

ATLAS.ti 22: Distinguishing features and functions

This document is intended to be read in conjunction with the 'Choosing a CAQDAS Package Working Paper' which provides a more general commentary of common CAQDAS functionality. This document does not provide an exhaustive account of all the features provided by ATLAS.ti 22 but is designed to highlight some of its distinguishing elements. The Comment section at the end details our opinions on certain aspects of functionality and usability. See also Silver & Lewins (2014) *Using Software in Qualitative Research: A Step-by-Step Guide*, Sage Publications and Woolf & Silver (2018) *Qualitative analysis with ATLAS.ti: The Five-Level QDA method*, Routledge.

Background <http://www.atlasti.com> ATLAS.ti was initially developed as part of the research project ATLAS at the Technical University, Berlin (1998-1992). Thomas Muhr, today CEO of ATLAS.ti Scientific Software Development GmbH, was lead developer on the projects ■ 'ATLAS.ti Scientific Software Development GmbH' continues to develop and support the software ■ ATLAS.ti 22 is available for Windows and Mac and the functionality is equivalent ■ There is also a Web version and a mobile App for Android and iPad. See <https://atlasti.com/feature-comparison>

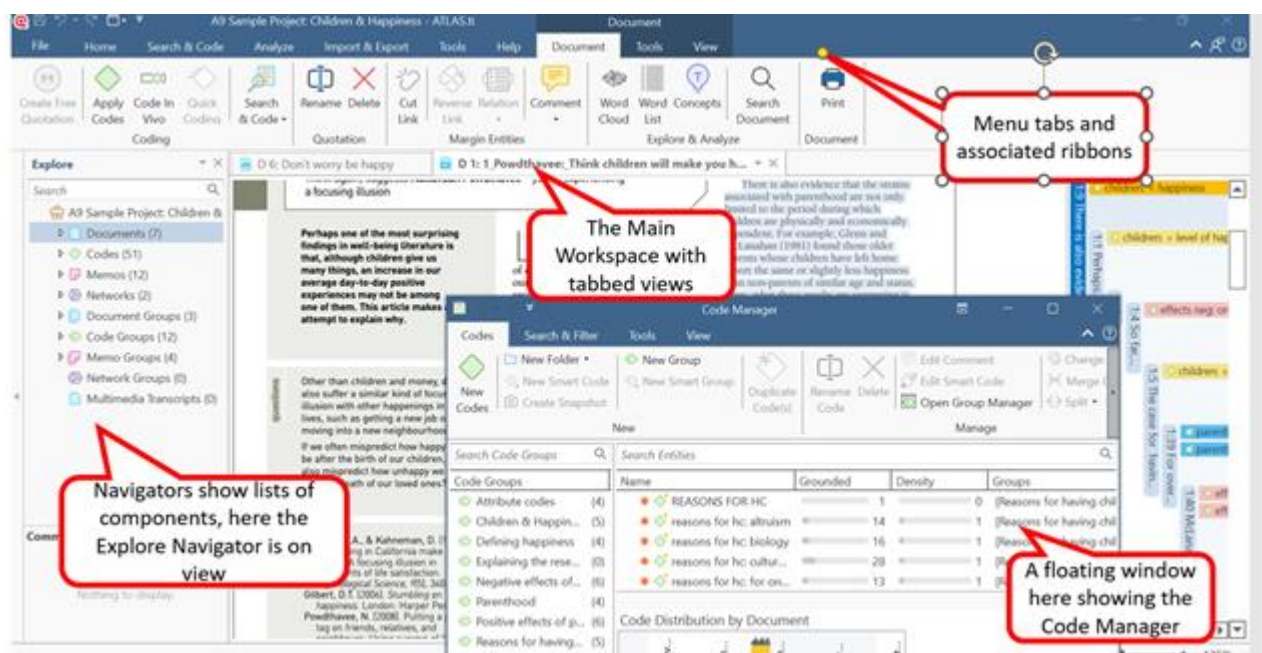
Minimum System Specifications (recommended by developer)

Windows: Minimum Windows 10 Version 1607, "Anniversary Update." 64bit Ram – 4GB minimum / 8-16GB recommended. 1.5GB free hard disk. Intel-based PC, 2GHz, Intel core or compatible CPU. Mac: OS version 10.15 'Catalina' or higher ■ At least 8GB RAM, SSD recommended. See <https://atlasti.com/product/technical-info/>

