

EWS

Setting up an Early Warning System

About a year ago, maybe a bit more, I read an article posted by “Geek Prepper” about setting up an IP camera to function as a warning system. I was intrigued but didn’t have the resources or time to follow it up. I should have printed it out since I have never run across it again despite searching desperately for it.

Instead, I forged ahead as best I could to recreate what I remember from the article. Here is my summary so you can avoid the pitfalls I found when doing this trial and error.

Why an EWS?

There are many reasons, here are just a few –

- You can monitor your security cameras remotely from your cell phone or remote computer.
- You can control and communicate (voice) with some cameras remotely.
- You can program them to send pictures when detecting motion or sound. These pictures can be sent to your cell phone or your email, or even uploaded to the cloud.
- You can allow them to send live video to your remote location and record the video to the cloud.
- In this day and age of “SWATTING”, you can record actions that occur to you and your premises for later legal use. By uploading to the cloud even taking the cameras and computers will not erase evidence.
- In an emergency evacuation or disaster, other people you trust (friends and family) can view what is happening in real time from the cloud storage.
- Intrusion, theft, and vandalism can be monitored and responded to immediately.

The uses are really only limited by your imagination. I can see this being used as a live video channel to make broadcasts and news reports, for instance.

Here is what you need –

Hardware:

- An IP camera – This is a camera with an internet address, it broadcasts wirelessly, or can be wired to your router.
- A computer – Only to set up the camera, after that the system can be run entirely without a computer.
- A router – Most home networks have some type of router, you must be able to program a port and a static IP address, most are capable of this.

Software:

- The camera software comes with the camera, but other commercial software is available as well.

How I did it –

I purchased a Foscam IP camera from Amazon. This was an indoor camera, so it had controls for 2 way sound, and full motion including “Flip” and “Mirror” functions.



This is currently at about 60 bucks, when I made the purchase in 2013 was around 80.

Setup was not as simple as it was made out to be for two reasons:

- The Foscam instructions were poorly translated Chinese to English, and left much to be desired.
- My Verizon router (Westell) is difficult to program

In the end, this is how it is done –

After hooking up the network cable to the router, plug in the camera.

Run the camera software on your computer.

It will automatically find the IP address that your router assigned to it.

You should get a video image at this point.

Now disconnect the internet cable to the router and camera and reboot the camera.

After the camera reboots, you will see a new IP address and you will be wireless.

Dial into your router and assign a static (unchanging) IP address to the camera.

Assign a port for the camera to communicate with the router - (by default this is 80, change this to another port)

If all goes well, that's about it.

To be fair, this has been improved greatly with the newer cameras, I did not even have to assign addresses with the latest camera, it was all automagic!

To see content remotely – you will need to create a static address for your 'cloud' site.

Foscam includes a year of this free, but there are other sites offering to host for free as well. I use No-IP which works well.

"No-ip" supplies a very small program (DUCS if I remember correctly) which monitors your routers IP address. This is necessary since most IP providers like mine switch your router address all the time. This program monitors those switches and lets your 'cloud' site know what the new address is as soon as it happens.

"No-IP" lets you create your own domain name for your site which becomes an internet address where you go to view your site. The address would look similar to this "your name here".no-ip/biz : 8082, the last four digits being the port you have assigned to your camera. Multiple cameras just have the same name with different port numbers.

Now, from your phone or computer, just punch in your named site and access the camera feed.

You should get a screen like this:



The image shows a login window with a blue gradient background. At the top left, there is a 'Language' label followed by a dropdown menu showing 'English'. Below this are two input fields: 'User' and 'Password'. At the bottom center, there is a button labeled 'OK'.

Log in with your user name (security warning - do not use the camera name as this!) and your password.

Now you will see this –



I run this app in internet explorer, which I do not use for web browsing. This app requires Active-X controls to be fully enabled, along with Javascript – so as a security note, reserve IE for this app only.

