



Axxonsoft Platform Calculator

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1 Introduction

On the page:

- [Purpose of the document](#)
- [General information](#)
- [General information about how to choose platform for Axxon Next and Intellect](#)

1.1 Purpose of the document

This document is useful for sales managers as well as for CCTV engineers designing Axxon Next- and Axxon Intellect-based security systems. The document contains the information about:

1. The purpose of Axxonsoft Platform Calculator.
2. How to work with Axxonsoft Platform Calculator.

1.2 General information

Axxonsoft Platform Calculator can be found at <https://sale.axxonsoft.com/calc/calculator.jsf>

The platform calculator allows determining information by the input data (the number of cameras, area of application, archive requirements, detection tools, etc.):

1. Available platforms, the number of servers and average load. The platform means the processor model or IPDROM solutions (IPDROM solution cannot be calculated in English version of the Platform calculator).

Attention!

The tests were conducted on platforms configured according to the [Axxon Next](#) and [Intellect](#) documentation requirements and with Hyper-threading disabled for dual-processor systems.

The results of hardware platform calculation can change – hardware configuration can both increase and decrease depending on the camera model, camera settings and exposure of the image. Extra objects can increase the hardware configuration.

2. Archive size.

Attention!

Disk space data is for information only. The Vendor's calculator is used for more accurate calculation, see [Archive parameters](#).

3. Summary stream from IP devices, output and record streams.
4. Number of cameras that can be displayed on one layout of the Client.

Disk space and server load data are for information and planning purposes only.

The platform calculator allows calculating parameters both for systems where IP devices are in use and for systems where analog cameras are in use as well as for hybrid systems.

Platforms calculator also allows you to calculate a platform for CARMEN LP recognition engine. The following parameters are calculated based on the input data (location and number of cameras, type of recognition engine, country issued the license plates):

1. Available platforms.
2. Number of Servers.

3. Available resolutions of the part of the frame used for recognition.
4. Number of recognition channels required to be purchased.

1.3 General information about how to choose platform for Axxon Next and Intellect

Here is the procedure of choosing the platform:

1. Set the purpose of the stream (displaying, recording and archive).
2. Calculate the number of Servers taking into account the limitations imposed by detection tools.
3. Calculate the total load for each type of the stream.
4. Calculate the number of Servers taking into account the calculated total load and set maximum CPU load.
5. Total Servers in the system is calculated as maximum of Servers with limitations by detection tools and Servers with total load.

2 Disclaimer

On the page:

- [Important note](#)
- [Disclaimer](#)
- [Confirmation of terms acceptance](#)

2.1 Important note

AxxonSoft Platform's Calculator (AXXONSOFT PLATFORMS CALCULATOR) is for reference only. Estimates and recommendations obtained using AXXONSOFT PLATFORMS CALCULATOR are based on a limited number of test scripts available for ITV | AxxonSoft. The user of AXXONSOFT PLATFORMS CALCULATOR ("User") acknowledges and agrees that each security system installation is unique and actual results obtained in the User system will differ from the results obtained using AXXONSOFT PLATFORMS CALCULATOR. Therefore the User can use the estimates obtained using AXXONSOFT PLATFORMS CALCULATOR under the condition that the User will come to its own conclusion about the accuracy of such estimates and their application. ITV | AxxonSoft and/or its representatives disclaim any responsibility for damages of any kind resulting from the use of data calculated by AXXONSOFT PLATFORMS CALCULATOR.

2.2 Disclaimer

The software is provided "as is" without warranty of any kind, express or implied. The user is responsible for the operation result and software performance. ITV | AxxonSoft disclaims all warranties, express or implied. ITV | AxxonSoft cannot be held responsible in any way for data loss, loss of profits or contracts and other consequences.

2.3 Confirmation of terms acceptance

At the first launch of the Platform calculator the window containing the information given above will be displayed. To continue working with the calculator click the **Accept** button.

Important note:

AXXONSOFT PLATFORM CALCULATOR is for reference only. Estimates and recommendations obtained using AXXONSOFT PLATFORM CALCULATOR are based on a limited number of test scripts available for ITV | AxxonSoft. The user of AXXONSOFT PLATFORM CALCULATOR ("User") acknowledges and agrees that each security system installation is unique and actual results obtained in the User system will differ from the results obtained using AXXONSOFT PLATFORM CALCULATOR. Therefore the User can use the estimates obtained using AXXONSOFT PLATFORM CALCULATOR under the condition that the User will come to its own conclusion about the accuracy of such estimates and their application. ITV | AxxonSoft and/or its representatives disclaim any responsibility for damages of any kind resulting from the use of data calculated by AXXONSOFT PLATFORM CALCULATOR.

Disclaimer:

The software is provided "as is" without warranty of any kind, express or implied. The user is responsible for the operation result and software performance. ITV | AxxonSoft disclaims all warranties, express or implied. ITV | AxxonSoft cannot be held responsible in any way for data loss, loss of profits or contracts and other consequences.

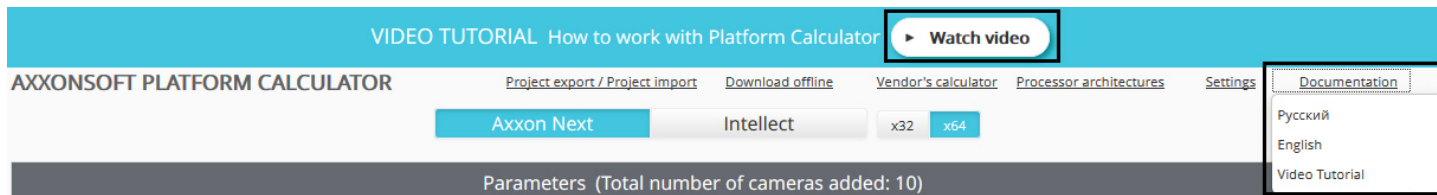
By clicking Accept you agree to our Terms and Conditions.

Accept

Otherwise close the tab with opened platform calculator in the browser.

3 Access to documentation and video tutorial

To go to online documentation on Axxonsoft platform calculator, select the required language in the **Documentation** menu. Russian and English documentation is available so far. You may also choose to go through a comprehensive **Video Tutorial** in English or Russian instead of browsing the text manuals. The Video tutorial also opens by clicking the **Watch video** button in the top of the page.



4 How to choose the best platform

Here is the procedure of choosing the appropriate platform:

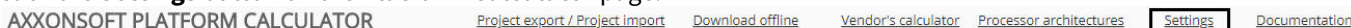
1. Identify and specify maximum CPU load on computers in the video surveillance and audio control system.
2. Identify and specify allowable CPU architectures to use on the platform of the video surveillance and audio control system.
3. Set input parameters to choose the platform: select the software platform, models of cameras, video codecs, etc.

4.1 Setting maximum CPU load

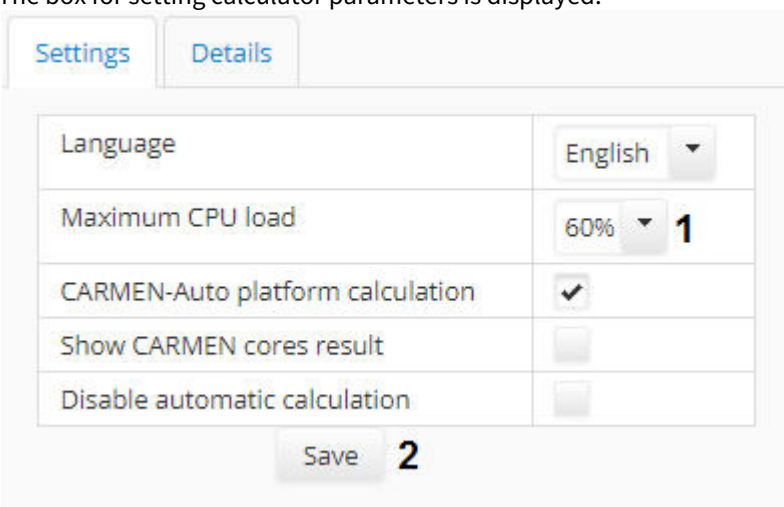
The platform calculator allows setting maximum CPU load. On the basis of this parameter the number of Servers is calculated.

To set maximum CPU load, do the following:

1. Click the **Settings** button on the **Platform Calculator** page.



2. The box for setting calculator parameters is displayed.

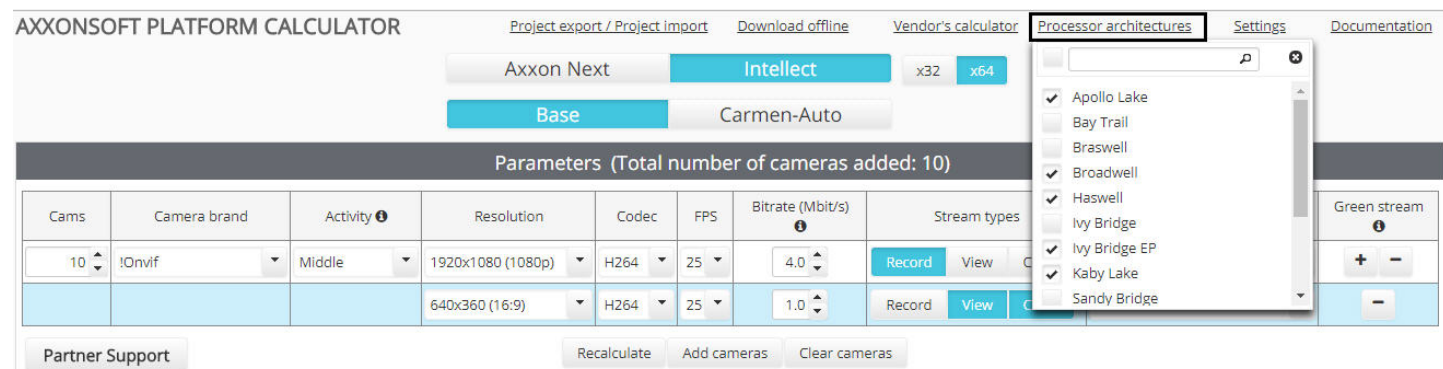


3. Select the required value of maximum CPU load in the **Maximum CPU load (1)** dropdown list.
4. Click the **Save (2)** button. The changes will be saved and the box will be closed.

