

How To Collaborate As A Team Using ATLAS.ti Within A Shared Computing Environment

Florio Arguillas, Janet Heslop, Kim Burlingame, William Block

Abstract

This paper discusses three scenarios of Cornell University research teams collaboratively using ATLAS.ti on a shared computing environment. The first scenario involves a Project Administrator (PA) creating a master team HU and a team library on a shared folder. The two other scenarios discuss the pitfalls of not correctly managing team project files. We describe each scenario and offer step-by-step instructions and solutions. All three scenarios described in this paper have team/my libraries located on a shared folder and used same PD-same code stock strategy when merging HUs. We also discuss the particulars of our shared computing environment, our general and team-specific recommendations as to how each team should manage their files, and other use cases concerning ATLAS.ti that came to our Helpdesk.

Acknowledgements

The authors acknowledge the comments and suggestions of the editors which we integrated in this paper.

Keywords

ATLAS.ti, team work, team projects, collaboration, library, document management, project management, copy bundle, network drive, merging projects, shared computing environment, remote work, usage policy, system environment

Introduction

Interdisciplinary research has become increasingly important and prominent in discoveries and new technologies, and in finding solutions to complex problems (Van Hartesveldt and Girodan, 2008:9). Organizations such as the U.S. National Science Foundation (NSF) have recognized that interdisciplinary research is critically important going forward. In their Strategic Plan for FY 2006-2011, they noted that “[d]iscovery increasingly requires the expertise of individuals with different perspectives – from different disciplines— working together to accommodate the extraordinary complexity of today’s science and engineering challenges.” (NSF, 2006:2).

ATLAS.ti is one of the mechanisms through which interdisciplinary collaborations can be conducted, especially projects that involve massive amounts of qualitative data. With its multi-authoring capabilities, ATLAS.ti is a great tool for collaborative processing and analysis of qualitative data. It has flexible code and stock strategies, which can adapt to various configurations and analytical approaches of project teams.

ATLAS.ti can also be installed in a server environment without any problems. ATLAS.ti is being used successfully by thousands of research teams world-wide in a multitude of very heterogeneous deployment/installation scenarios. The fact that it works in a server environment encourages collaboration as some research team members who are geographically dispersed can just log in to the server via remote desktop protocol, Virtual Private Network (VPN), or thin client and process their primary documents using ATLAS.ti. It is also cost-effective as economies of scale makes ATLAS.ti’s multi-user educational license affordable. Furthermore, it provides users freedom to choose the work environment where they

can be most productive as they can log in to the server from anywhere in the world where they have internet access e.g., from home, office, coffee shop, the field, or elsewhere.

Since we believe in the capabilities and strengths of the software for collaborative research, we installed ATLAS.ti on our server, a private cloud service running on state-of-the-art computing systems, and placed safeguards to ensure it is being used within the bounds of our concurrent-user license agreement. This has the triple advantage of promoting ATLAS.ti, a tried and tested tool; the software can leverage the higher and more advanced computational resources of the server; and Cornell researchers have the option to access and process their data using ATLAS.ti from anywhere in the world where they have internet access even without a physical instance of ATLAS.ti on their local computers.

In this paper we present in detail how our researchers do collaborative work using ATLAS.ti installed on our private cloud environment. Specifically, we discuss the following:

- Our system environment, usage policy, and license usage tracking software;
- The default library settings of ATLAS.ti and confidentiality and privacy disclosure risks associated with its installation on the server;
- The warnings, trainings, and support we provide our users to avoid disclosure risks and make their experience in using ATLAS.ti installed on a server as seamless and painless as possible;
- The three different case scenarios based on real-life experiences of project teams, the problems encountered, and how they were addressed; and
- Other use case scenarios including the version 6 approach.

Our System Environment, Usage Policy, And License Compliance And Tracking Software

ATLAS.ti 7 is currently installed on a Dell R810, 40-core, 512 GB RAM MS windows Server 2008 R2 Datacenter Edition x64. Our ATLAS.ti license is Educational Multiuser License 15 Units Lease. We use Sassafras Key Server to track usage and enforce license compliance. A user account is needed to gain access to our server and only Cornell researchers and their affiliates are given accounts. Each user is provided a space for file storage—the U drive. Currently there is no set quota for disk storage. Users (usually the Project Administrator) can apply for a shared folder on the S drive where they can store their PDs, HUs, and Team Library. Each member of the team will have access to the shared folder, although their level of access could vary depending on the Project Administrator. Only members of the team have access to the shared folder and its contents. Non-team members are denied access. This means our researchers can process their data using ATLAS.ti while off-campus or on fieldwork. They do not have to be housed in computer labs on campus.

