



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/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 center 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 '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 its title and descriptions for Clause 6.1.1 (Test 1), Clause 6.1.2 (Test 2), and Clause 6.2.2 (Test 3).

# 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 29, 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	48:37:45:4a:4a:48	Tester A MAC address
dst_a_mac	28:37:45:4a:4a:28	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

The screenshot shows the 'New Profile' configuration window with the 'Identity' tab selected. The 'Name' field is set to 'IPv4'. The 'MAC Address' is set to '6C:2B:59:E3:0F:EC (enp0s31f6)'. The 'Cloned Address' field is empty. The 'MTU' is set to 'automatic'.

Field	Value
Name	IPv4
MAC Address	6C:2B:59:E3:0F:EC (enp0s31f6)
Cloned Address	
MTU	automatic

The screenshot shows the 'New Profile' configuration window with the 'IPv4' tab selected. The 'IPv4 Method' is set to 'Manual'. The 'Addresses' table contains one entry with IP '192.168.1.5', netmask '24', and gateway '192.168.1.1'. The 'DNS' and 'Routes' sections are both set to 'Automatic' and are turned 'ON'.

**IPv4 Method**

- Automatic (DHCP)
- Manual
- Link-Local Only
- Disable

**Addresses**

Address	Netmask	Gateway
192.168.1.5	24	192.168.1.1

**DNS** Automatic

Separate IP addresses with commas

**Routes** Automatic

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 callout box labeled 'Step 1 : Select RFC' with a hand icon points to this entry. The main area 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 callout box labeled 'Step 2 : Select text case' with a hand icon points to the 'All at once' option. On the right, a tab for 'RFC 4861' is active, showing details for 'Clause 6.1.1 (Test 1)' and 'Clause 6.1.2 (Test 2)'. A callout box labeled 'Details about the test case.' points to the details for Clause 6.1.1. The details for Clause 6.1.1 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.' The details for Clause 6.1.2 state: '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.'

# Test Execution

The screenshot displays the Gauge Conformance Suite interface. On the left is a sidebar with a list of RFCs. The main area is divided into two panes. The left pane shows a configuration for 'Group 1' with several test clauses and input fields for 'src\_a\_mac', 'dst\_a\_mac', 'src\_a\_ip4', 'dst\_a\_ip4', and 'IFACE\_A'. Below these fields are 'Validate' and 'Run Test' buttons. The right pane shows a 'Report 791' window with 'Test Suite Information', 'Test Run Summary', and 'Test Execution Parameters' tables. An orange callout box points to the input fields with the text 'Step 3 : Give Inputs'. Another orange callout box points to the 'Validate' button with the text 'Step 4 : Validate your Inputs'. A third orange callout box points to the 'Run Test' button with the text 'Step 5 : Run test'.

**Step 3 : Give Inputs**

**Step 4 : Validate your Inputs**

**Step 5 : Run test**

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

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

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

Result : Report is generated here