Structure of work in ATLAS.ti 22

When data files (called documents) are added to the project file, copies are made and stored within the project, except audio or video files which are stored externally ■ The interface has four main elements ■ Navigators list components and can be docked in tabbed panels to the right or left of the screen ■ The Workspace is the central area containing tabbed windows ■ Floating windows can be opened and moved around the screen as required ■ In the Windows environment Menu tabs and their associated ribbons across the top of the screen display functions relevant to the current focus. In the Mac environment all functions can be accessed from the Main Menu, below which is a quick access toolbar.

Figure 1. The ATLAS.ti 22 for Windows user interface, showing the main elements of the interface



Data types and format in ATLAS.ti 22

Text Formats : Plain text (.txt), MS Word (.doc, .docx, .rtf), Portable Document Format (.pdf), Open Office (.odt), HyperText Markup Language (.htm, .html), also .ooxml ■ **Graphic (image) formats** : .bmp, .gif, .jpeg, .png, .tif, .tiff ■ **Audio formats** : .aac, .m4a, .mp3, .wav ■ **Video formats** : .3g2, .3gp, .3gpp, .asf, .avi, .m4v, .mov, .mp4, .wmv ■ **Survey data** : the survey import feature allows mixed qualitative and quantitative data from .xls or .xlsx files to be imported. The information is extracted and as documents, codes and groups within the ATLAS.ti project for analysis ■ In addition, data can be imported from **Reference Management** software (include BibTeX files), Evernote, Twitter and SPSS, ExportComments.com (which gathers comments across a range of social media sites). ■ Geo Documents can be created – which opens an Open Street world map in which locations can be marked and analysed.

Closeness to data and interactivity in ATLAS.ti 22

Closeness to data is a concept inherent to the design of ATLAS.ti and is most particularly reflected in the status of “Quotations” as independent entities ■ Quotations are selections of data within documents of any type, that are identified as meaningful for analytic purposes. They are independent entities in that they can be identified and listed separately from anything else – so for example, Quotations do not have to be coded in order to be retrieved out of their document context ■ This independence of Quotations is a central functionality of the software ■ Whether coded or not, navigating around Quotations always locates them in the source Document context (although they can also be lifted out of context in Networks, the preview areas in managers and tables, or by outputting) ■ The margin view displaying Quotations and the other components they have been linked to (i.e. Codes, Memos, other Quotations) is interactive and customizable. Highlighting a code/hyperlink/memo in the margin will display the linked quotation. Components can be accessed and edited from the margin view ■ Full Interactivity exists within the Network view and between other project components (e.g. Documents, Quotations, Codes, Memos, Comments, and Networks).

Handling multimedia data in ATLAS.ti 22

Audio-visual data can be directly added, annotated and coded (i.e. a written transcript associated with an audio/video file is not a requirement, but can be accomplished when required) ■ A document preview is displayed under the moving image. Preview images of key frames and the audio wave are displayed alongside the moving image ■ Image snapshots can be created from video documents ■ Audio/video data files can be synchronised with corresponding written transcript through use of time anchors ■ Transcription tools that generate time anchored transcripts in .txt, .rtf, .doc, .docx, .srt or .vtt formats allow for synchronicity between media and transcript to be automated ■

Coding schema in ATLAS.ti 22

In its main listing and structure the coding schema allows for several levels – sub-codes, codes (categories), folders and code groups. ■ Folders can contain any number of codes and sub-codes, but any code or subcode is located within only a single folder ■ Groups enable short-cut collections of codes and sub-codes to be created, and any code can belong to any number of groups ■ Filter work to a code group to view or generate output on an aspect of the coding schema. Groups are visible and editable from Code Manager. Smart Groups can be created from combinations of Groups by using a Query (e.g. AND, OR, ONE OF, NOT operators) ■ Codes can be linked to one another to impose additional structure on the coding schema, or to illustrate analytic relations (e.g. *is associated with*, *is a cause of* etc.). ■ Links between codes can be visualised in a Network or the Project Explorer.

