



# EXACQVISION INTEGRATION 1.0

## Technical guide

Revision 1

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## ***Document history***

<b><i>Revision</i></b>	<b><i>Date</i></b>	<b><i>Comment</i></b>
1	2013-05-27	First version.

## ***Intended audience***

This document is intended for people who are in charge of exacqVision Integration/installation with our ACIC analytics softwares. It describes the different steps required to configure the overall system.

## ***Getting technical support***

You can ask questions and make product suggestions to ACIC by email at [support@acic.eu](mailto:support@acic.eu). Please don't forget to include your contact information in your request.

## ***Covered products***

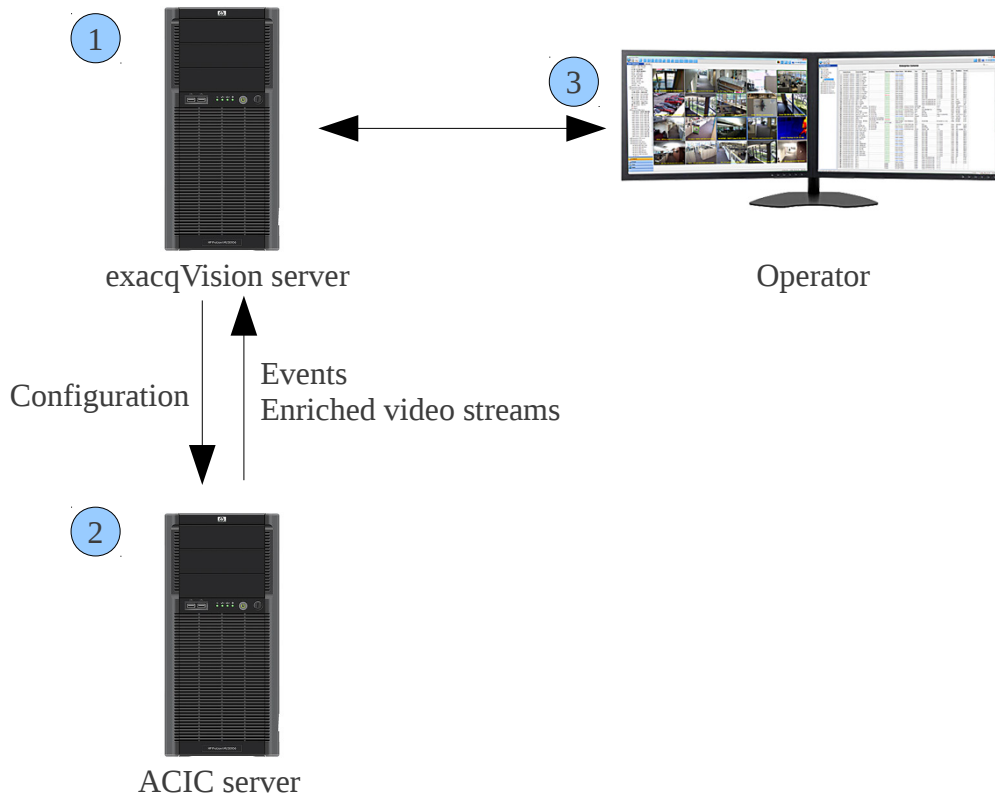
- ACIC Analytics software with ACIC Event Manager (AEM) 6.2 (or more)
- All Exacq versions that have Soft Triggers support (Exacq Start has no Soft Triggers support)

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# 1 Introduction

The integration between ACIC Video Analytics service and exacqVision VMS use the exacqVision SDK. The overall architecture is shown below:



1. The exacqVision server receives the video streams from the cameras and/or gets enriched video streams from ACIC VA.
2. The ACIC server receives the video streams from the cameras and queries exacqVision server for its configuration. The ACIC server sends soft triggers notifications each time an alarm occurs. It can also serve enriched video streams that can be played and recorded by exacqVision.
3. The operator is able to view ACIC VA alarms and play enriched video streams.

To configure the whole system to enable ACIC events to be relayed into exacqVision you will configure

- Analytics to send their events to an AEM
- AEM to send their events to exacqVision

Schematically the system works like this:



Illustration 1: Events flow between ACIC and exacqVision

After these steps, ACIC analytics system will be viewed by exacqVision as an IVS (Intelligent Vision System) captor able to trigger exacqVision soft triggers.

## 1.1 Soft triggers

ACIC video analytics events activate soft triggers named *cameraID\_eventName\_cameraName* where

- *cameraID*: exacqVision camera ID (in decimal)
- *eventName*: name of the ACIC event.
- *cameraName*: name of the camera in exacqVision when the soft trigger is created.

For example, *459776\_AcicActivityDetection\_MyCamera* when an *AcicActivityDetection* event is raised for camera *MyCamera* (with Camera ID 459776).

These soft triggers are automatically created in exacqVision if they do not exist yet.

If the camera name is changed in exacqVision, the triggers are not renamed and the events will continue to activate the soft trigger previously defined.

Tip: the *cameraName* part of the soft triggers can therefore be edited in exacqVision with no consequence.

