YANG based Config for MAC Privacy 802.1AEdk
Second iteration

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Outline

• Proto Config for MAC Privacy
• Moving configuration to standard language
Forward

• This presentation is for a discussion on detailed config.
• It may contain errors/omission and should be considered a work in progress.
• An updated version of the presentation will be posted after discussion to correct it but it will remain a work in progress.
Instance Diagram for MACSec and MAC Privacy

- IETF System Management
- IETF Interface Management
- IETF Routing
- 802.1Q Bridge
- CFM

PAE System
MACSec System
PAE
IP
Bridge Port
MACSec Secy
MAC PriY
IS-IS
OSPF
...TPMR
...Customer VLAN Bridge
...Provider Bridge
Maintenance Domain
Maintenance Association
MEP
CFM Stack
Default MD Level
MIP

Where MACsec fits
Where MAC Secy fits
Where MAC PriY fits
UML Diagram Detailed Specification

Pry: augment/if:interfaces/#:interface:

bool macPrivacy;
address psySourceAddress;
address psyDestinationAddress;
counter64 outMppdus; //read only
counter64 outUserFrames; //read only
counter64 outUserOctets; //read only
counter64 outPadOctets; //read only
counter64 inMppdus; //read only
counter64 inErroredMppdus; //read only
counter64 inUserFrames; //read only
counter64 inUserOctets; //read only
counter64 inPadOctets; //read only
counter64 inUserCompleteFragments; //read only
counter64 inUserDroppedFragments; //read only
counter64 inUserErroredFragments; //read only

privacyChannel* [identity pc]

PrivacyType Channels
enum mode;
int maxPerSecondBitrate;
int minPerSecondBitrate;
int MppduSize;
uint queueDelayThreshold;
int minimumFragmentSize;
int explicitPadSize;
int MppduPriority;

privacyFrame*[identity pf]

PrivacyType Frames
int pfMaxFrameSize;
int pfMinFrameSize;
int pfExtendFrame;
int MppduPriority;

userPriorityToPry [0..7]
int userPriority
identity privacyType;

clearPortNumber

Over specifying Perhaps
A minimal View

Pry: augment /if:interfaces/if:interface:

bool macPrivacy;
address prySourceAddress;
address pryDestinationAddress;
counter64 outMppdus; //read only
counter64 outUserFrames; //read only
counter64 outUserOctets; //read only
counter64 inMppdus; //read only
counter64 inErroredMppdus; //read only
counter64 inUserFrames; //read only
counter64 inUserOctets; //read only
counter64 inPadOctets; //read only
counter64 inUserCompleteFrames; //read only
counter64 inUserDroppedFrames; //read only
counter64 inUserErroredFrames; //read only

userPriorityToPry [0..7]
int userPriority
identity privacyType;

PrivacyType Channels
enum mode;
int maxPerSecondBitrate;
int maxMppduSize;
int MppduPriority;

PrivacyType Frames
int pfMaxMppduSize;
int pfExtendFrame;
int MppduPriority;

privacyChannel* [identity pc]
privacyFrame*[identity pf]
Privacy Chanel Config

- `maxFrameSize`;
  - Cannot accept frames larger than this (is overhead included)

- `maxPerSecond Bitrate` – useful to enforce bandwidth Applications can auto adjust below this level.

- `MppduPriority`
  - DE can be transparently passed through unless multiple user frames are included in the MPPDU
Privacy Frame Config

• **MaxMppduSize**;
  • Cannot accept frames larger than this (is overhead included)

• **MinMppduSize**;
  • Standard states minimum only

• **ExtendFrame**;
  • Standard recommends only

• **MppduPriority**
  • DE can be transparently passed through unless multiple user frames are included in the MPPDU
### Priority Mapping

<table>
<thead>
<tr>
<th>Priority (low-high)</th>
<th>Identity Map Union of channel and frame identities</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>channel-standard</td>
</tr>
<tr>
<td>1</td>
<td>channel-standard</td>
</tr>
<tr>
<td>2</td>
<td>channel-standard</td>
</tr>
<tr>
<td>3</td>
<td>channel-express</td>
</tr>
<tr>
<td>4</td>
<td>channel-express</td>
</tr>
<tr>
<td>5</td>
<td>frame-b</td>
</tr>
<tr>
<td>6</td>
<td>frame-b</td>
</tr>
<tr>
<td>7</td>
<td>frame-a</td>
</tr>
</tbody>
</table>

**Minor issue that Frames or channels can be defined that are not used.**

**Creates Priorities of channels and frames are mapped to channels and frames Orthogonal to names.**
Statistics

---ro out-mppdus?       yang:counter64
---ro out-user-frames?  yang:counter64
---ro out-user-octets?  yang:counter64
---ro out-pad-octets?   yang:counter64
---ro out-user-fragments? yang:counter64
---ro in-mppdus?        yang:counter64
---ro in-errored-mppdus? yang:counter64
---ro in-user-frames?   yang:counter64
---ro in-errored-user-frames? yang:counter64
---ro in-user-octets?   yang:counter64
---ro in-pad-octets?    yang:counter64
---ro in-user-fragments? yang:counter64
---ro in-user-dropped-fragments? yang:counter64
---ro in-user-errored-fragments? yang:counter64
Other?

• Is there any other config?
Output from the Prototype YANG

```yang
pry {
  mac-privacy enabled
  pry-source-address 00-00-00-11-11-11
  pry-destination-address 00-00-00-11-11-22
  user-priority-to-pry 0 {
    user-priority 0
    privacy-type channel-standard
  }
  user-priority-to-pry 1 {
    user-priority 1
    privacy-type channel-standard
  }
  user-priority-to-pry 2 {
    user-priority 2
    privacy-type channel-standard
  }
  user-priority-to-pry 3 {
    user-priority 3
    privacy-type channel-standard
  }
  user-priority-to-pry 4 {
    user-priority 4
    privacy-type channel-express
  }
  user-priority-to-pry 5 {
    user-priority 5
    privacy-type channel-express
  }
}
```

```yang
privacy-channel dot1ae-pry:channel-express {
  pc dot1ae-pry:channel-express
  max-per-second-bitrate 1000000
  max-mppdu-size 4096
  mppdu-priority 4
}
privacy-frame dot1ae-pry:frame-a {
  pf dot1ae-pry:frame-a
  max-mppdu-size 4096
  mppdu-priority 6
}
```