Containers losing GPUs with error: "Failed to initialize NVML: Unknown Error"

https://github.com/NVIDIA/nvidia-docker/issues/1730

5. **Workarounds**

The following workarounds are available for both standalone docker environments and k8s environments (multiple options are presented by order of preference; the one at the top is the most recommended):

For Docker environments

- Using the `nvidia-ctk` utility:
  The NVIDIA Container Toolkit v1.12.0 includes a utility for creating symlinks in `/dev/char` for all possible NVIDIA device nodes required for using GPUs in containers. This can be run as follows:

  ```
  sudo nvidia-ctk system create-dev-char-symlinks \
      --create-all
  ```

  This command should be configured to run at boot on each node where GPUs will be used in containers. It requires that the NVIDIA driver kernel modules have been loaded at the point where it is run.
  A simple `udev` rule to enforce this can be seen below:

  ```
  # This will create /dev/char symlinks to all device nodes
  ACTION=="add", DEVPATH=="/bus/pci/drivers/nvidia", RUN+="/usr/bin/nvidia-ctk system 
  create-dev-char-symlinks --create-all"
  ```

  A good place to install this rule would be:
  `/lib/udev/rules.d/71-nvidia-dev-char.rules`
  In cases where the NVIDIA GPU Driver Container is used, the path to the driver installation must be specified. In this case the command should be modified to:

```
sudo nvidia-ctk system create-dev-symlinks \
        --create-all \
        --driver-root={{NVIDIA_DRIVER_ROOT}}
```

Where `{{NVIDIA_DRIVER_ROOT}}` is the path to which the NVIDIA GPU Driver container installs the NVIDIA GPU driver and creates the NVIDIA Device Nodes.

- # Method 2 (WORKING FOR ME):

- Explicitly disabling systemd cgroup management in Docker
  - Set the parameter `"exec-opts": ["native.cgroupdriver=cgroupfs"]` in the `/etc/docker/daemon.json` file and restart **docker**.
  - ```
    {
       "runtimes": {
           "nvidia": {
               "args": [],
               "path": "nvidia-container-runtime"
           }
       },
       "exec-opts": ["native.cgroupdriver=cgroupfs"]
    }
    ```

- # Method 3:

  - Downgrading to `docker.io` packages where `systemd` is not the default `cgroup` manager (and not overriding that of course).

Revision #3
Created 2023-06-25 11:59:24 UTC by Dung
Updated 2023-10-06 07:01:21 UTC by Dung
    ```