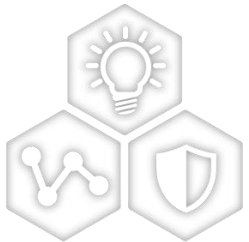


ATS & PFSP YANG maintenance items #0392 & #0393 ver 2.0



A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



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Woojung Huh

May/5/2026

Maintenance items

- [#0392](#)

- ATS schedulers and scheduler-groups YANG containers don't align with 802.1Q-2022
- Multiple Scheduler Instance Tables and Scheduler Group Instance Tables are created in a bridge components

- [#0393](#)

- Need a clarification of using stream-filter when a bridge uses both ATS and PSFP

Follow-up since last meeting

- Rollback to Qcr-2020 YANG by moving “*container schedulers*” and “*container scheduler-groups*” out from “*grouping ats-parameters*” of ieee802-dot1q-ats YANG module to as a container under “*augment “/dot1q:bridges/dot1q:bridge/dot1q:component”*”
- Need to confirm this change does not break other part such as PSFP and CI especially End-Station cases.

#0392 Updates

ATS schedulers and scheduler-groups YANG containers
don't align with 802.1Q-2022

ieee802-dot1q-ats.yang

- **Update history**

- revision 2023-07-03 : Published as part of IEEE Std 802.1Qcz-2023
- revision 2022-01-19 : Published as part of IEEE Std 802.1Q-2022
- revision 2020-11-06 : Published as part of IEEE Std 802.1Qcr-2020

802.1Q-2020 and P802.1Q-2022-Rev D1.6

- **ieee802-dot1q-ats-bridge.yang Revision 2023-07-03 doesn't align with following statements**
 - **12.31.5 The Scheduler Instance Table**
 - **There is one Scheduler Instance Table per Bridge Component.** Each table row in the Scheduler Instance Table comprises a set of parameters that defines a single ATS scheduler instance, as detailed in Table 12-38.
 - **12.31.6 The Scheduler Group Instance Table**
 - **There is one Scheduler Group Instance Table per Bridge Component.** Each table row in the Scheduler Group Instance Table comprises a set of parameters that defines a single ATS scheduler group instance (8.6.5.6), as detailed in Table 12-39.

• 48.2.7 Asynchronous Traffic Shaping (ATS) model

- The ATS model augments the Bridge component model (48.3.1) and the stream filters and stream gates model (48.3.6) by nodes that represent to following managed objects:

- a) The Scheduler Instance Table (12.31.5)
- b) The Scheduler Group Instance Table (12.31.6)
- c) The Scheduler Port Parameter Table (12.31.7)
- d) The Scheduler Timing Characteristics Table (12.31.8)
- e) A Stream Filter specification type representing an ATS scheduler instance identifier (12.31.2.5)

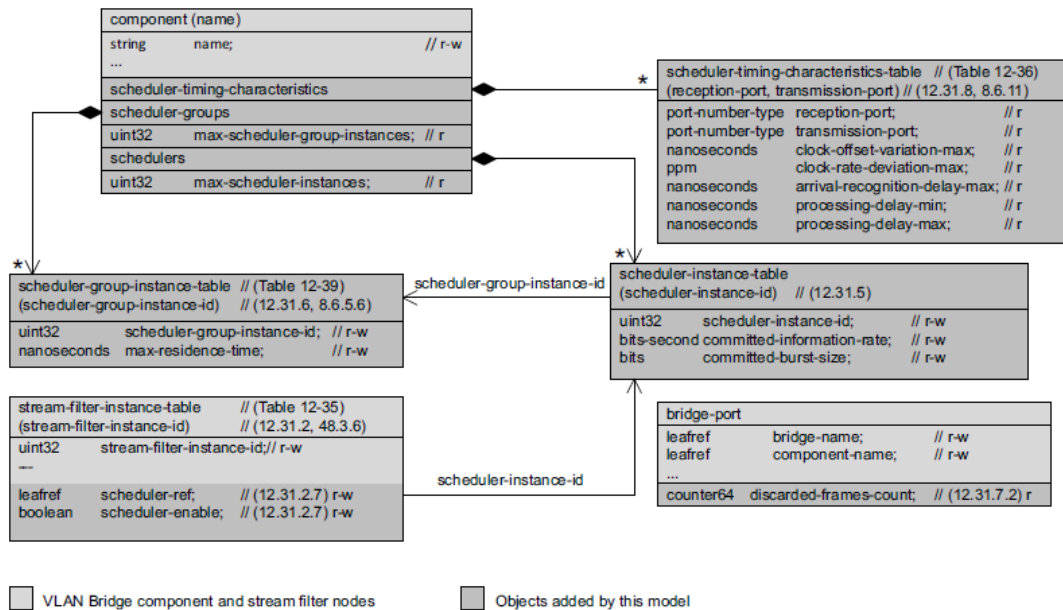


Figure 48-16—Asynchronous Traffic Shaping model

ieee802-dot1q-ats-bridge.yang Revision 2023-07-03

- **Current ieee802-dot1q-ats-bridge.yang**
 - ats:ats-parameters is under augment of “stream-filters/stream-filter-instance-table”
 - It creates multiple *the Scheduler Instance Table (12.31.5)* and *the Scheduler Group Instance Table (12.31.6)* under *the Stream Filter Instance Table (12.31.2)* than one per the Bridge Component.

ieee802-dot1q-ats-bridge.yang Revision 2023-07-03

```
1 augment "/if:interfaces/if:interface/dot1q:bridge-port" {
2   description
3     "Augments Bridge Ports by ATS per-Port parameters.";
4   uses ats:ats-port-parameters;
5 }
6 augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
7   description
8     "Augments the Bridge component with ATS parameters.";
9   uses sfsg:sfsg-parameters {
10    augment "stream-filters/stream-filter-instance-table" {
11      description
12        "Augments the Bridge component stream filter for ATS
13        schedulers.";
14      uses ats:ats-parameters;
15      container scheduler {
16        description
17          "This container encapsulates ATS scheduler nodes.";
18        leaf scheduler-ref {
19          type leafref {
20            path
21              '..'+
22              '/../'+
23              '/schedulers'+
24              '/scheduler-instance-table'+
25              '/scheduler-instance-id';
26          }
27        description
28          "A reference to the ATS scheduler associated with this
29          stream filter.";
30      }
31      leaf scheduler-enable {
32        type boolean;
33        default "false";
34        description
35          "If TRUE, this stream filter has an associated ATS
36          scheduler referenced by scheduler-ref. If FALSE, no ATS
37          scheduler is associated with this stream filter
38          (scheduler-ref is ignored).";
39      }
40    }
41  }
42 }
43 }
```

```
1 module: ieee802-dot1q-bridge
2 +-rw bridges
3 +-rw bridge* [name]
10 +-rw component* [name]
171 +-ro ats-bridge:max-stream-gate-instances? uint32
172 +-rw ats-bridge:stream-filters
173 +-rw ats-bridge:stream-filter-instance-table* [stream-filter-instance-id]
174 +-rw ats-bridge:stream-filter-instance-id uint32
175 +-rw (ats-bridge:stream-handle-spec)?
176 | | +--:(ats-bridge:wildcard)
177 | | +-rw ats-bridge:wildcard? empty
178 | | +--:(ats-bridge:stream-handle)
179 | | +-rw ats-bridge:stream-handle uint32
180 +-rw ats-bridge:priority-spec priority-spec-type
181 +-rw ats-bridge:max-sdu-size uint32
182 +-rw ats-bridge:stream-blocked-due-to-oversize-frame-enabled? boolean
183 +-rw ats-bridge:stream-blocked-due-to-oversize-frame? boolean
184 +-rw ats-bridge:stream-gate-ref -> ../../stream-gates/stream-gate-instance
185 +-rw ats-bridge:schedulers
186 | +-rw ats-bridge:scheduler-instance-table* [scheduler-instance-id]
187 | | +-rw ats-bridge:scheduler-instance-id uint32
188 | | +-rw ats-bridge:committed-information-rate uint64
189 | | +-rw ats-bridge:committed-burst-size uint32
190 | | +-rw ats-bridge:scheduler-group-ref -> ../../schedulers/scheduler-group-instance-table
191 +-ro ats-bridge:max-scheduler-instances? uint32
192 +-rw ats-bridge:scheduler-groups
193 | +-rw ats-bridge:scheduler-group-instance-table* [scheduler-group-instance-id]
194 | | +-rw ats-bridge:scheduler-group-instance-id uint32
195 | | +-rw ats-bridge:max-residence-time uint32
196 +-ro ats-bridge:max-scheduler-group-instances? uint32
197 +-rw ats-bridge:scheduler-timing-characteristics
198 | +-ro ats-bridge:scheduler-timing-characteristics-table* [receptor-port transmission-port]
199 | | +-ro ats-bridge:reception-port dot1qtypes:port-number-type
200 | | +-ro ats-bridge:transmission-port dot1qtypes:port-number-type
201 | | +-ro ats-bridge:clock-offset-variation-max uint32
202 | | +-ro ats-bridge:clock-rate-deviation-max uint32
203 | | +-ro ats-bridge:arrival-recognition-delay-max uint32
204 | | +-ro ats-bridge:processing-delay-min uint32
205 | | +-ro ats-bridge:processing-delay-max uint32
206 +-rw ats-bridge:scheduler
207 | +-rw ats-bridge:scheduler-ref? -> ../../schedulers/scheduler-instance-table/scheduler-instance-id
208 | | +-rw ats-bridge:scheduler-enable? boolean
209 +-ro ats-bridge:max-stream-filter-instances? uint32
210 +-rw psfp-bridge:flow-meters
211 | +-rw psfp-bridge:flow-meter-instance-table* [flow-meter-instance-id]
212 | | +-rw psfp-bridge:flow-meter-instance-id uint32
213 | | +-rw psfp-bridge:committed-information-rate uint64
214 | | +-rw psfp-bridge:committed-burst-size uint32
```

