SNOMED CT Members' Browser Requirements

Version 2014-01-31

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Document Versions

Version	Author	Notes
2013-09-20	Andrew Perry	Initial draft
2013-09-23	DMA	Comments on draft
2013-10-04	Andrew Perry	Incorporated comments DMA, and updates
2013-10-04	DMA	Changes to align with RF2 usage
2013-11-05	Andrew Perry	Incorporated feedback and prioritization from Canada, Denmark, Lithuania, Netherlands and Sweden. The main changes: • Changed the use of **must** to **should** • Added sections on methodology and prioritization process • Added prioritization scores to each requirement • Added requirements based on feedback • Provided clarification on configurability
2013-11-06	DMA	Review with reorganizations of sections.
2013-11-07	DMA	Simplified requirement numbering and moved full numerically ordered list from Appendix requirements to separate supporting document to avoid duplication.
2013-11-08	Andrew Perry	Final corrections and tidy up as accepted final Phase 1 deliverable
2014-01-03	DMA	Minor update to hyperlinks and addition of Conditions of Use note prior to public release (2014-01-31)

Conditions of Use

This document has been made publicly available to encourage developers providing SNOMED CT Browsers and related software to support these requirements. At the time of writing this document (November 2013) it is noted that no existing browsers are known to meet all these requirements.

IHTSDO has applied its best endeavors to take accounts of a wide variety of views from its Members with regard to their specific requirements for browsing SNOMED CT. However, IHTSDO does not warrant or guarantee that any software meeting these requirements in full or in part will fully satisfy needs arising from any specific use case for access to SNOMED CT. Therefore, those using this document are responsible for ensuring that the fitness for purpose of the requirements and any related development. IHTSDO prohibits any supplier of software from making statements that imply IHTSDO endorsement of a system as compliant with these requirements.

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Note on Reference Numbering

The requirements have reference numbers that were allocated sequentially in response to additions to the initial proposed set of requirements. Subsequently, requirements have been reorganized to groups them more logically. As a result, the requirements are no longer listed in the order of their referenced numbers. The requirements statements retain these reference numbers to provide tracking back to the full set of requirements considered during prioritization.

An ordered version of the full set of requirements was published as an appendix to this document to provide a point of reference between this document and the original identification and prioritization of requirements. However, to avoid duplication or potential misalignment of future version of this document, the appendix is not being maintained or published.

1 Introduction

SNOMED CT Browsers are software applications or tools used for searching, navigating, viewing and reviewing terminology content. A typical browser can locate Concepts and Descriptions by searching the text of description terms or by entering identifiers. Browsers also provide a way to navigate SNOMED CT hierarchies. Browsers may display views of various artifacts including the set of related descriptions, the hierarchical relationships and other defining relationships of a concept.

1.1 Purpose

This document presents a set of requirements for a SNOMED CT browser identified and prioritized by IHTSDO Members. IHTSDO Members need to make previews and releases of their National Editions (i.e. International Release + National Extension) available for review by stakeholders in their country. The shared understanding of required functionality outlined in this document is the first step towards ensuring widespread availability of browsers that meet these requirements.

IHTSDO also has internal requirements for software that enables browsing of SNOMED CT. Terminology server functionality required by browser clients will be supported as a service by the IHTSDO Terminology Open Tooling Framework Application Programming Interface (API). This will enable different client applications to use the same services to deliver user interfaces that meet different sets of browser requirements. This is one approach by which the IHTSDO may facilitate delivery of solutions that meet the requirements outlined in this document.

1.2 Methodology

The requirements in this document have been gathered from documented SNOMED CT browser requirements and evaluation templates from Member countries that have expressed an interest in browser development. Requirements have also been included from documents that have been developed and shared within the IHTSDO community. The requirements were refined in response to feedback from IHTSDO staff and an initial round of feedback from members of the Member Forum.

1.3 Source materials

A lot of material already exists related to browser requirements including requirement documentation, presentations and documents. The following materials have been used in preparing this document.