The maximum CPU load is now configured.

4.2 Selecting CPU architecture

The platform calculator allows taking into account the CPU architecture when choosing the platform and excluding CPUs with improper architecture from the search results. To select the architecture, use the **CPU architecture** list on the **Platform calculator** page. Set the checkboxes checked next to those architectures that are to be in the search results.



To search the architecture in the list, use the search box on the top of the dropdown list.

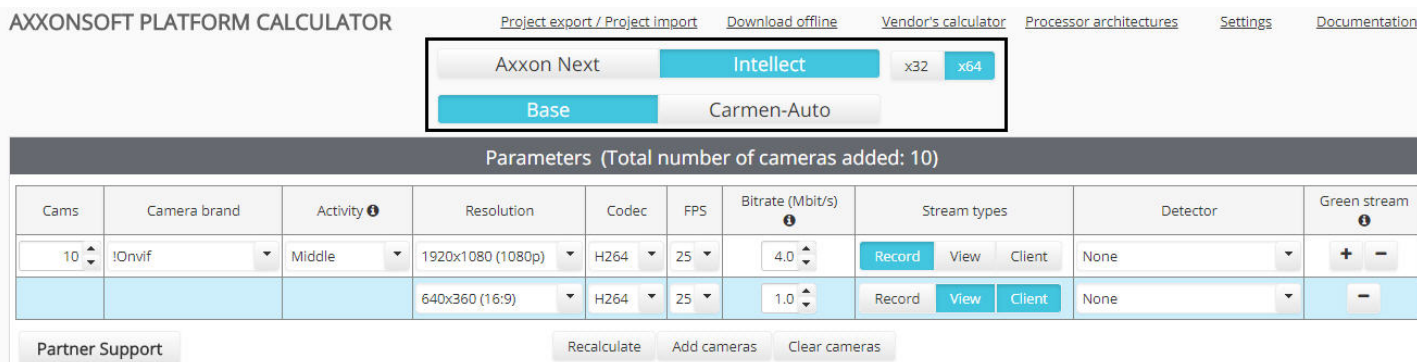
4.3 Selecting software platform

Hardware platform selection depends on which software platform proposed to be used: *Axxon Next*, base *Intellect* or *Intellect* with *CARMEN* license plate recognition engine.

Note.

Possibility to select the CARMEN license plate recognition engine to calculate platforms is disabled on default if the preferred browser language is Russian. How to enable this possibility see in the [Setting parameters for CARMEN platform](#) section.

If the preferred browser language is English, then this possibility is enabled on default.



By default, the platform is calculated for a 64-bit system and 64-bit modules. When using cameras that do not support the x64 mode (outdated camera models, the full list is available in [Documentation Drivers Pack](#)) or when installing the software on a 32-bit operating system, select x32 mode.

Important!

It is recommended to use x64 mode, since the following restrictions are imposed in x32 mode:

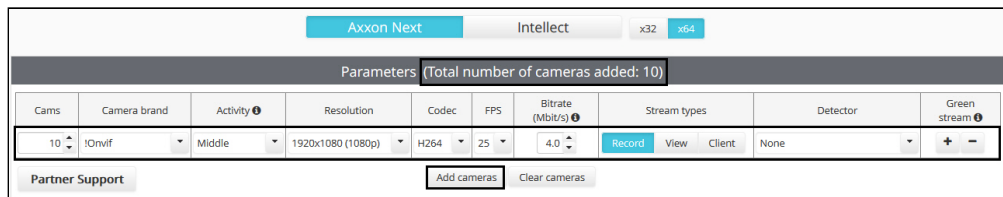
1. In x32 mode, the amount of RAM is limited to 3GB
2. Some detectors do not support x32 operation. The list of such detectors is given in the documentation of the corresponding product or vertical solution.

Parameters that are to be set in order to calculate platforms for *CARMEN* license plate recognition engine differ from those that are to be set when using *Intellect* and *Axxon Next* platforms. In the first case parameters settings are described in the [Setting parameters for CARMEN platform](#) section, in the second case – in the [Setting parameters of video surveillance system](#) section.

4.4 Setting parameters of video surveillance system

4.4.1 Selecting cameras

Cameras used in the video surveillance system are selected in the **Parameters** group of the **Platform calculator** page. To add cameras to the list click the **Add** button.



Total number of cameras added is displayed in the head of the **Parameters** table.

Note.

To remove configuration click the - button in **Green stream** column. To remove all configurations click the **Clear cameras** button.

The Platform calculator allows using of different streams to display video, send it to remote clients and record to archive. On default one stream is set for these purposes while adding cameras. To add additional streams click the + button in **Green stream** column. Additional stream is highlighted in blue in the table.

Parameters (Total number of cameras added: 10)											
Cams	Camera brand	Activity	Resolution	Codec	FPS	Bitrate (Mbit/s)	Stream types			Detector	Green stream
10	!Onvif	Middle	1920x1080 (1080p)	H264	25	4.0	Record	View	Client	None	+ -
			640x360 (16-9)	H264	25	1.0	Record	View	Client	None	-

Partner Support Add cameras Clear cameras

Note.

To remove stream click the - button in **Green stream** column.

The parameters are described in the table.

Parameter	Info																																				
Cams	<p>The number of cameras that is to be used in the video surveillance system.</p> <p>Setting this count to 0 is equal to deleting a camera from configuration. In this case the camera line in the table is faded.</p> <table border="1"> <thead> <tr> <th>Cams</th> <th>Camera brand</th> <th>Activity</th> <th>Resolution</th> <th>Codec</th> <th>FPS</th> <th>Bitrate (Mbit/s)</th> <th colspan="3">Stream types</th> <th>Detector</th> <th>Green stream</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>!Onvif</td> <td>Middle</td> <td>1920x1080 (2Mpx 1080p)</td> <td>H264</td> <td>25</td> <td>4.0</td> <td>Record</td> <td>View</td> <td>Client</td> <td>None</td> <td>+ -</td> </tr> <tr> <td>0</td> <td>!S Vision</td> <td>Middle</td> <td>1920x1080 (2Mpx 1080p)</td> <td>H264</td> <td>25</td> <td>4.0</td> <td>Record</td> <td>View</td> <td>Client</td> <td>None</td> <td>+ -</td> </tr> </tbody> </table>	Cams	Camera brand	Activity	Resolution	Codec	FPS	Bitrate (Mbit/s)	Stream types			Detector	Green stream	10	!Onvif	Middle	1920x1080 (2Mpx 1080p)	H264	25	4.0	Record	View	Client	None	+ -	0	!S Vision	Middle	1920x1080 (2Mpx 1080p)	H264	25	4.0	Record	View	Client	None	+ -
Cams	Camera brand	Activity	Resolution	Codec	FPS	Bitrate (Mbit/s)	Stream types			Detector	Green stream																										
10	!Onvif	Middle	1920x1080 (2Mpx 1080p)	H264	25	4.0	Record	View	Client	None	+ -																										
0	!S Vision	Middle	1920x1080 (2Mpx 1080p)	H264	25	4.0	Record	View	Client	None	+ -																										
Camera brand	<p>The list of vendors of IP cameras and video capture cards integrated with <i>Axon Next</i> and <i>Axon Intellect Enterprise</i>. In addition to brand names there are the following items in the list:</p> <p>!Onvif. Select it if you plan to use a camera that operates via the ONVIF protocol.</p> <p>!RTSP. Select it if you plan to use a camera that transfers video via RTSP protocol.</p> <p>!Undecided. Select it if you are not sure what camera model will be in use.</p>																																				
Activity	<p>Approximate estimation of activity in the field of view of a camera: low, middle or high.</p> <p>Available values: Low, Middle, High.</p> <p><i>Note 1. Apply the following principles with VMDA detection tools: if the camera is installed so that an average of 3 objects is present simultaneously in the frame, select High. If there are 2 objects in the frame at the same time, select Middle. If only 1 object is present in the frame, select Low.</i></p> <p><i>Note 2. In other cases, the average (middle) activity means a scene with 30% changes in the frame and an average number of small moving details. The high activity corresponds to a scene with more than 70% of changes in the frame and a large number of small moving details.</i></p>																																				
Resolution	<p>Video resolution. The list of available resolutions depends on the selected vendor or the model of video capture card.</p>																																				
Codec	<p>Compressor used by camera or video capture card for compressing video stream. The availability of compressors in the list depends on the selected vendor or the model of video capture card.</p>																																				
FPS	<p>Frame rate of the stream. The range of values depends on the selected vendor or the model of video capture card.</p>																																				

Bitrate	<p>The stream from one specified camera in Mbit/s. By default, the stream calculation is based on the constant bitrate (CBR) recommended for specified resolution (for h264 codec). For other codecs, the default stream is calculated based on the average data obtained from testing the cameras by the ITV AxxonSoft quality control department. If the calculated flow is not correct, it is possible to specify the stream from one camera manually.</p> <p>The Vendor’s calculator is used for more accurate calculation. The list of known calculators can be found in the Vendor’s calculator dropdown list.</p>
Stream types	<p>Selection type of stream.</p> <p><i>Note. When calculating the Client, only the streams that are intended for View are taken into account. When calculating the Server, all streams are taken into account.</i></p>
Detector	See Selecting types of detection tools .

