



# Axxon Platform Calculator

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# Introduction

## On the page:

- Purpose of the document
- General information
- General information about how to choose platform for Axxon Next and Intellect

## 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 Axxon Platform Calculator.
2. How to work with Axxon Platform Calculator.

## General information

Axxon 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 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.

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.

## 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.

## Disclaimer

### On the page:

- Important note
- Disclaimer
- Confirmation of terms acceptance

## Important note

Axxon Platform's Calculator (PLATFORMS CALCULATOR) is for reference only. Estimates and recommendations obtained using PLATFORMS CALCULATOR are based on a limited number of test scripts available for ITV | AxxonSoft. The user of 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 PLATFORMS CALCULATOR. Therefore the User can use the estimates obtained using 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 PLATFORMS 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.

## 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:**

Axxon Platform's Calculator (PLATFORMS CALCULATOR) is for reference only. Estimates and recommendations obtained using PLATFORMS CALCULATOR are based on a limited number of test scripts available for ITV | AxxonSoft. The user of 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 PLATFORMS CALCULATOR. Therefore the User can use the estimates obtained using 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 PLATFORMS CALCULATOR.

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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.

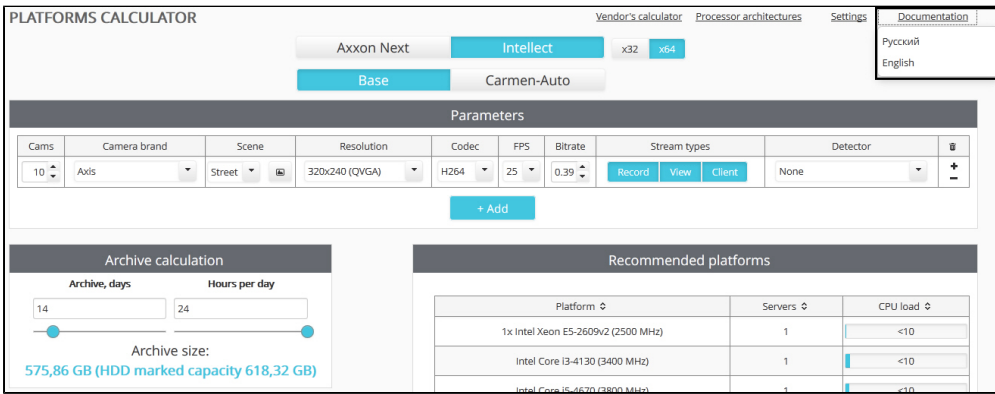
**Accept**

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

## Access to documentation

To go to online documentation on Axxon platform calculator, select the required language in the **Documentation** menu.

Russian and English documentation is available so far.



## How to choose the best platform

Here is the procedure of choosing the appropriate platform:

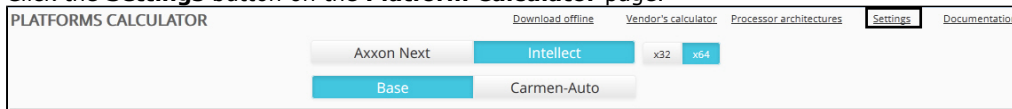
1. Identify and specify maximum CPU load on computers in the video surveillance and audio control system.
2. Identify and specify allowable CPU architectures to use on the platform of the video surveillance and audio control system.
3. Set input parameters to choose the platform: select the software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

