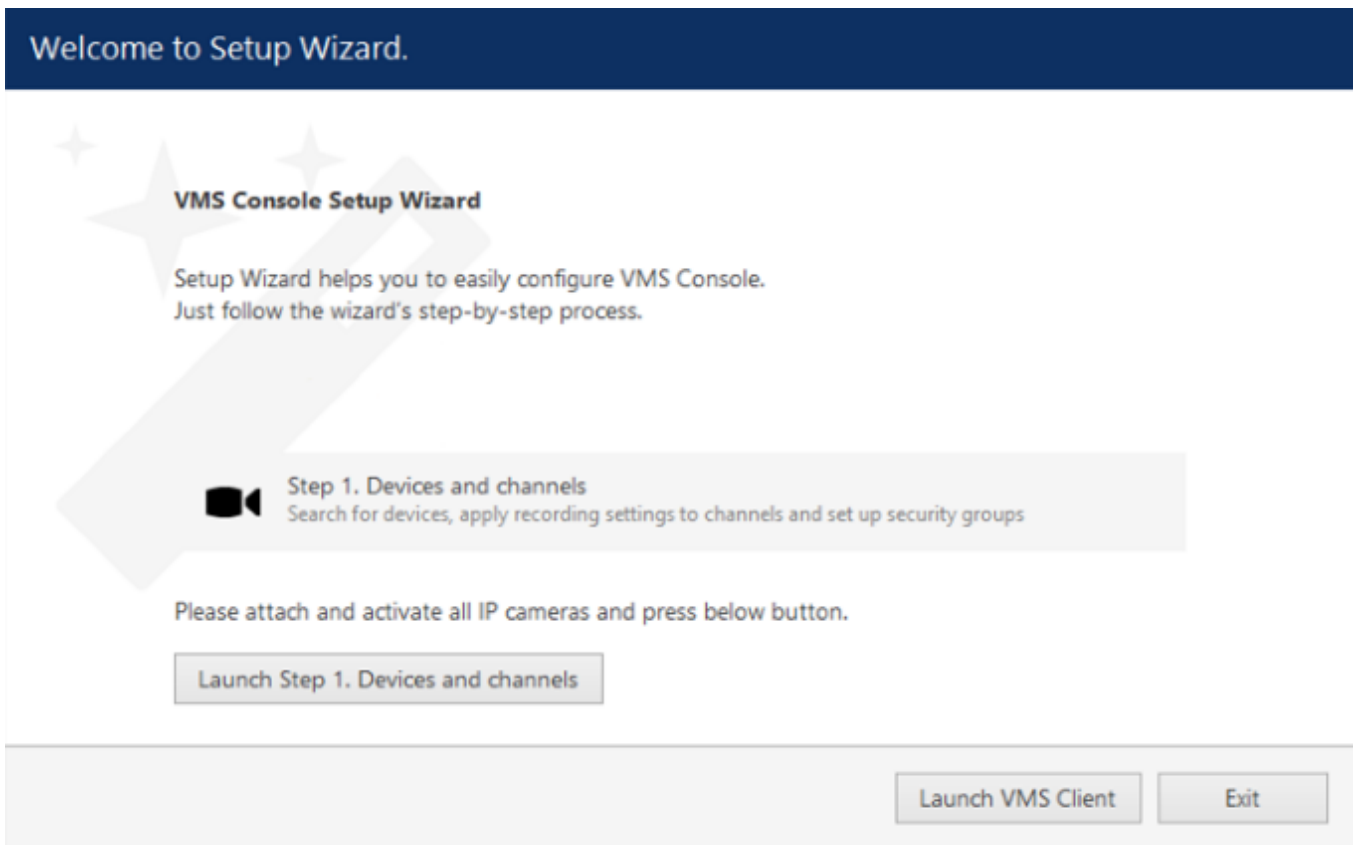
Run Setup Wizard from Ganz CORTROL Console

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 Ganz CORTROL Client* button in the bottom-left-hand corner.

Setup wizard for Ganz CORTROL Prime consists of just one step that covers devices and channels; setup wizard for Ganz CORTROL Server includes three steps, which are devices& channels, users and basic events&actions. 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.

Step 1: Devices and Channels

This step will allow you to automatically search and add cameras and other video source devices into your server configuration. Press the *Launch Step 1* button to begin.



Setup Wizard

Ganz CONTROL Administration Guide

Scan Parameters

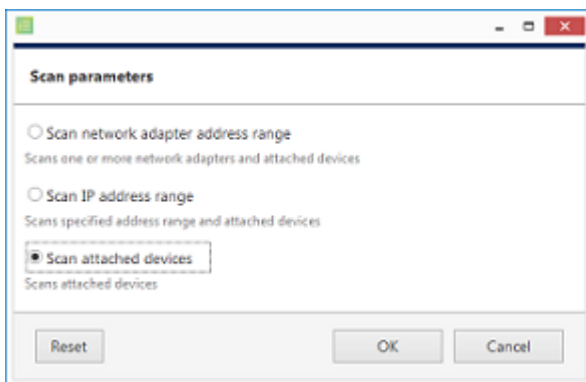
First, select scan mode; the following options are available:

- 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

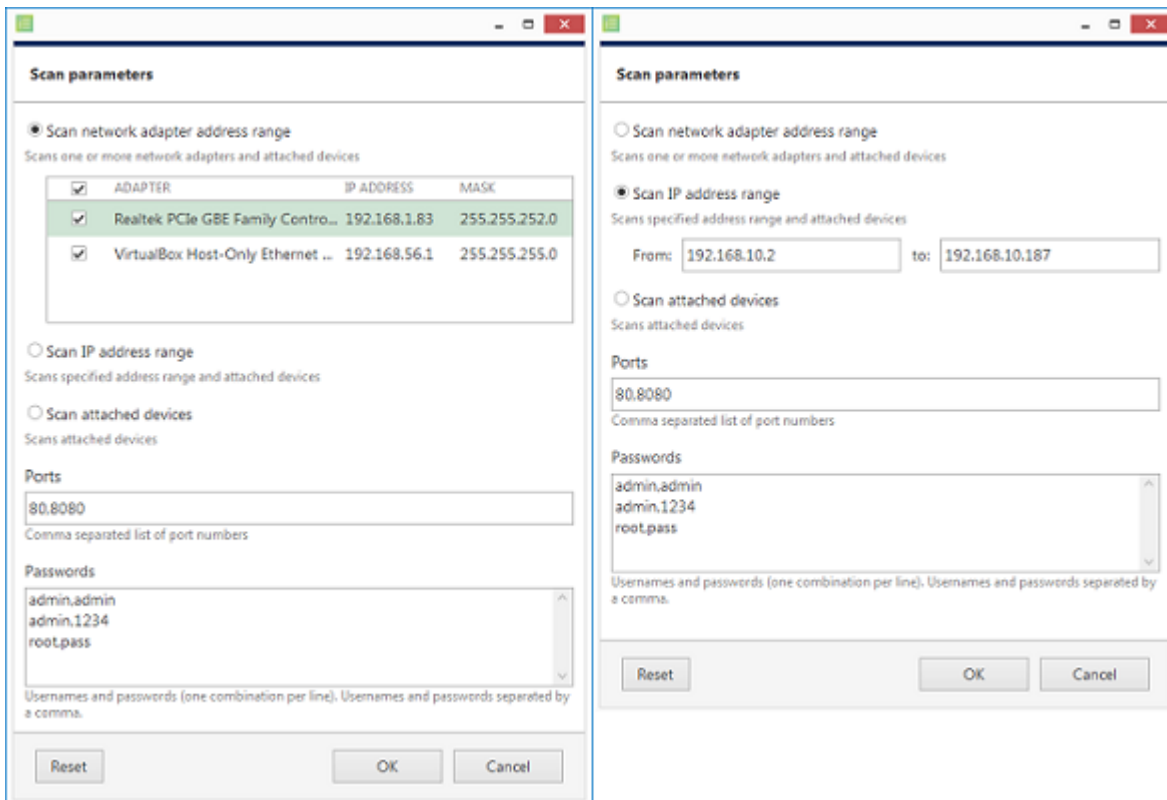
If you have chosen to search for IP video sources, you should review additional connection settings and change or update them, if required:

- 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 address range

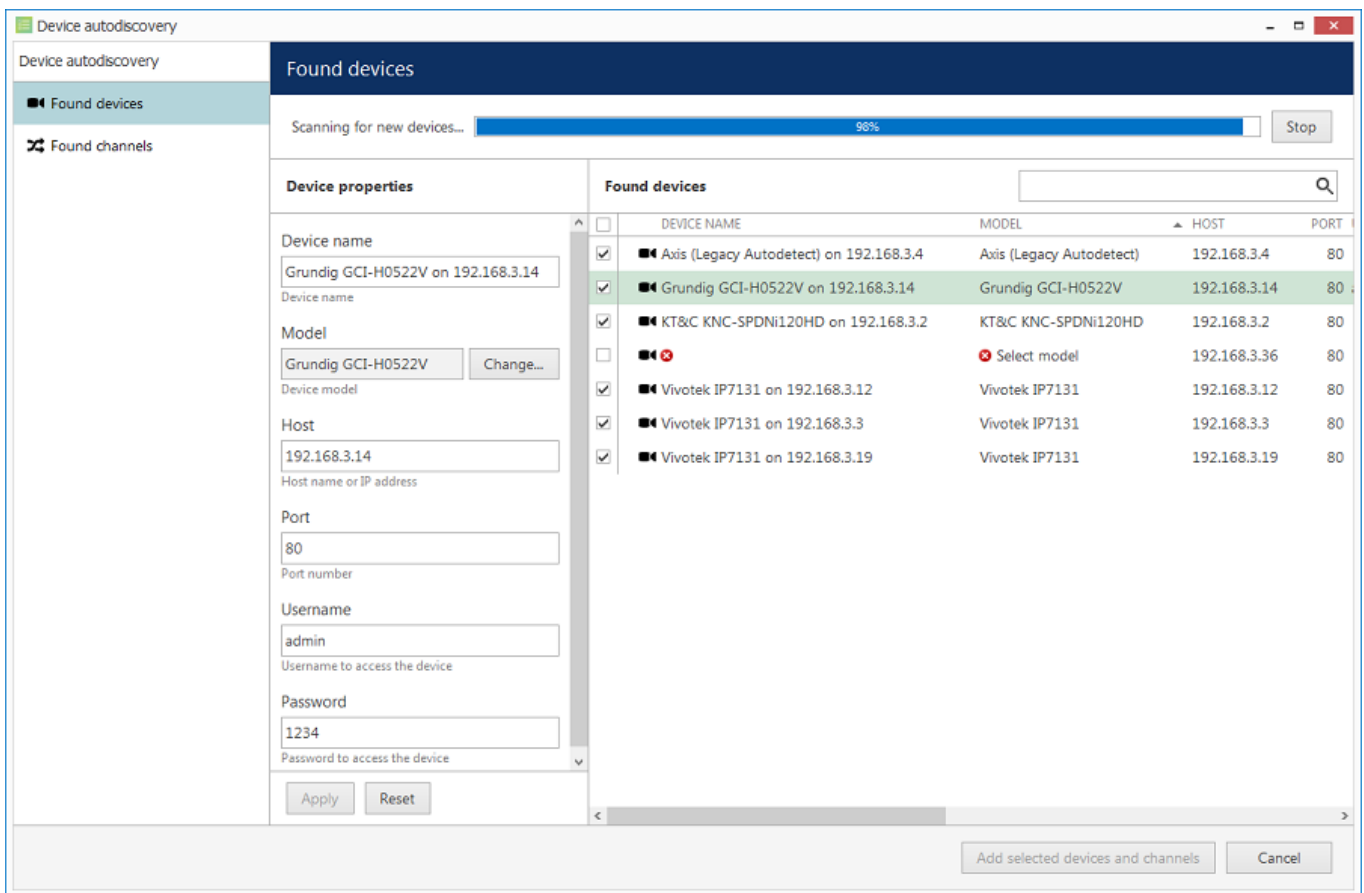
Ganz CORTROL Administration Guide

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

Ganz CONTROL Administration Guide

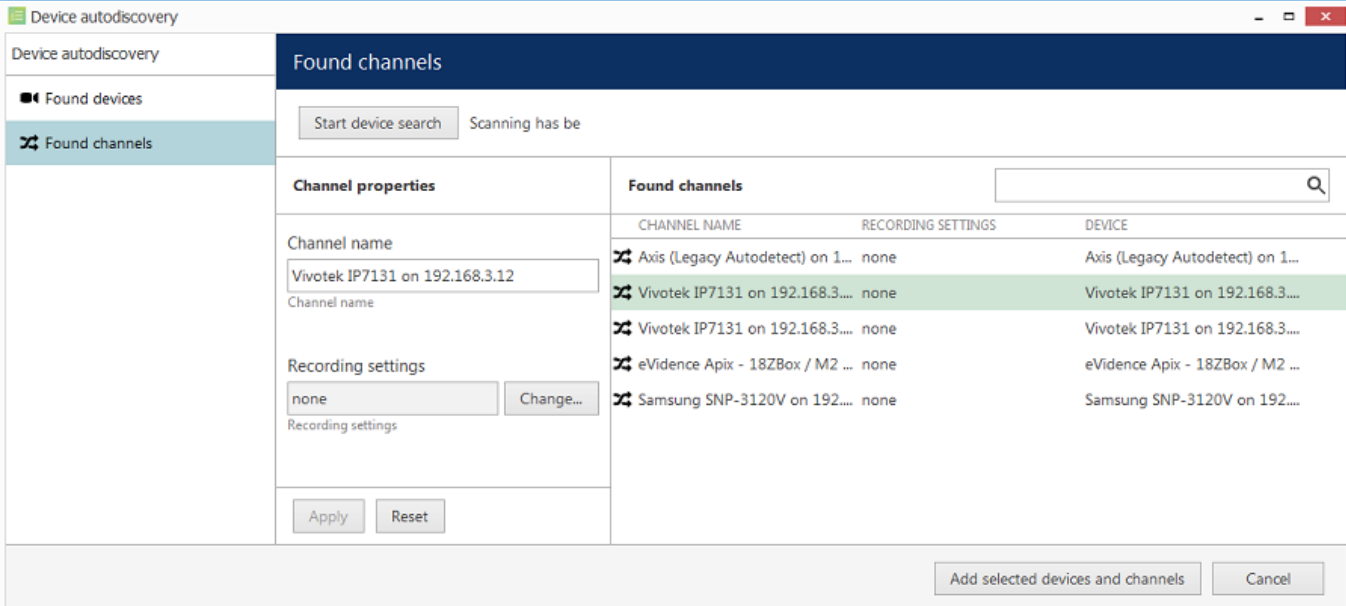
If device is not integrated with the software (native support), it may be detected as generic type (e.g., ONVIF). If you think some devices have not been discovered, check if they have different HTTP ports; also, try adding them [manually](#).

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.




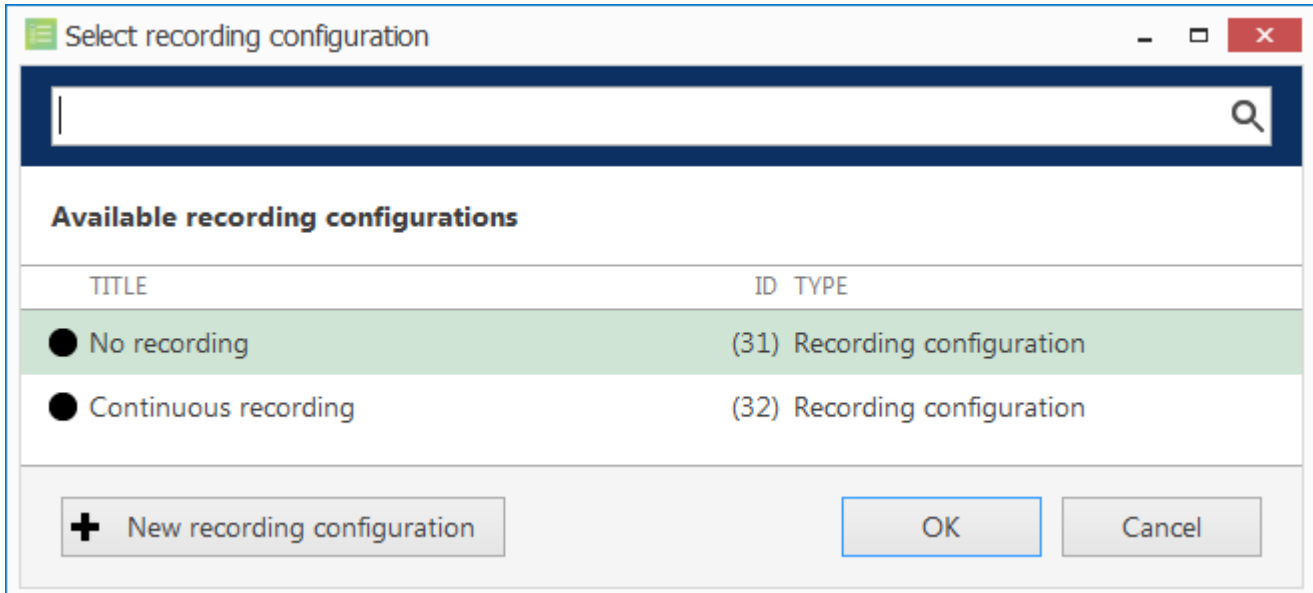
Set up discovered channels

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.

Ganz CORTROL Administration Guide


 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.

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Step 1 of 1 completed!

VMS Console Setup Wizard

Setup Wizard helps you to easily configure VMS Console.
Just follow the wizard's step-by-step process.



Step 1. Devices and channels

1 device(s) found and 1 channel(s) added, along with recording settings



Setup Wizard completed.

Restart wizard

Launch VMS Client

Done

Wizard completed successfully

If you are using the Ganz CORTROL Prime version of the software, you can now either restart the wizard to cover the rest of your devices, or close it. Press the Launch Ganz CORTROL Client button to switch to the monitoring mode at once.

Step 2: Users and User Groups

Ganz CORTROL Server users can press the *Launch Step 2* button to proceed with *Users*. This step will allow you to add users and user groups and give them permissions for the devices and channels added earlier.



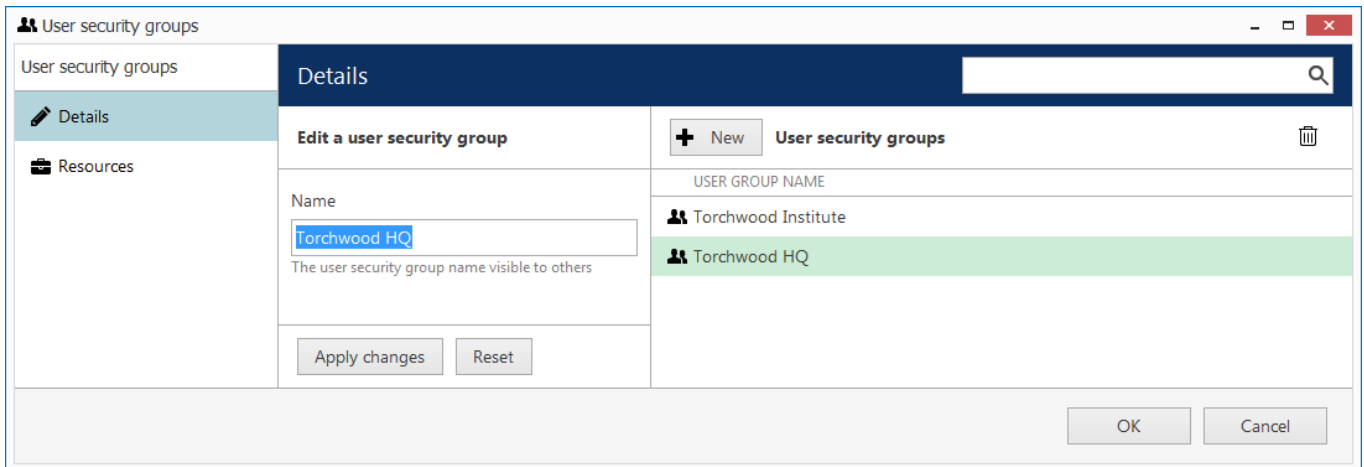
The built-in Administrator user account and built-in Administrators group are root users with access to absolutely all the available resources. As a result, resources choice is unavailable for the Administrators group, and it is also impossible to add Administrator user to any other group.

Any users added as members to the built-in Administrators group will have the same full authority as root users.

User Groups


First, decide whether you want to create user groups or work with a non-systemised array of user accounts. For large systems with complex user structure, groups are strongly recommended for reasons of improved manageability. Choose *No* to proceed with plain user management at once; otherwise, you will be offered the chance to create user groups and distribute existing resources between them. Note that the Setup Wizard interface offers simplified settings for user groups at this point; later, you will be able to create nested groups via the [corresponding](#) Ganz CORTROL Console section.

Ganz CORTROL Administration Guide

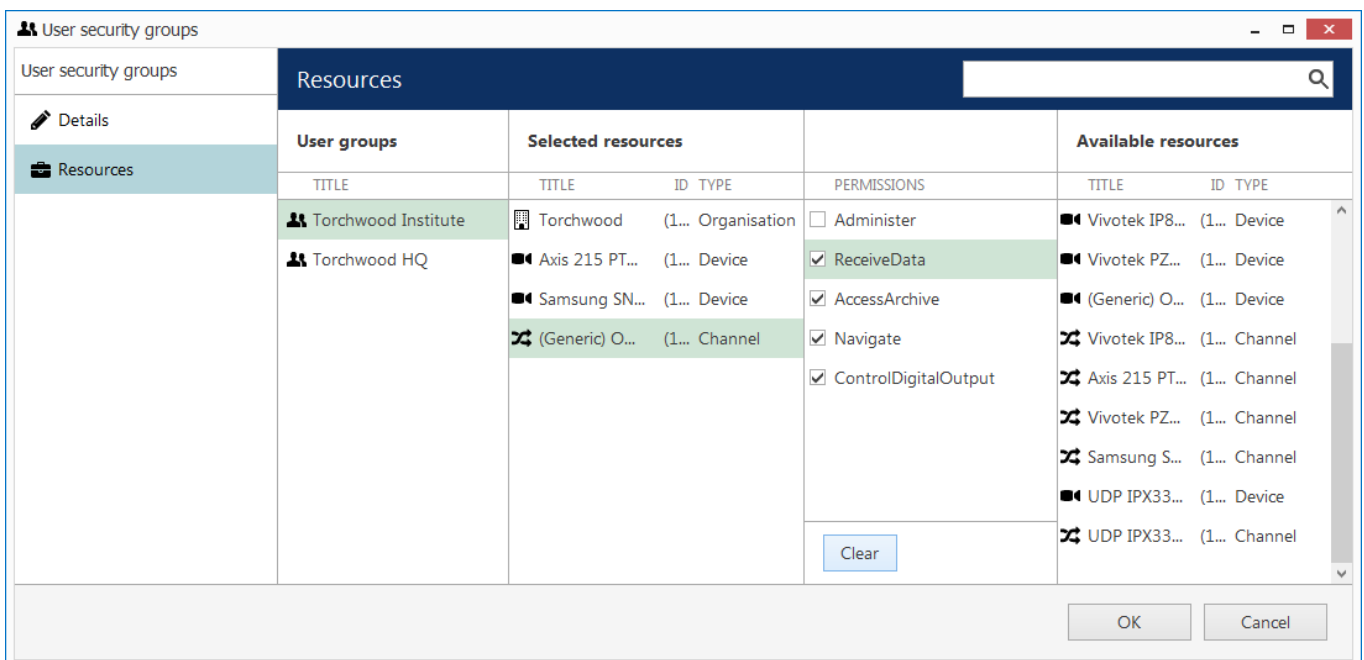


Add one or multiple user groups

Enter a name for the first user group and then click the *Create* button below: newly created group will appear in the item list on the right. By default, the last modified group stays opened for changes. Correct group name, if necessary and then click *Apply changes*, or click *Reset* to discard the latest changes and revert to the most recently saved state (the same thing will happen if you select a different item for editing).

To create more groups, click the + *New* button on the upper panel and proceed in the same way as on the first iteration. Use the  recycle bin icon to delete selected group(s) (hold CTRL or Shift to select multiple items).

Switch to the *Resources* tab to assign the permissions for this user group. Available resources at this point include servers, devices and channels.



Add resources for created group(s)

Choose the group name in the first column to manage its resources. To add a resource, pick at least one permission for it and it will be automatically moved to the *Selected resources* list. To remove a resource, uncheck all its permissions - either manually or using the *Clear* button below. Note that double-clicking resources does not work here as one or multiple different permissions must be specified.


When you have finished, click *OK* to proceed with user accounts.

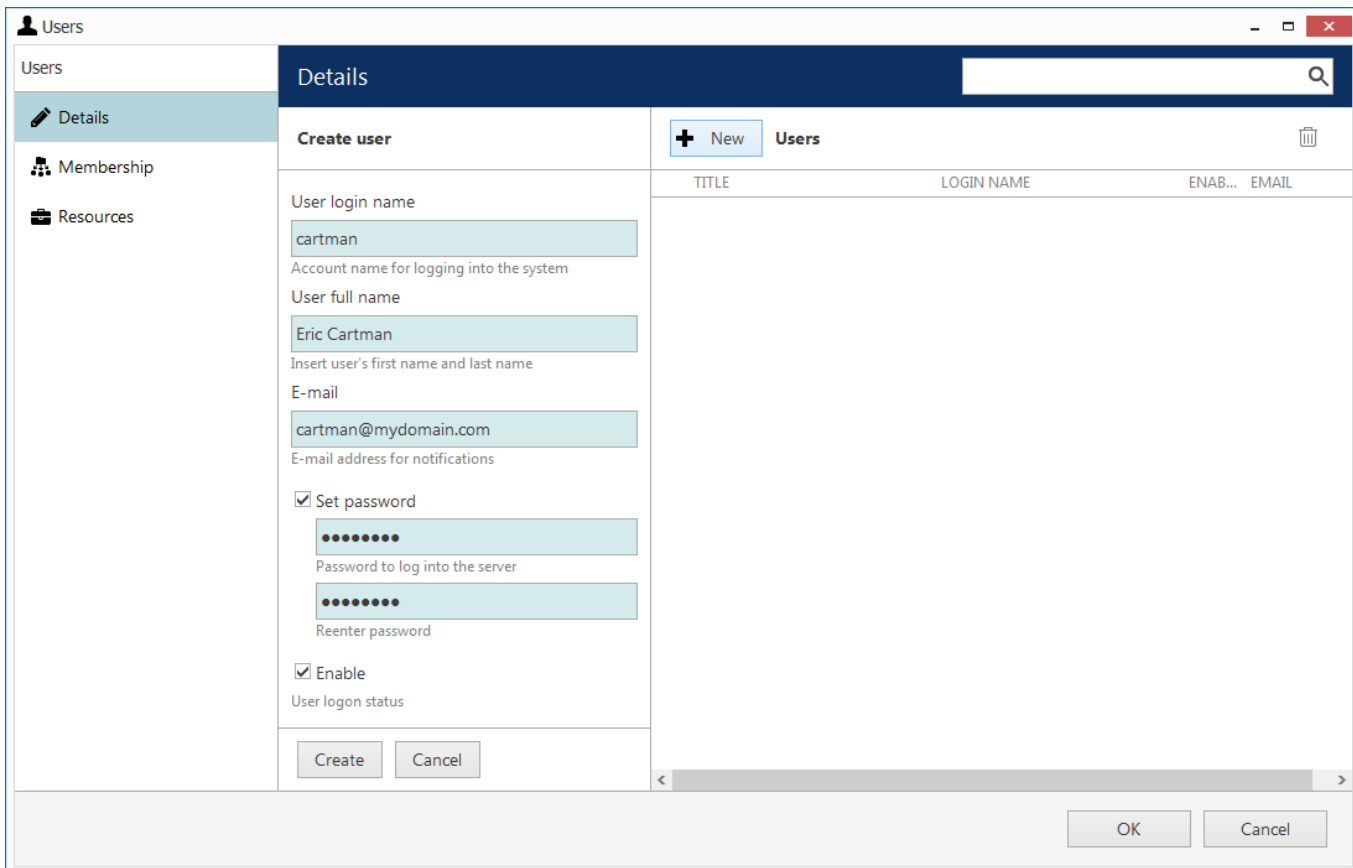
Users

To create the first user, simply fill in their details and then click *Create* below. By default, the most recently modified user will stay open for changes; correct user details, if necessary and then click *Apply changes*, or click *Reset* to

Ganz CORTROL Administration Guide

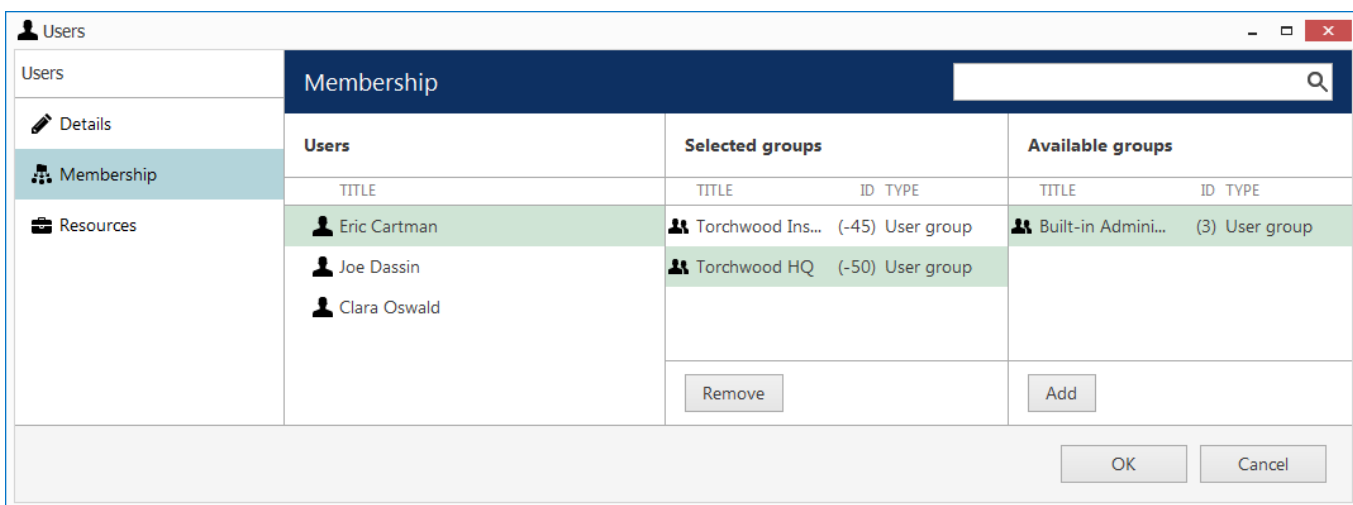
discard the most recent changes and revert to the latest saved state (the same thing will happen if you select a different item for editing). Note that you do not have to re-enter the password when editing - only activate *Set password* if you wish to re-define it.

To add more users, press the + *New* button on the upper panel and proceed in the same way as described previously. Use the  recycle bin icon to delete selected user(s) (hold CTRL or Shift to select multiple items).



Enter user details

One the *Details* tab, the following user properties are available (all fields are required): login, full user name, email address, password and status. Passwords must be entered twice - this is a security precaution to avoid typos. Every user is enabled by default meaning that the target account is active and can be used for server logon; disable user accounts you wish to suspend while keeping all user-related information and resource permissions.



Choose groups for the newly created users

On the *Membership* tab, select groups for the specified users to become members of: move groups by double-

Ganz CORTROL Administration Guide

clicking them or by using the *Add/Remove* buttons below.

Switch to the *Resources* tab to add individual resource permissions. This can be used both for group members and for users not belonging to any of the groups; individual permissions will not be removed if the user is excluded from the group.

To add a resource, pick at least one permission for it and it will then automatically be moved to the *Selected resources* list. To remove a resource, uncheck all its permissions - either manually or using the *Clear* button below. Note that double-clicking resources does not work here as one or multiple different permissions must be specified.

When you have finished, click *OK* to save and go back to the main wizard window.

Step 3: Events and Actions

On the last step, basic alarm and action management is introduced. Press the *Launch Step 3* button to open the dialog box.

Note that all the settings here apply solely to the channels discovered on the previous step; if you have configured other devices prior to launching this wizard, they will **not** receive the current event & action settings - launch the *Event & Action Configurator* to set up rules for other devices. You can also use *E&A Configurator* if you wish to add other (advanced) types of alarms and/or actions.

When you are finished with all steps, you have the following options:

- **Restart wizard:** start the wizard again to set up more resources
- **Launch Ganz CORTROL Client:** open Ganz CORTROL Client application (will close the wizard)
- **Done:** close the wizard and proceed to Ganz CORTROL Console

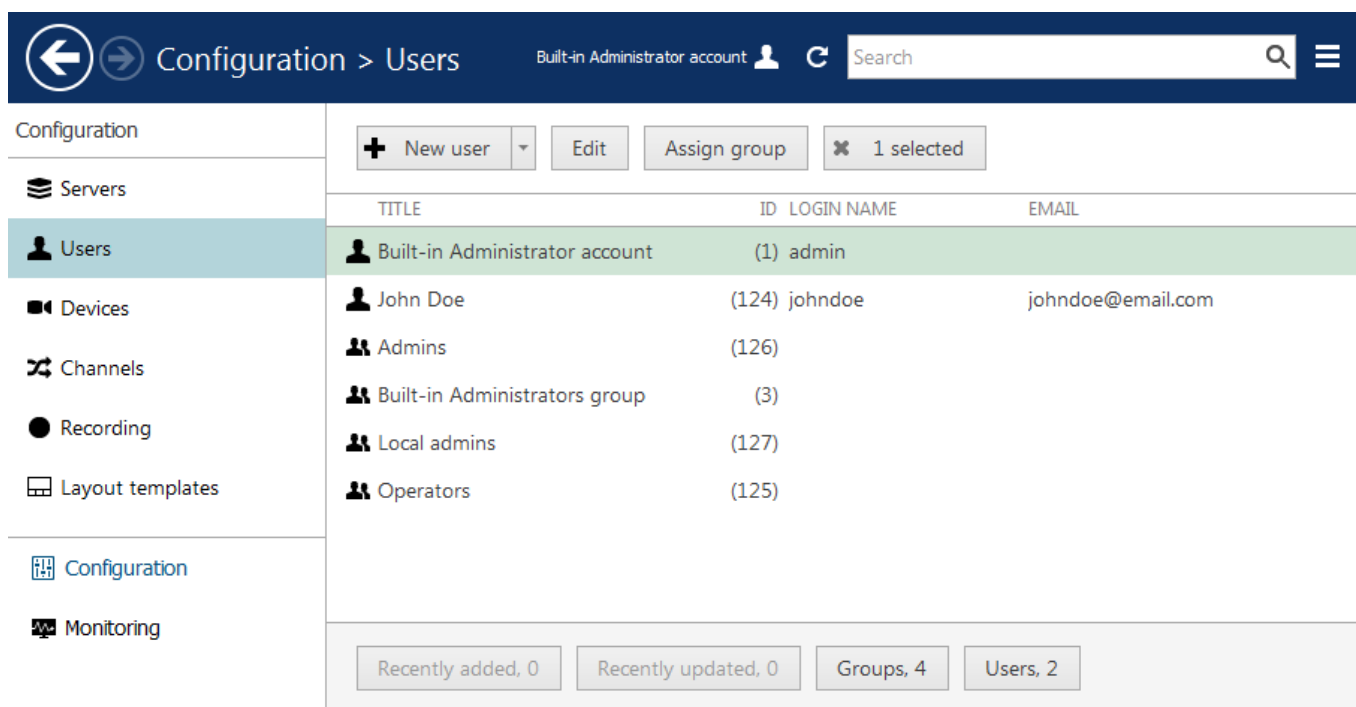
You can run this Setup Wizard again at any time via your Ganz CORTROL Console application menu in the upper right corner.

Ganz CORTROL Administration Guide

20 Interface Overview: Management Application

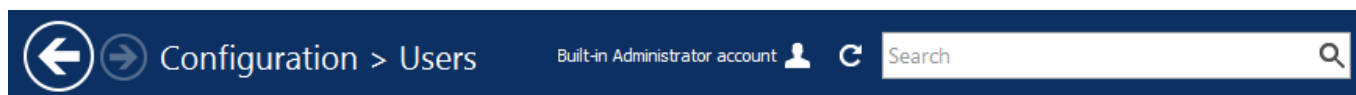
Ganz CORTROL Console is a straightforward graphics user interface tool with access to all possible server settings. To ensure comfortable and easy navigation, it is important that you become acquainted with its structure before starting to use it.

Note that Ganz CORTROL Console appearance depends on your software package and license limitations. Sections unavailable due to license restrictions will be greyed out but still listed to get you acquainted with all available features, and smaller functions will be simply hidden.



Ganz CORTROL Console management application interface

Navigation Panel



Ganz CORTROL 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

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Application Menu

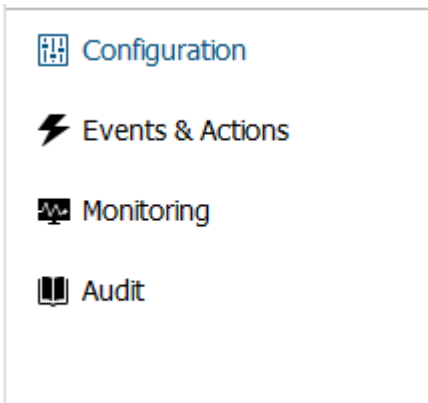


Application Menu, position: top right

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

- launch the [Setup Wizard](#)
- import the [configuration from an XML file](#)
- import the [configuration from another Ganz CORTROL server database](#)
- change Ganz CORTROL Console settings
- set up [automatic configuration backup](#)
- [remotely upgrade](#) system components
- open the [About](#) section

Sections



Sections panel, position: bottom left

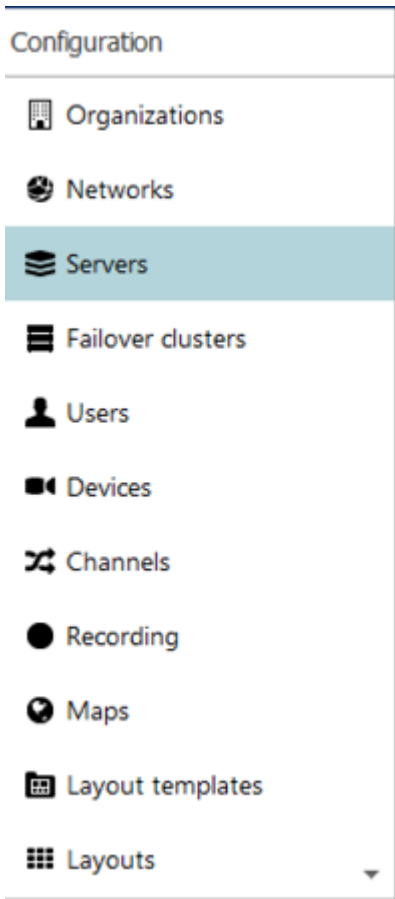
The bottom left panel allows you to switch between the four main Ganz CORTROL Console sections: Configuration, Events & Actions, Monitoring and Audit. The contents of the components panel on the left will change depending on the selected section. If the Ganz CORTROL Console windows is resized, the sections will be reduced to icons.

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, External Services, Failover clusters, Users, Devices, Channels, Recording, Maps, Layout templates, Layouts, Video Walls, User Buttons, Visual groups, Live Podcasts, Data Sources
- Events & Actions
 - Rules, Events, Actions, Global Events, Conditions, Schedules, Mail servers
- Monitoring
 - Servers, Devices, Channels, Streams, Archive Statistics, Storages, User Sessions, Video Walls, External Services
- Audit
 - Servers, Users

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Components panel, position: left

Item List







TITLE	ID	LOGIN NAME	EMAIL
 Built-in Administrator account	(1)	admin	
 John Doe	(124)	johndoe	johndoe@email.com
 Admins	(126)		
 Built-in Administrators group	(3)		
 Local admins	(127)		
 Operators	(125)		

Item list, position: centre

The main part of the Ganz CORTROL 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 it 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.

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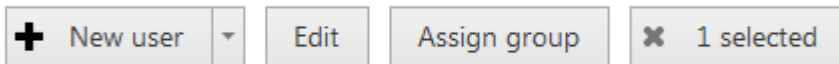
TITLE	LOGIN NAME	ORGANISATION	ENABLED
 Built-in Administrator account	admin		
 James Bond	jamesbond		
 Jimmy Neutron	jimmyneutron		
 Johnny English	johnnyenglish		
 Built-in Administrators group			
 Supervisors			

A↓ Sort Ascending
Z↓ Sort Descending
Best Fit
Best Fit (all columns)

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 Ganz CORTROL Console restart.

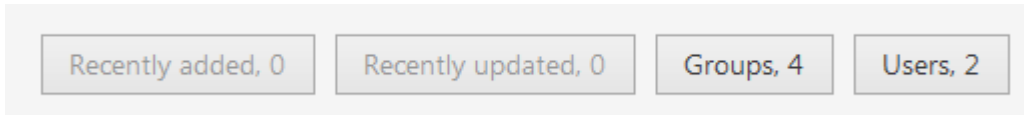
Item Actions



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



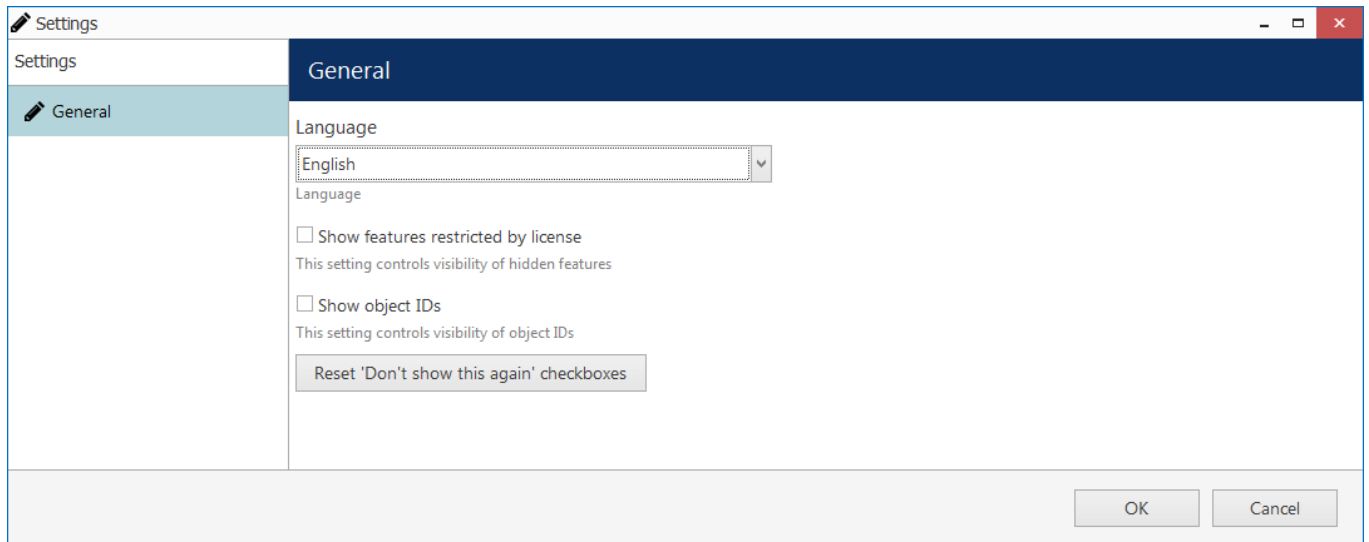
Item filters panel, position: bottom right

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.

Application Settings

To change Ganz CORTROL Console settings, go to the main application menu in the upper-right-hand corner and choose *Settings*.

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Ganz CORTROL Console application settings

Here, it is possible to:

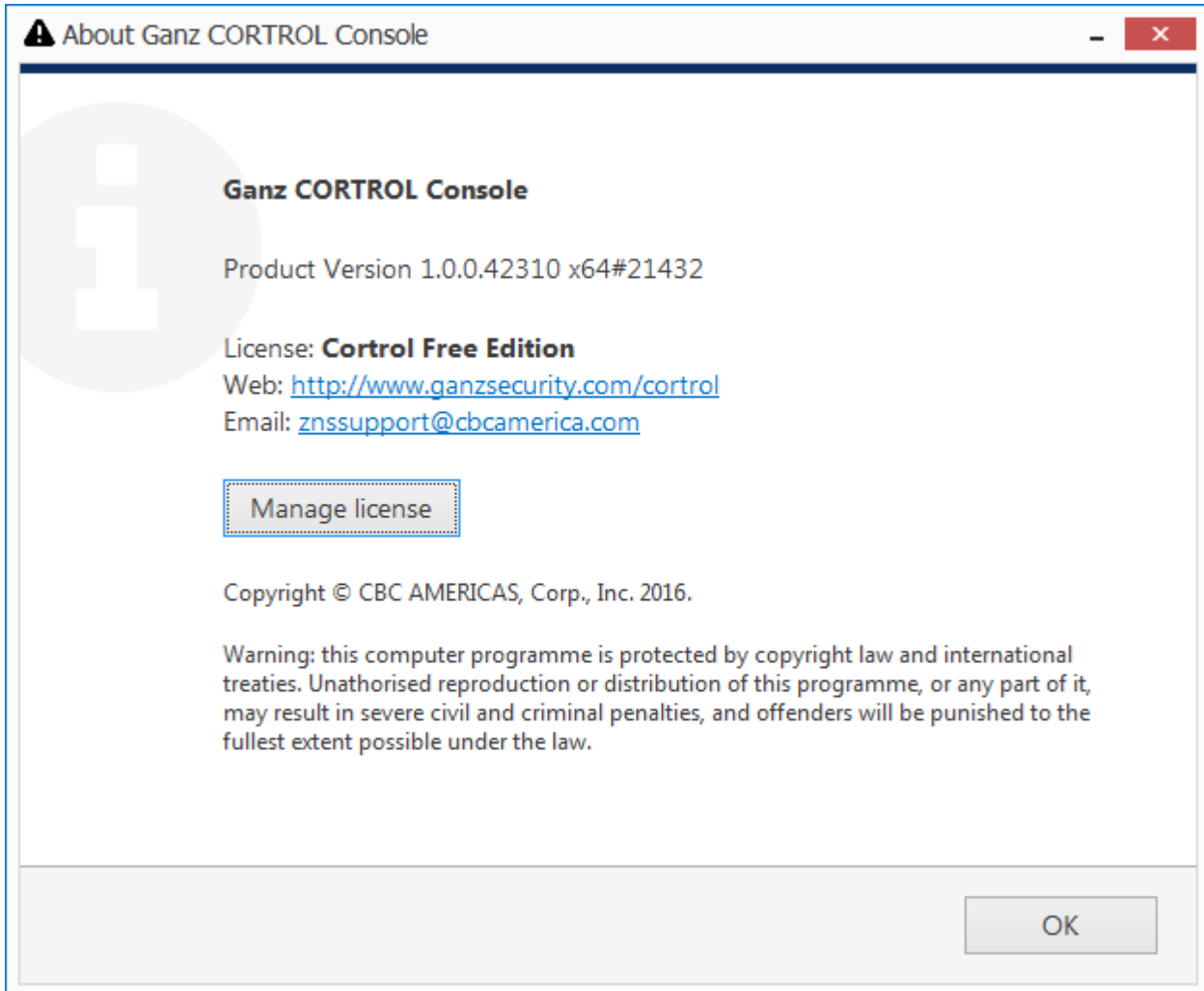
- change application language (by default, the language chosen during installation is used)
- show or hide software features restricted by license
- show or hide object identifiers
- reset all *Don't show this again* checkboxes, which have been set so far

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21 About Product

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

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



About Ganz CORTROL Console

If you are connected to your Ganz CORTROL server locally (via *localhost*), the *About* window will allow you to open the activation manager from here (except for Ganz CORTROL Client). For remote connections, this option will be grayed out.

22 Conventions and Keyboard Shortcuts

Mouse Gestures

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

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

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

Right-click on a text field: standard text edit menu

Right-click on a text field when creating an action: standard text edit plus text macros

Keyboard Shortcuts



Backspace: browse one step back in Ganz CORTROL Console


Alt+F4: close Ganz CORTROL 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, hover mouse cursor for more information

 More information about the item, click to view the details


 Refresh item list

 Search

Ganz CORTROL Console sections

 Configuration

 Events & Actions

 Health monitoring

 Audit log


Management

  Network (server connection), connection settings

 Server




























 Server group

 External service

 External service group

 Failover cluster

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-  Software Watchdog
-  Storage
-  Resources (all or any type)
-  User account/session
-  User group
-  General details
-  Members of the current item
-  Current item membership in other groups
-  User and user group permissions for target item
-  Device
-  Device group
-  Channel
-  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
-  Layout
-  Layout group
-  Map
-  Video wall
-  User button
-  Visual group
-  Shared channel
-  Audit Journal (software log)
-  Set (period etc.)


Events & Actions

-  Rules
-  Events
-  Actions
-  Global events

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 Conditions

 Event & Action schedules

 Mail servers

 Action delay timers


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23 Encryption

All Ganz CORTROL editions have enhanced security aimed at data protection, which includes not only advanced permission management but also encryption wherever possible. Data protection for Ganz CORTROL encompasses database encryption, server-to-server and server-to-clients connection encryption, as well as password protection for the proprietary archive.

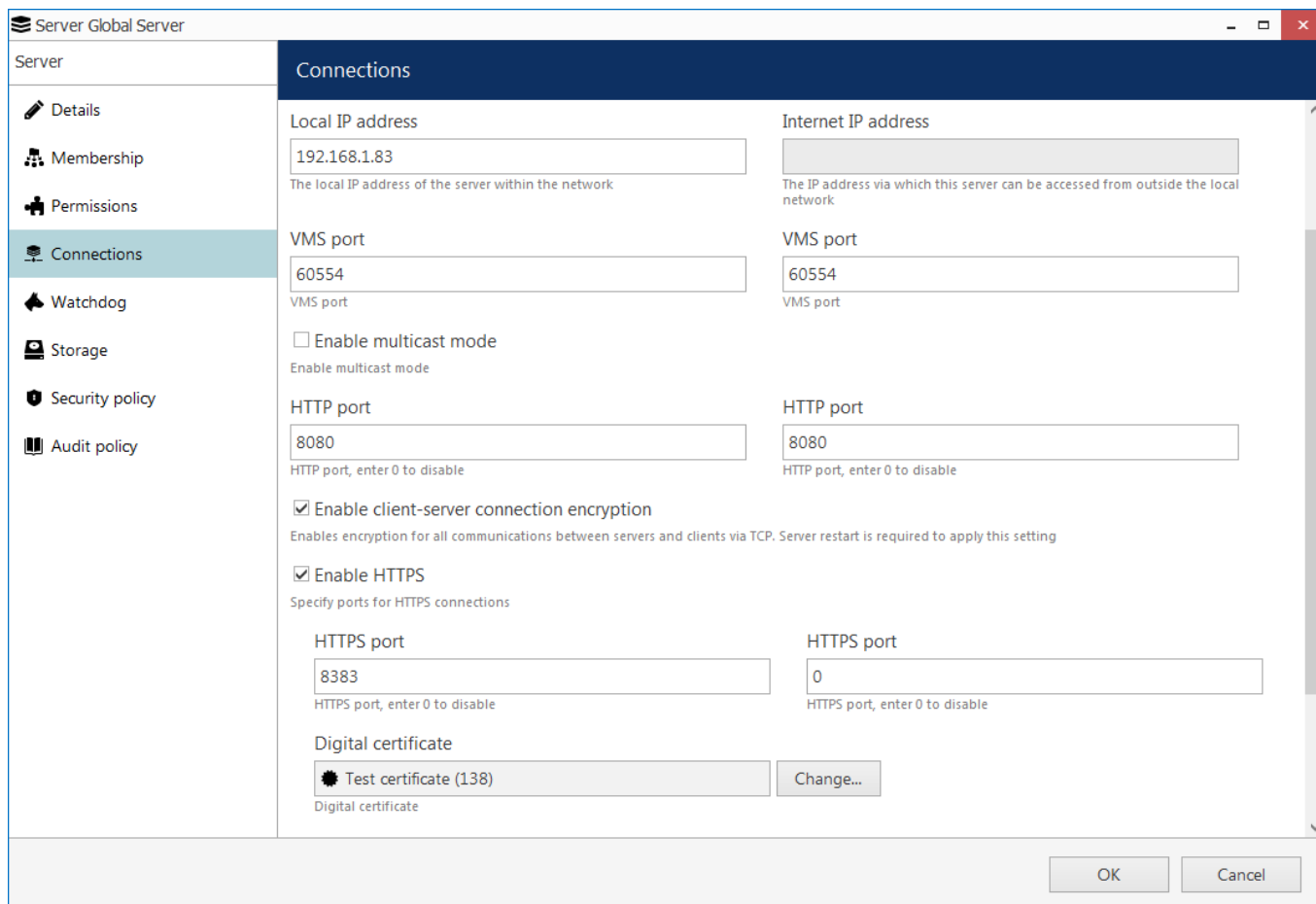
Database Encryption

Ganz CORTROL server uses several databases for storing the server configuration, audit logs and other software data, and all of them are encrypted by default. Once you install the software version that supports database encryption, all the databases are automatically converted to the encrypted format. There is no need to adjust any settings to enable this feature.

 Database encryption was introduced starting from the Ganz CORTROL version 1.8.0 and is supported in all succeeding versions.

Connection Encryption

Traffic encryption is not enabled by default, it can be turned ON in the [server settings](#), in the *Connections* tab. There are separate settings for TCP connection encryption and HTTPS.



The screenshot displays the 'Connections' tab in the 'Server Global Server' application. The interface is divided into a left sidebar with navigation options (Details, Membership, Permissions, Connections, Watchdog, Storage, Security policy, Audit policy) and a main content area. The main area is split into two columns for 'Local IP address' and 'Internet IP address'. Each column contains fields for 'Local IP address', 'VMS port', 'HTTP port', and 'HTTPS port'. Below these are checkboxes for 'Enable multicast mode', 'Enable client-server connection encryption', and 'Enable HTTPS'. The 'Enable client-server connection encryption' and 'Enable HTTPS' checkboxes are checked. The 'Digital certificate' field is set to 'Test certificate (138)' with a 'Change...' button next to it. At the bottom right, there are 'OK' and 'Cancel' buttons.

Ganz CORTROL Global server connection settings with encryption options

Client-Server Connections

This setting affects all TCP traffic between servers and clients, including server-to-server communications in Ganz CORTROL Global.

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⚠ When [configuring a Ganz CORTROL Global system](#) that has remote servers and clients of version 1.7 or earlier, make sure to upgrade all remote components to the same version as Ganz CORTROL Global so that they support encrypted connections. As soon as it is done, you can safely enable encryption for TCP connections.

HTTPS

Connections from remote Web browser clients and mobile applications, as well as API connections, can also use a secure channel instead of plain HTTP.

To enable secure communications, enable HTTPS in the server settings, then specify desired HTTPS ports (different from HTTP ports) for local and internet connections, and then add the digital certificate you wish to use; you can either use your own certificate or generate a self-signed one right on this step.

⚠ If you are setting up a Ganz CORTROL Global system:

In addition to the setup in the central management server settings, HTTPS should be enabled for each Ganz CORTROL Recorder **separately**, in the settings of the target server. The certificate, though, should be only added **once**, and then you just need to choose it from the list, when setting up HTTPS on the Ganz CORTROL Recorder machines.

💡 It is recommended that you use a valid digital certificate signed by a trusted authority instead of self-signed ones. If you use a certificate generated by Ganz CORTROL, your browser will show you a warning.

Archive Encryption

Each archive storage (local or network), as well as archive backups made through the [Archive Backup Wizard](#), can be encrypted. You can provide a different password for every storage unit, and there is also an option to change the password at any time.

Regular Server Archive

To access the archive encryption settings in Ganz CORTROL Console, open the *Configuration* section, choose *Servers* on the left, then double-click the desired server to edit its settings. In the *Storage* tab, click the *Open storage properties* button.

The screenshot shows the 'Storage properties' window with the 'Directories' tab selected. On the left, there are options for 'Directories', 'Duration quota', 'Retention', and 'Fallback'. The 'Edit directory details' section shows the path 'I:\Archive Files', a quota of '200.00' GB, and the storage type 'S1'. A 'Set password' dialog box is open over the table, with fields for 'New password', 'Repeat password', and 'Password hint' (containing 'My favorite book, p.31, 45th row').


PATH	STORAGE	QUOTA	FREE SPACE	TOTAL SIZE
1 I:\Archive Files	S1	200.00 GB	821.30 GB	931.51 GB

Password-protected storage setup

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Click the target storage in the list on the right or add a new local or network storage unit by using the *+New* button above the storage list: its properties will appear on the left. Mark the *Enable encryption* option and specify the password you want.


To **save the changes**, hit the *Apply* button beneath the storage settings, then hit *OK* to close the storage configuration dialog box, and then click *OK* to finally save the storage settings together with the server configuration. Pressing *Cancel* on the last step will revoke the changes in the storage configuration.

 When assigning a new password for the storage, make sure to remember it or store in a secure place: you will require it, should you need to access the storage contents in the following scenarios:

- when accessing the archive with the Portable Player tool
- when adding the same disk as a storage unit for another server
- when adding a disk with archive backup as a storage unit
- if you delete the encrypted disk from the storage configuration and then add it anew

There is a field that allows you to enter a password hint, which will be displayed in these situations.

You will not be prompted for the password when accessing the archive from the Ganz CORTROL Client application connected to a server with encrypted archive: Ganz CORTROL server will decrypt it automatically.


 There is no option to recover the password if you have forgotten it.

Starting from the moment you set the password, all footage recorded to the target storage becomes encrypted; retroactive encryption for the previously recorded archive is not supported. If you wish to have the already recorded data to be encrypted, you can use the [replication feature](#) in Ganz CORTROL Global, targeting the replicas to an encrypted storage.

When the storage password is changed, the new password is used for encryption from then on. If storage encryption is disabled for some time and then enabled back, that part of the archive will remain unencrypted.

Adding an Encrypted Disk

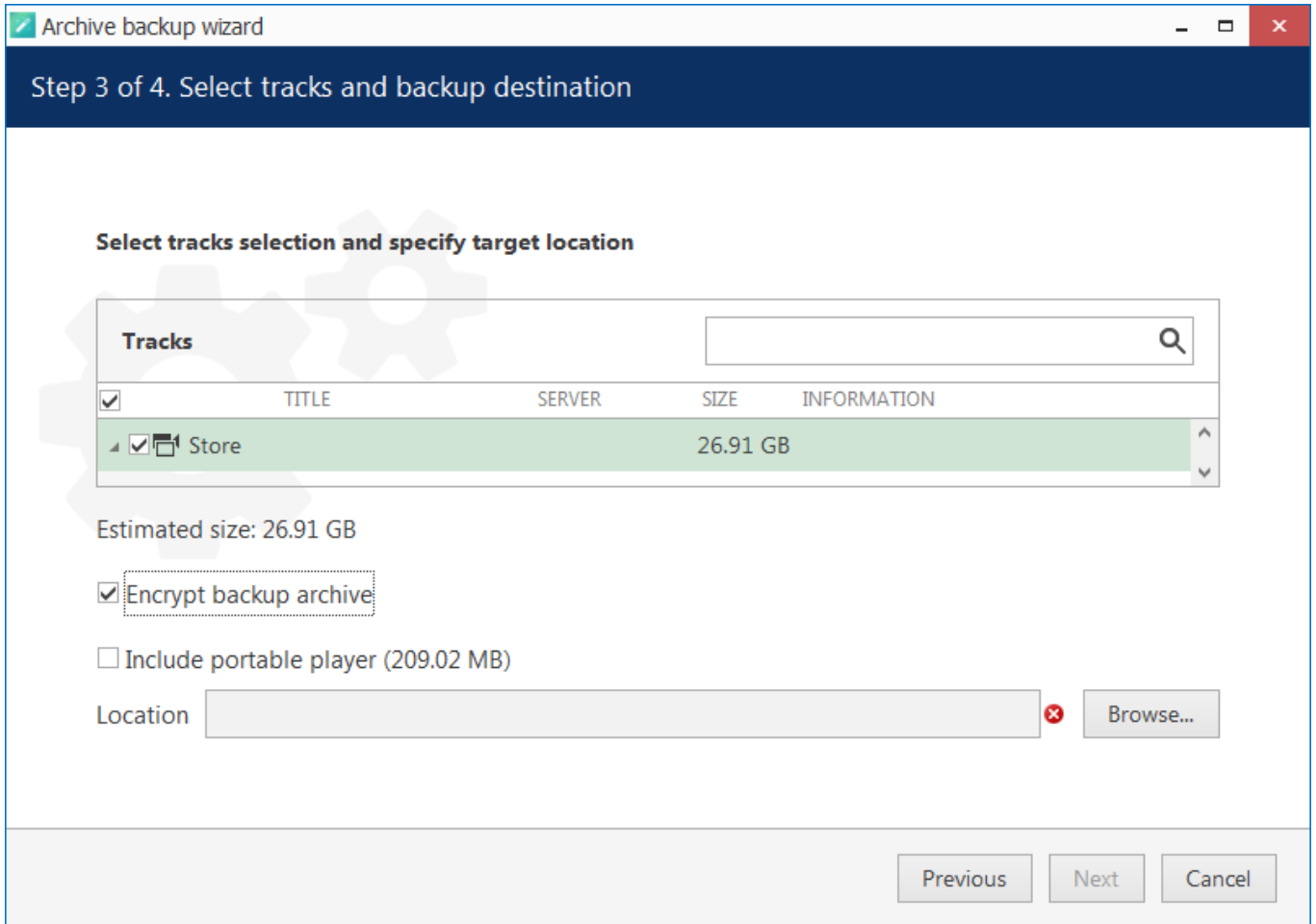
If you wish to use a storage, which contains encrypted archive, as a new storage unit and add it to the server configuration, you will be prompted for the password. You need to provide the **password** that was used to encrypt that disk. If you have provided a password hint earlier, it will appear as a **tooltip** when hovering your mouse over the password field.

 Do not modify the contents of encrypted disks manually, this may result in the corruption of the whole archive.

Archive Backups

The [archive backup tool](#) also provides an option to specify a password to encrypt the backup.

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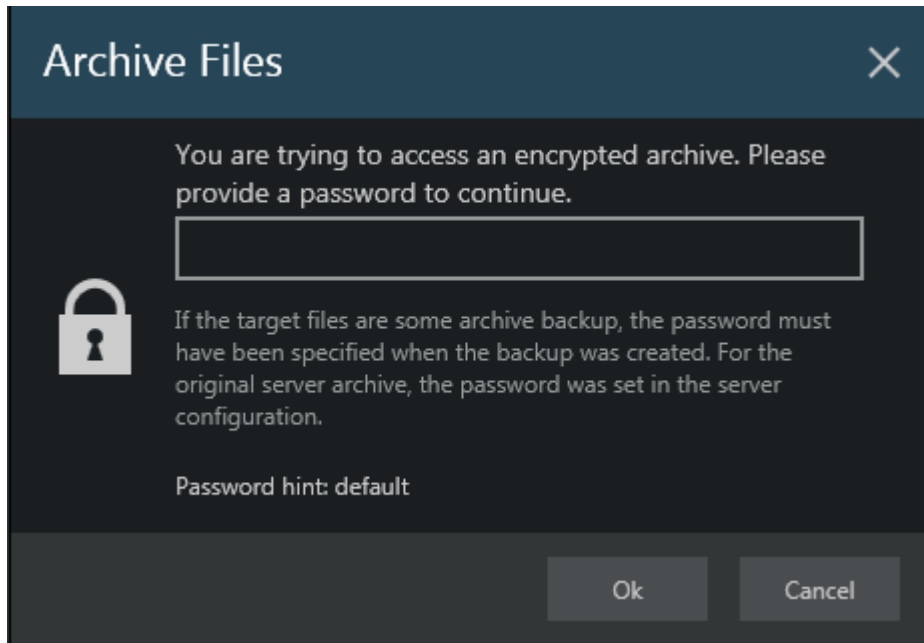
Password protection for the archive backup

There is no difference if the backup is made from an encrypted or an unencrypted storage; the password provided at this step will be used in future for archive access, whether you read the disk contents using the Portable Player tool or add the disk as a new storage to some Ganz CORTROL server.

Encrypted Archive Access

When accessing an encrypted storage via Ganz CORTROL Client and Ganz CORTROL Mobile, the archive is decrypted automatically and provided for browsing according to the user permissions.

Should you want to access a directory that contains proprietary Ganz CORTROL archive or its part (backup) using Ganz CORTROL Portable Player tool, you will be prompted for the password.




Encrypted archive access in the Portable Player tool.

If you have specified a hint at the point of setting the password, it will be displayed as text or as a hint when hovering your mouse over the password field.

24 Server Settings

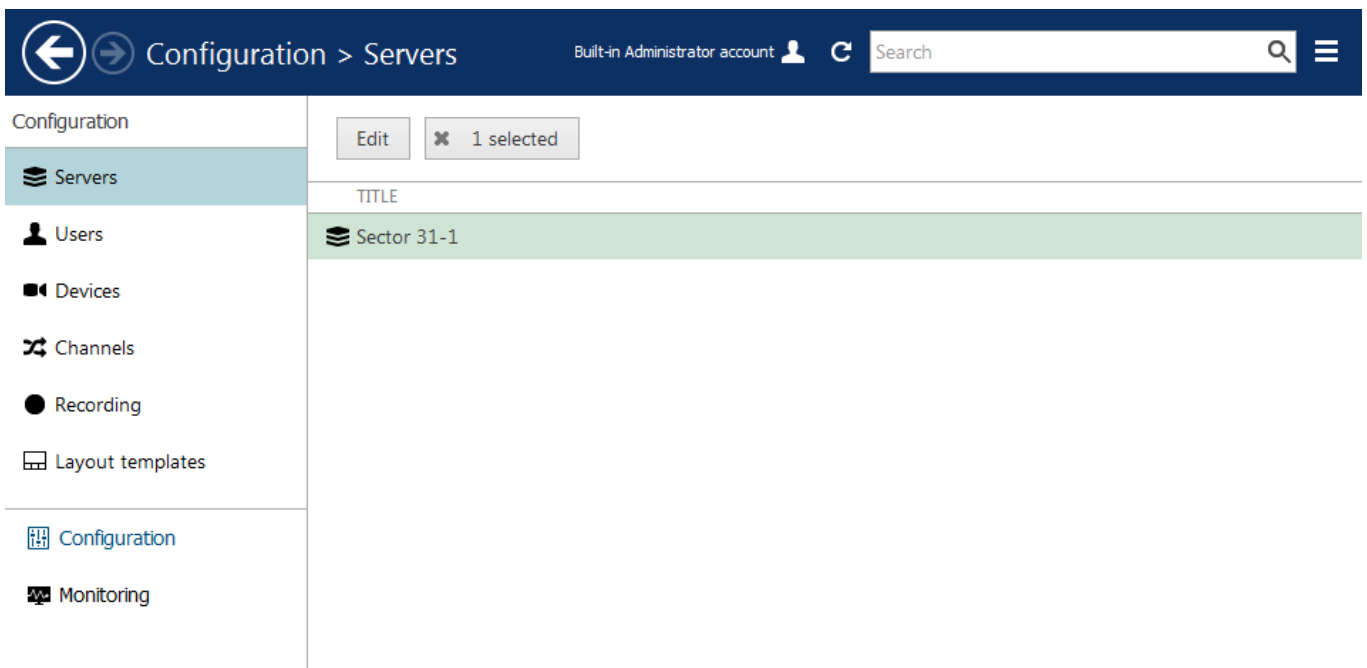
All the changes in the server configuration are done via Ganz CORTROL Console application. The settings are immediately saved and stored in an **encrypted internal database**, which guarantees that your server configuration cannot be accessed without entering a valid username and password.

 Server database encryption is automatic, meaning that you do not need to enable it explicitly, and is available starting from the software version 1.8.0.

This topic describes available server settings.

General

In order to access Ganz CORTROL Server settings via Ganz CORTROL Console, select *Configuration* section and then choose *Servers* components from the menu on the left.



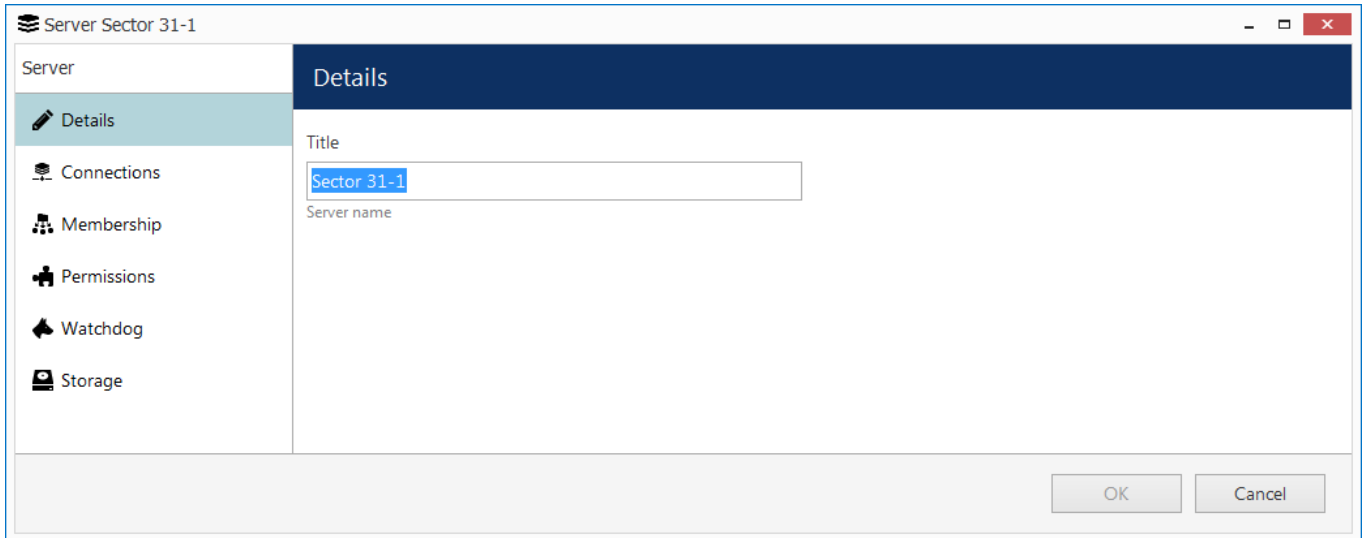
Configuration -> Servers

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

Details

On the *Details* tab, you can change the server **name**: it will appear everywhere in Ganz CORTROL Console and in the connected Ganz CORTROL Client applications, including Web client.

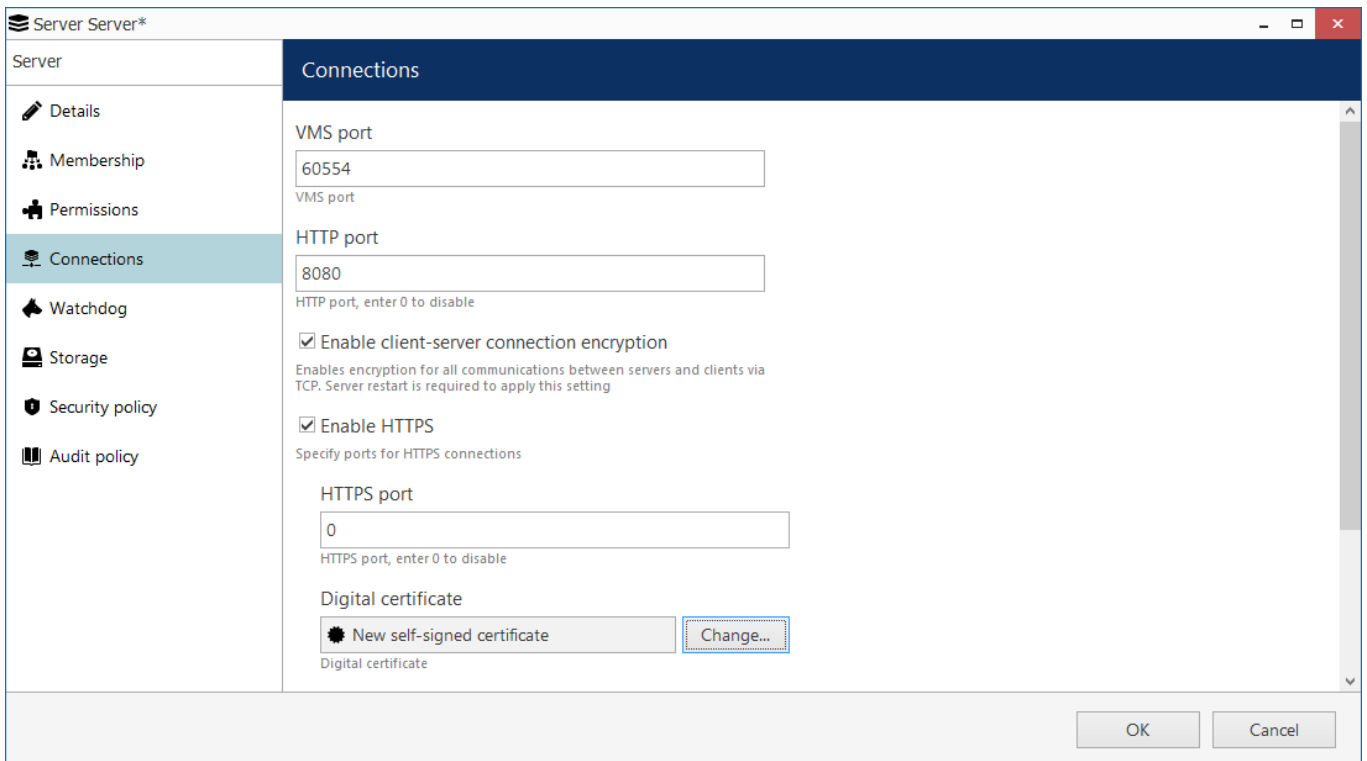
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Server details

Connections

The *Connections* tab allows you to define **ports** for Ganz CORTROL Client and Ganz CORTROL Streaming Server connection; the default ports are **60554** for Ganz CORTROL Client and **8080** for Ganz CORTROL Streaming Server (HTTP). Note that, in case you plan to access your Ganz CORTROL Server server from the Internet, the ports must be properly forwarded on your router according to your desired topology and allowed through the firewall. Details on the port forwarding setup can be found in your router operation guide.



Connection settings


Here, you can **enable encryption** for client-server connections and also for HTTP connections (by default, it is disabled).

Server-client encryption setting affects all TCP traffic, i.e.:

- Ganz CORTROL Console connections to the Ganz CORTROL Server server
- Ganz CORTROL Client connections to the server

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When you change the server-client encryption setting, all currently connected clients - both Ganz CORTROL Console and Ganz CORTROL Client applications - will be disconnected so that the encryption settings can be applied correctly. They will re-connect back shortly provided that they support encryption, too - make sure to upgrade them so that their version matches server version.

 Connection encryption is supported starting from software version **1.8.0**. If your system has remote Ganz CORTROL Console and/or Ganz CORTROL Client applications of **older versions**, these will be **unable to connect** to a server that has encryption enabled; therefore, first make sure to **upgrade all the clients** and only then enable encryption on the server side.

To enable **HTTPS** (HTTP over TLS), mark the corresponding setting and then:

- specify HTTPS port (different from HTTP)
- add a digital certificate

You can either use your own valid **digital certificate** or generate one right in the software. In the latter case, the certificate will be self-signed and you will need to add it as trusted when connecting from the mobile app and from your Web browser(s).

 If you are using your own CA certificates, create a *.pem* file with your certificate chain as described here: <https://www.digicert.com/ssl-support/pem-ssl-creation.htm>

This is necessary for the certificate to be recognized correctly by all HTTP clients - Web browsers and Ganz CORTROL mobile applications. If you simply apply your CA certificate in Ganz CORTROL Console, there is a chance it is not recognized because some applications require the entire certificate chain.

Then, apply the *.pem* file as the certificate together with your key when the importing certificate into Ganz CORTROL Console.

Also, if you are going to use SNMP traps in your [Event & Action](#) scenarios, here you can define server's **SNMP community** name and **SNMP port** for incoming and outgoing messages. Community will be used by the SNMP manager to send requests; SNMP port will serve for both incoming and outgoing messages (supported incoming messages are third-party SNMP manager requests, **not** external SNMP traps!). Leave both values **zeroed to disable** this functionality.

The next topics describe the remaining aspects of server settings in details.

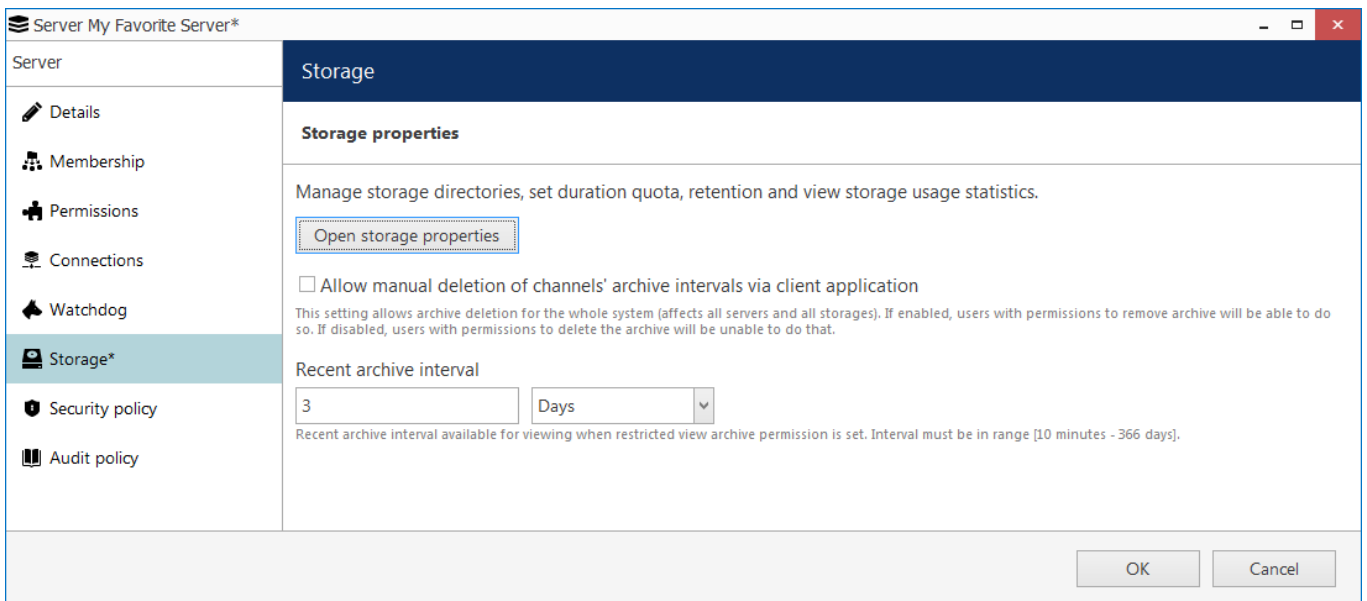
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25 Storage

Server storage configuration includes storage directories, size and duration quotas, optional encryption, 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 Ganz CORTROL Console, choose the *Configuration* section, then select *Servers* from the menu on the left, double-click your server and then click the *Storage* tab. Click the *Open storage properties* button to open the configuration dialog box.

There are also several settings in server settings dialog box itself. These are explained in the end of this chapter.



Access storage settings for selected server

To **save the changes** after you have finished with storage configuration, hit the *Apply* button beneath the storage settings, then hit *OK* to close the storage configuration dialog box, and then click *OK* to finally save the storage settings together with the server configuration. Pressing *Cancel* on the last step will revoke the changes in the storage configuration.

Directories

All available **local disks** will be automatically listed after the first installation (with empty configuration) and enabled for recording with default archive directories using the *Default* storage label. By default, system disk (C:) is not listed if other disks are available, as we strongly do not recommend recording to the system disk.

If you are upgrading, re-installing the software, [restoring](#) an earlier database configuration, or inserting new local disks into the server after the software has been installed, the local disks will not be listed automatically so you need to **add** them as **new storages**. You can also add network paths to remote storage locations.

Use UP and DOWN arrows on the right to change the disk order (priority); use the recycle bin button in the top panel to **remove** any local or network directory from the storage configuration.

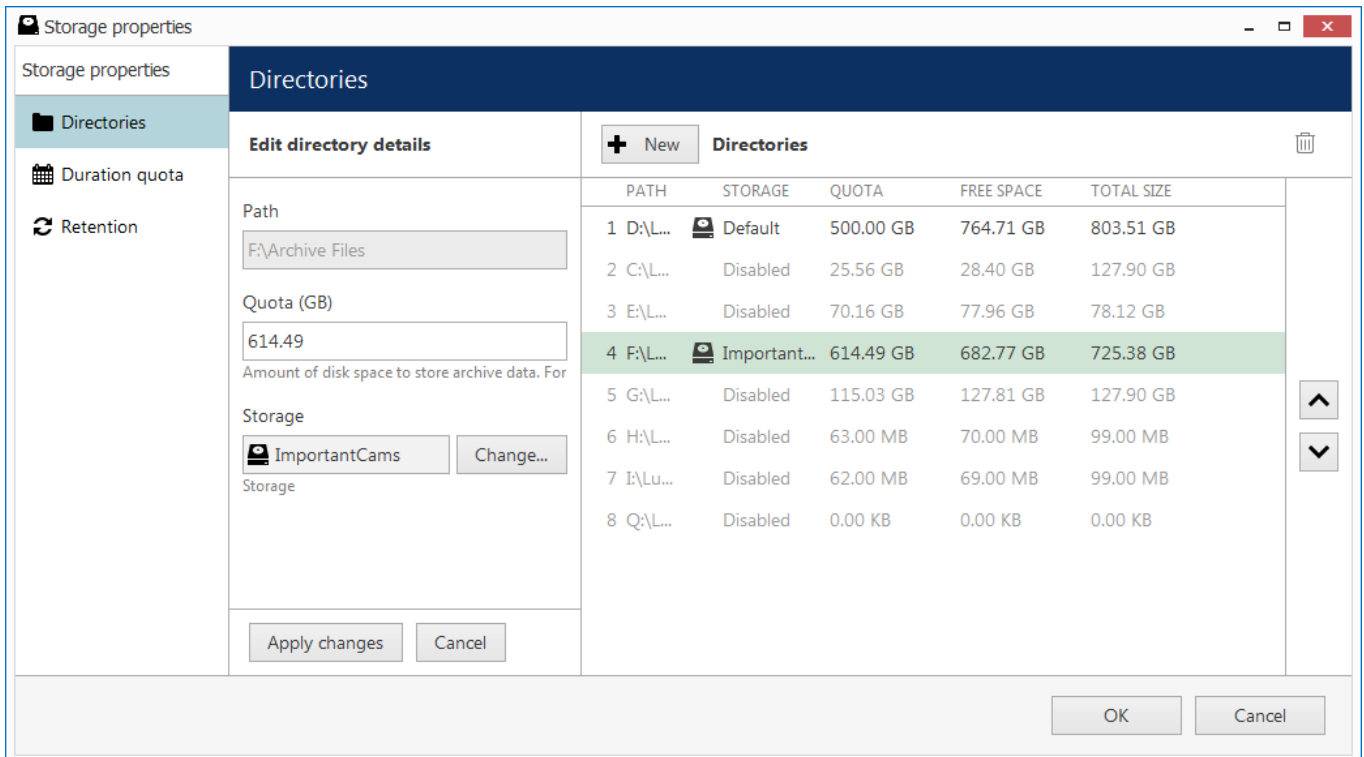


Mapped network shares that appear as drives in Windows Explorer will **not** be listed automatically because Ganz CORTROL operates as Windows Service and therefore is unable to access these (due to Windows API peculiarities). You are welcome to add these as network directories in storage settings.

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


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


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Configure storage directories


Each directly attached storage location will be automatically assigned a quota of 90%; each storage will have 20GB quota by default. We strongly advise that you review all the settings and make sure that all the storage locations have sufficient free space, and, if necessary, 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.

 **Minimum quota** per each storage location for any storage type is 20GB.

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

 Total size and free space on the **network storages** is not displayed here. You can check these in the *Monitoring* section of Ganz CORTROL Console, under *Storages*.

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*.

 If you plan to **protect** some footage from being erased (this functionality is available via Ganz CORTROL Client application), keep in mind that **protected archive** areas will be **ignored when forcing quotas**. Make sure there is enough free space on the disk(s) and set lower quotas, if necessary.

To review and/or **un-protect** such areas, go to the *Monitoring* section of Ganz CORTROL Console, choose *Archive statistics* on the left, highlight one or more target channels, and press the [Protected intervals](#) button on the top panel.

Storages

You can either use the *Default* storage category for all locations, or create multiple different **storage** profiles (types, names, labels). 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

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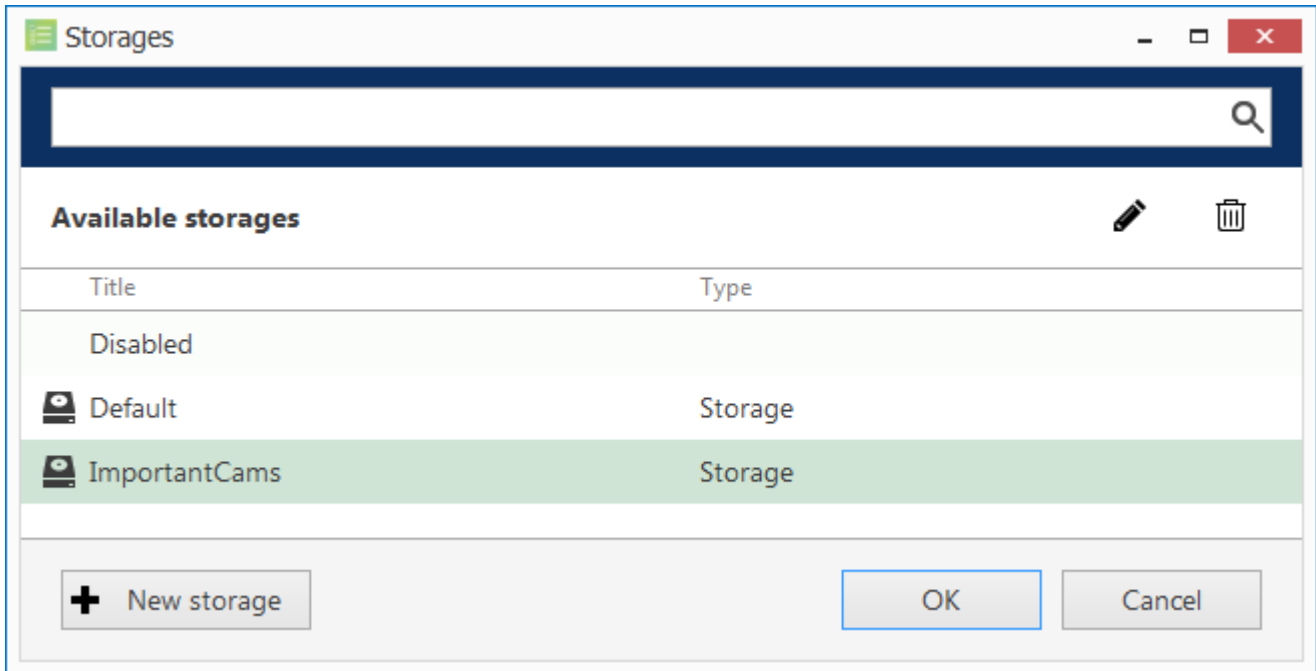
To choose a storage profile different from the *Default*, select the storage location from the *Directories* list and click the *Change* button.

Storage



Change storage

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




Choose storage profile

The built-in storage types are:

- **Disabled:** storage location will not be used
- **Default:** default storage tag
- **Fallback:** storage destination to be used if all the storage units with specified tags have failed
- **Readonly:** existing data will be available for reading and will not be erased; no new recordings will be appended to this location

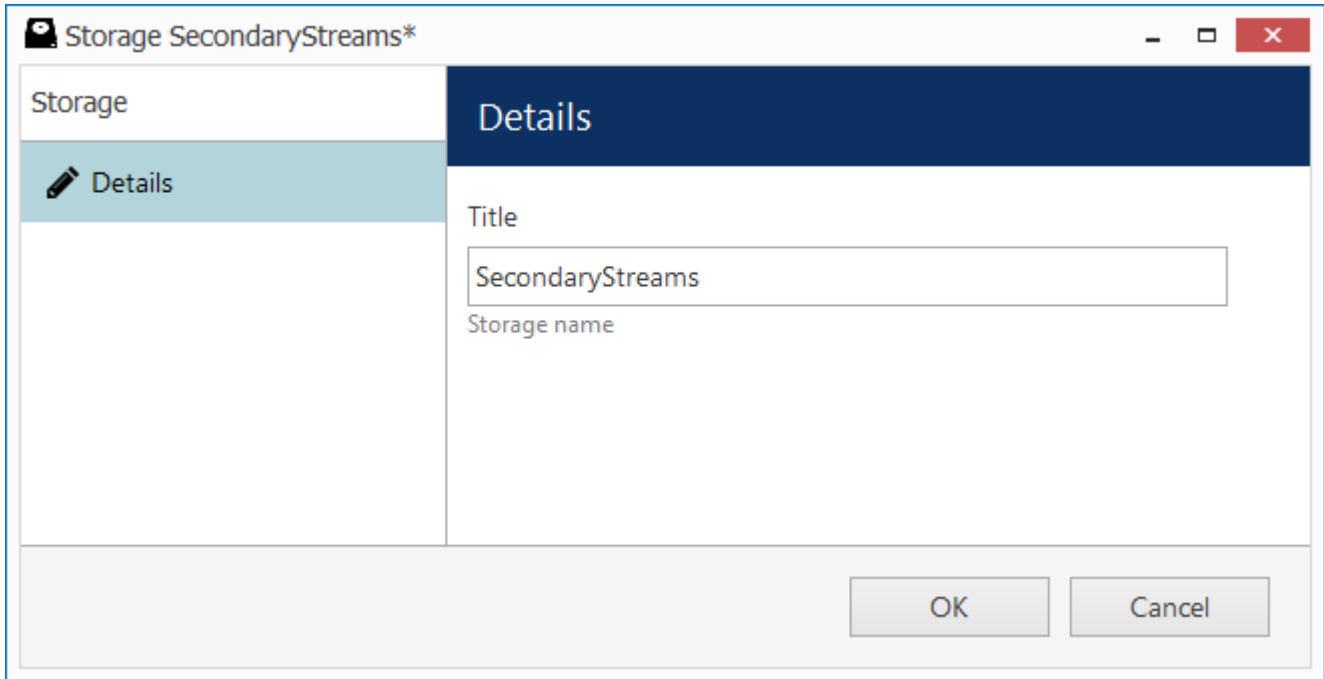
These profiles cannot be edited or removed. Fallback storage settings are available in the corresponding tab of the *Storage properties*.

