



**Corporation Tax (CT) Online
XBRL and iXBRL for Computations and Accounts
Technical Pack**

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Introduction

Company tax returns comprising of accounting periods ending on or after 1 April 2010 must be filed online. A Company tax return comprises of the CT600 form (including any supplementary pages), accounts and computations, together with any other supporting documentation. In all cases where a Company Tax Return is filed online, the computations must be in Inline eXtensible Business Reporting Language (iXBRL) format.

For most companies and organisations, accounts forming part of the return must also be in iXBRL format.

The contents of this technical pack are aimed towards software developers who wish to develop software that will create accounts and computations in iXBRL format. A working knowledge of XML and the various specifications that are based on XML are essential, most importantly:

- [the latest version of the XBRL standard](#)
- [the latest version of the iXBRL standard](#)

If you don't have any expertise in this area it is recommended that you obtain at least a general knowledge of these specifications before attempting to use this technical pack.

The iXBRL accounts and computations created using this technical pack forms part of the overall CT submission – commonly known as the CT600. For information on how to create the CT600 please see [CT600 technical pack](#)

1. Taxonomies

An XBRL Taxonomy is a collection of taxonomy schemas and linkbases. A taxonomy schema is an XML schema document (file). Linkbases are XML documents (file) which follow the XLink specification. In simple terms, the taxonomies provide the concepts (XML elements) that can be used to tag the financial data in the computations and accounts. It also provides a way to view these concepts in a structured manner, via the use of a presentation linkbase. It is beyond the scope of this technical guidance to fully explain XBRL taxonomies.

HMRC supports several taxonomies. They generally fall into 2 categories:

- HMRC owned taxonomies - Computational taxonomy and the Detail Profit & Loss taxonomy
- taxonomies owned by external organisations - UK GAAP taxonomy and the FRS (Financial Reporting Standard) taxonomies

1.1 Using the taxonomies

You'll need to consider the following information when using the taxonomies to create iXBRL instances.

1.2 Taxonomy entry points

All the taxonomies supported by HMRC will have one or more entry points. An entry point is a path to a particular schema that will act as the “entry point” to the taxonomy. Entry points perform 2 key functions:

- They are used by taxonomy viewing software to compile a taxonomy or set of taxonomies for viewing by a user. Such software would typically provide a user friendly way of accessing the content of the taxonomy, e.g. building a structural diagram of the taxonomy concepts using the presentation link base. We don't recommend that software developers try to use the taxonomies without some suitable taxonomy viewing software.
- A particular entry point, or points, will be used in a XBRL/iXBRL instance document to guide any system consuming the instance document to the taxonomy that should be used to validate the content. This is done via an element called SchemaRef. In many cases HMRC will support a single entry point that must be used when preparing an iXBRL instance. However there are some occasions where several entry points will be supported. On such occasions the taxonomy package will contain a document that lists the supported entry points.

1.3 Taxonomy Accounting Period (AP) dates

When a new version of the Computation taxonomy is produced, HMRC will, where possible, make it backwards compatible allowing the taxonomy to be used with previous versions and for all Accounting Periods.

Several taxonomies supported by HMRC are only valid for submissions made for certain accounting periods and are not backward compatible. Using a non-backward compatible taxonomy will result in the submission being rejected with either a 3318 or 3320 error. Full error details of the validation can be found in the [Corporation tax online services validation rules document](#).

In addition there are several taxonomies that are mandatory to use with certain AP dates, but for differing reasons this cannot be enforced with validation in the online service. For example, the new FRS (Financial Reporting Standard) 102 standard is mandatory for APs starting on or after 1 January 2015. So it follows that the FRS taxonomy is mandatory for iXBRL prepared under this standard. However, as many companies do not fall under the new FRS standard, eg those using FRSSE (Financial Reporting Standard for Smaller Entities), it is not possible to enforce use of the taxonomy at the front end. Instead we will enforce it using our usual compliance activities that take place after the submission has been made.

Details of what AP dates certain taxonomy can be used with are included in the [HMRC supported taxonomies](#).

1.4 Taxonomy minimum tagging lists

To minimise the burden on companies, when the use of XBRL became mandatory HMRC initially published minimum tagging lists for the GAAP, UK-IFRS and CT computational taxonomies. The lists specify the items that must be tagged if present in any given set of accounts and computations. Companies can choose to disregard the lists and adopt full tagging instead.

