



Clock Commands on Cisco IOS XR Software

This chapter describes the commands used to set and display the internal clock settings in the Cisco IOS XR software.

For more information about manually setting the router clock, see the *Cisco IOS XR Getting Started Guide*.

For more information about configuring the router to synchronize to Network Time Protocol (NTP), see the *Implementing NTP on Cisco IOS XR Software* module.

clock read-calendar

To manually copy the hardware clock (calendar) settings into the software clock, use the **clock read-calendar** in EXEC mode.

clock read-calendar

Syntax Description This command has no arguments or keywords.

Defaults Read calendar is disabled.

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The “calendar” clock is a hardware system clock that runs continuously, even if the router is powered off or rebooted. The hardware system clock is separate from the software clock settings, which are erased when the router is power cycled or rebooted.

Use the **clock read-calendar** command to manually copy the hardware clock setting into the software clock.

Task ID

Task ID	Operations
host-services	execute

Examples

In the following example, the hardware clock settings are copied to the software clock with the **clock read-calendar** command. The **show clock** command is then entered to display the new software clock settings.

```
RP/0/RP0/CPU0:router# clock read-calendar
RP/0/RP0/CPU0:router# show clock

14:31:57.089 PST Tue Feb 10 2005
```

Related Commands	Command	Description
	clock set	Sets the software clock settings.
	clock update-calendar	Sets the calendar from the software clock.
	show clock	Displays the clock settings.
	update-calendar	Periodically updates the calendar from NTP.

clock set

To change the software clock settings, use the **clock set** command in EXEC mode.

```
clock set {hh:mm:ss day month year | hh:mm:ss month day year}
```

Syntax Description		
	<i>hh:mm:ss</i>	Current time in hours (24-hour format), minutes, and seconds. Colons are required between values.
	<i>day</i>	Current day (by date) in the month.
	<i>month</i>	Current month (by name).
	<i>year</i>	Current year (no abbreviation). Enter a valid four-digit year.

Defaults Clock is not set.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Generally, if the system is synchronized by a valid outside timing mechanism, such as a Network Time Protocol (NTP) clock source, or if you have a networking device with calendar capability, you need not set the software clock. Use the **clock set** command if no other time sources are available. The time specified in this command is relative to the configured time zone.

Task ID	Task ID	Operations
	host-services	execute

Examples

Setting the Software Clock

This example shows how to set the software clock using the **clock set** *hh:mm:ss day month year* form of the command:

```
RP/0/RP0/CPU0:router# clock set 14:12:00 10 feb 2005
```

```
14:12:00.114 JST Fri Feb 10 2005
```

This example shows how to set the software clock using the **clock set** *hh:mm:ss month day year* form of the command:

```
RP/0/RP0/CPU0:router# clock set 14:38:00 feb 10 2005

14:38:00.069 PST Tue Feb 10 2005
```

Displaying the Clock Settings

This example shows how to display the settings of the software clock:

```
RP/0/RP0/CPU0:router# show clock

14:38:11.292 PST Tue Feb 10 2005
```

Displaying the Available Months

This example shows how to display the available months using the online help (?) system:

```
RP/0/RP0/CPU0:router# clock set 06:10:00 12 ?

  january      Month of the Year
  february
  march
  april
  may
  june
  july
  august
  september
  october
  november
  december
```

Related Commands

Command	Description
clock summer-time	Configures the system to switch automatically to summer time (daylight saving time).
clock timezone	Sets the time zone for display.
show clock	Displays the clock settings.

clock summer-time

To configure the system to switch automatically to summer time (daylight saving time), use the **clock summer-time** command in global configuration mode. To remove the **clock summer-time** setting, use the **no** form of this command.

```
clock summer-time zone { recurring week day month hh:mm week day month hh:mm [offset] | date
    { date month year hh:mm date month year hh:mm | month date year hh:mm month date year
    hh:mm } [offset] }
```

```
no clock summer-time
```

Syntax Description

<i>zone</i>	Name of the time zone (for example, PDT) to be displayed when summer time is in effect. Table 1 on page 82 lists common time zone acronyms used for the zone argument.
recurring	Indicates that summer time should start and end on the corresponding specified days every year.
<i>week</i>	Week of the month (values are 1 to 5 or last).
<i>day</i>	Day of the week.
<i>month</i>	Month.
<i>hh:mm</i>	Time (24-hour format) in hours and minutes.
<i>offset</i>	(Optional) Number of minutes to add during summer time. The default is 60 minutes (1 hour).
date	Indicates that summer time should start on the first specific date listed in the command and end on the second specific date in the command.
<i>date</i>	Date of the month.
<i>year</i>	Year (no abbreviation).