 Readonly storage type can be used, for example, in the following cases:

- it is necessary to view the old data from a different Ganz CORTROL server when you need to insert the disks originating from another computer and you do not wish that these data are erased
- some storage unit contains important footage that has been requested to be kept for a longer time so that the recordings are not erased over time while still allowing access to the footage

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.

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The screenshot shows a dialog box titled "Storage SecondaryStreams*". The dialog is split into two main sections. On the left, there is a "Storage" section with a "Details" button. The right section is titled "Details" and contains a "Title" field with the text "SecondaryStreams" and a "Storage name" label below it. At the bottom right, there are "OK" and "Cancel" buttons.


New storage profile

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

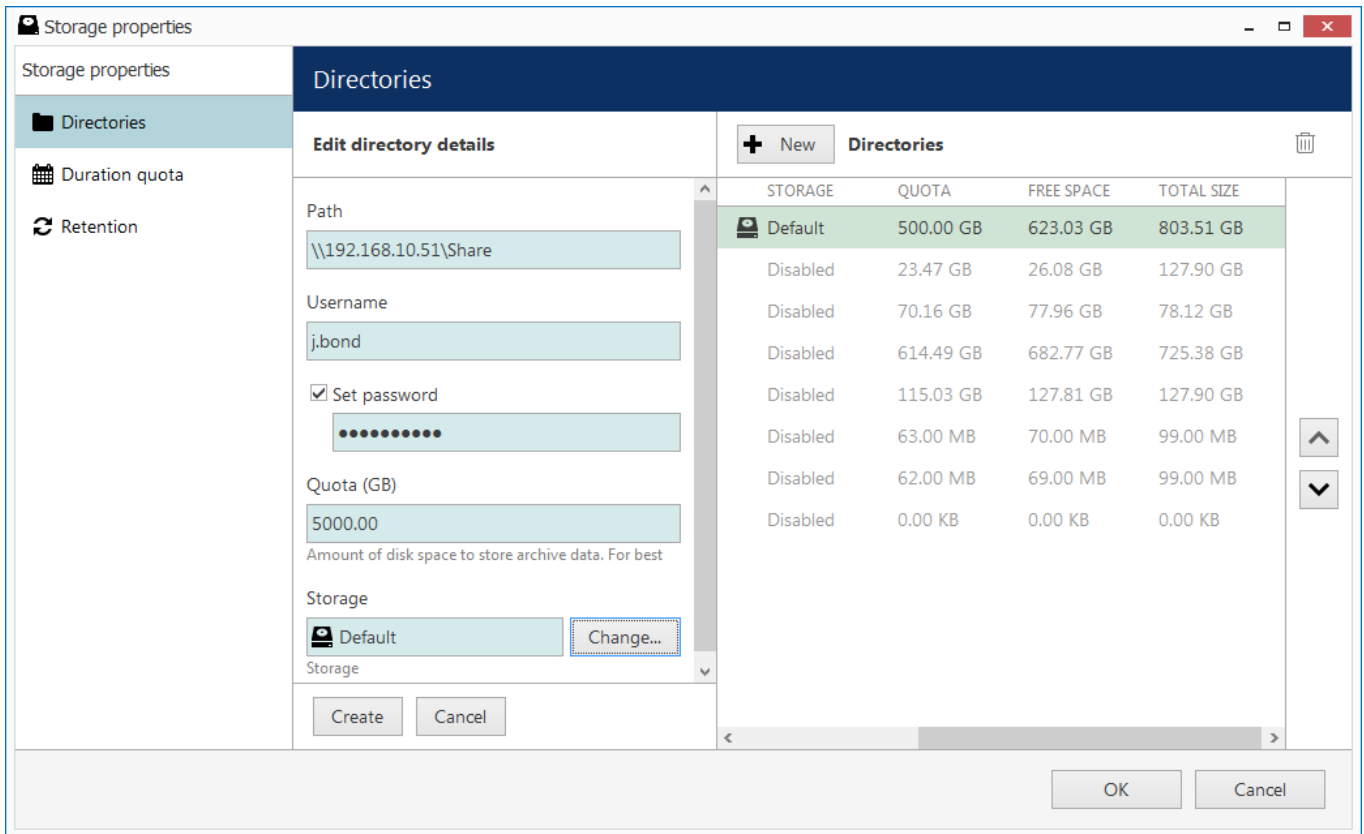
The storage tag you have selected or just created will appear as selected. Click the *Apply* button below to **confirm** storage configuration settings before proceeding.

Add Storage

In order to add a new **local disk** or a **network storage** (NAS, SAN, network share), click + *New* button on the upper panel, select *New local directory* or *New shared directory*, and then enter the setup details.

 If you are adding a previously encrypted storage (e.g., it has been used on another server), make sure to provide the same password. You can track the storage status in the *Monitoring* section of Ganz CORTROL Console, under *Storages*.

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Add a new storage directory

The table below details the available settings for a **shared directory**. Enter the settings for the target storage and click *Create* below: the storage will be validated immediately.

Setting	Description	Default Value
Path	Full network path to the storage directory	\\Server\Share\CBC AMERICAS, Corp.\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	20GB
Storage	Storage label to be assigned to the target storage directory	Disabled

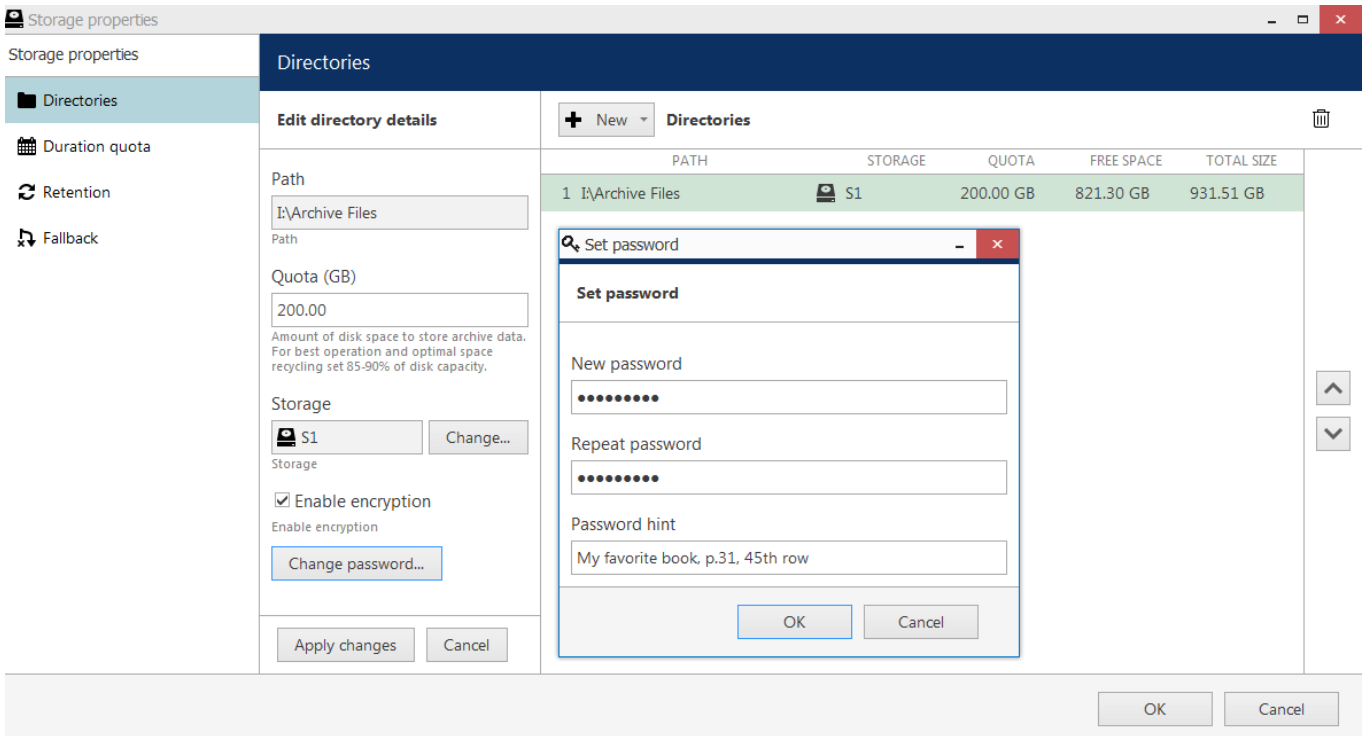
When adding a **local directory**, you are first offered to choose the disk from the list of detected ones. If there is just one disk left available, it will be chosen automatically.

Setting	Description	Default Value
Path	Full path to the archive directory	X:\CBC AMERICAS, Corp.\Archive Files
Quota	Maximum amount of storage in gigabytes to be used for recording; 85-90% is recommended	20GB
Storage	Storage label to be assigned to the target storage directory	Disabled

Storage Encryption

Once you have added all the necessary storages, you can enable encryption and set a password for each storage separately.

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Storage encryption settings

Mark the *Enable encryption* option and specify the password you want. You can change the password at any point, and there is also an additional field that lets you add a hint that may help remembering the password in future: it will appear either as regular text or a tooltip when hovering your mouse cursor over the password prompt field.

💡 When assigning a new password for the storage, make sure to remember it or store in a secure place: you will require it, should you need to access the storage contents in the following scenarios:

- when accessing the archive with the Portable Player tool
- when adding the same disk as a storage unit for another server
- when adding a disk containing archive backup as a storage unit
- if you delete the encrypted disk from the storage configuration and then add it anew

There is a field that allows you to enter a password hint, which will be displayed in these situations.

You will not be prompted for the password when accessing the archive from the Ganz CORTROL Client application connected to a server with encrypted archive: Ganz CORTROL server will decrypt it automatically.

⚠️ There is **no option to recover** the password if you have forgotten it.

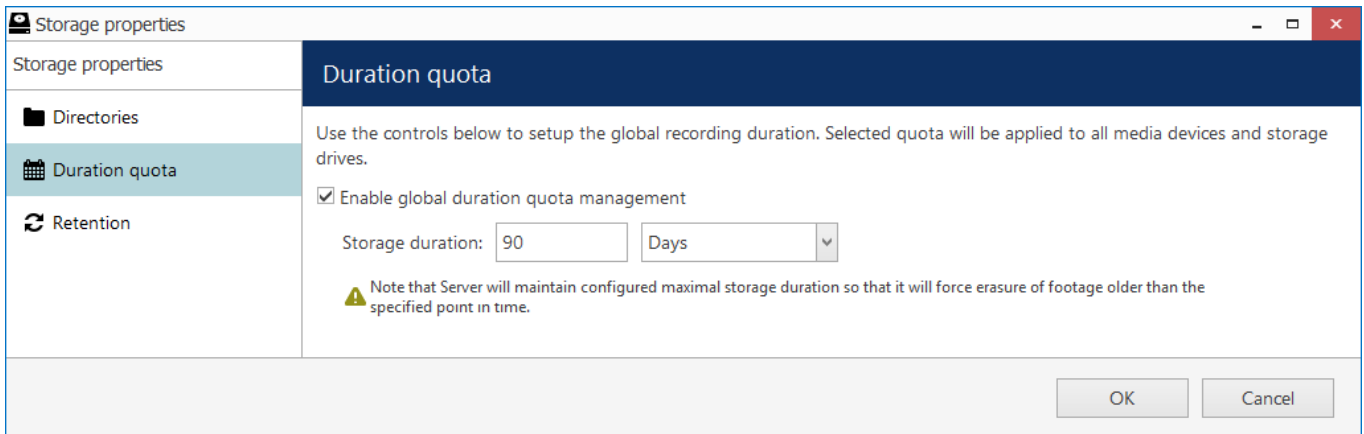
Starting from the moment you set the password, all footage recorded to the target storage becomes encrypted; retroactive encryption for the previously recorded archive is not supported.

When the storage password is changed, the new password is used for encryption from then on. If storage encryption is disabled for some time and then enabled back, that part of the archive will remain unencrypted.

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.

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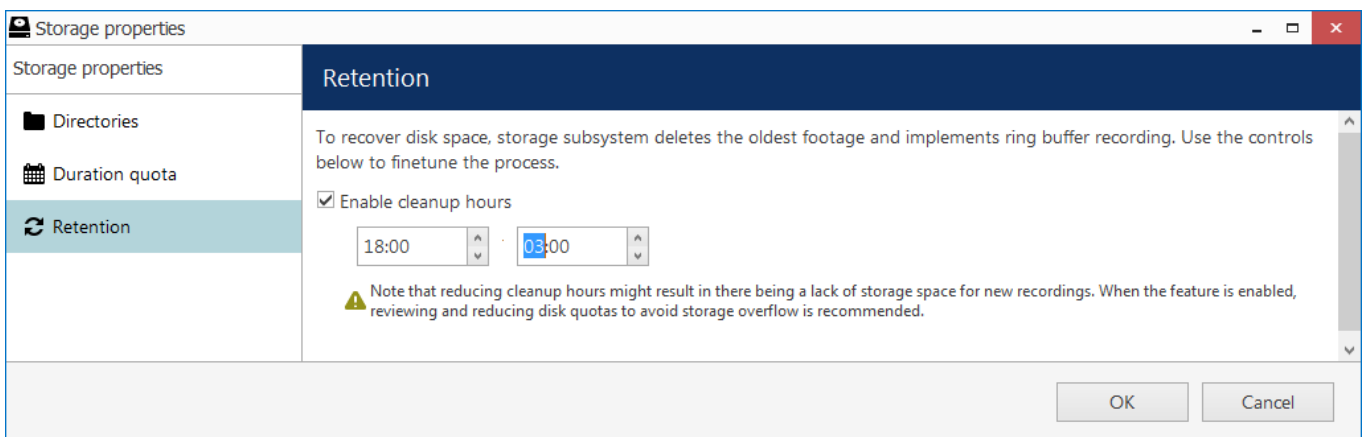


Global duration quota

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.

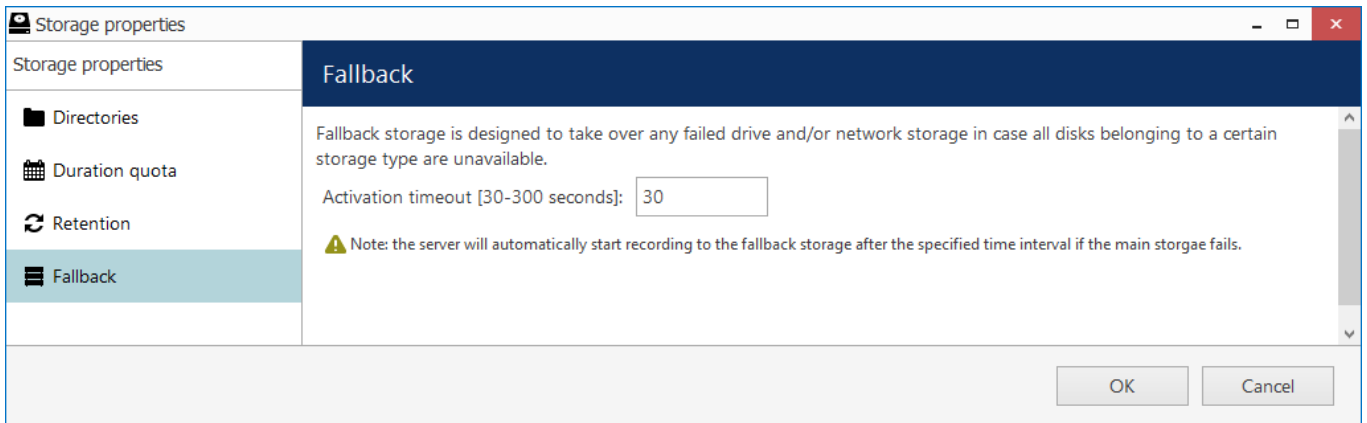
 This control has priority over the storage quota. Setting insufficient cleanup time may lead to storage overflow and result in recordings being lost. We strongly recommend that you do not enable any cleanup hours' restrictions unless you absolutely know what you are doing.

Fallback

You can dedicate a specific recording location to serve as a failover storage, called **fallback storage**. Such storage location will be used for recording only if all specified target storages of the certain type have failed.

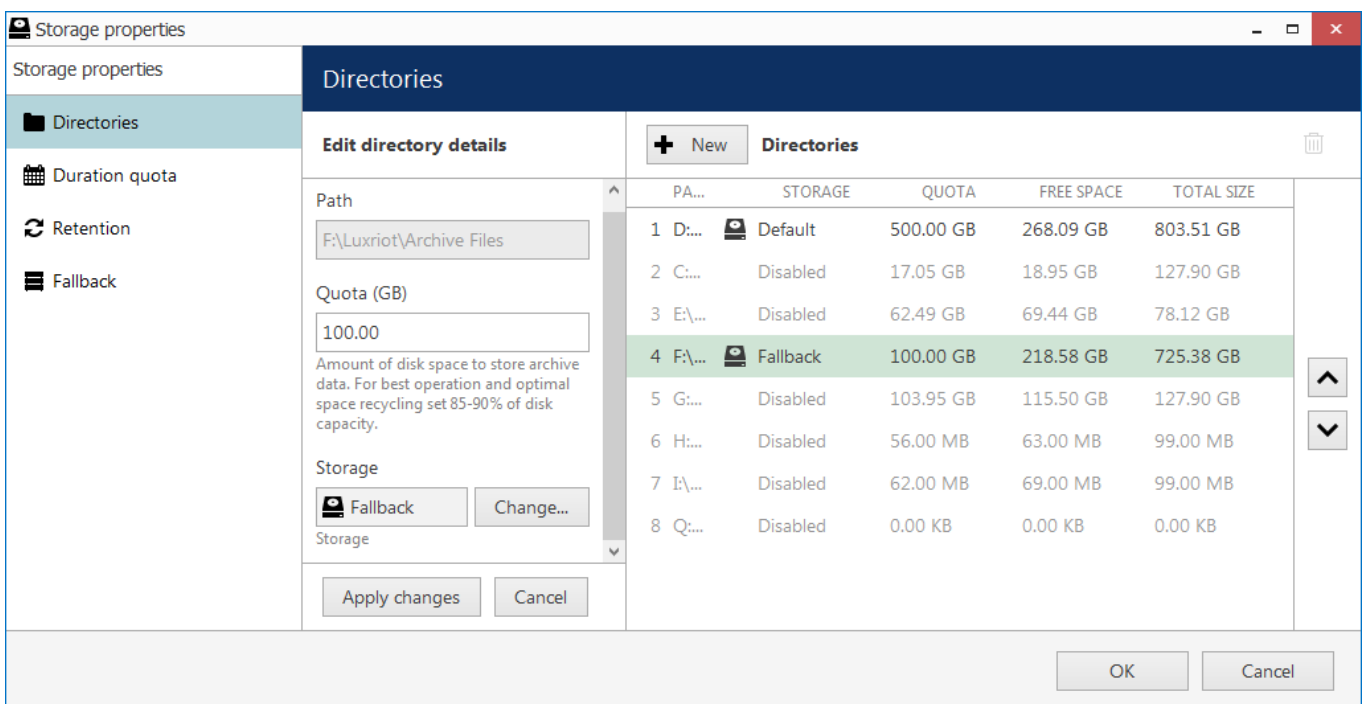
Ganz CORTROL server automatically detects when a channel or channels cannot be written onto their normal destination storage and switches to the fallback storage after the specified timeout has been reached. Minimum and also default timeout is thirty seconds, and maximum is five minutes. A default [system event](#) is raised when fallback is activated.

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Fallback storage settings


After setting the desired timeout, switch to the *Directories* tab and specify, which storage will serve as fallback.



Set fallback storage units

Usage example:

Consider a system where all main streams are recorded to the storage with the tag *Main* and all secondary streams are, in their turn, recorded to the *Substreams* storage. If either or both of these storages fail, recording will automatically proceed to the *Fallback* storage.

 The fallback storage must be able to handle the load and have enough free space to keep the recordings until the main storage gets back online.

Server checks if the main storage is available if one of the conditions has been fulfilled:

- server has finished and closed a data file (4GB)
- the data file has not reached 4GB in size but six hours have passed
- server was restarted

In other words, the recording mechanism checks if the main storage is available every 6h OR every 4GB of recorded data OR after a restart (upon startup). If the main storage is OK, Ganz CORTROL server continues to record onto it; the recordings made onto the fallback storage stay there and are not transferred anywhere.

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To **save the changes**, hit the *Apply* button beneath the storage settings, then hit *OK* to close the storage configuration dialog box, and then click *OK* to finally save the storage settings together with the server configuration. Pressing *Cancel* on the last step will revoke the changes in the storage configuration.

Archive Protection and Deletion


Outdated archive is erased automatically once any of the quotas is reached (storage or duration, server wide or individual). Oldest recordings are removed to free up some space for the newer recordings. However, there are some exceptional cases when the footage is not or may not be erased:

- storage marked as *Readonly* will not be used for writing and no data will be erased from such storages based on quotas (however, footage from such storages can be removed using selective erasing from the Ganz CORTROL Client application)
- no erasing will be conducted outside cleanup hours (by default, erasing is allowed 24/7 and this setting is recommended)
- protected archive intervals will be also ignored by the erasing mechanism until you un-protect them

Archive protection is an additional feature available in the Ganz CORTROL Client application, in playback mode. You can mark certain footage to protect it from being erased if it is important to keep it for longer, overriding the quotas (e.g., important evidence). To unlock the protected intervals, go to *Archive statistics* in the [Monitoring](#) section of Ganz CORTROL Console.

 If there are too many protected recordings on a disk, the storage may be filled up to 100%: this may negatively affect the overall recording operation. Pay attention to the amount of free space on every storage unit in case you are using archive protection:


- set lower recording quotas so that there are always 10-15% of free space on each storage,
- [un-protect the archive](#) that no longer needs to be protected from erasing.

 When you **protect a short period** of the archive (e.g., several minutes), in fact, the **whole file** containing this period is protected from erasing. Therefore, intervals adjacent to protected period will also be locked. You can verify the exact protected interval by opening Ganz CORTROL Console >> *Monitoring* section >> *Archive statistics* >> *Protected intervals*.

Keep this in mind when protecting too many short intervals: as all files containing them are locked, they will not be erased when forcing quotas, so you may come to a point when there is **not enough free space** on the disk. If you know you will use the archive protection feature a lot, it may be wise to set a **lower disk quota** - for example, 80% instead of 90%.

Ganz CORTROL Client application allows users with corresponding privileges to delete certain parts of the archive. This mechanism can delete recordings from storages marked as *Readonly* but cannot erase protected archive from any storage unit.

If the footage is not protected, it will be removed as outdated when the server eraser reaches one of the quotas. Also, the **unprotected** footage can be removed manually by someone who has a permission to **delete archive**. However, as such a feature may be regarded as a potential threat for the archive integrity, it is **disabled by default**. You can enable it in the server storage settings by marking the *Allow manual deletion* option.

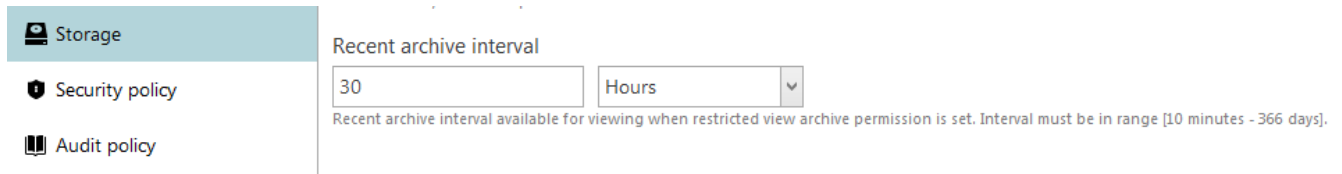
 Enabling manual archive deletion will automatically enable the **admin** user to do so, as admin is a root user who has all possible privileges. The same is true for all users belonging to the *Administrators group*. If you are enabling this feature, make sure that no unauthorized personnel have access to the administrative accounts.

Time Restricted Access to Archive

There is a possibility to grant **archive access** permissions for a **limited time**: for example, for the last N days or M hours. The access permissions are a part of the [channel permission](#) set.

Here, in the server settings dialog box > *Storage* tab, you can define the allowed archive access period, starting from the present moment.

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The screenshot shows a sidebar on the left with three menu items: 'Storage' (highlighted in teal), 'Security policy', and 'Audit policy'. The main content area is titled 'Recent archive interval' and contains a text input field with the value '30' and a dropdown menu currently set to 'Hours'. Below the input field, a small grey box contains the text: 'Recent archive interval available for viewing when restricted view archive permission is set. Interval must be in range [10 minutes - 366 days].'

Depending on your needs, the duration can be expressed in **minutes**, **hours**, or **days**. The minimum period is 10 minutes and the maximum value is 366 days (1 year).

Example: if the recent archive interval is set to 30 minutes, all users having a *Restricted video playback* permission will be able to browse the last half an hour of the target channel archive in all archive playback modes of the Ganz CORTROL Client application.

26 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.

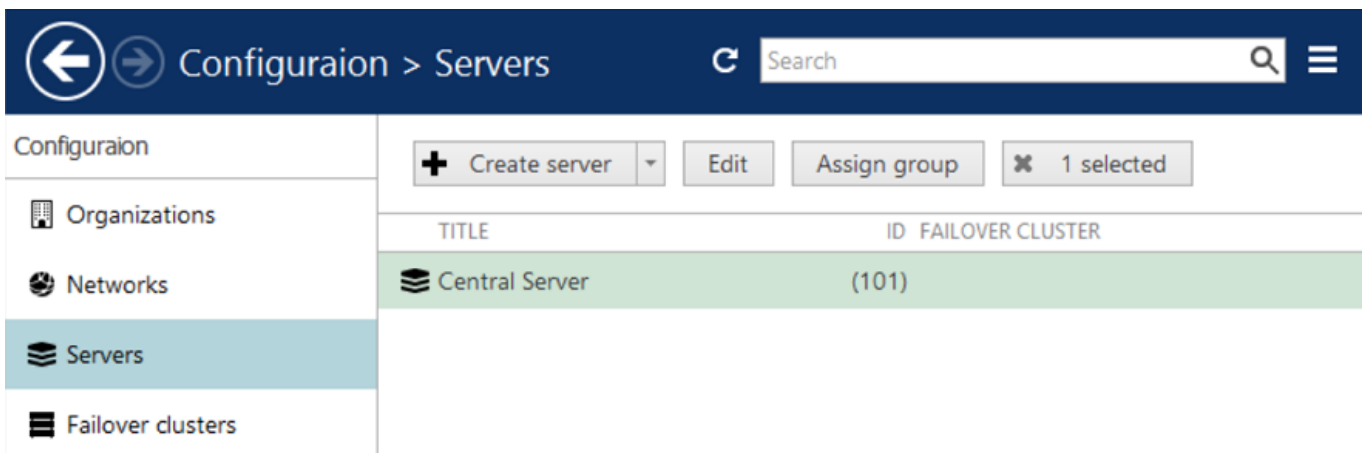
Although it is possible to disable the Server Watchdog service, we strongly advise against doing so, as the principal role of Watchdog is to keep the software operation as stable as possible in the given circumstances.

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 CBC AMERICAS, Corp. technical support team directly via cortrol@cbcamerica.com.

Configuration

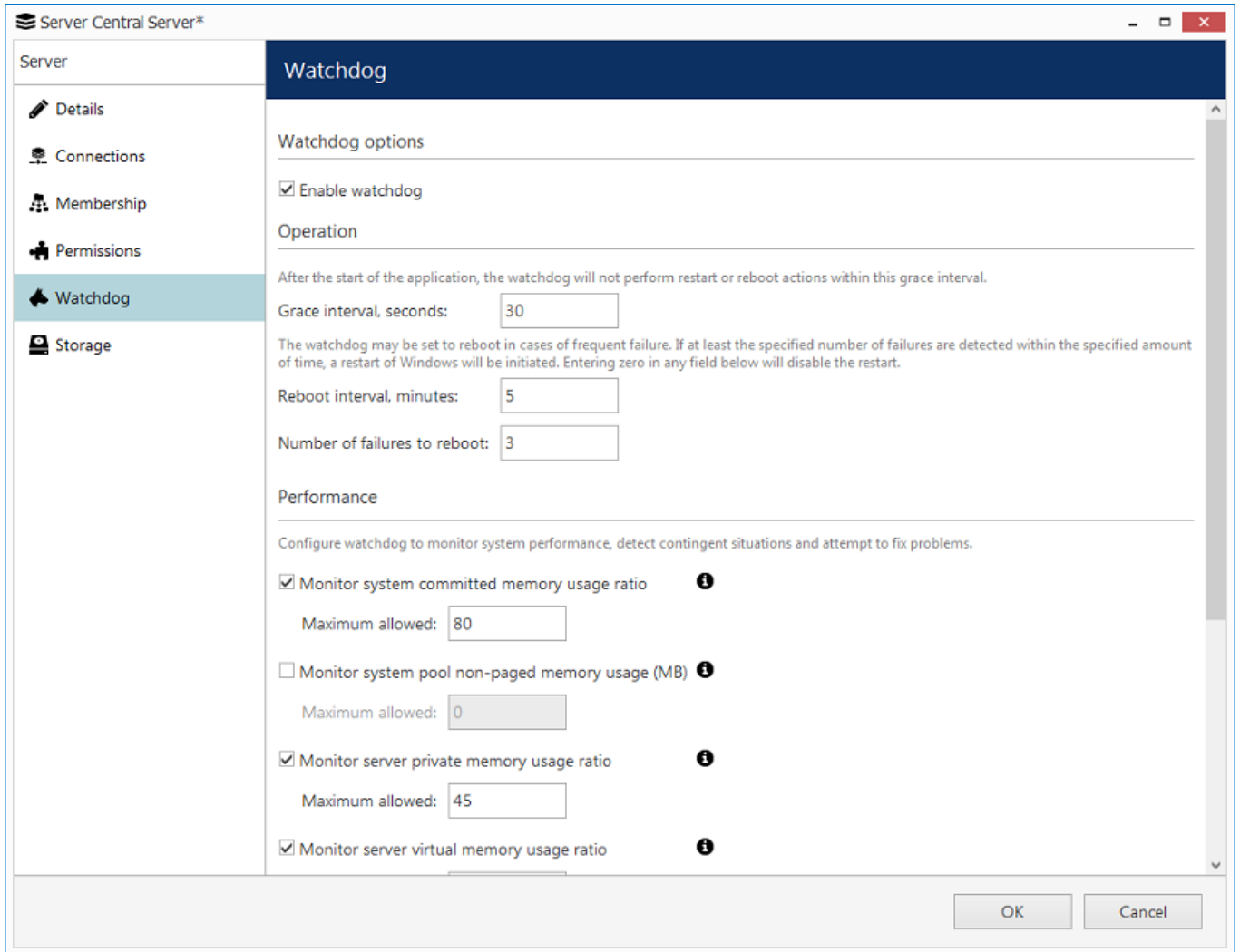
Watchdog operation can be configured for each server independently. To access Watchdog settings, in Ganz CORTROL Console select *Configuration* in the bottom left menu and select *Servers* from the list on the left, then double-click the desired server or simply click *Edit* button on the top panel for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



Locate server for Watchdog configuration

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

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Watchdog configuration

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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 CBC AMERICAS, Corp. 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

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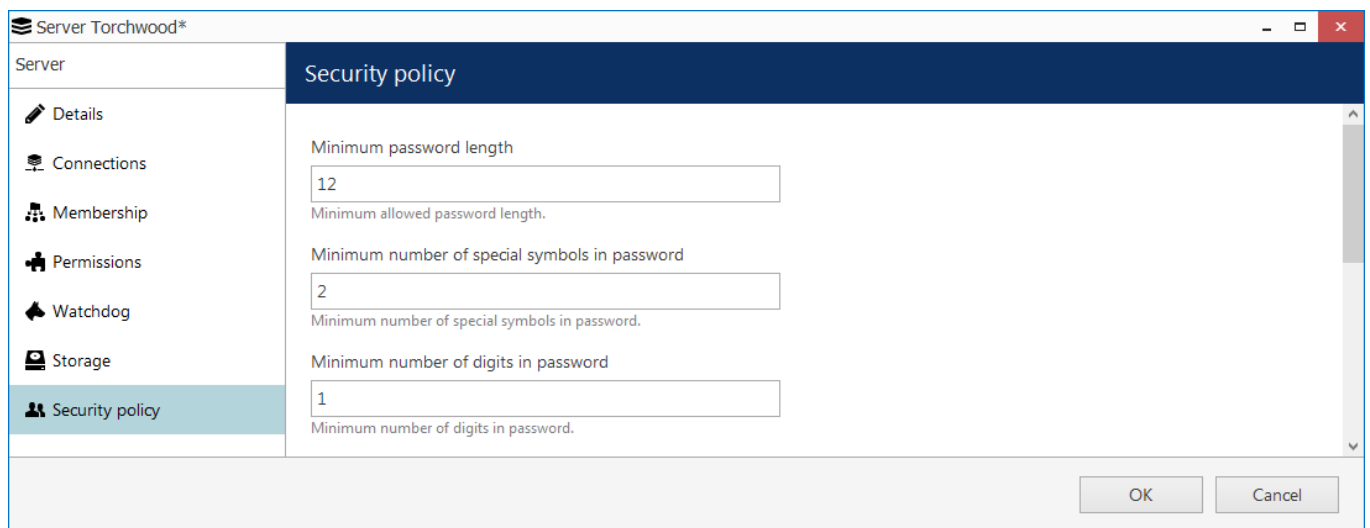
27 Server Policies

Ganz CORTROL policies are configurable sets of rules that are followed by Ganz CORTROL servers when handling access requests. At this point, these include security settings and audit log configuration.

Security Policy

Security settings related to password management, connections etc. can be defined for each system. To access the server security policy settings via Ganz CORTROL Console, choose the *Configuration* section, select *Servers* from the menu on the left, double-click your target server and then click the *Security policy* tab.

It is recommended that, in order to enhance your system security, you do not leave the default policy settings but rather define your own, system-specific preferences.



Server security settings

The table below details the available settings.

Setting	Description	Default Value
Minimum password length	Minimal mandatory length of a user password	8
Minimum number of special symbols	Define how many (at least) special characters (#\$%&...) must be present in a user password	2
Minimum number of digits	Define how many (at least) digits must be present in a user password	2
Minimum number of uppercase letters	Define how many (at least) UPPERCASE letters must be present in a user password	2
Minimum number of lowercase letters	Define how many (at least) lowercase letters must be present in a user password	2
Number of previous passwords to remember	Password history to be kept by the server to prevent the user from using the same password again when changing it	1
Maximum number of days between password change	Define how frequently Ganz CORTROL will ask users to change their password; this setting can be overridden in the user settings to make the password never expire for a specific user	0 (unlimited)
Maximum number of simultaneous connections with the same login name	Allowed number of simultaneous incoming connections from the same user account via any port (TCP/HTTP) or client app, this setting can be overridden for the specific user in the user settings; 0=unlimited	0 (unlimited)

Password related policies are solely meant for Ganz CORTROL internal users and they do not affect any other user account settings (e.g., Windows users etc.). All policies are in effect for **all user accounts**, including the built-in

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root *admin* user account.

Lightbulb icon: The **maximum number of simultaneous connections** from the same user account can be re-defined for any specific user via user settings dialog box. User-specific setting has priority over global connection quota and it may be either larger or smaller than the global quota.

Example 1: global policy is set to 0, which means no imposed limitations. However, user account *admin* has his max number of connections set to 3, which means that three incoming connections with this user account are allowed at a time so that the administrator can connect via Ganz CORTROL Console, Ganz CORTROL Client and Ganz CORTROL Mobile at once for troubleshooting purposes.

Example 2: global policy is set to 1, which means only one connection from each user is allowed at a time. However, user *demo* has an allowance of 30 simultaneous connections so that this account can be used for demonstration purposes.

Audit Policy

Whenever a [permission](#) is used, a corresponding entry appears in the internal Ganz CORTROL [audit log](#); internal server events are logged as well. The audit policy lets you define, which user actions and server events are recorded, as well as set the maximum size and duration of the audit log.

The screenshot shows the 'Audit policy' configuration window for 'Server Global Server*'. The window has a dark blue header and a light blue sidebar on the left with navigation options: Details, Membership, Permissions, Connections, Watchdog, Storage, Security policy, and Audit policy (selected). The main area is titled 'Audit policy' and contains the following settings:

- Maximum number of records:** A text input field containing '1000000'. Below it, the text reads 'Maximum number of records to keep in the database'.
- Maximum number of days:** A text input field containing '30'. Below it, the text reads 'Maximum number of days to keep in the database (0 - unlimited)'.
- Events:** A tree view under the heading 'EVENT'. It includes:
 - Server events
 - Internal server events
 - Resource access
 - Archive
 - Bookmark added
 - User events
 - E&A
 - Rule modifiers
 - Event condition added

Ganz CORTROL audit policy

The default limit for the number of audit entries is one million and they are kept for one month; set zero days to disable the duration limitation (the quota for the number of records will still have effect). By default, all the events are audited.

28 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 CBC AMERICAS, Corp. 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 Ganz CORTROL 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 Ganz CORTROL Console, allowing the administrator to apply all necessary configurations. Ganz CORTROL Client 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 Ganz CORTROL Console management, device groups and channel groups are available; for Ganz CORTROL Client channel grouping, [visual groups](#) can be used.

29 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 Ganz CORTROL 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*.

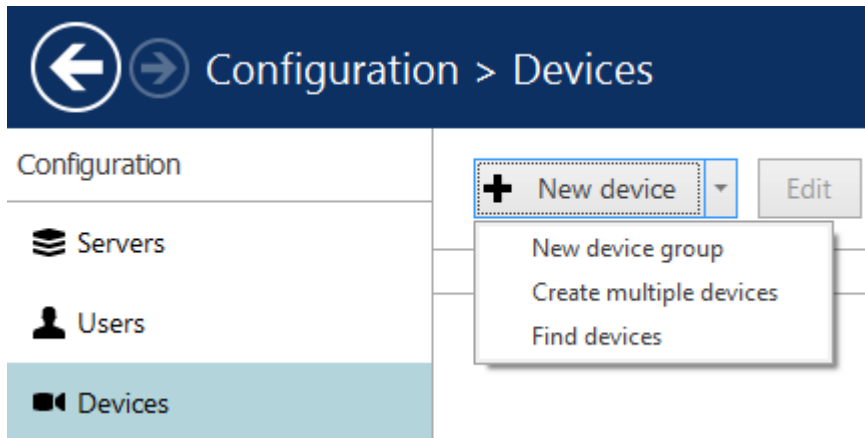


Image Title

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Scan Parameters

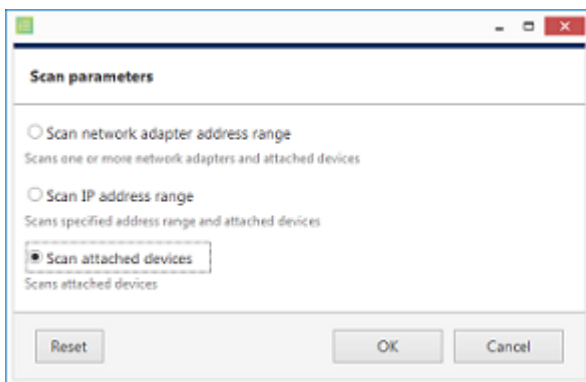
First, select scan mode; the following options are available:

- 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

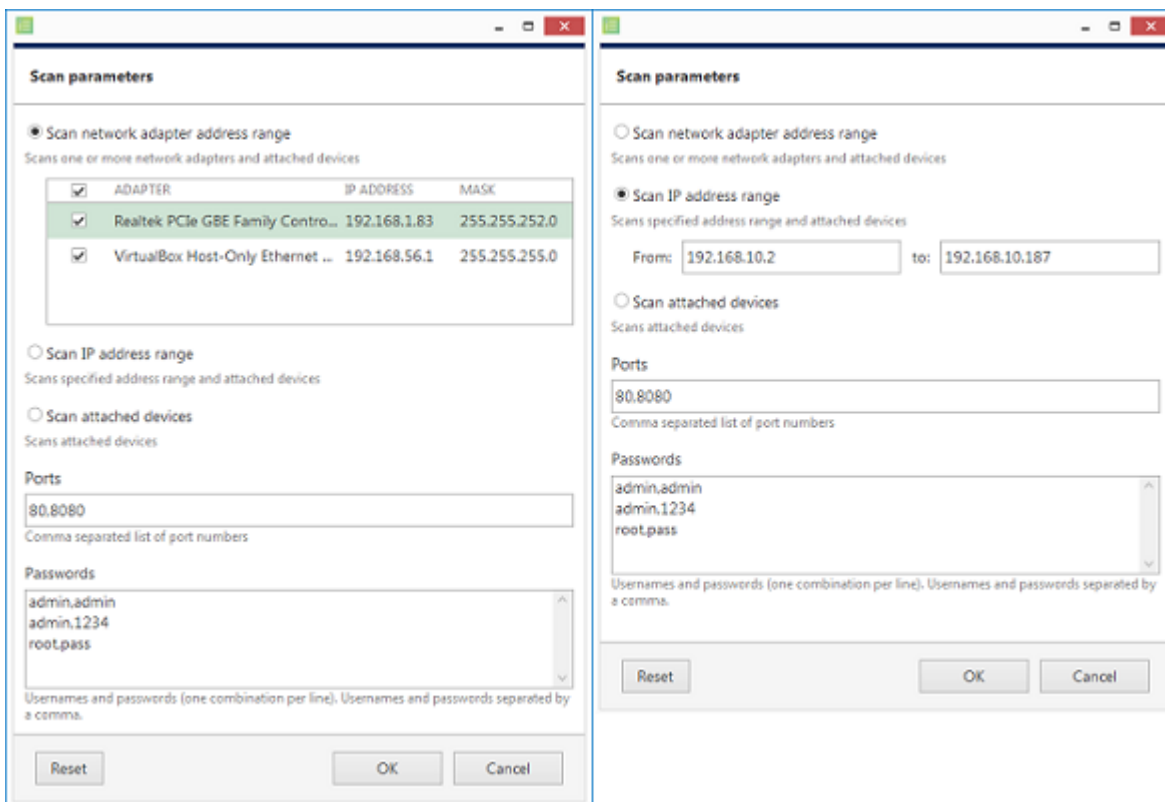
If you have chosen to search for IP video sources, you should review additional connection settings and change or update them, if required:

- 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 address range

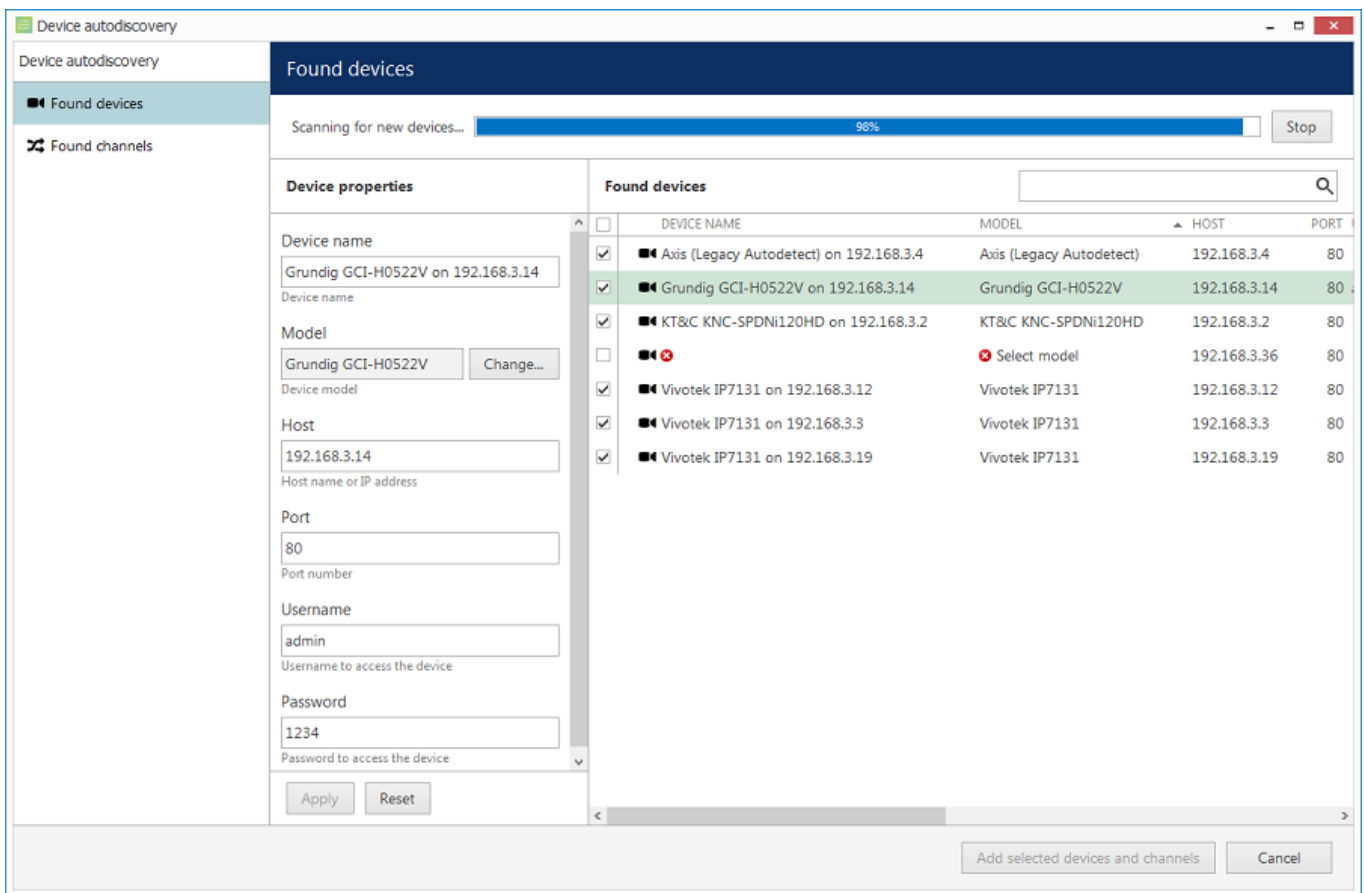
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Device Autodiscovery

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

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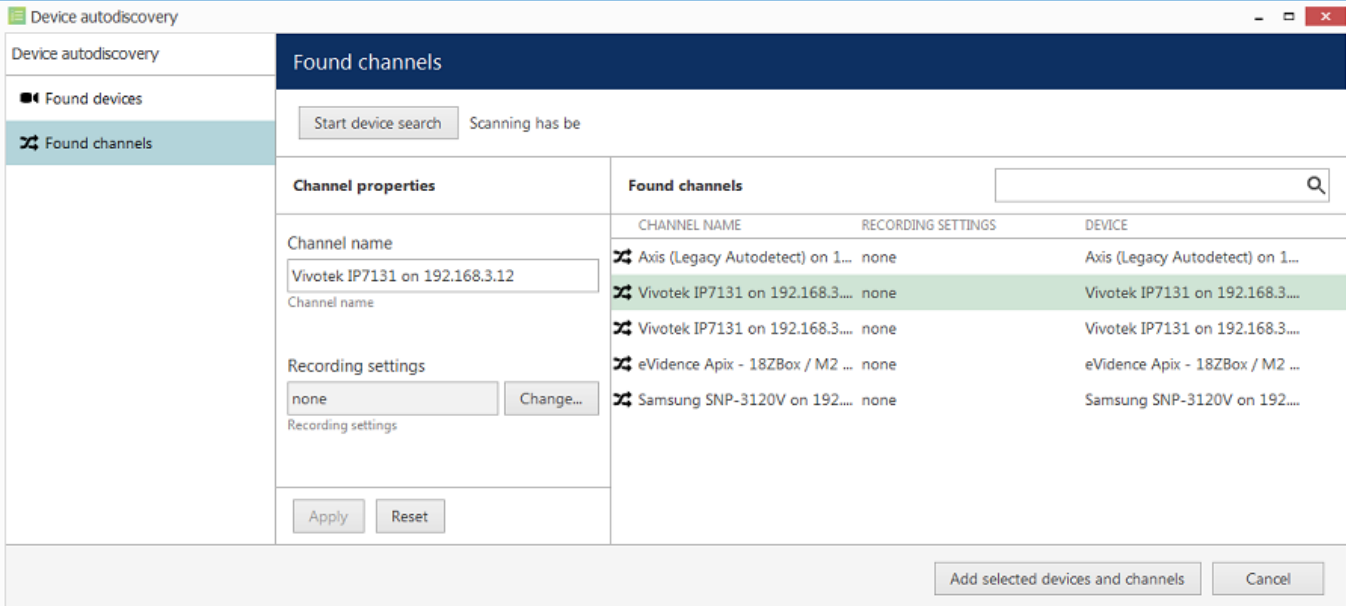
If device is not integrated with the software (native support), it may be detected as generic type (e.g., ONVIF). If you think some devices have not been discovered, check if they have different HTTP ports; also, try adding them [manually](#).

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.



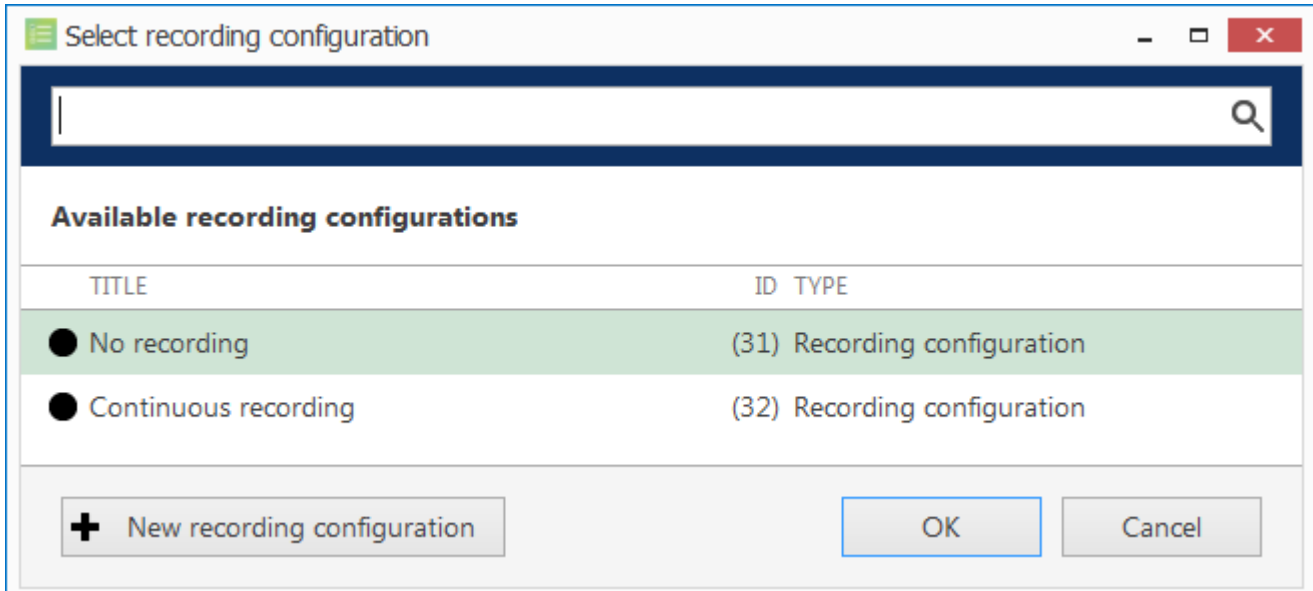
Set up discovered channels

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.

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⚠ 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](#).

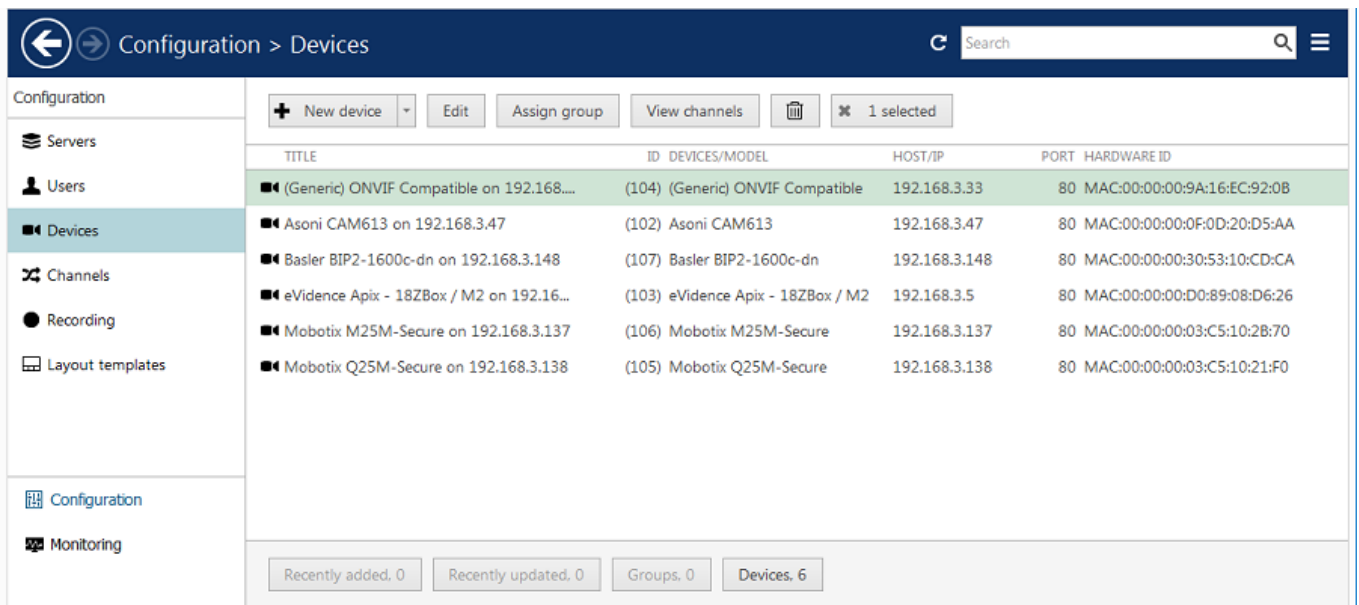


Select the recording configuration or create a new recording profile

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.



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.

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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.

30 Add Devices Manually

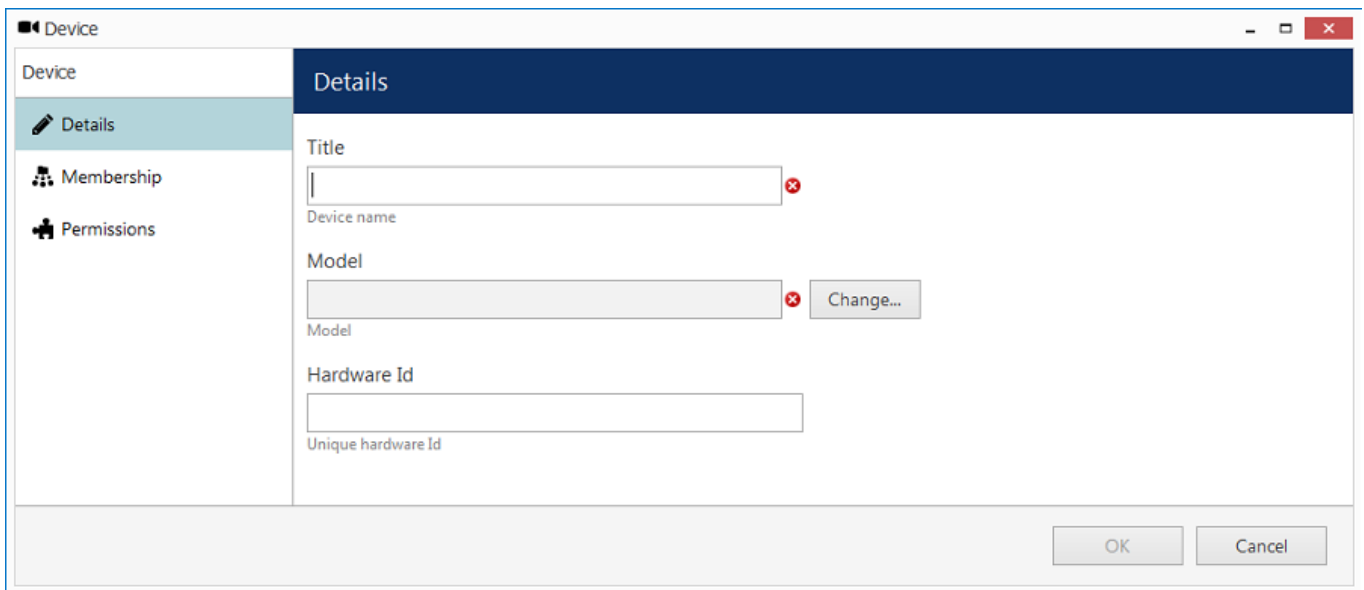
You can add devices manually instead of using autodiscovery in the following cases:

- 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 Ganz CORTROL Console, open the *Configuration* section and select *Devices* in the menu on the left; in the upper panel, then click the + *New device* button.

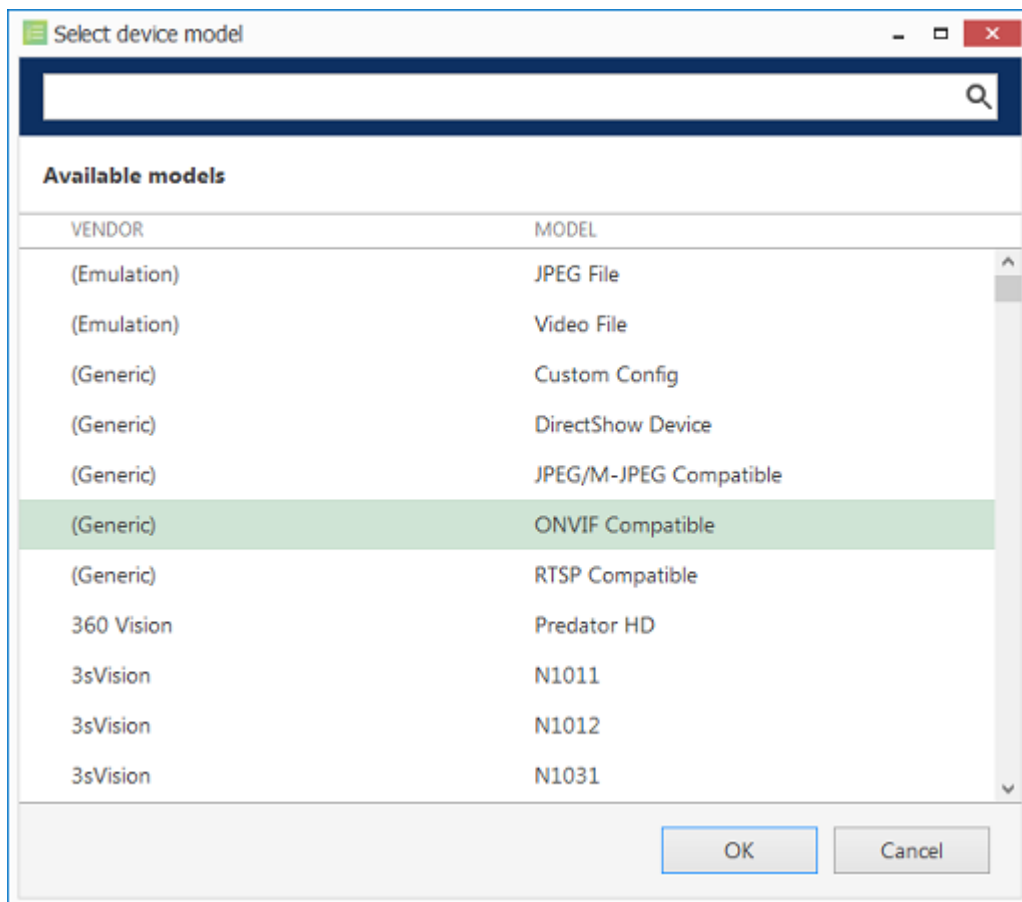


The screenshot shows a 'Device' configuration window. On the left is a sidebar with 'Details', 'Membership', and 'Permissions'. The 'Details' tab is selected. The main area contains three input fields: 'Title' (with a red 'x' icon), 'Model' (with a 'Change...' button and a red 'x' icon), and 'Hardware Id'. At the bottom right are 'OK' and 'Cancel' buttons.

Add new device

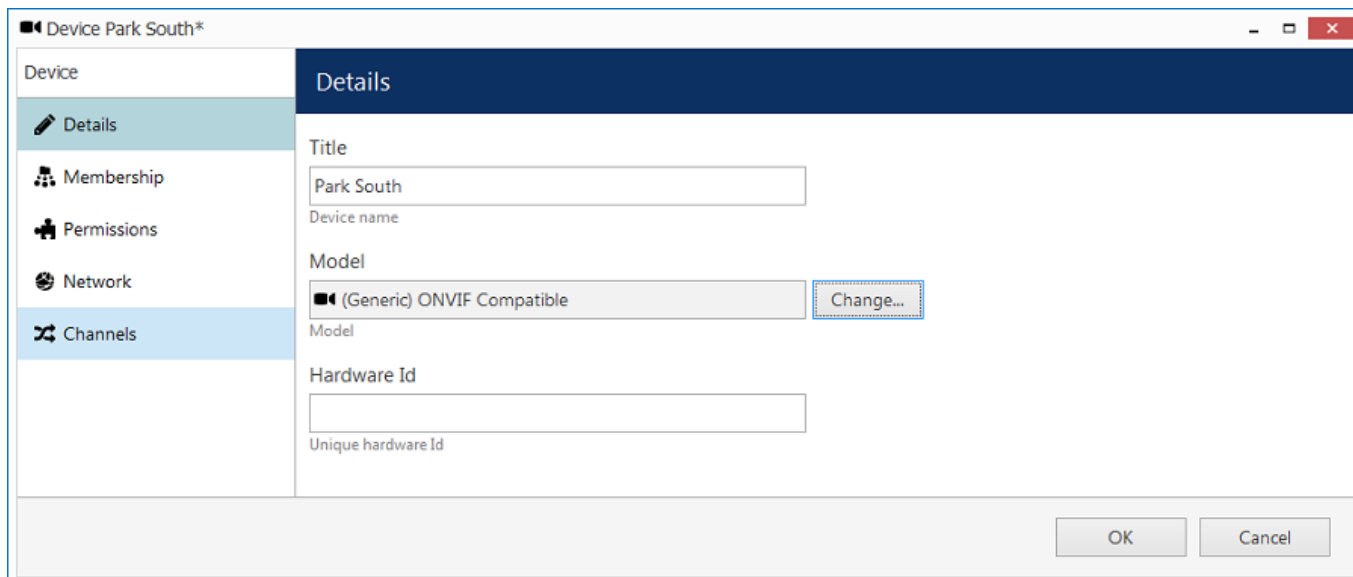
Enter a user-defined name for your new device and pick a model. If your camera model is not listed, select the closest similar model or choose a generic type.

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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

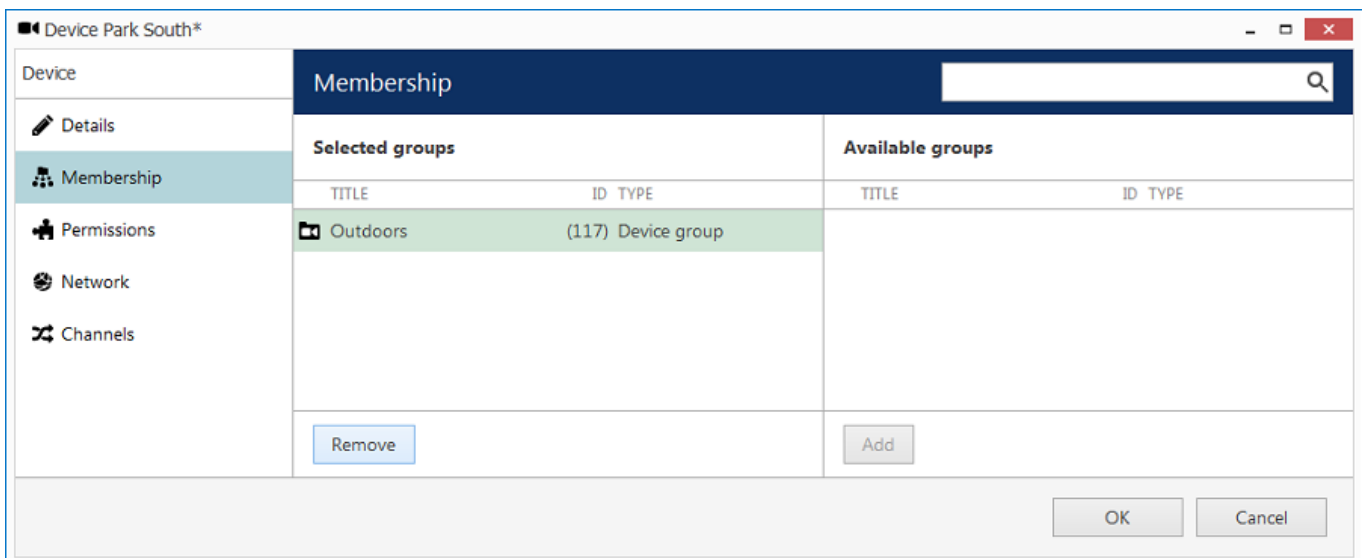
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Details

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 field 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.

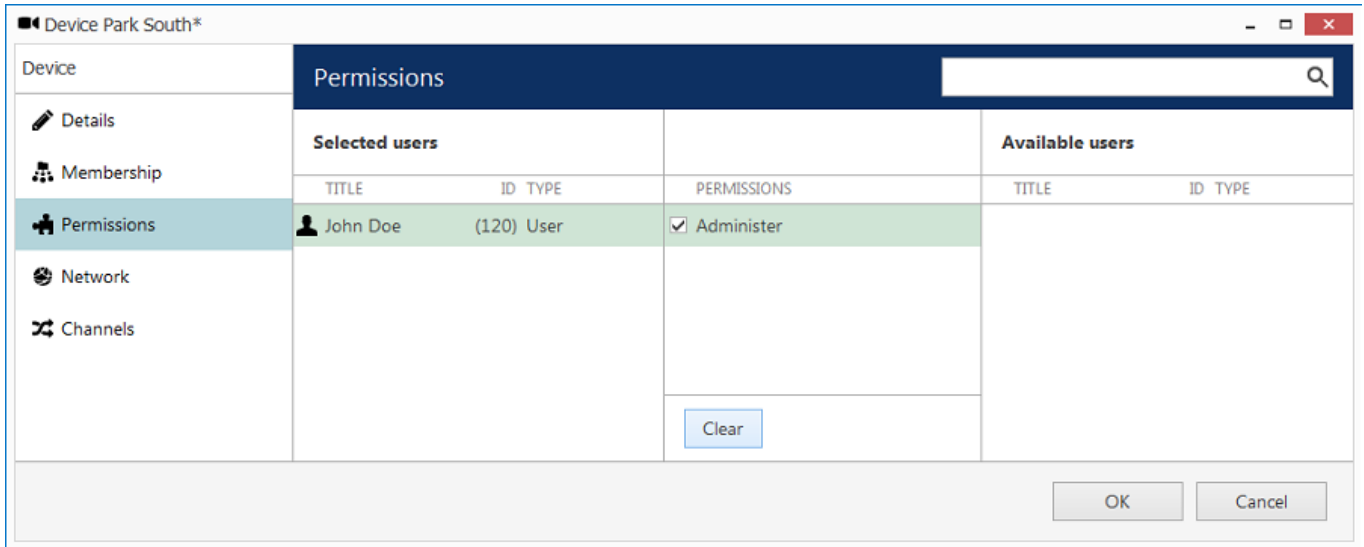


Define groups for the device being added

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.

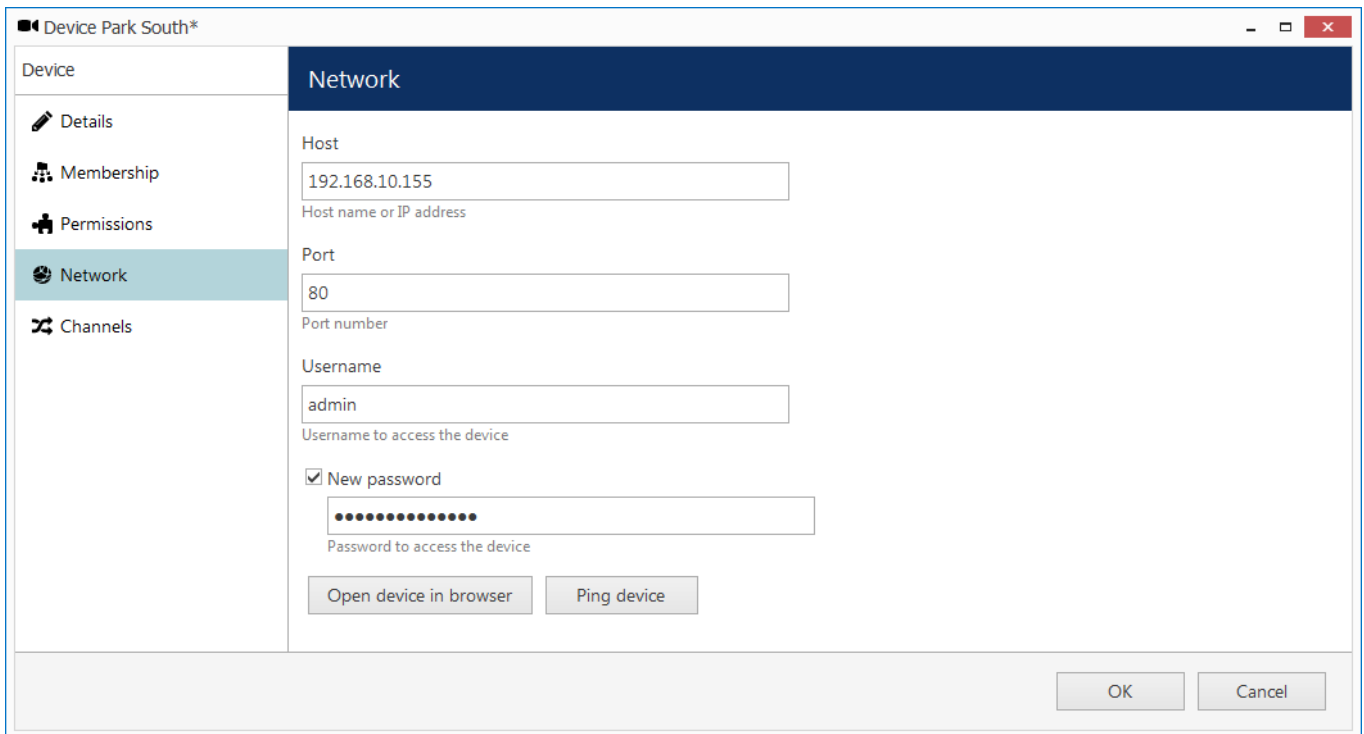
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Add user permissions for this device

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.

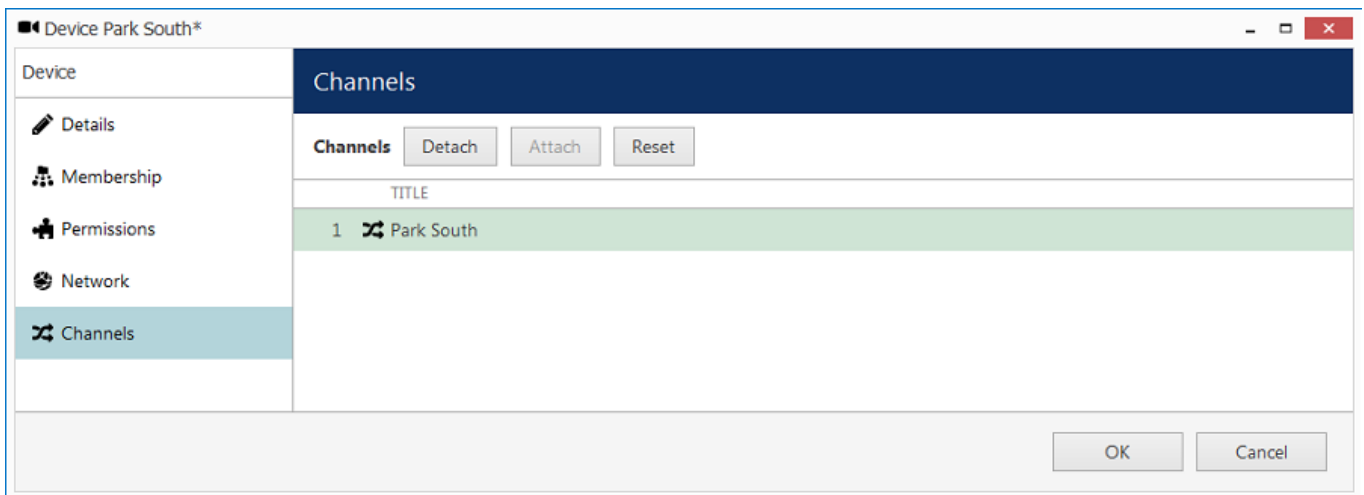
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Setting	Description	Default value
Host	Device IP address	[empty]
Port	Device HTTP port	80
Username	Device user credentials; note that you need to provide a valid administrative user profile to be able to change device settings via software	[empty]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

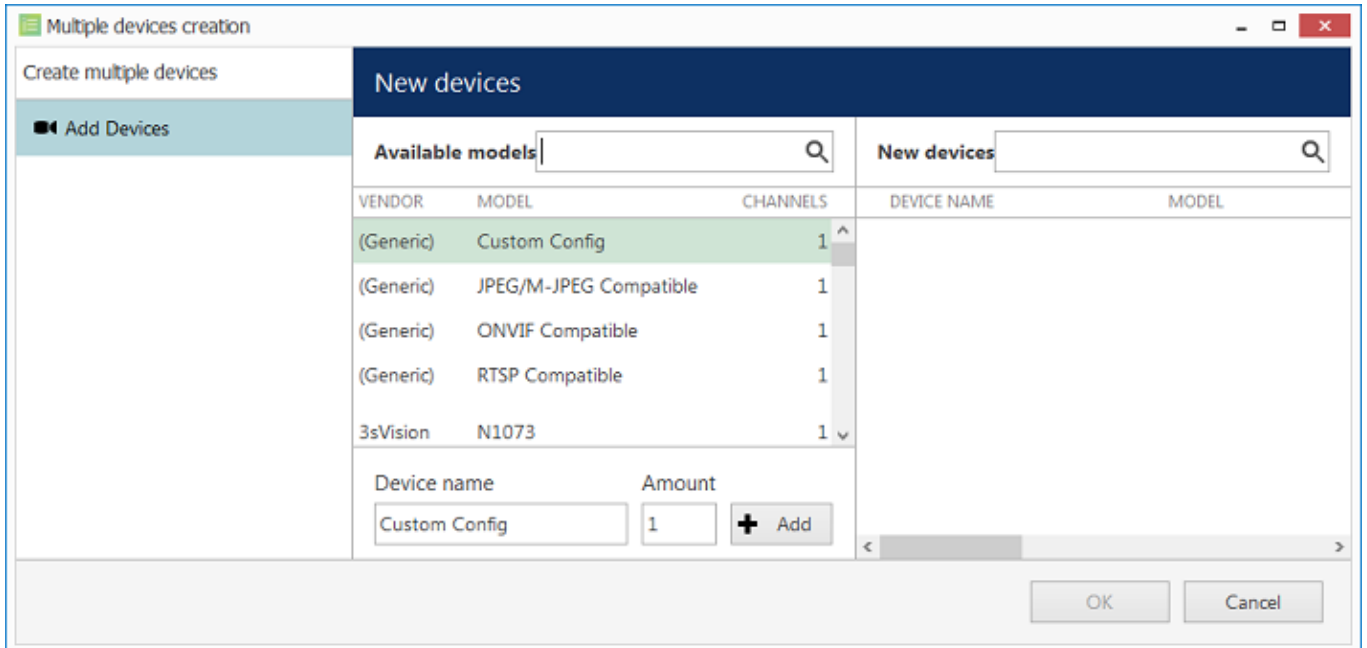
*Feature is subject to license limitations and may be **unavailable in some software editions**.

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 if 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*.

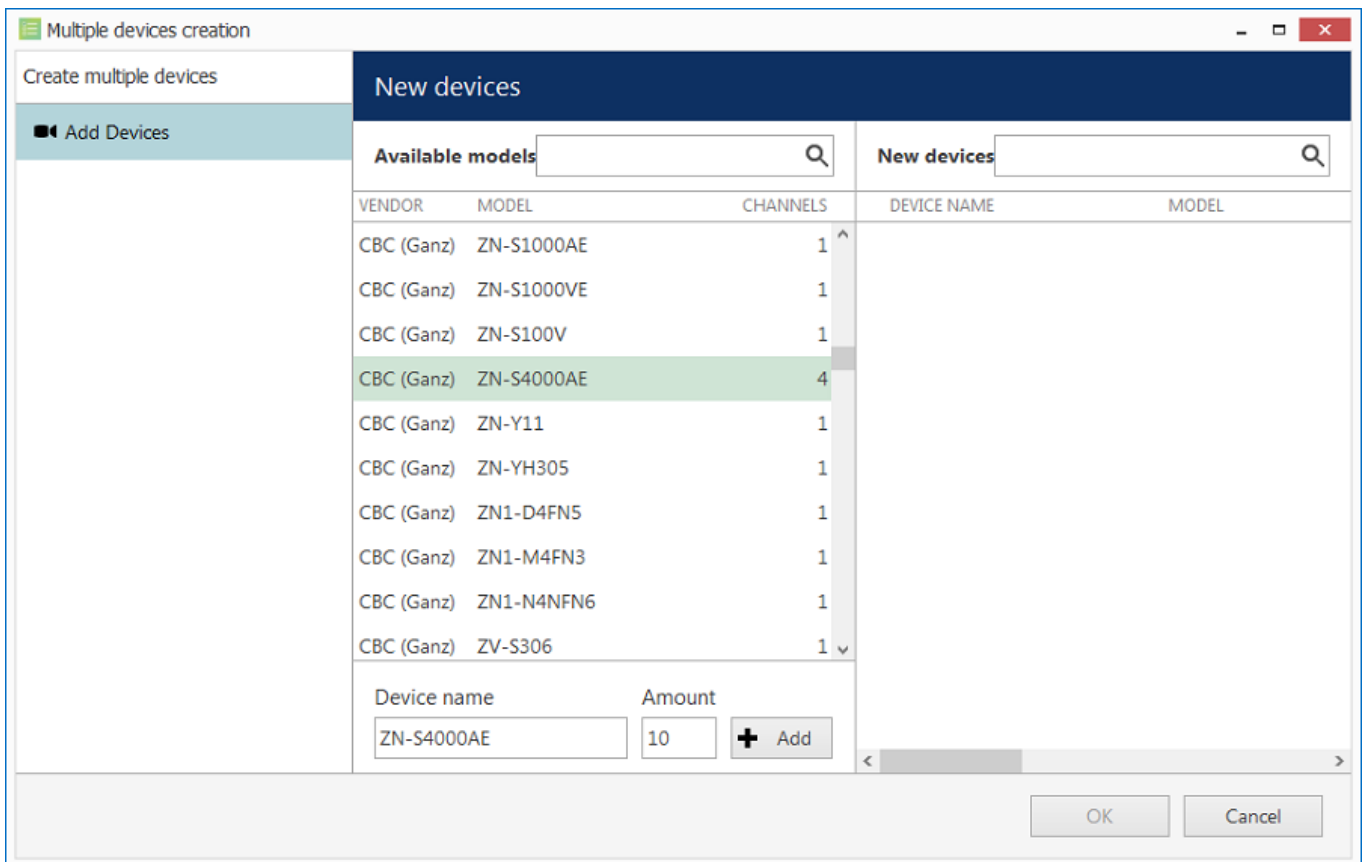
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Add devices



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.

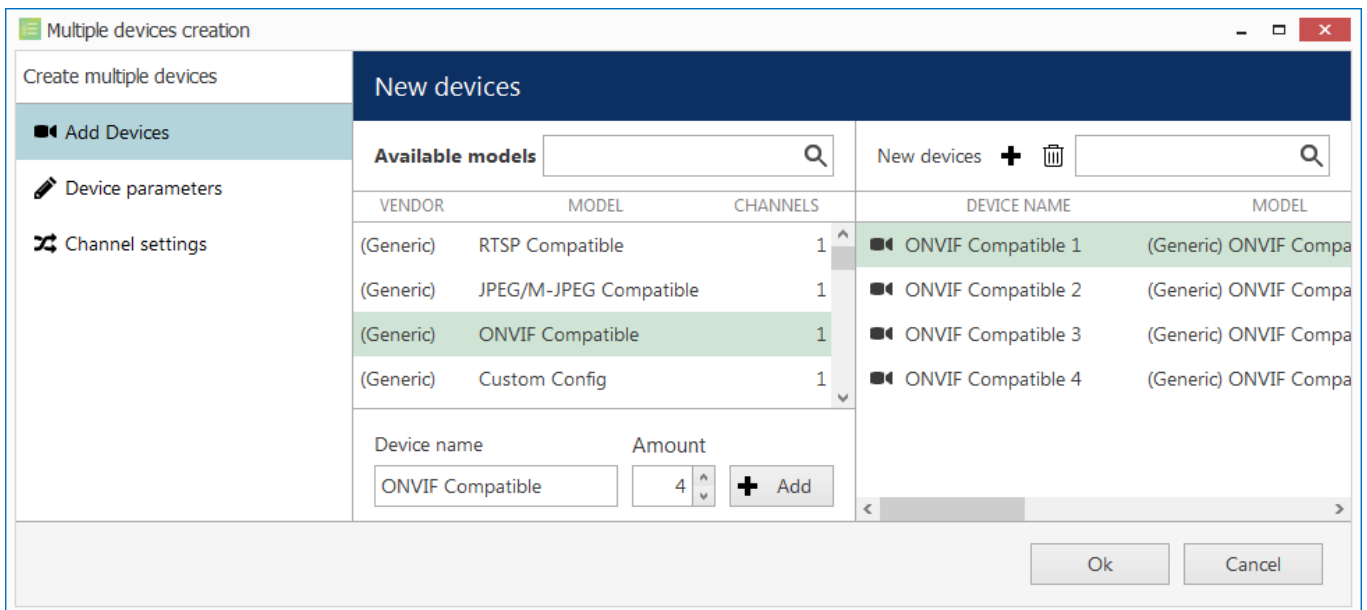


Select the desired model and number of devices

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.

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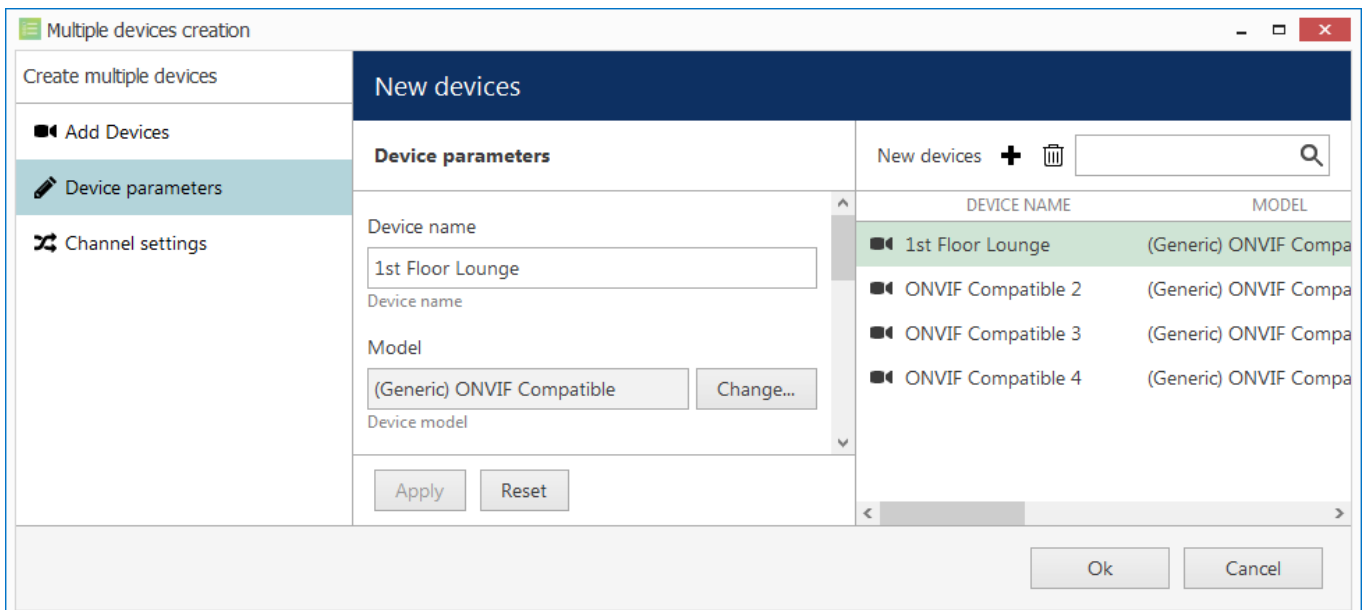
To **remove** any of the listed items, select them with your left mouse button (use *CTRL+click* or *Shift+click* to select multiple devices at once) and hit the *Delete* button on the upper panel or on your keyboard. Select any device and use the **+** *Add* button on the upper panel to add a copy of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

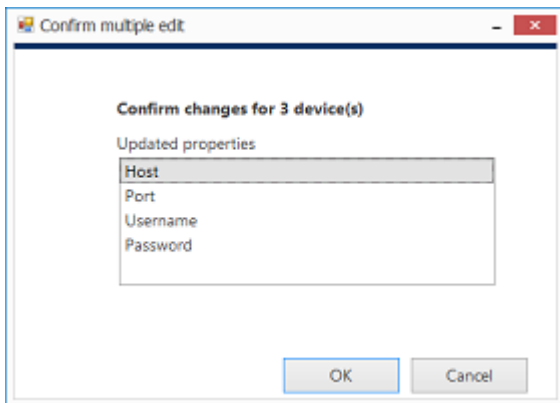
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Setting	Description	Default value
Device name	User-defined device name	Device model
Model	Device manufacturer and model, or generic type; click Change to alter	Loaded automatically
Host	Device hostname or IP address	[empty]
Port	Device HTTP port	80
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.

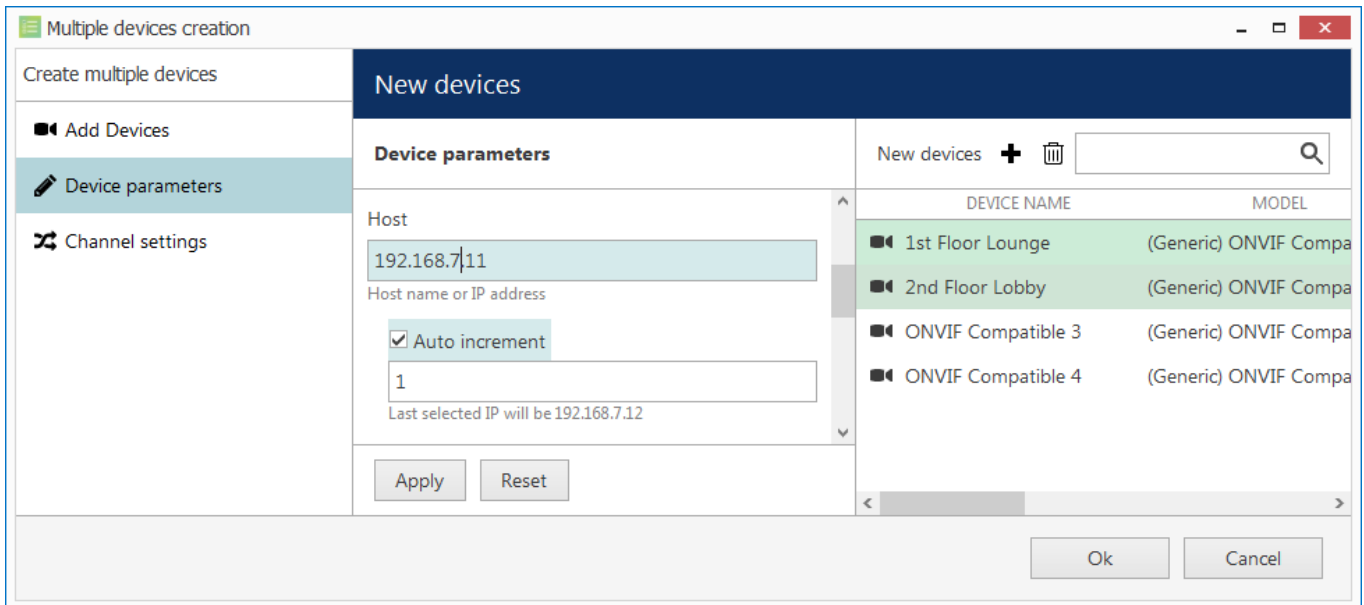


Confirm changes

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.