Proposed modification

- No change needed on `ieee802-dot1q-ats.yang`
- Modified `ieee802-dot1q-ats-bridge.yang`
 - Move `ats:ats-parameters` out of augment of “stream-filters/stream-filter-instance-table”
 - It creates *single Scheduler Instance Table (12.31.5)* and *single Scheduler Group Instance Table (12.31.6)* under the Bridge Component.

Modified ieee802-dot1q-ats-bridge.yang

```
1 augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
2   description
3     "Augments the Bridge component with ATS parameters.";
4   // FIXME, Woojung
5   uses ats:ats-parameters;
6
7   uses sfsg:sfsg-parameters {
8     augment "stream-filters/stream-filter-instance-table" {
9       description
10        "Augments the Bridge component stream filter for ATS
11         schedulers.";
12       /* FIXME, Woojung
13        uses ats:ats-parameters;
14       */
15       container scheduler {
16         description
17           "This container encapsulates ATS scheduler nodes.";
18         leaf scheduler-ref {
19           type leafref {
20             path
21               '..'+
22               '/../'+
23               // FIXME, WOOJUNG --> BEGIN
24               '/../'+
25               '/../'+
26               // FIXME, WOOJUNG <-- END
27               '/schedulers'+
28               '/scheduler-instance-table'+
29               '/scheduler-instance-id';
30           }
31         description
32           "A reference to the ATS scheduler associated with this
33            stream filter.";
34       }
35       leaf scheduler-enable {
36         type boolean;
37         default "false";
38         description
39           "If TRUE, this stream filter has an associated ATS
40            scheduler referenced by scheduler-ref. If FALSE, no ATS
41            scheduler is associated with this stream filter
42            (scheduler-ref is ignored).";
43       }
44     }
45   }
46 }
47 }
```

```
module: ieee802-dot1q-bridge
+--rw bridges
  +--rw bridge* [name]
    +--rw component* [name]
      +--rw vid dot1qtypes:vlan-index-type
      +--rw fid? uint32
      +--rw bridge-mst
      +--rw mstid* dot1qtypes:mstid-type
      +--rw fid-to-mstid* [fid]
      +--rw fid uint32
      +--rw mstid? dot1qtypes:mstid-type
      +--rw fid-to-mstid-allocation* [fids]
      +--rw fids dot1qtypes:vid-range-type
      +--rw mstid? dot1qtypes:mstid-type
      +--rw ats-bridge:schedulers
      +--rw ats-bridge:scheduler-instance-table* [scheduler-instance-id]
      +--rw ats-bridge:scheduler-instance-id uint32
      +--rw ats-bridge:committed-information-rate uint64
      +--rw ats-bridge:committed-burst-size uint32
      +--rw ats-bridge:scheduler-group-ref -> ../..../scheduler-groups/scheduler-group-instance-table/scheduler-group-instance-id
      +--ro ats-bridge:max-scheduler-instances? uint32
      +--rw ats-bridge:scheduler-groups
      +--rw ats-bridge:scheduler-group-instance-table* [scheduler-group-instance-id]
      +--rw ats-bridge:scheduler-group-instance-id uint32
      +--rw ats-bridge:max-residence-time uint32
      +--ro ats-bridge:max-scheduler-group-instances? uint32
      +--rw ats-bridge:scheduler-timing-characteristics
      +--ro ats-bridge:scheduler-timing-characteristics-table* [reception-port transmission-port]
      +--ro ats-bridge:reception-port dot1qtypes:port-number-type
      +--ro ats-bridge:transmission-port dot1qtypes:port-number-type
      +--ro ats-bridge:clock-offset-variation-max uint32
      +--ro ats-bridge:clock-rate-deviation-max uint32
      +--ro ats-bridge:arrival-recognition-delay-max uint32
      +--ro ats-bridge:processing-delay-min uint32
      +--ro ats-bridge:processing-delay-max uint32
      +--rw ats-bridge:stream-gates
      +--rw ats-bridge:stream-gate-instance-table* [stream-gate-instance-id]
      +--rw ats-bridge:stream-gate-instance-id uint32
      +--rw ats-bridge:gate-enable? boolean
      +--rw ats-bridge:admin-gate-states? gate-state-value-type
      +--rw ats-bridge:admin-ipv? ipv-spec-type
      +--ro ats-bridge:max-stream-gate-instances? uint32
      +--rw ats-bridge:stream-filters
      +--rw ats-bridge:stream-filter-instance-table* [stream-filter-instance-id]
      +--rw ats-bridge:stream-filter-instance-id uint32
      +--rw (ats-bridge:stream-handle-spec)?
      | | +--:(ats-bridge:wildcard)
```

802.1DC-2024

- **9.1 YANG framework**

- In order to make certain YANG modules that control features in IEEE Std 802.1Q and its amendments easy to incorporate into both IEEE 802.1Q Bridges and IEEE 802.1Q end stations, those YANG modules are defined in pairs, one pair for each feature.
- The modules defined in this clause use the modules that control IEEE 802.1Q features required for GFQoS to augment *systems* and/or *interfaces*, instead of *Bridge components* and/or *Bridge Ports*.
- This implies that “There is one Scheduler Instance Table and one Scheduler Group Instance Table per Bridge Component” rule applies to 802.1DC system.

