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## A YANG Data Model for Wavelength Switched Optical Networks (WSONs)

### Abstract

This document provides a YANG data model for the routing and wavelength assignment (RWA) TE topology in Wavelength Switched Optical Networks (WSONs). The YANG data model defined in this document conforms to the Network Management Datastore Architecture (NMDA).

### Status of This Memo

This is an Internet Standards Track document.

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## 1. Introduction

This document provides a YANG data model for the routing and wavelength assignment (RWA) Traffic Engineering (TE) topology in transparent Wavelength Switched Optical Networks (WSONs). The YANG data model described in this document is a WSON technology-specific YANG data 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].

[ITU-Tg6982] defines amplified multichannel dense wavelength division multiplexing applications with single-channel optical interfaces. The YANG data model defined in this document refers to the standard application mode defined in [ITU-Tg6982].

Neither impairment-aware optical networks nor flexi-grid are in scope for this document. Refer to [OPT-IMPAIR-AWARE-YANG] for the impairment-aware optical network topology model and [FLEXI-GRID-YANG] for the flexi-grid optical network topology model.

Additionally, neither transponder models nor resource block models (e.g., 3R) are in scope for this document.

This document defines one YANG module: "ietf-wson-topology" (Section 3). This document augments the generic TE topology specification [RFC8795].

There are multiple applications for the YANG data model defined in this document. For example, nodes within the network can use the data model to capture their understanding of the overall WSON topology and expose it to a controller. A controller can further propagate the topology to other controllers. The YANG data model is used by NETCONF [RFC6020] [RFC8341] or a RESTCONF [RFC8040] protocol. The YANG data model defined in this document conforms to the Network Management Datastore Architecture [RFC8342].

### 1.1. Terminology and Notations

Refer to [RFC7446] and [RFC7581] for the key terms used in this document. The following terms are defined in [RFC7950] and are not redefined here:

- \* client
- \* server
- \* augment
- \* data model
- \* data node

The following terms are defined in [RFC6241] and are not redefined here:

- \* configuration data
- \* state data

The terminology for describing YANG data models is found in [RFC7950].

### 1.2. Tree Diagram

A simplified graphical representation of the data model is used in Section 2 of this document. The meaning of the symbols in these diagrams is defined in [RFC8340].

### 1.3. Prefix in Data Node Names

In this document, names of data nodes and other data model objects are prefixed using the standard prefix associated with the corresponding YANG imported modules, as shown in the following table.

Prefix	YANG module	Reference
l0-types	ietf-layer0-types	[RFC9093]
wsont	ietf-wson-topology	RFC 9094
nw	ietf-network	[RFC8345]
nt	ietf-network-topology	[RFC8345]
tet	ietf-te-topology	[RFC8795]

Table 1: Data Node Names

## 2. YANG Data Model (Tree Structure) for WSON Topology

```

module: ietf-wson-topology
  augment /nw:networks/nw:network/nw:network-types/tet:te-topology:
    +--rw wson-topology!
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes:
      +--rw wson-node!
        +--rw is-reconfigurable-node? boolean
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:label-restrictions/tet:label-restriction:
      +--rw grid-type? identityref
      +--rw priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction:
      +--rw grid-type? identityref
      +--rw priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:to/tet:label-restrictions
    /tet:label-restriction:
      +--rw grid-type? identityref
      +--rw priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:label-restrictions/tet:label-restriction:
      +--ro grid-type? identityref
      +--ro priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction:
      +--ro grid-type? identityref
      +--ro priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:to/tet:label-restrictions
    /tet:label-restriction:
      +--ro grid-type? identityref
      +--ro priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te
    /tet:tunnel-termination-point
    /tet:local-link-connectivities/tet:label-restrictions
    /tet:label-restriction:
      +--rw grid-type? identityref
      +--rw priority? uint8
  augment /nw:networks/nw:network/nw:node/tet:te

```

```

        /tet:tunnel-termination-point
        /tet:local-link-connectivities
        /tet:local-link-connectivity/tet:label-restrictions
        /tet:label-restriction:
    +--rw grid-type?    identityref
    +--rw priority?    uint8
augment /nw:networks/nw:network/nt:link/tet:te
        /tet:te-link-attributes/tet:label-restrictions
        /tet:label-restriction:
    +--rw grid-type?    identityref
    +--rw priority?    uint8
augment /nw:networks/nw:network/nt:link/tet:te
        /tet:information-source-entry/tet:label-restrictions
        /tet:label-restriction:
    +--ro grid-type?    identityref
    +--ro priority?    uint8
augment /nw:networks/tet:te/tet:templates/tet:link-template
        /tet:te-link-attributes/tet:label-restrictions
        /tet:label-restriction:
    +--rw grid-type?    identityref
    +--rw priority?    uint8
augment /nw:networks/nw:network/nw:node/tet:te
        /tet:te-node-attributes/tet:connectivity-matrices
        /tet:label-restrictions/tet:label-restriction
        /tet:label-start/tet:te-label/tet:technology:
    +--:(wson)
        +--rw (grid-type)?
            +--:(dwdm)
            |   +--rw dwdm-n?    10-types:dwdm-n
            +--:(cwdm)
            +--rw cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
        /tet:te-node-attributes/tet:connectivity-matrices
        /tet:label-restrictions/tet:label-restriction
        /tet:label-end/tet:te-label/tet:technology:
    +--:(wson)
        +--rw (grid-type)?
            +--:(dwdm)
            |   +--rw dwdm-n?    10-types:dwdm-n
            +--:(cwdm)
            +--rw cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
        /tet:te-node-attributes/tet:connectivity-matrices
        /tet:label-restrictions/tet:label-restriction
        /tet:label-step/tet:technology:
    +--:(wson)
        +--rw (10-grid-type)?
            +--:(dwdm)
            |   +--rw wson-dwdm-channel-spacing?    identityref
            +--:(cwdm)
            +--rw wson-cwdm-channel-spacing?    identityref
augment /nw:networks/nw:network/nw:node/tet:te
        /tet:te-node-attributes/tet:connectivity-matrices
        /tet:underlay/tet:primary-path/tet:path-element/tet:type
        /tet:label/tet:label-hop/tet:te-label/tet:technology:
    +--:(wson)
        +--rw (grid-type)?
            +--:(dwdm)
            |   +--rw (single-or-super-channel)?
            |       +--:(single)
            |       |   +--rw dwdm-n?                10-types:dwdm-n
            |       +--:(super)
            |       +--rw subcarrier-dwdm-n*        10-types:dwdm-n
            +--:(cwdm)
            +--rw cwdm-n?                10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
        /tet:te-node-attributes/tet:connectivity-matrices
        /tet:underlay/tet:backup-path/tet:path-element/tet:type
        /tet:label/tet:label-hop/tet:te-label/tet:technology:
    +--:(wson)
        +--rw (grid-type)?

