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**CONFIGURATION
TUTORIALS**



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DUAL NIC RECORDERS

WHY USE DUAL NICs

There are a lot of advantages to utilizing two network cards on a recorder. The main advantage to using both NIC ports on a recorder is that cameras on the job can be on their own network away from the customer's existing network, while still keeping the recorder on the main network to gain internet access for remote viewing. Other reasons to use both NIC cards include load balancing to reduce camera video lag, and Net-Fault Tolerance which means the recorder will only take one IP address from the main network, and set up so if one port fails the other will take over.

SETTING UP DUAL NICs

One thing to remember before setting up both NIC ports is that they CANNOT be on the same gateway/subnet. This will cause both ports not to work and the recorder will not give any warning when setting them on the same gateway/subnet.

Also remember that a monitor plugged directly into the recorder is needed to start the dual NIC setup.

MULTI-ADDRESS

Multi-Address will allow for both NIC cards to be set on different Gateways from each other. This will allow for the recorder to be on the customer's main network but then for the cameras to be on their own separate network without the need for a router.

1. Plug NIC labeled 2 into the gigabit uplink on the cameras PoE switch, a standard PoE LAN port will work as well if an uplink port is not available.
2. Plug NIC labeled 1 into the customers network, the recorder can be plugged into a switch, router, or modem directly.
3. Next, on the monitor that is hooked directly into the recorder, right click and log into the main menu
4. Navigate to System and then to Network settings.
5. Once in the Network menu set the IP address for NIC1 to match the customer's gateway. If the gateway is unknown set NIC1 on DHCP. DHCP will automatically pick a free IP address and set

the correct gateway. (Note: Remember that if the customer has a 192.168.1.1 network this is the same default as NIC2 and will cause the ports not to work. If this is the case make sure to change the Selected NIC to NIC2 and then manually set the IPv4 Default Gateway to a different subnet and give it a matching subnet IP address)

6. Next change the Selected NIC to NIC2 and then manually set the IPv4 Default Gateway to a different subnet than NIC1 and give it a matching IP address on the same subnet. For example if NIC1 is set to IP address: 192.168.1.30 and Gateway: 192.168.1.1, NIC2 will have to have a different gateway such as IP address: 192.168.10.30 and Gateway: 192.168.10.1. This puts NIC2 on the .10. subnet.
7. After both NIC cards are set up to have different gateways, the cameras will then need to be addressed to match the gateway that NIC2 is set to. Continuing with the example above, the recorder's IP address is: 192.168.10.30 and Gateway is: 192.168.10.1. This means that each camera will need to be set to the same gateway and each camera will need to be given a different IP address on that gateway. See below for example of the camera's IP address.

IP Address	Gateway	Device
192.168.10.30	192.168.10.1	NVR
192.168.10.50	192.168.10.1	IPC
192.168.10.51	192.168.10.1	IPC
192.168.10.53	192.168.10.1	IPC
192.168.10.54	192.168.10.1	IPC
192.168.10.55	192.168.10.1	IPC
192.168.10.56	192.168.10.1	IPC

8. Last set the Default Route in the recorder's network settings to NIC2. This will set the recorder so when it reboots it looks to connect to the cameras on the second NIC port and NIC1 will stay active in the background.

At this point the cameras can now be searched for in the camera menu and added to the recorder.

LOAD BALANCE

Load Balancing is good for jobs that have a lot of cameras (64 or more) this will allow for both NIC ports to share the load of data and keep the cameras video images from lagging or skipping. The reason this is needed some times is because bit rates on cameras can quickly exceed what a 1 Gbps NIC port can handle.

1. Plug both NIC1 and NIC2 ports into the customer's main network, the recorder can be plugged into a switch, router, or modem directly.
2. After both ports are connected to the network log into the recorder's main menu and navigate to System > Network.

3. Set the Working Mode to Load Balance.
4. Select NIC should be set to Binding1
5. Next set the IPv4 Address and IPv4 Default Gateway to match the customer's network. If the default gateway is unknown set the recorder on DHCP and save. After DHCP grabs an IP address disable DHCP to keep the IP address static.

NET-FAULT TOLERANCE

Net-Fault Tolerance allows for the recorders NIC cards to be set in a redundant state that allows one to take over for the other if the first one fails to operate correctly. This is good in situations where the recorder must absolutely always be on the network. This could mean that the job site is monitored off site at all times or has cameras from a remote location.

1. Plug both NIC1 and NIC2 ports into the customer's main network, the recorder can be plugged into a switch, router, or modem directly.
2. After both ports are connected to the network log into the recorders main menu and navigate to System > Network.
3. Set the Working Mode to Net-Fault Tolerance.
4. Select NIC should be set to Binding1
5. Next set the IPv4 Address and IPv4 Default Gateway to match the customer's network. If the default gateway is unknown set the recorder on DHCP and save. After DHCP grabs an IP address disable DHCP to keep the IP address static.