From the introduction of the CT dimensional taxonomy onwards, the taxonomy itself is considered minimum tagging, as this taxonomy represents a much simplified requirement. It is the same with the FRC taxonomies, which will not contain a minimum tagging list. Please refer to the detailed guidance for the [current minimum tagging requirements](#).

1.5 Supported Taxonomies

HMRC supported taxonomies

Details of taxonomies currently supported by HMRC are published here:

[Taxonomies accepted by HMRC](#)

Supported foreign taxonomies

The [supported foreign taxonomies](#) are there for companies who are required to prepare accounts under a foreign jurisdiction. There is no front end validation performed on iXBRL created using these taxonomies. They are effectively white listed.

2. Preparing the iXBRL instance document - Supporting documentation

2.1 [Corporation Tax XBRL style guide](#)

Relevant to: Accounts, Computations

HMRC will only accept accounts and computations in iXBRL format. We do not accept XBRL instance documents. iXBRL stands for inline XBRL. It is essentially a HTML document with XBRL tagging embedded. Producing an iXBRL instance instead of a pure XBRL instance poses additional challenges to software developers. The inline XBRL style guide provides valuable guidance on preparing iXBRL instances that meet HMRC requirements.

2.2 [Detailed Profit and Loss XBRL taxonomies - user guide](#) Relevant to: Detailed Profit & Loss

The Detailed Profit & Loss (DPL) taxonomy is used to tag the “Detailed Profit & Loss” figures, if present, in either the computations or accounts. This guide is essential reading for anyone tagging a DPL statement.

2.3 [FRS Taxonomies – tagging and developer guides](#) Relevant to: FRS101, 102 and EU adopted IFRS

3. General Guidance

3.1 Computations

3.1.1 Filing iXBRL computations for a Long Period of Account (LPOA)

In the computation the DescriptorEndOfPeriodForWhichReturnRequired must match the PeriodCovered/To element in the CT600. One consequence of this is that a Tax Comp is not a “standalone” document – it must contain an end date that matches the CT600 “to” date that it is attached to, which means that in Long POA cases a company cannot attach the same Comp to both Returns as one of them will fail the cross-document date check. Either, the whole Comp is attached to one Return (with matching dates) or a Comp for each AP is attached to each Return (again with matching dates).

3.1.2 Filing iXBRL computations for a LPOA – cutover to CT600v3

For LPOAs where a CT600 is due for a period that starts on or after 01/04/2015, the following steps must be taken:

1. Create a computation for the whole Period of Accounts (POA) using a pre CT600v3 taxonomy (e.g. 2014 budget taxonomy, 2013 taxonomy)
2. Set the start and end date tags in this computation to the first AP start and end dates (matching the to and from dates in the CT600)
3. Attach this computation to the first CT600 V2 12 month period
4. Do not attach a computation to the second CT600 V3 stub period
5. In the stub CT600 V3 set the <NoComputationsReason> element to “PoA differs from AP-comp with sep rtn”

For an example of a CT600 with computations that covers the first AP of a LPOA see [CT600 LPOA API](#).

3.1.3 Using the Text Note element

A Text note (TextNote) element has been added to each main section (hypercube) of the taxonomy. It is to be used to tag any notes present in the computations not currently being tagged. For example there might be a note stating that Relief has been claimed under para..., or 'x' costs have increased substantially this year as a result of..., etc. If you need to tag more than one note in a section use the analysis dimension.

3.2 Accounts

3.2.1 Attaching more than 1 set of accounts

Companies may need to include more than one accounts file as part of their Company Tax return, for example - a parent company sending consolidated accounts and its own individual accounts as separate files. However, only one accounts (and one computations) iXBRL file can be included as part of an online Company Tax Return. All other documents forming part of the Company Tax Return must be PDF files.

HMRC's Corporation Tax Online service validation rules do not permit users to attach PDF accounts designated as 'accounts' where an iXBRL accounts file is included as part of the online Company Tax Return submission.