Every second Thursday of the month we have our monthly downtime for maintenance and installation of patches and updates. In the world of virtualization, CISER chooses to replace the operating system image with all current application updates applied and pre-tested. This allows us to meet university policy and shorten our systems outage during monthly downtime. During downtime all user-installed contents on the C drive are deleted. Like most software, ATLAS.ti follows commonly accepted MS Windows standards and writes its data only to those segments of the Windows operating system that are specific-

ally designated for the storage of user data/user settings. It defaults the location of both My Library and Team Library on the C drive, and therefore their contents get deleted during our downtime. So we remind our users not to store anything on the C drive and to redirect the path of the My Library to their personal user space (the U drive), and the Team Library to their team's shared folder on the S drive.

Importance Of Redirecting ATLAS.ti Default Library Settings To User Or Team Folders

ATLAS.ti's default My Library location, which follows Windows symbolic paths, is *C:\Users\<username>\AppData\Roaming\Scientific Software\Atlasti\Repository\Managed Files*. The library is a hidden folder, meaning it cannot be found unless the user changes the folder settings, and its file contents are encrypted by ATLAS.ti. Being user-specific, only the user can view, access, and use the PDs on this library. In Figure 1 and Figure 2, the contents of the My Library folder are only viewable to user foa2_TS and yp269_ts, respectively.

The default Team Library location on the other hand is *C:\Users\Public\Documents\Scientific Software\Atlasti\Repository\Managed Files* (see Figure 1 and Figure 2). This folder is also hidden by default and its files encrypted. However, being public, all users who open an ATLAS.ti HU can view, access, and use the PDs on this library, even if they are not members of the project team.

Figure 3 shows what happens when users add primary documents to the default Team Library location. The two files on the list do not belong to users foa2_TS nor yp269_ts, yet they can access, view, and use these primary documents.

Depending on the type of document being processed, this could potentially breach privacy and confidentiality promised by researchers to interviewees, especially if the primary documents were not subjected to disclosure-avoidance techniques. If another team uses this default setting, they too will be adding their documents to this public library. And if another team decides to redirect this library to their own team's shared folder, all the other teams' primary documents residing in the public library will also be moved to that new location.

The work of new teams can also be delayed by teams whose files reside on the public domain. New project teams will not be able to redirect the default team library to their shared folder until the team who owns the files on the public domain have redirected the library to their own shared folder.