If an ACIC event is associated to an unknown Camera ID in exacqVision, no soft trigger is created nor activated. However, if a soft trigger with name starting with *cameraID\_eventName\_* exists, it will be activated.

## 1.2 Recording rules

Each time a soft trigger is created by the ACIC application in exacqVision, a recording rule is automatically created for the associated soft trigger and camera with pre- and post- alarms durations (default values are 3 seconds each).

These recording rules can be edited or even deleted in exacqVision.

## 1.3 Enriched video streams

You can acquire ACIC enriched video streams in exacqVision servers – see *MvConfigTool* manual for further details about streaming capabilities and configuration.

## 2 Deployment infrastructure

The following figure shows the deployment possibilities to transmit events to exacqVision.

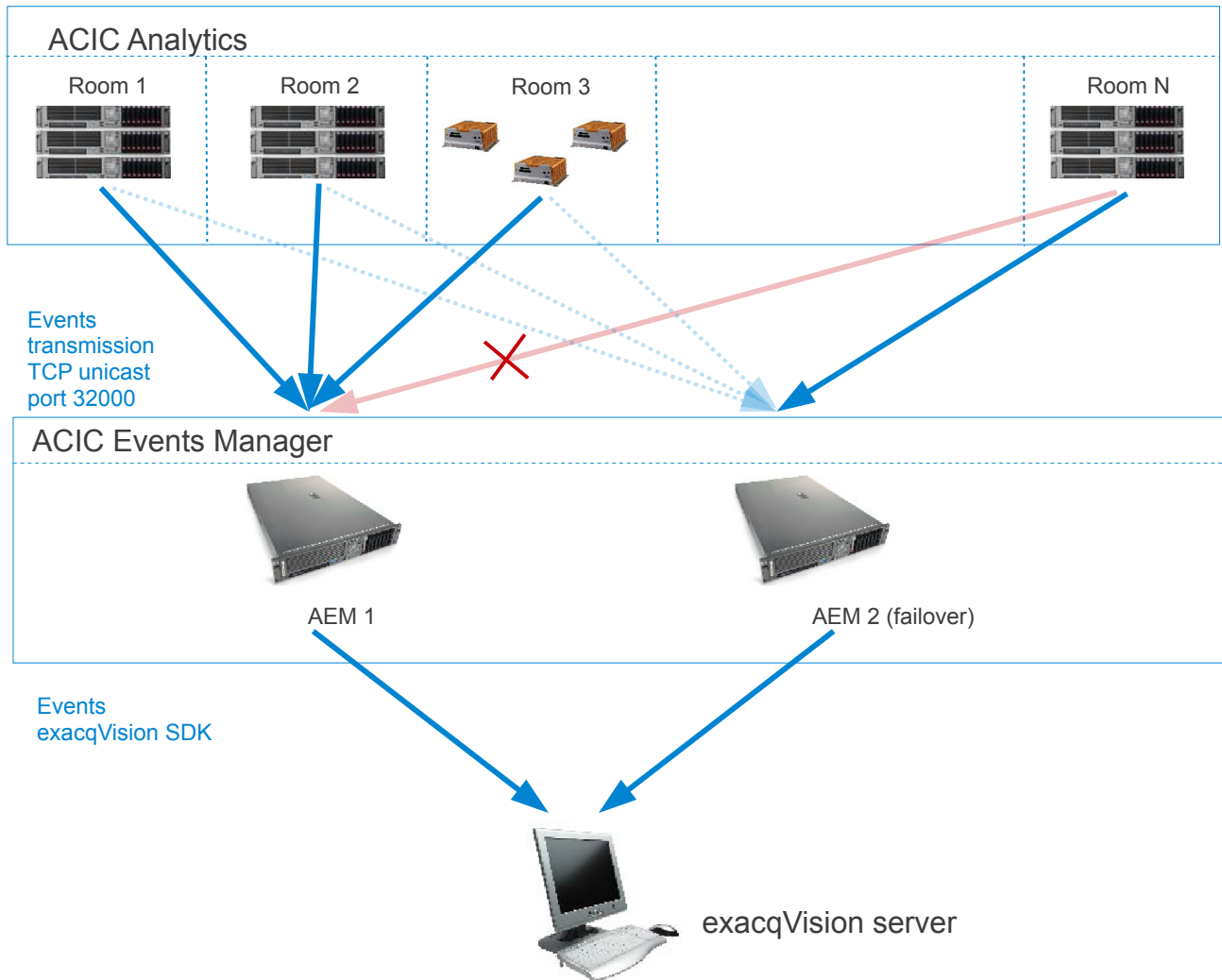


Illustration 2: Deployment infrastructure

In the preceding figure, the blue arrows are the effective way whereby the events arrive up to the exacqVision server. The dashed blue arrow is the alternative route the event would take if the previous one becomes inaccessible. The red arrow means an unreachable target due to a link failure or a not responding machine (see where the red cross is).

Note that AEM's nodes are not necessarily deployed on dedicated computers, they may run on a machine containing the video analytics software.

Usually, in a failover framework, there are two AEM per area (not on a same sub-network).

### 3 Analytics servers configuration

For each analytics server, you have to specify where to send events (to which AEM) and at which camera (known from exacqVision<sup>1</sup>) the data are associated to.