Note.

If several streams are added for cameras then the **Codec, Resolution, FPS** and **Bitrate** parameters are specified for each stream separately.

4.4.2 Archive parameters

On the page:

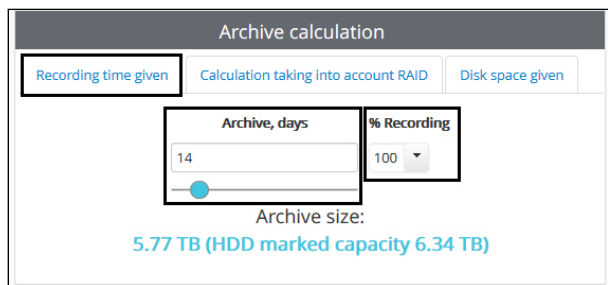
- [Calculation by time](#)
- [RAID calculation](#)
- [Calculation by size](#)

Archive is calculated in one of two ways:

1. **By time.** Time period for which the video archive is stored is set and the calculation result is the disk space used for storing the archive.
2. **By size.** Disk space is set and the calculation result is the time period for which the video archive is stored.

4.4.2.1 Calculation by time

To calculate the disk space needed for storing the archive, set the following parameters on the **Recording time given** tab in the **Archive calculation** group:



1. **Archive, days** – the required archive depth (in days).
2. **% Recording** – the average percentage of hours a day during which there will be recording to the archive. 100% mean continuous recording.

Disk space data is for information only. The Vendor’s calculator is used for more accurate calculation. The list of known calculators can be found in the **Vendor’s calculator** dropdown list.

AXXONSOFT PLATFORM CALCULATOR Project export / Project import [Download offline](#) [Vendor's calculator](#)

Axxon Next
Intellect
x32
x64

Parameters (Total number of cameras added: 10)

Cams	Camera brand	Activity	Resolution	Codec	FPS	Bitrate (Mbit/s)	Stream type
10	!Onvif	Middle	1920x1080 (1080p)	H264	25	4.0	Record View
			640x360 (16:9)	H264	25	1.0	Record View

Partner Support

Add cameras
Clear cameras

Archive calculation

Recording time given

Calculation taking into account RAID

Disk space given

Archive, days:
 % Recording:

Archive size: 5.77 TB (HDD marked capacity 6.34 TB)

Recommendations

Server's specs

IPDROM solutions

Promise

Secure Logic

Add platform to recommendations

Platform | passmark

Platform
1x Intel Xeon E5-2603v4 (1700 MHz)
1x Intel Xeon E5-2609v4 (1700 MHz)
1x Intel Xeon E5-2620v4 (2100 MHz)
2x Intel Xeon E5-2609v4 (1700 MHz)
2x Intel Xeon E5-2620v4 (2100 MHz)
2x Intel Xeon E5-2630v4 (2200 MHz)

Build: IT-CI C-CMPI -574

Calculating streams

Summary stream from IP cameras (Mbit/s): 50.00

Stream for recording (Mbit/s): 40.00

Stream to clients (Mbit/s): 10.00

Vendor's calculator

- 3S Vision
- Acti Connecting Vision
- Arecont Vision
- Avigilon
- Axis Communications
- Beward
- Bosch
- Brickcom
- Cisco Systems
- Dahua Technology
- Evidence
- GeoVision
- Hanwha (Samsung)
- HikVision
- IDIS
- Lilin
- LTV
- Mobotix
- Panasonic
- Pelco
- Rvi
- Smartec
- Stardot
- Vivotek
- CPU Benchmarks
- Intel Specifications

4.4.2.2 RAID calculation

The calculation of RAID parameters for storing video archive is performed by the following parameters on the **Calculation taking into account RAID** in the **Archive calculation** group:

Archive calculation

Recording time given

Calculation taking into account RAID

Disk space given

RAID level

JBOD
0
10
5
6

RAID 6 - block-level striping with two parity blocks

Disk size:

Units: GB TB

Calculation:

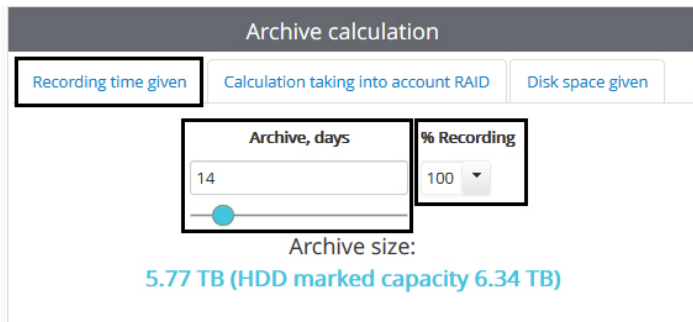
Number of disks: 6
 Total volume: 12 TB
 Effective volume: 6.34 TB
 Disk space utilization: 53 %
 Disk fault tolerance: 2

1. **RAID level**, one of the following:
 - a. **JBOD** – simple consolidation of disks, which is not a RAID level.
 - b. **0** – RAID 0, an array of disks with data striping.
 - c. **10** – RAID 10, an array of disks with mirroring and striping.
 - d. **5** – RAID 5, an array of disks with block-level striping and one checksum.
 - e. **6** – RAID 6, an array of disks with block-level striping and two checksums.

2. **Disk size** in **GB** or **TB**. RAID is supposed to be built on the disks of given size. The calculation results indicate the required number of disks and other RAID parameters (see [Calculation results for Axxon Next and Intellect Server](#)). Calculation of the archive depth with the selected disk size is performed on the **Disk space given** tab.

4.4.2.3 Calculation by size

To calculate time period for which the video archive is stored, set the following parameters in the **Disk space given** of the **Archive calculation** group:



1. **Archive size** – disk space used for storing the archive.
2. **Units** – units that measure the archive size.


Information on the archive storage period is reference only.

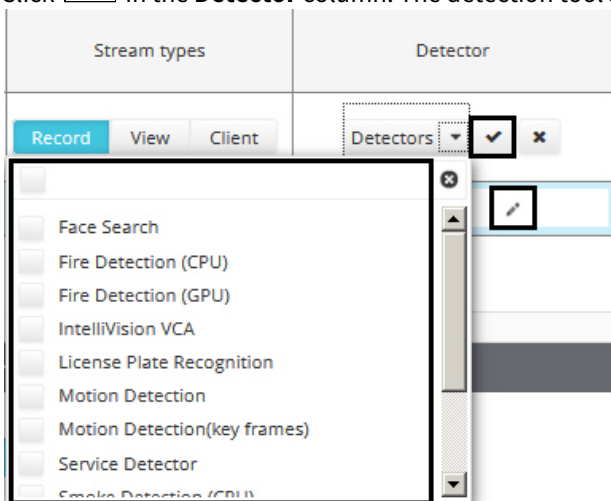
4.4.3 Selecting types of detection tools

After adding cameras to the list (see [Selecting cameras](#)), the types of detection tools can be specified too. You can select zero to all detection tool types for each stream. The list of available detection tools depends on the selected software platform (see [Selecting software platform](#)).

See detection tools description in the corresponding subsection: [Selecting types of detection tools for Axxon Next](#) or [Selecting types of detection tools for Intellect](#)


Add detection tools as follows:

1. Click  in the **Detector** column. The detection tool selection form is shown.



2. Click the **Detectors** list.
3. Check the boxes next to detection tools to add.

4. Click . The selected detection tools are shown in the list in the **Detector** column.

Detector
<input checked="" type="checkbox"/> Face Search  <input checked="" type="checkbox"/> Fire Detection (CPU) <input checked="" type="checkbox"/> Fire Detection (GPU)

Note.

Follow same steps 1-4 to change the list of detection tools.

Uncheck all boxes using the checkbox in top left corner of the form to delete all detection tools from the list.

Important!

Platforms calculator does not check if specified parameters match detection tools requirements for cameras. For instance, if specified fps is lower than that required for detection tool to operate, then platforms will be calculated but the calculated platform won't suit the detection tool requirements.

The requirements of detection tool for cameras are specified in the documentation – see [AxxonSoft documentation repository](#).

4.4.3.1 Selecting types of detection tools for Axxon Next

The following detection tools are available for *Axxon Next* platform calculation:

Name	Description	Features of calculation
Video Content Analytic	Object trajectories detection tool.	-
Motion Detection	NOT a smart video detection tool (Motion detection).	-
Motion Detection (decode key frames)	NOT a smart video detection tool (Motion detection) with key frames decoding enabled.	-
License Plate Recognition	License plate recognition detection tool	-
Face Search	Face search detection tool	-
Fire and smoke Detection (CPU)	Fire and smoke detection based on neural network	In order to enhance quality of operation and reduce CPU usage, it is recommended to use the detection tool with calculation on GPU.