- Draft documents from IHTSDO current work item on 'SNOMED CT search and data entry' requirements being undertaken by participants in the SNOMED CT Implementation Advisor (SIA) scheme.
    - Final version of this will be available as part of the documentation publications at www.ihtsdo.org/doc from 31 January 2014.
- The SNOMED CT Browser Evaluation Template from Canada Health Infoway.
- Input from the Swedish National Board of Health and Welfare.
- Materials on the IHTSDO Implementation SIG collaborative site related to Searching and Browsing including:
    - Documents on Searching and Browsing from the UKTC;
    - Various related discussion threads.
- Browsing the Browsers (2008 KR Med paper) by Jeremy Rogers and Olivier Bodenreider.

1.4 Prioritization

The requirements recorded in an earlier version of this document were copied into a spreadsheet with a suggested priority, using the prioritization values in **Table 1** below.

5. Essential	Must be present for the tool to be worth delivering
4. High priority	Could wait a short while for this requirement to be met
3. Medium priority	Could wait a little longer for this requirement to be met
2. Nice to have	Useful to have this at some point but not a priority for this use case
1. Optional	Could be useful for some users but not a general requirement for this use case
0. Not required	Not required for this use case

Table 1. Prioritization values

The spreadsheet was circulated with the document to the Members Forum and posted on the MF CollabNet site. Feedback on the document and suggested prioritizations were received from Canada, Denmark, Lithuania, Netherlands and Sweden. These prioritizations were analyzed with particular attention to requirements given significantly different priorities by Members. The priority values were adjusted to the median values from Member feedback and the resulting scores are shown for each requirement in this document.

The key points from the prioritization process are:

- There were 81 initial requirements
- 18 new requirements were suggested as part of the prioritization feedback process. These are marked with a "*" in the requirements tables.
- 4 requirements that had a suggested prioritization of "5. Essential" were adjusted downwards to "4. High priority".
- 2 requirements that had a suggested prioritization of "3. Medium priority" were adjusted upwards to "4. High priority"
- "3. Medium priority" and 1 "0. Not required" were assessed as optional requirements. These are listed in section **6. Optional add-on functionality**.

The changes resulting from the prioritization process are summarized in **Table 2** below.

	Suggested Priority	Adjusted Priority (including new)	Optional
5. Essential	28	28	
4. High priority	21	32	
3. Medium priority	34	39	3
2. Nice to have	2	4	
1. Optional	0	0	
0. Not required	1	3	1
Total	81	95	4

Table 2. Requirements prioritization count

1.5 Technical delivery

A terminology browser may be:

- A stand-alone tool.
- Part of a more extensive implementation, for example a clinical system.
- A client application that accesses a terminology server via an Application Programming Interface (API). In this case the API and the server delivering the API must be capable of responding to queries and delivering data in ways that allow client applications to deliver the required browser functionality.
- Part of a terminology server which provides a wider range of terminology services. This may allow the browser to be used by client applications to select SNOMED CT expressions.

Different users may also require access using different devices like handheld or phone-based devices. The way that search or browse features are embedded into a product will vary but in essence they are either integrated functions within the application suite or are provided by a service call from application software to a service ('terminology services' as referred to extensively in IHTSDO documentation such as the Technical Implementation Guide).

2 Browser administration requirements

2.1 Data importing, updating and versioning

This section lists the requirements identified and prioritized for importing SNOMED CT data into the browser environment. If the browser is part of a terminology server with other functionality, then this process may be part of the administration and management of the terminology server, rather than specific to the browser.

In summary, the requirement is that it must be possible to load data from a valid set of release files for any version of the SNOMED CT International Release and for Extensions. In all cases the requirement is to support the loading of data from Release Format 2 files. However, in cases where a browser is part of terminology server in which content is being edited, it may also be useful to allow the browser access to unreleased preview data.

Ref	Description	Priority
1	It should be possible to import SNOMED CT International Release data from RF2 release files. For browsers using terminology-servers this may be a central process performed by the terminology server. For standalone browsers it should be possible for National Release Centers or other organizations to import the RF2 release files and to distribute the processed data store or files for use by the browser.	5. Essential
2	It should be possible to import SNOMED CT Extension Release data from RF2 release files.	5. Essential
82	It should be possible to import all supported Reference Set formats including those that support inclusion or exclusion subsets, language variations and Simple or Complex Map Reference sets.	5. Essential*
3	The browser should be able to access or load different release versions (i.e. latest release, previous versions or preview). This could be by opening specific snapshot releases or by generating specific snapshot views.	4. High

2.2 Configuration

It should be possible to configure the functionality of a SNOMED CT browser according to the environment and Member country that the browser is being used in and the tasks that specific groups of end users wish to perform. The following is a list of types of user who may use a SNOMED CT browser to access different parts of the terminology.