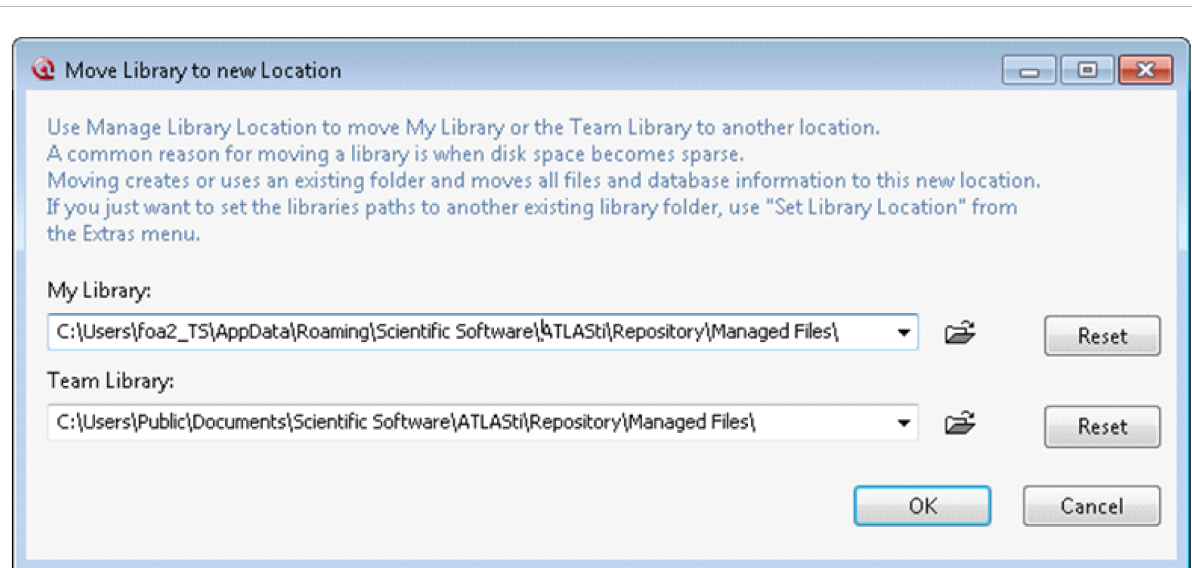


Figure 1: User 1's (foa2_TS) ATLAS.ti library default setting

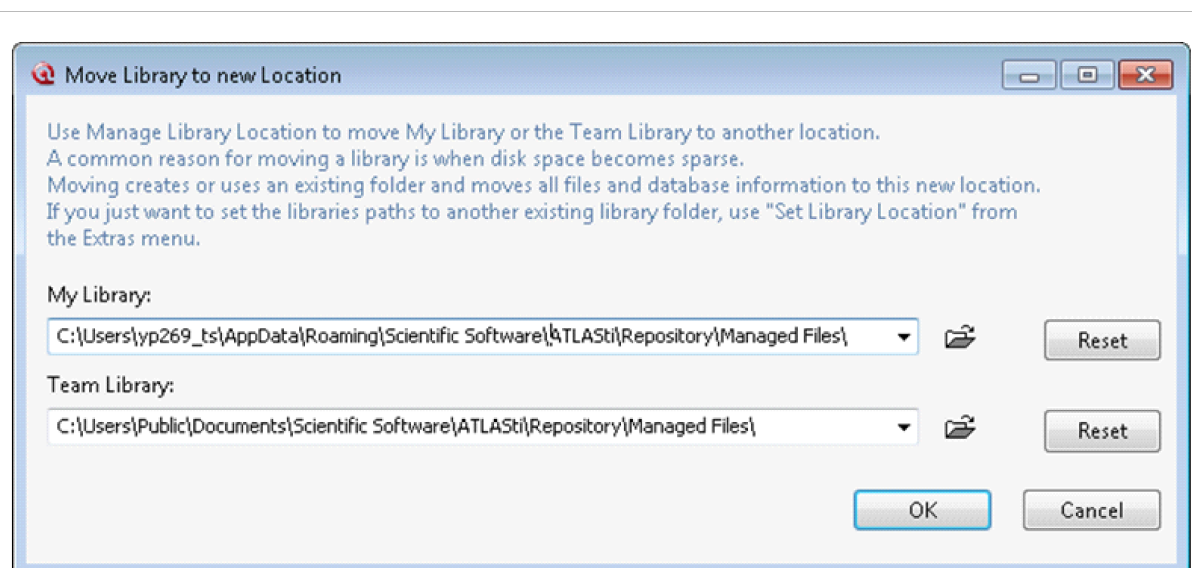


Figure 2: User 2's (yp269_ts) ATLAS.ti library default setting

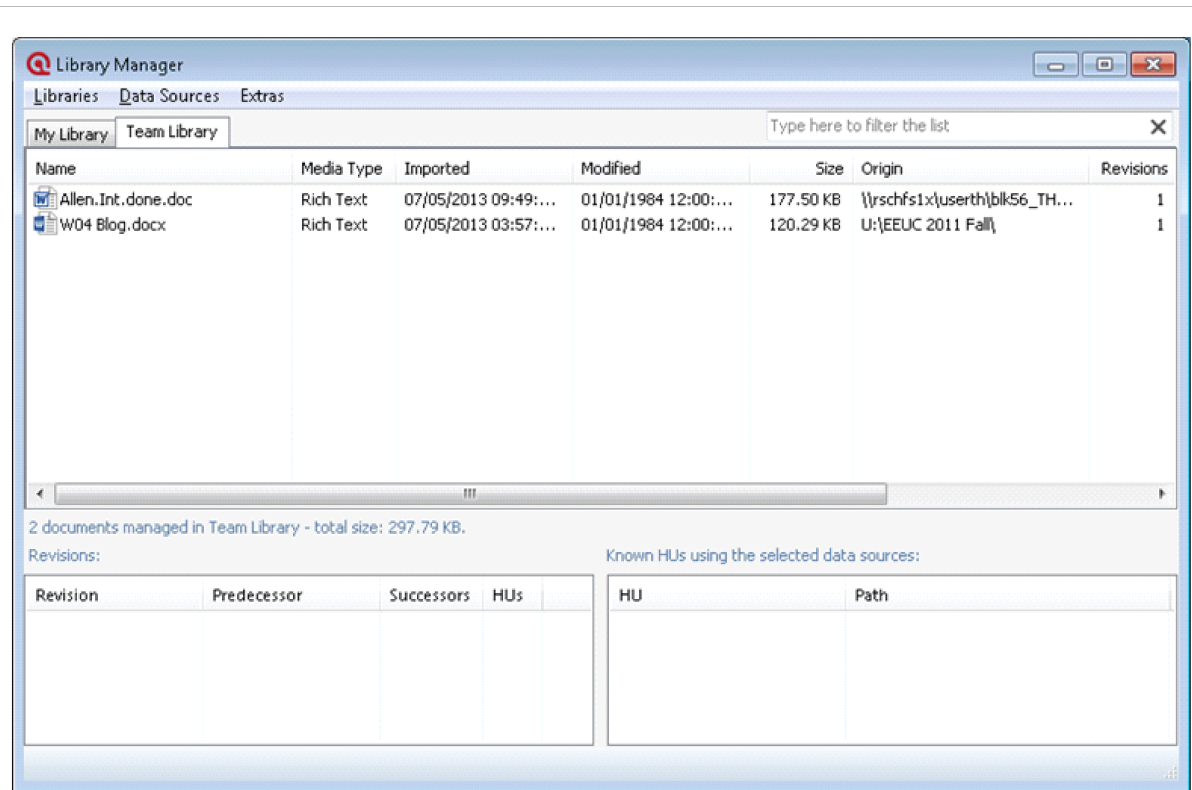


Figure 3: Other users' PDs viewable to User s 1 and 2 because they are stored on the default/public location .

