



OpenFabrics Alliance Interoperability Logo Program (OFILP)

**Provided by the
University of New Hampshire's InterOperability Lab
(UNH-IOL)**

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OpenFabrics Alliance (www.openfabrics.org)
Interoperability Working Group
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OpenFabrics Alliance Interoperability Logo Program

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Revision History

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Version 0.2	11/29/2006	Sujal Das
Version 0.3	11/30/2006	Sujal Das
Version 0.4	12/08/2006	SD. Feedback from OFA-IWG
Version 0.5	01/15/2007	SD. Feedback from OFA-IWG
Version 0.6	01/27/2007	SD. Feedback from OFA-IWG, UNH
Version 0.7	01/18/2007	SD. Dues payment terms referenced to Charter doc. Updated process flow diagram and description.
Version 0.8	01/25/2007	Arkady and Bob J's comments addressed
Version 0.9	03/05/2007	Updated Membership requirements. and arbitration section
Version 0.91	03/06/2007	Updated after the OFA-IWG meeting on 3/6/07. Changes accepted from version 0.90 and a few editorial updates
Version 0.92	03/07/2007	Updated based on review by Arkady. Created Logo Process image in Visio
Version 0.93	03/09/2007	Updated based on review by Johann
Version 0.94	03/12/2007	Updated based on further review by Johann and added Sujal's new logo
Version 0.95	03/13/2007	Updated based on further review in the OFA IWG Meeting on 3/13/07
Version 0.96	03/15/2007	Updated abbreviations to match the approved Charter with the exception that we removed the word "tested"
Version 0.97	03/19/2007	Changed tables to repeat header row on each page break. Updated the tables for SMs
Version 1.0	03/19/2007	Final Version of Logo Program
Version 1.01	05/31/2007	Updated the flow chart
Version 1.02	02/07/2008	Updated OFILG to OpenFabrics Interoperability Logo Group
Version 1.03	01/15/2009	Updated Arbitration Notification Period section to clarify resolution timeframe.
Version 1.04	05/01/2009	Updated document after the OFA IWG F2F meeting held during the OFA Interop Event
Version 1.05	05/12/2009	Accepted previous changes and added new categories for iSER and SRP Servers
Version 1.06	05/26/2006	Added TI RDS for RNICs and Basic RDMA Interop for HCAs and RNICs. Also added iWARP Connectivity for RNICs
Version 1.07	01/05/2010	Updates to the document based on reviews after the October Interop Event
Version 1.08	04/06/2010	Updates to the document for the May 2010 Interop Event
Version 1.09	04/24/2010	Updates to the document after review by OFA IWG Changes to sections 6.2.1 and 6.2.2 for FW and SW Policy
Version 1.10	05/04/2010	Updates to the document after comments by Jess Robel. Changes to sections 6.2.1 for FW Policy to make the effective date explicit.
Version 1.11	5/24/2010	Changes to section 6.2.1 for FW Policy.
Version 1.12	5/25/2010	Changes to section 6.2.1 and 6.2.2. after review at the OFA IWG Meeting.

Version 1.13	2/15/2011	Reviewed and updated during the OFA-IWG meeting Modified sections 3-4 governing the Validity Period Updated program to synch with the OFA Collateral
Version 1.14	2/28/2011	Updated Arbitration Policy and added On-Demand
Version 1.15	8/9/2012	Updates in process for the October 2012 Interop events
Version 1.16	3/12/2013	Updates for the April 2013 Interop Event
Version 1.17	9/8/2014	<ul style="list-style-type: none"> • Updates for October 2014 Interop Event • Split up the table in section 5.1 and added a new table for RoCE • Updated parties who may participate in the Arbitration Committee. See proposal from Jim Ryan in November 2012

Definitions

OFA-IWG	OpenFabrics Alliance Interoperability Work Group
UNH-IOL	University of New Hampshire InterOperability Lab
OFILG	OpenFabrics Interoperability Logo Group
OFILP	OpenFabrics Interoperability Logo Program
OFIL	OpenFabrics Interoperability Logo
Logo Event Pair	There are a pair of events that are required to obtain a Logo
Interop Debug Event	This is the first event in which vendors are allowed to debug their products and commit changes to OFED
Interop GA Event	This event requires the use of OFED GA Builds and there are no changes allowed to hardware or firmware during the event.
Interop Validation	This is the name for the overall process required to be granted a Logo



1 OpenFabrics Alliance Interoperability Logo Program Introduction

To deliver on the promise of end-user readiness, the OpenFabrics Alliance (OFA) software running on servers or hosts needs to support interoperability in many ways – between different supported transports that run the same OFA software, and with switches, gateways, servers, and storage targets that contain external (e.g., OEM provided) software elements that work in conjunction with OFA software to provide fabric wide functionality.

