

# TSync Linux Driver Installation

## 1. Driver Installation

Check OS-Specific information for data on prerequisites.

Some commands may require root privileges.

The TSync driver contains three packages included in your driver installation file:

1. `tsync-driver`: a kernel module for Tsync
2. `libtsync`: a library to access the Tsync Card
3. `tsync-utils`: a group of programs to use the Tsync Card

To install all packages:

1. Load your installation file: `tsync-x.x.x.tar.xz` to your chosen location
2. Run: `tar xJf <tsync-x.x.x.tar.xz>`
3. run: `make all`
4. run: `sudo make install`
5. run: `sudo modprobe tsyncpci` (to load `tsync` modules into kernel)
6. run: `lsmod |grep tsyncpci` to confirm module loaded

## OS-Specific Information

Compilation of the Linux Driver requires Linux kernel headers to be installed. To install headers, enter the command for your distribution.

### Debian and Ubuntu:

```
apt install linux-headers-$(uname -r)
```

### Cent OS, Red Hat:

```
yum install kernel-devel-$(uname -r)
```

### Fedora:

```
dnf install kernel-devel-$(uname -r)
```

## 2. NTP and PTP Setup

Follow the setup instructions for the TSync PTP clock with the NTP daemon for either Chrony or ntpd.

### Chrony

1. Edit the config file. Depending on your distribution, it will be located at `/etc/chrony.conf` or `/etc/chrony/chrony.conf`. Add the following line:  
`refclock PHC /dev/ptp-tsync poll 0 trust`
2. Restart the daemon:  
`systemctl restart chrony` or  
`systemctl restart chronyd` (`chrony` or `chronyd` is distribution-dependent).
3. Check the source availability:  
`chronyc sources`
4. Check the functionality:  
`watch chronyc tracking` (use CTRL + C to stop)  
and confirm both the reference PHC0 and the UTC date

### ntpd

Note: You may need the additional `linuxptp` package.

1. Edit the file `/etc/ntp.conf` and add the SHM clock with the following lines:  
`server 127.127.28.0 minpoll 4 maxpoll 4 prefer`  
`fudge 127.127.28.0 time1 0.420 refid GPS`
2. Create the SHM clock:  
`phc2sys -E ntpshm -s /dev/ptp-tsync -O 0 -M 0 &`
3. Restart the daemon:  
`systemctl restart ntp`
4. Check the SHM:  
`ntpq -p`

## 3. Troubleshooting

Certain system installations may receive the following error message after installation:

*error while loading shared libraries: libtsync.so: cannot open shared object file: No such file or directory*

To resolve:

1. Verify the presence of the file in the system:  
`ls /usr/lib/libtsync*` for 32-bit units and  
`ls /usr/lib64/libtsync*` for 64-bit units  
(the command should return `libtsync.so` in either case).
2. If the file does not exist, execute  
`sudo make libtsync-install`

3. If the file exists, reload the runtime library cache:

```
ldconfig
```

For technical assistance in using the TSync card, contact your Orolia sales representative or the [“Support” page of the Orolia website](#) (where you can submit a support request and find additional technical information).

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