Defaults

Summer time is not configured.
offset: 60 minutes

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **clock summer-time** command if you want the system to switch automatically to summer time (for display only):

- Use the **recurring** form of the command to apply the rules on the configured day each year. If **clock summer-time zone recurring** is specified without parameters, the summer time rules default to United States standards. The default for the *offset* argument is 60 minutes.
- Use the **date** form to specify a start and end date for summer time if you cannot use the first form.

In both forms of the command, the first part of the command specifies when summer time begins, and the second part specifies when it ends. All times are relative to the local time zone. The start time is relative to standard time. The end time is relative to summer time. If the starting month is after the ending month, the system assumes that you are in the Southern Hemisphere.

Task ID

Task ID	Operations
host-services	read, write

Examples

The following example specifies that summer time starts on the first Sunday in April at 02:00 and ends on the last Sunday in October at 02:00. The **recurring** keyword indicates that the rules apply every year.

```
RP/0/RP0/CPU0:router(config)# clock summer-time PDT recurring 1 Sunday April 2:00 last
Sunday October 2:00
```

If you live where summer time does not follow the pattern in the first example, you could set it to start on October 12, 2005 at 02:00 and end on April 26, 2006 at 02:00, with the following example. The **date** keyword indicates that the rules apply for the current year only.

```
RP/0/RP0/CPU0:router(config)# clock summer-time PDT date 12 October 2005 2:00 26 April
2006 2:00
```

Related Commands

Command	Description
clock set	Sets the software clock settings.
clock timezone	Sets the time zone for display.

clock timezone

To set the time zone for display, use the **clock timezone** command in global configuration mode. To remove the **clock timezone** setting, use the **no** form of this command.

clock timezone *zone* {+|-} *hours* [*minutes*]

no clock timezone

Syntax Description

<i>zone</i>	Name of the time zone to be displayed when standard time is in effect.
+	Positive offset from Coordinated Universal Time (UTC).
-	Negative offset from UTC.
<i>hours</i>	Hours offset from UTC. Range is from -23 to +23.
<i>minutes</i>	(Optional) Minutes offset from UTC.

Defaults

UTC

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **clock timezone** command only to display the time zone when setting the time manually. The system keeps time internally in UTC.

[Table 1](#) lists common time zone acronyms used for the zone argument.

Table 1 Common Time Zone Acronyms

Acronym	Time Zone Name and UTC Offset
Europe	
GMT	Greenwich Mean Time, as UTC.
BST	British Summer Time, as UTC plus 1 hour.
IST	Irish Summer Time, as UTC plus 1 hour.
WET	Western Europe Time, as UTC.

Table 1 Common Time Zone Acronyms (continued)

Acronym	Time Zone Name and UTC Offset
WEST	Western Europe Summer Time, as UTC plus 1 hour.
CET	Central Europe Time, as UTC plus 1 hour.
CEST	Central Europe Summer Time, as UTC plus 2 hours.
EET	Eastern Europe Time, as UTC plus 2 hours.
EEST	Eastern Europe Summer Time, as UTC plus 3 hours.
MSK	Moscow Time, as UTC plus 3 hours.
MSD	Moscow Summer Time, as UTC plus 4 hours.
United States and Canada	
AST	Atlantic Standard Time, as UTC minus 4 hours.
ADT	Atlantic Daylight Time, as UTC minus 3 hours.
ET	Eastern Time, either as EST or EDT, depending on place and time of year.
EST	Eastern Standard Time, as UTC minus 5 hours.
EDT	Eastern Daylight Saving Time, as UTC minus 4 hours.
CT	Central Time, either as CST or CDT, depending on place and time of year.
CST	Central Standard Time, as UTC minus 6 hours.
CDT	Central Daylight Saving Time, as UTC minus 5 hours.
MT	Mountain Time, either as MST or MDT, depending on place and time of year.
MST	Mountain Standard Time, as UTC minus 7 hours.
MDT	Mountain Daylight Saving Time, as UTC minus 6 hours.
PT	Pacific Time, either as PST or PDT, depending on place and time of year.
PST	Pacific Standard Time, as UTC minus 8 hours.
PDT	Pacific Daylight Saving Time, as UTC minus 7 hours.
AKST	Alaska Standard Time, as UTC minus 9 hours.
AKDT	Alaska Standard Daylight Saving Time, as UTC minus 8 hours.
HST	Hawaiian Standard Time, as UTC minus 10 hours.
Australia	
WST	Western Standard Time, as UTC plus 8 hours.
CST	Central Standard Time, as UTC plus 9.5 hours.
EST	Eastern Standard/Summer Time, as UTC plus 10 hours (plus 11 hours during summer time).