```

```

+--:(dwdm)
|   +--rw (single-or-super-channel)?
|       +--:(single)
|           |   +--rw dwdm-n?           10-types:dwdm-n
|           +--:(super)
|               +--rw subcarrier-dwdm-n* 10-types:dwdm-n
+--:(cwdm)
    +--rw cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:optimizations/tet:algorithm/tet:metric
    /tet:optimization-metric
    /tet:explicit-route-exclude-objects
    /tet:route-object-exclude-object/tet:type/tet:label
    /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
    +--rw (grid-type)?
        +--:(dwdm)
            |   +--rw (single-or-super-channel)?
            |       +--:(single)
            |           |   +--rw dwdm-n?           10-types:dwdm-n
            |           +--:(super)
            |               +--rw subcarrier-dwdm-n* 10-types:dwdm-n
            +--:(cwdm)
                +--rw cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:optimizations/tet:algorithm/tet:metric
    /tet:optimization-metric
    /tet:explicit-route-include-objects
    /tet:route-object-include-object/tet:type/tet:label
    /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
    +--rw (grid-type)?
        +--:(dwdm)
            |   +--rw (single-or-super-channel)?
            |       +--:(single)
            |           |   +--rw dwdm-n?           10-types:dwdm-n
            |           +--:(super)
            |               +--rw subcarrier-dwdm-n* 10-types:dwdm-n
            +--:(cwdm)
                +--rw cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:path-properties/tet:path-route-objects
    /tet:path-route-object/tet:type/tet:label/tet:label-hop
    /tet:te-label/tet:technology:
+--:(wson)
    +--ro (grid-type)?
        +--:(dwdm)
            |   +--ro (single-or-super-channel)?
            |       +--:(single)
            |           |   +--ro dwdm-n?           10-types:dwdm-n
            |           +--:(super)
            |               +--ro subcarrier-dwdm-n* 10-types:dwdm-n
            +--:(cwdm)
                +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction/tet:label-start/tet:te-label
    /tet:technology:
+--:(wson)
    +--rw (grid-type)?
        +--:(dwdm)
            |   +--rw dwdm-n?           10-types:dwdm-n
            +--:(cwdm)
                +--rw cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:te-node-attributes/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions

```

```

        /tet:label-restriction/tet:label-end/tet:te-label
        /tet:technology:
+---:(wson)
  +---rw (grid-type)?
    +---:(dwdm)
    | +---rw dwdm-n? 10-types:dwdm-n
    +---:(cwdm)
      +---rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:from/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+---:(wson)
  +---rw (l0-grid-type)?
    +---:(dwdm)
    | +---rw wson-dwdm-channel-spacing? identityref
    +---:(cwdm)
      +---rw wson-cwdm-channel-spacing? identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:to/tet:label-restrictions
  /tet:label-restriction/tet:label-start/tet:te-label
  /tet:technology:
+---:(wson)
  +---rw (grid-type)?
    +---:(dwdm)
    | +---rw dwdm-n? 10-types:dwdm-n
    +---:(cwdm)
      +---rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:to/tet:label-restrictions
  /tet:label-restriction/tet:label-end/tet:te-label
  /tet:technology:
+---:(wson)
  +---rw (grid-type)?
    +---:(dwdm)
    | +---rw dwdm-n? 10-types:dwdm-n
    +---:(cwdm)
      +---rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:to/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+---:(wson)
  +---rw (l0-grid-type)?
    +---:(dwdm)
    | +---rw wson-dwdm-channel-spacing? identityref
    +---:(cwdm)
      +---rw wson-cwdm-channel-spacing? identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:underlay/tet:primary-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+---:(wson)
  +---rw (grid-type)?
    +---:(dwdm)
    | +---rw (single-or-super-channel)?
    |   +---:(single)
    |   | +---rw dwdm-n? 10-types:dwdm-n
    |   +---:(super)
    |   +---rw subcarrier-dwdm-n* 10-types:dwdm-n
    +---:(cwdm)
      +---rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:underlay/tet:backup-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+---:(wson)