The OFA Interoperability Working Group (OFA-IWG) was formed to address the above interoperability requirements in collaboration with the industry-renowned and trusted UNH-IOL (University of New Hampshire InterOperability Lab). The result is the OpenFabrics Alliance & UNH-IOL Interoperability Program, referred to henceforth in this document as the Interoperability Program.

It is envisioned that to make the Interoperability Program effective for end users and suppliers alike, it will be useful if end users can quickly gauge the interoperability of equipment and associated software using a trusted name and source, and suppliers can add value to their offering by claiming interoperability using a third party trusted source. With UNH-IOL operating as such a trusted third party source, the OpenFabrics Interoperability Logo Program (OFILP) has been created to meet the above end user and supplier goals. The OFILP is part of the OFA-IWG. Through increased value provided to supplier vendors, the OFILP also has a secondary goal of raising Interoperability Program membership and funding levels.

2 Purpose/Scope of this Document

This document has three key areas that define the OFILP:

1. The Interoperability Program developed by OFA-IWG will enable vendors to apply for grant of the OpenFabrics Interoperability Logo (OFIL). The process of logo grant application is defined in this document.
2. The Interoperability Program will enable supplier vendors to claim and market interoperability by using the OFIL in their products or in their product marketing collateral. The use of the OFIL is defined in this document.
3. The OFIL will cover different aspects of interoperability for different product families. This includes what aspects of the [OFA-IWG Interoperability Test Plan](#) and test cases that are applicable to different equipment types and what constitutes passing or failing of such tests.

3 Logo Grant Application Process

Vendors who are paid OFILG members (i.e., have paid the OFILG dues as defined in the [OFA-IWG Charter Agreement](#)) and have participated in an Interop Validation Event are eligible to apply for the OFIL grant under the following conditions:

1. Membership renewals must be paid within three months or membership will be suspended.
2. If a vendor is three months overdue on the payment for a previous event, that vendor is not eligible for the current event.
3. A default will result in being removed from the Logo List.

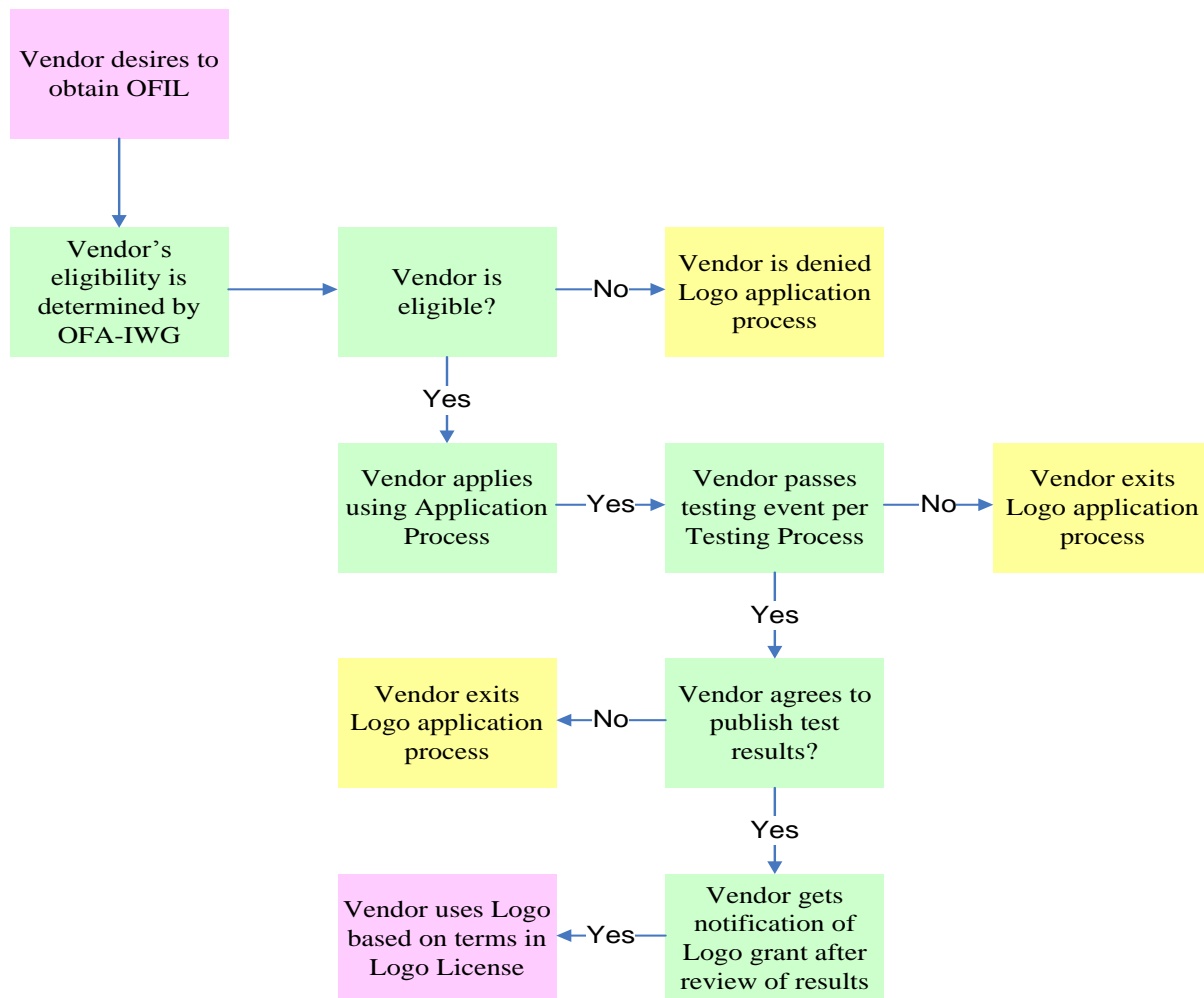
This section provides specifics on Logo eligibility criteria and the application process.

