

Overview

Achilles Certification

The Achilles Certification Program was developed by Wurdtech and its partners to provide a benchmark for the deployment of secure industrial devices. The program is designed to assess the network robustness of industrial devices and certify that they meet a comprehensive set of requirements and conformance. The certification process presents device manufacturers with an independently verified result from which to communicate their product security to customers, while providing the operators of control systems with the most complete, accurate, and trustworthy information possible about the network resilience of their deployed products.

Application

As proposed by ISA99, applications are software programs executing on embedded devices, host-based devices, and network components that are used to interface with the industrial process. Examples include HMI software, historian servers, and PLC ladder logic programs.

The Certification Process

The certification process consists of two phases: custom test case development and certification testing.

Phase I: Custom Test Case Development

If test cases for the specific application protocol have not been developed, then custom test cases are required to proceed with certification testing. The time required for test case development will vary depending on the protocol. For this phase, a detailed protocol specification and an executable of the candidate application must be provided to Wurdtech. Source code is useful for test case development, but not required. Once the test cases are completed, Wurdtech will provide test case executables to the customer, accompanied by test results.

If test cases for the application protocol already exist, then this phase may be skipped.

Phase II: Certification Testing

In this phase, the application goes through the formal certification testing process.

Test Methodology

What kinds of tests are run against the application?

The application tests fall into two categories:

- **Resource Exhaustion Tests.** Tests that try to exhaust a particular resource of the DUT. For instance, the Achilles Satellite employs storms, which are tests that send packets at fast rates in an attempt to overflow the DUT's memory resources.
- **Invalid Packet Tests.** Tests that send illegally-formed packets to the DUT. The Achilles Satellite uses fuzzers and grammars to create these invalid packets.

What are the certification conformance requirements?

The application must maintain normal operation during all applicable tests. Any of the following behaviors will result in certification failure:

- Program instability. The application crashes or restarts during testing.
- Network unavailability. The application stops responding to network traffic during testing.
- Excessive resource usage. Significant memory leaks or unusual CPU utilization occur during testing.

FAQ

When should an application be submitted for certification?

For Phase I, the application should be submitted well before its projected release date to allow Wurdtech enough time for test case development. For Phase II, the application should be submitted only when it is finished and ready to be released to market, since certification is tied to a specific software version.

What do I receive when an application gets certified?

If the application achieves certification, the customer receives a detailed report that describes the test procedure and test results; a certificate; inclusion in the list of certified application on the Wurdtech website; and use of the Achilles Certification logo.

Contact Information

If you would like to schedule a certification or if you would like more information, please contact us at certifications@wurdtech.com.