Table 2 lists an alternative method for referring to time zones, in which single letters are used to refer to the time zone difference from UTC. Using this method, the letter Z is used to indicate the zero meridian, equivalent to UTC, and the letter J (Juliet) is used to refer to the local time zone. Using this method, the International Date Line is between time zones M and Y.

Table 2 *Single-Letter Time Zone Designators*

Letter Designator	Word Designator	Difference from UTC
Y	Yankee	UTC minus 12 hours.
X	Xray	UTC minus 11 hours.
W	Whiskey	UTC minus 10 hours.
V	Victor	UTC minus 9 hours.
U	Uniform	UTC minus 8 hours.
T	Tango	UTC minus 7 hours.
S	Sierra	UTC minus 6 hours.
R	Romeo	UTC minus 5 hours.
Q	Quebec	UTC minus 4 hours.
P	Papa	UTC minus 3 hours.
O	Oscar	UTC minus 2 hours.
N	November	UTC minus 1 hour.
Z	Zulu	Same as UTC.
A	Alpha	UTC plus 1 hour.
B	Bravo	UTC plus 2 hours.
C	Charlie	UTC plus 3 hours.
D	Delta	UTC plus 4 hours.
E	Echo	UTC plus 5 hours.
F	Foxtrot	UTC plus 6 hours.
G	Golf	UTC plus 7 hours.
H	Hotel	UTC plus 8 hours.
I	India	UTC plus 9 hours.
K	Kilo	UTC plus 10 hours.
L	Lima	UTC plus 11 hours.
M	Mike	UTC plus 12 hours.

Task ID

Task ID Operations

host-services	read, write
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Examples

The following example shows how to set the time zone to PST and offset 8 hours behind UTC:

```
RP/0/RP0/CPU0:router (config)# clock timezone PST -8
```

The following example shows how to set the time zone to Atlantic Time (AT) for Newfoundland, Canada, which is 3.5 hours behind UTC:

```
RP/0/RP0/CPU0:router(config)# clock timezone AT -3 30
```

Related Commands

Command	Description
clock set	Sets the software clock settings.
clock summer-time	Configures the system to switch automatically to summer time (daylight saving time).
clock timezone	Sets the time zone for display.
show clock	Displays the clock settings.

clock update-calendar

To copy the software clock settings to the hardware clock (calendar), use the **clock update-calendar** command in EXEC mode.

clock update-calendar

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The hardware clock (calendar) runs continuously, even if the router is powered off or rebooted. If the software clock and calendar are not synchronized and the software clock is more accurate, use this command to update the hardware calendar clock to the correct date and time.

Task ID	Task ID	Operations
	host-services	execute

Examples The following example shows how to copy the current time from the software clock to the hardware clock:

```
RP/0/RP0/CPU0:router# clock update-calendar
```

Related Commands	Command	Description
	clock read-calendar	Copies the hardware (calendar) clock settings into the software clock.

locale country

To set the default country of use, use the **locale country** command in global configuration mode. To remove the **locale country** setting, use the **no** form of this command.

locale country *country*

no locale country *country*

Syntax Description

country Country, where *country* is a two-character country code. Case is not important.

Defaults

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.



Note

This command is not fully supported at this time.

To display a complete listing of the available country codes, use the online help (?) function:

```
RP/0/RP0/CPU0:router(config)# locale country ?
```

```
AD    Andorra
AE    United Arab Emirates
AF    Afghanistan
AG    Antigua and Barbuda
AI    Anguilla
AL    Albania
AM    Armenia
AN    Netherlands Antilles
AO    Angola
AQ    Antarctica
AR    Argentina
AS    American Samoa
AT    Austria
AU    Australia
```

locale country

```

AW    Aruba
AZ    Azerbaijan
BA    Bosnia and Herzegovina
BB    Barbados
BD    Bangladesh
BE    Belgium
--More--

```

Task ID

Task ID	Operations
host-services	read, write

Examples

The following example shows how to set the country of use to Australia:

```
RP/0/RP0/CPU0:router(config)# locale country au
```

Related Commands

Command	Description
locale language	Sets the default language of use.

locale language

To set the default language of use, use the **locale language** command in global configuration mode. To remove the **locale language** setting, use the **no** form of this command.

locale language *language*

no locale language *language*

Syntax Description

language Specifies the language, where *language* is a two-character code. Case is not important.

Defaults

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.



Note

This command is not fully supported at this time.