Since there is a possibility of loss of files and/or accidental disclosure especially among novice users of our system, we took the following steps to prevent or mitigate its re-occurrence:

- Since each project team has their own approach of analyzing their qualitative data, we provided free customized training for teams on how to manage their files using ATLAS.ti on our servers emphasizing not to touch the contents of the libraries, not to move the source documents from their original location so it can still be retrieved in case a file in the library cannot be found, and to redirect their team library to its designated location on their shared folder.
- In addition to the training, once a week we also monitor the public Team Library for shared documents and inform the unaware users that they have PDs posted on the public domain. We could delete them from the library, too, if necessary, because ATLAS.ti alerts the user if it cannot find a PD in the library and can retrieve it from the original source location provided it has not been modified (see Figure 3). However, we give users the opportunity to act on the PDs themselves. We advise them to redirect the path of their Team library to its location on their shared folder before adding back the document.

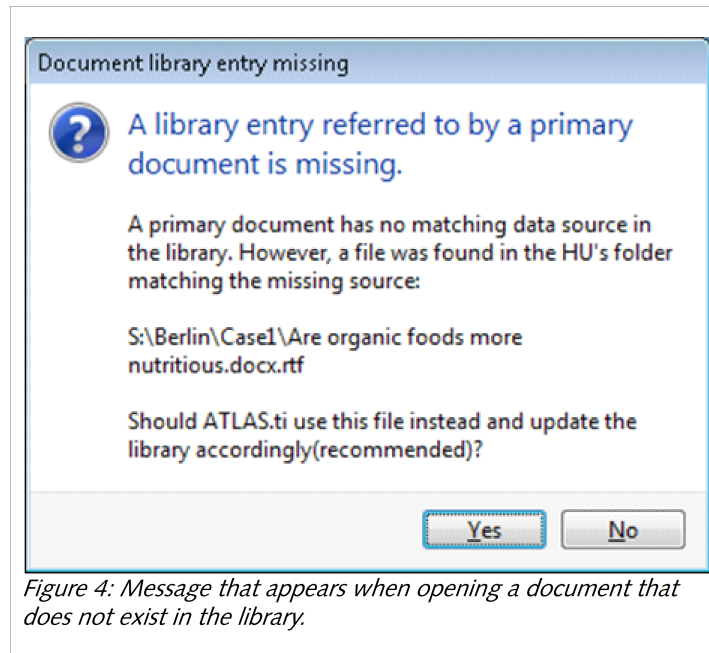


Figure 4: Message that appears when opening a document that does not exist in the library.

- We also inserted a warning (see Figure 4) in bold red that pops-up every time users start their ATLAS.ti sessions to remind them to redirect or make sure their Team library is pointing to the correct library and not on the C drive especially since our downtime resets the ATLAS.ti libraries' location back to their default location on the C drive. The complete instructions are found here: <http://ciser.cornell.edu/FAQ/ATLAS.ti/redirectLibs.shtm>
- We also remind our users to copy bundle their files for backup purposes, and still store the bundle on their shared folder as all the contents of the shared folder are automatically backed up nightly. Copy bundling of files for distribution to team members to be worked on is not necessary in our private cloud environment as everyone has access to their shared folder. This minimizes the proliferation of copies and enhances the security of qualitative data in this digital age (Aldrige, et. Al, 2010).
- On top of the trainings, warnings, and monitoring of public libraries, we also have a consulting helpdesk that ATLAS.ti users can contact for tech support. The CISER Helpdesk is open 2-6 hours a day, 6 days a week and can be contacted via e-mail, phone, walk-in, and live chat.



Server-based Team Work

Given the backdrop of our computing environment and ATLAS.ti's new library features, we present in detail the steps, observations, and results of collaborative work using ATLAS.ti on our server. This is followed by a description of two scenarios that present commonly made mistakes.

EDITORS' COMMENT: This paper and reports of other users in a similar context have given rise at the ATLAS.ti headquarters to re-think the work-flow for team projects. By May/June 2014, an additional option to create a team library for each team project will become available. Even though this will render the following description obsolete, without it the change in the software wouldn't have occurred. Therefore, a special thanks go to the authors for firstly finding a work-around that fitted their situation, and secondly for spending time and effort to attend the conference and for writing the paper.

The most common set up for project teams is that of a Project Administrator (PA) creating a master team HU and a team library on a shared folder. Each member creates, processes, and analyzes a copy of the HU that has its team library location set to the one created by the PA. The PA later combines all the team HUs. In a shared folder, all members have access to the files and copy bundling files to distribute to members is no longer necessary as members can directly create a copy of the master HU themselves and work on their copy.

