



# Trimble Palisade NTP Synchronization Driver for the Cisco 7200 Series

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This feature module describes the addition of a software driver for the Trimble Palisade NTP Synchronization Kit on Cisco 7200 series platforms. It includes a feature overview and a description of the command necessary to configure the driver for Trimble Palisade NTP Synchronization.



## Note

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The addition of a driver for the Trimble Palisade product in no way implies a recommendation by Cisco for the Trimble product. A variety of other external time-source products can be used with Cisco routing devices, and Cisco makes no recommendations or guarantees regarding any of these products. The language contained in this document shall not constitute an endorsement or warranty of any kind pertaining to a Trimble product or the interoperability between a Cisco and Trimble product.

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## Feature Overview

Cisco IOS Release 12.1(1) and Cisco IOS Release 12.1(1)T introduce a driver which supports the use of the Trimble Palisade NTP Synchronization Kit with the Cisco 7200 platform. The Trimble Palisade Smart Antenna can provide a signal which can be used for NTP time-synchronization of a network.

The Trimble Palisade NTP Synchronization Kit can be connected to the auxiliary port of a Cisco 7200 router. The refclock (reference clock) driver provided by this feature provides the ability to receive an RTS timestamp signal on the auxiliary port of the router.

## Related Documents

For NTP configuration information, see the “Performing Basic System Management” chapter of the Release 12.1 *Cisco IOS Configuration Fundamentals Configuration Guide*, available on CCO.

For NTP command descriptions, see the “Basic System Management Commands” chapter of the Release 12.1 *Cisco IOS Configuration Fundamentals Command Reference*, available on CCO.

For configuration and setup information for the Trimble product, see the *Palisade NTP Synchronization Kit User Guide*, available from Trimble Navigation.

## Supported Platforms

This feature is supported on the following platform:

- Cisco 7200

## Supported Standards, MIBs, and RFCs

There are no standards, MIBs, or RFCs associated with this feature.

## Prerequisites

For installation and setup information for the Trimble Palisade NTP Synchronization Kit, see the User Guide included with that product. Connect the interface cable to the auxiliary port of the Cisco 7200 router.

## Configuration Tasks

See the following sections for configuration tasks for the Trimble Palisade NTP Synchronization Support on the Cisco 7200 feature. Each task in the list indicates if the task is optional or required.

- Enabling the Trimble Palisade Reference Clock Driver
- Verifying the Status of the Receiver

## Enabling the Trimble Palisade Reference Clock Driver

To use the Trimble Palisade NTP Synchronization Kit with your Cisco 7200, you must enable the driver for the product. Use the following commands, beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# <b>line aux 0</b>	Enters line configuration mode for the auxiliary port zero.
Step 2	Router(config-line)# <b>ntp refclock trimble pps none</b>	Enables the driver which allows the Trimble Palisade NTP Synchronization Kit to be used as the NTP reference clock source.

See the documents listed in the “Related Documents” section for further details on configuring your router as an authoritative time source for your network.

## Verifying the Status of the Receiver

Use the following commands in privileged EXEC mode to verify the status of NTP components:

Command	Purpose
Router# <b>show ntp associations</b>	Displays the status of associations, including the status of the GPS reference clock.
Router# <b>show ntp status</b>	Show the status of NTP.
Router# <b>debug ntp refclock</b>	Allows advanced monitoring of reference clock activities for the purposes of debugging.

## Configuration Examples

This section provides the following configuration example:

- Enabling and Verifying the Trimble Palisade Reference Clock Driver Example

### Enabling and Verifying the Trimble Palisade Reference Clock Driver Example

The following example shows the enabling of the driver for the Trimble device, and sample output of the associated show command.

```
Router(config)# line aux 0
Router(config-line)# ntp refclock trimble pps none
Router(config-line)# exit
Router(config)# exit
Router# show ntp associations

      address          ref clock      st  when  poll reach  delay  offset  disp
*~127.127.8.1        .GPS.          0   5    32  377    0.0   -0.01   0.0
* master (syncd), # master (unsyncd), + selected, - candidate, ~ configured
```

# Command Reference

This section documents the modified **ntp refclock** command and the previously undocumented **debug ntp** command. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications.

