

In many applications it is desirable to display live or recorded video from your exacqVision System in response to an event or user interaction. For example, an access control system may want to display a live video window from a camera pointed at a doorway when the door sensor indicates the door opened, or a POS data management application may want to open a searched video window from the camera and time corresponding to a particular transaction. The exacqVision Client supports these applications by being highly configurable from a command line interface.

1 Requirements

It is required that you have exacqVision Client version 2.6 or higher installed in order to support the exacqVision Command Line Interface (eV-CLI).

It is also recommended that the user of the eV-CLI have a basic understanding of XML. Since the eV-CLI offers so many options for configuration, the interface is implemented by passing an XML file into the exacqVision Client from the command line.

2 Usage

The exacqVision Command Line Interface operates via an XML file. To use the eV-CLI, the user should create a file called, for example, cmdLineCfg.xml, and start the exacqVision Client with the following command line:

```
edvrclient -FcmdLineCfg.xml
```

Obviously, a Windows shortcut could be created with -FcmdLineCfg.xml appended after the target line of the shortcut, like this

```
"C:\Program Files\exacqVision\Client\edvrclient.exe" -FcmdLineCfg.xml
```

NOTE: Many of the same startup options which can be specified via the eV-CLI are also stored in the exacqVision Client's configuration ini file which maintains the user's preferences between instances of running the client. For example, if the user hides the navigation panel and then closes the Client, the next time he starts the Client the navigation panel will be hidden. If the exacqVision Client is started using the eV-CLI, these settings will *not* be saved in the ini file when the Client is closed.

The XML file passed via the command line must have the following format:

```
<?xml version="1.0" ?>  
<exacqVisionInit Attributes>  
</exacqVisionInit>
```

Optional attributes control the overall look and feel of the exacqVision Client upon startup and are defined in Section 3 below. Optional <Live> and <Search> elements are children of the <exacqVisionInit> element and control the sources which are initially displayed and/or searched in the exacqVision Client. They, too, are defined in Section 3.

3 Functionality

exacqVisionInit Attributes

These attributes must be specified on the same line as the <exacqVisionInit> tag.

- Top – Top of the client window in desktop coordinates. (Integer)
- Left – Left of the client window in desktop coordinates. (Integer)
- Width – Width of the client window. (Integer)
- Height – Height of the client window. (Integer)
- Maximize – Start the client in maximized mode. (1=true, 0=false)
- FullScreen – Start in full screen mode, i.e. no application title bar or Windows task bar shown. Replicates F11 key functionality. (1=true, 0=false)
- ShowNavPanel – Show the navigation panel which includes the site tree and the Outlook style navigation panes (i.e. Cameras, Groups, and Views buttons). Replicates F4 key functionality. (1=true, 0=false)
- ShowToolbars – Show the toolbars at the top of the exacqVision Client. In live mode, video can cover the entire desktop if the toolbars are hidden. Replicates F8 key functionality. (1=true, 0=false)
- AllowAccelerators – Enables the use of the F4, F8, and F11 accelerator keys. For example, if it is desired to start the exacqVision Client in a live monitoring mode and disallow changing of the cameras being viewed by the monitoring personnel, set ShowNavPanel=0, ShowToolbars=0 and AllowAccelerators=0 so that the operator does not have access to change cameras or modes and cannot use the accelerator keys to gain access to them. (1=true, 0=false)
- LiveMode – Determines whether the Cameras, Groups, or Views tree is displayed initially. (0=Cameras, 1=Groups, 2=Views). This value is ignored if a Live View or Tour is identified in the Live Element.
- ShowRecStatusBorder – Show the colored border around live video panels which indicates the recording status of the video being displayed. (1=true, 0=false; requires exacqVision Client version 2.7 or greater)
- ShowPTZFocusBorder – Show the colored border around the live video panel which has the focus of the PTZ control, whether the PTZ controller is the mouse, keyboard, or joystick. (1=true, 0=false; requires exacqVision Client version 2.7 or greater)
- KeepAspectRatio – Scales client's live video window to 4:3 aspect ratio so no scroll bars are needed even when Client is not maximized. (1=true, 0=false; requires exacqVision Client version 2.7 or greater)
- TimelapsePlaybackInterval – When doing real-time video playback, this interval is the maximum duration the playback will dwell on a frame before jumping ahead to the next frame in the case where there are gaps in the recorded video (due to timelapse recording or discontinuous motion). (Integer; requires exacqVision Client version 2.7 or greater)
- Caption – Sets the caption of the client window. (String; requires exacqVision Client version 5.0 or greater)
- ViewLayout – Sets the desired number of video playback windows corresponding to a video layout (or View) that can be selected from the client's available layout options. If the ViewLayout is not specified, or if it is too small to include all references sources, the client selects the appropriate layout. (Integer, Max=16; requires exacqVision Client version 5.0 or greater)

