

IEEE 802.1 Security MACsec Privacy YANG Update YANG Statistics

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Disclaimer

- This is a work in progress. The material here is for discussion purposes and may contain errors.

Changes to YANG from work after 2nd Task Group

- Ongoing work has updated the MAC privacy counters. This is a roll up of the current counters using yanglint.
- This is for discussion only to help decide if we have the right counters.

Yang statistics

Uncontrolled Port
(no errors)

Generation

Verification

Controlled Port

Common Port

Interface

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

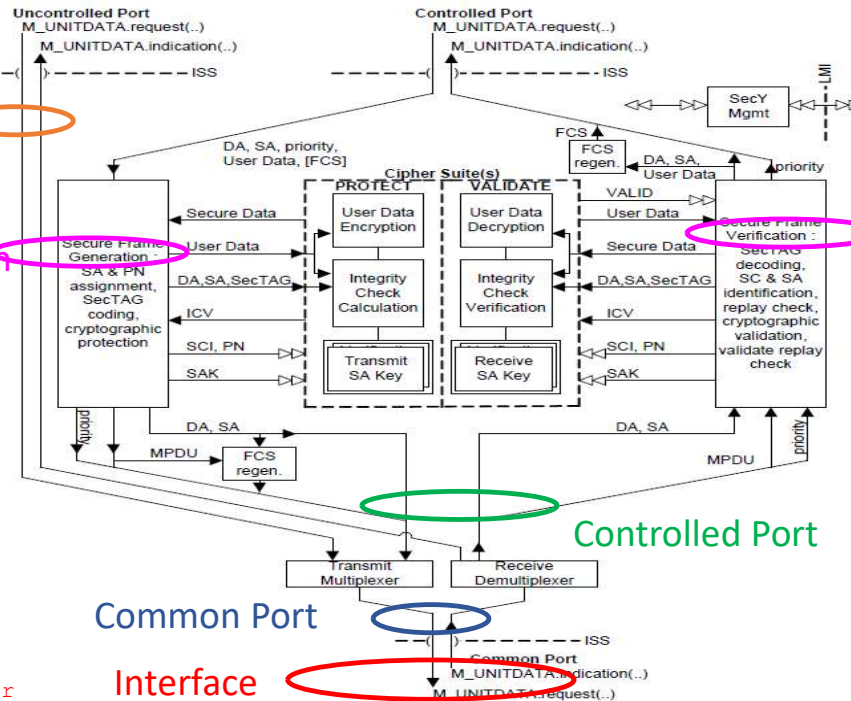


Figure 10-2—SecY architecture and operation

```

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

Current YANG

```
spawn yanglint
>> load iana-if-type
>> load ieee802-dot1q-bridge
>> load ieee802-dot1q-pb
>> load ieee802-dot1x
>> load ieee802-dot1ae
>> load ieee802-dot1ae-pry
>> data -t data -f json basic-vlan-bridge-with-pry-new.xml
{
  "ieee802-dot1q-bridge:bridges": {
    "bridge": [
      {
        "name": "bridge1",
        "address": "10-10-10-10-10",
        "bridge-type": "ieee802-dot1q-bridge:customer-vlan-bridge",
        "up-time": 0,
        "component": [
          {
            "name": "cv1",
            "id": 1,
            "type": "ieee802-dot1q-bridge:c-vlan-component",
            "capabilities": {
              "extended-filtering": false,
              "traffic-classes": false,
              "static-entry-individual-port": false,
              "svl-capable": true,
              "svl-capable": false,
              "hybrid-capable": false,
              "configurable-pvid-tagging": false,
              "local-vlan-capable": false
            }
          }
        ],
        "bridge-vlan": {
          "override-default-pvid": false
        }
      },
      {
        "name": "cv2",
        "id": 2,
        "type": "ieee802-dot1q-bridge:c-vlan-component",
        "capabilities": {
          "extended-filtering": false,
          "traffic-classes": false,
          "static-entry-individual-port": false,
          "svl-capable": true,
          "svl-capable": false,
          "hybrid-capable": false,
          "configurable-pvid-tagging": false,
          "local-vlan-capable": false
        }
      }
    ],
    "bridge-vlan": {
      "override-default-pvid": false
    }
  }
},
],
},
]
```

IETF Interface Counters

```
"ietf-interfaces:interfaces": {
  "interface": [
    {
      "name": "eth0",
      "type": "iana-if-type:bridge",
      "oper-status": "up",
      "statistics": {
        "discontinuity-time": "2020-12-18T18:59:00-05:00",
        "in-octets": "13123211231",
        "in-unicast-pkts": "324343",
        "in-broadcast-pkts": "1232",
        "in-multicast-pkts": "0",
        "in-discards": 45,
        "in-errors": 0,
        "in-unknown-protos": 0,
        "out-octets": "12313144411",
        "out-unicast-pkts": "234234",
        "out-broadcast-pkts": "5657",
        "out-multicast-pkts": "0",
        "out-discards": 0,
        "out-errors": 0
      }
    },
    {
      "name": "eth1",
      "type": "iana-if-type:ethernetCsmacd",
      "oper-status": "up",
      "statistics": {
        "discontinuity-time": "2020-12-18T18:59:00-05:00"
      }
    }
  ]
}
```

Current YANG