Fire and Smoke Detection (GPU)	Fire and smoke detection based on neural network using the GPU resources.	<p>500 MB of video memory per detection type is required regardless of the number of channels. For example, for any number of smoke detection channels, 500 MB is required, and if the server has any number of both smoke and fire detector channels at the same time, a video card with at least 1 GB of memory should be in use.</p> <p>Several video cards can be in use in one system.</p> <p>If the Time between processed frames in seconds parameter is set to the default value (10 seconds), any NVidia graphics card compatible with the detection tool will be suitable (see the requirements in the Axxon Next User Guide).</p>
VCA with neural filter (GPU)	Object trajectories detection tool (VMDA) based on neural network and using the GPU resources	<p>For each track, one image per second is sent to neural network for classification.</p> <ul style="list-style-type: none"> • The NVIDIA GeForce GT 730 video card is capable of processing about 70* classifications** per second. • The NVIDIA GeForce GTX 1070 video card is capable of processing about 220*** classifications per second. • The NVIDIA Tesla P40 video card is capable of processing about 122**** classifications per second. • The Intel Neural Compute Stick 1 (movidius I) is capable of processing about 58***** classifications per second. • The Intel Neural Compute Stick 2 (movidius II) is capable of processing about 200***** classifications per second. <p>Several video cards can be in use in one system.</p> <p>For example, if you need to track 9 persons per second on 10 cameras, GeForce GTX 1070 or similar video card is suitable.</p> <p>Up to two Intel Neural Compute Stick can be in use in one system.</p>
Video Content Analytics (IV)	A smart video detection tool	-
Service detection (key frames)	<p>Axxon Next detection tools:</p> <ul style="list-style-type: none"> • Loss of quality; • Blurred Image Detection; • Compression Artifacts Detection; • Image Noise Detection; • Position change. 	The platform is calculated for one service detection tool (any of the listed)
VCA (Axis ACAP)	For Axis IP-devices only. This is an AxxonSoft Video Content Analytic (VCA) detection tool built into Axis device. See also AxxonSoft tracking in Axis devices (Intellect) or AxxonSoft tracking in Axis devices (Axxon Next) .	The detection tool performs calculations using camera resources, and therefore has low hardware requirements.
Neural tracker (CPU, 6fps)	Scene Analytics tool based on neural tracking	The frame rate shown in parentheses is specified when configuring the Neurotracker module (with the Frame rate parameter). This is the number of frames per second processed by the module; the frame rate of the incoming video stream is usually higher.

Note.

* - The results are given for Core i5-3570 (3400 MHz) CPU and may vary depending on the CPU installed. For example, the Xeon Gold 6140 (2300 MHz) CPU allows 95 classifications** per second.

** - 1 classification per second is 1 object detected on video. For example, if average of 9 moving objects are simultaneously present on video from one camera, and there are 5 cameras in the system, use video card allowing 45 classifications per second.

*** - The results are given for the Core i7-8700 (3200 MHz) CPU and may vary depending on the CPU installed.

**** - 360 classifications per second were achieved in test utility on the 2x Intel Xeon Gold 6140 platform. In Axxon Next, up to 122 classifications per second were possible with 90% CPU utilization.

***** - The results are given for the Core i7-3770 (3400 MHz) CPU and may vary depending on the CPU installed.

4.4.3.2 Selecting types of detection tools for Intellect

The following detection tools are available for *Intellect* and vertical solutions platform calculation:

Name	Description	Features of calculation
IntLab-Carriages (passenger)	Recognizer of railway passenger carriage numbers	<ol style="list-style-type: none"> 1. Optimal resolution to process all frames 2. Main channel hardware
IntLab-Carriages (freight)	Recognizer of railway freight carriage numbers	<ol style="list-style-type: none"> 1. Optimal resolution to process all frames 2. Main channel hardware
Video Content Analytic	Object trajectories detection tool.	-
Face detection (Cognitec)	<i>Face-Intellect</i> face detection tool based on the Cognitec recognition module.	When calculating a platform. The load from comparison to perform this function.
Face Detection (Huawei)	<i>Face-Intellect</i> face detection tool based on the Huawei recognition module.	-
Face detection (STC)	<i>Face-Intellect</i> face detection tool based on the STC recognition module.	-
Face detection (TVN)	<i>Face-Intellect</i> face detection tool based on the Tevian recognition module.	When calculating a platform. The load from comparison to perform this function.
Main motion detection	Basic motion detection tool in <i>Intellect</i> (a detection that is turned on when camera is armed)	-
LPR VT	<i>Auto-Intellect</i> , VIT license plate recognition module.	-
People Counter	People counter detection tool that is a part of <i>Intellect Detector Pack</i> .	Optimal parameters for specified parameters or set to 320x240 and FPS
Virtual Loop	<i>Auto-Intellect</i> , <i>Vehicle detector</i> module and <i>Vehicle processor</i> module that are the part of the information-gathering subsystem.	-
Virtual Loop (IV)	<i>Auto-Intellect</i> , <i>IntelliVision Traffic Monitoring</i> Module that is the part of the information-gathering subsystem.	-
Glow detection	Detection of light sources status on the video that is a part of <i>Intellect Detector Pack</i> .	-

Note.

* - The results are given for Core i5-3570 (3400 MHz) CPU and may vary depending on the CPU installed. For example, the Xeon Gold 6140 (2300 MHz) CPU allows 95 classifications** per second.

** - 1 classification per second is 1 object detected on video. For example, if average of 9 moving objects are simultaneously present on video from one camera, and there are 5 cameras in the system, use video card allowing 45 classifications per second.

*** - The results are given for the Core i7-8700 (3200 MHz) CPU and may vary depending on the CPU installed.

**** - 360 classifications per second were achieved in test utility on the 2x Intel Xeon Gold 6140 platform. In Axxon Next, up to 122 classifications per second were possible with 90% CPU utilization.

***** - The results are given for the Core i7-3770 (3400 MHz) CPU and may vary depending on the CPU installed.

4.5 Setting parameters for CARMEN platform

Possibility to select the CARMEN license plate recognition engine is disabled on default. To enable it, do the following:

1. Click the **Settings** button on the **Platforms calculator** page.

AXXONSOFT PLATFORM CALCULATOR [Project export / Project import](#) [Download offline](#) [Vendor's calculator](#) [Processor architectures](#) **Settings** [Documentation](#)

2. In the opened window set the **CARMEN-Auto platform calculation** checkbox.

Settings	Details
Language	English ▼
Maximum CPU load	60% ▼
CARMEN-Auto platform calculation	<input checked="" type="checkbox"/> 1
Show CARMEN cores result	<input type="checkbox"/>
Disable automatic calculation	<input type="checkbox"/>

Save 2

3. Click the **Save** button.

As a result the possibility to select platform calculation for the CARMEN-Auto will be available (see also the [Selecting software platform](#) section).

Calculate a recommended platform for *CARMEN* license plate recognition engine as follows:

1. Select the **Intellect** platform and the **Carmen-Auto** type (1).

AXXONSOFT PLATFORM CALCULATOR [Project export / Project import](#) [Download offline](#) [Vendor's calculator](#) [Processor architectures](#) [Settings](#) [Documentation](#)

Axon Next **Intellect** x32 x64 **2**

Base **Carmen-Auto** **1**

Parameters						
Cams	Height, meters (H)	Distance to plate, meters (L)	Distance to road, meters (b)	Vehicle speed, km/h (V)	Scene	Engine
1	2.0	15.0	2.0	60	FREEFLOW	USA

3

Description

H - The camera's mounting height - the height between the camera and the vehicle's plate (average height is 2 meters)
 L - The distance from the pole to the plate - the distance from the base of the pole to the vehicle's plate on the road (the average distance from the pole to the plate = 15 meters).
 b - Distance from the axis of movement to pole - the distance from the middle of the road to the base of the pole (the average distance from the axis to pole = 2 meters).
 V - Velocity of the car - the maximum speed at which the vehicle can cross the detection zone.

Scheme

4

Calculate

Recommended platforms

- If 64-bit CARMEN modules are to be in use, then set the **x64** switch checked (2).
- Set parameters of the recognition engine in use (3). On the **PLATFORMS CALCULATOR** page one can find a figure with main parameters and their description.

Parameter	Description
Cams	The number of cameras used for license plate recognition.
Height, meters (H)	The camera's mounting height – the height between the camera and the vehicle's plate (average height is 2 meters).
Distance to plate, meters (L)	The distance from the pole to the plate – the distance from the base of the pole to the vehicle's plate on the road (the average distance from the pole to the plate is 15 meters).
Distance to road, meters (b)	The distance from the axis of movement to pole – the distance from the middle of the road to the base of the pole (the average distance from the axis to pole is 2 meters).
Vehicle speed, km/h (V)	Velocity of the car – the maximum speed at which the vehicle can cross the detection zone.
Scene	The type of the CARMEN recognition engine. The FREEFLOW scene is to be selected when CARMEN-Auto recognition engine is in use. The TRIGGERED scene is to be selected for FREEFLOW with enabled ParkingMode; to enable this mode use in Auto Intellect use ParkingMode registry key (see Registry keys reference guide)
Engine	The country that has issued the license plate to be recognized.

4. Click the **Calculate** button to calculate recommended platforms (4).

As a result **recommended platforms are calculated**.