3.1 Scope of the OFIL

The OFIL process comprises the following steps:

1. Verification of the vendor's eligibility based on criteria defined in section 3.
2. Request from vendor to obtain the OFIL using Application Process defined in section 3.2.
3. Follow test process defined in section 3.3.
4. Vendor must authorize OFA-IWG and UNH-IOL to publish the test results (as specified in section 3.4) using the email alias: ofalab@iol.unh.edu or whatever is current. If the vendor chooses not to authorize the publishing of test results during the process, the vendor must withdraw from the Logo application process. In such a case, steps 5 and 6 below are not applicable.
5. Await notification of the OFIL grant by OFA-IWG as specified in section 3.5.
6. Use the OFIL as per the terms defined in the OpenFabrics Logo Agreement.
7. The OFIL should clearly indicate the version of OFED that was used to obtain the Logo and the year it was granted.

The following figure depicts the above process (green boxes show processes defined in this document):



3.2 Application Process

The application process for Logo grant comprises the following steps:

- Meet eligibility criteria outlined above.
- Execute the [OpenFabrics Logo Agreement](#).

3.3 Testing Process

The vendor must adhere to the following testing process as a step toward grant of the Logo:

- Participate in an OFILG Interoperability Event.
 - Attend a regularly scheduled Logo Event Pair hosted by the OFA and the UNH-IOL.
 - Schedule on-demand testing for the vendor product.
- Execute all required tests for the equipment type for grant of the OFIL – see section 5.
- Pass all tests required for grant of the OFIL – see section 5.

3.4 Agreement to Publish Test Results

In order to avoid liability related costs to the OFA and the UNH-IOL, it is worthwhile to note that the OFIL does not signify certification of any sort. The Logo is indicative of the vendors' successful participation in an OFILG Interoperability Event (either regularly scheduled or on-demand). To ensure sanctity of the



OFIL and the OFA which grants the Logo, it is necessary that the vendor acquiring the OFIL meets certain minimum quality criteria for interoperability. These criteria are achieved by requiring the vendor acquiring the OFIL to publish the results of interoperability testing on the following public web site <https://www.iol.unh.edu/services/testing/ofa/interolist/>

The vendor must authorize publication of results on the above public website. By default, vendor specific test results from an OFILG Interoperability Event are confidential to the vendors. The need to publish test results is optional and required only for an OFIL grant.

