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YANG extension for Common Augmentations  
draft-bertz-netmod-commonaugment-01

Abstract

This document defines a YANG extension to convey common schema augmentations.

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## 1. Introduction

This document provides a mechanism for the specification of an augmentation at multiple locations of a YANG schema using the extension statement as defined in Section 7.15 of [RFC7950].

YANG extensions commonly add one augmentation to a common structure. Figure 1 shows a small module and another that will be used to extend it.

```
... basemodule {
  prefix b;
  ...
  grouping base_element {
    ...
  }

  rpc my_rpc {
    input {
      uses b:base_element;
    }
    output {
      uses b:base_element;
    }
  }

  rpc my_bestrpc {
    input {
      uses b:base_element;
    }
  }
}

... newstuffmodule {
  grouping new_things {
    ...
  }
}
```

Figure 1: Reference Modules

When extending `my_rpc` in the base module by adding `new_things` to the base element, one must use two augment statements. If the author of the `newstuff` module wishes to extend `base_element` then they must write an augment statement for every schema location it which it appears.

An extension with the key word "also-augments" is proposed that allows one augment statement to be used for augmentations.

Figure 2 shows the traditional and common augment examples.

```
module old_way {
  import base { prefix base_module; }
  import newstuff { prefix new_module; }
  augment "/base_module:my_rpc/base_element/input" {
    uses new_module:new_things;
  }
  augment "/base_module:my_rpc/base_element/output" {
    uses new_module:new_things;
  }
  augment "/base_module:my_bestrpc/base_element/input" {
    uses new_module:new_things;
  }
}

module new_way {
  import base { prefix base_module; }
  import newstuff { prefix new_module; }
  import commonaugment { prefix c; }

  augment "/base_module:my_rpc/base_element/input" {
    uses new_module:new_things;

    c:also-augments "/base_module:my_rpc/base_element/output";
    c:also-augments "/base_module:my_bestrpc/base_element/input";
  }
}
```

Figure 2: Augment Options

The also-augments statement takes a single argument that is the same one defined for the augment statement [RFC7950].

This has two purposes:

- Reduces the amount of YANG written when common augmentations are involved.

- Provides a hint to the tools that translate YANG to code that a common augmentation exists.

The importance of the second benefit for is significant as it permits them to leverage any common structure or inheritance functions.

## 2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

## 3. Overview

This module defines only the also-augments extension. This extension is ONLY meaningful as a child of an augment statement and is otherwise ignored. It is semantically equivalent to writing an augment statement whose target node is the argument of the also-augment node. This is shown in Figure 3.

```
augment "/base_module:my_rpc/base_element/input" {
  uses new_module:new_things;
}
augment "/base_module:my_rpc/base_element/output" {
  uses new_module:new_things;
}

... semantically equivalent version below ...

augment "/base_module:my_rpc/base_element/input" {
  uses new_module:new_things;

  c:also-augments "/base_module:my_rpc/base_element/output";
}
```

Figure 3: Statement Equivalence of also-augments

Multiple also-augments statements MAY appear in a single augment statement.

This statement MAY appear in a module that is intended to be backwards compatible as shown in Figure 4. In such cases, it is used as a hint to readers and compilation software that the augmentations are intended to be the same augmentation at multiple schema tree locations.

```
augment "/base_module:my_rpc/base_element/input" {
  uses new_module:new_things;
  c:also-augments "/base_module:my_rpc/base_element/output";
}
augment "/base_module:my_rpc/base_element/output" {
  uses new_module:new_things;
}
```

Figure 4: Backwards compatible usage of also-augment

#### 4. Module Definition

This section contains the module definition.

```
<CODE BEGINS> file "ietf-commonaugment@2017-03-04.yang"
module ietf-commonaugment {
  yang-version 1.1;
  namespace "urn:ietf:params:xml:ns:yang:ietf-commonaugment";
  prefix commonaug;

  organization
    "IETF NETMOD (NETCONF Data Modeling Language) Working Group";

  contact
    "WG Web: <http://tools.ietf.org/wg/netmod/>
    WG List: <mailto:netmod@ietf.org>

    WG Chair: Lou Berger
              <mailto:lberger@labn.net>

    WG Chair: Kent Watsen
              <mailto:kwatsen@juniper.net>

    Editor: Lyle Bertz
            <mailto:lyleb551144@gmail.com>";

  description
    "This module contains YANG definition for
    common augments.
```

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```
revision 2017-03-04 {
  description "Initial Revision.";
  reference "draft-bertz-netmod-commonaugment-00";
}

extension also-augments {
  argument "target-node";
  description
    "The argument is a string that identifies a node in the
    schema tree and is the same argument that is defined for
    the YANG argument statement";
}
}
<CODE ENDS>
```

## 5. IANA Considerations

This document registers six URIs in the "IETF XML Registry" [RFC3688]. Following the format in RFC 3688, the following registrations have been made.

URI: urn:ietf:params:xml:ns:yang:commonaug  
Registrant Contact: The NETMOD WG of the IETF.  
XML: N/A, the requested URI is an XML namespace.

This document registers the following YANG module in the "YANG Module Names" registry [RFC7950].

```
name:          ietf-dmm-fpc
namespace:     urn:ietf:params:xml:ns:yang:commonaug
prefix:        commonaug
reference:     TBD1
```

## 6. Security Considerations

This document provides an alternative mechanism to express augmentations that can exist in a YANG module. It does not provide new information elements to the module but does provide a hint as to the commonality of a set of augment statements. This, however, SHOULD have already been described in the module's definition or specification. Thus, the use of this statement does not yield new information.

## 7. References

### 7.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.
- [RFC7950] Bjorklund, M., Ed., "The YANG 1.1 Data Modeling Language", RFC 7950, DOI 10.17487/RFC7950, August 2016, <<http://www.rfc-editor.org/info/rfc7950>>.

### 7.2. Informative References

- [RFC3688] Mealling, M., "The IETF XML Registry", BCP 81, RFC 3688, DOI 10.17487/RFC3688, January 2004, <<http://www.rfc-editor.org/info/rfc3688>>.

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