

# Cluster HAT / Cluster CTRL

## How do I use newer NCM images on older (bookworm) controllers?

Images dated 2025-11-24-2 and earlier use the ACM+RNDIS protocols for the USB Gadget Ethernet. Images 2025-11-24-3 and later use ACM+NCM. For better compatibility with all operating systems, a new USB PID has been assigned (0x0020 ACM+RNDIS / 0x0021 ACM+NCM).

To support both new and old PIDs, the UDEV rules need to be updated, which can be accomplished by running the following commands:

```
# Update UDEV rules for both Network and Serial interfaces
sudo sed -i -e 's/ID_MODEL_ID}=="0020"/ID_MODEL_ID}=="002[01]"/' /etc/udev/rules.d/90-clusterctrl.rules
sudo sed -i -e 's/idProduct}=="0020"/idProduct}=="002[01]"/' /etc/udev/rules.d/90-clusterctrl.rules

# Apply rules to the running system
sudo udevadm control --reload-rules
sudo udevadm trigger
```

Interfaces should now be renamed correctly and added to the bridges automatically. (Note: If an active interface fails to rename immediately, simply replug the USB node or reboot it).

Unique solution ID: #1125

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