```

```

    +--rw (grid-type)?
      +--:(dwdm)
        | +--rw (single-or-super-channel)?
        |   +--:(single)
        |     | +--rw dwdm-n?           10-types:dwdm-n
        |     +--:(super)
        |       +--rw subcarrier-dwdm-n* 10-types:dwdm-n
        +--:(cwdm)
          +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:optimizations/tet:algorithm
  /tet:metric/tet:optimization-metric
  /tet:explicit-route-exclude-objects
  /tet:route-object-exclude-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |     | +--rw dwdm-n?           10-types:dwdm-n
      |     +--:(super)
      |       +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:optimizations/tet:algorithm
  /tet:metric/tet:optimization-metric
  /tet:explicit-route-include-objects
  /tet:route-object-include-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |     | +--rw dwdm-n?           10-types:dwdm-n
      |     +--:(super)
      |       +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:te-node-attributes/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:path-properties
  /tet:path-route-objects/tet:path-route-object/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |     | +--ro dwdm-n?           10-types:dwdm-n
      |     +--:(super)
      |       +--ro subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--ro cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:label-restrictions/tet:label-restriction
  /tet:label-start/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro dwdm-n? 10-types:dwdm-n
      +--:(cwdm)
        +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:label-restrictions/tet:label-restriction

```

```

    /tet:label-end/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
    | +--ro dwdm-n? 10-types:dwdm-n
    +--:(cwdm)
    +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:label-restrictions/tet:label-restriction
  /tet:label-step/tet:technology:
+--:(wson)
  +--ro (l0-grid-type)?
    +--:(dwdm)
    | +--ro wson-dwdm-channel-spacing? identityref
    +--:(cwdm)
    +--ro wson-cwdm-channel-spacing? identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:underlay/tet:primary-path/tet:path-element/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
    | +--ro (single-or-super-channel)?
    | | +--:(single)
    | | | +--ro dwdm-n? 10-types:dwdm-n
    | | +--:(super)
    | | | +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
    +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:underlay/tet:backup-path/tet:path-element/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
    | +--ro (single-or-super-channel)?
    | | +--:(single)
    | | | +--ro dwdm-n? 10-types:dwdm-n
    | | +--:(super)
    | | | +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
    +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:optimizations/tet:algorithm/tet:metric
  /tet:optimization-metric
  /tet:explicit-route-exclude-objects
  /tet:route-object-exclude-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
    | +--ro (single-or-super-channel)?
    | | +--:(single)
    | | | +--ro dwdm-n? 10-types:dwdm-n
    | | +--:(super)
    | | | +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
    +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:optimizations/tet:algorithm/tet:metric
  /tet:optimization-metric
  /tet:explicit-route-include-objects
  /tet:route-object-include-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?

```



```

+--:(dwdm)
|   +--ro (single-or-super-channel)?
|       +--:(single)
|           |   +--ro dwdm-n?           10-types:dwdm-n
|           +--:(super)
|               +--ro subcarrier-dwdm-n* 10-types:dwdm-n
+--:(cwdm)
    +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:path-properties/tet:path-route-objects
    /tet:path-route-object/tet:type/tet:label/tet:label-hop
    /tet:te-label/tet:technology:
+--:(wson)
    +--ro (grid-type)?
    +--:(dwdm)
    |   +--ro (single-or-super-channel)?
    |       +--:(single)
    |           |   +--ro dwdm-n?           10-types:dwdm-n
    |           +--:(super)
    |               +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
        +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction/tet:label-start/tet:te-label
    /tet:technology:
+--:(wson)
    +--ro (grid-type)?
    +--:(dwdm)
    |   +--ro dwdm-n?           10-types:dwdm-n
    +--:(cwdm)
        +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction/tet:label-end/tet:te-label
    /tet:technology:
+--:(wson)
    +--ro (grid-type)?
    +--:(dwdm)
    |   +--ro dwdm-n?           10-types:dwdm-n
    +--:(cwdm)
        +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:from/tet:label-restrictions
    /tet:label-restriction/tet:label-step/tet:technology:
+--:(wson)
    +--ro (l0-grid-type)?
    +--:(dwdm)
    |   +--ro wson-dwdm-channel-spacing?  identityref
    +--:(cwdm)
        +--ro wson-cwdm-channel-spacing?  identityref
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:to/tet:label-restrictions
    /tet:label-restriction/tet:label-start/tet:te-label
    /tet:technology:
+--:(wson)
    +--ro (grid-type)?
    +--:(dwdm)
    |   +--ro dwdm-n?           10-types:dwdm-n
    +--:(cwdm)
        +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
    /tet:information-source-entry/tet:connectivity-matrices
    /tet:connectivity-matrix/tet:to/tet:label-restrictions
    /tet:label-restriction/tet:label-end/tet:te-label
    /tet:technology:

```

```

+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro dwdm-n? 10-types:dwdm-n
    +--:(cwdm)
      +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:to/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+--:(wson)
  +--ro (l0-grid-type)?
    +--:(dwdm)
      | +--ro wson-dwdm-channel-spacing? identityref
    +--:(cwdm)
      +--ro wson-cwdm-channel-spacing? identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:underlay/tet:primary-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |   | +--ro dwdm-n? 10-types:dwdm-n
      |   +--:(super)
      |   +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:underlay/tet:backup-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |   | +--ro dwdm-n? 10-types:dwdm-n
      |   +--:(super)
      |   +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:optimizations/tet:algorithm
  /tet:metric/tet:optimization-metric
  /tet:explicit-route-exclude-objects
  /tet:route-object-exclude-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |   | +--ro dwdm-n? 10-types:dwdm-n
      |   +--:(super)
      |   +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--ro cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:optimizations/tet:algorithm
  /tet:metric/tet:optimization-metric
  /tet:explicit-route-include-objects
  /tet:route-object-include-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)

