I’ll present to you an implementation of the Yang language.

Yang is a data modeling language used to model configuration data and we propose a Yang view of these data both at the client and server side of the Netconf protocol.

I’ll briefly describe a parser of Yang data model and how we use it to provide a browser like application that gives access to Yang data model instances.

This work was done by Olivier Festor and myself within the Inria Madynes team at the Loria lab in Nancy, France.

Our work is based on the standard configuration management defined by the IETF netconf and netmod working group.

In this context managed network devices have Netconf server that are accessed through the Netconf protocol by configuration management application.

The netconf protocol defines which operations can be done but did not describe configuration data. Such data are XML data inside the Netconf PDU that is itself XML data.

Yang data model describes configuration and state data for each network devices as router or host and services. Configuration data can be read and written but not for state data that are read only.

In a full standard framework a device must announce which Yang model it implements, as these two servers announce they implement an Host module and the wireless router announce a Router model. Host and Router Yang data model names must be unique so configuration management application could retrieve from somewhere the Yang model to have the knowledge of conveyed data.

I’ll use a simple example to describe the Yang language.

A Yang data model is a set of hierarchical data type definitions and a Yang module is a Yang data model related to specific configuration. For example, here is the network module.

As Yang data model defines several data identifiers, a unique namespace identifier must be first defined for the module. We further use this namespace to build Netconf requests.

A module can import other Yang modules with the import statement. This mean that any data type of the imported module can be used in the current module. The prefix avoids identifier conflict with local one when using imported definitions.

Yang language defines some basic data types, as string or integers and one can defines other types by the typedef statement.