LASC Compliance Suite

User Guide
V1.0

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1. WARNING

➢This software may interface with other devices on the network.

➢It is the user's responsibility to ensure that all devices are constrained and operated in a safe manner.

➢There may be unforseen and unintentional consequences brought about by the purposeful introduction of corrupt or badly formed instructions.

➢The systems (especially devices with physical interactions) MUST be constrained in a safe manner. This constraint will be the responsibility of the testing operator AND the system owner.

2.   OVERVIEW

➢The aim of the LASC Compliance project is to develop an industry-based conformance process for specification and acceptance testing of ACARP-developed technologies. For LASC technologies, a set of software tools has been produced to assist specification and conformance testing of OEM implementations against existing open LASC specifications. The framework for this process will also be able to accommodate future automation systems. Both manufacturers and customers will have open access to the software tools and each can test OEM automation systems for conformance with the LASC (and future) specifications.

➢In particular, this suite of software tools will perform the task of certifying compliance for all systems (software applications and devices) to the LASC Automation Communication Protocol.

The suite is made up of:

➢ComplianceUtility. (sections 4-9)

➢VerificationManager (section 10)

➢EDSManager (section 11)

➢TestCaseManager (section 12)

3.   INSTALLATION

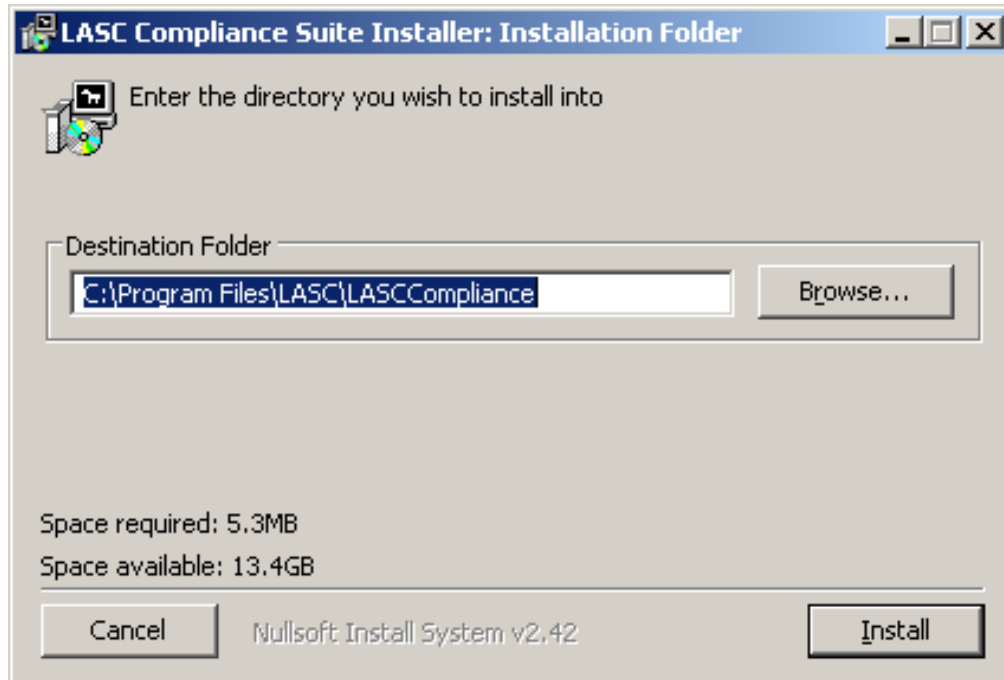To install the LASC Compliance Suite, run the file "LASCInstaller.exe".

Figure 1: The LASC Compliance Installer

Choose a Destination Folder and click *"Install"*. Once the screen shows as completed, click "*Close".*

4.   RUNNING THE COMPLIANCE UTILITY

Click Start → All Programs → 'LASCCompliance→ 'ComplianceUtility'.

The main window will appear (see Figure 2: A screenshot of the LCUFigure 2).

Figure 2: A screenshot of the LCU

5. CONFIGURATION

➢ In the User Input Area, insert the user name and device name, this will be recorded in the final report as part of the verification process.