4.6 Calculation results

4.6.1 Calculation results for Axon Next and Intellect Server

On the page:

- [Calculated characteristics](#)
- [Processor models](#)
- [Adding a similar platform](#)
 - [Ways to add platforms](#)
 - [General principles for adding platforms](#)
 - [Features of adding a platform in advanced mode](#)
 - [The result of platform addition](#)
- [Partners' platforms](#)
- [Export results to xls](#)

4.6.1.1 Calculated characteristics

After adding a stream to the list (see [Selecting cameras](#)), the following parameters are recalculated:

Note.
Automatic recalculation can be disabled – see [Disabling automatic calculation](#).

1. Archive size: disk space or time period.

Archive calculation

Recording time given | Calculation taking into account RAID | Disk space given

Archive, days: 14 | % Recording: 100

Archive size: 5.77 TB (HDD marked capacity 6.34 TB)

Archive calculation

Recording time given | Calculation taking into account RAID | Disk space given

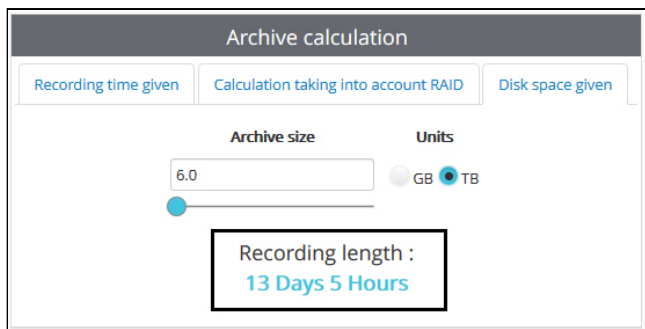
RAID level: JBOD | 0 | 10 | 5 | **6**

RAID 6 - block-level striping with two parity blocks

Disk size: 2.0 | Units: GB | **TB**

Calculation:

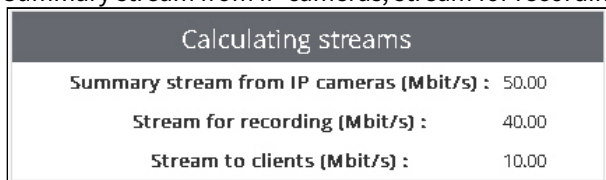
- Number of disks: 6
- Total volume: 12 TB
- Effective volume: 6.34 TB
- Disk space utilization: 53 %
- Disk fault tolerance: 2



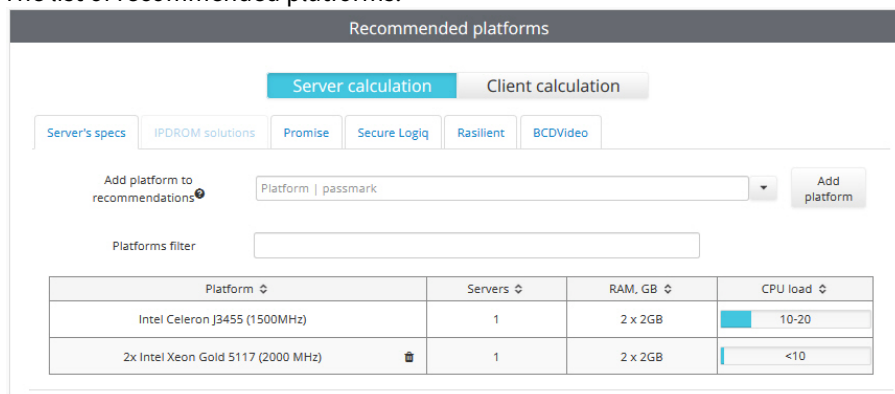
RAID parameters are:

- a. **Number of disks** required to build the needed RAID level with the given disk size.
- b. **Total volume** = **Number of disks** * one **Disk size**
- c. **Effective volume** is a disk space required for storage of the archive with the depth set on the **Recording time given** tab.
- d. **Disk space utilization** = **Effective volume** / **Total volume** (percentage)
- e. **Disk fault tolerance** is a number of disks that can fail without archive loss.

2. Summary stream from IP cameras, stream for recording and stream to clients.



3. The list of recommended platforms.



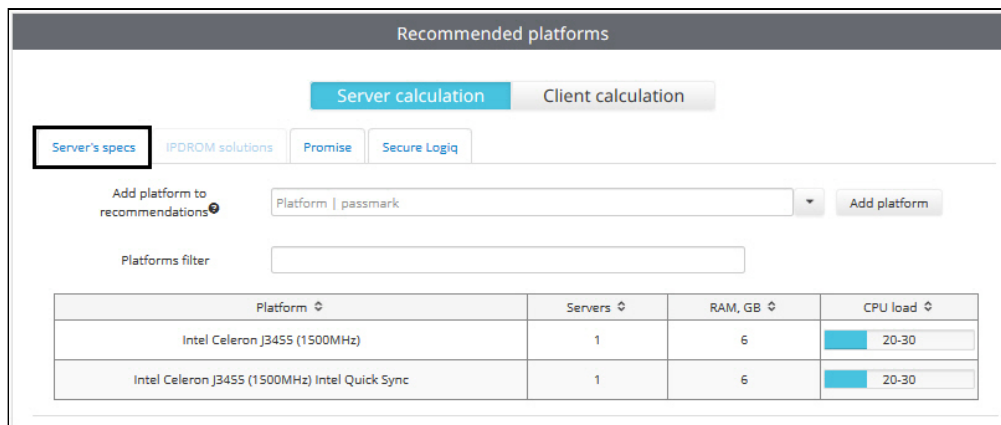
Note.

Results of platforms calculation in the **Recommended platforms** table can be sorted by column using the button in the title of corresponding column.

The **RAM, GB** column indicates the recommended size and number of RAM modules taking into account the number of processors on the platform. For example, 4 RAM modules are recommended for dual-processor platforms, 8 RAM modules for four-processor platforms and 2 RAM modules for the rest.

4.6.1.2 Processor models

In the **Server's specs** tab one can find the platform calculation results for processors with selected architecture (see [Selecting CPU architecture](#)).

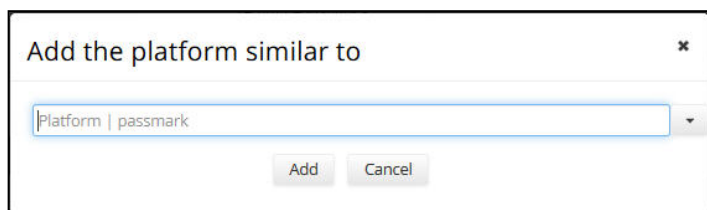


The number of servers which is required to use for specified number of video cameras is shown in the **Servers** column. Recommended RAM volume is given in the **RAM, GB** column.

Example.

If 100 cameras are added and as a result of the best platform calculation it is recommended to use 5 servers with 50-60% server load then it is required to use 5 servers and install $100 / 5 = 20$ cameras on each server. In this case CPU of each server won't be more than 50-60%.

Platforms can be filtered in the calculation results. For that, enter the search string in the **Platforms filter** field. The filter is not case-sensitive.



If platforms are calculated for *Axxon Next* or *Intellect* (4.11.0 of later version), then calculation results both with and without the Intel Quick Sync Video technology usage are presented at the **Server's specs** tab. The use of this technology provides reducing of CPU load. If this technology is taken into account when calculating results, **Intel Quick Sync** is specified next to platform name.

Platform	Servers	RAM, GB	CPU load
Intel Celeron J3455 (1500MHz)	1	2	20-30
Intel Celeron J3455 (1500MHz) Intel Quick Sync	1	2	20-30

Note.

Configuration procedure for using the Intel Quick Sync Video technology in the *Axxon Next* software is described in the *Axxon Next User Guide*. Configuration procedure for using the Intel Quick Sync Video technology in the *Intellect* software is described in the *Intellect Administrator's Guide*. Please find the most recent versions of these documents in [AxxonSoft documentation repository](#).

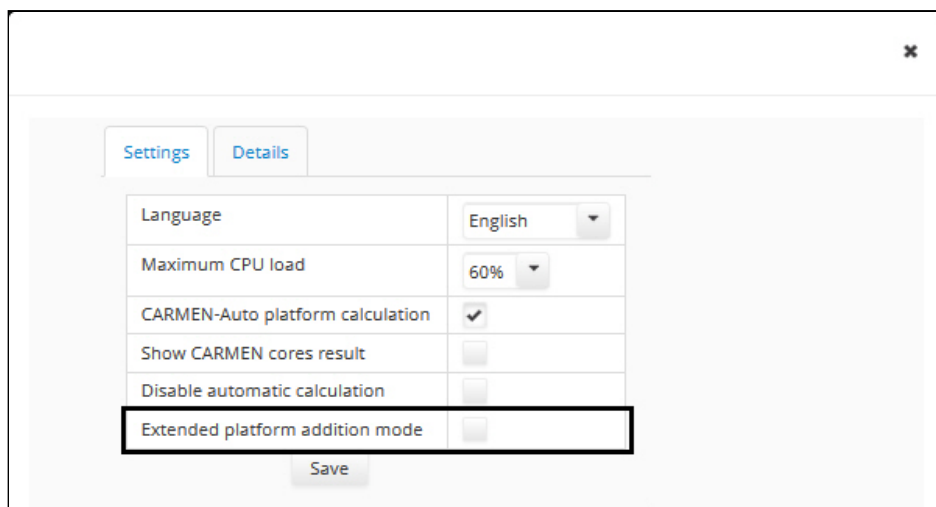
4.6.1.3 Adding a similar platform

4.6.1.3.1 Ways to add platforms

You can add a platform for calculation by analogy using one of the following methods:

1. Simplified: by default, without setting additional parameters.
2. Advanced: a more accurate way with required choice of a "similar" platform.