# ntp refclock

To configure an external clock source for use with Network Time Protocol (NTP) services, use the **ntp refclock** command in line configuration mode. To disable support of the external time source, use the **no** form of this command.

```
ntp refclock {trimble | telecom-solutions} pps {cts | ri | none} [inverted] [pps-offset number]
[stratum number] [timestamp-offset number]
```

```
no ntp refclock
```

Syntax Description	
<b>trimble</b>	Enables the reference clock driver for the Trimble Palisade NTP Synchronization Kit (Cisco 7200 only).
<b>telecom-solutions</b>	Enables the reference clock driver for a Telecom Solutions GPS device.
<b>pps</b>	Pulse per second signal line. Indicate PPS pulse reference clock support. Choices are <b>cts</b> , <b>ri</b> , or <b>none</b> .
<b>cts</b>	Pulse per second on CTS.
<b>ri</b>	Pulse per second on RI.
<b>none</b>	No pulse per second signal available.
<b>inverted</b>	(Optional) PPS signal is inverted
<b>pps-offset number</b>	(Optional) Offset of PPS pulse. The number is the offset in milliseconds.
<b>stratum number</b>	(Optional) Number from 0 to 14. Indicates the NTP stratum number that the system will claim.
<b>timestamp-offset number</b>	(Optional) Offset of timestamp. The number is the offset in milliseconds.

**Defaults** This command is disabled by default.

**Command Modes** Line configuration

Command History	Release	Modification
	12.1	The <b>trimble</b> keyword was added.

**Usage Guidelines** To configure a PPS signal as the source for NTP synchronization, use the following form of the **ntp refclock** command:

```
ntp refclock pps {cts | ri} [inverted] [pps-offset number] [stratum number] [timestamp-offset number]
```

To configure a Trimble Palisade NTP Synchronization Kit as the GPS clock source connected to the auxiliary port of a Cisco 7200 router, use the following form of the **ntp refclock** command:

```
ntp refclock trimble pps none
```

To configure a Telecom-Solutions product as the GPS clock source, use the **ntp refclock telecom-solutions** form of the command.

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**Examples**

The following example show configuration of a Trimble Palisade GPS time source on a Cisco 7200 router:

```
ntp master
ntp update-calendar
line aux 0
  ntp refclock trimble pps none
```

The following example shows configuration of a Telecom-Solutions GPS time source on a Cisco Catalyst platform:

```
ntp master
ntp update-calendar
line aux 0
  ntp refclock telecom-solutions pps cts stratum 1
```

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**Related Commands**

Command	Description
<b>show ntp associations</b>	Shows the status of NTP associations configured for your system.

# Debug Commands

This section documents the **debug** command related to the Trimble Palisade NTP Synchronization Driver for the Cisco 7200 feature.

# debug ntp

To display debug messages for Network Time Protocol (NTP) features, use the **debug ntp** command. To stop the output of ntp debugging messages, use the **no** form of this command.

```
debug ntp { adjust | authentication | events | loopfilter | packets | params | refclock | select | sync
  | validity }
```

```
no debug ntp { adjust | authentication | events | loopfilter | packets | params | refclock | select |
  sync | validity }
```

## Syntax Description

<b>adjust</b>	Shows debugging information on NTP clock adjustments.
<b>authentication</b>	Shows debugging information on NTP authentication.
<b>events</b>	Shows debugging information on NTP events.
<b>loopfilter</b>	Shows debugging information on NTP loop filters.
<b>packets</b>	Shows debugging information on NTP packets.
<b>params</b>	Shows debugging information on NTP clock parameters.
<b>refclock</b>	Shows debugging information on NTP reference clocks.
<b>select</b>	Shows debugging information on NTP clock selection.
<b>sync</b>	Shows debugging information on NTP clock synchronization.
<b>validity</b>	Shows debugging information on NTP peer clock validity.

## Defaults

Debug commands are disabled by default.

## Command History

Release	Modification
12.0 T	This command was introduced in a release prior to 12.1.

# Glossary

**NTP**—Network Time Protocol. Protocol used for the synchronization of clocks on devices in a network. Defined in RFC-1305.

**RTS**—Request to Send. EIA/TIA-232 control signal that requests a data transmission on a communications line.