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Assign IP addresses with increment

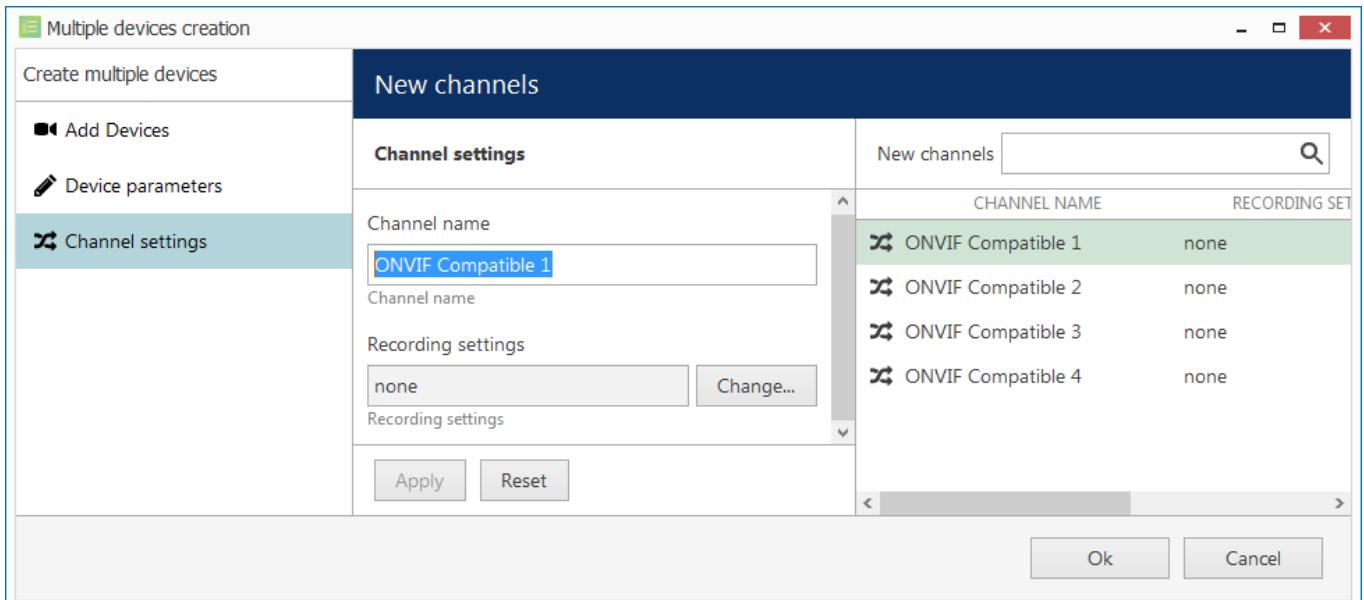
Click the *Apply* button below to save the changes, similarly to the previous step.

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.

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31 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 Ganz CORTROL Console *Configuration* section, by choosing the *Devices* category in the menu on the left.

TITLE	ID	SERVER	DEVICES/MODEL	HOST/IP	PORT	HARDWARE ID
(Generic) ONVIF Com...	(... Primary	(101)	(Generic) ONVIF Com...	192.168.3.33	80	MAC:00:00:00:9A:16:EC:92:0B
Axis 215 PTZ on 192....	(... Primary	(101)	Axis 215 PTZ	192.168.3.4	80	MAC:00:00:00:40:8C:8B:09:99
Grundig GCI-H0522V...	(... Primary	(101)	Grundig GCI-H0522V	192.168.3.14	80	MAC:00:00:B8:41:5F:01:B0:5F
Samsung SNP-3120V...	(... Primary	(101)	Samsung SNP-3120V	192.168.3.11	80	MAC:00:00:00:09:18:70:D1:F6
Vivotek IP816A on 19...	(... Primary	(101)	Vivotek IP816A	192.168.3.12	80	MAC:00:00:00:02:D1:31:B4:8F
Vivotek PZ7131 on 1...	(... Primary	(101)	Vivotek PZ7131	192.168.3.19	80	MAC:00:00:00:02:D1:0A:35:F8

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.

If you have opened a device for editing but there is a need to **open** the associated **channel's properties at the same time**, use the *Related items* buttons in the bottom left corner of the *Edit device* dialog box.

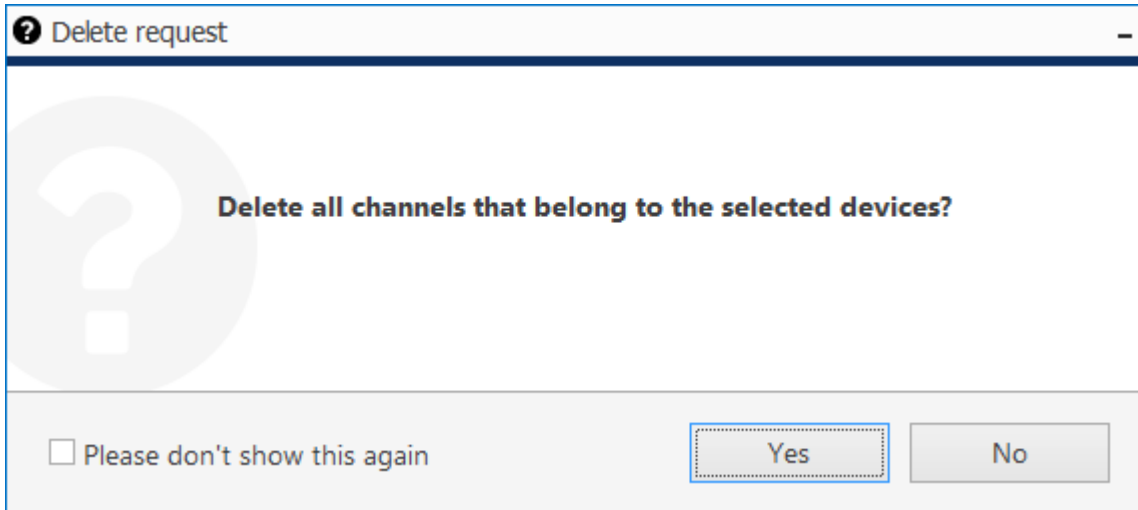
Please refer to the *Add Devices Manually* section of this document for detailed description of all available tabs and settings.

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

Remove Devices


To remove a device, select it in the item list and use the *Recycle bin* button on the upper panel to delete the target device. Use *Shift+click* or *CTRL+click* to select multiple devices, or *CTRL+A* to select all.

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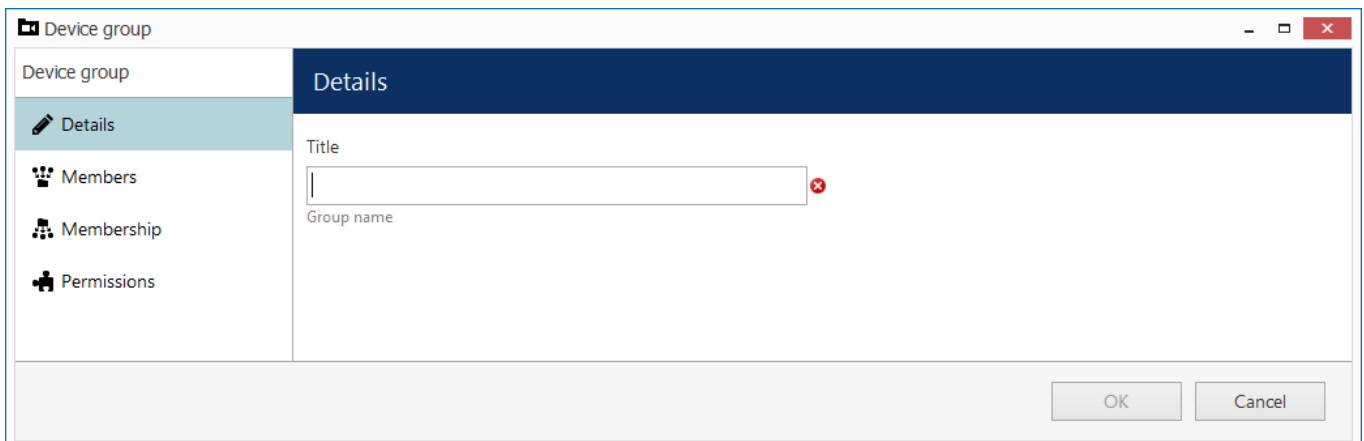
You can choose to remove all associated channels together with the device(s)

You will be offered to remove all the attached channels together with the device(s). Press *Yes* to delete the channels or choose *No* to leave the channels: they will appear as detached in the channel list then and you will be able to re-attach them to other devices, keeping the channel recording configuration. If you choose *Yes*, all existing shared channels based on the channels of the target device will be removed automatically as well.

 If you try deleting a device that has **associated rules** in the [Event & Action Configurator](#), you will get a warning dialog box with those rules listed. You can either proceed with removing the target device, its channel(s) and its rule(s), or cancel the deletion.

Add Device Groups

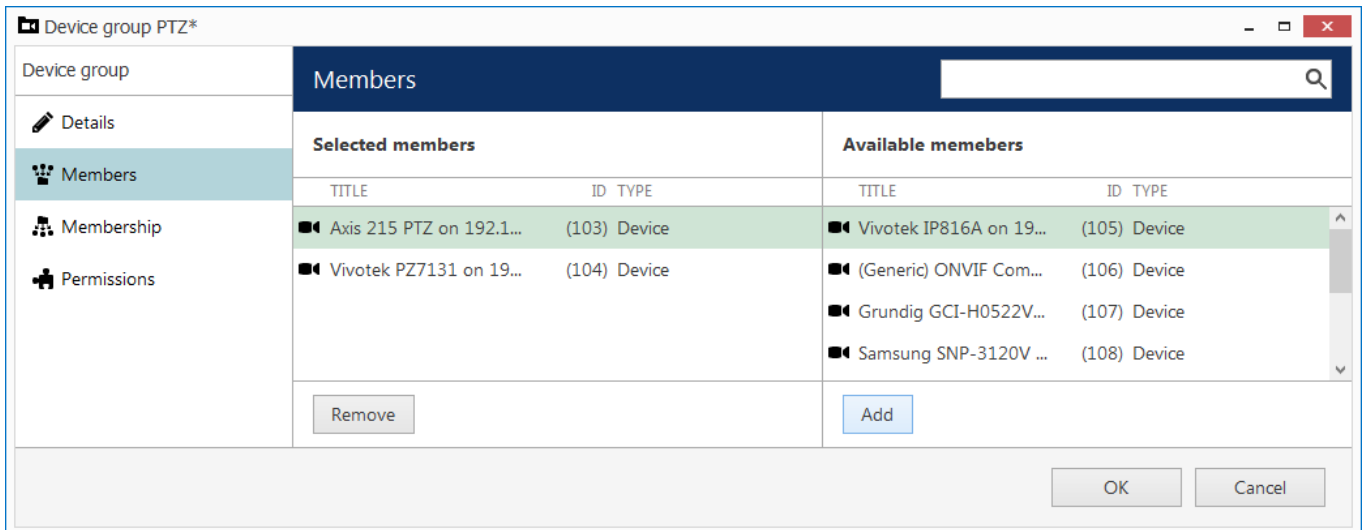
As with other resources, devices can be grouped together for easier management. Click the little arrow near + *New device* button and select *New device group*.



Device group details

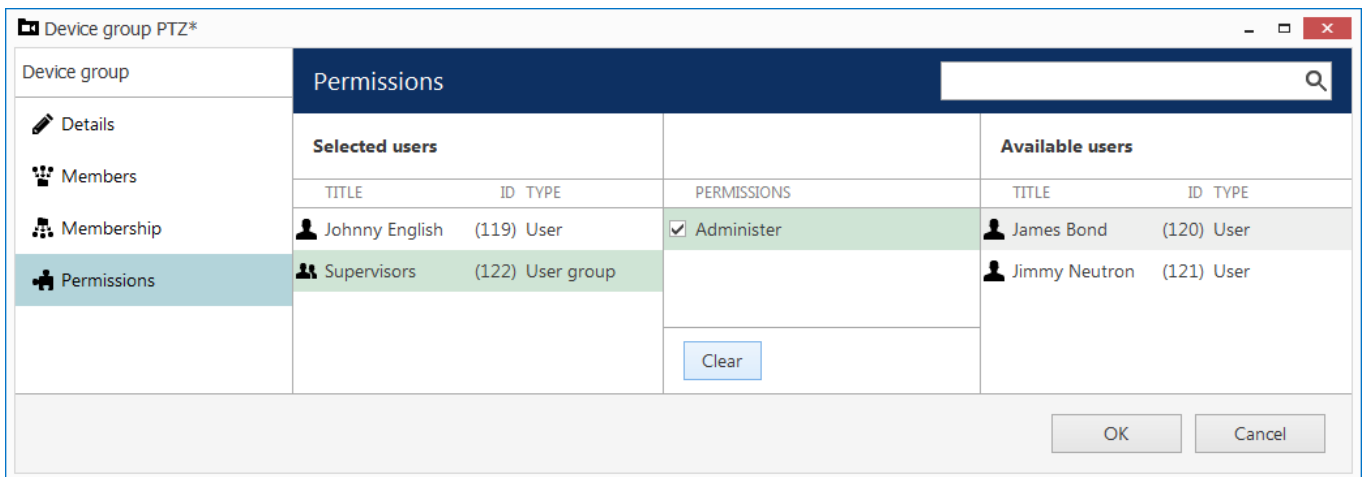
Enter a name for the device group in the *Details* tab, then switch to the *Members* tab and choose devices to join this group. Double-click items or use the *Add/Remove* buttons below to select and deselect devices.

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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.

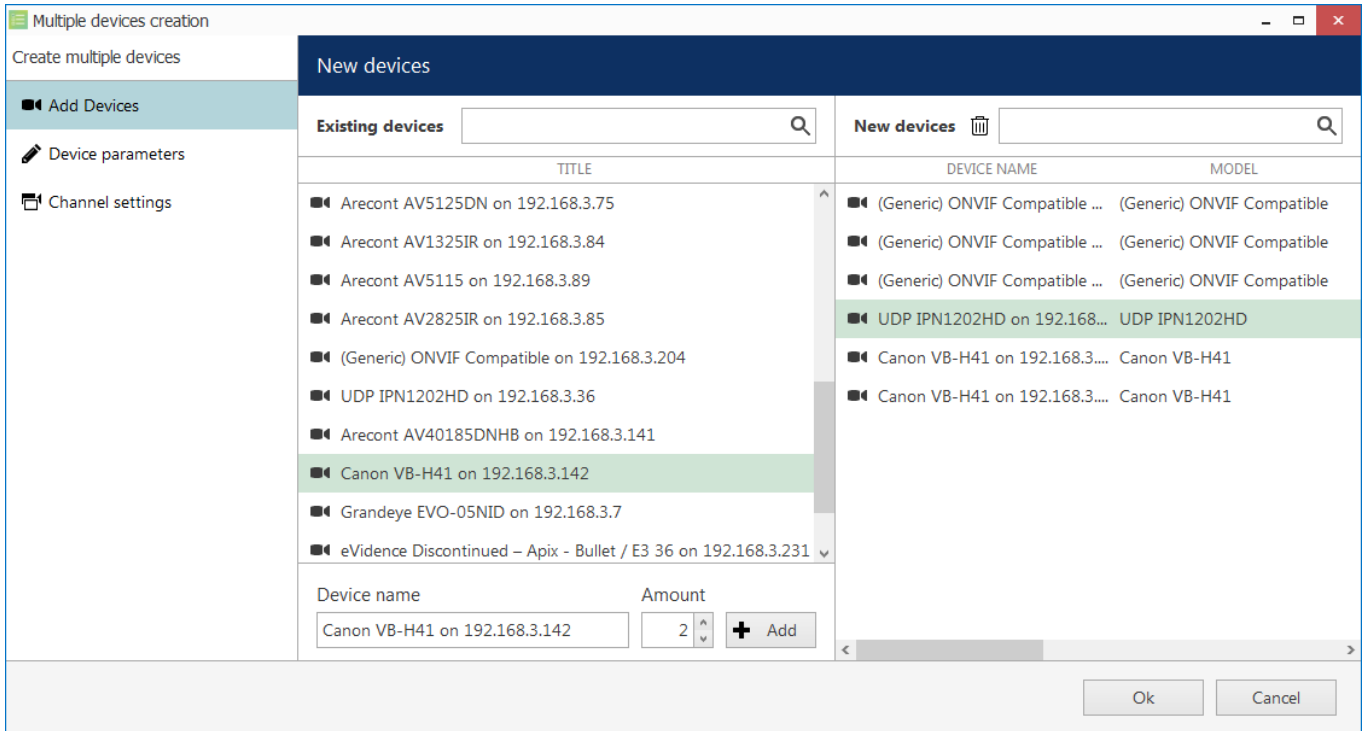
Double-click any group to open its contents in the same window; use the buttons on the upper panel to edit/remove it. Click *Edit* to adjust group settings: procedure is similar to that of creating a new device group.

Copy Device*

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

Starting from the Ganz CORTROL version 1.11.0, it is possible to **copy an existing device** and its channel(s). To copy a device, click the little arrow next to the *+ New device* button on the upper panel and choose *Create copy* from the drop-down list. The related channel(s) will be copied automatically.

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Copy one or multiple devices

In the dialog box that appears, you can create one or multiple copies of any device(s) currently present in the Ganz CORTROL server configuration. In the list on the left, all existing devices will be listed; in the list on the right, your copies will appear.

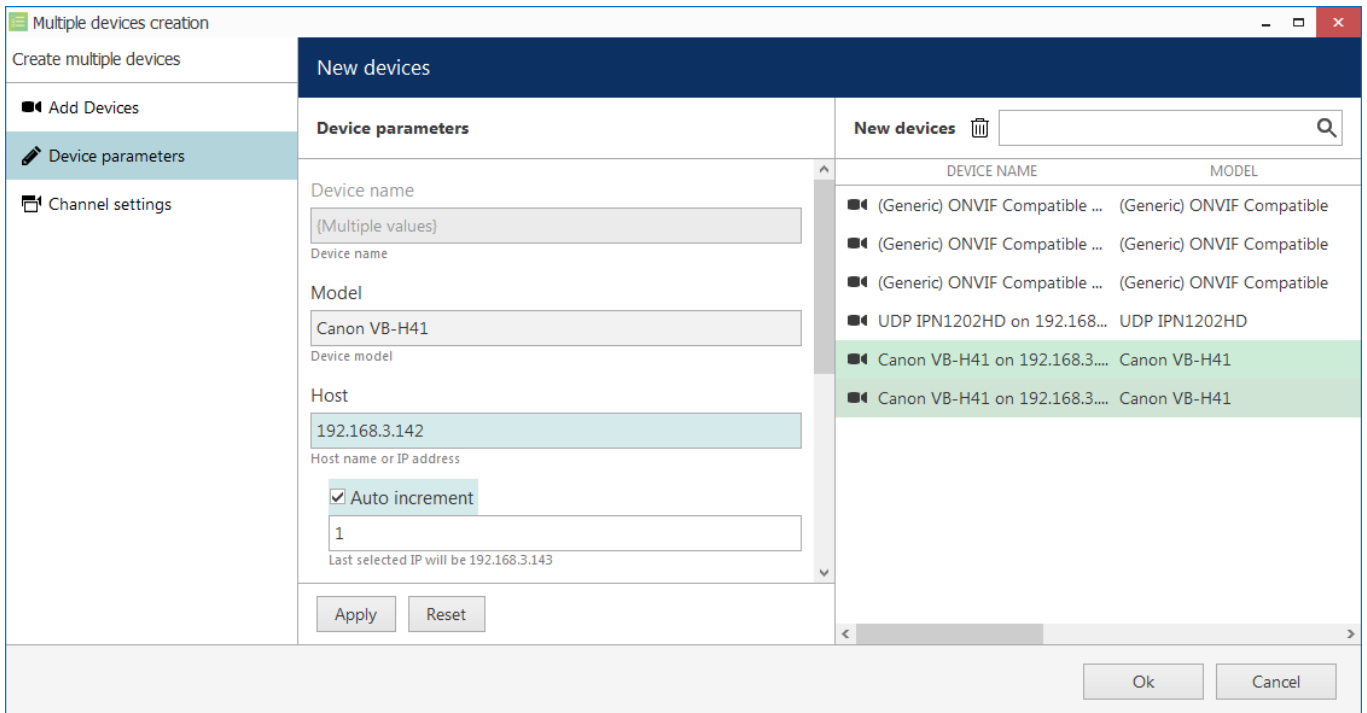
First, choose the source for the copy in the *Add devices* tab:

- select one of the existing devices in the list on the left (a single device can be selected at a time),
- set the number of target copies below,
- when ready, click the + *Add* button to **create** the selected copies,
- repeat previous steps with other devices, if required.

To add a single device copy, you can simply double-click it in the list.

Use the search fields on top of the lists to find the necessary item in a long list. If you no longer wish to add any of the created copies, you can select multiple items using *CTRL+left click* or *Shift+click* and **remove** them using the *Recycle bin* icon above.

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Change parameters of the target copies

In the *Device parameters* tab, you can adjust:

- the **name(s)** of the target copy (copies),
- their **IP addresses**, with an option to select multiple with CTRL+left click and then assign a range of IP addresses using auto increment with the specified step,
- **HTTP port** and **user credentials**.


After you have altered any settings here, do not forget to hit the *Apply* button to **save** them, otherwise the changes will be discarded when you deselect the device(s) or switch to a different tab. Use the *Reset* button to **roll back** to the original settings (this works if you have not applied the settings yet).

Note that, at this step, the new device **model** remains the same as the source device model and it cannot be changed at this point. This is necessary for the Ganz CORTROL engine to successfully create a duplicate. You will be able to change the model later via editing the desired device.

The same applies to the **server** where the device is attached: at the moment of cloning, the new devices are created on the same server. If you are using Ganz CORTROL Global, you will be able to move the devices to a different server after you have added the copies by editing the target device(s).

In the *Channel settings* tab, the only available parameter at this point is the **channel name**. You will be able to edit other settings after creating the copy (copies) by editing the target channel(s).

When finished with the settings, click the *OK* button to **save** your newly created device+channel copies. They will be automatically added into the server configuration database.

 After you have added new devices using this method, please allow **some minutes** for the configuration to be saved. After that, you will be able to change the newly created device and channel settings.

The associated **channel(s)** will be added **automatically** with all the existing settings, including the assigned recording configuration.

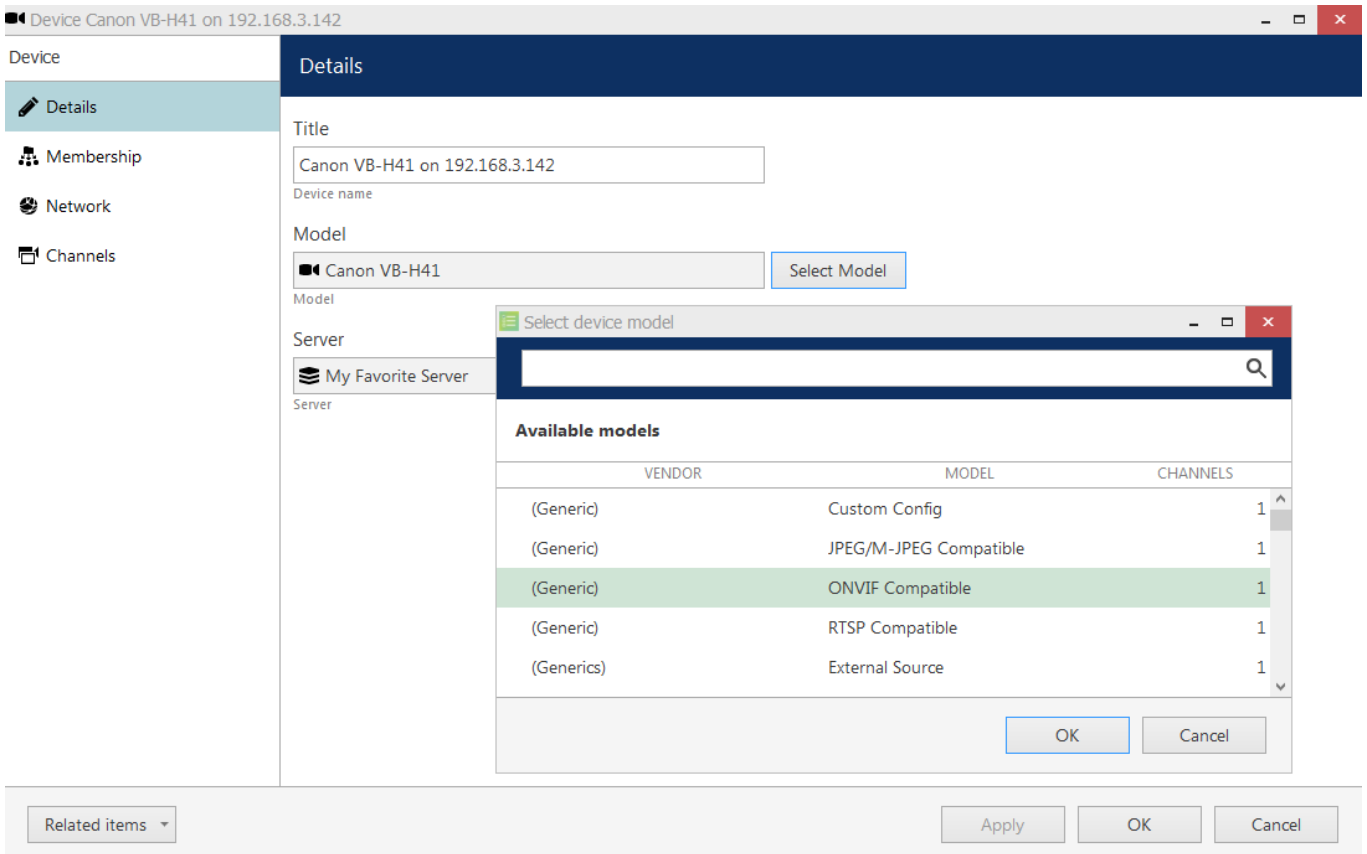
Replace Camera

In the Ganz CORTROL versions up to 1.11.0, it was impossible to alter the device model, so a special procedure was foreseen if the camera needed a replacement.

Now, if you replace the hardware, you can simply **change the device model** by opening the target device for editing - either by double-clicking it in the device list, or by using the *Edit* button on the upper panel. Note that, when you change the model of an existing device, you will only see model suggestions with the **same number of**

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channels, and not the whole list of available devices.



Change the device model

To quickly open the associated channel settings without closing this dialog box, use the *Related items* button in the bottom left corner.

⚠ When you change the device model, all the **channel settings** that are configured via *Channel properties* dialog box are **discarded**. These settings include video stream properties, audio, DI/DO etc.

Channel settings that are **preserved** are: motion detection, dewarp, data source, user permissions and recording configuration.

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32 Configure Channels


Channels are contents 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.

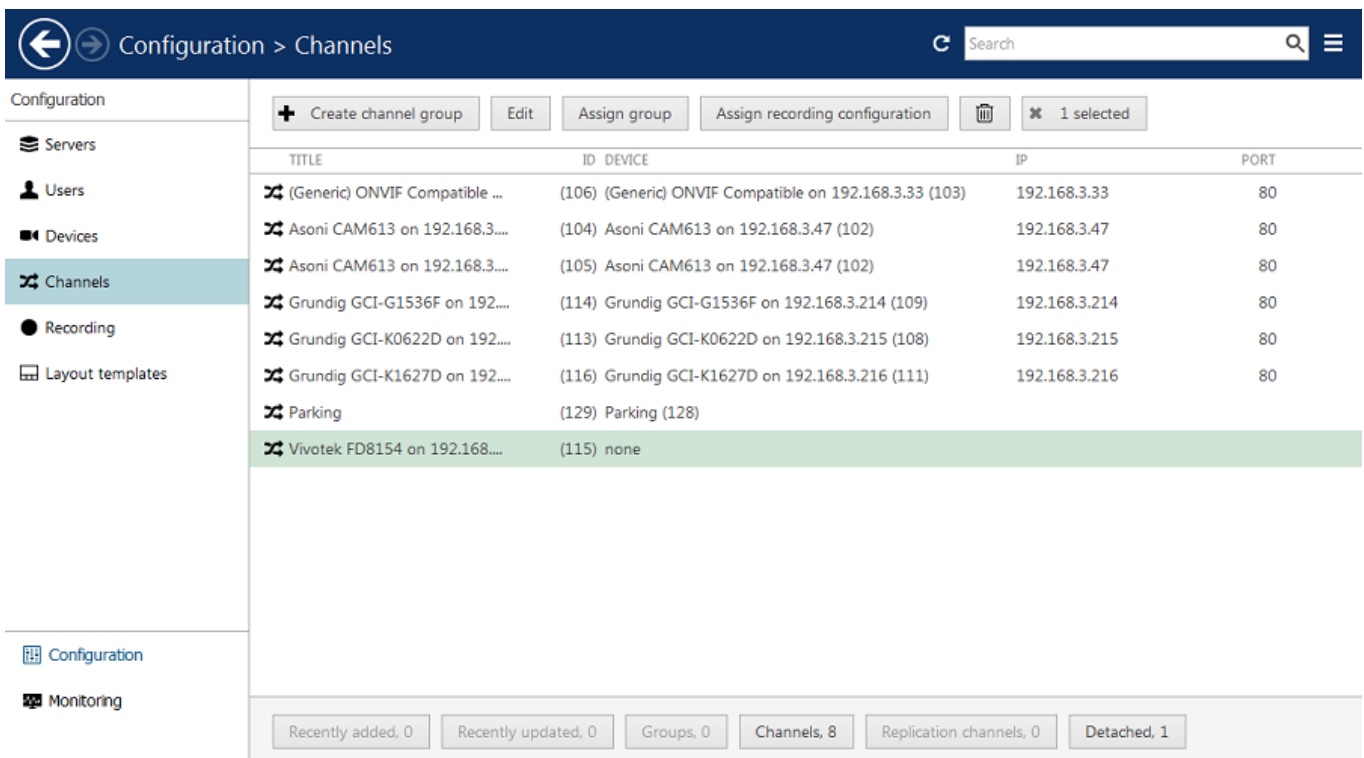
Channels include the video stream configuration settings - resolution, frame rate, bit rate and others - as well as all supplementary data streams, such as audio, motion and digital input/output events, PTZ control and camera-side analytics information. Recording configurations are assigned to channels.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









To access the channel configuration dialog box in the Ganz CORTROL 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**, go to *Devices*, open properties of the target device and disengage the channel on the *Channels* tab by clicking the *Detach* button; also, you will be offered to delete all associated channels when you remove the device itself - this will also remove any existing shared channels.

 Channels that have any associated **rules** in the [Event and Action Configurator](#) **cannot be removed**. If you try deleting such a channel, you will get an error saying *The channel cannot be removed because it is in use*. In order to remove such a channel, you need to delete the rules related to it first. To do so, just go to the *Events & Actions* section, choose *Rules* in the menu on the left, select the target server and open the configurator, then remove the necessary rules from the central column by using the < and > buttons.



TITLE	ID	DEVICE	IP	PORT
 (Generic) ONVIF Compatible ...	(106)	(Generic) ONVIF Compatible on 192.168.3.33 (103)	192.168.3.33	80
 Asoni CAM613 on 192.168.3....	(104)	Asoni CAM613 on 192.168.3.47 (102)	192.168.3.47	80
 Asoni CAM613 on 192.168.3....	(105)	Asoni CAM613 on 192.168.3.47 (102)	192.168.3.47	80
 Grundig GCI-G1536F on 192....	(114)	Grundig GCI-G1536F on 192.168.3.214 (109)	192.168.3.214	80
 Grundig GCI-K0622D on 192....	(113)	Grundig GCI-K0622D on 192.168.3.215 (108)	192.168.3.215	80
 Grundig GCI-K1627D on 192....	(116)	Grundig GCI-K1627D on 192.168.3.216 (111)	192.168.3.216	80
 Parking	(129)	Parking (128)		
 Vivotek FD8154 on 192.168....	(115)	none		

Configuration -> Channels

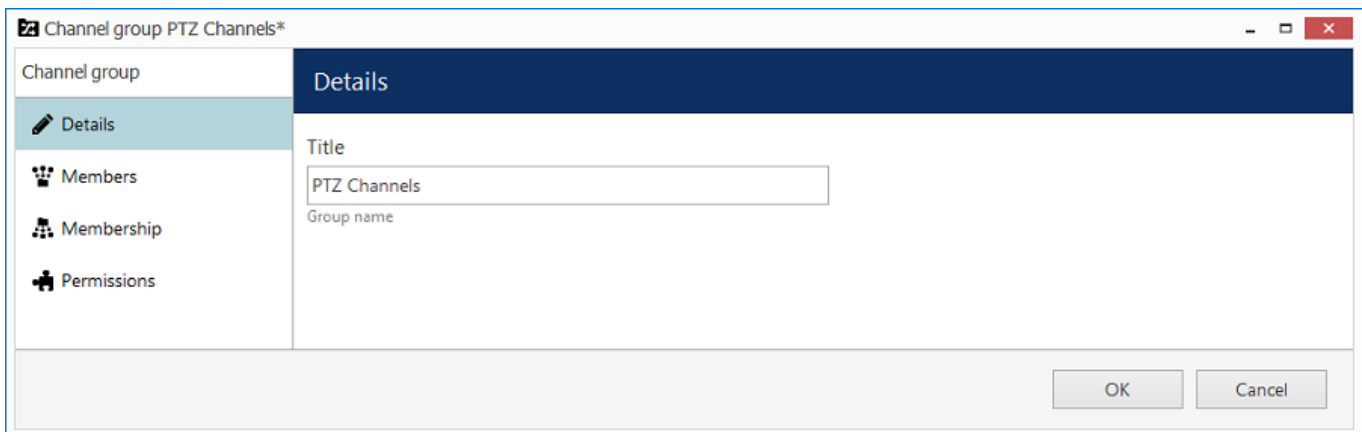
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All available channels and channels groups will be listed here. The upper panel offers a range of configuration opportunities.

Create Channel Group

Channel groups can be added for easier management in Ganz CORTROL 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.



Edit Channel group properties

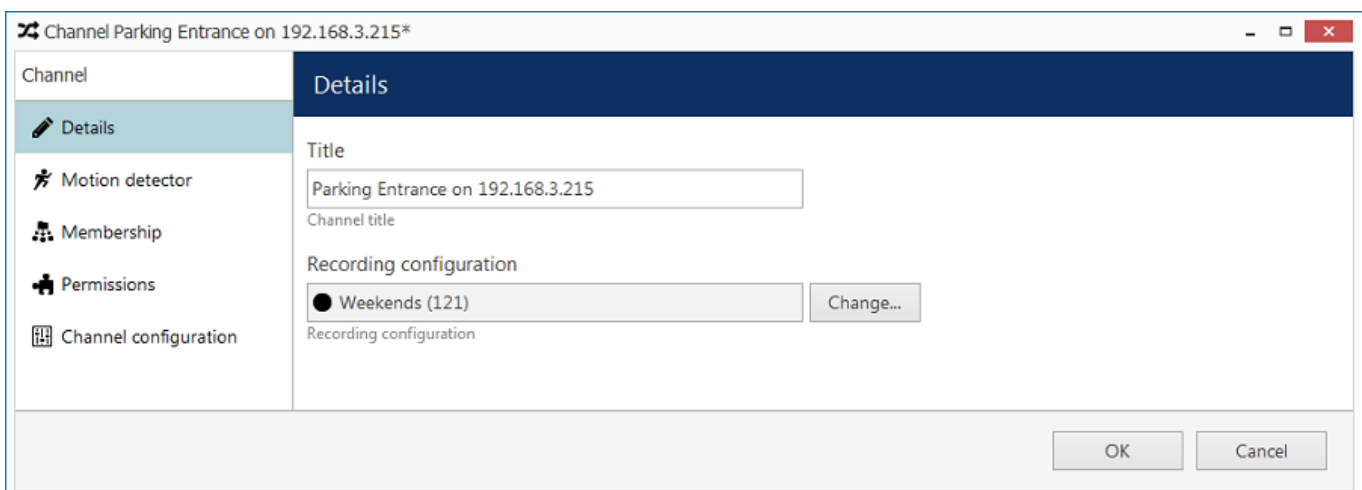
Click *OK* when you are ready: newly created group will appear in the item list.

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
- **Members tab:** bind [user buttons](#) to channels so that they appear together in the Ganz CORTROL Client
- **Membership tab:** make the channel a part of a channel group or a [visual group](#)

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- **Permissions tab:** grant channel access permissions to users and user groups
- **Motion detector tab:** choose between a camera-side or software-side motion detector*, default state is disabled
- **Audio tab:** combine current channel with audio from another source
- **Channel configuration tab:** open an additional channel configuration dialog box to manage video stream settings, frame adjustments and DI/DO
- **Data source tab:** configure overlay for the textual contents received from [data sources](#)
- **Dewarp tab:** select dewarp profile for fisheye and Panomorph lenses

Please refer to the [Channel Settings](#) topic for detailed description for each of the tabs.

*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.

If you have opened a channel for editing but there is a need to **open** the associated **device's properties at the same time**, use the *Related items* buttons in the bottom left corner.

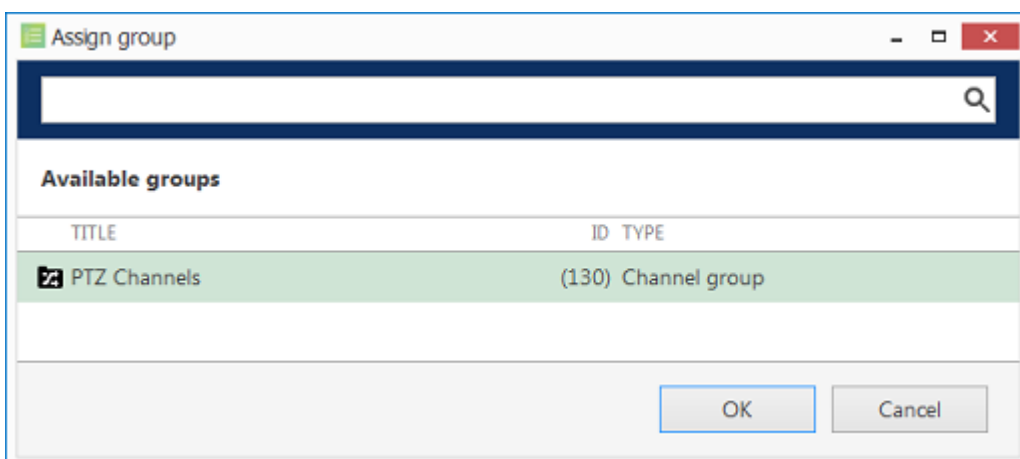
Live Channel Preview

After a device and its associated channel has been added to the configuration, it is vital to check if the actual video is received. There are several methods to do this in Ganz CORTROL Console:

- click the *Show video* button on the upper panel in the *Configuration > Channels*: you can switch from main to the secondary stream and back
- go to the *Monitoring* section > *Channels* and check the channel status
- open the target channel for editing and go to *Dewarp* or *Data source* settings

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

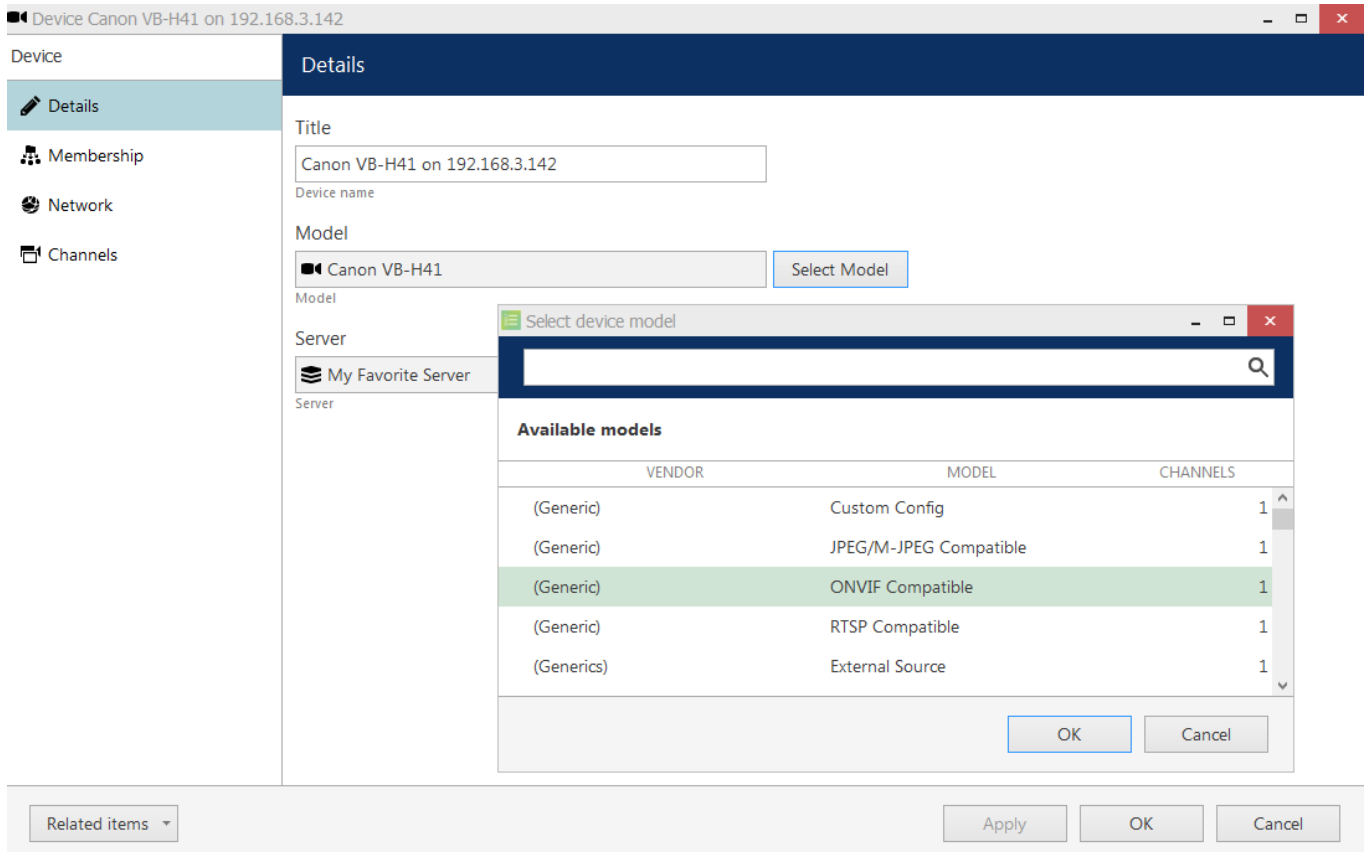
Pick a group from the existing channel groups' list and click *OK* to save. If any of the channels already belonged to some group, it is not a problem: membership in multiple channel groups is allowed.

Replace Camera

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In the Ganz CORTROL versions up to 1.11.0, it was impossible to alter the device model, so a special procedure was foreseen if the camera needed a replacement.

Now, if you replace the hardware, you can simply **change the device model** by opening the target device for editing - either by double-clicking it in the device list, or by using the *Edit* button on the upper panel. Note that, when you change the model of an existing device, you will only see model suggestions with the **same number of channels**, and not the whole list of available devices.



Change the device model

To quickly open the associated channel settings without closing this dialog box, use the *Related items* button in the bottom left corner.

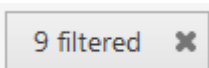
⚠ When you change the device model, all the **channel settings** that are configured via *Channel properties* dialog box are **discarded**. These settings include video stream properties, audio, DI/DO etc.

Channel settings that are **preserved** are: motion detection, dewarp, data source, user permissions and recording configuration.

Other

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

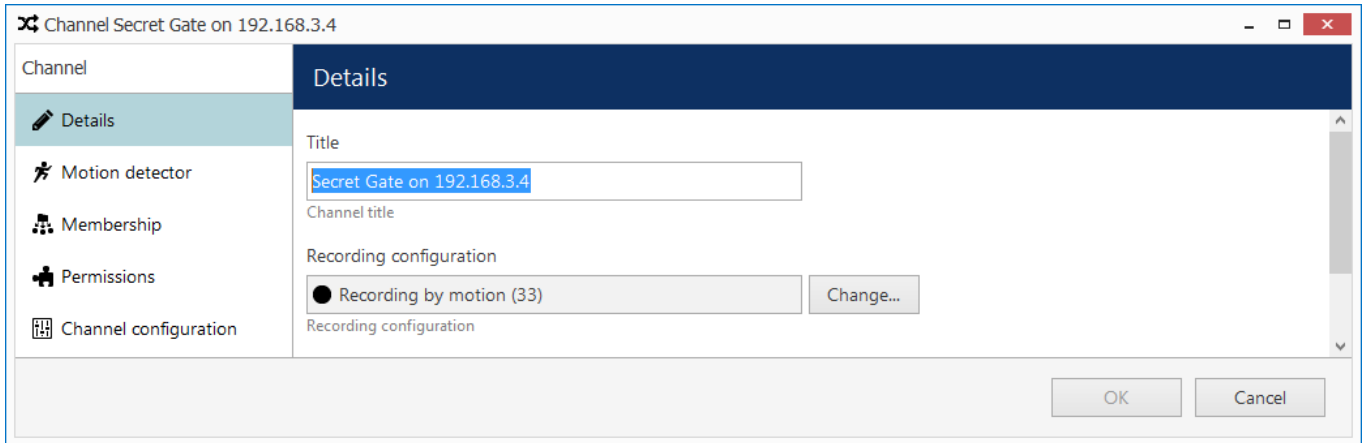


33 Channel Settings

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.



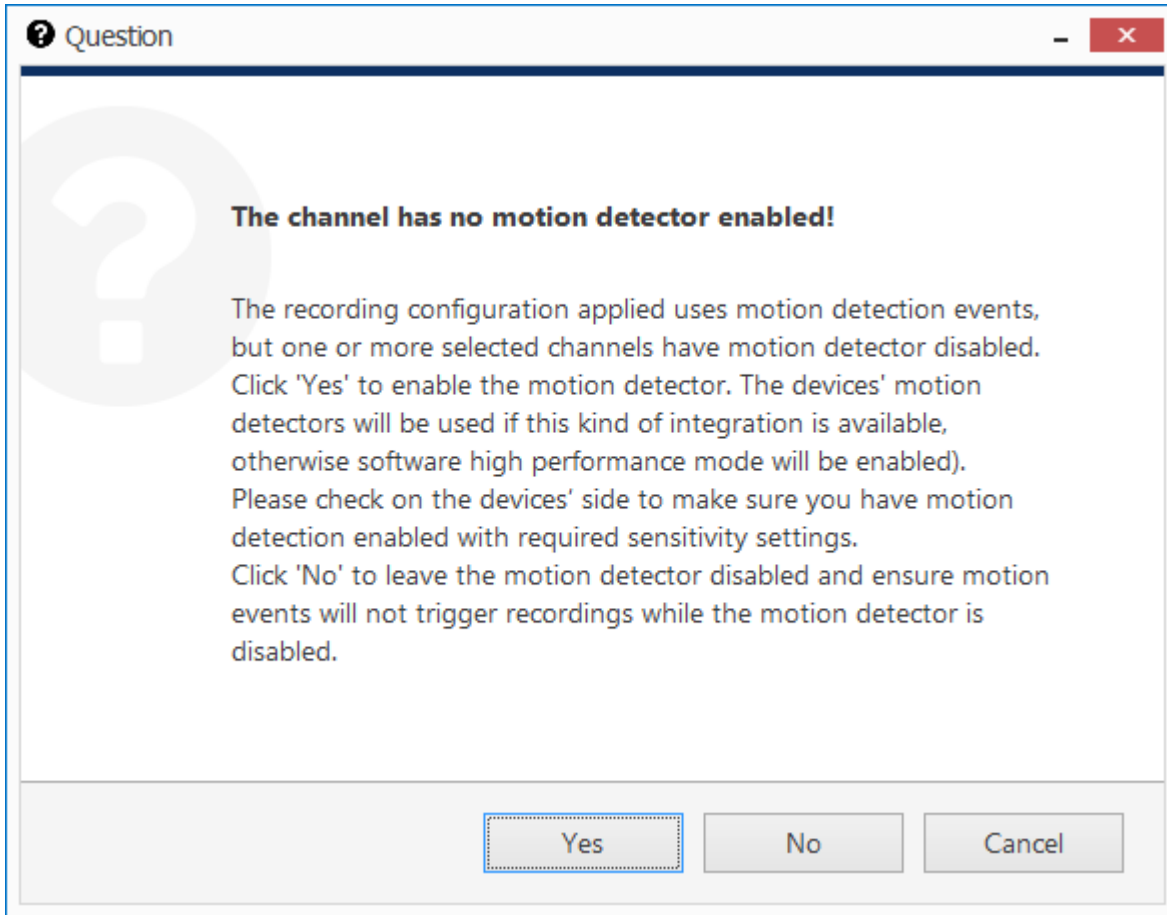
Channel details

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.

 Please choose *Continuous Recording* configuration for **edge** streams to ensure proper recording.

 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.



Automatically enable motion detection

Motion detector

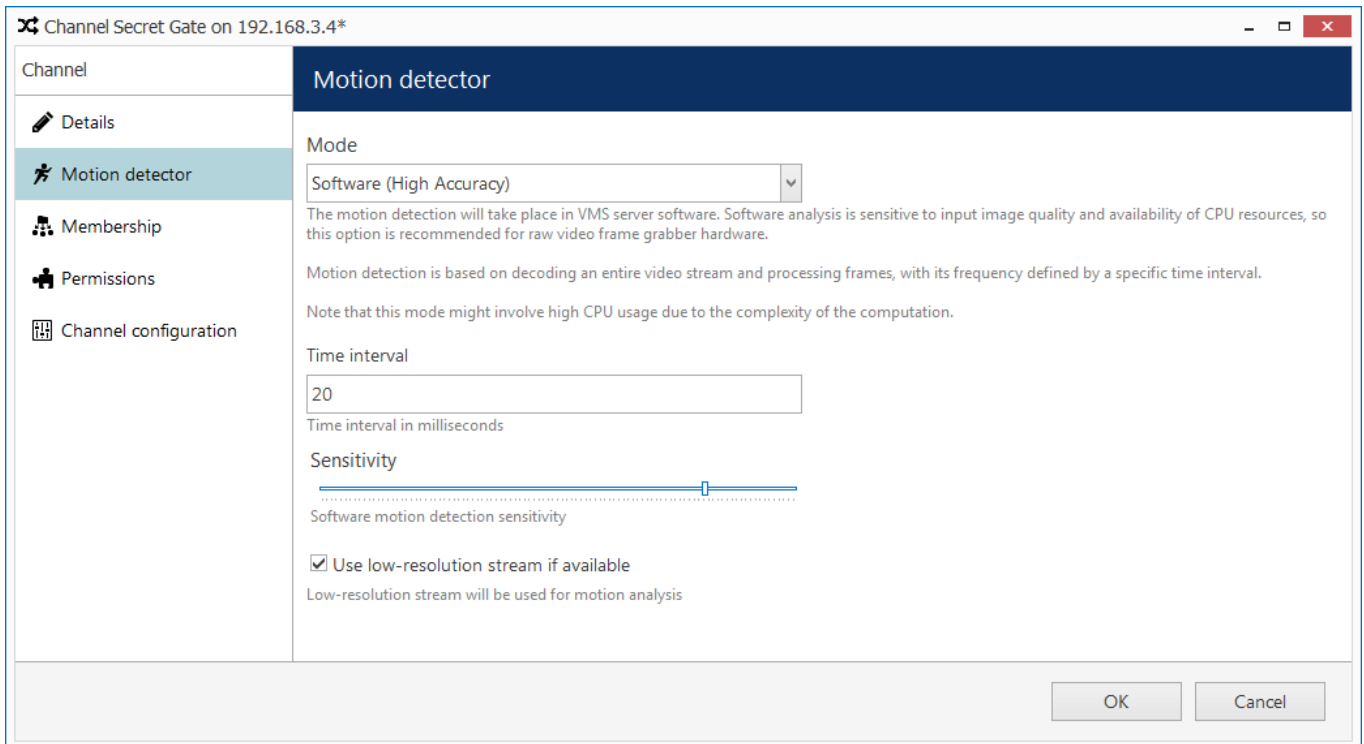
Choose between camera-side or software-side motion detectors; the default detector state is *disabled*.

 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 CBC AMERICAS, Corp. 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.

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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.

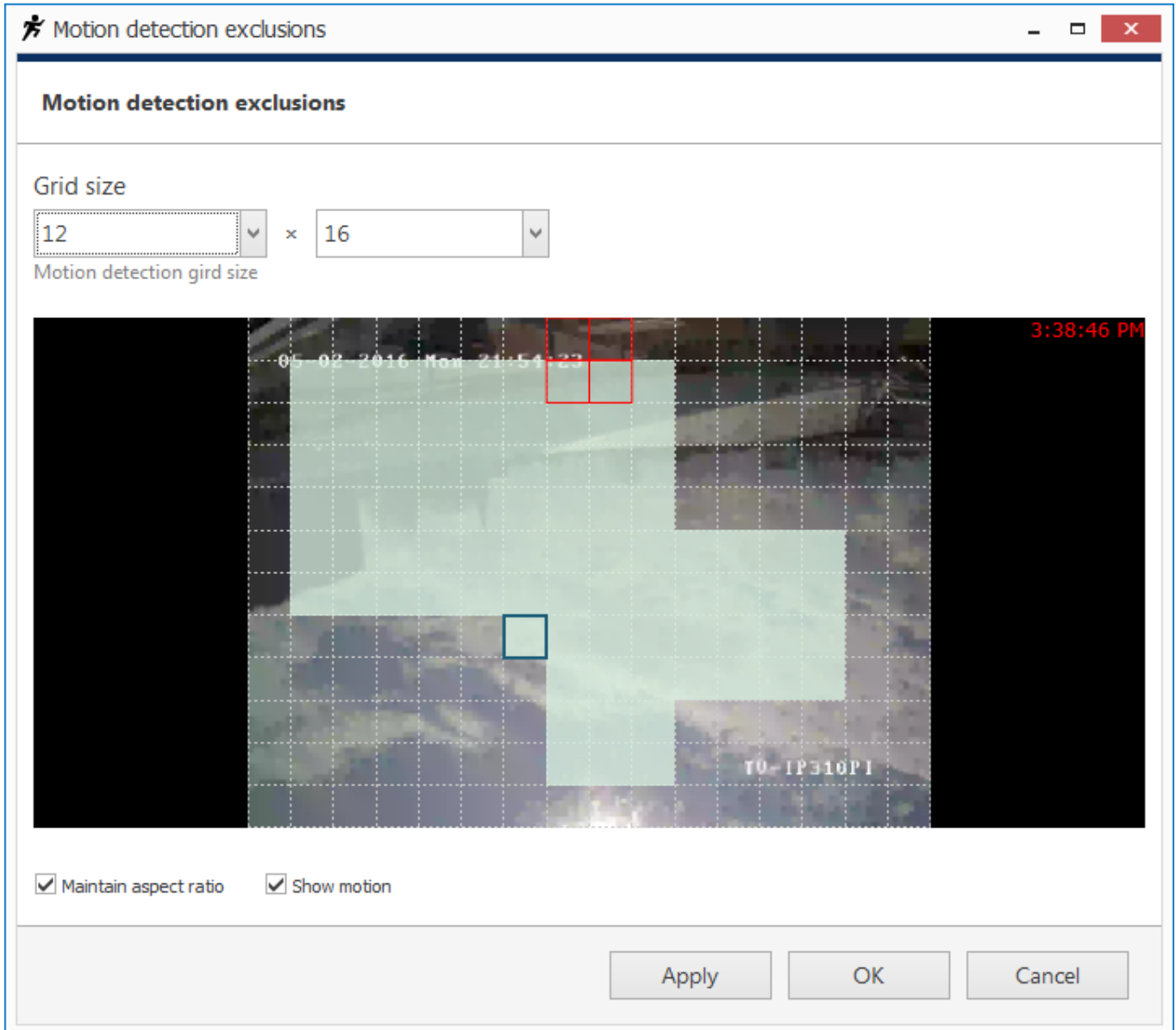
In both modes, the **level of sensitivity** can be adjusted, as can the time interval setting which defines the frequency of frame analysis.

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.

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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

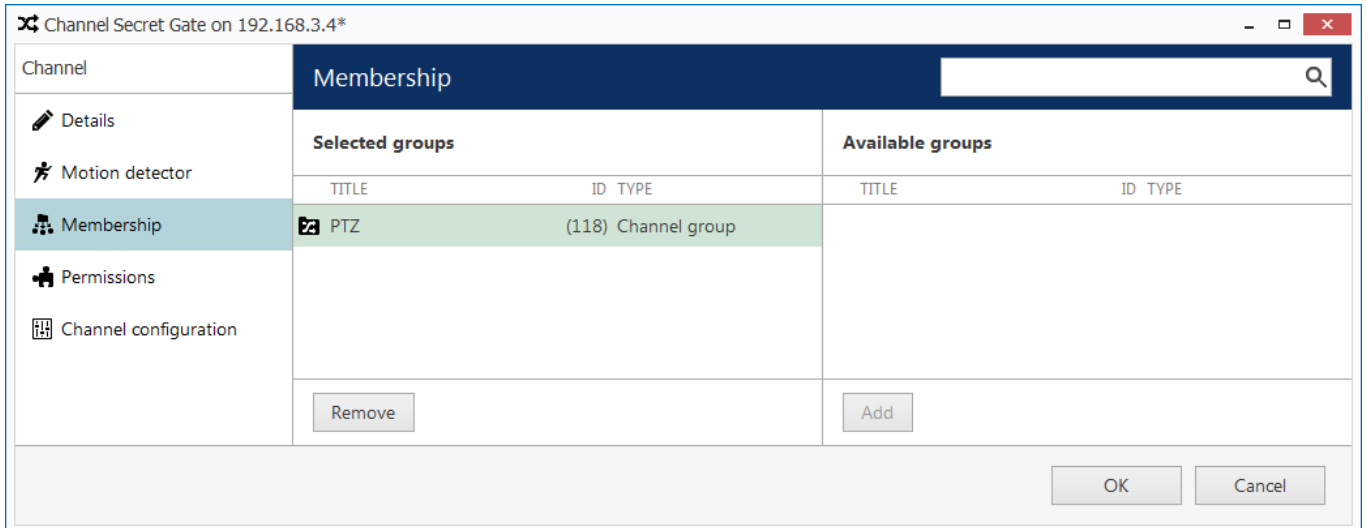
In order to test the behaviour of the selected grid size, enable the *Show motion* option, then click *Apply* and see how the detector works with your defined grid.

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.

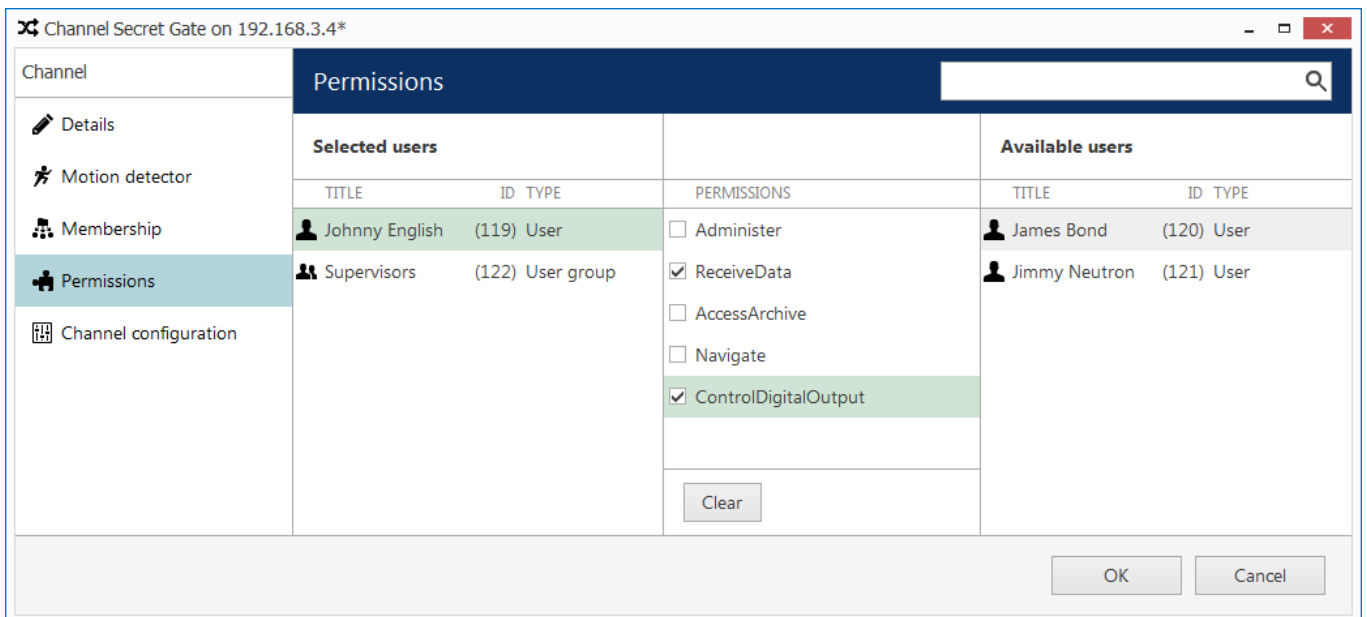
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Choose channel membership

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.



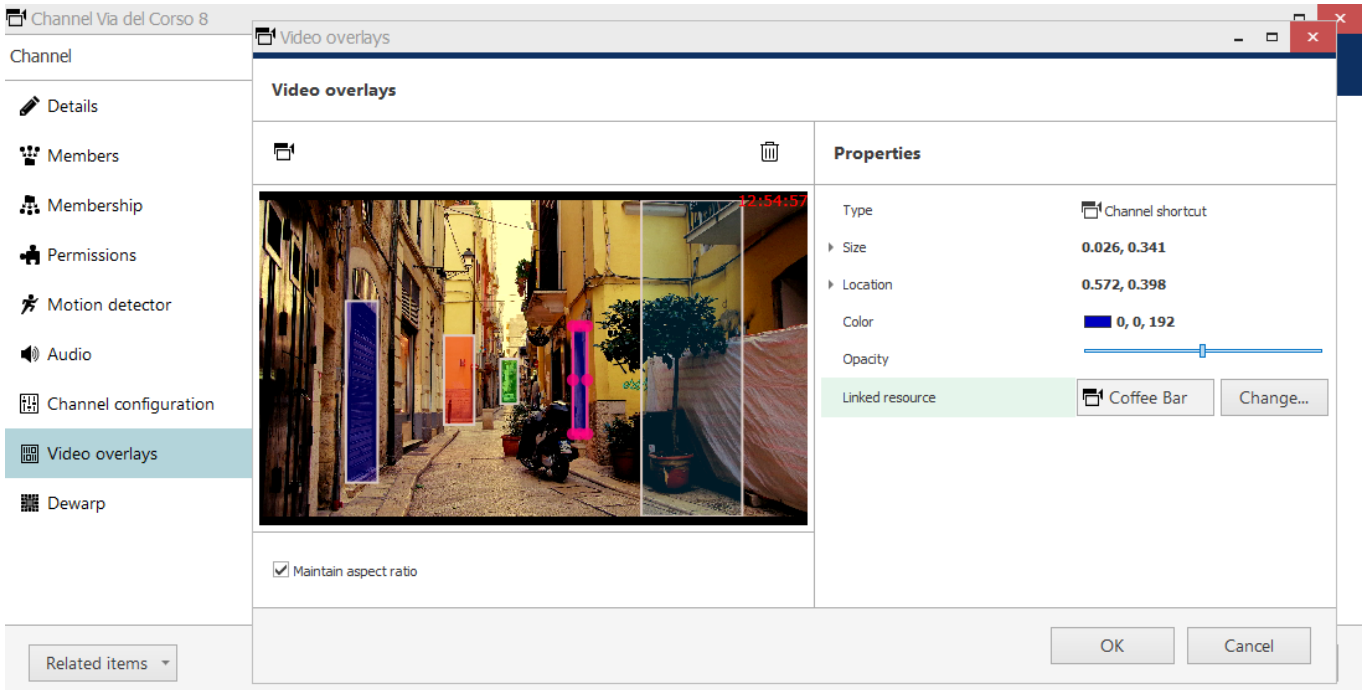
Change user privileges

Video Overlays

Click the *Configure video overlays* button to bring up the dialog box. Here, you can create **channels shortcuts** and also choose a data provider to **embed** some **textual data** with the video. The section below explains channel shortcuts; for setup guidelines on the data overlay, please refer to the [Data Sources](#) section of this document .


Channel shortcuts are interactive video overlay elements intended for instant switching between video channels in the Ganz CORTROL Client application's live view mode. In other words, these are visual controls that appear on top of the video and clicking them will open other (pre-defined) video channels in the same viewport. These "portals" are configured in Ganz CORTROL Console and then used in the Ganz CORTROL Client application.

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Street view camera with visual shortcuts to other cameras

Start by dragging and dropping a channel shortcut from the panel above the video. A coloured rectangle will appear on top of the video: drag it around and use the visual controls to change its size, and place it where you want the shortcut to be. As the shortcut is a "portal" to another video channel, usual shortcut places are windows, doors, ends of streets or corridors, etc.

 Make sure the video from the target channel is available before setting up the channel shortcuts in order to ensure correct shortcut placement.

On the right side of the configuration dialog box, there are **channel shortcut properties**:

- **Size**: visual element size (relative to the viewport size)
- **Location**: coordinates of the top left corner of the visual element in the viewport
- **Colour**: choose the element colour from one of the standard palettes (blue by default)
- **Opacity**: transparency of the visual element, from 100% transparent on the left to 100% opaque on the right
- **Linked resource**: target video channel (mandatory setting)

The **linked resource** is the video channel that will be displayed once the shortcut is clicked by user; it must be defined, otherwise the shortcut does not make any sense and will not be saved. Other settings are optional. The visual element size and location are listed for your reference: it is more convenient to change the rectangle size and position by manipulating it in the viewport. However, you can still change the numbers to adjust the size and position.

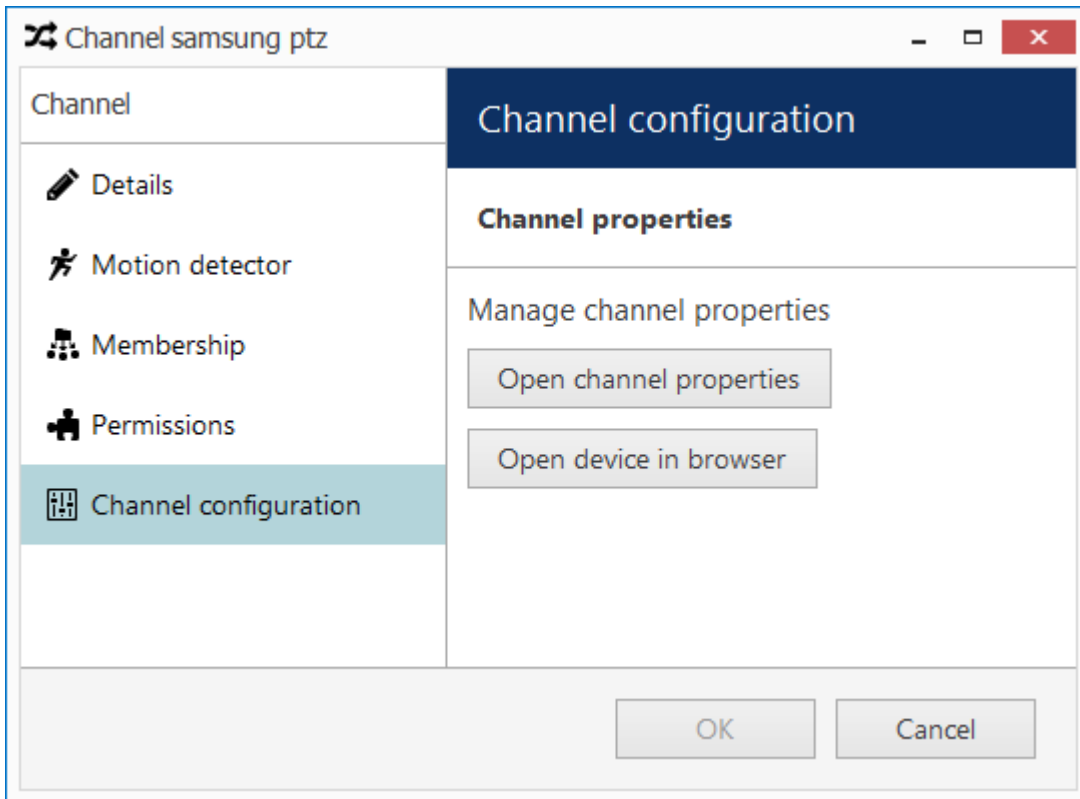
To **remove** any unneeded shortcut, select it in the video viewport and click the *Recycle bin* button in the panel above the video.

To **save** the video overlay settings, click *OK* to close the dialog box and then click *Apply* or *OK* in the *Edit channel* dialog box. If you click *Cancel* to discard changes in the *Edit channel* dialog box, adjustments in the video overlays will not be saved.

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Channel Configuration

The *Channel Configuration* tab allows you to adjust advanced channel settings. Some of these can be changed via Ganz CORTROL 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 Ganz CORTROL 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

*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. For ONVIF devices, the RTSP port is set automatically.

**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

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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.

Dewarp

Here, you can configure generic [dewarp settings](#) or enable dewarp engine for the Panomorph Enables® lens. For details, please see the subsequent topic on dewarp setup.

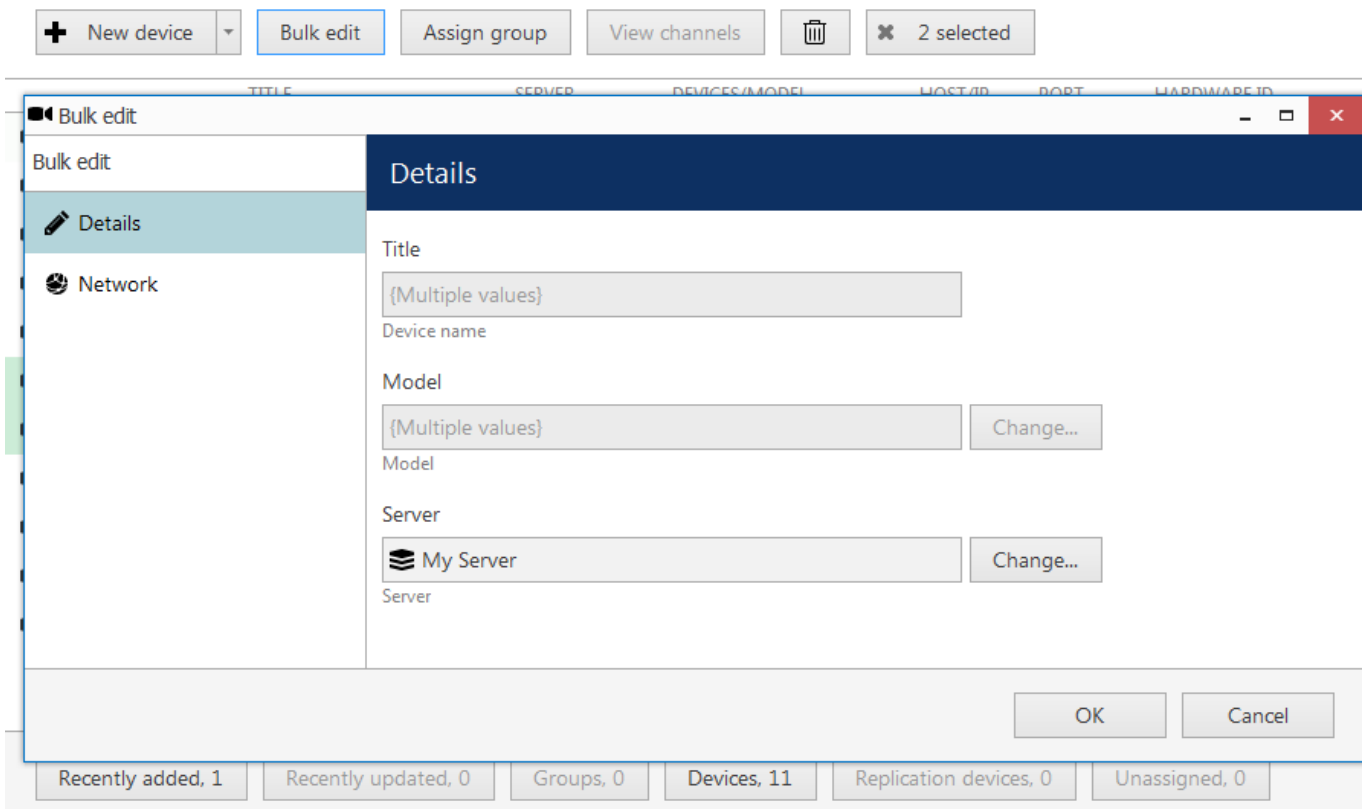
34 Bulk Edit for Devices and Channels

For easier resource management, it has been made possible to edit certain settings of devices and channels, e.g., recording settings and motion detection, for multiple items at once. To do so, simply select more than one device or channel in the item list using CTRL+click or Shift+click (use CTRL+A to mark all) and then click the *Bulk Edit* button on the top panel. Note that the button will not be there unless at least two items are selected.

- Some settings will be grayed out, indicating that these either cannot be changed at all or specifically via bulk edit
- *{Multiple values}* text in the setting field indicates that selected items have different options, e.g., have different recording configurations
 - leave such a field untouched if you wish to keep these settings different
 - change the value of such a field to something specific using the *Change* button to assign the same setting to all selected items
- Fields containing specific values or empty fields indicate that all selected items have the same setting (often default); change the value to assign the setting to all items at once

Edit Multiple Devices

Select at least two devices in the list and click *Bulk Edit* on the top panel to bring up the corresponding dialog box. Some settings will be grayed out, indicating that these settings either cannot be changed at all or specifically via bulk edit.



Edit multiple devices using bulk edit

For devices, you will be able to modify the following settings:

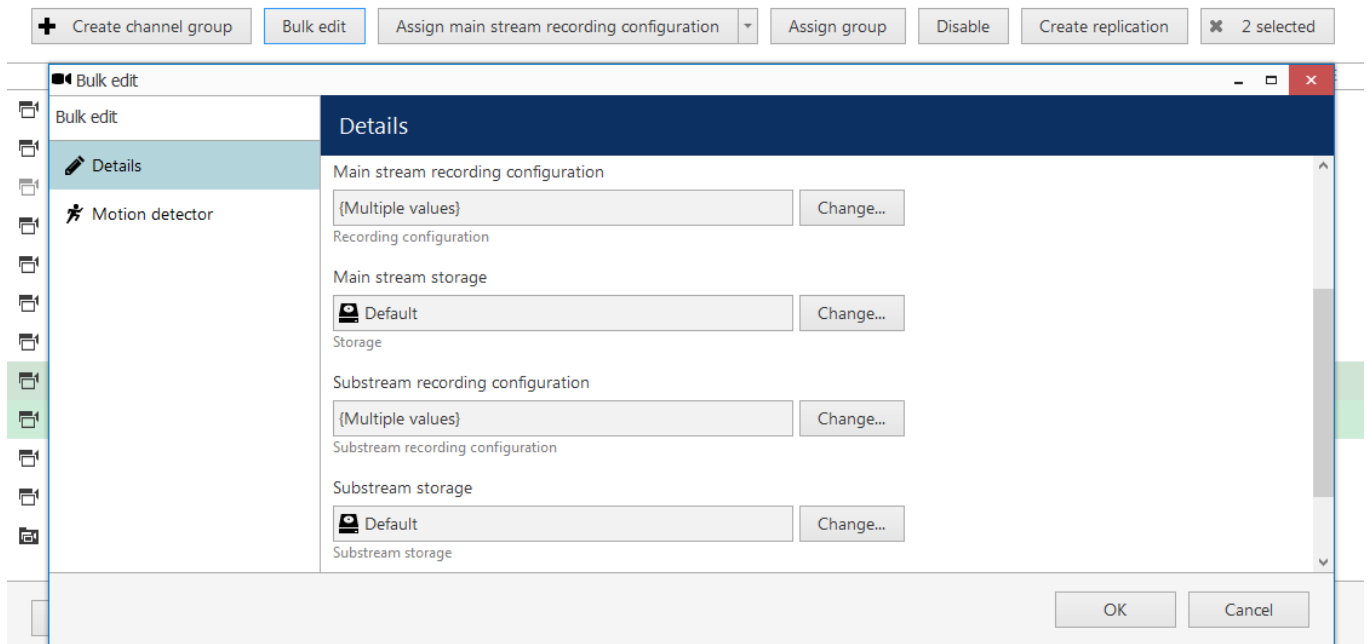
- *Details* tab:
 - **Server:** the server where the devices belong
- *Network* tab:
 - **Port:** HTTP port to connect to the device (for IP devices)
 - **Username and password:** user credentials to log in with

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When done, click *OK* to save and close the dialog box: the settings will be applied to all the selected devices.

Edit Multiple Channels

Select at least two channels in the list and click *Bulk Edit* on the top panel to bring up the corresponding dialog box. Some settings will be grayed out, indicating that they either cannot be changed at all or specifically via bulk edit: for instance, it is impossible to change the title field this way, as each channel normally has its own name, which therefore should be edited for each channel individually.



Edit multiple channels using bulk edit

For channels, the following settings can be changed via bulk edit:

- *Details* tab:
 - **Organisation***: the organisation the channel belongs to
 - **Main stream recording configuration**: default recording setting for the main stream
 - **Main stream storage**: main stream recording destination
 - **Substream recording configuration**: default recording setting for the secondary stream, if available
 - **Substream storage**: secondary stream recording destination
 - **Edge** recording configuration**: set *Continuous Recording* here for proper operation
 - **Edge** storage**: recording destination for the footage fetched from the device
 - **Video lost time**: timeout for streams absence, after which the video stream is considered lost and the corresponding event is raised in the E&A engine
- *Motion detector* tab:
 - **Mode*****: choose between camera-side or software-side (high performance or high accuracy software modes available) motion detection

*Ganz CORTROL Global edition only

**Only for channels coming from ONVIF devices

***You will find more details on the motion detection modes in the *Channel Configuration* topic

When done, click *OK* to save and close the dialog box: the settings will be applied to all the selected channels.

35 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 Ganz CORTROL 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

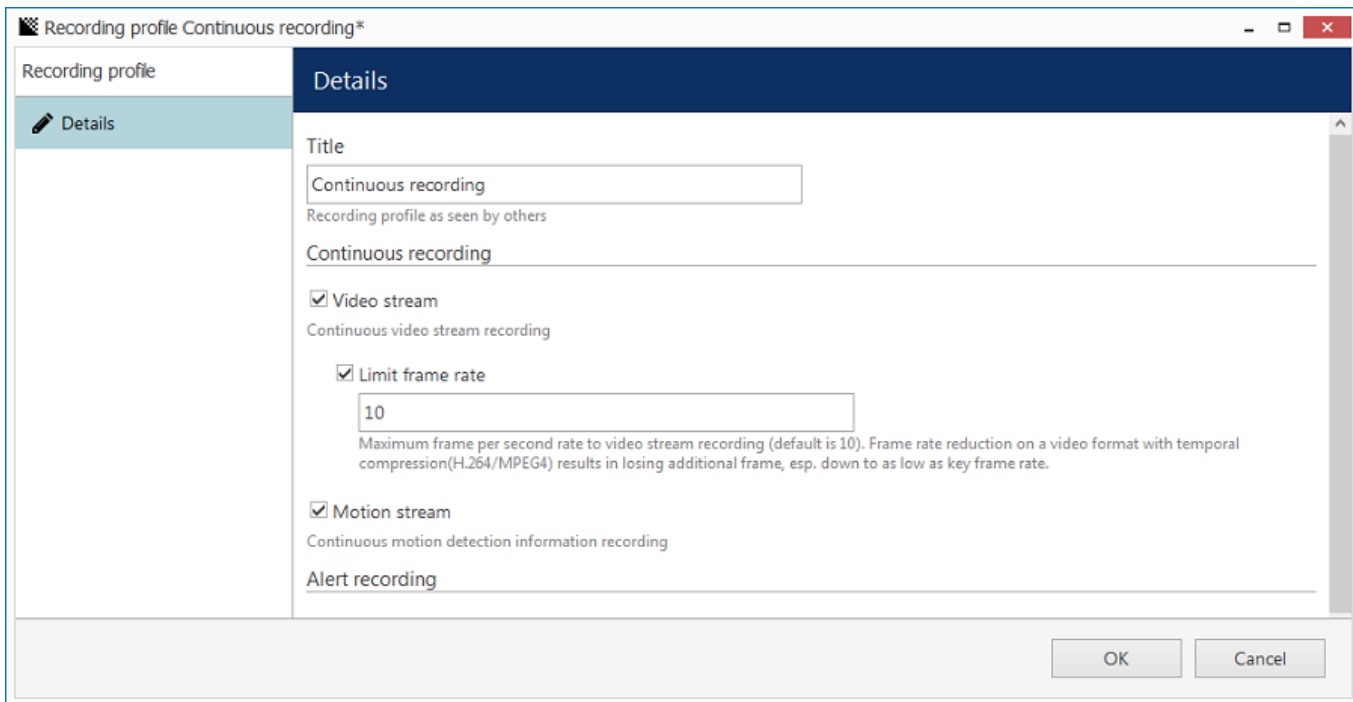
Buttons on the upper panel give the option to create, edit and remove recording resources.

 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.



The screenshot shows a dialog box titled "Recording profile Continuous recording*". The dialog is split into two main sections: "Recording profile" on the left and "Details" on the right. The "Recording profile" section has a "Details" sub-section with a pencil icon. The "Details" section contains the following fields and options:

- Title**: A text input field containing "Continuous recording". Below it, a smaller text says "Recording profile as seen by others".
- Continuous recording**: A section header.
- Video stream**: A checked checkbox. Below it, the text "Continuous video stream recording" is displayed.
- Limit frame rate**: A checked checkbox. Below it, a text input field contains the value "10". A smaller text below reads: "Maximum frame per second rate to video stream recording (default is 10). Frame rate reduction on a video format with temporal compression(H.264/MPEG4) results in losing additional frame, esp. down to as low as key frame rate."
- Motion stream**: A checked checkbox. Below it, the text "Continuous motion detection information recording" is displayed.
- Alert recording**: A section header.


At the bottom right of the dialog, there are two buttons: "OK" and "Cancel".

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 greyed out.

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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
Audio stream (continuous)	Select to enable continuous audio recording	Disabled
Data stream	Select to enable data recording from the associated the data source	Disabled
VCA stream	Select to enable continuous video analytics event recording	Disabled
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 <i>Post-recording interval</i>	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

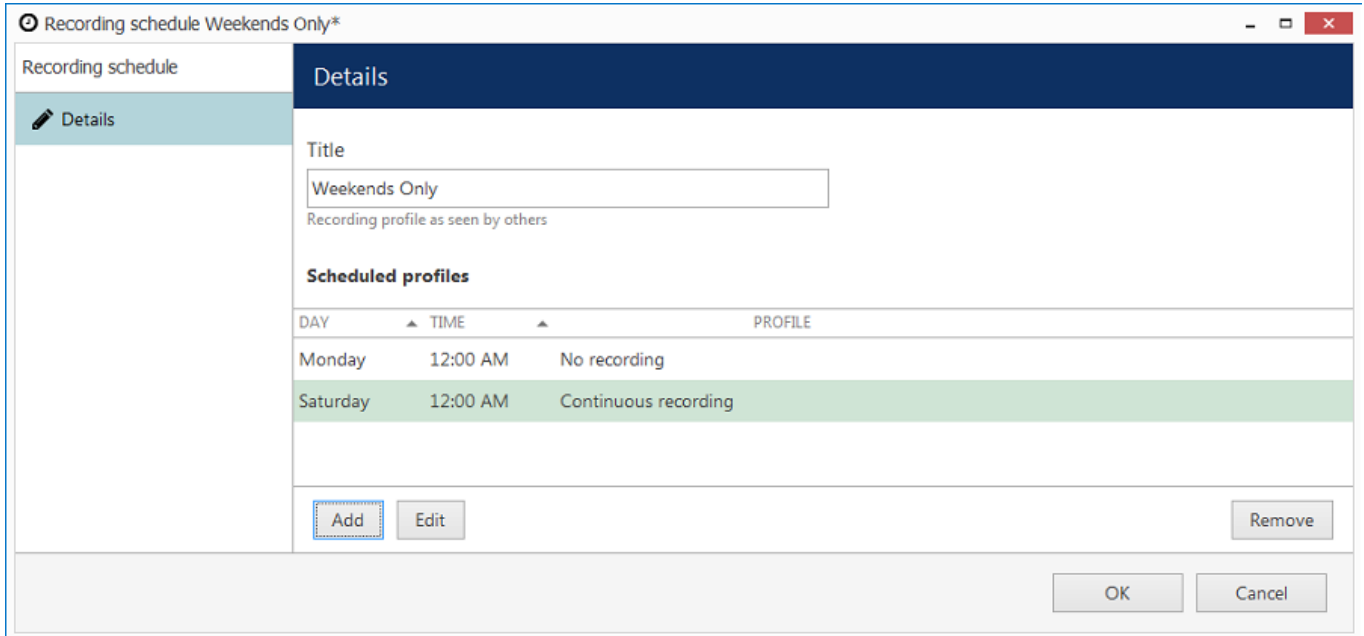
When done, click *OK* to save recording profile: it will appear in the item list of the *Recording* section. The profile is now ready for further configuration.

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Create Recording Schedule

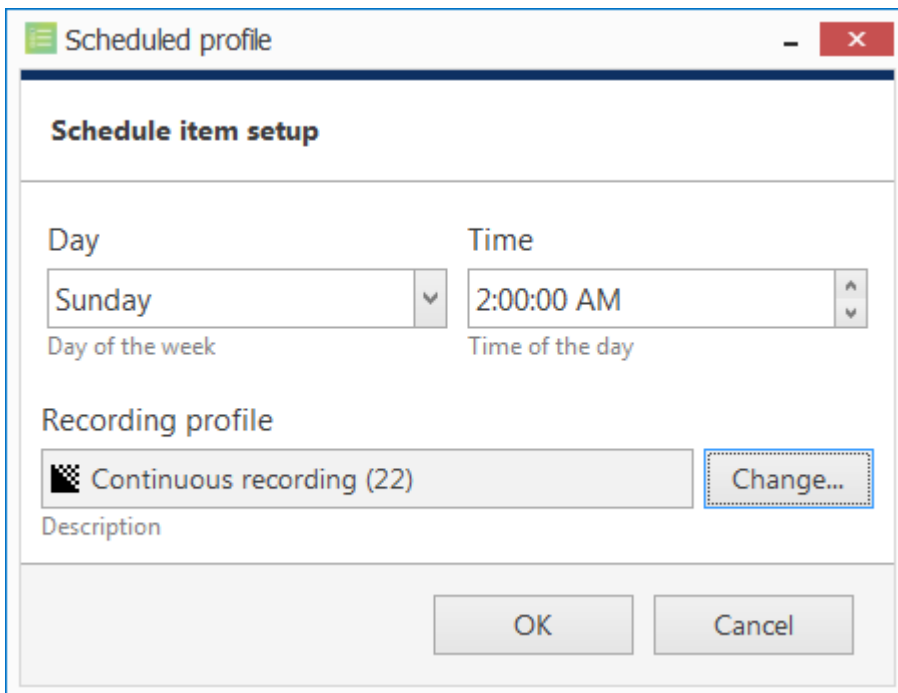
Recording schedules are sets of recording profiles that define what recording profiles are used depending on the day and time of the week.

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..

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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.

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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*.

The screenshot shows a dialog box titled "Recording configuration Weekends*". The dialog has a left sidebar with "Recording configuration" and "Details" (selected). The main area is titled "Details" and contains the following fields:

- Title:** A text input field containing "Weekends". Below it is the text "Recording profile as seen by others".
- Controlled by:** A dropdown menu showing "Weekends Only (120)" with a "Change..." button to its right. Below it is the text "Profile or schedule".
- Prerecording interval:** A text input field containing "10". Below it is the text "Time interval to keep recording before alert was signalled in seconds (default is 10)".
- Amount quota (GB):** A text input field containing "0". Below it is the text "Maximum amount of data to be kept in stored archive".
- Duration quota (days):** A text input field containing "5". Below it is the text "Number of days to keep stored in archive footage".

At the bottom right of the dialog are "OK" and "Cancel" buttons.


Recording configuration dialog box


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

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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 - if the used profile is not alert or motion driven, set 0 here to decrease 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 be 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.

 For security reasons, it has been made impossible to erase recordings from individual channels and/or time periods, so that archive integrity is preserved. Recordings are erased automatically when storage or duration quota is reached; if you need to erase footage from an existing channel, simply assign a recording configuration with an individual quota to it, wait until the footage is erased (actual timing depends on archive size) and assign a new recording configuration.

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.

36 Assign Recording Configurations

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 (automatically discovered channels are assigned the *Continuous recording* configuration by default)
- when creating multiple devices: from multiple channel creation dialog box, *Channel settings* tab (manually added devices are set not to be recorded by default)
- after adding a single device manually: via *Channels* section, *Edit channel* dialog box, *Details* tab (manually added devices are set not to be recorded by default)
- 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 Ganz CORTROL Console window (latter option). All the rest alternatives are similar: you are offered configuration selection list at once from corresponding setup window.

