



## **“How to install multiple cameras behind a router and be able to access them remotely using one single public IP address”**

It is very common in video surveillance to have to access cameras in a remote location for visualization or recording. It is unpractical to assign a public IP to each camera as this would create constant added costs, so we are faced with the problem of monitoring multiple cameras with one single public IP. This public IP is provided by your internet company and can be dynamic or static.

Here are some guidelines on how to configure your network so that you can visualize the cameras from outside your network:

- 1) Your router must support port forwarding from a WAN port to a LAN port. In order to configure this you must have administrative credentials for your router.
- 2) If the public IP assigned by your internet provider is dynamic, then it is recommended to get a dynamic DNS account for your router so that it can be accessed always.
- 3) Grandstream cameras use port 554 by default to transmit audio and video (RTSP)
- 4) The default HTTP port is 80. This port is used to display the web interface, but remember that port 554 is the one that carries video, so when you bring up a camera on your browser you must have ports 80 and 554 open.
- 5) When the HTTP port is changed from its default value of 80, the RTSP port value will also change. The new RTSP port will be 2000 + the new HTTP. For example, if the HTTP port is set to 81, then the RTSP port is set to 2081, if the HTTP port is set to 82, then the RTSP port is set to 2082, if the HTTP port is set to 83, then the RTSP port is set to 2083 and so on.
- 6) Remember that if we want to see a camera from outside the network using GSURF, we only need the RTSP port open as we are only interested in the video and audio.

Here is an example of a typical scenario where the installer wants to allow the customer access to his cameras remotely. This is particularly useful when we want to monitor them using a mobile device.

Devices:

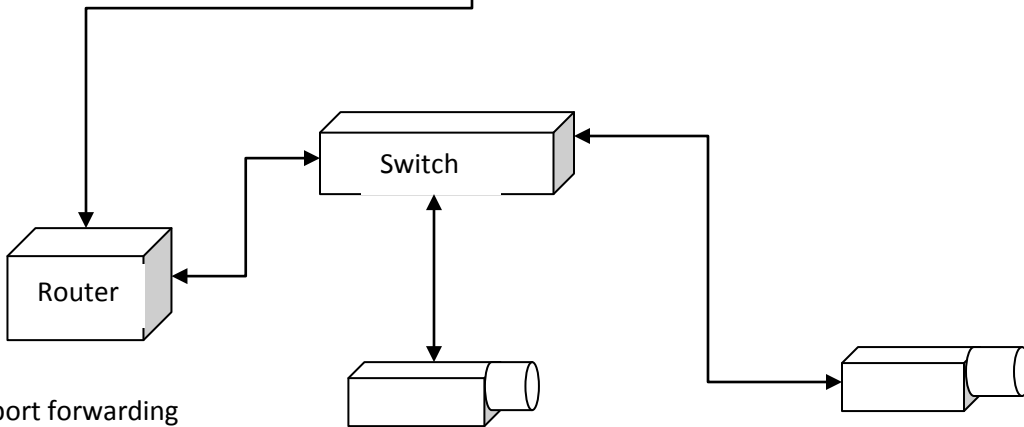
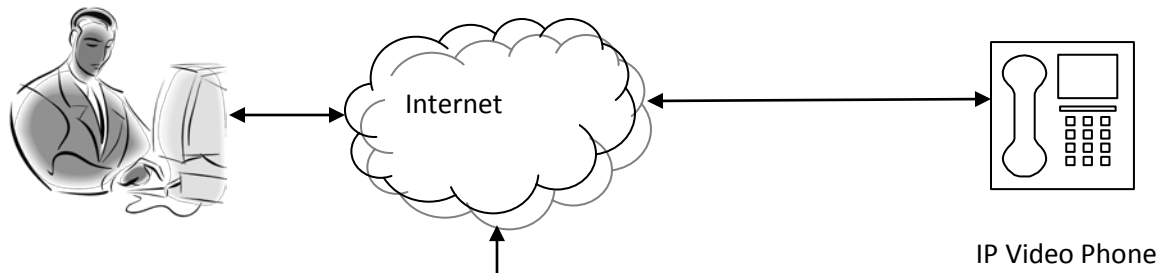
1 x router on public IP address X.X.X.X

2 x cameras with internal static IP addresses in sequential order

192.168.0.81, 192.168.0.82,

## Steps:

- 1) We should log into each camera from the internal network using the web interface and change the HTTP port. In this case we chose static internal static IPs with their last octet corresponding to the new HTTP port. This will help us keep everything in order and remind us of the HTTP port and therefore the RTSP port.
- 2) In the first camera (192.168.0.81) we change the HTTP port to 81, then save and reboot. After this change in order to view the camera from inside the network we will have to type in the IP address followed by the HTTP port, so in this case we would have to type 192.168.0.81:81 in order to view the camera. Remember that you can always use the Grandstream search tool to look for cameras inside your network and learn their IP address with a single click. We can repeat the same procedure for all the cameras in the network.
- 3) Now we log into our internet router and look for the port forwarding section. You should correlate each public IP port with the corresponding internal IP (camera).
- 4) For example we should port forward public ports 81 and 2081 to internal IP address 192.168.0.81 on ports 81 and 2081 as well. This is both for UDP and TCP. We repeat the same procedure for the other cameras and ports
- 5) This will allow a user to access the cameras remotely. For example the user can type in the IP address X.X.X.X:81 on his browser and he will be able to view the camera on internal IP 192.168.0.81 from outside the network
- 6) In a similar way, the user can add a camera to his GSurf by typing the external IP address and using 2081 as the RTSP port. In this way the user can add multiple cameras from remote locations to a single GSurf device.
- 7) Remember that in this scenario the UPLOAD bandwidth is critical!!! If we do not have enough upload bandwidth from our service provider, then we will not be able to push the video streams.



Router with port forwarding

WAN port 81 forwarded to 192.168.0.81 and WAN port 2081 forwarded to 192.168.0.81

WAN port 82 forwarded to 192.168.0.82 and WAN port 2082 forwarded to 192.168.0.82

IP Camera

192.168.0.81

HTTP port: 81

RTSP port: 2081

IP Camera

192.168.0.82

HTTP port: 82

RTSP port: 2082