AEGIS SOFTWARE

Generic Test XML

xLink Adapter Documentation

An explanation of the processing performed by this xLink adapter and the file format expected.

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Contents

Executive Summary

The Generic XML Test xLink Adapter has been designed to allow test equipment data to be harvested into the Fusion system without the need for a custom designed xLink adapter. By configuring a test machine to output its test result information in the format defined within this document the customer is able to have that data harvested and recorded in the Fusion database.

In addition to recording test results for a unit under test this adapter is also capable of recording test results against child entities of the unit under test as well as replicating a measurement across some and/or all child entities.

Operation

This xLink adapter periodically scans a specified file folder for files matching the file mask (the file mask being detailed in section File Naming Convention below). The interval between folder scans is configurable by the customer by way if the “Polling Rate” configuration setting (see Configuration below).

Upon reading the XML the adapter shall use the <ParentBarcode> value to pull the containment information for that barcode from the Fusion database. Please note that this requires the adapter to interact with the Fusion database via the first database subscriber associated to the adapter.

When the containment information for the parent barcode is retrieved the adapter shall determine how the processing shall proceed based upon whether the <ParentBarcode> value identifies a:

- Panel
- Pallet
- Parent

For an explanation of the differences between Panels, Pallets and Parents please refer to section Pallets, Panels and Parents – An explanation below.

No containment relationships shall be modified by the use of this adapter.

For the purposes of this document the measurements that are recorded in the XML shall be referred to as follows:

- Root level measurements – these exist in the <Measurements> list that is an immediate child of the <TestData> tag.
- Child level measurements – these exist in the <Measurements> list that is an immediate child of a <Child> tag.

Processing the XML for a Panel

If a child tag contains both a <CircuitIndex> and a <Barcode> value the adapter shall defer to reporting the <Barcode> value. If the <Barcode> value is not defined the <CircuitIndex> value shall be reported instead. If neither the <Barcode> nor <CircuitIndex> values are defined the file cannot be processed.

All measurement data recorded at the root level shall be recorded against every barcode reported within the child tags.

All measurement data recorded at the child level shall be recorded against the one child barcode only.

Processing the XML for a Pallet

All measurement data recorded at the root level shall be recorded against every barcode reported within the child tags.

All measurement data recorded at the child level shall be recorded against the one child barcode only.

Processing the XML for a Parent

In this mode every child must be identified by a barcode value – <CircuitIndex> is ignored.

All measurement data recorded at the root level shall be recorded against the parent barcode.

All measurement data recorded at the child level shall be recorded against the child barcode.

Configuration

The following values need to be defined during service setup. This is performed in the Fusion Server Manager on the Integration Services page.

Setting	Description
Unprocessed Folder	This defines the path that this adapter shall deposit files that failed to be processed. If no value is specified an “Unprocessed” folder shall be created by the adapter as a child folder of the “Location” folder.
Processed Folder	This defines the path that this adapter shall deposit files that have been successfully processed. If no value is specified a “Processed” folder shall be created by the adapter as a child folder of the “Location” folder.
Location	This defines the path that this adapter shall monitor for XML files to be harvested.
Polling Rate	The frequency with which the adapter shall query the “Location” folder for XML files to process. This value is recorded in milliseconds.

Note: Configuration settings are only read when the xLink service is started. Therefore if changes are made and the service is running, it will need to be stopped and re-started before the new configuration will be used.

File Format

An Explanation of Tag Occurrence

The tag occurrence value denotes the number of times the tag shall be present within the parent tag. The parent tag for any given tag is the nearest tag above the given tag that is indented less than the given tag.

Consider the following:

XML Tag	Notes	Tag Occurrence *1
<?xml version="1.0" encoding="utf-8"?>		1
<AssemblyData >		1
<Assembly>		0..*
<Name />		1
<Description />		0..1
<CustomFields>		1
<Entry>		0..*
<Name />		1
<Value />		1
</Entry>		
</CustomFields>		
</Assembly>		
</AssemblyData >		

In this example there shall be only one <AssemblyData> tag (grouping) which itself can contain zero or more ("*") <Assembly> tags (groupings). Each <Assembly> tag shall contain one <Name> and one <CustomFields> tag. Within the <CustomFields> tag shall be zero or more <Entry> tags, each of which shall contain one <Name> and one <Value> tag. The Assembly <Description> value is optional – it may be absent or present; if present only one <Description> tag shall exist within its encompassing <Assembly> tag.

Where multiples of a tag can be recorded (denoted as either 0..* or 1..* above), and where more than one tag exists no ordering of the tags can be presumed.

Test Results File Format

The following details the content of the XML file that the xLink adapter shall import from the folder defined in the xLink adapter configuration.

XML Tag	Notes	Tag Occurrence

<?xml version="1.0" encoding="utf-8"?>		1
<TestData>		1
<Operator />	String value, see note *1 below.	0..1
<ParentBarcode />	String value, see note *2 below.	1
<Measurements>		0..1
<Measurement>		0..*
<Name />	String value, see note *3 below.	1
<Sequence />	Integer value, see note *4 below.	0..1
<MeasurementType />	String value, see note *5 below.	0..1
<Result />	String value, see note *6 below.	0..1
<Value />	String value, see note *7 below.	0..1
<Units />	String value, see note *8 below.	0..1
<Nominal />	String value, see note *9 below.	0..1
<LowerLimit />	String value, see note *10 below.	0..1
<UpperLimit />	String value, see note *11 below.	0..1
<FailDesc />	String value, see note *12 below.	0..1
<DateAndTime />	String value, see note *13 below.	0..1
</Measurement>		
</Measurements>		
<Children>		0..1
<Child>		0..*
<Barcode />	String value, see note *14 below.	0..1
<CircuitIndex />	Integer value, see note *15 below.	0..1
<Measurements>		0..1
<Measurement>		0..*
<Name />	String value, see note *3 below.	1
<Sequence />	Integer value, see note *4 below.	0..1
<MeasurementType />	String value, see note *5 below.	0..1
<Result />	String value, see note *6 below.	0..1
<Value />	String value, see note *7 below.	0..1
<Units />	String value, see note *8 below.	0..1
<Nominal />	String value, see note *9 below.	0..1
<LowerLimit />	String value, see note *10 below.	0..1
<UpperLimit />	String value, see note *11 below.	0..1
<FailDesc />	String value, see note *12 below.	0..1
<DateAndTime />	String value, see note *13 below.	0..1
</Measurement>		
</Measurements>		
</Child>		
</Children>		
</TestData>		

