# How to Synchronize Time with NTP in Your PC

Network Time Protocol (**NTP**) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks. In modern computer networks time synchronization is critical because every aspect of managing, securing, planning, and debugging a network involves determining when events happen. Time also provides the only frame of reference between all devices on the network. Without synchronized time, accurately correlating log files between these devices is difficult, even impossible. So we are requesting all of you to configure your system to use local time synchronization server.

Server Address: - "**ntp.iitdh.ac.in"**

a) How to Configure NTP in Windows Operating Systems.

- Press simultaneously the *Windows* and *R* keys on your keyboard to open *Run* window.
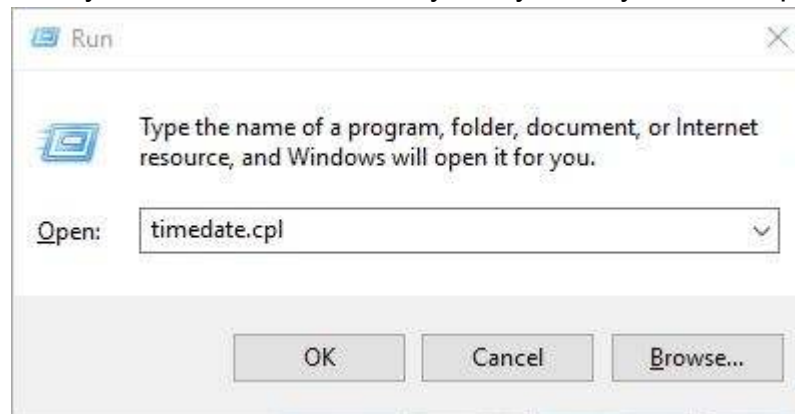
- In the opened **Date and Time** Window, click on **Internet Time** tab.
- Click on **Change settings** button.
- Check **Synchronization with internet time server**.
- Enter Server Address, ie:- "**ntp.iitdh.ac.in**" in the **Sever Column**.
- Click **OK** button to save the settings.
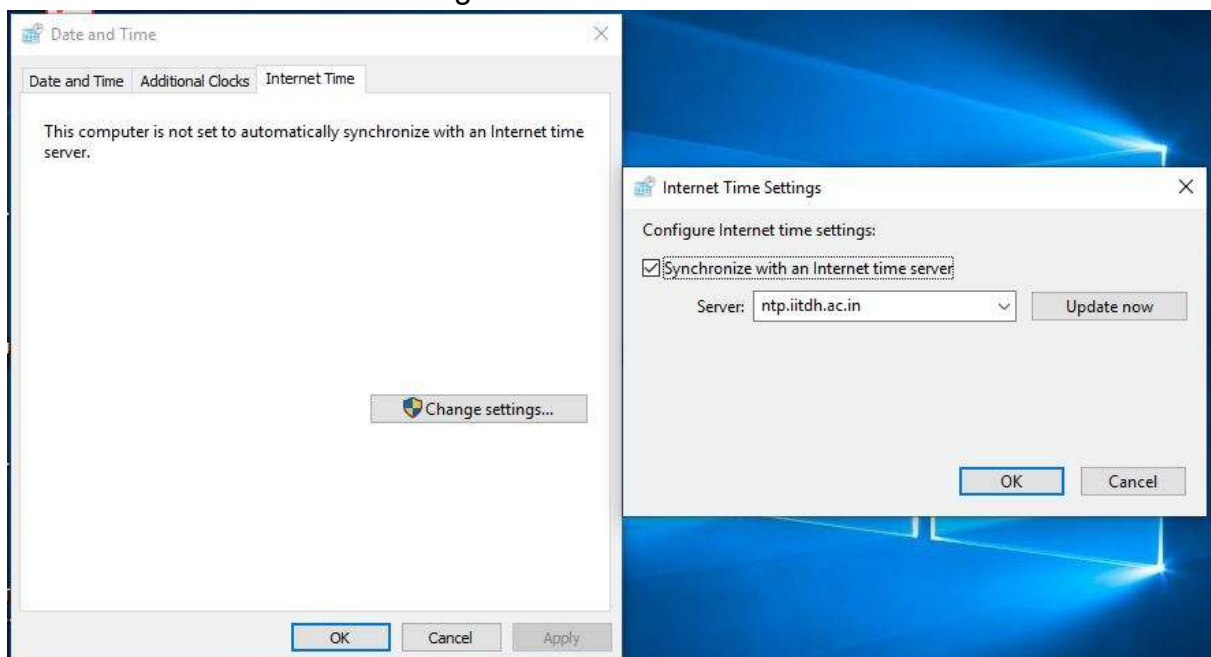
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b) How to Configure NTP in Ubuntu/Debian Linux Operating Systems.