#### 3.1 Configuration of the analytics output to the AEM

First of all you need a web browser (Firefox is requested) to access the embedded website – See MvConfigTool\_EN.pdf for further details about accessing and configuring the Analytics software.

After the login, go to the application specific tab (in this example : MvActivityDetection - (1)), select the output sub-menu (2) and repeat the following operation for each active streams – (3).



Illustration 3: Configuring the analytics outputs

In the output form go to the AEM section and fill in the form with the IP address of the first and secondary AEM gateway (optional).

ACIC Events Manager

First gateway address	<input type="text" value="192.168.20.202"/>
First gateway port	<input type="text" value="32000"/>
Secondary gateway address	<input type="text"/>
Secondary gateway port	<input type="text"/>
Forwarding policy	<input type="text" value="Failover"/>

Illustration 4: ACIC Events Manager output panel

By default, AEM use the TCP port 32000 but it can be configured to use another port value (see AEM configuration for further details about AEM configurations). It's not always necessary to configure the 2 destinations except when using a failover architecture.

Forwarding policy actually allows 2 modes:

Fail over :

Once an AEM node becomes unreachable, the analytics outputs switch to the other one. There is no primary and secondary node, the system will not try to reconnect the first AEM until the second becomes unavailable in turn or the application restarts. If all the AEM are

1 It is a necessity to identify uniquely a same camera from software analytics and from the VMS, to do we use the Genetec camera GUID as a common identifier – see Error: Reference source not found.

unreachable, the events are buffered a while waiting for transmission and finally are discarded.

**Mirroring :**

In this mode, events are sent simultaneously to each AEM nodes. If all AEM nodes are unreachable the event is buffered a while and the system retries a little bit later. On the other hand if the event can be sent to only one AEM, the event is considered as processed. In other words, the system does not retry to resend the event to the unresponsive node. Do not use this mode with exacqVision except if you want to duplicate all the events with one exacqVision or want to use 2 distinct exacqVision servers, one at the end of each transmission chain.

### 3.2 Configuration of the camera's external ID

To associate an analysis outputs with an exacqVision camera, it is necessary to inquire in the analysis camera panel the exacqVision Camera ID.

#### 3.2.1 Get the Camera ID from exacqVision

For each video stream you must get the exacqVision associated Camera ID. The Camera ID is shown in the exacqVision Client application, with Right-Click/Properties on a live view of a camera. The interesting value is the one in parenthesis (decimal).

