

The Unified Test List (UTL) Beta Release Format Specification- *UTL v 0.5.x*

For Consultation

Product Status: In Development

Glossary of Terms

Term / Abbreviation	What it stands for
FHIR	FHIR (Fast Healthcare Interoperability Resources) is a standards framework created by HL7. It is a platform specification that, in this context, provides the technical message specification and structure in the healthcare information ecosystem to carry the SNOMED lab test result and all the associated data,
NLMC	A national catalogue of pathology tests designed to fully replace the PBCL and initially covering requestable tests. It is commonly used as the foundation for that purpose. The original complementing result coding part of the NLMC has been taken up as the UTL which continues to make use of that NLMC work under the auspices of the Royal College of Pathologists.
PBCL	The Pathology Bounded Code List is a list of Read codes and is the basis for transmitting many pathology laboratory results to GP practices.
Read (Read codes)	<p>Read Codes are a coded thesaurus of clinical terms and have been used in the NHS since 1985. There are two versions: Read version 2 (v2) and Clinical Terms Version 3 (CTV3 or v3), both provide a standard vocabulary for clinicians to record patient findings and procedures in health and social care IT systems across primary and secondary care.</p> <p>The National Information Board (NIB) has specified that SNOMED CT is to be used as the single terminology in all care settings in England by 2020, replacing Read v2 and CTv3. The final release of CTv3 was published in April 2018.</p>
SNOMED CT	SNOMED CT is a standardised, multilingual vocabulary of terms relating to the care of the individual. It has been adopted as the standard clinical terminology for the NHS in England, with the direction that SNOMED CT should replace legacy coding standards wherever possible.

Document Control:

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1. Overview

1.1. Scope

This document describes the Unified Test List (UTL) which is a list of SNOMED coded laboratory test result terms published by NHS Digital.

This document assumes a basic familiarity with SNOMED CT at the level of distinguishing the hierarchies of procedures, findings and observable entities and the modelled requirements embodied in SNOMED representations but for further reading on the wider terminology you can refer initially to the UK [SNOMED CT website](#). There is also background documentation including a [SNOMED CT starter guide](#) (PDF) on the [SNOMED International web site](#).

1.2. Audience

The UTL is directed particularly at clinicians and scientists interested in validating and enhancing laboratory test content, whether directly engaged in laboratory medicine or otherwise, laboratory information managers, LIMS middleware and primary/secondary care suppliers/vendors, laboratory science quality organisations, commissioners and public health leads and those otherwise involved in current PBCL/NLMC deployment and oversight. Nevertheless, the product will be of interest to a much wider constituency too broad to list here.

1.3. Context

The UTL is a constrained set of SNOMED coded terms designed to operate either directly in an electronic patient record, in a FHIR message relating to that patient by carrying a test result or as a central reference list to support the interoperability of local code sets in clinical laboratories and their laboratory information systems (LIMS). The UTL is designed for use with the HL7 message specification FHIR (see Glossary).

The UTL is published by NHS Digital who also facilitate governance oversight at editorial level working closely with the UK Edition Committee for SNOMED CT. The UTL is designed to be the standard reference terminology product for all reporting of laboratory tests in the UK. For result reportables, it is the successor to the PBCL and NLMC across the NHS estate.

It should be noted that the coded terms do not contain units of measurement or reference ranges. Please refer to the editorial principles for more detail (see Documentation section).

1.4. Status

The UTL is a standard *In Development*. The content and structure of the UTL are subject to frequent change as the standard develops and the software used in the authoring and publishing process changes. The purpose of the *Beta* (external review) phase is to make the development of the UTL visible and transparent, and gather feedback from as wide a cross section of the audience as possible.

The file formats and data structures used to publish UTL content, as described in this document, are also subject to frequent change.

2. Description of Release Files

The UTL is currently published in multiple locations in different formats while early development is underway. This choice of formats facilitates exposure to review by all relevant stakeholders, whether those needing a simple readable format for review or a technical file specification for deployment in systems. This will be standardised as the product reaches the Tech Preview and Final product stages of development.