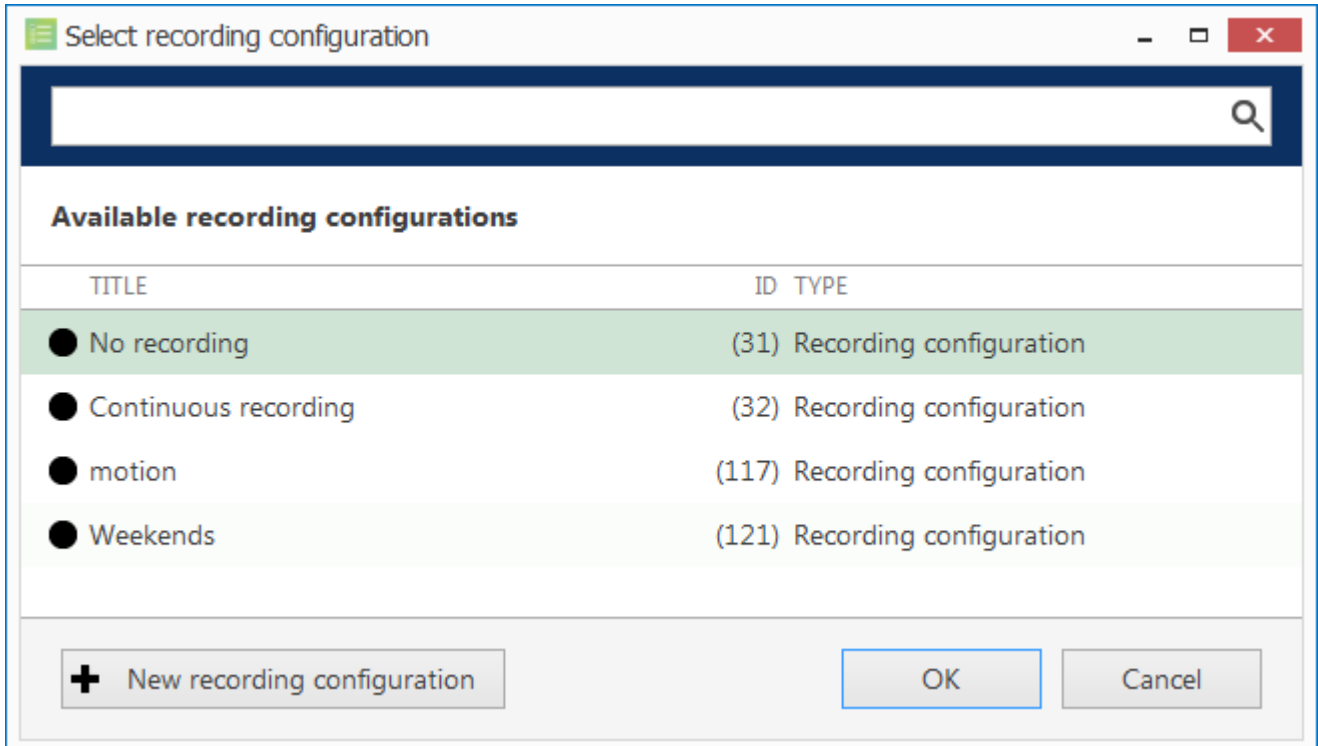
Enable Recording

TITLE	ID	DEVICE	IP
(Generic) ONVIF Compatible ...	(106)	(Generic) ONVIF Compatible ...	192.168.3.33
Asoni CAM613 on 192.168.3....	(104)	Asoni CAM613 on 192.168.3....	192.168.3.47
Asoni CAM613 on 192.168.3....	(105)	Asoni CAM613 on 192.168.3....	192.168.3.47
Grundig GCI-G1536F on 192....	(114)	Grundig GCI-G1536F on 192....	192.168.3.214
Grundig GCI-K0622D on 192....	(113)	Grundig GCI-K0622D on 192....	192.168.3.215
Grundig GCI-K1627D on 192....	(116)	Grundig GCI-K1627D on 192....	192.168.3.216
Vivotek FD8154 on 192.168....	(115)	Vivotek FD8154 on 192.168....	192.168.3.212
Vivotek IP7131 on 192.168.3....	(112)	Vivotek IP7131 on 192.168.3....	192.168.3.211
First Floor	(122)		

Select the channels that are subject to recording configuration changes

In Ganz CORTROL 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.


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Choose a recording configuration for the channels selected

Note that you can only directly assign **configurations**, not profiles or schedules. Configurations are based on profiles or schedules (sets of profiles); please refer to the *Configure Recording Profiles* section of this document for details.

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.

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Recording configuration Weekends*

Recording configuration

Details

Details

Title

Weekends

Recording profile as seen by others

Controlled by

Weekends Only (120)

Profile or schedule

Prerecording interval

10

Time interval to keep recording before alert was signalled in seconds (default is 10)

Amount quota (GB)

0

Maximum amount of data to be kept in stored archive

Duration quota (days)

5

Number of days to keep stored in archive footage

OK Cancel

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.

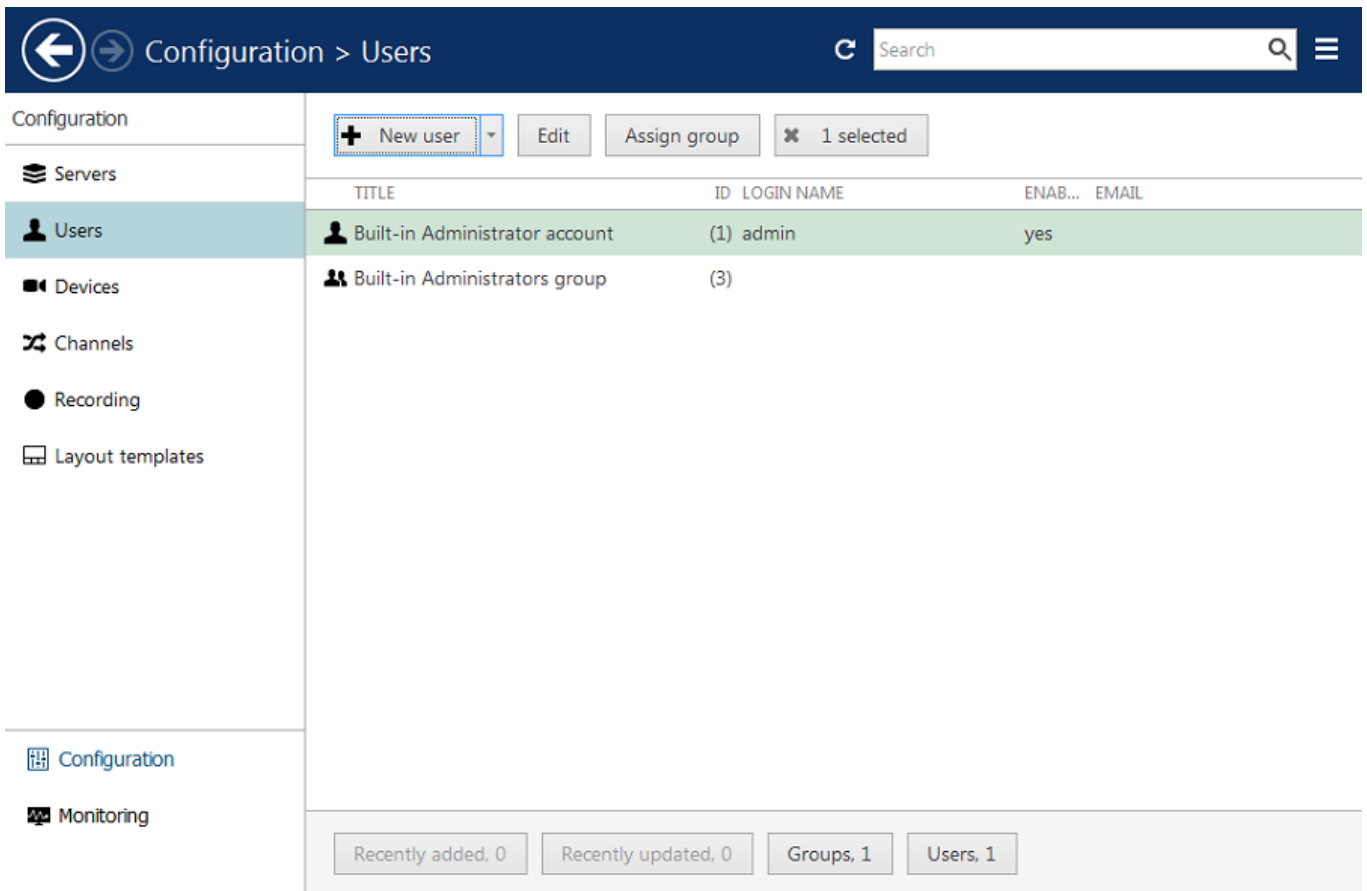
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37 Add Users and User Groups

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



Configuration

- Servers
- Users**
- Devices
- Channels
- Recording
- Layout templates

Configuration

- Monitoring

Actions: + New user, Edit, Assign group, 1 selected

TITLE	ID	LOGIN NAME	ENAB...	EMAIL
 Built-in Administrator account	(1)	admin	yes	
 Built-in Administrators group	(3)			

Summary: Recently added, 0 | Recently updated, 0 | Groups, 1 | Users, 1

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.

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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 Ganz CORTROL Console and Ganz CORTROL Client: 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	Enable to enter a password and re-enter it to make sure no typos were made; mandatory when creating a new user	empty
Password never expires	User will not be prompted to change his password once in a while; enable this to ensure a permanent password for this user account (this setting can be overridden by the <i>User must change password..</i> setting in the same dialog box); otherwise, password will expire after the number of days specified in the server security policy	Disabled (not selected)
User must change password at next logon	User will be prompted to change his password upon his next logon attempt; enable this if you want to force user change the password even if his password is set to never expire	Disabled (not selected)
User cannot change password	Enable this to prevent the user from changing his password; this option is not available if user password is not permanent or if you have selected to force user change their password at next logon using the settings above	Disabled (not selected)
PTZ Priority	0 = lowest, 10 = highest	5
Override default limit of simultaneous	Maximum number of simultaneous connections allowed from this user account; the setting has priority over server-defined limitations; 0=unlimited	Disabled (not selected)

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connections

 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.

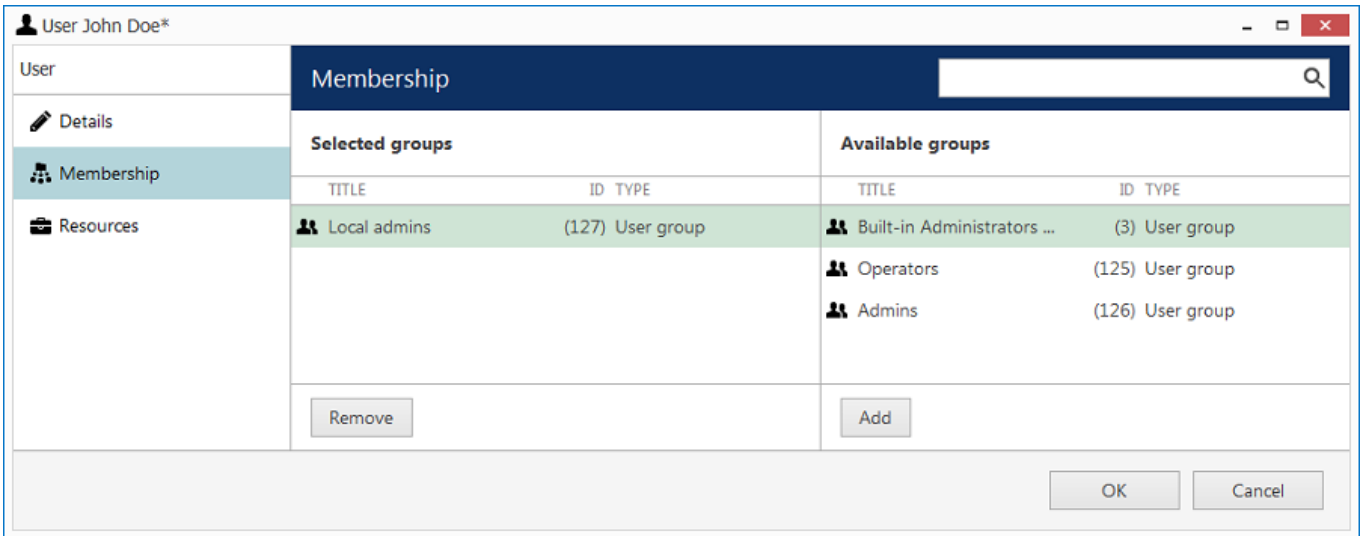
 If two or more users try using PTZ control of a device at the same time, **PTZ priority** is used to decide who gains access first: user with a lower priority is blocked for ten seconds to allow a higher-priority user to use PTZ. If two users with the same PTZ priority have an access conflict, they will be both granted PTZ access simultaneously.

Default PTZ priority for all users, including those built-in and imported, is equal to five (medium priority). You can assign any user a higher PTZ priority (six to ten) or a lower one (four to zero) by editing individual user properties.

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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.



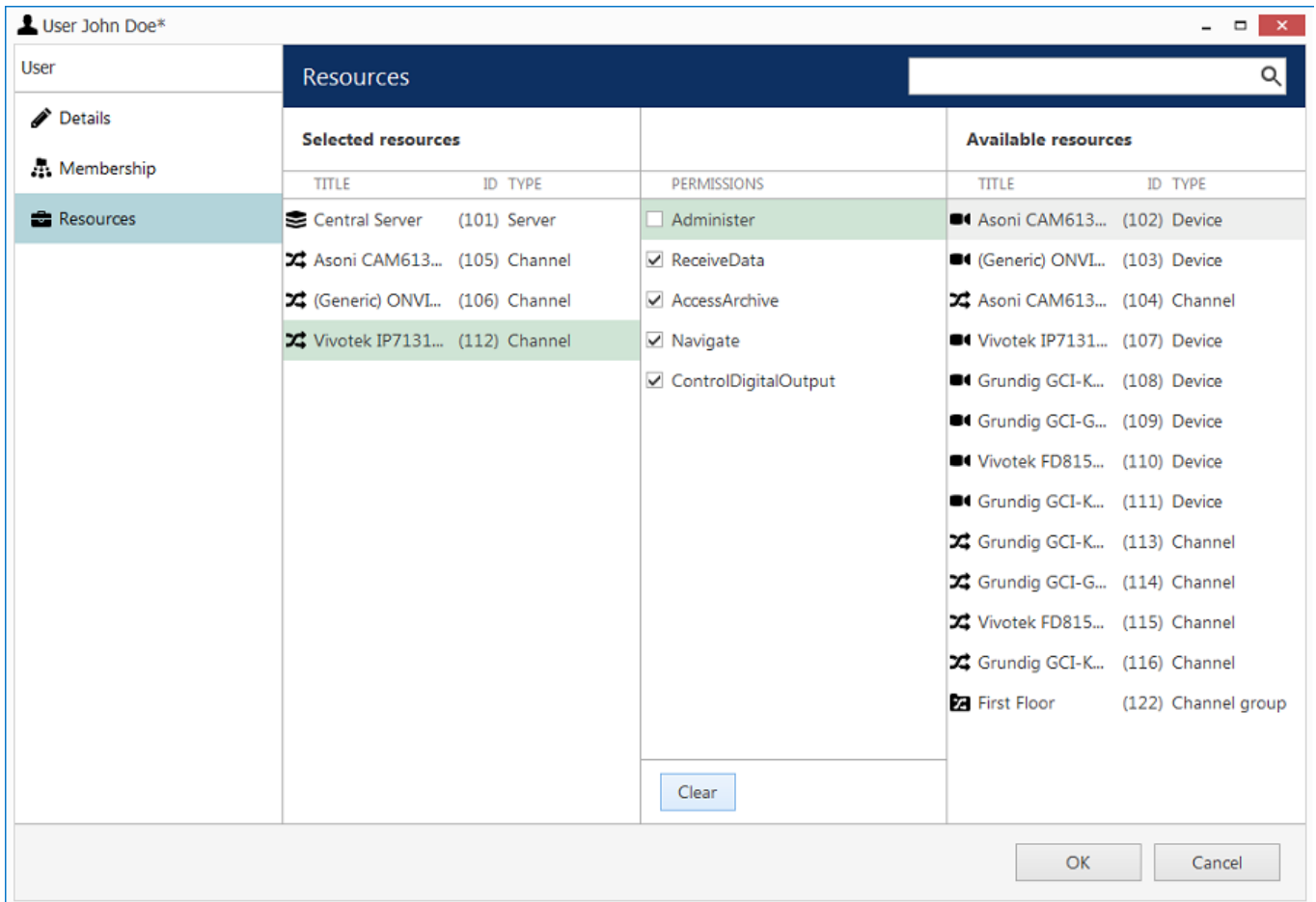
Add the groups you want the selected user to be a member of

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.

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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* or *Shift* to select multiple items at once).

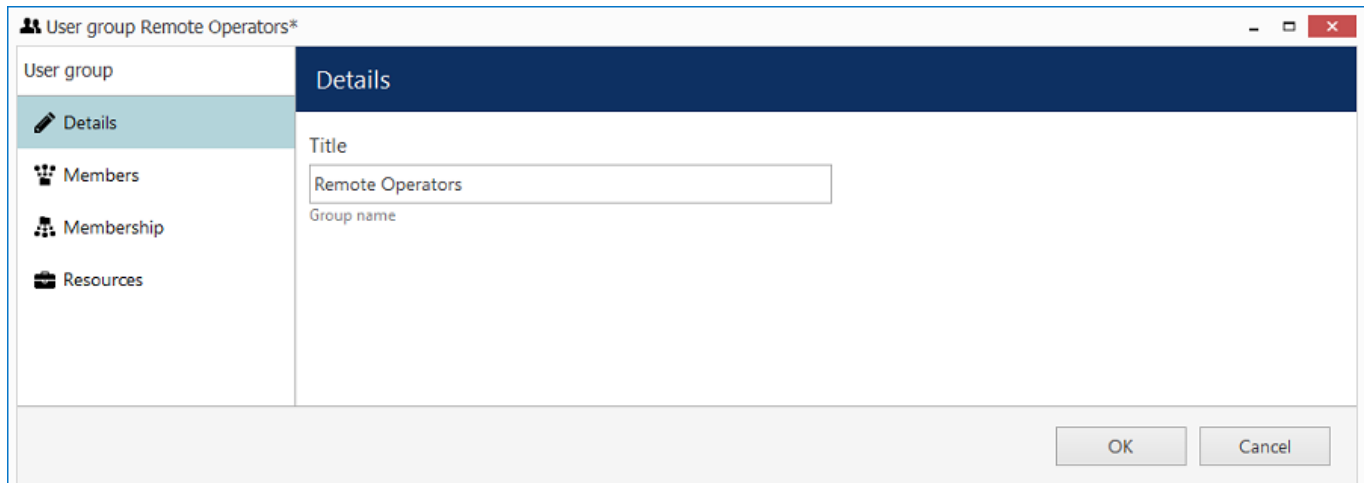
If there are a large number of user accounts, the *Search* field in the upper-right-hand corner and the content filters in the bottom panel can help you quickly find the accounts you are looking for.

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.

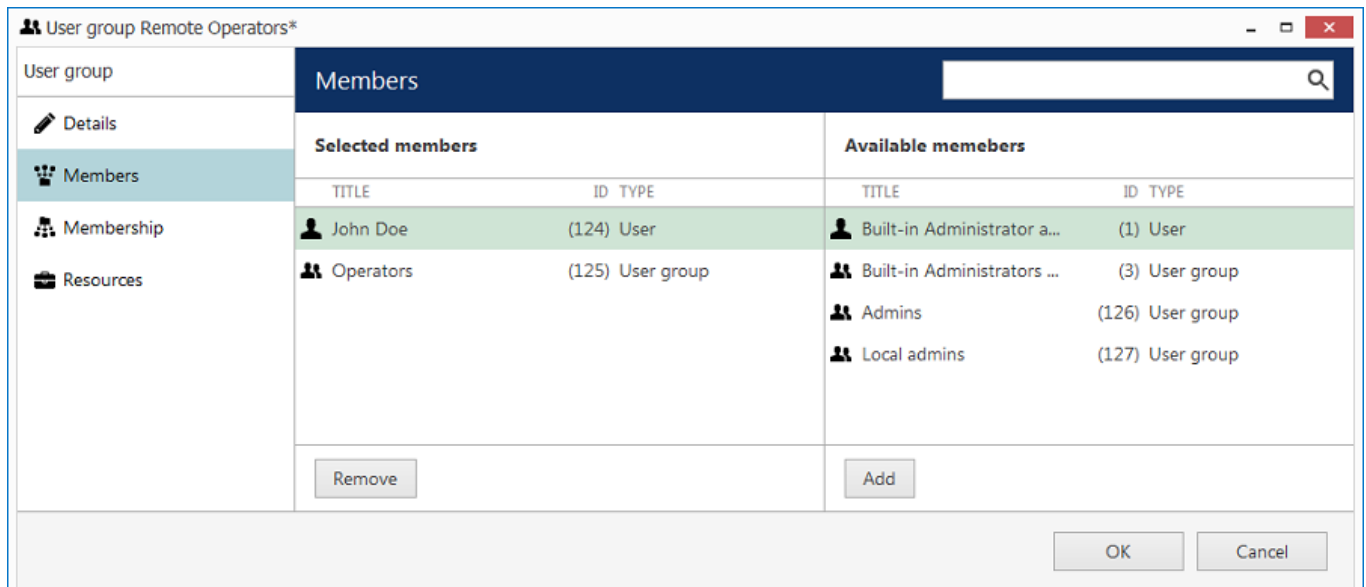
Click the down arrow near the + *Create new user* button and select *New user group* from the drop-down list to bring up the configuration dialog box.

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New user group

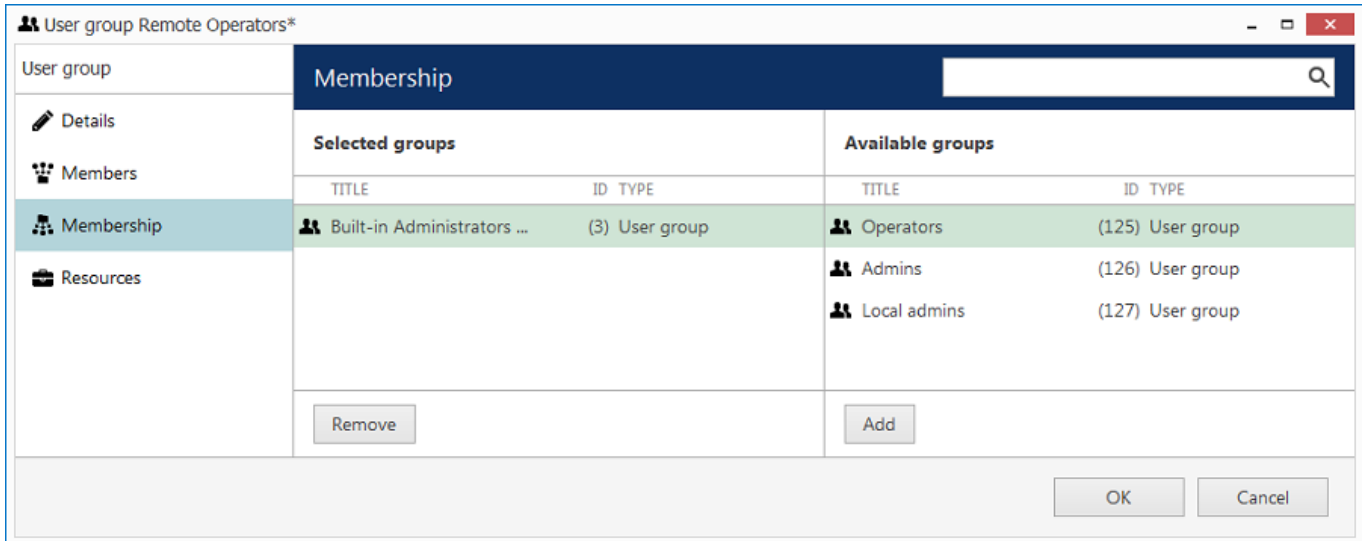
In the *Details* tab, enter group name.



Choose group members

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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.

38 Active Directory and LDAP User Import


Ganz CORTROL allows you to import users and user groups from the existing Active Directory/LDAP service database. The only thing that is left to do is to specify permissions for the imported users and/or user groups (referred to as *AD users* further in this topic).

 Active Directory and LDAP user import is available in the following Ganz CORTROL versions:

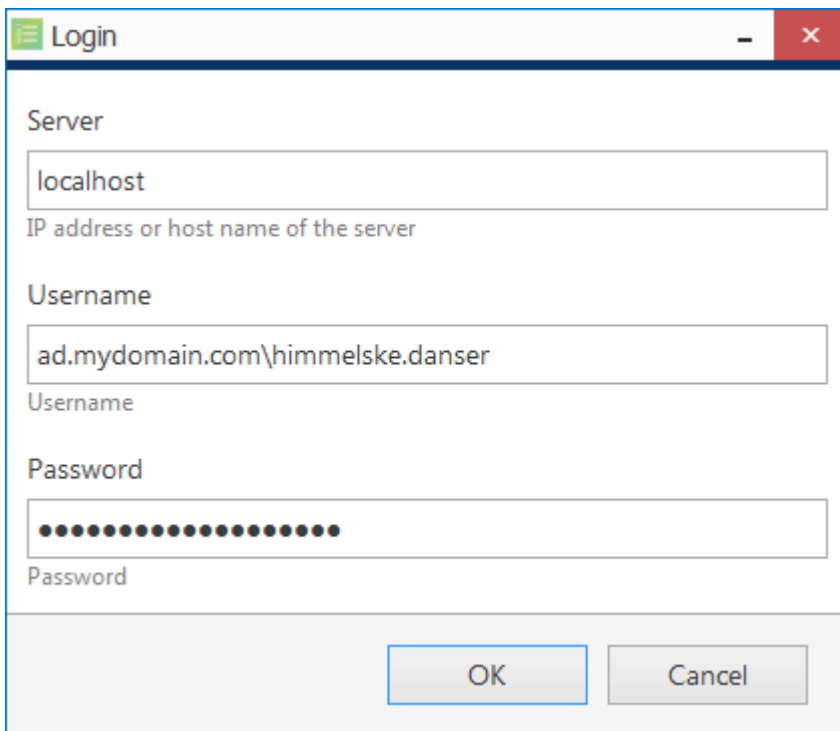
- Ganz CORTROL Global - fully supported for all versions
- Ganz CORTROL Server v.1.4.1 - 10 users
- Ganz CORTROL Server v.1.5.0 and newer - fully supported

 AD imported user accounts can be used to log into Ganz CORTROL Console and Ganz CORTROL Client but are **not** supported for the Ganz CORTROL Streaming Server (access via HTTP and Ganz CORTROL Mobile applications) at this point.

Note that it is not necessary for you to be logged into Windows under the same AD account; rather, once AD accounts are imported as external users into Ganz CORTROL, you can use any valid AD account credentials to log into Ganz CORTROL Console or Ganz CORTROL Client. Also, note that you are always required to enter the password for the AD account, even if you are logged under the same user account in your current Windows session.

 For you to be able to log into a Ganz CORTROL server with an AD user account, you must be able to log into the target server computer with the same AD account. If you are unable to do so, contact your Windows administrator and let him check the effective policies.

In order to use your imported AD account with Ganz CORTROL, type in your full domain name and user name, and then specify the password. Please see the description below on how to add your AD users into Ganz CORTROL.



The screenshot shows a 'Login' dialog box with the following fields and values:

- Server:** localhost
- Username:** ad.mydomain.com\himmelske.danser
- Password:** (masked with 15 dots)

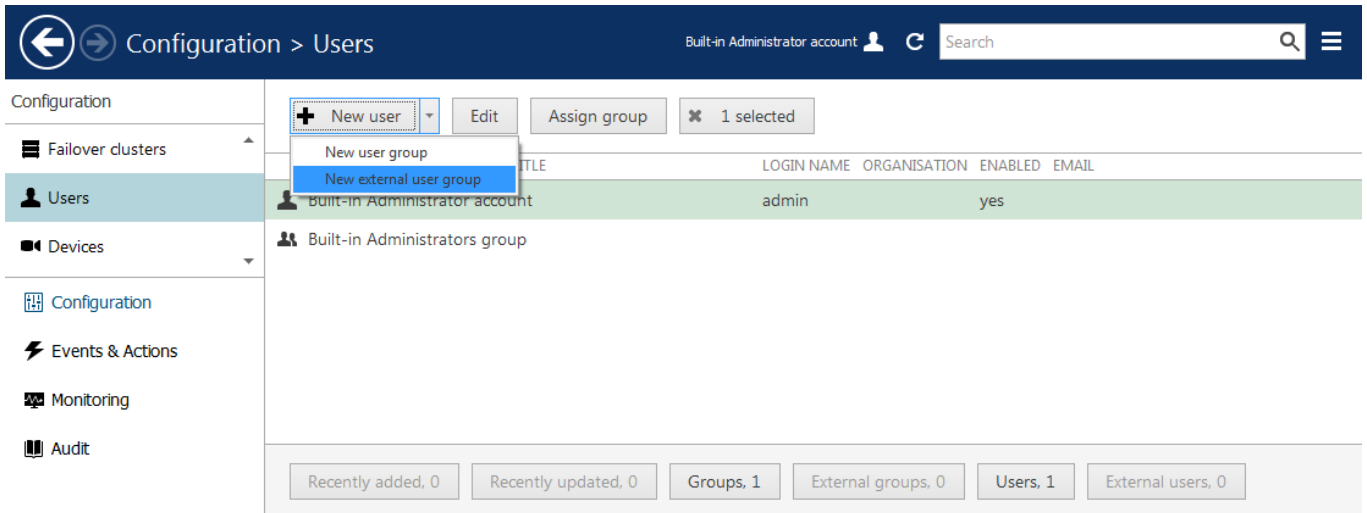
Buttons: OK, Cancel

AD user login example

Add Active Directory and LDAP Users

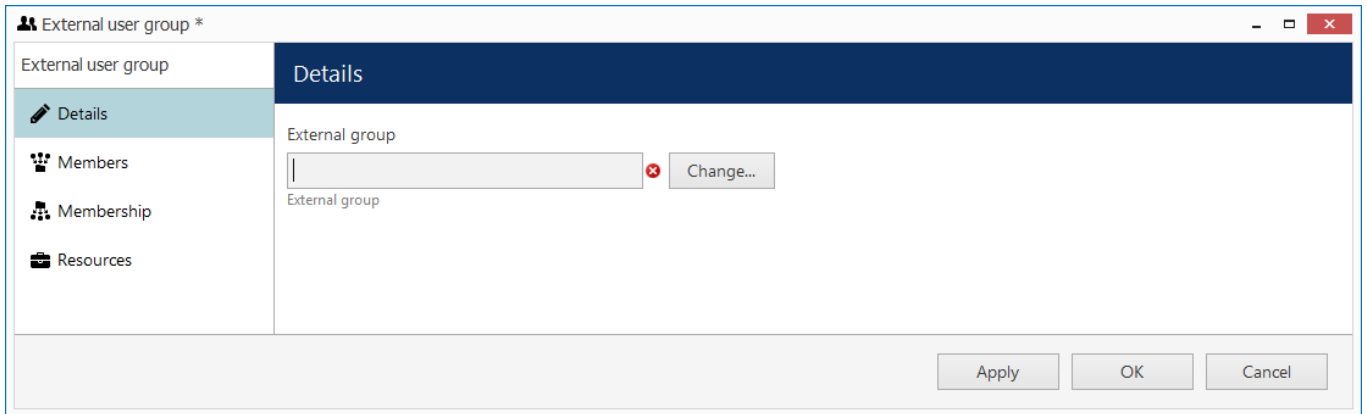
In Ganz CORTROL Console, open the *Configuration* section and choose *Users* from the menu on the left; then, click the little arrow next to the *+New user* button and choose *New external user group* from the drop-down list.

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Create new external user group from the *Users* menu section

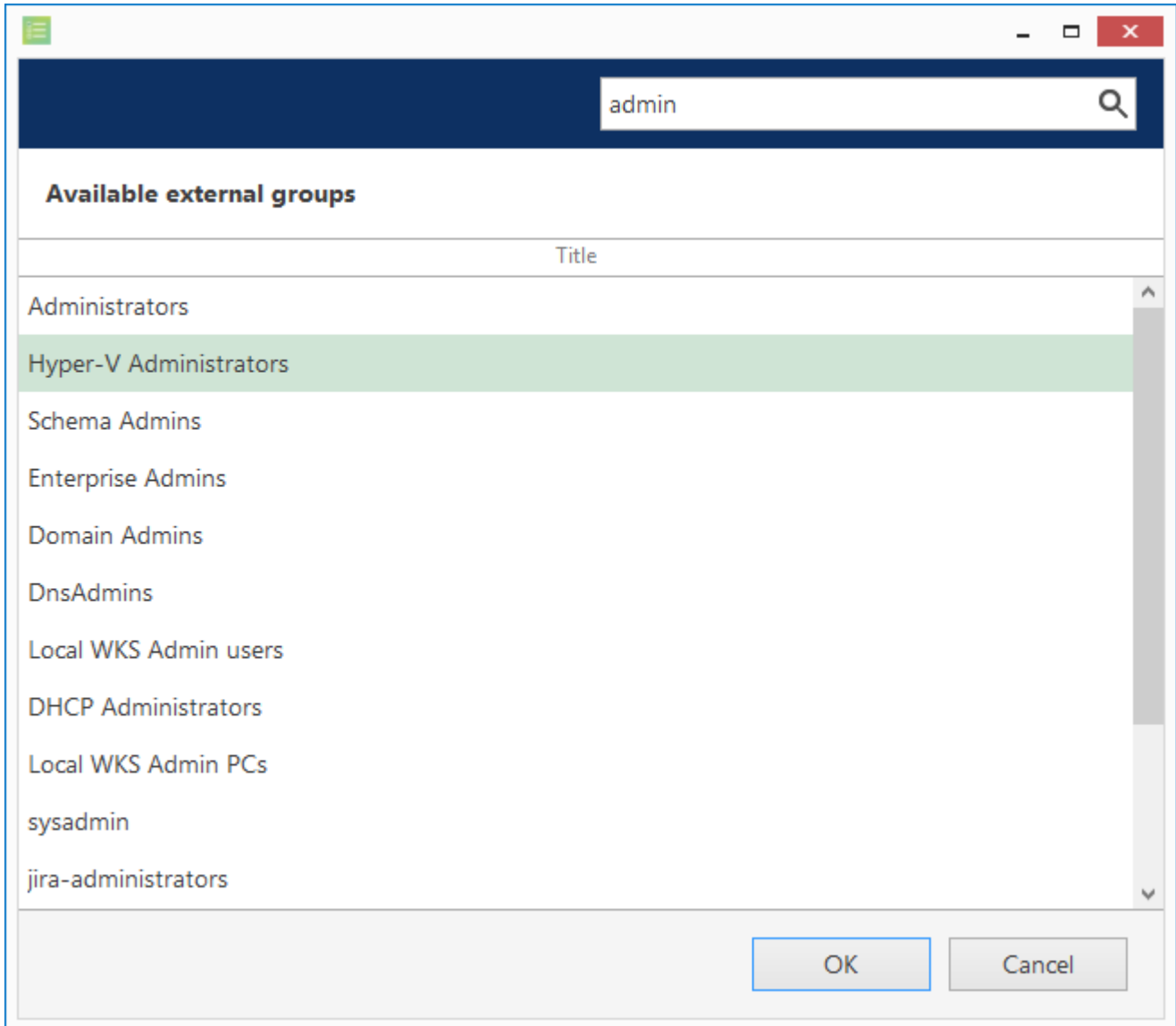
On the *Details* tab, click the *Change* button next to the empty *External group* field in order to load the available AD group list in a separate dialog box.



New external user group

Ganz CORTROL will automatically fetch all user groups available via your Windows AD service. Pick a group from the list of available AD user groups and confirm your choice either with a double-click or using the *OK* button below.

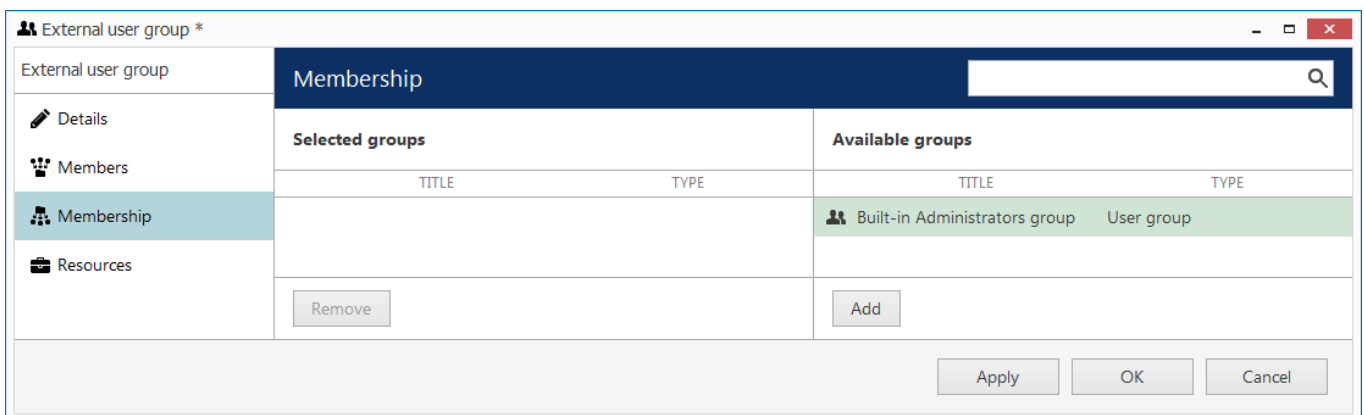
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Available AD groups

The selected user group will appear in *External group* field in the *Details* tab. Switch to the *Members* tab to view the imported user list.

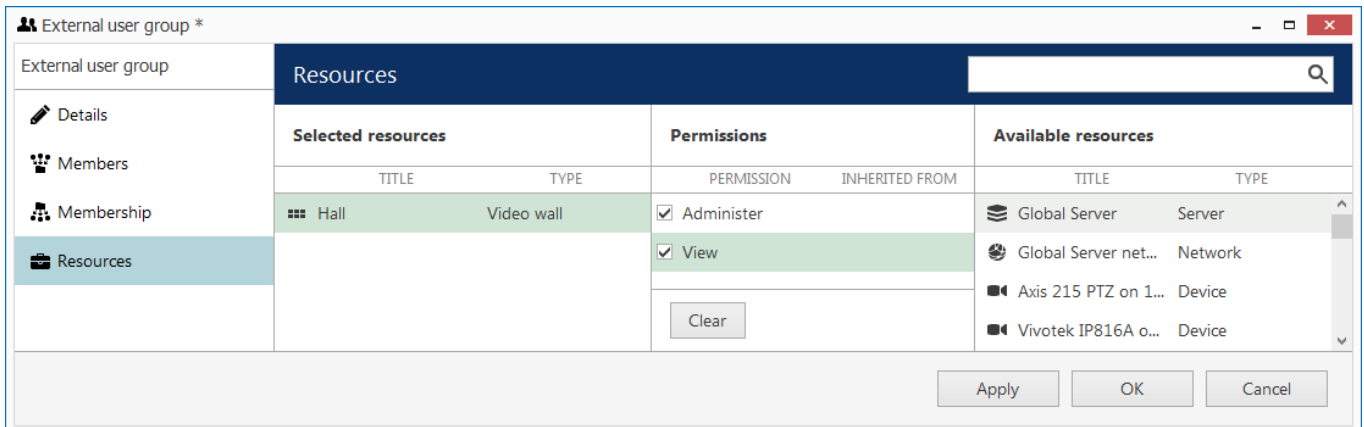
On the *Membership* tab, you can choose an internal user group to contain the newly imported external user group (nested grouping). All user permissions inherited from the higher level group will be applied to the members of the imported external user group and will be displayed as grayed out in the *Resources* tab.



You can make the external user group a part of some other internal user group

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If you have decided to make no nested groups or wish to add more permissions specifically to the AD user group, go to the *Resources* tab to manage the user permissions.



Manage user permissions on the *Resources* tab

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 back to *Users*; the newly created external user group as well as all users contained in that AD 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.

Edit External Users Or User Groups

After adding the external user group, you can edit the group properties as well as individual external users. In order to do this, select the target user/user group in the list and click the *Edit* button on the upper panel, or, alternatively, simply double-click the desired item to bring up the configuration dialog box.

Editing an external user group will be pretty much the same as adding a new one; individual external user settings will have some differences comparing to the regular, built-in user settings.

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The screenshot shows a window titled 'User ad\vera' with a 'Details' tab selected. The left sidebar contains 'Details', 'Membership', and 'Resources'. The main content area has the following fields:

- User login name:** ad\vera (Account name to log into the system. Case-sensitive)
- Active:** Active (Remove to disable account for any connection type)
- User's full name:** Vera F (Insert user's first name and last name)
- Email address:** vera@lu.com (Email address for notifications)
- New password:** New password (Password will not be changed)
- Organisation:** none (Organisation to which the user belongs) with a 'Change...' button.
- PTZ priority:** 5 (PTZ priority)

At the bottom right, there are 'OK' and 'Cancel' buttons.

Edit imported user

On the *Details* tab, the only settings available for editing will be user account status (enabled by default) and PTZ priority (which will be 5, by default). All the other properties will be greyed out as they cannot be changed via Ganz CORTROL and should be changed via Active Directory instead.



If two or more users try using PTZ control of a device at the same time, **PTZ priority** is used to decide who gains access first: user with a lower priority is blocked for ten seconds to allow a higher-priority user to use PTZ. If two users with the same PTZ priority have an access conflict, they will be both granted PTZ access simultaneously.


Default PTZ priority for all users, including those built-in and imported, is equal to five (medium priority). You can assign any user a higher PTZ priority (six to ten) or a lower one (four to zero) by editing individual user properties.


On the *Membership* tab, you can choose an internal user group to contain the AD user as a member. All user permissions inherited from the group will be applied to the target AD user and will be displayed as grayed out in the *Resources* tab. You can assign additional user-specific permissions on the *Resources* tab.

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39 Permissions and Membership

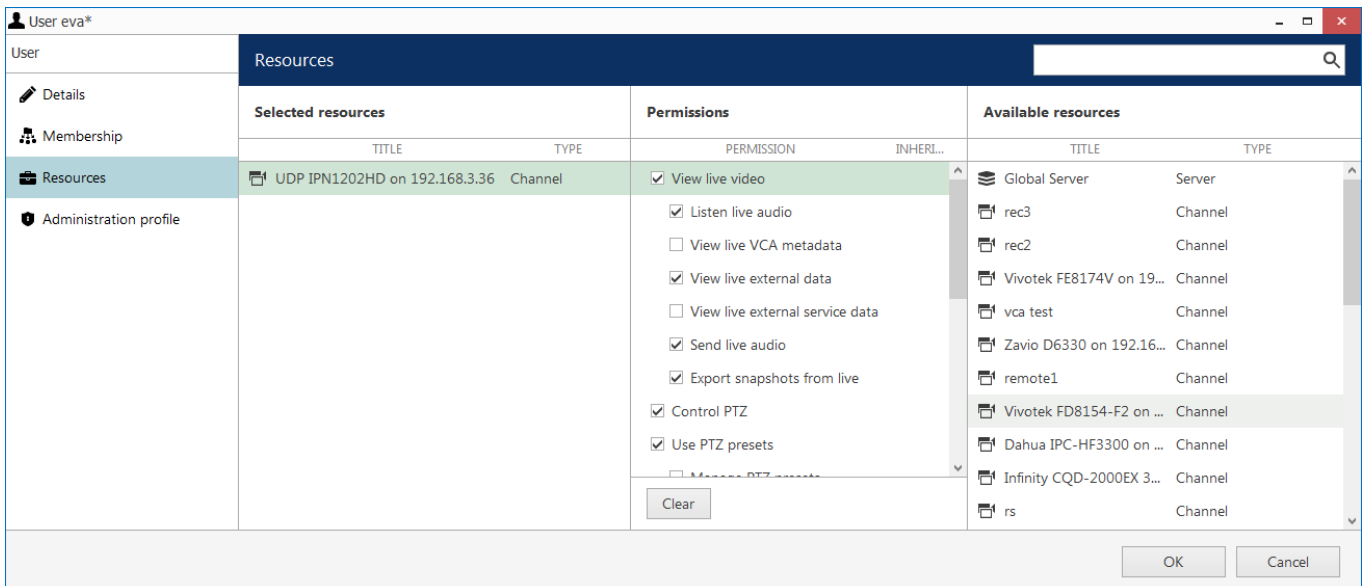
You can handle the user and user group **access permissions** for channels, devices, servers and other resources via the *User* and *User group* configuration dialog box -> *Resources* tab, or via resource settings -> *Permissions* tab. **Administrative permissions** are handled in the *Edit User/User group* dialog box, under the *Administration profile* tab. Most of the events that are raised as a permission is used are logged in the *Audit log* and are available in the *Audit* section of Ganz CORTROL Console.

 Please note that some of the permissions may not be applicable to your software license edition.

 In Ganz CORTROL version **1.6.0**, major changes were made to permission management. As a result, configuration imported from an **XML** file (from ZNSNVR) will **not** contain any user permissions: you will need to **review and set all user permissions after importing the configuration**.


Access Permissions

All the available resources are listed in the column on the right; click any item to load the permission list in the central column. Then, **mark** all the permissions you wish to grant; resources having at least one permission enabled will be automatically moved to the left column.



Permission management example

To **remove** all permissions for some resource, simply double-click it in the *Selected resources* list on the left.

 It is not possible to select **multiple** resources for the permission management. You are welcome to use resource **grouping** (e.g., channel groups) for easier and faster permission management.

When permissions are inherited from some group(s), a corresponding mark will appear in the central column next to the permission type.

The following types of permissions are available (each one can be defined separately):

- **Server**
 - **Playback:** allows users to access recorded video, audio, VCA metadata and external data from the specified server for those recordings that do not have corresponding channels in the server configuration (i.e., **orphan archive tracks**)
 - **Export:** allows users to export video clips and snapshots from such recordings
- **Channel**
 - **Live:** access live video, audio, VCA metadata, external service data, external data (from *Data Sources*), send audio OUT and export snapshots from the live view mode
 - **PTZ:** general PTZ control, preset and tour usage, preset and tour management

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- **Playback:** access to recorded video, audio, VCA metadata, external service data, external data (from *Data Sources*), snapshot and video clip export from all playback modes, view and manage bookmarks
- **Restricted playback:** same permission set with a time limitation**
- **Uncategorized:** back up and delete archive, protect archive from deletion, remove protection
- **External Service Group**
 - **View live data:** see the live data coming from the external services in the target group
 - **External service search:** browse recorded external service data
- **Layout**
 - **View:** see and use the layout in Ganz CORTROL Client
 - **Manage:** delete or replace existing layouts via Ganz CORTROL Client
- **Layout Group**
 - **View:** see and use layouts from the target group in Ganz CORTROL Client
 - **Manage:** add new shared layouts from Ganz CORTROL Client and delete existing layouts
- **Visual Group**
 - **View:** see visual group contents in Ganz CORTROL Client*
- **Map**
 - **View:** see and use the map in Ganz CORTROL Client
- **Video Wall**
 - **View:** see and use the video wall in Ganz CORTROL Client
 - **Manage:** change video wall contents via Ganz CORTROL Client
- **User Button**
 - **View:** see and use the target user button to viewports in Ganz CORTROL Client and in Ganz CORTROL Mobile applications



*A visual group will only be displayed in Ganz CORTROL Client if the user has permissions to see at least one visual group element.

The permission sets under **time-limited Restricted video playback and **full Video playback** are essentially the same. The difference is that restricted access only allows users to access the last N minutes/hours/days of the archive. Therefore, the two sets are mutually exclusive. The **restricted interval** is defined individually for each server in the server **storage settings**.

When you have finished, click *OK* to save and exit.

Administrative Permissions

Administrative permissions for the resources, servers and connections can be managed via *Administration profile* tab in the user management dialog box.



Giving a user at least one permission from the *Console* section will allow this user to log into the target server via Ganz CORTROL Console. The corresponding resources will be available for configuration and all the rest of the contents will be hidden.

The following types of permissions are available for per-user/per-user group configuration:

- **Client**
 - Login via **Monitor:** connect to the target server via Ganz CORTROL Client application
 - Login via **HTTP:** connect to the target server via Web client and from external services, including LPR and FR
 - Login via **Mobile:** connect to the target server from Ganz CORTROL Mobile and OS X app
- **Console**
 - Manage **organisations, servers, users, permissions, networks, external services:** enables the user to access the configuration of the corresponding server contents
 - Manage **devices, device channels, visual groups, layouts, layout templates, video walls, maps, data sources, user buttons, shared channels:** enables the user to edit

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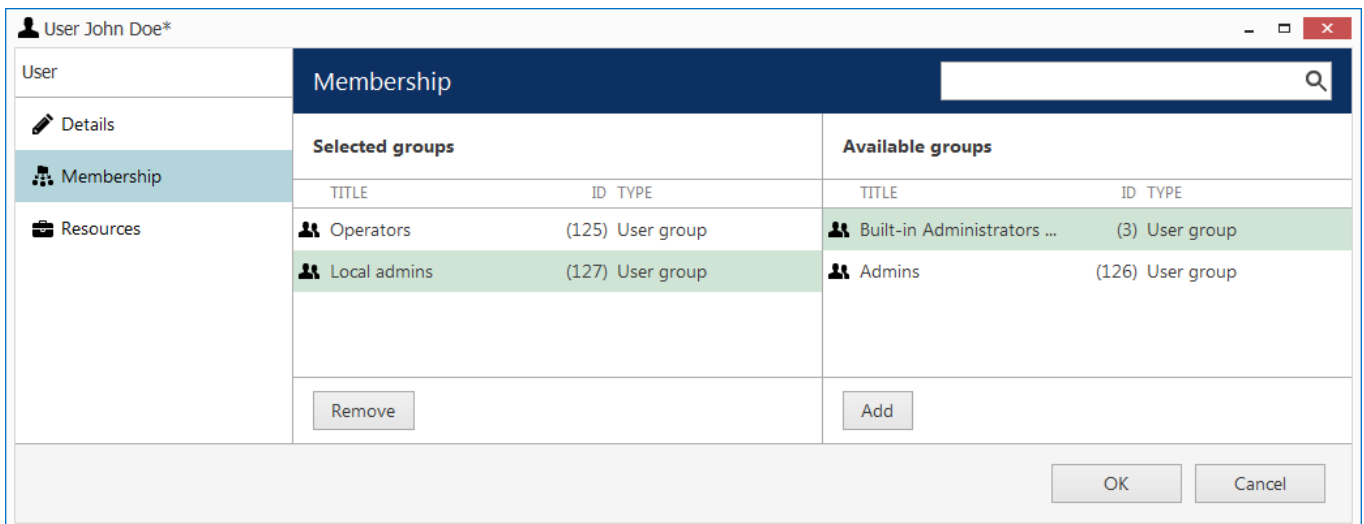
existing and create new (if applicable) resources of the given type

- Manage recording: create and edit **recording profiles, schedules and configurations**
- Manage Event & Action rules: create, remove and edit events, actions and all the related resources in the **Events & Actions section**, including mail servers, conditions etc., regardless of permissions for the source items
- Access **audit log** and **monitoring section**: view all the information in the server *Audit* and in the *Monitoring* sections
- Manage **auto backup**: access scheduled backup configuration
- Start wizard: allows users to run the **quick setup wizard** via Ganz CORTROL Console for step-by-step configuration
- **Remote upgrade**: access the remote upgrade section of Ganz CORTROL Console, set up and do the remote upgrade procedure
- **Import configuration**: load configuration from XML (from the old product version) and import existing Ganz CORTROL database

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. In addition to own permissions, each user inherits permissions from all the groups he is currently in.

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.

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The screenshot shows the 'Users' configuration page in the Ganz CORTROL interface. The page has a dark blue header with a navigation breadcrumb 'Configuration > Users', a search bar, and a user profile icon. On the left, there is a navigation menu with options like 'Servers', 'Users', 'Devices', 'Channels', 'Recording', and 'Layout templates'. The main content area displays a table of users and groups. The table has columns for 'TITLE', 'ID', 'LOGIN NAME', and 'EMAIL'. The rows are: 'Built-in Administrator account' (ID: (1), LOGIN NAME: admin), 'John Doe' (ID: (124), LOGIN NAME: johndoe, EMAIL: johndoe@em...), 'Admins' (ID: (126)), 'Built-in Administrators group' (ID: (3)), 'Local admins' (ID: (127)), and 'Operators' (ID: (125)). The 'John Doe' and 'Operators' rows are highlighted in green. Above the table, there is a toolbar with buttons for '+ New user', 'Edit', 'Assign group', and a trash icon. A status bar at the bottom of the table shows 'Recently added, 0', 'Recently updated, 1', 'Groups, 4', and 'Users, 2'.

Select multiple users and assign them to a group

We strongly recommend grouping users and resources as it makes the permission management process much easier. Individual user permissions can be combined with permissions inherited from multiple groups at once.

Permission Sets and Dependencies

Permission management in Ganz CORTROL is flexible and allows each individual user permission to be enabled separately, thus giving the Ganz CORTROL administrator full control over the system. Sometimes, in order to give enough user rights for specific use case, several different permissions should be granted. This section covers some examples and gives you an idea of what permissions may be related, as well as explains some peculiarities about the permission management in Ganz CORTROL.

General

Administration profile permissions to manage maps, visual groups, live podcasts etc. include access to all channels from the *Edit* dialog of these entities. For example, a user is granted permission to manage maps but does not have any per-channel permissions: when creating a map, he will be able to put channel markers on it and associate these markers with any channels on the server. At the same time, he will have no access to the channel management whatsoever.

Allow a User to Add New Devices

In order to enable a user to add new cameras or devices of other types, it is necessary to grant the following permissions from the *Administration profile*:

- *Manage devices*
- *Manage device channels*

This is necessary as devices and channels are related entities in Ganz CORTROL and a single *Manage devices* permission is not enough as new channels are created automatically alongside with the newly added devices.

The *Manage devices* permission itself allows the user to change device settings (e.g., IP address, group membership) and create new device groups.

Access Data from Third Party Services

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To see the data from external services (e.g., LPR/FR recognitions, third-party integrations via HTTP API) in the live view notification panel or search the past records, the following permission sets are required:

- **Live:**
 - *View live external service data* (per-channel permission under *View live video* permission group)
 - *View live external service data* (permission for the external service group)
- **Archive:**
 - *External service search* (per-channel permission under *Video playback* permission group)
 - *External service search* (permission for the external service group)

This allows to cover the case when one channel belongs to several different external service groups.

Archive Backup

Archive backup permissions have the following logic:

- *Make archive backups* permission from the *Administration profile* allows Archive Backup Wizard login
- *Backup archive* per-server permission from the *Video playback* permission group grants access to the orphaned archive tracks (recordings that exist on the server but do not have any existing channels in the system configuration associated with them)
- *Backup archive* per-channel permission under *Video playback* permission group grants access to the footage of the target channel via Archive Backup Wizard

Snapshot Export

For a user to be able to save multichannel snapshots from the *Archive playback* mode, the *Export snapshots from playback* permission must be granted for all channels present in the layout.

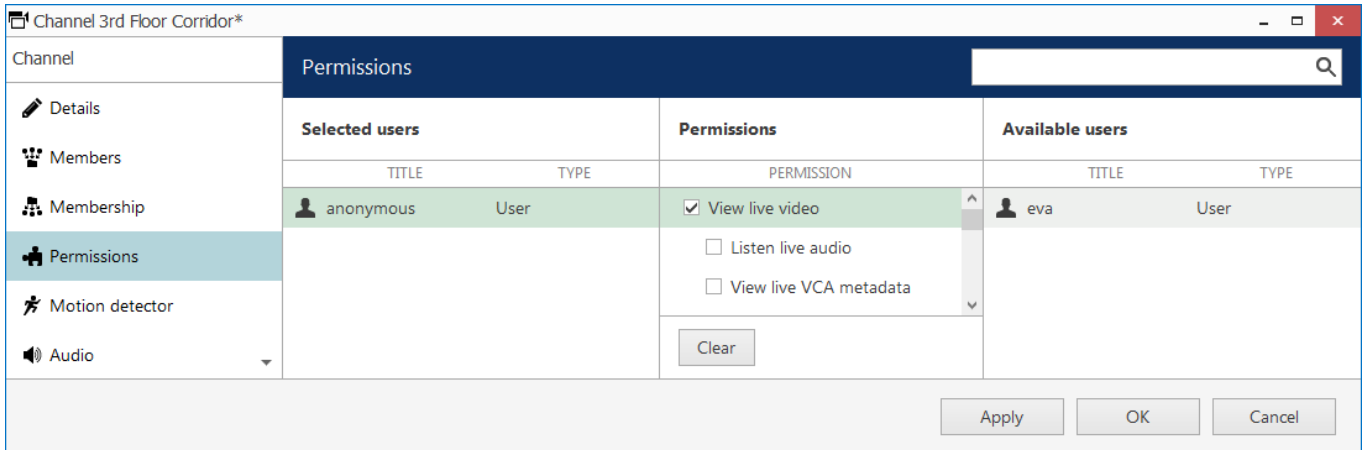
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40 Anonymous User

Anonymous user is a built-in user account, which has been designed for unauthorised access to video streams via HTTP API - a very basic example of Ganz CORTROL API usage.

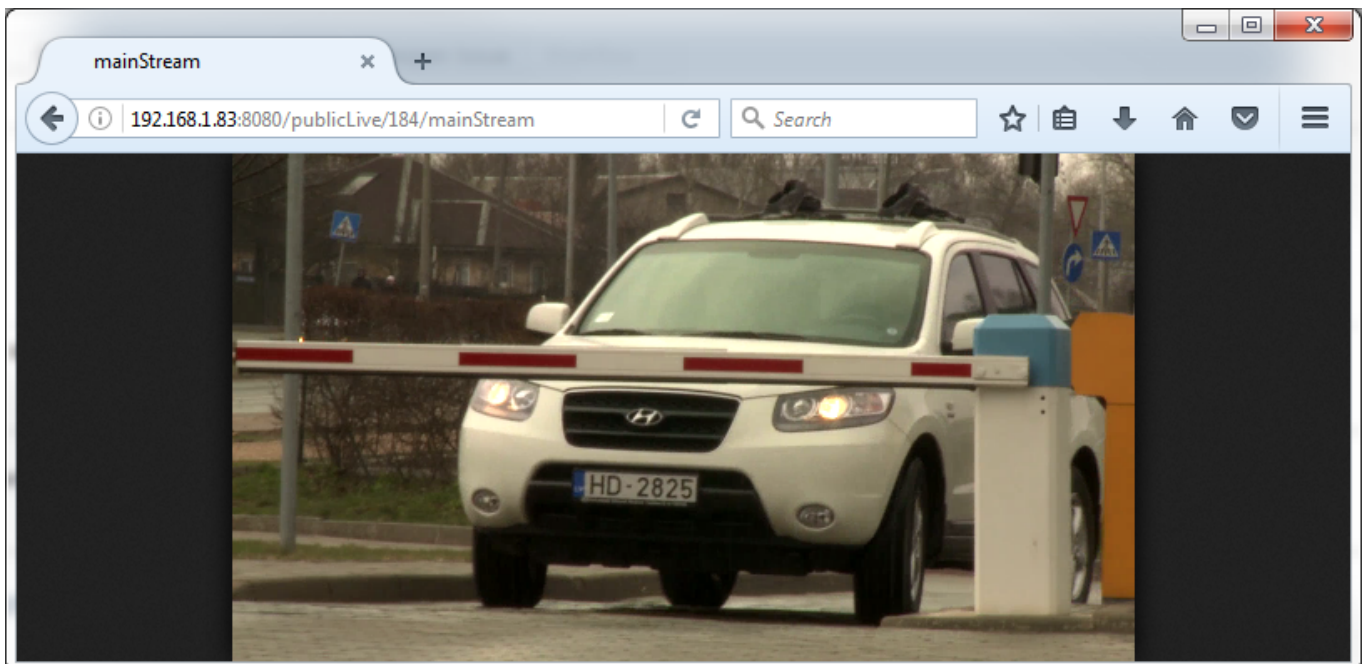
The anonymous user is disabled by default and does not have any permissions. In order to allow HTTP access:

- **enable** the anonymous user: double-click him in the user list, mark him as active, then save;
- **add** the *View live video permission* for this user in the properties of the target channel(s).



Add permission for the anonymous user to receive live view data


Now you can use a short link to receive live video feed over HTTP from your configured channels without authorisation.



Live stream received with anonymous URL

Ganz CONTROL Administration Guide


The link can be embedded into your own webpage to provide 'Live Cam' functionality.

 HTTP **link** is built as follows:
`IP:PORT/publicLive/<channel_id>/mainStream`

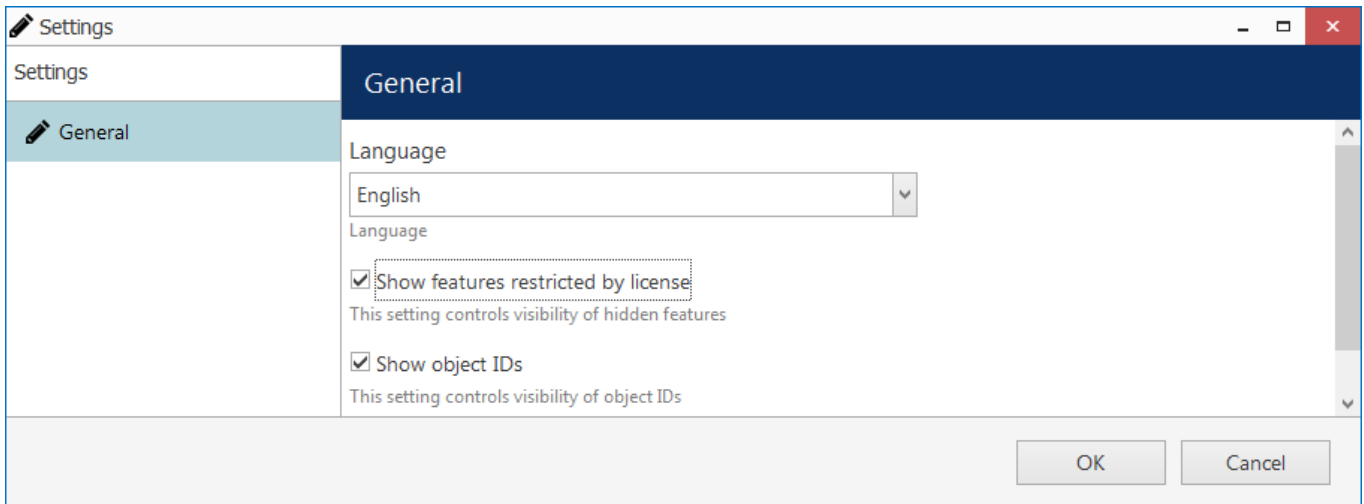
where

- *IP* is server IP address or hostname,
- *PORT* is server HTTP port (8080 by default),
- *<channel_id>* is internal channel identifier, which can be looked up in Ganz CONTROL Console when IDs are enabled in the application settings.

Example: `192.168.1.83:8080/publicLive/184/mainStream`

 This functionality requires that [Streaming Server](#) is enabled (HTTP port is not set to zero in the target server settings).

In order to see the channel identifiers in Ganz CONTROL Console, go to the application settings via main menu button in the upper-right-hand corner and choose *Settings*. In the dialog box, enable the *Show object IDs* option and save.



Enable object identifiers in Ganz CONTROL Console

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41 Streaming Server Configuration

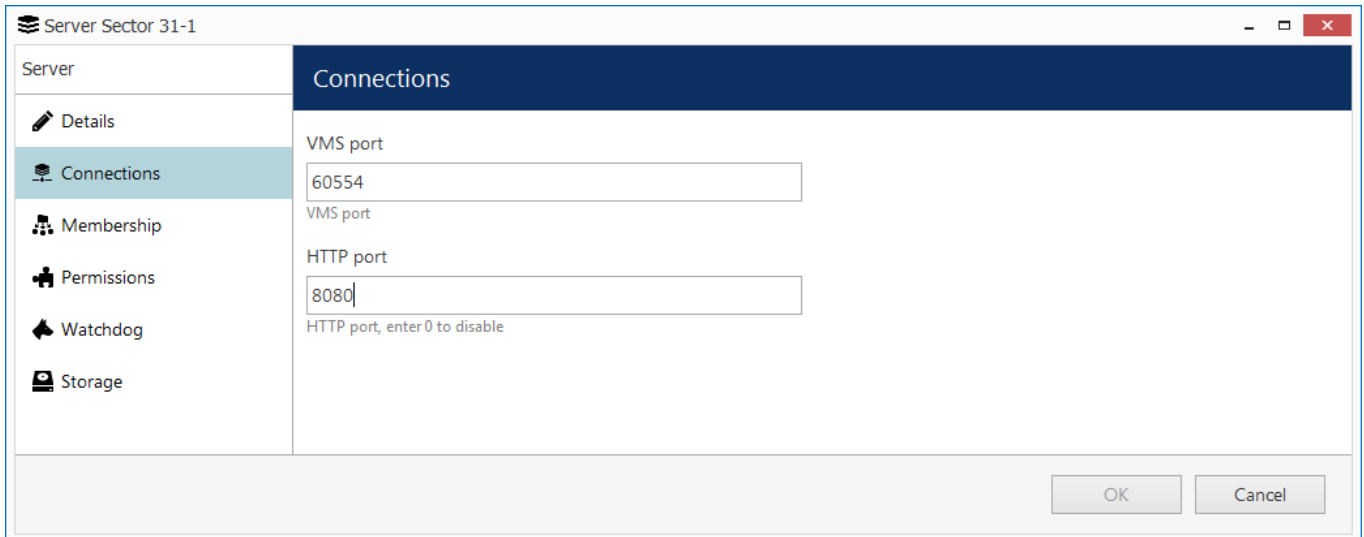
Get permanent access to live streaming and archive video, no matter where you are in the world. The Ganz CORTROL Streaming Server allows quick and easy access to your cameras via web browser and/or native mobile applications.

Ganz CORTROL Streaming Server is a part of Ganz CORTROL software integrated into the Ganz CORTROL Server core. It is designed for video streaming to multiple web-browsing platforms such as Mozilla Firefox and Google Chrome. Some major Ganz CORTROL Streaming Server features are: video stream live view, archive playback, Pan-Tilt-Zoom control. The Ganz CORTROL 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 Ganz CORTROL Streaming Server.

Ganz CORTROL Streaming Server configuration on the Ganz CORTROL Console side is simple and only consists of HTTP port for streaming connections. To access the Ganz CORTROL Streaming Server setup in Ganz CORTROL 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 Sector 31-1

Server

Connections

VMS port

60554

VMS port

HTTP port


8080

HTTP port, enter 0 to disable

OK Cancel

Server setup

You only need to define a HTTP port for Ganz CORTROL 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.

If you are using HTTPS with your own **CA certificate** (bound to your domain name), remember these important guidelines for the mobile app setup:

- when connecting via local network, use server IP address
- when connecting over internet (4G etc.), use the hostname instead of IP (main domain must be the same as in the certificate)
- if port forwarding is used (local HTTPS port is different from external), enter the port number as the "Internet port" in the server connection configuration

Once you are done with the settings, click *OK* to save and close the dialog box. Your Ganz CORTROL Streaming Server will now be set up and accessible via a local - and, if used, external - IP. You can immediately check the

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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*.

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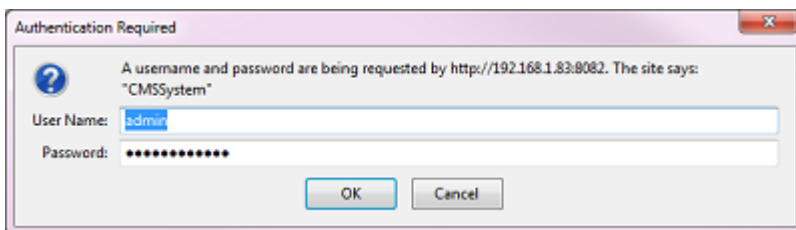
42 Streaming Server User Interface

Ganz CORTROL Streaming Server provides HTTP connections for Web browsers and native Ganz CORTROL Mobile applications, OS X Thin Client (similar in functionality to Ganz CORTROL Mobile), as well as services that use Ganz CORTROL HTTP API, which includes CBC AMERICAS, Corp. own external services (License Plate Recognition, Face Recognition modules) and third-party integrations. While the Web browser client functionality is very basic, Ganz CORTROL Mobile applications support many useful features, such as two-way audio, push notifications, mobile edge recording, streaming from device camera to the Ganz CORTROL server and many more.

When configured, Ganz CORTROL 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. This is the simplest way to make sure your Ganz CORTROL Streaming Server is running and reachable. To access the Ganz CORTROL Streaming Server, open your browser and type:

`<Server IP>:<HTTP port>`

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



Authentication required

After logging in, you will see Ganz CORTROL Streaming Server Web browser user interface:

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

Access Permissions

The channel and feature availability depends on the user permissions; the built-in administrator has access to all resources. For the Web browser connections, only HTTP connection, live, archive and PTZ access permissions are applicable, as other functionality (e.g., audio) is not present.

In order to allow a user to connect to Ganz CORTROL Streaming Server, go to *Configuration* section of Ganz CORTROL Console, choose *Users*, then select the user or user group for editing and open the *Administration profile* tab:

- add the *Login via HTTP* permission to allow Web browser and/or HTTP API connections
- add the *Login via Mobile* permission to allow connections from mobile apps and OS X client

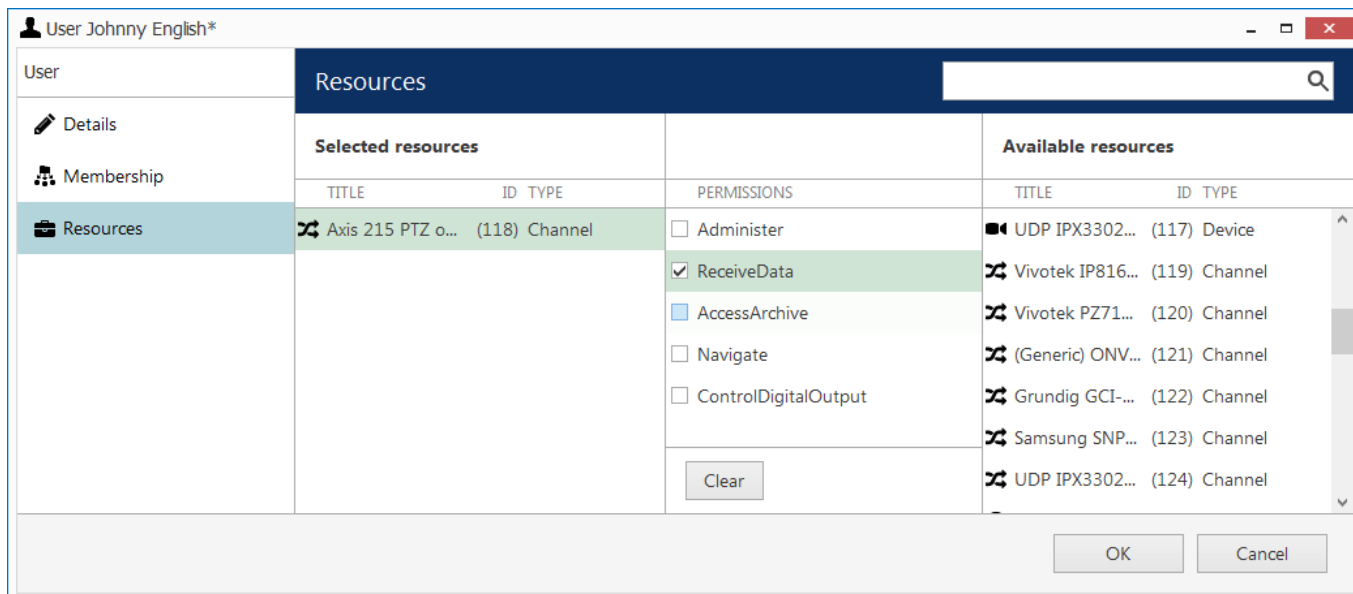
To allow channel access, add per-channel or per-channel group privileges in the *Permissions* tab:

- *View live Video:* enables live view
- *Listen live audio:* enables incoming audio (from the camera)
- *Send live audio:* send audio to camera (talk back)
- *Control PTZ:* pan, tilt and zoom controls
- *Use PTZ presets:* access to existing PTZ presets
- *Use PTZ tours:* access to existing PTZ tours
- *Video playback:* enables access to recorded video data
- *Audio playback:* access to the recorded audio data

Additional permissions for the Ganz CORTROL Mobile applications:

- for *User Buttons:* the *View* permission allows you to see and use the user button

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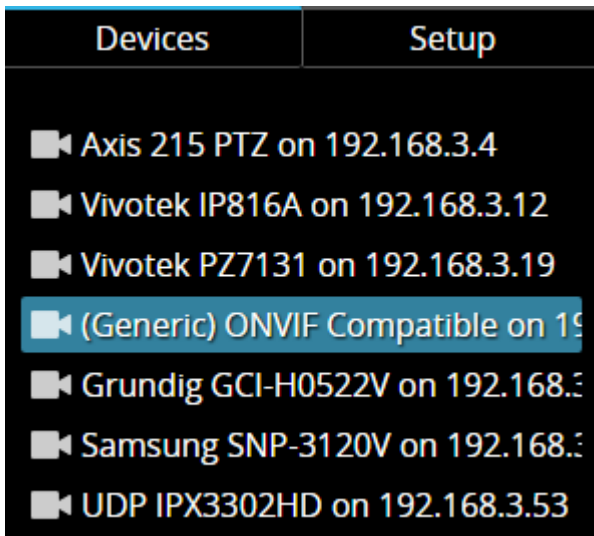
Set user permissions in order to see channels in Ganz CORTROL Streaming Server

Channel, channel group and user button permissions can also be changed in the *Channels* section, by double-clicking the corresponding channel or channel group in the list and then selecting the *Permissions* tab.

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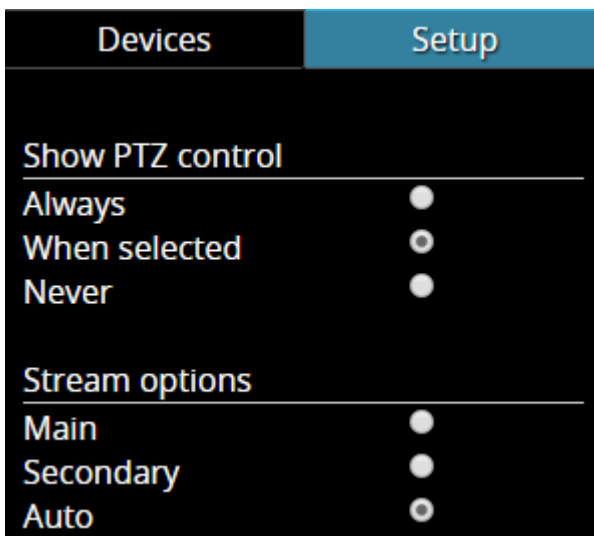
Web Interface: Configuration

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

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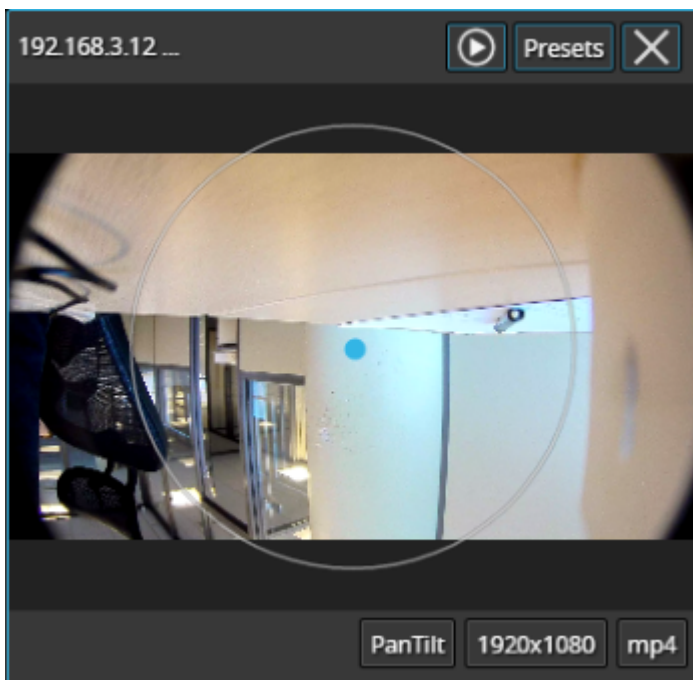
Web Interface: Streams

The Web browser client allows you to view live video and to play back recorded video from the available channels. For live view mode, PTZ controls are available.

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.

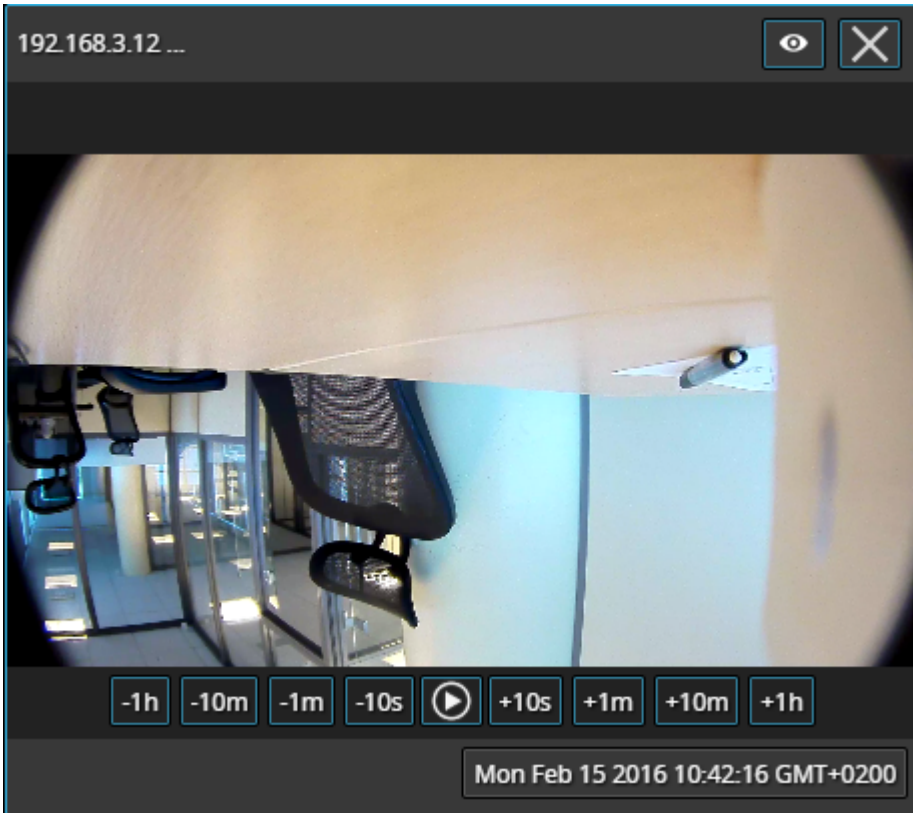
In order to **zoom** IN and OUT: first, scroll your mouse wheel DOWN to enable zoom mode - in the bottom-right-hand corner, a *Zoom* label will appear. In this mode, virtual PTZ sphere works for zoom only: click and drag UP (upper hemisphere) to zoom IN, and DOWN (lower hemisphere) to zoom OUT. To release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

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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.

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Web Interface: Layouts

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



Default layout templates

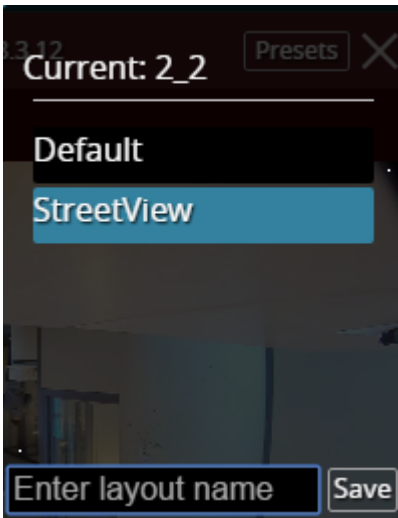
Click on any thumbnail at any time to immediately load the corresponding **layout template** on the screen. If there are any active streams, they will be discarded. If the target layout template has been already used in the same browser and cookies have not been cleared, previously used channels will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

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

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43 Mobile Application for Streaming Server

Ganz CORTROL Mobile app for Ganz CORTROL servers provides mobile client functionality for smartphones, tablets and phablets. Its functionality range is much wider than that of the Web browser client

You can install the Ganz CORTROL 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 from your Ganz CORTROL configuration.
- **Port:** HTTP or HTTPS port to use (must match the one configured on the server side), the default HTTP port is 8080.
- **Username and password:** user account credentials to connect to the Ganz CORTROL server (a [corresponding permission](#) to connect via mobile must be granted)
- **Use HTTPS:** use HTTPS over TLS instead of plain HTTP (target [server](#) must have [HTTPS enabled](#) and configured)
- **Trust all certificates from this session:** accept all digital certificates provided by target server (required in case you are using a self-signed certificate on the server side)
- **Set as 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
- **Show trusted certificates:** display all accepted digital certificates from the target server

× CANCEL | ✓ DONE

192.168.1.83

8383

admin

●●●●●●●

Use HTTPS

Trust all certificates from this session

Set as startup server

Show trusted certificates

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.

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Settings

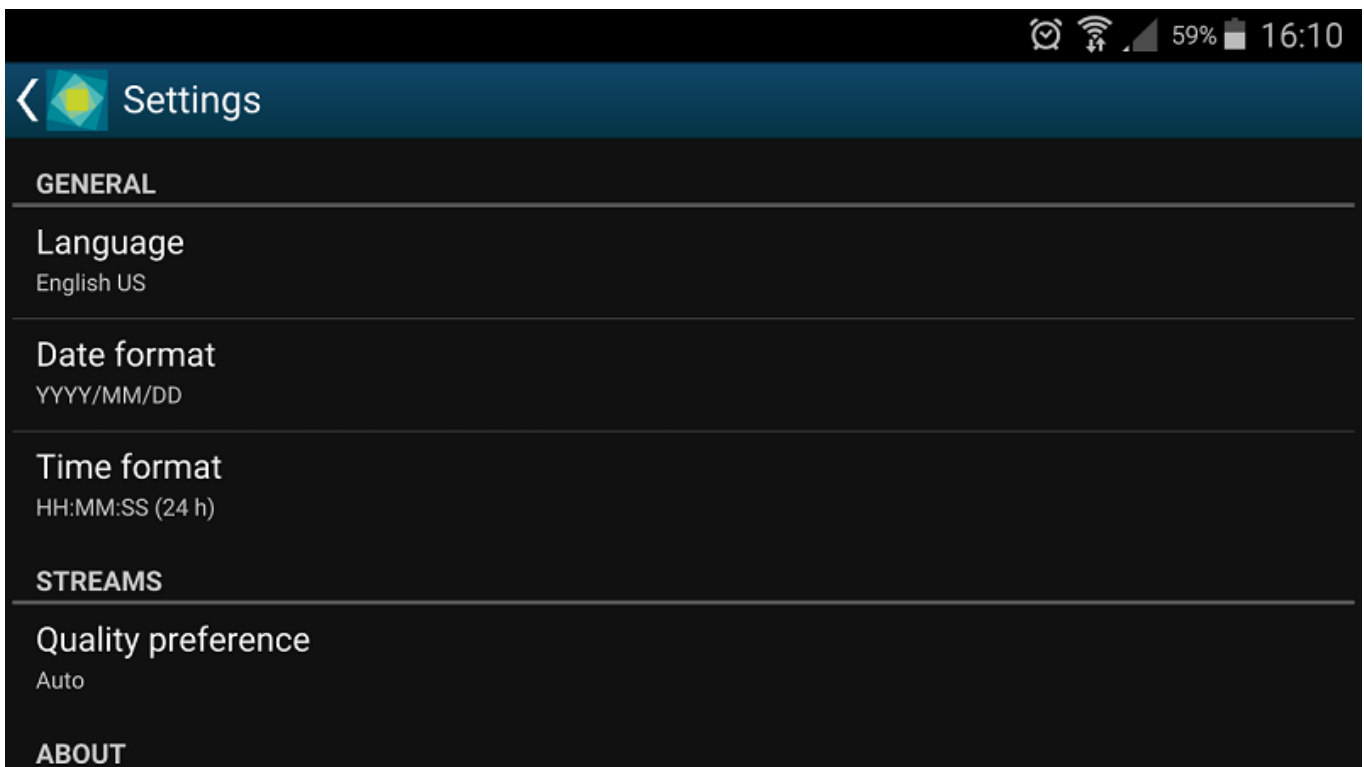
Note that these settings are global for all servers.

- **General**
 - **Language:** set application localisation here
 - **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)
 - **Timezone:** choose between your mobile client or connected server time zone
- **Streams**
 - **Quality preference**
 - **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
 - Display **video statistics**
 - **ON/OFF:** defines if video stream properties are shown for both incoming and outgoing streams
- **Decoder configuration:** choose how the incoming streams will be decoded
 - **Hardware only:** hardware decoding modules available on your phone will be used automatically (recommended for battery saving)
 - **Hardware and software:** software decoders will be used if required (**warning:** software decoding is battery intensive!)
 - **Per codec configuration:** choose decoding settings individually for each of the expected codecs
- **Icons**
 - **Show video stream event log icon:** the button will appear on top of video and allow you to view the decoder log
 - **Show battery intensive decoder icon:** the icon will appear in case a software decoder is in use
- **Camera**
 - **Camera preferences for the reverse streaming**
 - **Off:** choose this if you do not plan to stream device's video to the server
 - **Camera 1:** main mobile device camera (normally, back camera)
 - **Camera 2:** secondary camera (normally, front camera with less megapixels)
 - **Resolution preference/FPS preference/Microphone ON/OFF**
 - **Preview:** camera preview with the settings defined above
 - Stream **device GPS location** with video to server: when ON, the video streamed from the device camera will be overlaid with GPS coordinates and device marker will be displayed on the geo maps, if configured
 - **Offline video:** settings for offline video recording (for further upload)
 - **Store offline video:** choose whether you want to store the recorded files in the app directory on the internal storage or on the external storage (SD card)
 - **Offline video storage limit:** limit the space available for recordings to 100, 200 or 500 MB, 1, 2, 5, 10 or 20 GB, or unlimited
 - **When no space left:** the app can either overwrite the oldest file(s) or stop recording new files
 - **Default video upload server:** choose server every time you upload the video or set one of the configured servers to be the default destination
- **Widgets**
 - **Widget update interval**

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- automatically load new frame every 30 seconds, every 1, 2, 5, 10 or 15 minutes
- **Panic server and panic button:** widget-like buttons that can be placed on the home screen; tapping the button will start streaming live video to the pre-defined server (device must be registered on the server)
- **Network**
 - Allow **app** to use
 - **WiFi** only, including VPN if configured
 - Both **WiFi and 3G/4G** mobile connection
 - Allow **widgets** to use
 - **WiFi** only, including VPN if configured
 - Both **WiFi and 3G/4G** mobile connection
- **About**
 - **Build version:** application version information
 - **Legal info:** tap to view

 When enabling camera and sound, you may be asked to confirm permissions for the app to access your phone's camera(s) and microphone. Select YES to grant access to these components if you wish to be able to stream video and audio from your phone to the server and clients connected to it.



Application settings

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

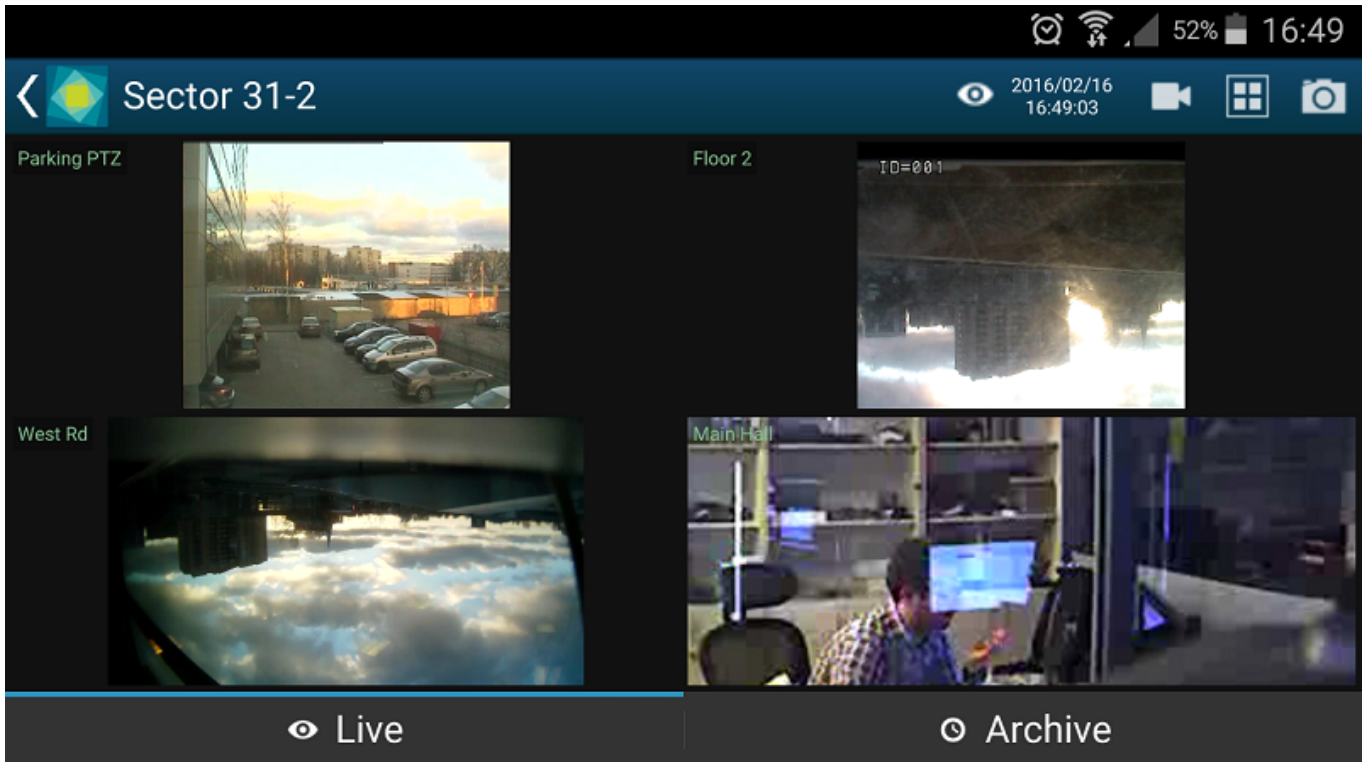
Live View

Tap your pre-configured server in the list to establish connection. If you are using HTTPS with a self-signed certificate, you will have to confirm that you trust the server certificate.

