

# A YANG Network Data Model of Network Inventory Software Extensions

[draft-wzwb-ivy-network-inventory-software](#)

**IVY WG, IETF#118**

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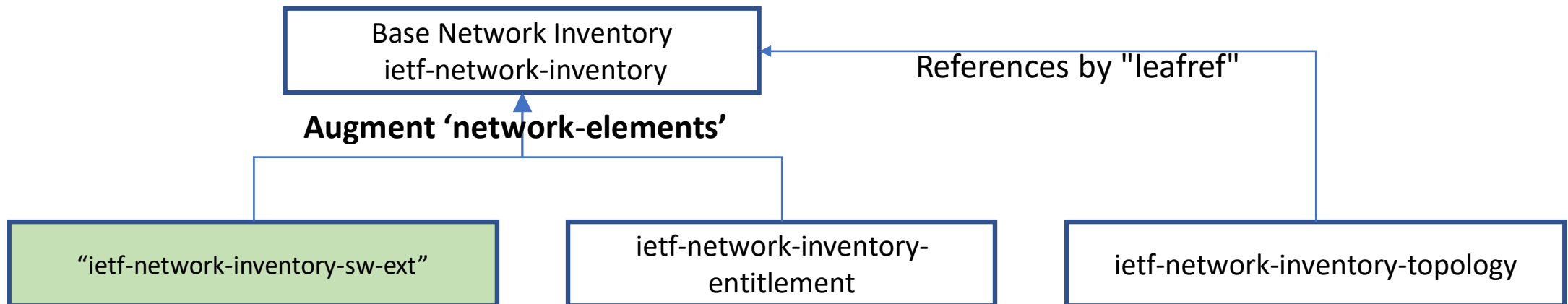
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**I E T F**

# Inventory Software Extensions

- The current base inventory is defined for physical Network Element (NE) and hardware component inventory per the IVY weekly call.
- This is an extended model for non-physical NE and software component inventory



# Network Element (NE) Type Extension

- Suggest to be consistent with “[ietf-system](#)” to facilitate device model mapping
- **Virtual network devices** are defined. Work on SDN devices, or devices with both virtualized and physical components.

```
+--rw network-elements
  +--rw network-element* [ne-id]
    +--rw ne-id          string
    +--rw ne-type?      identityref
    +--rw uuid?         yang:uuid
    +--rw name?         string
    +--rw description?  string
    +--rw alias?       string
    +--rw hardware-rev? string
    +--rw software-rev? string
    +--rw mfg-name?    string
```

“ietf-network-inventory”

```
+--rw system
  | +--rw contact?      string
  | +--rw hostname?    inet:domain-name
  | +--rw location?    string
  +--ro system-state
    +--ro platform
      +--ro os-name?    string
      +--ro os-release? string
      +--ro os-version? string
      +--ro machine?    string
```

“ietf-system”

```
identity ne-type {
  description
    "Base identity for network element (NE) types.";
}

identity ne-physical {
  base ni:ne-type;
  description
    "A physical network element (NE). ";
}
```

```
identity ne-virtual {
  base ni:ne-type;
  description
    "A virtual network element (NE). ";
}
```

```
identity ne-sdn {
  base ni:ne-type;
  description
    "An SDN controller. ";
}
```

# Software Component Modelling

- **Current model: Software components:** operating-system, operating-system-patch, bios, boot-loader, software-module, which is similar to the management of hardware and firmware
- **Issue:** The basic inventory model defines only the software versions of NEs and hardware components. The platform-os patch of the SW component is not covered.

```

+--rw components
+--rw component* [component-id]
+--rw component-id string
+--rw uuid? yang:uuid
+--rw name? string
+--rw description? string
+--rw alias? string
+--rw class union
+--rw child-component-ref → SW components relationship
+--rw parent-rel-pos? int32
+--rw parent-component-ref
+--rw hardware-rev? string
+--rw firmware-rev? string
+--rw software-rev? string
+--rw serial-num? string
+--rw mfg-name? string
+--rw part-number? string
+--rw asset-id? string
+--rw is-fru? boolean
+--rw mfg-date? yang:date-and-time
+--rw uri* inet:uri
  
```

sw-component-id

sw-name

- sw-component-class
- operating-system
  - operating-system-patch
  - Bios
  - boot-loader
  - software-module

sw-serial-num

sw-vendor-name

```

identity non-hardware-component-class {
  description
    "Base identity for non hardware components (e.g., software
    components) in a managed device.";
}
  
```

```

identity software-component {
  base ni:non-hardware-component;
  description
    "Base identity for software components in a managed
    device.";
}

identity operating-system {
  base software-component;
  description
    "OS software type.";
}

identity operating-system-patch {
  base software-component;
  description
    "An operating system update - which should be a subcomponent
    of the `operating-system` running on a component. A patch is
    defined to be a set of software changes that are atomically
    installed (and uninstalled) together. ";
}
  
```



## Next Step

- Solicit for WG adoption
- Welcome reviews and comments