Coding Processes in ATLAS.ti 22

Coding is enabled by linking Quotations to Codes. This can be achieved in several ways, including by drag-and-drop, by List Coding, Open Coding and Coding *In Vivo* ■ In addition, coding can be accomplished by searching for strings of text (e.g. words/phrases/concepts/named entities/regular expressions/sentiment using the features in the Code & Search ribbon), and the Focus Group Coding feature (which searches for patterns based on speaker identifiers in textual documents) ■ Results can be filtered by parts of speech e.g. noun phrases ■ Quotations can be coded to multiple codes simultaneously ■ The margin view displays quotations created within documents and linked codes, memos, other quotations, code groups, memo groups and networks. The margin view display can be filtered, and codes, comments and memos can be edited from the margin view.

Basic Retrieval of coded data in ATLAS.ti 22

Coded data are retrieved by navigating through Documents to view Quotations in source context. Textual and graphic Quotations are highlighted, audio-visual Quotations are played back ■ Filtering to Groups of Codes and/or Documents focuses the view for internal retrieval or output purposes ■ Lift Quotations out of context by outputting, querying or visualising in a Network View ■ The margin display provides an overview of how Documents are coded in their entirety.

Data organization in ATLAS.ti 22

Organizing whole Documents for the purpose of filtering to subsets or querying is achieved by creating short-cut collections of Documents, known as Document Groups (e.g. socio-demographic groupings such as gender, age-group, marital status, etc). Functionality replicates that for organizing Codes and Memos ■ The Smart-Group tool allows combinations of Groups to be created (using AND, OR, ONE OF, NOT operators) and saved. Smart Groups are dynamic so that as more Documents/Codes are added to the original Groups the Smart-Groups automatically update ■ Document Group structure can be implemented via the survey import feature ■ Organisation of parts of documents (e.g. speaker sections in focus-groups) can happen by manual or autocoding.

Writing tools in ATLAS.ti 22

ATLAS.ti allows the user to write in many different spaces ■ Memos are a main object at the same level as other components, such as Documents, Quotations and Codes ■ The content of several memos can easily be outputted into one file ■ Memos can be linked to Quotations, Codes and other Memos. ■ Links created between Memos and other objects are functional in that visualising them in a Network view will illustrate any other linked items ■ Comments are spaces to write that are linked to other components – i.e. Code Comments can be used to define Codes, Quotation Comments can be used to write annotations about selections of data, Document Comments may store background information about data files, etc. ■ There is also central Project Comment for keeping notes about the project as a whole.