➢ Select an Electronic DataSheet (EDS) file via the Browse button. The EDS file contains details about the device under test, including its IP address. The EDS file must be supplied by the device manufacturer. The contents of the selected EDS file may be viewed and/or edited using the Edit button.

➢ Select projects from the project selection box to test against the device. Each project consists of a number of tests that the device must pass in order to comply with the named standard.

These tests are categorised into suites. Each project is described in an *.xml or *.exml (encrypted xml) file, and stored in the Projects directory (normally <Install Path>\Projects). All projects found in this directory when the program starts are listed in the project selection box. Additionally, there may be different versions of the same project, which may be selected using the drop down box next to the project name.

Select each project that you wish to test against by placing a check in the check box next to the project name. Additionally ensure that the version of the project is the one you wish to test. The latest version is shown by default.

➢ Setup the device. Ensure the device to be tested is powered on and connected to the testing PC via a switch, as indicated in figure 3 below:
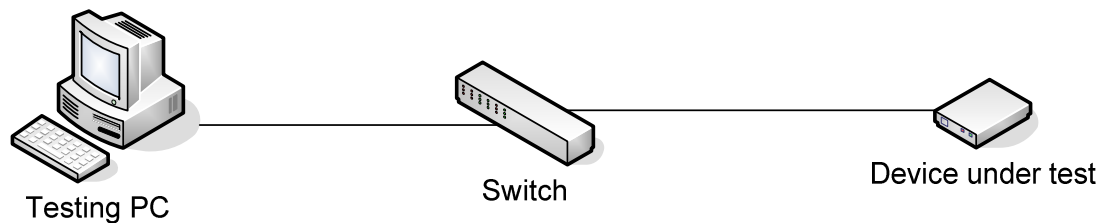

Figure 3. Network setup

 # 6.   TESTING

➤ Now you are ready to commence testing. At this point, the results tree and results table are empty.

➤**Click on Start**. The Compliance Utility begins to run the tests in the projects in order, until they are either completed or the user cancels the testing process.

➤When testing is running, the user may *pause* the tests by clicking Pause. Results to that time may be viewed. The user may then click Resume to continue testing. The user can also cancel the testing by clicking Cancel, which stops testing as soon as practicable. Completed results will be displayed as before, but to complete testing will require repeating the tests performed already by clicking Start again. Clicking Start deletes any test results before starting testing.

➤During testing the results tree will provide an indication of progress with a running icon (*Table 1*) next to the project and suite under test. The same icon will be displayed in the results table.

7.   RESULTS

➢While testing, the results tree and results table will fill with information regarding the projects under test.

➢The results table shows details of the currently selected project or suite on the results tree.

➢ By default, a summary of results for all projects are displayed (*Figure 4*).

Each row shows the name of the project, a result icon (see *Table 1*) providing an overall result for the project, and a more detailed list of how many tests passed, skipped, didn't run, and failed with minor, moderate, high and critical severity.

Project	Result	# NotRun	# Skipped	# Passed	# Minor	# Moderate	# High	# Critical	# Total
LASC Level 1 v0.0.TEST	—								
LASC Levl 1 v3.0.1	✖	0	0	6	0	0	1	0	7
LASC Levl 2 v2.0	✔	0	0	3	0	0	0	0	3
LASC Levl 3 v1.0.a	✔	0	0	3	0	0	0	0	3

Figure 4: 'All Projects' Results

Icon	Project	Suite	Test
	All tests in project passed	All tests in suite passed	Test passed
	At least one test in project failed	At least one test in suite failed	Test failed
	Project is currently being tested	Suite is currently being tested	Test is currently running
	Project was skipped, because it wasn't selected by the user.	All tests within the suite were skipped.	Test skipped probably because a prerequisite test didn't pass.

Table 1: Result icons as shown in the different views

➤ If a particular project is selected in the results tree, more detailed results will be displayed as shown in Figure 5. The first row shows a summary of the whole project, the rows below that represent each suite in the project. In this example, suite 6 of this project is currently being tested.