- Clinical and early users require a simple lookup-style application.
- Implementers require tools to facilitate clinical engagement.
- Terminology reviewers require access to more detailed aspects of the terminology.
- Reference Sets developers require the ability to select concepts or descriptions and add them to a set and the ability to view the effect of applying their set to the data.
- More advanced users require advanced feature settings and access to detailed views of the structure and modeling of the terminology content.

Configurability may be required at three levels:

Global default configuration

There are a few parameters that would be common default settings to most browsers. These default settings may be overridden by a client instance or run-time configuration setting.

- Data and versioning: Global default is most recent International Release
- Status filter: Global default is active components only.
- Reference set filtering: Global default for human medicine, exclude concepts that are in the "Non-human Reference Set".
- Subtype filtering: Global default for textual searches is to exclude subtypes of the concept SNOMED CT Model Component (metadata).
- Search type: Global default should be to match words or initial parts of words in any order.

Client instance configuration

Browser configuration default settings for a particular Member and/or context of use should include:

- Data and versioning: Inclusion of Member Extensions and settings to provide access to preview, most recent release, or a previous release.
- Language settings: Specific for national language(s) and/or dialect(s).
- Status filter: Option to override global default setting.
- Reference set filtering: Option to override or supplement global default filters.
- Subtype filtering: Option to override or supplement global default filters.
- Defining which configuration settings can be modified at run-time.
- Defining the views and functions available to the user.
- Default search types: Option to override default search type.

Run time configurability

- Subject to restrictions in the client instance configuration settings, a user may be able to modify settings, views and filters to allow more specific search and display.
- In some cases, run time configuration may be adjusted programmatically by client software to match the context of use. For example to search for applicable values for a post-coordinated refinement.

Ref	Description	Priority
4	The browser should be able to be configured for different editions and extensions. (i.e. International / National editions / Reference Sets etc.). This configuration should determine the default content, language and version for content searches, cross maps and Reference set content. Configuration should be at the client instance level and optionally by the user.	5. Essential

3 Browser general requirements

3.1 Version and licensing requirements

Ref	Description	Priority
6	The version of SNOMED CT content that is being browsed should be clearly visible at all times.	4. High
83	If the browser is accessible through a public web site it must comply with IHTSDO licensing guidance online browsers. • See www.ihtsdo.org/browser_license_guidance.pdf	5. Essential*
7	If the version being browsed is out of date (more than 6 months old), then the user should be prominently informed that the data is out of date. This notification should be clearly displayed in a way that cannot be hidden without the user positively affirming their wish to use the out-of-date version, each time an instance of the browser, app (or, alternatively, of its host application) is initialized.	4. High

3.2 User interface requirements

Ref	Description	Priority
69	The browser interface language should be configurable. This configuration would be at the client instance level but may be changed by the user.	5. Essential
70	It should be possible to adjust the font size.	4. High
71	It should be possible to change the size of each pane or frame displayed in the browser.	4. High
95	It should be possible to hide panes or frames.	3. Medium*
96	It should be possible to open 2 hierarchy and detail panes to allow comparison between 2 hierarchies or concepts.	5. Essential*
97	It should be possible to hide fields if required.	2. Nice to have*
72	It should be possible to scroll all windows to view long or wide lists. It should be possible to scroll using the pointing devices supported by the computer, tablet or mobile device e.g. vertical and horizontal scrolling using a mouse, the scroll features on a track-pad or kinetic scrolling or touch panning on devices with touch screens.	5. Essential
77	It should be possible to select any displayed information and copy it to a clipboard for pasting into other programs.	4. High
78	It should be possible to drag and drop between relevant controls in the browser e.g. dragging a node from a hierarchy tree to the text input field should use the concept identifier of the node as input.	3. Medium
98	It should be possible to navigate in the browser using key combinations.	3. Medium*
99	Using red and green in the interface should be avoided	4. High*

3.3 User guidance and help files

Ref	Description	Priority
75	It should be possible to search on a topic for assistance in using the browser.	4. High
76	Context specific help should be available. The help language should be configurable in the same way as the interface language. This configuration would be at the client instance level but may be changed by the user. The help content should be available in a format that can be translated and imported into the browser.	4. High

4 Searching

Search is the process by which a user finds a SNOMED CT Concept to represent a clinical idea for a specific purpose. Searching for SNOMED CT content is a vital function of a browser. IHTSDO I&I has a current work item on 'SNOMED CT search and data entry' requirements as they apply to clinical data entry. It is important that the search facilities of standard browsers return the same results as a search in the clinical setting. This document will be aligned with the ongoing I&I work item as it progresses.

