



Software Release Notes: Linux Driver for TSync™ Family



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Driver Version 4.0.1: Release Notes

Orolia has released a new Linux driver for the TSync family. Customers can download this software update at no charge from the Orolia website (see [How to download and install the new SW.](#))

For your convenience, older releases are also described in this document.

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Version 4.0.1

Release features

- Added support for Chrony in addition to the existing NTP support. These changes include changes to installation libraries; see [How to download and install the new SW](#) for more information, including Linux distribution-specific commands.

Version 3.3.1

Enhancements and fixes

- Added support for Linux kernels. Tested up to 4.10
- Added `waitForTo` API to support a timeout parameter when waiting for an event. (-1 for infinite wait, or numeric value for timeout in milliseconds)
- Fixed rollover/backstep bug. This would occur during the rollover to the next minute.
 - 47.999992
 - 47.999995
 - 48.999999
 - 48.000003 (Rollback)
 - 48.000006

Version 3.20

Release features

- Added support for u-blox GNSS receiver.

Enhancements and fixes

- Added support for Linux kernels. Tested up to 4.2
- Added support for Trimble Resolution SMT-GG upgrade
- Updated NTP install instructions

Version 3.12

Release features

- Added support for the TSync-PMC & TSync-PCI-104.

Enhancements and fixes

- Added Driver Version information in Linux driver so when using the command "`modinfo tsyncpci`", the driver version will now be displayed.
- Removed old "TPRO" `.c` and `.h` files that are not used by the driver.

Version 3.10

Release features

- Added support for the TSync-cPCI.

Enhancements and fixes

- Added support for Linux kernels. Tested up to 3.12.x
- Added the following API commands:
 - TSYNC_CS_getNextSec
 - TSYNC_GO_getSWOtpPW
 - TSYNC_GO_setSWOtpPW
 - TSYNC_GR_getConstSel
 - TSYNC_GR_setConstSel
 - TSYNC_HW_getIntTs
 - TSYNC_XO_getCalVal

Version 2.51

Enhancements and fixes

- Added the following APIs:
 - `HW_GetTemperature` (for TSync cPCI boards only)

Version 2.50

Enhancements and fixes

- Added support for kernels up to 2.6.39 and 3.0.0.
- Fixed bug in Linux makefile. Wrong "*.rules" file was being installed on versions of Redhat 5 & 6.

Version 2.41

Enhancements and fixes

The following improvements were applied to existing features and functions:

- Added support for kernels down to 2.6.9. Tested on RHEL 4.
- Removed the following API's:
 - ETP_GetFormat
 - ETP_GetMode
 - ETP_GetOffset
 - ETP_SetFormat
 - ETP_SetMode
 - ETP_SetOffset
 - FR_GetOffset
 - FR_SetOffset
- Added the following new API's:
 - ETP_GetCfg
 - ETP_SetCfg
 - GO_GetSWTmAlgnEn
 - GO_SetSWTmAlgnEn
 - GR_GetRefId
 - IR_GetRefId
 - PTR_GetRefId

Version 2.30

Enhancements and fixes

- Updated/tested to support kernels from 2.6.15 to 2.6.35.
- Added shared lib support (libtsync.so).
- Added new API's "HW_ClrIntCount" & "HW_GetIntCount".
- Updated NTP patch to support NTP revision ntp-4.2.6p2.
- Fixed NTP reference bug.
- Fixed many compile warnings.

How to download and install the new SW

Downloading the Software Update

The latest TSync Linux driver update can be downloaded from the Orolia website under:
<https://www.orolia.com/documents/tsync-pcie-ntp-linux-driver>

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)
```

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`

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`

How to contact Technical Support

Visit Orolia's TSync Support Page for more information, or to request product support:

<https://www.orolia.com/support/timing/tsync>

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