Live Element

The Live element takes no attributes. Specification of the live video input streams, live serial input streams, and/or live audio stream is straightforward upon examining the XML examples below, with the following notes:

- Servers are specified by either name or IP address. If the port is not specified in the IP address field, it is assumed to be 22609. A different port would be specified as in the following example:
"192.168.100.10:22619"
- Views or View Tours can be specified by name as attributes to the Live element. If both a View and a View Tour are specified, the View will be used (requires exacqVision Client version 4.7 or greater).

```

1     <Live View="Lobby" Tour="Door Tour">
2         <System Name="exacqVision Demo Server">
3             </System>
4     </Live>

```

- If a View or Tour is specified as an attribute to the Live element, the Video, Serial, and Audio elements are ignored.
- Only one live audio stream is available; if more than one is specified in the XML file, the last is used.
- The layout of the video will be chosen from those shown in figure 1 based upon the ViewLayout attribute or the total count of videos specified in the Live element.
- The Position attribute for video or serial elements corresponds to the window position within the layout as shown in figure 1. That figure shows windows labeled 1-16, whereas the XML interface is 0 based. The methodology is increasing numbers from left to right, then top to bottom.
- Camera, serial, and audio inputs are specified by name or input number:
 - If specified by name and the name of the input is changed on the server, the associated position will be not be populated at startup by the exacqVision client.
 - If specified by input number and the input is on an IP device, the IP address of the device must also be specified (see line 17 below).
 - If specified by name and there are duplicate input names on the server, behavior is unspecified, with the following exception: Names which are duplicated (but only on different IP devices) may be resolved by specifying the IP address of the device (see line 16 below).

```

1     <Live>
2         <System Name="exacqVision Demo Server" Username="user" Password="pass">
3             <Video>
4                 <Input Name="Engineering (analog)" Position="0" />
5                 <Input Name="Color Bars (analog)" Position="3" />
6             </Video>
7             <Serial>
8                 <Input Name="COM1" Position="3" />
9             </Serial>
10            <Audio>
11                <Input Name="TV audio" />
12            </Audio>
13        </System>
14    <System Name="192.168.100.10" Username="user" Password="pass">
15        <Video>
16            <Input Name="Input 1" Device="192.168.100.232" Position="2" />
17            <Input Number="2" Device="192.168.100.232" Position="1" />
18        </Video>
19    </System>
20 </Live>

```

NOTE: The Username and Password attributes for the <System> tag are required only if Always Prompt for Credentials is selected for the named system on the Add Systems page in the exacqVision Client. (Always Prompt for Credentials is available in eV Client version 4.7 and later.)