## Setting maximum CPU load

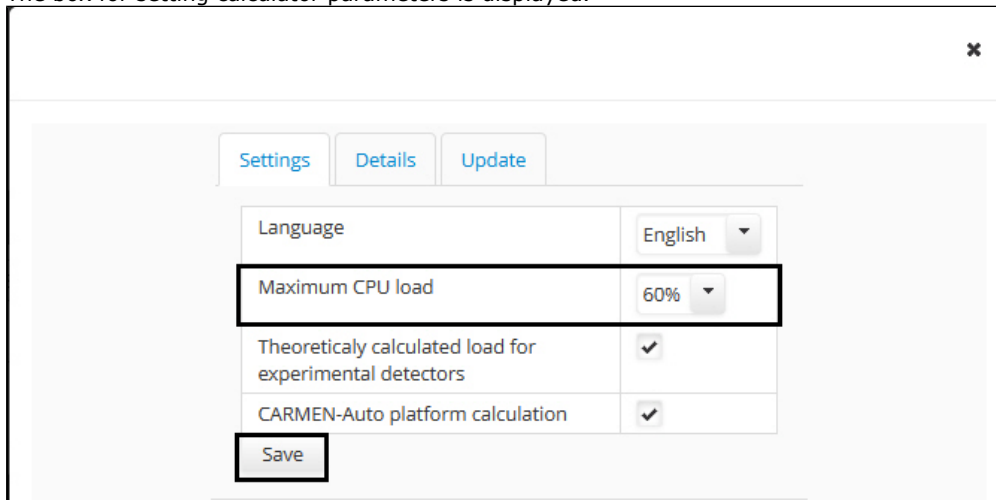
The platform calculator allows setting maximum CPU load. On the basis of this parameter the number of Servers is calculated.

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.

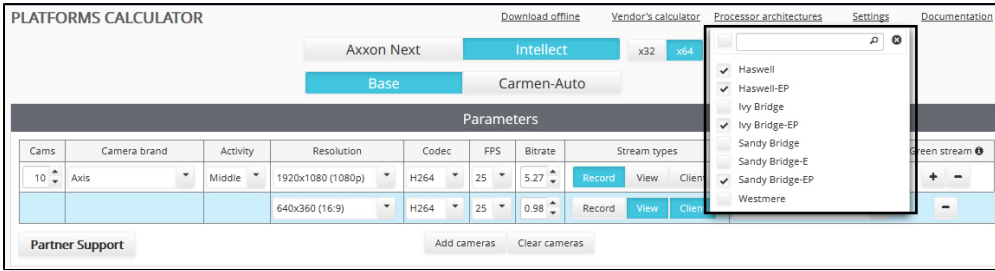


3. Select the required value of maximum CPU load in the **Maximum CPU load** dropdown list.
4. Click the **Save** button. The changes will be saved and the box will be closed.

The maximum CPU load is now configured.

## 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.

## Selecting software platform

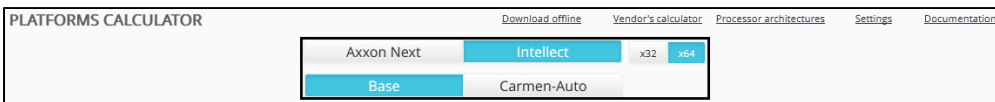
Hardware platform selection depends on which software platform proposed to be used: *Axxon Next*, base *Intellect* or *Intellect* with *CARMEN* license plate recognition engine.



### 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.



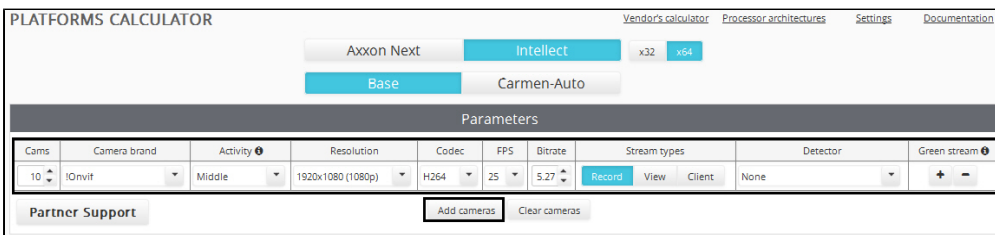
Then determine whether 64-bit software modules are in use or not. Operation in this mode is not supported by all integrated cameras. The details can be found at [Documentation Drivers Pack](#).

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.