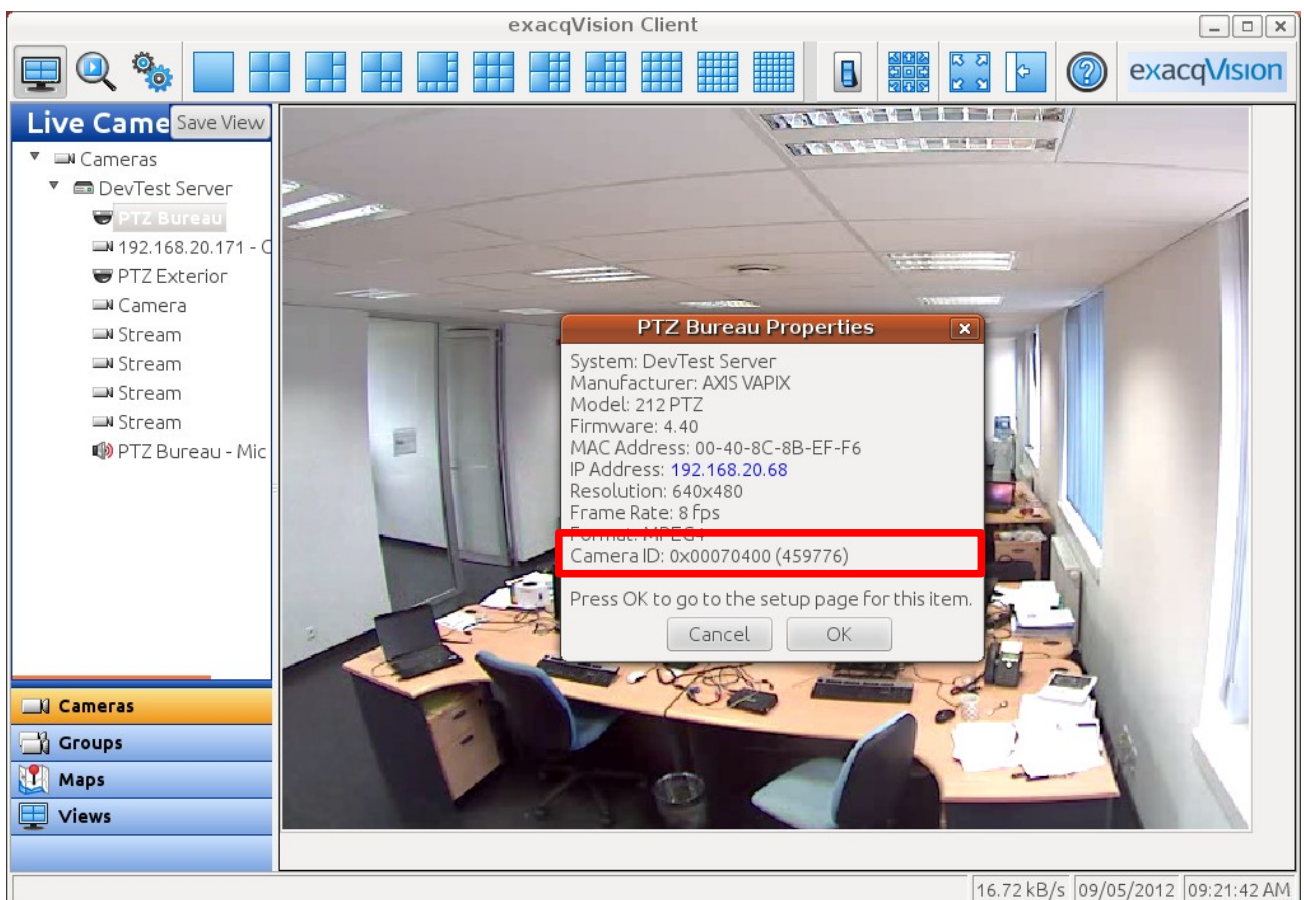


Illustration 5: Get the exacqVision camera ID



### 3.2.2 Configure the Camera ID in the video analytics

Once you get the exacqVision Camera ID for a specific ACIC stream, let's open the camera panel (System tab (1), sub menu camera (2)) and copy the Camera ID in the field labeled External ID (3). Repeat this operation for each active streams (4).

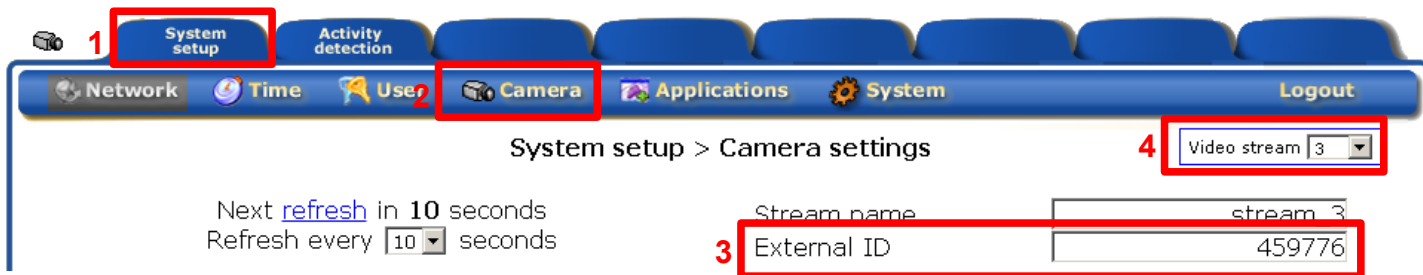


Illustration 6: Associate camera ID with analysis stream

## 4 AEM configuration

The AEM nodes (ACIC Events Manager) are servers responsible for collecting and storing analysis outputs and format them to destination of specific devices/software using heterogeneous protocols (proprietary or open). AEM should be seen like an extensible dispatcher gateway that makes the junction between ACIC software and the external world – see Deployment infrastructure figure.

When using several AEM in conjunction with exacqVision, they do not use a relational SQL database to store incoming events instead they delegate events to a specific plug in called **MvExacq** that makes the junction with the exacqVision server.

There are thus 2 things to configure on an AEM node:

- The global configuration (which plugin to load, which port for listening events, ...)
- The plugin configuration (what do we do with incoming events, where to send them)

Each of our servers (analytics and/or AEM) are supplied with a web interface (port 10000) called webmin. It allows you to configure the system (operating system) specific settings such as time, network, ... This interface also contains specific maintenance tools and AEM resources accessors. To configure the AEM you can use this interface as described here above. See the FAQ document for further details about webmin.

### 4.1 Global configuration

First of all, connect the web interface using your Firefox browser by typing the following URL: <http://192.168.20.1:10000> (assuming the AEM server is 192.168.20.1)

The following login page should appear. Type in as user name: **administrator** and as password: **ACIC**

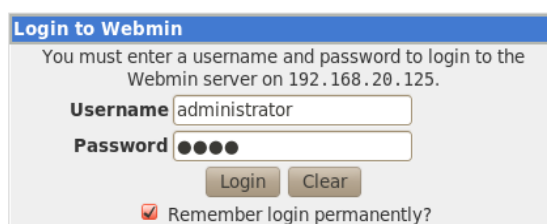


Illustration 7: Webmin login

Once logged, you should see the following interface.

