NETMOD Versioning Solution Update

NETMOD WG
Mar 2022

Presenting on behalf of the weekly versioning call attendees:
Joe Clarke

IETF 113
Agenda

This presentation:
  Solution Overview – Joe Clarke

Following presentations on individual drafts:
  YANG Packages – Rob Wilton

See backup slides for solution overview & summary of Module Versioning and YANG Semver drafts.
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
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
General update on weekly Versioning calls

Focus of weekly meetings since IETF112:

Architectural discussions and closing issues against the Packages draft
  • Brainstorming on effective structure, types of packages, and use cases for metadata
  • owners assigned to issues to produce updated text
  • many still to work through
Module Versioning Updates Since IETF112

draft-ietf-netmod-yang-module-versioning-05

• WG LC just closed

• Issues raised by Jürgen, Italo and Andy
  • Will be analyzed/discussed on the weekly calls, with responses back on the main NETMOD mailing list for each item

• Issues raised include (amongst others):
  • contradictions in filename guidelines
  • clarify how to understand the history of an individual module revision, vs the entire branched tree of a module
  • clarify how to calculate if revision Y of a module is derived from another specific revision X
  • consider tags for individual changed elements
  • issue of YANG revision dates needing to be unique in branched modules
  • general complexity of the proposed solution
YANG Semver Updates Since IETF112

draft-ietf-netmod-yang-semver-06

Completed WG LC
• Issues raised by Jürgen and Italo
• Some of Jürgen’s smaller suggestions added to git
• Issues raised for:
  • Clarify that the YANG Semver scheme is not SemVer
  • Clarify where SemVer is supported and what is unique to YANG Semver
  • Difference between “bug fix” vs. “editorial update”
  • When to bump the YANG Semver revision lab for a draft?
Italo asked what to do about file naming in `<CODE BEGINS>/<sourcecode>`

Example:

```
<CODE BEGINS> file "ietf-yang-revisions@2021-11-04.yang
<sourcecode name="ietf-yang-semver@2021-11-04.yang"

• Use revision date as it is now?
• Support revision-labels (e.g., ietf-yang-revisions#1.0.0)
• **SUGGESTION:** Keep it as it is now and have tooling extract both a module file with revision date and revision-label; or remove revision altogether and have tooling extract both a module file with a revision date and a revision-label
Alternative to YANG Semver

• Jürgen raised a thread proposing an alternative to the versioning work on which Andy chimed in
• Provide annotations at the node level to signal NBC changes

leaf foo {
  nbc-change "2022-03-01" {
    description "changed type from int32 to string";
  }
  // ...
}

• Approach has been considered previously and is part of "tooling" draft
• Needs further discussion - will be a topic on weekly versioning calls after IETF 113
Next Steps

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

• Phase work on the documents:
  • Address WG LC comments on module versioning and YANG Semver
  • Focus on Packages draft:
    • many open issues
    • various people contributing text updates
  • Version Selection and Schema Comparison to follow
BACKUP SLIDES
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

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

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

   rev:revision-label-scheme "ysver:yang-semver";

   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 bugfix to pattern statement";
   }
}
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B) Import by revision-or-derived

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

Use the latest descendant available.
Module Revision Handling + YANG Semver Drafts
Summary of main requirements & recommendations

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