Interpretations and Clarifications

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Revision history

Revision	***Description***
Oct 11th, 2018	Initial draft
Apr 8th, 2019	Rule 10.4.3.11 clarification

1 Interpretations and Clarifications

1.1 Overview

After writing and approving a specification by members of the LXI Consortium, there are cases where it is necessary to clarify wording that may be misunderstood or that misrepresented the intent of a rule, recommendation, or other guidance. Rather than making such changes to a specification and reintroducing it for approval, the Interpretations and Clarifications document will contain all such changes until a future revision of the affected specification makes it reasonable to introduce those changes for broad approval.

This document can contain interpretations and clarifications for any of the LXI Version 1.5 documents, including the LXI Device Specification, LXI Extended Functions, Operating Procedures, and so on.

1.2 Clarification: Two different conformance test suites

Question:

There are currently two different LXI test suites for conformance testing; which one do I use?

Reply:

You can use either test suite to generate the report necessary to pass LXI Conformance Testing.

Additional information:

The Consortium currently allows two different conformance test suites for all classes of LXI Devices as specified in the LXI Device Specification 2016:

a) LXI Conformance Test Suite

b) TSEP Kerberos Test Suite

The LXI Conformance Test Suite is the original test suite that has been updated as the LXI specification has evolved over the years. The LXI Conformance Test Suite is free to download from the LXI website. Access requires an account and is for LXI members only. The LXI Conformance Test Suite with configurations for different versions of the LXI Device Specification 2016 how to set it up, and example documents can be found at
http://www.lxistandard.org/members/Conformance Committee

The TSEP Kerberos Test Suite is a test suite that requires a special piece of hardware that must be purchased from TSEP (www.tsep.com). You connect a computer to the Kerberos box with a LAN cable and plug the device under test into the Kerberos box. The software tests run on the Kerberos box and a remote-control software application runs on the computer.

Either one of the conformance test suites can be used by vendors for any in-house pre-certification testing prior to applying for conformance testing per section 4.3.4 and 4.3.5 of the LXI Conformance Policy Version 2.0 or greater. The TSEP Kerberos Test Suite is the conformance test suite which shall be used for conformance testing per section 4.3.6 – Self Certification of LXI Devices.

Both conformance test suites will be maintained as the LXI standard evolves.

1.3 Clarification: Rule 8.11.1.1 – Dynamic DNS

Question:

Which option is required in the DHCP packet to enable Dynamic DNS?

Reply:

Both option 12 and option 81 should be present to enable Dynamic DNS.

Additional information:

The TSEP Kerberos Test Suite checks to make sure both option 12 and option 81 are present for enabling Dynamic DNS. If both options 12 and 81 are missing, Dynamic DNS is disabled.

The LXI Conformance Test Suite will be upgraded to do the same thing.

1.4 Clarification: VXI-11 Extended Function web page entry

Question:

What should be shown on the web page of an LXI device that supports the VXI-11 Extended Function?

Reply:

If an LXI device supports the VXI-11 Extended Function, it should declare support by adding the following entry to the LXI Welcome Web Page: "LXI VXI-11 Discovery and Identification Extended Function".

Additional information:

This also applies to the XML Identification Document, LXI Extended Function Elements – Rule 10.2.5.

1.5 Clarification: Rule 10.4.2.3 Service Name Conflicts

Question:

What combination of characters should be appended to the LXI device name if the device encounters an mDNS service name conflict? Also, does this apply for the service name and mDNS hostname as well?

Reply:

The character setting-off the appended number can be a dash, parenthesis or any other legal character, or no extra character at all.

Additional information:

Following are some examples of valid ways to append the number to the device name:

- Mydevice1
- Mydevice-1
- Mydevice(1)

This applies to the service name and mDNS service name as well.

1.6 LXI Logo on non-conformant products

Question:

If a company or person wants to create a product that helps create, test, or in any other way promote LXI devices, but the product is not LXI conformant, can they display the LXI Logo?

Reply:

Yes, with permission from the LXI Consortium Board of Directors.

Additional information:

In section 2.2 of the “LXI Consortium Trademark, Patent and Licensing Polices” document, it says that an “Agent” is a company or person who has been authorized by the LXI Board of Directors to use the LXI logo on behalf of the Consortium for any purpose designated by the Board of Directors.

To contact the LXI Board of Directors, send an email to the LXI Consortium Executive Director at: ExecDir@lxistandard.org.

1.7 Clarification: LXI Extended Function HiSLIP Recommendation 20.6.3

Question:

Must LXI IPv6 HiSLIP connections be supported when the LXI IPv6 Extended Function is implemented? The LXI Conformance Test Suite (version 3.0.0.2) tests "20.6.3 RECOMMENDATION – Accept IPv6 HiSLIP Connections" as a RULE if LXI IPv6 Extended function is selected (even though it is only a recommendation).

Reply:

There is no rule that LXI IPv6 HiSLIP connections must be supported if the LXI IPv6 Extended Function is implemented.

Additional information:

Although the LXI Conformance Test Suite tests for acceptance of IPv6 HiSLIP connections if the LXI IPv6 Extended Function is selected, that does not mean that HiSLIP connections must be supported to be LXI conformant when the IPv6 Extended Function is implemented.

1.8 Clarification: Rule 1.4.6 – Declaration of Extended Functions

Question:

If an LXI instrument that passes the 1.5 LXI Device Specification has implemented an LXI Extended Function, must there be a declaration on the LXI Welcome Web page about the Extended Function implementation?

Reply:

No, if the vendor of an LXI device does not want the Extended Function implementation tested, does not want to advertise that the device has the implementation, and does not need the device to be fully compliant with the LXI Standard, then the declaration can be omitted.