3.5 Notification of Logo Grant

Once a vendor completes the Application and Testing Processes identified above, the UNH-IOL will review test results and make a recommendation to the OFA-IWG on whether the vendor should be granted an OFIL based on "Specific Logo Terms" such as the following:

- Part numbers of vendor equipment to which the OFIL is applicable.
- Firmware version (if applicable) to which the OFIL is applicable.
- OFED version to which Logo is applicable.
- Applicable [OFA-IWG Interoperability Test Plan](#) version.

In case of a positive recommendation, the vendor is granted the OFIL. The granting of the Logo comprises the following:

- Product listing on the appropriate OFA Logo List which is based on the OFED version and the publication of the test results.
- Copy of Signed Logo License Agreement.
- Electronic image of OFIL for use with vendors marketing collateral.

The Logo image granted may contain a validity period or Test Plan revision number to reflect the extent of interoperability and need for renewal or refresh of the Logo through additional testing. These are explained further in section 4 below.

3.6 Logo Grant Conditions

3.6.1 Logo Association

The OFIL is associated with the particular version of OFED used during the Interop GA Event. It is also associated with the device hardware, firmware and/or software used during the event. Therefore the Logo granted to a specific product does not expire because it is associated with a defined hardware, firmware and software version and a specific OFED version.

3.6.2 Defects discovered after an event

This section describes the procedures that must be followed if an interoperability issue is discovered in a vendor product or an interoperability test after the conclusion of an OFILG Interop Validation. Vendors will have a six month grace period (after the defect is announced) to address the issue in their product or in the revised interoperability test. After this time they must attend the next scheduled OFILG Interop Validation and adhere to the conditions described in the Logo Program and the OFA-IWG Interoperability Test Plan in effect for that event. Failure to qualify for the Logo Grant will result in the vendor not being included in the current Logo Program List. However any failures discovered in the device or the interoperability test after the conclusion of an OFILG Interop Validation, will not affect the results of any previous OFILG Interop Validation.



4 OFIL Usage Guidelines

This section describes guidelines on OFIL usage. The terms specified herein are complementary to what is specified in the [OpenFabrics Logo Agreement](#).

4.1 Using OFIL in Marketing Collateral

Vendors can use the electronic image of the OFIL (that they receive when they are granted the Logo) in their marketing promotional materials. Vendors must follow the terms outlined in the OpenFabrics Logo Agreement.

4.2 Using Logo Sticker on Vendor's Equipment

Vendors can use the electronic image of the OFIL to produce OFIL stickers for use in their equipment that they sell to end users. Vendors must follow the terms outlined in the OpenFabrics Logo Agreement.

5 Applicable Interoperability Tests

5.1 By Vendor Equipment Types

The following table lists test cases from the [OFA-IWG Interoperability Test Plan](#) that are applicable for OFIL testing. Depending on completeness of test cases in each category, Logo grants for different equipment types may be supported in a staggered way. Beta level tests have no impact on eligibility of OFIL grant. The following table and related OFA-IWG Interoperability Test Plan will be made available at least one month in advance of any Interop Debug Event and be finalized one month in advance of any Interop GA Event.

InfiniBand Table

Vendor Equipment Type	Test Environment	Applicable Test Cases From Test Plan version 1.50 Rev 4
InfiniBand HCA	<p>Interoperability between InfiniBand HCAs (DUT – Device Under Test) running OFA software and the following equipment (TD-Tested Device):</p> <ul style="list-style-type: none"> • InfiniBand Switches with and without OEM SM • Other HCAs with OFA software • InfiniBand SRP Targets • InfiniBand iSER Targets • InfiniBand NFSoRDMA Servers • InfiniBand-Ethernet Gateways • InfiniBand-Fibre Channel Gateways 	<p>IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover IB SRP Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests TI iSER Tests</p>
InfiniBand Switch with Subnet Manager	<p>Interoperability between InfiniBand Switch (DUT) including OEM SM and the following equipment (TD):</p> <ul style="list-style-type: none"> • InfiniBand HCA with OFA software • InfiniBand SRP Targets • InfiniBand iSER Targets • InfiniBand NFSoRDMA Servers <p>The same test environment is applicable using Open SM (running on host with OFA software) instead of OEM SM. Note: Switches are part of all topologies and therefore all tests are applicable.</p>	<p>IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover IB SRP Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests TI iSER Tests</p>
InfiniBand Switch with no Subnet Manager	<p>Interoperability between InfiniBand Switch (DUT) (not including OEM SM) and the following equipment (TD):</p> <ul style="list-style-type: none"> • InfiniBand HCA with OFA software • InfiniBand SRP Targets • InfiniBand iSER Targets • InfiniBand NFSoRDMA Servers <p>A dedicated management node that uses Switch OEM supplied software (SM) or a management node running Open SM is needed.</p>	<p>IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover IB SRP Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests TI iSER Tests</p>