*1 Operator

This value identifies the name of operator. Maximum string length is 250 characters. This value is case-sensitive. This value is optional; if the value or the tag is missing from the XML data the value shall default to “xLink”.

*2 Parent Barcode

This value uniquely identifies the unit tested. It may be a assembly, panel or pallet barcode. This tag must be present with a value which has a length of greater than zero characters having had all leading and trailing spaces removed.

Maximum string length is 250 characters. This value is case-sensitive.

*3 Name

This value identifies the test performed. This tag must be present with a value which has a length of greater than zero characters having had all leading and trailing spaces removed.

Maximum string length is 250 characters. This value shall be recorded in the JobTrim.TestName field.

*4 Sequence

This integer value is used to record the order in which the measurements were taken. This value is optional; if the value or the tag is missing from the XML data the value shall default to zero. This value is not case-sensitive.

*5 Measurement Type

This value identifies the test performed. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string.

Maximum string length is 250 characters. This value shall be recorded in the “Prompt” field.

*6 Result

This value records the result of the test. Any text is accepted, but the preferred is PASSED, FAILED, ERROR, NOTEST, ABORTED, or KNOWNGOOD (from IPC 2547). For a failed result the string must contain "FAIL" somewhere in the string. This value is optional; if the value or the tag is missing from the XML data the value shall default to PASS. This value is not case-sensitive.

*7 Value

The measured numeric or string value for the test. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string.

*8 Units

This value identifies the units of measured for a *numeric* value; this value is not recorded for a non-numeric measured value. Maximum string length is 250 characters. This value is case-sensitive. If the tag is present but without a value the tag shall be ignored.

*9 Nominal

This value identifies expected numeric or string value from the test. Maximum string length is 50 characters. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string. This value is case-sensitive.

*10 Lower Limit

This value identifies the lowest value that can be considered a PASS for a test recording a numerical value. Maximum string length is 50 characters. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string. This value is case-sensitive.

*11 Upper Limit

This value identifies the highest value that can be considered a PASS for a test recording a numerical value. Maximum string length is 50 characters. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string. This value is case-sensitive.

*12 Fail Desc

This value provides a description of why the test failed, or any other useful information for a failed test. Only used to record a symptom for a test where Result includes “FAIL”. Maximum string length is 250 characters. This value is optional; if the value or the tag is missing from the XML data the value shall default to an empty string. This value is case-sensitive.

*13 Date And Time

This value shall conform to a .NET date time format string as defined in an adapter configuration setting. By default the format string shall be:

```
yyyy/MM/dd HH:mm:ss:fff
```

This value is optional; if the value or the tag is missing from the XML data the value shall default to the current date time at the time of processing.

*14 Barcode

This case-sensitive value is used to record the barcode of a child entity. Maximum string length is 250 characters.

This value is optional; if the value or the tag is missing from the XML data the processing shall default to using the Circuit Index value. If the Circuit Index value is not present the file cannot be processed.

*15 Circuit Index

This integer value is used to identify the image within a panel. This value should match a value identified in the Circuit Ordering within CircuitCAM. It shall be used to marry the measurements for the associated child to the correct child within the parent entity.

This value is optional; if the value or the tag is missing from the XML data the processing shall default to using the Barcode value.

File Naming Convention

This xLink adapter is implemented such that it will try to process any file in the specified “Location” folder that matches the following file mask:

*.XML.

Determining the success or otherwise of a file harvest

When processing of a file completes this xLink adapter moves the file to another location depending upon result of the processing.

- If processing was successful the file is moved to the folder specified in the “Processed Folder” configuration setting. If no value was specified for this setting then the xLink adapter shall move the file to a file folder called “Processed” that shall be an immediate child of the file path defined in the “Location” configuration setting. If this “Processed” folder does not exist the xLink adapter shall create it.

- If processing was not successful the file is moved to the folder specified in the “Unprocessed Folder” configuration setting. If no value was specified for this setting then the xLink adapter shall move the file to a file folder called “Unprocessed” that shall be an immediate child of the file path defined in the “Location” configuration setting. If this “Unprocessed” folder does not exist the xLink adapter shall create it.

Pallets, Panels and Parents – An explanation

All are forms of parent-child relationships.

A Panel refers to a panelized board which comprises 2 or more identical circuits. So a panel barcode is used to identify a collection of units that are physically joined. No data is recorded against a panel – rather, anything to be recorded against a panel is actually recorded against each unit within the panel. When a panel is broken apart it cannot be put back together and the panel barcode can never be re-used.

A Pallet refers to a physical container into which one can load one or more units (of the same assembly revision). Those units can then be collectively referenced by use of the pallet id (barcode). An operator shall be required to explicitly load items to a pallet. No data is recorded against a pallet other than which units are currently recorded as being contained within it. Once a pallet has been emptied it is available for re-use.

A Parent is an upper level assembly into which a child, or sub-assembly, is placed. A parent can also be a child, and vice versa.