

10.0 Server Network Time Protocol (NTP) Set Up

The Network Time Protocol (NTP) executables are included with the Solaris 7 and Solaris 8 operating systems. Scripts in the FEMIS application configure NTP for the UNIX server and Windows. Once NTP has been installed and checked out, all PCs on an EOC's LAN acquire time synchronization from the NTP service running on the UNIX server for that LAN.

Note: The NTP server for a LAN could be located on a different LAN than the PCs. If so, select the UNIX server closest to the PCs' LAN.

A Network Time Policy needs to have been established at each site because this installation procedure does not prescribe a specific solution for synchronizing time on the UNIX servers. However, the following general practice may be appropriate.

PCs should synchronize with the closest UNIX server's NTP service. This probably is the UNIX server on the PC's LAN. If there is not a UNIX server on the PC's LAN, use the UNIX server on which the PC maintains its database.

One UNIX server on the WAN should be chosen as the secondary time standard for all EOCs. All other UNIX servers on the WAN should synchronize with that server.

The UNIX server chosen as the secondary time standard should acquire time synchronization from a primary time standard, via: 1) a local Global Positioning System (GPS) or WWV (National Institute of Standards and Technology [NIST] radio station broadcasting continuous time status) hardware clock, 2) stratum 1 host on the Internet, 3) dial-up modem connection to NIST using Automated Computer Time Service (ACTS) protocol, or 4) other as appropriate for each site.

Generally speaking, the options listed are in the order of decreasing reliability. The most reliable methods are WWV radios and GPS. Synchronization via modem or Internet offers acceptable accuracy at a modest cost. No synchronization from an outside time standard would be the least reliable.

Configuration scenarios for each method differ; however, the NTP service on the UNIX system receives its instructions via the configuration file at `/etc/inet/ntp.conf`. This file contains two important lines. One defines the path of the drift file. The other defines the server address or identifier of the source through which the NTP service on the UNIX system will obtain its time synchronization.

For more information on NTP, refer to the University of Delaware Web site on time synchronization: <http://www.eecis.udel.edu/~ntp/>.

Note: PNNL does not endorse any specific vendor or approach to establishing logical connections to time standard clocks, recognizing that sites have differing needs and topology constraints.

Whichever method for synchronizing time on the Sun server is chosen, please note that the hardware utilized must be fully compliant with NTP. Many ways are available to acquire time displays that are based on transmission from GPS, WWV, and NIST over modems. However, be careful with solutions that offer only proprietary data formats and interfacing methods, as these may not work as desired in an NTP environment.