To display a complete listing of the available language codes, use the online help (?) function:

```
RP/0/RP1/CPU0:router(config)# locale language ?
aa      Afar
ab      Abkhazian
af      Afrikaans
am      Amharic
ar      Arabic
as      Assamese
ay      Aymara
--More--
```

Task ID

Task ID	Operations
host-services	read, write

locale language**Examples**

The following example shows how to set the language of use to English:

```
RP/0/RP0/CPU0:router(config)# locale language en
```

Related Commands

Command	Description
locale country	Sets the default country of use.

show clock

To display the system clock, use the **show clock** command in EXEC mode.

show clock [detail]

Syntax Description	detail
	(Optional) Indicates the time source and the current summer time setting (if any).

Command Modes	EXEC
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Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The system clock keeps an “authoritative” flag that indicates whether the time is authoritative (believed to be accurate). If the system clock has been set by a timing source, such as system calendar or Network Time Protocol (NTP), the flag is set. If the time is not authoritative, it is used only for display. Until the clock is authoritative and the “authoritative” flag is set, the flag prevents peers from synchronizing to the clock when the peers have invalid times.

[Table 3](#) describes the leading symbols that precede the show clock display.

Table 3 *show clock Display Leading Symbol Descriptions*

Symbol	Description
*	Time is not authoritative.
(blank)	Time is authoritative.
.	Time is authoritative, but NTP is not synchronized.

Task ID	Task ID	Operations
	basic-services	read

Examples

The following sample output shows the current clock settings:

```
RP/0/RP0/CPU0:router# show clock
16:18:28.927 PST Tue Feb 10 2005
```

show clock

The following sample output shows the current clock detail, including the time source:

```
RP/0/RP0/CPU0:router# show clock detail  
  
16:18:07.164 PST Tue Feb 10 2005  
Timezone: PST8PST Timesource: User configured
```

Related Commands

Command	Description
clock set	Sets the software clock.

show clock sync

To show the time difference between the clocks on route processors (RPs) and other line cards (LCs) in a Cisco XR 12000 Series Router, use the **show clock sync** command in EXEC command mode.

show clock sync

Syntax Description

This command has no arguments or keywords.

Defaults

Displays the clock time for each RP, DRP or LC in an SDR, relative to the clock time on the RP where the command is entered.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

In a router running the Cisco IOS XR software, the time clock in the primary RP is synchronized with the other RPs, DRPs and LCs in the system. This synchronization ensures that the standby RP has an accurate time setting if it assumes the primary role, and that the events in logs between different RPs, LCs and DRPs can be easily correlated during debugging.

The **show clock sync** command verifies that the cards in a Cisco XR 12000 Series Router are synchronized with the primary RP. When this command is run, the primary RP queries the clocks on each card in the system and displays the time difference between each card and the primary RP. If the time setting on the card is different from the time on the primary RP, the display shows if clock on the card is being adjusted to synchronize with the primary RP.



Note

The **show clock sync** command shows the relative time difference between the RP where it is run, and the cards for that secure domain router (SDR). If the command is run on the primary RP for the owner SDR, then the results will show the relative time settings for the cards assigned to the owner SDR. If the command is run on the DSDRSC for a non-owner SDR, then the results will be for the cards in that SDR. The **show clock sync** command can also be run on the standby RP, but the times displayed will be relative to that RP.

Task ID	Task ID	Operations
	ip-services	read
	basic-services	read

Examples

The following is sample output from the **show clock sync** command:

```
RP/0/0/CPU0:router# Cisco XR 12000 Series Router
```

```

RoundTrip      Time
Slot  Card      Delay      Offset      Local Time
-----
 0  RP  Card      0 ms      0.000 s    16:00:05.798 UTC Sun Apr 09 2006
 1  RP  Card      1 ms      0.001+s    +16:00:05.798 UTC Sun Apr 09 2006
 2  Line Card  2 ms      0.000 s    -16:00:05.798 UTC Sun Apr 09 2006
 3  Line Card 15 ms      0.004+s    -16:00:05.802 UTC Sun Apr 09 2006
 4  Line Card  1 ms      0.001+s    -16:00:05.798 UTC Sun Apr 09 2006
 5  Line Card  2 ms      0.002+s    +16:00:05.799 UTC Sun Apr 09 2006

```

Table 4 describes the significant fields shown in the display.

Table 4 *show clock sync* Field Descriptions

Field	Description
Slot	Physical slot number of the card.
Card	Type of card on the specified slot.
RoundTrip Delay	Time (in milliseconds) required for the test message to travel between the RP and LC and back.
Time Offset	Time difference (in seconds) between cards shown in the display.
Local Time	Displays the system clock setting. This is the same as the output displayed with the command show clock . The positive (+) or negative (-) sign is added if the card is being adjusted to run faster or slower.

Related Commands

Command	Description
clock set	Sets the software clock.
show clock	Displays the clock settings.