

# T-Series NTP Network Time Server

## Firmware Update Procedure

Models Covered: T100, T300, T550  
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The latest version of this user guide can be obtained from [TimeToolsLtd.com](http://TimeToolsLtd.com)

## Summary

Open a command line interface SSH or serial console session to the T-Series NTP server.  
Login to the command line interface with user name "admin", default password "admin".  
If the T-Series NTP server has Internet access, run the following commands from the command line interface.

For T100 models:

```
$ /usr/bin/curl -o T100_10004.bin "https://timetoolsltd.com/download/T100_10004.bin"
$ /usr/bin/md5sum T100_10004.bin
712c96e9a1495d0e6615956c8bf56261 T100_10004.bin
$ /usr/sbin/ttupdate T100_10004.bin
>>> Running ttupdateauto.
>>> ttupdateauto finished.
Update complete.
Please restart system using 'ttrestart'...
$ /usr/sbin/ttrestart
```

For T300 models:

```
$ /usr/bin/curl -o T300_10004.bin "https://timetoolsltd.com/download/T300_10004.bin"
$ /usr/bin/md5sum T300_10004.bin
712c96e9a1495d0e6615956c8bf56261 T300_10004.bin
$ /usr/sbin/ttupdate T300_10004.bin
>>> Running ttupdateauto.
>>> ttupdateauto finished.
Update complete.
Please restart system using 'ttrestart'...
$ /usr/sbin/ttrestart
```

For T550 models:

```
$ /usr/bin/curl -o T550_10004.bin "https://timetoolsltd.com/download/T550_10004.bin"
$ /usr/bin/md5sum T550_10004.bin
712c96e9a1495d0e6615956c8bf56261 T550_10004.bin
$ /usr/sbin/ttupdate T550_10004.bin
>>> Running ttupdateauto.
>>> ttupdateauto finished.
Update complete.
Please restart system using 'ttrestart'...
$ /usr/sbin/ttrestart
```

After the device has restarted, it will check the GNSS receiver firmware version and if necessary update the firmware.

Updating GNSS firmware should take around 4 minutes.



**IMPORTANT:**

Do not power off the device while updating GNSS module firmware.

On completion, check the firmware version number on the devices web status page.



## Detailed Procedure

T-Series NTP Server firmware updates are provided as a binary file that can be copied to the device and installed. The update files have the following naming convention:

Tmmm\_vvvvv.bin where mmm is the model and vvvvv is the firmware version.

Therefore, T300\_10004.bin is model T300, firmware version 1.0.004.

Firmware Update File Locations:

```
https://timetoolsltd.com/download/T100_10004.bin  
https://timetoolsltd.com/download/T300_10004.bin  
https://timetoolsltd.com/download/T550_10004.bin
```

Ensure that the firmware update file matches the model that you are updating. Also, check that the version number is later than the firmware version of the T-Series device that you are updating.

The firmware update can be installed on the T-Series NTP server by following the simple steps described below.

### 1. Open a text based serial console or SSH session to the T-series NTP server.

From a PC on the same network segment as the T-Series NTP server, open a SSH session to the T-Series device. Any SSH client can be used, such as PuTTY.

If you cannot establish a SSH connection, check that the correct IP address is being used. Also, ensure that the NTP server has the SSH service enabled in its network configuration settings.

Alternatively, a serial console connection can be established between a host PC and the NTP server. Use the supplied console cable (null-modem cable) to connect the host PC serial port and T-Series console port. A dumb terminal emulator can then be used to open a text based command prompt to the T-Series device.

Any terminal emulator can be used, such as PuTTY or HyperTerminal. Terminal settings are 115200 baud, 8 data bits, 1 stop bit, no parity, no flow control.

### 2. Login.

Once a text based command prompt session has been established, login to the device using the user name "admin". The default password is also "admin".

### 3. Download the T-Series firmware upgrade file.

If the T-series NTP server has access to the Internet, the firmware update file can be downloaded using the "curl" command from the command line interface:

```
$ /usr/bin/curl -o T300_10004.bin "https://timetoolsltd.com/download/T300_10004.bin"
```

If the download fails, check the internet connection and also network firewall settings.

If the NTP server does not have internet access, then upload the firmware update file from a PC using FTP or SFTP. See **Appendix A: Using FTP/SFTP To Upload Firmware.**

#### 4. Check the integrity of the update file.

Check the integrity of the update file by performing an MD5 checksum using the "md5sum <updatefile>" command. Where <updatefile> is the binary file that was copied to the device. Ensure that the MD5 checksum matches the checksum published on TimeTools web site. E.g.:

```
$ /usr/bin/md5sum T100_10004.bin
712c96e9a1495d0e6615956c8bf56261 T100_10004.bin
```

If the checksums do not match, the file may have been corrupted during file transfer. If the file is transferred using FTP or SFTP, ensure that binary file transfer is used, rather than text file transfer.

#### 5. Install the firmware.

From the command prompt, use the "ttupdate <updatefile>" command to install the firmware update. Where <updatefile> is the binary file that was transferred to the device. E.g.:

```
$ /usr/sbin/ttupdate T100_10004.bin
>>> Running ttupdateauto.
>>> ttupdateauto finished.
Update complete.
Please restart system using 'ttrestart'...
```

#### 6. Restart the NTP server

Restart the NTP server using the "ttrestart" command.

```
$ /usr/sbin/ttrestart
```

After restarting, the T-series device will check the GNSS receiver firmware version and if necessary update it. Updating the GNSS firmware should take around 4 minutes.



#### IMPORTANT:

Do not power off the device while updating GNSS module firmware.

After updating the GNSS receiver firmware, the receiver module will be factory reset. The reset will force a self-survey to be initiated. If the GNSS antenna is correctly installed, the self-survey will take around 30 minutes to complete.

On completion of the self-survey, NTP synchronization will begin.

#### 7. Check the firmware version

Check that the devices current firmware version matches the firmware version of the update. The firmware version is displayed on the LCD during restart. Alternatively, it can be obtained from the devices main status web page or from the command line interface using the "nts status" command.

## Appendix A: Using FTP/SFTP To Upload Firmware

If the T-Series NTP server does not have Internet access, the firmware update file can be copied over using FTP or SFTP.

Firmware updates can be obtained from TimeTools website at

<https://timetoolsltd.com/support/download/t-series-firmware/>

Ensure that the firmware update file matches the model that you are updating.

T100\_XXXXX.bin for T100 models, where XXXXX is the firmware update version number, e.g.10004.  
T300\_XXXXX.bin for T300 models.  
T550\_XXXXX.bin for T550 models.

The firmware update can be uploaded to the T-Series NTP server by following the simple steps below.

From a PC on the same network segment as the T-Series NTP server, open a FTP or SFTP connection to the device using its IP address.

Any file transfer application, such as Filezilla, WinSCP or CoreFTP, can be used.

The user name to open a FTP/SFTP connection is "admin", the default password is also "admin".

If you cannot establish a FTP or SFTP connection, check that the correct IP address is being used. Also, ensure that the NTP server has the FTP or SFTP service enabled in its network configuration settings.



### IMPORTANT:

Ensure that the firmware file is uploaded in binary transfer mode, rather than text transfer mode.



### IMPORTANT:

Ensure that the uploaded firmware file name is identical to the original file name. e.g. T300\_10004.bin.

Upload the binary update file to the devices /tmp directory.

Continue installation of the firmware update from step 4. **Check the integrity of the update file.**

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