```

```

    +--ro (grid-type)?
      +--:(dwdm)
        | +--ro (single-or-super-channel)?
        |   +--:(single)
        |     | +--ro dwdm-n?           10-types:dwdm-n
        |     +--:(super)
        |       +--ro subcarrier-dwdm-n* 10-types:dwdm-n
        +--:(cwdm)
          +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:information-source-entry/tet:connectivity-matrices
  /tet:connectivity-matrix/tet:path-properties
  /tet:path-route-objects/tet:path-route-object/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |     | +--ro dwdm-n?           10-types:dwdm-n
      |     +--:(super)
      |       +--ro subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--ro cwdm-n?           10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:label-restrictions
  /tet:label-restriction/tet:label-start/tet:te-label
  /tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw dwdm-n?   10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?  10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:label-restrictions
  /tet:label-restriction/tet:label-end/tet:te-label
  /tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw dwdm-n?   10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?  10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+--:(wson)
  +--rw (l0-grid-type)?
    +--:(dwdm)
      | +--rw wson-dwdm-channel-spacing?  identityref
      +--:(cwdm)
        +--rw wson-cwdm-channel-spacing?  identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:underlay
  /tet:primary-path/tet:path-element/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |     | +--rw dwdm-n?           10-types:dwdm-n
      |     +--:(super)
      |       +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?           10-types:cwdm-n

```

```

augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:underlay
  /tet:backup-path/tet:path-element/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |   | +--rw dwdm-n?          10-types:dwdm-n
      |   +--:(super)
      |     +--rw subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n?          10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:optimizations
  /tet:algorithm/tet:metric/tet:optimization-metric
  /tet:explicit-route-exclude-objects
  /tet:route-object-exclude-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |   | +--rw dwdm-n?          10-types:dwdm-n
      |   +--:(super)
      |     +--rw subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n?          10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:optimizations
  /tet:algorithm/tet:metric/tet:optimization-metric
  /tet:explicit-route-include-objects
  /tet:route-object-include-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |   | +--rw dwdm-n?          10-types:dwdm-n
      |   +--:(super)
      |     +--rw subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n?          10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities/tet:path-properties
  /tet:path-route-objects/tet:path-route-object/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
    +--:(dwdm)
      | +--ro (single-or-super-channel)?
      |   +--:(single)
      |   | +--ro dwdm-n?          10-types:dwdm-n
      |   +--:(super)
      |     +--ro subcarrier-dwdm-n* 10-types:dwdm-n
    +--:(cwdm)
      +--ro cwdm-n?          10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:label-restrictions
  /tet:label-restriction/tet:label-start/tet:te-label
  /tet:technology:
+--:(wson)

```

```

    +--rw (grid-type)?
      +--:(dwdm)
        | +--rw dwdm-n? 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:label-restrictions
  /tet:label-restriction/tet:label-end/tet:te-label
  /tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw dwdm-n? 10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+--:(wson)
  +--rw (l0-grid-type)?
    +--:(dwdm)
      | +--rw wson-dwdm-channel-spacing? identityref
    +--:(cwdm)
      +--rw wson-cwdm-channel-spacing? identityref
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:underlay
  /tet:primary-path/tet:path-element/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
        +--:(single)
          | +--rw dwdm-n? 10-types:dwdm-n
        +--:(super)
          +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:underlay/tet:backup-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
        +--:(single)
          | +--rw dwdm-n? 10-types:dwdm-n
        +--:(super)
          +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n? 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:optimizations
  /tet:algorithm/tet:metric/tet:optimization-metric
  /tet:explicit-route-exclude-objects
  /tet:route-object-exclude-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)

```

```

    |   +--rw (single-or-super-channel)?
    |   |   +--:(single)
    |   |   |   +--rw dwdm-n?           10-types:dwdm-n
    |   |   +--:(super)
    |   |   |   +--rw subcarrier-dwdm-n* 10-types:dwdm-n
    |   +--:(cwdm)
    |   |   +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:optimizations
  /tet:algorithm/tet:metric/tet:optimization-metric
  /tet:explicit-route-include-objects
  /tet:route-object-include-object/tet:type/tet:label
  /tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
  +--:(dwdm)
  |   +--rw (single-or-super-channel)?
  |   |   +--:(single)
  |   |   |   +--rw dwdm-n?           10-types:dwdm-n
  |   |   +--:(super)
  |   |   |   +--rw subcarrier-dwdm-n* 10-types:dwdm-n
  |   +--:(cwdm)
  |   |   +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nw:node/tet:te
  /tet:tunnel-termination-point
  /tet:local-link-connectivities
  /tet:local-link-connectivity/tet:path-properties
  /tet:path-route-objects/tet:path-route-object/tet:type
  /tet:label/tet:label-hop/tet:te-label/tet:technology:
+--:(wson)
  +--ro (grid-type)?
  +--:(dwdm)
  |   +--ro (single-or-super-channel)?
  |   |   +--:(single)
  |   |   |   +--ro dwdm-n?           10-types:dwdm-n
  |   |   +--:(super)
  |   |   |   +--ro subcarrier-dwdm-n* 10-types:dwdm-n
  |   +--:(cwdm)
  |   |   +--ro cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
  /tet:te-link-attributes/tet:underlay/tet:primary-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
  +--:(dwdm)
  |   +--rw (single-or-super-channel)?
  |   |   +--:(single)
  |   |   |   +--rw dwdm-n?           10-types:dwdm-n
  |   |   +--:(super)
  |   |   |   +--rw subcarrier-dwdm-n* 10-types:dwdm-n
  |   +--:(cwdm)
  |   |   +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
  /tet:te-link-attributes/tet:underlay/tet:backup-path
  /tet:path-element/tet:type/tet:label/tet:label-hop
  /tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
  +--:(dwdm)
  |   +--rw (single-or-super-channel)?
  |   |   +--:(single)
  |   |   |   +--rw dwdm-n?           10-types:dwdm-n
  |   |   +--:(super)
  |   |   |   +--rw subcarrier-dwdm-n* 10-types:dwdm-n
  |   +--:(cwdm)
  |   |   +--rw cwdm-n?                 10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
  /tet:te-link-attributes/tet:label-restrictions