Current publishing locations and content are-

1. A UK Pathology refset published within the main UK Edition release of SNOMED CT. The UK Edition is published as [downloadable files on TRUD](#), and also available interactively via the NHS Digital [SNOMED CT Browser](#). Note-
 - This refset includes only content that has reached the formal full release stage. This is currently a relatively small subset of the UTL codes.
2. A UTL download in SNOMED RF2 format including *In Development* status content published in the [Pathology area on TRUD](#).
 - The RF2 download may not contain all UTL content currently available in the Beta Review Pack (see below).
3. A 'human readable' *Beta Review Pack* is published in the [UTL section](#) of the [Pathology & Diagnostics Information Standards](#) online collaboration space as a downloadable zip file. The Beta Review pack will always contain the most up to date and complete set of UTL content.

2.1. Beta Pack Contents

The pack currently contains:

1. UTL content in HTML table form that can be read in any modern web browser. The HTML files published are-
 - a. A full list of all current UTL content (*UTL_Full*)
 - b. A change or delta file of major content changes made between the previous release and the current release (*UTL_Change*)

Note: The HTML files include an additional *Feedback Link* column. Clicking the link in this column allows a user browsing the file to send feedback on a specific UTL SNOMED concept directly to the UTL development team in NHS Digital
2. A full listing of UTL content in tab separated value (tsv) format suitable for loading into spreadsheets and other data management tools.

The pack contents for this draft product may change over time per the 'In Development' status. The pack is formatted as a zip archive and can be accessed by expanding the archive in a Zip file manager (Zip management is built into most modern operating systems)

A number of supporting documents are also available for download from the UTL collaboration area including-

1. The draft Editorial Principles being used to develop UTL content
2. A UTL Product Overview document

3. A Beta Release Format and Schema specification document (this file)

2.2. Schema of Human Readable Beta Release

The following is an outline description of the UTL Human Readable Distribution. Based on feedback to date, we currently provide two versions of the human readable distribution:

- HTML Version - for interactive reading / browsing and for providing item/concept level feedback
- Tab Delimited Version - for easier import into spreadsheets and analytics tools, allowing filtering etc.

Notes:

1. Because of known issues when opening tab-delimited files in spreadsheet tools such as Microsoft Excel, users should take care to ensure that all fields except dates (where applicable) are interpreted as text to avoid problems. The most commonly experienced issue is that SNOMED IDs, being sequences composed solely of numeric characters, can be read as numbers by spreadsheet programs such as Excel and then incorrectly processed and reformatted for display.
2. Some of the fields published are not effective in some distribution formats. For example, in the tab-delimited text format the `feedback link` field is static text and cannot act as a hyperlink.

2.2.1. General Principles

2.2.1.1. Character Set (Unicode)

The design principles for both SNOMED CT and UTL adopt Unicode as the selected character set. All text or string values in UTL should be assumed to be Unicode/UTF-8 unless otherwise stated.

Currently, users can expect that the range of Unicode characters used in UTL will fall within the subset of the Unicode Basic Multilingual Plane (BMP) that can be translated to and represented in, the ISO 8859-1 "Latin -1" character set, however that can be expected to change in future.

Longer term UTL may be expected to include names (e.g. test names) requiring international characters outside the latin-1 range, mathematical and Greek symbols (e.g. for units of measure), and potentially non-textual symbols (e.g. emojis). Customers and software vendors should aim to ensure their software environment is "Unicode ready" as part of planning for the adoption of UTL and SNOMED CT.

2.2.1.2. Character Encoding (UTF-8)

Textual representations of UTL data (e.g. csv or tsv files) will use utf8 character encoding unless otherwise stated.

Caveats:

- The statement in section 2.2.1.1 above does not mean that the UTL is published in ISO 8859-1 (latin 1). The data must be read using UTF8 encoding, but then (given the current range of content) can safely be converted to latin-1 for incorporation into systems or processes currently limited to latin-1 character sets.

- User should be aware that software vendor interpretations of exactly what is meant by various character and encoding standards, and related terms including *Unicode*; *UTF (-8, -16, -32 variants)*; *ISO 8859-1*; *Latin-1*; and *Windows codepage 1252* (aka *Windows-1252*, *cp1252*) are complex and can contain subtle inconsistencies. Care must be taken to ensure that data is not corrupted during loading or processing by incorrect handling of character sets and encoding.

