

Introduction

Many control centers are monitoring Hikvision products with EBÜS. This works very well. In practice, however, there have also been some points that need to be improved so that the products can be used in the planned projects.

It will probably not be possible to realize all the points immediately for all products. That's why we want to use this document to help describe, weight and sort the items that need to be done so that they can be processed according to the priority reported by the customers.

In the following chapter **Function list** all the points mentioned by the customers until now are listed with a short description from the user's point of view. This assigns a unique number to every point, which can be used as a reference in the following steps.

In the **Explanations** section, we have compiled all the background information on the point concerned, justifying the need for this point and explaining the necessary design.

The chapter **Miscellaneous** mentions further points that have not yet been sorted into the priority list.

In future, the **Overview table** will show which products support which functions, so that installers can select the products that best suit their projects.

Please send corrections and additions to this document to

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so I can update this document accordingly.

Function list

1. **SplitView**: Overview of the video images of all cameras connected to a DVR
2. Even recorders should be able to report **alarms via FTP**
3. Also send **text messages and meta data from video content analysis via FTP**
4. Report **SmartEvents** to EBÜS
5. **Alarm camera**: Also report the number of the camera configured for an alarm
6. **Arming / disarming** controllable via SDK, also for individual cameras
7. **Routine calls** for periodical monitoring of the alerting path
8. **Talk and hear audio** should be independently switchable
9. New button "**Trigger test alarm**" in web interface
10. **PTZ control of cameras and switch alarm output** through web interface

Explanations

1: **SplitView**: Overview of the video images of all cameras connected to a DVR, even from IP cameras

If an alarm arrives from a monitored protected object in the control center, where no specific camera is specified as an alarm camera, the control center first needs an overview of all cameras to see where something is happening, and then to be able to select this camera specifically. Also to be able to follow a culprit on his way through a building over several cameras, so an overview display is very important.

In Hikvision's recorders, a video stream can be configured in the so-called "zero channel", which is assembled from the video streams of selected cameras. In the context of EBÜS we call this "SplitView" → www.ebues.de/glossar/#SplitView

So far, Hikvision's DVRs only show analog and TVI cameras in the zero channel; IP cameras can be configured here, but their video image remains black. This looks like a bug.

With pure NVRs, it is possible to send the video images of the IP cameras in zero-channel - so it seems to be basically feasible.

The control centers do not know with which technology (analog, TVI, IP, ...) the cameras are connected to the recorders. Customers expect that all cameras can be used in the same way, even in the zero channel.

Conclusion: Control centers need an overview display of all cameras connected to a recorder, including the IP cameras!

2: Even recorders should be able to report **alarms via FTP**

FTP upload is a proven and widely used method for sending alarm images and video system messages to control centers → <http://www.ebues.de/AlarmempfangFTP.pdf>

IP cameras from Hikvision are already supporting this feature, but recorders unfortunately do not.

For alarm transmission via FTP, there are e.g. following reasons:

- FTP reception is **already set up** in most control centers
- There is no need to open additional **IP ports** that pose security risks or that may already be occupied by other products
- Via FTP, the control center receives the alarm images immediately; they no longer have to be called up and are also available in the **alarm image preview**
- The file path of the FTP files may also contain the **camera number**, so that the alarm-triggering camera can be determined from this

3: Also send **text messages and meta data from video content analysis via FTP**

Actually alarms are sent via FTP only if there is also a picture. If the installer and the control center have set up the alarm transmission via FTP, however, all other events should also be able to be sent via this way, e.g. all alarms which can be normally sent by SMTP (e-mail) or by TCP (as a notification to the monitoring center).

Messages should be sent via FTP as an ASCII file with the file extension * .msg; then they could easily be evaluated by EBÜS (and other software).

Metadata can be defined e.g. in JSON or XML format, and should contain the points of the lines, rectangles, and polygons from the video analysis as relative coordinates (x, y) ranging from 0 (far left, top) to 1 (far right, bottom); then EBÜS could graphically display the relevant data in the video images.

4: Report **SmartEvents** to EBÜS

While the "normal" events (e.g., motion detection, alarm input, ...) are also reported via FTP or TCP to the "monitoring center", this does not work with "smart events" (e.g., face detection, intrusion detection, line crossing, ...).

We implemented an application „AccAlarmReceiverHikVision“ that registers for alarm events from HikVision devices by calling the SDK function NET_DVR_StartListen_V30 and waiting for incoming messages within the message callback.

This application is used to receive alarm events from multiple devices, that's why it does not establish permanent connections to each device but just activates the listening mode and waits for incoming events.

Everything works fine and we can handle the different incoming events from different devices.

Unfortunately we do not receive any so called "Smart Event" that we have configured in the device.

Control centers may need to monitor and evaluate thousands of image sources. It is impossible to keep permanent connections to all these image sources. Therefore, the alarm must also work over FTP and TCP, if there is no permanent IP connection. Today this works for "normal" events. This should work the same way with SmartEvents.

Conclusion: SmartEvents should also be sent to control centers, if there is no permanent IP connection between the image source and the reception application in the control center!

5: **Alarm camera:** Also report the number of the camera configured for an alarm

Usually it is up to the installer to make the desired connections on the recorder on site, because only the installer knows which button and which camera he connects to which input of the recorder. Also with the Hikvision recorder, it is so that he sends, for example, in a motion alarm exactly the image of the alarm-triggering camera and also reports in the alarm log, the number of alarm-triggering camera, so we can then connect exactly this camera in the control center.

In the case of the alarm inputs, it is also necessary to configure the Hikvision recorder which camera belongs to an alarm input, e.g. so that a recording of the corresponding camera can be started or images of this camera can be uploaded to the cloud. Unfortunately, it is apparently missing here that this camera number is also reported in the alarm message to the control center.