```

spawn yanglint
ieee802-dot1ae:secy: {
  "controlled-port-number": 1,
  "verification": {
    "validate-frames": "strict",
    "replay-protect": true,
    "replay-window": 1,
    "in-pkts-untagged": 0,
    "in-pkts-no-tag": 1000,
    "in-pkts-bad-tag": 0,
    "in-pkts-no-sa": 0,
    "in-pkts-no-sa-error": 0,
    "in-pkts-overflow": 0,
    "in-octets-validated": "534905398",
    "in-octets-decryptd": "534905398",
    "receive-sc": [
      {
        "sci": "1475",
        "created-time": "2020-12-18T18:59:00-05:00",
        "started-time": "2020-12-18T18:59:00-05:00",
        "stopped-time": "2020-12-18T18:59:00-05:00",
        "receiving": true,
        "in-pkts-ok": "534905398",
        "in-pkts-unchecked": 0,
        "in-pkts-delayed": 0,
        "in-pkts-late": 5,
        "in-pkts-invalid": 0,
        "in-pkts-not-valid": 0,
        "receive-sa": [
          {
            "txa": 1,
            "in-use": true,
            "ssci": 31, "ssci": 55,
            "next-pn": "55",
            "created-time": "2020-12-18T18:59:00-05:00",
            "started-time": "2020-12-18T18:59:00-05:00",
            "stopped-time": "2020-12-18T18:59:00-05:00",
            "lowest-pn": "123434",
            "enable-receive": true,
            "updt-next-pn": "123434",
            "updt-lowest-pn": "123435",
            "key-identifier": "123MKA"
          }
        ]
      }
    ]
  }
}

```

MACsec Counters

```

"generation": {
  "max-transmit-channels": 16,
  "max-transmit-keys": 16,
  "protect-frames": true,
  "always-include-sci": true,
  "use-es": true,
  "use-scb": true,
  "user-priority-tc": [
    {
      "user-priority": 0,
      "traffic-class": 0,
      "access-class-de0": 0,
      "access-class-de1": 0
    },
    {
      "user-priority": 1,
      "traffic-class": 1
    },
    {
      "user-priority": 2,
      "access-class-de0": 2,
      "access-class-de1": 2
    },
    {
      "user-priority": 3,
      "traffic-class": 3,
      "access-class-de0": 3,
      "access-class-de1": 3
    }
  ]
}
"transmit-sc": [
  {
    "sci": "1476",
    "created-time": "2020-12-18T18:59:00-05:00",
    "started-time": "2020-12-18T18:59:00-05:00",
    "stopped-time": "2020-12-18T18:59:00-05:00",
    "transmitting": true,
    "encoding-sa": 1,
    "out-pkts-protected": "12312",
    "out-pkts-encrypted": "12312",
    "transmit-sa": [
      {
        "txa": 1,
        "in-use": true,
        "ssci": 123, "ssci": 245,
        "next-pn": "23423245",
        "created-time": "2020-12-18T18:59:00-05:00",
        "started-time": "2020-12-18T18:59:00-05:00",
        "stopped-time": "2020-12-18T18:59:00-05:00",
        "confidentiality": true,
        "key-identifier": "456MKA"
      }
    ]
  }
]

```

Current YANG

MAC SEC Counters (Interface)

```
"controlled-interface": {
  "provided-interface": 1,
  "mac-enabled": true,
  "mac-operational": true,
  "oper-point-to-point-mac": true,
  "admin-point-to-point-mac": "auto",
  "controlled-port-enabled": true,
  "in-octets": "2345235",
  "in-unicast-pkts": "1232",
  "in-broadcast-pkts": "0",
  "in-multicast-pkts": "0",
  "in-discards": 0,
  "in-errors": 0,
  "out-octets": "12341234",
  "out-unicast-pkts": "12312",
  "out-broadcast-pkts": "0",
  "out-multicast-pkts": "0",
  "out-discards": 0,
  "out-errors": 0
},
"uncontrolled-interface": {
  "provided-interface": 1,
  "mac-enabled": true,
  "mac-operational": true,
  "oper-point-to-point-mac": true,
  "admin-point-to-point-mac": "auto",
  "in-octets": "2345235",
  "in-unicast-pkts": "1232",
  "in-broadcast-pkts": "0",
  "in-multicast-pkts": "0",
  "in-discards": 0,
  "in-errors": 0,
  "out-octets": "12341234",
  "out-unicast-pkts": "12312",
  "out-broadcast-pkts": "0",
  "out-multicast-pkts": "0",
  "out-discards": 0,
  "out-errors": 0
},
"common-port": {
  "common-port": 1,
  "in-octets": "2345235",
  "in-unicast-pkts": "1232",
  "in-broadcast-pkts": "0",
  "in-multicast-pkts": "0",
  "in-discards": 0,
  "in-errors": 0,
  "out-octets": "12341234",
  "out-unicast-pkts": "12312",
  "out-broadcast-pkts": "0",
  "out-multicast-pkts": "0",
  "out-discards": 0,
  "out-errors": 0
},
},
```

