A YANG Data Model for NTP

draft-ietf-ntp-yang-data-model-01

Wu Nan, Huawei
Anil Kumar S N, RTBrick
Yi Zhao, Ericsson
Dhruv Dhody, Huawei
Ankit Kumar Sinha, Huawei
## Introduction

<table>
<thead>
<tr>
<th>Yang Data Model</th>
<th>Management of NTP demon – client and server</th>
<th>Configurations State</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTP as per RFC 5905</td>
<td>Most features of NTPv4 are covered</td>
<td></td>
</tr>
</tbody>
</table>
Recent Changes

- Added different yang tree for configuring NTP unicast
  - Separated from association tree, which is now read-only
  - Aligned with all other NTP modes

- Examples are added
  - Examples on how the Yang model would be used for configuration and operational state

- Modification in clock-state container
  - A reference to association is added

- Interface container name is updated
Yang tree for Unicast

• Earlier Unicast configuration was part of Associations container, now it’s a separate tree.
• Changes
  • New list is added for unicast configurations
  • New leaf added
    • local-mode
    • isConfigured
Yang Example

• Unicast configuration example.

• Unicast display example.
Yang Example

- Reference clock configuration example.
- Reference clock operational state display example.
- Global packet statistics operational state display example.
Yang Example

- Authentication configuration example.

- Authentication operational state
  - display example.
Yang Example

- Access-rules configuration.
- Access-rule operational display example.
Yang Example

- Multicast Server configuration example.

- Multicast Server operational state display example.
Yang Example

- Multicast Client configuration example.

- Multicast Client operational state
  - display example.
Yang Example

- Manycast Server configuration example.

- Manycast Server operational state display example.
Yang Example

- Manycast Client configuration example.

- Manycast Client operational state display example.
Yang Example

- Display clock state example.

```xml
<get>
  <filter type="subtree">
      <sys:clock-state>
      </sys:clock-state>
    </sys:ntp>
  </filter>
</get>

<data xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <ntp xmlns="urn:ietf:params:xml:ns:yang:ietf-ntp">
    <clock-state>
      <system-status>
        <clock-state>synchronized</clock-state>
      </system-status>
    </clock-state>
  </ntp>
</data>
```
Yang Example

- Display association example.
Modification in clock-state container

- Leaf reference is added to store keys of ntp association.
The name used for the Interface container was creating confusion, so we have updated it and made it consistent with what is mentioned in ietf-interfaces.

```
--- rw interfaces
    +--rw interface [name]
        |      +--rw broadcast-server [if:interface-ref]
        |      |      +--rw broadcast-server [name]
        |      |      |      +--rw key-id? [ntp/authentication/authentication-keys/key-id]
        |      |      |      |      +--rw minpoll? [ntp-minpoll]
        |      |      |      |      |      +--rw maxpoll? [ntp-maxpoll]
        |      |      |      |      |      +--rw port? [uint16]
        |      |      |      |      |      +--rw version? [ntp-version]
        |      |      +--rw broadcast-client [address]
        |      |      |      +--rw address [rt-types:ip-multicast-group-address]
        |      |      |      |      +--rw authentication [symmetric-key]
        |      |      |      |      |      +--rw key-id? [ntp/authentication/authentication-keys/key-id]
        |      |      |      |      |      |      +--rw minpoll? [ntp-minpoll]
        |      |      |      |      |      |      |      +--rw maxpoll? [ntp-maxpoll]
        |      |      |      |      |      |      |      +--rw port? [uint16]
        |      |      |      |      |      |      |      +--rw version? [ntp-version]
        |      +--rw multicast-client [address]
        |      |      +--rw address [rt-types:ip-multicast-group-address]
        |      |      |      +--rw manycast-server [address]
        |      |      |      |      +--rw manycast-client [address]
        |      |      |      |      |      +--rw authentication [symmetric-key]
        |      |      |      |      |      |      +--rw key-id? [ntp/authentication/authentication-keys/key-id]
        |      |      |      |      |      |      |      +--rw minpoll? [ntp-minpoll]
        |      |      |      |      |      |      |      |      +--rw maxpoll? [ntp-maxpoll]
        |      |      |      |      |      |      |      |      |      +--rw port? [uint16]
        |      |      |      |      |      |      |      |      |      +--rw version? [ntp-version]
        +--rw tll? [uint8]
        +--rw authentication [symmetric-key]
        |      +--rw key-id? [ntp/authentication/authentication-keys/key-id]
        |      |      +--rw minpoll? [ntp-minpoll]
        |      |      |      +--rw maxpoll? [ntp-maxpoll]
        |      |      |      |      +--rw port? [uint16]
        |      |      |      |      +--rw version? [ntp-version]
```
Next Step

• More reviews
  • Review comments are always welcome!
Thank You!