The way a search is carried out depends on the setting in which it is performed. A simple search may involve typing a word or phrase in a search box, getting a list of matching terms and viewing the list to identify the appropriate Concept.

4.1 Search by identifier

It is essential to be able to be able to find a SNOMED CT concept by entering the relevant concept identifier. It is also essential to be able to find a SNOMED CT description and the associated concept by entering a description identifier.

Ref	Description	Priority
8	The search operation should include both SNOMED CT ConceptIds and DescriptionIds as possible input.	5. Essential

4.2 Search by term text

It is essential to be able to search from SNOMED CT descriptions and associated concept by searching the test of terms. There are a number of specific detailed requirement to ensure the effectiveness of searches.

Ref	Description	Priority
12	Diacritic and accented characters should be properly displayed and searched over e.g. Sjögren, Ménière. (i.e. Sjögren must also be found by entering 'sjogren' and Ménière by entering 'meniere')	5. Essential
13	Superscript (^ ^) and subscript (> <) should be properly displayed and searched over (e.g. for chemical formulae or radionuclides ^186^Platinum). This requirement is not stating that the search should use these characters when matching. It is simply stating that the user be able to enter them, and that the system recognizes them when entered and understand how to process them.	3. Medium

Ref	Description	Priority
14	The search functionality should perform case-sensitive matching for each search token (independently) where at least the first two letters of the token were entered as uppercase e.g. ABO incompatibility.	4. High
15	Search over descriptions involving % or * symbols should not interact with any wildcarding system in the query syntax.	5. Essential
16	The search functionality should identify discrete tokens in both user search expressions and in descriptions being indexed as those substrings separated by any of: <space><tab>()[]/,.:;%#&+-*~'^><="	5. Essential
17	The search functionality should assume a trailing wildcard after each discrete search token (i.e. the token 'abc' in the search expression should by default match on the tokens 'abcd', 'abcef' etc. in the index).	5. Essential
18	The search functionality should not assume a preceding wildcard before each discrete search token (i.e. the token 'abc' in the search expression should not by default match on the tokens 'xabc', 'xyabcd' etc. in the index or corpus of SNOMED CT descriptions).	5. Essential
84	The search functionality should support a syntax that specifies a wildcard preceding a search token (note: a syntax for this will need to be agreed).	3. Medium*
85	The search functionality should support searching in languages where in Swedish, for example "lung cancer" is "lungcancer" - if this functionality is not created in the right way, searching for "cancer" would not bring back "lungcancer" as a match, which is potentially a significant problem.	4. High*
19	String searches should be configurable by the user to search tokens as: • words any order - Priority: 4. High • phrase match - Priority: 4. High • identical term - Priority: 4. High • starts with - Priority: 4. High • ends with - Priority: 4. High	4. High
20	The default behavior of the text-to-Concept search operation should include automatic query expansion by token substitution with synonyms, part of speech variants, and phonetically similar tokens. (e.g. the browser either automatically substitutes correct spelling 'epididymis' or prompts user for likely substitution)	3. Medium
21	The default behavior of the text-to-Concept search operation should not use a partial/truncated token index (e.g. should not index only on the 1st 8 characters).	3. Medium
22	The default behavior of the text-to-Concept search operation should use a stopword list. The SNOMED CT International Release includes a suggested 'stop list' (referred to as the *ExcludedWords* Table). This is only available in English and is the list of exclusions used when generating keyword lists distributed with the same release.	3. Medium
23	The user should not be required to initiate a search by pressing a 'search' button or pressing enter. Progressive matching (where results are returned for each successive character that the user types in) should be provided where it does not cause any performance issues.	4. High

4.3 Filtering term text searches

SNOMED CT is a large terminology containing hundreds of thousands of concepts and descriptions covering a very broad scope. In many cases, the context in which a search is used means that only a subset of the concepts are likely to be relevant. Therefore, effective search filtering is an essential requirement for a SNOMED CT browser.

