



# **Set queue depths on Linux hosts**

## **ONTAP 9**

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# Set queue depths on Linux hosts

## Update Emulex HBA queue depths on a Linux host

You can update the queue depths of an Emulex HBA on a Linux host. To make the updates persistent across reboots, you must then create a new RAM disk image and reboot the host.

### Steps

1. Identify the queue depth parameters to be modified:

```
modinfo lpfc|grep queue_depth
```

The list of queue depth parameters with their description is displayed. Depending on your operating system version, you can modify one or more of the following queue depth parameters:

- `lpfc_lun_queue_depth`: Maximum number of FC commands that can be queued to a specific LUN (uint)
- `lpfc_hba_queue_depth`: Maximum number of FC commands that can be queued to an lpfc HBA (uint)
- `lpfc_tgt_queue_depth`: Maximum number of FC commands that can be queued to a specific target port (uint)

The `lpfc_tgt_queue_depth` parameter is applicable only for Red Hat Enterprise Linux 7.x systems, SUSE Linux Enterprise Server 11 SP4 systems and 12.x systems.

2. Update the queue depths by adding the queue depth parameters to the `/etc/modprobe.conf` file for a Red Hat Enterprise Linux 5.x system and to the `/etc/modprobe.d/scsi.conf` file for a Red Hat Enterprise Linux 6.x or 7.x system, or a SUSE Linux Enterprise Server 11.x or 12.x system.

Depending on your operating system version, you can add one or more of the following commands:

- `options lpfc lpfc_hba_queue_depth=new_queue_depth`
- `options lpfc lpfc_lun_queue_depth=new_queue_depth`
- `options lpfc lpfc_tgt_queue_depth=new_queue_depth`

3. Create a new RAM disk image, and then reboot the host to make the updates persistent across reboots.

For more information, see the *System Administration Reference Guide* for your version of Linux operating system.

4. Verify that the queue depth values are updated for each of the queue depth parameter that you have modified:

```
cat /sys/class/scsi_host/host_number/lpfc_lun_queue_depthcat  
/sys/class/scsi_host/host_number/lpfc_tgt_queue_depthcat  
/sys/class/scsi_host/host_number/lpfc_hba_queue_depth
```

```
root@localhost ~]# cat /sys/class/scsi_host/host5/lpfc_lun_queue_depth
30
```

The current value of the queue depth is displayed.

## Related information

[System administration](#)

# Update QLogic HBA queue depths on a Linux host

You can update the device queue depth of a QLogic driver on a Linux host. To make the updates persistent across reboots, you must then create a new RAM disk image and reboot the host. You can use the QLogic HBA management GUI or command-line interface (CLI) to modify the QLogic HBA queue depth.

## About this task

This task shows how to use the QLogic HBA CLI to modify the QLogic HBA queue depth

## Steps

1. Identify the device queue depth parameter to be modified:

```
modinfo qla2xxx | grep ql2xmaxqdepth
```

You can modify only the `ql2xmaxqdepth` queue depth parameter, which denotes the maximum queue depth that can be set for each LUN. The default value is 64 for RHEL 7.5 and later. The default value is 32 for RHEL 7.4 and earlier.

```
root@localhost ~]# modinfo qla2xxx|grep ql2xmaxqdepth
parm:          ql2xmaxqdepth:Maximum queue depth to set for each LUN.
Default is 64. (int)
```

2. Update the device queue depth value:
  - If you want to make the modifications persistent, perform the following steps:
    - i. Update the queue depths by adding the queue depth parameter to the `/etc/modprobe.conf` file for a Red Hat Enterprise Linux 5.x system and to the `/etc/modprobe.d/scsi.conf` file for a Red Hat Enterprise Linux 6.x or 7.x system, or a SUSE Linux Enterprise Server 11.x or 12.x system: `options qla2xxx ql2xmaxqdepth=new_queue_depth`
    - ii. Create a new RAM disk image, and then reboot the host to make the updates persistent across reboots.

For more information, see the *System Administration Reference Guide* for your version of Linux operating system.

- If you want to modify the parameter only for the current session, run the following command:

```
echo new_queue_depth > /sys/module/qla2xxx/parameters/ql2xmaxqdepth
```

In the following example, the queue depth is set to 128.

```
echo 128 > /sys/module/qla2xxx/parameters/ql2xmaxqdepth
```

3. Verify that the queue depth values are updated:

```
cat /sys/module/qla2xxx/parameters/ql2xmaxqdepth
```

The current value of the queue depth is displayed.

