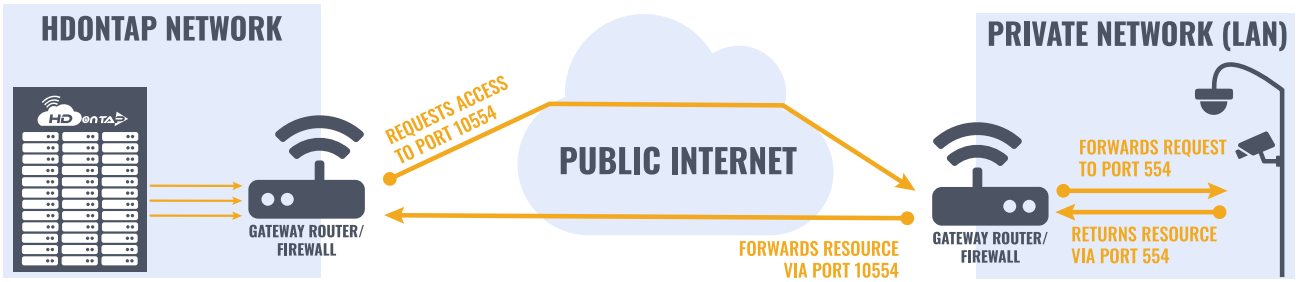
UNDERSTANDING PORT FORWARDING



WHAT ARE PORTS?

Ports are essentially endpoints to logical connections between computers and devices on the internet. Programs and services running on your computer or webcam use specific ports for specific services. When your computer talks to a website, it talks to the server holding the website data over port 80 which is a common port for HTTP or HTML internet traffic. When you access your webcam using a web browser, you typically connect to the webcam over port 80.

WHAT IS PORT FORWARDING?

Port forwarding is a method or service enabled in your router to make computers and other devices on your local area network (LAN) reachable by computers and devices on the public Internet. It is used quite often to enable remote access (Access when not on or connected to your LAN) to webcams for the purpose of remotely monitoring, controlling and streaming live video.

DHCP AND STATIC IP ADDRESSES

Devices connected to your LAN each have a unique private IP address (an IP address not known or understood by the public internet). The devices can either be assigned an IP address that doesn't change or assigned an IP address automatically via a service in your router called DHCP. If the network settings in your webcam are configured for DHCP (sometimes described as "automatic"), your router will assign an IP address to the camera automatically when the webcam is powered up and connected to your network.

We suggest assigning a static IP address to your camera which is not used by other devices on your LAN and is not part of the pool of IP addresses that your router gives out via DHCP.

WHAT IS NAT?

Network Address Translation (NAT) is a technology enabled in your router that allows each device on your local area network to have its own IP address. While each device on your LAN has its own IP address, from the internet (outside of your private network/LAN), every request coming from computers on your LAN appears to be coming from the single publicly visible IP address assigned to your router by your Internet Service Provider.

If you want to browse the web from a computer on your LAN, the request does not go straight to the web server on the internet. Instead, the request over port 80 is made from the private IP address on your LAN to the private LAN address on your router. The router makes a note of which internal device (your computer) is requesting the data from the web server, then forwards that request out to the web server on the internet. When the web server on the internet responds back to your router, your router knows exactly which computer on your LAN requested data and forwards that information along.

NAT works exactly the same in reverse! When a computer on the internet requests a web page from your IP address, your router needs to figure out which internal device is a web server so the request can be filled. In the case of our use, NAT can handle such requests forwarding the request to the webcam on your LAN allowing us to remotely access the web interface on the camera. To allow this, we must set up port forwarding within the router.

WHICH PORTS DOES HDONTAP REQUIRE ACCESS TO?

HDOnTap requires access to port 80 (HTTP) to configure settings within the camera and port 554 (RTSP) to pull a live stream from the camera.

CONFIGURING PORT FORWARDING WITHIN YOUR ROUTER

HDOnTap requires access to HTTP (web) and RTSP (streaming) ports, which are typically Ports 80 (HTTP) and 554 (RTSP). Some webcams are configured differently by default and others allow you to change the HTTP port and/or the RTSP port used by the webcam. For the purpose of this tutorial, we are going to assume that your webcam uses Ports 80 and 554 for HTTP and RTSP, respectively.

Depending on how your network is currently configured, you might have another device set up on your network accepting HTTP requests on port 80. For this reason, and to improve your network security, we suggest using external port 11080 for HTTP requests. In this case, you are essentially configuring your router to forward requests made to port 11080 of the public IP address of your router to port 80 of the private IP address of your webcam.

1. VERIFY WEBCAM LAN ACCESS

Once your webcam has an IP Address on your network, verify that you can access the webcam by navigating to its private IP address in a web browser on a computer connected to the same LAN. The HTML interface for your camera should appear and will typically ask you for a username and password. If you get this far, your webcam is successfully set up on your LAN.

2. REVIEW YOUR ROUTER'S MANUAL

As there are thousands of router models on the market, it is not possible to provide specific instructions on configuring each router model. Please consult the user manual for your router, which can typically be found by Googling "[Router Model Number] user manual".

3. CONFIGURE PORT FORWARDING

Navigate to your router's private IP address and log in, then access the port forwarding setup menu (typically found under the "advanced" or "firewall" menu).

Assign external port 11080 to internal port 80 of the private IP address for your camera for remote HTTP web access to your camera and apply the settings. Next, assign external port 11554 to port 554 of the private IP address of your webcam and apply the settings.

4. VERIFY YOUR CONFIGURATION

Access your webcam from a computer outside of your network using the following URL format: http://<Public_IP_Address_of_Your_Network>:11080

If port forwarding is set up properly, you will see the cameras web interface.