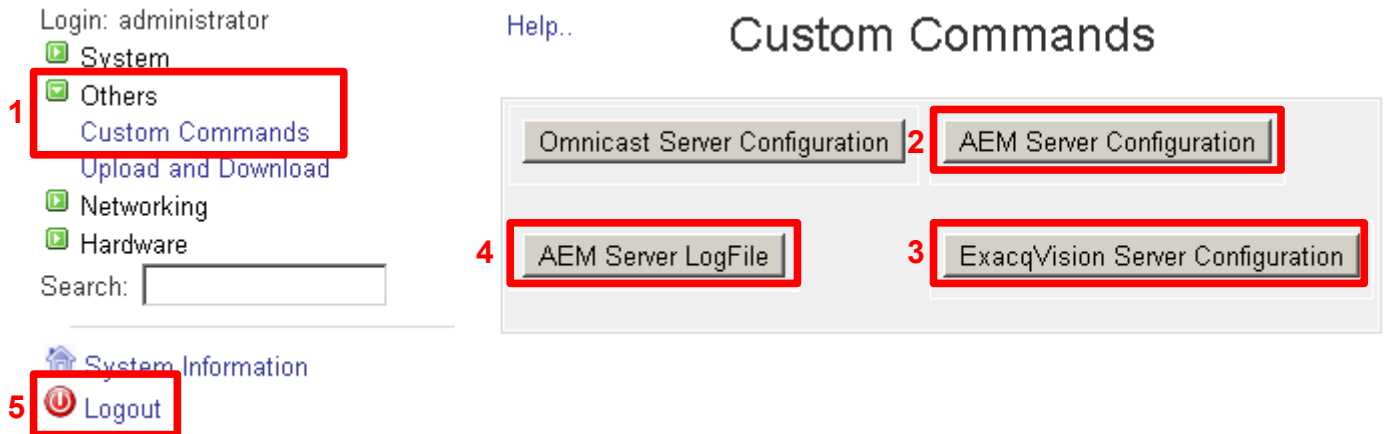


Illustration 8: Webmin interface

The others menu lead to a **Custom Commands** links (1) displaying several buttons:

The **AEM Server Configuration** (2) allows you to configure the AEM global settings see above.

The **ExacqVision Server Configuration** (3) allow to configure the plug in outputs see point 4.2.

The **AEM Server LogFile** (4) shows you the AEM's warnings and errors.

To configure the global settings, click on the **AEM Server Configuration** button (2). An editable XML file should appear as following:

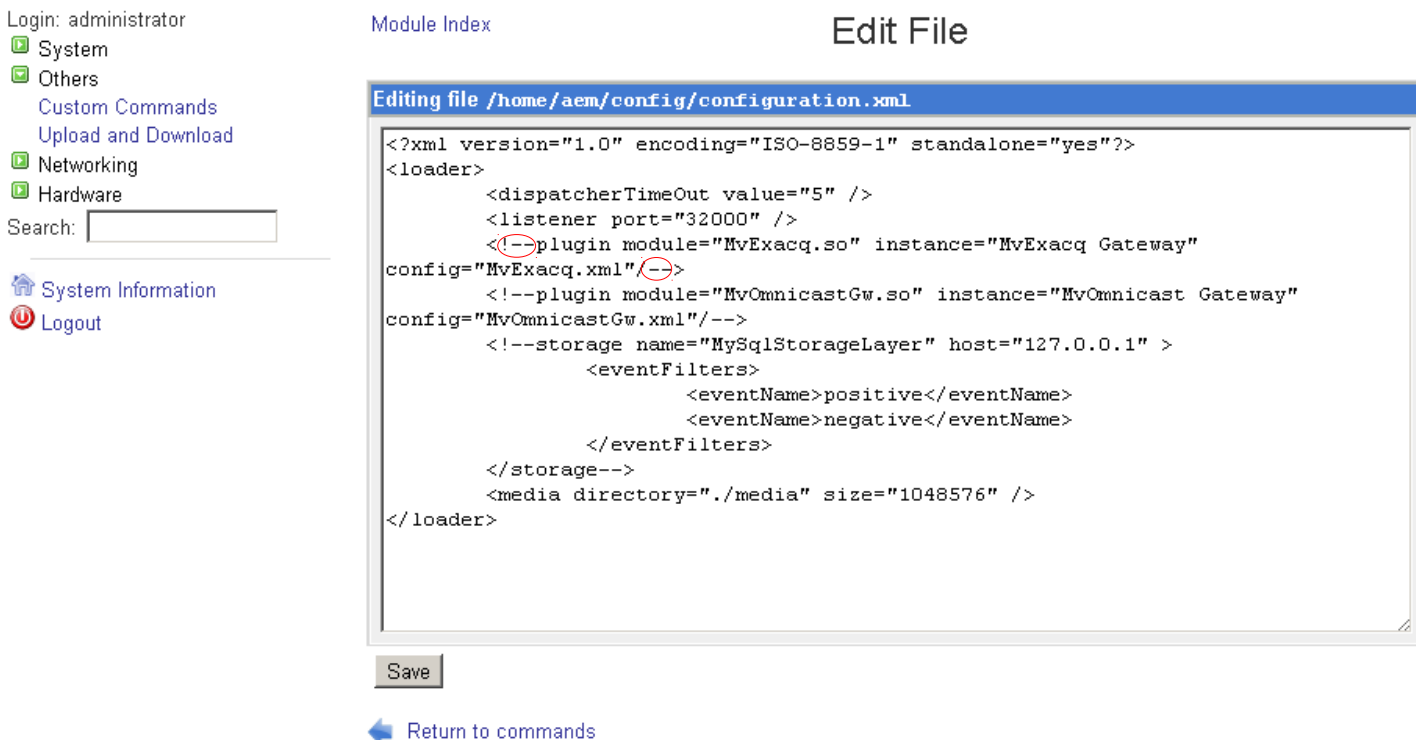


Illustration 9: AEM server XML configuration file

You have to remove the “!--” and “--” characters highlighted in the figure so that the plug in is loaded by the AEM.

