

Information Technology Policy

Network Timing Protocol

ITP Number ITP-NET017	Effective Date October 19, 2007
Category Network	Supersedes None
Contact RA-ITCentral@pa.gov	Scheduled Review July 2019

1. Purpose

Establishes enterprise-wide standards for the Network Timing Protocol (NTP).

2. Scope

This Information Technology Policy (ITP) applies to all departments, boards, commissions and councils under the Governor's jurisdiction. Agencies not under the Governor's jurisdiction are strongly encouraged to follow this ITP.

3. Background

A reliable network time service requires provisions to prevent accidental or malicious attacks on the servers and clients in the network. Reliability requires that clients can determine that received messages were authentic and were sent by the intended server and not manufactured or modified by an intruder.

Web servers, mail servers, and other devices that make use of time sensitive functions such as log files or cron jobs are to be timed accurately with precision to within one-hundredth of a second. If servers are not timed accurately, the usefulness of time sensitive information such as entries in log files is diminished.

NTP is a protocol designed to synchronize the clocks of computers over a network. Typical NTP configurations utilize multiple redundant servers and diverse network paths to achieve high accuracy and reliability.

An NTP primary server is called a Stratum 1. It is a computer connected to a high precision reference clock and equipped with NTP software.

The number of computers that can be indirectly synchronized by a single primary is, for all intents and purposes, unlimited. The NTP software continuously monitors the figures of stability and accuracy of all configured servers, switching dynamically to the server with the best figures.

4. Policy

The Enterprise NTP servers are owned by the Statewide Radio Network Division of the Pennsylvania State Police. The current NTP design is supported by eight (8) geographically diverse Stratum 1 devices. All COPANET core devices are synchronized with these Stratum 1 clocks. These services are available via the agency's MAN (metropolitan area network) connection. The procedures below should be followed to configure the NTP server for Enterprise synchronization via the agency's MAN gateway.

1. NTP server xxx.xxx.xxx.xxx
2. Agency firewall changes may also be required to allow NTP traffic out. Refer to ITP-SEC034 *Enterprise Firewall Rule Set* for guidance.
3. Agencies can validate settings using this command to show associations:

```
#MAN DOH1A>sh ntp associations
```

```
address          ref clock      st  when  poll reach  delay  offset  disp
*~xxx.xxx.xxx.xxx xxx.xxx.xxx.xxx  2   68   256  377 11.202 -34.664  1.174
+~xxx.xxx.xxx.xxx xxx.xxx.xxx.xxx  2   127  256  377 16.808 -32.243  1.626
* sys.peer, # selected, + candidate, - outlyer, x falseticker, ~ configured
```

Agencies should contact the OA, Enterprise Network Services: ens@pa.gov if they have any questions or require assistance. Or, submit a request via ServiceNow to:

Bureau of Infrastructure & Operations
Enterprise Network Services
Network Management
NTP Request

5. Responsibilities

Commonwealth agencies are to synchronize time on all network-attached devices at least once every twenty-four hours, with the following recommendations:

- Pull NTP from COPANET for core devices as identified above
- Point downstream devices to core

6. Related ITPs/Other References

Commonwealth policies, including Executive Orders, Management Directives, and IT Policies are published on the Office of Administration's public portal:

<http://www.oa.pa.gov/Policies/Pages/default.aspx>

- Management Directive 205.34 *Commonwealth of Pennsylvania Information Technology Acceptable Use Policy*
- ITP-SEC000 *Information Security Policy*
- ITP-SEC034 *Enterprise Firewall Rule Set*
- ServiceNow: <https://itcentral.pa.gov/ITSM/Pages/ServiceNow.aspx> (CWOPA Access only)

7. Authority

Executive Order 2016-06, Enterprise Information Technology Governance

8. Publication Version Control

It is the user's responsibility to ensure they have the latest version of this publication, which appears on <https://itcentral.pa.gov> for Commonwealth personnel and on the Office of Administration public portal: <http://www.oa.pa.gov/Policies/Pages/default.aspx>. Questions regarding this publication are to be directed to RA-ITCentral@pa.gov.

9. Exemption from This Policy

In the event an agency chooses to seek an exemption, for reasons such as the need to comply with requirements for a federally mandated system, a request for waiver may be submitted via the Commonwealth of PA Procurement and Architectural Review (COPPAR) process. Requests are to be entered into the COPPAR Tool located at <http://coppar.oa.pa.gov/>. Agency CIO approval is required.

This chart contains a history of this publication's revisions:

Version	Date	Purpose of Revision
Original	10/19/2007	Base Document
Revision	12/20/2010	ITP Refresh
Revision	10/17/2017	ITP Reformat Added Enterprise NTP Procedures Added References
Revision	07/29/2018	Revised NTP design language for clarity Updated the NTP server configuration guidance