2.2.2. Fields & Description

2.2.2.1. UTL ID

- Purpose:
 - This field contains the internal identifier of the UTL concept. This id provides convenient identification of UTL concepts during the authoring, publication and review phases of content development, including item-level feedback at the Beta / external review stage.
 - The UTL ID is an internal aspect of the UTL publication process. UTL ID values are not present in the RF2 format. UTL IDs are not guaranteed to be persistent over time, and may not be present in later human-readable releases of UTL. The UTL ID should not be used as an identifier in other systems, the SNOMED ID is the appropriate persistent identifier for UTL concepts.
- Optional: No
- Datatype
 - This field will contain a String of maximum 16 characters length. The field will contain only numeric digits, however we recommend reading and processing it as a String rather than a number to avoid number reformatting issues.

2.2.2.2. SNOMED ID:

- Purpose:
 - This field represents the SNOMED ID of the UTL concept.
 - In principle SNOMED IDs for *In Development* (Beta) are provisional and subject to change. In practice we will aim to avoid IDs being changed without good reason, but it is possible that technical changes to production tooling, or design changes to the structure of the Pathology module in SNOMED might force a change of IDs at some point in future.
- Optional: No
- Datatype
 - This field is an 64bit integer, however we recommend reading it as a String (as for the UTL ID discussed above) to avoid problems with display reformatting of large numbers. If you use a VARCHAR for this field, note that it will need to be VARCHAR(18).

Note: Reformatting of numbers, and values that appear to be numbers, is a particular problem with spreadsheet programs and should be checked for when the data is first loaded.

2.2.2.3. Fully Specified Name

- Purpose:
 - This field represents the `fully specified name` of the UTL concept. Since UTL concepts are SNOMED CT concepts, we refer the user to SNOMED CT reference documentation for a longer description of this field.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.4. Preferred Term

- Purpose:
 - This field represents the `preferred term` of the UTL concept. Since UTL concepts are in essentially SNOMED CT concepts, we refer the user to SNOMED CT reference document for a longer description of this field.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.5. Property

- Purpose:
 - This field represents the `property` attribute in the UTL concept model, and often represents a quantifiable or measurable characteristic. Many concepts in UTL are described as the `Property of a Thing in a Specimen`, this field represents the `property` of the triad. Please refer to the draft UTL Editorial Principles for a more complete description of this field.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.6. Component

- Purpose:
 - This field represents the `component` attribute in the UTL concept model. Many concepts in UTL are described as the `Property of a Thing in a Specimen`, this field represents a `component or substance` as the `thing` of the triad. Please refer to the draft UTL Editorial Principles for a more complete description of this field.

- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.7. Relative To

- Purpose:
 - Certain UTL concepts represent a relationship between two measurable characteristics (for example ratios between values). This field is used for the second element in these concepts
- Optional: Yes
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.8. Specimen

- Purpose:
 - This field represents the `specimen` attribute in the UTL concept model. Many concepts in UTL are described as the `Property of a Thing in a Specimen`, this field represents the `specimen` of the triad. Please refer to the draft UTL Editorial Principles for a more complete description of this field.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.9. Technique

- Purpose
 - This field represents the `technique` attribute that is sometimes used in the UTL concept model. Since most things in UTL are described as the `Property of a Thing in a Specimen`, but are sometimes measured by different methods or techniques, this field represents the technique used to measure the `Property of a Thing in Specimen`. Please refer to the draft UTL Editorial Principles for a more complete description of this field.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 255 characters.

2.2.2.10. Sub-Category

- Purpose:

- This field represents a category or discipline applicable to the test, where available. Categorisation of UTL concepts is an area that needs further work so this data and the presentation/format are likely to change.
- Optional: No
- Datatype
 - This field is a String, with a maximum length of 64 characters.

2.2.2.11. Status

- Purpose:
 - This field indicates status of the corresponding UTL concept as either *Active* (proposed for live operational use) or some other value. This field is most important in the `UTL Change` file which contains a list of updates to the UTL, which could include concepts that have been made *Inactive*, or deleted. Please refer to the draft UTL Editorial Principles for a more complete description of this field.
- Optional: No
- Datatype
 - As the data structure and content lifecycle for UTL concepts is further refined in future, we would expect to define a predefined list of status values that would be amenable to implementation as an enumerated list (ENUM) field in software that supports that data type. However for the moment we recommend this field is read as a String data type of maximum length 64 characters.

