IEEE 802.1AE Yang Statistics

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Checking the Yang Model Statistics

- Complete Model follows
    - Controlled Port Stats = Combined (Generation + Verification Stats) (see attached for counters).
    - Common Port = Combined (Unprotected + Unencrypted)
    - Uncontrolled port = Common port (Minus any error counters)
- IETF Interface (augmented by MACsec) = Combined (Common port + Controlled port + any other traffic from other components if this interface has other components).
- Really have two counters that account for all Traffic (Controlled port and Common port) to/from the LAN.
- Logical interfaces for EDE I don't think that interface needs any counters – they would just be the sum of these two set of stats.
- This would mean interface counters on the S-Component Provider network port (the real interface) are sufficient in the EDE case. The internal interface might be a type of sub-interface (I've been reviewing sub interfaces in the IETF Netmod group.) Other interfaces would still use the regular Interface.

Yang statistics

Figure 10-2—SecY architecture and operation

Uncontrolled Port
(no errors)

Generation

Verification

Common Port

Controlled Port

Interface

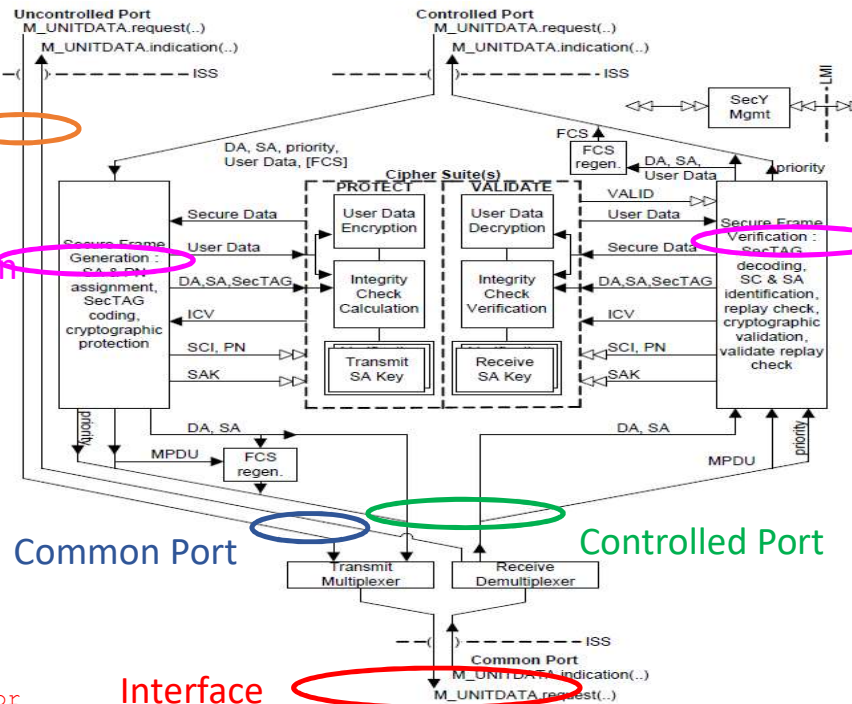Where are these
counters in the YANG Model ?
See next pages.

```
if:type = 'ianaift:ethernetCsmacd' or
        if:type = 'ianaift:ilan' or
        if:type = 'ianaift:macSecControlledIF' or
        if:type = 'ianaift:ptm' or
        if:type = 'ianaift:bridge'
```