802.1DC-2024

- **Current ieee802-dot1dc-ats-if.yang**
 - ats:ats-parameters is under augment of “stream-filters/stream-filter-instance-table”
 - It creates multiple ***the Scheduler Instance Table (12.31.5)*** and ***the Scheduler Group Instance Table (12.31.6)*** under ***the Stream Filter Instance Table (12.31.2)*** than one per the Bridge Component.

ATS-if.YANG Revision 2024-09-26

```
1 augment "/sys:system" {
2   description
3     "Augments the system with ATS parameters.";
4   uses sfsg:sfsg-parameters {
5     augment "stream-filters/stream-filter-instance-table" {
6       description
7         "Augments the system stream filter for ATS
8          schedulers.";
9       uses ats:ats-parameters;
10      container scheduler {
11        description
12          "This container encapsulates ATS scheduler nodes.";
13        leaf scheduler-ref {
14          type leafref {
15            path
16              '..'+
17              '/../'+
18              '/schedulers'+
19              '/scheduler-instance-table'+
20              '/scheduler-instance-id';
21          }
22          description
23            "A reference to the ATS scheduler associated with this
24             stream filter.";
25        }
26        leaf scheduler-enable {
27          type boolean;
28          default "false";
29          description
30            "If TRUE, this stream filter has an associated ATS
31             scheduler referenced by scheduler-ref. If FALSE, no ATS
32             scheduler is associated with this stream filter
33             (scheduler-ref is ignored).";
34        }
35      }
36    }
37  }
38 }
```

```
module: ieee802-dot1dc-ats-if
augment /sys:system:
  +--ro max-stream-gate-instances?   uint32
  +--rw stream-filters
    +--rw stream-filter-instance-table* [stream-filter-instance-id]
      | +--rw stream-filter-instance-id   uint32
      | +--rw (stream-handle-spec)?
      | | +--:(wildcard)
      | | | +--rw wildcard?              empty
      | | +--:(stream-handle)
      | | | +--rw stream-handle           uint32
      | | | +--rw priority-spec           priority-spec-type
      | | | +--rw max-sdu-size            uint32
      | | | +--rw stream-blocked-due-to-oversize-frame-enabled? boolean
      | | | +--rw stream-blocked-due-to-oversize-frame?      boolean
      | | | +--rw stream-gate-ref         -> ../../../stream-gates/stream-gate-instance-table/stream-gate-instance-id
      | +--rw schedulers
      | | +--rw scheduler-instance-table* [scheduler-instance-id]
      | | | +--rw scheduler-instance-id   uint32
      | | | +--rw committed-information-rate uint64
      | | | +--rw committed-burst-size    uint32
      | | | +--rw scheduler-group-ref     -> ../../../scheduler-groups/scheduler-group-instance-table/scheduler-group-instance-id
      | | | +--ro max-scheduler-instances? uint32
      | | +--rw scheduler-groups
      | | | +--rw scheduler-group-instance-table* [scheduler-group-instance-id]
      | | | | +--rw scheduler-group-instance-id   uint32
      | | | | +--rw max-residence-time            uint32
      | | | +--ro max-scheduler-group-instances? uint32
      | | | +--rw scheduler-timing-characteristics
      | | | | +--ro scheduler-timing-characteristics-table* [reception-port transmission-port]
      | | | | | +--ro reception-port              dot1qtypes:port-number-type
      | | | | | +--ro transmission-port           dot1qtypes:port-number-type
      | | | | | +--ro clock-offset-variation-max   uint32
      | | | | | +--ro clock-rate-deviation-max    uint32
      | | | | | +--ro arrival-recognition-delay-max uint32
      | | | | | +--ro processing-delay-min        uint32
      | | | | | +--ro processing-delay-max        uint32
      | | +--rw scheduler
      | | | +--rw scheduler-ref?             -> ../../schedulers/scheduler-instance-table/scheduler-instance-id
      | | | +--rw scheduler-enable?         boolean
      | +--ro max-stream-filter-instances?   uint32
```

Proposed modification

- No change needed on `ieee802-dot1q-ats.yang`
- Modified `ieee802-dot1dc-ats-if.yang`
 - Move `ats:ats-parameters` out of augment of “stream-filters/stream-filter-instance-table”
 - It creates *single Scheduler Instance Table (12.31.5)* and *single Scheduler Group Instance Table (12.31.6)* under the System.

Modified ats-if-new.YANG

```
1 augment "/sys:system" {
2   description
3     "Augments the system with ATS parameters.";
4   // FIXME. Woojung
5   uses ats:ats-parameters;
6
7   uses sfsg:sfsg-parameters {
8     augment "stream-filters/stream-filter-instance-table"
9     description
10      "Augments the system stream filter for ATS
11      schedulers";
12    /* FIXME. Woojung
13     uses ats:ats-parameters;
14    */
15    container scheduler {
16      description
17        "This container encapsulates ATS scheduler nodes.";
18      leaf scheduler-ref {
19        type leafref {
20          path
21            '..'+
22            '/..'+
23            // FIXME. WOOJUNG --> BEGIN
24            '/..'+
25            '/..'+
26            // FIXME. WOOJUNG <-- END
27            '/schedulers'+
28            '/scheduler-instance-table'+
29            '/scheduler-instance-id';
30        }
31        description
32          "A reference to the ATS scheduler associated with this
33          stream filter.";
34      }
35      leaf scheduler-enable {
36        type boolean;
37        default "false";
38        description
39          "If TRUE, this stream filter has an associated ATS
40          scheduler referenced by scheduler-ref. If FALSE, no ATS
41          scheduler is associated with this stream filter
42          (scheduler-ref is ignored).";
43      }
44    }
45  }
46 }
47 }
```

