

YANG Pretty Printer Introduction

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Overview

What it is

- Command Line Tool to Format YANG files
- Written in JAVA

Requirements

- JAVA Capable OS (e.g., Windows, Linux)
- Up-to-date Oracle JRE
- May work with other JDKs/JREs

Library Dependencies (included)

- AntLR, Args4j, Apache Commons

Why?

- Tedious Tasks: Indentations, Line-wrapping (e.g. YANG description strings)
- Syntax Highlighting in IEEE 802Stds drafts for easier review
- Idea: Give IEEE 802 Stds YANG files a common design

```
C:\>java -jar yang802tool.jar -h
YANG file tool for IEEE 802 YANG files
  Author: Johannes Specht
Usage:
  java -jar yang802tool.jar [Options...] <YANG Input Files>
Options:
  -D                : Enable IEEE 802 Std description formatting (Dangerous).
                    (Vorgabe: false)
  -I N              : Output file indentation size, in numbers of character
                    (Vorgabe: 2)
  -R                : Enable IEEE 802 Std reference formatting (Dangerous).
                    (Vorgabe: false)
  -W N              : Output file line width limit (Vorgabe: 70)
  -c WERT           : Input file character encoding (Vorgabe: UTF-8)
  -h                : Print this help and and exit. (Vorgabe: true)
  -m                : If set, Maker Interchange Format (MIF) files are written
                    into the output directory. (Vorgabe: false)
  -o DATEI          : Output directory. If not provided, the output is written
                    to STDOUT.
  -t N              : Input file tab character size (Vorgabe: 4)
Example (Formatting and MIF generation):
  java -jar yang802tool.jar -m -o outdir ieee802-types.yang
C:\>
```

Basic Functions

```
feature closed-gate-state {  
  description  
    "The bridge component supports gate state closed."  
  reference  
    "IEEE 802.1Qcr";  
}
```

Tab replacement

```
feature closed-gate-state {  
  description  
    "The bridge component supports gate state closed."  
  reference  
    "IEEE Std 802.1Qcr";  
}
```

```
/* Types and groupings */  
typedef priority-spec-type {  
  type enumeration {  
    enum zero { value 0; description "Priority 0";}  
    enum one { value 1; description "Priority 1";}  
    enum two { value 2; description "Priority 2";}  
    enum three {  
      value 3;  
      description  
        "Priority 3";  
    }  
  }  
}
```

Indentation fixing

```
/* Types and groupings */  
typedef priority-spec-type {  
  type enumeration {  
    enum zero {  
      value 0;  
      description  
        "Priority 0";  
    }  
    enum one {  
      value 1;  
      description  
        "Priority 1";  
    }  
    enum two {  
      value 2;  
      description  
        "Priority 2";  
    }  
    enum three {  
      value 3;  
      description  
        "Priority 3";  
    }  
  }  
}
```

"Light" Syntax
Highlighting
(Framemaker)

Descriptions

description

"An IPV can be either of the following:

- 1) The null value. For a frame that passes through the gate, the priority value associated with the frame is used to determine the frame's traffic class, using the Traffic Class Table as specified in 8.6.6.
- 2) An internal priority value. For a frame that passes through the gate, the IPV is used, in place of the priority value associated with the frame, to determine the frame's traffic class, using the Traffic Class Table as specified in 8.6.6."

reference

"IEEE 802.1Qcr, 8.6.5.2";

Understands
list formats

(numbered, lettered –
cmp. IEEE-SA Style
Manual)

description

"An IPV can be either of the following:

- 1) The null value. For a frame that passes through the gate, the priority value associated with the frame is used to determine the frame's traffic class, using the Traffic Class Table as specified in 8.6.6.
- 2) An internal priority value. For a frame that passes through the gate, the IPV is used, in place of the priority value associated with the frame, to determine the frame's traffic class, using the Traffic Class Table as specified in 8.6.6."

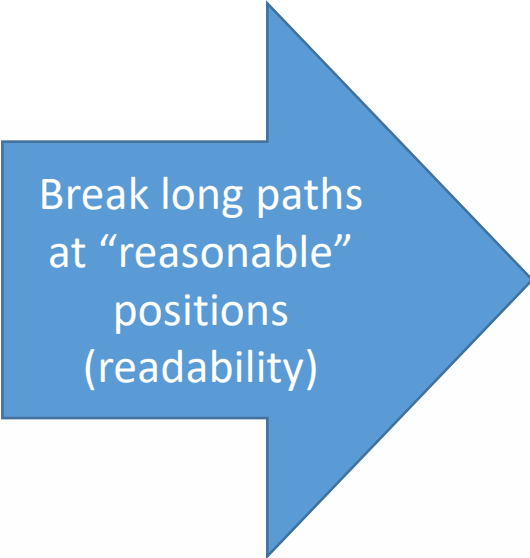
reference

"8.6.5.2 of IEEE Std 802.1Qcr";

Linewrapping
at word
boundaries →
Fit into Std
documents

Machine Readable Strings

```
typedef stream-gate-ref {  
  type leafref {  
    path  
      '/dot1q:bridges/dot1q:bridge/dot1q:component/sfsg:stream-gates/sfsg:stream-gate-instance-table/sfsg:stream-gate-instance-id';  
  }  
}
```



Break long paths
at “reasonable”
positions
(readability)

```
typedef stream-gate-ref {  
  type leafref {  
    path  
      '/dot1q:bridges'+  
      '/dot1q:bridge'+  
      '/dot1q:component'+  
      '/sfsg:stream-gates'+  
      '/sfsg:stream-gate-instance-table'+  
      '/sfsg:stream-gate-instance-id';  
  }  
  description  
    "This type is used to refer to a stream gate instance.";  
}
```

