NVIDIA IndeX
Questions and answers

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Copyright Information

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1 Starting the HTTP server

1.1 What if I see the error "Could not start HTTP server on 0.0.0.0:8080. Aborting"?

This might happen for two reasons:

1. *Port 8080 being used by some other processes.*

   Set the value of `dice::http_port` in the `project.` options file to a port value that is not in use. To find available port numbers, run the following in a shell:

   ```
   netstat -tulpen
   ```

   Values `11000`, `9000`, `9010`, etc., should be available for use.

   The same applies for RTMP port errors when the default port 1935 is being used by some other process. To change this, set the value of `dice::rtmp_port` in options file `project.` to an unsed port.

   (For more information about setting values in file `project.` see section *NVIDIA IndeX options file* in this documentation set.)

2. *For security reasons, system administrators may have blocked the standard ports.*

   In this case, please contact your system administrator. Some commands that are useful in disabling a firewall include:

   ```
   /sbin/chkconfig iptables off
   /sbin/service iptables save
   /sbin/service iptables stop
   /sbin/chkconfig ip6tables off
   /sbin/service ip6tables save
   /sbin/service ip6tables stop
   ```

2 Buffer size

2.1 How do I handle buffer size warnings?

When there is a problem with buffer size the following error is message is printed:

```
Warning: "Could not set receive buffer size to requested value
4194304.  Limited value to 262142. Please ask an administrator to
increase the system limit; see the sysctl manual or the installation
manual."
```

The warning is related to network layers and the buffer size for the sockets. To adjust the buffer size, you should update the file `/etc/sysctl.conf` as follows:

- `net.core.rmem_max = 8388608`
- `net.core.wmem_max = 8388608`

The values define the maximum buffer size for the receive socket memory (rmem) and the maximum buffer size for the send socket memory (wmem). No data will be dropped but the networking performance can be increased by tuning these values. The warning is related to network layers and the buffer size for the sockets.

3   Networking performance

3.1 How do I improve slow networking performance on InfiniBand networks?

The IPoIB performance requires tuning.

Make sure to set all BIOS power management to Maximum Performance.

- To disable cpuspeed: `service cpuspeed stop`
- Hyperthreading should be set to disabled to save latency(?)
- The following tuning options are from Mellanox and should be checked if applicable:
    - `sysctl -w net.ipv4.tcp_timestamps=0` disable the TCP timestamps option for better CPU utilization
    - `sysctl -w net.ipv4.tcp_sack=0` Disable the TCP selective acks option for better CPU utilization
    - `sysctl -w net.core.netdev_max_backlog=250000` increase the maximum length of processor input queues
    - `sysctl -w net.core.rmem_max=16777216`
    - `sysctl -w net.core.wmem_max=16777216`
    - `sysctl -w net.core.rmem_default=16777216`
    - `sysctl -w net.core.wmem_default=16777216`
    - `sysctl -w net.core.optmem_max=16777216`
    - `sysctl -w net.ipv4.tcp_mem=16777216 16777216 16777216` increase memory thresholds to prevent packet dropping
    - `sysctl -w net.ipv5.tcp_low_latency = 1` enable low latency mode

4   Device files

4.1 What do I do about missing device files?

Symptoms:

1. Calling `nvidia-smi`

```
NVIDIA: could not open the device file /dev/nvidiactl (No such file
or directory).
NVIDIA-SMI has failed because it couldn't communicate with NVIDIA ↦
    driver.
Make sure that latest NVIDIA driver is installed and running.
```

2. Calling `ls /dev/nvidiactl`

```
ls: cannot access /dev/nvidiactl: No such file or directory
```

Possible solution:

The init script is missing that is required to load the driver and create the device files when booting: `https://access.redhat.com/knowledge/solutions/64300`

This step is usually included in the X11 initialization, but if the system is running headless, the additional init script is necessary.

5 Nouveau driver

5.1 What do I do if the Nouveau driver (open source NVIDIA driver) is disabled?

1. Add `rdblacklist=nouveau` to the kernel attributes in `/boot/grub/menu.lst`.

2. Execute:

```
echo "blacklist nouveau" > /etc/modprobe.d/nouveau.conf
```

Instead of nouveau. the two lines can also be added to `/etc/modprobe.d/blacklist.conf`, but will potentially be overwritten during auto-updates of the system.

3. Execute:

```
echo "options nouveau modset = 0' >> /etc/modprobe.d/nouveau.conf
```

4. Reboot the system.

5. Install the NVIDIA driver by executing:

```
init 3
./NVIDIA-Linux-x86-64-xxx.yy.run
init 5
```