Time-Sensitive Networking (TSN) Profiles (Selection and Use of TSN tools)


### TSN Components

**Tools of the TSN toolset**

- **Synchronization**
- **Reliability**
- **Latency**
- **Resource Management**

#### Bounded low latency:
- Credit Based Shaper [802.1Qav]
- Frame Preemption [802.1Qbu & 802.3br]
- Scheduled Traffic [802.1Qbv]
- Cyclic Queuing and Forwarding [802.1Qch]
- Asynchronous Traffic Shaping [802.1Qcr]
- Shaper Parameter Settings [P802.1Qdq]
- QoS Provisions [P802.1DC]

#### Zero congestion loss = Bounded latency

Note: A ‘P’ in front of ‘802.1’ indicates an ongoing Project.

### High availability / Ultra reliability:

- Frame Replication and Elimination [802.1CB]
- Path Control and Reservation [802.1Qca]
- Per-Stream Filtering and Policing [802.1Qci]
- Reliability for Time Sync [802.1AS-2020]

### Dedicated resources & API:

- Stream Reservation Protocol [802.1Qat]
- Link-local Registration Protocol [802.1CS]
- TSN Configuration [802.1Qcc]
- Foundational Bridge YANG [802.1Qcp]
- YANG for CFM [802.1Qcx]
- YANG for LLDP [P802.1ABcu]
- YANG for 802.1Qbv/Qbu/Qci [P802.1Qcw]
- YANG & MIB for FRER [P802.1CBcv]
- Extended Stream Identification [P802.1CBdb]
- Resource Allocation Protocol [P802.1Qdd]
- TSN Configuration Enhancements [P802.1Qdj]
- LLDPv2 for Multiframe Data Units [P802.1ABdh]
- Multicast and Local Address Assignment [P802.1CQ]

#### Time synchronization:

- Timing and Synchronization [802.1AS-2020] (a profile of IEEE 1588)
- Hot Standby [P802.1ASdm]
- YANG [P802.1ASdn]
- Inclusive Terminology [P802.1ASdr]

---

More on [TSN standards](https://www.ieee802.org/1/tsn) and ongoing projects at: [https://www.ieee802.org/1/tsn](https://www.ieee802.org/1/tsn)

11/16/2021