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draft-ietf-netmod-yang-schema-comparison

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IETF

History

- Draft revision 00 from November 2019
- Effort of YANG Version team
- Put on hold because of prioritizing other drafts
- Reference implementation
- Draft updated in October 2025

Goals

- Compare 2 revisions of a YANG module
- BC and NBC changes
- YANG 1.1 RFC section 11 - Updating a Module
- Draft-ietf-netmod-yang-module-versioning section 3.1 - Updating a YANG module with a new revision

Concepts

- Parsed (text) vs. compiled (on-the-wire) schema

```
module mod {
    namespace "urn:mod";
    prefix m;

    typedef my-int {
        type uint32 {
            range "1..max";
        }
    }

    grouping my-grp {
        container cont2 {
            leaf value {
                type my-int;
            }
        }
    }

    container cont {
        uses my-grp {
            augment "cont2" {
                leaf value2 {
                    type uint8;
                }
            }
        }
    }
}
```

```
module: mod
  +--rw cont
     +--rw cont2
        +--rw value?    my-int
        +--rw value2?   uint8
```

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Use-cases

- YANG-based protocol clients and tools
  - Uses compiled schema
  - YANG data compatibility
  - Change causes old data to be invalid - NBC
  - Subset of standardized rules

Use-cases

- YANG module authors and versioning
  - Uses compiled schema + parsed schema
  - Full compliance with the standardized rules
  - No editorial change conformance type

Solution

- YANG module describing the changes
- Feature enabling parsed module comparison
- Extension for ambiguous changes (BC or NBC)
- Fully self-contained YANG data
  - Include all the information from the compared YANG modules
- Custom verbosity - XPath filtering

Solution


```
{
  "ietf-yang-schema-comparison:schema-comparison": {
    "schema": [
      {
        "source": {
          "module": "config",
          "revision": "2000-01-01"
        },
        "target": {
          "module": "config",
          "revision": "2000-01-02"
        },
        "conformance": "non-backwards-compatible",
        "node-comparison": [
          {
            "node": "/config:cont/l1",
            "node-type": "leaf",
            "changed": [
              {
                "stmt": "config",
                "change": "modified",
                "conformance": "non-backwards-compatible"
              }
            ],
            "old": {
              "status": "current",
              "config": false,
              "mandatory": true,
              "type": {
                "base-type": "string"
              }
            },
            "new": {
              "status": "current",
              "config": true,
              "mandatory": true,
              "type": {
                "base-type": "string"
              }
            }
          }
        ]
      }
    ]
  }
}
```

Future work

- Finish reference implementation
- Process feedback
- Update and improve the draft text