Searching and interrogating the database in ATLAS.ti 22

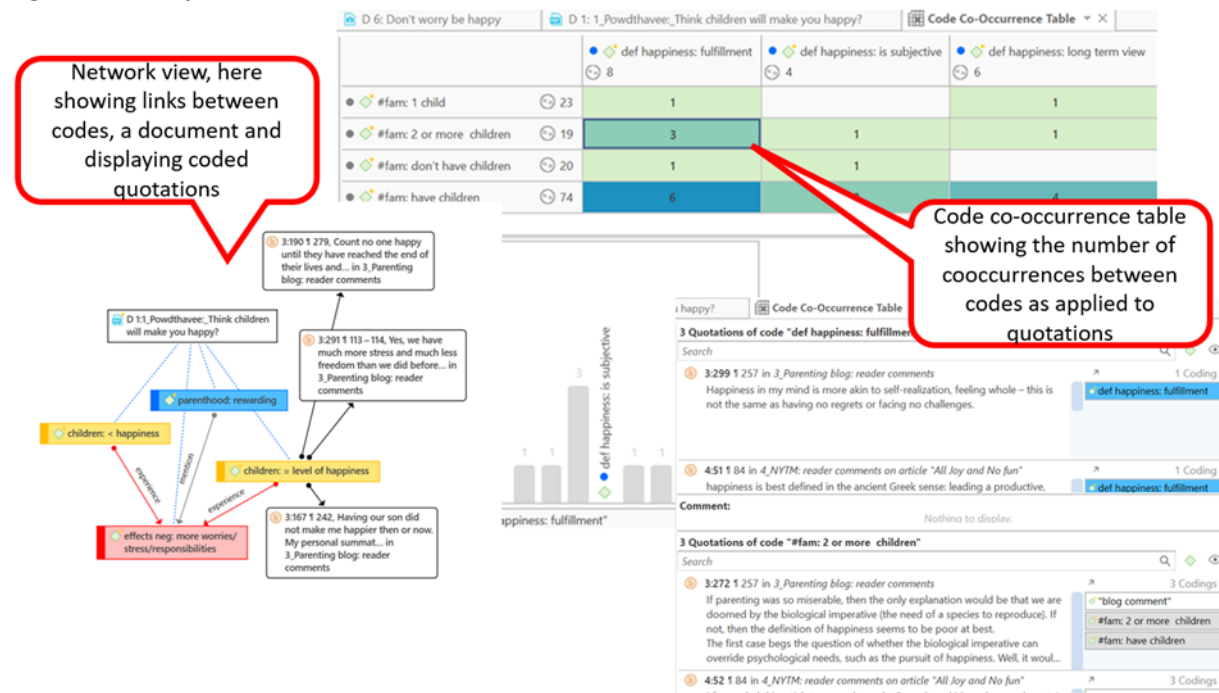
There are several ways to search and interrogate within an ATLAS.ti project ■ The Project Search feature allows words or phrases to be found in the name, content or comments of codes, documents, memos, groups, networks, quotations, code links and hyperlinks, either across the whole project, or on the basis of the user that created them ■ The content of Documents can also be searched using the Search & Code ribbon; words can be counted using the Word List feature and visualised in a Word Cloud, as well as filtered to parts of speech e.g. proper nouns, adjectives, etc. The Concept search tool suggests relevant concepts and the noun phrases that constitute it are visualised both as a list and in context. Results can be immediately coded and saved directly as a memo. The Sentiment Analysis feature identifies positive, neutral or negative statements, with advanced machine learning models available for multiple languages. In addition, quotations containing searched-for words/phrases/concepts can be linked to codes. The Regular Expression Search (regex) allows users to specify string searching algorithms and the Named Entity Recognition (NER) parses text to find entities e.g. person, organisation, location, with advanced machine learning models available ■ Global Filters allow the project to be scoped based on individual or combinations of Groups or Smart Groups. This allows the retrieval of coded quotations based on groups of documents and codes. It also affects what is seen in a network. ■ The Query Tool retrieves quotations based on the codes they have been linked to, using Set and Proximity operators (e.g. AND, OR, ONE OF, NOT and COOCCURS, WITHIN, FOLLOWS, ENCLOSES, OVERLAPS etc.). Retrieval can be scoped to individual documents, or groups of documents. Smart Codes are saved queries listed as codes. Once created, double clicking on a Smart Code will re-run the query. Smart Codes can be part of another query, which itself can become a Smart Code, enabling up to date navigation around complex combinations of coded data. Smart Codes can be created at any stage of work. Snapshot Smart Codes capture a search at a specific point in time ■ Co-occurrence tools allow Quotations to be retrieved based on overlapping of Codes. The Co-occurrence Explorer shows co-occurrences in a hierarchical tree view. The Co-occurrence Table allows Coded Quotations to be retrieved in a matrix of Codes by Codes. ■ In addition, the Code-Document Table displays a cross-tabulation of Codes by

Documents ■ Networks can also be used to visually interrogate connections (see below). ■ Coding reliability across teams can be tested using Intercooder mode and Intercooder agreement.

Linking devices in ATLAS.ti 22

Linking is flexible in ATLAS.ti in that almost any project object can be linked to any other ■ Linking is functional in that subsequently opening a Network on a linked object will automatically show other objects linked to it ■ Hyperlinking between points in the data is enabled due to the centrality of the quotation. This allows the tracking of sequence or process within or between data files without abstracting to the coding level. User defined relationships can be created between hyperlinked quotations, as well as between Codes.

Figure 2. Examples of visualisations in ATLAS.ti: the Network View and the Code Co-occurrence Table



Visual tools in ATLAS.ti

A Bar chart displays the frequency of quotations from within the Code Manager and Document Manager, and split by documents within the Code-Document table and co-occurring quotations in a Code-co-occurrence table (see Figure 3). The bars in all of these are interactive, displaying underlying quotations when selected. ■ Code Co-occurrence table results can also be visualised as a Sankey Diagram. ■ The desktop version includes pie charts and tree diagrams for code distributions ■ Networks, available in multiple layouts, provide a powerful space for visualising and working with all project items, including codes, code hierarchies, code folders, documents, quotations, links etc.