## Setting parameters of video surveillance system

### Selecting cameras

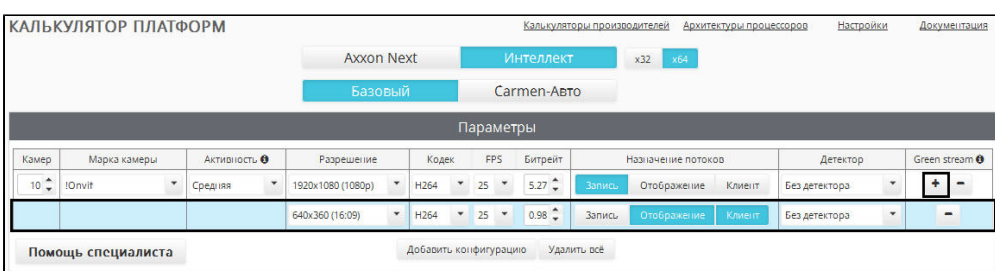
Cameras used in the video surveillance system are selected in the **Parameters** group of the **Platform calculator** page. To add cameras to the list click the **Add** button.



### 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.



**Note.**

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

The parameters are described in the table.

Parameter	Info
<b>Cams</b>	The number of cameras that is to be used in the video surveillance system.
<b>Camera brand</b>	The list of vendors of IP cameras and video capture cards integrated with <i>Axxon Next</i> and <i>Axxon Intellect Enterprise</i> . In addition to brand names there are the following items in the list: <b>!Onvif</b> . Select it if you plan to use a camera that operates via the OnVif protocol. <b>!RTSP</b> . Select it if you plan to use a camera that transfers video via RTSP protocol. <b>!Undecided</b> . Select it if you are not sure what camera model will be in use.
<b>Activity</b>	Approximate estimation of activity in the field of view of a camera: low, middle or high.  Available values: <b>Extremely low, Low, Middle, High</b> .  <i>Note. Activity indicates the dependency of the video stream on how often and how fast the image changes in the frame. If a camera is installed on a busy street, set High activity. If a camera is installed in a room that is rarely entered, then set Low activity. The Middle activity means that a scene is with 30% of changes in the frame and there is average number of small moving details. The High activity means that a scene is with more than 70% of changes in the frame and there are lots of small moving details.</i>
<b>Resolution</b>	Video resolution. The list of available resolutions depends on the selected vendor or the model of video capture card.
<b>Codec</b>	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.
<b>FPS</b>	Frame rate of the stream. The range of values depends on the selected vendor or the model of video capture card.
<b>Bitrate</b>	The stream from one specified camera in Mbit/s. By default stream calculation is based on the average data received as a result of tests performed by ITV   AxxonSoft's QA department. If the calculated stream is not accurate, then it is possible to set CBR per camera.  The Vendor's calculator is used for more accurate calculation. The list of known calculators can be found in the <b>Vendor's calculator</b> dropdown list. Many cameras allow setting CBR.
<b>Stream types</b>	Selection type of stream.
Detector	See <a href="#">Selecting types of detection tools</a> .

**Note.**

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

## Archive parameters

### On the page:

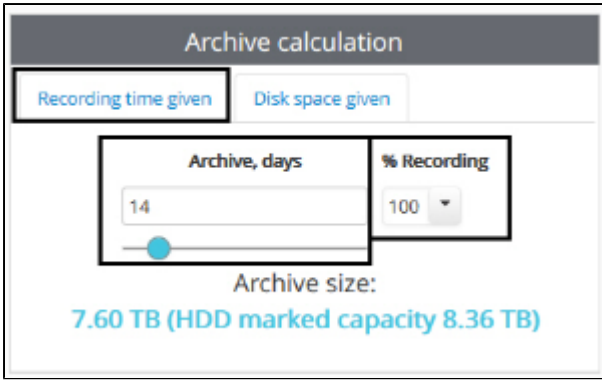
- [Calculation by time](#)
- [Calculation by size](#)

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.