When you connect to a server, the live view will be loaded by default. If you have already connected to the selected server previously, live view layout from the last time it was opened will be loaded. Each channel name will be displayed in the upper-left-hand corner of the picture, together with video stream properties - codec, bit rate, frame rate and resolution; stream statistics can be turned OFF via app settings (see above). Tap the camera live view video to switch to full screen; pinch to zoom IN/OUT (digital zoom).

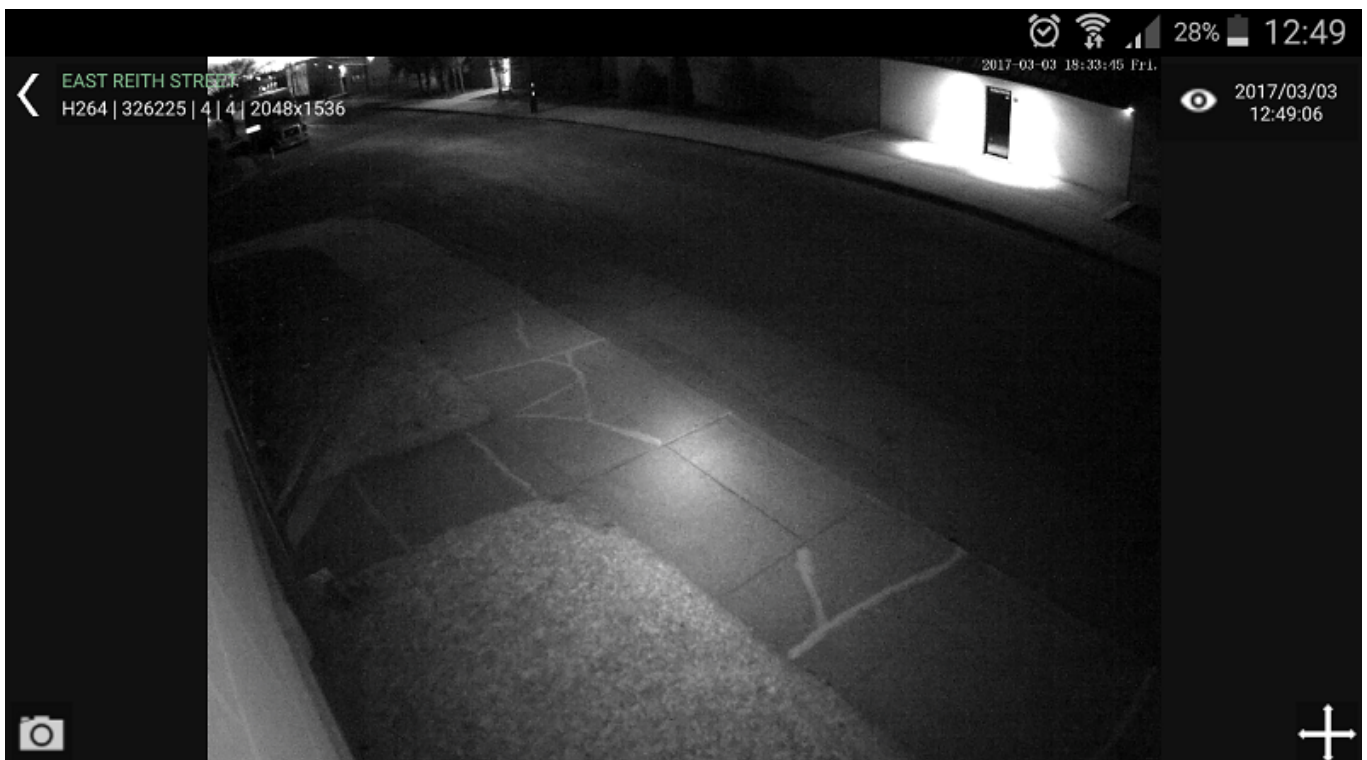
Tap the "<" *Back* button in the upper-left-hand corner to return back; tap back once again to return to Home screen.

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Live view

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



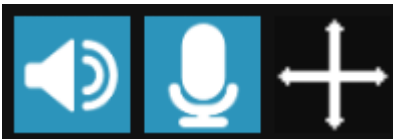
Single channel live view

Tap any channel to replace the currently displayed layout with a single channel view with extra controls. These are:

- Bottom left corner:
 - **Camera icon:** take a snapshot. Tap to save the currently displayed frame onto your device.

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- Bottom right corner (icon set varies depending on channel capabilities):
 - **Speaker icon:** audio IN. Tap once to enable incoming audio (the icon will turn blue), tap once again to stop.
 - **Microphone icon:** audio OUT. Tap once to start sending audio back to the camera (the icon will turn blue), tap once again to stop. **Note:** you do **not** need to tap and hold the mic icon, like in the regular Ganz CORTROL Client application, simply tap once to enable audio streaming.
 - **Arrows:** PTZ control (for PTZ capable cameras). Tap to bring up the controls, tap once again to hide them. While having overlay PTZ controls ON:
 - swipe your finger or tap/long tap *inside* the sphere to pan and tilt
 - tap/long tap the ends of the zoom slider to zoom in and out
 - **Presets:** tap to see the list of available PTZ presets; tap any to make camera go to the specified preset
 - **Tours:** tap to see the list of available preset tours; tap any to start the tour; tap *Stop PTZ Tour* to terminate any currently executed tour



Audio IN, audio OUT and PTZ controls



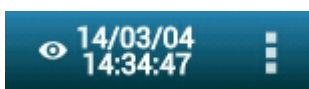
PTZ Tours button will only appear if the target camera has at least one tour configured. PTZ tours can be created and managed via Ganz CORTROL Client application.

While in this mode, you can swipe left or right to load previous or next channel in the list. Long tap on the free space (where there is no stream) or on the stream itself (when PTZ controls are OFF) to bring up the list of all available channels: swipe down and up to browse the list, tap any channel to display it.

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 channel from the list of available ones. Note that every channels can only be mapped once and attempts to map a channel for the second time will result in it 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 channels will be mapped automatically and all the extra slots will appear blank. To add more channels, tap the "Cameras" button and pick one; all the slots will become marked with blue frames, tap any of them to place the new video channel there.
- **Make snapshot:** tap to save a snapshot to the gallery.
- **Cast:** stream to Chromecast
- **Stream camera:** send the video stream from your phone's camera back to the Ganz CORTROL server
- **Camera to widget:** assign one of the channels to a widget (widget should be added to the phone's desktop beforehand, see below for details)
- **User buttons:** tap a user button to trigger the action assigned to it (see below for details)
- **Events:** push notifications from the target server (configurable via *Event & Action* section in Ganz CORTROL Console)



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Stream Camera

It is possible to send the video captured by your phone's main or front camera back to the Ganz CORTROL server for further live view on other connected clients and also for server-side recording. To do so, you need to add your mobile device to Ganz CORTROL configuration and then confirm it in your app.

First, go to your server configuration via Ganz CORTROL Console, go to the *Configuration* section and choose *Devices* from the menu on the left. On the upper panel, click the + *New device* button in order to create a new device; enter your desired name and set the *Model* to *(Generics) - External Source*, then save. Note the value appearing in the *Code* field: you will need to enter it into your app.


Next, go to your app -> server list -> tap *Settings* in the bottom, find *Camera* in the list and choose your video preferences; the contents of each item may vary depending on your mobile device capabilities:

- **Camera:** back/front (primary/secondary)
- **Resolution:** [the actual list depends on the mobile device capabilities]
- **FPS:** from 10 up to max allowed by device
- **Camera Microphone:** disable/enable sound

Below the settings, you will see the camera preview. Save your preferences and go back to the server list.



For Android 6.0 and newer, you may need to go to your mobile device's system permissions and explicitly allow Ganz CORTROL Mobile to use the camera in case you were not asked for this permission or if you have chosen to deny access to this components.

Then, connect to your Ganz CORTROL server, tap the menu icon in the upper right corner and choose  *Stream camera*. You will see your camera preview and a message in the bottom saying *Click icon to stream*. Click the *Play* button in the bottom right corner to initiate streaming (the button will turn blue); when asked, enter the code from the Ganz CORTROL Console in the *Registration token* dialog box. For example, if your device configuration in the Ganz CORTROL Console says CODE:FZL3XT3L, you just need to enter the FZL3XT3L part in the *Registration token* field.

Ganz CORTROL Mobile will automatically start streaming and you will see the contents of your mobile device stream in all other Ganz CORTROL Mobile and/or Ganz CORTROL Client applications. The message in the bottom line will change to *Streaming* and will show your video stream statistics. In order to stop streaming, tap the *Play* button once again.

You can now manage this stream as a usual channel in Ganz CORTROL Console meaning that you can record both video and audio from it, analyze it for motion etc. To remove this entity, simply delete the device via Ganz CORTROL Console.



If you re-install the application on your mobile device, you will need to go to the Ganz CORTROL Console and add your mobile device anew, basically, following the algorithm of adding a new device, or go to the device settings and click *Reset* near the *Code* field to generate a new code, then enter the new code in your app.

Once you have registered your phone on the server, you can set up a **panic button** on your mobile device. This button is placed on your home screen and, when tapped, **initiates live streaming** to the pre-defined server immediately - you do not need to open the app and search for the server. To set up this panic button, go to the mobile application settings and:

- define the panic server where the stream should be sent to, then
- create a panic button and place it onto the home screen.

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Archive Playback

To switch to playback mode, tap 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**
- if the channel has several recorded **streams** (e.g., main and secondary), corresponding choice will appear above the timeline on the left



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.

Widgets

Widgets are information elements that can be placed on the home screen on Android devices and in the Today view on iOS devices. Individual channels that require frequent monitoring can be placed as Ganz CORTROL Mobile widgets with moderate or low (from twice per minute down to four times per hour) refresh rate so that you do not have to open the whole app each time you need to check the channel. For channels accessible via Internet, this

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means you can monitor them even if you are in a remote location on 3G or 4G: relatively low frame refresh frequency does not use much bandwidth. You can also limit widgets to use WiFi connection only.

General steps to add and use a widget are the following:


- add as many widgets as you need, one widget per channel,
- go to Ganz CORTROL Mobile app settings and set widget update and network usage preferences (for details, see the *Settings* section above),
- assign channels to widgets.

To add a widget on an **Android device**:

- tap on a blank space on the home screen and hold for a couple of seconds until the menus appear,
- tap the *Widgets* menu at the bottom of the screen, locate Ganz CORTROL Mobile widget and then drag to place it onto the desired place. Widget of default size (2x2 cells) will appear with a *Slot not configured* message inside:
 - drag the orange borders to adjust the widget size, then tap outside the widget to exit the adjustment mode (you can change the widget position and size at any time later by long tapping the widget and then moving it)
 - tap the widget once: Ganz CORTROL Mobile application will open, allowing you to choose the channel,
- then, in the Ganz CORTROL Mobile app:
 - go to the app settings before connecting to the server and choose how frequently the widgets will be refreshed, and also their network usage preference (see the *Settings* section above for details),
 - connect to a server of your choice, choose *Camera to widget* from the main menu, then tap a channel to choose it (all channels will be highlighted with blue frames, swipe left or right to load more channels to choose from), and then choose a widget slot from the list by tapping it, too (the slot may be empty or already contain a channel),
- go back to your home screen: the assigned channel should now be present in the widget, with the channel name in the top left corner, slot number in the bottom left corner, and last refresh time in the bottom right corner.

To replace the channel, follow the steps 3-4 above; to remove the widget, simply tap and hold it until the menus appear and then drag and drop it onto the Recycle bin icon. Tapping a widget will result in opening the corresponding app, as described above.

To add a widget on an **iOS device**:


- swipe down over the Home screen, Lock screen or Notification centre to bring the Today view screen, scroll to the bottom to reach for the Edit menu, tap *Edit*,
- locate the Ganz CORTROL Mobile app and tap (+) sign to the left of it: the app will be added to the list above,
- tap *Done* when you have finished; the widget will appear under Widgets, allowing you to add and resize the slots - tap any slot to open the Ganz CORTROL Mobile app,
- then, in the Ganz CORTROL Mobile app:
 - go to the app settings before connecting to the server and choose how frequently the widgets will be refreshed, and also their network usage preference (see the *Settings* section above for details),
 - connect to a server of your choice, choose *Camera to widget*  from the main menu, then tap a channel to choose it (all channels will be highlighted with blue frames, swipe left or right to load more channels to choose from), and then choose a widget slot from the list by tapping it, too (the slot may be empty or already contain a channel),
- go back to your Today view: the assigned channel should now be present in the widget, with the channel name in the top left corner, slot number in the bottom left corner, and last refresh time in the bottom right corner.

You can drag widgets to rearrange them in the Today view; tapping a widget will open the associated app. To remove a widget, go back to the widget list in the Today view, as described above, and tap the (-) sign next to the Ganz CORTROL Mobile name, then tap the *Remove* button. If you remove the widget and then add it anew, it will retain its view (slots).

User Buttons

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User buttons are software buttons, controls used in Ganz CORTROL Client and Ganz CORTROL Mobile for manual event triggering: upon clicking or tapping a user button, the action associated with it is triggered. The action, the user button itself and the rule that makes the user button work are all pre-configured via Ganz CORTROL Console; see corresponding sections of the server management manual for details.

If you are connected to a server that has configured user buttons and your user account has permissions to use them, the buttons will be available in the app. To access them, tap the main menu and choose *User buttons* (vertical view) or simply tap the corresponding button  on the top panel (horizontal screen orientation). Then, choose the button you want to use and tap it: the associated action will be triggered and you will receive a confirmation in the bottom of the screen.

Events

Ganz CORTROL Mobile app allows you to receive push notifications from the Ganz CORTROL server once they have been set up via Ganz CORTROL Console *Event & Action* management.

In order to do this, create an action of the *Send event to client* type via Ganz CORTROL Console and enable the *Display event in mobile application* option, then attach this action to your desired event in the *Rules* section. When creating the rule, do not forget to set the target channel for it: the notifications will appear for that particular channel and their availability can be controlled via channel access permissions. It is possible to limit the reception of the notifications to certain user profile or user group. You will find more details on how this is done in the *Events & Actions* section, under [Actions](#).

Triggered notifications will immediately appear on the mobile device(s) that have Ganz CORTROL Mobile app installed with the target Ganz CORTROL server configured (connected user account must have permissions for the target channel). The app itself may be not running: events will pop up as regular text message notifications. If the target mobile device is offline, the notifications will arrive shortly after it re-connects to a network that provides required server connection.

Offline Camera

Starting from version 1.7, Ganz CORTROL Mobile allows you to record offline video clips for further upload to the server. The video can be recorded from the device camera in the app and stored as long as required until the server connection is available.

To enable this, you first need to:

- set up the target server connection in the app
- choose your camera preferences
- register your smart device on the Ganz CORTROL server as *External Model* as you would do for live streaming from device camera
- enable Edge Recording for the newly created channel

You only have to do this once for each device (unless you re-install the app). From then on, you will be able to record as many video clips as you wish, and then upload them to the target server.

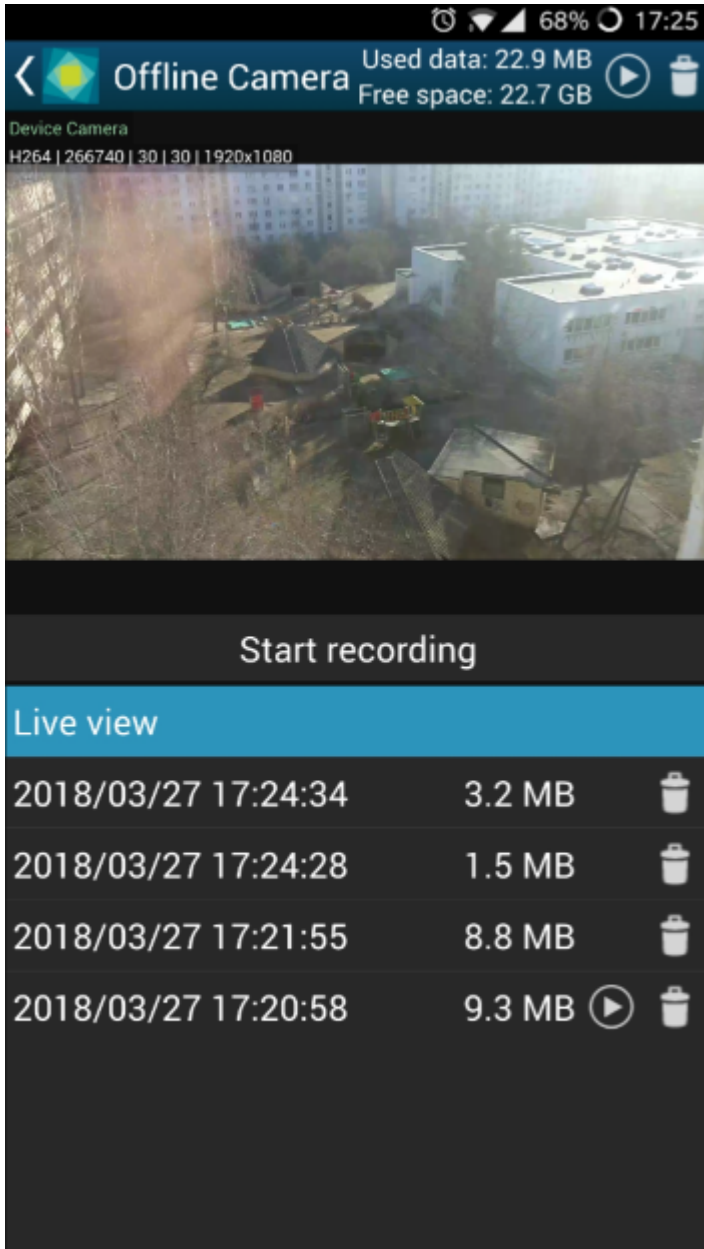
If you do not have paired your device with the server yet, go to your Ganz CORTROL server configuration via Ganz CORTROL Console, go to the Configuration section and choose Devices from the menu on the left. On the upper panel, click the + *New device* button in order to create a new device; enter your desired name and set the *Model* to (*Generics*) - *External Source*, then save. Note the value appearing in the *Code* field: you will need to enter it into your app.

Next, go to your app -> server list -> tap *Settings* in the bottom, find *Camera* in the list and choose your video preferences; the contents of each item may vary depending on your mobile device capabilities:

- **Camera:** back/front (primary/secondary)
- **Resolution:** [the actual list depends on the mobile device capabilities]
- **FPS:** from 10 up to max allowed by device
- **Camera Microphone:** disable/enable sound

Below these settings, you will see the camera preview. Save your preferences and go back to the server list. Here, tap the *Offline Camera* option in the bottom to open the offline recording mode.

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Offline recordings

Rotate your device the way you want to hold it during the process and tap the *Start recording* button: it will turn red indicating that the **recording** is happening. Tap it again to **stop**: a **new file** will appear in the list and the camera preview will return to live.

Tap any file in the list to **play it back**; the play/pause button will appear below the picture allowing you to start/stop the playback. Use the recycle bin icon next to the file name to **remove** individual recordings. The details on the upper right will show how much **storage** space has been used. The *Recycle bin* icon in the top right corner will remove all the recorded videos.

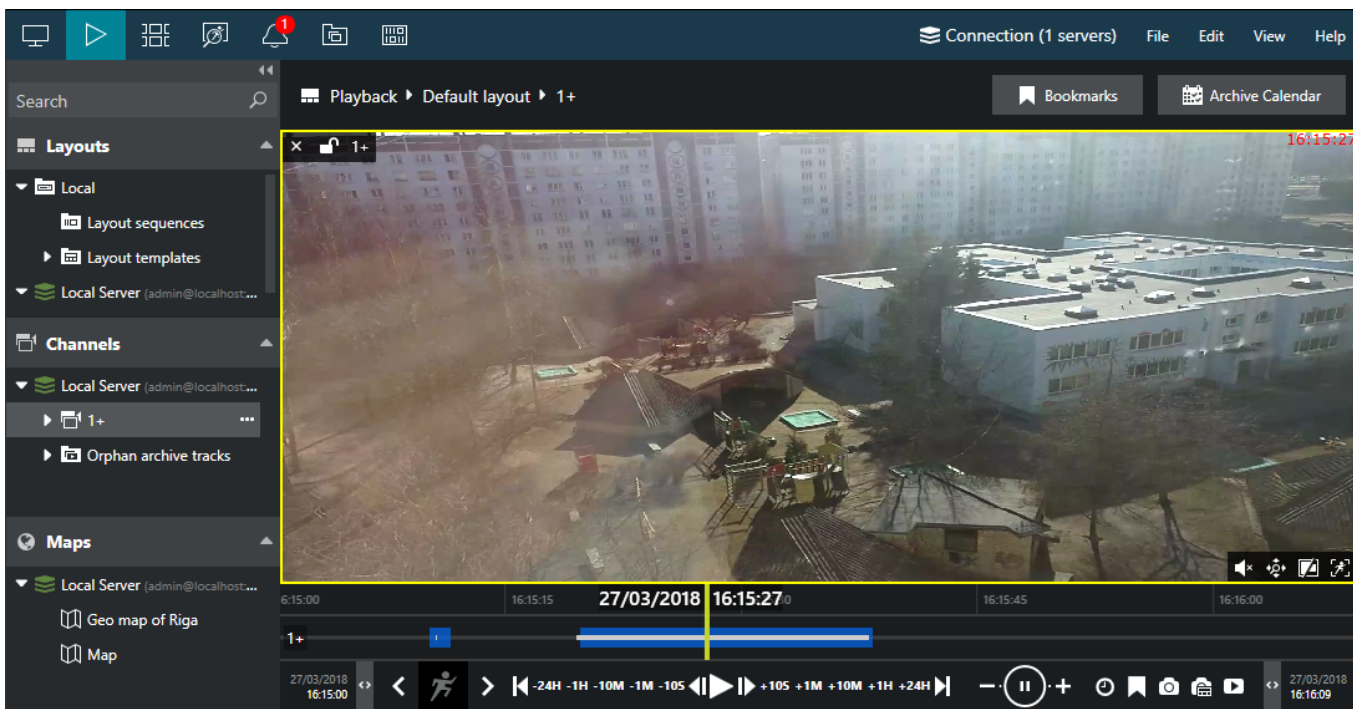
Now, to **upload** the recordings to the server, use the *Play* button: the one in the top right corner will upload all the files; there is also a possibility to upload the last recording only by using the *Play* button next to the file name. You will be presented with file details and server choice: when ready, tap the *Upload* button. The video file(s) will be uploaded to the selected Ganz CORTROL server and stored as **edge stream** for your device's channel. Do not worry if the upload is interrupted due to network issues: the upload will resume as soon as the connection to the target server is available again.

GPS Tracking

Starting from the Ganz CORTROL Mobile version 1.7 and Ganz CORTROL version 1.8.0, it is possible to send the

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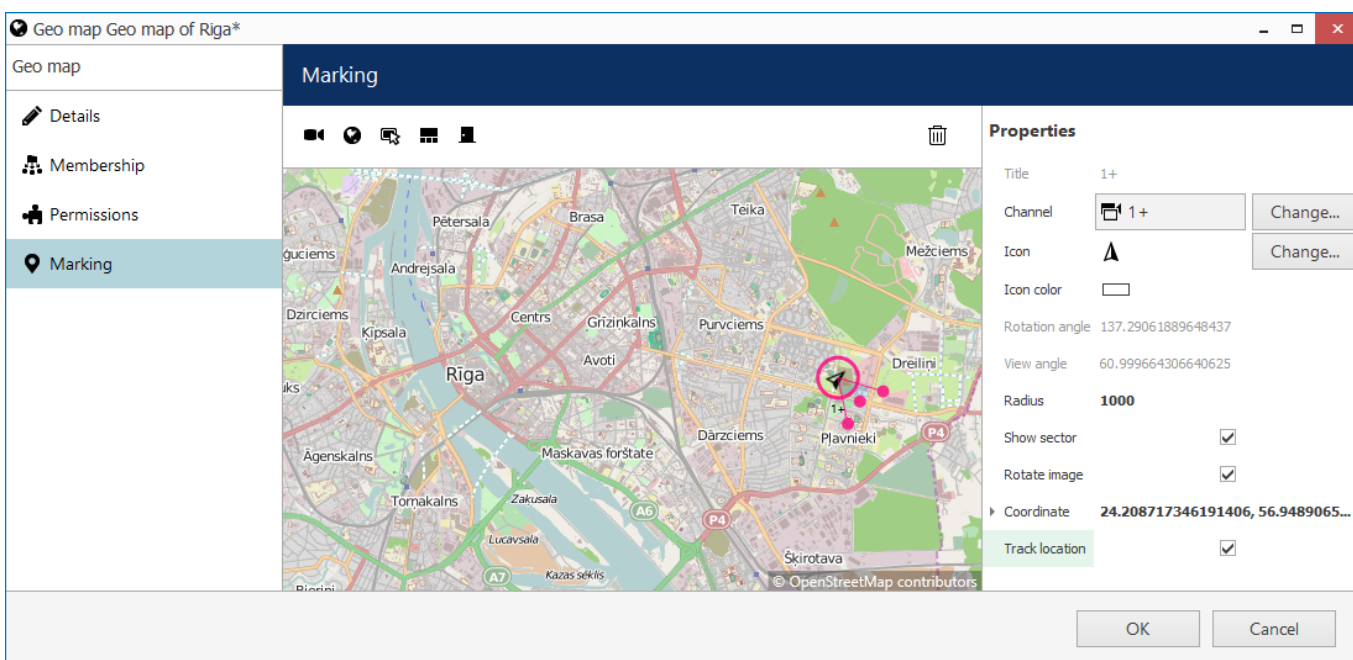
GPS coordinates of the smart device to the Ganz CORTROL server. The coordinates are then displayed on top of the live and recorded video, and they are also used to trace the device on geo maps.



GPS coordinates displaying on top of the video streamed from Ganz CORTROL Mobile

Setup:

- enable sending of GPS data in your app settings
- register your device on the server as described above in the *Stream Camera/Offline Camera* sections so that it exists in the server device/channel configuration
- create a geo map on the server via Ganz CORTROL Console
- place a camera marker on the map, set your smart device as the target channel and enable tracking in the properties



Geo map with a marker that has location tracking enabled

Now, if you move and stream video from your phone to the Ganz CORTROL server, the marker on the map will

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move as well, displaying your location. GPS coordinates will be also shown on top of the live video stream and also when it is played back. Note that for the offline recorded stream (clips recorded and then uploaded to the server) the coordinates will not be displayed.

44 Event and Action Overview

Event and action (**E&A**) management is a component of Ganz CORTROL, 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. These scenarios may work within a single server, as well as in distributed systems with Ganz CORTROL Global where events originating from one server can trigger actions on one or more different servers.

Events are entities that arise when something happens in the system - namely, when system or system component states changes, for instance, a video stream has been lost, a recording or disk error has appeared etc. These changes can be set up to trigger certain **actions** so that system administrators and/or users are notified and 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 based on camera digital input events;
- starting or stopping video recording based on motion in specific regions during specific hours;
- switching to some 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 (available for all servers)
- standard (default) actions (available for all servers)
- custom events of certain types (configurable)
- custom actions of certain types (configurable)
- global events (server-to-server data transmission)
- delay timers
- special conditions
- schedules
- mail server configuration

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

Actual setup of E&A depends greatly on your system configuration, E&A usage scenarios, required automation level and other things. However, we recommend that, regardless of system scale and architecture, you stick to the following **order of E&A configuration** steps for optimum results:

1. Preliminary actions
 - a. Create a plan of your E&A scenarios on paper or in any diagramming/smart draw software - this will ensure you always have a basis to check against
 - b. Set up the your Ganz CORTROL system so that you have all the servers, devices, channels, users and optional elements pre-created
 - c. Pre-configure all the necessary hardware equipment (e.g., camera IO wires, external physical alarms, buttons) and connect it
 - d. Pre-configure all third-party programs/scripts/executable files, if necessary
2. Extra setup in Ganz CORTROL Console
 - a. Create User Buttons, if you are going to use them
 - b. Create Maps, Layouts if necessary
3. E&A Management setup per server
 - a. Add mail servers if you are going to use e-mail notifications

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- b. Add custom events
- c. Add conditions
- d. Add custom actions
- e. Create rules using all elements; add extra events/rules, if required
- f. Add timers, schedules and conditions to the rules
- g. Check your rule map against your initial plan from 1.1
- h. Test your rules

45 Rules

All rules defined via *Event & Action Configurator* are listed in the *Rules* section. Click the *Change* button near server name to select a different server from the list: for each server, only relevant rules are displayed. 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, and their properties
- **disable** a specific rule or a set of rules by using the *Disable* button on the upper panel
- **enable** a specific rule or a set of rules by using the *Enable* button on the upper panel
- **test** a specific rule (the rule must be enabled)

In order to **add**, **remove** and **modify** the rules, choose the target server and click the *Open Configurator* button on the top panel.

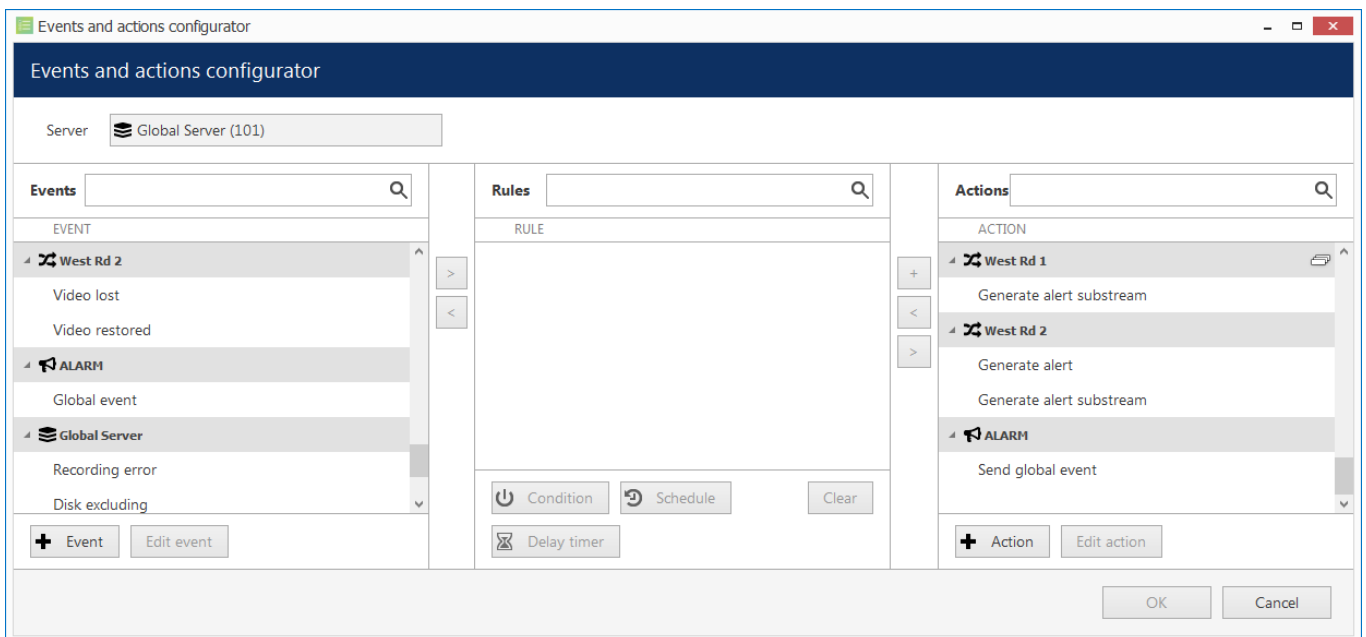
46 Add Rules

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 Ganz CORTROL 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 Ganz CORTROL 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 all 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

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- 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

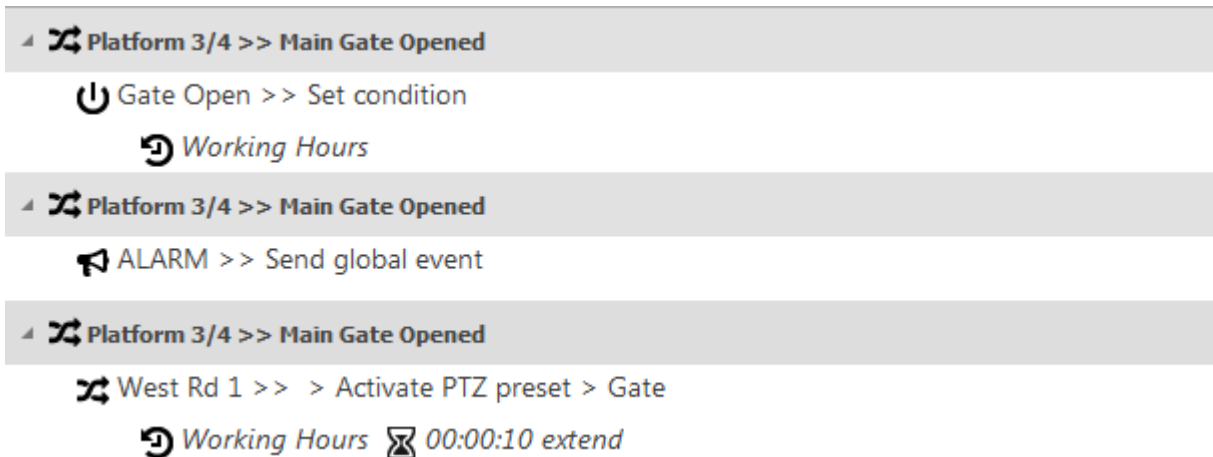
To start combining events, actions and additional controls, simply follow this scheme:

- 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, and the + button to add more than one action for a single event
- 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 **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 the *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**.



The screenshot shows three rule entries, each with a header and a list of actions:

- Platform 3/4 >> Main Gate Opened**
 - Gate Open >> Set condition
 - Working Hours
- Platform 3/4 >> Main Gate Opened**
 - ALARM >> Send global event
- Platform 3/4 >> Main Gate Opened**
 - West Rd 1 >> > Activate PTZ preset > Gate
 - Working Hours ⌚ 00:00:10 extend

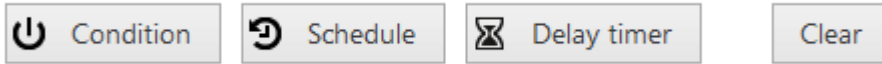
Example of a rule set for the same event source

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.

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.

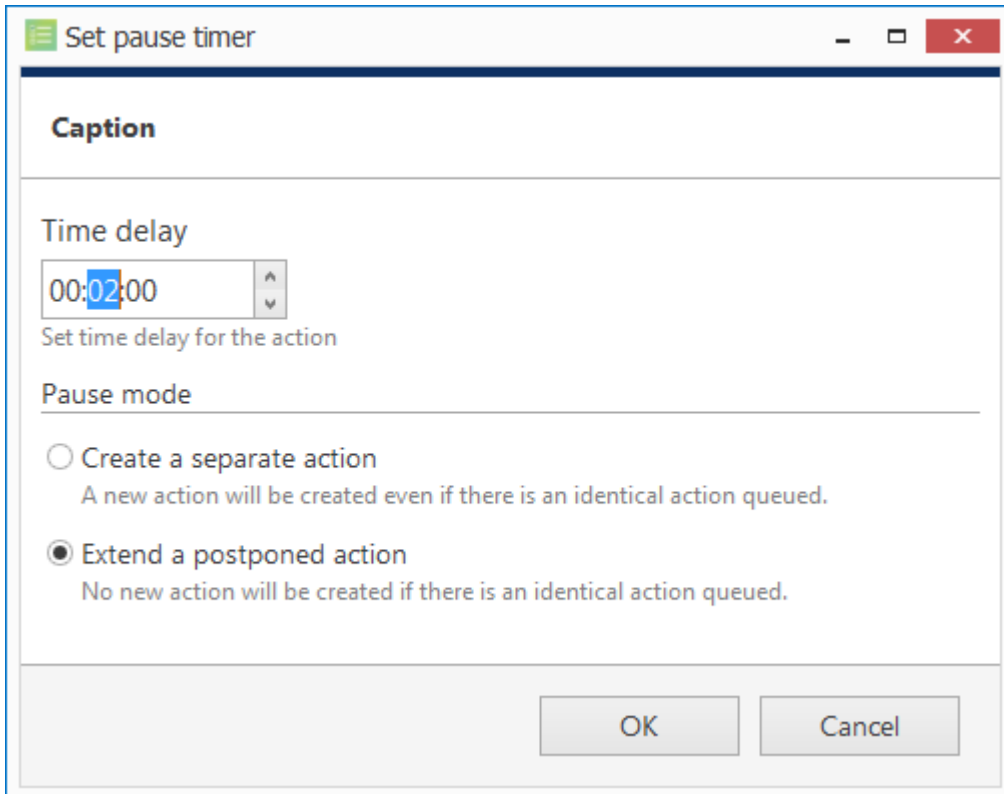
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To remove auxiliary controls from a rule, select it in the *Rules* list and click the *Clear* button on the bottom panel. Note that all defined conditions, timers and schedules will be removed from the target rule, and it is not possible to de-attach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

Next, choose the 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:** new events of the same type will restart the timer, postponing the resulting action for the specified amount of time

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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 an action allows you to postpone the action execution repeatedly if more events of the same type arrive within the chosen time 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 postpone the email sending for 5 minutes every time a new recording error appears; when, at a certain point, more than 5 minutes have passed without new incoming events, a single log entry will be eventually created. The **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 Ganz CORTROL 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 an 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.

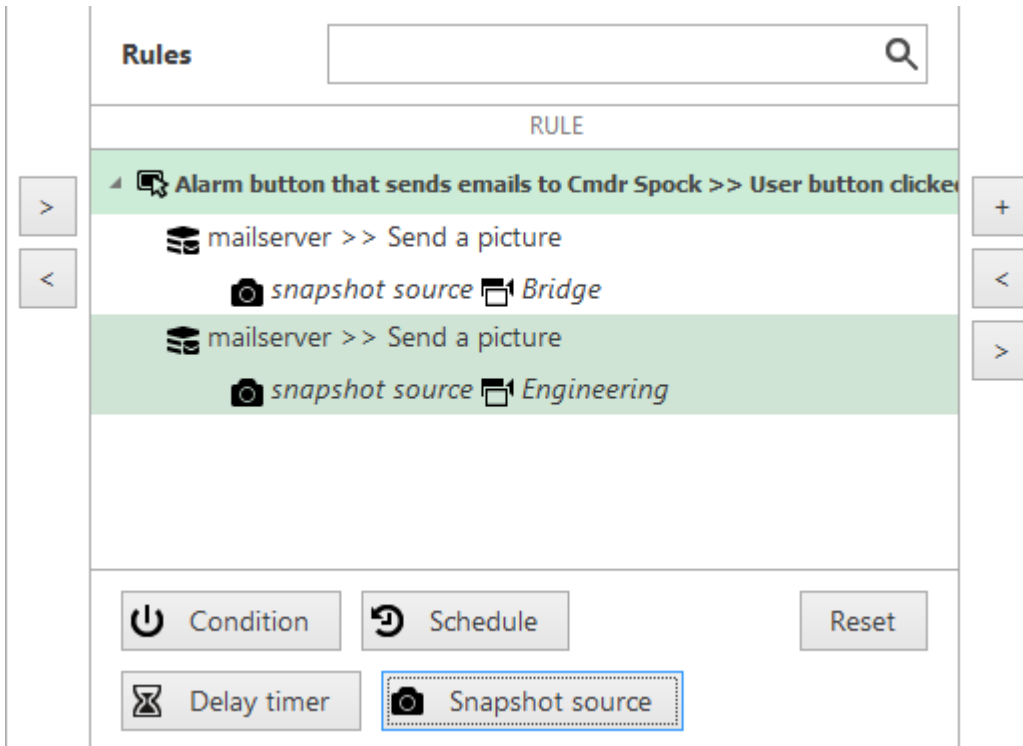
To assign a condition to the rule, choose one or multiple target events from the *Rules* list and click the *Condition* button on the bottom panel, then either select target condition from the list or create a new one.

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

Source and Target Channels

Some actions participating in the rule creation need a related channel to be specified so that these rules can be properly executed. For such actions, the source/target channel is specified when you create a rule involving such an action: corresponding additional buttons appear on the bottom panel or the rule map section, next to conditions, schedules and delay timers. Each action allows exactly one related channel; if you need, for instance, two snapshots to be sent via email, just add two actions of the same type and specify different source channels.

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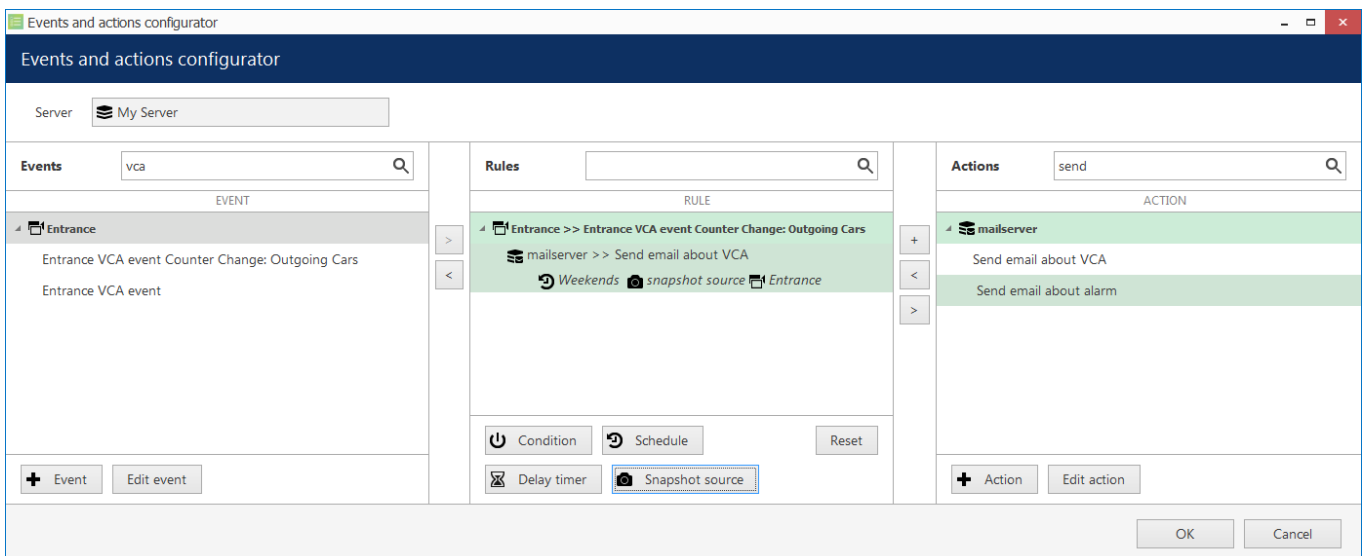
Use the *Snapshot Source* button to attach different snapshots to several actions of the same type

When you combine such actions with events that already are related to some channel (e.g., *Video Lost, Motion, VCA, DD*), that channel is selected automatically for the resulting action. For the rest of events, the channel is not set by default and you need to use the **target/source channel** buttons on the panel below the rules. Also, you can set a different channel instead of the one selected automatically by using the same buttons.

Attaching Snapshots

The *Send Email* action allows you to attach a snapshot from one channel and deliver it together with the email to the recipient. The snapshot can be taken either from the main stream or from the secondary stream (substream), if available. At the action creation time, you just enable the snapshot from either main or secondary stream, and then you will have an option to specify the source channel when creating the rule that involves such an action.

When creating the [Send Email](#) action, you can choose to attach a snapshot by selecting the necessary stream option (main/sub) from the drop-down list. The channel itself is not specified at this step as it is not known beforehand, to which channel this action will be applied in future - this makes the action universal, applicable to any target channel.



Specify a snapshot source for the target rule

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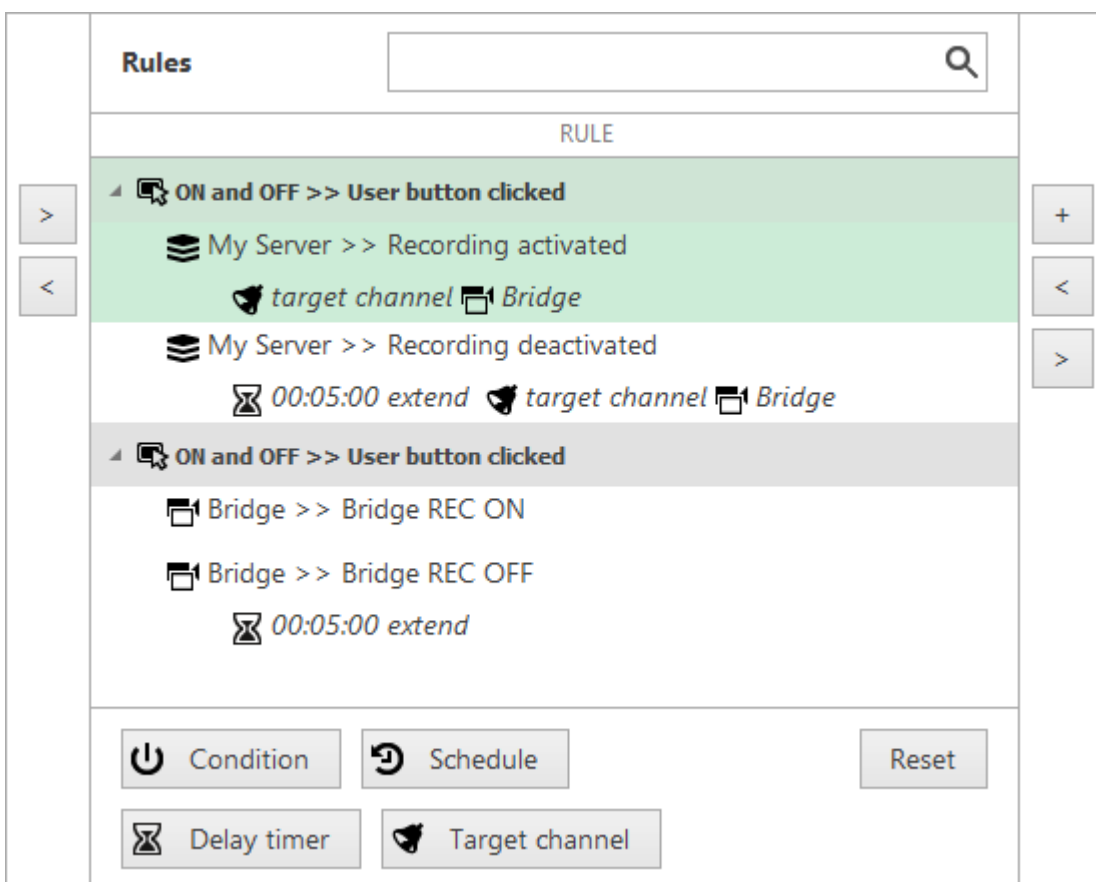
The source channel is specified when you attach the *Send Email* action to an event, i.e., create a rule in the *Event & Action Configurator*:

- if the event in the rule has some channel as a source (e.g., motion, VCA, DI), this channel is set automatically as a snapshot source
- for events having sources other than channels (e.g., user buttons, server events), you can specify the source channel by using the *Snapshot source* button on the panel below the rule map
- you can modify the source channel by using the same button, and also disable snapshot attachment by selecting *none* as the source

Email sending rules can accept any extra modifiers just like any other rules - [delay timers](#), [conditions](#) and [schedules](#), each of them once.

Adding Target Channels to Rules

There are other actions, apart from *Send Email with a Snapshot*, that are related to channels and may use them as action targets. These are, namely, *Create Bookmark* and *Send Event to Client*.



Recording changes are logged in the notification area of the target channel

The *Create Bookmark* action requires a channel to add the bookmark to. To add bookmarks to multiple channels simultaneously, add several actions of the *Create Bookmark* type and specify different target channels for each.

The *Send Event to Client* action only needs a target channel to be specified in case the action has the *Display event in notification panel* option enabled: as a result, the pre-defined message will appear in the notification area of the specified channel (overlay area in live view, the same place where the stream errors appear - see Ganz CORTROL Client user manual for more information). Similarly to bookmarks, you can add more than one action of the same type and add different channels as targets in order to display the message in the notification areas of these channels.

Examples

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

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Email Notification on Video Loss

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

Preliminary setup:

- in the channel settings, set the video loss timeout to 300s (five minutes) for each target channel (select multiple channels and use the *Bulk Edit* button on the upper panel to modify several channels at once)
- configure a [mail server](#) with your desired parameters
- 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

RULE

The screenshot displays three rules in a list. Each rule is represented by a grey bar with a camera icon and the text 'Camera X >> Video lost'. Below each rule bar is a smaller grey bar with a Gmail icon and the text 'Gmail >> Send email to admin'.

- Camera A >> Video lost
Gmail >> Send email to admin
- Camera B >> Video lost
Gmail >> Send email to admin
- Camera C >> Video lost
Gmail >> Send email to admin

Email Notification on Video Loss

Note that you do not need to create the *Video lost* event as it is already exists by default for each channel.

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

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RULE

Server A >> Recording error

Server A >> Write to A application log

Server A >> Recording error

Recording Error on Server A >> Send global event

Rules for the Server A

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

RULE

Recording Error on Server A >> Global event

Central Server >> Write to CS application log

Rules for the Central Server

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

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47 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 Ganz CORTROL 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 has been restored; event is available for non-central servers
- **Central Server Disconnected:** the connection with central server marked as unavailable because the timeout defined in the server settings has been reached; 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
- **Failover Activating:** a recording server has failed and has been automatically replaced by a failover node
- **Fallback Activating:** main storage has failed, server has automatically switched to fallback storage; event is available for each server
- **Global Event:** global (system-wide) event from one of the servers has been fired; event is available for all defined [global events](#) and on all servers with Ganz CORTROL Global
- **Motion:** motion has been detected; event is available for each channel
- **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
- **Recording Recovered:** server has recovered from the recording error; available for each server
- **User Button Clicked:** user button was pressed; event is available for all created user buttons
- **Video Lost:** no video stream available for this specific channel for the defined amount of time, which is set in the channel settings; event is available for each channel
- **Video Restored:** video stream connection re-established; event is available for each channel

TITLE	EVENT TYPE	SOURCE
Central server connected	CentralServerConnected	
Central server disconnected	CentralServerDisconnected	
Disk excluding	Disk excluding	
Global event	Global event	
Recording error	Recording error	
User button clicked	Button pressed	
Video lost	Video lost	
Video restored	Video restored	

Default events

Default events are available in the *Event & Action Configurator* and can be used in the same way as user-defined events, except for they cannot be edited.

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48 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 Ganz CORTROL 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 different types. Continue reading to learn about event types and their settings.



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

- enable alert generation in [channel settings](#) via Ganz CORTROL Console for device digital inputs (DI);
- enable and set up rules via camera Web interface for edge VCA and set up rules via channel settings for software-side Open VCA;
- set up the External Service event generation logic for external services (license plate recognition, face recognition etc.)

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 verify the event operability and then re-create and re-insert the event after modifying it, if necessary.

The screenshot shows a software window titled "Event" with a sidebar on the left containing "Event" and "Details" (selected). The main content area is titled "Details" and features a dropdown menu labeled "Event type" with the text "Select event type" above it. The dropdown is open, showing two options: "Digital input" and "VCA". At the bottom right of the window, there are "OK" and "Cancel" buttons.

Choose event type

Choose the target event type, fill in the settings and click OK to save the event. The event will then appear in the event list, and will also become available in the Event & Action Configurator of the corresponding server.

Digital Input

This event is triggered when a device's DI state is changed. Before creating the event, make sure you have enabled DI event generation in the device channel's properties.

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

- **Title:** a user-defined event name
- **Source:** choose the device from which the DI event originates; event generation must be enabled in the [channel settings](#)
- **Digital Input:** select one of the DIs of the target device to serve as event trigger; the number of inputs

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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 the [channel settings](#)

The screenshot shows a web-based configuration window titled "Event *". The window has a sidebar on the left with "Event" and "Details" (selected) options. The main area is titled "Details" and contains the following fields:

- Event type:** A dropdown menu set to "Digital input". Below it is the text "Select event type from list of possible event types".
- Title:** A text input field containing "Gate > Digital input >". Below it is the text "Event name".
- Source:** A field showing "Canon VB-S800D on 192.168.3.40 (123)" with a "Change..." button. Below it is the text "Event source".
- Digital input:** A dropdown menu set to "Input 1". Below it is the text "Digital input".
- Digital input mode:** A dropdown menu set to "Activated". Below it is the text "Digital input mode".

At the bottom of the window, there is a "Reload" button and "OK" and "Cancel" buttons.

Settings for the *Digital Input* event type

VCA

For camera-side and software-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 video analytics 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) or pre-configured using the Ganz CORTROL Console for the software-side VCA module (see corresponding documentation for configuration details)
- **VCA Rule:** video analytics rule to trigger event alert; available rules depend on device model, capabilities and configuration for edge VCA, and on VCA license type for software-side VCA

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The screenshot shows a window titled "Event *" with a "Details" tab selected. The configuration fields are as follows:

- Event type:** A dropdown menu set to "VCA". Below it is the text "Select event type from list of possible event types".
- Title:** A text input field containing "> VCA >". Below it is the text "Event name".
- Source:** A text input field containing "Canon VB-S800D on 192.168.3.40 (123)". To its right is a "Change..." button. Below it is the text "Event source".
- VCA rule:** A dropdown menu set to "Volume Detected". Below it is the text "VCA rule".
- Buttons:** A "Reload" button is located below the VCA rule dropdown. At the bottom right of the window are "OK" and "Cancel" buttons.

Settings for VCA event type

External Service

External Service type events are messages from modules that are operating via Ganz CORTROL HTTP API and are listed in Ganz CORTROL Console as [external services](#). By default, license plate recognition and face recognition services are integrated, and any other third-party integrations can be connected.

The following settings should be defined:

- **Title:** user-defined event name
- **Source:** the channel that is used by the target external service
- **Service group:** the group the external service belongs to in Ganz CORTROL Console settings
- **Target event:** service-specific result type, e.g., recognition result
 - *Known:* recognition result has a match within the external service database (black/white list in LPR, subjects' database in FR), matching any tag
 - *Unknown:* recognition result has no matches within the external service database
 - *Tags:* recognition result was found in the external service database and it has a specific tag assigned to it

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Event VIP license plates*

Event

Details

Event type
ExternalService
Select event type from list of possible event types

Title
VIP license plates
Event name

Source
axis
Change...
Event source

Service group
lprs
Change...
Service group

Target event
VIP
Target event

OK Cancel

External Service event from the License Plate Recognition module

The example event here accepts events from the License Plate Recognition (LPR) module and will report plates recognised from the specified source channel if these results are present in the known plates' list with a *VIP* tag.

Scheduled Event

The server can create automatic events on a daily or weekly basis, or at certain intervals. Such an event does not have any underlying source to originate from, it is simply generated by the system in the specified moment(s) of time. Note that the time defined here is server time.

Event Every hour event*

Event

Details

Event type
Scheduled event
Select event type from list of possible event types

Title
Every hour event
Event name

Source
Main server
Change...
Event source

Periodical
The event will be triggered periodically on specified interval

Interval
3600
Interval in seconds

Scheduled
The event will be triggered according by specified schedule

OK Cancel


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A scheduled event that occurs every hour

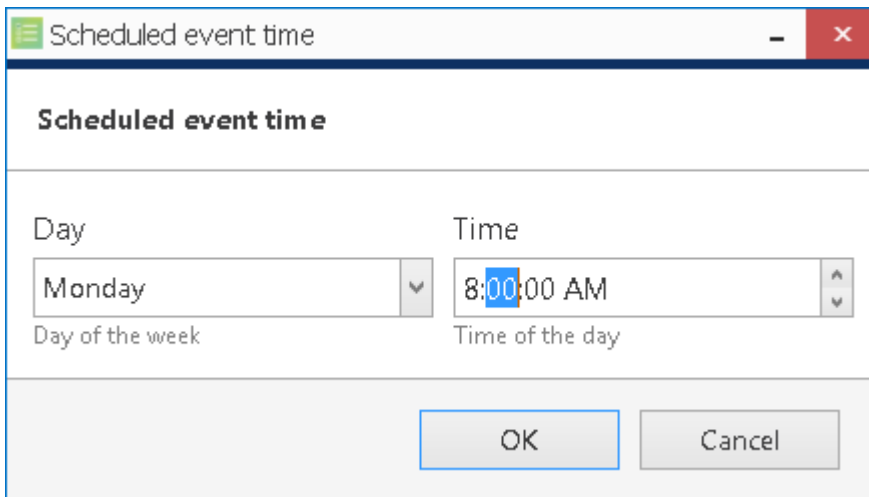
There are two types of automatic events: periodical and scheduled. Periodical events arise at the specified intervals, e.g., every hour or every ten minutes. Scheduled events follow the specified timetable, e.g., are triggered at 8AM every day.

For a scheduled event, you need to define:

- **Title:** user-defined event name
- **Source:** target server to generate the event on
- **Periodical:** choose this type if you need the events to be generated every N seconds
 - **Interval:** time interval in seconds between two automatically generated events, minimum interval is fifteen seconds
- **Scheduled:** choose this mode if you wish to build a timetable to serve as a basis for the event generation
 - **Event schedule:** weekly timetable for the event generation

 Minimum time interval for the periodic event is 15 seconds and maximum is 86400 seconds (which is equal to 24 hours).

To add a schedule, simply click the *Add* button below and append as many items as you like. You can add multiple moments per day as well.



Add schedule element

Remember that you can enter the time either manually from the keyboard or by clicking the timestamp elements and then using your mouse wheel, while still hovering your mouse cursor over the element that is being adjusted. To edit any of the items, select one and click *Edit*, or simply double-click an item; to remove, select one or many (use *CTRL+click* or *Shift+click* to select multiple items, or also *CTRL+A* to select all) and then click *Remove*.

Variable Condition

If your [Data sources](#) have variables set up, you can use E&A manager to trigger events when these variables meet some specific condition. This event can be also used for [VCA counters](#) to trigger actions when the counter reaches a specific value.

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Event Bar: if age >= 18

Event

Details

Event type

VariableCondition

Select event type from list of available event types

Title

Bar: if age >= 18

Event name

Source

Bar

Change...

Source channel

Condition

Variable

Age

Variable name

Type

Int

Value type

Conditional operator

GreaterOrEqual

Conditional operator

Value

18


Value used in condition

OK Cancel

An event is raised when the *Age* variable is equal to 18 or more

This event has the following settings:

- **Title:** user-defined event name
- **Source:** a channel to be analysed for the variable (which is set in the corresponding data source profile or has VCA configured); if none selected, the event will be visible for all channels
- **Variable:** variable name, must match the mapping name in the data sources profile or the VCA counter name
- **Type:** variable type; may be integer, double or string for a data source mapping, and integer for VCA counters
- **Conditional operator:** depends on the variable type
- **Value:** value that will be compared with the variable value

 For VCA counters, there are a few special requirements:

- type must be **integer**
- **event source** must be selected (the channel that has VCA configured, either camera-side or software side)

Door Event

This type of event is used to set up Ganz CORTROL server reactions based on door status changes, which are received from the integrated third-party [access control software](#).

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Event (Back Door Door event*)

Event

Details

Event type

Door event

Select event type from list of available event types

Title

Back Door Door event

Event name

Source

Back Door

Change...

Source door

Code

109

Change...

Access control code

OK

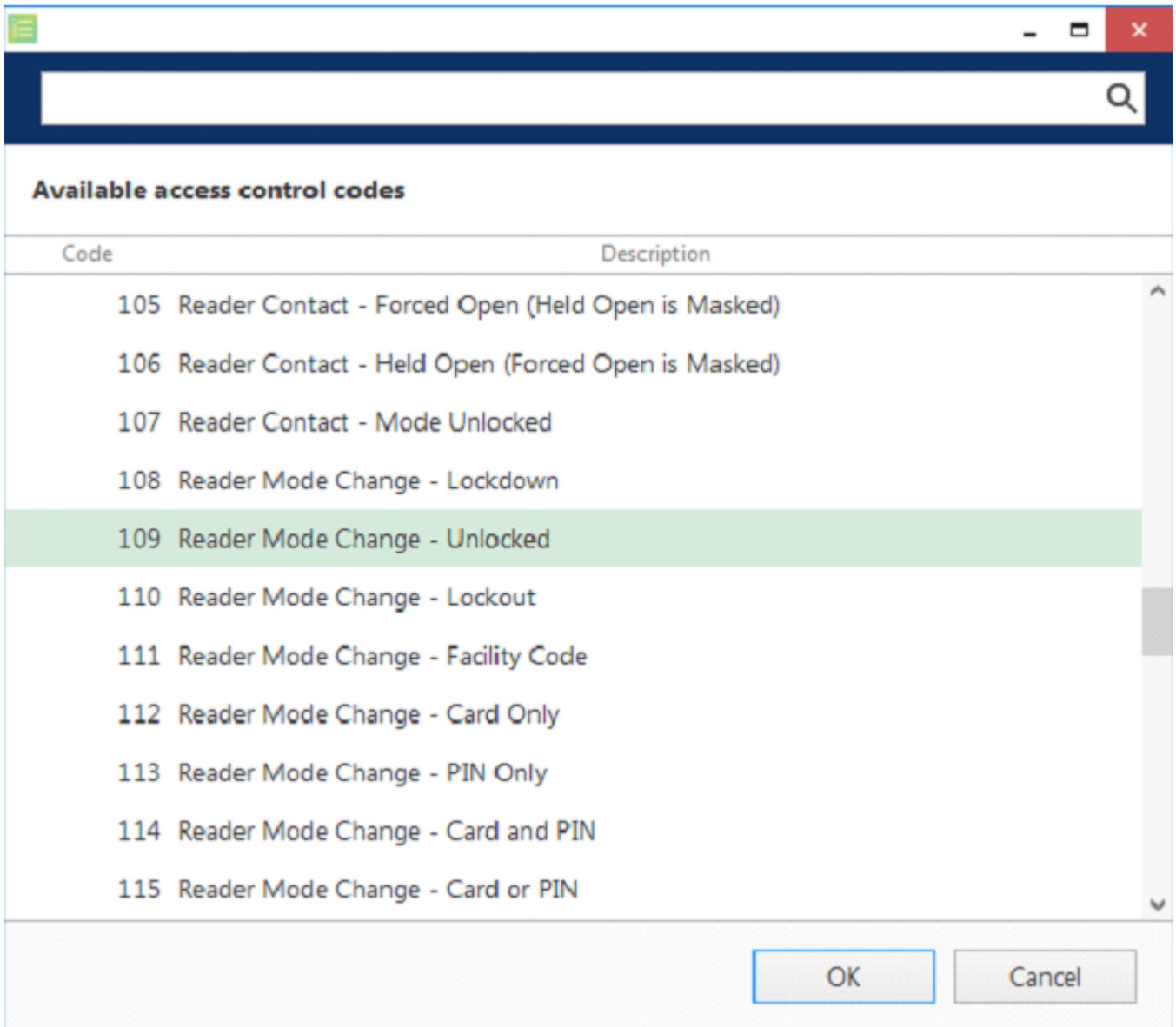
Cancel

Door event

Settings:

- **Title:** user-defined event title
- **Source:** a door from the access control module (choose from list)
- **Code:** received status or error code from the access control module (choose from list)

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Door codes fetched from the access control module

OPC Client Event

Data received from OPC servers can be analysed - compared to specified values using conditional operators - so that an event is triggered when the target OPC node value meets the defined condition.

For this type of event to work, there should be at least one [OPC server configuration](#) available with at least one data node.

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Event OPC #1 has 5 or more clients*

Event

Details

Event type
OPC Client event
Select event type from list of available event types

Title
OPC #1 has 5 or more clients
Event name

Source
OPC #1
Change...
Source OPC client

Condition

Variable
@ClientCount
Change...
Variable name

Value type
Int
Value type

Conditional operator
GreaterOrEqual
Conditional operator

Value
5
Value

OK Cancel

This event will be triggered if the target OPC server has 5 or more connected clients

Settings:

- **Title:** user-defined event name
- **Source:** [OPC client configuration](#) (connection to an OPC server)
- **Condition:** defines a requirement for the OPC data item that will trigger the event
 - **Variable:** OPC data node, must be of compatible type and have a read permission
 - **Value type:** one of the standard data types, auto detected
 - **Conditional operator:** list of possible conditional operators, depends on the data type
 - **Value:** value to compare the variable to, must match the variable value type

For some conditional operators, the *Value* field may be different, e.g., represent a range, a regular expression, or a bit mask. This depends on the selected data type and conditional operators available for it.

External

External events are HTTP requests from third-party software: integrations, scripts, Web browsers etc. These are a basic example of Ganz CORTROL HTTP API: an **URL** is used to trigger the event.

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Event Trigger via URL

Event

Details

Event type

External

Select event type from list of available event types

Title

Trigger via URL

Event name

Source

My Server

Change...

Event Id

666

Event Id. Only latin letters and numbers are allowed.

OK

Cancel

Event triggered by an external HTTP request

For the external request to trigger an event, create the event on your desired Ganz CORTROL server:

- **Title:** user-defined event name
- **Source:** Ganz CORTROL server that will accept the HTTP request
- **Event ID:** alphanumeric event identifier, **only** Latin letters [a-zA-Z] and digits [0-9] allowed

The request link is built as follows:

http://<server_address>:<http_port>/externalEvent/activate?id=<event_id>, where

- **<server_address>** is the target server's IP address or hostname (in Ganz CORTROL Global systems, use the exact Ganz CORTROL Recorder address, not Ganz CORTROL Global server address)
- **<http_port>** is the server's HTTP port (8080 by default)
- **<event_id>** is an alphanumeric identifier of the event, which is defined at the event creation step

Example: *http://192.168.1.99:8080/externalEvent/activate?id=666*

Video Wall*

This type of event is raised when certain contents appears on the video wall. Advanced options let you specifically define the video wall display and even the target viewport.

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Event Detect: City map appeared on VW Screen 2, port 9

Event

Details

Event type

Video wall

Select event type from list of available event types

Title

Detect: City map appeared on VW Screen 2, port 9

Event name

Source

Matrix Video Wall

Change...

Source videowall

Video wall screen

2 - Main

Video wall screen

Viewport index

9

Index of viewport in screen (0 - any available viewport)

Object

City

Change...

Object shown on videowall

OK Cancel

Settings:

- **Title:** user-defined event name
- **Source:** any video wall
- **Video wall screen:** target video wall display
- **Viewport index:** number of the port to trigger the event, set 0 (zero) for any viewport
- **Object:** a channel or a map (regular or geo map)

The viewports are numbered starting from 1, from top to bottom and from left to right. Zero means the event will be triggered, when the target object appears in any viewport of the target video wall display.

If the object is already present in the layout, and someone forces it to appear again, the event will not be triggered.

*This feature is only available in Ganz CORTROL Global software edition.

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*.

49 Defaults Actions

For each Ganz CORTROL 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](#)
- **Pop-up On Screen:** display the object on all Ganz CORTROL Client windows that accept pop-ups of the target object type; action is available for channels, maps and shared layouts
- **Pop-up Playback On Screen:** display instant playback for a channel in Ganz CORTROL Client application while keeping the live view mode; action is available for all channels
- **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](#)
- **Increment/Decrement/Reset:** change counter value; this action is available for each [software counter](#)
- **Send global event:** broadcast a global notification to all servers; this action is available for every [global event](#)

TITLE	ID	ACTION TYPE	TARGET
Generate alert	(46)	Generate alarm	
Send global event	(43)	Send global event	
Set condition	(44)	Set condition	
Unset condition	(45)	Unset condition	

Default actions

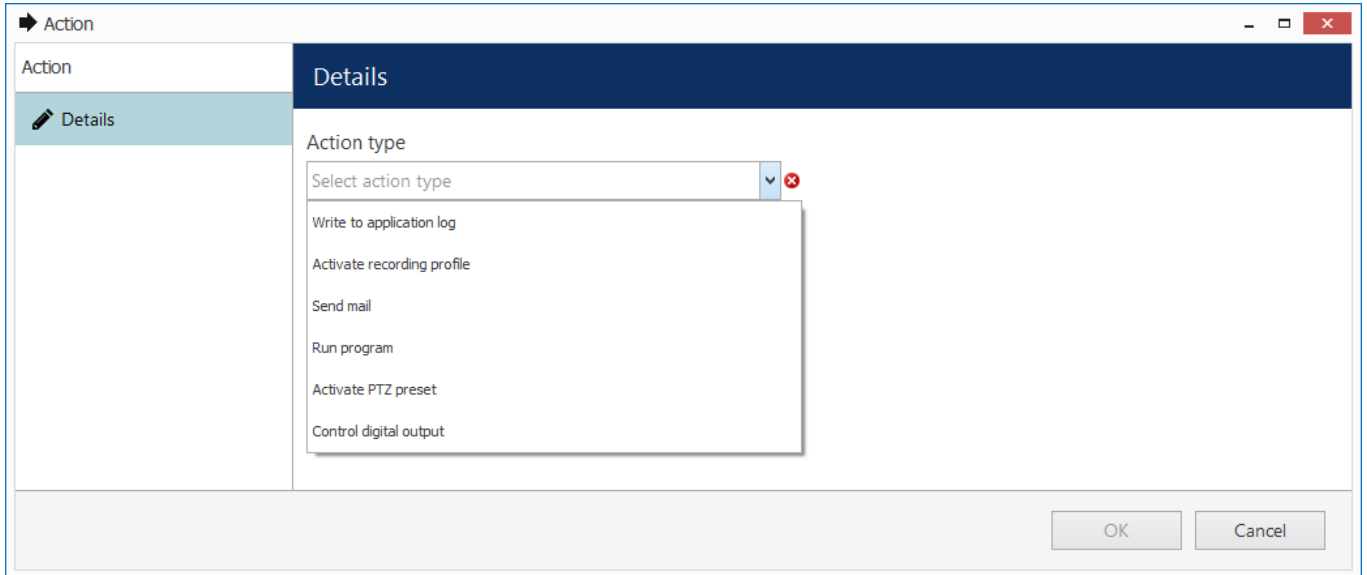
When you generate an **alert** for main stream or substream, all channels having alert-based recording enabled will start recording for the duration of time period defined in the profile as **post-recording time**; after that, the profile operation will be terminated and target channel will return to its normal recording configuration.

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

50 Add Actions

To access action management in Ganz CORTROL 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 Ganz CORTROL Server. You can define:

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

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The screenshot shows a window titled "Action *". On the left, there is a sidebar with "Action" and "Details" (selected). The main area is titled "Details" and contains the following fields:

- Action type:** A dropdown menu with "Write to application log" selected. Below it is the text "Select action type from list of available action types".
- Title:** A text input field containing "> Write to application log". Below it is the label "Action name".
- Log message:** A large text area containing "Achtung!". Below it is the label "Log message".

At the bottom right, there are "OK" and "Cancel" buttons.

Action: write to application log

Use the *Insert Field* button on the right-hand side (it appears when you have clicked inside the text area) or right-click the text area and choose *Insert* to add a text macro (see *Action Parameters* further in this topic for details).

Write to Audit Log

The *Audit log* action type is similar to that of *Application log*: it allows you to write a log entry into the Ganz CORTROL own Audit log, which will be accessible via Ganz CORTROL Console, in the *Audit* section. The log entry is added in the Server audio section and its event type will be *User defined*. You can set:


- **Title:** a user-defined action name inside to be used in E&A; by default it is *Write to Audit log*
- **Log Message:** the message text to appear in the Audit log


Use the *Insert Field* button on the right-hand side (it appears when you have clicked inside the text area) or right-click the text area and choose *Insert* to add a text macro (see *Action Parameters* further in this topic for details).

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 the *Activate Recording Profile* action for main stream and the *Activate Substream Recording Profile* action for secondary stream. Enter action details as follows:

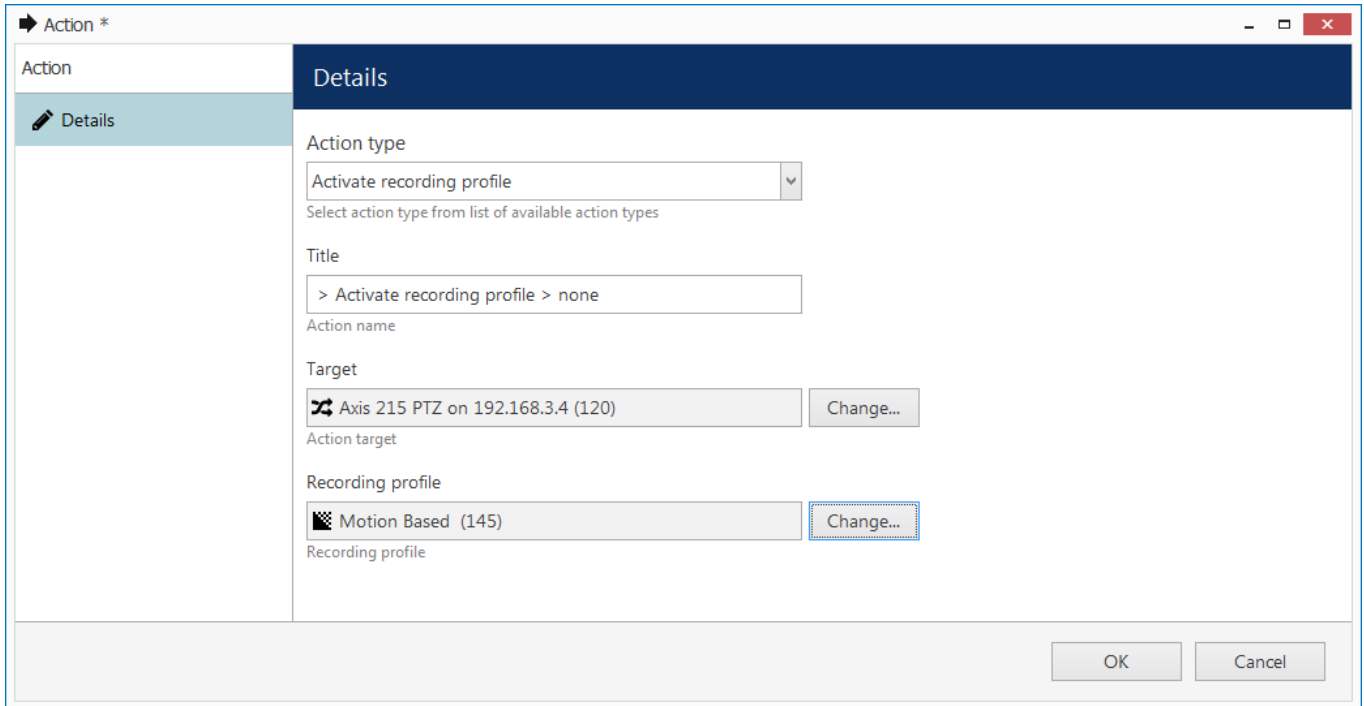
- **Title:** the user-defined action name; by default it is *<channel> Activate <stream> recording profile <profile>*, you can re-define the whole title according to your own naming convention
- **Target:** the target device for which recording is to be activated
- **Recording profile:** the pre-configured recording profile to be activated as an action; you will find profile configuration tips further in this section of the manual

 The recording profile is activated permanently; to switch to a different recording profile, use another action of the same type and different target profile.

 Recording profile activation **cannot call off** the default recording configuration (the one currently assigned to the target channel); rather, **this action can only add more** recordings. Thus, channel default recording configuration must define the minimum required recording scheme (based on a single profile or on a schedule) and E&A scenarios will add to that.

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Example: a channel is set to record based on motion. There are two user buttons: one of them sets the channel to *Constant recording*, and the other sets the *No recording* profile. Triggering the first button will activate constant recording, and triggering the second button will return channel recording to its default state (which is *Recording by motion*) instead of disabling the recording at all.



The screenshot shows a window titled "Action *" with a "Details" tab selected. The "Action type" dropdown is set to "Activate recording profile". Below it, a text field contains the title "> Activate recording profile > none". The "Action name" field is empty. The "Target" field shows "Axis 215 PTZ on 192.168.3.4 (120)" with a "Change..." button. The "Recording profile" field shows "Motion Based (145)" with a "Change..." button. At the bottom right, there are "OK" and "Cancel" buttons.

Action: activate recording profile

Recording Triggering Examples

When channel recording profile includes **alert-based** recording, recording can be activated as a result of a *Generate Alert* type action and its engagement time is determined by the profile's *post-recording time* parameter. In this case, actual recording profile is not changed and the current recording profile is used (the one assigned to the channel through its recording configuration). 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 events. In such case, you can pre-configure any number of different recording profiles and use them for action setup.

If a recording profile is triggered by an *Activate Recording Profile* type action, the recording profile used for the target channel is complemented with the profile triggered from E&A, and recording duration can be controlled using action delay timers.

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
- actions triggering recording profiles:
 - action #1 triggers a recording profile with continuous video + audio (e.g., built-in Continuous Recording profile)
 - action #2 triggers the built-in *No Recording* profile: as a result, channel recording is returned to its default (configured) state
 - action #2 is delayed for one minute using a [Delay Timer](#)

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 30 minutes.

- channel base recording configuration: based on schedule, continuous recording at restricted FPS + no

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- recording
- action triggering recording profiles:
 - action #1 triggers continuous video recording without frame rate limitation
 - action #2 triggers the built-in *No Recording* profile: as a result, channel recording is returned to its default (configured) state
 - action #2 is delayed for thirty minutes using a [Delay Timer](#)

Recording profile Alarm Triggered Continuous Recording

Recording profile

Details

Audio stream
Alert audio stream recording

Post-recording interval

3600

Length of time to continue recording after alert, in seconds (default is 10)

Detected motion triggers alert
Alert is triggered by motion detector


OK Cancel

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 *<mailserver> Send email*, 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 (use the *Insert field* button to add text macros)
- **Body:** email notification body text (use the *Insert field* button to add text macros)

 [Configure your SMTP server\(s\)](#) before creating email-related actions.

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The screenshot shows a configuration window titled 'Action *' with a 'Details' tab selected. The configuration fields are as follows:

- Action type:** Send mail (dropdown menu)
- Title:** > Send email (text field)
- Action name:** (empty text field)
- Target:** Gmail SMTP (139) (dropdown menu) with a 'Change...' button. Below it, a note reads: 'Mail server. If none is selected, the action will be visible on all mail servers.'
- To:** admin@torchwood.gov (text field) with a 'Send to' label below it.
- Subject:** Achtung (text field) with a 'Subject of the email' label below it.
- Body:** Catastrophic failure (text area) with a 'Email body' label below it.

At the bottom right of the window are 'OK' and 'Cancel' buttons.

Action: send email

Send Email with a Snapshot

This action is similar to the *Send Email* action described above, with all the settings being the same except for one: it allows to attach a snapshot from a channel and send it together with the email. The channel is specified when creating a rule with this action.

Additional setting:

- **Attach snapshot:** choose if you want to take a snapshot of main stream or substream of a channel and deliver it together with the message



In the *Send Email with a Snapshot* action, you only need to define whether this specific action will take a snapshot from the main or from the secondary stream. Actual channel for the snapshot to be taken from will be defined when you create a rule involving this action:

- if the source event originates from some channel, that channel will be automatically used as a snapshot source; you will be able to change the target channel using the *Snapshot source* button below the rule map in the E&A Configurator
- if the source event does not come from a channel (e.g., user button click event), you will have an option to define the target channel using the *Snapshot source* button below the rule map in the E&A Configurator

If you specify no snapshot source when creating the rule, a regular email will be sent. You will find more details on attaching the snapshot in the [Rules](#) section of this document.

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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 Ganz CORTROL 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) (use the *Insert field* button to add text macros)
- **Run Mode:** execution mode - hidden (silent, invisible to server user), minimised (minimised to taskbar) or normal (program will run in its default state)

The screenshot shows a window titled "Action *" with a "Details" tab selected. The "Action type" dropdown is set to "Run program". The "Title" field contains "Run program > open gate script". The "Target" field shows "Global Server (101)" with a "Change..." button. The "File path" field contains "C:\opengate.bat". The "Parameters" field is empty. The "Run mode" dropdown is set to "Hidden". "OK" and "Cancel" buttons are at the bottom right.

Action: run third-party program

Use the *Insert Field* button on the right-hand side (it appears when you have clicked inside the text area) or right-click the text area and choose *Insert* to add a text macro (see *Action Parameters* further in this topic for details) into the *Parameters* field.


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

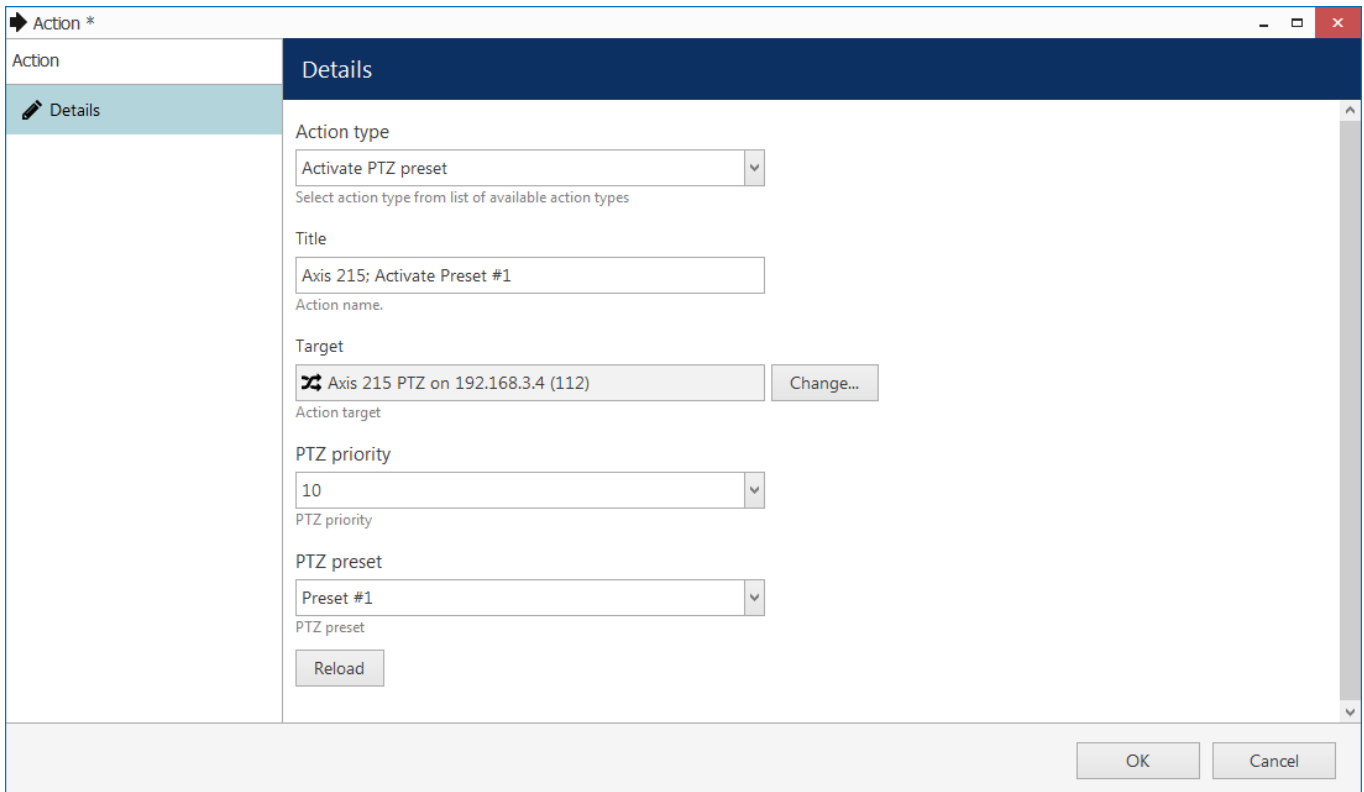
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- **PTZ priority:** priority to execute PTZ action with, 0 = lowest, 10 = highest
- **Preset:** pick one of the automatically loaded target device presets from the drop-down list

 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.



The screenshot shows a window titled 'Action *' with a 'Details' tab selected. The form contains the following fields and controls:


- Action type:** A dropdown menu set to 'Activate PTZ preset'. Below it is the text 'Select action type from list of available action types'.
- Title:** A text input field containing 'Axis 215; Activate Preset #1'. Below it is the text 'Action name.'
- Target:** A text input field containing 'Axis 215 PTZ on 192.168.3.4 (112)' with a 'Change...' button to its right. Below it is the text 'Action target'.
- PTZ priority:** A dropdown menu set to '10'. Below it is the text 'PTZ priority'.
- PTZ preset:** A dropdown menu set to 'Preset #1'. Below it is the text 'PTZ preset'.
- Reload:** A button located below the PTZ preset dropdown.
- OK and Cancel:** Buttons located at the bottom right of the dialog.

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. Also, make sure that digital output operation has been allowed via device Web interface.

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The screenshot shows a dialog box titled "Action *". On the left, there is a sidebar with "Action" and "Details" (selected). The main area is titled "Details" and contains the following fields:

- Action type:** A dropdown menu with "Control digital output" selected. Below it is the text "Select action type from list of available action types".
- Title:** A text input field containing ">Canon DO > ON". Below it is the text "Action name".
- Target:** A field containing "🔌 Canon VB-S800D on 192.168.3.40 (123)" and a "Change..." button. Below it is the text "Action target".
- Digital output:** A dropdown menu with "Digital Output 1" selected. Below it is the text "Digital output".
- Digital output mode:** A dropdown menu with "Activate" selected. Below it is the text "Digital output mode".
- A "Reload" button is located below the "Digital output mode" field.

At the bottom right of the dialog are "OK" and "Cancel" buttons.

Action: control relay output

Highlight On Map

If your target item appears on 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 it has been placed.

The screenshot shows a dialog box titled "Action Hall Panorama - Highlight on map". On the left, there is a sidebar with "Action" and "Details" (selected). The main area is titled "Details" and contains the following fields:

- Action type:** A dropdown menu with "Highlight on map or all maps where corresponding Acti..." selected. Below it is the text "Select action type from list of available action types".
- Title:** A text input field containing "Hall Panorama - Highlight on map". Below it is the text "Action name".
- Target:** A field containing "🔌 Hall Panorama (104)" and a "Change..." button. Below it is the text "Action target".
- Highlight on:** A field containing "All maps" and a "Change..." button. Below it is the text "Map or all maps".

At the bottom right of the dialog are "OK" and "Cancel" buttons.

Action: highlight target device on a map

The following objects are supported for this action as targets:

- **Channels** (channel markers will be highlighted)

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- **User buttons** (user button markers will be highlighted)

Pop Up On Screen

You can set up individual channels, maps and layouts to appear on a specific video wall display as a result of some triggered event, e.g. motion detected in certain regions. If you wish an object to pop up in all connected Ganz CORTROL Client applications without using video walls, use the built-in (default) event of the *Pop up on screen* type.



Additional setup is required from the Ganz CORTROL Client application side:

- shared layouts should be pre-created in order to be used in action creation
- target Ganz CORTROL Client window must be allowed to accept either channels/maps or layouts
- target Ganz CORTROL Client window must be set to be a part of the target video wall

What you need to specify in the action properties is:

- **Title:** user-defined action name, by default it is *[channel] Pop up and object on screen [Video wall name]*
- **Target:** a channel, map or a pre-created shared layout to appear on the screen
- **Video wall:** target video wall for the object to appear on
- **Video wall screen:** a specific display in the video wall layout for your object to appear on

The screenshot shows a configuration window titled "Action Pop-up city map*". The window has a "Details" tab selected. The configuration fields are as follows:

- Action type:** Pop-up an object on screen (-s)
- Title:** Pop-up city map
- Target:** City center (with a "Change..." button)
- Videowall:** Showroom (with a "Change..." button)
- Videowall screen:** 2

At the bottom right, there are "OK" and "Cancel" buttons.

An action that will pop up a map on the specified video wall display

You can create new maps right from the object selection dialog in case you have not created them yet.

Send HTTP Request

As a result of a triggered event, HTTP requests can be sent from Ganz CORTROL servers to any third-party devices that can accept such commands. The target devices can be third-party software, Web servers, cameras or any access control hardware.

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The screenshot shows a configuration window for an action on an Axis camera. The window title is "Action on Axis*" and it has a "Details" tab selected. The configuration fields are as follows:

- Action type:** A dropdown menu set to "Send HTTP request". Below it is the instruction: "Select action type from list of available action types".
- Title:** An empty text input field.
- Target:** A dropdown menu set to "Server" with a "Change..." button to its right. Below it is the instruction: "Target server. If none is selected, the action will be visible to all servers."
- Host:** A text input field containing "192.168.3.4". Below it is the instruction: "Host name or IP address".
- Port:** A text input field containing "80". Below it is the instruction: "Port number".
- Username:** A text input field containing "root". Below it is the instruction: "Username".
- Set password:** A checked checkbox.
- Password:** A text input field with masked characters (dots). Below it is the instruction: "Password to log into the server".
- Request:** A text area containing the URL: "/axis-cgi/ao/output.cgi?action=1%3A%2F". To the right of the text area is an "Insert field" button.

