Consideration of max_wait_timer

Comment # 315

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Background

- ILT function defined in Annex 178B relies on the training control state diagram.

- Necessity of timers during training has been widely discussed via a list of contributions:

  slavick_3dj_01_2501

  ran_3dj_02a_2505

  slavick_3dj_02_2507

  lusted_3dj_02a_2509

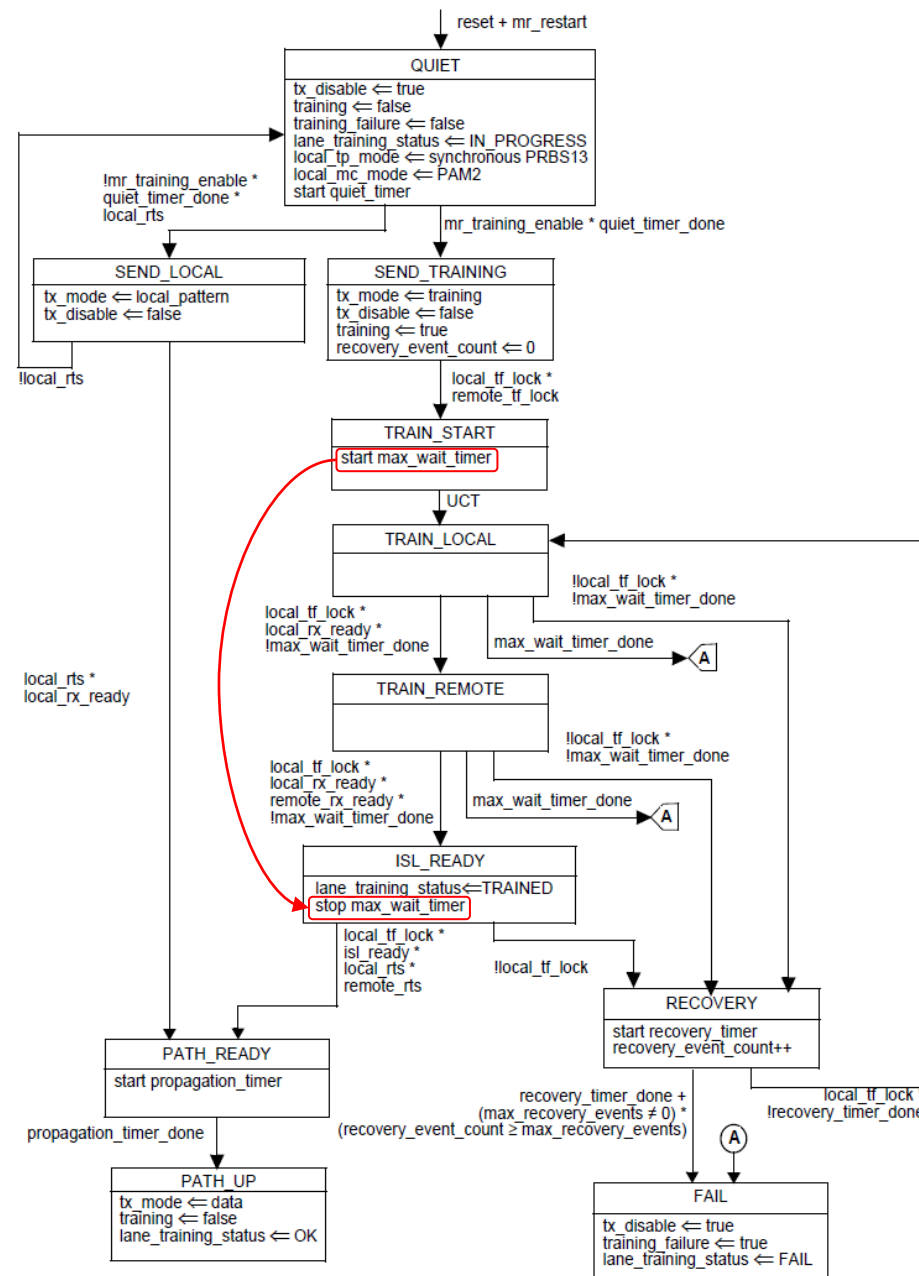- max_wait_timer was added in D2.2 draft to limit the time spent from TRAIN_START to ISL_READY.

Figure 178B–10—Training control state diagram

Potential Issues of max_wait_timer

Several cases are considered:

- No worries before ISL_READY. Time spent from TRAIN_LOCAL to ISL_READY with potential recovery is included.