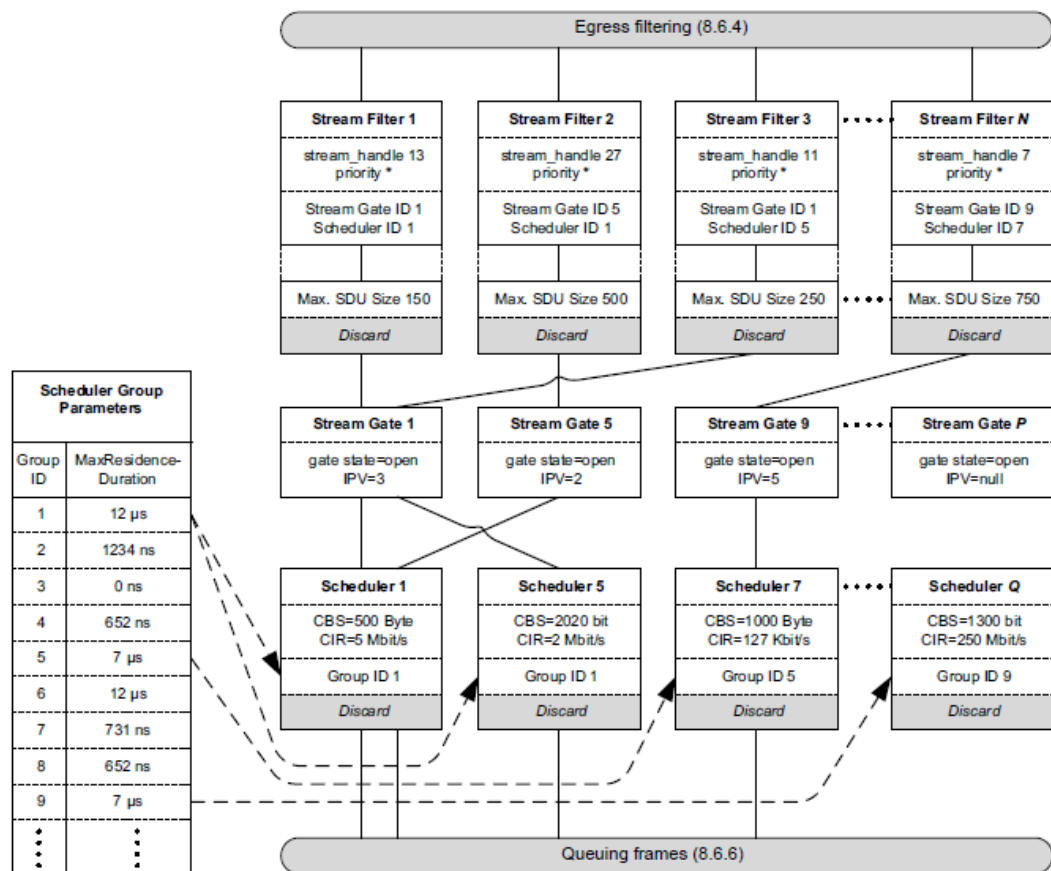
```
module: ieee802-dot1dc-ats-if-new
augment /if:interfaces/if:interface:
  +--ro discarded-frames-count? yang:counter04
augment /sys:system:
  +--rw schedulers
  | +--rw scheduler-instance-table* [scheduler-instance-id]
  | | +--rw scheduler-instance-id      uint32
  | | +--rw committed-information-rate  uint64
  | | +--rw committed-burst-size       uint32
  | | +--rw scheduler-group-ref        -> ../../../scheduler-groups/scheduler-group-instance-table/scheduler-group-instance-id
  | | +--ro max-scheduler-instances?   uint32
  | +--rw scheduler-groups
  | | +--rw scheduler-group-instance-table* [scheduler-group-instance-id]
  | | | +--rw scheduler-group-instance-id  uint32
  | | | +--rw max-residence-time          uint32
  | | +--ro max-scheduler-group-instances? uint32
  | | +--rw scheduler-timing-characteristics
  | | | +--ro scheduler-timing-characteristics-table* [reception-port transmission-port]
  | | | | +--ro reception-port            dot1qtypes:port-number-type
  | | | | +--ro transmission-port        dot1qtypes:port-number-type
  | | | | +--ro clock-offset-variation-max  uint32
  | | | | +--ro clock-rate-deviation-max   uint32
  | | | | +--ro arrival-recognition-delay-max uint32
  | | | | +--ro processing-delay-min       uint32
  | | | | +--ro processing-delay-max      uint32
  | +--rw stream-gates
  | | +--rw stream-gate-instance-table* [stream-gate-instance-id]
  | | | +--rw stream-gate-instance-id    uint32
  | | | +--rw gate-enable?               boolean
  | | | +--rw admin-gate-states?         gate-state-value-type
  | | | +--rw admin-ipv?                 ipv-spec-type
  | | +--ro max-stream-gate-instances?   uint32
  | +--rw stream-filters
  | | +--rw stream-filter-instance-table* [stream-filter-instance-id]
  | | | +--rw stream-filter-instance-id  uint32
  | | | +--rw (stream-handle-spec)?
  | | | | +--:(wildcard)
  | | | | | +--rw wildcard?              empty
  | | | | +--:(stream-handle)
  | | | | | +--rw stream-handle          uint32
  | | | +--rw priority-spec              priority-spec-type
  | | | +--rw max-sdu-size                uint32
  | | | +--rw stream-blocked-due-to-oversize-frame-enabled? boolean
  | | | +--rw stream-blocked-due-to-oversize-frame?   boolean
  | | +--rw stream-gate-ref              -> ../../../stream-gates/stream-gate-instance-table/stream-gate-instance-id
  | +--rw scheduler
  | | +--rw scheduler-ref?               -> ../../../schedulers/scheduler-instance-table/scheduler-instance-id
  | +--rw scheduler-enable?             boolean
```

P802.1Q-2022-Rev D1.6

8.6.5.2.2 ATS support

Each Bridge component that implements *ATS* shall support *stream filtering*, *maximum SDU size filtering*, *stream gates supporting IPV assignment*, *ATS schedulers*, and *ATS scheduler groups*, with the following:

- A single *Stream Filter Instance Table* (8.6.5.3).
- A single *Stream Gate Instance Table* (8.6.5.4). If the Bridge component does not support PSFP in addition to ATS, each stream gate only supports IPV assignment (8.6.5.4). IPV can be used as part of adjusting per-hop delay bounds to meet specific networks' end-to-end delay requirements.
- A single *ATS Scheduler Instance Table* (8.6.5.6).
- A single *ATS Scheduler Group Instance Table* (8.6.5.6).
- An *ATS Port Parameter Table* for each Bridge Port (8.6.5.6).



KEY
 Discard: Frame discarding abilities and parameters (Clause 8.6.5.3.1, Clause 8.6.5.4, 8.6.5.6).
 CBS: CommittedBurstSize parameter (8.6.5.6, 8.6.11.3.5).
 CIR: CommittedInformationRate parameter (8.6.5.6, 8.6.11.3.6).

Figure 8-15—Per-stream classification and metering for ATS

#0393 Update for Bridge

Need a clarification of using stream-filter
when a bridge uses both ATS and PSFP

802.1Q allows both PSFP and ATS simultaneously.

- **8.6.5 states**
 - “PSFP and ATS share common per-stream classification and metering elements, as shown in Figure 8-13.”
- **8.6.5.2 d) states**
 - “... A given stream filter can be configured with flow meters and an ATS scheduler if both PSFP and ATS are supported.”
- **8.6.5.2.2 b) states**
 - “If the Bridge component does not support PSFP in addition to ATS, each stream gate only supports IPV assignment. ...”
 - NOTE 2—For bridges with support for ATS, and without support for PSFP, stream gates of ATS traffic will never close. In this case, stream gates are only used for IPV assignment.