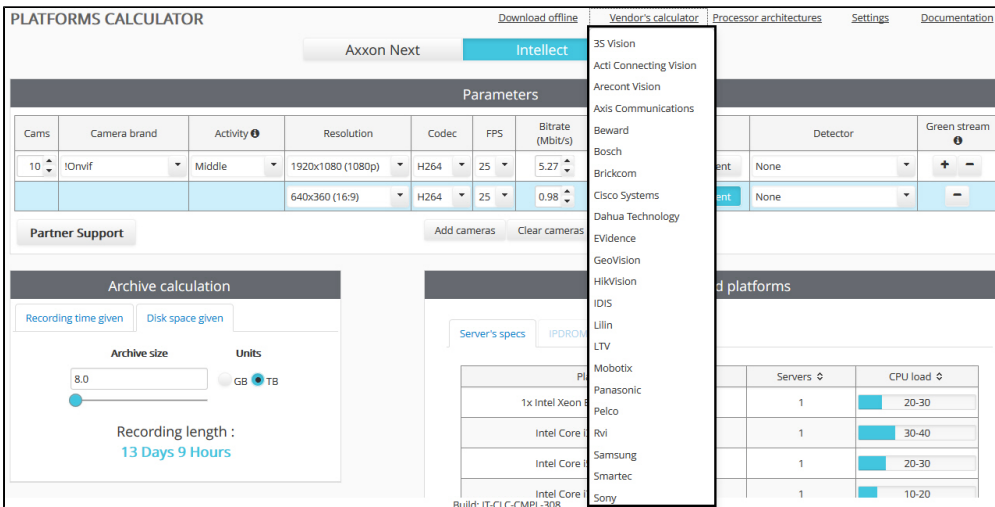
### Calculation by time

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:



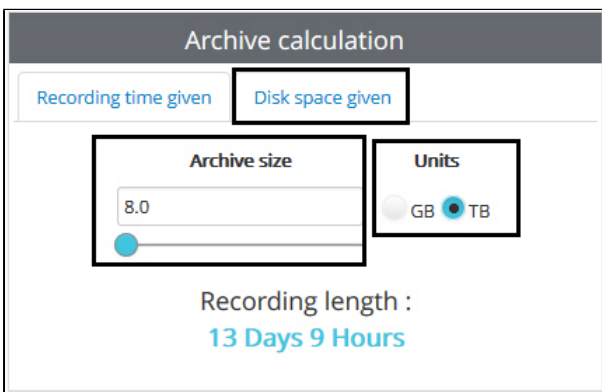
1. **Archive, days** – the required archive depth (in days).
2. **% Recording** – the average percentage of hours a day during which there will be recording to the archive. 100% mean continuous recording.

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.



### 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.

## Selecting types of detection tools

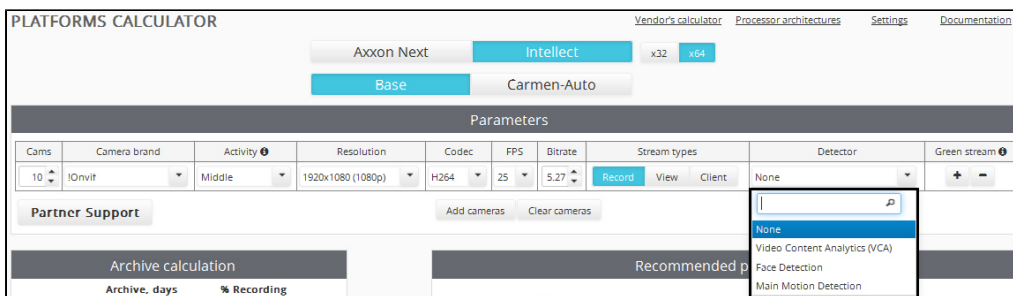
Here is the list of detection tools:

Name	Product	Description	Type (basic/extra)	Features
------	---------	-------------	--------------------	----------



Video Content Analytic (VCA)	Axxon Next, Intellect	Object trajectories detection tool.	Basic	-
Face detection	Intellect	<i>Intellect</i> face detection tool.	Basic	-
Main motion detection	Intellect	Basic motion detection tool in <i>Intellect</i> (a detection that is turned on when camera is armed)	Basic	-
Motion Detection	Axxon Next	NOT a smart video detection tool in Axxon Next (Motion detection).	Basic	-
Motion Detection (decode key frames)	Axxon Next	NOT a smart video detection tool in Axxon Next (Motion detection) with key frames decoding enabled.	Extra with theoretical load	-
LPR	Axxon Next	License plate recognition detection tool in Axxon Next version 4.0 and older.	Extra with theoretical load	-
Face Search	Axxon Next	Face search detection tool in Axxon Next version 4.0 and older.	Extra with theoretical load	-
LPR VIT	Intellect	Auto-Intellect, VIT license plate recognition module.	Extra with theoretical load	-
People Counter	Intellect	People counter detection tool that is a part of Intellect Detector Pack.	Extra with theoretical load	Optimal parameters for this detection tool are resolution of 800x600 / 640x360 / 640x480 / 320x240 and FPS of 24 to 30 . If specified parameters of the video stream do not meet these conditions, then when you select this detection tool the resolution is set to 320x240 and FPS to 24.
Fisheye	Intellect	<b>Fisheye camera monitor</b> interface object in Intellect.	Extra with theoretical load	-
Virtual Loop	Intellect	Auto-Intellect, <b>Vehicle detector</b> module and <b>Vehicle processor</b> module that are the part of the information-gathering subsystem.	Extra with theoretical load	-