At the bottom right of the window are "OK" and "Cancel" buttons.

Send a HTTP request to open the digital output circuit on a camera

Things to be defined:

- **Title:** user-defined action name, by default it is *Send HTTP request [target host]*
- **Target server:** a server for the action to be available on; if no server is defined, the action will be available on all servers
- **Host:** an IP or hostname that will be accepting the HTTP request
- **Port:** port number to accept the request, port 80 is default
- **Username:** a username to log into the target host, if necessary
- **Password:** a password to log into the target host, if necessary; to change the password when editing the action, put a check mark on the *Set password* and define a password below
- **Request:** HTTP command string

Use the *Insert Field* button on the right-hand side (it appears when you have clicked inside the text area) or right-click the text area and choose *Insert* to add a text macro (see *Action Parameters* further in this topic for details) to be passed as a parameter in the HTTP request.

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SNMP Trap

This event allows Ganz CORTROL server to act as an SNMP agent and generate and send trap messages to a third-party SNMP manager.

The screenshot shows a configuration window for an SNMP trap action. The window title is "Action RS SNMP trap 192.168.15.4:162*". The "Details" tab is active. The configuration fields are as follows:

- Action type:** A dropdown menu set to "SNMP trap". Below it, a note says "Select action type from list of available action types".
- Title:** A text box containing "RS SNMP trap 192.168.15.4:162". Below it, a note says "Action name".
- Target:** A dropdown menu set to "RS (162)". To its right is a "Change..." button. Below it, a note says "Target server. If none is selected, the action will be visible to all servers."
- Host:** A text box containing "192.168.15.4". Below it, a note says "Host name or IP address".
- Port:** A text box containing "162". Below it, a note says "Port number".

At the bottom right of the window are "OK" and "Cancel" buttons.

SNMP trap type action

You need to define:

- **Title:** user-defined action name, by default it is *[server] SNMP trap [host] [port]*
- **Target:** Ganz CORTROL server for the action to exist on; if none selected, the action will be visible on all servers
- **Host:** target SMTP manager address
- **Port:** target port
- **Community:** SMTP community expected by the SMTP manager
- **Trap ID:** automatically generated ID
- **Message:** text message to be sent

Use the *Insert Field* button on the right-hand side (it appears when you have clicked inside the text area) or right-click the text area and choose *Insert* to add a text macro (see *Action Parameters* further in this topic for details) to be passed as a parameter.

Create Bookmark

Bookmarks can be created by the server, based on any available event. This can be done either completely automatically or complemented with user input - from the users who are connected via Ganz CORTROL Client application.

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Action Create new bookmark

Action

Details

Details

Action type

Create bookmark

Select action type from list of available action types

Title

Create new bookmark

Action name

Target

My Server

Change...

Server. If none is selected, the action will be visible on all servers.

Bookmark title

Achtung

Bookmark title

Description

Auxiliary power to the Holodeck matrices

Bookmark description

Request user description

Request user description

Request timeout

300

User request timeout (seconds)

Request specific user or user group

admin

Change...

Request only specific user or user group. None - send to all.

OK

Cancel

Action: add a bookmark with user confirmed description

Available settings:

- **Title:** custom (user-defined) action name
- **Target:** server to add the bookmark on (select *none* to make the action visible on all servers in the system)
- **Bookmark title:** name that will appear in the archive and also displayed to users, if user description is requested (use the *Insert field* button to add text macros)
- **Description:** extra information to be stored with the bookmark (use the *Insert field* button to add text macros)
- **Request user description:** enable this if you want to obtain bookmark description from Ganz CORTROL Client users - this comes useful when you require feedback from users and/or when the description may differ from time to time
 - **Request timeout:** defines for how long the description request will be displayed on the Ganz CORTROL Client side
 - **Request specific user or user group:** display confirmation dialog box only to the target user or user group; if not defined, the request will be sent to all connected users

Note that the target channel is not specified at this step: you will have an option to specify it using the *Target Channel* button when you create a rule with this particular *Add Bookmark* action. If the source event of such a rule is channel-specific (e.g., *Video Lost*, *Motion*), the channel will be set automatically. Please see the [Add Rules](#) section

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for examples.

Scenario 1: fully automated

In the *Add Bookmark* action settings, do not enable the *Request user description* option. Instead, specify desired bookmark title and description. Now, when you use this action in a rule, a bookmark will be added automatically with the pre-defined description.

Scenario 2: bookmark with user confirmation

Enable the *Request user description* option and specify the bookmark title: make sure to make the title comprehensible as it will be displayed to the Ganz CORTROL Client user when prompting for the comment. Optionally, you can specify the description - it will be used when no user input is specified (users ignored or missed the description dialog box).

After you have added the action, you can go ahead and use it in the E&A Configurator: there, upon adding a rule, you will have an option to specify the **target channel** for the bookmark to be added to.

Send Event to Client

This event allows to send a push notification to all or specific Ganz CORTROL Client applications. This may be just a pop-up message, or an event in the channel notification area with a sound, or all of these combined.

Available settings:

- **Title:** user-defined (custom) action name that will appear in the E&A Configurator
- **Message:** notification body text (use the *Insert field* button to add text macros)
- **Display event in alerts:** mark this if you want a message to be appended to the Ganz CORTROL Client log in the *Alerts* section
- **Display a warning message box:** mark this if you want a **dialog box to pop up** on the Ganz CORTROL Client side (to be closed by the user)
- **Display event in notification panel:** the message will be shown in the **notification panel** of the live view of a specific channel (you will have to set the channel when creating the rule)
- **Display event in mobile application:** the message will be sent as a push notification to all **Ganz CORTROL Mobile clients** that have the target server configured
- **Play audio notification:** play a sound on the Ganz CORTROL Client side; sounds themselves are defined in each Ganz CORTROL Client application
 - **Audio notification:** sound notification number, from 1 to 10 (here, you just specify the number, actual sound is defined per client and may not coincide in different application instances)
- **Send event to specific user or user group:** show the notification only to a specific user or user group

External Service

For external services that have their own events (e.g., third party integrations via HTTP API), it is possible to trigger these as actions from Ganz CORTROL servers. You need to specify:

- **Title:** user-defined action title
- **External service:** external service (connected to the Ganz CORTROL system via HTTP API) to accept the data
- **Target action:** choose one from the list of available items (availability is ensured on the external service side)

Export Snapshot

A snapshot from the main or secondary stream of any channel can be saved as a result of an action. The file can be saved either locally (on the target server) or to a remote server (FTP).

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The screenshot shows a window titled "Action Export snapshot*" with a "Details" tab. The configuration is as follows:

- Action type:** Export snapshot
- Title:** Export snapshot
- Target:** Main server
- Stream:** Main stream
- Export to local file:** Selected (radio button)
- Local path:** C:\MyDirectory\{EVENT_TIMESTAMP}_snap.jpg
- Export to FTP directory:** Unselected (radio button)

Export snapshot to the local server

The following settings are to be defined here:

- **Title:** user-defined action name
- **Target:** the server to execute this action on
- **Stream:** main stream or substream of the target channel (the channel is to be defined at the action rule creation step)
- **Export to local file:** the snapshot will be saved to the target server chosen above using the specified path
 - **Local path:** full path and filename, e.g., C:\MyDirectory\{EVENT_SOURCE_TITLE}_{EVENT_TIMESTAMP}.jpg
- **Export to FTP directory:** the snapshot will be saved onto a different machine that is not a part of the system
 - **FTP path:** full path and filename
 - **Host:** target machine's IP address or domain name
 - **Port:** port to be used for FTP connection
 - **Username:** user account name to connect to the remote server
 - **Set password:** specify a password, if required to log into the remote server

You can include text macros in the filename, for example, insert timestamps and event source title automatically to create files with different names every time the action is executed.

Start Playing an Audio File

It is possible to send an audio file to the connected device in case it has a built-in or a connected speaker: Ganz CORTROL server can use a .wav file to send audio to the remote camera or video server.

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The screenshot shows a configuration window titled "Action Reception: start playing alarm*". The window is divided into two main sections: "Action" and "Details". The "Details" section is active and contains the following fields:

- Action type:** A dropdown menu set to "Start playing an audio file". Below it is the text "Select action type from list of available action types".
- Title:** A text box containing "Reception: start playing alarm". Below it is the text "Action name".
- Target:** A dropdown menu set to "Reception". To its right is a "Change..." button. Below it is the text "Channel. If none is selected, the action will be visible on all channels."
- File path:** A text box containing "C:\sounds\alarm.wav". Below it is the text "Audio file path".
- Duration:** A text box containing "0". Below it is the text "Duration in seconds (0 - play all)".
- Repeat count:** A text box containing "3". Below it is the text "Repeat count (0 - infinite)".

At the bottom right of the window, there are two buttons: "OK" and "Cancel".

Send a pre-defined audio recording to the camera

You need to specify:

- **Title:** user-defined action name
- **Target:** the channel for the sound to be sent to (if none selected, the action will be available for all channels)
- **File path:** full path to the local *.wav file that should be used for audio output
- **Duration:** the amount of time for the audio to be played (set zero to play the whole file)
- **Repeat count:** the number of times for the audio file to be repeated (set zero for the file to played non-stop)

If you need the audio to be played continuously until another event stops it, set the *Repeat count* parameter to zero and use the *Stop playing an audio file* action to terminate the playback.

Stop Playing an Audio File

This action is used as a complement for the *Start playing an audio file* action: it stops the audio transmission in case you need to force stop it earlier than specified in the *Start playing an audio file* action, e.g., if the starting action lets the audio file to be played infinitely.

The following settings are available here:

- **Title:** user-defined action name
- **Target:** target channel (leave *none* for the action to be available for any channel)

Door Action

If you have a third-party access control module connected, you can change the door state from here.

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The screenshot shows a configuration window titled "Action KERI Test Door action*". The window is divided into two main sections: "Action" on the left and "Details" on the right. The "Details" section contains the following fields and controls:

- Field Caption:** A dropdown menu with "Door action" selected.
- Multiline description**: An empty text area.
- Title:** A text box containing "KERI Test Door action".
- Event name:** A text box, currently empty.
- Target:** A dropdown menu with "KERI Test" selected, accompanied by a "Change..." button.
- Code:** A dropdown menu with "Unlock" selected.

At the bottom right of the window, there are "OK" and "Cancel" buttons.

Action example: unlock a door using access control integration

As a **target**, specify the [access control configuration](#) added earlier. The specific door for this action will be chosen at the rule creation step, allowing you to use this action for many different doors within the same Keri configuration.

Available **action codes** here are: lock, unlock, and temporarily unlock. Once the action is triggered, the corresponding command will be sent to the access control software.

OPC Client Action

This action type uses an existing [OPC client configuration](#) to send write commands to an OPC server, thus changing values of its nodes.

The screenshot shows a configuration window titled "Action OPC #1 Disable ACL File Monitoring*". The window is divided into two main sections: "Action" on the left and "Details" on the right. The "Details" section contains the following fields and controls:

- Event type:** A dropdown menu with "OPC Client action" selected.
- Title:** A text box containing "OPC #1 Disable ACL File Monitoring".
- Target:** A dropdown menu with "OPC #1" selected, accompanied by a "Change..." button.
- Action:** A section containing:
 - Variable:** A text box containing "#MonitorACLFile", accompanied by a "Change..." button.
 - Value type:** A dropdown menu with "Bool" selected.
 - Value:** A text box containing "0".

At the bottom right of the window, there are "OK" and "Cancel" buttons.

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Action example: change OPC node value to false

You need to define:

- **Title:** user-defined action name
- **Target:** [OPC client configuration](#) (connection to an OPC server)
- **Action:** operation to be performed with the data node value
 - **Variable:** target OPC server data node (choose one from the list), must be of compatible type and have a write permission
 - **Value type:** one of the standard data types, auto detected
 - **Value:** new value to be assigned to the variable, must match the variable value type

Action Parameters

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_UTCIME} - event UTC time
- {EVENT_UTCATE} - 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
- {ADDITION_INFORMATION} - extra information for *Disk Excluding*, *Fallback activating* and *Recording Error* events

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

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.

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51 OPC Client

Ganz CORTROL servers can act as OPC clients and connect to different OPC servers, which communicate with various industrial hardware devices. In this way, Ganz CORTROL servers support thousands of devices from different manufactures without even knowing what those devices and their models are at any particular moment of time: OPC servers take care of that. Once the connection is established, Ganz CORTROL can receive data from OPC servers, compare it to pre-defined values and trigger events based on specific changes in these values; also, Ganz CORTROL can send commands to change the data on the OPC servers, which, in their turn, pass the commands to the hardware devices.


This topic describes how OPC client functionality is configured and used within Ganz CORTROL.

 OPC servers provided by different vendors can be used with Ganz CORTROL. The present document does not cover OPC server installation and configuration, as well as related Windows settings necessary for valid OPC client-server connection setup: these are vendor-specific and can be found in the OPC server documentation.

OPC Functionality

Any Ganz CORTROL server can connect to a third-party OPC server, thus acting as an **OPC client**. These connections are then used within the [E&A Configurator](#) to create events and actions based on OPC data (variables): events compare the variable contents to pre-defined values in a specified way; actions change the variable contents to a pre-defined value.

Communication with OPC servers can be maintained in one of two ways: **synchronous** and **asynchronous**. When in synchronous mode, Ganz CORTROL server polls an OPC server and receives updates with the latest data set as a result; this happens every few seconds. In the asynchronous mode, Ganz CORTROL server "subscribes" to the updates and then waits for a list of updated items from the OPC server.

 Asynchronous reading and writing is a preferred method and is typically more efficient. However, some modifications of Windows security policies and DCOM permissions might be required for this connection mode to work, and these are vendor- and use-case specific. Please follow the guidelines in your OPC server documentation carefully to ensure the operability: there are no settings on the Ganz CORTROL side that could affect your OPC server connection availability.

Before getting to OPC setup on the Ganz CORTROL side, install and configure your OPC server with hardware devices, and adjust Windows settings (if required). Configuration instructions below imply that you have done so and a remote OPC server with some data is reachable and operational.

Create and Manage OPC Client

OPC client configurations are located in this section as main OPC integration purpose is event and action scenarios (rules). In your Ganz CORTROL Console, switch to the *Events & Actions* section and choose OPC in the list on the left.

To add a new configuration, click the + *New OPC client configuration* button in the upper panel.

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OPC client config OPC #1*

OPC client config

Details

Details

Title
OPC #1
OPC client title

Server
Global Server
Change...
Server

Host
192.168.1.120
Host name or IP address

Prog Id
{F8582CF2-88FB-11D0-B850-00C0F0104305}
Prog Id

Username
tester
Username to access the access OPC server

Enter password
Password to access the access OPC server

OK Cancel

New OPC client configuration

The table below details the available settings.

Setting	Description	Default value
Title	User-defined configuration name	[none]
Server	Ganz CORTROL server that will act as OPC client	[none]
Host	OPC server host name or IP address	[none]
Prog ID	OPC server program ID, vendor-specific	[none]
Username	User name from the Windows account to connect to the OPC server computer	[none]
Password	Password from the Windows account to connect to the OPC server computer	[none]

Fill in the settings and click *OK* to close the configuration dialog box and save.



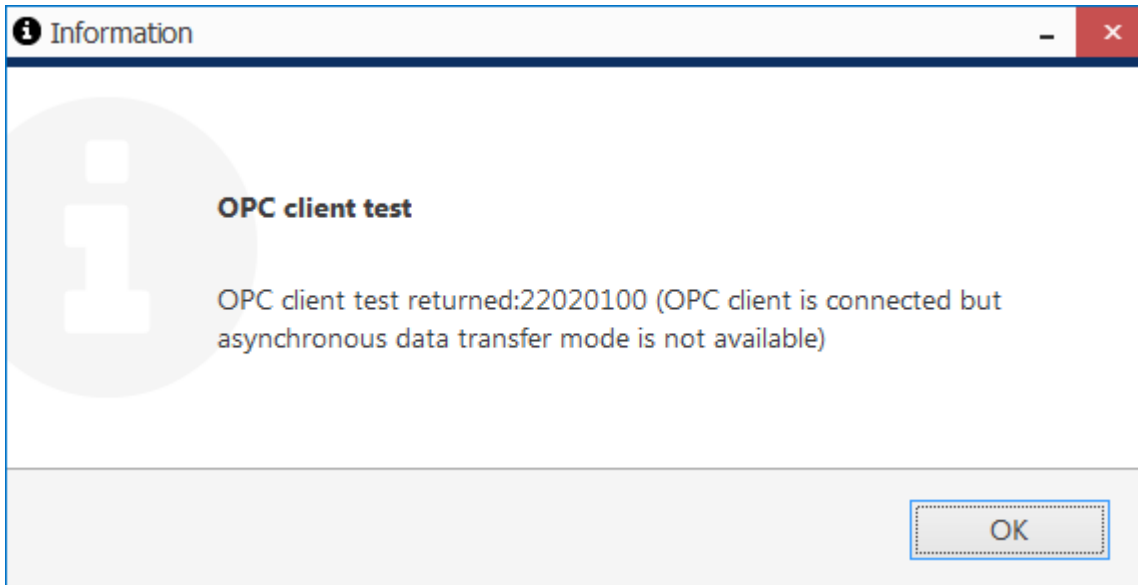
The **Prog ID** parameter is mandatory and it is supplied by your OPC server. Typically, it is available in the OPC server settings; check your OPC server configuration manual for the exact information.

The newly created profile will appear in the list. Select it and hit the *Test* button on the panel above to **validate** the configuration; the following **responses** may be received:

- *OPC client test passed*: asynchronous connection with the configured OPC server has been successfully established
- *Code 22020100 (asynchronous data mode not available)*: connection established successfully but only synchronous mode is available
- *Code -2147023174 (RPC server is unavailable)*: connection unavailable due to invalid OPC client settings (e.g., incorrect target host name or IP), Windows settings or connectivity issues
- *Code -2147024809 (parameter is incorrect)*: incorrect OPC client configuration (e.g., no username was entered while expected)
- *Code -2147024891 (access denied)*: OPC server denied connection due to lack of permissions (e.g., invalid user name and/or password was used)
- *Code -2147221164 (class not registered) or code -2147221005 (invalid class string)*: typically, incorrect program ID format or program ID itself

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The first two responses indicate successful connection with synchronous or asynchronous read/write mode; other codes mean no connection has been established so it is necessary to review the settings and troubleshoot. Other codes may appear as well in case of miscellaneous Windows configuration and/or connectivity issues.



OPC client test detected that synchronous connection mode is available

Use the *Disable/Enable* button on the upper panel to disable the OPC client temporarily and then enable it again: this is useful when OPC server is offline so Ganz CORTROL audit log is not flooded with errors. You can create any number of OPC clients and any number of events and actions based on them.

Events and Actions

Once you have created an OPC server connection, Ganz CORTROL server can retrieve the list of existing data items (nodes) from the OPC server and work with it. All the available nodes, their attributes and their values are listed when you create an event or an action of the *OPC Client* type.

Events allow you to create conditions - react to specific changes in the node values by applying conditional operators: for example, if variable type is boolean, you can check if it is equal to 1 (=true) or 0 (=false). For other variable types, there are other (corresponding) conditional operators.


The screenshot shows a dialog box titled 'OPC nodes' containing a table of OPC nodes. The table has the following columns: NAME, OPC DATA TYPE, DATA TYPE, UNITS, ACCESS RIGHTS, QUALITY, DESCRIPTION, and VALUE. The 'test' node is highlighted in green.


NAME	OPC DATA TYPE	DATA TYPE	UNITS	ACCESS RIGHTS	QUALITY	DESCRIPTION	VALUE
#MonitorACLFile	Boolean	Bool		Readable, Writeable	Good		True
@ClientCount	32-bit Unsigned Int...	Int		Readable	Good		4
@Clients	Array of Strings	None		Readable	Good		
Configured Aliases							
test	32-bit Integer	Int		Readable, Writeable	Good		0
Simulation Items							
Bucket Brigade							
Random							

OPC nodes retrieved from an OPC server

Actions triggered from Ganz CORTROL servers send write commands to the OPC server, in this way replacing the node value with the pre-defined one. Value of the nodes, which have non-compatible types or do not have the write permission, cannot be changed.

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 OPC **data types** are converted to standard data types for further use in Ganz CORTROL: for example, both 16-bit and 32-bit integers are converted to the *Int* (integer) type. Some of the data types are not converted (e.g., currency, date&time, miscellaneous arrays) so it is not possible to use them as variables in the events and actions.

 Pay attention to the **access rights** of the nodes: for events, it is enough to have the read permission; for actions, the node must be writable, otherwise you will not be able to select it as the target action variable.

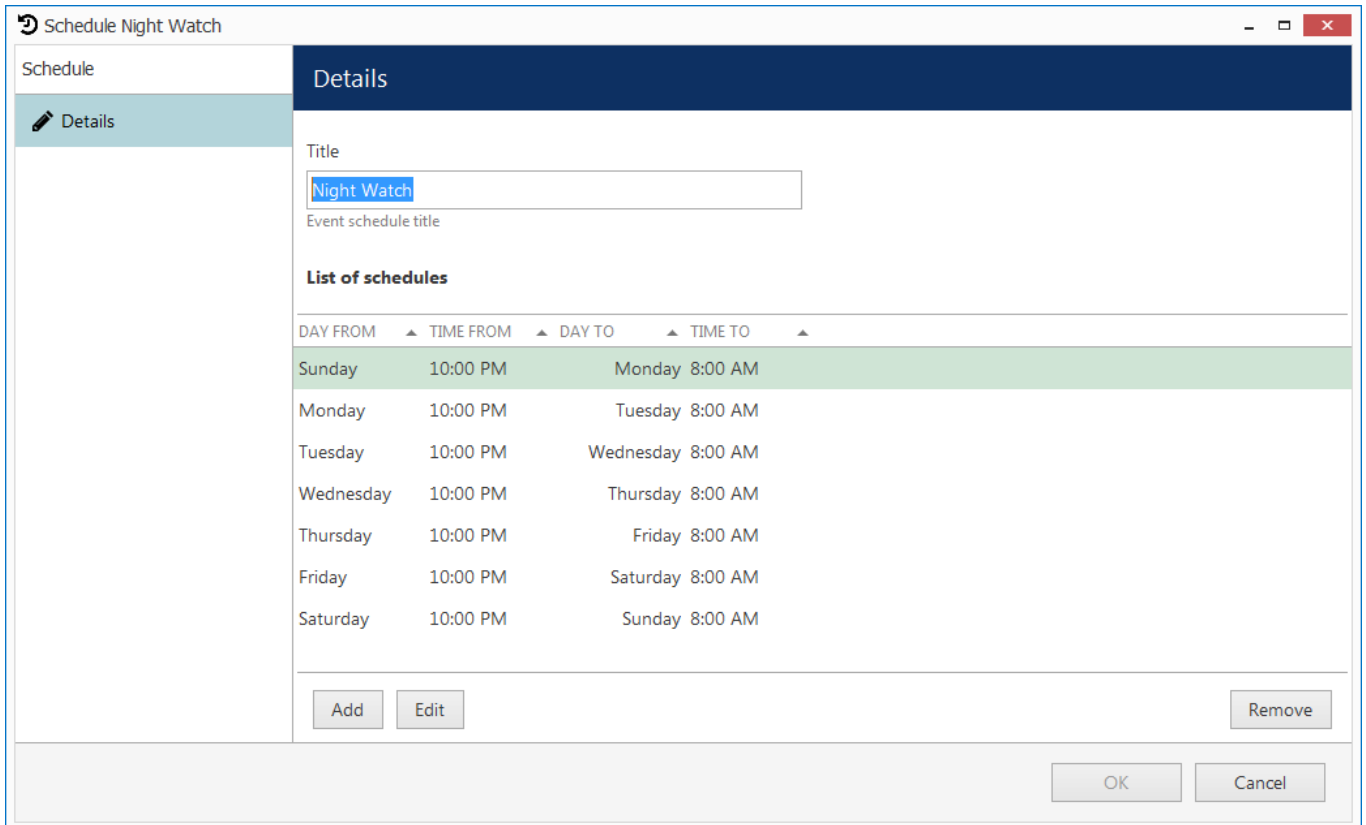
For detailed information on the creation of [events](#) and [actions](#), please refer to the corresponding topics of this document.

52 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 Ganz CORTROL 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.



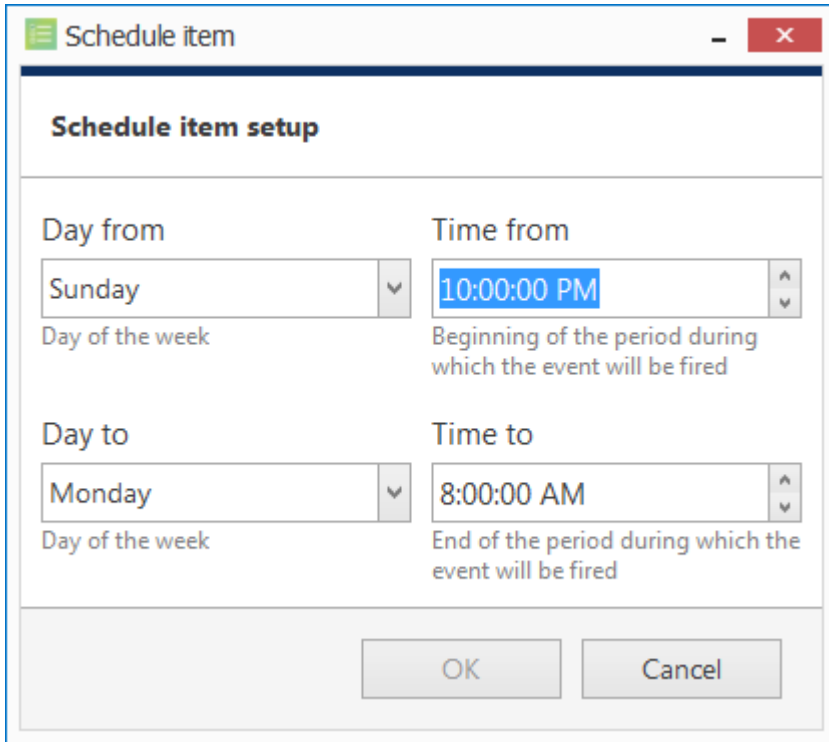
Add new schedule

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.

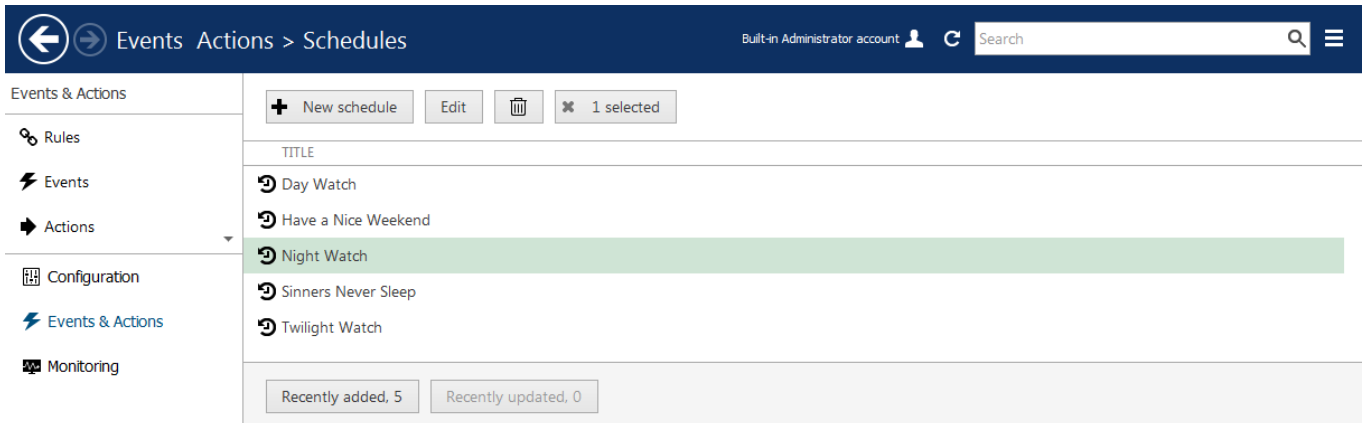
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New schedule item

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

53 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 Ganz CORTROL 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

The screenshot shows a dialog box titled "Condition Gate Opened*" with a dark blue header. On the left, there is a sidebar with "Condition" and "Details" (selected). The main content area is titled "Details" and contains the following fields: "Title" with the value "Gate Opened" and a label "EventCondition name" below it; "Server" with a dropdown menu showing "Global Server (101)" and a "Change..." button; "Default state" with a dropdown menu showing "Off" and a label "The initial value that EventCondition takes at sever startup" below it. At the bottom right, there are "OK" and "Cancel" buttons.

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*

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video analytics; if he moves on, he will enter area B and the security guard will see him on *Camera B*.

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:

RULE

Camera A >> VCA: motion in Zone1

Camera C >> Activate PTZ preset > Area B

Camera B Offline

Camera B >> Video lost

Camera B Offline >> Set condition

Camera B >> Video restored

Camera B Offline >> Unset condition

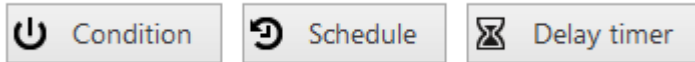
Camera B >> Video restored

Camera C >> Activate PTZ preset > Area C

Sample rules

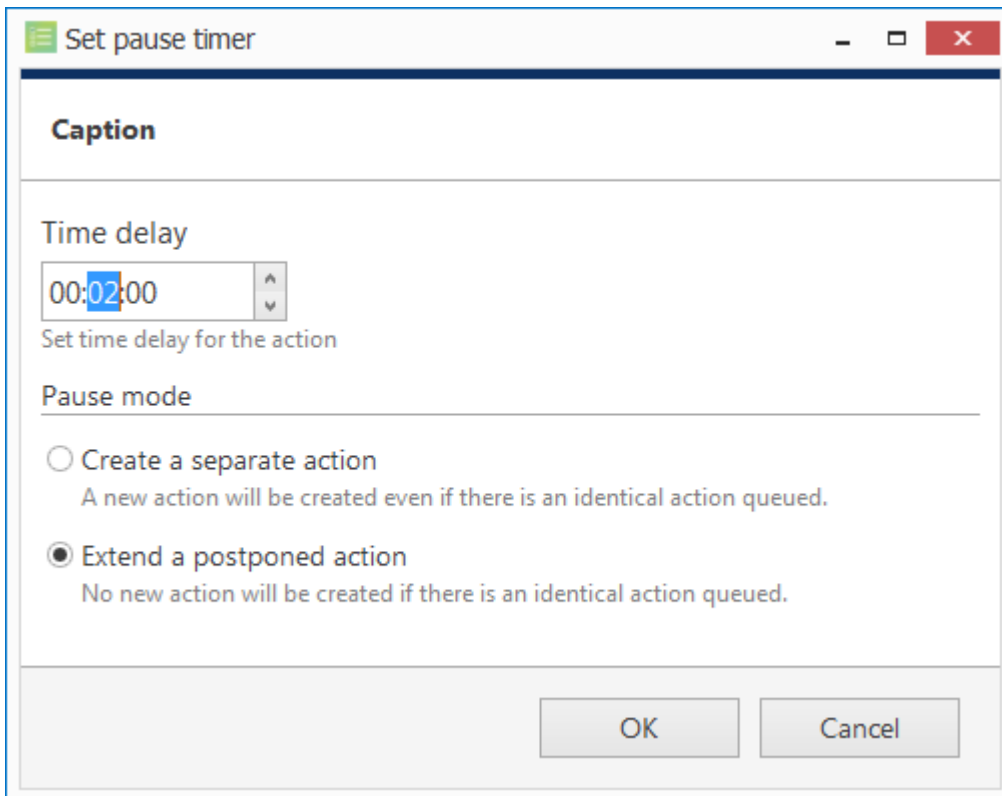
54 Delay Timers

Delay timers are supplementary entities for controlling action launching. Unlike conditions and schedules, timers cannot be pre-created in the main Ganz CORTROL 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 the time manually using the keyboard numpad.

Next, choose the 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:** new events of the same type will restart the timer, postponing the resulting action for the specified amount of time

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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 an action allows you to postpone the action execution repeatedly if more events of the same type arrive within the chosen time 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 postpone the email sending for 5 minutes every time a new recording error appears; when, at a certain point, more than 5 minutes have passed without new incoming events, a single log entry will be eventually created. The **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.

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55 Software Counters and Indicators

Apart from actions, events and rules, the *Event & Action* section of Ganz CORTROL Console contains additional resources, which can be used for building even more versatile automated scenarios.

Software Counters

Software **counters** are entities that can contain a certain integer value, which can be altered based on some occurred event. These can be used in Ganz CORTROL, for example, to count events that do not originate from VCA and therefore cannot be accounted for using VCA counters.

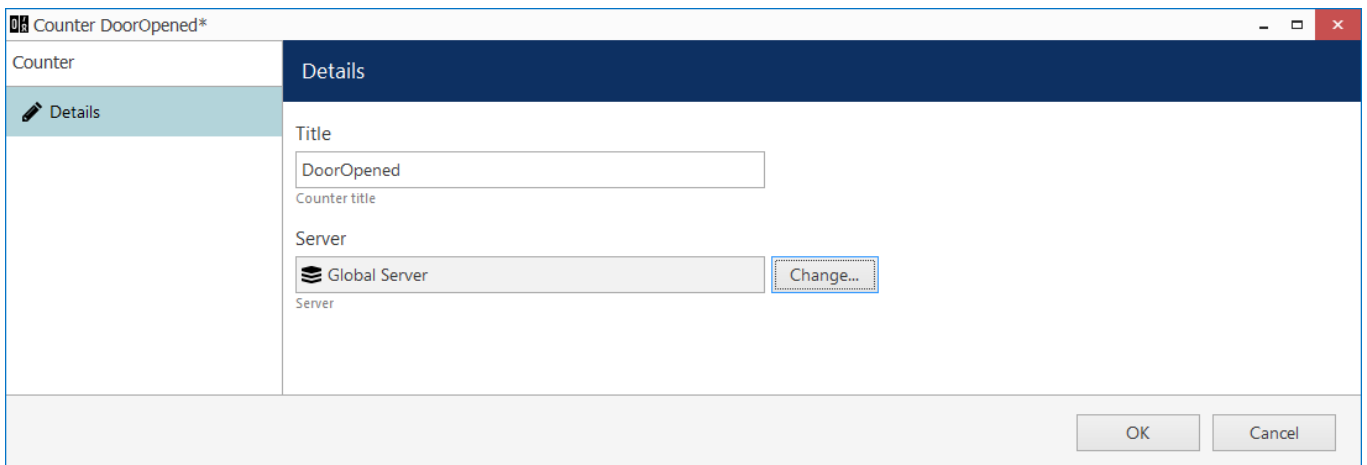
Counters can be created in the [Events & Actions](#) section of Ganz CORTROL Console, under the *Counters* subsection. Each one has a title and a server where it resides (as the *Event & Action* scenarios are defined per server; use global events to transfer events from one server to another).

Reports can be then built based on the software counter values, along with VCA counters: automatic reports are available for configuration in Ganz CORTROL Console, and manual reports can be created in the Ganz CORTROL Client application. Both modes also permit report export in PDF format.

Add Counters

To add, remove and manage the software counters in the Ganz CORTROL Console, go to the *Events & Actions* section of Ganz CORTROL Console and choose *Conditions* from the menu on the left. Click the + *New counter* button on the upper panel to bring up the counter configuration dialog box. Here you have to:

- enter an comprehensible **title** for the counter - e.g., what is going to be counted
- choose the **target server** - counters, as non-global entities, are local and operate within a single server



A counter creation example

When you have finished, click *OK* to save and close the dialog box; the newly created counter will appear in the item list and will become available in the *Event & Action Configurator*. You can create any number of software counters.

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

How to Change Counter Values

Counter values can be changed based on any event in the [Event & Action](#) scenarios, when building rules. Counter value changes can be a separate action or an additional one to serve for counting the number of times when the rule was triggered.

There are three **built-in actions** that are available by default for any created counter:

- **Increment:** increase counter value by one
- **Decrement:** decrease counter value by one
- **Reset:** set the counter state back to zero

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The **initial value** of any counter is **zero**.

Usage Example

Consider a use case where it is required to count how many times during the day the office door was unlocked; the door is opened by an access control module, which is also wired to the digital input of a camera so that the system is notified when the door is unlocked. Each night at 12:00AM the counter should be reset in order to restart the enumeration.

Required E&A items in this case are:

- Event 1: *Digital Input*, source: corridor camera
- Event 2: *Scheduled event*, type: scheduled, every day 12:00AM
- Counters: *HowManyTimesDoorWasOpened*
- Action 1: *Increment*, target: counter *HowManyTimesDoorWasOpened*
- Action 2: *Reset*, target: counter *HowManyTimesDoorWasOpened*

Events 1&2 are not default and should be made, and the counter has to be created as well. Actions associated with the counter will be added automatically so there is no need to create these.

The screenshot shows a 'Rules' configuration page. At the top, there is a search bar with a magnifying glass icon. Below the search bar, the word 'RULE' is centered. There are two rule entries listed:

- A grey rule entry: 'Reception >> Reception door opened' with a sub-action 'DoorOpened >> Increment'.
- A green rule entry: 'Global Server >> Scheduled every midnight' with a sub-action 'DoorOpened >> Reset'.

Rules that control the counter state

The final set of rules for this scenario looks as follows:

- Rule 1: Event 1 triggers Action 1
- Rule 2: Event 2 triggers Action 2

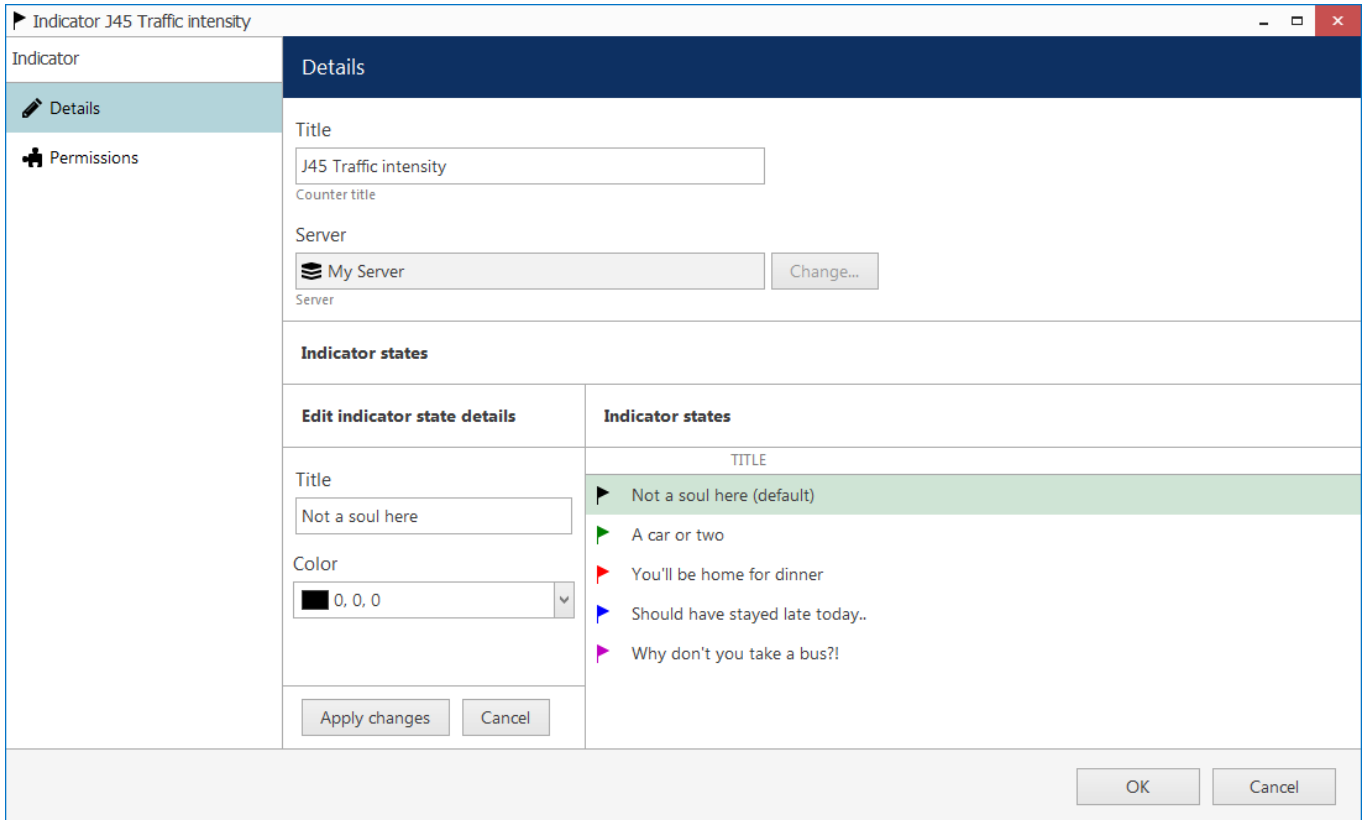
Thus, every time the door is opened, this event is accounted for by the software counter; the counter is reset based on schedule every midnight. Using the counter data, it is possible to build a report and see, for example, most and least popular times, the average number per week etc.

Indicators

Indicators are objects with several **states**. These states (conditions) can be changed based on any events in the *Event&Action Configurator*. Indicators can be placed on **maps**, thus helping you build an interactive dashboard.

You can create indicators in the *Events & Actions* section of Ganz CORTROL Console, under *Indicators*, then place them onto maps - either regular or geo maps. The indicator state and colour can be then changed based on E&A events: once you create an indicator, it is automatically added to the *Actions* section of the E&A Configurator and actions for changing its state are created.

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Example of an indicator

Create and Manage Indicators

To add, remove and manage the indicators in the Ganz CORTROL Console, go to the *Events & Actions* section of Ganz CORTROL Console and choose *Indicators* from the menu on the left. Click the + *New indicator* button on the upper panel to bring up the counter configuration dialog box.

The following settings are available here:

- **Title:** user-defined name
- **Server:** Ganz CORTROL server, to which the indicator belongs (related actions will be only available in the target server E&A Configurator)
- **States:** 5 different indicator conditions with custom names and colours

When adjusting the state details, do not forget to hit the *Apply* button for the changes to take effect.

Change Indicator State

The indicator state can be changed based on any event in the [Event & Action](#) scenarios, when creating rules. The indicator state can be changed as a separate action, or it can be combined with any other one, thus helping visualize the state of other items.

There are five **built-in actions** for every indicator that allow to set the indicator to any of its states. If you only need two or three, simply do not trigger other conditions. The actions will appear automatically after you create the indicator.

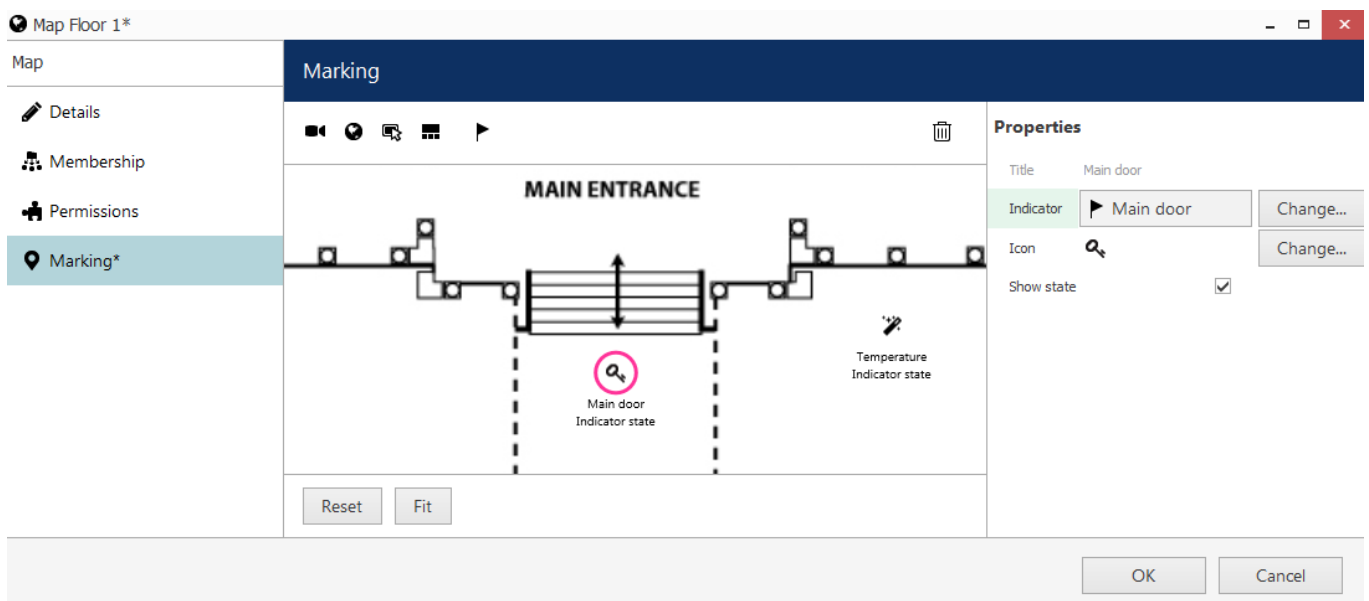
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▶ J45 Traffic intensity

- Change Indicator State ▶ Why don't you take a bus?!
- Change Indicator State ▶ Not a soul here
- Change Indicator State ▶ A car or two
- Change Indicator State ▶ You'll be home for dinner
- Change Indicator State ▶ Should have stayed late today..

Maps

When placed onto maps, indicators change their colour and display the comment according to their state. Both regular and geographic maps have an **indicator marker** available on the panel above the map, alongside with other markers. Thus, you can build interactive panels that will reflect the condition of the system.



A map with two indicators on it

Usage examples

Depending on your needs, indicators can help in many different scenarios.

Use case #1: external sensors are sending temperature data. Based on the value, the indicator state is set to very low/low/normal/high/very high.

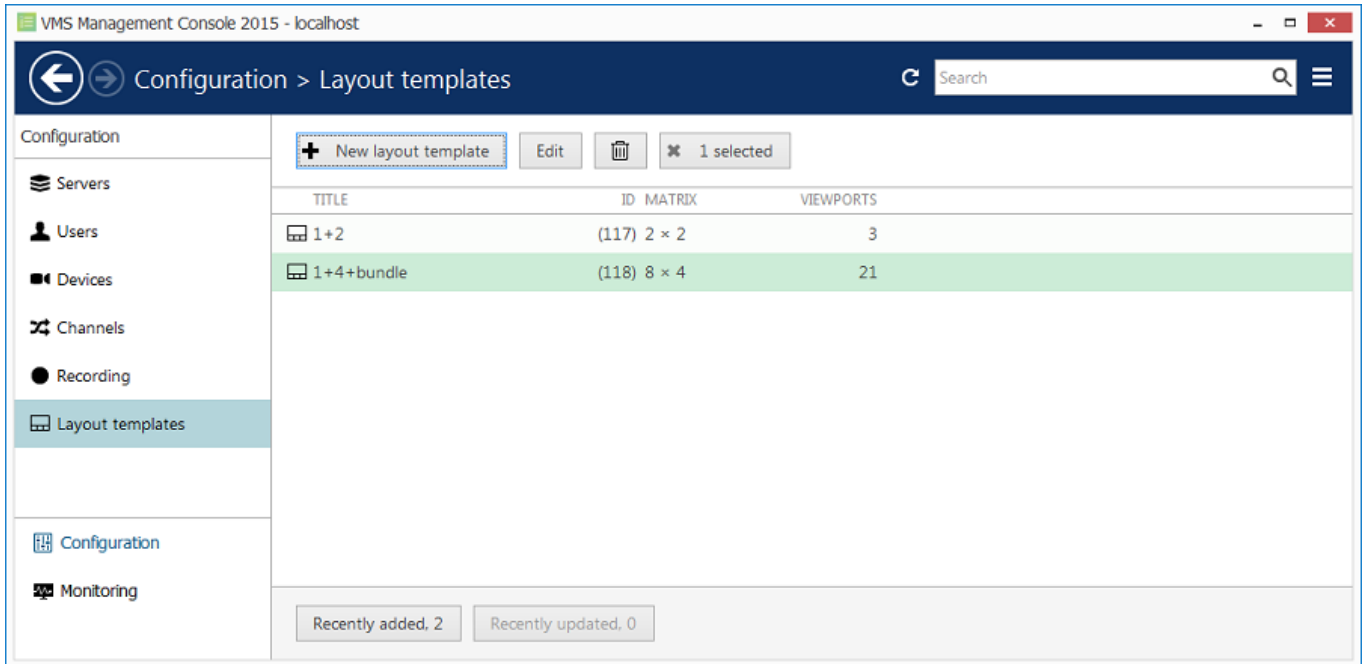
Use case #2: [conditions](#) are used throughout the system for door status (open/locked). The indicator is used to visualize the condition state (in this case, only 2 out of 5 states are involved).

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56 Layout Templates

Custom layouts templates can be created and then used in any Ganz CORTROL Client applications connected to the target server.

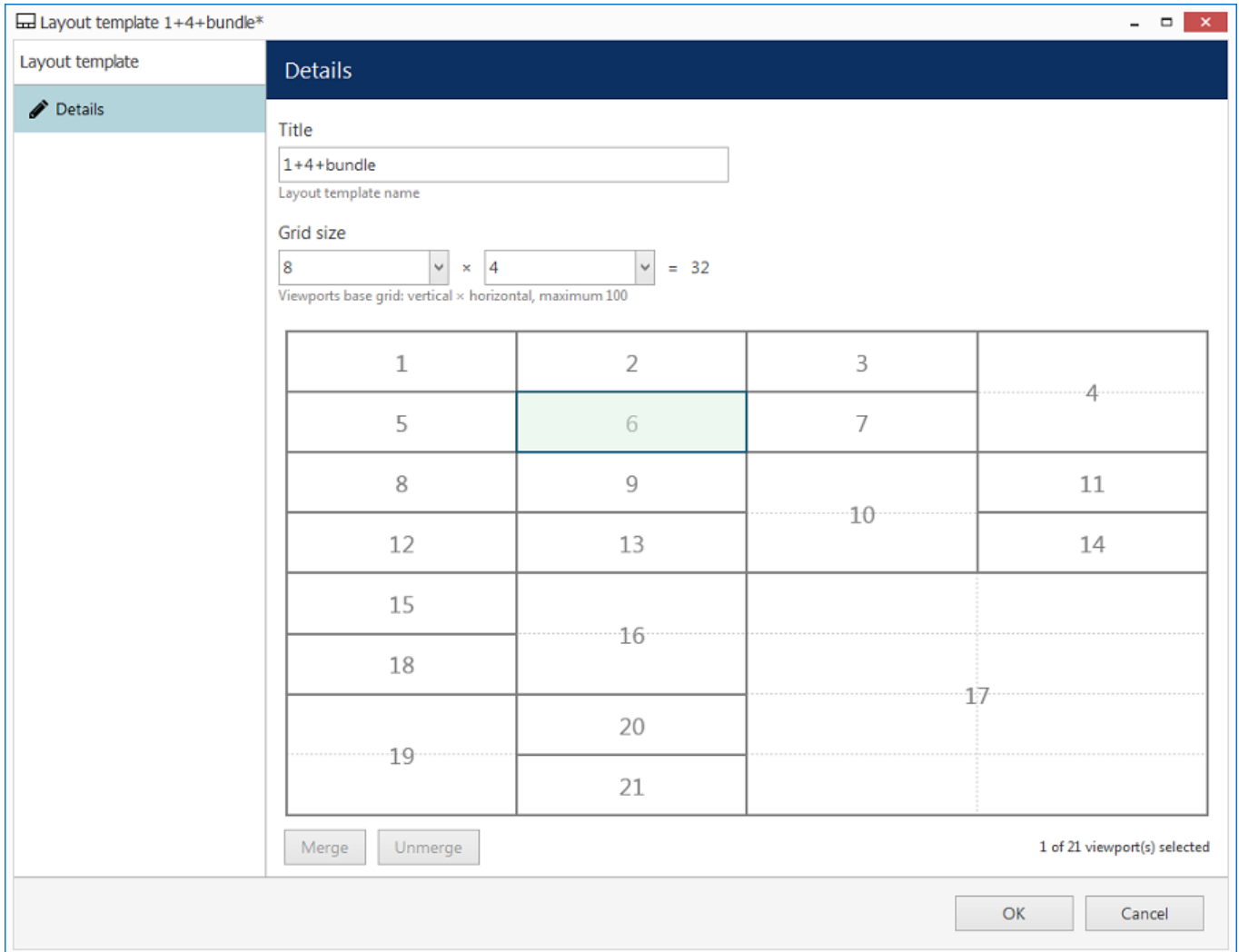
To access layout templates via Ganz CORTROL Console, go to the *Configuration* section in the bottom left panel and select the *Layout templates* component in the menu on the left. Use the *Search* field in the upper-right-hand corner to filter existing items; press *Refresh* button to reload the item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



Layout templates

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

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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 Ganz CORTROL Client applications after synchronisation.


Use the *Edit* button to alter any template at any time: modifications will immediately be synchronised with Ganz CORTROL Client 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 Ganz CORTROL Client. Drag and drop the new layout template to the Ganz CORTROL Client live view display to load the updated template version.

57 Shared Layouts

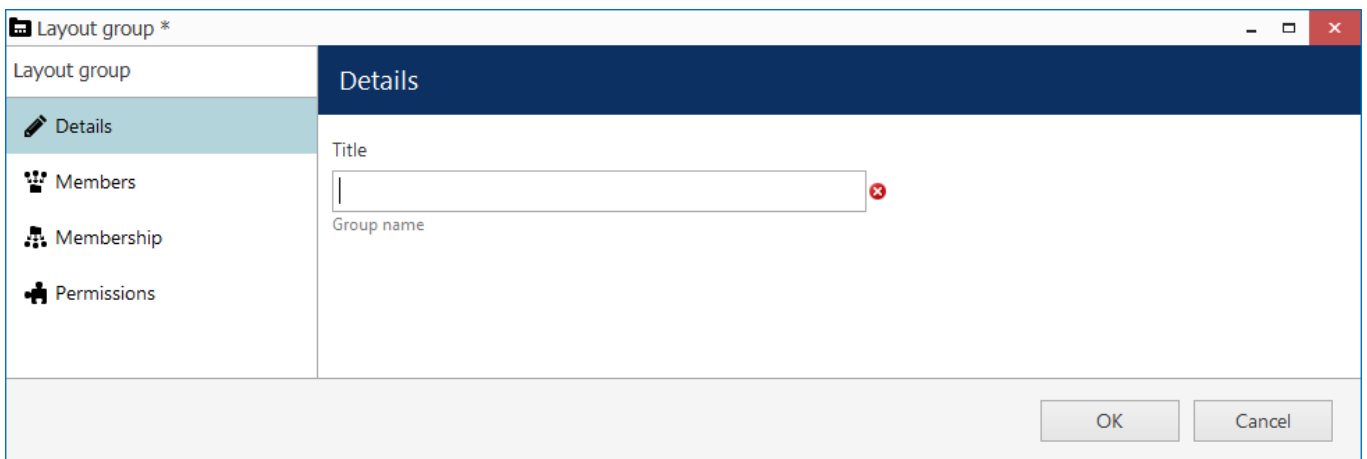
Layout is a pre-configured viewport configuration with channels assigned for live view and archive playback.

Layouts are created in the Ganz CORTROL Client application by filling a layout template with video channels. There are two main groups of layouts: **local**, which are created and stored locally on the same computer where the Ganz CORTROL Client is installed, and **shared**, server-side layouts, which are kept on each server and are available for all users that are connected to the same server from other client computers. If the license or server policy limits the number of max client connections to 1, layouts can still be shared between non-concurrent client connections from different machines.

Layouts themselves are created via Ganz CORTROL Client application but layout sharing should be pre-enabled from Ganz CORTROL Console. In order to make server users able to share and access this resource, **shared layout groups** should be pre-created on the server side. Groups are used for handling user permissions and also for logical arrangement of the shared layouts.

 If **no layout groups** exist in the server configuration, layout sharing will be disabled for the target server from the Ganz CORTROL Client side.

To create a new group in Ganz CORTROL Console, open the *Configuration* section and choose *Layouts* from the menu on the left. Click the + *New layout group* button in the upper panel to bring up the shared layout group creation dialog box.




New shared layout group

In the *Details* tab, enter a user-defined name for the target layout group. This name will appear in all connected Ganz CORTROL Client applications when creating a shared layout.

Use the *Members* and *Membership* tabs to create nested groups; *Members* tab will also allow you to manage group contents after some layouts have already been created.

In order to **allow access** to specific shared layout groups for selected users, go to the *Permissions* tab:

- *Administer* permission grants access to the layout group in Ganz CORTROL Console and allows the user to share layouts via this group (put new layouts into target group)
- *View* permission allows users to see the contents of the group, i.e., shared layouts, when they connect to the target server from the Ganz CORTROL Client application, and use these layouts in Ganz CORTROL Client

 All users with the *View* permission will be able to see and use the shared layouts from the target layout group. However, visibility of the contents of each layout will depend on each user's channel and map permissions.

Shared layouts can be used in *Layout Sequences* in Ganz CORTROL Client independently or combined with regular layouts as well.

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58 Maps

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

Two types of maps are available at this point: **maps** from user-defined pictures and **geo maps**.

Create Map

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

Map Section 31*

Map

- Details
- Marking
- Membership
- Permissions

Details

Title
Section 31

User name

Organisation
Section 31 (115)


Organisation to which the user belongs

Map image

Select image of the desired plan in PNG, JPG, TIF, BMP or static GIF format. Please note, the system will reproduce the provided image without scaling or effects. The best results will be with 16:9 images of approximately 1600x900 pixels.

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:

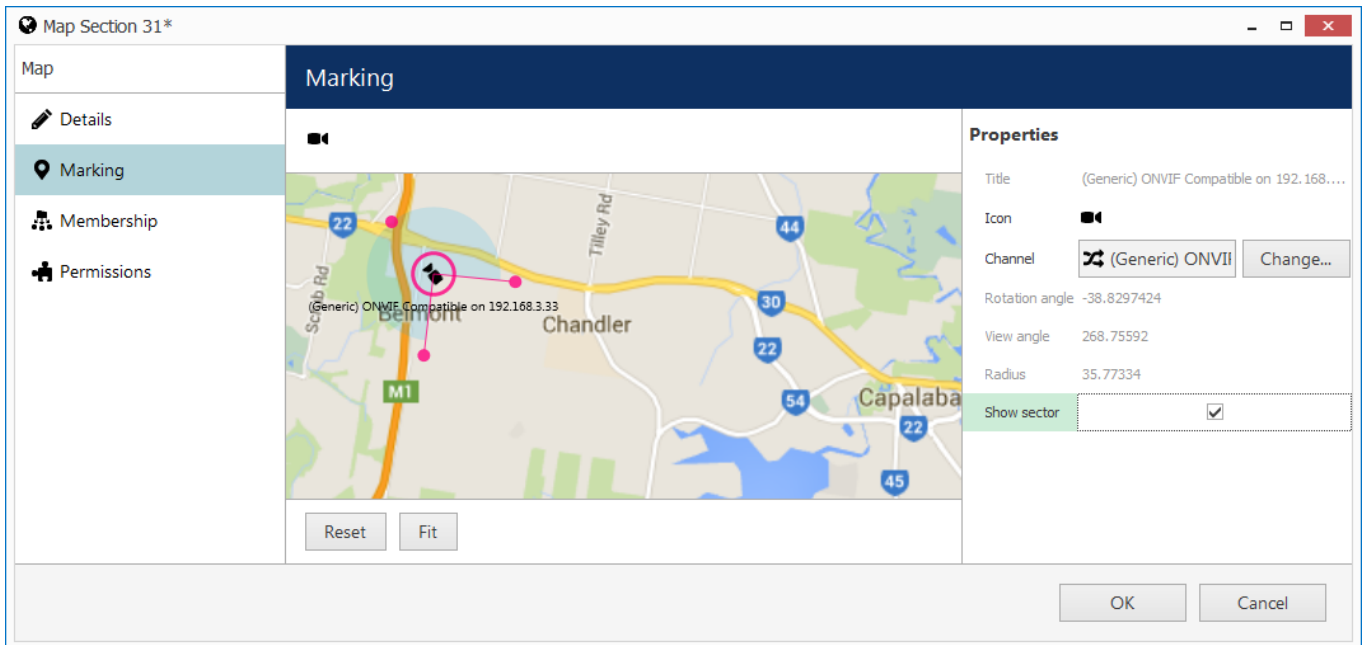
- picture resolution should be less than 8.25MP
- file size should be less than 5MB

Files not meeting these limitations will not be uploaded.

Place Camera Markings


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


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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* shows a 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 Ganz CORTROL Client. They will also have a **red mark** on them in the Ganz CORTROL Client application if the target channel is **offline** (if the *Video lost* event has been triggered): the channel's *Video loss* parameter is used as a timeout, which is 15s by default. 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

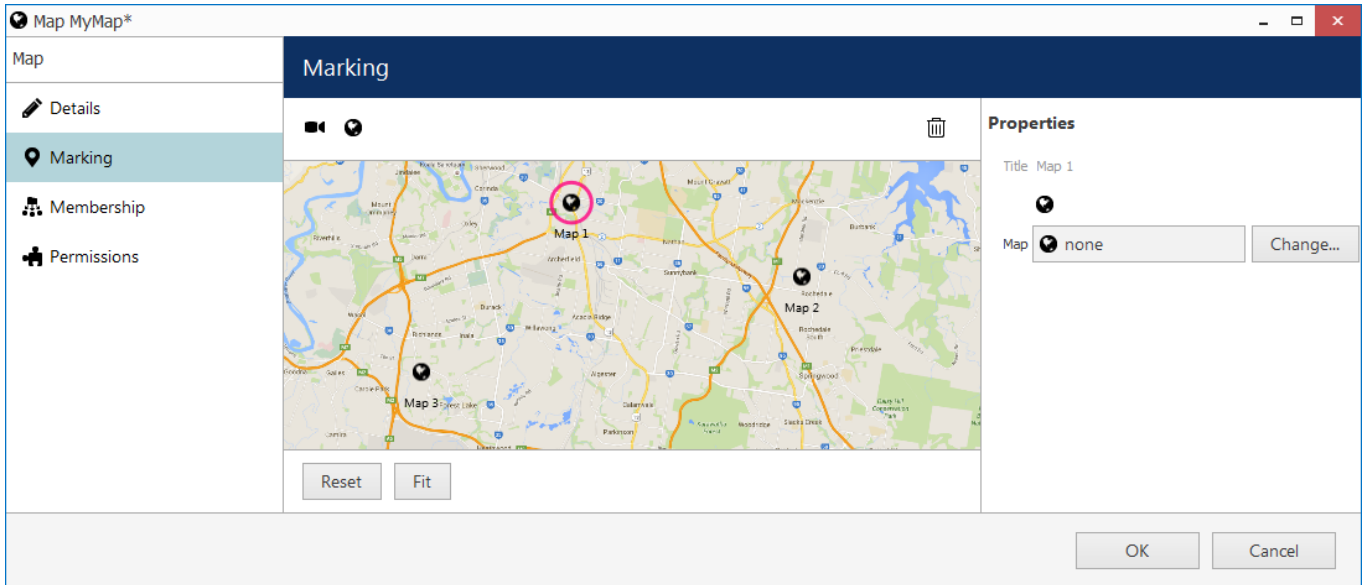
Other Markings

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 Ganz CORTROL Client. To place a map marker, drag the  map icon from the upper-left-hand corner and drop it onto the scene.

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.

In the same way you can also add **user buttons**  to your map and trigger assigned actions by double-clicking the buttons in Ganz CORTROL Client. Select your desired user button on the map and then use the properties section on the right to bind a user button to the marking.

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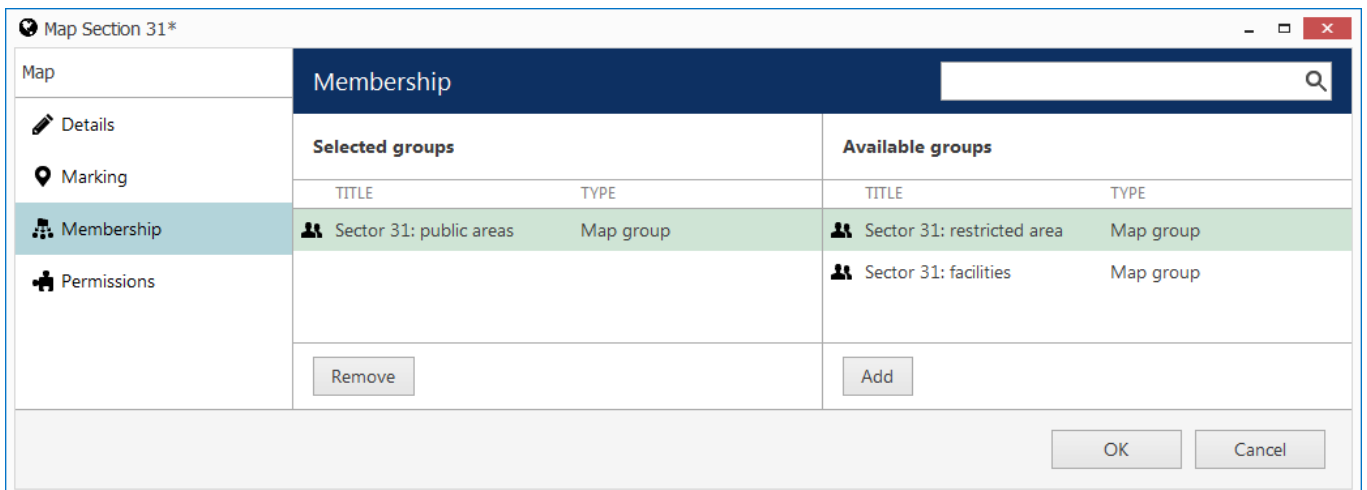
Map markers

Similarly to individual channels, it is possible to place **layout markers** for shared layouts to be displayed when double-clicked on the map in Ganz CORTROL Client. The target shared layout and the icon style can be defined in the properties section on the right.

Finally, **door markers** are intended to be bound to doors from the [access control](#) integration: door statuses are then displayed on the map in the Ganz CORTROL Client application. The target door and icon styles for different door stated is to be defined in the properties section on the right.

Membership and Permissions

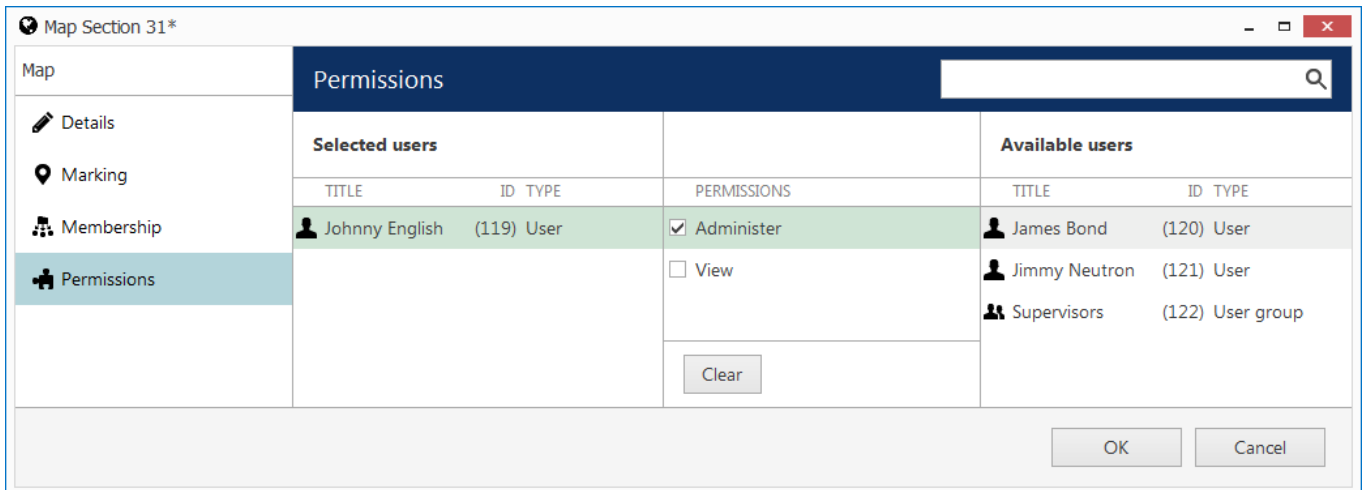
Just as other resources, maps can be grouped and assigned user permissions.



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.

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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 Ganz CORTROL Console, and *View* only allows user to load the map in Ganz CORTROL Client.

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 Geo Map

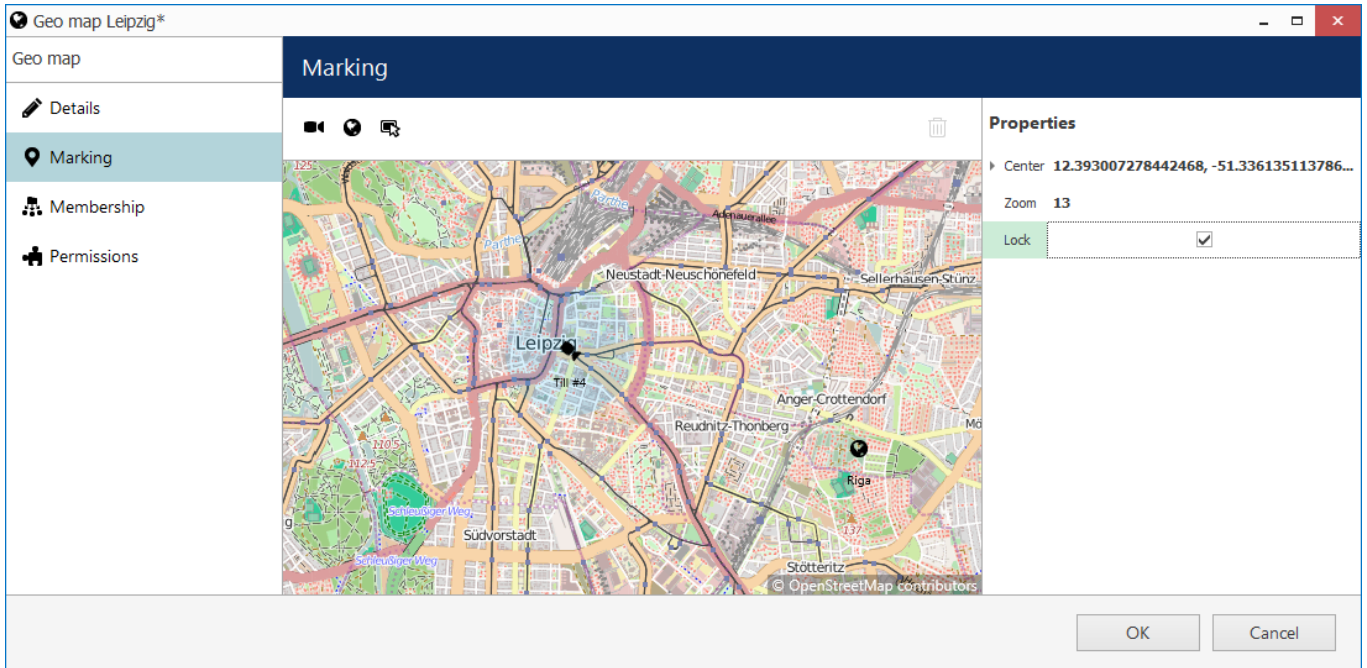
It is also possible to use a **world map** instead of user-defined pictures to put the markings on it. To create a new geo map, click the drop-down arrow near the + *New map* button and select *New geo map* to bring up the geo map creation dialog box.

 Geo map functionality requires that constant **Internet connection** is present in order the world map to be loaded from the remote server. Internet connection is required from Ganz CORTROL Client as well to load the map and present it to the end user.

Geo map creation is similar to the creation of a regular map, with the difference that you do not need to specify the image to be used: instead, the world map is loaded from the server provided by CBC AMERICAS, Corp.. You just need to find the right place on the map by zooming IN/OUT and moving the map:

- use your mouse wheel to zoom IN and OUT
- click and drag with your left mouse button to move the map around

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Markers on a geo map

Markers of all available kinds can be placed on the geo map in the same manner as with the regular map, and the rest of the tabs also provide the same functionality.

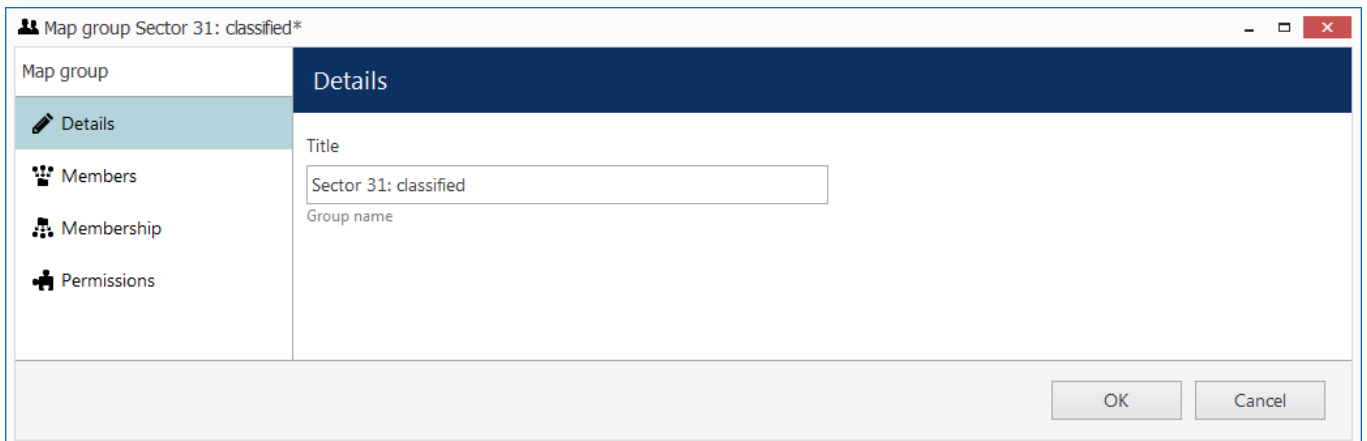


Use the *Lock* option in the right-hand-side panel to prevent users from moving or zooming the map IN/OUT in the Ganz CORTROL Client application.

Create Map Group

Map groups can be used for easier management in Ganz CORTROL Console. Note that map groups are not displayed in Ganz CORTROL Client; to group maps and geo maps in Ganz CORTROL Console, use [Visual Groups](#).

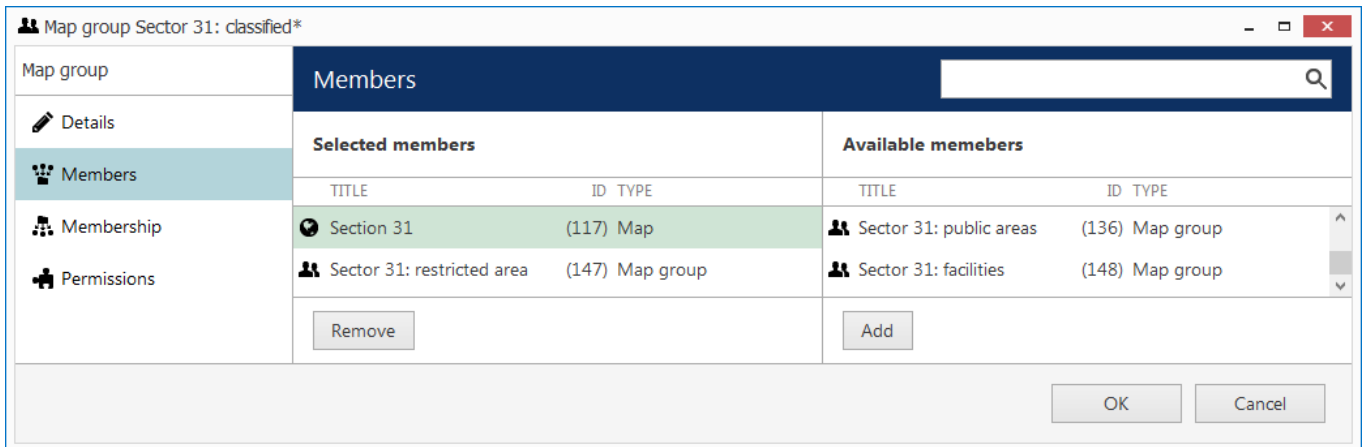
Click the drop-down arrow near the + *New map button* and select *New map group* to bring up the map configuration dialog box.



Map group details

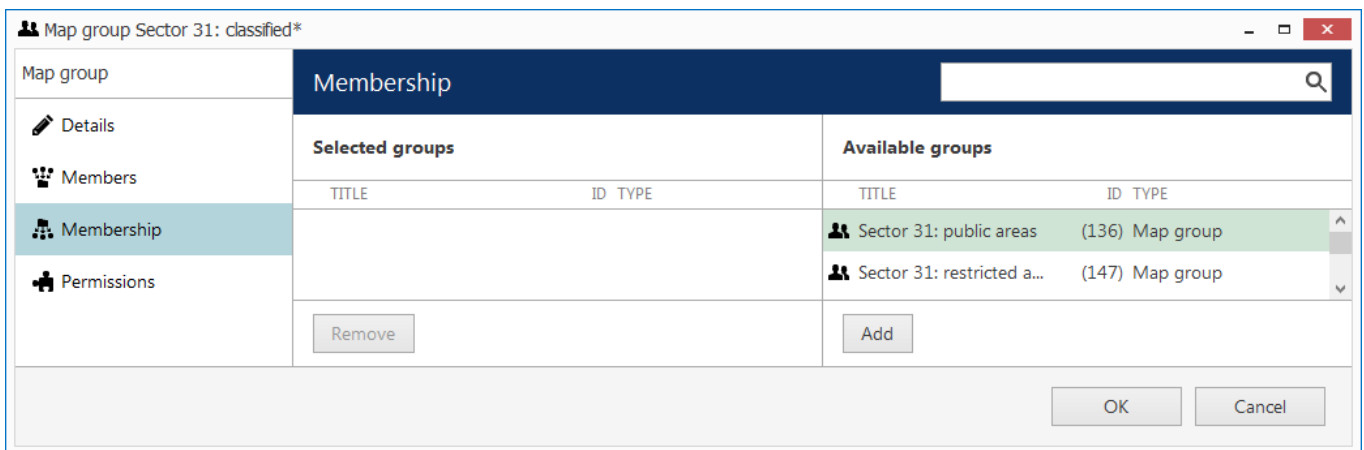
Enter group name on the *Details* tab and proceed with selecting maps for this group on the *Members* tab.

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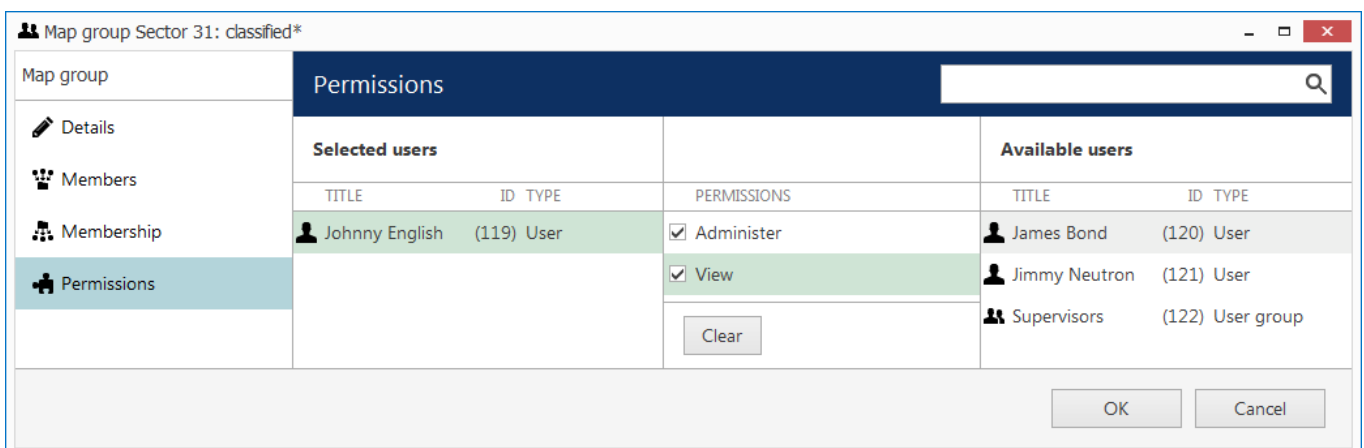
Choose members for the target map group

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 Ganz CORTROL Console, and *View* only allows user to load the maps in Ganz CORTROL Client.

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.

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59 User Buttons

User buttons are visual controls used in Ganz CORTROL Client and Ganz CORTROL Mobile for manual event triggering. Once you have created a user button, it will become available in the [Event & Action Configurator](#) and you will be able to **assign actions** to the *User button clicked* event.

After a user button has been created and associated with at least one action, you will be able to use it in the following ways:

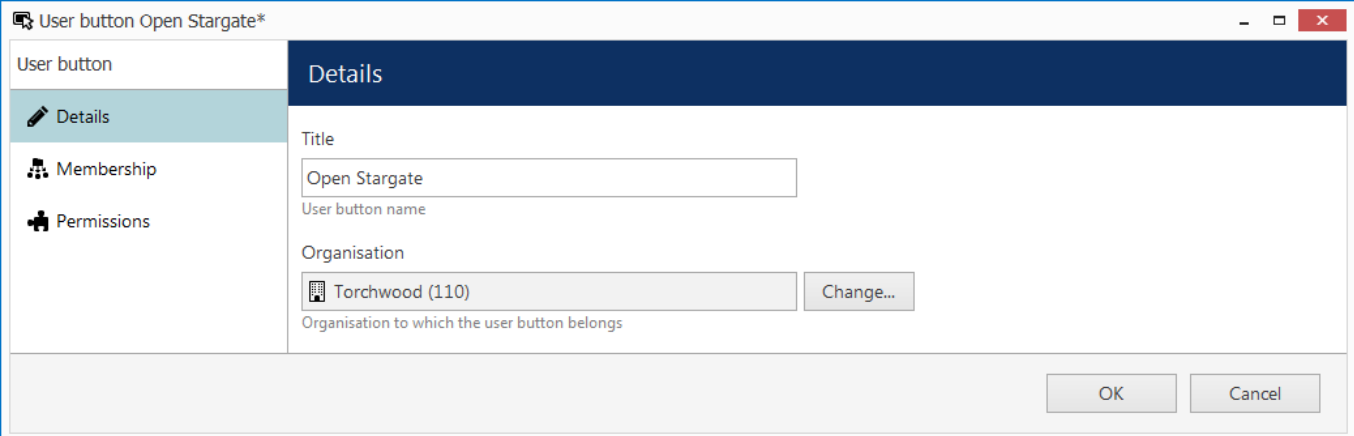
- bind the user button to a channel or channels so that it appears as a live video overlay control in the Ganz CORTROL Client application
- place the user button marker onto [maps](#)
- trigger it from the Ganz CORTROL Client application from the user button list, from any map or from the channel overlay controls
- [highlight it on a map](#) or all maps where the corresponding marker is present
- trigger it from the Ganz CORTROL Mobile application

To access user button management via Ganz CORTROL Console, select the *Configuration* section from the bottom left menu and then click *User buttons* in the menu on the left.

New User Button

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

On the *Details* tab, enter a name for the resource and choose organisation attachment.



Enter title for the user button

Switch to the *Membership* tab to choose groups for this user button to become a member of: select groups by double-clicking items in both columns or by using the *Add/Remove* buttons below. Apart from grouping, this tab allows you to bind user buttons to particular channels.



Starting from the software version 1.5.0, user buttons can be **bound to one or more channels** for their presentation in Ganz CORTROL Client. This means that once such a channel is put into a viewport, the related user button automatically appears with it. The same user button can be also manually put into other viewports and also removed from the bound channels in the live view without any limitations. Multiple user buttons per channel are allowed.

In order to set this up, open the target user button for editing, go to the *Membership* tab and add the desired channel(s) from the right-hand column (the same one that contains user button groups).

The *Permissions* tab allows you to choose which users and user groups will be privileged to have access to this resource. Select at least one permission to select the user/user group; deselect by unmarking manually or using the *Clear* button below.

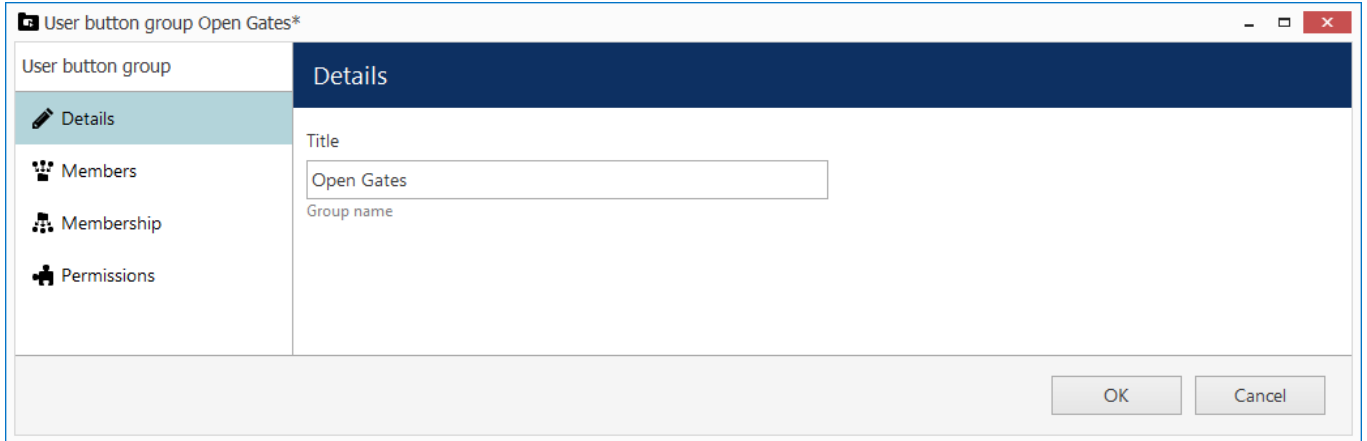
When you are finished, click *OK* to save and close the dialog box. The newly created user button will appear in the item list. Use the buttons on the upper panels to perform item-specific actions: remove, edit and quickly assign user button group; filters on the bottom panel will help you switch between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

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buttons/button groups only.

New User Button Group

For easier management, user buttons can be grouped together. Click the drop-down arrow next to the + *New user button* and select *New user button group* to bring up the configuration dialog box.



The screenshot shows a configuration dialog box titled "User button group Open Gates*". The dialog is divided into a sidebar and a main content area. The sidebar contains four tabs: "Details" (selected), "Members", "Membership", and "Permissions". The "Details" tab is active, showing a "Title" field with the text "Open Gates" and a "Group name" field. At the bottom right of the dialog, there are "OK" and "Cancel" buttons.

Enter the title for the user button group

Switch to the *Members* tab to choose resources for this group. Double-click items or use the *Add/Remove* buttons below to manipulate resources; use the *Search* field in the upper-right-hand corner to quickly find entries in the list.

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

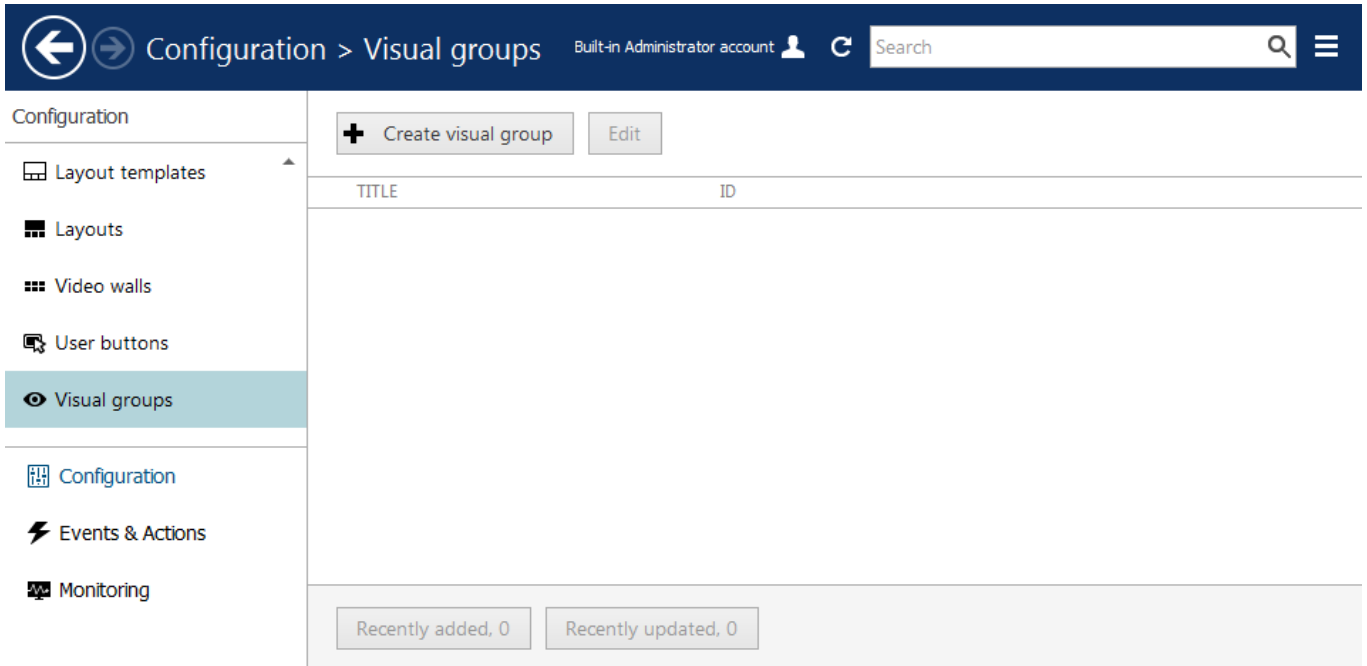
Permissions tab allows you to choose users and user groups privileged to have access to this resource. Select at least one permission to select the user/user group; deselect by unchecking manually or using the *Clear* button below to remove all permissions.

