

# xBRL-CSV OVERVIEW



# xBRL-CSV

xBRL-CSV provides a **flexible, standardised** approach for XBRL data, built upon the **Open Information Model (OIM)** and the W3C's **Tabular Metadata** specification



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# Why CSV?

- Ubiquitous support
- Very efficient for large data sets, particularly those with large volumes of repeating records
- xBRL-CSV is aimed at *bulk data collection and publication*
- Combines the benefits of the CSV data format with the rich metadata provided by XBRL



# CSV: one size does not fit all

- No single format of CSV document would be suitable for all types of XBRL Report
- xBRL-CSV makes it possible to define the layout of CSV files (tables) using JSON metadata
- JSON metadata file groups a set of CSV files, and defines the layout of each table and its mapping to XBRL
- Metadata file uses & extends the W3C Tabular Metadata standard



# xBRL-CSV: BUILDING A FACT

Fact = Value + Aspects

## Aspects:

- Concept
- Period
- Unit
- Entity
- Dimensions

## Aspects can be defined on:

- Columns (e.g. column of values for “Profit” concept)
- Report (e.g. all facts have the same entity)
- Table (e.g. facts for a particular dimension value)
- Another cell in the same row

Aspects inherit and can be overridden (e.g. a default unit for all facts)

# xBRL-CSV: Loan data example

Consider a simple report consisting of information about loans issued to a number of companies:

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
AX378AEV345CAME93E45	Id:Medium	US	20000000	0.5	0.02	2010-03-01	2019-12-31
QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

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Let's look at how this would be modelled in XBRL

# xBRL-CSV: Loan data example

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
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Facts



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QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Concepts

Facts

# xBRL-CSV: Loan data example

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QWEE55FSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Typed Dimension

Dimension values

Concepts

Facts

# xBRL-CSV: Loan data example

Company	Size	Country	Limit	Percent Collateralised	Interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
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QWEE5SF5YV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Typed Dimension

Dimension values

Concepts

Facts

**Standing data:**

Report period start/end

Entity identifier



# xBRL-CSV: Loan data example

Let's look at the JSON metadata file needed to capture this using xBRL-CSV...

# JSON metadata: Overview

```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties": { ... },  
  "tables": [ ... ]  
}
```

# JSON metadata: Overview

```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties": { ... },  
  "tables": [ ... ]  
}
```

Boilerplate to identify the standard and version that this file conforms to.

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```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties": { ... },  
  "tables": [ ... ]  
}
```

Identifies the taxonomy used by this report

# JSON metadata: Overview

```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties": { ... },  
  "tables": [ ... ]  
}
```

A set of bindings of namespace URIs to prefixes used within the report



# JSON metadata: Overview

```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties" { ... },  
  "tables": [ ... ]  
}
```

Report-level properties that provide default property values for all facts in all tables

# JSON metadata: Overview

```
{  
  "http://xbrl.org/YYYY/model#metadata": {  
    "documentType": "http://xbrl.org/YYYY/xbrl-csv",  
    "dtsReferences": [ ... ],  
    "prefixes": { ... }  
  },  
  "http://xbrl.org/YYYY/model#properties": { ... },  
  "tables": [ ... ]  
}
```

Metadata for each table (CSV file) in this report

# JSON metadata: report-level properties

```
{  
  "http://xbrl.org/YYYY/model#properties": {  
    "xbrl:entity": "scheme:01",  
    "accuracy": 2,  
    "xbrl:unit": "iso4217:USD",  
    "xbrl:periodStart": "2017-05-01T00:00:00",  
    "xbrl:periodEnd": "2017-05-01T00:00:00"  
  }  
  ...  
}
```

Report-level properties provides standing data and defaults for all facts. Can be overridden at table, column or row level

# JSON metadata: prefixes

```
"prefixes": {  
  "ld": "http://xbrl.org/oim/conformance/firm-loans",  
  "iso4217": "http://www.xbrl.org/2003/iso4217",  
  "scheme": "http://xbrl.org/entity/identification/scheme",  
  "xbrl": "http://www.xbrl.org/WGWD/YYYY-MM-DD/oim",  
  "xbrli": "http://www.xbrl.org/2003/instance"  
}
```

Prefixes in xBRL-CSV use Simplified QNames (SQNames):

- Analogous to prefixes in XML
- Prefix:Namespace is 1:1 within a document
- Local parts can be any token (so can be used for entity identifiers which often have a numeric first character)

# JSON metadata: tables