Suite	Result	# NotRun	# Skipped	# Passed	# Minor	# Moderate	# High	# Critical	# Total
LASC Level 1 v0.0.TEST		13	0	20	0	2	3	5	43
4 Base Ethernet Communications		0	0	7	0	0	0	3	10
5 Testing Encapsulation Commands		0	0	9	0	1	2	0	12
6 Testing Session / Message Handling		2	0	4	0	1	1	2	10
7 Testing Implementation of common services									
9 Testing Error Codes									
10 Testing Timeouts									

Figure 5: 'Project' Results

➤ If a node representing a suite is selected, the results table will look like

Figure 66. The first row shows a summary of the whole suite as in the 'Project' Results, while the rows below that represent each test within the suite. For each test instead of the row of detailed results, we provide a description of the test and a text description of the test's outcome.

Test	Result	# NotRun	# Skipped	# Passed	# Minor	# Moderate	# High	# Critical	# Total
4 Base Ethernet Communications	❌	0	0	7	0	0	0	3	10
0 4.1 Test Ping	✅	Passed! This test checks the device under test responds to a standard							
1 4.2 Test UDP request / response	✅	Passed! This test checks to make sure the device under test responds to							
2 4.3 Test TCP request / response	✅	Passed! This test checks to make sure the device under test responds to							
3 4.4.a Open concurrent TCP connections	✅	Passed! This test checks to make sure the device under test will allow							
4 4.4.b Test concurrent TCP connections	❌	Failed: Severity CRITICAL This test checks to make sure the concurrent sessions all							
5 4.4.c Close concurrent TCP connections	✅	Passed! This test checks to make sure the concurrent sessions close							
6 4.5 Test Ethernet Fail 1	❌	Failed: Severity CRITICAL							

Figure 6: 'Suite' Results

8.   VIEWING THE TEST LOG

During or after testing, the test log may be viewed by clicking View Log. The log contains detailed information about each test that may be useful for an OEM diagnosing problems.

9.   CREATING A REPORT

➢After testing is complete, a report may be created by clicking Create Report. This creates a pdf file format report, and opens it in a pdf viewer such as Adobe Reader.

➢This report contains all of the information contained within the results table, as well as the full test log.

LASC Compliance Report

Device:	My Device Name
Tester:	My User Name
Date:	6/07/2009 9:44:34 AM
EDS:	C:/ Documents and Settings/ dun332/ Desktop/ AutomationCommunicationProtocol/ automation_communication/ software/ bin/ EDS/ Local_RSS.eds

LASC Compliance Testing Summary

Project	Result	Skipped	Passed	Minor	Moderate	High	Critical	Total
LASC Level 1 Ver: 0.0.c	❌	0	1	0	3	2	10	69

Figure 7. Compliance Report

➢The report is the final proof of compliance for a specific device. The report may be verified as authentic using the VerificationManager (see section 10)

➢An electronic copy of this report should be shipped by the Manufacturer with the device, as part of the LASC compliance process.

10. VERIFICATIONMANAGER

➢This utility is used to check that a report or test project is authentic.

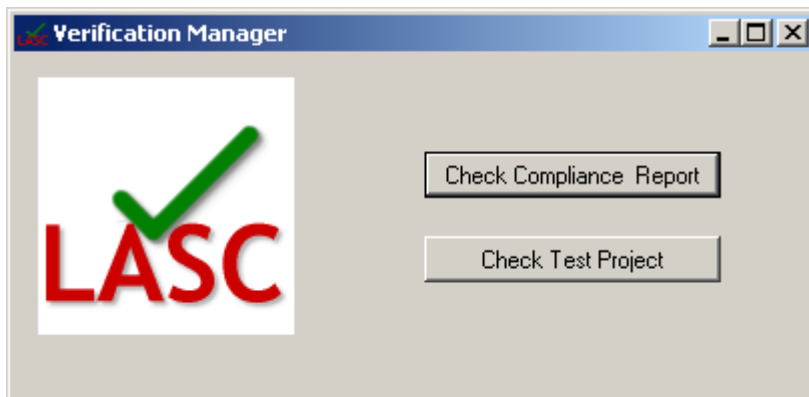➢Click Start → All Programs → 'LASCCompliance' → 'VerificationManager'. A small utility will appear as per figure 8