Vendor Equipment Type	Test Environment	Applicable Test Cases From Test Plan version 1.50 Rev 4
	Note: Switches are part of all topologies and therefore all tests are applicable.	
SRP Target over InfiniBand	Interoperability between InfiniBand SRP Target (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB SM Failover & Handover IB SRP Tests
SRP Server over InfiniBand	Interoperability between InfiniBand SRP Server (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software including SRP Target InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB SM Failover & Handover IB SRP Tests
iSER Target over InfiniBand	Interoperability between InfiniBand iSER Target (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover TI iSER Tests
iSER Server over InfiniBand	Interoperability between InfiniBand iSER Server (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software including iSER Target InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover TI iSER Tests
NFSoRDMA Client over InfiniBand	Interoperability between InfiniBand NFSoRDMA Client (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software including NFSoRDMA Server InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover TI NFSoRDMA Tests
NFSoRDMA Server over InfiniBand	Interoperability between InfiniBand NFSoRDMA Server (DUT) and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software including NFSoRDMA Client InfiniBand Switch with OEM SM InfiniBand Switch with no OEM SM 	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover TI NFSoRDMA Tests
InfiniBand-to-Ethernet Gateway	Interoperability between InfiniBand-to-Ethernet Gateway (DUT) running OEM SM, and the following equipment (TD): <ul style="list-style-type: none"> InfiniBand HCA with OFA software (using IPoIB or VNIC as applicable) <p>Use of either Open SM or an OEM SM is required for these tests.</p> <p>Note: These tests are comparable to the</p>	IB Link Init Tests IB Fabric Init Tests IB SM Failover & Handover If applicable – to IB interface of Gateway IB IPoIB Tests

Vendor Equipment Type	Test Environment	Applicable Test Cases From Test Plan version 1.50 Rev 4
InfiniBand-to-Fibre Channel Gateway	<p>required InfiniBand Switch tests</p> <p>Interoperability between InfiniBand-to-Fibre Channel Gateway (DUT) running OEM SM, and the following equipment (TD):</p> <ul style="list-style-type: none"> InfiniBand HCA with OFA software (using SRP) <p>Use of either Open SM or an OEM SM is required for these tests. Note: These tests are comparable to the required InfiniBand Switch Tests</p>	IB Link Init Tests IB Fabric Init Tests IB Fibre Channel Gateway IB SM Failover & Handover IB SRP Tests
Server Systems using InfiniBand HCA and running OFA software	<p>Interoperability between Server Systems using InfiniBand HCAs (DUT) running OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> InfiniBand Switches with and without OEM SM Other Servers and HCAs with OFA software InfiniBand SRP Targets InfiniBand iSER Targets InfiniBand NFSoRDMA Servers InfiniBand-Ethernet Gateways InfiniBand-Fibre Channel Gateways 	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover IB SRP Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI RDMA Interop TI RDMA Stress TI uDAPL Tests TI Rsockets Tests
Server Systems using InfiniBand HCA and running non-OFA software such as Sun Solaris, Apple Mac, HP/UX, IBM AIX and other operating systems	<p>Interoperability between Server Systems using InfiniBand HCAs (DUT) running non-OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> InfiniBand Switches with and without OEM SM Other Servers and HCAs with OFA software InfiniBand SRP Targets InfiniBand iSER Targets InfiniBand NFSoRDMA Servers InfiniBand-Ethernet Gateways InfiniBand-Fibre Channel Gateways <p>Note: The TD (tested device) must not include servers running non OFA software</p>	IB Link Init Tests IB Fabric Init Tests IB IPoIB Tests IB SM Failover & Handover As Applicable IB SRP Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI RDMA Interop TI RDMA Stress TI uDAPL Tests TI Rsockets Tests