```
"tables": [  
  {  
    "url": "loan-data-facts.csv",  
    "tableSchema": {  
      "columns": [  
        {  
          "name": "firm",  
          "datatype": "token",  
          "http://xbrl.org/YYYY/model#columnType": "propertyValue",  
          "http://xbrl.org/YYYY/model#columnProperty": "ld:Firm"  
        },  
        ...  
      ]  
    }  
  }  
]
```

“tables” object provides information about each CSV file (table) in the report

# JSON metadata: tables

```
"tables": [  
  {  
    "url": "loan-data-facts.csv",  
    "tableSchema": {  
      "columns": [  
        {  
          "name": "firm",  
          "datatype": "token",  
          "http://xbrl.org/YYYY/model#columnType": "propertyValue",  
          "http://xbrl.org/YYYY/model#columnProperty": "ld:Firm"  
        },  
        ...  
      ]  
    }  
  }  
]
```

Each table contains a set of column definitions.

# JSON metadata: columns

```
{  
  "name": "interest",  
  "datatype": "decimal",  
  "http://xbrl.org/YYYY/model#columnType": "numericSimpleFact",  
  "http://xbrl.org/YYYY/model#properties": {  
    "xbrl:concept": "ld:InterestRateChargedAtInception",  
    "xbrl:unit": "xbrli:pure",  
    "accuracy": 4  
  }  
}
```

# JSON metadata: columns

```
{  
  "name": "interest",  
  "datatype": "decimal",  
  "http://xbrl.org/YYYY/model#columnType": "numericSimpleFact",  
  "http://xbrl.org/YYYY/model#properties": {  
    "xbrl:concept": "ld:InterestRateChargedAtInception",  
    "xbrl:unit": "xbrli:pure",  
    "accuracy": 4  
  }  
}
```

Column type specifies that each cell in this column produces a **numeric simple fact**



# JSON metadata: columns

```
{  
  "name": "interest",  
  "datatype": "decimal",  
  "http://xbrl.org/YYYY/model#columnType": "numericSimpleFact",  
  "http://xbrl.org/YYYY/model#properties": {  
    "xbrl:concept": "ld:InterestRateChargedAtInception",  
    "xbrl:unit": "xbrli:pure",  
    "accuracy": 4  
  }  
}
```

Properties defined here are applied to all facts in this column

# Column Types

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
AX378AEV345CAME93E45	Id:Medium	US	20000000	0.5	0.02	2010-03-01	2019-12-31
QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

# Column Types

*Numeric simple fact*

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
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# Column Types

*Numeric simple fact*

*Numeric simple fact*

*Numeric simple fact*

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
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# Column Types

Simple fact

Simple fact

Numeric simple fact

Numeric simple fact

Numeric simple fact

Simple fact

Simple fact

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# Column Types

Property value column

Simple fact

Simple fact

Numeric simple fact

Numeric simple fact

Numeric simple fact

Simple fact

Simple fact

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
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# Column Types

Property value column

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QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Let's look at property value columns in a bit more detail

# Property value columns

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
AX378AEV345CAME93E45	Id:Medium	US	20000000	0.5	0.02	2010-03-01	2019-12-31
QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Values in first column provide a **dimension value** to facts created by other cells in the same row. This is handled in xBRL-CSV as a “property value column”



# Property value columns

Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
AXE Dimension values	Id:Medium	US	20000000	0.5	0.02	2010-03-01	2019-12-31
QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

Values in first column provide a **dimension value** to facts created by other cells in the same row. This is handled in xBRL-CSV as a “property value column”

# Property value columns

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F50EOCWSQFAUVO9Q8Z97	Id:Small	UK	10000000	0.7	0.04	2001-06-01	2020-12-31
AXE Dimension values	Id:Medium	US	20000000	0.5	0.02	2010-03-01	2019-12-31
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Facts

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# Property value columns

```
{  
  "name": "firm",  
  "datatype": "token",  
  "http://xbrl.org/YYYY/model#columnType": "propertyValue",  
  "http://xbrl.org/YYYY/model#columnProperty": "ld:Firm"  
},
```

This is the column definition for the first column

# Property value columns