2.2.2.12. Action

- Purpose:
 - This field is present in the `UTL Change` file which contains a list of changes to the UTL since the previous release. The value in this field indicates at a high level the type of change that has been applied to the corresponding concept. Possible values are-

Action	Description
Create	The concept was newly created (added) in this release
Update	An existing concept was altered/changed in this release. One or more data fields in the concept record was changed, or potentially a new field column and value was added. Note: Where a concept is updated, the lists published in the human-readable Beta review pack for UTL show the full current (new) state of the record, so the <i>Update</i>

	action can also be considered a <i>Replace</i> or overwrite of the record.
Delete	In normal operations this action will not be used. An existing code will typically have its status changed to <i>Deprecated</i> or <i>Inactive</i> if it is no longer required. However in the early stages of development deletion of a code may occur under specific circumstances.

Please refer to the draft UTL Editorial Principles for a more complete description of this field.

- Optional: No
- Datatype
 - This field is a String, with the possible values described above.

2.2.2.13. Feedback Link

- Purpose:
 - This field is optional and is only effective in the HTML version of the UTL Human Readable files. Clicking on the `feedback link` which is present in this field opens an email window (with prefilled values identifying the concept), allowing the user to provide feedback about that relevant concept directly to the NHS Digital editorial team. Please refer to the draft UTL Editorial Principles for a more complete description of this field.
- Optional: Yes
- Datatype
 - This field is a hyperlink element (in HTML), otherwise it is a plain string: "Feedback Link".

3. Product Status and Expected Use

This product is published as 'In Development' status.

Reviewers of this product should note the following extract from the document 'The Lifecycle of IReS Terminology Products' available [here](#):

"Release Status: An IReS Terminology product ('product') shall exist in one of the following statuses:

1. In Development
2. Technology Preview
3. Draft for Trial Use
4. Supported Product
5. Deprecated
6. Retired

In Development: A product that has received agreement to proceed is conferred 'In Development' status and will subsequently either be abandoned, or progress through the remaining statuses as described below. 'In Development' status means:

1. Neither the release format specification nor the method of content preparation of the product are public or fixed
2. There is no obligation for public release of any In Development product though early iterations may be released to external collaborators including (but not limited to) e.g. the original external requestor/sponsor
3. Quality and safety assurance of the product may be ill-defined and/or absent
4. In the event that the product is found to be less useful than thought, or unsafe, or too costly to produce, then Terminology & Classification Management Group may determine that its development be abandoned.

The files are being published here for clinical review and for evaluation for LIMS use etc. They are not yet approved for use in live systems. NHS Digital does not currently support loading the file as a replacement for the PBCL labsetvxxx.txt or any other laboratory test artefact.

4. Documentation for SNOMED CT Releases

Documentation for the SNOMED CT UK Edition can be found on TRUD within the downloadable release packs. It can also be found [here](#).

Documentation for the SNOMED CT International Release is available at:

<https://confluence.ihtsdotools.org/display/DOC/SNOMED+CT+Document+Library>

This page provides live links to the latest SNOMED CT international release documentation, including formal specifications of SNOMED CT and guidance on use and implementation.

5. Feedback and Comments

NHS Digital wishes to receive feedback from clinicians interested in validating and enhancing UTL content, laboratory information managers, LIMS middleware and primary/secondary care suppliers/vendors and those otherwise involved in PBCL/NLMC deployment and oversight.

Feedback, comments and questions on file format, content construction and coverage and also on the content model are all welcome.

We have established discussion areas on the [Pathology and Diagnostics collaboration space](#) to collect general feedback and questions on the UTL release as a whole.

Note: This collaboration area requires users to register for an account with us. To request an account, or to send feedback without registering you can contact us via email at: pathologyanddiagnostics@nhs.net.

5.1. Item-level Feedback

The Beta Review Pack for UTL offers a built in feature for direct item-level feedback via a link on each item in the downloadable HTML-format files. Please download the zip package from the [Pathology and Diagnostics collaboration space](#) and use the “feedback link” displayed against each line item in the HTML documents within the review package.

If you need assistance in locating, accessing or reviewing files or if you need more help accessing SNOMED resources please contact us.

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