

# AT&T'S YANG MODEL DESIGN STUDIO

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*Domain 2.0 Architecture & Design*

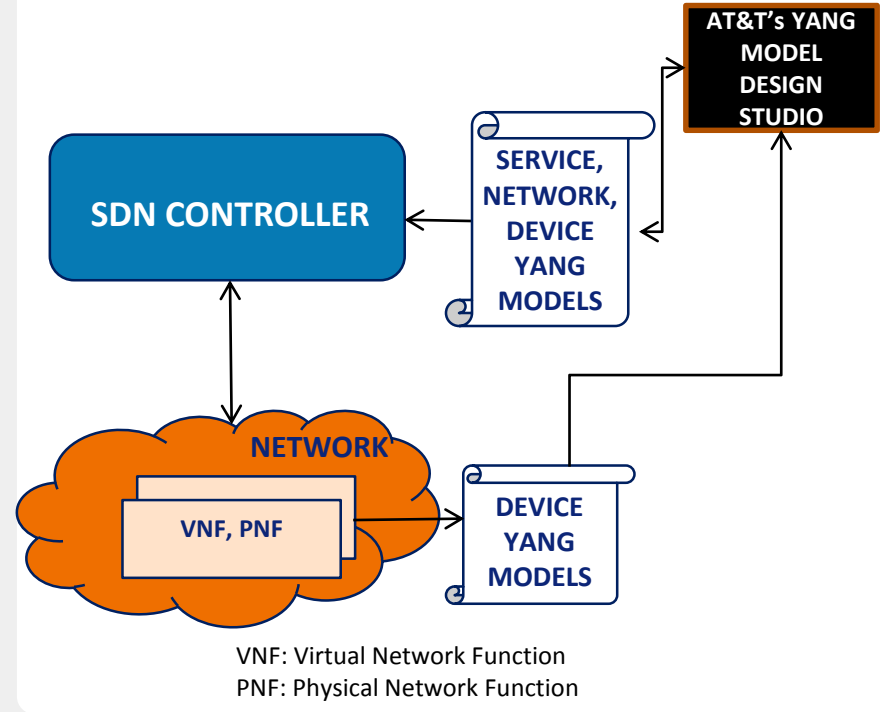
*AT&T Labs*



# AT&T's YANG DESIGN STUDIO

AT&T's YANG Model Design Studio is a home-grown tool that helps build, edit, render and manage YANG models

*[Developers: Kevin D'Souza, Jonathan Pang]*



# AT&T'S YANG DESIGN STUDIO

## Software Solution Space:

1. Eclipse and related plugins
2. XText
3. Python
4. Pyang
5. GraphViz/Dot
6. plantuml.jar
7. JAVA
8. Etc.

## Highlights include:

- YANG model management
- Validating standards compliance
- Visual editing features
- Rendering YANG models in multiple formats
- Platform independent tool
- Observed reduction in YANG development time by > 50%



# SCREEN CAPTURE SAMPLES

## 1. Main Screen with ATT-YANG Design Studio Menu Option

- Project Explorer
- YANG Model Presentation
- Model Outline
- Console

## 2. Rendered Output (subset):

- Tree
- .png



# YANG MODEL AS A TEXT FILE (NO DESIGN STUDIO)

```
//<CODE BEGINS> file "module-test.yang"
module module-test {
  namespace "http://com/att/test/module-test";
  prefix module-test;

  organization
    "AT&T Labs, Inc.";

  contact
    "Kevin D'Souza";

  description
    "YANG Module used to validate ATT-YANG IDE functionality";

  revision 2014-11-05 {
    description "Initial Revision";
  }

  grouping grouping-test1 {
    container group-test1-container {
      leaf group-test1-leaf {
        type enumeration {
          enum 1;
          enum 2;
        }
      }
    }
    list group-test1-list {
      key list-test-key1;
      leaf list-test-key1 { type uint8; }
    }
  }
}
```

```
grouping grouping-test2 {
  choice group-test2-choice {
    container group-test2-choice1 {
      leaf group-test2-leaf1 {
        type string;
        default "test2";
        mandatory false;
      }
    }
  }

  container group-test2-choice2 {
    leaf group-test2-leaf2 {
      type string;
    }
  }
}
```

```
container use-container {
  container use-test1 {
    leaf use-test1-leaf {
      description "use-test1 container";
      type string;
    }
    uses grouping-test1;

    container hierarchy-test1 {
      leaf second-level-hierarchy {
        type string;
      }
    }
  }

  leaf use-container-leaf {
    type int32;
    mandatory true;
  }

  uses grouping-test2;

  leaf end-test {
    type string;
  }
}
//<CODE ENDS>
```





Java EE - C:\Users\kd6913\Documents\KLD\ECLIPSE-LUNA\workspace-standards\YANG-IDE-TEST\Yang\_Modules\module-test.tree - Eclipse