To use the advanced method of adding platforms, click the **Settings** button and select the **Extended platform addition mode** check box in the window that opens.



4.6.1.3.2 General principles for adding platforms

Processors added with this functionality are calculated using http://www.cpubenchmark.net/cpu_list.php website data. Based on [benchmark.net](http://www.cpubenchmark.net) data, the calculator defines performance proportion between target platform (which haven't been tested yet) and similar platform (which have already been tested).

Similar platform is one of the tested platforms (found in the AxxonSoft Platform Calculator list) which characteristics are as close as possible to target platform.

The calculation result for added platform are approximate – the more target platform characteristics differ from the tested platform characteristics, the less accurate calculation results can be.

The following CPU characteristics affect the results:

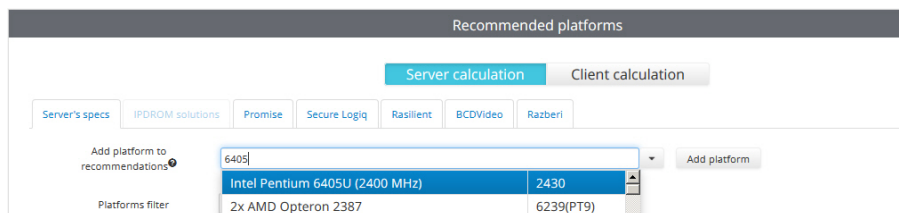
- manufacturer
- architecture/production technology (release year)
- model line (server/desktop/mobile)
- CPU frequency
- number of CPU cores

As practice shows, architecture/production technology (release year) and CPU frequency are the most important parameters for calculation.

To add a platform to the calculation results, type the platform name or part of it in the **Add platform to recommendations** field or select the platform name in the list. A platform rating at the http://www.cpubenchmark.net/cpu_list.php web-site can be used for search instead of platform name. In this case platforms with names including the entered number will be first in the search results list, and then the platforms with similar rating are displayed.

If the platform is in the list of tested, then it will appear in the list of available for adding for information only, i.e. to check the performance rating based on <http://www.cpubenchmark.net> website data. Such a platform cannot be added to the calculation results.

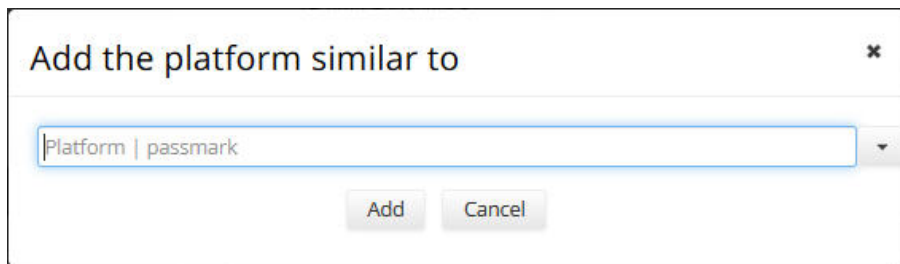
There may be the (PT9) text next to the index number in the list; it means that the index is shown by 9th version of the performance test. If there is no that text next to the index, the 10th test version (PT10) is in use.



After the platform is selected, click **Add platform**.

4.6.1.3.3 Features of adding a platform in advanced mode


If the advanced mode is enabled, the **Add the platform similar to** dialog opens after the **Add platform** button is clicked:



Select one of the tested platforms based on which the calculation should be performed for the platform you are adding. For example, it is recommended to select Intel Core i3-6100 as similar platform for adding Intel Core i3-6300, since all parameters (architecture/production technology, model line, number of CPU cores) except frequency are the same while frequency differs insignificantly.

4.6.1.3.4 The result of platform addition

The platform will be added to the calculation results. To delete an added platform, click  .

4x Intel Xeon E7-8880Lv3 (2000 MHz) with cpu base 2x Intel Xeon Bronze 3106 (1700 MHz)		2	12	<div style="width: 30%; background-color: #0070C0; height: 10px;"></div> 30-40
---	---	---	----	--

Added platforms are stored in cookies and remain on the list when you refresh or reopen the page. The list of platforms may change when switching the addition mode (i.e. simplified or advanced) depending on the mode used to add a platform.

4.6.1.4 Partners' platforms

The **IPDROM solutions** tab is not available in English, Spanish or German version of the Platform calculator. In other tabs in the **Recommended platforms** group (**Promise, Secure Logiq, Rasilient, BCDVideo, Razberi**), the recommended platforms by AxxonSoft partners are shown. To view a platform description on partner's web site, click corresponding link in the **Platform** column.

Recommended platforms

Server calculation
Client calculation

Server's specs
IPDROM solutions
Promise
Secure Logiq
Rasilient
BCDVideo
Razberi

Platform	Model	Servers	CPU load
Promise Vess A-Series	VESS A2330	1	<div style="width: 20%; background-color: #0070C0; height: 10px;"></div> 20-30
Promise Vess A-Series	VESS A6120-MS	1	<div style="width: 5%; background-color: #0070C0; height: 10px;"></div> <10

4.6.1.5 Export results to xls

To save the calculation results in the excel file, click the **Export configuration to XLS** button.

If the **Server's Specs** tab is opened when export starts, the export file includes the list of recommended processors. The platforms filter does not affect the resulting file. For manually added platforms, the exported file indicates the platform based on which the calculation was made.

If **Promise** or **Secure Logiq** tab is opened at the moment, both the list of recommended processors and the list of recommended Promise or Secure Logiq solutions are included in this file.

In addition to platform calculation results for a Server part, the file contains results for a Client – see [Calculation results for Axxon Next and Intellect Client](#).

The results of hardware platform calculation can change – hardware configuration can both increase and decrease depending on the camera model, camera settings and exposure of the image. Extra objects can increase the hardware configuration.

There are no graphics card requirements for Servers without displaying. NVIDIA GeForce GT520 graphics card or more efficient is sufficient for Servers with displaying/RMW.

CPU load when using RMW is the same as one for Server with displaying.

4.6.2 Calculation results for Axxon Next and Intellect Client

Calculation results for a Client show how many cameras can be simultaneously displayed on the layout of a Client on all monitors connected to it. For example, if the result shows 20 cameras, it means that the Client will not show 21 or more cameras properly, however the user can always add several layouts and scroll them.

Consider the following features when calculating the platform for Client:

1. At least one stream shall be selected as intended for **View** for platform calculation of the Client. The Client is calculated by those streams only (see [Selecting cameras](#)).
2. The results of the selection of the maximum number of cameras on the layout can vary both in the direction of increasing and decreasing the maximum number of cameras that can be displayed simultaneously on the client's monitors, depending on the camera model used, camera settings, image exposure, resolution and number of monitors used.
3. If **View** type is selected for several streams of the same camera, it is supposed that GreemStream is in use on the Client, and the number of cameras on the layout is calculated by the minimum resolution among those intended for **View**.

Click **Client calculation** in **Recommended platforms** to see the results of platform calculation for the Client.

Platform	Apportionment cameras	RAM, GB	CPU load
Intel Celeron J3455 (1500MHz) Intel Quick Sync	10	4	10-20
Intel Celeron J3455 (1500MHz)	10	4	10-20
Intel Celeron N3050 (1600 MHz)	10	4	40-50

As for Server, both AxxonSoft partners' solutions and Servers specs are calculated. The same actions can be performed with the results, including adding a platform to calculation, xls export, etc. – see [Calculation results for Axxon Next and Intellect Server](#).

4.6.3 Calculation results for CARMEN

Information on recommended platform, number of Servers, available resolutions of the part of the frame used for recognition as well as number of recognition channels required to be purchased will be shown when calculating CARMEN platform.

Recommended platforms

Freeflow

Platform	Servers	Resolution
Intel Core i7-3770K (3500 MHz)	1	200x100
		400x200
		640x480
		800x600

Note.

In the **Resolution** column not the resolution of the incoming video signal is specified but the resolution of the part of the frame that is set as **Search area** when configuring the **LPR channel** object.

Example: a camera with 800x600 resolution is used for recognition when 400x200 search area is set. In this case look for 400x200 line in the table – not 800x600.

