



Installing the Driver for Solaris

Version 5.02f (x86)

Table of Contents

- [Introduction](#)
- [Install a Driver for the First Time](#)
- [Update Existing Driver](#)
- [Load Manpages](#)
- [Remove Existing Driver](#)

Introduction

The driver installation procedure installs driver version 5.02f (x86) for Solaris and lputil version 1.5a3 utility software.

Perform one of the following procedures:

- Install the driver for the first time.
- Update an existing driver from version 4.21e or earlier to version 5.02f (x86). This procedure includes removing the existing driver.

Note To support tape devices in a Solaris x86 environment, you must add the following two lines to the `/kernel/drv/lpfc.conf` file after installing the driver:

```
# Used only by i386 FCP (SCSI)
flow_control="duplx" queue="qfifo" disk="scdk" tape="sctp";
```

It does not matter where in the file you add the lines, but you must reboot the system for the changes to take affect.

Install a Driver for the First Time

Caution As a matter of course, you should always make a full system backup prior to beginning an installation or update procedure.

1. Make a full system backup.
2. Login as root, or su to root.
3. Create a temporary directory (for example, emlxtemp).

```
mkdir /emlxtemp
```

4. Change the directory to the temporary directory.

```
cd /emlxtemp
```

5. Copy or download the download package from your distribution medium to the temporary directory. The download package is a tar file named lpfc-5.02f-i386.tar. Extract the driver and utility files from the download kit in the temporary directory:

```
tar -xvf lpfc-5.02f-i386.  
tar
```

6. Install the driver by typing the following at the shell prompt:

```
pkgadd -d `pwd`
```

`pwd` is UNIX shorthand for "present working directory". This command will search for packages in the specified directory. If multiple packages exist, a list allows you to select the new tar file.

An installation script prompts you to respond to a series of questions. For steps 7 through 14, enter the desired option, or press <Enter> to accept the default setting. In most cases, the default is acceptable. Look for the following message to be displayed:

```
Select package(s) you wish to process (or 'all' to process all packages). (default:  
all) [?,??,q]:
```

7. When this message is displayed, select the number associated with lpfc for installation.
8. Rebuild the manual page database by pressing <y> to accept.

```
Rebuild manual pages database for section 7d [y,n,?]:
```

Rebuilding the man pages can take up to 10 minutes. Press <n> to skip this step. You can run the catman command later if you decide to use the man pages in section 7d. (See "Load Manpages" in this Online manual for more information.)

9. Press <y> to enable IP networking or <n> to disable networking at this time.

Use IP networking over Fibre Channel [y,n,?]:

If you answer n (no) to the above question, proceed to step 11.

10. Type the adapter's network host name.

Network host name (for first adapter) [?,q]:

The network host name identifies the host adapter on a Fibre Channel network and is associated with a unique IP address. Edit the /etc/hosts file to add the IP address to the host name entered in this step. Also, if more than one adapter is in the system, you will need to create a hostname.lpfc# file for each adapter (see "Create Additional Hostname.lpfc# Files" in the online Configuration manual).

11. Press <y> to continue installation. Pressing <n> at this time will undo all the settings and end the installation script.

Do you want to continue with the installation of <lpfc> [y,n,?]:

12. The install package provides running commentary on the installation process. Be sure to examine the output for any errors or warnings. When the installation concludes, take notice of the following message:

SCSI: If you are using lpfc to access disks, be sure to check the configuration file of your SCSI target driver (presumably sd.conf) to ensure that the driver will probe for all of the targets/luns in your environment.

13. After a successful installation, the install script will start over. If you do not want to install additional packages, press <q> to quit the installation.

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

14. The lpfc driver installation is complete. After you quit, the following message is displayed:

IMPORTANT: This machine must now be rebooted in order to ensure sane operation.

Note Before you reboot the machine, inspect your configuration parameters (see "View the lpfc.conf Configuration Table" in the online Configuration manual). Consider whether you must modify any configuration files beyond the defaults established by the installation process.

15. Reboot the system to incorporate the new driver. At the shell prompt, type the following:

```
sync
reboot
```

The system reboots to multi-user mode and the Emulex LightPulse host bus adapter is available for use.

If you are enabling IP networking, you may find immediately after rebooting the system that FCP disk access works but host-to-host IP access does not work at all. The lpfc network interface isn't even configured; as Solaris boots, it will print out an error message when configuring lpfc0, the Fibre Channel network, indicating that there is no such interface. Running `netstat -i` will also reveal that there is no lpfc interface. All you must do is reboot the machine a second time. In certain rare cases, it may be necessary to reboot the machine a third time. Be careful, though: if `netstat -i` shows an lpfc interface, but the network still isn't being started, you probably have an error in your `hostname.lpfc<0-N>` file or some other error in your network configuration files.

Edit etc/hosts File

The hosts file associates an IP address to a host adapter's network host name.