You can change the incoming events port by replacing 32000 with the port you want in the following line.

```
<listener port="32000" />
```

Note: If you change the port value, you must change the target port on each Analytics output page as described in Configuration of the analytics output to the AEM

```
<plugin module="..." instance="..." config="..."/>
```

The *plugin* tag specifies which plugins the system has to load through the module attribute and which configuration applies to this plugin (config attribute). Be sure the Exacq plugin entry is no more in comments, else, the communication with exacqVision will be impossible!

The other entries are for internal use or are not relevant for an exacqVision integration. They should not be modified.

## 4.2 MvExacq plugin configuration

By clicking on **ExacqVision Server Configuration (3)** button, the same editor will appear with the specific plugin configuration. This plugin is the junction between the AEM and the exacqVision server.

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="yes"?>
<plugin>
  <module>MvExacq.so</module>
  <configuration>
    <!--
      Extrinsic parameters
      Will be transmit to plugin has a map<string, string>
    -->
    <param name="host" value="192.168.20.32"/>
    <param name="port" value="22609"/>
    <param name="user" value="admin"/>
    <param name="password" value="admin256"/>

    <param name="preAlarm" value="3"/>
    <param name="postAlarm" value="3"/>

  </configuration>
  <outputFilters>
    <filter>
      <eventName>AcicActivityDetection</eventName>
```

```

        <condition></condition>
        <output></output>
    </filter>
    ...
    <filter>
        <eventName>MvVideoLossDetection</eventName>
        <condition></condition>
        <output></output>
    </filter>
    <filter>
        <eventName>MvCameraDisplacementDetection</eventName>
        <condition></condition>
        <output></output>
    </filter>
    <filter>
        <eventName>MvVideoQualityFalloffDetection</eventName>
        <condition></condition>
        <output></output>
    </filter>
    <filter>
        <eventName>MvTestIO</eventName>
        <condition></condition>
        <output></output>
    </filter>
    <!-- Add other filter here -->
</outputFilters>
</plugin>

```

Some **filter** tags are omitted for clarity. The most important section is **configuration**.

#### 4.2.1 Plugin configuration

Configuration parameters are always passed to plug in with the **param** tag. The **name** attribute identifies a parameter name where the **value** attribute set its value.

For instance `<param name="day" value="monday"/>` defines a parameter called 'day' whose value is the string 'monday'.

The main parameters of the MvExacq plugin's configuration are:

- **host**: Used to declare the dotted IP Address of the exacqVision server to which the soft triggers will be activated.
- **port**: Used to declare the listening port of the exacqVision server.
- **user**: Used to declare a user login that is able to connect to the exacqVision server.
- **password**: Provides the password for that user.

- **preAlarm:** Defines the pre alarm duration of recording rules created by the plugin in the exacqVision server when one of the ACIC soft triggers is activated.
- **postAlarm:** Defines the post alarm duration of recording rules created by the plugin in the exacqVision server when one of the ACIC soft triggers is activated.

#### 4.2.2 Plugin filter

OutputFilters section is composed of a list of filter sections defined like this