After adding cameras to the list (see [Selecting cameras](#) ), the types of detection tools can be specified too.



The list of available detection tools depends on the selected software platform (see [Selecting software platform](#)).



### Important!

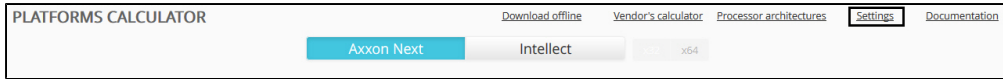
Platforms calculator does not check if specified parameters match detection tools requirements for cameras. For instance, if specified fps is lower than that required for detection tool to operate, then platforms will be calculated but the calculated platform won't suit the detection tool requirements.

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

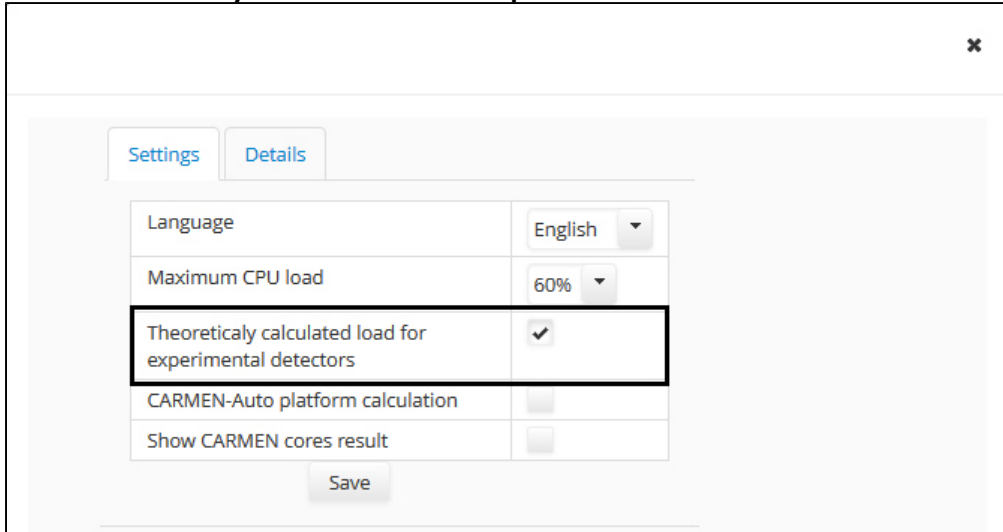
If there is no required detection tool in the list of default detection tools (see [Selecting types of detection tools](#)), then extra detection tools can be enabled and taken into account when calculating platform. However, due to small number of tests of these detection tools on various platforms, factors for conversion between platforms are in use when calculating CPU load and recommended platforms. This can lead to increased inaccuracy in recommendations, while all data for platform calculation with default detection tools and without them are available from experiments.

Enable extra detection tools with theoretical load as follows:

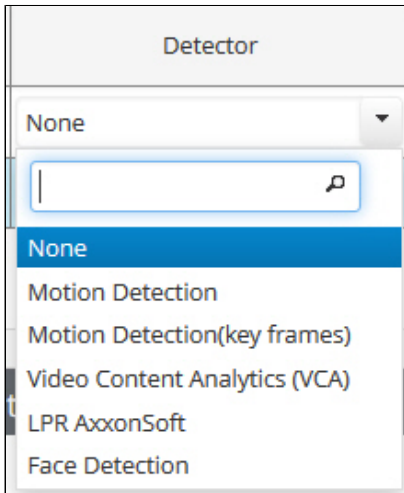
1. Click the **Settings** button.