```

```

        /tet:label-restriction/tet:label-start/tet:te-label
        /tet:technology:
+---:(wson)
    +---rw (grid-type)?
        +---:(dwdm)
        | +---rw dwdm-n?    10-types:dwdm-n
        +---:(cwdm)
        +---rw cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:te-link-attributes/tet:label-restrictions
    /tet:label-restriction/tet:label-end/tet:te-label
    /tet:technology:
+---:(wson)
    +---rw (grid-type)?
        +---:(dwdm)
        | +---rw dwdm-n?    10-types:dwdm-n
        +---:(cwdm)
        +---rw cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:te-link-attributes/tet:label-restrictions
    /tet:label-restriction/tet:label-step/tet:technology:
+---:(wson)
    +---rw (l0-grid-type)?
        +---:(dwdm)
        | +---rw wson-dwdm-channel-spacing?    identityref
        +---:(cwdm)
        +---rw wson-cwdm-channel-spacing?    identityref
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:information-source-entry/tet:label-restrictions
    /tet:label-restriction/tet:label-start/tet:te-label
    /tet:technology:
+---:(wson)
    +---ro (grid-type)?
        +---:(dwdm)
        | +---ro dwdm-n?    10-types:dwdm-n
        +---:(cwdm)
        +---ro cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:information-source-entry/tet:label-restrictions
    /tet:label-restriction/tet:label-end/tet:te-label
    /tet:technology:
+---:(wson)
    +---ro (grid-type)?
        +---:(dwdm)
        | +---ro dwdm-n?    10-types:dwdm-n
        +---:(cwdm)
        +---ro cwdm-n?    10-types:cwdm-n
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:information-source-entry/tet:label-restrictions
    /tet:label-restriction/tet:label-step/tet:technology:
+---:(wson)
    +---ro (l0-grid-type)?
        +---:(dwdm)
        | +---ro wson-dwdm-channel-spacing?    identityref
        +---:(cwdm)
        +---ro wson-cwdm-channel-spacing?    identityref
augment /nw:networks/tet:te/tet:templates/tet:link-template
    /tet:te-link-attributes/tet:underlay/tet:primary-path
    /tet:path-element/tet:type/tet:label/tet:label-hop
    /tet:te-label/tet:technology:
+---:(wson)
    +---rw (grid-type)?
        +---:(dwdm)
        | +---rw (single-or-super-channel)?
        | | +---:(single)
        | | | +---rw dwdm-n?                    10-types:dwdm-n
        | | +---:(super)
        | | | +---rw subcarrier-dwdm-n*        10-types:dwdm-n
        +---:(cwdm)
        +---rw cwdm-n?                    10-types:cwdm-n
augment /nw:networks/tet:te/tet:templates/tet:link-template

```

```

        /tet:te-link-attributes/tet:underlay/tet:backup-path
        /tet:path-element/tet:type/tet:label/tet:label-hop
        /tet:te-label/tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw (single-or-super-channel)?
      |   +--:(single)
      |     | +--rw dwdm-n?          10-types:dwdm-n
      |     +--:(super)
      |       +--rw subcarrier-dwdm-n* 10-types:dwdm-n
      +--:(cwdm)
        +--rw cwdm-n?          10-types:cwdm-n
augment /nw:networks/tet:te/tet:templates/tet:link-template
  /tet:te-link-attributes/tet:label-restrictions
  /tet:label-restriction/tet:label-start/tet:te-label
  /tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw dwdm-n?  10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n?  10-types:cwdm-n
augment /nw:networks/tet:te/tet:templates/tet:link-template
  /tet:te-link-attributes/tet:label-restrictions
  /tet:label-restriction/tet:label-end/tet:te-label
  /tet:technology:
+--:(wson)
  +--rw (grid-type)?
    +--:(dwdm)
      | +--rw dwdm-n?  10-types:dwdm-n
    +--:(cwdm)
      +--rw cwdm-n?  10-types:cwdm-n
augment /nw:networks/tet:te/tet:templates/tet:link-template
  /tet:te-link-attributes/tet:label-restrictions
  /tet:label-restriction/tet:label-step/tet:technology:
+--:(wson)
  +--rw (l0-grid-type)?
    +--:(dwdm)
      | +--rw wson-dwdm-channel-spacing?  identityref
    +--:(cwdm)
      +--rw wson-cwdm-channel-spacing?  identityref

```

### 3. YANG Module for WSON Topology

```

<CODE BEGINS> file "ietf-wson-topology@2021-08-13.yang"
module ietf-wson-topology {
  yang-version 1.1;
  namespace "urn:ietf:params:xml:ns:yang:ietf-wson-topology";
  prefix wsont;

  import ietf-network {
    prefix nw;
    reference
      "RFC 8345: A YANG Data Model for Network Topologies";
  }

  import ietf-network-topology {
    prefix nt;
    reference
      "RFC 8345: A YANG Data Model for Network Topologies";
  }

  import ietf-te-topology {
    prefix tet;
    reference
      "RFC 8795: YANG Data Model for
      Traffic Engineering (TE) Topologies";
  }

  import ietf-layer0-types {