Use any text editor to edit the /etc/hosts file. Example file:

```
123.456.7.8 fibre1  
123.456.8.9 fibre2  
123.456.8.1 myhost
```

Update an Existing Driver

To update the driver:

1. Make a full system backup.
2. Login as root, or su to root.
3. Create a temporary directory (for example, emlxtemp).

```
mkdir /emlxtemp
```

4. Change the directory to the temporary directory.

```
cd /emlxtemp
```

5. Copy or download the download package from your distribution medium to the temporary directory. The download package is a compressed tar file named lpfc-5.02f-i386.tar. Extract the driver and utility files from the download kit in the temporary directory:

```
tar -xvf lpfc-5.02f-i386.  
tar
```

6. If IP networking is enabled, save PCI adapter information to a temporary hostname file by typing:

```
/etc/hostname.lpfnX /usr/tmp/hostname.lpfnX.lpfc
```

Where **X** is the number of the host bus adapter.

7. Save the **/etc/path_to_inst** file to **/usr/tmp/path_to_inst.lpfc**. This file is not automatically saved during an update procedure.

```
cp /etc/path_to_inst /usr/tmp/path_to_inst.lpfc
```

8. At the shell prompt, type:

```
pkgrm lpfc
```

9. Copy the saved **/usr/tmp/path_to_inst.lpfc** file back to **/etc/path_to_inst**.

```
cp /usr/tmp/path_to_inst.lpfc /etc/path_to_inst
```

10. Install the driver. Run the following command from the same directory in which you downloaded the new tar file.

```
pkgadd -d `pwd`
```

``pwd`` is UNIX shorthand for "present working directory". This command will search for packages in the specified directory. If multiple packages exist, a list allows you to select the new tar file.

The `pkgadd` script will ask if you want to enable IP networking. If you answer yes to this question, the following prompt will display:

```
Network host name (for first adapter) [?,q]:
```

Use the information you saved in the **/usr/tmp/hostname.lpfX.lpfc** file (step 6 of this procedure) to specify the adapter names and numbers.

11. Restore any customized disk settings in **sd.conf** and customized parameter settings in **lpfc.conf** (for example, `automap`, `scan-down`, `fcplib` and so on).

Parameters that are controller-specific can be prepended to limit the parameter value to one controller. The information for specific controllers may be merged into the **/kernel/drv/lpfc.conf** file.

Parameters that are global-specific accept only one value, therefore there is no merging to take place. Sometimes a decision must be made as to the value of a global-specific parameter. The **lpfc.conf** table in the online Configuration manual documents each parameter as to whether it is controller-specific or global.

- a. Copy the file **/usr/tmp/sd.conf.pkgrm** back to **/kernel/drv/sd.conf**.

```
cp /usr/tmp/sd.conf.pkgrm /kernel/drv/sd.conf
```

- b. Copy the file **/usr/tmp/lpfc.conf.pkgrm** into **/kernel/drv/lpfc.conf**.

```
cp /usr/tmp/lpfc.conf.pkgrm /kernel/drv/lpfc.conf
```

12. If you have networking enabled, copy all networking files backed up in step 6 to /etc. Rename the lpfn file to lpfc.verify that the correct names are present in the new files.

Example

```
cp /usr/tmp/hostname.lpfn0.lpfc /etc/hostname.lpfc0  
cp /usr/tmp/hostname.lpfn1.lpfc /etc/hostname.lpfc1  
cp /usr/tmp/hostname.lpfn2.lpfc /etc/hostname.lpfc2  
cp /usr/tmp/hostname.lpfn3.lpfc /etc/hostname.lpfc3
```

13. Delete the /etc/hostname.lpfnX files.
14. Reboot the system by typing:

```
sync; reboot
```

Load Manpages

Manual pages are installed in section 7d of the online man pages. Normally the **catman** command can be run to create preformatted versions of the on-line manual from the nroff (1) input files. Each manual page is examined, and those whose preformatted versions are missing or out of date are re-created. If any changes are made, catman re-creates the windex database. Depending on your system, this operation can take anywhere from 1 to 10 minutes. If you press n, the catman will be skipped, which will allow the installation to complete quickly. If the catman command is skipped, it can be run later.

Remove an Existing Driver

The Emulex driver can be removed by using `pkgrm`. All the `lpfc` files will be removed, including the file containing the driver itself. The next time the system is rebooted, the driver will not be loaded. All system resources, such as disk space and memory, will be reclaimed.

Caution As a matter of course, you should always make a full system backup prior to beginning an installation or update procedure.

Two files are saved when a `pkgrm` is performed:

- The `/kernel/drv/lpfc.conf` file is moved to `/usr/tmp/lpfc.conf.pkgrm`. This file is used to restore any customized parameter settings after updating a new device driver.
- The `/kernel/drv/sd.conf` file is moved to `/usr/tmp/sd.conf.pkgrm`. This file is used to restore any customized disk settings after updating a new device driver.

To remove the `lpfc` device driver:

1. Login as root, or `su` to root.
2. At the shell prompt, type:

```
pkgrm lpfc
```

3. Perform a reconfiguration reboot into single user mode by typing:

```
reboot -- -rs
```

4. Clean up invalid links by typing:

```
devfsadm -C
```

- In some instances `devfsadm -C` will not remove all invalid links, such as `/dev/lpfc`. In this case the file should be deleted manually. Type:

```
#rm/dev/lpfc
```

- If the devfsadm -C command returns an error, type:

```
disks -C
```