Output in ATLAS.ti 22

The Report tool allows aspects of work to be exported from the Managers for documents, quotations, codes, memos and networks. Reports can be saved in different formats and filtered for focused output. Predefined reports are available in the Query Tool ■ The whole project can be exported as an SPSS syntax file or Excel file in order to undertake further statistical analysis, and in a QDPX format (a common exchange format that can be imported into other CAQDAS packages).

Team-working in ATLAS.ti 22

Team working is enabled by each user working on separate versions of a common project, which are then merged to combine work. Users working with multimedia data store copies of the documents in their own project library ■ The Codings Analyser helps to identify redundant coding ■ ATLAS.ti supports mixed team working across Mac and Windows desktop versions ■ The Web version allows multiple users to work on documents concurrently.

Comments on ATLAS.ti 22

Flexibility - different ways of working to suit different purposes. *Functionality does not rely on code and retrieve yet if that is all the user needs it is very easy to get to that point. The flexibility provided by the quotation structure and the ability to hyperlink between places in the data without abstracting to the coding level is useful and unique in comparison to other software packages. If used extensively the user must come up with ways of managing these linkages, but this functionality offers options to those not employing code-based analytic processes.*

Support for pdf documents *is highly developed and provides a completely accurate representation of the pdf and its layout, images etc. This is most useful if the exact layout of the pdf is important for the researcher in respect of the analysis. In addition, that highlighting and annotations made on Word and pdf files before adding them to an ATLAS.ti project are preserved, is very useful.*

Excellent co-occurrence Table Explorer *This provides an easy way, without building a query, to find the co-occurrence of any code with any other code in the data – easy options for varying co-occurrences.*

Main working code list (Codes manager) ATLAS.ti 22 provides a new degree of freedom *when working with codes as compared to previous versions. We see hierarchies enabled, but also easy splitting out of codes into subcodes is greatly facilitated. Drag and dropping a category onto a segment of text results in a drop down menu showing all subcodes to choose from.*

The Query tool : *some search operators have very precise parameters and the user must be aware of these to interpret results and their implications reliably. Smart codes are unique functionality and an economic and efficient way to remind, pose questions or build hypotheses. Smart codes provide a straightforward way to re-run simple or complex searches. The presence of smart codes in the codes list is a constant reminder of previously posed queries which facilitates continuity and rigour.*

The network tool is very flexible *in that any object can be linked to almost anything else. The software remembers previously created links, so the user needs to be sure the connection remains relevant, or use proxy codes to illustrate an abstract model. The ability to see the content of quotations in networks is useful for analytic and display purposes, and is unique in its functionality.*

Support using the Software: *the Live Chat function provides users with fast access to expert human assistance in real time which is invaluable. The Apps for iPad and Android provide an excellent mobile accompaniment to work with ATLAS.ti.*

Further Reading

- Friese, S (2014) *Qualitative Data Analysis with ATLAS.ti*, Sage Publications (3rd edition 2019)
- Friese, S, Jacks Soratto & Pires, Denise (2018). Carrying out a computer-aided thematic content analysis with ATLAS.ti. MMG Working Paper 18-02.
- Lewins, A & Silver, C (2014) *Using Software in Qualitative Research: A Step-by-Step Guide*, Sage Publications
- Silver, C. & Bulloch, SL. (2016) **CAQDAS at a crossroads: affordances of technology in an online environment** in Fielding, N. & Lee, R. (eds.) *The SAGE Handbook of Online Research Methods*. SAGE.
- Woolf, N & Silver, C (2018) *Qualitative Analysis with ATLAS.ti: The Five-Level QDA® Method*. Routledge
- di Gregorio, S & Davidson J (2008) **Qualitative Research for Software Users**, McGraw Hill, Open University Press, UK (uses an ATLAS.ti project as worked example)
- Woolf & Silver (2018) *Qualitative analysis with ATLAS.ti: The Five-Level QDA method*, Routledge.