Figure 8. Verification manager main window

➢ Click on 'Check compliance report' and select a report pdf file provided by the device manufacture. A popup box will display either a success or fail message
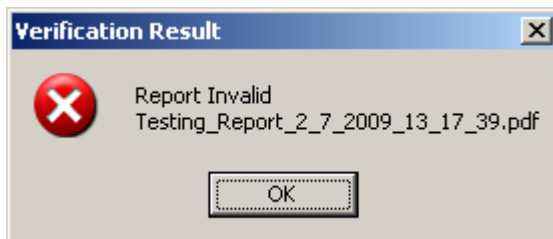

Figure 9. Authentication failed

Authentication failed. Contact the device manufacturer for more information.

Figure 10. Authentication success

➢Click 'Check Test Project' and select a test file (*.xml or *.exml) for information on the validity of the test project.
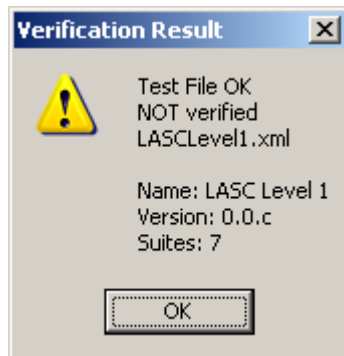

Figure 11. Test file authentication results

➢Note that only valid encrypted test files (*.exml) are fully verified by the LASC project.

11. EDSMANAGER

➢This utility is used to view and edit Electronic Data Sheets (EDS)

➢An EDS contains all the information required to completely define a LASC compliant device on the current network.

➢The EDS should be created by the device manufacturer, but can be amended prior to compliance testing with actual IP address.
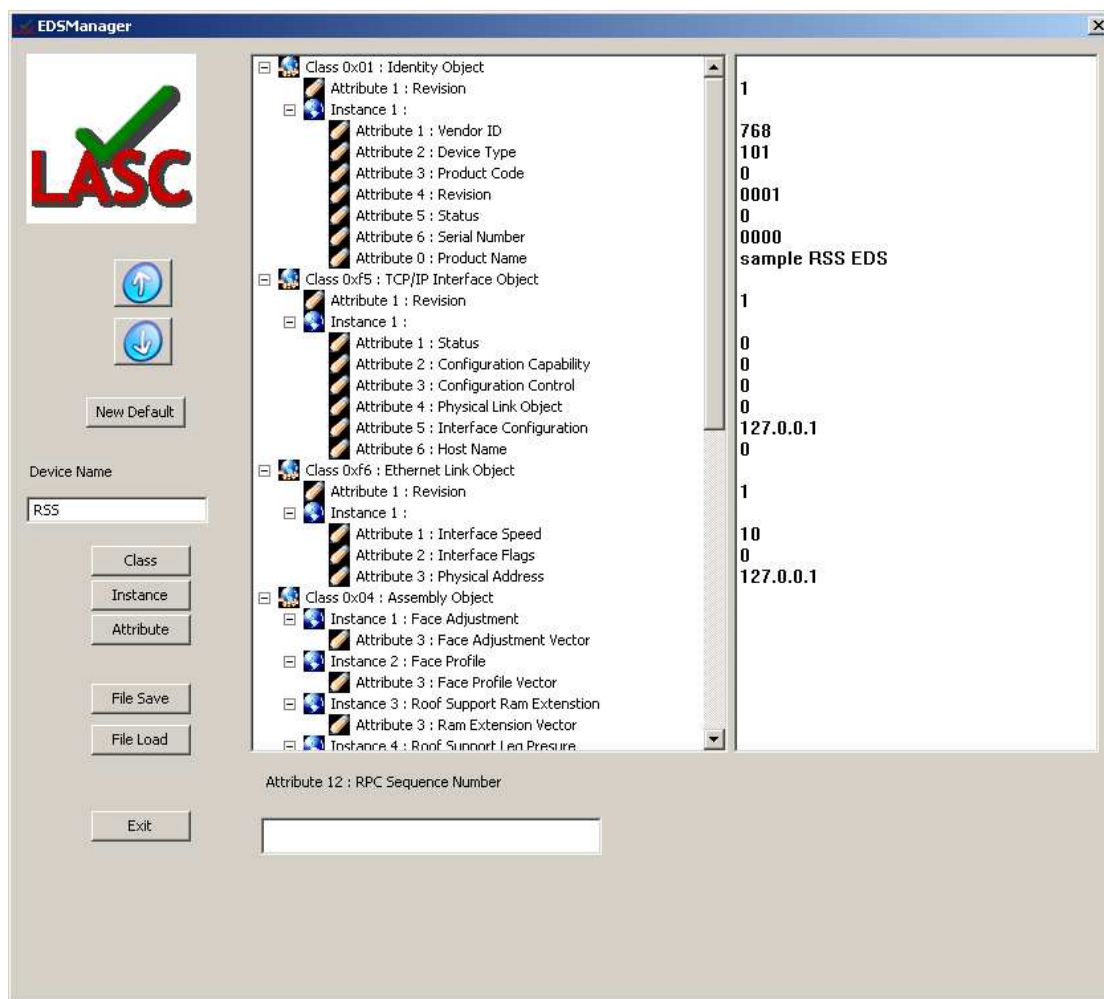