Users attempting to do so will receive the following error message:

```
<Number>9964</Number>  
<Text>You cannot provide both Inline XBRL and PDF Statutory Accounts with the Return</Text>
```

The solution for users is to designate any PDF accounts as 'other' if iXBRL accounts are also being included as part of the return.

3.2.2 Context entity identifiers

All facts that are XBRL tagged in an iXBRL instance must be associated with a context. The [entity identifier](#) contained in that context must contain a certain scheme and identifying number depending on the type of organisation producing the accounts.

3.3 Detailed Profit & Loss

3.3.1 Detailed Profit and Loss in accounts and computations

HMRC expect the detailed profit and loss to be tagged in either the computations or the accounts but not both. In the event that the DPL is accidentally included in both the computations and accounts, this will not cause a validation failure at the front end and the submission will be accepted. However this may cause the return to come under further scrutiny, especially if there are inconsistencies with duplicate tagging across the accounts and computations.

3.3.2 What Schema reference to use in an iXBRL instance when it includes a DPL

This depends on whether the DPL is in the accounts and computations, and other factors like whether you prefer to support dual or combined references. A full list of references and an explanation on how and when to use them can be found in each CT taxonomy distribution. The document is at the top level of the distribution and is called something along the lines of “CT YYYY - Schema Locations and Normative References”.

3.3.3 FRC DPL taxonomy

The FRC DPL taxonomy is mandatory for tagging a detailed profit and loss statement, attached to either the accounts or computations, where:

- The company's accounts are based on the FRS101, FRS102 or EU adopted IFRS accounting standards
- The CT return is submitted after 31st September 2015

4. General XBRL & iXBRL guidance

4.1 Handling the pound symbol and other such characters in iXBRL

The requirement to use XHTML for HMRC's Inline XBRL-based CT service (as opposed to HTML) stems partly from the greater opportunity to Schema-validate the nonXBRL mark-up and partly from the fact that by default non-XML-well-formed content (as HTML frequently is) won't pass the Transaction Engines well-formed XML checking of message payloads. A minor consequence of this is that certain named character entities that can be used by HTML authors to represent “special” characters such as the pound sign, euro symbol and copyright symbol cannot be used in XHTML that lacks a suitable DTD to define them, as is the case for Inline XBRL (XML defines just 5 named character entities of its own: ‘lt’, ‘gt’, ‘amp’, ‘apos’ and ‘quot’, to allow for the escaping of XML syntax). Instead, XML provides for character references of the form

&#nn (for decimal) and &#xnn (for hexadecimal), where 'nn' is replaced by a (variable length) decimal or hexadecimal value representing the UTF8 encoding of a Unicode code point (i.e. a Unicode character).

For instance:

£ -> £

© -> ©

€ -> €

Since Inline XBRL documents submitted to HMRC are very likely to be generated by an application rather than authored by a human being, it is simply necessary to ensure in the application code that the appropriate character references for any special characters, rather than their equivalent named character entities, are emitted in XHTML output.

Inline XBRL documents with named character entities other than the in-built XML set (identified above) will be regarded as not well-formed XML and will be rejected by the Govt Gateway (or by HMRC's online test service – TPVS).

4.2 Interpreting date instants in XBRL

The exact interpretation of dates without a qualifying time component depends on the situation in which the date is being used. By default, the instant in time represented by a date in XBRL is midnight (i.e. the end of the day referred to). However, when a date appears in the 'startDate' element of a 'period' structure the instant in time represented by that date is 00:00 on that day (i.e. the start of the day). This ensures that a span of time represented by a date range includes the whole of the first day in the range (e.g. 2008-04-01 to 2009-03-31 is 365 days long, not 364).

However, the default time rule leads to some apparently counter-intuitive consequences which might catch out the unwary. A date that represents the instant at the start of a period is not the same as the 'startDate' for a 'period'. For example, 2008-04-01 may be the first day of a fiscal year, but to accurately represent the instant of time at the start of the year (for initial valuations, carried forward balances, etc) the instant should be stated as 2008-03-31 (i.e. midnight on 31st March).

Note also that this means where start and end instant contexts are created to match the start and end dates of a period context, the adjacent end and start instants of contiguous periods are not the same instant in time - they will be 24 hours apart (i.e. there will be a gap of 1 day which might cause analysis software to behave incorrectly, or unexpectedly highlight the gap in time).

