



Configuring NTP

The Network Time Protocol (NTP) synchronizes the time of day among a set of distributed time servers and clients so that you can correlate events when you receive system logs and other time-specific events from multiple network devices. NTP uses the User Datagram Protocol (UDP) as its transport protocol. All NTP communications use Coordinated Universal Time (UTC).

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Prerequisites for Configuring NTP

Restrictions for Configuring NTP

- Maximum number of servers supported is 5.

Information About NTP

NTP Timestamping Synchronization

Y.1731 Delay Measurement uses the timestamps in the packets to calculate the delay between two end-points/systems. The Cisco ASR 900 router supports PHY assisted timestamping for Y.1731 one-way Delay Measurement (1 DM) and two-way Delay Measurement (2 DM) OAM packets. 1 DM requires both MEP end-points clock to be synchronized. When PTP is used, DM packets is timestamped with PTP time in the PHY's.

NTP is a client-server protocol running over IP/UDP and used to synchronize the network devices clock to a common clock source/reference clock. NTP client process clock information from NTP server and updates the system clock periodically. The system clock can be used to update timestamp information in the delay measurement packets.

NTP timestamping feature provides an alternative option to do hardware assisted timestamping with NTP time for Y.1731 1 DM packets., To perform hardware assisted timestamping for Y.1731 1 DM packets, the system clock (TOD) must be synchronized to the hardware clock used in the PHY's. To configure NTP on the router, use the platform time-source ntp command. For information, see [Cisco IOS Interface and Hardware Component Command Reference](#).

How to Configure NTP

Provisioning the UCS Controller to Configure NTP

DETAILED STEPS

	Command or Action	Purpose
Step 1	ConfigureNID Example: UCS# Configure NID 1	Opens a new session for NID 1.
Step 2	NtpPortType Example: UCS# NtpPortType	Enters NTP provisioning mode.
Step 3	NtpPortType {default deleteNtpConfig exit getNtpConfig no setNtpConfig} Example: UCS(NtpPortType)# ? NtpPortType sub-mode commands: default Set a command to its defaults deleteNtpConfig delete NTP config request exit Exit from NtpPortType sub configuration mode getNtpConfig get ntp properties request no Negate a command or set its defaults setNtpConfig Set Ntp Server Details	Displays the supported configurations for NTP.
Step 4	exit Example: UCS(NtpPortType)# exit	Exits the NtpPortType mode.

Configuration Example

The following example shows the supported NTP configuration:

```
UCS(NtpPortType)# ?
NtpPortType sub-mode commands:
  default          Set a command to its defaults
  deleteNtpConfig delete NTP config request
  exit             Exit from NtpPortType sub configuration mode
  getNtpConfig     get ntp properties request
  no               Negate a command or set its defaults
  setNtpConfig     Set Ntp Server Details
```

Configuring NTP on the UCS Controller

Before You Begin

- Ensure that the NID is reachable for the provided NTP server.
- Set the time zone for synchronization with the NTP server. See [Configuring the System Clock](#).
- Perform the steps to provision NTP on the UCS controller.

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>setNtpConfig {commit flush ntpConfig review}</p> <p>Example:</p> <pre>UCS(NtpPortType)# setNtpConfig ? commit commit deleteNtpConfig flush flush all deleteNtpConfig commands from queue ntpConfig Set Ntp Server Details review review deleteNtpConfig commands</pre>	<p>Sets NTP configuration</p> <ul style="list-style-type: none"> • commit—Sends the NTP configuration to NID. • flush—Flushes all NTP configuration from the queue. • ntpConfig—Sets the NTP server configuration on the UCS controller. • review—Displays the configuration on the UCS controller.
Step 2	<p>setNtpConfig ntpConfig {hostinfo {hostname <i>host_name</i>} ipv4address <i>IPv4_address</i> ipv6address <i>IPv6_address</i>} ntpmode {enable number <i>server_number</i>}</p> <p>Example:</p> <pre>UCS(NtpPortType)# setNtpConfig hostinfo hostname host1 UCS(NtpPortType)# setNtpConfig ipv4address 192.34.7.8 UCS(NtpPortType)# setNtpConfig ipv6address 2001:DB8:0:ABCD::1 UCS(NtpPortType)# setNtpConfig ntpmode enable UCS(NtpPortType)# setNtpConfig ntpmode number 5</pre>	<p>Configures NTP.</p> <ul style="list-style-type: none"> • hostinfo—Sets the host information such as host name, IPv4 address and IPv6 address on the UCS controller. • ntpmode—Enables or disables the NTP mode on the UCS controller. • number <i>server_number</i>—Sets the NTP server details. The valid range is from 1 to 5.

	Command or Action	Purpose
Step 3	setNtpconfig review Example: UCS (NtpPortType) # setNtpconfig review Commands in queue: setNtpConfig ntpConfig hostInfo hostName host1 setNtpConfig ntpConfig hostInfo ipv4Address 192.34.7.8 setNtpConfig ntpConfig ntpMode enable setNtpConfig ntpConfig number 5 setNtpConfig ntpConfig ntpMode enable	Displays the NTP configuration on the UCS controller.
Step 4	setNtpconfigcommit Example: UCS (NtpPortType) # setNtpconfig commit	Sends the NTP configuration to the NID.
Step 5	exit Example: UCS (NtpPortType) # exit	Exits the NtpPortType mode.