2. Set the **Theoretically calculated load for experimental detectors** checkbox checked.



3. Click the **Save** button.
4. As a result the specified detection tools become available for selection.

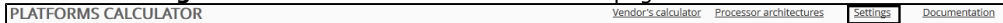


Extra detection tools with theoretical load are now enabled.

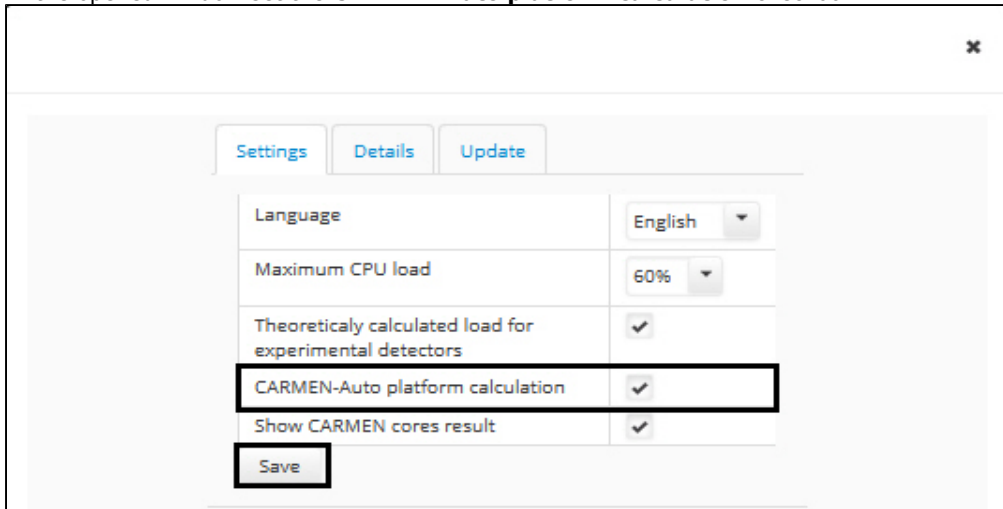
## Setting parameters for CARMEN platform

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.



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



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).

2. If 64-bit CARMEN modules are to be in use, then set the **x64** switch checked (2).

3. 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 PARKING scene is to be selected for CARMEN-Parking recognition engine. 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 <a href="#">Registry keys reference guide</a> )
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](#).

## Calculation results

### Calculation results for Axxon Next and Intellect

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

1. Archive size: disk space or time period.

**Archive calculation**

Recording time given | Disk space given

Archive, days: 14 | % Recording: 100

Archive size: **7.60 TB (HDD marked capacity 8.36 TB)**

**Archive calculation**

Recording time given | Disk space given

Archive size: 8.0 | Units: GB | **TB**

Recording length: **13 Days 9 Hours**

2. Summary stream from IP devices, output and record.

**Current stream**

Output (Mbit/s): 9.80

Record (Mbit/s): 52.70


Summary stream from ip devices (Mbit/s): 62.50

3. The list of recommended platforms.

**Recommended platforms**

Server's specs | IPDROM solutions

Platform	Servers	CPU load
2x Intel Xeon E5-2630v3 (2400 MHz)	1	<10
2x Intel Xeon E5-2640v3 (2600 MHz)	1	<10

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

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

**Recommended platforms**

**Server's specs** | IPDROM solutions

Platform	Servers	CPU load
Intel Core i5-6260U (1800 MHz)	1	20-30
Intel Core i5-6260U (1800 MHz) Intel Quick Sync	1	10-20
Intel Core i7-6700 (3400 MHz)	1	10-20
Intel Core i7-6700 (3400 MHz) Intel Quick Sync	1	10-20

The **IPDROM solutions** tab is not available in English version of the Platform calculator.

The number of servers which is required to use for specified number of video cameras is shown in the **Servers** 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%.

If platforms are calculated for *Axxon Next*, 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.



**Note.**

Configuration procedure for using the Intel Quick Sync Video technology in the Axxon Next software is described in the *Axxon Next User Guide*. Please find the most recent version of this document in [AxxonSoft documentation repository](#).