```
<filter>
  <eventName>AcicActivityDetection</eventName>
  <condition></condition>
  <output></output>
</filter>
```

Filters take place between AEM core process and plugins. If filter matches (associated condition is asserted), the event is passed to plugin otherwise it is discarded. In consequence, all events that should be handled by MvExacq plugin must have a filter section with its name specified in eventName tag.

condition tag allows to expressed the filter condition for instance, pass event to plugin only if its time is between 6 and 11 AM or if its parameter y is equal to 3 ... See MvConfigTool\_EN.pdf (outputs section) for further details about conditions formatting and meaning.

**output** section allows to define specific parameter with param tags (as specified in 4.2.1) to be applied when this filter match. This feature is not currently used with MvExacq plugin.

Note: An empty condition is always evaluated as true. So, in the example above, event of type AcicActivityDetection is always processed by MvExacq plugin.

An invalid condition is always evaluated as false.

If some specific event type does not arrive to your exacqVision, please check that the target event is well defined here in a filter section and the associated condition if any is well formatted.

## 5 Get enriched video streams in exacqVision ?

To get ACIC enriched video streams in exacqVision, you need to activate the Streaming output in ACIC ConfigTool (see ConfigTool documentation) and use this output video stream as a new camera in exacqVision using the RTSP Device Type.

