

CCAMP Working Group

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### A Yang Data Model for WSON Tunnel

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#### Abstract

This document provides a YANG data model for WSON TE tunnel.

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## [1. Introduction](#)

This document provides a YANG data model for WSON tunnel model. The YANG model described in this document is a WSON technology-specific Yang Tunnel model based on the information model developed in [[RFC7446](#)] and the two encoding documents [[RFC7581](#)] and [[RFC7579](#)] that developed protocol independent encodings based on [[RFC7446](#)].

This document augments the generic TE tunnel model [TE-Tunnel].

## [2. YANG Model \(Tree Structure\)](#)

```
module: ietf-te-wson
augment /te:te/te:tunnels/te:tunnel/te:config:
    +-rw wavelength-assignment?    identityref
    +-rw selected-frequency?      decimal64
    +-rw channel-spacing?         decimal64
augment /te:te/te:tunnels/te:tunnel/te:state:
```



```
++-ro wavelength-assignment?    identityref
++-ro selected-frequency?      decimal64
++-ro channel-spacing?         decimal64
augment /te:te/te:lsp-state/te:lsp:
  +-+ro wavelength-assignment?  identityref
  +-+ro selected-frequency?    decimal64
  +-+ro channel-spacing?       decimal64
augment /te:te/te-dev:interfaces/te-dev:interface:
  +-+rw selected-frequency?   decimal64
  +-+rw channel-spacing?      decimal64
```

### 3. TE Tunnel Model for WSOn

```
<CODE BEGINS> file "ietf-te-wson- @2017-06-20.yang"

module ietf-te-wson {

namespace "urn:ietf:params:xml:ns:yang:ietf-te-wson";

prefix "te-wson";

import ietf-te {
  prefix "te";
}

import ietf-te-device {
  prefix "te-dev";
}

organization
  "IETF Traffic Engineering Architecture and Signaling (TEAS)
  Working Group";

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```



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```
description
  "Latest update to WSON TE YANG data model.";

revision "2017-06-20" {
  description "Update to WSON TE YANG initial revision.";
  reference "";
}

identity wavelength-assignment {
  description "Wavelength selection base";
}

identity unspecified-wavelength-assignment {
  base wavelength-assignment;
  description "No method specified";
}

identity first-fit-wavelength-assignment {
  base wavelength-assignment;
  description "All the available wavelengths are numbered, and this WA method
chooses the available wavelength with the lowest index.";
}

identity random-wavelength-assignment {
  base wavelength-assignment;
  description "This WA method chooses an available wavelength randomly.";
}

identity least-loaded-wavelength-assignment {
  base wavelength-assignment;
  description "This WA method selects the wavelength that has the largest
residual
capacity on the most loaded link along the route (in multi-fiber networks).";
}

/* TE WSON LSPs groupings */
grouping lsp-attributes-flags-wson_config {
  description
    "Configuration parameters relating to TE WSON LSP
     attribute flags";

  leaf wavelength-assignment {
    type identityref {
      base wavelength-assignment;
    }
  }
}
```

```
description "Wavelength Allocation Method";
```

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```
}

leaf selected-frequency {
    type decimal64 {
        fraction-digits 5;
    }
    units THz;
    default 193.1;
    description "Selected Central Frequency";
}

leaf channel-spacing {
    type decimal64 {
        fraction-digits 5;
    }
    units GHz;
    description "This is fixed channel spacing for WSON,
                  e.g, 12.5, 25, 50, 100, ..";
}

}
```

```
grouping tunnel-properties-wson {
    description
        "Top level grouping for LSP properties.";
    uses lsp-attributes-flags-wson_config;
}

grouping lsp-properties-wson {
    description
        "Top level grouping for LSP properties.";
    uses lsp-attributes-flags-wson_config;
}
/* End of TE WSON LSPs groupings */
```

```
/**
 * Interface groupings
 */
grouping wson-reservable {
    description "Top level grouping for interface properties";
    leaf selected-frequency {
        type decimal64 {
            fraction-digits 5;
        }
        units THz;
```

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```
    default 193.1;
    description "Selected Central Frequency";
}

leaf channel-spacing {
    type decimal64 {
        fraction-digits 5;
    }
    units GHz;
    description "This is fixed channel spacing for WSON,
                  e.g, 12.5, 25, 50, 100, ..";
}
}

/* End of interface groupings */

/***
 * Augmentation to TE generic module
 */
augment "/te:te/te:tunnels/te:tunnel/te:config" {
    description
        "Augmentations for WSON TE tunnel properties";
    uses tunnel-properties-wson;
}

augment "/te:te/te:tunnels/te:tunnel/te:state" {
    description
        "Augmentations for WSON TE tunnel properties";
    uses tunnel-properties-wson;
}

augment "/te:te/te:lsp-state/te:lsp" {
    description
        " WSON LSP state properties";
    uses lsp-properties-wson;
}

augment "/te:te/te-dev:interfaces/te-dev:interface" {
    description
        "WSON reservable bandwidth configuration properties";
    uses wson-reservable;
}

<CODE ENDS>
```

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#### **4. Security Considerations**

TDB

#### **5. IANA Considerations**

TDB

#### **6. Acknowledgments**

This document was prepared using 2-Word-v2.0.template.dot.

## 7. References

### 7.1. Normative References

[TE-TOPO] X. Liu, et al., "YANG Data Model for TE Topologies", work in progress: [draft-ietf-teas-yang-te-topo](#).

### 7.2. Informative References

[RFC7446] Y. Lee, G. Bernstein, D. Li, W. Imajuku, "Routing and Wavelength Assignment Information Model for Wavelength Switched Optical Networks", [RFC 7446](#), February 2015.

[RFC7579] G. Bernstein, Y. Lee, D. Li, W. Imajuku, "General Network Element Constraint Encoding for GMPLS Controlled Networks", [RFC 7579](#), June 2015.

[RFC7581] G. Bernstein, Y. Lee, D. Li, W. Imajuku, "Routing and Wavelength Assignment Information Encoding for Wavelength Switched Optical Networks", [RFC 7581](#), June 2015.

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