802.1ae Yang Tree

```
module: ieee802-dot1ae
  augment /if:interfaces/if:interface:
    +--rw secy
       +--rw controlled-port-number?   dot1x-types:pae-if-index
       +--rw verification
       |  +--ro max-receive-channels?   uint8
       |  +--ro max-receive-keys?       uint8
       |  +--rw validate-frames?        enumeration
       |  +--rw replay-protect?         boolean
       |  +--rw replay-window?          uint32
       |  +--ro in-pkts-untagged?       yang:counter64
       |  +--ro in-pkts-no-tag?         yang:counter64
       |  +--ro in-pkts-bad-tag?        yang:counter64
       |  +--ro in-pkts-no-sa?          yang:counter64
       |  +--ro in-pkts-no-sa-error?    yang:counter64
       |  +--ro in-pkts-overrun?        yang:counter64
       |  +--ro in-octets-validated?    yang:counter64
       |  +--ro in-octets-decrypted?    yang:counter64
       |  +--ro receive-sc* [sci]
       |     +--ro sci                  dot1aetypes:sec-sci-type
       |     +--ro created-time?        yang:date-and-time
       |     +--ro started-time?        yang:date-and-time
       |     +--ro stopped-time?        yang:date-and-time
       |     +--ro receiving?           boolean
       |     +--ro in-pkts-ok?          yang:counter64
       |     +--ro in-pkts-unchecked?   yang:counter64
       |     +--ro in-pkts-delayed?     yang:counter64
       |     +--ro in-pkts-late?        yang:counter64
       |     +--ro in-pkts-invalid?     yang:counter64
       |     +--ro in-pkts-not-valid?   yang:counter64
       |     +--ro receive-sa* [rxa]
       |        +--ro in-use?           boolean
       |        +--ro ssci?             uint32
       |        +--ro next-pn?          dot1aetypes:sec-pn-type
       |        +--ro created-time?     yang:date-and-time
       |        +--ro started-time?     yang:date-and-time
       |        +--ro stopped-time?     yang:date-and-time
       |        +--ro rxa               dot1aetypes:sec-an-type
       |        +--ro lowest-pn?        dot1aetypes:sec-pn-type
       |        +--ro enable-receive?   boolean
       |        +--ro updt-next-pn?     dot1aetypes:sec-pn-type
       |        +--ro updt-lowest-pn?   dot1aetypes:sec-pn-type
       |        +--ro key-identifier?   dot1aetypes:sec-key-identifier-
type
       +--rw generation
       |  +--ro sci-base?               String
       |  +--rw max-transmit-channels?  uint16
       |  +--rw max-transmit-keys?      uint16
       |  +--rw protect-frames?         boolean
       |  +--rw always-include-sci?     boolean
       |  +--rw use-es?                 boolean
       |  +--rw use-scb?                boolean
       |  +--ro including-sci?          boolean
       |  +--ro out-pkts-untagged?      yang:counter64
       |  +--ro out-pkts-too-long?      yang:counter64
       |  +--ro out-octets-protected?   yang:counter64
       |  +--ro out-octets-encrypted?   yang:counter64
       |  +--rw user-priority-0
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-1
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-2
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-3
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-4
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-5
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-6
       |  |  +--rw traffic-class?   uint8
       |  +--rw user-priority-7
       |  |  +--rw traffic-class?   uint8
```

802.1ae Yang Tree

```
| +--rw user-pcp-0                                    | +--ro transmit-sc* [sci]
|   |  +--rw access-priority?   uint8                 |     +--ro sci                 dot1aetypes:sec-sci-type
|   +--rw user-pcp-1                                  |     +--ro created-time?       yang:date-and-time
|   |  +--rw access-priority?   uint8                 |     +--ro started-time?       yang:date-and-time
|   +--rw user-pcp-2                                  |     +--ro stopped-time?       yang:date-and-time
|   |  +--rw access-priority?   uint8                 |     +--ro transmitting?       boolean
|   +--rw user-pcp-3                                  |     +--ro encoding-sa?        dot1aetypes:sec-an-type
|   |  +--rw access-priority?   uint8                 |     +--ro out-pkts-protected?  yang:counter64
|   +--rw user-pcp-4                                  |     +--ro out-pkts-encrypted?  yang:counter64
|   |  +--rw access-priority?   uint8                 |     +--ro transmit-sa* [txa]
|   +--rw user-pcp-5                                  |        +--ro in-use?           boolean
|   |  +--rw access-priority?   uint8                 |        +--ro ssci?             uint32
|   +--rw user-pcp-6                                  |        +--ro next-pn?          dot1aetypes:sec-pn-type
|   |  +--rw access-priority?   uint8                 |        +--ro created-time?     yang:date-and-time
|   +--rw user-pcp-7                                  |        +--ro started-time?     yang:date-and-time
|   |  +--rw access-priority?   uint8                 |        +--ro stopped-time?     yang:date-and-time
|   +--rw user-pcp-8                                  |        +--ro txa               dot1aetypes:sec-an-type
|   |  +--rw access-priority?   uint8                 |        +--ro confidentiality?  boolean
|   +--rw user-pcp-9                                  |        +--ro key-identifier?   dot1aetypes:sec-key-identifier-
|   |  +--rw access-priority?   uint8          type   |
|   +--rw user-pcp-10                                 +--rw current-cipher-suite
|   |  +--rw access-priority?   uint8                 |  +--rw cipher-suite-identifier?   dot1aetypes:sec-eui64-type
|   +--rw user-pcp-11                                 |  +--rw data-key* [keys]
|   |  +--rw access-priority?   uint8                 |     +--rw keys            uint32
|   +--rw user-pcp-12                                 |     +--ro key-identifier?   dot1aetypes:sec-key-identifier-type
|   |  +--rw access-priority?   uint8                 |     +--ro transmits?        boolean
|   +--rw user-pcp-13                                 |     +--ro receives?         boolean
|   |  +--rw access-priority?   uint8                 +--rw controlled-interface
|   +--rw user-pcp-14                                 |  +--ro provided-interface?         dot1x-types:pae-if-index
|   |  +--rw access-priority?   uint8                 |  +--ro mac-enabled?                boolean
|   +--rw user-pcp-15                                 |  +--ro mac-operational?            boolean
|   |  +--rw access-priority?   uint8                 |  +--ro oper-point-to-point-mac?    boolean
|                                                     |  +--rw admin-point-to-point-mac?   enumeration
|                                                     |  +--ro controlled-port-enabled?    boolean
|                                                     |  +--rw in-octets?                  yang:counter64
|                                                     |  +--rw in-unicast-pkts?            yang:counter64
|                                                     |  +--rw in-broadcast-pkts?          yang:counter64
|                                                     |  +--rw in-multicast-pkts?          yang:counter64
|                                                     |  +--rw in-discards?                yang:counter32
|                                                     |  +--rw in-errors?                  yang:counter32
|                                                     |  +--rw out-octets?                 yang:counter64
|                                                     |  +--rw out-unicast-pkts?           yang:counter64
|                                                     |  +--rw out-broadcast-pkts?         yang:counter64
|                                                     |  +--rw out-multicast-pkts?         yang:counter64
|                                                     |  +--rw out-discards?               yang:counter32
|                                                     |  +--rw out-errors?                 yang:counter32
```