File Edit Navigate Search Project ATT-Yang Run Window Help

Project Explorer

- YANG-IDE-TEST
  - Yang\_Modules
    - module-test.yang
- YANG-MODULE-ORGANIZATION
- YANG-STANDARDS

yang-module-catalog.yang feature-recipe.yang yang-module-catalog.tree feature-recipe.tree module-test.yang module-test.tree

```
1 module: module-test
2   +--rw use-container
3     +--rw use-test1
4       +--rw use-test1-leaf?      string
5       +--rw group-test1-container
6         +--rw group-test1-leaf?  enumeration
7         +--rw group-test1-list [list-test-key1]
8           +--rw list-test-key1  uint8
9       +--rw hierarchy-test1
10        +--rw second-level-hierarchy? string
11    +--rw use-container-leaf      int32
12    +--rw (group-test2-choice)?
13      +--:(group-test2-choice1)
14        +--rw group-test2-choice1
15          +--rw group-test2-leaf1? string
16      +--:(group-test2-choice2)
17        +--rw group-test2-choice2
18          +--rw group-test2-leaf2? string
19    +--rw end-test?              string
20
```

**AT&T YANG PLUGIN**  
Render Model in Tree Format  
Selection

**YANG MODEL**  
Rendered in Tree format

Outline Task List

An outline is not available.

Markers Properties Servers Data Source Explorer Snippets Console

Yang Console

pyang path: c:\PYANG\Lib\site-packages\pyang.py  
file path: C:\Users\kd6913\Documents\KLD\ECLIPSE-LUNA\workspace-standards\YANG-IDE-TEST\Yang\_Modules\module-test.yang  
No Errors or Warnings

C:\Users\kd6913\Documents\KLD\ECLIPSE-LUNA\workspace-standards\YANG-IDE-TEST\Yang\_Modules\module-test.tree

Writable Insert 20:1

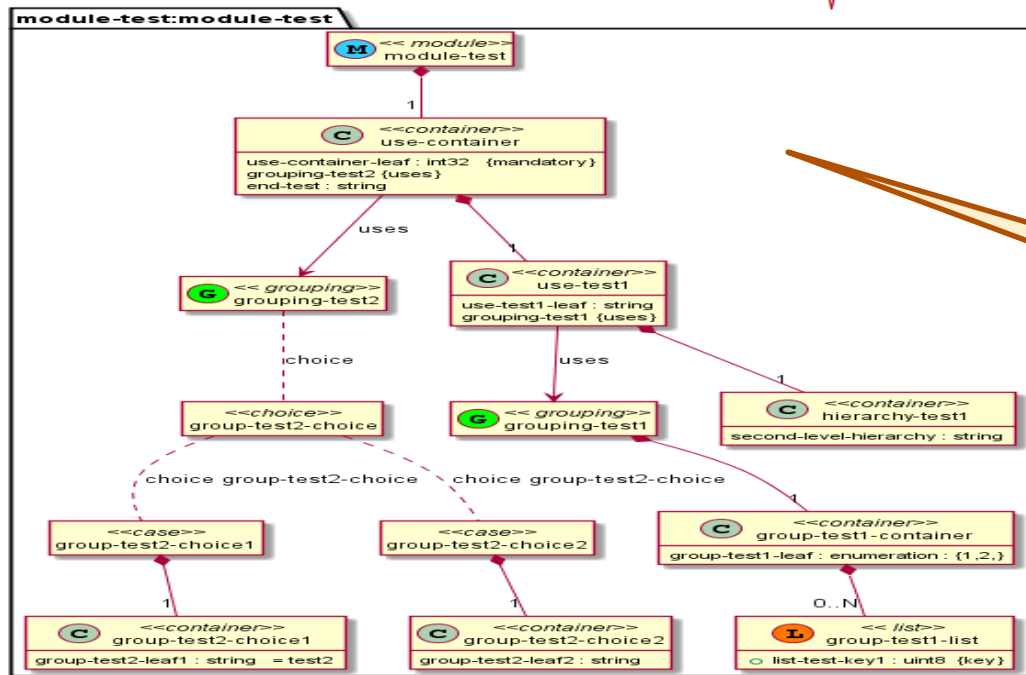
**CONSOLE**  
Showing results of selected AT&T YANG  
Design Studio Plugin Operation



# YANG MODEL RENDERED IN PNG/UML

module-test

**Namespace:** http://com/att/test/module-test  
**Prefix:** module-test  
**Organization :**  
 AT&T Labs, Inc.  
**Contact :**  
 Kevin D'Souza  
**Revision :** 2014-11-05



UML Generated : 2015-02-09 11:38

**YANG MODEL**  
 Rendered in PNG/UML format using  
 AT&T YANG IDE Plugin





# PROPOSED CODE DISTRIBUTION

- Proposal is to distribute the AT&T YANG Model Design Studio Code under the Eclipse Public License Version 1.0
  - <http://opensource.org/licenses/eclipse-1.0.txt>
- Proposed distribution to include:
  - Source code for Eclipse Plugin
  - Plugin Dependencies Installation guide
  - Plugin Installation guide
  - User Guide
  - Other stuff TBD



# AT&T YANG DESIGN STUDIO TOOL DEMO



# SUMMARY - AT&T's YANG DESIGN STUDIO

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