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

60 Visual Groups

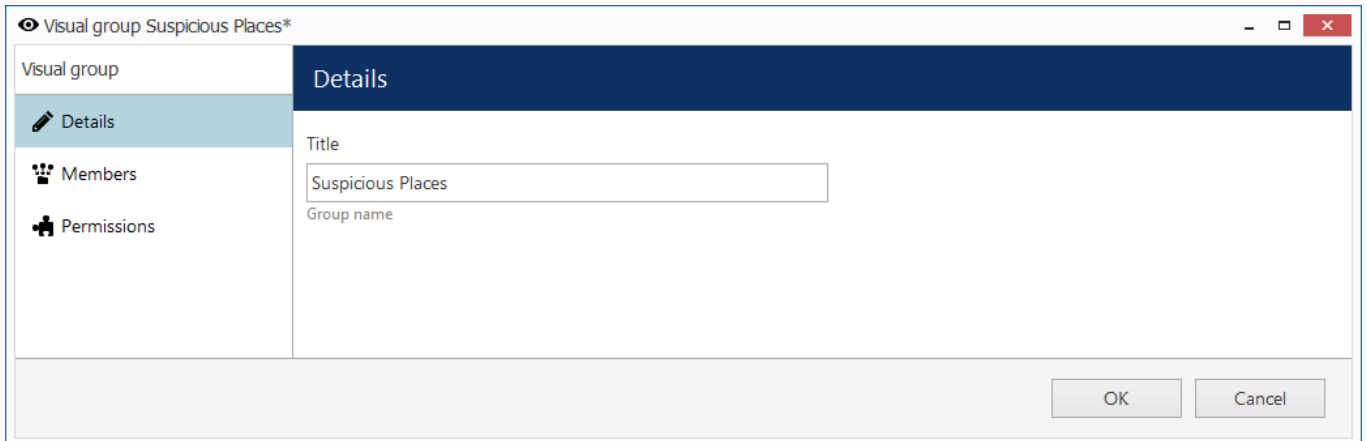
Device, channel and map groups are used solely for management and are only accessible in Ganz CORTROL Console.; in order to set up resource arrangement for Ganz CORTROL Client, **visual groups** are used. They allow custom grouping for channels and maps displayed in the connected Ganz CORTROL Client applications.

To access visual group management in Ganz CORTROL Console, go to the *Configuration* section in the bottom left panel and select the *Visual Groups* component in the menu on the left.



Configuration -> Visual groups

Click the + *Create visual group* button in the upper panel to bring up visual group creation dialog box.

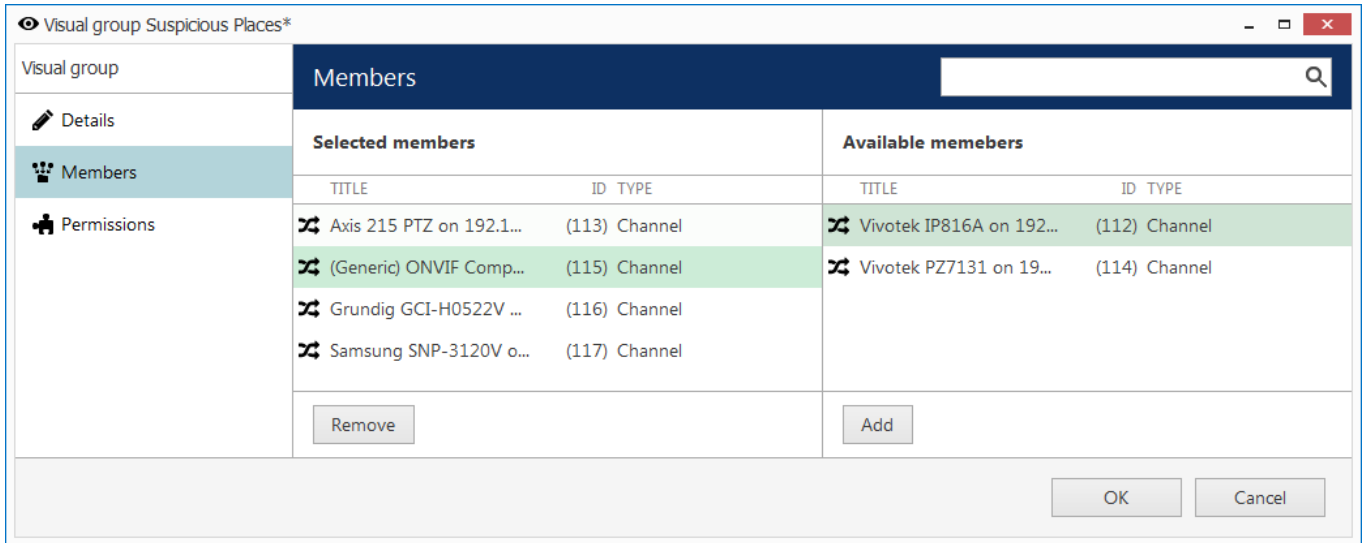


Enter title for the new visual group

In the *Details* tab, enter a user-defined name for the target visual group. This name will appear in connected Ganz CORTROL Client applications.

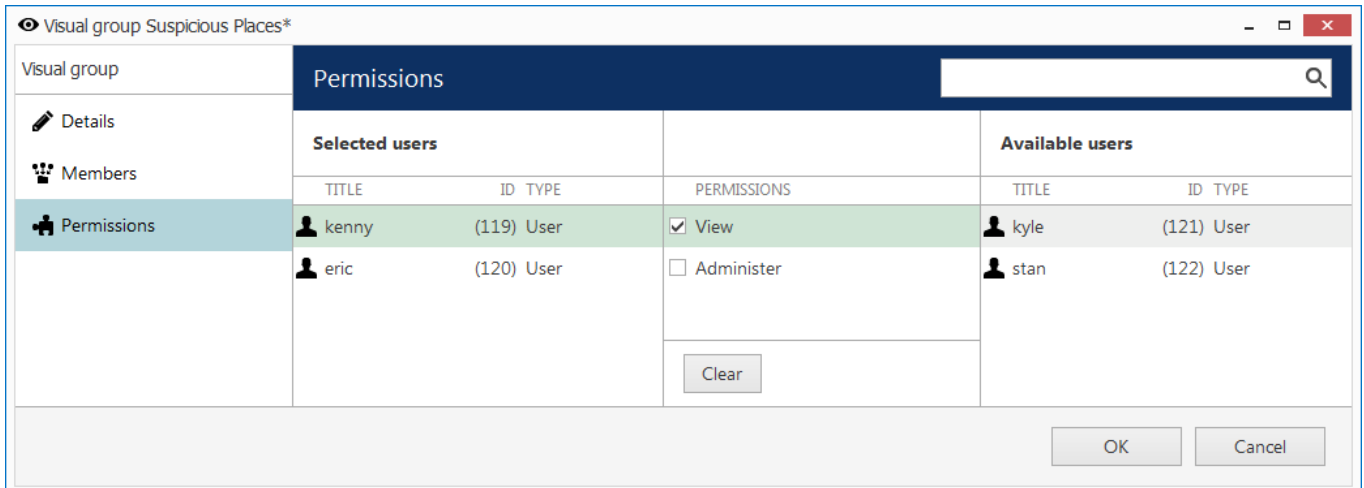
Switch to the *Members* tab to choose resources for this group.

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Choose channels to participate in this group

Double-click items or use the *Add/Remove* buttons below to manipulate resources; use the *Search* field in the upper-right-hand corner to quickly find entries in the list.




Add user permissions for the target visual group

Switch to the *Permissions* tab to allow user access to this visual group. There are two available permissions types:

- **View:** users have access to this resource in Ganz CORTROL Client
- **Administer:** user are permitted to edit this group via Ganz CORTROL Console


When you have finished, click *OK* to save and exit; the newly created visual group will appear in the item list.

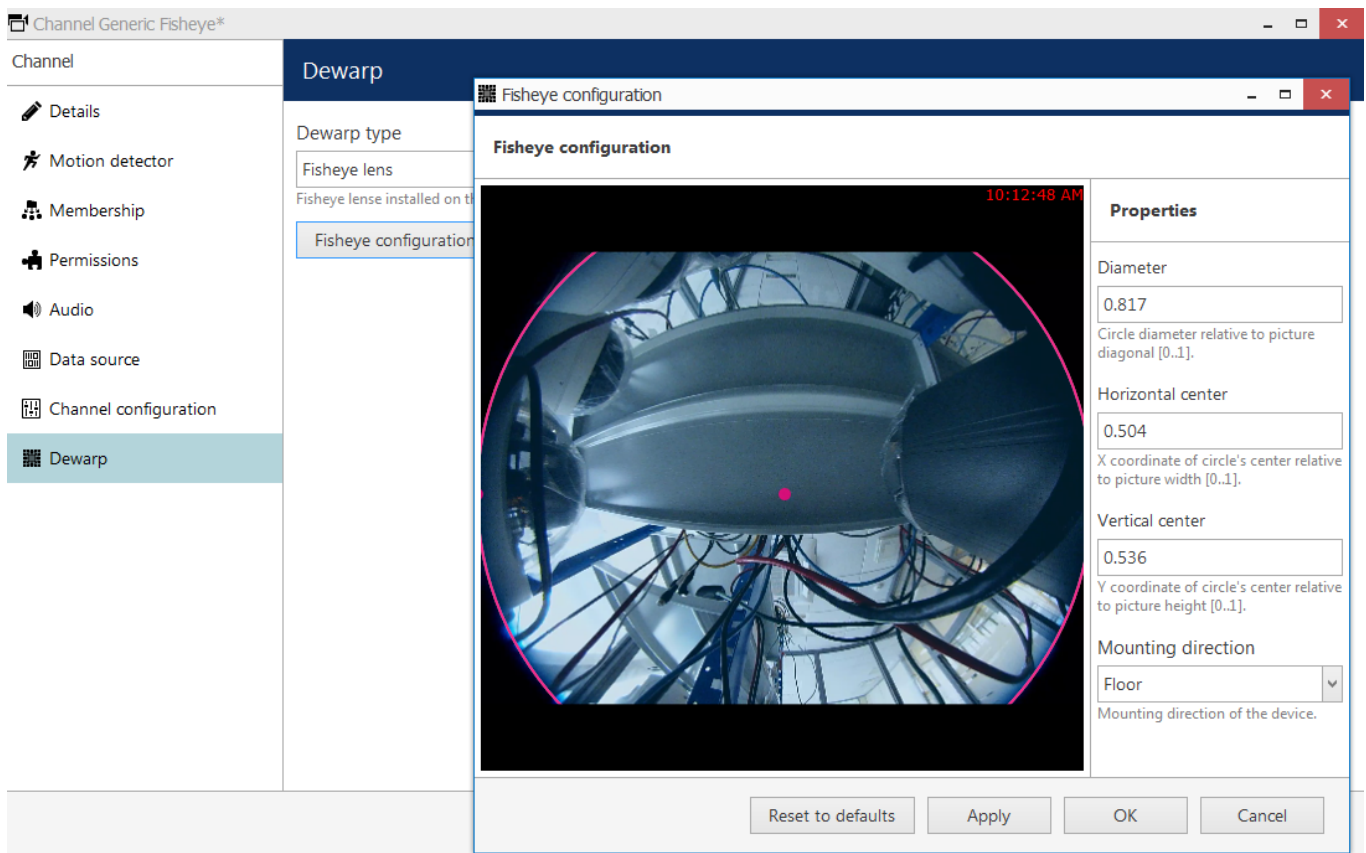
To edit any of the previously created visual groups, double-click it in the item list or select any with single mouse click and then hit the *Edit* button on the upper panel. Use the *Search* field in the upper-right-hand corner to quickly find the existing items; the filters in the bottom panel allow you to load recently added/modified items. Use the  recycle bin button in the upper-right-hand corner to remove one or multiple visual groups: hold *CTRL* or *Shift* to select several items at once, or *CTRL+A* to select all.

61 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. Ganz CORTROL 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 Ganz CORTROL 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 *Dewarp* tab.

 Please note that the location of dewarp settings has changed starting from the product version 1.5.0. For previous software versions, the corresponding settings can be found in the general *Channel Properties* dialog box.




Dewarp settings

You have the following options here:

- **Regular lens:** choose this option if you wish to disable the dewarp engine (selected by default)
- **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 Panomorph 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 in this case; 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 Panomorph lens model. Check with your camera documentation and manufacturer for the precise lens model information.

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For a regular fisheye lens, you are requested to define the fisheye sphere size and camera position by using the **overlay controls** and settings on the right side:

- Hemisphere **diameter**: click and drag any of the small pink circles on the overlay sphere to change its size and align it with the actual fisheye sphere in the picture
- **Horizontal** and **vertical** centre: automatically positioned in the picture centre, to change it click and drag the small pink circle inside the sphere
- **Mounting** direction: select camera mounting position from the drop-down list (wall/ceiling/floor)

For your convenience, the defined parameters are also displayed in the numeric form on the right side of the dialog box. Use the button below the preview to **reset** all dewarp settings to the default ones.



In case you change the stream resolution at some point, its **aspect ratio** may also be changed and this will affect dewarp operation. Therefore, check the dewarp settings after changing the resolution and adjust the parameters, if necessary.



Note that all dimensions are given not in pixels but in reference to the video stream size, therefore, relative values are used instead of absolute ones.

When finished, click *OK* to save the changes and close this dialog box and return to the general channel configuration. Dewarp results will immediately become available in the Ganz CORTROL Client application; you can find the details on usage in the corresponding section of the Ganz CORTROL Client documentation.

62 External Services

External modules are modules that have been integrated with Ganz CORTROL, including these, which have been designed to work with Ganz CORTROL - license plate and face recognition engines. They operate either independently or based on streams received from Ganz CORTROL server, and Ganz CORTROL server can receive event metadata from these modules and then use these events for Event & Action configuration, as well as provide the opportunity to view these events in both live and investigation mode in the Ganz CORTROL Client application.

All the external modules can be connected using the same logic, the main important steps being as follows:

1. Prepare channels to be used for the target external module
2. Install the target external module
3. Connect to the Ganz CORTROL server from the external module and enable HTTP notifications in it, if such an option is explicitly available - this will make the external service automatically appear in Ganz CORTROL Console
4. Create a group for external services in Ganz CORTROL Console and add your external service to the group
5. External service will now be available for E&A configuration and its events will be visible in Ganz CORTROL Client

This administrator's manual will cover an example on how to connect an LPR (License Plate Recognition) module. All the other modules are added in a similar way, the only difference being the external module interface.

Install External Module

Start LPR installation by double-clicking the installation package. On the very first step of the wizard, choose the Ganz CORTROL **installation type**, and then proceed with the rest of the installation as usual. Activate LPR using your purchased LPR license and run the software with empty configuration.



LPR module can be installed either for Ganz CORTROL or for ZNSNVR. It is important that you choose the correct installation mode because otherwise LPR will be unable to connect to the Ganz CORTROL server.


If you already have an LPR installation that works with ZNSNVR, you will need to re-install it to make it work with Ganz CORTROL or use a separate LPR installation. LPR cannot work with both CBC AMERICAS, Corp. software generations simultaneously.

Set Up External Module

In the LPR module, add a new server connection and enter your Ganz CORTROL server connection details. Then, **turn ON** the *VMS notifications* option and save the configuration.

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Adding New Server
Server Properties



Server Title:

Server IP Address: Specify "localhost" for local connection

Server Port:

User Name:

Password:

Auto connect on start Enable VMS notifications

Auto reconnect on disconnection

LPR Identifier:

LPR Title:

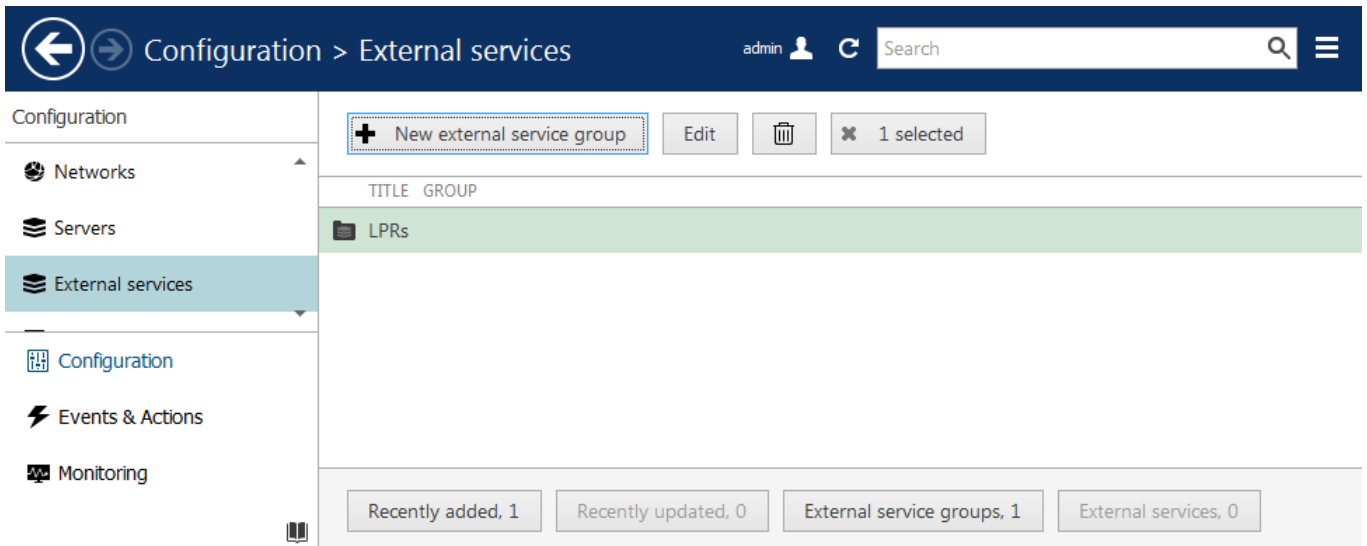
< Back Next > Cancel

Add new server in LPR

Then, add your desired channels for LPR analysis and set up license plate recognition as usual. For details on the setup, please refer to the LPR user manual.

Add External Service

In Ganz CORTROL Console, go to the *Configuration* section and choose *External Services* from the left-hand-side menu. On the upper panel, press the + *New external service group* button; in the dialog box, enter a group name and click *OK* to save. The newly created group will appear in the item list.



TITLE	GROUP
LPRs	

External services group

After you have set up LPR to send VMS notifications, as described above, the target service should automatically appear in the *External Services* list. Double-click it and **add it to the group** you have just created.

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The screenshot displays the 'Configuration > External services' interface. The top navigation bar includes a search bar and a user profile labeled 'admin'. The left sidebar shows a navigation menu with 'External services' selected. The main content area features a table with columns 'TITLE' and 'GROUP'. A table row is highlighted in green, showing 'License Plate Recognition' under the 'TITLE' column and 'LPRs' under the 'GROUP' column. Below the table, there are four summary boxes: 'Recently added, 0', 'Recently updated, 1', 'External service groups, 1', and 'External services, 1'. Above the table, there are buttons for '+ New external service group', 'Edit', and a trash icon, along with a '1 selected' indicator.

TITLE	GROUP
License Plate Recognition	LPRs

LPR service with its corresponding External Service group

From now on, your configured external service will become available in the [Event & Action Configurator](#), and its event streams will also become available for investigation in the Ganz CORTROL Client application. Please refer to the Ganz CORTROL Client user guide for details on the investigation mode.

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63 Access Control

Starting from version 1.8., Ganz CORTROL has an integration with **access control systems**. Ganz CORTROL server is now capable of receiving events from and sending requests to third party access control software, such as Keri Systems and Feenics.

Ganz CORTROL obtains the list of doors, their statuses (opened/closed, locked/unlocked), cardholder list and other available/relevant and enables you to lock and unlock the doors based on internal Ganz CORTROL server events (e.g., user button pressed) and also from the Ganz CORTROL Client application. Information about doors, their events and cardholders is searchable from Ganz CORTROL Client application as well.

Integrations with different access control software are similar. However, there may be small differences in configuration. If you encounter any difficulties with the setup, feel free to contact our support engineers at cortrol@cbcamerica.com.

Ganz CORTROL Configuration with 3rd Party Access Control

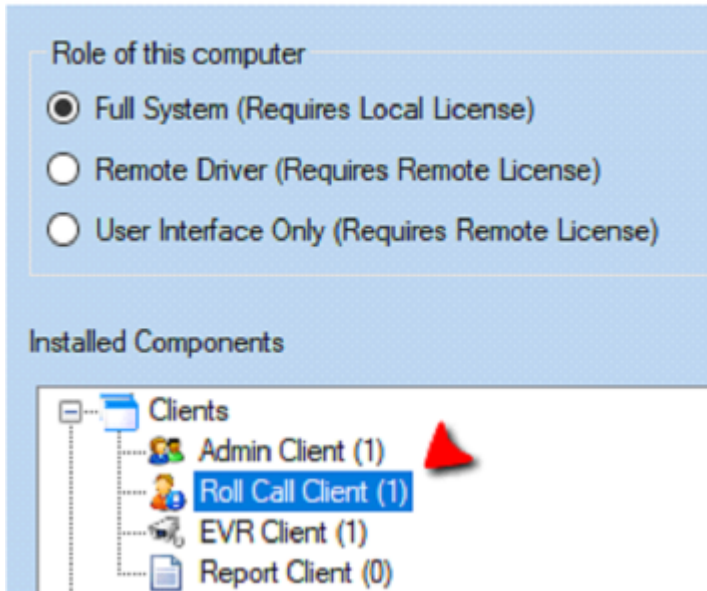
This topic briefly describes the configuration necessary to make use of the Keri Systems and Feenics integrations with Ganz CORTROL software.

Prerequisites

Keri uses port 11000 as default and ports 11000 through 110xx for connections so these should be opened and forwarded on the intermediate routers and firewalls.

Ganz CORTROL connection to the Doors.NET system uses a certain license type – **Roll Call Client**. Make sure that your Keri license includes this type of client license (at least one) and that it is not used by other [native] client connections.

License Manager



Keri license management

For Keep by Feenics, there are no special requirements. You just set it up as usual, and Ganz CORTROL servers already have a connection to api.feenicshosting.com via HTTP hard-coded. Make sure to allow this connection on your local firewalls.

Add Access Control Configuration

In Ganz CORTROL Console, open the *Configuration* section and choose *Access Control* in the menu on the left. Here, you need to create a connection to the Keri server: click the *New access control configuration* button on the upper panel and fill in the settings, then click *OK* to save:

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- User-defined **title**
- **Type:** Keri/Feenics
- **Host:** access control server IP address (required for Keri)
- **Instance:** instance name for Feenics (defined on the Keep side)
- **Port:** access control server port
 - Keri: leave 0 for the default port of 11000, ports 11000 through 110xx can be used otherwise, depending on the Keri configuration
- **Username and password** to connect to the access control server

Access control Keri Test*

Access control

Details

Details

Title

KERI Test

Access control title

Access control type

Keri

Access control type

Host

192.168.1.120

Host name or IP address

Port

0

Port number

Username

admin

Username to access the access control service

Enter password

Password to access the access control service

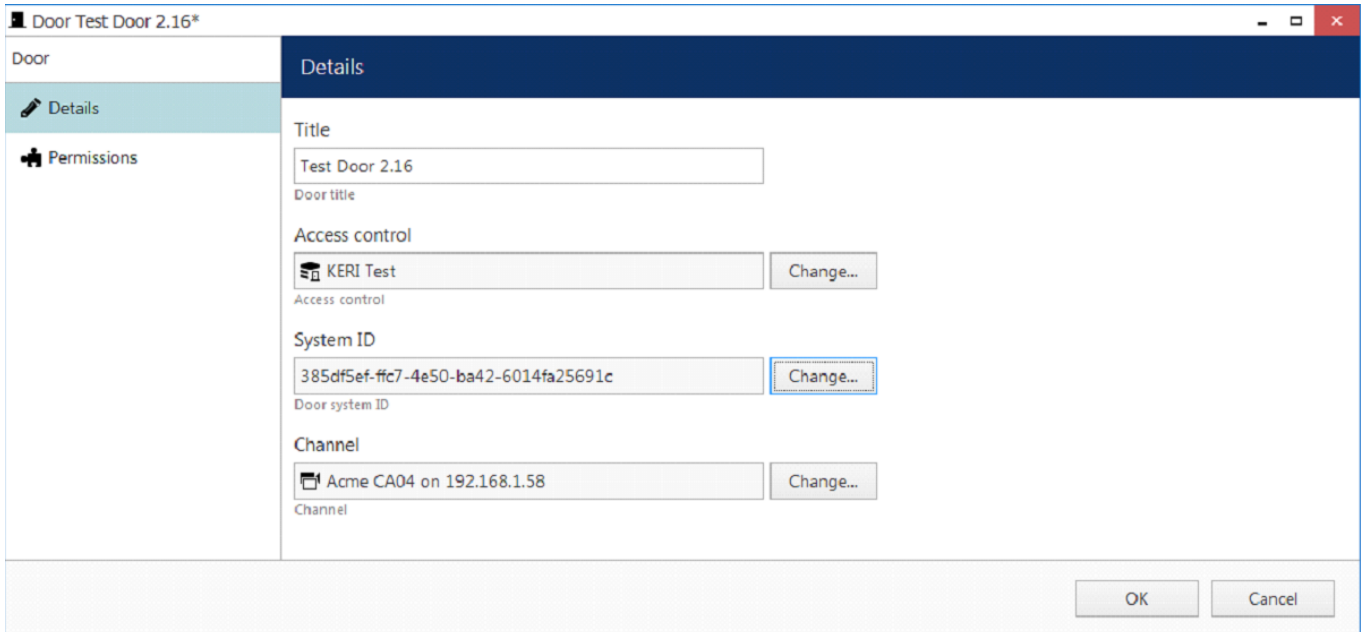
OK Cancel

Access control configuration example for Keri Doors .NET

Add Doors

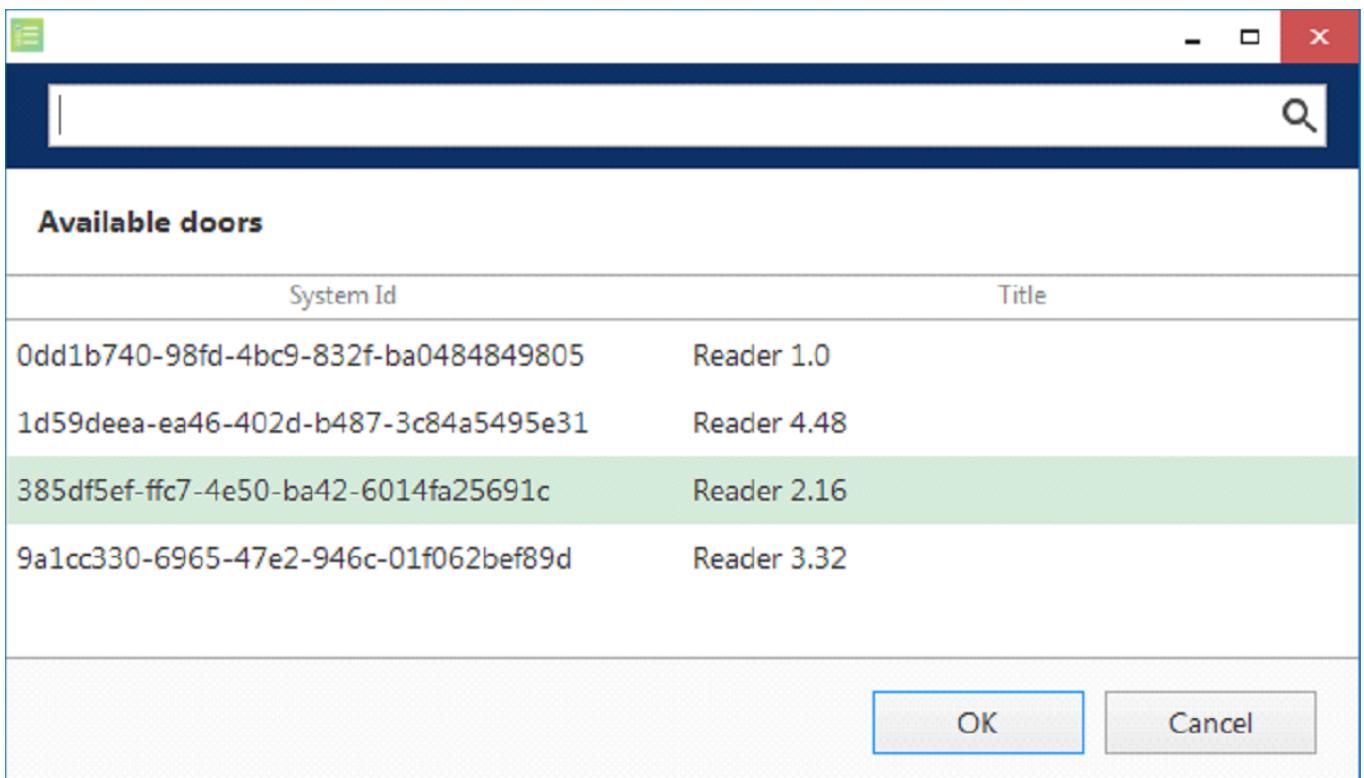
Next, click the arrow next to the *New access control configuration* button and select *New door* in the drop-down list. Choose the access control configuration created on the previous step.

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Add new door

Click the *Change* button next to the *System ID* field to view the list of available doors: if the access control configuration is correct, Ganz CORTROL server will successfully fetch it from the Keri server. Choose the required door and click *OK*.



List of available doors fetched from Keri

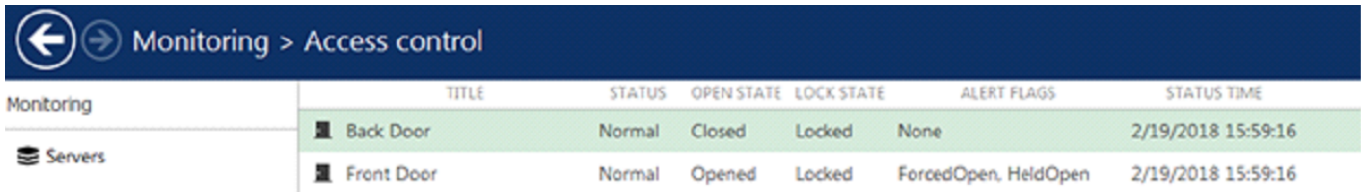
If you wish to bind a video channel to a door, choose a channel in the corresponding field. This channel will appear when viewing events from that door in the Ganz CORTROL Client application, and the event list will be bound to the recorded footage.

Monitoring

For all the doors that have been added it is possible to view their current states in the Ganz CORTROL Console

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application: to do so, switch to the *Monitoring* section and select *Access Control* in the list on the left.



	TITLE	STATUS	OPEN STATE	LOCK STATE	ALERT FLAGS	STATUS TIME
Monitoring	Back Door	Normal	Closed	Locked	None	2/19/2018 15:59:16
Servers	Front Door	Normal	Opened	Locked	ForcedOpen, HeldOpen	2/19/2018 15:59:16

Door status monitoring

The following information is available from Doors.NET:

- **Open state:** opened/closed
- **Lock state:** locked/unlocked
- **Alert flags:** additional information, if any
- **Status time:** last status update time

Use the *Search* field in the top right corner to filter the door list, and the *Refresh* button (or F5) to reload it.

Maps

Apart from the dedicated *Access Control* sections in Ganz CORTROL Console, it is also possible to place door markers onto maps – either regular ones or geo maps. Markers on the map will reflect door open state and lock state.

To do this, select *Maps* in the *Configuration* section of Ganz CORTROL Console and create a map or open an existing one. On the *Marking* tab, place as many markers as you need – the ones looking as doors – from the top panel. Click any marker to edit its settings on the right side of the dialog box: assign a door to it and adjust colours and icons for different door statuses.

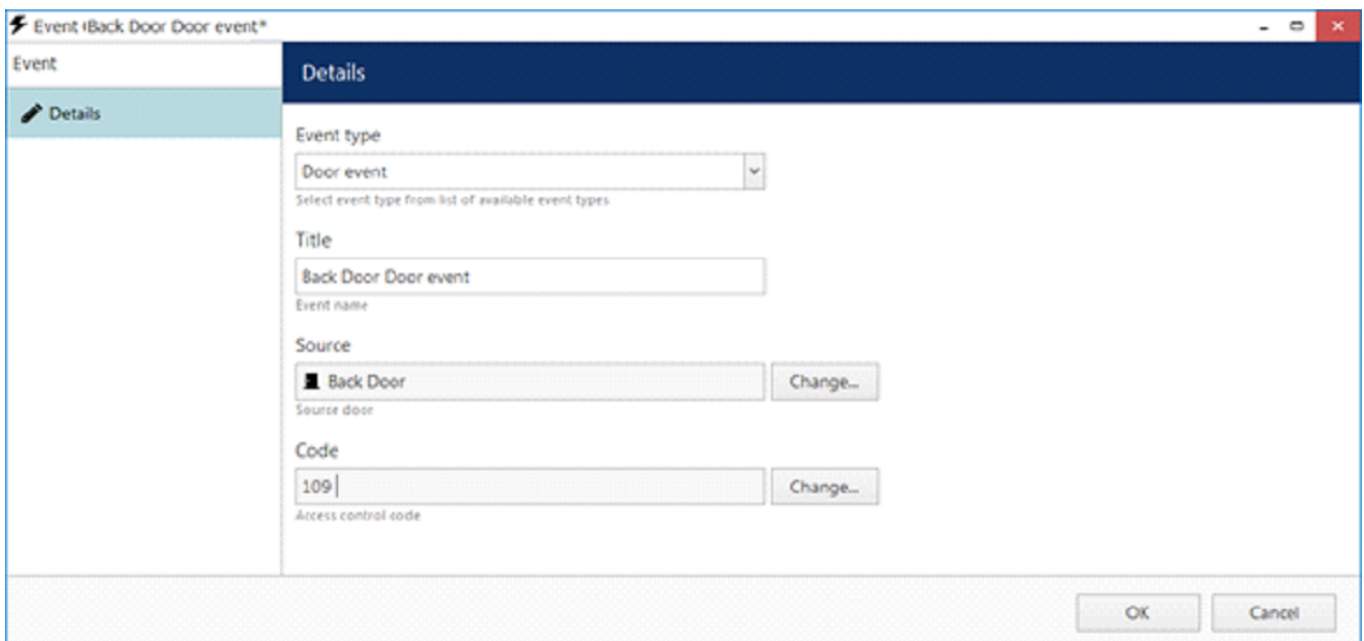
For more details, please see the [Maps](#) section of this document.

Events and Actions

After the necessary connection and door(s) have been added, it is possible to use the door status changes as events in the *E&A Configurator* and also send commands to the access control server as door related actions.

Events

In Ganz CORTROL Console,, switch to the *Events & Actions* section and choose *Events* on the left; click the *New event* button to add a new event. You will need the *Door* event type.



Event {Back Door Door event*}

Event

Details

Event type
Door event
Select event type from list of available event types

Title
Back Door Door event
Event name

Source
Back Door
Source door
Change...

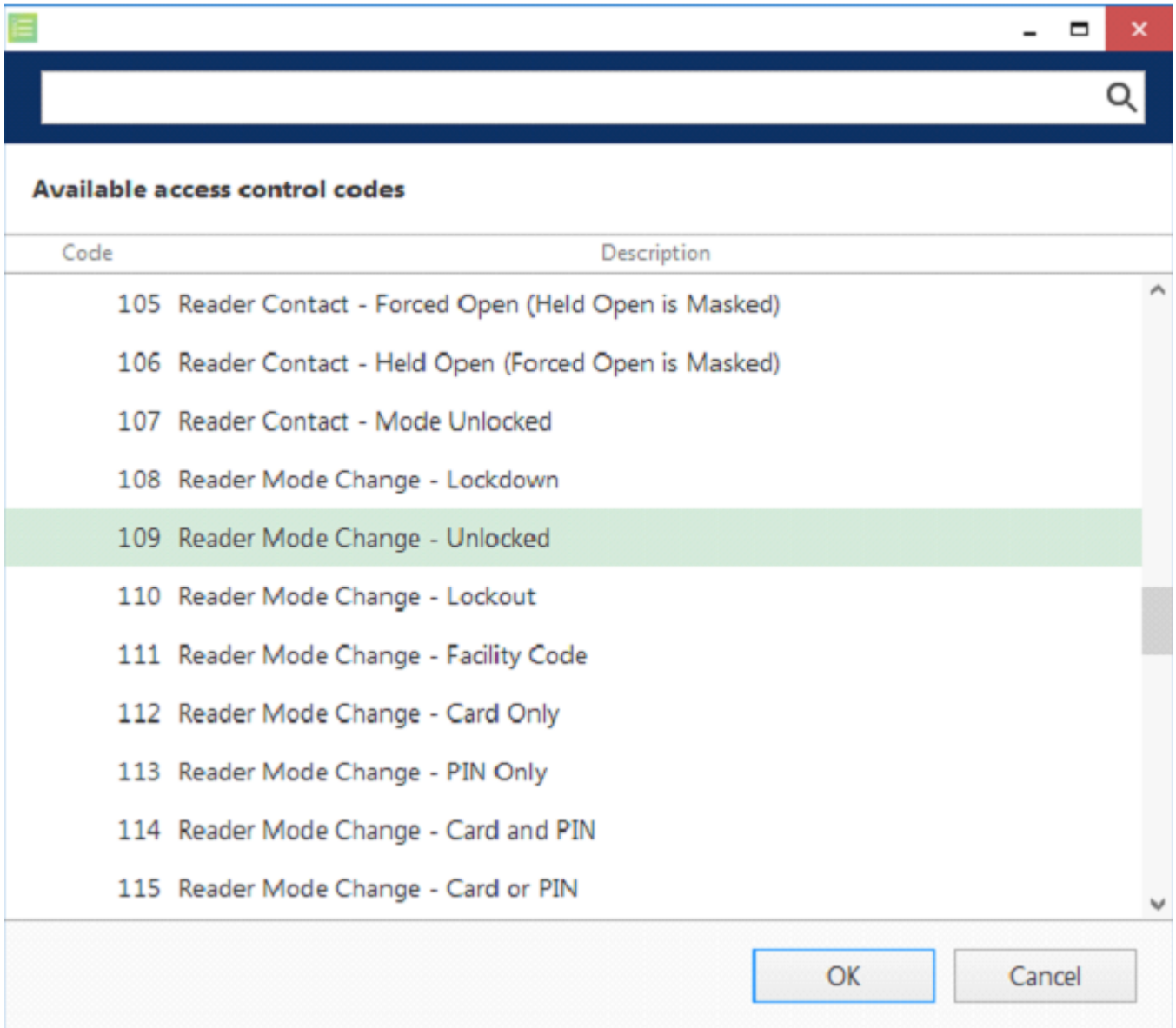
Code
109
Access control code
Change...

OK Cancel

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Door event

The **code list** is retrieved from the access control software and contains possible event types that can be received and understood by Ganz CORTROL server. Choose the one you want to set up a reaction for.

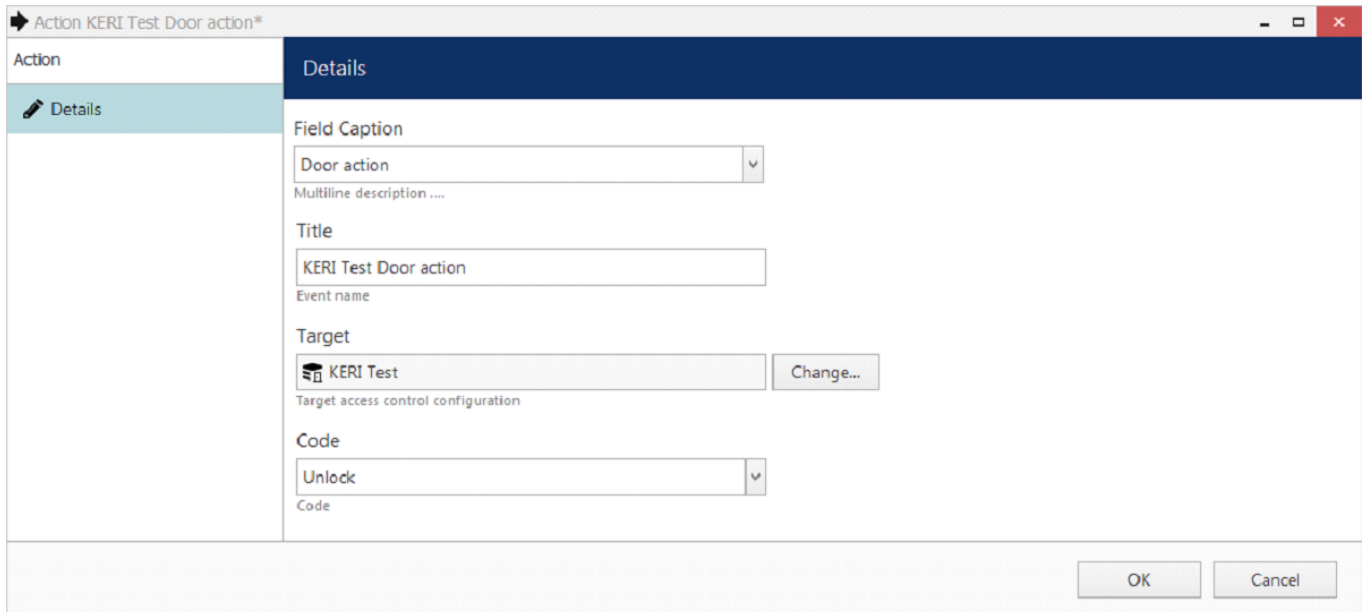


Door codes fetched from Keri

Actions

Similarly, choose *Actions* on the left and create an action by pressing the *New action* button on the upper panel. You will need the *Door* action type.

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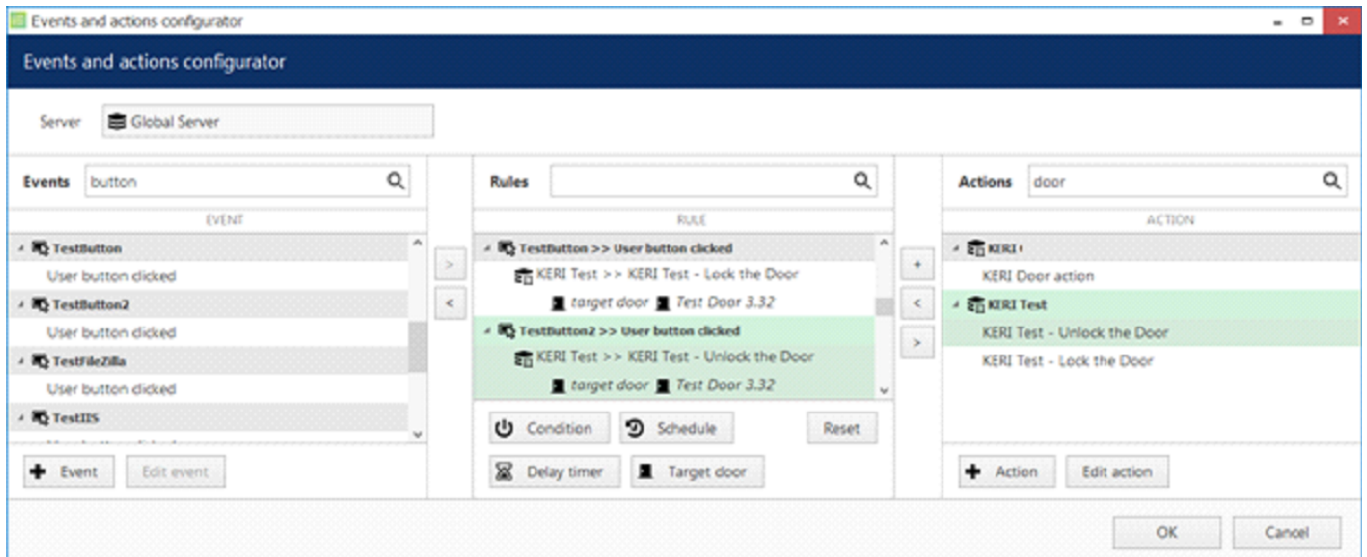
Door action

As a target, specify the access control configuration added earlier. The specific door for this action will be chosen at the rule creation step, allowing you to use this action for many different doors within the same access control configuration.

Available **action codes** here are: lock, unlock, and temporarily unlock. Once the action is triggered, the corresponding command will be sent to the third party access control module.

E&A Rules

Once you have created necessary events and actions, combine them into rules in the *E&A Configurator*. For door related actions, remember that you need to specify the target door by using the *Target door button* in the bottom of the middle column.



Combine events and actions into rules

Selected door status changes will trigger events in Ganz CORTROL, and actions triggered by internal Ganz CORTROL events will change door state, which will also be reflected in the access control UI.


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64 Audio

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

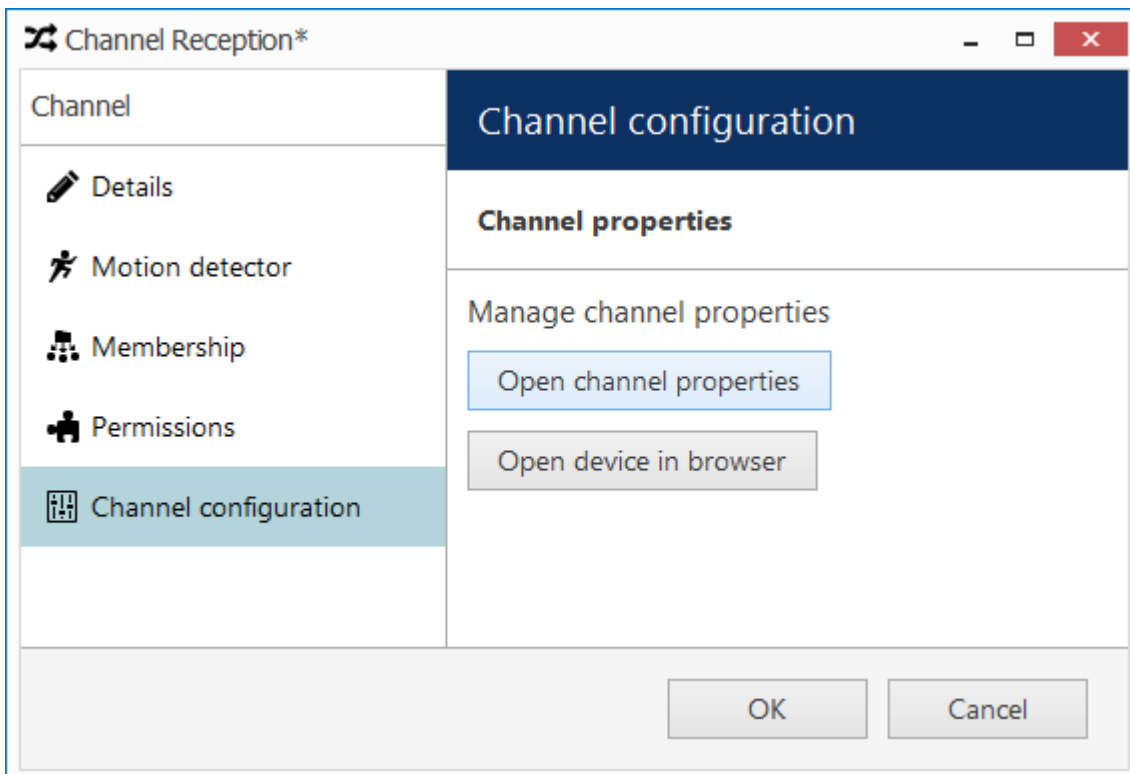
There are a few conditions stipulating audio feature availability:

- 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 device 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 Ganz CORTROL Console (see the description below)
- feature should be supported by Ganz CORTROL for the target device (see the list of supported devices and features provided by CBC AMERICAS, Corp.)
- in order to send audio to the device, Ganz CORTROL Client workstation must have a microphone connected to it - either a built-in or an external one
- 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 Ganz CORTROL being unable to decode the incoming video stream.

Enabling Audio

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.



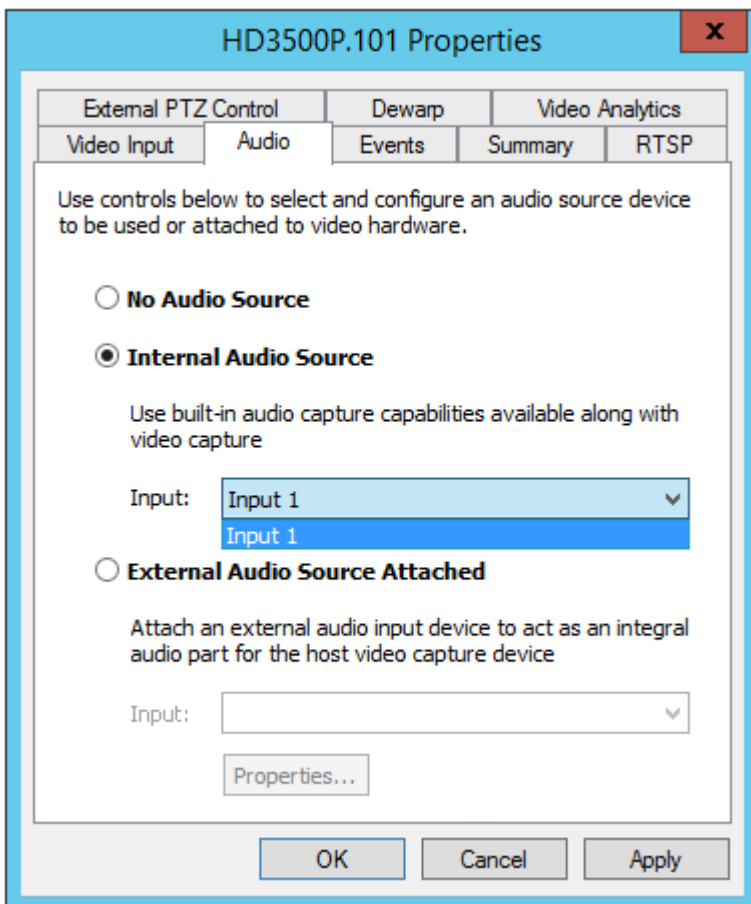
Go to the *Channel configuration* tab

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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 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 channel (default)
- enable audio reception from the device side and sending the reverse audio to the device
 - 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 device, from which the target channel originates
 - 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

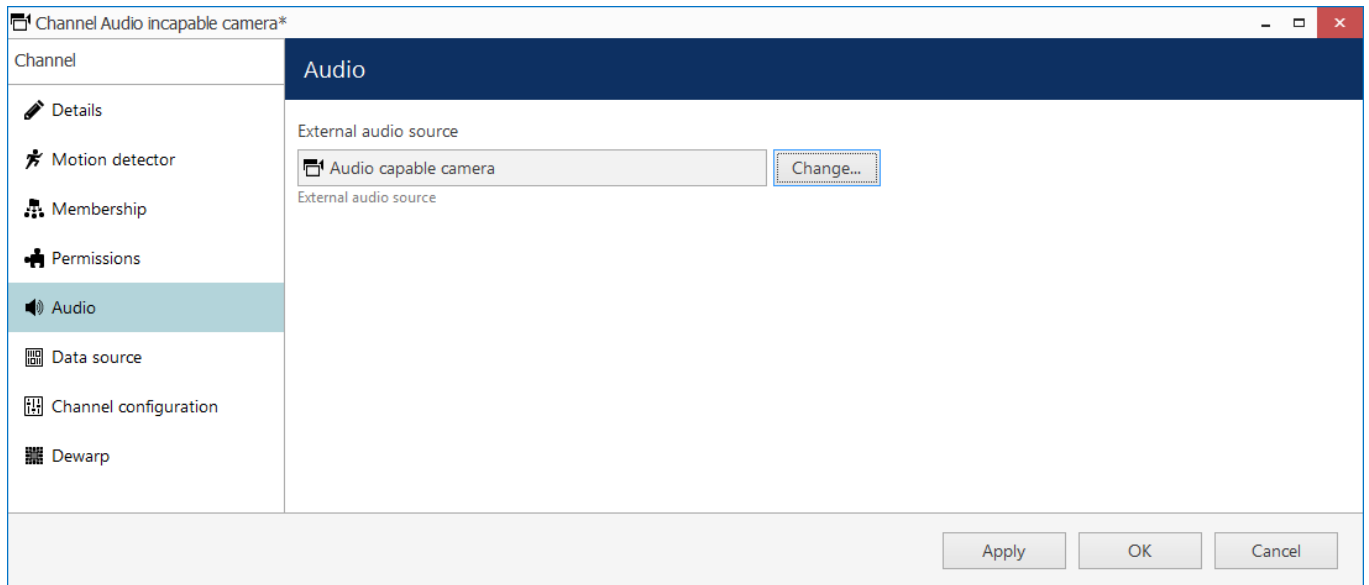
When you have chosen your preferred option, click *OK* to save and exit, then close the *Channel settings* dialog box. You should now be able to listen to live audio, record it along with the video stream and talk back to your camera via Ganz CORTROL Client and Ganz CORTROL Mobile applications.

Combining Video and Audio Sources

Ganz CORTROL allows channels to use audio coming from a different channel in case the target channel does not have its own incoming audio or in case you wish to combine audio and video data from different channels. Such combinations are used for both live and recording.


In order to do this, double-click the target channel (the one without audio) in the channel list to open it for editing, then choose the *Audio* tab on the left.

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Choose another channel as audio source


Click the *Change* button to see the list of channels and choose the one that you want audio to be coming from. Hit *Apply* or *OK* to save your changes.


 Audio must be configured for the channel used as an external audio source via channel configuration as described earlier.

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65 Live Podcasts

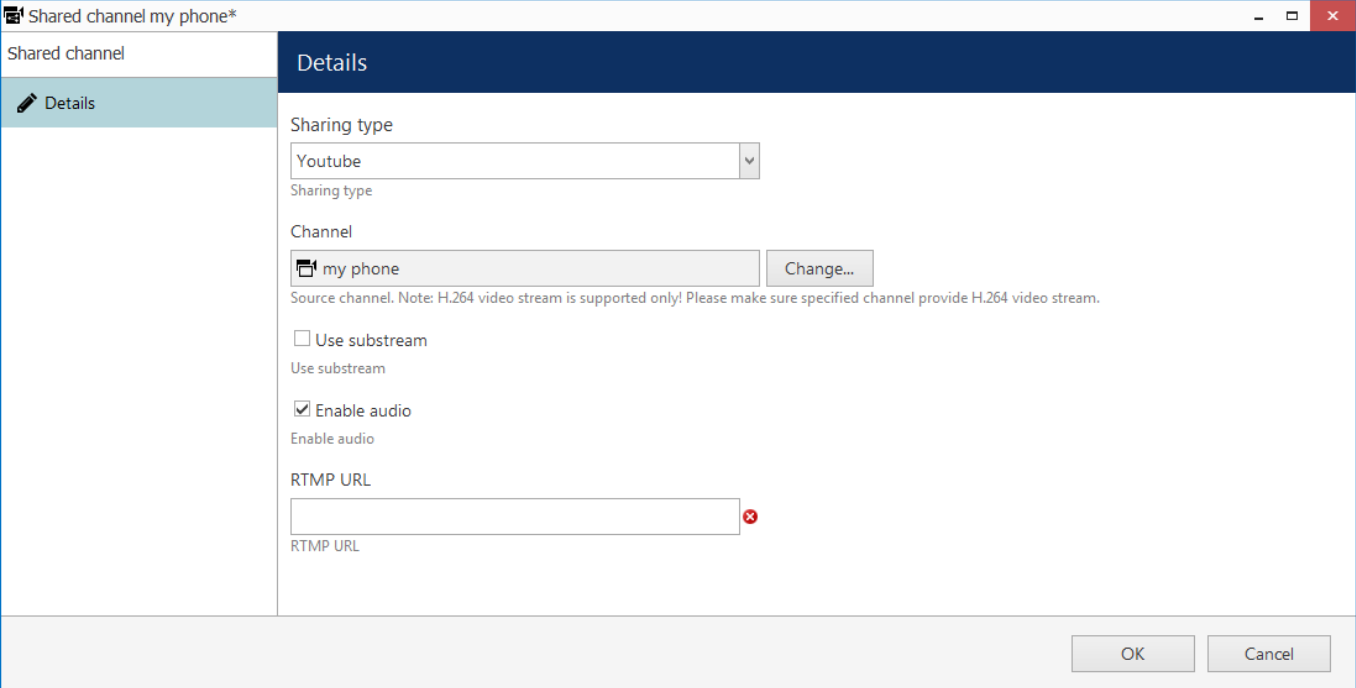
Ganz CORTROL channels can be shared by streaming over RTMP and thus be used for live casting - either with popular streaming services or with your own RTMP server. This manual covers examples of how to set up live streaming for Youtube and Wowza live casts - working with other RTMP servers is similar.

-  Before sharing a channel, check its settings and make sure that:
- the channel is enabled in the configuration and video is available,
 - stream codec is **H.264** (other codecs will not work!),
 - if you want to use substream and/or audio, make sure you have enabled them in the channel properties.

 Ganz CORTROL Prime free edition only allows 1 (one) podcast per server.

To access **shared channel management** in Ganz CORTROL Console, go to the *Configuration* section in the bottom left panel and select the *Live Podcasts* component in the menu on the left.

Click the + *New live podcast* button in the upper panel to bring up the shared channel creation dialog box.



Sharing a channel for Youtube live streaming

First, choose where you are going to stream the channel: it can be a specific public service or generic RTMP streaming to a service that is not listed, including your own RTMP server; depending on your choice, settings may vary to suit the specific service. Then, enter streaming configuration.

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The table below explains the settings in details.

Setting	Description	Default value
Sharing type	Choose between Youtube, Wowza or generic RTMP streaming	Generic RTMP
Channel	Target channel to be streamed	[none]
Use substream	When not enabled, main (higher resolution) stream will be used; enable this option if you want to cast the lower resolution stream	Disabled
Enable audio	Enable this option to include sound for the shared channel, works both for main and secondary streams	Enabled
RTMP URL	Full URL to be used for casting, the link is normally provided by the RTMP streaming engine	[empty]

Youtube Live Streaming

Youtube live casting can use RTMP streams from your Ganz CORTROL server for further streaming.

In order to set up live streaming with Youtube, log in to your account on youtube.com and go to [Creator Studio tools](#) -> Live streaming -> Stream now. If you have never created any live casts before, you may have to verify your account - just follow the guidelines on the website.

 You need to have a valid Youtube (Google) account in order to be able to use this type of streaming, and comply with Youtube live streaming conditions. CBC AMERICAS, Corp. is not responsible for the third-party service operability and policies.


Scroll down to the *Encoder Setup* section: you will need the link and the secret stream key in order to build the RTMP link.

In Ganz CORTROL Console, open the *Shared Channels* section and add a new shared channel, fill in the settings as follows:


- **Sharing type:** Youtube
- **Channel:** target channel from the list of existing channels
- **Use substream:** up to you
- **Enable audio:** up to you
- **RTMP URL:** *rtmp://<server_URL>/<stream_key>*, where
 - *rtmp://* indicates that RTMP protocol will be used for streaming
 - *<server_URL>* is Server URL link provided by Youtube, e.g., *a.rtmp.youtube.com/live2/*
 - *<stream_key>* is Stream Name/Key generated by Youtube in the form of *xxxx-xxxx-xxxx-xxxx*

Wowza Streaming

Alike Youtube, Wowza streaming engine can receive video feeds from Ganz CORTROL server and stream them out to any device. You need to install Wowza Streaming Engine first and then configure live streaming as described below.

 Ganz CORTROL does not include any installation files or licenses for Wowza Media Systems software. Wowza engine is used as a third-party agent capable of receiving RTMP streams; all installation, setup and management of this engine is to be handled by you or your Wowza administrator, and CBC AMERICAS, Corp. is not responsible for the third-party engine operability and policies.

First, go to your Wowza Streaming Engine Manager and create a **new application** of the *Live* type.

 Once you have created a new application, go to the *Source Security* settings of that application in your Wowza Streaming Engine Manager and set **RTMP Sources** security to **Open** (no authentication). This is required as Ganz CORTROL currently does not support authentication for RTMP streaming.

Then, go to Ganz CORTROL Console, open the *Shared Channels* section and add a new shared channel, then fill in

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the settings as follows:


- **Sharing type:** Wowza
- **Channel:** target channel from the list of existing channels
- **Use substream:** up to you
- **Enable audio:** up to you
- **RTMP URL:** `rtmp://<ip>:<port>/<app_name>/<stream_name>`, where
 - `rtmp://` indicates that RTMP protocol will be used for streaming
 - `<ip>` is Wowza Streaming Engine server address - either IP or domain name
 - `<port>` is target (remote) RTMP port, 1935 by default
 - `<app_name>` is the name of the application you have created in Wowza
 - `<stream_name>` is a custom name for the RTMP stream (can be any name, use underscores instead of spaces), will appear in Wowza automatically

When you have finished, click *OK* to save and exit; the newly created channel share will appear in the item list and Ganz CORTROL server will attempt to stream the data to the target URL at once. If you wish to pause the streaming, use the *Disable* button on the top panel. After sharing the channel, you should be able to view the stream on the RTMP server side and start the casting, if it has not started automatically.



If you have trouble receiving the stream on the RTMP server side, check the following:

- make sure all used software is allowed through the firewall(s),
- restart the RTMP server,
- refresh connection list on the RTMP server side or refresh the webpage;
- remove the shared channel in Ganz CORTROL Console and try sharing the channel anew.

To edit any of the previously created channel shares, double-click it in the item list or select any with single mouse click and then hit the *Edit* button on the upper panel. Use the *Search* field in the upper-right-hand corner to quickly find the existing items, and the *Disable* button to **disable and enable** channel sharing. Use the  recycle bin button in the upper-right-hand corner to remove one or multiple shares: hold *CTRL* or *Shift* to select several items at once, or *CTRL+A* to select all (actual original channels will not be affected).



When you remove the original channel (with or without its originating device), all shared channels based on it are removed from the configuration automatically as well.

Filters in the bottom panel allow you to load recently added/modified items.

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66 Data Sources

This Ganz CORTROL server functionality allows you to receive information in textual form from **third-party serial data providers** like Point of Sale (POS) systems, bank machines and a multitude of other devices capable of delivering data strings over the following connection types:

- UDP port (remote connection)
- TCP port (remote connection)
- COM port (direct hardware connection to the server)

The **procedure of configuring** the data reception from these sources is briefly as follows:

- create a data source, then
- create a data source profile, then
- go back to the data source settings and use the data source profile as a basis for the data source, and then
- assign the data source to the desired channel(s).

Gathered data is then stored and displayed embedded with the video stream from the channel(s) you choose to associate with it.

Add Data Source

First, go to the *Configuration* section of Ganz CORTROL Console and choose the *Data Sources* component from the menu on the left. Then, click the + *New data source* button on the upper panel to open the data source creation dialog box.

Give your data source a comprehensive name. Then, choose the server that is going to be accepting the serial data. Leave the *Data source profile* field **empty** for now and select the desired transport for the data connection. You will need to return here and choose the profile after you create the profile itself.

There are three possible connection types: UDP port, TCP port and COM port.

TCP/UDP Connection

Choose this option if your data provider is configured to feed the textual data into a specific TCP or UDP port.

The screenshot shows a dialog box for creating a new data source. The title bar reads "Data source UDP Data Source". The "Details" tab is active, showing the following configuration:

- Title:** UDP Data Source
- Server:** My Favourite Server (with a "Change..." button)
- Data source profile:** UDP Profile (with a "Change..." button)
- Data source type:** Udp
- Port:** 4060

At the bottom right of the dialog are "OK" and "Cancel" buttons.

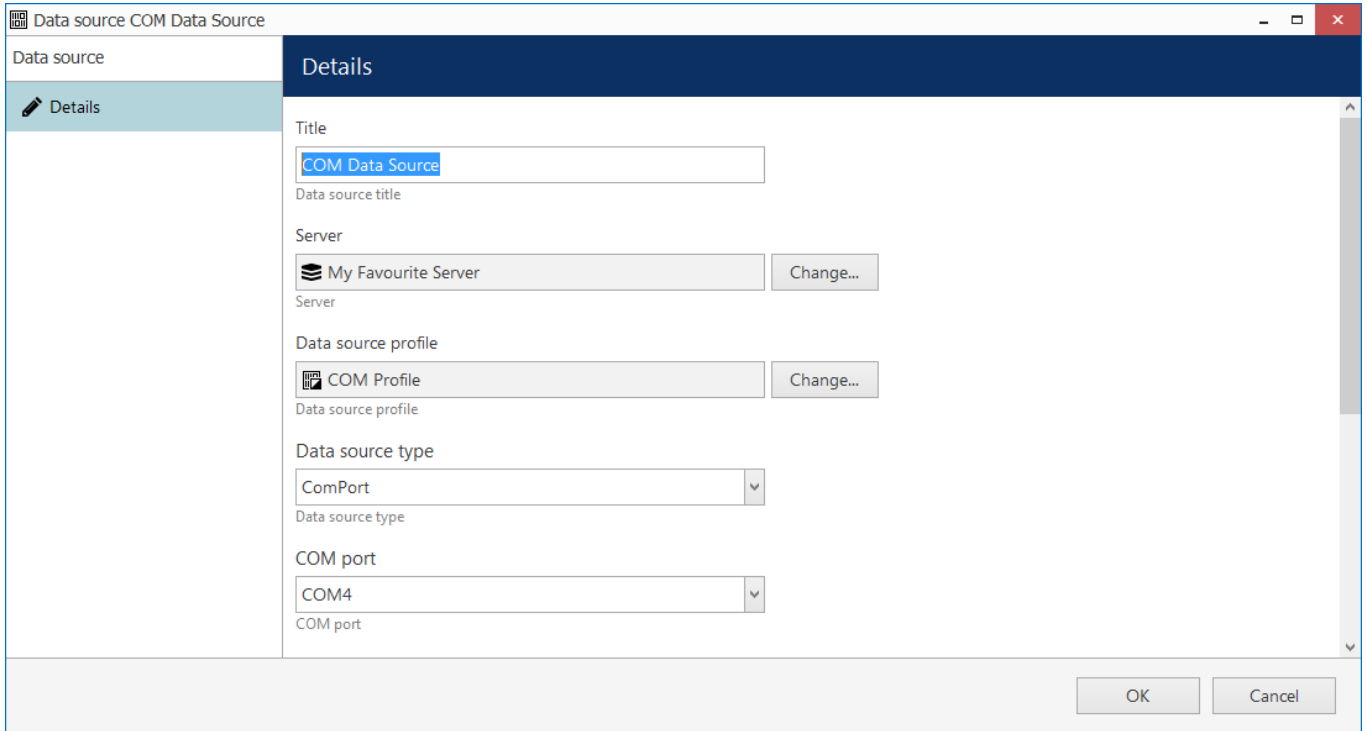
New data source of UDP type

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You simply need to specify the incoming port for the server to listen to in the settings here. Make sure the port is opened on all intermediate firewalls and not used by any other software on the server machine.

COM Port Connection

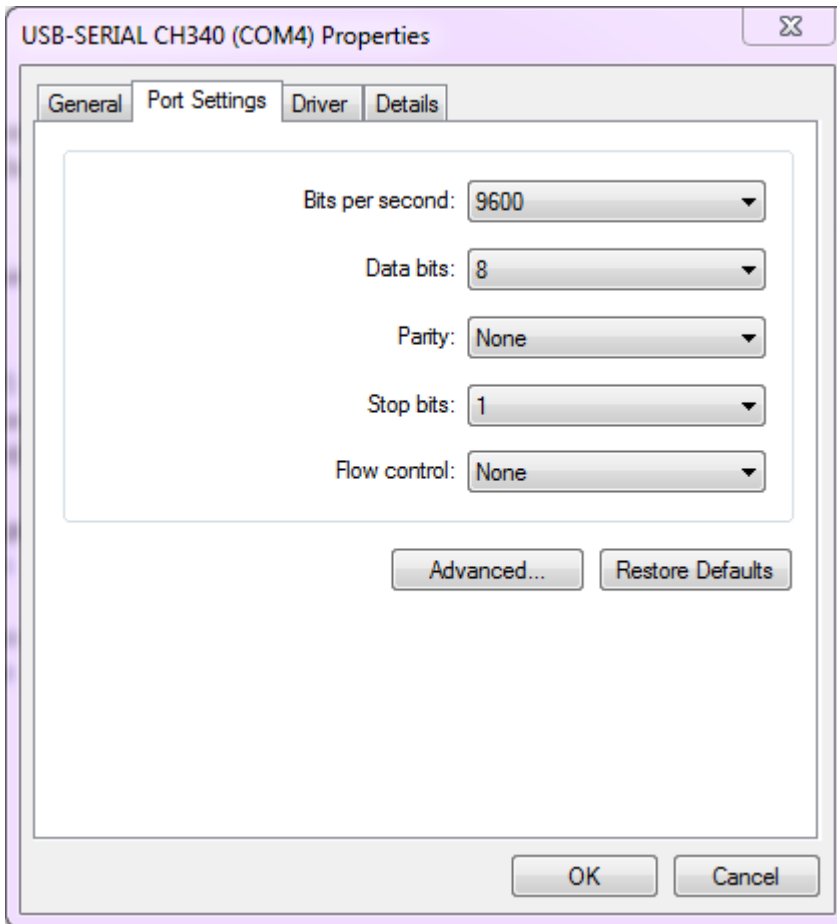
Choose this connection type if your data provider is connected directly into the Ganz CORTROL server's COM port.



New data source of COM port origin

For this configuration, you need to match the serial connection settings with those used from the device side. Normally, this can be checked via Windows Device Manager for your target COM port.

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COM port settings in the Windows Device Manager properties

The following serial port settings should be specified:

- **COM port:** serial port to read the data from, choose from the list of active ports
- **Baud rate:** information transfer rate (9600 by default)
- **Data bits:** the number of bits transmitted over the serial interface (8 by default)
- **Stop bits:** the number of bits to specify the end of a byte; if you select data bits to be 6, 7, or 8, then the default value is 1 and the other available choice is 2; if you select data bits to be 5, then the only correct choice for the stop bits is 1.5
- **Parity:** how the parity is checked (no parity by default)

Other serial port parameters are not required for the Ganz CORTROL server.

Click *OK* to save and close the data source creation dialog box. The next step is to create a data source profile to help the server determine how the textual data should be parsed.

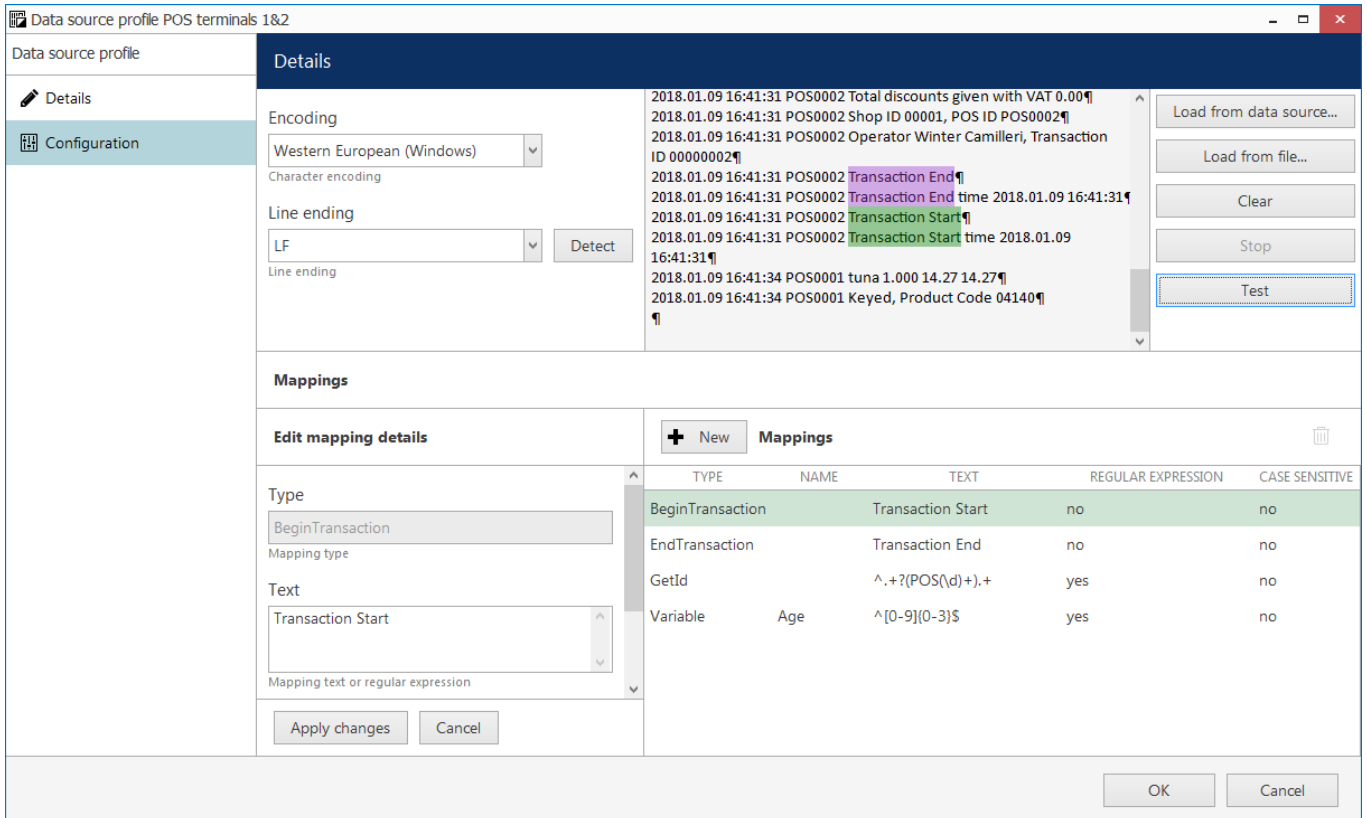
Add Data Source Profile

In the *Data Sources* section, click the little arrow next to the data source creation button and choose the + *New data source profile* from the list. In the *Details* tab, enter a custom name for your data source profile and switch to the *Configuration* tab.

It is now necessary to use an example of the data strings to set up the profile. This part of the setup is the same regardless of what type of data source you have.

You can either use the **actual data source** you have configured on the previous step, or use a **text file** that contains the lines of data in the expected format (note that the same encoding should be used). Use the buttons on the right side of the text field to load the sample from either source. Use the *Stop* button to finish displaying new text from the data source (do this if you see that the loaded data lines are sufficient to facilitate the configuration process); use the *Clear* button to erase whatever is in the preview window before loading a different file or strings from a data source.

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Load a text sample to configure the data source profile

Based on the loaded sample, set the required parameters on the left:

- **Encoding:** pick the correct encoding to ensure your text is readable
- **Line ending:** choose what character(s) represent the end of the line, available options are:
 - CR - carriage return
 - LF - line feed
 - CR+LF - both together
 - Custom - user-defined symbol or group of symbols

If line delimiter in use is one of the standard non-printable ones (LF, CR or CR+LF) but you are not sure, whichever is used, press the *Detect* button for the software to identify automatically, which delimiter is present in the pre-loaded text. If you know that the provided serial data does not include any standard delimiters, choose the *Custom* option in the drop-down list and define your own delimiting character.

Mappings

Mappings are pre-defined character combinations expected in the data flow, which can serve different purposes. There are three built-in mappings (existing by default and non-removable):

- **Transaction start:** specify text that designates the beginning of the data block (transaction)
- **Transaction end:** the very last data line of the expected data block
- **Data ID:** use a regular expression to break a single data source profile into multiple data streams based on some field (e.g., POS ID) and assign each one to different video channel

For the transaction start and end, you can specify a **regular expression** (regex rule) to define the start/end pattern instead of static text. You can also copy and paste the strings for transaction start and end directly from the sample preview field.

Additionally, you can create any number of mappings of the **user variable** type: this mapping uses a regular expression to extract a specific piece of data into a variable for further usage in the **E&A event Variable Condition**. Variables can be used, for instance, to detect exceptions in the cash operation in case the data source is a Point-of-Sale system. To create a **new variable**, click the + *New* button in the *Mappings* section, fill in the settings on the left and click *Apply changes*. The following settings are available:

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- **Type:** variable (cannot be changed)
- **Name:** user-defined variable title
- **Text:** a regular expression that defines what character combination should be extracted into the variable
- **Case sensitive:** enable this if uppercase/lowercase is important (disabled by default)

Use the *Test* button to check if your settings work: if everything is fine with the setup, lines should be detected correctly, transaction start and end marked as such and variables extracted as specified.

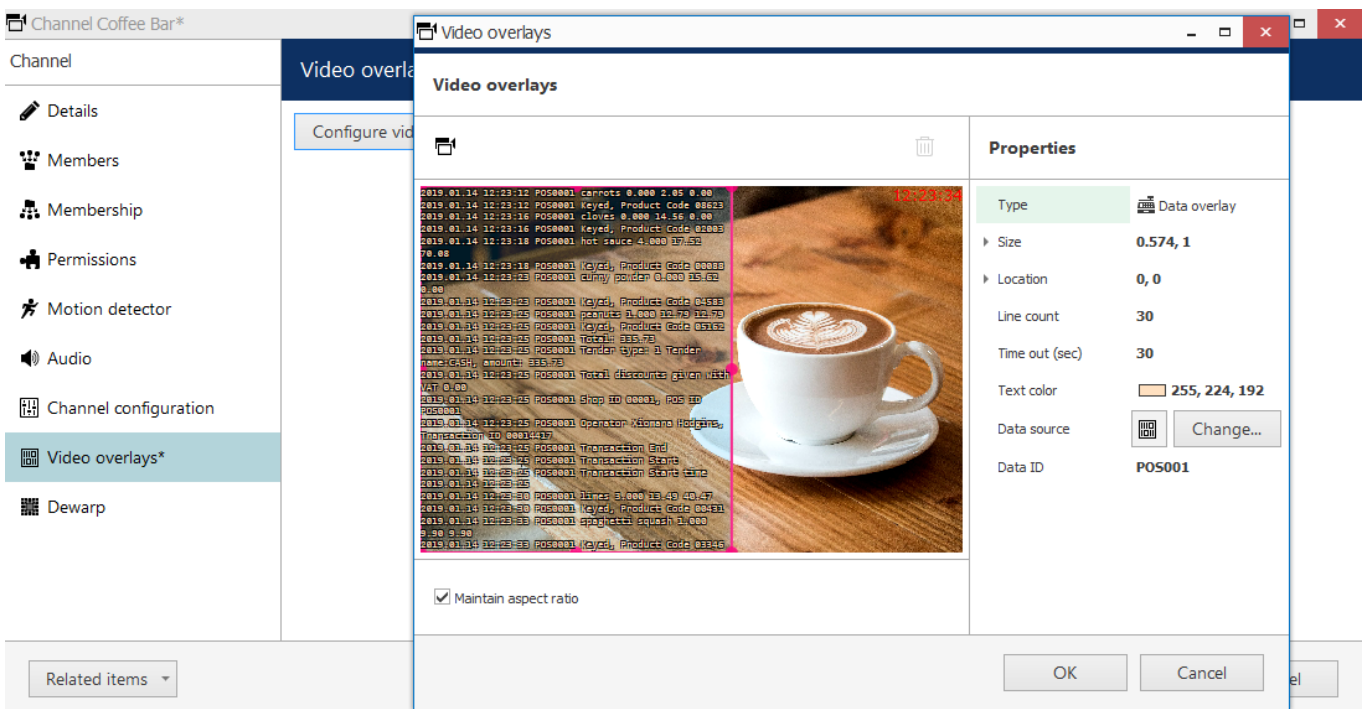
Click *OK* to save and close the profile configuration dialog box. The next step you need to take is to **go back to your data source settings** and specify the newly created data source profile that was missing in the initial configuration. You can use a single data source profile for different data sources.

Assign Data Sources to Channels

Finally, go to the *Channels* section and pick a channel that needs to be associated with the a data source. Double-click the channel to open it for editing and switch to the *Video overlays* tab. Click the *Configure video overlays* buttons to bring up an additional dialog box.

Here, different kinds of video overlays can be configured. The *Data overlay* element is already present by default. On the right side, you will have the available **settings**.

Click the *Change* button and select one of your pre-created **data source** for this channel. If the serial data is currently arriving, you will see the text appear in the frame. Then, adjust settings on the right to define where and how the text should appear on top of the video stream.



Set up overlay text alignment in the viewport

Use the visual control - the pink rectangle - to specify the **text output area** within the video stream viewport. There are other types of video overlay elements available in the same window, but the one you need is called *Data overlay* and it exists by default, so you do not have to add it. There are also numerical coordinates on the right side of the preview for your reference: you do not have to edit them manually.

Also, note that the visual control cannot be removed from the configuration; if there are no data to display, this element simply will not exist in the Ganz CORTROL Client application. The visual control is only present in this configuration window for your convenience. There is exactly one *Data overlay* element per viewport, meaning that each channel can only have text output from a single data source.

⚠ Make sure the video from the target channel is available before setting up the text overlay in order to ensure correct text placement.

Additional settings:

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- **Line count:** set the desired number of text lines to be fitted into the overlay area (default value is 20); this will affect the text font size
- **Timeout:** the amount of time in seconds for every line of data to stay on the screen at maximum (older text will disappear and text will be shifted upwards)
- **Text colour:** choose a colour for the overlay text from the standard palettes (default is white)
- **Data ID:** data source identifier, if present (leave empty if not used)

In the *Data ID* field, you can enter the source identifier in case the serial data is being **split** between two or more channels; leave the field **blank** if this channel is the only destination for all the data received from the selected data source.



If there are data from multiple devices combined in a single *Data source* feed so that the text comes from the same IP and port via the same protocol, it is possible to use the **Data ID field** in the *Data source profile* configuration to differentiate between the transactions based on their source identifier and split the text between multiple channels for further overlay.

Example: if the feed contains serial data from multiple Point-of-Sale terminals and their identifiers look like *POSxxxx* where *xxxx* contains the terminal number so that the identifiers are *POS0001*, *POS0002* and so on, the following **regular expression** can be used to extract these IDs: `^.+?(POS\d+).+`

In this case, the *Data ID* field in every channel configuration is to contain the actual POS ID: *POS0001*, *POS00023*, *POS6592* etc.

When ready, click *OK* to save and close the data overlay dialog box, then click *OK* to save and close the channel configuration window.

Now your textual data from the data provider will be displayed overlaying the video stream in Ganz CORTROL Client and both live view and in the instant/regular archive playback mode in case the corresponding option is enabled in the recording profile for the target channel; also, it will be possible to search through the recorded data.



If you wish the serial data to be available in the video **playback** mode in Ganz CORTROL Client application, make sure to set the *Data stream* to be recorded in the corresponding recording profile.


The overlay text will only be visible in live view and regular/instant playback, and will not be displayed in other views (e.g., smart search). In order to export video from the archive with the text overlay, use MKV file format + VP8 compression + hard or soft subtitles.

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67 Manage Mail Servers

Several Ganz CORTROL components require an SMTP server in order to be able to send emails to a specified address. Specifically, these are email sending [actions](#) in [E&A](#) and automatic [reports](#); a pre-configured mail server is required for these features to be operational.

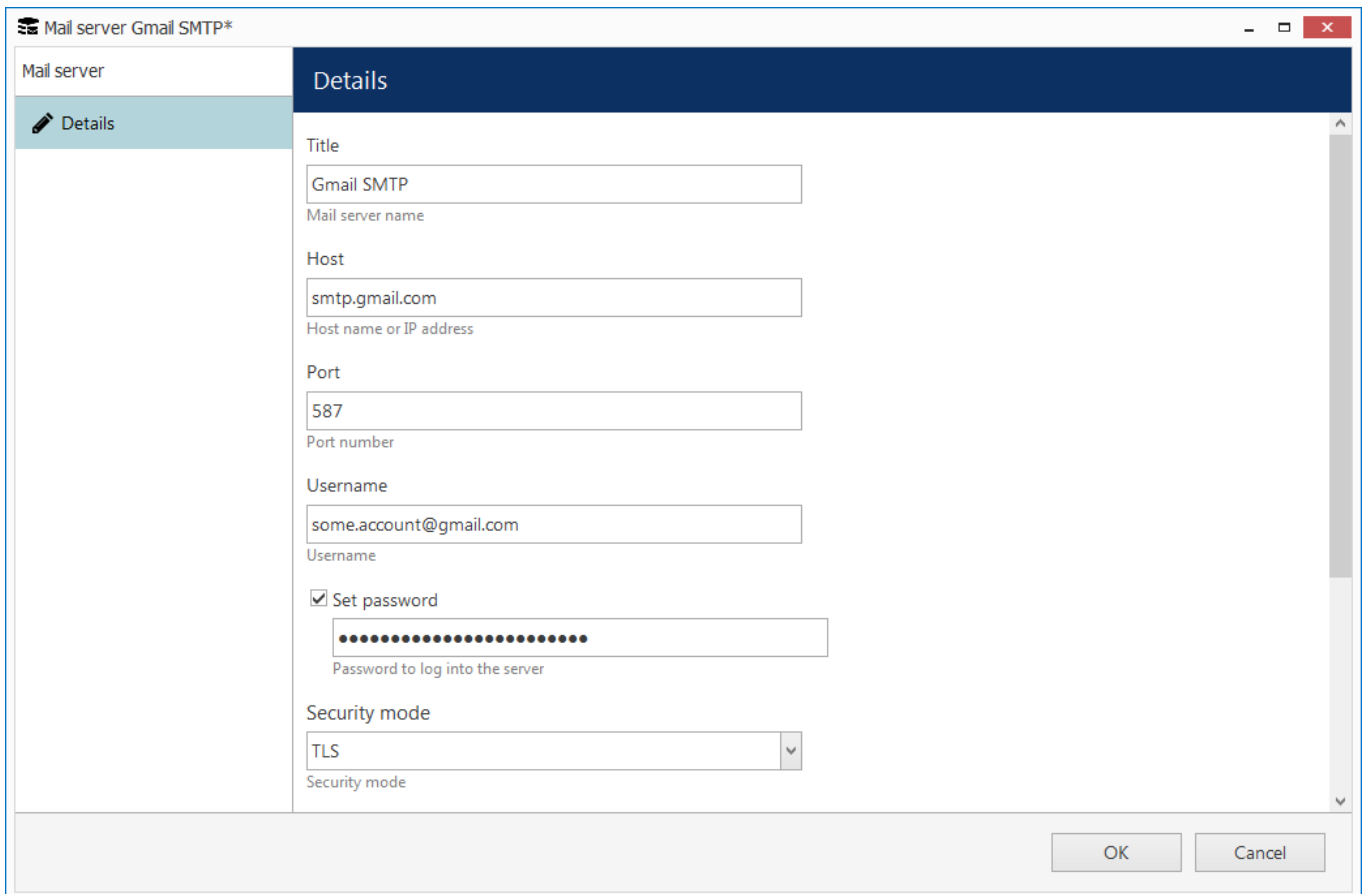
One or multiple different outgoing SMTP servers can be configured in order to send notification emails through them. You can use/set up your own SMTP server, if your organisation already has one and/or it is affordable for your organisation; alternatively, free Internet services can be used for this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

 Prior to Ganz CORTROL version 1.7.0, mail server configuration was accessible via *Events & Actions* section of Ganz CORTROL Console.

Note that there are not any default (pre-configured) mail servers.



The screenshot shows a dialog box titled "Mail server Gmail SMTP*" with a "Details" tab selected. The form contains the following fields and options:

- Title:** Gmail SMTP
- Host:** smtp.gmail.com
- Port:** 587
- Username:** some.account@gmail.com
- Set password:** (password field is masked with dots)
- Security mode:** TLS

Buttons for "OK" and "Cancel" are located at the bottom right of the dialog.

SMTP server settings

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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 (STARTTLS, SSL (TLS version 1.2), or no security)	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.

Maximum [time/number of occurrences] in this context means that it will not be exceeded under any circumstances. The actual time or number of occurrences may be either max or less - depending on which aggregation parameter is triggered first.

Example: aggregation time is set to 60 seconds and aggregation count - to 15. If the notifications arrive frequently, and 15 items are collected in under one minute, the email will be sent immediately. If there is just 1 or 2 notifications but 60 seconds have passed, an email will be sent, too.

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 and reports.



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, Ganz CORTROL will also have no trouble sending your notifications.

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68 Reports

Ganz CORTROL Console application provides an opportunity to send automatic reports based on the counter data, which has been recorded with the video stream(s). Depending on the collected information context, these reports can be used, for example, to estimate the average number of customers during specific hours, compare the number of passing cars to the number of trucks etc. Counter information is collected from Ganz CORTROL **Open VCA** video analytics, **camera-side VCA** (for certain manufacturers) and **software counters**.

The report creation process is similar to the manual procedure of reporting in the Ganz CORTROL Client application, with the difference that here the settings are defined once and then are used by the Ganz CORTROL servers for automatic report generation.



For the exact list of supported camera-side VCA counters, kindly contact our support engineers at cortrol@cbcamerica.com.

There are three report types: **bar**, **line** and **pie** diagram. Regardless of the chosen type, all reports are based on the **counters** and have configurable report interval and days and times of interest. Counter values are compared for the given period and with the specified scale, and the results are then reflected in the chart of the selected type. Reports can be configured to be created **automatically** on a **daily**, **weekly** or **monthly** basis and then **emailed** to the specified email address.



Regardless of the report settings, the report will be emailed after the selected report interval has ended.

Example 1: the report interval is previous day with time filter set to 8AM to 6PM. The report will be emailed next day 12:01AM.