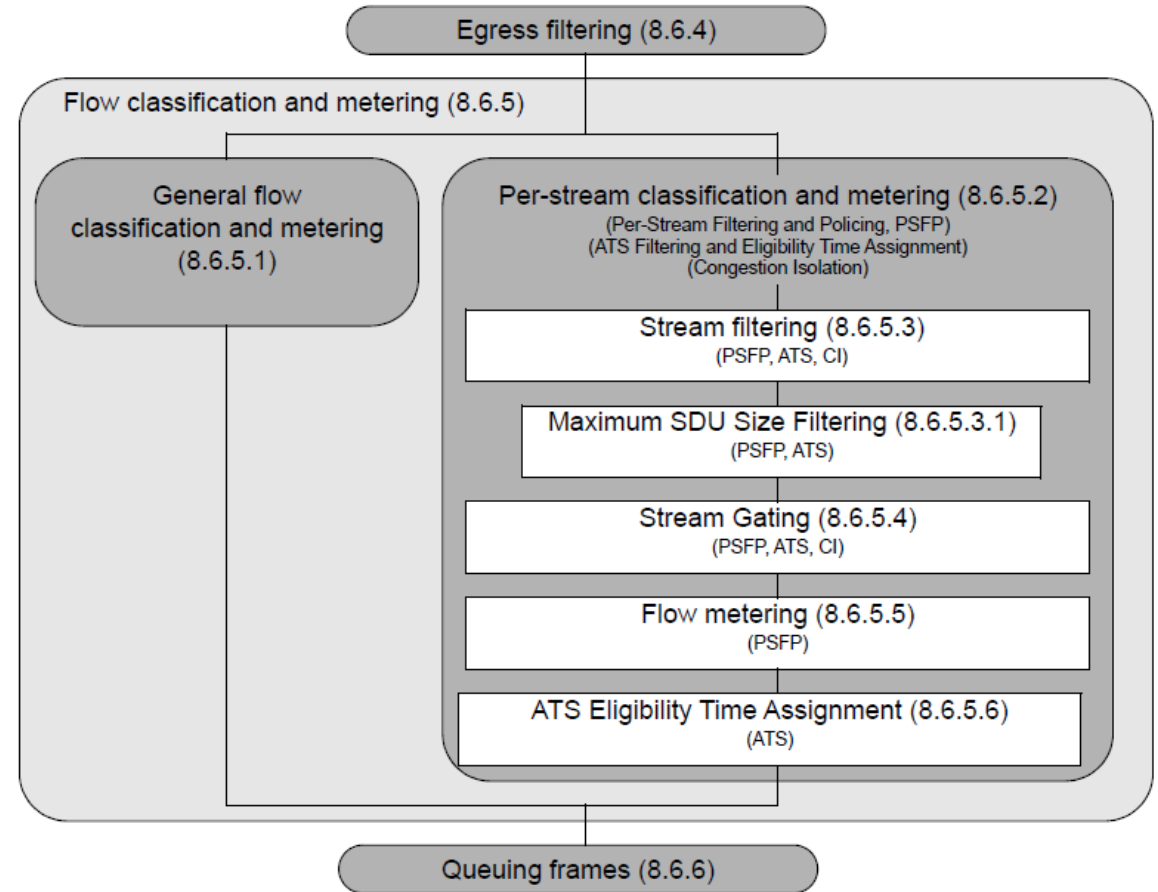
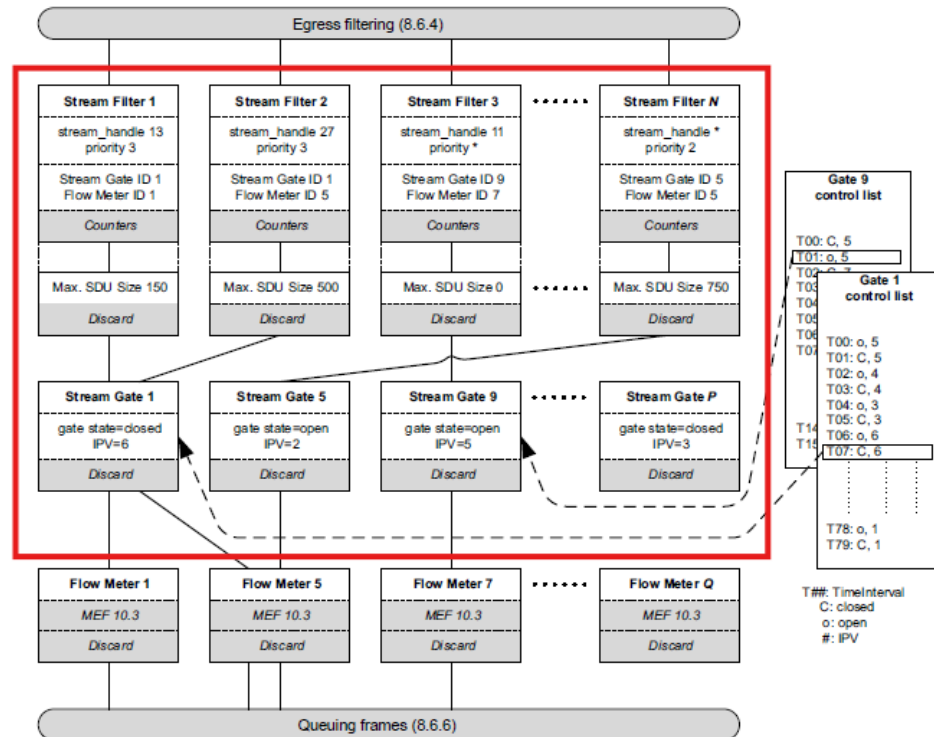


Figure 8-13—Flow classification and metering

Usage of Stream Filters and Stream Gates

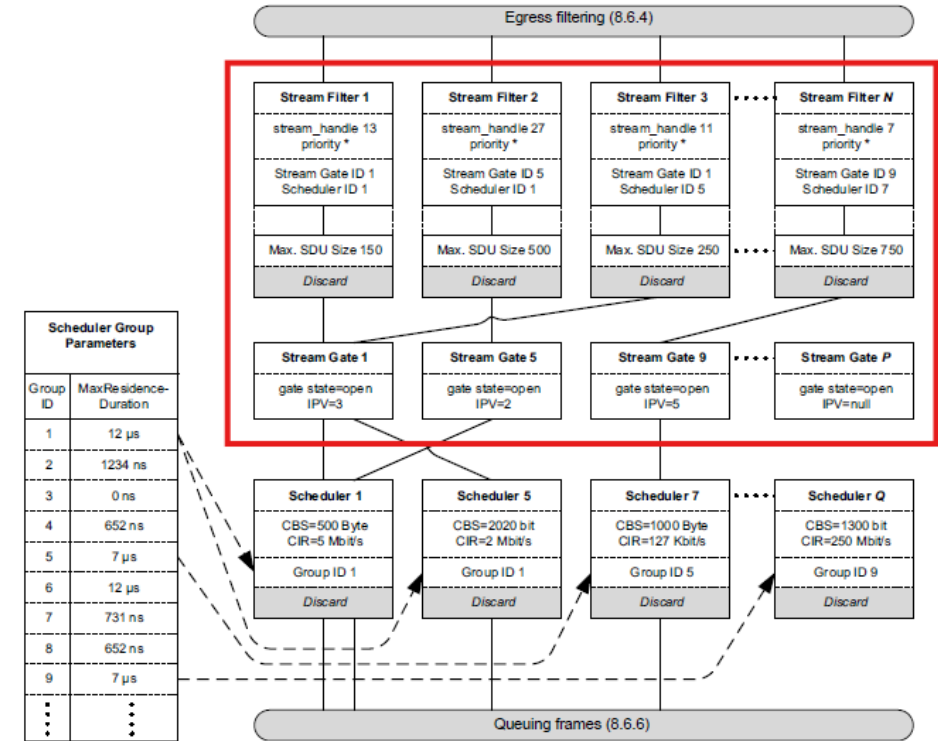
- PSFP

- ATS



KEY
 Counters: Matching, passing, and discarded frame counters (8.6.5.3).
 Discard: Frame discarding abilities and parameters (8.6.5.3.1, 8.6.5.4, 8.6.5.5).
 MEF 10.3: Flow metering based on MEF 10.3 Bandwidth Profile parameters and algorithm as specified in 8.6.5.5.

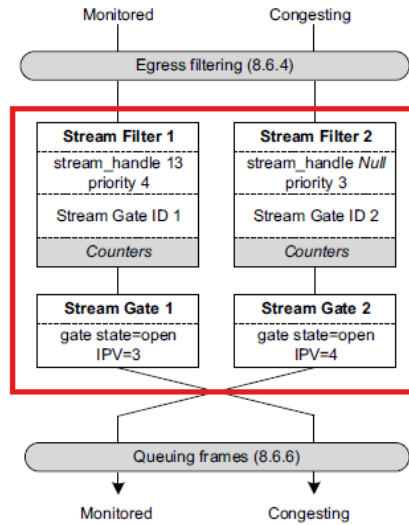
Figure 8-14—Per-stream classification for PSFP



KEY
 Discard: Frame discarding abilities and parameters (Clause 8.6.5.3.1, Clause 8.6.5.4, 8.6.5.6).
 CBS: CommittedBurstSize parameter (8.6.5.6, 8.6.11.3.5).
 CIR: CommittedInformationRate parameter (8.6.5.6, 8.6.11.3.6).