To save the calculation results in the excel file, click the **Export configuration to XLS** button. The export file includes both the list of recommended processors and the list of recommended IPDRM solutions.

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.

## 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



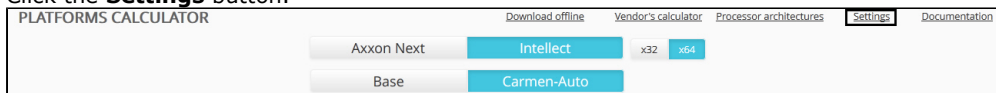
**Note.**

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.

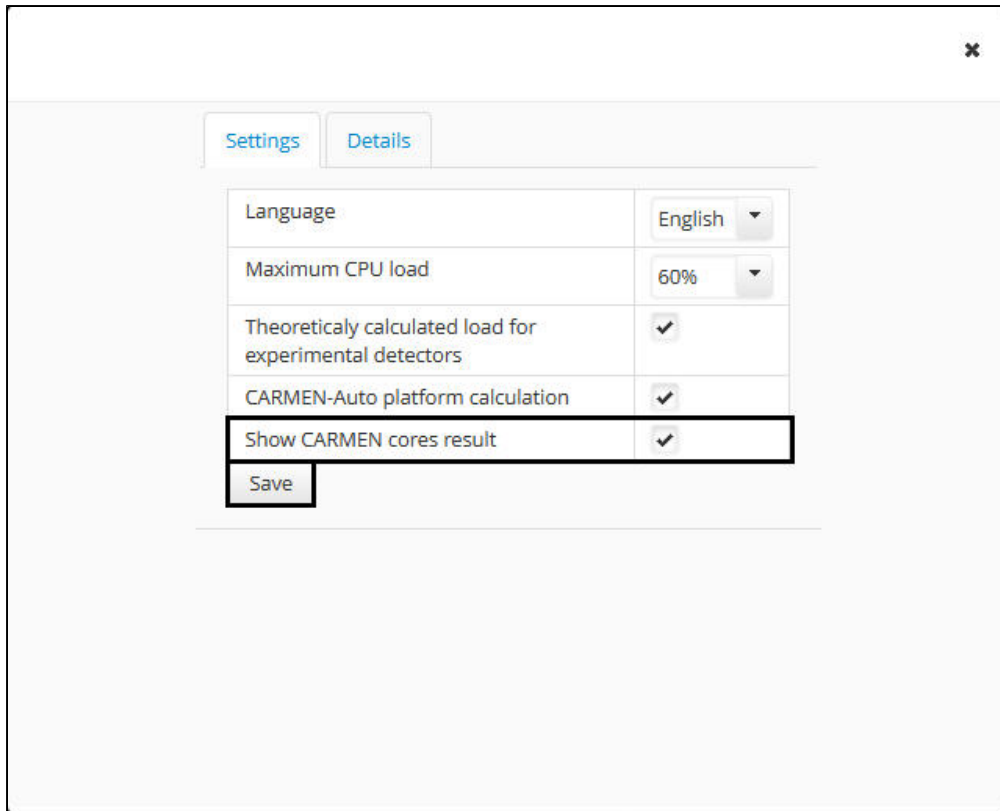
Example: a camera with 800x600 resolution is used for recognition when 400x200 search area is set. In this case look for 400x200 line in the table – not 800x600.

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.



2. In the appeared box set the **Show number of cores for Carmen** checkbox checked and click **Save**.



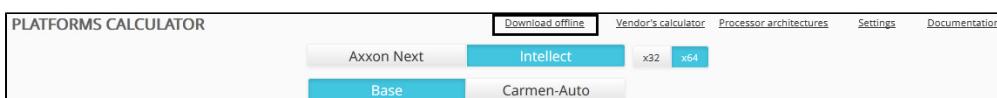
3. The **Number of cores** column is displayed in the platform calculation results.

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

## Offline version of the platform calculator

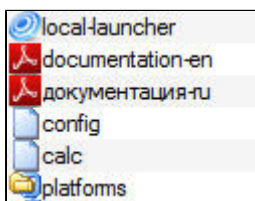
### Downloading and starting offline version

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.