```



```

prefix 10-types;
reference
  "RFC 9093: A YANG Data Model for Layer 0 Types";
}

organization
  "IETF CCAMP Working Group";

contact
  "WG Web: <https://datatracker.ietf.org/wg/ccamp/>
  WG List: <mailto:ccamp@ietf.org>

  Editor: Haomian Zheng <zhenghaomian@huawei.com>
  Editor: Young Lee <younglee.tx@gmail.com>
  Editor: Aihua Guo <aihuaguo.ietf@gmail.com>
  Editor: Victor Lopez <victor.lopez@nokia.com>
  Editor: Daniel King <d.king@lancaster.ac.uk>";

description
  "This module provides a YANG data model for the routing and
  wavelength assignment (RWA) Traffic Engineering (TE)
  topology in Wavelength Switched Optical Networks (WSONs).
  The YANG data model described in this document is a WSON
  technology-specific YANG data model augmenting the generic TE
  topology module (ietf-te-topology) based on the information
  model developed in RFC 7446 and the two encoding documents
  RFC 7579 and RFC 7581.

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  BSD License set forth in Section 4.c of the IETF Trust's
  Legal Provisions Relating to IETF Documents
  (https://trustee.ietf.org/license-info).

```

```

        WSON topology type.";
    }
description
    "Augment TE node attributes.";
container wson-node {
    presence "The TE node is a WSON node.";
    description
        "WSON node attributes";
    leaf is-reconfigurable-node {
        type boolean;
        default "true";
        description
            "Indicates whether the WSON node is reconfigurable:
            - true: the node is reconfigurable, i.e.,
              it is representing a Reconfigurable Optical
              Add/Drop Multiplexer (ROADM) node;
            - false: the node is not reconfigurable, i.e.,
              it is representing a Fixed Optical Add/Drop
              Multiplexer (FOADM) node.";
    }
}
}
}

/*
 * Augment TE label range information
 */

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:te-node-attributes/tet:connectivity-matrices/"
    + "tet:label-restrictions/tet:label-restriction" {
when '../..../nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
    description
        "Augmentation parameters apply only for networks with
        WSON topology type.";
}
description
    "Augment TE label range information for the TE node
    connectivity matrices.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:te-node-attributes/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/tet:from/"
    + "tet:label-restrictions/tet:label-restriction" {
when '../..../nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
    description
        "Augmentation parameters apply only for networks with
        WSON topology type.";
}
description
    "Augment TE label range information for the source LTP
    of the connectivity matrix entry.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:te-node-attributes/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/tet:to/"
    + "tet:label-restrictions/tet:label-restriction" {
when '../..../nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
    description
        "Augmentation parameters apply only for networks with
        WSON topology type.";
}
description
    "Augment TE label range information for the destination LTP
    of the connectivity matrix entry.";
}

```

```

    uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/"
  + "tet:connectivity-matrices/tet:label-restrictions/"
  + "tet:label-restriction" {
when '../..../..../..../nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range information for the TE node
  connectivity matrices information source.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/tet:connectivity-matrices/"
  + "tet:connectivity-matrix/"
  + "tet:from/tet:label-restrictions/tet:label-restriction" {
when '../..../..../..../nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range information for the source LTP
  of the connectivity matrix entry information source.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/tet:connectivity-matrices/"
  + "tet:connectivity-matrix/"
  + "tet:to/tet:label-restrictions/tet:label-restriction" {
when '../..../..../..../nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range information for the destination LTP
  of the connectivity matrix entry information source.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:tunnel-termination-point/"
  + "tet:local-link-connectivities/"
  + "tet:label-restrictions/tet:label-restriction" {
when '../..../..../..../nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range information for the Tunnel
  Termination Point (TTP) Local Link Connectivities.";
uses l0-types:l0-label-range-info;
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:tunnel-termination-point/"
  + "tet:local-link-connectivities/"
  + "tet:local-link-connectivity/"

```



```

}
augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:label-restrictions/"
+ "tet:label-restriction/tet:label-end/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
"Augmentation parameters apply only for networks with
WSON topology type.";
}
description
"Augment TE label range end for the TE node
connectivity matrices.";
case wson {
uses l0-types:wson-label-start-end;
}
}
}

```

```

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:label-restrictions/"
+ "tet:label-restriction/tet:label-step/"
+ "tet:technology" {
when '../..../..../..../..../..../nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
"Augmentation parameters apply only for networks with
WSON topology type.";
}
description
"Augment TE label range step for the TE node
connectivity matrices.";
case wson {
uses l0-types:wson-label-step;
}
}
}

```

```

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:underlay/tet:primary-path/tet:path-element/"
+ "tet:type/tet:label/tet:label-hop/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
"Augmentation parameters apply only for networks with
WSON topology type.";
}
description
"Augment TE label hop for the underlay primary path of the
TE node connectivity matrices.";
case wson {
uses l0-types:wson-label-hop;
}
}
}

```

```

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:underlay/tet:backup-path/tet:path-element/"
+ "tet:type/tet:label/tet:label-hop/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
"Augmentation parameters apply only for networks with
WSON topology type.";
}
}
}

```

```

}
description
  "Augment TE label hop for the underlay backup path of the
  TE node connectivity matrices.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:optimizations/tet:algorithm/tet:metric/"
+ "tet:optimization-metric/"
+ "tet:explicit-route-exclude-objects/"
+ "tet:route-object-exclude-object/"
+ "tet:type/tet:label/tet:label-hop/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../..../..../..../'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the explicit route objects excluded
  by the path computation of the TE node connectivity
  matrices.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:optimizations/tet:algorithm/tet:metric/"
+ "tet:optimization-metric/"
+ "tet:explicit-route-include-objects/"
+ "tet:route-object-include-object/"
+ "tet:type/tet:label/tet:label-hop/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../..../..../..../'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the explicit route objects included
  by the path computation of the TE node connectivity
  matrices.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:te-node-attributes/tet:connectivity-matrices/"
+ "tet:path-properties/tet:path-route-objects/"
+ "tet:path-route-object/tet:type/tet:label/tet:label-hop/"
+ "tet:te-label/tet:technology" {
when '../..../..../..../..../..../..../..../..../'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the computed path route objects