Figure 8-15—Per-stream classification and metering for ATS

- CI



KEY
Stream ID: stream filter instance identifier (8.6.5.3)
Gate ID: stream gate instance identifier (8.6.5.3, 8.6.5.4)

Figure 8-16—Per-stream classification and assignment for CI

Stream filter and Stream gate

- **12.31.2 The Stream Filter Instance Table**
 - There is one Stream Filter Instance Table per Bridge Component.
- **12.31.3 The Stream Gate Instance Table**
 - There is one Stream Gate Instance Table per Bridge Component.

Current SFSG implementation

- **ieee802-dot1q-stream-filters-gates.yang**

```
grouping sfsg-parameters {  
  description  
    "The grouping of all stream filter and stream gate parameters."  
  container stream-gates { ...  
  }  
  container stream-filters { ...  
  }  
}
```

- **ieee802-dot1q-stream-filters-gates-bridge.yang**

```
module ieee802-dot1q-stream-filters-gates-bridge {  
  yang-version "1.1";  
  namespace  
    urn:ieee:std:802.1Q:yang:ieee802-dot1q-stream-filters-gates-bridge;  
  prefix sfsg-bridge;  
  import ieee802-dot1q-bridge {  
    prefix dot1q;  
  }  
  import ieee802-dot1q-stream-filters-gates {  
    prefix sfsg;  
  }  
  organization ...  
  contact ...  
  description ...  
  revision 2023-07-03 { ...  
  }  
  augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {  
    description  
      "Augments the Bridge component with stream filters and stream  
      gates."  
    uses sfsg:sfsg-parameters;  
  }  
}
```

- **ieee802-dot1q-psfp.yang**

```
module ieee802-dot1q-psfp {
  yang-version "1.1";
  namespace urn:ieee:std:802.1Q:yang:ieee802-dot1q-psfp;
  prefix psfp;
  import ietf-yang-types {
    prefix yang;
  }
  import ieee802-types {
    prefix ieee802;
  }
  import ieee802-dot1q-types {
    prefix dot1q-types;
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  organization ...
  contact ...
  description ...
  revision 2023-10-26 { ...
  }
  feature psfp { ...
  }
  identity set-gate-and-ipv { ...
  }
  grouping stream-gate-control-entries { ...
  }
  grouping psfp-parameters {
    description ...
    container flow-meters { ...
    }
    uses sfsg:sfsg-parameters {
      augment "stream-filters/stream-filter-instance-table" { ...
      }
      augment "stream-gates" { ...
      }
      augment "stream-gates/stream-gate-instance-table" { ...
      }
    }
  }
}
```

- **ieee802-dot1q-psfp-bridge.yang**

```
module ieee802-dot1q-psfp-bridge {
  yang-version "1.1";
  namespace urn:ieee:std:802.1Q:yang:ieee802-dot1q-psfp-bridge;
  prefix psfp-bridge;
  import ieee802-dot1q-bridge {
    prefix dot1q;
  }
  import ieee802-dot1q-psfp {
    prefix psfp;
  }
  organization ...
  contact ...
  description ...
  revision 2023-10-26 { ...
  }
  feature psfp { ...
  }
  augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
    description
      "Augment bridge with Per-Stream Filtering and Policing configuration";
    uses psfp:psfp-parameters;
  }
}
```

- **ieee802-dot1q-ats.yang**

```
module ieee802-dot1q-ats {
  yang-version "1.1";
  namespace urn:ieee:std:802.1Q:yang:ieee802-dot1q-ats;
  prefix ats;
  import ietf-yang-types {
    prefix yang;
  }
  import ieee802-dot1q-types {
    prefix dot1qtypes;
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  organization ...
  contact ...
  description ...
  revision 2023-07-03 { ...
  }
  revision 2022-01-19 { ...
  }
  revision 2020-11-06 { ...
  }
  grouping ats-port-parameters { ...
  }
  grouping ats-parameters {
    description ...
    container schedulers { ...
    }
    container scheduler-groups { ...
    }
  }
  uses sfsg:sfsg-parameters {
    augment "stream-filters/stream-filter-instance-table" {
      description ...
      uses ats:ats-parameters;
      container scheduler {
        description ...
        leaf scheduler-ref { ...
        }
        leaf scheduler-enable { ...
        }
      }
    }
  }
}
```

- **ieee802-dot1q-ats-bridge.yang**

```
module ieee802-dot1q-ats-bridge {
  yang-version "1.1";
  namespace urn:ieee:std:802.1Q:yang:ieee802-dot1q-ats-bridge;
  prefix ats-bridge;
  import ietf-interfaces {
    prefix if;
  }
  import ieee802-dot1q-bridge {
    prefix dot1q;
  }
  import ieee802-dot1q-ats {
    prefix ats;
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  organization ...
  contact ...
  description ...
  revision 2023-07-03 { ...
  }
  augment "/if:interfaces/if:interface/dot1q:bridge-port" {
    description ...
    uses ats:ats-parameters;
  }
  augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
    description ...
    uses sfsg:sfsg-parameters {
      augment "stream-filters/stream-filter-instance-table" {
        description ...
        uses ats:ats-parameters;
        container scheduler {
          description ...
          leaf scheduler-ref { ...
          }
          leaf scheduler-enable { ...
          }
        }
      }
    }
  }
}
```

- **ieee802-dot1q-congestion-isolation.yang**

```
module ieee802-dot1q-congestion-isolation {
  yang-version "1.1";
  namespace urn:ieee:std:802.1Q:yang:ieee802-dot1q-congestion-isolation;
  prefix dot1q-ci;
  import ietf-yang-types { ...
  }
  import ieee802-types { ...
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  import ieee802-dot1q-types { ...
  }
  import ietf-inet-types { ...
  }
  organization ...
  contact ...
  description ...
  revision 2023-07-03 { ...
  }
  /*-----*/
  /* Feature */
  /*-----*/
  feature congestion-isolation { ...
  }
  /*-----*/
  /* Typedefs */
  /*-----*/
  typedef abs-traffic-class-plus-one-type { ...
  }
  grouping cip-port-parameters { ...
  }
  grouping cip-parameters { ...
  }
  /*-----*/
  /* Configuration Data */
  /*-----*/
  uses sfsg:sfsg-parameters {
    augment
      "stream-filters/stream-filter-instance-table/stream-handle-spec" {
        if-feature "congestion-isolation";
        description ...
        case null-handle { ...
        }
      }
  }
}
```

- **ieee802-dot1q-congestion-isolation-bridge.yang**

```
module ieee802-dot1q-congestion-isolation-bridge { Paul Congdon, 3 years ago
  yang-version "1.1";
  namespace
    urn:ieee:std:802.1Q:yang:ieee802-dot1q-congestion-isolation-bridge;
  prefix ci-bridge;
  import ietf-interfaces { ...
  }
  import ieee802-dot1q-bridge { ...
  }
  import ieee802-dot1q-congestion-isolation {
    prefix ci;
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  organization ...
  contact ...
  description ...
  revision 2023-07-03 { ...
  }
  feature congestion-isolation-bridge { ...
  }
  augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
    if-feature "congestion-isolation-bridge";
    description ...
    uses ci:cip-parameters;
    uses sfsg:sfsg-parameters {
      augment
        "stream-filters/stream-filter-instance-table/stream-handle-spec" {
          if-feature "congestion-isolation-bridge";
          description
            "Dot1q Congestion Isolation";
          case null-handle {
            description
              "Congestion isolation specific stream_handle specifications.";
            leaf null-handle {
              type empty;
              description
                "The stream_handle specification represents the value when
                no stream_handle is provided.";
            }
          }
        }
    }
  }
  augment "/if:interfaces/if:interface/dot1q:bridge-port" {
    if-feature "congestion-isolation-bridge";
    description ...
    uses ci:cip-port-parameters;
  }
}
```

- **Current implementation**

- Define “*grouping sfsg-parameters*” in ieee802-dot1q-stream-filters-gates.yang
- Uses “*uses sfsg:sfsg-parameters*” in 3 modules of ieee802-dot1q-[ats/psfp/congestion-isolation]-bridge.yang

- **Problem**

- “*Uses*” statement copies the nodes defined by the “*grouping*” into the current schema tree.
- This creates own Stream Filter and Stream Gate of each module under the bridge component.