Select “Active-X Mode” if you are using IE for this (highly recommended) – the IE interface will allow you to use the sound controls, which are not available in other browsers at the moment.

For “FireFox” or clones, use “Server Push Mode” –

For cell phones – well, that is obvious.

Now you are here:



The round dial labeled “C” is your camera rotation control, as are the smaller up-down and side-to-side buttons to the right of it.

The “eye” button turns on the infrared lighting for night use (this is automatic, the button is for manual override), the figure eight slashed is “IR off”. Each camera (three are shown) has its own sets of controls, (there are no motion controls on outdoor cameras).

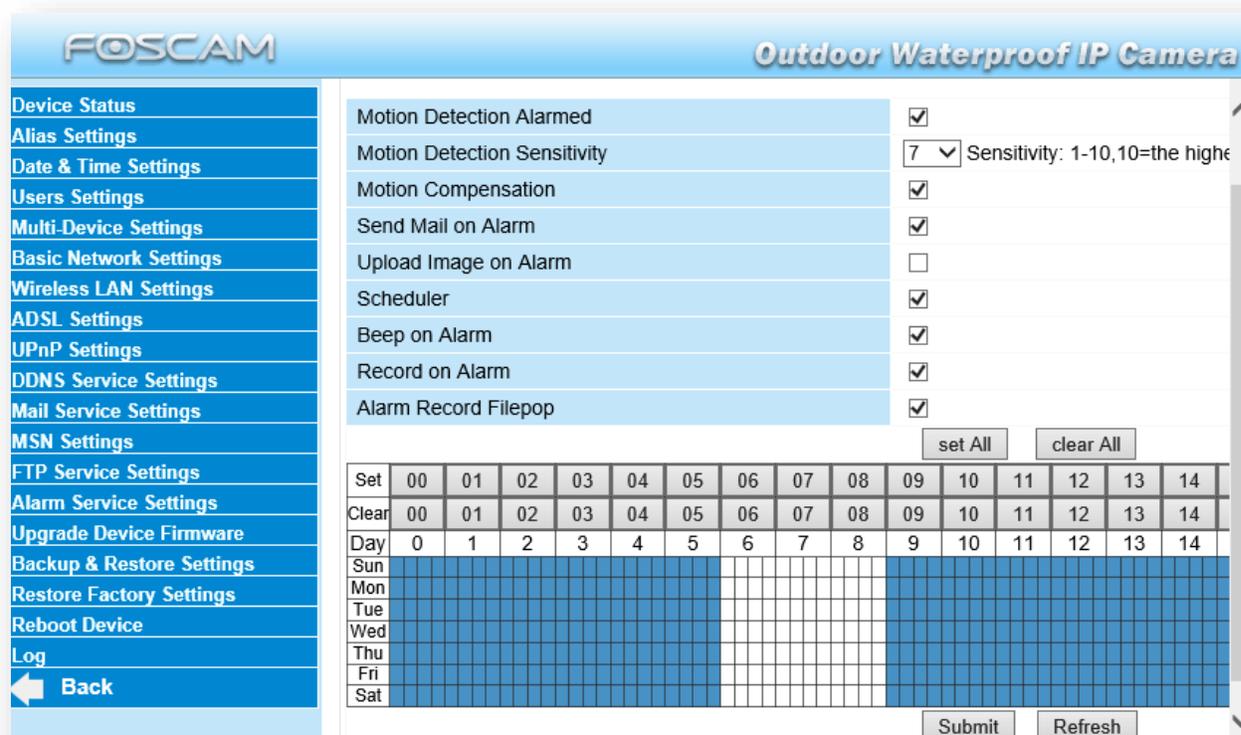
At the top right are buttons for “record video”, “take a picture”, and “full screen”. Bottom right contains sound and microphone controls. Note for sound, incoming sound from the camera requires the VLC media system (free), which works well, and the sound is pretty good. Outgoing sound, (from your remote to the camera) is very poor, my laptop causing horrendous feedback due to the positions of the mic and speaker, a remote mic may be better. I can get sentences through understandably, but it takes some work.