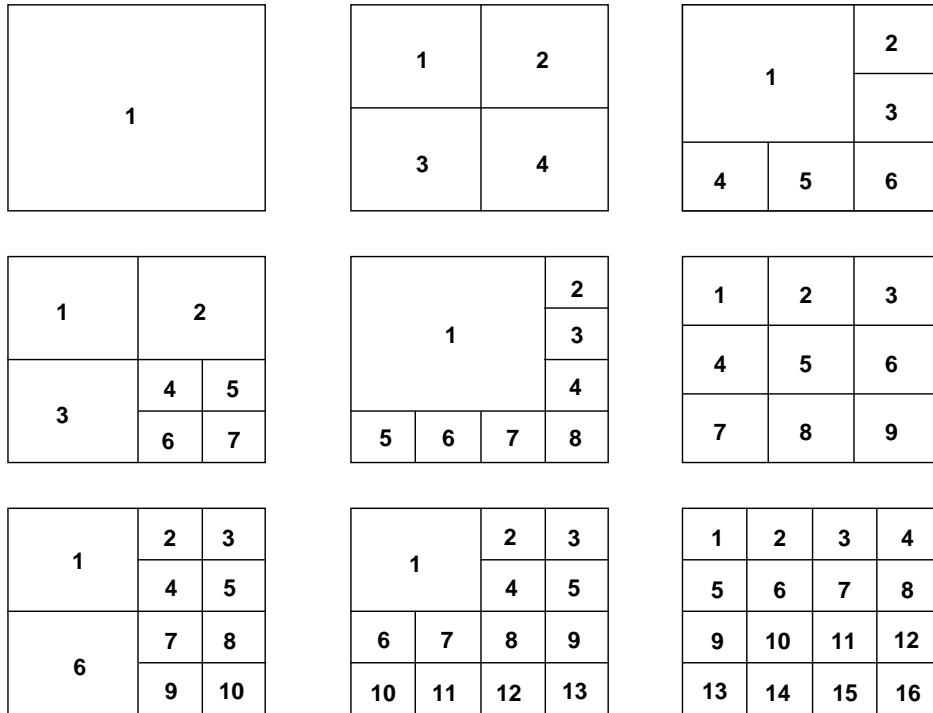


Figure 1 – Video Position and Layouts

- **NOTE:** The exacqVision Client keeps a list of exacqVision Servers to which it will connect in an initialization file. When started using the eV-CLI, the System element under the Live element specifies a subset of the Servers to which the eV-CLI Client will connect. If the eV-CLI System element specifies a server which has not been configured and enabled on the Add Systems page, that server will not be connected and that video will not be populated.
- **NOTE:** If a Live View or Tour was specified, and the View or View Tour contains cameras from Systems not identified in the XML, those View positions will not be populated.



Search Element

The Search element requires Start and End attributes. These are the start and end times of the search and are specified in Unix time (i.e. seconds since Jan 1, 1970 UTC). The video returned by the search may start slightly before the specified time if recording is in MPEG4 mode since the returned video must begin with an I-frame for proper decompression of the video. Specification of the search video and audio streams are similar to the Live element with the following notes:

- Only one search audio stream is available. If more than one audio input is specified in the XML file, the last one will be used.
- Serial streams can not presently be searched from the eV-CLI.

```
<Search Start="1183068255" End="1183068260" AllowExpansion="0">
  <System Name="192.168.100.10:22609" Username="user" Password="pass">
    <Video>
      <Input CameraID="2556160" Name="Entrance 1" Position="0" />
      <Input CameraID="2556163" Name="Entrance 4" Position="3" />
    </Video>
  </System>
  <System Name=" exacqVision Server" Username="user" Password="pass">
    <Video>
      <Input CameraID="2556162" Name="Break Room" Position="2" />
      <Input CameraID="2556163" Name="TV" Position="1" />
    </Video>
  <Audio>
    <Input Name="TV audio" />
  </Audio>
</System>
</Search>
```

NOTE: The Username and Password attributes for the <System> tag are required only if Always Prompt for Credentials is selected for the named system on the Add Systems page in the exacqVision Client. (Always Prompt for Credentials is available in eV Client version 4.7 and later.)