Ref	Description	Priority
24	The browser should exclude inactive concepts and descriptions from the search unless these are also selected for display.	4. High
25	The browser should be capable of restricting searches to specific language(s) and dialect(s).	5. Essential
26	The browser should be capable of restricting searches to a Reference Set of SNOMED CT descriptions.	4. High
27	The browser should be capable of restricting searches based on prior usage patterns such as favorites.	3. Medium
28	The default behavior of searches for clinician-facing profiles should be configurable at the client instance to restrict searching to subtypes of a group of top level SNOMED CT concepts. It should be made clear that a restriction is active. However, it should be possible for the user to easily unrestricted the searches. For example restrict searching to the following hierarchies: • 404684003|Clinical finding (finding)| • 71388002|Procedure (procedure)| • 243796009|Situation with explicit context (situation)| • 272379006|Event (event)| • 373873005|Pharmaceutical / biologic product (product)| • 363787002|Observable entity (observable entity)| • 48176007|Social context (social Concept)|	4. High
29	The default behavior of searches should not return concepts for subtypes of a configurable group of SNOMED CT concepts, unless the search is explicitly customized to include those subtypes. Default configuration should be at the client instance level and should be modifable by the user. For example do not return search results from the following hierarchies: • 123037004|Body structure (body structure)| • 900000000000441003| Model Component (metadata) | • 106237007|Linkage Concept (linkage Concept)| (Is a subtype of Model Component (metadata) In RF2) • 370115009|Special Concept (special Concept)| (Not used in RF2) • 308916002|Environment or geographical location (environment / location)| • 410607006|Organism (organism)| • 78621006|Physical force (physical force)| • 362981000|Qualifier value (qualifier value)| • 419891008|Record artifact (record artifact)| • 254291000|Staging and scales (staging scale)| • 123038009|Specimen (specimen)| • 260787004|Physical object (physical object)| • 105590001|Substance (substance)|	3. Medium

Ref	Description	Priority
30	The browser should not return any members of the non-human Refset, unless the search is explicitly customized to include them.	4. High
31	The browser should be configurable to search for content that is in or not in one or more high level hierarchies. Configuration should be possible at the client instance level and by the user.	5. Essential
32	The browser should be configurable to search for content that is in or not in one or more Refsets. Configuration should be possible at the client instance level and by the user.	4. High
33	The browser should be configurable to search for content that is in or not in one or more hierarchies or Refsets using a constraining grammar e.g. (children of X OR Y) AND (in Refset P OR Q). This configuration would be performed by the user.	3. Medium
34	The browser should be configurable to search for content based on concept definition using a constraining grammar e.g. children of X AND (have direct procedure site Y OR indirect procedure site Y). This configuration would be performed by the user.	3. Medium

4.4 Displaying search results

The result a search is typically a set of descriptions or concepts. The requirements in this section apply to the ways in which these results should be displayed.

Ref	Description	Priority
35	For clinical facing profiles, Concepts should be displayed by their preferred term but always either appended with or clearly grouped by the SNOMED CT top-level supertype.	4. High
36	It should be possible to group search Concepts by top-level SNOMED CT chapter. (e.g. all Procedures or Clinical findings should be grouped under those headings)	4. High
37	Lists of any class of SNOMED CT components should not be ordered either randomly, by initial data load order, or numerically by SNOMED CT identifier.	3. Medium
38	The default behavior of the text-to-Concept search operation should optionally allow the results set to be (re-)ordered alphabetically.	3. Medium
39	The default behavior of the text-to-Concept search operation should optionally allow the results set to be (re-)ordered by frequency of clinical use.	3. Medium
40	The default behavior of the text-to-Concept search operation should not truncate the result set (pagination is preferable).	3. Medium
86	The default behavior of the text-to- Concept search operation should optionally allow display of 100% matches first followed by highest number of words matched next.	3. Medium*
41	Inform the user prominently each time the result set has been truncated.	5. Essential
42	Where display of long lists of SNOMED CT components is only achievable through pagination then all the items within the list should be sorted as per other guidance, and both the total number of pages and the current pagination position should be displayed.	3. Medium

