WP4: White Rabbit automated tests development  
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The supply is a source code (e.g. set of scripts) that provides ATTEST-based automated tests of White Rabbit extension to IEEE1588-2008 [1]. The developed tests are intended for regression tests of the White Rabbit Switch (WRS) that is the Device Under Test (DUT).

Technical requirements for the supply:

1) It shall verify protocol aspects of the White Rabbit Specification 2.0 [1], this includes:
   a) Message format and transmission characteristics of the WRPTP Announce Message and WRPTP Signaling Messages, see 6.5 of [1],
   b) Operation of the PTP State Machine specific to WR, see 6.6 of [1],
   c) Operation of the White Rabbit State Machine, see 6.7 of [1], this includes transitions on timeouts if externally visible/testable.

2) It shall verify the functionality of “port role” configuration. Such functionality is not included in the White Rabbit Specification 2.0 [1] and is de-facto standard for WR devices. This functionality allows each port of the WRS to be configured as:
   a) Master – it can operate only in PTP Master State
   b) Slave – it can operate only in PTP Slave State
   c) Auto – it performs BMCA, as defined in IEEE1588-2008

3) It shall perform configuration of DUT using WRS-specific mechanism (extending the mechanisms developed in the “PTP Integration” work package)

4) It shall verify DUT’s proper operation (e.g. port state, WR mode) using WRS-specific MIB (extending the mechanisms developed in the “PTP Integration” work package)

5) It shall be fully automated and shall not require human intervention for completion.

6) It shall be accompanied by
   a) Technical documentation
   b) Instructions/assistance how to update CERN test system (Xenabay C4-12 with M6SFP Test modules and Veryx Attest framework with PTP Boundary & Ordinary Clock Conformance Test Suite) to run the developed solution (the supply)

CERN will make all supply available under the GPL license. The supply will be accepted only if it successfully works on CERN test system.

Note that the current implementation is the de-facto standard for White Rabbit. The implementation running on WRS is known to depart from the specification [1] in few aspects listed below. The behavior of implementation listed below shall override the specification for the tests to be developed. If any other discrepancies between the specification and the implementation are discovered, it shall be discussed with the WR team at CERN whether the behavior specified by [1] or the behavior of DUT is to be deemed correct for the tests. The following known departures of implementation with respect to [1] shall be considered normative for the tests:

- The State Decision Algorithm (SDA) specified in 6.4.2 of [1] is not implemented
- magicNumber in WR Announce Message is 0xDEED instead of 0xABCD defined in 6.5.2, Table 8 of [1]
- wrMessageID for ANN_SUFFIX is 0x0010 instead of 0x2000 defined in 6.5.1, Table 8 of [1]
- WR TLV calibrate is 6 bytes larger than defined in 6.5.3.4, Table 12 of [1]. The currently implemented size shall be deemed correct but the verification shall be easily modifiable as this departure from specification is intended to be corrected at some point.

The execution of this work package shall include weekly conf-calls to discuss its progress. This work package shall be executed as follows:

1) At launch, CERN provides Veryx with a WRS and all the necessary information
2) Veryx confirms that it has all the input needed for development
3) Within 4 weeks from the confirmation, Veryx proposes a set of tests and provides a description of each test
4) CERN team has 2 weeks to provide feedback
5) The test-set to be implemented is agreed upon between CERN and Veryx
6) Within 8 weeks from the agreement, Veryx provides CERN with the supply along with the documentation and instructions how to use it using CERN’s setup.
7) CERN verifies the supply within 4 weeks to trigger the payment.