Role Of PA

1. PA connects to their server account, stores the original PDs on their team's shared folder on the server, invokes ATLAS.ti, creates a Team HU (Documents>New>This is a Team HU>Enable Team Mode), and saves the HU (giving it a name, say Case1_Master) on the shared folder.

EDITORS' COMMENT: Clicking on the menu option "This is a Team HU" is only necessary if you want to drag & drop documents onto the HU Editor. In Team mode, ATLAS.ti automatically selects the team library as default location. When adding Documents via the main menu, then you can skip this step.

2. PA moves the default team library location to the location of the shared folder (Documents>Data Source Management>Open Library Manager>Extras>Manage Library Location, click on the folder icon next to Team Library, then browse to the shared folder location, then hit OK twice). A Managed Files subfolder is automatically created by ATLAS.ti within the shared folder.
3. PA adds primary documents to the Team Library (Documents>New>Add Documents (Team Library), selects the PDs, and hits Open).
4. PA saves the HU and informs the team of its availability, for each member to make a copy of it, where to store it on their shared folder, and which path they should redirect the team library.
5. PA also instructs not to touch the folder called "Managed Files" found on their shared folder because it contains encrypted versions of their PDs which are the ones used by ATLAS.ti. The software actually warns users when they open the Managed Files folder with a text file named "do_not_touch_this_folder.txt," which contains the following message: "This directory contains the documents used in one of your HU project. The files inside this directory shall not be deleted, renamed or modified in order to ensure the sanity of your HU."

Role Of Team Members (including PA)

- Each Team Member (TM, henceforth) connects to their server account, invokes ATLAS.ti on the server, opens the master HU and creates a copy of it by saving the HU and affixing their name or initials to its original name (Project>Save As>new-name-of-HU). They save the HU on the shared folder, either in the same location as the master HU, or on a sub-folder within the shared folder created by the PA for the purpose of storing and organizing members' HU's.
- Each TM logs in (Tools>User Management>Switch User...) or creates a login (Tools>User Management>User Editor>Edit>New User>Account Name>Password>Last Name>First Name>Ok), so that every object created by the TM gets tracked.

Note 1: The HERMENCR.HDB file which stores the user database, gets modified in the process of creating new user accounts in ATLAS.ti. In addition, the ATLAS.INI file, which contains instructions on whether to enable or disable login password, may be modified as well. During our monthly downtime both HERMENCR.HDB and ATLAS.INI are refreshed backed to their default settings. This means that all user names created and stored on the HERMENCR.HDB file and any changes made to the ATLAS.INI file between downtimes are lost. To address this, we simply instruct our users to recreate their login name in case they do not see their name on the login dropdown-list, and not to make changes to the Atlas.ini file.

Note 2: Login names created by users can be edited, deleted, or used by all users of ATLAS.ti on our server, but does not pose any risk to outsiders (other teams) because users can only open the files that are on their shared folder. It could cause trouble for the team if a team member tries to log in as someone else to deliberately sabotage the team or another member. This can be avoided by the project

administrator setting up user accounts and creating co-authors adding them to the project and providing only standard rights to co-authors. A user with standard rights cannot change user accounts.

- Each TM sets the location of their HU's Team Library to the team library created by the PA (*Documents>Data Source Management>Open Library Manager>Extras>Set Library Location*, then navigate to the Team library on the shared folder, then hit OK twice).

Note: Each TM follows the instructions of the PA to redirect the location of the Team HU when they open ATLAS.ti for the first time because, by default, the Team Library points to the public location on the C drive. If they fail to redirect the library, they will be alerted by a message that says "A library entry referred to by a primary document is missing" and will ask if the user wants to use the matching file found in the HU's folder instead.

- Each TM does its own processing and analysis and saves the HU on the designated HU storage location. They do not have to copy bundle their HU and send to the PA for merging as the PA has direct access to their HUs (and so do the rest of the members). They can use copy bundle though for backing up their work.
- The PA combines the HU one at a time (Project>Merge with HU) using same PD-same code stock strategy, and saves the combined HU and versions it by giving it a new name, say Case1_Master2. If more work is to be done by the members on this merged HU, they simply follow the same process as they did in the first pass. Several iterations may pass before the project objectives are satisfied. Generally, hardly any problems are encountered when using this collaborative approach.

Common Mistake 1 - Documents Are Accidentally Added To My Library Instead Of The Team Library.

Each member then creates, processes, and analyzes a copy of the HU created by the PA and point their HU's My Library location to the one created by the PA. The PA later combines all HUs.

EDITORS' COMMENT: If the PA recognizes that he or she used the wrong library to set up the project, all documents can be moved from My Library to the Team Library: Select all documents in the primary document manager, right click and select the option Data Source Management / Copy Selected Documents to Team Library. Then the instructions of CASE 1 apply.

