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# Data Format Description Language (DFDL) v1.0

**Experience Document 6**

**Interoperability Demonstration of IBM DFDL and Apache Daffodil (Incubating) Implementations**

Status of This Document

Grid Working Document (GWD)

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Abstract

This document provides experience information to the OGF community on the Data Format Description Language (DFDL) 1.0 specification (GFD-P-R.207).

It documents interoperability testing of two major DFDL implementations: IBM DFDL and Apache Daffodil (Incubating).

**Contents**

Introduction 3

IBM DFDL 3

Apache Daffodil (Incubating) 3

Interoperability Testing 3

Public DFDL Schemas 3

Non-Public DFDL Schemas 3

Test Suites 4

About Conformance and Non-Portable Schemas 4

6. Security Considerations 5

7. Contributors 5

8. Intellectual Property Statement 5

9. DIsclaimer 5

10. Full Copyright Notice 6

11. References 6

# Introduction

This document has been created to document two interoperable implementations of the DFDL v1.0 specification.

The implementations and specific versions are specified below. All the interoperability testing was performed on a standard laptop computer running Ubuntu Linux version

## IBM DFDL

IBM has multiple implementations of DFDL. The specific one tested is the developer-edition of the IBM App Connect product version 11.0.0.1

## Apache Daffodil (Incubating)

This implementation is available from [https://daffodil.apache.org](https://daffodil.apache.org/)

The version tested is a development branch: 2.4.0-SNAPSHOT, with git hash f080e2d02bd99887bab559260df36082461270c9 or later.

# Interoperability Testing

Interoperability is demonstrated by the publishing of DFDL schemas and test data for them on github. Testing can then parse and re-create (called ‘unparse’) data.

## Public DFDL Schemas

These schemas are published on the DFDLSchemas site on github (https://github.com/DFDLSchemas), and are interoperable:

* NACHA
* ISO8583
* IBM4690TLOG
* EDIFACT
* CSV
* QuasiXML
* GeoNames
* MagVar

In addition, an older version of HL7-v2.7 was also tested. This schema is no longer published, but an older revision is still available for interoperability testing purposes.

* HL7-v2.7

Additionally, the IPFIX schema is not yet published, but will be upon organizational approval. It is also fully portable.

* IPFIX

## Non-Public DFDL Schemas

These schemas are available only to those with access to DI2E.net or Forge.mil; however, as that is a substantial community of DFDL users, we also document interoperability for these schemas here:

Portable (works on Daffodil and IBM DFDL)

* cef - common-event-format
* army\_drrs
* uscg\_ucop

## Test Suites

An additional interoperability proof point comes from the test suite 'daffodil-test-ibm1'

This test suite is part of the Daffodil source tree, but can be run against IBM DFDL using a cross tester that is open source and available at:

https://github.com/OpenDFDL/ibmDFDLCrossTester

A few tests are conditionalized and run on only one or the other due to specific features that Daffodil has, or that IBM has.

# About Conformance and Non-Portable Schemas

The DFDL Specification allows for implementations to implement only a subset of the specification. This allows implementations to be be tailored to specific kinds of data which are interoperable with other DFDL implementations that also cover that same subset of the DFDL specification.

The optional features list for DFDL is given in Section 21 of the DFDL specification.

The following schemas are published at github but make use of features specified by DFDL v1.0 which are available to-date only in Daffodil, and so are not expected to interoperate. They are listed here to clarify that even though they are published at the same github page, these DFDL schemas are not expected to interoperate across implementations at this time:

* PNG
* PCAP
* mil-std-2045
* BMP
* GIF
* NITF
* JPEG
* shapeFile

The following schema is also published but makes use of optional features specified by DFDL v1.0, but which are available to-date only in IBM DFDL :Hence, it is not expected to interoperate at this time:

* VCard

1. Security Considerations

No security issues have been raised.

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1. References

[DFDL] OGF DFDL 1.0 specification

<http://www.ogf.org/documents/GFD.207.pdf/>