```
"ieee802-dot1ae-privacy": {
  "reception": {
    "max-peers": 16,
    "peer-src-address": [
      "11-22-33-44-55-01",
      "11-22-33-44-55-02",
      "11-22-33-44-55-03",
      "11-22-33-44-55-04",
      "11-22-33-44-55-05",
      "11-22-33-44-55-06"
    ],
    "fragment-ordering": "ieee802-dot1ae-privacy:default-strict-ordered"
  },
  "reception-stats": {
    "in-user-protected-frames": "1000",
    "in-user-protected-octets": "140000",
    "in-mppdus": "900",
    "in-encapsulated-frames": "800",
    "in-user-express-fragments": "200",
    "in-user-preemptable-fragments": "200",
    "in-express-discard-fragments": "0",
    "in-preemptable-discard-fragments": "0",
    "in-pad-octets": "1492",
    "in-unknown-mppcis": "0",
    "in-errored-mppdus": "0",
    "in-user-express-frames": "60",
    "in-user-preemptable-frames": "20",
    "in-user-unprotected-frames": "0",
    "in-user-unprotected-octets": "0"
  },
},
```

MAC Privacy Counters (inbound)

Current YANG

MAC Privacy Counters (outbound)

```
"transmission": {
  "privacy-protection": true,
  "pry-source-address": "11-22-33-44-55-65",
  "use-mka-group-address": false,
  "mppdu-dest-address": "aa-22-33-44-55-66",
  "fragment-enable": true,
  "user-priority-to-pry": [
    {
      "user-priority": 7,
      "privacy-type": "ieee802-dot1ae-pry:frame",
      "frame-access-priority": 6,
      "frame-reveal-de": "visible",
      "frame-privacy-padding": "to-16"
    },
    {
      "user-priority": 6,
      "privacy-type": "ieee802-dot1ae-pry:frame",
      "frame-access-priority": 6,
      "frame-reveal-de": "hidden",
      "frame-privacy-padding": "to-64"
    },
    {
      "user-priority": 5,
      "privacy-type": "ieee802-dot1ae-pry:none"
    },
    {
      "user-priority": 4,
      "privacy-type": "ieee802-dot1ae-pry:preemptable-channel"
    },
    {
      "user-priority": 3,
      "privacy-type": "ieee802-dot1ae-pry:preemptable-channel"
    },
    {
      "user-priority": 2,
      "privacy-type": "ieee802-dot1ae-pry:preemptable-channel"
    },
    {
      "user-priority": 1,
      "privacy-type": "ieee802-dot1ae-pry:express-channel"
    },
    {
      "user-priority": 0,
      "privacy-type": "ieee802-dot1ae-pry:express-channel"
    }
  ],
  "frame": {
    "user-data-frame-size": 1518
  },
}
```

```
"channel": [
  {
    "channel-id": "ieee802-dot1ae-pry:express-channel",
    "enabled": true,
    "access-priority": 2,
    "user-data-frame-size": 1518,
    "user-data-burst-size": 10000,
    "requested-bit-rate": "10000000000",
    "channel-frame-size": 1520,
    "channel-burst-size": 10000,
    "actual-bit-rate": "9705882352"
  }
]
}
channel-stats: {
  "out-user-protected-frames": "1000",
  "out-user-protected-octets": "14000",
  "out-encapsulated-frames": "800",
  "out-express-fragments": "200",
  "out-preemptable-fragments": "200",
  "out-pad-octets": "64000",
  "out-mppdus": "1200"
}
frame-stats: {
  "out-encapsulated-frames": "0",
  "out-user-protected-octets": "0"
}
unprotected-frame-stats: {
  "out-user-frames": "0",
  "out-user-octets": "0"
}
ieee802-dot1q-bridge:bridge-port: {
  "bridge-name": "bridge1",
  "component-name": "cv2",
  "port-type": "ieee802-dot1q-bridge:c-vlan-bridge-port",
  "pvid": 1
}
ieee802-dot1x:pae: {
  "pae-system": "pae1"
}
}
}
ietf-system:system: {
  "contact": "test",
  "ieee802-dot1x:pae-system: {
    "name": "pae1",
    "system-access-control": "enabled"
  }
}
}
}
> quit
```


Comments?
Thank You