```









```

    case wson {
      uses 10-types:wson-label-hop;
    }
  }

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:te-node-attributes/tet:connectivity-matrices/"
  + "tet:connectivity-matrix/"
  + "tet:path-properties/tet:path-route-objects/"
  + "tet:path-route-object/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label hop for the computed path route objects
  of the connectivity matrix entry.";
case wson {
  uses 10-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/"
  + "tet:connectivity-matrices/tet:label-restrictions/"
  + "tet:label-restriction/"
  + "tet:label-start/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range start for the TE node connectivity
  matrices information source.";
case wson {
  uses 10-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/"
  + "tet:connectivity-matrices/tet:label-restrictions/"
  + "tet:label-restriction/"
  + "tet:label-end/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label range end for the TE node connectivity
  matrices information source.";
case wson {
  uses 10-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:information-source-entry/"
  + "tet:connectivity-matrices/tet:label-restrictions/"
  + "tet:label-restriction/"
  + "tet:label-step/tet:technology" {

```



```

    by the path computation of the TE node connectivity matrices
    information source.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:information-source-entry/tet:connectivity-matrices/"
+ "tet:optimizations/tet:algorithm/tet:metric/"
+ "tet:optimization-metric/"
+ "tet:explicit-route-include-objects/"
+ "tet:route-object-include-object/tet:type/"
+ "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '../.../.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the explicit route objects included
  by the path computation of the TE node connectivity matrices
  information source.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:information-source-entry/tet:connectivity-matrices/"
+ "tet:path-properties/tet:path-route-objects/"
+ "tet:path-route-object/tet:type/"
+ "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '../.../.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the computed path route objects
  of the TE node connectivity matrices information source.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:information-source-entry/tet:connectivity-matrices/"
+ "tet:connectivity-matrix/"
+ "tet:from/tet:label-restrictions/"
+ "tet:label-restriction/"
+ "tet:label-start/tet:te-label/tet:technology" {
when '../.../.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label range start for the source LTP
  of the connectivity matrix entry information source.";
case wson {
  uses l0-types:wson-label-start-end;
}
}
}
augment "/nw:networks/nw:network/nw:node/tet:te/"

```

```

    + "tet:information-source-entry/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/"
    + "tet:from/tet:label-restrictions/"
    + "tet:label-restriction/"
    + "tet:label-end/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range end for the source LTP
    of the connectivity matrix entry information source.";
case wson {
    uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:information-source-entry/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/"
    + "tet:from/tet:label-restrictions/"
    + "tet:label-restriction/"
    + "tet:label-step/tet:technology" {
when ' ../../../../../../../../../../../../../../'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range step for the source LTP
    of the connectivity matrix entry information source.";
case wson {
    uses l0-types:wson-label-step;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:information-source-entry/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/"
    + "tet:to/tet:label-restrictions/tet:label-restriction/"
    + "tet:label-start/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range start for the destination LTP
    of the connectivity matrix entry information source.";
case wson {
    uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:information-source-entry/tet:connectivity-matrices/"
    + "tet:connectivity-matrix/"
    + "tet:to/tet:label-restrictions/tet:label-restriction/"
    + "tet:label-end/tet:te-label/tet:technology" {
when ' ../../../../../../../../../../../../../../'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with

```





```

    + "tet:label-restrictions/tet:label-restriction/"
    + "tet:label-start/"
    + "tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range start for the TTP
    Local Link Connectivities.";
case wson {
    uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:tunnel-termination-point/"
    + "tet:local-link-connectivities/"
    + "tet:label-restrictions/tet:label-restriction/"
    + "tet:label-end/"
    + "tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range end for the TTP
    Local Link Connectivities.";
case wson {
    uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:tunnel-termination-point/"
    + "tet:local-link-connectivities/"
    + "tet:label-restrictions/tet:label-restriction/"
    + "tet:label-step/"
    + "tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
    "Augment TE label range step for the TTP
    Local Link Connectivities.";
case wson {
    uses l0-types:wson-label-step;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
    + "tet:tunnel-termination-point/"
    + "tet:local-link-connectivities/"
    + "tet:underlay/tet:primary-path/tet:path-element/tet:type/"
    + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
    + 'nw:network-types/tet:te-topology/'
    + 'wsont:wson-topology' {
description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
}

```



```

}
description
  "Augment TE label hop for the underlay primary path
  of the TTP Local Link Connectivities.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:tunnel-termination-point/"
  + "tet:local-link-connectivities/"
  + "tet:underlay/tet:backup-path/tet:path-element/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '...../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label hop for the underlay backup path
  of the TTP Local Link Connectivities.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:tunnel-termination-point/"
  + "tet:local-link-connectivities/"
  + "tet:optimizations/tet:algorithm/tet:metric/"
  + "tet:optimization-metric/"
  + "tet:explicit-route-exclude-objects/"
  + "tet:route-object-exclude-object/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '...../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label hop for the explicit route objects excluded
  by the path computation of the TTP Local Link
  Connectivities.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
  + "tet:tunnel-termination-point/"
  + "tet:local-link-connectivities/"
  + "tet:optimizations/tet:algorithm/tet:metric/"
  + "tet:optimization-metric/"
  + "tet:explicit-route-include-objects/"
  + "tet:route-object-include-object/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '...../'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
  description
    "Augmentation parameters apply only for networks with
    WSON topology type.";
}
description
  "Augment TE label hop for the explicit route objects included
  by the path computation of the TTP Local Link