Known Machine Grammars:

- YANG
(IETF “RFC7950”)
- Xpath
(partial)
- Regular Expressions
(“XML Schema Part 2: Datatypes Second Edition, W3C Recommendation 28 October 2004)

How to Use It/How I Use It

1. Execute

```
java -jar [pretty printer jar path/]yang802tool.jar  
    "<input file path>"  
    -W 76 -m -D  
    -o "<output directory path>"
```

2. Copy&Paste generated Framemaker output file contents into Stds Draft

3. Generate Stds Draft PDF

4. Attach generated .YANG file to Stds Draft PDF

Caveats

Outdated IEEE Std Reference Parser

- Understands “old” Format in YANG files, ignores “new” Format
- Worked well in earlier stages of .1Qcr, .1Qcp, etc.
- Can be bypassed (omit command line switch “-R”)

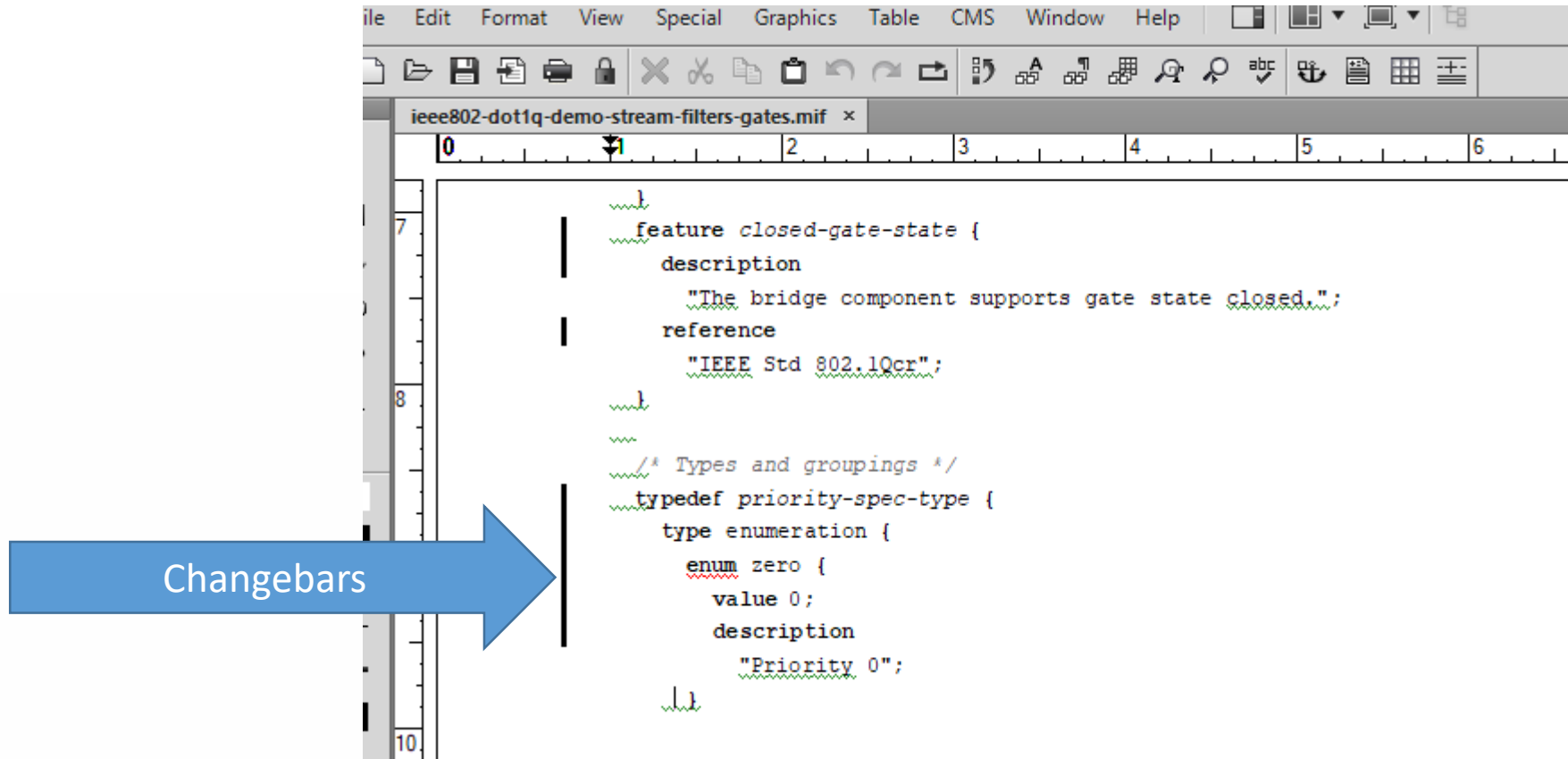
“Tolerant” Maximum Line Lengths (command line switch “-W”)

- Expect a few characters more/less for string boundary, concatenation, and termination characters (“’,+;”)

Bugs

- Limited testing samples so far → there will be bugs. Please help finding them!

Current Development: Diff Indications



The image shows a screenshot of a text editor window titled "ieee802-dot1q-demo-stream-filters-gates.mif". The editor displays YANG code with diff bars (vertical lines) indicating changes. A blue arrow points to these bars with the label "Changebars".

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Proposed Next Steps

1. Provide executable JAR to IEEE 802.1 YANG editors for testing
 - Github?
 - IEEE Server private?
 - E-Mail?
2. Fix issues
 - Based on Editors feedback
3. Collect feature and change requests for enhancements
 - Feasibility
 - Relevance
 - ...
4. Publish
 1. Github?
 2. IEEE Server private/public?