- AllowExpansion – attribute may be specified on the Search element. If true, the Client will initially perform a search over the specified interval, but the user will be presented with a timeline to expand the search window or move the search window forward or backward in time. If false or unspecified, the user can not adjust the search interval passed on the command line. (1=true, 0=false; requires exacqVision Client version 4.3 or greater)
- Filename – attribute may be specified on the Search element to run Quick Export. Quick Export allows you to download and save video without playback review, and can be accomplished by appending a valid Filename attribute to the Search element. (Supported export filename String; requires exacqVision Client version 5.0 or greater)
- CameraID – attribute serves as a unique identifier for each camera on a per-system basis. (A camera's ID is available by right clicking on the video panel and selecting Properties; requires exacqVision Client version 5.0 or greater)

```
<Search Start="1334318796" End="1334318838" Filename="C:\exacqVision\Export.ps">
```

NOTE: Upon startup, if a search has been specified by the eV-CLI, the exacqVision Client attempts to connect only to the exacqVision Servers specified in the Search element in order to minimize the time required to start playing video. If the eV-CLI Live element specifies a server which has not been configured and enabled on the Add Systems page, that server will not be connected and the search will stall.

4 Examples

The exacqReplay feature in the exacqVision Client is implemented via the eV-CLI. An example of the command line XML file which is passed when initiating the exacqReplay Client is:

```
<?xml version="1.0" ?>
<exacqVisionInit Caption="exacqReplay" Top="519" Left="351" Width="392" Height="377" Maximize="0"
ShowNavPanel="0" ShowToolbars="0" FullScreen="0" AllowAccelerators="0" ViewLayout="1">>
  <Search Start="1183060896" End="1183060926">
    <System Name="66.162.54.82:22609" Username="user" Password="pass">
      <Video>
<Input CameraID="2556161" Name="Main Entrance" Position="0" />
      </Video>
    </System>
  </Search>
</exacqVisionInit>
```

NOTE: While the line beginning with "Height" above wrapped to the next line due to formatting in this document. XML formatting mandates that all the attributes of <exacqVisionInit> be on the same line.

NOTE: The Username and Password attributes for the <System> tag are required only if Always Prompt for Credentials is selected for the named system on the Add Systems page in the exacqVision Client. (Always Prompt for Credentials is available in eV Client version 4.7 and later.)

Many of the applications which may make use of the eV-CLI already have well-defined, working interfaces which may not map directly to the eV-CLI. As such, a translation or shim layer may be needed between the existing application and the eV-CLI. Exacq has provided a template for such a translation layer. It is a simple C++ application called evCmdLineShim. Source code and a Microsoft Visual C++ project file can be downloaded from www.exacq.com/reseller/evCmdLineShim.zip.

The target application for this example translation program is POS data analysis. The POS data contains a POS terminal number and time for each transaction. If it is desired to view video associated with a transaction, a search can be initiated via the eV-CLI. The search needs to specify a camera and time for searching. The time is easy – it is stored in the POS data and simply needs to be converted to Unix time. Mapping a POS terminal number to a camera is a little more involved.

In evCmdLineShim.zip is a file called termToInput.xml. This is a human-readable file which will specify the mapping of POS terminals to inputs on the exacqVision Server. It is expected that the terminal number is an integer. The exacqVision Server input can be specified by Name or by Number. There are examples of both in the file. If the input is on an IP device (such as an Axis camera or video server) and it is specified by Number, the IP address of the device must also be included. See the termToInput.xml for an example. Also at the top of termToInput.xml are the default parameters for the initial size of the search window and the pre and post transaction search durations, in seconds. The point of this file is that you can modify it in any text editor (being sure to follow xml formatting rules) to customize the searching for each particular application.

The interface program is called evCmdLineShim.exe. It takes command line parameters as follows:

```
evCmdLineShim -n101 -t2007-06-05 15:51:10.
```

- -n specifies terminal number. In this example, the terminal number is 101. The terminal number must be an integer and correspond to a terminal number specified in the termToInput.xml file.
- -t specifies time of the search. It must be specified as in the example with dashes separating the year-month-date and colons separating the hour-minute-second. Include all four digits of the year and use a 24 hour clock, not AM/PM. This time format is easy to modify in the source code if necessary.

Once evCmdLineShim is called with these parameters, it reads the termToInput.xml file in order to determine which input to search on the exacqVision Server, creates the command line xml file (eVCmdLine.xml) required by the eV-CLI, then starts an instance of the exacqVision Client passing the -FeVCmdLine.xml command line parameter.