If you continue to use My Library even if you work in a team – technically this makes no difference and it is OK to do – you have to proceed as follows:

Role Of PA

- PA connects to their server account, and stores the source documents on their team's shared folder on the server.
- PA invokes ATLAS.ti, adds primary documents to the *My Library* location (*Documents>New>Add Documents (My Library)*), selects the PDs, and hits Open), and saves the HU on the shared folder and giving it a name, say Case2_Master. Note: This stores the encrypted PDs to the default My Library location on the C drive.
- PA moves the default My Library location to the location of the shared folder (*Documents>Data Source Management>Open Library Manager>Extras>Manage Library Location*, click on the folder icon next to My Library, then browse to the shared folder

location, then hit OK twice). A Managed Files subfolder is automatically created by ATLAS.ti within the shared folder.

- PA saves the HU and informs the team of its availability, and where to redirect the My Library path.

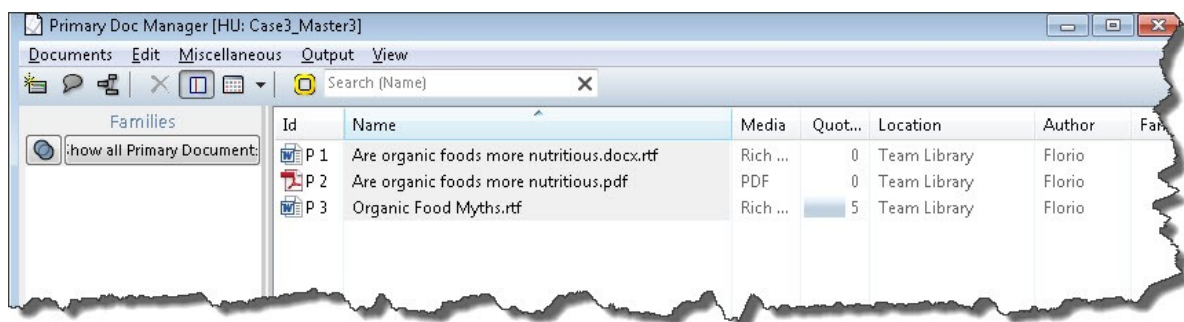
Role of TM (including PA)

Same as in Case 1 except that they set the location of their *My Library* to the location set by the PA on their shared folder. Results of merging using the same PD-same code stock strategy are the same as in Case 1.

Common Mistake 2 - Each Member Creates Their Own Team HU Individually

EDITOR COMMENT: This should be avoided. If you work in a team, pick one person who takes on the role of project administrator and this person sets up and monitors the project. The only exception is if all team members start out with a different set of documents. Only then can they set up their own projects and later send it to the PA.

The situation at Cornell university started with the PA, who created a Team HU on his own and sets up the Team library containing the project PDs. Each member then created their own Team HU, pointed the Team library of their HUs to that set by the PA, and added PDs to their HUs from the team library. The PA later combined the HUs, but instead of merging the PDs, the PDs were added.



Id	Name	Media	Quot...	Location	Author	Family
P 1	Are organic foods more nutritious.docx.rtf	Rich ...	0	Team Library	Florio	
P 2	Are organic foods more nutritious.pdf	PDF	0	Team Library	Florio	
P 3	Organic Food Myths.rtf	Rich ...	5	Team Library	Florio	

Figure 6: P1 and P4 are supposed to be identical documents. So are P2 and P5, and P3 and P6. Instead of being merged, they were added.

EDITORS' COMMENT: This also occurs when each team member adds the same documents from different locations, e.g. if they do not have access to a shared folder. Why is that so?

This is because each primary document has a unique fingerprint that is generated during its inclusion to the HU. The fingerprint of a PD has to be identical on all HUs for it to be successfully merged. Refer to pages 162-164 of the ATLAS.ti Users Manual (<http://manual.atlasti.com>)

*EDITORS' COMMENT: One could ask why primary documents also receive unique fingerprints when added from the library. The reason for this is that the HU / ATLAS.ti cannot know what your intention is. You might want to add the same data source file more than once to a project because you want to analyze it from different angles. Thus, ATLAS.ti does allow you to add the same file two or even more times unless you deactivate the option "Allow more than one PD per data source." Under Tools / Preferences / General Preferences * HU Editor.*

When merging projects that contain PDs referring to the same data source, but that have been added to different HUs, the same applies. The HU does not know your intention; therefore PDs referring to the same data source files are added rather than merged in the first step. The PA can then say: No, this is not what we wanted; our intention is different and merge those PDs manually afterwards. This is how it works: *Select Documents>Primary Doc Manager>select the two identical files through ctrl-click> then click Miscellaneous>Merge Selected PDs>Unify>OK.*

