



# NTPv4 MIB

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The NTPv4 MIB feature introduces the Network Time Protocol Version 4 (NTPv4) MIB in Cisco software. It defines data objects that represent the current status of NTP entities. These data objects are accessed using the Simple Network Management Protocol (SNMP) and are used to monitor and manage local NTP entities.

This module describes the NTPv4 MIB.

- [Finding Feature Information, page 1](#)
- [Information About the NTPv4 MIB, page 1](#)
- [How to Verify the NTPv4 MIB, page 2](#)
- [Configuration Examples for Verifying NTPv4 MIB, page 3](#)
- [Additional References, page 4](#)
- [Feature Information for the NTPv4 MIB, page 5](#)

## Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Information About the NTPv4 MIB

- [NTPv4 MIB, page 2](#)



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## NTPv4 MIB

The Network Time Protocol Version 4 (NTPv4) MIB feature, which is based on RFC 5907, defines data objects that represent the current status of NTP entities. These data objects are accessed using the Simple Network Management Protocol (SNMP) and are used to monitor and manage local NTP entities.

The data objects contain the following information about the NTP entities:

- Connectivity to the upstream NTP servers and to hardware reference clocks.
- Product
- Vendor
- Version

By using the information contained in the data objects, you can detect failures before the overall time synchronization of the network is impacted.

The following object groups that are addressed in RFC 5907 are supported in the NTPv4 MIB:

- ntpAssociation
- ntpEntInfo
- ntpEntStatus

The following object groups that are addressed in RFC 5907 are not supported in the NTPv4 MIB:

- ntpEntControl
- ntpEntNotifObjects

## How to Verify the NTPv4 MIB

No special configuration is needed for this feature. This feature is enabled by default.

- [Verifying NTPv4 MIB, page 2](#)

## Verifying NTPv4 MIB

To verify information about the NTPv4 MIB, perform any or all of the following optional commands in any order.

### SUMMARY STEPS

1. **show ntp associations [detail]**
2. **show ntp status**
3. **show ntp info**
4. **show ntp packets**

### DETAILED STEPS

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**Step 1**    **show ntp associations [detail]**

**Example:**

```
Device> show ntp associations detail
```

(Optional) Displays detailed status of NTP associations.

**Step 2** `show ntp status`**Example:**

```
Device> show ntp status
```

(Optional) Displays the status of NTP.

**Step 3** `show ntp info`**Example:**

```
Device> show ntp info
```

(Optional) Displays information about NTP entities.

**Step 4** `show ntp packets`**Example:**

```
Device> show ntp packets
```

(Optional) Displays information about NTP packets.

## Configuration Examples for Verifying NTPv4 MIB

- [Example: Verifying the NTP4 MIB, page 3](#)

### Example: Verifying the NTP4 MIB

#### Sample Output for the show ntp associations Command

```
Device> show ntp associations detail
```

```
172.31.32.2 configured, ipv4, our_master, sane, valid, stratum 1
ref ID .LOCL., time D2352248.2337CCB8 (06:12:24.137 IST Tue Oct 4 2011)
our mode active, peer mode passive, our poll intvl 16, peer poll intvl 16
root delay 0.00 msec, root disp 0.00, reach 377, sync dist 16.05
delay 0.00 msec, offset 0.0000 msec, dispersion 8.01, jitter 0.5 msec
precision 2**7, version 4
assoc ID 1, assoc name 192.0.2.1,
assoc in packets 60, assoc out packets 60, assoc error packets 0
org time D2352248.2337CCB8 (06:12:24.137 IST Tue Oct 4 2011)
rec time 00000000.00000000 (00:00:00.000 IST Mon Jan 1 1900)
xmt time D2352248.2337CCB8 (06:12:24.137 IST Tue Oct 4 2011)
filtdelay =    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
filtoffset =    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
filtererror =    7.81    8.05    8.29    8.53    8.77    9.01    9.25    9.49
minpoll = 4, maxpoll = 4
```

```
192.168.13.33 configured, ipv6, insane, invalid, unsynced, stratum 16
ref ID .INIT., time 00000000.00000000 (00:00:00.000 IST Mon Jan 1 1900)
```

```

our mode client, peer mode unspec, our poll intvl 1024, peer poll intvl 1024
root delay 0.00 msec, root disp 0.00, reach 0, sync dist 15951.96
delay 0.00 msec, offset 0.0000 msec, dispersion 15937.50, jitter 1000.45 msec
precision 2**7, version 4
assoc ID 2, assoc name myserver
assoc in packets 0, assoc out packets 0, assoc error packets 0
org time D2351E93.2235F124 (05:56:35.133 IST Tue Oct 4 2011)
rec time 00000000.00000000 (00:00:00.000 IST Mon Jan 1 1900)
xmt time 00000000.00000000 (00:00:00.000 IST Mon Jan 1 1900)
filtdelay =      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
filtoffset =      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
filterror = 16000.0 16000.0 16000.0 16000.0 16000.0 16000.0 16000.0 16000.0
minpoll = 6, maxpoll = 10

```

### Sample Output for the show ntp status Command

```
Device> show ntp status
```

```

Clock is synchronized, stratum 2, reference assoc id 1, reference is 192.0.2.1
nominal freq is 250.0000 Hz, actual freq is 250.0000 Hz, precision is 2**7
reference time is D2352258.243DDF14 (06:12:40.141 IST Tue Oct 4 2011)
clock offset is 0.0000 msec, root delay is 0.00 msec, time resolution 1000 (1 msec),
root dispersion is 15.91 msec, peer dispersion is 8.01 msec
loopfilter state is 'CTRL' (Normal Controlled Loop), drift is 0.000000000 s/s
system poll interval is 16, last update was 6 sec ago.
system uptime (00:00:00.000) UTC,
system time is D2352258.243DDF14 (06:12:40.141 IST Tue Oct 4 2011)
leap time is D2352258.243DDF14 (24:00:00.000 IST Tue Dec 31 2011)
leap direction is 1

```

### Sample Output for the show ntp info Command

```
Device> show ntp info
```

```

Ntp Software Name: Example
Ntp Software Version: ntp-1.1
Ntp Software Vendor: Example
Ntp System Type: Example_System

```

### Sample Output for the show ntp packets Command

```
Device> show ntp packets
```

```

Ntp In packets: 100
Ntp Out packets: 110
Ntp bad version packets: 4
Ntp protocol error packets: 0

```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Master Command List, All Releases</a>
Basic System Management commands	<a href="#">Basic System Management Command Reference</a>
Basic System Management configuration tasks	“Setting Time and Calendar Services” module in the <a href="#">Basic System Management Configuration Guide</a>

**Standards and RFCs**

Standard/RFC	Title
RFC 5907	<i>Definitions of Managed Objects for Network Time Protocol Version 4 (NTPv4)</i>

**MIBs**

MIB	MIBs Link
NTPv4-MIB	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL:  <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**Technical Assistance**

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for the NTPv4 MIB

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

**Table 1**      **Feature Information for the NTPv4 MIB**

Feature Name	Releases	Feature Information
NTPv4 MIB	15.1(1)SY 15.2(4)M 15.2(4)S	<p>The NTPv4 MIB feature introduces the Network Time Protocol Version 4 (NTPv4) MIB in Cisco software. It defines data objects that represent the current status of NTP entities. These data objects are accessed using the Simple Network Management Protocol (SNMP) and are used to monitor and manage local NTP entities.</p> <p>The following commands were introduced or modified: <b>show ntp associations</b>, <b>show ntp info</b>, <b>show ntp packets</b>, and <b>show ntp status</b>.</p>

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