



NDIS iSCSI Driver for Linux

This software license applies only to QLogic customers.
QLogic Corporation.
All rights reserved.

Table of Contents

1. [OS Support](#)
2. [Supported Features](#)
3. [Release History](#)
4. [Saving the Driver Source to Diskette](#)
5. [Installing the Driver](#)
 - 5.1 [Building the Driver from the Source](#)
 - 5.2 [Loading the Driver](#)
 - 5.3 [Loading the Driver at Boot Time](#)
6. [Driver Command Line Parameters](#)
7. [Limitations](#)
8. [Additional Notes](#)
 - 8.1 [Installing Kernel Source and Header Files](#)
 - 8.2 [Changing IP Address when Driver is Loaded at Boot](#)
 - 8.3 [Unloading the Driver](#)
 - 8.4 [Changing the MTU for Jumbo Frame Size](#)
9. [Contacting Support](#)

1. OS Support

This driver works with Linux kernel 2.4.x and 2.6.x distributions. Please also refer to Release Notes for exact Kernel versions and distributions.

2. Supported Features

- VLAN Tags
- Jumbo Frames

3. Release History

Please refer to Release Notes (Release.txt).

4. Saving the Driver Source to Diskette

NOTE: This step assumes that the you do not already have the current version and that the driver is posted on the website.

1. Download `qla3022ipsrc-v2.xx.tgz` file from QLogic's website.
 - o If prompted `What would you like to do with this file?` choose **Save this file to disk**. Insert a blank diskette and download to the diskette directly.
 - o If prompted `What would you like to do with this file?` choose **Save this file to disk**.
2. Insert a blank diskette and download to the diskette directly.

5. Installing the Driver

Install and unzip the driver archive file using Diskette you created, as described in [Section 4](#).

Run the following commands:

```
# mkdir qla3xxx
# cd qla3xxx
# mount /mnt/floppy
# cp /mnt/floppy/qla3022ipsrc-vx.xx.tgz . (the period at the end is required)
# tar xvzf qla3022ipsrc-vx.xx.tgz
```

See the following sections:

- 5.1 [Building the Driver from the Source](#)
- 5.2 [Loading the Driver](#)
- 5.3 [Loading the Driver at Boot Time](#)

5.1 Building the Driver

1. Verify super user rights by typing:

```
#su
#<password>
```

2. Build the driver from the Source Code by typing:

```
# make install
```

The program copies the files to `/lib/modules/<KERNEL VERSION>/kernel/drivers/net`.

NOTE: Please refer to Makefile for additional supported command line parameters.

NOTE: If the kernel header files are not found refer to [section 8.1](#).

5.2 Loading the Driver

To load the driver directly from the local build directory:

1. Type the following:

```
# insmod qla3022ip.[k]o
```

NOTE: For Linux Kernel 2.6.x, the k is included. For Kernel 2.4.x it is omitted.

2. Set the IP address for the new interface:

```
ifconfig ethx <IP Address>
```

3. Test the new interface by pinging from a remote station:

```
ping <IP Address>
```

5.3 Loading the Driver at Boot Time

The most efficient way to install a network driver to load automatically is to use one of the network configuration applications that are supplied with the GUI. The steps required for other distributions may differ. Refer to your distribution documentation for detailed instructions.

1. Build the driver binary files (see [section 5.1](#)).

2. Copy the files to `/lib/modules/<kernel version>/kernel/drivers/net` by typing:

```
# make install
```

3. Modify the `/etc/modules.conf` (2.4.x kernel) or `/etc/modprobe.conf` (2.6.x kernel) file. Add the following line to `/etc/modules.conf` or `etc/modprobe.conf`: `alias eth2 qla3022ip`. In this sample, the ethernet device number is 2. In your system it may be different. The safest thing to do is to use the next number after the last one that was already in the file. An example of a `modules.conf` file is provided here:

```
alias parport_lowlevel parport_pc
```

```
alias eth0 eepr0100
```

```
alias eth1 eepr0100
```

```
alias usb-controller usb-uhci
```

```
alias eth2 qla3022ip
```

NOTE: For the QMC4052, there are two network interfaces. One line must be added for each interface. For example:

```
alias eth2 qla3022ip
```

```
alias eth3 qla3022ip
```

4. Create a new file for your device in the /etc/sysconfig/network-scripts/ directory:

Following our example from above, our new file will be called ifcfg-eth2. The device may be configured for a static IP address, or for DHCP. Both examples are shown here.