Tree with ATS, PSFP & CI

```

module: ieee802-dot1q-bridge
+--rw bridges
+--rw bridge* [name]
+--rw component* [name]
|
| +--rw mstid? dot1qtypes:mstid-type
+--rw ats-bridge:stream-gates
| +--rw ats-bridge:stream-gate-instance-table* [stream-gate-instance-id]
| | +--rw ats-bridge:stream-gate-instance-id uint32
| | +--rw ats-bridge:gate-enable? boolean
| | +--rw ats-bridge:admin-gate-states? gate-state-value-type
| | +--rw ats-bridge:admin-ipv? ipv-spec-type
| +--ro ats-bridge:max-stream-gate-instances? uint32
+--rw ats-bridge:stream-filters
| +--rw ats-bridge:stream-filter-instance-table* [stream-filter-instance-id]
| | +--rw ats-bridge:stream-filter-instance-id uint32
| | +--rw (ats-bridge:stream-handle-spec)?
| | | +--:(ats-bridge:wildcard)
| | | | +--rw ats-bridge:wildcard? empty
| | | +--:(ats-bridge:stream-handle)
| | | | +--rw ats-bridge:stream-handle uint32
| | +--rw ats-bridge:priority-spec priority-spec
| | +--rw ats-bridge:max-sdu-size uint32
| | +--rw ats-bridge:stream-blocked-due-to-oversize-frame-enabled? boolean
| | +--rw ats-bridge:stream-blocked-due-to-oversize-frame? boolean
| | +--rw ats-bridge:stream-gate-ref -> ../..
| +--rw ats-bridge:schedulers
| | +--rw ats-bridge:scheduler-instance-table* [scheduler-instance-id]
| | | +--rw ats-bridge:scheduler-instance-id uint32
| | | +--rw ats-bridge:committed-information-rate uint64
| | | +--rw ats-bridge:committed-burst-size uint32
| | | +--rw ats-bridge:scheduler-group-ref -> ../..
| | +--ro ats-bridge:max-scheduler-instances? uint32
| +--rw ats-bridge:scheduler-groups
| | +--rw ats-bridge:scheduler-group-instance-table* [scheduler-group-instance-id]
| | | +--rw ats-bridge:scheduler-group-instance-id uint32
| | | +--rw ats-bridge:max-residence-time uint32
| | +--ro ats-bridge:max-scheduler-group-instances? uint32
| +--rw ats-bridge:scheduler-timing-characteristics
| | +--ro ats-bridge:scheduler-timing-characteristics-table* [reception-
| | | +--ro ats-bridge:reception-port dot1qtypes:port
| | | +--ro ats-bridge:transmission-port dot1qtypes:port
| | | +--ro ats-bridge:clock-offset-variation-max uint32
| | | +--ro ats-bridge:clock-rate-deviation-max uint32
| | | +--ro ats-bridge:arrival-recognition-delay-max uint32
| | | +--ro ats-bridge:processing-delay-min uint32
| | | +--ro ats-bridge:processing-delay-max uint32
| | +--rw ats-bridge:scheduler
| | | +--rw ats-bridge:scheduler-ref? -> ../..
| | | +--rw ats-bridge:scheduler-enable? boolean
| +--ro ats-bridge:max-stream-filter-instances? uint32

```

```

module: ieee802-dot1q-bridge
+--rw bridges
+--rw bridge* [name]
+--rw component* [name]
|
| +--rw ats-bridge:scheduler
| | +--rw ats-bridge:scheduler-ref? -> ../..
| | +--rw ats-bridge:scheduler-enable? boolean
+--ro ats-bridge:max-stream-filter-instances? uint32
+--rw psfp-bridge:flow-meters
| +--rw psfp-bridge:flow-meter-instance-table* [flow-meter-instance-id]
| | +--rw psfp-bridge:flow-meter-instance-id uint32
| | +--rw psfp-bridge:committed-information-rate uint64
| | +--rw psfp-bridge:committed-burst-size uint32
| | +--rw psfp-bridge:excess-information-rate uint64
| | +--rw psfp-bridge:excess-burst-size uint32
| | +--rw psfp-bridge:coupling-flag enumeration
| | +--rw psfp-bridge:color-mode enumeration
| | +--rw psfp-bridge:drop-on-yellow boolean
| | +--rw psfp-bridge:mark-all-frames-red-enable? boolean
| | +--rw psfp-bridge:mark-all-frames-red? boolean
| +--ro psfp-bridge:max-flow-meter-instances? uint32
+--rw psfp-bridge:stream-gates
| +--rw psfp-bridge:stream-gate-instance-table* [stream-gate-instance-id]
| | +--rw psfp-bridge:stream-gate-instance-id uint32
| | +--rw psfp-bridge:gate-enable? boolean
| | +--rw psfp-bridge:admin-gate-states? gate-state-value-type
| | +--rw psfp-bridge:admin-ipv? ipv-spec-type
| | +--ro psfp-bridge:oper-gate-state? sfsg:gate-state-value-type
| | +--rw psfp-bridge:oper-ipv? sfsg:ipv-spec-type
| +--rw psfp-bridge:admin-control-list
| | +--rw psfp-bridge:gate-control-entry* [index]
| | | +--rw psfp-bridge:index uint32
| | | +--rw psfp-bridge:operation-name identityref
| | | +--rw psfp-bridge:time-interval-value? uint32
| | | +--rw psfp-bridge:gate-state-value sfsg:gate-state-value-type
| | | +--rw psfp-bridge:ipv-spec sfsg:ipv-spec-type
| | | +--rw psfp-bridge:interval-octet-max? uint32
+--ro psfp-bridge:oper-control-list
| +--ro psfp-bridge:gate-control-entry* [index]
| | +--ro psfp-bridge:index uint32
| | +--ro psfp-bridge:operation-name identityref
| | +--ro psfp-bridge:time-interval-value? uint32
| | +--ro psfp-bridge:gate-state-value sfsg:gate-state-value-type
| | +--ro psfp-bridge:ipv-spec sfsg:ipv-spec-type
| | +--ro psfp-bridge:interval-octet-max? uint32
+--ro psfp-bridge:admin-cycle-time

