



GAUGE DATA  
SOLUTIONS

# Gauge Conformance Suite

Conformance Testing Overview

# GCS Overview

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- The Gauge Conformance Suite acts as a complete solution for Conformance Testing with graphical user interface (GUI) with modified interfaces supporting 1G Electrical/1G Optical/10G Optical /40G Optical/WiFi
- A conformance test suite verifies the compliance of an Equipment Under Test (EUT) to a standard or specification
- Each group of test for RFC consists of Parameters, and Test Cases
- Test Cases can only be run individually or in a batch operation
- After execution, each Test Case reports a Pass and Fail

# Test Case Conclusions

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- **Pass:** The EUT behavior conforms to a specific requirement under test.
- **Fail:** The EUT behavior does not conform to a specific requirement under test.

# Acronyms Used with GCS

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- **TC – Test Case**
  - One “Clause” of standard being tested
- **EUT – Equipment Under Test**
  - The device that is being tested eg. Router, Switch, ONT etc.
- **CP – Configuration Parameters**
  - Configurations on Suite interfaces and EUT for particular test
- **GCS – Gauge Conformance Suite**



# What you must know

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- Know the **protocol** you are going to test
- Know the Conformance Application
- Know the **Topology** and **Configurations** for the protocol you are going to test
- Know the Test Cases; for each config
- Know the EUT config
- Know how to troubleshoot Failed Cases

# Gauge Conformance Suite Application

The screenshot displays the Gauge Conformance Suite application interface. On the left is a list of RFCs, with 'RFC\_4861\_IPv6' selected. The central panel shows configuration for 'Group 1' with several test clauses: Clause 6.1.1 (Test 1), Clause 6.1.2 (Test 2) (checked), Clause 6.2.2 (Test 3), Clause 7.1.1 (Test 4), Clause 7.1.2 (Test 5), and 'All at once'. Below this is a 'use default values' checkbox (checked) and three input fields for MAC and IP addresses: 'src\_a\_mac' (6c:2b:59:e3:0f:ec), 'dst\_a\_mac' (a4:7b:2c:e5:fc:6b), and 'src\_a\_ipv6' (8003::2). The right panel shows the details for 'RFC 4861', including 'Clause 6.1.1 (Test 1)' and 'Clause 6.1.2 (Test 2)', each with a descriptive text block.

# Test Suite Tabs

## ○ Details

Welcome **RFC 4861** ×

### RFC 4861

**Clause 6.1.1 (Test 1)**

A router MUST silently discard any received Router Solicitation messages that do not satisfy all of the following validity checks:  
- The IP Hop Limit field has a value of 255, i.e., the packet could not possibly have been forwarded by a router.

**Clause 6.1.2 (Test 2)**

A node MUST silently discard any received Router Advertisement messages that do not satisfy all of the following validity checks:  
- The IP Hop Limit field has a value of 255, i.e., the packet could not possibly have been forwarded by a router.

**Clause 6.2.2 (Test 3)**

A router MUST NOT send Router Advertisements out any interface that is not an advertising interface.

## ○ Results

Test Suite Information		
Name	IPv6	
Version	2019	
Full Name	IPv6 Family	
Build Date	January 27, 2022	

Test Run Summary	
RFC_2460_ONT Execution	Pass
RFC 2460 Clause 4.2 (Test 9 - Option Type 00)	Pass

Test Execution Parameters		
Name	Value	Description
src_a_mac	48:37:45:ac:4c:48	Tester A MAC address
dst_a_mac	33:37:3b:7c:5f:7f	Destination A MAC address
src_a_ipv6	8000:5c0:110c:9d00::1	Tester A IPv6 Unicast Address
dst_a_ipv6	8000:5c0:110c:9d00:221f:3bff:fe7c:5f7f	Destination A IPv6 Unicast Address
IFACE_A	wlp1s0	Tester A Interface
NW1	Network 1	Network 1 created by ONT

