ZeroTier on Advantech Routers

In category [Routers](#) .

What is ZeroTier?

- ZeroTier combines the capabilities of VPN and SD-WAN, simplifying network management.
- Set up ZeroTier in minutes with remote, automated deployment.
- Emulates Layer 2 Ethernet with multipath, multicast, and bridging capabilities.
- ZeroTier's zero-trust networking solution provides scalable security with 256-bit end-to-end encryption.

What Advantech Routers support ZeroTier?

- All the v4 family Routers (ICR-44xx) support the ZeroTier and the ZeroTier capability is tested on those routers.

What is needed for running the ZeroTier on Advantech ICR-44xx Router?
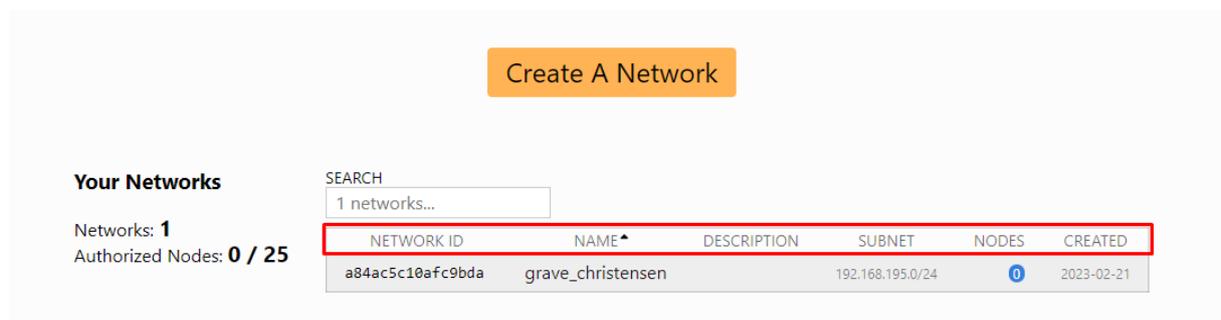
- For running ZeroTier on Advantech ICR-44xx Router is needed Docker Router App ([Docker Router App](#))

How to run ZeroTier on Advantech ICR-44xx Router?

- First, you would need to create a free ZeroTier account and login into the ZeroTier Account ([ZeroTier](#))
- After that, you would need to create a new network

- Here you can see basic description of the created network

- When you click on the Network ID you can modify the Network (Name, Subnet, Routes, Policies..)

Testing Network

a84ac5c10afc9bda

This is a ZeroTier testing network

⌄ Settings

Basics

Network ID
a84ac5c10afc9bda

Name
Testing Network

Description
This is a ZeroTier testing network

Access Control

Private
◉
Nodes must be authorized to become *members*

Public
○
Any node that knows the Network ID can become a *member*. Members cannot be de-authorized or deleted. Members that haven't been online in 30 days will be removed, but can rejoin.

- Please note the **NetworkID** since it will be used later when launching the **Docker** container.
- Now we need to move to the ICR-44xx Router and install the Docker Router App
- Once the Docker is installed please enable it in the Docker Router App configuration

Docker

Status	
Overview	
Statistics	Module docker is running
Log	
Events	
Configuration	Total : 749.6 MB (100.0 %)
Global	Reserved : 57.2 MB (7.6 %)
	Used : 620.1 MB (82.7 %)
Administration	Available : 72.3 MB (9.7 %)

- Now we need to run the ZeroTier Docker container. This can be done with the following command pasted either in WebTerminal Router App or SSH connection
- docker run --privileged --name myzerotier --rm --cap-add NET_ADMIN --device /dev/net/tun --net host zerotier/zerotier:latest **<ZeroTier NetworkID>**

- After launching the Docker container you should see in the ZeroTier member table that one device is connected
- You would need to authorize this device to be connected to your network. You can authorize the device as shown on the image

- If you will connect another device (laptop, phone, tablet) to the network the devices will behave like in one network

- We can see that in the Router routing table is a record for Docker ZeroTier container

- So when we will try to ping from the ICR-44xx to the Laptop tunnel IP we should see that the laptop listens and responds on the Tunnel IP

```
   login as: root
   Keyboard-interactive authentication prompts from server:
 | Password:
   End of keyboard-interactive prompts from server
 # ping 192.168.195.134
 PING 192.168.195.134 (192.168.195.134): 56 data bytes
 64 bytes from 192.168.195.134: seq=0 ttl=128 time=35.603 ms
 64 bytes from 192.168.195.134: seq=1 ttl=128 time=12.817 ms
 64 bytes from 192.168.195.134: seq=2 ttl=128 time=1.455 ms
 64 bytes from 192.168.195.134: seq=3 ttl=128 time=1.637 ms
 ^C
 --- 192.168.195.134 ping statistics ---
 4 packets transmitted, 4 packets received, 0% packet loss
 round-trip min/avg/max = 1.455/12.878/35.603 ms
```

- And also if we will ping from the Laptop to the IP address of the router we should see that the Router responds

```
Microsoft Windows [Version 10.0.19044.2364]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\system32>ping 192.168.195.155

Pinging 192.168.195.155 with 32 bytes of data:
Reply from 192.168.195.155: bytes=32 time=1ms TTL=64
Reply from 192.168.195.155: bytes=32 time=37ms TTL=64
Reply from 192.168.195.155: bytes=32 time=1ms TTL=64
Reply from 192.168.195.155: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.195.155:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 37ms, Average = 10ms
```

This setup was tested on ICR-44xx firmware version 6.3.6, Docker Router App version 20.10.7, ZeroTier Docker version 1.10.3.