```

```

module: ieee802-dot1q-bridge
+--rw bridges
+--rw bridge* [name]
+--rw component* [name]
+--ro ci-bridge:ci-max-flow-lim? uint32 {congestion-isolation-bridge};
+--rw ci-bridge:ci-peers {congestion-isolation-bridge}?
| +--rw ci-bridge:ci-peer-table* [reception-port]
| | +--rw ci-bridge:reception-port dot1q-types:port-number-type
| | +--rw ci-bridge:ci-type? enumeration
| | +--rw ci-bridge:peer-mac-address? ieee:mac-address
| | +--rw ci-bridge:peer-ipv4-address? inet:ipv4-address
| | +--rw ci-bridge:peer-ipv6-address? inet:ipv6-address
| | +--rw ci-bridge:peer-udp-port? inet:port-number
| | +--rw ci-bridge:peer-cim-encap-len? uint16
| +--ro ci-bridge:max-ci-peer-entries? uint32
+--rw ci-bridge:ci-streams {congestion-isolation-bridge}?
| +--ro ci-bridge:ci-stream-table* [stream-handle-id]
| | +--ro ci-bridge:stream-handle-id uint32
| | +--ro ci-bridge:ci-count? uint16
| | +--ro ci-bridge:create-time? yang:timeticks
| | +--ro ci-bridge:create-mask? bits
| +--ro ci-bridge:queue-key? uint16
| +--ro ci-bridge:dest-mac-address? ieee:mac-address
| +--ro ci-bridge:source-mac-address? ieee:mac-address
| +--ro ci-bridge:vid? dot1q-types:vlan-index-type
| +--ro ci-bridge:msdu? yang:hex-string
+--ro ci-bridge:max-ci-stream-entries? uint32 {congestion-isolation-bridge};
+--rw ci-bridge:stream-gates {congestion-isolation-bridge}?
| +--rw ci-bridge:stream-gate-instance-table* [stream-gate-instance-id]
| | +--rw ci-bridge:stream-gate-instance-id uint32
| | +--rw ci-bridge:gate-enable? boolean
| | +--rw ci-bridge:admin-gate-states? gate-state-value-type
| | +--rw ci-bridge:admin-ipv? ipv-spec-type
| +--ro ci-bridge:max-stream-gate-instances? uint32
+--rw ci-bridge:stream-filters {congestion-isolation-bridge}?
+--rw ci-bridge:stream-filter-instance-table* [stream-filter-instance-id]
| +--rw ci-bridge:stream-filter-instance-id uint32
| +--rw (ci-bridge:stream-handle-spec)?
| | +--:(ci-bridge:wildcard)
| | | +--rw ci-bridge:wildcard? empty
| | +--:(ci-bridge:stream-handle)
| | | +--rw ci-bridge:stream-handle uint32
| | +--:(ci-bridge:null-handle) {congestion-isolation-bridge}?
| | +--rw ci-bridge:null-handle? empty
| +--rw ci-bridge:priority-spec priority-spec-type
| +--rw ci-bridge:max-sdu-size uint32
| +--rw ci-bridge:stream-blocked-due-to-oversize-frame-enabled? boolean
| +--rw ci-bridge:stream-blocked-due-to-oversize-frame? boolean
| +--rw ci-bridge:stream-gate-ref -> ../../../../stream-gates/st
+--ro ci-bridge:max-stream-filter-instances? uint32

```

Proposal

- Create container of *stream-gates* and *stream-filters* under “/dot1q:bridges/dot1q:bridge/dot1q:component” instead of “grouping” & “uses” statement for Stream Filter and Stream Gate
- Those are created as “*sfsg-bridge-new:stream-gates*” and “*sfsg-bridge-new:stream-filters*”
- Share them with other modules of ATS, PSFP and CI.
- Additional containers can be augmented by each module.

```
module ieee802-dot1q-stream-filters-gates-bridge-new {
  yang-version "1.1";
  namespace
    urn:ieee:std:802.1Q:yang:ieee802-dot1q-stream-filters-gates-bridge-new;
  prefix sfsg-bridge-new;
  import ieee802-dot1q-bridge {
    prefix dot1q;
  }
  import ieee802-dot1q-stream-filters-gates {
    prefix sfsg;
  }
  organization ...
  contact ...
  description ...
  revision 2026-04-28 { ...
  }
  augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
    description ...
    container stream-gates {
      when "../*[local-name()='schedulers']"
        + " or ../*[local-name()='flow-meters']"
        + " or ../*[local-name()='ci-master-enable']" {
        description ...
      }
      description ...
      list stream-gate-instance-table { ...
      }
      leaf max-stream-gate-instances { ...
      }
    }
    container stream-filters {
      when "../*[local-name()='schedulers']"
        + " or ../*[local-name()='flow-meters']"
        + " or ../*[local-name()='ci-master-enable']" {
        description ...
      }
      description ...
      reference ...
      list stream-filter-instance-table { ...
      }
      leaf max-stream-filter-instances { ...
      }
    }
  }
}
```

Modified ieee802-dot1q-psfp-bridge.yang

```
augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
  description...
  container flow-meters {...
}
}
augment "/dot1q:bridges/dot1q:bridge/dot1q:component"
  + "/sfsg-bridge-new:stream-filters"
  + "/sfsg-bridge-new:stream-filter-instance-table" {
  description...
  leaf matching-frames-count {...
}
}
  leaf passing-frames-count {...
}
}
  leaf not-passing-frames-count {...
}
}
  leaf red-frames-count {...
}
}
  leaf passing-sdu-count {...
}
}
  leaf not-passing-sdu-count {...
}
}
  leaf flow-meter-ref {...
}
}
  leaf flow-meter-enable {...
}
}
}
augment "/dot1q:bridges/dot1q:bridge/dot1q:component"
  + "/sfsg-bridge-new:stream-gates" {
  description...
  leaf supported-list-max {...
}
}
  container supported-cycle-max {...
}
}
  leaf supported-interval-max {...
}
}
}
```

```
augment "/dot1q:bridges/dot1q:bridge/dot1q:component"
  + "/sfsg-bridge-new:stream-gates"
  + "/sfsg-bridge-new:stream-gate-instance-table" {
  description...
  leaf oper-gate-state {...
}
}
  leaf oper-ipv {...
}
}
  container admin-control-list {...
}
}
  container oper-control-list {...
}
}
  container admin-cycle-time {...
}
}
  container oper-cycle-time {...
}
}
  leaf admin-cycle-time-extension {...
}
}
  leaf oper-cycle-time-extension {...
}
}
  container admin-base-time {...
}
}
  container oper-base-time {...
}
}
  leaf config-change {...
}
}
  container config-change-time {...
}
}
  leaf tick-granularity {...
}
}
  container current-time {...
}
}
  leaf config-pending {...
}
}
  leaf config-change-error {...
}
}
  leaf gate-closed-due-to-invalid-rx-enable {...
}
}
  leaf gate-closed-due-to-invalid-rx {...
}
}
  leaf gate-closed-due-octets-exceeded-enable {...
}
}
  leaf gate-closed-due-octets-exceeded {...
}
}
}
```

Modified ieee802-dot1q-ats-bridge.yang

```
augment "/if:interfaces/if:interface/dot1q:bridge-port" {  
  description ...  
  uses ats:ats-port-parameters;  
}  
augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {  
  description ...  
  uses ats:ats-parameters;  
}  
augment "/dot1q:bridges/dot1q:bridge/dot1q:component"  
  + "/sfsg-bridge-new:stream-filters"  
  + "/sfsg-bridge-new:stream-filter-instance-table" {  
  description ...  
  container scheduler {  
    description  
      "This container encapsulates ATS scheduler nodes.";  
    leaf scheduler-ref { ...  
    }  
    leaf scheduler-enable { ...  
    }  
  }  
}
```

Modified ieee802-dot1q-congestion-isolation-bridge.yang

```
}
feature congestion-isolation-bridge {
  description...
}
augment "/dot1q:bridges/dot1q:bridge/dot1q:component" {
  if-feature "congestion-isolation-bridge";
  description...
  uses ci:cip-parameters;
}
augment "/dot1q:bridges/dot1q:bridge/dot1q:component"
  + "/sfsg-bridge-new:stream-filters"
  + "/sfsg-bridge-new:stream-filter-instance-table"
  + "/sfsg-bridge-new:stream-handle-spec" {
  if-feature "congestion-isolation-bridge";
  description...
  case null-handle {...
}
}
augment "/if:interfaces/if:interface/dot1q:bridge-port" {
  if-feature "congestion-isolation-bridge";
  description
    "Augment a bridge port with Congestion Isolation specific
    configuration.";
  uses ci:cip-port-parameters;
}
```

Next Step

- **Welcome comments and feedback on the proposal.**
- **Create and share private YANG github repo with changes for reviews.**
- **Working on a SFSG solution (maintenance #0393) for both Bridge and End-Station**

Thank You