Example 2: the report interval is previous week with only working days selected (weekends deselected). The report will be emailed 12:01AM next Monday, i.e., when the week is over.

Prerequisites

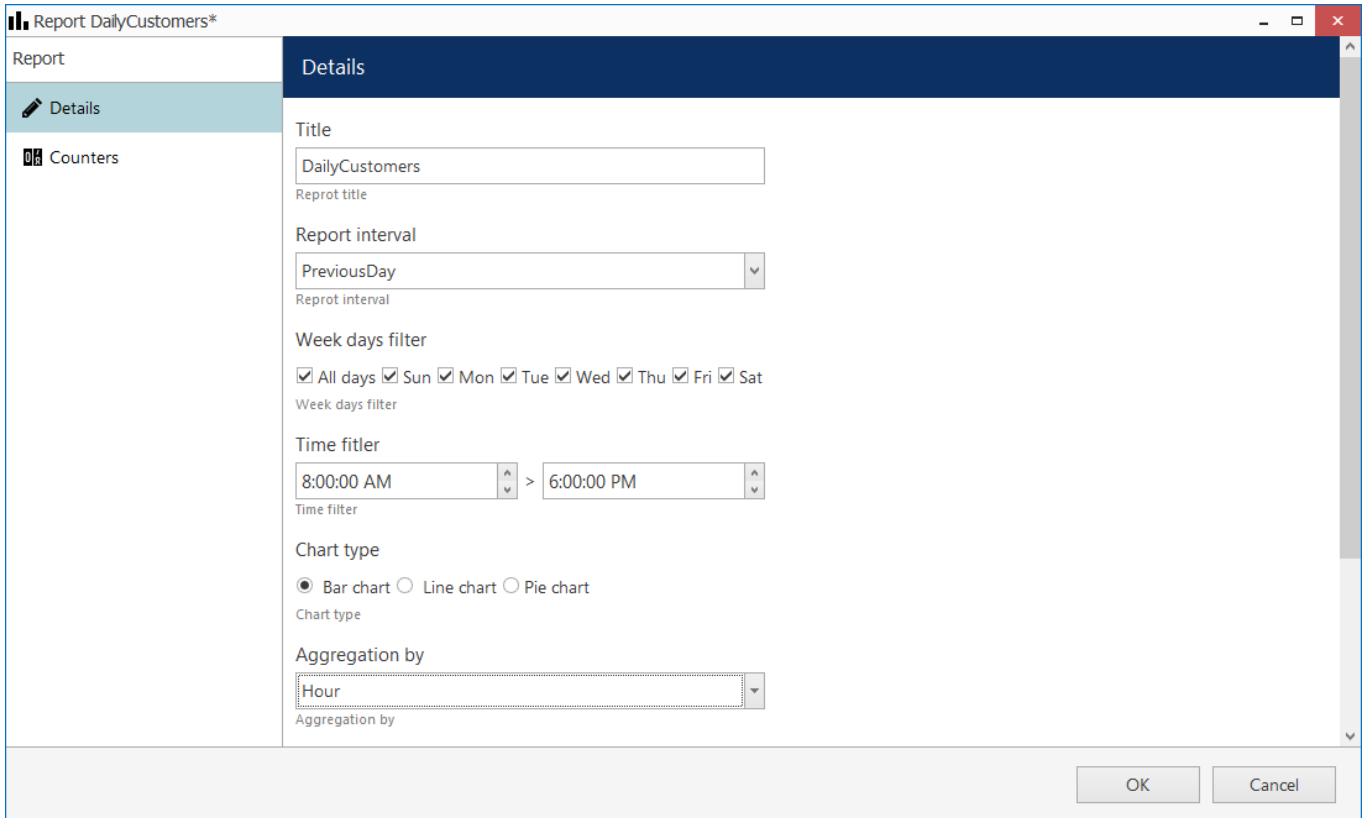
Reporting in Ganz CORTROL Console is primarily aimed at automatic report sending via email. In order to achieve this, you need to **configure** a [mail server](#) for the emails to be sent through, according to the steps explained in the [corresponding section](#) of this document. You can do this prior or after the report setup. If you need a one-time report for a custom time interval, you are welcome to use the reporting function in the Ganz CORTROL Client application.

For a report to be created successfully, there must be some counter data present in the database. You can use Open VCA, camera-side VCA (for certain manufacturers) or [software counters](#). Open VCA setup in Ganz CORTROL is described in a separate document provided by demand.

Report Configuration

In order to start report setup, go to the *Configuration* section of Ganz CORTROL Console and choose *Reports* from the menu on the left. Press the + *New report* button on the top panel to bring up the report configuration dialog box.

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Edit report dialog box

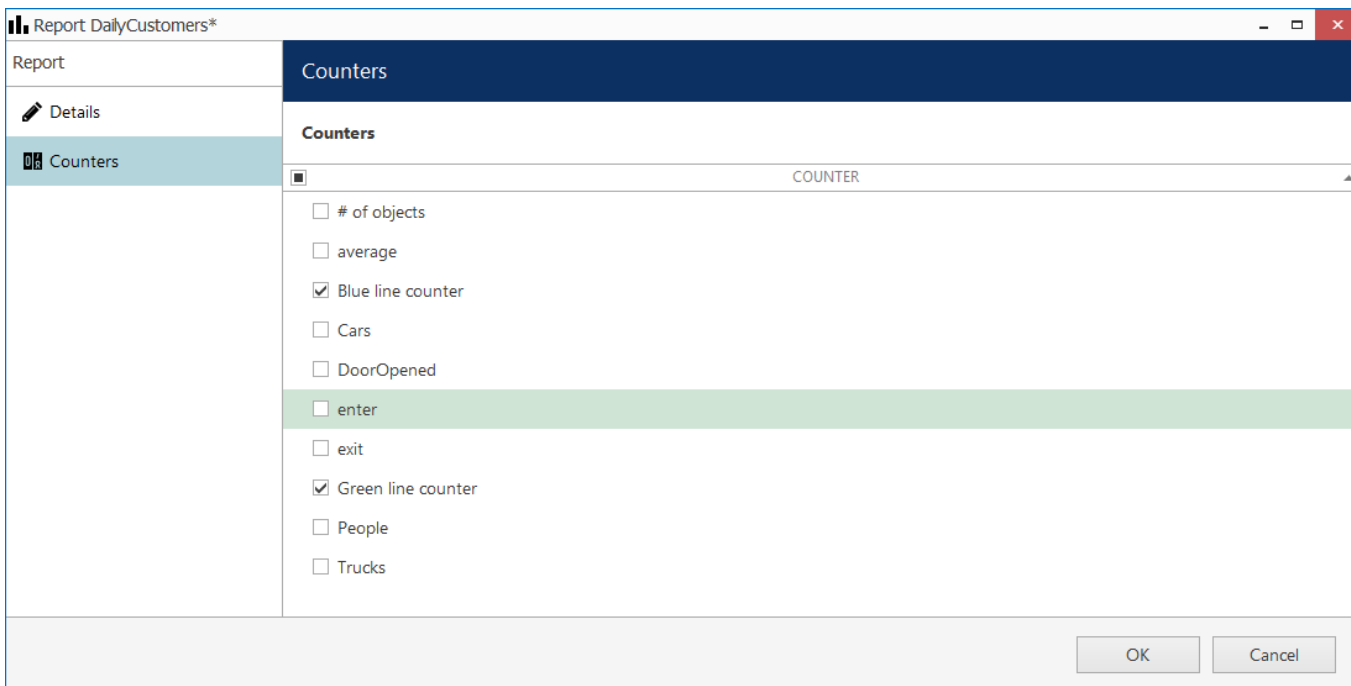
Specify the **reporting criteria** in the *Details* tab; the following settings are available:

Setting	Description	Default Value
Title	User defined title for the report	[empty]
Report interval	Time interval to be represented in the report; can be previous day, week or month	Previous day
Week days filter	Days of the week to be included in the report (e.g., ignore weekends)	All days
Time filter	Target audit interval to be analysed for each of the selected days	12AM > 12AM (whole day)
Chart type	Diagram type: bar, line or pie	Line chart
Aggregation by	Scale factor for the target diagram - results can be presented for months, weeks, days, hours or minutes (also, the data can be aggregated by counters if the selected chart type is pie diagram)	Day
Value	Counter value to be taken for each report time interval on the X axis (day etc.): <ul style="list-style-type: none"> • Absolute: actual counter value • Relative: difference compared to the previous interval • Average: arithmetic mean of the given interval • Minimum: minimal value during the given interval • Maximum: maximal value during the given interval 	Absolute
Sum counters	Choose whether you want each counter to be represented separately or all counters are to be added up (for bar and line type diagrams only)	Disabled
Automatic	Generate the report and send it automatically to the specified email	Disabled

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Mail server	A pre-configured SMTP server to be used for email sending (the setting is revealed when automatic report sending is enabled)	[none]
To	Email recipient the report to be emailed to; enter exactly one valid email address here (the setting is revealed when automatic report sending is enabled)	[empty]

Next, switch to the *Counters* tab: here, you can select the required counters from the list. All the counters available in the system are listed here - from Open VCA, camera-side VCA (for certain manufacturers) and [software counters](#) as well - in case their data is present in the database.




The list of counters available for report

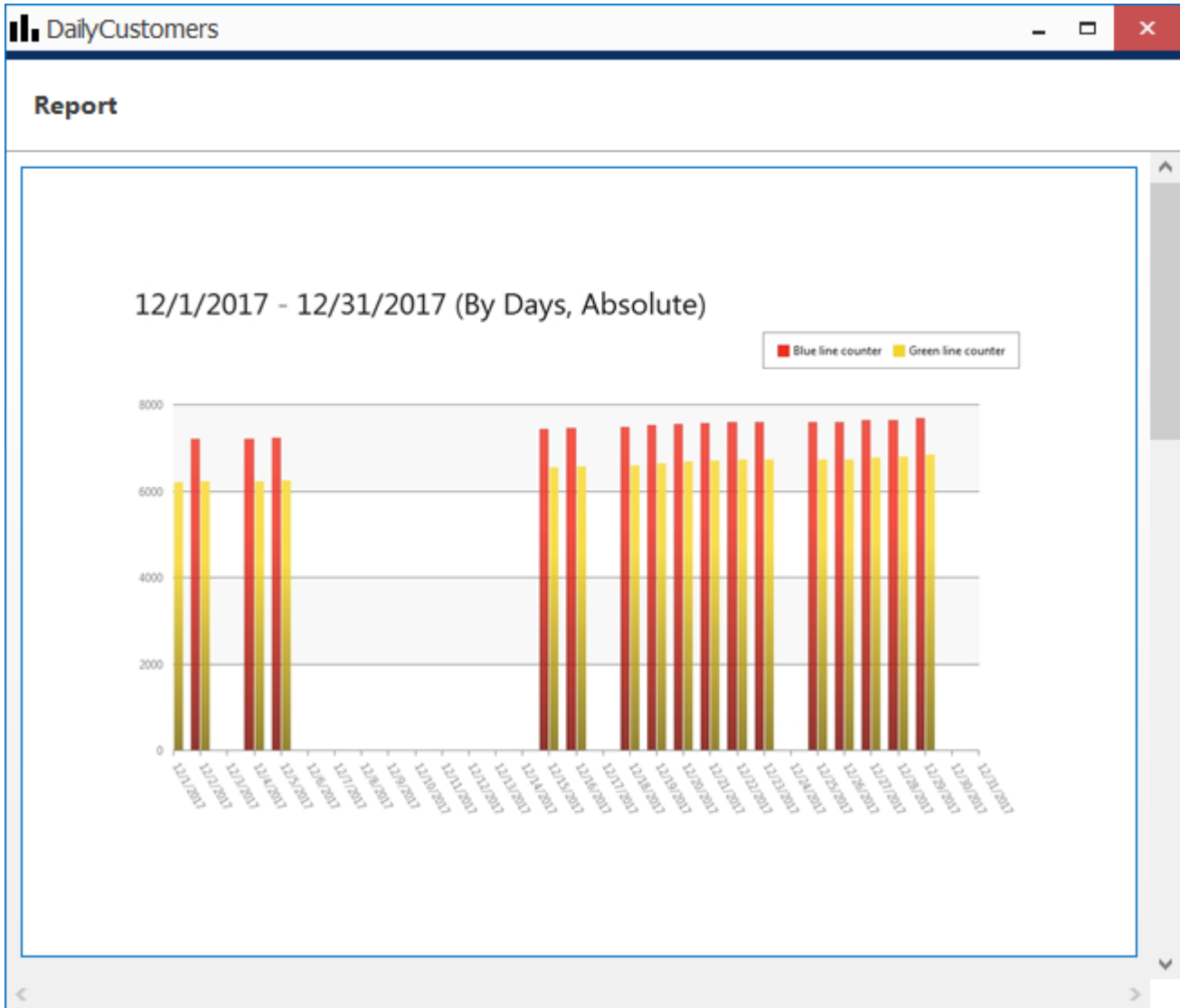
When ready, hit the *OK* button in the bottom to save the report configuration based on your selected criteria. To edit and remove reports, use the corresponding buttons on the upper panel.

Report Preview

After you have created a report, you can check how it will look like by using the *Preview* and *Test* buttons on the upper panel. The **preview** button will generate a report and display it on your screen; the **test** option will create a report and email it to the specified address in PDF format immediately. In either case, the report preview will be based on its configured time interval, so, if you get an empty report, make sure that counter data are present for the previous day, week or month, whichever specified.

 When you have created a new report and wish to test it, please wait about 10-30 seconds before pressing the *Test* button: this time is required to retrieve the counter information from the database.

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Report preview

On each diagram, the **horizontal axis** (X) represents time in the specified scale, and the **vertical axis** (Y) reflects counter values. The counter values for each time interval are calculated based on the selected setting and can reflect absolute, relative, average, minimum or maximum counter value for the given interval. In the **pie diagram** type, each sector can represent either a time interval or a counter, depending on the aggregation setting parameter.

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Each chart also contains a **legend** that provides information about colours used in the diagram:

- if you have selected to analyse every counter separately, each counter will be represented with its own colour and the legend will reflect counter titles
- if you have chosen to sum the counter values:
 - bar diagram will have just one column for each interval, every column consisting of specified counters and its total height reflecting the total
 - line diagram will contain graphs for each individual counter and the total
- pie chart will reflect the counter sum for each time interval if aggregation by time intervals is chosen, so the legend will contain timestamps; if aggregation by counters is selected, the pie will reflect the proportion of the counter values for the whole selected audit interval

Apart from the diagram itself, each report in PDF format will also contain a table with the reference counter values.

Report Status Monitoring

Report execution status can be tracked from the *Monitoring* section of Ganz CORTROL Console, by choosing *Reports* in the menu on the left.

TITLE	STATUS	REPORT STATUS	EXECUTION TIME	NEXT EXECUTION TIME	STATUS TIME	INFORMATION
DailyCustomers	Normal	NotExecuted			1/5/2018 2:02:38 PM	
WeeklyCustomers	Normal	NotExecuted		1/7/2018 12:00:00 AM	1/5/2018 2:02:38 PM	

Recently added, 1 Recently updated, 0 Critical, 0

Report status

If a report has been sent at least once (by schedule, not as a test), the last execution time is shown here. For the reports that are currently set to be emailed automatically, the next (scheduled) execution time is also displayed.

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69 Health Monitoring

Ganz CORTROL provides **health monitoring data** for servers, devices and channels, as well as **live status** of connected user sessions and other resource information. In the *Archive statistics* section, it is possible to view the stream details and also **un-protect** footage that has been locked via Ganz CORTROL Client application.

To access live reports in Ganz CORTROL 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.

The contents of any subsection in *Monitoring* can be exported in CSV (comma-separated value) format using the button on the upper panel.

Servers

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

TITLE	ID	CONNECTED	SYNCHRONIZED	STATUS	CONNECTION ...	CONNECTION TEXT	SYNCHRONIZA...	SYNCHRONIZATION TEXT
Central Server	(101)	yes	yes	Success	0	The operation completed successfully	0	The operation completed successfully

Servers live monitoring

Devices

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

TITLE	ID	SERVER	DEVICES/MODEL	TIME	CONFIGURA...	CONFIGURATION UPDATE RESULT TEXT	STATUS
(Generic) ONVIF Compatible ...	(103)	Central Server (101)	ONVIF Compatible	11:57:44 AM	0	The operation completed successfully	Success
Asoni CAM613 on 192.168.3...	(102)	Central Server (101)	CAM613	11:57:44 AM	0	The operation completed successfully	Success
Grundig GCI-G1536F on 192...	(109)	Central Server (101)	GCI-G1536F	11:57:44 AM	0	The operation completed successfully	Success
Grundig GCI-K0622D on 192...	(108)	Central Server (101)	GCI-K0622D	11:57:44 AM	0	The operation completed successfully	Success
Grundig GCI-K1627D on 192...	(111)	Central Server (101)	GCI-K1627D	11:57:44 AM	0	The operation completed successfully	Success
Vivotek FD8154 on 192.168...	(110)	Central Server (101)	FD8154	11:57:44 AM	0	The operation completed successfully	Success
Vivotek IP7131 on 192.168.3...	(107)	Central Server (101)	IP7131	11:57:44 AM	0	The operation completed successfully	Success

Devices live monitoring

Ganz CORTROL Administration Guide

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.

Monitoring	TITLE	ID	SERVER	STATUS	TIME	CONFIGURAT...	CONFIGURATION UPDATE RESULT TEXT	VIDEO LOST	BITRATE
	(Generic) ONVIF Compatible ...	(106)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		98893
Servers	Asoni CAM613 on 192.168.3...	(104)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully	yes	0
Devices	Asoni CAM613 on 192.168.3...	(105)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully	yes	0
Channels	Grundig GCI-G1536F on 192...	(114)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		471087
User sessions	Grundig GCI-K0622D on 192...	(113)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		53273
Audit journal	Grundig GCI-K1627D on 192...	(116)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		68642
Configuration	Vivotek FD8154 on 192.168...	(115)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		33169
Monitoring	Vivotek IP7131 on 192.168.3...	(112)	Central Server (101)	Success	12:23:30 PM	0	The operation completed successfully		29266

Channels live monitoring

Streams

This section displays every recorded stream separately and their properties:

- originating channel from the list of existing enabled channels
- stream type: video, audio, motion, external data (from [data sources](#)), VCA metadata
- target storage and directory, stream type and status messages

Removed and disabled channels will not be shown under this section: only active recorder tasks are displayed here.

Archive Statistics

Here, you can see recording statistics for **every channel** (all streams and all storages included):

- the time of the very **first** and the very **last** recordings per channel
- total archive **duration** for each channel
- total archive **size** per channel, based on the time boundaries mentioned above
- **average amount** of recordings per day for each channel

Double-click any entry or use the *View* button on the top panel to display **details** for each channel: view the recording statistics per storage and with detailed information on every stream including audio, motion, VCA and external data feeds.

To review and **unlock** the footage that has been **protected** from erasing via Ganz CORTROL Client application, select the target channel(s) and click the *Protected intervals* button on the top panel.

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The screenshot displays the 'Archive statistics' section of the Ganz CONTROL Administration interface. On the left is a navigation menu with options: Servers, Devices, Channels, Streams, Archive statistics (highlighted), Storages, User sessions, Video walls, External services, Reports, Access control, and OPC. The main area shows a table of archive statistics with columns: CHANNEL, BEGIN DATE, END DATE, DURATION, DATA SIZE, and DATA SIZE PER DAY. A single row is visible for 'Store' with a duration of 8.8:48:02 and a data size of 109.90 GB. Below this is a 'Protected intervals' dialog box. The dialog has a title bar, a search bar, and an 'Unprotect' button. It contains a table with columns: CHANNEL, SERVER, STATUS, BEGIN DATE, END DATE, DURATION, and INFORMATION. The table lists four protected intervals for the 'Store' channel on the 'Global Server', all with a status of 'Protected' and durations ranging from 00.01:30:03 to 00.01:29:45.


Archive statistics and protected archive intervals

From this dialog box, you can **unlock the previously protected** parts of the archive. If these recordings fall under quotas (storage or duration, server wide or individual), they will be erased immediately.

Storages

Statistics, properties and status for each storage unit are displayed here:

- **Title:** storage label, either built-in or user-defined
- **Status:** operation status of the target storage
 - *Normal:* the storage can be used for recording and there are no issues detected
 - *Critical:* the storage cannot be used for recording due to one or more serious errors, check the Information column for description
- **Status update time:** last time the storage status was obtained (use the *F5* button on your keyboard to refresh the list)
- **Path:** storage path on its server of origin
- **Encrypted:** yes/no
- **Free space:** how much free space in gigabytes is left on the disk
- **Free space %:** same but shown as percentage in reference to the total storage size
- **Total space:** entire storage size
- **Information:** additional details, if any (e.g., storage related errors)

 All storage information is retrieved through the API of the underlying operating system. If you think some of the information may be incorrect, check the same statistics via Windows interface.

If one or more storages have issues, the corresponding section will have a red circle with the number of detected issues next to the section name. Inaccessible storage units will have no total and free space information.

User Sessions

This monitoring area displays currently active incoming Ganz CONTROL Client connections via both TCP and HTTP ports with the following details:

Ganz CORTROL Administration Guide

- user account
- remote address
- remote (outgoing) port
- session start time
- type (Ganz CORTROL Console/Ganz CORTROL Client)

Disconnected sessions will automatically disappear from the list.

USER	ID	REMOTE ADDRESS	START TIME
Built-in Administrator account	(1)	192.168.1.83:54237	12/22/2015 12:53:39 PM

User Sessions live monitoring

External Services

If License Plate Recognition, Face Recognition and/or other external services are connected, their session properties will be displayed here: service name, remote address and used user account.

Reports

This section contains health monitoring data for automatic VCA and software counter [reports](#).

TITLE	STATUS	REPORT STATUS	EXECUTION TIME	NEXT EXECUTION TIME	STATUS TIME	INFORMATION
DailyCustomers	Normal	NotExecuted			1/5/2018 2:02:38 PM	
WeeklyCustomers	Normal	NotExecuted		1/7/2018 12:00:00 AM	1/5/2018 2:02:38 PM	

Report status


If a report has been sent at least once (by schedule, not as a test), the last execution time is shown here. For the reports that are currently set to be emailed automatically, the next (scheduled) execution time is also displayed.

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70 Audit

To access the global audit log in Ganz CORTROL 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.

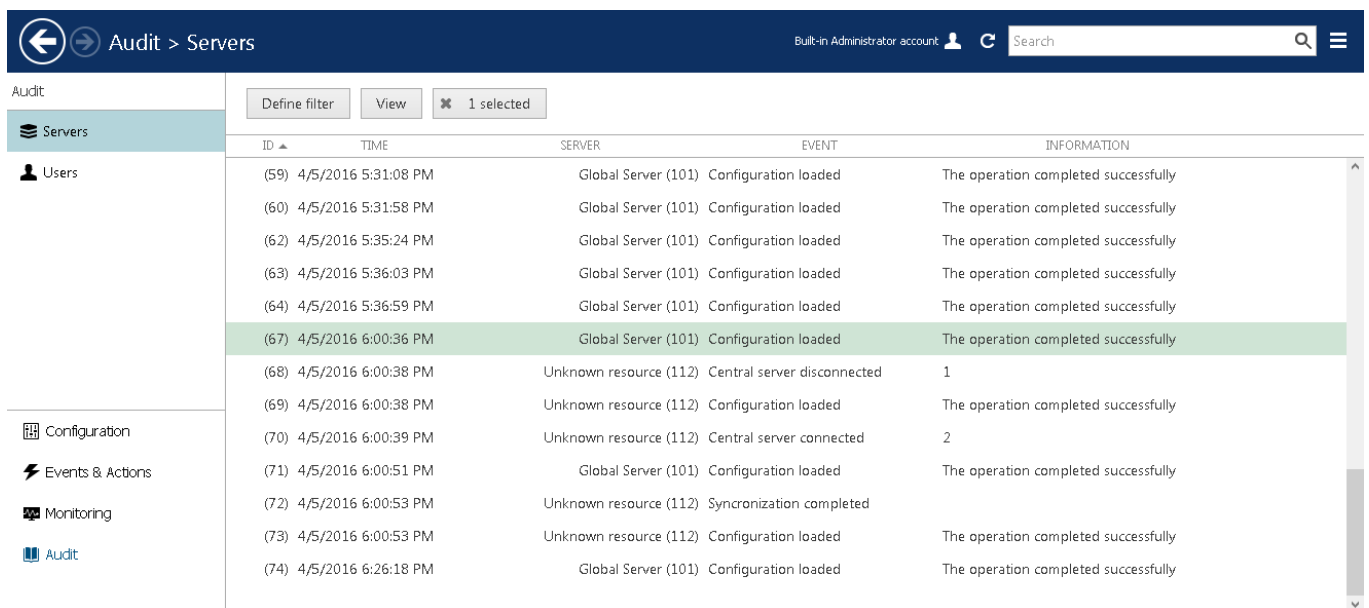
 Please note that your actual audited events may vary depending on the software license edition.

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 the *Audit* section.

Servers

Each event contains the following values:

- **Time:** event timestamp in the system locale-specific format
- **Server:** name of the server from which the event originates
- **Event:** a brief description of the event; see below for the detailed information about the logged event types
- **Information:** additional information relevant to the event, e.g., Open VCA error details



ID	TIME	SERVER	EVENT	INFORMATION
(59)	4/5/2016 5:31:08 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(60)	4/5/2016 5:31:58 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(62)	4/5/2016 5:35:24 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(63)	4/5/2016 5:36:03 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(64)	4/5/2016 5:36:59 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(67)	4/5/2016 6:00:36 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(68)	4/5/2016 6:00:38 PM	Unknown resource (112)	Central server disconnected	1
(69)	4/5/2016 6:00:38 PM	Unknown resource (112)	Configuration loaded	The operation completed successfully
(70)	4/5/2016 6:00:39 PM	Unknown resource (112)	Central server connected	2
(71)	4/5/2016 6:00:51 PM	Global Server (101)	Configuration loaded	The operation completed successfully
(72)	4/5/2016 6:00:53 PM	Unknown resource (112)	Synchronization completed	
(73)	4/5/2016 6:00:53 PM	Unknown resource (112)	Configuration loaded	The operation completed successfully
(74)	4/5/2016 6:26:18 PM	Global Server (101)	Configuration loaded	The operation completed successfully

Audit log, *Servers* section

The following **events** are logged in this section:

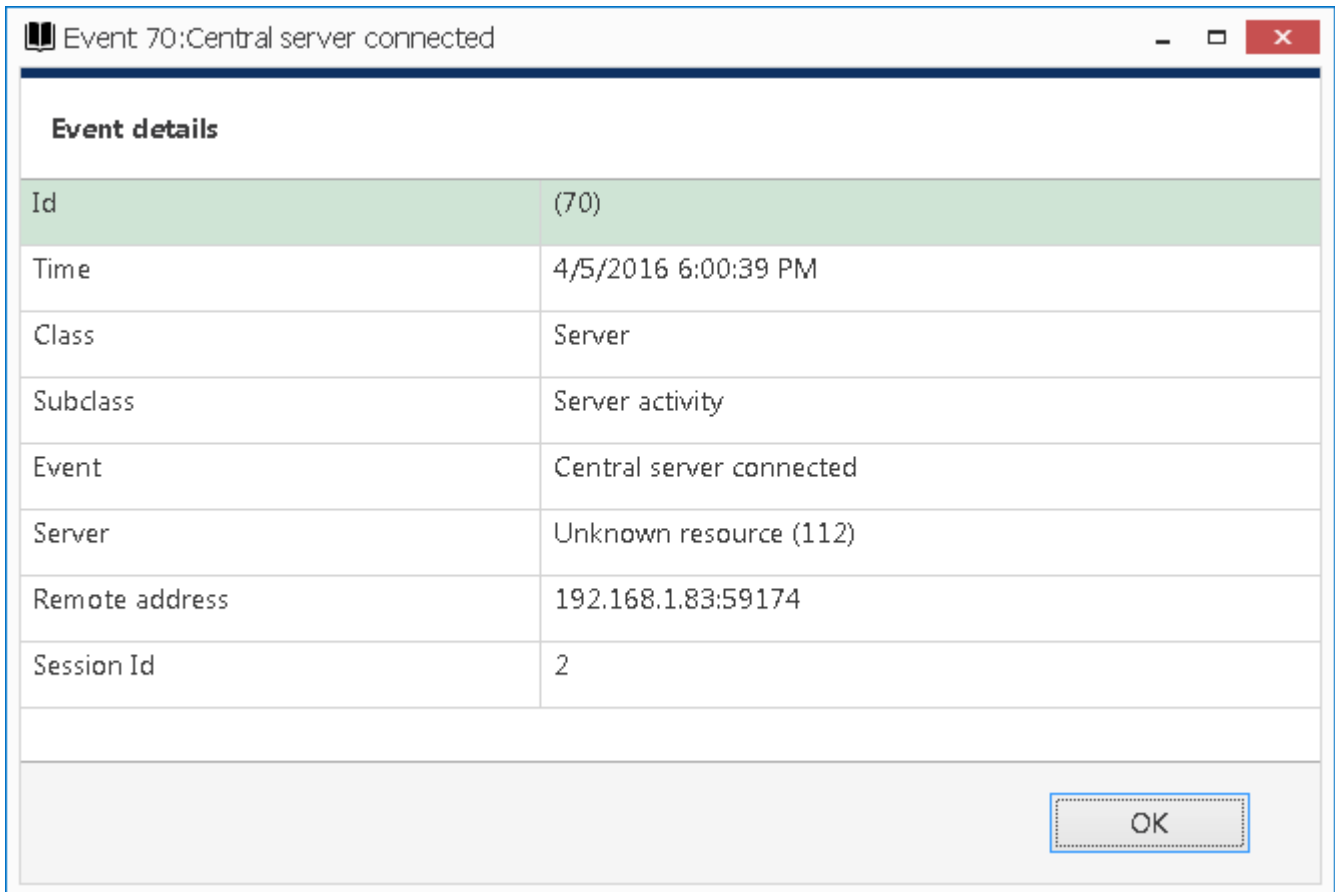
- **Internal server events**
 - **Audio output action completed:** an E&A action to send audio to device was executed
 - **Automatic backup failed:** an automatic backup was scheduled but failed for some reason
 - **Automatic backup succeeded:** a scheduled backup copy of the databases was successfully created
 - **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
 - **Configuration loaded:** configuration has been successfully loaded from the database and applied to the target server

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- **Configuration reset failed:** an attempt to reset the recording server configuration was made but failed for some reason
- **Configuration reset requested:** recording server configuration reset was requested via Ganz CORTROL Console (this message will be normally followed by another entry reflecting the rest status)
- **Configuration request succeeded:** recording server configuration was successfully reset
- **Configuration saved:** server configuration was saved to the database
- **Connected to mirroring server:** central server successfully connected to its configured mirror
- **Connected to recording server:** central server successfully connected to a recording server
- **Disconnected from mirroring server:** central server disconnected from its configured mirror (e.g., because the mirror is no longer available)
- **Disconnected from recording server:** central server disconnected from a recording server
- **Event action failed:** an E&A action execution attempt was made but failed, double-click the event entry for details
- **Event action succeeded:** an E&A action was successfully executed, double-click the event entry for details
- **External users added:** an attempt to add new external users via AD/LDAP was made, see additional information for status details
- **External users removed:** external users were removed from the server configuration
- **External users updated:** AD/LDAP user list was synchronised
- **Failover node activated:** failover server changed its state from *Idle* and received configuration to act instead of a recording server
- **Failover status changed:** server was included or excluded from a failover cluster, or its status changed from/to *Unknown* (see server [health monitoring](#) for details)
- **Number of external users exceeded maximum allowed:** the number of imported AD/LDAP users exceeds maximum allowed by the license
- **Open VCA notification received:** server VCA engine event (e.g., VCA license error)
- **Remote update initiated:** remote software update was initiated via Ganz CORTROL Console
- **Server restarted by watchdog:** server was restarted by the watchdog service (double-click the event entry for the details about restart reason)
- **Server started:** Ganz CORTROL server service started
- **Server stopped:** Ganz CORTROL server service stopped
- **Synchronisation completed:** central server has successfully synchronised configuration data with the target recording server
- **Resource access**
 - **Archive**
 - **Bookmark added:** a bookmark was added to the target channel on behalf of the server (via E&A action, no user interaction)
- **Uncategorized**
 - **Permissions updated:** user permissions were edited, double-click the event entry for details

Double-click any event to open it in a separate dialog box with **additional information** about event source, such as: backup file path for the *Automatic backup* event, error code for the *Open VCA notification* event etc.

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Event details	
Id	(70)
Time	4/5/2016 6:00:39 PM
Class	Server
Subclass	Server activity
Event	Central server connected
Server	Unknown resource (112)
Remote address	192.168.1.83:59174
Session Id	2

OK

Event example for the *Servers* audit log

Users

The events related to user input (configuration via Ganz CORTROL Console, resource access via client applications) are available here. Some of these (mostly configuration related) are triggered by user actions in Ganz CORTROL Console and some (mostly related to resource access) are based on user actions in Ganz CORTROL Client. The following **events** are logged in this section:

- **Events & Actions**
 - **Rule modifiers:** events related to rule schedules and conditions
 - Event **condition** added/removed/updated: a condition was modified
 - Event **schedule** added/removed/updated: a schedule was modified
 - Event **schedule item** added/removed/updated: an individual schedule item was modified
 - **Action** added/removed/updated: an E&A action was modified
 - **Event** added/removed/updated: an E&A event was modified
 - Event-action **rule** added/removed/updated: a rule in the E&A table was modified
 - **Global event** added/removed/updated: a global event was modified
 - **Mail server** added/removed/updated: an SMTP server in E&A configuration was modified
- **External services:** events associated with external services operating via HTTP API, such as FR, LPR and third-party software integrations
 - **External service** added/removed/updated: external service connection was modified
 - **External service group** added/removed/updated: a group for external services was modified via Ganz CORTROL Console
- **Failover management**
 - Failover cluster added/removed/updated: failover cluster settings were modified via Ganz CORTROL Console
- **Installation:** events related to software installation and upgrade

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- Remote update requested: a user has requested remote server update via Ganz CORTROL Console (usually followed by the *Remote update initiated* event entry in the *Server* audit section)
- **Recording:** changes to recording setup via Ganz CORTROL Console
 - Recording **configuration** added/removed/updated
 - Recording **profile** added/removed/updated
 - Recording **schedule** added/removed/updated
 - Recording **schedule item** added/removed/updated
- **Resource access:** user actions concerning all types of resource access from connected clients
 - **Archive:** playback related events triggered from different Ganz CORTROL Client playback modes
 - Archive **replication** accessed: recordings from a channel replica were accessed
 - Archive **search** accessed: recordings from a channel were
 - Archive **snapshot** exported: a single or multichannel snapshot was exported from one of the archive playback modes
 - Archive **timeline** accessed: archived data was accessed in a playback mode that has timeline
 - Archived **data accessed:** available recordings from a channel were played back
 - Archived **data exported:** a video clip was exported (double-click the event entry for details)
 - **Bookmark** added/removed: a new bookmark was appended to the channel timeline or deleted from it
 - **Bookmark popup** confirmed: bookmark popup caused by E&A action was approved by a user via Ganz CORTROL Client application
 - **Bookmark search** accessed: bookmark were searched from the Ganz CORTROL Client playback mode
 - **Live**
 - **Audio input** received from device: audio IN was activated from live view
 - **Audio output** sent to device: audio OUT was activated from live view
 - **External data** accessed: information from *Data sources* was streamed with live video
 - **Layout** added/removed/updated: a layout was modified in Ganz CORTROL Client
 - **Live data** accessed: live video stream was displayed
 - **Motion data** accessed: motion information was streamed with live video
 - **VCA data** accessed: Open VCA metadata was streamed with live video
- **PTZ:** pan, tilt, zoom, focus, iris related actions, as well as PTZ presets and tours for the target channel
 - **Navigate:** PTZ event from older database versions (backward compatibility)
 - PTZ **auto-focus/auto-iris** activated: device automatic focus/iris feature was activated
 - PTZ **focus/iris** started/stopped: device manual focus/iris capability was used
 - PTZ **pan/tilt started:** device was panned/tilted
 - PTZ **pan/tilt stopped:** this event is generated after five seconds after the last pan/tilt command (after the PTZ control was released)
 - PTZ **preset** saved/activated/deleted: PTZ preset was accessed
 - PTZ **tour** saved/activated/deactivated/deleted: PTZ tour was accessed
 - PTZ **zoom started:** device zoom IN/OUT capability was used
 - PTZ **zoom stopped:** this event is generated after five seconds after the last zoom IN/OUT command (after the PTZ control was released)
- **User defined:** this event is generated when an audit entry is created based on a user-defined E&A action *Write to audit log*
- **Video walls:** events based on video wall related user actions in Ganz CORTROL Client via *Resources* panel and/or *Video Walls* section
 - Video wall **current layout saved as startup:** the currently displayed layout was set

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- as startup for the target video wall display via video wall management
- Video wall **layout saved as startup**: a layout was set as startup for the target video wall display
- Video wall **layout sequence paused**: the layout sequence currently assigned to a video wall display was stopped
- Video wall **layout sequence set**: a pre-saved layout sequence was assigned to a video wall display
- Video wall **layout set**: a pre-saved layout was assigned to a video wall display
- Video wall **object popped up**: an E&A action that displays an object (channel/map/layout) on a video wall screen has been executed
- Video wall **viewport** updated: an individual viewport contents was changed within a layout of a video wall display
- **Copied exported items**: exported files were copied from the Ganz CORTROL Client library to an external destination
- **External data search** accessed: archived information from *Data sources* was searched from Ganz CORTROL Client
- **External service search** accessed: archived external service data was searched from Ganz CORTROL Client
- **Live snapshot** exported: a snapshot was saved from the Ganz CORTROL Client live view mode
- **VCA search** accessed: archived VCA data was searched from the Ganz CORTROL Client playback mode
- **Resource administration**: resource related events caused by user actions in Ganz CORTROL Console management application
 - **Channels**
 - Channel **added/removed/updated**: target channel was modified in the described manner
 - Channel **attached/detached**: target channel was attached to/detached from its device
 - Channel **enabled/disabled**: target channel was activated/deactivated
 - Device **channel group** added/removed/updated: a channel group was modified in the described manner
 - **Data sources**
 - **Data source** added/removed/updated: a serial data source was modified in the described manner
 - **Data source profile** added/removed/updated: a profile for the data source was modified
 - **Devices**
 - **Administer**: device management event from older database versions (backward compatibility)
 - **Device** added/removed/updated: a device was modified in the described manner
 - **Device group** added/removed/updated: a device group was modified in the described manner
 - **Layouts** and layout templates
 - **Layout template** added/removed/updated: a layout grid was modified
 - **Layout group** added/removed/updated: a group for shared layouts was modified
 - **Live podcasts**
 - Live podcast **added/removed/updated**: a live broadcast was modified
 - Live podcast **enabled/disabled**: a live broadcast was activated/deactivated
 - **Maps**
 - **Geo map** added/removed/updated: a map based on the world map was modified
 - **Map** added/removed/updated: a picture-based map was modified
 - **Map group** added/removed/updated: a map/geo map group was modified
 - **Map item** added/removed/updated: an individual map item (e.g., channel marker) was modified on a map/geo map

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- **Networks**
 - Network **added/removed/updated**: a network connection was modified
- **Organisations**
 - Organisation **added/removed/updated**: an organisation was modified
- **Servers**
 - **Connection** updated: server connection (IP, port, SNMP settings) was modified (it is added/removed together with the server)
 - **Server** added/removed/updated: a server was modified in the Ganz CORTROL Global configuration
 - Server **configuration backed up**: server configuration was backed up manually via wizard (this event is only logged if the backup was run while Ganz CORTROL server was stopped)
 - Server **configuration restored**: server configuration was restored manually via wizard (this event is only logged if the wizard was run while Ganz CORTROL server was stopped)
 - **Server group** added/removed/updated: a server group was modified
- **User buttons**
 - **User button** added/removed/updated: a user button was modified
 - **User button group** added/removed/updated: a user button was modified
- **Video walls**
 - **Video wall** added/removed/modified: a video wall was modified
 - **Video wall group** added/removed/updated: a video wall was modified
- **Visual groups**
 - **Visual group** added/removed/modified: a visual group was modified
- **Server security**: events related to server security, access and permission/policy/user management
 - **Administration permissions** updated: administrative permissions for Ganz CORTROL Console access were modified for a user or a user group
 - **Audit log** accessed: the *Audit* section of Ganz CORTROL Console was accessed
 - **Confirmed server warning** notification: a popup warning from the server E&A action was confirmed in Ganz CORTROL Client
 - **External user group** added/removed/updated: AD/LDAP user group was modified
 - **Client connection** permissions updated: administrative permissions related to remote client access were modified
 - **Log in**: a user has successfully logged into the target server
 - **Log out**: a user has logged out of the server or his session timed out
 - **Monitoring data** accessed: the *Monitoring* section of Ganz CORTROL Console was accessed
 - **Object added** to group: some object in the server configuration was added into a group of the corresponding type
 - **Object removed** from group: some object in the server configuration was deleted from a group of the corresponding type
 - **Permissions** added/removed: user permissions were modified
 - **Security policy** added/removed/updated: server security policy was modified
 - **Unsuccessful log in**: a user has attempted to log into the server without success
 - **User** added/removed/updated: a user account was modified
 - **User group** added/removed/updated: user group settings were modified

Double-click an event entry to see **details** about the related resource, such as: resource name, the user who did the changes or executed the action, destination path for the copied exported files etc.

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ID	TIME	USER LOGIN NAME	USER'S FULL NAME	CONNECTION ADDRESS	CONNECTION TYPE	EVENT	SERVER	INFO
(24)	3/23/2016 3:27:25 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454	Monitor	Log out	Global Server (101)	
(22)	3/23/2016 2:19:41 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454		Receive Data	Global Server (101)	apix
(20)	3/23/2016 2:10:27 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454		Receive Data	Global Server (101)	wvtk
(19)	3/23/2016 2:10:27 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454		Receive Data	Global Server (101)	test
(16)	3/23/2016 2:06:55 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454		Receive Data	Global Server (101)	wvtk
(12)	3/23/2016 1:55:42 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454		Receive Data	Global Server (101)	test
(11)	3/23/2016 1:55:41 PM	admin	Built-in Administrator account (1)	127.0.0.1:62454	Monitor	Log in	Global Server (101)	
(10)	3/23/2016 1:55:35 PM	admin	none			Unsuccessful log in	Global Server (101)	
(9)	3/23/2016 1:55:30 PM	admin	none			Unsuccessful log in	Global Server (101)	
(8)	3/23/2016 1:55:27 PM	admin	none			Unsuccessful log in	Global Server (101)	
(7)	3/23/2016 1:55:24 PM	admin	none			Unsuccessful log in	Global Server (101)	
(3)	3/23/2016 1:54:14 PM	admin	Built-in Administrator account (1)	127.0.0.1:62443	Console	Log in	Global Server (101)	
(2)	3/23/2016 1:54:09 PM	admin	none			Unsuccessful log in	Global Server (101)	

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.

Filter

Filter

- Set period
- Select events
- Select resources

Set query period

All time

Last day

Last week

Last month

From date and time

10/15/2015 2:52:03 PM

From beginning

Starts query from the first time the system was set up

To date and time

12/22/2015 2:52:03 PM

Description

Until now

Ends query when timestamp submitted

Reset query

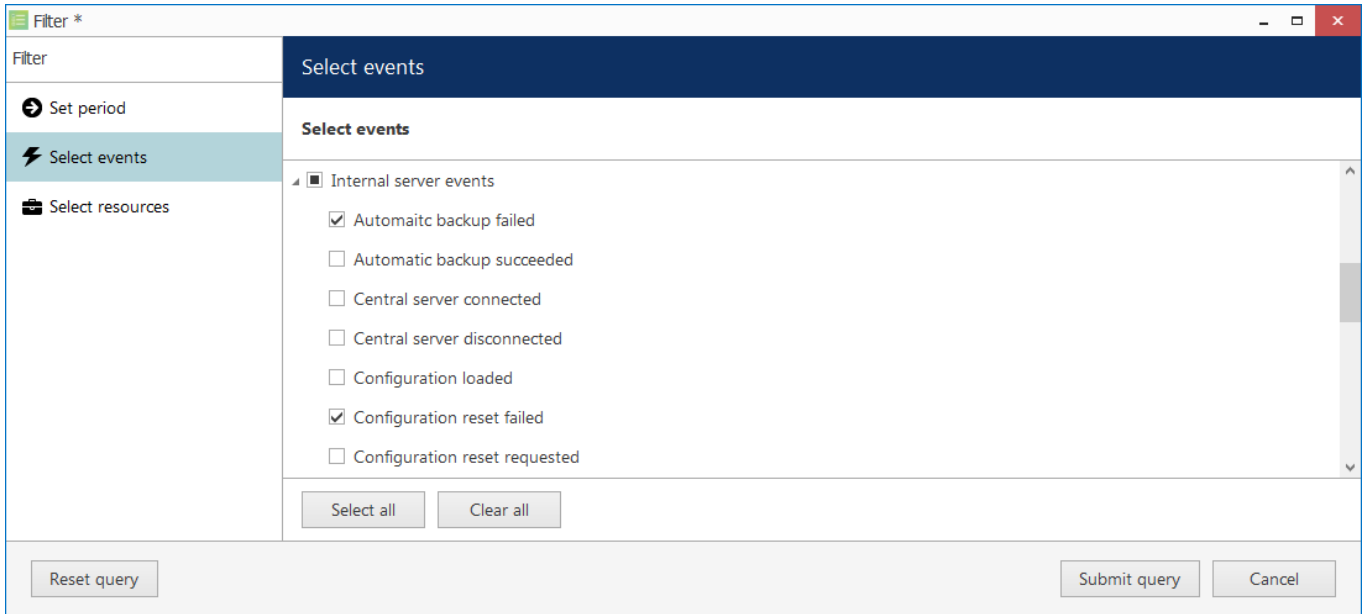
Submit query

Cancel

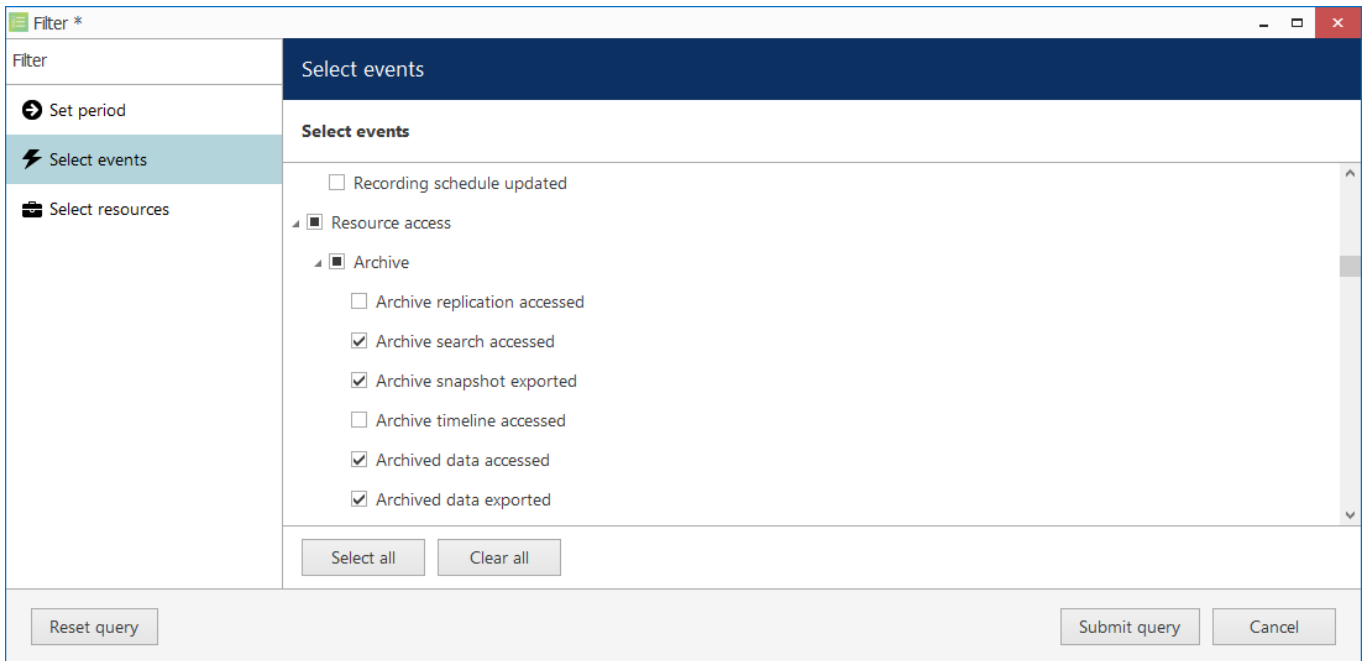
Set the time boundaries for audit log output

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.

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Specify event types for the *Servers* audit log output



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.

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Resources in query		All resources	
TITLE	ID TYPE	TITLE	ID TYPE
John Doe	(124) User	Central Server	(101) Server
(Generic) ONVIF Comp...	(106) Channel	Built-in Administrator ...	(1) User
		Admins	(126) User group
		Built-in Administrator...	(3) User group
		Local admins	(127) User group
		Operators	(125) User group
		Asoni CAM613 on 19...	(104) Channel
		Asoni CAM613 on 19...	(105) Channel
		Grundig GCI-G1536F ...	(114) Channel
		Grundig GCI-K0622D ...	(113) Channel
		Grundig GCI-K1627D ...	(116) Channel
		Vivotek FD8154 on 1...	(115) Channel
		Vivotek IP7131 on 19...	(112) Channel
		First Floor	(122) Channel group
		(Generic) ONVIF Com...	(103) Device
		Asoni CAM613 on 19...	(102) Device
		Grundig GCI-G1536F ...	(109) Device

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.

71 Archive Backup Wizard

Ganz CORTROL offers an option to **back up** any recordings from any server manually, in the proprietary Ganz CORTROL archive format. **Video, motion information, audio, VCA data streams**, as well as **external serial data** can be extracted from the original archive and saved elsewhere, with an option to include the **portable player** tool so that the downloaded recordings can be played on any Windows-based computer, even if it has no Ganz CORTROL installed.

The wizard is included with any Ganz CORTROL installation, including Ganz CORTROL Console management application and Ganz CORTROL Client application, and allows connection to **local and remote servers**.



The archive will be copied to the computer that has *Archive backup wizard* running on it. Thus, if you are connecting to a server remotely via *Archive backup wizard*, the archive copy will be **downloaded** to your computer from the server. As footage may be of significant size, make sure you have the required bandwidth available.

Start the Archive Backup Wizard from the Windows Start menu: *Start -> All Apps -> CBC AMERICAS, Corp. -> Archive Backup Wizard* (in Windows 7 and older versions, use *Start -> All Programs -> software installation folder -> Tools -> Archive Backup Wizard*); alternatively, use *Search* to locate *Archive Backup Wizard* in the programs menu.

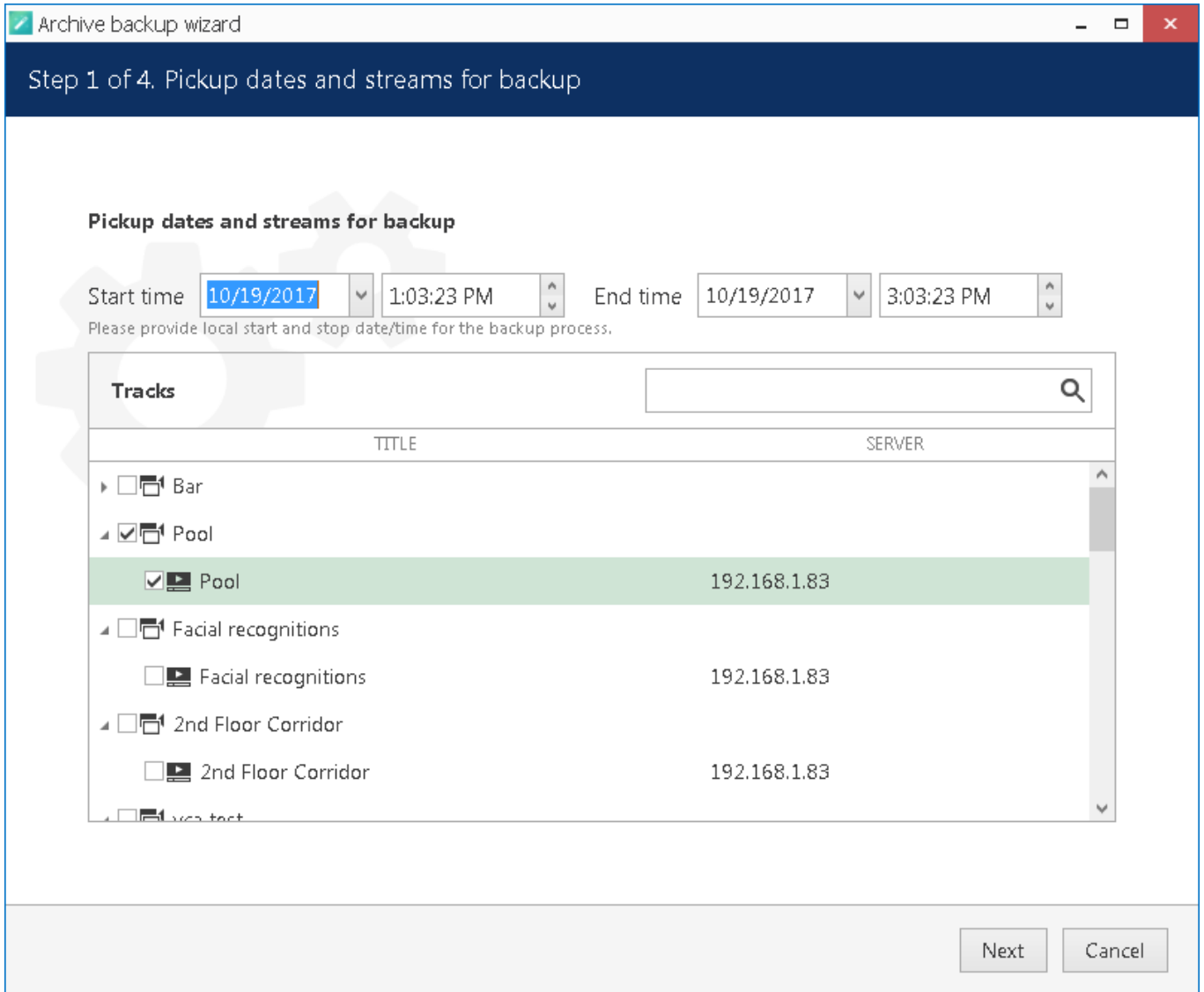
From the Ganz CORTROL Client application, the wizard can be launched via main application menu by opening *View -> Archive Backup Wizard* and choosing the server (one of the connected ones). The address of the server, and also the username and password, will be taken from the currently configured server connection.

Using Archive Backup Wizard

First, you will be asked to log into the target server: your user account must have an administrative permission to make archive backups plus permissions to back up footage from individual channels/channel groups. You can create archive backups from the local server or from any remote server (login procedure is analogous to Ganz CORTROL Console login), including individual recording servers. If you run the wizard from the Ganz CORTROL Client application, you will not be asked to log in; instead, your configured server connection will be used.

After you log in, you will be presented with the list of available recordings, grouped by channel. Select the channel(s) you need by putting a checkmark next to each one; specify the required time range above the channel list and click *Next*.

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Choose the target time interval and required channels

Depending on the number of selected channels, their footage size, storage speed and connection latency, it may take a few moments to retrieve the stream information. Once it is done, you will be presented with a list of streams for each of the selected channels.

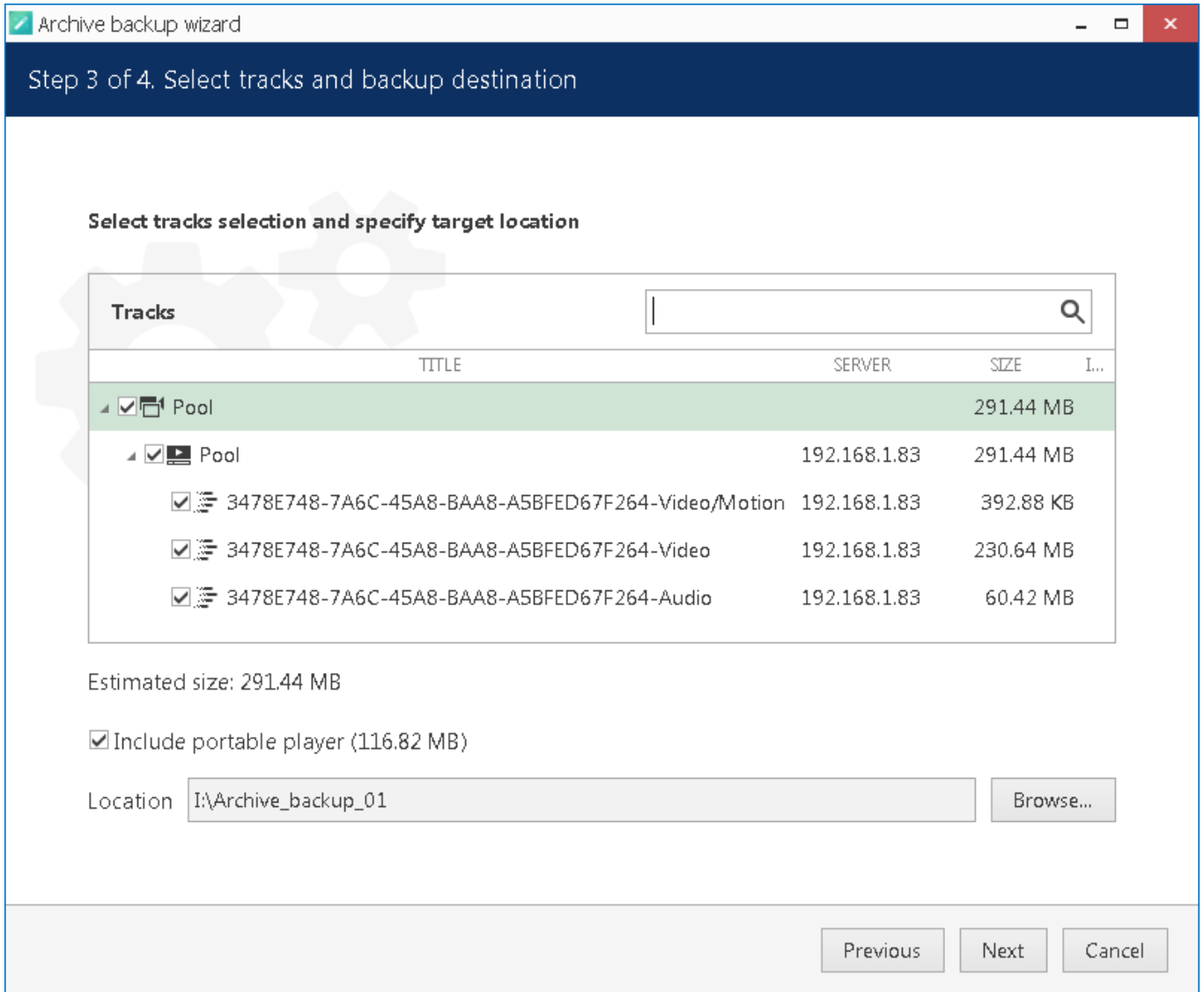
The **following tracks can be backed up**, depending on the channel recording settings and, therefore, stream availability:

- main video stream, substream and edge recordings
- video motion information
- audio stream
- VCA metadata
- external serial data from *Data sources*

Archive bookmarks and external service data (e.g., LPR/FR recognition results) are not available for backup.

Additionally, you can append the **portable player** tool with the copied part of the archive so that you can play the archive without having to install Ganz CORTROL server on another machine. Guidelines on the portable player usage are available in your Ganz CORTROL Client user guide.

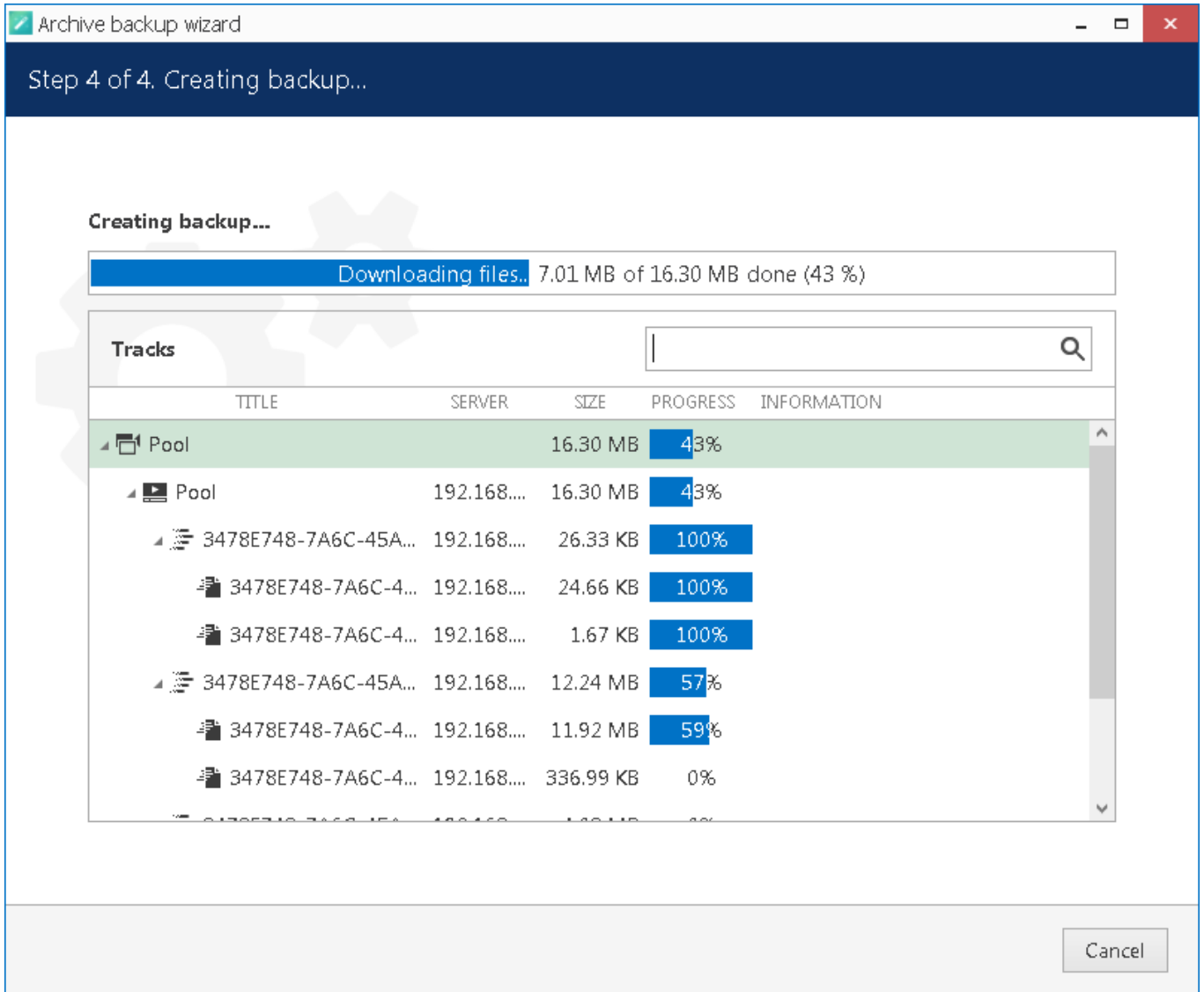
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Choose data streams and include portable player, if required

Here, you also need to specify a directory for the archive to be copied to: it may be a local hard disk, a shared network storage, or an attached USB drive. You are asked to choose an **empty folder** as a backup destination, so you may need to create a new folder from the standard *Select folder* dialog.

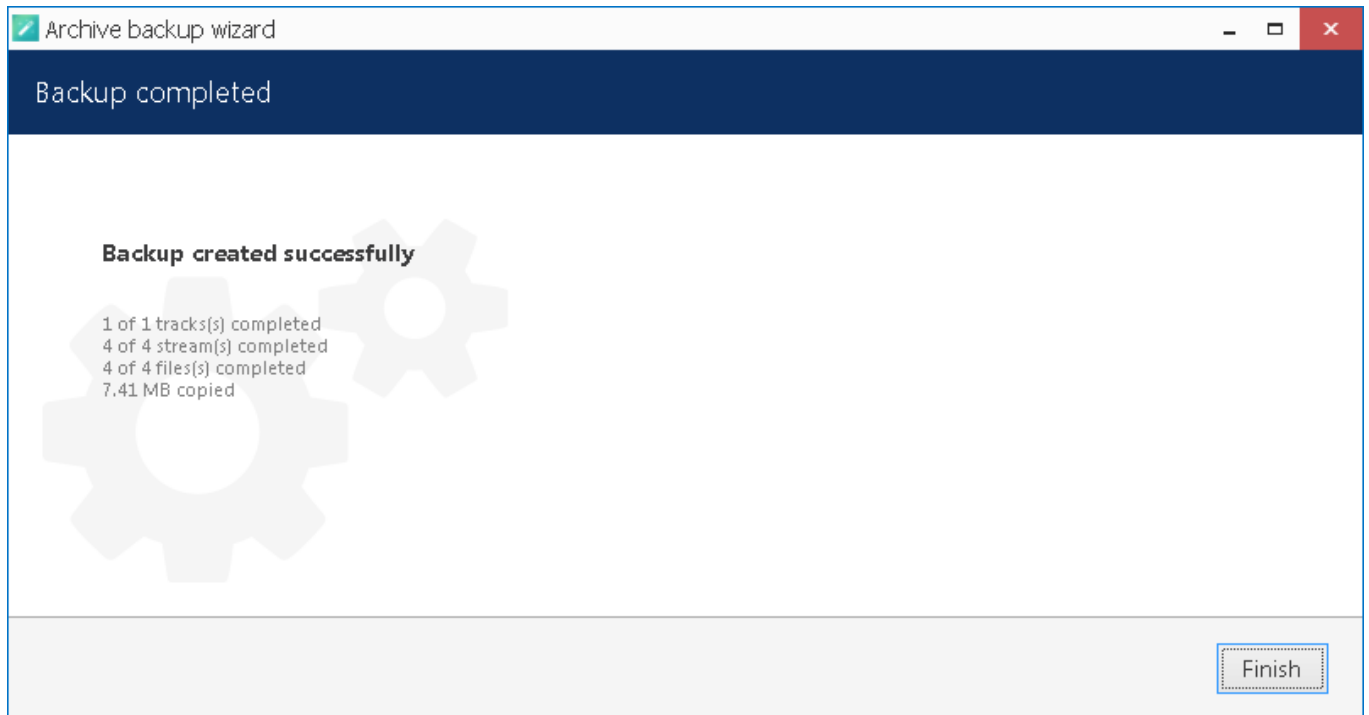
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Backup progress

When ready, hit *Next* for the wizard to proceed with backing up the selected information. Depending on the size of the selected archive, the backup procedure may take some time and its progress will be displayed in the wizard window. When it is finished, you will get a confirmation with a short description of what has been done.

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Archive backup succeeded

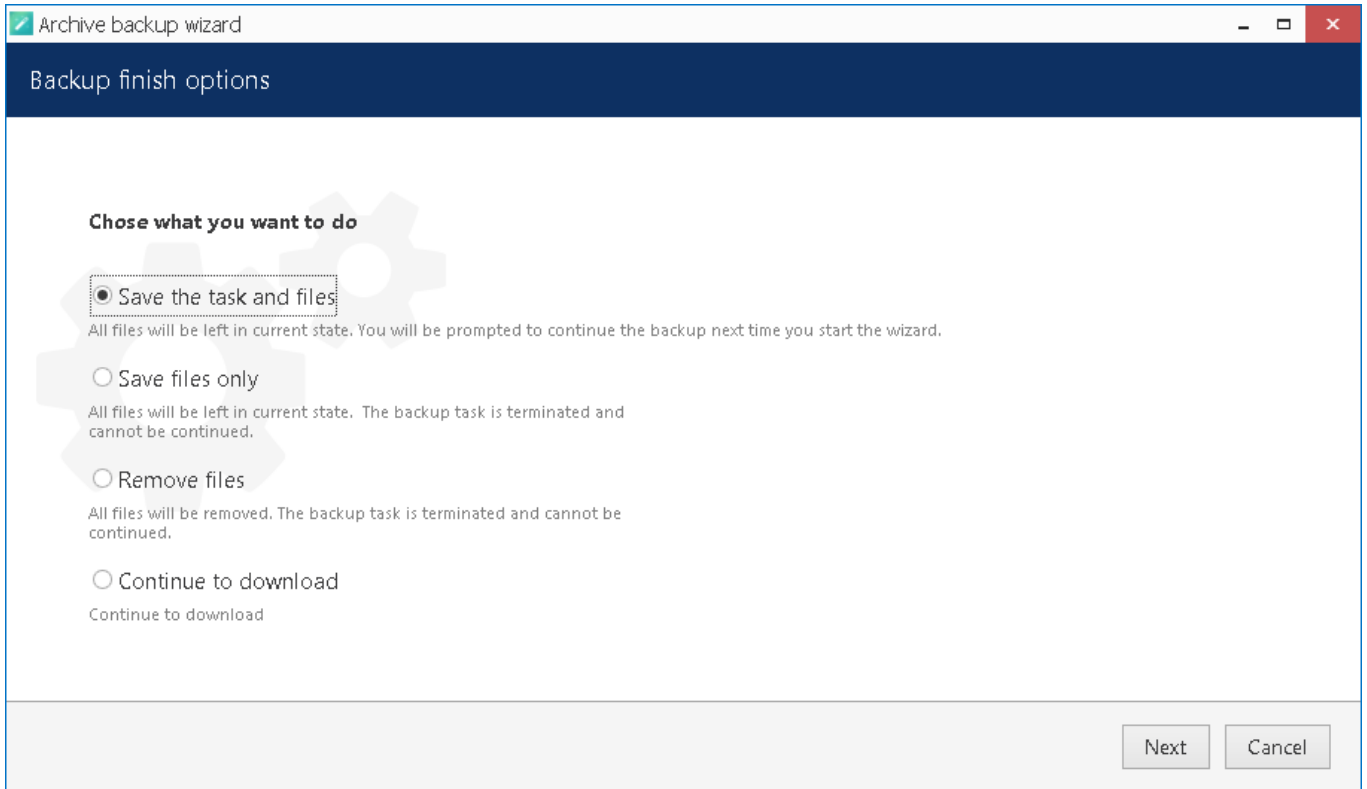
If you wish to back up more recordings, start the wizard again and follow the described procedure once again.

Postpone Your Archive Backup

If, during the backup progress, you decide to **stop** it for some reason, simply hit the *Cancel* button in the bottom right corner. You will then be presented with several options of how the wizard can proceed:

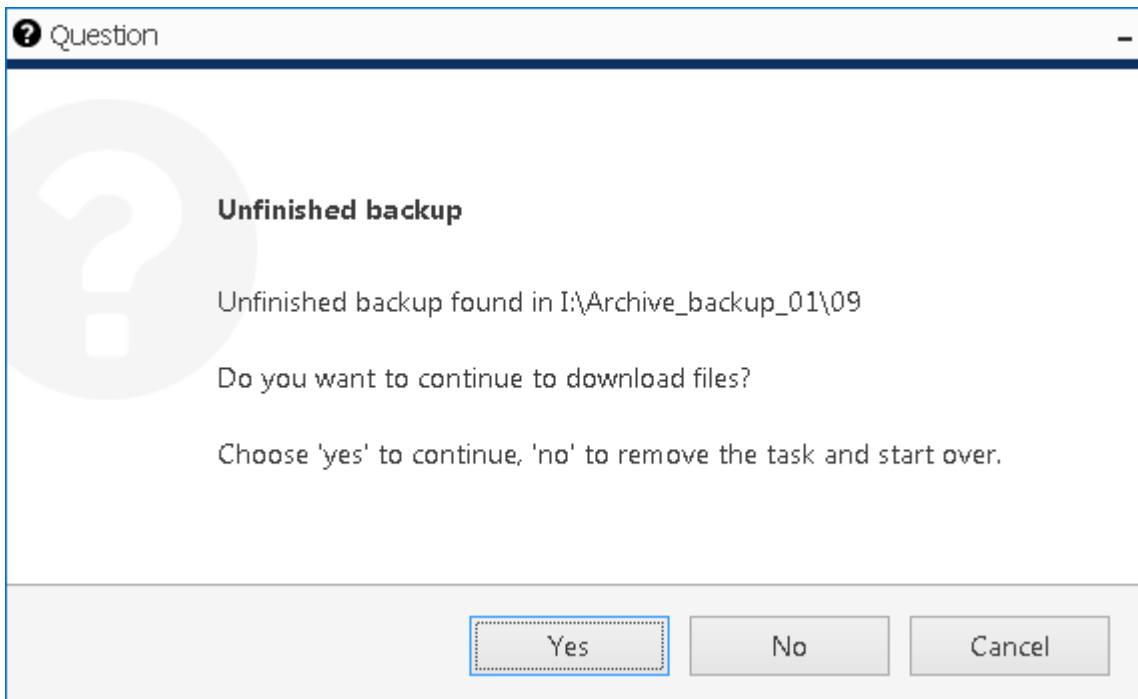
- save the task and files: save your current backup progress and preserve the wizard state until the next time you run it; you will be able to continue with the current backup item(s) then
- save files only: leave the files that have been downloaded so far but discard the wizard settings so that the next time you run it you will be presented with default choice
- remove files: discard current backup task completely and remove the downloaded files
- continue to download: go back and continue with the selected backup

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Archive backup termination options

If you have chosen to save both the task and the files, next time you start the wizard you will be reminded of the unfinished backup job and offered to continue with it. If you click *Yes* to proceed with the unfinished task, it will be started automatically right after you provide your user credentials for the server login.




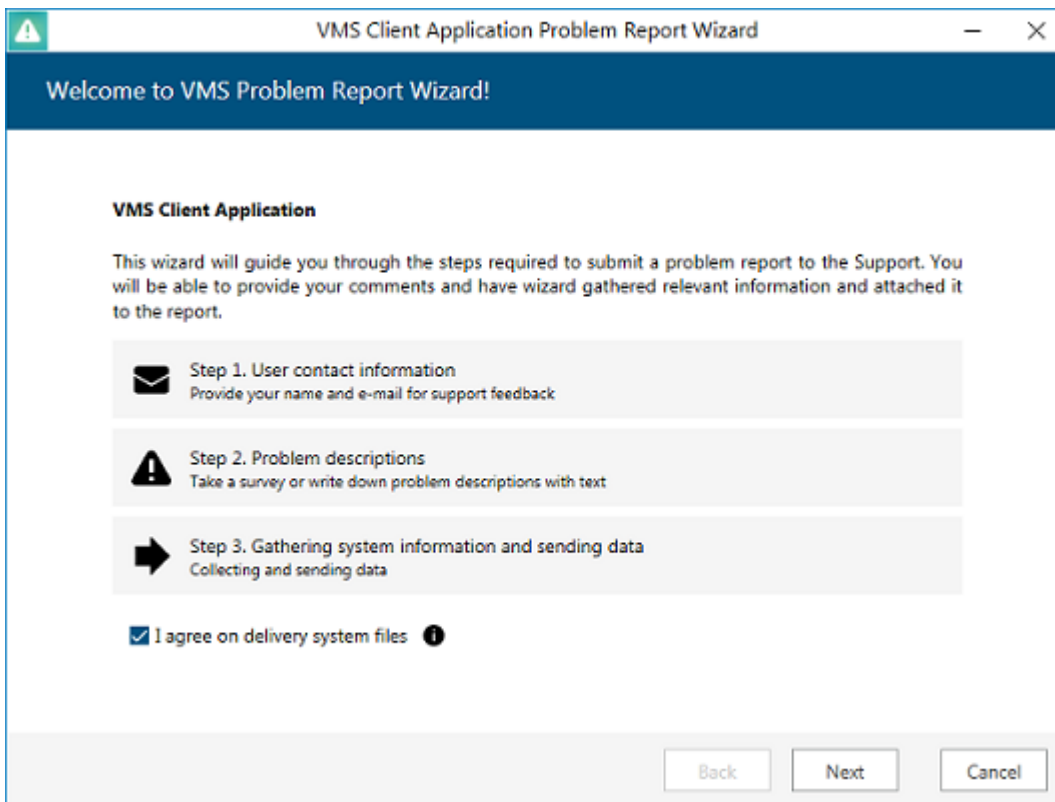
Continue with an unfinished backup task

72 Problem Report Wizard

CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp. software is installed.

Access Problem Report Wizard via *Start -> All Apps -> CBC AMERICAS, Corp. -> 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 Ganz CORTROL Console or Ganz CORTROL Client.



Run Problem Report Wizard from Windows Start menu

Agree to deliver system files to CBC AMERICAS, Corp. 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 CBC AMERICAS, Corp. will not transfer your data to any third-party companies; all the information gathered is required to help CBC AMERICAS, Corp. efficiently resolve the reported problems.

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The screenshot shows a window titled "VMS Client Application Problem Report Wizard" with a warning icon in the top-left corner. The window has a dark blue header bar that reads "Step 1 of 3. User contact information". Below the header, the text "User name and valid e-mail address" is displayed. A paragraph of text states: "Provided information will be used to send back solution or any other instructions based on provided Problem Report. It is highly recommended to use valid email address." There are two input fields: "User Name" and "E-mail address". At the bottom of the window, there are three buttons: "Back", "Next", and "Cancel".

Enter your contact information

Enter your name and your email address so that the CBC AMERICAS, Corp. support team can contact you. Click *Next* to proceed.

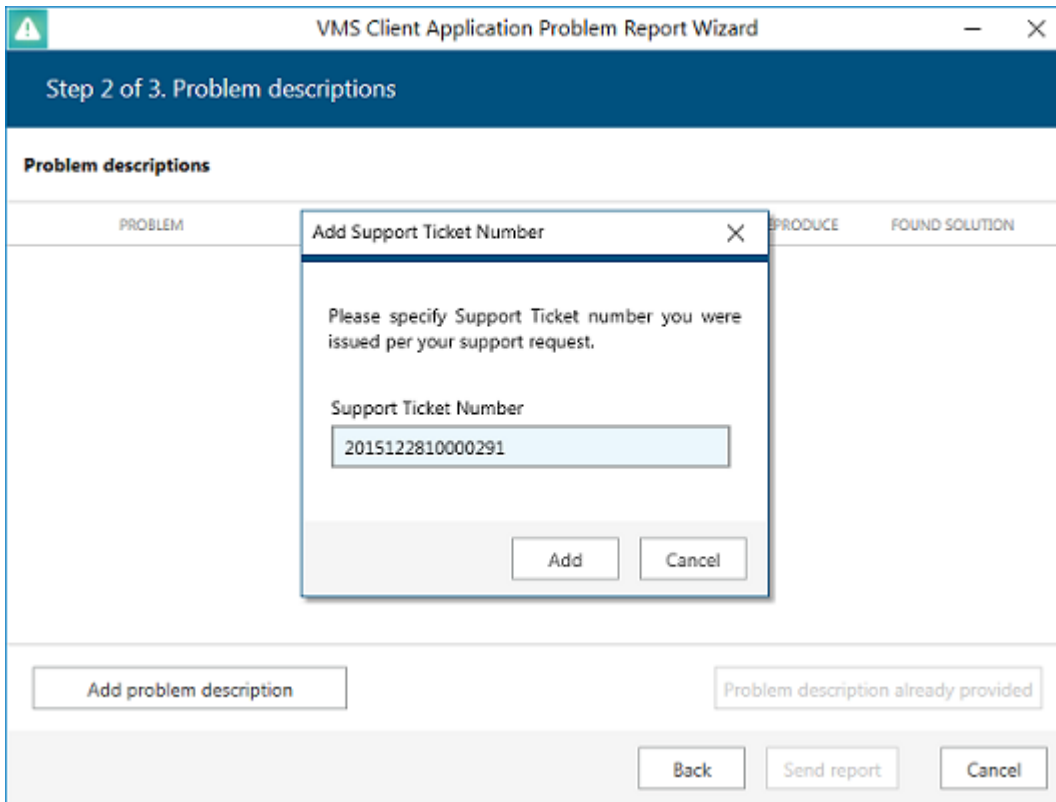
The screenshot shows a window titled "VMS Client Application Problem Report Wizard" with a warning icon in the top-left corner. The window has a dark blue header bar that reads "Step 2 of 3. Problem descriptions". Below the header, the text "Problem descriptions" is displayed. A table with three columns is shown: "PROBLEM", "STEPS TO REPRODUCE", and "FOUND SOLUTION". The table is currently empty. At the bottom of the window, there are two buttons: "Add problem description" and "Problem description already provided". At the very bottom, there are three buttons: "Back", "Send report", and "Cancel".

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

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team to classify your report faster, and it will also guarantee that your report will go directly to the team member responsible for the thread.

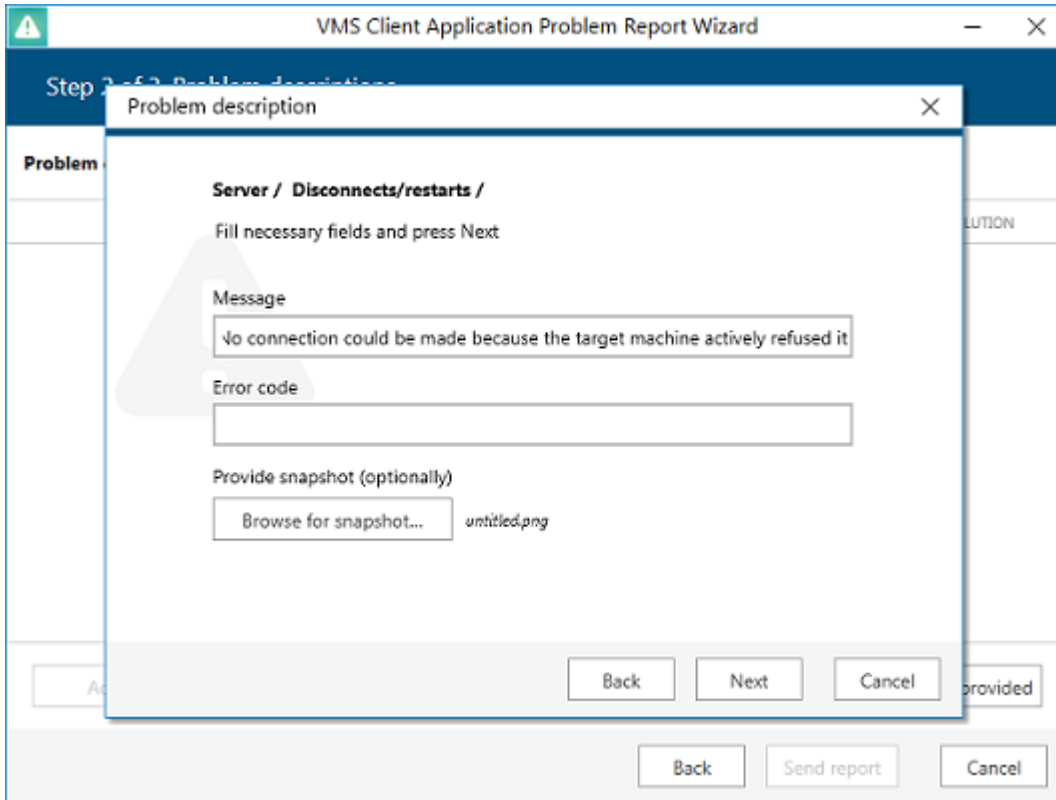


Insert ticket number

If you are applying a new, unreferenced problem report, click the *Add problem description* button.

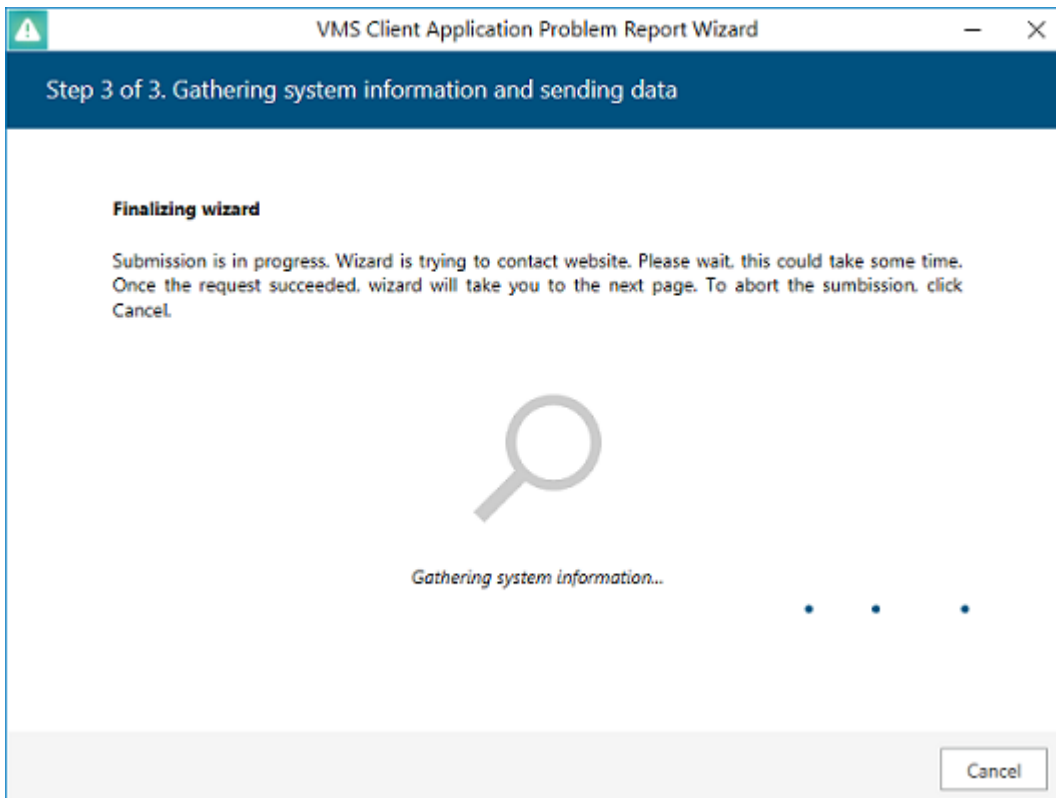
A short comprehensive wizard will guide you through the main issue categories, allowing you to choose the ones that are most applicable to your situation. You will be given the chance to enter error messages/codes, if there are any, and to attach snapshot(s). Make sure you provide the maximum amount of relevant information about the issue you are experiencing; always include **snapshots** if they are available.

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Enter problem classification and relevant details

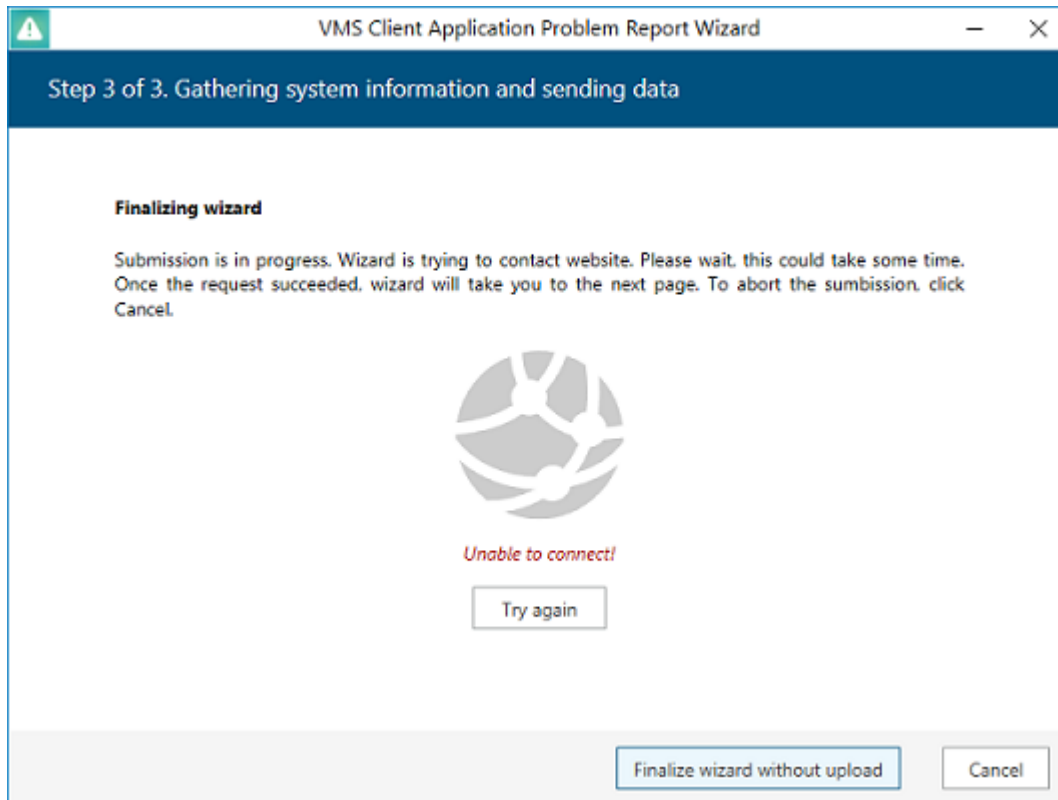
You can add **multiple** descriptions to a single report. When you are ready, press the *Send report* button; the wizard will then try to send the report automatically.



Submitting report

If the server is offline, wizard will not be able to submit the report to CBC AMERICAS, Corp.; instead, you will be invited to save the generated report locally. Press the *Finalise wizard without upload* button to finish.

Ganz CORTROL Administration Guide



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 cortrol@cbcamerica.com. Click *Exit* to close the wizard.