```
{  
  "name": "firm",  
  "datatype": "token",  
  "http://xbrl.org/YYYY/model#columnType": "propertyValue",  
  "http://xbrl.org/YYYY/model#columnProperty": "ld:Firm"  
},
```

Type of column

# Property value columns

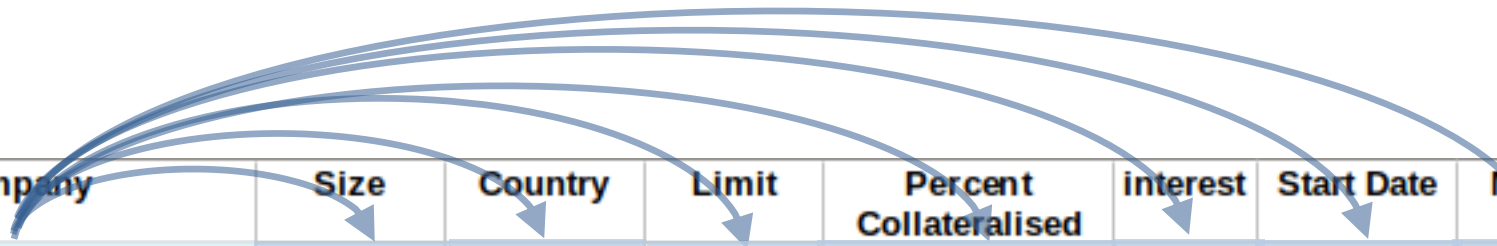
```
{  
  "name": "firm",  
  "datatype": "token",  
  "http://xbrl.org/YYYYY/model#columnType": "propertyValue",  
  "http://xbrl.org/YYYYY/model#columnProperty": "ld:Firm"  
},
```

Name of aspect provided by this property value column (in this case, a typed dimension)

# Property value columns

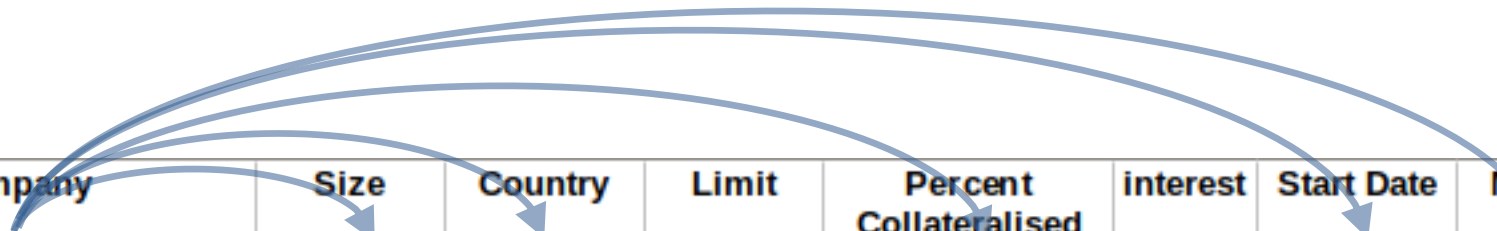
Company	Size	Country	Limit	Percent Collateralised	interest	Start Date	Maturity Date
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# Property value columns



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# Property value columns



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QWEE5SFSYV452DRG3483	Id:Micro	PL	30000000	0.3	0.03	2016-09-01	2017-10-31

By default, property value is applied to all fact-producing cells in the same row, but it is possible to target it to specific columns.



# loan-data-facts.csv

```
firm,size,country inc,limit,pct collateralized,interest,start,maturity
F50E0CWSQFAUV09Q8Z97,ld:Small,UK,10000000,.70,.040,2001-06-01,2020-12-31
AX378AEV345CAME93E45,ld:Medium,US,20000000,.50,.020,2010-03-01,2019-12-31
QWEE5SFSYV452DRG3483,ld:Micro,PL,30000000,.30,.030,2016-09-01,2017-10-31
```

- Compact representation
- First row is ignored



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# Working with CSV data

- xBRL-CSV is built upon the OIM
- This enables lossless, standardised transformation to other formats, including:
  - **xBRL-XML** (the XBRL v2.1 XML syntax)
  - **xBRL-JSON**



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# Summary

- xBRL-CSV provides a flexible, standardised format for representing XBRL data in CSV
- Ideal for large quantities of repeating (record-based) data
- Structure of CSV files defined in JSON metadata, re-using W3C standards
- OIM ensures XBRL semantics are maintained
- Currently at Public Working Draft status: comments and participating welcomed!