5. Sending the iXBRL instance to HMRC online

The following steps must be followed in order to submit iXBRL accounts and computations to HMRC.

5.1 Insert the iXBRL instance(s) in the CT600 XML instance

This can be done in 2 ways:

- (a) The iXBRL instance is placed inside the XML instance as is, by inserting it into the <InlineXBRLDocument> element
- (b) Base64 encoding the iXBRL instance and placing it inside the <EncodedInlineXBRLDocument>

We generally recommend option b, especially for large iXBRL instances. Although Base64 encoding the instance actually increases the overall size, removing the large amount of XML structure that the iXBRL represents decreases the processing time.

NB: There is no way to submit iXBRL instance documents to HMRC, either to the test or live services, as standalone documents; they must be wrapped in the CT600 XML.

5.2 Calculate the IRmark

The [IRmark](#) is a security hash that must be calculated and included with every submission to HMRC. For more information on the IRmark see the HMRC technical pack

NB: For submissions to the test service

If you want to receive a successful response to your submission then the IRmark will have to be calculated for every test file you submit to HMRC. However, it is possible to make submissions to HMRC without first calculating the IRmark. If you don't produce a correct IRmark for your submission you'll receive a 2021 error – “IRmark is incorrect”. This response is unsatisfactory if the aim is to receive and process a full success response, however if the aim of your testing is to check the validity of the iXBRL instance then this response is acceptable. This is because IRmark validation does not interfere with any of the other validation performed in the test service, so if there were to be any problems with the iXBRL instance, these issues would be highlighted alongside the IRmark error. This is only the case for the test service, in the live service an invalid IRmark will stop any further processing of the submission.

5.3 POST the XML package to HMRC via HTTP

As it stands there is only one way to transmit the XML package to HMRC and that is through the Transaction Engine. The XML instance (which in turn includes the iXBRL instance(s)) is sent via a HTTP 1.1 request to the Transaction Engine server.

There are XML examples that you can attach iXBRL accounts and computations to in the CT technical pack.

6. Testing services

Full details about the test services available for CT developers can be found in the main CT technical pack. The 2 main testing routes are briefly described below:

6.1 TPVS (Third Party Validation Service)

Performs validation of the payload (CT600 + attachments) section of the submission against the CT schema, business rules and XBRL validation. Responses will be returned based on the outcome of your submission indicating if the file has passed or failed validation. TPVS will not perform full validation on the Transaction engine submission envelope.

TPVS URL: <https://www.tpvs.hmrc.gov.uk/HMRC/CT600>.

6.2 External Test Service (ETS)

This allows Software Developers to submit test cases through the Transaction Engine Test Site to the HMRC TPVS site, mirroring the 'Live' service. Please ensure you use the correct Namespace, <Class> and <GatewayTest> in the XML you are submitting. You must use the unique credentials supplied by the SDS Team when submitting tests to VSIPS. For details about registration see the "How to use the test services" document.

ETS first validates the GovTalk Header against the GovTalk schema. The test submission is then automatically routed to the TPVS service where the Tax Return or 'Body' of the submission will be validated against the CT schema, business rules and XBRL Taxonomy. Response messages will be returned based on the outcome.

ETS URL: <https://test-transaction-engine.tax.service.gov.uk/submission>.

7. Other Information

7.1 Validation rules

There are several different validation rules applied to the iXBRL portion of the CT submission. Document [Corporation Tax online validation rules](#) for further information.

The test and live services apply exactly the same validation, apart from a few very specific circumstances. The service a particular validation is performed in is listed in the above document.

Although all validations are listed in the above document, there are a few XBRL specific validations that it's worth repeating here:

7.2 Joint Filing Validation Checks (JFVC)

[Joint Filing Validation Checks](#) were originally produced in conjunction with Companies House in order to achieve consistency in the validations applied to accounts by the 2 organisations. Amongst other things, this document lists the mandatory tags that must be supplied for all iXBRL accounts, no matter the organisation preparing them. The validations in the document must be adhered to if you want to get your iXBRL through the front door.

