NETMOD Versioning Solution Update

NETMOD WG
July 2021

Presenting on behalf of the weekly versioning call attendees:
Jason Sterne

IETF 111
Agenda

This presentation:
  Solution Overview – Jason Sterne

Following presentations on individual drafts:
  YANG Module Versioning – Jason Sterne
  YANG Semantic Versioning – Joe Clarke
Recap - YANG Versioning Solution Overview

Complete solution consists of five drafts:

1. Updated YANG Module Revision Handling:
   Notify nbc changes between module revisions, allows branched revision history, revision-labels

2. Module semantic version number scheme:
   YANG semver for module revision-labels and package versioning

3. Versioned YANG packages:
   Versioning at the schema level rather than individual modules

4. Protocol operations for package version selection:
   Devices can support multiple schema versions, clients can select for session

5. YANG schema comparison tooling:
   Tooling to algorithmically compare module or schema revisions

Latest working drafts can all be found here: [https://github.com/netmod-wg/yang-ver-dt](https://github.com/netmod-wg/yang-ver-dt)
Module Revision Handling + YANG Semver Drafts
Summary of main requirements & recommendations

draft-ietf-netmod-yang-module-versioning - Updated YANG Module Revision Handling
draft-ietf-netmod-yang-semver - YANG Semantic Versioning

A) Mark a revision as non-backwards-compatible

```yang
module example-module {
  namespace "urn:example:module";
  prefix "prefix-name";

  import ietf-yang-revisions { prefix "rev"; }

  revision 2019-06-01 {
    rev:revision-label 3.1.0;
    description "Add new functionality.";
  }

  revision 2019-03-01 {
    rev:revision-label 3.0.0;
    rev:non-backwards-compatible;
    description "Add new functionality. Remove some deprecated nodes.";
  }

  revision 2019-02-01 {
    rev:revision-label 2.0.0;
    rev:non-backwards-compatible;
    description "Apply bug fix to pattern statement";
  }
}
```
B) Import by revision-or-derived

Specify a *minimum* revision for import, but any descendant is also conformant.

Use the latest descendant available.

```.yang
import example-module {
    rev:revision-or-derived 3.0.0
}
```
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C) YANG Semver revision-label

X.Y.Z = Major.Minor.Editorial

Major -> change for NBC changes
Minor -> additional leafs, etc
Editorial -> fix a description

Example YANG module with branched revision history.

<table>
<thead>
<tr>
<th>Module revision date</th>
<th>Revision label</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-01-01</td>
<td>&lt;- 1.0.0</td>
</tr>
<tr>
<td>2019-02-01</td>
<td>&lt;- 2.0.0</td>
</tr>
<tr>
<td>2019-03-01</td>
<td>&lt;- 3.0.0</td>
</tr>
<tr>
<td>2019-04-01</td>
<td>&lt;- 2.1.0</td>
</tr>
<tr>
<td>2019-05-01</td>
<td>&lt;- 2.2.0</td>
</tr>
<tr>
<td>2019-06-01</td>
<td>&lt;- 3.1.0</td>
</tr>
</tbody>
</table>

Optional compatibility extension:
rev:revision-label 3.0.2_non_compatible
D) Filename recommendation

my-module#3.2.0.yang
General update on weekly Versioning calls

• Authors + interested parties continue to meet on a weekly call to progress this work
  • Meetings are open to all
  • Regular participation from people across 5+ different companies (mostly equip. vendors, participation from more operators/users would be beneficial)
  • Key issues are brought back to WG mailing list
  • Weekly meeting is currently on Tues @2pm UK time / 9am Eastern. Thanks to the authors and contributors for their regular attendance

• Focus has been on driving Module Versioning and YANG Semver drafts to completion

• Most issues are now closed with updated text rolled into the latest drafts
This work was adopted by NETMOD but a recurring question has been raised:

A. Should we adopt these drafts (i.e., go to RFC) as updates/extensions of YANG 1.1?
B. Or, should this work be part of YANG Next (YANG 2.0?) along with dozens of potential other improvements?
C. Or, have the versioning drafts constitute the only changes for a YANG 1.2?

The versioning call group proposes to standardize these as update/extensions to YANG 1.1:

1. This solves an urgent need that the industry has today with YANG 1.1
2. NBC changes already occur and we need a standard way to communicate them
3. Import by revision is not practical using the current RFC7950 mechanism
Next Steps

• Issues tracked in github, discussed on WG mail list
  https://github.com/netmod-wg/yang-ver-dt

• Phase work on the documents:
  • Wrap up Module Versioning and YANG Semver (WG LC)
  • Move onto Packages draft shortly after IETF 111
  • Version Selection and Schema Comparison to follow