By default the information on the number of recognition channels required to be purchased (i.e. the number of system cores) is not displayed in the calculation results for CARMEN. To display this information, do the following:

1. Click the **Settings** button.

Recommended platforms

Freeflow

Platform	Servers	Resolution
Intel Core i7-3770K (3500 MHz)	1	200x100
		400x200
		640x480
		800x600

2. In the appeared box set the **Show CARMEN cores result (1)** checkbox checked and click **Save (2)**.

Settings
Details

Language	English ▼
Maximum CPU load	60% ▼
CARMEN-Auto platform calculation	<input checked="" type="checkbox"/>
Show CARMEN cores result	<input checked="" type="checkbox"/> 1
Disable automatic calculation	<input type="checkbox"/>

Save **2**

3. The **Number of cores** column is displayed in the platform calculation results.

Recommended platforms

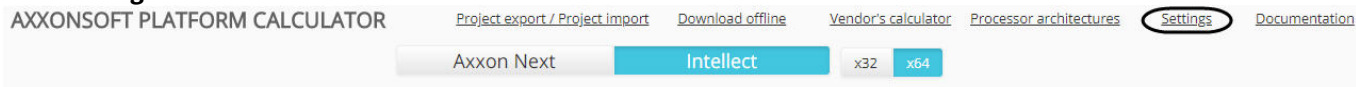
Freeflow

Platform	Servers	Resolution	Cores
Intel Core i7-3770K (3500 MHz)	1	200x100	1
		400x200	
		640x480	
		800x600	

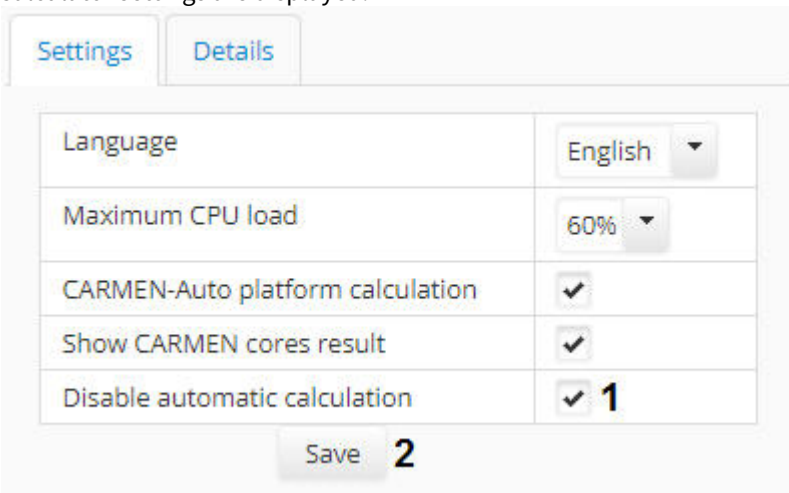
4.6.4 Disabling automatic calculation

By default, each time configuration is changed, recommended platforms are automatically recalculated. To disable automatic recalculation of the results and only perform calculation by user's command, do the following:

1. Click **Settings**.



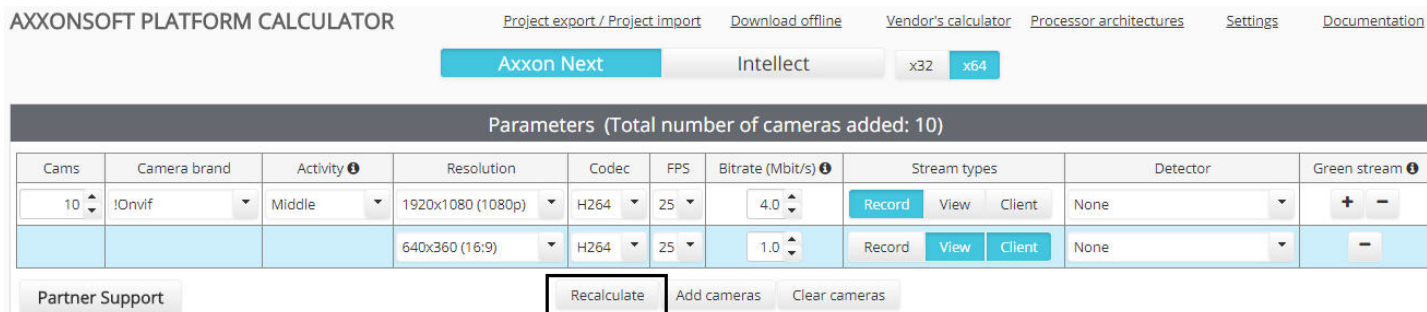
2. Calculator settings are displayed.



3. Set the **Disable automatic calculation** checkbox (1).

4. Click **Save** (2).

The **Recalculate** button appears under the **Parameters** table. Click this button to calculate recommended platforms after setting all required parameters (see [Setting parameters of video surveillance system](#)).



5 Import and export of configuration

Axxonsoft platform calculator allows saving video subsystem configuration to a file after being set up while calculating platform. The saved files can be opened in the platform calculator any time to proceed with calculations.

Streams and their parameters, the number of days to keep archive for, as well as the number of hours a day to record video are saved to the file. Parameters for calculation by disk space given, *Promise* or *Secure Logiq* solution filters, processor architectures and settings are **not** saved. Carmen platform calculation parameters are **not** saved either.

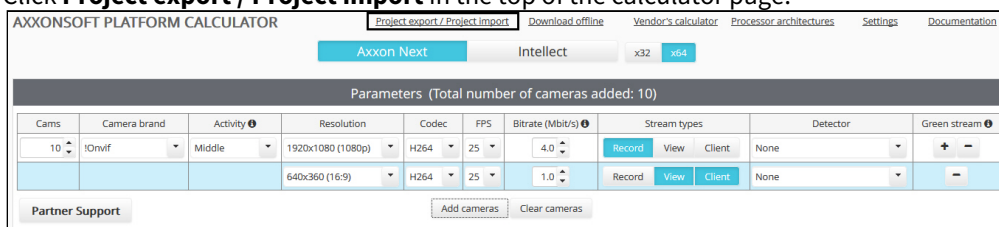
Important!

Import and export of configuration are not supported in the offline version of the Axxonsoft platform calculator – see also [Offline version of the platform calculator](#).

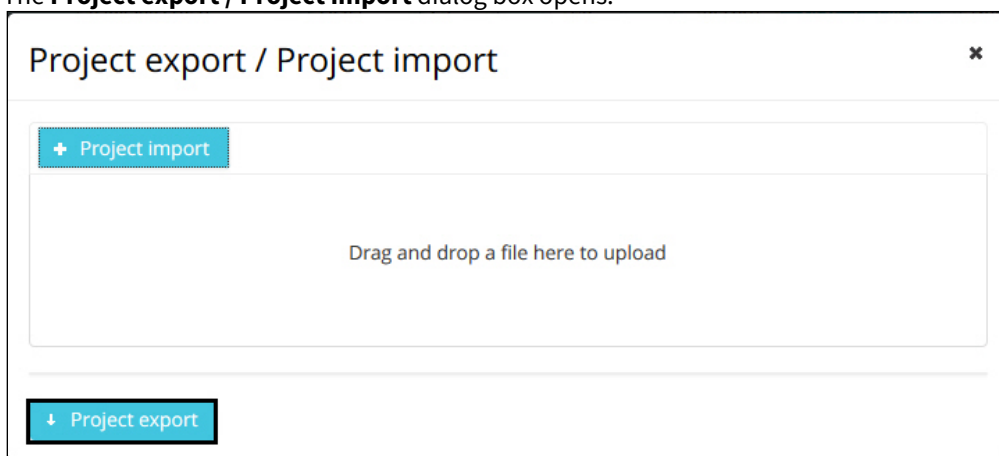
5.1 Export configuration to file

To export selected configuration in the platform calculator, do the following:

1. Set the video surveillance system parameters (see [Setting parameters of video surveillance system](#)).
2. Click **Project export / Project import** in the top of the calculator page.



3. The **Project export / Project import** dialog box opens.



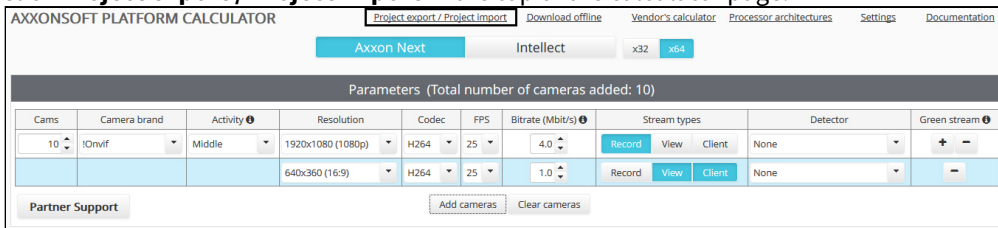
4. Click **Project export**.
5. Select a location to save the file in the standard Windows dialog box. The file is saved in a special .pcalc format. The file name consists of the name of the AxxonSoft software product, brand of the first camera in the list, and the date and time the file was created, for example: axxon_next_RTSP_2018_01_31_11_08.pcalc

Configuration export is now completed.