Additional information:

For a device that has the Extended Function implemented to be fully LXI Standard compliant, there must be a declaration of the implementation on the LXI Welcome Web page.

1.9 Clarification: Rule 2.5.2 – LAN Status Indicator

Question:

Rule 2.5.2 says the LAN Status Indicator should be a red and green LED; are the two colors a requirement?

Reply:

The LXI Consortium does not require two colors, but suggests using a green LED to indicate a healthy LAN status.

Additional information:

In 2.5.2.1 RULE – LAN Status Indicator, "Observation – Clarification of Intent of RULE 2.5.21," it is stated that any reasonable method of displaying the LAN Status Indicator on the device front panel will be accepted, including the use of alpha-numeric and graphical displays.

Section "2.5.2.2 Recommendation – LAN Status Indicator Color and States" lists examples of how colored LEDs should be implemented. For further examples of how LAN status can be indicated, see the "LXI Example and Reference Material" document.

1.10 Clarification: Rule 2.5.2.1 – LAN Status Indicator location

Question:

Can a LAN status indicator still be located on the rear of a device? LXI specification version 1.4 had a permission 2.5.2.3.1 allowing the LAN Status Indicator to be located on the rear of the device, but this permission was removed from specification 1.5, and Rule 2.5.2.1 now says the indicator must be on the front of the device.

Reply:

LXI will still allow the LAN Status Indicator to be on the rear of the device.

Additional information:

When the LXI specification is updated, the permission to have a LAN Status Indicator on the rear of a device that was removed in version 1.5 will be restored. Until that time, this clarification supersedes the rule requiring the indicator to be on the front of the device.

1.11 Clarification: Rule 10.2.4.1 – Connected Device XML Identification Document URLs

Question 1:

Does a Connected Device from a vendor that has its own vendor-specific XSD Schema to validate against also have to validate against the LXI XSD Schema, or is it sufficient to validate only against the vendor's Schema? Does a derived schema expand what is allowed in the XML file, or does it only limit the XML content even further?

Reply:

A Connected Device only validates against the vendor-specific schema as an LXI device will have the element-tag <LXIDevice> in the identification file, a connected device will have <VendorSpecificDevice> as element-tag in the Identification file.

The connected devices schema however must inherit from the complex-type <Device> defined in the LXI XSD-Schema:

```
<xs:element name="VendorSpecificDevice">
<xs:complexType>
<xs:complexContent>
<xs:extension base="namespace:Device">
.
.
.
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
```

with "namespace" defined as
xmlns:namespace="http://www.lxistandard.org/InstrumentIdentification/1.0

Actually the LXI XSD-Schema also does this, it extends the <Device> in <LXIDevice> with the namespace defined as "lxi" (xmlns:lxi="http://www.lxistandard.org/InstrumentIdentification/1.0)

```
<xs:element name="LXIDevice">
<xs:complexType>
<xs:complexContent>
<xs:extension base="lxi:Device">
.
.
.
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
```

Additional information:

For examples of XSD Schemas, look in the “LXI Example and Reference Material” document.

Question 2:

In the LXI Example and Reference Material document, there was a derived schema (MyIdentification Schema) referenced, but I couldn't find it in that document. I had to go to the LXI Standard 1.3 to find this sample derived schema. Was this derived schema intentionally removed from the Examples?

Reply:

The Example and Reference Material document will be updated to include the sample derived schema from version 1.3.

Additional information:

The current LXI Example and Reference Material document is version 1.1; the newly updated document will be version 1.2.

1.12 Clarification: LXI HiSLIP Extended Function Rule 3.2.6 – Must Be Able to Set UTC Time Manually

Question:

Must UTC time be set by IEEE 1588 management messages as stated in Rule 3.2.6, or can it be set on the LXI web page instead? Rule 3.2.6 conflicts with a statement in the LXI Conformance Test Suite (3.2.1.14) that says "LXI devices can use either the web page or IEEE 1588 management messages" to set UTC time.

Reply:

You can use either method to set UTC time.

Additional information:

The "Observation – Setting time to UTC" in "3.2.5 RULE – Must Be Able to Set UTC Time" of the Clock Sync Extended function explains it clearly:

“Rule 3.2.5 may be implemented by designing the device to be an IEEE 1588 clockClass 6 device, by virtue of rule 3.2.6, or by having the time and time properties settable from the device sync web page.”

1.13 Clarification: Rule 10.4.3.11

Observation:

Rule 10.4.3.11 currently states:

> In order to minimize conflict resolution issues when advertising multiple services, services shall be advertised (and conflict resolved) in the following order:
>
> 1. _http._tcp.
>
> 2. _lxi._tcp.

RFC 6762 contains the definition for mDNS and it states the primary objective of mDNS is to minimize network traffic. For LXI to enforce an order in the advertising of services and conflict resolving them one by one would cause significantly more traffic than advertising all supported services in one packet.

LXI devices must conflict resolve duplicate service names as in Rule 10.4.2.3. The LXI specification doesn’t generally tell a device how to accomplish a rule which is what this rule is implying.

Numerous devices are failing Rule 10.4.3.11 when tested with the Kerberos Test Suite.

Clarification:

Rule 10.4.3.11 will no longer be a rule in the next version of the LXI specification.

It is up to the device vendor whether they wish to, advertise all their supported services, one at a time or add all the supported services in a single record. Whichever method they choose they can advertise the services in any order they wish.

The Kerberos Test Suite will be modified to ignore this rule. The LXI Conformance Suite will not be updated as this rule is a visual observation the tester has to do when inspecting the Wireshark packets. The tester simply just ignores the order of the services in the Wireshark capture.