- Open **Terminal** and execute the commands given below.

  sudo apt-get install ntp   (To install ***ntp*** package in your Ubuntu Operating System)

```
sysad@sysad-HP-240-G5-Notebook-PC:~$ sudo apt-get install ntp
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libtomcrypt0 libtommath0 timelimit
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libopts25
Suggested packages:
  ntp-doc
The following packages will be REMOVED:
  chrony
The following NEW packages will be installed:
  libopts25 ntp
0 upgraded, 2 newly installed, 1 to remove and 83 not upgraded.
Need to get 0 B/576 kB of archives.
After this operation, 1,051 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
(Reading database ... 214315 files and directories currently installed.)
Removing chrony (2.1.1-1ubuntu0.1) ...
Processing triggers for doc-base (0.10.7) ...
Processing 1 removed doc-base file...
Processing triggers for man-db (2.7.5-1) ...
Selecting previously unselected package libopts25:amd64.
(Reading database ... 214298 files and directories currently installed.)
Preparing to unpack .../libopts25_1%3a5.18.7-3_amd64.deb ...
Unpacking libopts25:amd64 (1:5.18.7-3) ...
Selecting previously unselected package ntp.
Preparing to unpack .../ntp_1%3a4.2.8p4+dfsg-3ubuntu5.9_amd64.deb ...
Unpacking ntp (1:4.2.8p4+dfsg-3ubuntu5.9) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for systemd (229-4ubuntu21.16) ...
Processing triggers for ureadahead (0.100.0-19) ...
Setting up libopts25:amd64 (1:5.18.7-3) ...
Setting up ntp (1:4.2.8p4+dfsg-3ubuntu5.9) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
```

- To use your server with the NTP pool and configure your new time servers, you'll need to make some modifications to your NTP daemon's configuration.

  sudo nano /etc/ntp.conf   (To edit the cited file)

- In the file, remove/comment the default time source entries from the configuration. Literally, all lines which are of the pattern pool [0-3].

  If you're using a default configuration, remove the highlighted lines:

#pool 0.ubuntu.pool.ntp.org iburst *#pool 1.ubuntu.pool.ntp.org iburst* *#pool 2.ubuntu.pool.ntp.org iburst*   (In Ubuntu Linux distributions) *#pool 3.ubuntu.pool.ntp.org iburst* *# Use Ubuntu's ntp server as a fallback.* *#pool ntp.ubuntu.com*

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#pool 0.debian.pool.ntp.org iburst *#pool 1.debian.pool.ntp.org iburst*   (In Debian Linux distributions) *#pool 2.debian.pool.ntp.org iburst* *#pool 3.debian.pool.ntp.org iburst*

- After that enter "***server ntp.iitdh.ac.in iburst***" in the same file and save the file.

```
# /etc/ntp.conf, configuration for ntpd; see ntp.conf(5) for help

driftfile /var/lib/ntp/ntp.drift

# Enable this if you want statistics to be logged.
#statsdir /var/log/ntpstats/

statistics loopstats peerstats clockstats
filegen loopstats file loopstats type day enable
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable

# Specify one or more NTP servers.

# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
# on 2011-02-08 (LP: #104525). See http://www.pool.ntp.org/join.html for
# more information.
server ntp.iitdh.ac.in iburst
#pool 0.ubuntu.pool.ntp.org iburst
#pool 1.ubuntu.pool.ntp.org iburst
#pool 2.ubuntu.pool.ntp.org iburst
#pool 3.ubuntu.pool.ntp.org iburst

# Use Ubuntu's ntp server as a fallback.
#pool ntp.ubuntu.com
```

- Now you have a proper server list in your ***/etc/ntp.conf*** file, it is time to run the daemon and see if you synchronize properly, run any of the following commands:

sudo systemctl restart ntp   (To restart the ntp service)

ntpq –p   (To check whether the ntp service

                                      is started synchronizing with IITDH server)

```
⊗⊖⊡  sysad@sysad-HP-240-G5-Notebook-PC: ~
sysad@sysad-HP-240-G5-Notebook-PC:~$ sudo systemctl restart ntp
[sudo] password for sysad:
sysad@sysad-HP-240-G5-Notebook-PC:~$ ntpq -p
     remote          refid      st t when poll reach   delay   offset  jitter
==============================================================================
 ntp.iitdh.ac.in 128.9.176.30    2 u    -   64    1    2.255   0.252   0.016
sysad@sysad-HP-240-G5-Notebook-PC:~$
```

- Since you have done the configurations, you can exit the terminal.