

# A YANG Data Model for Passive Network Inventory

draft-ygb-ivy-passive-network-inventory-00

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# Motivation

- Passive infrastructure is a crucial part of communication networks. Inventory management for passive infrastructure is of good interest by operators and the OSS/BSS system
  - A common model is desired for different technology domains
- This work is in the scope for IVY (see issue #32 & #46 of network-inventory-yang)
- Passive inventory models both passive devices and cables (e.g. fiber, cable, optical splitters)
  - Passive components and cables inside NEs (not defined in this revision due to time constraints)
  - Cables, cable distribution & jumper devices connecting the NEs

# Example Passive Devices



Optical Distribution Frame (ODF)



Optical cable junction box (Closure)



Fiber distribution terminal (FDT)



Fiber access terminal (FAT)

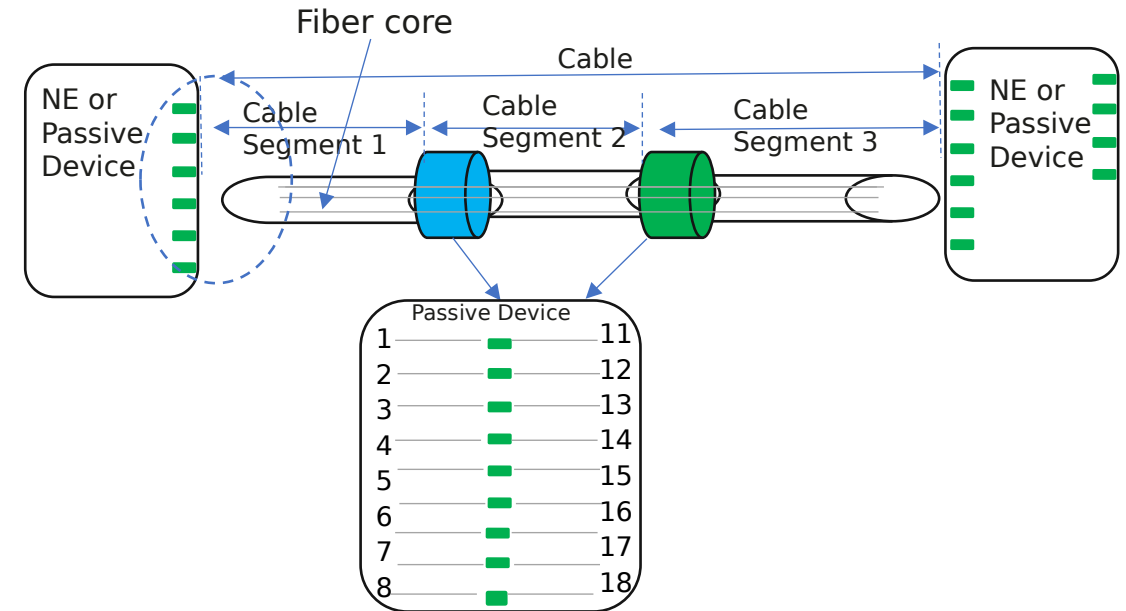


ATB ( Access Terminal Box )

- Passive devices may be deployed along with or at a site outside the CO
  - Has associated location and responsible party information
  - Connection/distribution/jumping capabilities

# Cable & Cable Segments

- Optical cable: consists of one or multiple optical cable segments connected by optical cable connectors.
  - The equipment at both ends of the cable can be a passive device or an active/managed NE device.
  - A fiber is a cable with only one fiber core
- An optical cable segment refers to a section of optical cable where the number of fiber cores between two optical junctions remains unchanged.
  - Spliced or fused through a joint box or connected through ODF or fiber jumpers.
  - Contains one or multiple fiber cores



# YANG Models

```
augment /ni:network-inventory:
  +--rw optical-cable* [id]
  | +--rw id string
  | +--ro uuid? yang:uuid
  | +--rw name? string
  | +--rw description? string
  | +--rw alias? string
  | +--rw cable-type? identityref
  | +--rw fiber-core-num? uint32
  | +--rw a-end
  | | +--rw device-type? identityref
  | | +--rw (connected-device-type)?
  | | | +--:(passive)
  | | | | +--rw device-id? string
  | | | +--:(active)
  | | | | +--rw ne-ref? leafref
  | | | | +--rw component-ref? leafref
  | | +--rw z-end
  | | | +--rw device-type? identityref
  | | | +--rw (connected-device-type)?
  | | | | +--:(passive)
  | | | | | +--rw device-id? string
  | | | | +--:(active)
  | | | | | +--rw ne-ref? leafref
  | | | | | +--rw component-ref? leafref
  | +--rw optical-cable-segment* [id]
  | | .....
  +--rw passive-device* [id]
  | +-- .....
  | +--rw id string
  | +--ro uuid? yang:uuid
  | +--rw name? string
  | +--rw description? string
  | +--rw alias? string
  | +--rw device-type? identityref
  | +--rw custom-tags* string
  | +--rw location-ref? nil:ni-location-ref
  | +--rw passive-port* [id]
  | | +--rw id string
  | | +--ro uuid? yang:uuid
  | | +--rw name? string
  | | +--rw description? string
  | | +--rw alias? string
  | | +--rw port-type? identityref
  | | +--rw fiber-core-num? uint32
  | +--rw z-end
  | | +--rw device-type? identityref
  | | +--rw (connected-device-type)?
  | | | +--:(passive)
  | | | | +--rw device-id? string
  | | | +--:(active)
  | | | | +--rw ne-ref? leafref
  | | | | +--rw component-ref? leafref
  | +--rw optical-cable-segment* [id]
  | | .....
  +--rw passive-device* [id]
  | +-- .....
  | +--rw id string
  | +--ro uuid? yang:uuid
  | +--rw name? string
  | +--rw description? string
  | +--rw alias? string
  | +--rw device-type? identityref
  | +--rw custom-tags* string
  | +--rw location-ref? nil:ni-location-ref
  | +--rw passive-port* [id]
  | | +--rw id string
  | | +--ro uuid? yang:uuid
  | | +--rw name? string
  | | +--rw description? string
  | | +--rw alias? string
  | | +--rw port-type? identityref
  | | +--rw fiber-core-num? uint32
  | +--rw z-end
  | | +--rw device-type? identityref
  | | +--rw (connected-device-type)?
  | | | +--:(passive)
  | | | | +--rw device-id? string
  | | | +--:(active)
  | | | | +--rw ne-ref? leafref
  | | | | +--rw component-ref? leafref
```

# Next Steps

- Modeling intra-NE passive components
  - Reuse the same optical-cable list to model intra-NE cable
  - Or, model the cable as a new component type under the NE
- Solicit reviews and comments from the WG
- Welcome co-authors and contributors
  
- Github link:  
<https://github.com/aguoietaf/draft-ygi-network-inventory-passive-element>

# Thank You!