7.3 Generic dimension validations

Originally part of the Joint Filing Validation Rules, the [Generic dimension validations](#) are complex enough to warrant their own document. In essence the generic dimension validations are there to prevent certain dimensions being used without a name or description tag being attached to that dimension. For example consider the following tagging using the UK GAAP taxonomy:

Dimension: **Director1**

-- Concept: **HighestPaidDirector**

This tagging is acceptable as far as the taxonomy is concerned. However it would not be suitable for a system/organisation/person trying to understand the tagging. Although it is clear that the highest paid director is **Director1**, there is no indication as to who **Director1** is. Therefore this tagging would be rejected by the generic dimension validations, and the following tag would have to be added:

Dimension: **Director1**

-- Concept: **HighestPaidDirector** -- Concept: **NameEntityOfficer**

This tagging now links the name of an officer in the organisation with the "Director1" dimension and so consequently to the HighestPaidDirector tag.

7.4 Support

If you have any feedback about this document, or any further questions please contact the [Software Developers Support Team](#).

7.5 Recognition

If you would like to apply for recognition and have your software included on the [Commercial Software Developers](#) list, then please contact the SDS Team and state which category your product or service falls under.

References

Computations 2013 and Detailed Profit and Loss examples	These test cases demonstrate correct usage of different entry points and namespaces. Also include examples of how to use typed and anonymous dimensions. These cases are not representative of real computations or Detailed Profit and Loss.
Computation – Text Note example	Computation example containing a TextNote element. This is a technical example of how to use the element, not a business realistic test case.
Corporation Tax online service Validation rules	All validation rules in the CT online service.
CT600 LPOA AP1	Example of a CT600 for the first AP of a LPOA that straddles 01/04/2015 (the CT600v3 cutover). The computation covers the whole LPOA.
CT600 valid XML samples	Valid CT600 XML samples, with space to include iXBRL. Can be used to test iXBRL instances against the test service
CT 2015v1.0 – example iXBRL	Simple test case showing mandatory items for v2.1 (=CT600v3)
Detailed profit and loss XBRL taxonomies – user guide	This guide is essential reading for anyone tagging a DPL statement. The Detailed Profit & Loss taxonomy is used to tag the “Detailed Profit & Loss” figures, if present, in either the computations or accounts.
FRC Taxonomy – example iXBRL	Simple test cases illustrating the mandatory items and the generic dimensions and generic dimension tags.
FRC Website	Official page for the FRC taxonomies. Also contains the developer and tagging guides.
Generic dimensions validations	The generic dimension validations are there to prevent certain dimensions being used without a name or description tag being attached to that dimension.
Corporation Tax XBRL style guide	Producing an iXBRL instance instead of a pure XBRL instance poses additional challenges to software developers. The inline XBRL style guide provides valuable guidance on preparing iXBRL instances that meet HMRC requirements.
HMRC IRmark	All the information needed to calculate the IRmark, which must be sent with every CT600 submission.
How to use the test services	Guidance on how to use the HMRC test services. Also contains instructions on how to register in order to get access to them.
Joint filing validation checks	Amongst other things, this document lists the mandatory tags that must be supplied for all iXBRL accounts, no matter the organisation preparing them.

Technical specifications for the Corporation Tax Online service	The main CT technical pack, contains all the information pertaining to the CT600 XML submission.
Transaction Engine: Document Submission Protocol	All applications submitting XML must comply with this protocol to communicate with Transaction Engine.
iXBRL specification	iXBRL 1.1 specification.
XBRL specification	XBRL 2.1 specification.
XBRL UK detailed tagging information	As the name suggests, this guide goes into more detail about tagging using the UK GAAP, UK IFRS and UK Charities taxonomies. This guide, together with the preparers and developers guide, is essential reading for anyone preparing accounts in iXBRL format.
XBRL UK preparers and developers guide	This guide was produced by XBRL UK and is meant for software developers and those preparing XBRL/iXBRL instance documents. The guide is aimed primarily towards developers and preparers of accounts documents.
XBRL tagging - context entity identifiers	Every fact that is XBRL tagged in an iXBRL instance must be associated with a context. The entity identifier contained in that context must contain a certain scheme and identifying number depending on the type of organisation producing the accounts.
iXBRL 1.1 example	Example of the changes introduced in iXBRL 1.1, ie the continuation element and nesting numeric tags.