- Once entering ISL_READY, no timer used to bound ISL_READY→PATH_READY. If local_rts or remote_rts keeps false due to disconnected interfaces or broken ISLs elsewhere over the path,

  - Path start up cannot be achieved before debugging.

  - A dead loop may exist when training frame lock is often lost and its recovery time never exceeds the limit of recovery_timer with max_recovery_events = 0.

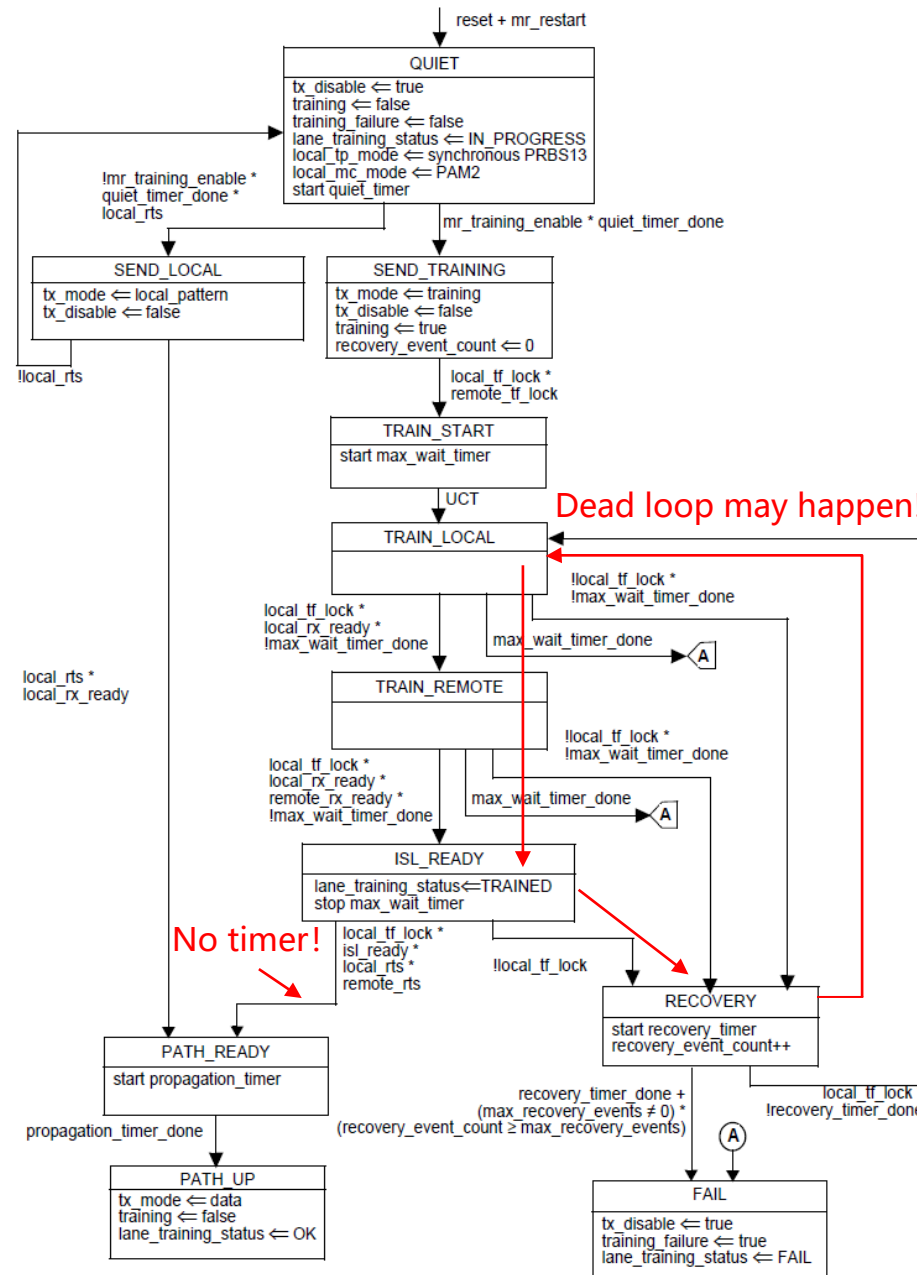   (ISL_READY→RECOVERY→TRAIN_LOCAL→…→ ISL_READY)

How to solve these issues?

Figure 178B–10—Training control state diagram

Possible Solution

Changes:

- Stop max_wait_timer in PATH_READY instead of ISL_READY.
- Add "!max_wait_timer_done" condition for the transition from ISL_READY to PATH_READY or RECOVERY.
- Add new transition from ISL_READY to FAIL when max_wait_timer_done = true.