# Test Suite Procedure

- **Configure GCS and EUT as per Test Case topology**
  - **Config parameters setup**
- **Running a Test**
  - **Test selection**
  - **Provide input parameters**
  - **Run the test**
- **Report generated for the Test Case**
  - **Fail – Reason for failure – in report**

# Configure GCS Interfaces as per Test Case

Cancel **New Profile** Add

Identity | IPv4 | IPv6 | Security

Name

MAC Address  ▾

Cloned Address

MTU  - +

Cancel **New Profile** Add

Identity | IPv4 | IPv6 | Security

**IPv4 Method**  Automatic (DHCP)  Link-Local Only  
 Manual  Disable

**Addresses**

Address	Netmask	Gateway	
192.168.1.5	24	192.168.1.1	✕
			✕

**DNS** Automatic  ON

Separate IP addresses with commas

**Routes** Automatic  ON

Address	Netmask	Gateway	Metric	
				✕

# Select RFC

- Once you Select the desired RFC from the RFC list you can load Test Cases
- This screen presents available Test Cases in that RFC, with input screen for parameters like MAC addresses, IPv4/IPv6 addresses

The screenshot displays the 'Gauge Conformance Suite' application window. On the left, a list of RFCs is shown, with 'RFC\_4861\_IPv6' highlighted. A hand icon points to this entry, and an orange callout box labeled 'Step 1 : Select RFC' is positioned next to it. The main area of the window shows a 'Group 1' section with several test cases listed as checkboxes: 'Clause 6.1.1 (Test 1)', 'Clause 6.1.2 (Test 2)', 'Clause 6.2.2 (Test 3)', 'Clause 7.1.1 (Test 4)', 'Clause 7.1.2 (Test 5)', and 'All at once'. A hand icon points to the 'All at once' option, and an orange callout box labeled 'Step 2 : Select text case' is positioned below it. On the right side, a tab labeled 'RFC 4861' is active, showing details for 'RFC 4861' and 'Clause 6.1.1 (Test 1)'. A green callout box labeled 'Details about the test case.' points to the details section. The details for 'Clause 6.1.1 (Test 1)' state: 'A router MUST silently discard any received Router Solicitation messages that do not satisfy all of the following validity checks: - The IP Hop Limit field has a value of 255, i.e., the packet could not possibly have been forwarded by a router.' Below this, 'Clause 6.1.2 (Test 2)' is also visible with similar text.

# Test Execution

The screenshot shows the Gauge Conformance Suite interface. On the left is a sidebar with a list of test suites. The main area is divided into two panes. The left pane contains a 'Group 1' configuration box with several test clauses and a 'use default values' checkbox. Below this are input fields for 'src\_a\_mac', 'dst\_a\_mac', 'src\_a\_ip4', 'dst\_a\_ip4', and 'IFACE\_A'. At the bottom of this pane are 'Validate' and 'Run Test' buttons. The right pane shows the 'Report 791' window with three sections: 'Test Suite Information', 'Test Run Summary', and 'Test Execution Parameters'. The 'Test Run Summary' shows 'RFC\_791 Execution' and 'RFC 791 Clause 2.2 (Test 1)' both passing. The 'Test Execution Parameters' table lists various parameters and their values.

**Step 3 : Give Inputs**

**Step 4 : Validate your Inputs**

**Step 5 : Run test**

**Result : Report is generated here**

Test Suite Information	
Name	IPv4
Version	2019
Full Name	IPv4 Family
Build Date	February 18, 2022

Test Run Summary	
RFC_791 Execution	Pass
RFC 791 Clause 2.2 (Test 1)	Pass

Test Execution Parameters		
Name	Value	Description
src_a_mac	50:3e:aa:0d:f8:48	Tester A MAC address
dst_a_mac	a4:7b:2c:e5:fc:6b	Destination A MAC address
src_a_ip4	13.1.1.4	Tester A IPv4 Unicast Address
dst_a_ip4	13.1.1.1	Destination A IPv4 Unicast Address
IFACE_A	enp5s0	Tester A Interface
NW1	Network 1	Network 1 created by IUT