4. Modify the QLogic HBA queue depth by updating the firmware parameter `Execution Throttle` from the QLogic HBA BIOS.
  - a. Log in to the QLogic HBA management CLI:

```
/opt/QLogic_Corporation/QConvergeConsoleCLI/qauccli
```

- b. From the main menu, select the `Adapter Configuration` option.

```
[root@localhost ~]#  
/opt/QLogic_Corporation/QConvergeConsoleCLI/qauccli  
Using config file:  
/opt/QLogic_Corporation/QConvergeConsoleCLI/qauccli.cfg  
Installation directory: /opt/QLogic_Corporation/QConvergeConsoleCLI  
Working dir: /root
```

```
QConvergeConsole
```

```
CLI - Version 2.2.0 (Build 15)
```

```
Main Menu
```

```
1: Adapter Information  
**2: Adapter Configuration**  
3: Adapter Updates  
4: Adapter Diagnostics  
5: Monitoring  
6: FabricCache CLI  
7: Refresh  
8: Help  
9: Exit
```

```
Please Enter Selection: 2
```

c. From the list of adapter configuration parameters, select the HBA Parameters option.

```
1: Adapter Alias
2: Adapter Port Alias
**3: HBA Parameters**
4: Persistent Names (udev)
5: Boot Devices Configuration
6: Virtual Ports (NPIV)
7: Target Link Speed (iidMA)
8: Export (Save) Configuration
9: Generate Reports
10: Personality
11: FEC
(p or 0: Previous Menu; m or 98: Main Menu; ex or 99: Quit)
Please Enter Selection: 3
```

d. From the list of HBA ports, select the required HBA port.

```
Fibre Channel Adapter Configuration

HBA Model QLE2562 SN: BFD1524C78510
  1: Port 1: WWPN: 21-00-00-24-FF-8D-98-E0 Online
  2: Port 2: WWPN: 21-00-00-24-FF-8D-98-E1 Online
HBA Model QLE2672 SN: RFE1241G81915
  3: Port 1: WWPN: 21-00-00-0E-1E-09-B7-62 Online
  4: Port 2: WWPN: 21-00-00-0E-1E-09-B7-63 Online

(p or 0: Previous Menu; m or 98: Main Menu; ex or 99: Quit)
Please Enter Selection: 1
```

The details of the HBA port are displayed.

e. From the HBA Parameters menu, select the Display HBA Parameters option to view the current value of the Execution Throttle option.

The default value of the Execution Throttle option is 65535.

```
HBA Parameters Menu

=====
HBA          : 2 Port: 1
SN           : BFD1524C78510
HBA Model    : QLE2562
HBA Desc.    : QLE2562 PCI Express to 8Gb FC Dual Channel
```

```
FW Version      : 8.01.02
WWPN            : 21-00-00-24-FF-8D-98-E0
WWNN            : 20-00-00-24-FF-8D-98-E0
Link            : Online
```

=====

- 1: Display HBA Parameters
- 2: Configure HBA Parameters
- 3: Restore Defaults

(p or 0: Previous Menu; m or 98: Main Menu; x or 99: Quit)  
Please Enter Selection: 1

-----  
HBA Instance 2: QLE2562 Port 1 WWPN 21-00-00-24-FF-8D-98-E0 PortID  
03-07-00  
Link: Online  
-----

-----  
Connection Options : 2 - Loop Preferred, Otherwise Point-  
to-Point  
Data Rate : Auto  
Frame Size : 2048  
Hard Loop ID : 0  
Loop Reset Delay (seconds) : 5  
Enable Host HBA BIOS : Enabled  
Enable Hard Loop ID : Disabled  
Enable FC Tape Support : Enabled  
Operation Mode : 0 - Interrupt for every I/O  
completion  
Interrupt Delay Timer (100us) : 0  
\*\*Execution Throttle : 65535\*\*  
Login Retry Count : 8  
Port Down Retry Count : 30  
Enable LIP Full Login : Enabled  
Link Down Timeout (seconds) : 30  
Enable Target Reset : Enabled  
LUNs Per Target : 128  
Out Of Order Frame Assembly : Disabled  
Enable LR Ext. Credits : Disabled  
Enable Fabric Assigned WWN : N/A

Press <Enter> to continue:

f. Press **Enter** to continue.

- g. From the HBA Parameters menu, select the `Configure HBA Parameters` option to modify the HBA parameters.
- h. From the `Configure Parameters` menu, select the `Execute Throttle` option and update the value of this parameter.

#### Configure Parameters Menu

```
=====
HBA           : 2 Port: 1
SN            : BFD1524C78510
HBA Model     : QLE2562
HBA Desc.     : QLE2562 PCI Express to 8Gb FC Dual Channel
FW Version    : 8.01.02
WWPN          : 21-00-00-24-FF-8D-98-E0
WWNN          : 20-00-00-24-FF-8D-98-E0
Link          : Online
=====
```

- 1: Connection Options
- 2: Data Rate
- 3: Frame Size
- 4: Enable HBA Hard Loop ID
- 5: Hard Loop ID
- 6: Loop Reset Delay (seconds)
- 7: Enable BIOS
- 8: Enable Fibre Channel Tape Support
- 9: Operation Mode
- 10: Interrupt Delay Timer (100 microseconds)
- 11: Execution Throttle
- 12: Login Retry Count
- 13: Port Down Retry Count
- 14: Enable LIP Full Login
- 15: Link Down Timeout (seconds)
- 16: Enable Target Reset
- 17: LUNs per Target
- 18: Enable Receive Out Of Order Frame
- 19: Enable LR Ext. Credits
- 20: Commit Changes
- 21: Abort Changes

(p or 0: Previous Menu; m or 98: Main Menu; x or 99: Quit)

Please Enter Selection: 11

Enter Execution Throttle [1-65535] [65535]: 65500



- i. Press **Enter** to continue.
- j. From the Configure Parameters menu, select the `Commit Changes` option to save the changes.
- k. Exit the menu.

### **Related information**

[System administration](#)

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