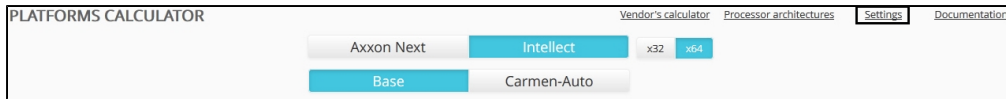
To start the platform calculator, the local-launcher.exe file is to be run. The **Axxon Platform Calculator** page is opened in the browser used by default. The interface of the offline version is the same as one of the online version.

### Updating offline version

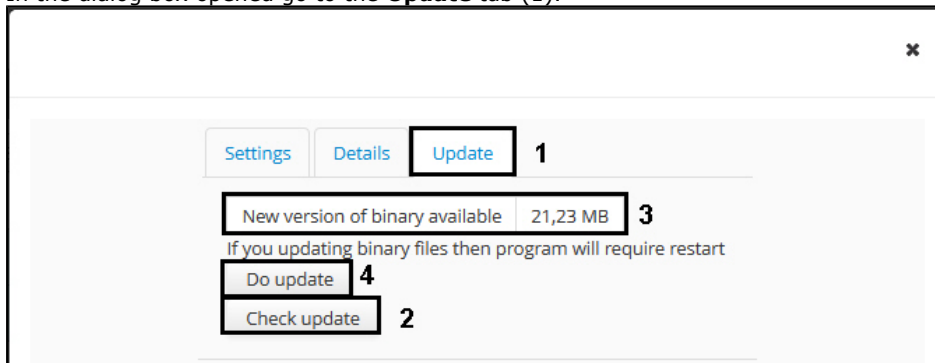
The offline version of the platform calculator can be updated if necessary. Both calculation data and executive part are updated.

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.

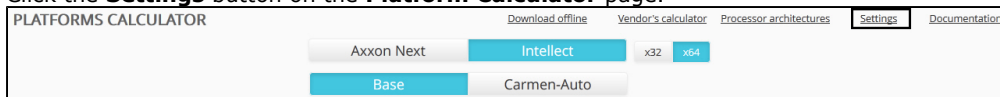
Updating the offline version of the platform calculator is completed.

## Interface language

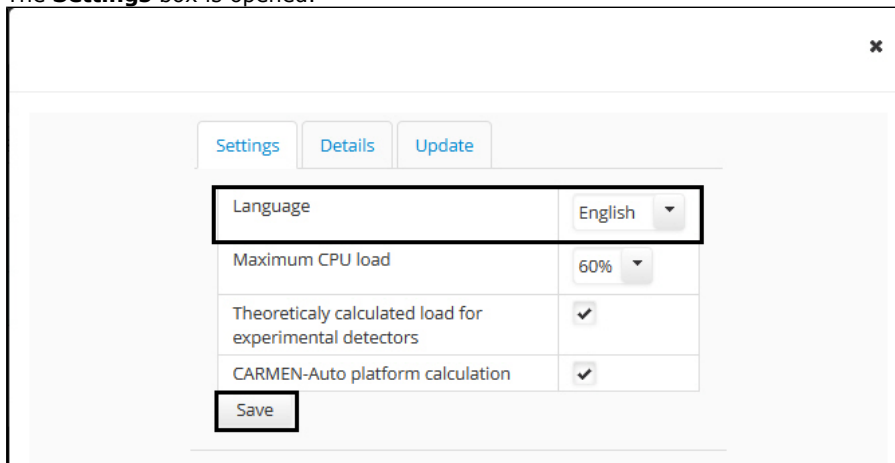
One can change the interface language on the Platform Calculator page. The English and Russian languages are available.

To change the interface language, do the following:

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



- The **Settings** box is opened.



- Select the required interface language in the **Language** dropdown list.
- Click the **Save** button.

The calculator interface language is now changed.

## Partner Support

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

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

PLATFORMS CALCULATOR [Download offline](#) [Vendor's calculator](#) [Processor architectures](#) [Settings](#) [Documentation](#)

Axon Next **Intellect** x32 x64

Base Carmen-Auto

Parameters

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	-

**Partner Support** Add cameras Clear cameras

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

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