iWARP Table

Vendor Equipment Type	Test Environment	Applicable Test Cases From Test Plan version 1.50 Rev 4
Ethernet RNIC	Interoperability between Ethernet RNIC (DUT) running OFA software and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet 10GigE Switches • Other RNICs • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	Ethernet Link Init Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests
Ethernet Switches	Interoperability between Ethernet Switches (DUT) and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet RNICs • Ethernet 10GigE Switches • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	Ethernet Link Init Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests
Ethernet iSER Target	Interoperability between Ethernet iSER Target (DUT) and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet RNIC • 10GigE Ethernet Switch 	Ethernet Link Init Tests TI iSER Tests
Ethernet iSER Server	Interoperability between Ethernet iSER Server (DUT) and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet RNIC • 10GigE Ethernet Switch 	Ethernet Link Init Tests TI iSER Tests
NFSoRDMA Client over Ethernet	Interoperability between Ethernet NFSoRDMA Client (DUT) and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet RNIC with OFA software including NFSoRDMA Server • 10GigE Ethernet Switch 	Ethernet Link Init Tests TI NFSoRDMA Tests
NFSoRDMA Server over Ethernet	Interoperability between Ethernet NFSoRDMA Server (DUT) and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet RNIC with OFA software including NFSoRDMA Client • 10GigE Ethernet Switch 	Ethernet Link Init Tests TI NFSoRDMA Tests
Server Systems using Ethernet RNIC and running OFA software	Interoperability between Server Systems using Ethernet RNIC (DUT) running OFA software and the following equipment (TD): <ul style="list-style-type: none"> • Ethernet 10GigE Switches • Other Servers and RNICs with OFA software • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	Ethernet Link Init Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests

<p>Server Systems using Ethernet RNIC and running non-OFA software such as Sun Solaris, Apple Mac, HPUX, IBM AIX and other operating systems</p>	<p>Interoperability between Server Systems using Ethernet RNIC (DUT) running non- OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> • Ethernet 10GigE Switches • Other RNICs • Ethernet iSER Targets • Ethernet NFSoRDMA Servers <p>Note: The TD (tested device) must not include servers running non-OFA software</p>	<p>Ethernet Link Init Tests TI RDMA Interop TI RDMA Stress</p> <p>As Applicable TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI Rsockets Tests</p>
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RoCE Table

Vendor Equipment Type	Test Environment	Applicable Test Cases From Test Plan version 1.50 Rev 4
RoCE Channel Adapter (RCA)	<p>Interoperability between RCA (DUT) running OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> • Ethernet Switches with DCB • Other RCAs • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	<p>Ethernet Link Init Tests RoCE IPoCE Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests</p>
Ethernet Switches with DCB	<p>Interoperability between Ethernet Switches with DCB (Data Center Bridging) capabilities (DUT) and the following equipment (TD):</p> <ul style="list-style-type: none"> • RoCE Channel Adapters • Ethernet Switches with DCB • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	<p>Ethernet Link Init Tests RoCE IPoCE Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI Rsockets Tests</p>
Ethernet iSER Target	<p>Interoperability between Ethernet iSER Target (DUT) and the following equipment (TD):</p> <ul style="list-style-type: none"> • RoCE Channel Adapters • Ethernet Switches with DCB 	<p>RoCE Link Init Tests TI iSER Tests</p>
Ethernet iSER Server	<p>Interoperability between Ethernet iSER Server (DUT) and the following equipment (TD):</p> <ul style="list-style-type: none"> • RoCE Channel Adapters • Ethernet Switches with DCB 	<p>RoCE Link Init Tests TI iSER Tests</p>
NFSoRDMA Client over Ethernet	<p>Interoperability between Ethernet NFSoRDMA Client (DUT) and the following equipment (TD):</p> <ul style="list-style-type: none"> • RoCE Channel Adapter with OFA software including NFSoRDMA Server • Ethernet Switches with DCB 	<p>RoCE Link Init Tests TI NFSoRDMA Tests</p>
NFSoRDMA Server over Ethernet	<p>Interoperability between Ethernet NFSoRDMA Server (DUT) and the following equipment (TD):</p> <ul style="list-style-type: none"> • RoCE Channel Adapter with OFA software including NFSoRDMA Server • Ethernet Switches with DCB 	<p>RoCE Link Init Tests TI NFSoRDMA Tests</p>