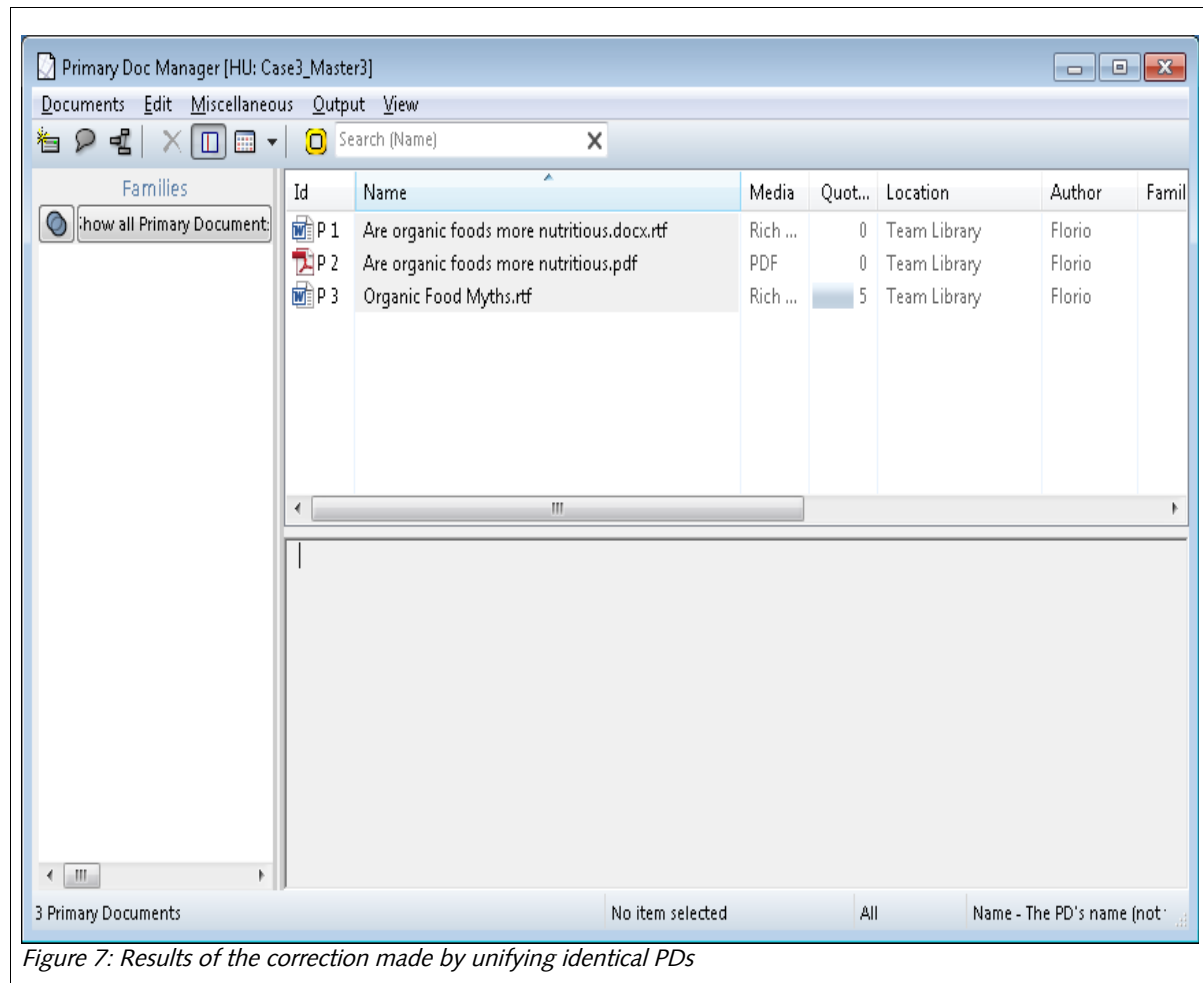


Figure 7: Results of the correction made by unifying identical PDs

To avoid this situation from happening, the PA should setup the Master HU with PDs for the project and distribute copies of the HU to the TMs (which could be personalized to reflect the TM's name) or the TMs make copies of the Master HU. This ensures all fingerprints of the PDs are consistent in all HUs and therefore can be successfully merged. An alternative would be to provide copy bundle files to each member, but this is not necessary in a shared working environment.

Other Use Cases

New Project, New Dataset, Same Team, Same Server Account

It is common for some of our users to be involved in multiple researcher projects and some are caught in a situation where they have to manage a new project with new sets of data to be stored on a new shared folder.

The primary dilemma in this situation is that when the user opens ATLAS.ti, its Team library is still pointing to its previous project's Team library on the shared folder. If the library is moved or a new one is created via *Manage Library Locations*, all the primary documents of the previous project will be moved to the current project's Team Library.

Three solutions are offered, and the third is a request/appeal/suggestion to ATLAS.ti developers.