802.1ae Yang Tree

```
+--rw uncontrolled-interface
|  +--ro provided-interface?        dot1x-types:pae-if-index
|  +--ro mac-enabled?               boolean
|  +--ro mac-operational?           boolean
|  +--ro oper-point-to-point-mac?   boolean
|  +--rw admin-point-to-point-mac?  enumeration
|  +--rw in-octets?                 yang:counter64
|  +--rw in-unicast-pkts?           yang:counter64
|  +--rw in-broadcast-pkts?         yang:counter64
|  +--rw in-multicast-pkts?         yang:counter64
|  +--rw in-discards?               yang:counter32
|  +--rw in-errors?                 yang:counter32
|  +--rw out-octets?                yang:counter64
|  +--rw out-unicast-pkts?          yang:counter64
|  +--rw out-broadcast-pkts?        yang:counter64
|  +--rw out-multicast-pkts?        yang:counter64
|  +--rw out-discards?              yang:counter32
|  +--rw out-errors?                yang:counter32
+--rw common-port
|  +--ro common-port?               dot1x-types:pae-if-index
|  +--rw in-octets?                 yang:counter64
|  +--rw in-unicast-pkts?           yang:counter64
|  +--rw in-broadcast-pkts?         yang:counter64
|  +--rw in-multicast-pkts?         yang:counter64
|  +--rw in-discards?               yang:counter32
|  +--rw in-errors?                 yang:counter32
|  +--rw out-octets?                yang:counter64
|  +--rw out-unicast-pkts?          yang:counter64
|  +--rw out-broadcast-pkts?        yang:counter64
|  +--rw out-multicast-pkts?        yang:counter64
|  +--rw out-discards?              yang:counter32
|  +--rw out-errors?                yang:counter32
+--rw cipher-suite-control* [implemented-cipher-suite]
   +--rw implemented-cipher-suite    dot1aetypes:sec-eui64-type
   +--rw enable-use?                 boolean
   +--rw require-confidentiality?    boolean


augment /sys:system:
   +--rw secy-system
      +--rw cipher-suites* [cipher-suite]
         +--rw cipher-suite                  dot1aetypes:sec-eui64-type
         +--ro name?                         string
         +--ro integrity-protection?         boolean
         +--ro confidentiality-protection?   boolean
         +--ro offset-confidentiality?       boolean
         +--ro changes-data-length?          boolean
         +--ro icv-length?                   uint16
```

IETF Interfaces YANG Tree (Stats)

```
module: ietf-interfaces                                        |     +--ro statistics
  +--rw interfaces                                             |        +--ro discontinuity-time    yang:date-and-time
  |  +--rw interface* [name]                                   |        +--ro in-octets?            yang:counter64
  |     +--rw name                          string             |        +--ro in-unicast-pkts?      yang:counter64
  |     +--rw description?                  string             |        +--ro in-broadcast-pkts?    yang:counter64
  |     +--rw type                          identityref        |        +--ro in-multicast-pkts?    yang:counter64
  |     +--rw enabled?                      boolean            |        +--ro in-discards?          yang:counter32
  |     +--rw link-up-down-trap-enable?     enumeration {if-mib}?  |    +--ro in-errors?            yang:counter32
  |     +--ro admin-status                  enumeration {if-mib}?  |    +--ro in-unknown-protos?    yang:counter32
  |     +--ro oper-status                   enumeration        |        +--ro out-octets?           yang:counter64
  |     +--ro last-change?                  yang:date-and-time |        +--ro out-unicast-pkts?     yang:counter64
  |     +--ro if-index                      int32 {if-mib}?    |        +--ro out-broadcast-pkts?   yang:counter64
  |     +--ro phys-address?                 yang:phys-address  |        +--ro out-multicast-pkts?   yang:counter64
  |     +--ro higher-layer-if*              interface-ref      |        +--ro out-discards?         yang:counter32
  |     +--ro lower-layer-if*               interface-ref      |        +--ro out-errors?           yang:counter32
  |     +--ro speed?                        yang:gauge64
  |
```