

2015 Edition Network Time Protocol (NTP) Reference Document

Version 1.1 Updated on 11-02-2020

Please consult the Final Rule entitled: *21st Century Cures Act: Interoperability, Information Blocking, and the ONC Health IT Certification Program for a detailed description of the certification requirements*. We also encourage developers to consult the Certification Companion Guide as they provide clarifications that may be useful for product development and testing.

Revision History

Version #	Description of Change	Version Date
1.0	Initial Publication	01-20-2018
1.1	Removed RFC 1309 as an applicable standard	11-02-2020

Requirements

Network Time Protocol (NTP) Test

The Health IT Module is able to synchronize clocks via the date and time recorded in accordance with the RFC 5905 Network Time Protocol Version 4, (incorporated by reference in § 170.299).

Standards: § 170.210 (g) Synchronized clocks

Tools: [NIST Internet Time Service \(ITS\)](#)

Testing assumes the operating system synchronizes to the NTP server and the Health IT Module then synchronizes to the operating system; however, the Health IT Module could synchronize directly to the NTP server. The Health IT Module may use either method to demonstrate that the synchronization has occurred. Use of internal NTP servers are allowed, but the Health IT Module must demonstrate that the internal servers are synced to a NIST timeserver for accuracy.

Required Tests

System Under Test	Test Lab Verification
<p><u>Configure NTP</u></p> <ol style="list-style-type: none"> 1. The health IT developer chooses a time server from the NIST Internet Time Service (ITS) and adds it to the Health IT Module's software configuration. 2. The health IT developer should ensure the Health IT Module NEVER queries a server more frequently than once every 4 seconds. Systems that exceed this rate will be refused service. In extreme cases, systems that exceed this limit may be considered as attempting a denial-of-service attack. 3. After configuring the NTP, the user shall wait the amount of time necessary to ensure synchronization occurs. <p><u>Verify NTP</u></p> <ol style="list-style-type: none"> 4. The user provides an indication that the Health IT Module is accurate within 5 seconds of the NIST time server chosen (using system NTP logs). 5. The user displays, within the Health IT Module, the time from the system clock and Health IT Module time for comparison. These times should be synchronized to within 5 seconds. <p><u>Verify Protocol</u></p> <ol style="list-style-type: none"> 6. The health IT developer identifies the protocol used for synchronizing the Health IT Module system clock (i.e., (RFC 5905) Network Time Protocol Version 4). 	<p><u>Verify NTP</u></p> <ol style="list-style-type: none"> 1. The tester verifies the Health IT Module is accurate within 5 seconds of the chosen NIST time server, using the NTP logs. 2. The tester verifies the Health IT Module displays time from the system clock and the Health IT Module, and that they are both synchronized within 5 seconds. 3. The tester verifies the Health IT Module's display is accurate within 5 seconds of the chosen NIST time server, using the NTP logs. <p><u>Verify Protocol</u></p> <ol style="list-style-type: none"> 1. The tester verifies the documentation from the Health IT Module indicating the protocol used for synchronizing the Health IT Module system clock (i.e., (RFC 5905) Network Time Protocol Version 4).