

Internet Engineering Task Force  
Internet-Draft  
Intended status: Standards Track  
Expires: January 3, 2019

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July 2, 2018

Network Time Protocol: TCP Services  
draft-stenn-ntp-tcp-services-00

## Abstract

NTP was assigned port number 123 in 1985, in [RFC 960](#). Traditionally, it has only used the UDP port as while UDP is useful for time synchronization, TCP is not suitable for time synchronization. UDP packet have length limits, and there are rate limits imposed by the protocol specification. Between the UDP packet length and rate limits, some other mechanism must be provided for efficient exchange of larger data packets. A TCP connection can be used for these uses. Additionally, we can perform better authentication and authorization checks using a TCP connection.

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## [1.](#) Introduction

NTP was assigned port number 123 in 1985, in [RFC 960](#). The NTP protocol only uses UDP for its work, and UDP is an appropriate protocol for time synchronization. However, there are other needs for NTP, including monitoring and control, and ephemeral key exchange.

For some of these cases, a TCP connection is much better.

This specification describes a high-level framework for providing TCP services for NTP.

### [1.1.](#) Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [[RFC2119](#)].

## [2.](#) NTP TCP Services

To provide NTP TCP Services, an NTP instance establishes communications with a TCP Listener. This could be a separate process or it could be part of the NTP daemon. Support STARTTLS. [RFC 5705](#) [[RFC5705](#)] [RFC 7301](#) [[RFC7301](#)]

## [3.](#) IANA Considerations

#### [4.](#) Security Considerations

Additional information TBD

#### [5.](#) Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<https://www.rfc-editor.org/info/rfc2119>>.
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- [RFC5905] Mills, D., Martin, J., Ed., Burbank, J., and W. Kasch, "Network Time Protocol Version 4: Protocol and Algorithms Specification", [RFC 5905](#), DOI 10.17487/RFC5905, June 2010, <<https://www.rfc-editor.org/info/rfc5905>>.
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July 2018

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