ifcfg-eth2 file contents for static IP address:

```
#####  
# File: ifcfg-eth2  
# Set device up with Static IP address.  
#  
DEVICE=eth2  
IPADDR=<YOUR IP ADDRESS>  
NMASK=<YOUR NET MASK>  
NETWORK=<YOUR NETWORK ADDRESS>  
BCAST=<YOUR BCAST ADDRESS>  
ONBOOT=yes  
BOOTPROTO=none  
#####
```

ifcfg-eth2 file contents for DHCP client:

```
#####  
# File: ifcfg-eth2  
# Set device up for DHCP.  
#  
DEVICE=eth2  
ONBOOT=yes  
BOOTPROTO=dhcp  
#####
```

5. Add entry to /boot/module-info file: (Optional)

This file is a database with information on various network and storage devices. The list is sorted by device type and then alphabetically based on the device name. To insert an entry for the QLA3022, search for the proper slot in the network devices and install the following 3 lines:

```
qla3022ip  
eth  
"Qlogic Gigabit Ethernet"
```

This will usually follow the entry for "plip" or "ppp".

6. Driver Command Line Parameters

Command line parameters are added to the `insmod` command line to change the behavior of the driver as follows:

```
# insmod qla3022ip.[k]o parameter=value
```

The `base_mem` parameter is used to selectively load only the specified `qla3022ip` devices.

NOTE: This parameter requires a 2-step process. The first step loads the driver with no parameters to help find the base addresses of each Qlogic Network adapter that is installed in the system. The second step is reloads the driver with specific base address of the desired adapters.

1. Load the driver with no parameters:

```
# insmod qla3022ip.[k]o
```

2. Use the `proc` file system to select the specific device for the driver to load. Below is an expert from the following command. In this case there are two adapters present in the system:

```
# /proc/pci/iomem | grep Qlogic
```

The display should look something like this:

```
fc200000-fc200fff : Qlogic 3022 Network Driver
```

```
fc202000-fc202fff : Qlogic 3022 Network Driver
```

NOTE: There is a Network controller for each `qlogic` adapter in the system. Select the Ethernet controller you would like to the driver to control, and record the memory address assigned to it. The memory address is the left-most number. In this example it would be `fc200000` and/or `fc202000`.

3. Unload the driver:

```
# rmmod qla3022ip
```

4. Load the specific adapter with the following command line:

```
# insmod qla3022ip.o base_mem=fc200000
```

or

```
# insmod qla3022ip.o base_mem=fc202000
```

7. Limitations

None

8. Additional Notes

See the following topics:

- [8.1 Installing Kernel Source and Header Files](#)
- [8.2 Changing IP Address when Driver is Loaded at Boot](#)
- [8.3 Unloading the Driver](#)
- [8.4 Changing the MTU for Jumbo Frame Size](#)

8.1 Installing Kernel Source and Header Files

To extract the kernel-headers and kernel-sources RPM files from the first RedHat CD:

```
# cd /mnt/cdrom/RedHat/RPMS
# rpm -iv kernel-headers*.rpm (not required for Red Hat 9.0)
# rpm -iv kernel-source*.rpm (not required for Red Hat 9.0)
```

8.2 Changing IP Address when Driver is Loaded at Boot

This is usually done through the network configuration utility in the GUI that is part of a Linux distribution. The following describes how to perform this operation on Redhat AS 2.1. For other distributions, please see the distribution documentation.

1. Modify the IP address in the `/etc/sysconfig/network-script/ifcfg-ethx` file.
2. Issue the following command to restart the network:

```
# /etc/init.d/network restart
```

The network will be restarted with the new parameters and will maintain them whenever the system is rebooted.

8.3 Unloading the Driver

To unload the driver manually, enter the following commands:

```
# ifconfig ethx down
# rmmmod qla3022ip
```

To remove the driver from being automatically loaded at boot time:

1. Type the following command:

```
# make uninstall
```
2. Type the following command:

```
# rm -f /etc/sysconfig/network-script/ifcfg-eth2
```

NOTE: The "eth2" may be a different device number on your system.
3. Modify `/etc/modules.conf` or `/etc/modprobe.conf` and remove or comment any lines that contain `qla3022ip`.

8.4 Changing the MTU for Jumbo Frame Size

To enable Jumbo Frames, enter this command:

```
# ifconfig ethx mtu 9000
```

The maximum acceptable value is 9214. Changing the mtu is not a trivial task as the values should match between any two systems that expect to benefit. Users should understand the details of changing this parameter before make the change.

9. Contacting Support

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

Web: <http://support.qlogic.com>

North America Contact Information

Email: support@qlogic.com

Phone: (952) 932-4040

Support contact information for other regions of the world is available at the QLogic website:

<http://support.qlogic.com>

[Go to Top](#)



© Copyright 2006. All rights reserved worldwide. QLogic, the QLogic logo, and the Powered by QLogic logo are registered trademarks of QLogic Corporation. All other brand and product names are trademarks or registered trademarks of their respective owners.