<p>Server Systems using RoCE Channel Adapters and running OFA software</p>	<p>Interoperability between Server Systems using RCA (DUT) running OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> • Ethernet Switches with DCB • Other Servers and RCAs with OFA software • Ethernet iSER Targets • Ethernet NFSoRDMA Servers 	<p>Ethernet Link Init Tests RoCE IPoCE Tests TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RDMA Interop TI RDMA Stress TI RSocket Tests</p>
<p>Server Systems using RoCE Channel Adapter and running non-OFA software such as Sun Solaris, Apple Mac, HPUX, IBM AIX and other operating systems</p>	<p>Interoperability between Server Systems using RCA (DUT) running non-OFA software and the following equipment (TD):</p> <ul style="list-style-type: none"> • Ethernet Switches with DCB • Other RCAs • Ethernet iSER Targets • Ethernet NFSoRDMA Servers <p>Note: The TD (tested device) must not include servers running non-OFA software</p>	<p>RoCE Link Init Tests RoCE IPoCE Tests TI RDMA Interop TI RDMA Stress</p> <p>As Applicable TI iSER Tests TI Open MPI Tests TI NFSoRDMA Tests TI uDAPL Tests TI RSocket Tests</p>

5.2 OFIL Test Pass Criteria

The Logo test pass criteria for a vendor equipment type is the same as the individual test pass criteria defined in the Interoperability Test Plan. Prior to each testing event, the OFA-IWG will decide and publish a list of Mandatory Tests required to obtain an OFIL grant.

In case of disagreement between parties as to what constitutes pass or fail of specific test cases, the [arbitration procedure](#) will be used to address the matter.

6 Testing Policies

6.1 Topology

Early in each debug event the participants will determine a topology, and each participant will receive a description of it.

6.1.1 Definition of "Topology Change"

A topology change is a change in the test bed that has a reasonable possibility of changing the outcome of a test. For example:

The following constitute topology changes:

- adding or removing a device
- replacing a device with a similar model
- changing a switch port's lane configuration, e.g. from 4x to 1x

The following do not constitute topology changes.

- replacing a device with the same model
- changing firmware
- updating or reconfiguring software
- changing a cable

6.1.2 Topology-change Policy

While it is hoped that changes to the topology are unnecessary, the topology is subject to change as follows.

During a Debug Event

Topology changes should be made as early in the event period as possible so as to demand the least amount of retesting. Changes should not be made in the last day or two of the event except for extraordinary reasons. If the topology does change during a debug event participants will receive notice of changes during the event and an updated description of the topology at the end of the event.

After a Debug Event

There should be no changes to the topology between the debug event and the logo event except for the removal of a device from testing. In particular, new devices cannot be added after the debug event. In the case that a device needs to be replaced between the debug event and the logo event the replacement must be of the same model.

6.2 Firmware and Software Policies

6.2.1 Firmware Policy

6.2.1.1 Firmware Policy during the Interop Debug Event

The firmware used during the Interop Debug Event is at the discretion of the device vendor. Vendors will be allowed to make changes to the firmware during the Interop Debug Event. However changes should be made as early in the event period as possible to reduce the amount of retesting which will result from these changes.

6.2.1.2 Firmware Policy during the Interop GA Event

The firmware image used during the Interop GA Event must be provided to the UNH-IOL at least one week prior to the event. No firmware changes of any kind are allowed during the Interop GA Event. If the vendor does not provide updated firmware by the deadline, then the UNH-IOL will use the firmware from the Interop Debug Event or from the vendor's website, whichever is more current.

6.2.1.3 Firmware Policy after the Interop GA Event

The firmware used to obtain the OFA Logo (or a child of this firmware with the same base functionality) must be the default publicly available firmware on the vendor's website and must be the default firmware that is shipped with the product. This must be completed within six months of the Interop GA Event.

6.2.2 Software Policy

6.2.2.1 Software Policy during an Interop Debug Event

The software used during an Interop Debug Event will be an agreed-upon RC release of the subsequent OFED version. During the Interop Debug Event vendors will be allowed to make changes to the software, provided that the changes are based on the same RC release. Vendors are not allowed to extensively modify the software or completely replace it.

6.2.2.2 Software Policy during the Interop GA event

The software used during an Interop GA Event will be the GA release of the same OFED version as was used during the Interop Debug Event. No software changes of any kind are allowed during the Interop GA Event. It is the vendor's responsibility to ensure that any changes made during the Interop Debug Event are present in the OFED GA release. Vendors whose products do not use firmware may request that patches be applied to an OFED GA release if that release has known defects that prevent the vendor product from being interoperable. The Arbitration Committee will be responsible for approving the requested patches.

6.2.2.3 Software Policy after the Interop GA event

All products that are granted the OFA Logo must be distributed by default with the OFED GA version (or a later revision of OFED with the same base functionality).

