Use Data Models

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Figure 1: Workflow for using Data models

The above illustration gives a quick snap shot of how YANG can be used with Netconf in configuring a network device using a client application.

The tasks that help the user to implement Data model configuration are listed here.

1. Load the software image ; the YANG models are a part of the software image. Alternatively, the YANG models can also be downloaded from:

```
https://github.com/YangModels/yang/tree/master/vendor/cisco/xr
```

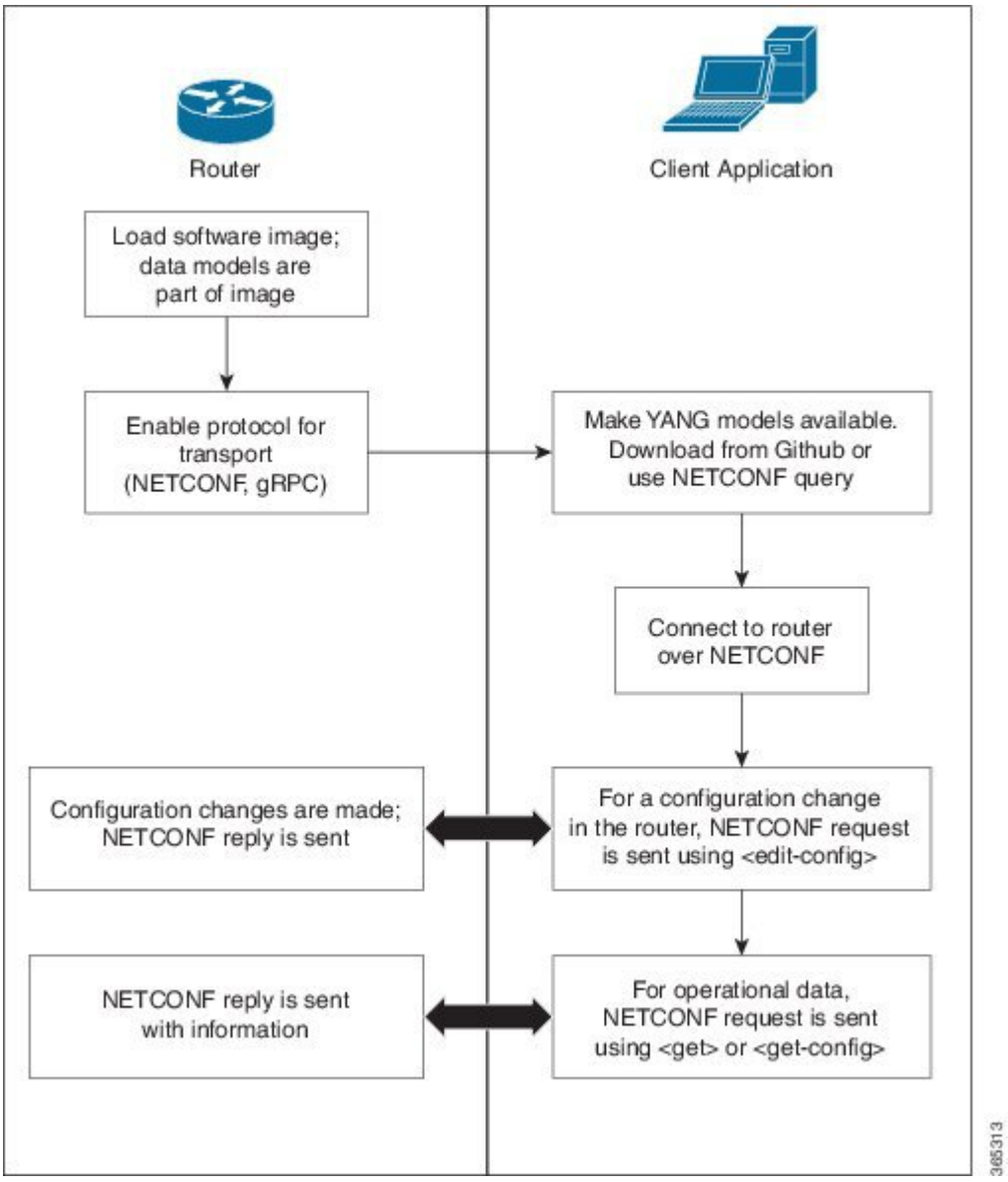
Users can also query using NETCONF to get the list of models.

```
<?xml version="1.0" encoding="utf-8"?>
<rpc message-id="100" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
    <get>
        <filter type="subtree">
            <netconf-state xmlns="urn:ietf:params:xml:ns:yang:ietf-netconf-monitoring">

                <schemas/>
            </netconf-state>
        </filter>
    </get>
</rpc>
```

2. Communication between the router and the application happens by Netconf over SSH. Enable Netconf on the router on a suitable port.
3. From the client application, connect to the router using Netconf over SSH. Run Netconf operations to make configuration changes or get operational data.

Figure 2: Lane Diagram to show the router and client application operations



Enabling Netconf

This task enables Netconf over SSH.

Before you begin

Generate relevant crypto keys.

Step 1 **netconf-yang agent ssh**

Enables the Netconf agent process.

Step 2 **ssh server netconf**

Enables Netconf.

Step 3 **ssh server v2**

Enables SSH on the device and enables Netconf on port 22 if the Netconf agent process is enabled.

What to do next

The **netconf-yang agent session** command enables the user to set session parameters.

```
netconf-yang agent session {limit value |  absolute-timeout value |  idle-timeout value}
```

where,

- **limit** *value*- sets the maximum count for concurrent netconf-yang sessions. Range is 1 to 1024. The default value is 50.
- **absolute-timeout** *value*- sets the absolute session lifetime. Range is 1 to 1440 (in minutes).
- **idle-timeout** *value*- sets the idle session lifetime. Range is 1 to 1440 (in minutes).

Enabling gRPC

Use the following procedure to enable gRPC over HTTPS/2. gRPC supports both, the IPv4 and IPv6 address families (default is IPv4).

Step 1 Install the GO client. For more details on installing the GO client, see https://golang.org/doc/install.

Step 2 Configure the gRPC port, using the **grpc port** command.

```
RP/0/RP0/CPU0:ios(config)#grpc
RP/0/RP0/CPU0:ios(config)#port 57400
RP/0/RP0/CPU0:ios(config)#tls
RP/0/RP0/CPU0:ios(config)#commit
```

Port can range from 57344 to 57999. If a port is unavailable, an error is displayed.