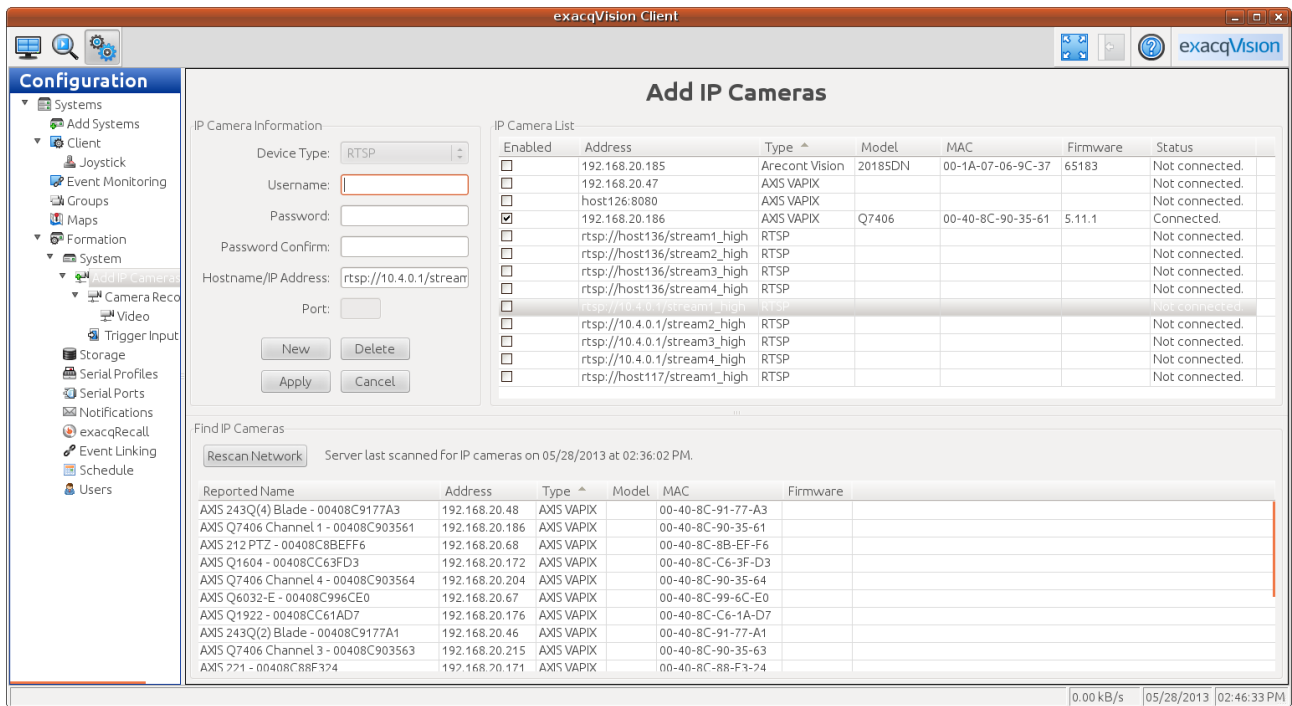


Illustration 10: Get enriched video stream

## 6 How to check the deployment status

Each analytics can emit a on-user-demand generated event called **MvTestIO**. This event is usually used to test the output functionalities – see *MvConfigTool* for further details. This event may be useful to check communication status between all entities.

If every nodes are correctly configured, each emission of a MvTestIO event will result of the apparition of a new entry in the exacqVision Client interface.

To generate a **MvTestIO** event, open your firefox web navigator and connect the embedded configuration web site of your ACIC analytics device. Let's go to the application tab (1) and select the output sub-menu (2) then simply click the **Generate an Outputs test** Apply button (3).

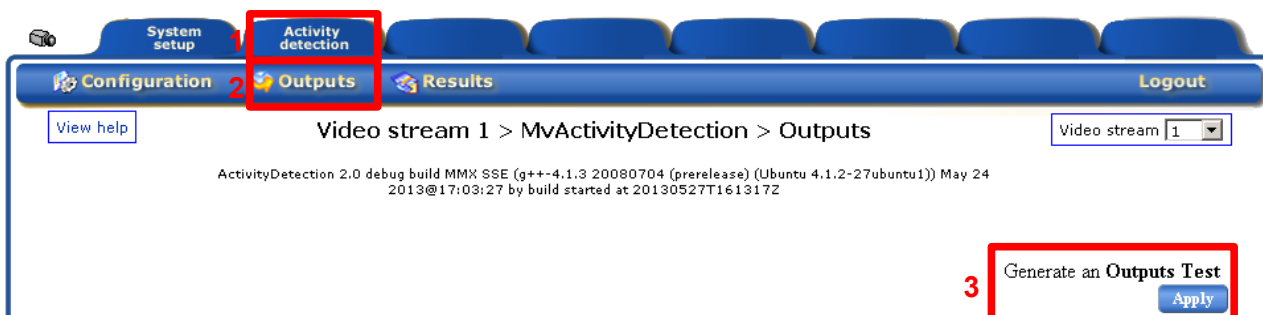


Illustration 11: Generate an output test event

The following illustration shows the alarm transmission in exacqVision client interface when an analytics event is raised.

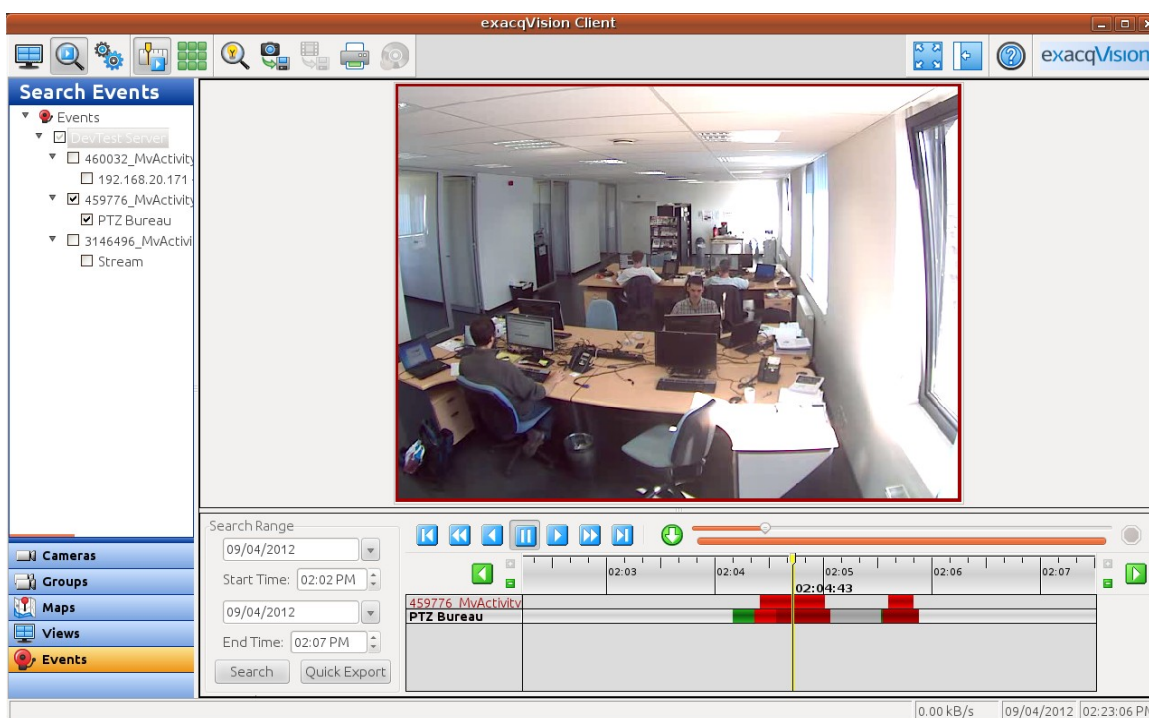


Illustration 12: exacqVision client interface



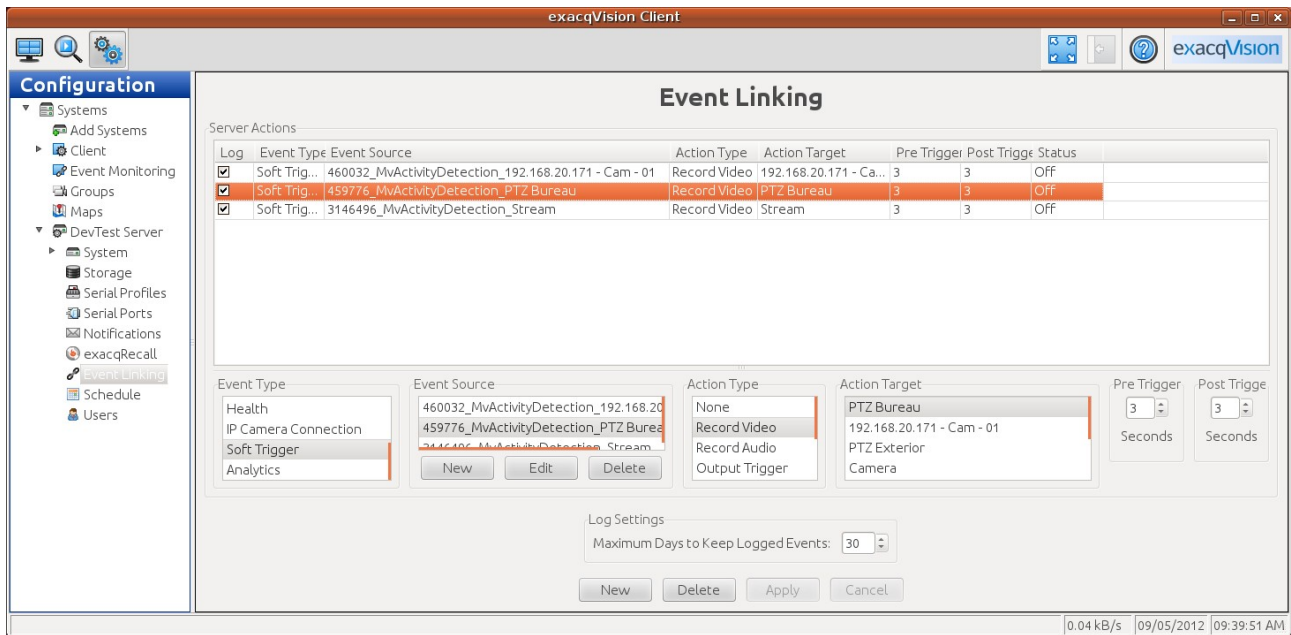


Illustration 13: Soft triggers configuration

The following figure shows an example of enriched video streams in exacqVision:



Illustration 14: Enriched video stream in client interface