02. Configure Cameras

Camera Network

The first thing to be made sure of is to create a dedicated network for your camera system. This can either be dedicated or VLAN based. In this way you can separate Camera traffic from other traffic and if your camera netwok gets breached than all other services will not be affected. Depending on your network setup you can either define this VLAN directly on an L3 swich or if you use the router on a stick model on your router. Hence, make sure all cameras are on the same CAM network.

Initial Camera Setup

Now, by default your cameras are not yet living on the camera network VLAN that we just created. Now, for each brand and camera it is different but it basically boils down to this.

1. Make sure you have a laptop with an ethernet port
2. Look up on the internet how you can reset your particular camera to its default settings.
3. This will most likely also tell you what the default IP address is that particular camera e.g Amcrest cameras live on 192.168.1.108.
4. If you know that then you also know on which network it lives.
5. Next, we need to set our laptop to the same default network as the camera.
6. Then we can simply access the camera by typing in the address of the camera in our favourite webbrowser.
7. Then again depending on your camera, go to the networking page to give your camera a static IP address on the Camera Network.
8. Note! Once you change the ip address of the camera then you can only keep accessing it if you bring your laptop on that network as well.
9. After you have done that you can stick the IP camera in an untagged CAM Network port on your PoE switch.
10. If you can then connect to it with your laptop by connected it as well to the same switch then you know it works!
11. Repeat this process until you brought all the cameras on the camera network.

Streams

Next up are the camera stream possibilities of your camera. Most cameras come at least with two camera streams. These streams are basically recording the same thing but on different resolution scales. For instance, for your recordings you would love to have the highest resolution possible, howerver for your object and sound detection you don't need that. This can greatly reduce the stress on your resources and hence provide a much smoother experience, especially on systems that are not so well resourced.

Other that we also need to know or set the resolution of all of the cameras. The reason being is that these resolutions should be the same as in our Frigate configuration file later on. It is all up to you and the resources but some common resolutions would be

1. 640x480 (VGA) for substream (The higher the sream the more stress will be put on your resources)
2. Highest resolution for main stream (e.g 1920x1080 or 2960x1668)

Make sure you write these numbers down and have set them all the same for all your cameras.

NTP Time Server

An NTP server (Network Time Protocol server) is a server that provides accurate time information to clients over the Internet, allowing them to synchronize their clocks to Coordinated Universal Time (UTC) with high precision. NTP servers can maintain time accuracy within a few milliseconds over local networks and tens of milliseconds over the public Internet.

Now why would you want this ? Well you want that each camera in your system displays the same time i.e that all clocks are synchronized. They even synchronize with summer and winter times ;) This is a must have instead of cameras showing different times.

Now, which NTP servers to use then ? Well I would recommend to use the NTP servers from the NTP Pool Project. The pool.ntp.org project is a big virtual cluster of timeservers providing reliable, easy to use NTP service for millions of clients. You could click on your continent region and then use any of the time servers they provide. For instance clicking on Europe you get the following addresses

> server 0.europe.pool.ntp.org
> server 1.europe.pool.ntp.org
> server 2.europe.pool.ntp.org
> server 3.europe.pool.ntp.org

You can use any of these 4 and implement them as the NTP server for each camera. Make sure to use the same s.t they all use the same time servers and are synchronized.

Viewing Preferences

Now, depnding on the camera you have obtained they all have different possibilities. It is now then time to go to the cameras and tweak it to your liking. For instance, if you prefer night vision with colour on your camera's then you can set that setting for your camera. I would highly recommend to do this ;)

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