6: **Arming / disarming** controllable via SDK, also for individual cameras

Individual cameras or entire recorders should be able to be armed or disarmed via SDK, so that disturbing permanent alarms can be deactivated quickly.

This applies to all alerting channels (SMTP, FTP, TCP).

7: **Routine calls** for periodical monitoring of the alerting path

Usually our customers want to monitor all corresponding devices and they know from other camera suppliers the feature of periodic test messages, either as separate alarm event or separate FTP message or similar.

This feature is highly demanded in order to test the complete alarm chain from the device to the alarm receiving center.

With routine calls, the transmission of alarm messages from cameras or recorders to the control center can be checked periodically without the need for a permanent IP connection of the control center to all devices.

It would be sufficient to regularly send FTP files with the file name "RoutineCall.msg". The file may contain additional information in ASCII format.

Background: Control centers may want to deploy thousands of image sources. It takes too much system resources to hold IP connections to all these image sources simultaneously. Therefore, the routine calls must be configurable (hourly, daily, ...) sent, with the image source in each case establishes the TCP connection for it.

8: **Talk and hear** audio should be independently switchable

If loudspeakers and microphones are used in the control room and / or in the monitored object, there is a disturbing acoustic feedbackloop when "speaking" and "hearing" are activated simultaneously: a syllable spoken in the control center is amplified in the monitored object on the loudspeaker, recorded there with the microphone and sent back to the control center with some time delay, etc. This can be very annoying or even completely impossible communication.

Therefore it should be possible to activate and deactivate the functions "Talk" and "Listening" independent from each other. Thus, the control center can alternately only speak or listen only as needed (so-called "intercom").

If feedback-free audio peripherals (e.g., headsets) are used, both functions can be activated simultaneously so that both can be heard and spoken at the same time (so-called "talkback").

9: New button "**Trigger test alarm**" in web interface

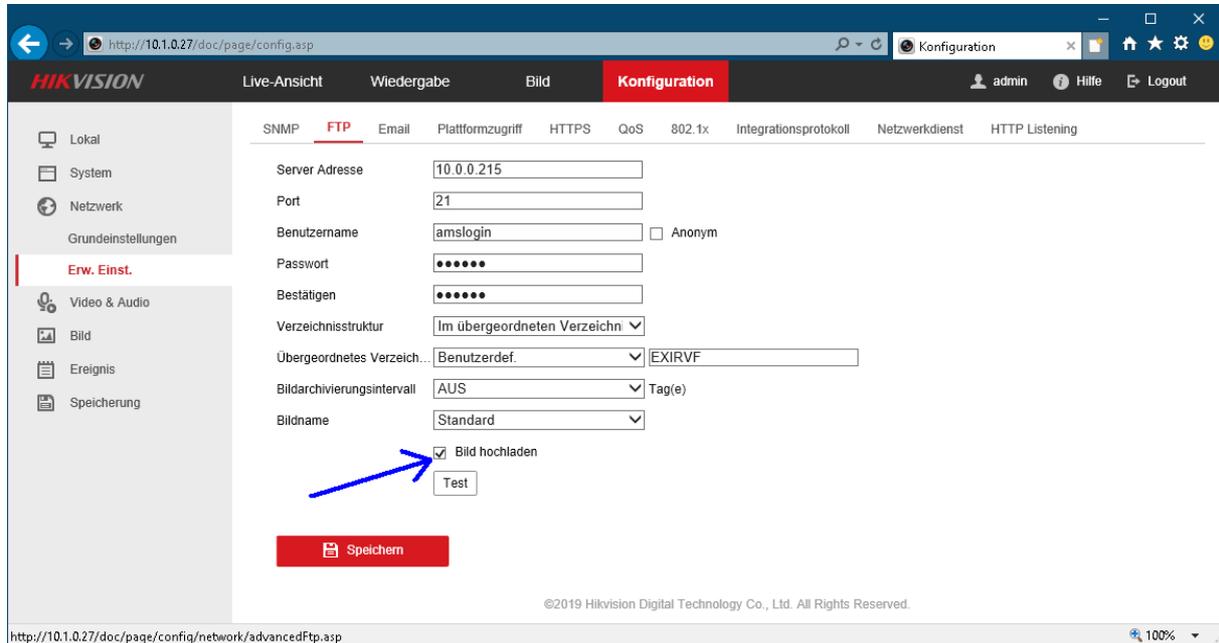
Until everything is configured correctly, so that alarms arrive in the control center, many settings are necessary. It is often very tedious to find all the points until it works properly. It would be very helpful if test alarms could be triggered in a simple way to check the alarm transmission. A "test" button on the corresponding configuration pages of the web interface would be useful for this.

The configuration page for FTP already has a "Test" button and a checkbox "Upload Picture". But even if this checkbox is set, no image will be uploaded.

10: **PTZ control of cameras and switch alarm output** through web interface

Miscellaneous

Even if the checkbox marked with the blue arrow is set, no image is uploaded during the test:



- The recorder should be able to configure which cameras are PTZ capable and report this via the SDK so that only those PTZ controls are displayed
- Direct browser link on configuration page of devices with standard authentication would allow direct call the configuration from EBÜS_Config
- Some Hikvision products have no way of configuring the "Alarm Host-IP" via the web interface.
- Optional display of the metadata from the video analysis also in the live video stream
- Also send a configurable number of pre- and post-alarm images via FTP

Overview Table

Very good would be an overview table for all Hikvision products or the important product lines with an information, which functions are supported:

xxx FTP alerting also for SmartEvents audio bidirectional ...

In this case, installers could specifically select those products that contain the functions required for the respective project.

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