This interface will support 9 cameras, each capable of its own settings and alarms.

I have added a few of these as well – (18905 outdoor cameras)



Here is a glimpse of the alarm panel –



As you can see, there is a large amount of modification available. It takes some experimentation, but it all works eventually.

There is a Foscam Forum which is worth visiting as well.

So far we have the camera(s) set up and we have established emailing of pictures during alarm modes, and we have discussed 'cloud' storage for a static IP. There are two things left, independent storage (off site) and video storage and transfer.

Site Storage:

Since computers in the home can be stolen or damaged, do not rely on your local computer to store your alarm video and pictures. Sending pictures via email to a special email address can 'store' them on the email account, so that is fairly easy, but you may run out of room or have your email account compromised. You can upload your pictures to a Wordpress site blog however. This, of course, is free as well.

Create a Wordpress blog with maximum security settings.

Find the admin panel and check the “allow remote posting by email” box. It will give you a random email address to use – record that and enter that address in the camera controls along with your other email notification addresses.

Now, every time the alarm is triggered, 5 or 6 pictures get sent to your ‘blog’. You, or anyone you give the Wordpress address to, can view your blog and the pictures.

Security Note – If using an indoor camera – it becomes easy to forget it is always on duty. Running around the house naked will post these pictures on your Wordpress blog. Not good.



For Video – Wordpress offers a plug-in for this too, I have not used it yet, nor do I know if it is free.

This is how I handle Video.

I use a program called BTSYNC. This allows a designated folder on my desktop to sync with a folder on another computer or phone. Anything put in the folder is automatically synced immediately with the other device(s). My desktop at home receives the video, syncs immediately with my laptop and my work computer. Instant copies made. The camera simply saves the video to the BTSYNC folder and it is transmitted wherever I need it. Of course I use BTSYNC for a lot of other things, but that is better left to another blog.

PROS:

Once working – the system is reliable and performs as expected. The outdoor IR light is very strong and illuminates well. The picture is fairly good, I can identify people as I expect. The email and video exchanges work well, having places where family can check on the house without having to give away passwords and logins is great. No software required for other people to see the blog or get emails.

Cost is extremely low for the cameras, everything else can be done for free.

CONS:

It takes some trial and error to set up, although this has improved drastically in the past year. Sound is very poor on the indoor cameras (transmitting only, receiving is good). Some browsers don't work with all features, stick to IE for working with the cameras. False alarms can be a real pain. The IR attracts bugs which will trigger motion alarms, lightning will trigger alarms as well as fog, smoke, and passing

shadows. Plan on cleaning out the Wordpress blog often. Indoor cameras will not work looking out a window, as the IR will reflect back blinding the camera. Use an outside camera for outside work.

Summary:

There are other IP cameras, but I do not have any experience with them, I suppose they are very similar to the Foscam ones.

Overall this is a cheap and reliable way to create your own EWS.

One added note – by using a UPC battery backup made for computers, you can power the cameras and the router during a power outage. I use one on each camera and one on the router. I do not use one on the computer as it would not last long enough to provide much protection, and it is not needed for the system to work. I have not tested them, but they should last quite awhile on the cameras and router since they draw so little power. A solar backup system would be nice.

Other software I have seen used –

Yawcam (free)

Blue Iris (not free but reasonable)

Foscam (free with camera)

VLC (free download)

Cameras - review potential cameras first!

I spent much time reading every review I could find, as a result I did not purchase the latest and greatest, but got the ones considered highly rated.

No-IP (free)

Wordpress (Free)

UPC battery backups – (FREE – thrown out as no good – replaced the batteries for about \$30 each – like NEW)

Conclusion:

A great security system at a very reasonable price. As such, there are a few annoyances, if you cannot live with those, price an upgraded system.