6.2.3 Summary

- For the Interop GA Event the vendor cannot update or change any part of the device under test - this includes hardware, firmware and software. The only exception is for an outright hardware



failure in which case the hardware may be replaced with an identical piece of hardware with the same SW and FW.

- If an end user requests customized firmware or a modified version of OFED, then the vendor must disclose that this is not an OFA certified configuration.
- The OFA reserves the right to revoke the OFA Logo for products that do not follow these policies.
- These policies will be in effect for the April 2011 Interop Events and all events thereafter.

6.3 Hardware Policies

For MPI testing, HCA/RNIC vendors must provide at least five adapters. The adapters need not be all the same model, but they can be.

6.4 OFED Usage

- OFED Release Candidates (RC) should be used during the Interop Debug Event. This allows vendors to resolve bugs and issues and commit them to the OFED tree before the OFED General Availability (GA) is released.
- OFED GA versions shall be used for the Interop GA Events.

7 On-Demand testing

7.1 Availability of On-Demand testing

- On-Demand testing can be requested by a vendor in the period of one month after a Logo GA event and up to one month prior to a Logo GA event.

7.2 Testing Environment

- Interoperability testing will be conducted using all available cluster equipment from the previous Logo GA Event. In order to perform things like SRP testing the equipment must be there at least 45 days in advance.
- The OFED version will be the OFED GA version used in the last Logo GA Event.
- The OS version will be the OS version used in the last Logo GA Event

7.3 Applicable tests

- The device must pass all of the tests which were listed as Mandatory for the previous Logo GA Event.

7.4 Cost of On-Demand Testing

- On-Demand testing fees for each product will be 50% of the current OFILG membership fees. UNH-IOL may negotiate a reduced rate if multiple products are submitted for testing.

8 Arbitration

8.1 Arbitration Procedure

- OFA IWG will institute, if required, a review board for a period of 30 days after the test reports are distributed to deal with objections and review technical issues. Test accuracy and vendor specific claims can both be investigated.
- If a vendor wants to contest the result of a test, the vendor must prove that a defect in the test or test process caused the device to fail that test. Traces and log files must be submitted by the vendor. UNH-IOL will provide all non-confidential logs and provide a subset of the test environment to aide in replicating the failure.
- Resolution of the contest allows possible granting of the OFIL.
- The review board is chosen by the members of the OFA IWG and will consist of the OFA IWG Co-Chairs, UNH IOL and members from OFA who do not have products that are being evaluated for a Logo. After reviewing the issues, the review board will vote to arrive at a decision. Should a vendor disagree, they may appeal to the OFA BoD.
- If the vendor chooses to contest the results and is not successful in the contest, the OFA Arbitration committee may assess an Appeal Fee of \$500 and a maximum of \$1000 if it judges that the appeal was poorly argued and not well documented. OFA IWG reserves the right to change the billing rate at any time.

8.2 Arbitration Notification Period

- UNH-IOL will attempt to deliver the test reports to vendors within 30 days of the conclusion of the Interoperability Event. Notification will also go out to any vendor whose tests results might be affected by the appeal of other vendors. Notification will include all supporting materials such as traces and log files.

- A vendor who wishes to contest a result must notify the Arbitration Committee in writing of its intent to contest within 14 days after the notification of the results. All contests must be resolved within 30 days after the vendor receives their results.
- It is the vendor's responsibility to present their case in detail and in sufficient time for the review board to complete the review in 30 days.

8.3 Arbitration Committee

- The arbitration committee may include the following:
 - Co-Chairs of the OpenFabrics Alliance
 - Co-Chairs of the OFA IWG
 - Robert Noseworthy – UNH-IOL
 - Members of the OFA Working Groups at the request of the Co-Chairs
 - Additional OFA members may participate in arbitration process provided there is agreement of the arbitration parties involved. For example Oracle, IBM, HP and National Labs.
- The arbitration committee **cannot** include the following
 - Engineers from a division of a company which is an OFILG member and which has products being submitted for Logo Arbitration.
- Consultation - The committee may seek advice and data from the following groups
 - UNH-IOL – OFA Interop testing vendor
 - Software Forge – Company executing the IBTA CIWG Plugfest
 - The company which submitted the request
- Contacts
 - All correspondence should be sent to the Arbitration Committee at the following address: iwg-arbitration-committee@openfabrics.org
 - The Chair of the Arbitration Committee will maintain the list of members of this group: iwg-arbitration-chair@openfabrics.org