Ref	Description	Priority
43	Where a list of either Concepts, or all descriptions for one Concept, is displayed then it should be possible to display that list alpha sorted (though secondarily to any other grouping or sort structure also implemented).	3. Medium
44	It should be possible to order search Concepts by e.g. frequency of use or search term similarity score.	3. Medium
45	It should be possible to display all matching descriptions, or unique Concepts only. (e.g. A search for the phrase "endo stomach" would find "Endoscopic examination of the stomach" and "endoscopy of the stomach" . As these are synonyms of the same concept it should be possible to return both descriptions or just the first one.)	4. High
73	The search facility should display the number of hits resulting from a search.	4. High
94	It should be possible to keep the session searches history to access it without re-running the search.	3. Medium*

4.5 Displaying and navigating the subtype hierarchy

Browsers should display a view of the subtype hierarchy and allow users to select components from that view. This section contains specific requirements related to hierarchy views of SNOMED CT.

Ref	Description	Priority
88	It should be possible to display a concept within the subtype hierarchy and to navigate to and select any subtype and or supertype of that concept.	5. Essential*
89	It should be possible to display or highlight members of a specified refset in the subtype hierarchy.	3. Medium*
66	Navigation of the subtype hierarchy should not be restricted to views that display only the direct parents and direct children of each node. It should be possible to visualize indefinitely many generations within the same display. (e.g. where the hierarchy is viewed in a tree, it should be possible to expand a branch in a tree view without closing surrounding braches.)	3. Medium
67	The recommended default initial view of subtype hierarchy display is, reading from top to bottom of the screen • ancestors (recursively, pre-exploded to three levels or as many as exist if less than three, and displayed above), • self (left justified), • all descendants (initially direct children only, but indefinitely expandable without changing the browse focus), • siblings	3. Medium
68	It should be possible to navigate the hierarchy of any Reference Set that is part of the current data configuration. (i.e. Reference Sets that have been configured as part of server instance)	2. Nice to have

5 Displaying component details

It must be possible to select a concept or description from a search or by hierarchy view and display details of that component. The requirements in this section apply to the ways in which selected component should be displayed.

Ref	Description	Priority
46	The ConceptId should be displayed.	5. Essential
47	Where a Concept is part of an extension, then the extension details should be displayed.	4. High
48	For inactive Concepts the inactivation status (derived from the relevant inactivation reference set) should be displayed in human readable form (current, ambiguous etc.). This should be in the configured interface language.	5. Essential
49	Whether a Concept is primitive or fully defined, should be clearly displayed at all times. Display by means of a graphical convention (a sprite, or color coding of display text) is permitted.	5. Essential
50	The browser should display history information for a concept (e.g. when it was added and if relevant when the status was changed).	3. Medium
87	It should be possible to select more than 1 concept/description from the result list to visualize how the two intersect in the taxonomy (hierarchical view).	2. Nice to have*
90	It should be possible to visually identify content as being from the Core, from an extension or from a refset.	4. High*
91	It should allow concurrent visualization of different languages content.	4. High*
92	It should allow finding a term that would have a different spelling and would be part of the Browser. Provide the Concept ID with visual information the content exists but is part of International or Extension content.	3. Medium*
93	It should be possible to switch between different languages without closing the browser.	4. High*
51	All active (as well as inactive if selected) descriptions of a Concept that are marked as preferred in a chosen language should be reviewable.	5. Essential
52	The DescriptionId and Description type of each description should be displayed.	5. Essential
53	The default description set displayed should exclude inactive descriptions, but the option to include these (and also to search over them as in requirement 24) should be selectable both within the browser session and persistently across browser sessions.	5. Essential
54	It should be possible to specify a language precedence for displaying descriptions. This should be used for each description type (i.e. Fully Specified Name and Synonym) taking account of language preferences in the relevant Language Reference Set (for example en-GB > en > en-US).	5. Essential
55	Where the languages and dialects specified do not include en-US then the en-US variants should be suppressed unless there is no description of the same description subtype for the specified language.	5. Essential