Figure 12. EDSManager main window

➢There are a number of items that are mandatory as per the LASC Level 1 Specifications, and other items that are only implemented by specific types of devices (eg Roof Support Systems implement class 0x64)

➢This utility should be used in conjunction with documentation in the latest version of the *Ethernet/IP Adaptation of CIP* specification and the relevant device level specification from http://www.lascautomation.com.au/lasc-specifications.html .

12. TESTCASEMANAGER

➢The Test Case Manager utility is used only by OEMs and developers of new hardware or software systems that require certification.

➢This utility is used to construct testing projects from a series of events built into a hierarchy events->tests->suites->projects
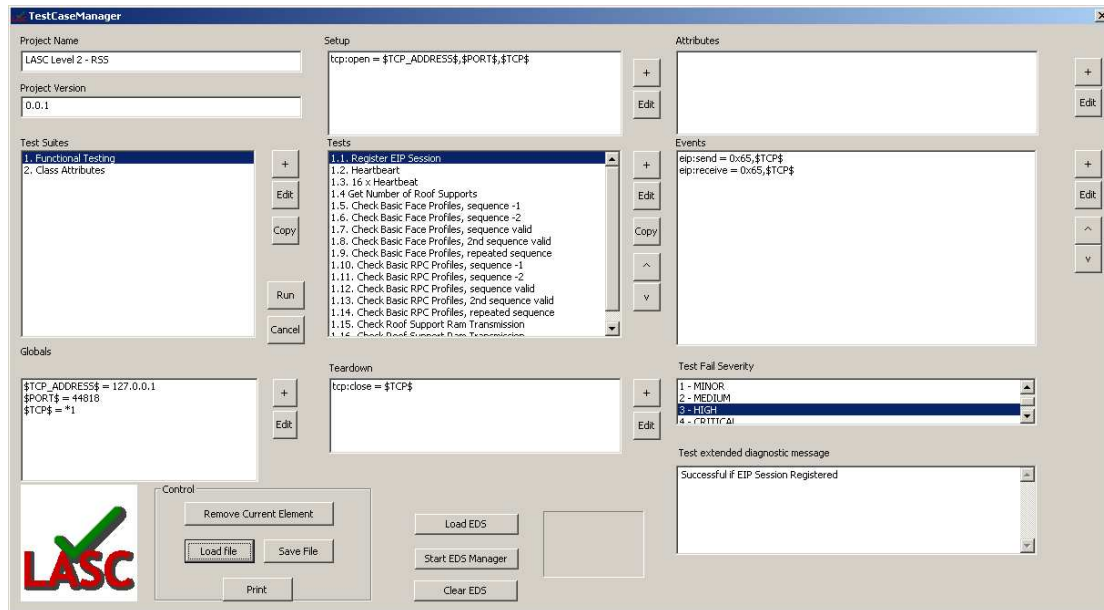

Figure 13. Test Case Manager main window

➢For further details on using the software, refer to the *C17022 Technical Specification* document

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