

UDI Driver Test Suite Project

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Project Team

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Project Objective Statement

The UDI test suite is an automated, portable test suite for UDI SCSI and NIC drivers that should be released by April 30, 2000.

Project Deliverables

- UDI SCSI driver test suite for UnixWare 7.
- UDI NIC driver test suite for UnixWare 7.
- Test suite framework for UDI drivers that are not based on the NIC or SCSI meta-languages.
- User documentation.
- Intermediate versions available before release date.
- Reference implementation on UnixWare 7 (source and binary), proof of concept on AIX.

Customers

- UDI NIC and SCSI driver developers
- UDI driver test suite developers wishing to extend or enhance the test suite
- UDI driver certification groups

Project Description

Project Rationale

The foundation for UDI technology adoption begins with documentation and sample driver source code, but is not complete without an automated test suite. Described below is the motivation for a UDI test suite and a general development strategy under the UDIG umbrella.

Comprehensive unit level test suites are critical to the success of a device driver model. Given the great variety of hardware, coding styles, and software architectures, ad-hoc testing is insufficient and inconsistent, and formalized test plans are too tedious and ineffective without automation. In the absence of a test suite, the line between debugging and testing can become blurred, and it can become difficult for the developer to determine when a driver is complete.

With UDI, operating system independence increases the need for driver test suites because of the variety of development environments and the need to ensure quality when drivers are re-compiled for new platforms. Also, UDI is a new and unfamiliar driver model, increasing the likelihood of wider developer variance in interpreting interface specs.

The objective therefore is to design and build an automated UDI driver test suite which is multi-platform and portable. The test suite will enable predictable testing coverage and a consistent level of quality for UDI drivers and optimize testing efficiency. It can also serve as the basis for compatibility and certification programs aimed at promoting the UDI standard.

For the UDI driver model to be deployed rapidly and successfully by multiple OSV's and IHV's, it is essential that a UDI test suite be made available soon after the availability of the UDI 1.0 development kit.

This project is:

- a test suite for UDI NIC and SCSI drivers
- designed to be extensible to support test suites for other meta languages
- automated - once configured and started, the test suite will run unattended and will generate one or more written reports that can be reviewed at leisure
- portable across UNIX-based operating systems
- a set of unit-level tests to verify interface conformance (at least one per metalanguage)
- at least one load/stress test
- installable and removable on different operating system platforms.

This project is not:

- intended to functionally test UDI environments, although some codepaths through the UDI environment will be exercised while running the driver tests
- a test of the Generic I/O metalanguage
- a test of non-UDI drivers

- localized; documentation will be provided in English only and no attempt will be made to internationalize test suite utilities

Flexibility Matrix

A project is constrained by resources, scope, and schedule. This project is most constrained by resources. This means scope and schedule are the most vulnerable to change.

Both schedule and scope for the project have medium flexibility. While desirable to complete the project by end of March 2000, the finish date is more flexible to change than resource. It is also possible to change scope to some extent. For example, perhaps not all test cases of the test suite will be delivered, or perhaps additional test cases will be delivered.