Ref	Description	Priority
56	The language of each description should be displayed.	5. Essential
57	It should be possible to see all the relationships for a Concept.	5. Essential
58	It should be possible see that certain relationships for a Concept are part of a relationship group. (i.e. An association between a set of attribute value pairs which causes them to be treated separately from other attribute value pairs in the same definition)	4. High
59	Lists of defining relationships for a Concept should be ordered alphabetically by the display term for the relationship and then by the displayed term for the destinationId. Relationship groups should be preserved and the relationship within the group ordered as above.	3. Medium
60	It should be possible to see the ConceptIds for all displayed relationships.	3. Medium
61	It should be possible to see the characteristicTypeId of relationships (defining vs optional vs additional).	3. Medium
63	The browser should show the CTV3 and SNOMED RT identifiers for the concept taking account of the Simple Map Reference Sets that map to these from SNOMED CT and/or other locally available map tables.	2. Nice to have
64	The browser should show the maps for external classification for which it has been configured (e.g. ICD10, OPCS).	3. Medium
65	The modeled and historical relationships of a Concept other than IS-A should not be displayed by default (unless the user configures the application to do so by default), but it should be possible to access them.	3. Medium
74	It should be possible to see graphical view of relationships for a selected concept including the ConceptIds for all displayed relationships.	3. Medium

6 Optional add-on functionality

Analysis of the following requirements statements has led to a recommendation that these should not be considered as part of the initial requirements for browser. The reasons for this recommendation are stated against each item. In most cases, these are areas of functionality which should be considered as future add-ons. However, each of these possible additions would require further specification of detailed requirements.

Ref	Description	Priority
79	The browser should support post-coordinated data entry to select and construct post-coordinated expressions. The TIG describes three levels of support for post-coordinated expression entry: • Low: Access to limited post-coordination; • Medium: Access to full range of post-coordination supported by the Concept Model; • High: Access to post-coordination with configurable constraint matched to user requirements.	3. Medium
	Reason for excluding from browser requirements: This would be a useful feature for an advanced browser but should not be a requirement for a basic browser.	
80	The browser should be able to perform normal form transformations on pre-coordinated concepts and post-coordinated expressions. Both short normal and long normal forms should be generated.	3. Medium
	Reason for excluding from browser requirements: This presupposes support for postcoordination. It would be a useful feature for an advanced browser but should not be a requirement for a basic browser.	
62	It should be possible to see the refinability status of an optional qualifier relationship.	0. Not required (not possible!)
	Reason for excluding from browser requirements: Refinability is not represented in Release Format 2. Instead use of the SNOMED CT machine readable concept model or expression constraint representations could be supported in an advanced browser that supports post-coordination.	
81	The browser should support the development or editing of simple Refsets.	3. Medium
	Reason for excluding from browser requirements: Refset editing is regarded as a separate requirement, which is dependent on browser functionality. This document does not seek to set out requirements for Refset editing, so it would be inappropriate to include this high-level requirement without supporting explanation of the requirement for Refset editing.	
9	The search operation should include RelationshipIds as an input criteria.	3. Medium
	Reason for excluding from browser requirements: Search by RelationshipId assumes display of a relationship found in this way. While this is of potential interest in terminology development it is not something that will be understood by browser users. The Relationship.id is not of interest to users. Relationship.typeId, Relationship.sourceId and Relationship.destinationId are all ConceptIds and are of interest to users and are dealt with by other requirements in this document.	

Ref	Description	Priority
10	The search operation should include RefSetIds as possible input. ***Reason for excluding from browser requirements:*** As stated, the requirement does not make clear the intended functionality of searching by RefsetId. The two main use cases are covered by other requirements in this document: • A Refset.id is a reference to a Concept.id so in terms of accessing the name of the Refset this identifier can be accessed by the general search and display features. • The use of a selected Refset as a search filter and to moderate display of content in a hierarchy is also dealt with by specific requirements. If additional Refset search facilities are required these need more detailed description.	3. Medium
11	The search operation should support searches by codes or identifiers from terminologies for which there are cross maps to or from SNOMED CT. All the SNOMED CT Concepts that are mapped to the code in the cross-mapped terminology should be displayed. ***Reason for excluding from basic browser requirements:*** While it may be useful to support search by a code mapped in a simple one-to-one map, there are inherent problems with simply using a map as for search as this would not display factors relevant to the mapping. Rather than including this simplistic requirement, a more detailed consideration of extended functionality to support viewing of maps should be considered in future.	3. Medium