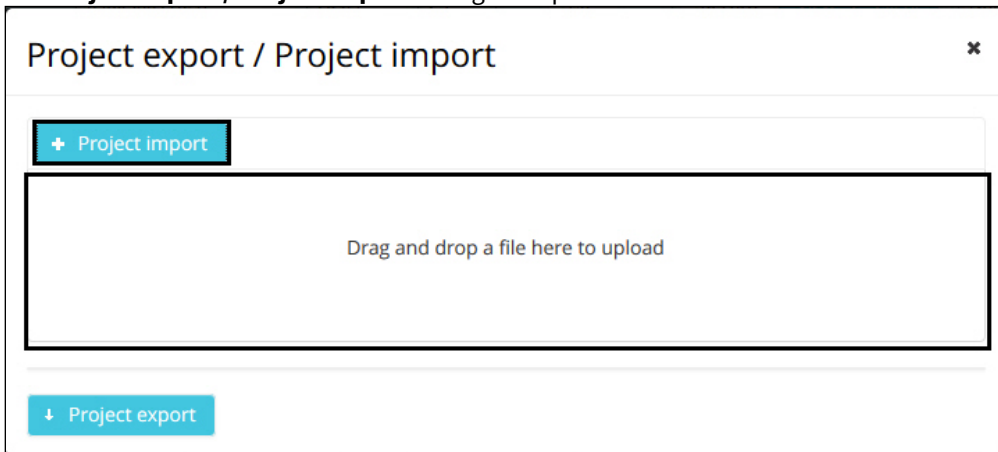
5.2 Import configuration from file

To import configuration configuration from a file, do the following:

1. Click **Project export / Project import** in the top of the calculator page.



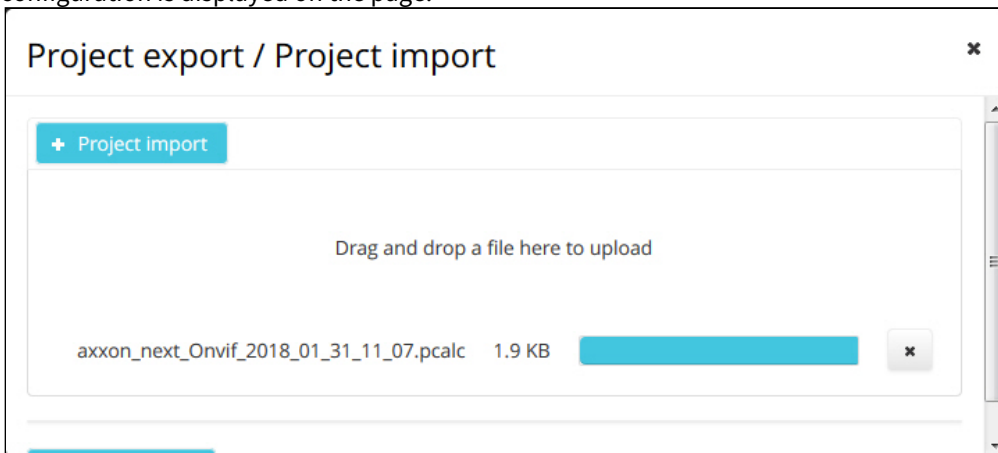
2. The **Project export / Project import** dialog box opens.



3. Drag and drop the file to the area shown or click **Project import** and select file with configuration in a standard Windows dialog box.

Note.
The files in the corresponding are created while exporting configuration – see [Export configuration to file](#).

4. After the file is selected, it is automatically applied, the **Project export / Project import** dialog box closes, and the loaded configuration is displayed on the page.



Configuration import is now completed.

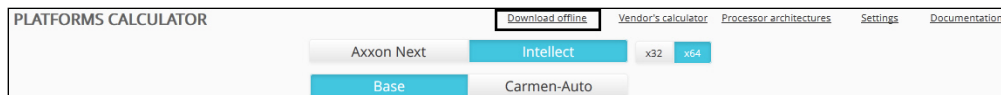
6 Offline version of the platform calculator

6.1 Requirements for software

Java version **not newer** than 8 is to be installed on the computer in order for AxxonSoft platform calculator to start. Operation of offline version of platform calculator on Java 9 and newer is not supported.

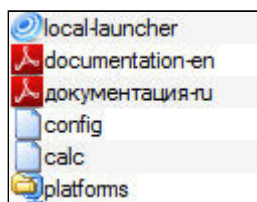
6.2 Downloading and starting offline version

The offline version of the platform calculator can be downloaded to perform calculations when there is no Internet connection. Select the **Download offline** item.



The offline version represents the zip file. To use the offline version of the platform calculator, unzip and save the file in any folder.

The archive contents are shown in the figure.



To start the platform calculator, the local-launcher.exe file is to be run. The **Axxonsoft Platform Calculator** page is opened in the browser used by default. The interface of the offline version is the same as one of the online version.

6.3 Updating offline version

На странице:

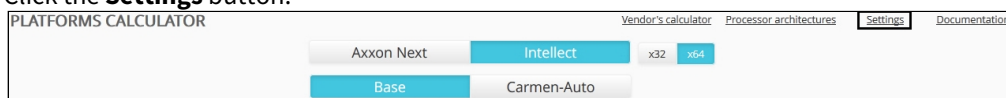
- [Update procedure](#)
- [Possible errors when updating and their solution](#)

6.3.1 Update procedure

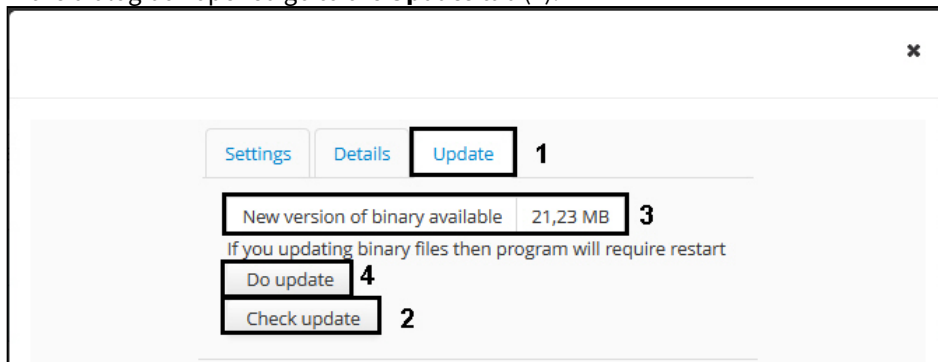
The offline version of the platform calculator can be updated if necessary. Both calculation data and executive part are updated.

Updating is performed as follows:

1. Click the **Settings** button.



- In the dialog box opened go to the **Update** tab (1).

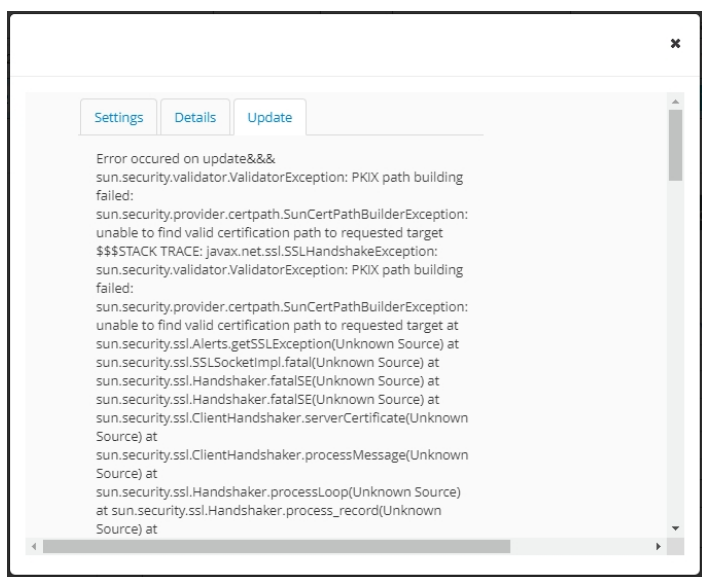


- Click the **Check update** button (2).
- If running offline version of the calculator is outdated, information about available updates and their size will be displayed (3).
- Click the **Do update** button (4). After downloading and applying the available updates, a new tab with an updated version of the platform calculator will open in the browser.

Updating the offline version of the platform calculator is completed.

6.3.2 Possible errors when updating and their solution

When updating the offline version of the platform calculator, a Java error may occur reading:



In this case, proceed as follows:

- Delete all installed Java versions from the system (for this, go to **Start - Control Panel - Programs and Features**).
- Run offline version of the AxxonSoft Platform Calculator (see [Downloading and starting offline version](#)).
- Install the proposed Java version.

7 Interface language

One can change the interface language on the Platform Calculator page. The English and Russian languages are available.

To change the interface language, do the following:

1. Click the **Settings** button on the **Platform Calculator** page.

AXXONSOFT PLATFORM CALCULATOR [Project export / Project import](#) [Download offline](#) [Vendor's calculator](#) [Processor architectures](#) **Settings** [Documentation](#)

2. The **Settings** box is opened.

Settings	Details
Language	English 1
Maximum CPU load	60%
CARMEN-Auto platform calculation	<input checked="" type="checkbox"/>
Show CARMEN cores result	<input type="checkbox"/>
Disable automatic calculation	<input type="checkbox"/>

Save **2**

3. Select the required interface language in the **Language (1)** dropdown list.
4. Click the **Save (2)** button.

The calculator interface language is now changed.

8 Partner Support

If you have any questions about Platforms Calculator, feel free to contact AxsonSoft support.

For this click the **Partner Support** button.

The screenshot shows the 'PLATFORMS CALCULATOR' interface. At the top, there are navigation links: 'Download offline', 'Vendor's calculator', 'Processor architectures', 'Settings', and 'Documentation'. Below these are buttons for 'Axxon Next', 'Intellect', 'x32', 'x64', 'Base', and 'Carmen-Auto'. A 'Parameters' section contains a table with columns for 'Cams', 'Camera brand', 'Activity', 'Resolution', 'Codec', 'FPS', 'Bitrate', 'Stream types', 'Detector', and 'Green stream'. The table has two rows of data. At the bottom left, a 'Partner Support' button is highlighted with a red box. Other buttons at the bottom include 'Add cameras' and 'Clear cameras'.

Cams	Camera brand	Activity	Resolution	Codec	FPS	Bitrate	Stream types	Detector	Green stream
10	Axis	Middle	1920x1080 (1080p)	H264	25	5.27	Record View Client	None	+ -
			640x360 (16:9)	H264	25	0.98	Record View Client	None	-

AxxonSoft contact form appears in a new tab: <http://www.axsonsoft.com/contacts.php>

Fill out the contact form and send it. AxsonSoft specialist will contact you and answer your questions.