Advantages:

- Indicate users to debug if ISL_READY → PATH_READY has timeout to FAIL.
  - Training will restart only after debugging.

- max_wait_timer_done makes effect for all possible recovery loops.
- Minimum change to FSM.
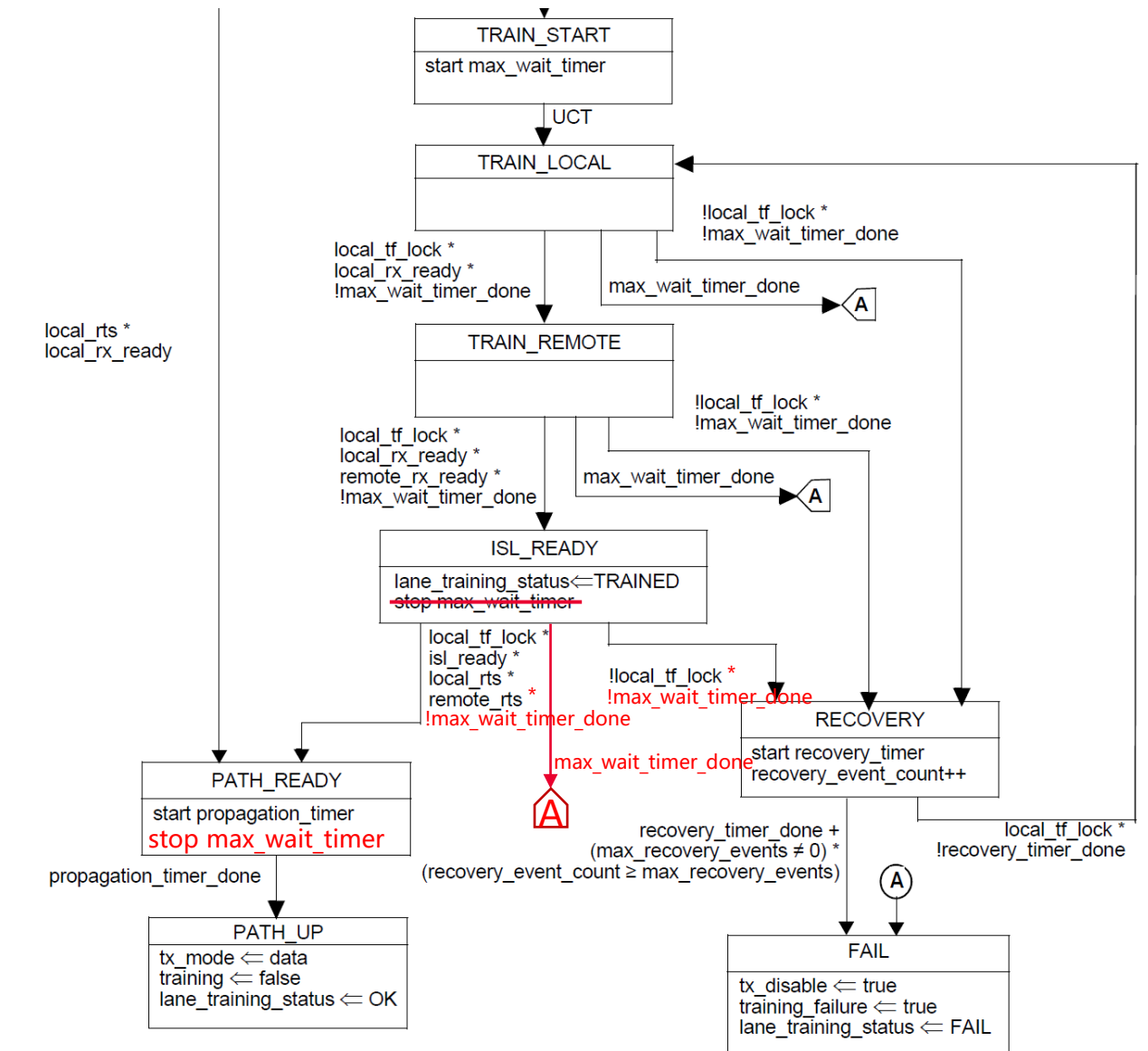
Summary

- When local_rts or remote_rts keeps false due to disconnected interfaces or broken ISLs elsewhere over the path, path start up cannot be achieved and a dead loop may exist.

- Timeout for ISL_READY → PATH_READY is helpful, indicating users to debug what happens in the path. Training shall restart after debugging.

- Proposal to solve the issues have been presented per slide 4.

Thanks!