Time Protocols

Summary

The Simple Network Time Protocol (SNTP) provides sufficient time resolution to satisfy our timing requirements (1 millisecond time stamp traceable to NIST and Kerberos Authentication). It is a part of Microsoft Windows (W32Time) and is freely available within the public domain[1].

Simple Network Time Protocol (SNTP) – RFC-2030

Accurate on the order of microseconds[2]

Network Time Protocol (NTP) – RFC-1305

Accurate to 10 milliseconds across the internet and can achieve accuracies of 200 microseconds (1/5000 s) or better in local area networks under ideal conditions[3,4]

Precision Time Protocol (PTP) - IEEE 1588™-2002

1) Used by LXI (LAN eXtensions for Instrumentation) - 20 to 100 nanoseconds[5]

DayTime – RFC-867

The current date and time as a character string. Accurate to 1 second

Time – RFC-868

32-bit time in seconds since midnight on January first 1900

Digital Time Service (DTS)[6]

Obsolete – Inherited by NTP

---

[1] The Official Reference Implementation of NTP
[2] Simple Network Time Protocol (SNTP) Version 4 for IPv4, IPv6 and OSI
[3] Network Time Protocol
[4] Installing a Ntp Server Using a Radio Reference Source
[5] IEEE 1588 Precise Time Protocol: The new standard in time synchronization, Symmetricom, Inc.
[6] Digital Time Service Functional Specification Version T.1.0.5., Digital Equipment Corporation, 1989

Microsoft Knowledge Base Articles

224799 - Basic Operation of the Windows Time Service

> "The Windows Time Synchronization service (W32Time) is a fully compliant implementation of the Simple Network Time Protocol (SNTP) as detailed in IETF RFC 1769."

232255 - Using TIMESERV to Set and Synchronize Time

266209 - Network time protocols and the Timeserv.exe utility file

314054 - How to configure an authoritative time server in Windows XP

816042 - How to configure an authoritative time server in Windows Server 2003

884776 - How to configure the Windows Time service against a large time offset

> "Windows operating systems include the Time Service tool (W32Time service) that is used by the Kerberos authentication protocol. Kerberos authentication will work if the time interval between the relevant computers is within the maximum enabled time skew. The default is 5 minutes. You can also turn off the Time Service tool. Then, you can install a third-party time service."