```

```

    Connectivities.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:tunnel-termination-point/"
+ "tet:local-link-connectivities/"
+ "tet:path-properties/tet:path-route-objects/"
+ "tet:path-route-object/tet:type/"
+ "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the computed path route objects
  of the TTP Local Link Connectivities.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:tunnel-termination-point/"
+ "tet:local-link-connectivities/"
+ "tet:local-link-connectivity/"
+ "tet:label-restrictions/tet:label-restriction/"
+ "tet:label-start/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label range start for the TTP
  Local Link Connectivity entry.";
case wson {
  uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:tunnel-termination-point/"
+ "tet:local-link-connectivities/"
+ "tet:local-link-connectivity/"
+ "tet:label-restrictions/tet:label-restriction/"
+ "tet:label-end/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
+ 'nw:network-types/tet:te-topology/'
+ 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label range end for the TTP
  Local Link Connectivity entry.";
case wson {
  uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nw:node/tet:te/"
+ "tet:tunnel-termination-point/"

```





```

}
description
  "Augment TE label hop for the underlay primary path
  of the TE link.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nt:link/tet:te/"
  + "tet:te-link-attributes/"
  + "tet:underlay/tet:backup-path/tet:path-element/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../...'
  + 'nw:network-types/tet:te-topology/'
  + 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label hop for the underlay backup path
  of the TE link.";
case wson {
  uses l0-types:wson-label-hop;
}
}

augment "/nw:networks/nw:network/nt:link/tet:te/"
  + "tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-start/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
  + 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label range start for the TE link.";
case wson {
  uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nt:link/tet:te/"
  + "tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-end/tet:te-label/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
  + 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
description
  "Augment TE label range end for the TE link.";
case wson {
  uses l0-types:wson-label-start-end;
}
}

augment "/nw:networks/nw:network/nt:link/tet:te/"
  + "tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-step/tet:technology" {
when '.../.../.../.../.../.../.../.../.../...'
  + 'wsont:wson-topology' {
description
  "Augmentation parameters apply only for networks with
  WSON topology type.";
}
}

```



```

    }
}

augment "/nw:networks/tet:te/tet:templates/"
  + "tet:link-template/tet:te-link-attributes/"
  + "tet:underlay/tet:backup-path/tet:path-element/tet:type/"
  + "tet:label/tet:label-hop/tet:te-label/tet:technology" {
  description
    "Augment TE label hop for the underlay backup path
    of the TE link template.";
  case wson {
    uses l0-types:wson-label-hop;
  }
}

augment "/nw:networks/tet:te/tet:templates/"
  + "tet:link-template/tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-start/tet:te-label/tet:technology" {
  description
    "Augment TE label range start for the TE link template.";
  case wson {
    uses l0-types:wson-label-start-end;
  }
}

augment "/nw:networks/tet:te/tet:templates/"
  + "tet:link-template/tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-end/tet:te-label/tet:technology" {
  description
    "Augment TE label range end for the TE link template.";
  case wson {
    uses l0-types:wson-label-start-end;
  }
}

augment "/nw:networks/tet:te/tet:templates/"
  + "tet:link-template/tet:te-link-attributes/"
  + "tet:label-restrictions/tet:label-restriction/"
  + "tet:label-step/tet:technology" {
  description
    "Augment TE label range step for the TE link template.";
  case wson {
    uses l0-types:wson-label-step;
  }
}
}
}
<CODE ENDS>

```

#### 4. Security Considerations

The YANG module specified in this document defines a schema for data that is designed to be accessed via network management protocols such as NETCONF [RFC6241] or RESTCONF [RFC8040]. The lowest NETCONF layer is the secure transport layer, and the mandatory-to-implement secure transport is Secure Shell (SSH) [RFC6242]. The lowest RESTCONF layer is HTTPS, and the mandatory-to-implement secure transport is TLS [RFC8446].

The NETCONF protocol over Secure Shell (SSH) specification [RFC6242] describes a method for invoking and running NETCONF within a Secure Shell (SSH) session as an SSH subsystem. The NETCONF access control model [RFC8341] provides the means to restrict access for particular NETCONF or RESTCONF users to a preconfigured subset of all available NETCONF or RESTCONF protocol operations and content.

There are a number of data nodes defined in this YANG module that are writable/creatable/deletable (i.e., config true, which is the default). These data nodes may be considered sensitive or vulnerable in some network environments. Write operations (e.g., edit-config)

to these data nodes without proper protection can have a negative effect on network operations. Considerations in Section 8 of [RFC8795] are also applicable to the module defined in this document.

Some of the readable data nodes in this YANG module may be considered sensitive or vulnerable in some network environments. It is thus important to control read access (e.g., via `get`, `get-config`, or notification) to these data nodes. Considerations in Section 8 of [RFC8795] are also applicable to the module defined in this document.

Finally, the YANG module described in this document augments the "ietf-network" YANG module [RFC8345] and the "ietf-te-topology" YANG module [RFC8795] by adding data nodes. The security considerations for the subtrees described in those RFCs apply equally to the new data nodes that this module adds.

## 5. IANA Considerations

IANA has assigned new URIs from the "IETF XML Registry" [RFC3688] as follows:

URI: `urn:ietf:params:xml:ns:yang:ietf-wson-topology`  
Registrant Contact: The IESG  
XML: N/A; the requested URI is an XML namespace.

This document registers a YANG module in the "YANG Module Names" registry [RFC7950] [RFC6020].

Name: `ietf-wson-topology`  
Namespace: `urn:ietf:params:xml:ns:yang:ietf-wson-topology`  
Prefix: `wsont`  
Reference: RFC 9094

## 6. References

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