Catalog and registry for YANG models

OpenConfig network operator working group
www.openconfig.net
draft-openconfig-netmod-model-catalog-02
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Recap

Motivation
● YANG model landscape is vast and growing
● many organizations / projects now publish YANG models
● users / operators need a way to find the models suited for their needs

Requirements
● “central” location to find modules, dependencies, versions, etc.
● other metadata: publisher information, implementations, access / security

What’s new in -02
● informed by additional experience with implementors
● more precise definitions of release and feature bundles
● simplified module metadata, general cleanup
Observations from working with model implementors

● ensuring module interoperability is a challenge with large numbers of models
  ○ subsets of modules are updated simultaneously
  ○ difficult to identify which dependent modules need to be updated
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- implementors do not support models in their entirety
  - how to specify which parts of a model are required to implement a function
  - how to provide precise compliance specifications to implementors
Catalog organization

```yaml
+-rw organizations
  +-rw organization* [name]
    +-rw name
    +-rw type?
    +-rw contact?
    +-rw modules
      |   ...
    +-rw release-bundles
      |   ...
    +-rw feature-bundles
      |   ...
    +-rw implementations
      ...
```
Catalog organization

+--rw organizations
   +--rw organization* [name]
      +--rw name
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   +--rw modules
     |     ...
   +--rw release-bundles
     |     ...
   +--rw feature-bundles
     |     ...
   +--rw implementations
     ...

+--rw modules
   +--rw module* [name version]
      +--rw name
      +--rw version
      +--rw namespace?
      +--rw prefix?
      +--rw revision?
      +--rw summary?
      +--rw classification
     |     ...
      +--rw dependencies
     |     ...
      +--rw access
     |     ...
   +--rw submodules
     ...

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Release bundles -- ensuring compatibility

- release bundle members may be modules or other release-bundles
- compatible-versions is a list of member versions that work together
  - allows wildcards when using semver, e.g., 1.*.*
Feature bundles -- units of compliance

- features are defined as a set of schema paths
  - users can specify exactly which paths are needed for a function
- schema paths are specified against a release-bundle to ensure compatibility
- feature-bundles may be composed from more granular features to enable reuse
  - e.g., interfaces feature-bundle could be included by ip-router and mpls-router
Additional notes

● Administration of the YANG model catalog may be distributed
  ○ each organization having permission to update its own entries

● Catalog is not intended to be queried on a device
  ○ implementations list has information about supported platforms
  ○ must separately query a target to learn current set of supported modules or bundles

● Catalog implementation progress at the IETF 98 hackathon!