Configuration Example

The example shows how to configure NTP on the UCS controller:

```

UCS (NtpPortType) # setNtpConfig hostinfo hostname host1
UCS (NtpPortType) # setNtpConfig ipv4address 192.34.7.8
UCS (NtpPortType) # setNtpConfig ipv6address 2001:DB8:0:ABCD::1
UCS (NtpPortType) # setNtpConfig ntpmode enable
UCS (NtpPortType) # setNtpConfig ntpmode number 5
UCS (NtpPortType) # setNtpconfig review

Commands in queue:
    setNtpConfig ntpConfig hostInfo hostName host1
    setNtpConfig ntpConfig hostInfo ipv4Address 192.34.7.8
    setNtpConfig ntpConfig ntpMode enable
    setNtpConfig ntpConfig number 5
    setNtpConfig ntpConfig ntpMode enable

UCS (NtpPortType) # setNtpconfig commit
UCS (NtpPortType) # exit

```

Configuring NTP with Default Configuration

You can set the default NTP configuration on the UCS controller.

Before You Begin

- Perform the steps to provision NTP on the UCS controller.

DETAILED STEPS

	Command or Action	Purpose
Step 1	default { getNtpConfig setNtpConfig deleteNtpConfig exit } Example: UCS (NtpPortType) # default ? <pre>deleteNtpConfig delete NTP config request exit Exit from NtpPortType sub configuration mode getNtpConfig get ntp properties request setNtpConfig Set Ntp Server Details</pre>	Sets the default NTP configuration. <ul style="list-style-type: none"> • getNtpConfig—View the configuration on the UCS controller. • setNtpConfig—Sets the configuration on the UCS controller. • deleteNtpConfig—Deletes the configuration from the UCS controller. • exit—Exits from NtpPortType configuration mode.
Step 2	exit Example: UCS (NtpPortType) # exit	Exits the NtpPortType mode.

Viewing the NTP Configuration

Before You Begin

- Perform the steps to provision NTP on the UCS controller.

DETAILED STEPS

	Command or Action	Purpose
Step 1	getNtpConfig { commit flush ntpStatusRequest ntp_status review } Example: UCS (NtpPortType) # getNtpConfig ntpStatusRequest 1 UCS (NtpPortType) # getNtpConfig review UCS (NtpPortType) # getNtpConfig commit	<ul style="list-style-type: none"> • ntpStatusRequest—Request NTP configuration properties. • commit—Sends the NTP configuration to NID. • flush—Flushes all NTP configuration from the queue. • review—Displays the configuration.
Step 2	exit Example: UCS (NtpPortType) # exit	Exits the NtpPortType mode.

Configuration Example

The example shows how to view the configuration:

```
UCS (NtpPortType) # getNtpConfig ntpStatusRequest 1
UCS (NtpPortType) # getNtpConfig review
```

```
Commands in queue:
  getNtpConfig ntpStatusRequest 1
  getNtpConfig ntpStatusRequest 2
  getNtpConfig ntpStatusRequest 3
```

```
UCS (NtpPortType) # getNtpConfig commit
UCS (NtpPortType) # end
```

Deleting the NTP Configuration

Before You Begin

- Perform the steps to provision NTP on the UCS controller.

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>deleteNtpConfig {commit flush ntpDeleteConfig review}</p> <p>Example:</p> <pre>UCS (NtpPortType) # deleteNtpConfig ? commit commit deleteNtpConfig flush flush all deleteNtpConfig commands from queue ntpDeleteConfig delete NTP config request review review deleteNtpConfig commands</pre>	<p>Removes the NTP configuration.</p> <ul style="list-style-type: none"> • commit—Sends the NTP configuration to NID. • flush—Flushes all NTP configuration from the queue. • ntpDeleteConfig—Deletes the NTP configuration request on the UCS controller. • review—Displays the configuration on the UCS controller.
Step 2	<p>ntpDeleteConfig {ntpEnable ntpServerNoserver_num}</p> <p>Example:</p> <pre>UCS (NtpPortType) # deleteNtpConfig ntpDeleteConfig ntpEnable UCS (NtpPortType) # deleteNtpConfig ntpDeleteConfig ntpServer 1</pre>	<p>Removes NTP configuration.</p> <ul style="list-style-type: none"> • ntpEnable—Disables the NTP configuration. • ntpServerNo—Disables the NTP server. • server_num—Specifies the NTP server. The valid range is from 1 to 5.
Step 3	<p>ntpDeleteConfig review</p> <p>Example:</p> <pre>UCS (NtpPortType) # deleteNtpConfig review</pre>	<p>Displays the NTP configuration.</p>
Step 4	<p>ntpDeleteConfig commit</p> <p>Example:</p> <pre>UCS (NtpPortType) # deleteNtpConfig commit</pre>	<p>Sends the NTP configuration to the NID.</p>

	Command or Action	Purpose
Step 5	exit Example: UCS (NtpPortType) # exit	Exits the NtpPortType mode.

Configuration Example

The following example shows how to delete the NTP configuration:

```
UCS (NtpPortType) # deleteNtpConfig ntpDeleteConfig ntpEnable
UCS (NtpPortType) # deleteNtpConfig ntpDeleteConfig ntpServer 1
UCS (NtpPortType) # deleteNtpConfig review
Commands in queue:
    deleteNtpConfig ntpDeleteConfig ntpEnable
    deleteNtpConfig ntpDeleteConfig ntpServerNo 2
UCS (NtpPortType) # deleteNtpConfig commit
DeleteNtpConfig Commit Success!!!
UCS (NtpPortType) # deleteNtpConfig exit
```

Verifying NTP

Use these commands to verify the NTP status on the UCS controller.

- **show ntp status**

This command displays the NTP status on the NID. The following is a sample output from the command:

```
UCS# show ntp status

NTP Mode : disabled
Idx  Server IP host address (a.b.c.d) or a host name string
---  -----
  1
  2
  3
  4
  5
```