Solution 1

The PA resets the location of the Team library to the default Public. (*Documents > Data Source Management > Open Library Manager > Extras > Set Library Location*, then click the Reset button next to Team library, then hit OK). When the location of the Team library is reset to the default Public, the location of Team library under Manage Library location also changes to Public. Set Location will not move the Team library, but will only point the library to a different location— in this case back to the (hopefully) empty Public library on the C drive. The PA then adds the document to the team library at the default location and redirects it afterwards to the new shared folder.

Solution 2

New user accounts and shared folder for team members of the new project are created on our server.

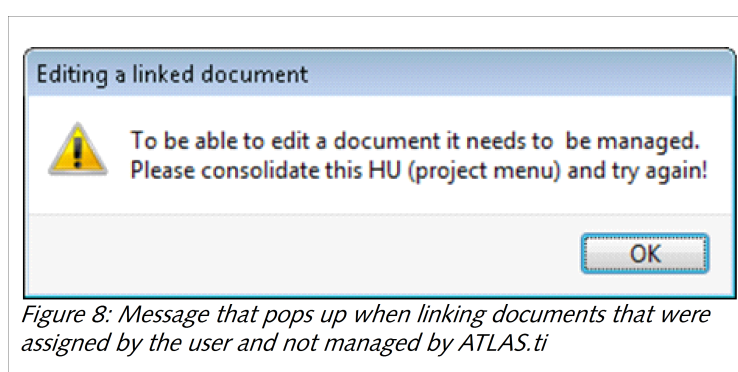
Solution 3

To simplify solution 1, we propose to the ATLAS.ti developers a third option to be placed under *Documents > Data Source Management > Extras > "Create New Library Location,"* that creates a new Library for a new project while not moving the files of the previous project's library to the new project's library.

EDITORS' COMMENT: There is a good reason why this is not possible. The managed library feature was added to version 7 because in version 6 users were prone to loose access to their documents. If an option to create new library locations were to be added, there is a good chance that users would create a library for each new project and lose track of where their documents are stored for each project. Such a solution would require setting the library location for each project to the correct library location—and end up with the same situation from version 6 where the most frequently asked question used to be: "Help! Where are my documents?".

Using Version 6 Approach To Collaborative Work

Some teams use the version 6 approach for managing files, which is not lost in ATLAS.ti 7. ATLAS.ti 7 continues to provide users the option to manage the data themselves using the Assign External Document option (*Documents>New>Assign External Documents*). There are two restrictions to this approach: Linked documents cannot be edited. Editing linked documents in teams is problematic anyway as you make changes to the data source. If the linked source files are NOT stored in a shared folder and two or more team members edit the source file, you end up with different versions of the file and misaligned codings. In order to prevent such a situation, editing is prohibited. If you attempt to edit a linked file, the following message pops up:



The second restriction is that you cannot work with associated documents (A-Docs) as by default the associated media sources need to be added to either of the two libraries. This, however, might change in the future, as we have been informed by the ATLAS.ti team.

Conclusion

A highly collaborative environment and qualitative research methodology requires a QDA software package that is flexible and promotes collaborative work among researchers dispersed in various areas of the globe. ATLAS.ti is a very powerful tool for collaborative work in the analysis of qualitative data. The fact that it can be installed in a server environment without any problems makes it all the more endearing to research teams as members can be geographically dispersed and still be able to access their HUs from any location in the world where they have internet access. This also allows more freedom to choose a more productive working environment for team members to process their data. Further, it is cost-effective as economies of scale makes ATLAS.ti's multi-user educational license affordable.

In this paper we showed how we made ATLAS.ti work in our private cloud environment to promote collaboration among Cornell Researchers doing qualitative data analysis. Installation of the software on the server is easy, but its successful use and implementation requires a tracking software to track usage and enforce license compliance; that teams be made aware about ATLAS.ti's library management features and how it interacts with our usage, the fingerprints it places on primary documents, and figuring out the best setup for collaboration depending on the analytical approach adopted by the project team. This awareness can be done with customized trainings for project teams that address their unique setup and

needs combined with reminders to redirect libraries to their appropriate location, and readily available on-campus tech support that project teams can rely upon for immediate help.

The case scenarios we discussed indicate that having a shared folder for project teams to store their files and library matters and is more efficient. Copy bundling then installing the bundle for consolidation is no longer necessary as files are centrally located and Project Administrators have direct access to the members HU (and so do other members). Proliferation of copies of the data is also mitigated as all work is done and stored on the server.

References

- National Science Foundation (2006). "Investing in America's Future. Strategic Plan FY 2006-2011." September 2006.
- Van Hartesveldt, C. and J. Girodan (2008). Impact of Transformative Interdisciplinary Research and Graduate Education on Academic Institutions. Workshop Report May 2008, National Science Foundation.
- Aldridge, J., Medina, J., and R. Ralphs (2010). "The problem of proliferation: guidelines for improving the security of qualitative data in a digital age." Research Ethics Review (201), Vol. 6, No. 1, p 3-9.

Florio Arguillas, Janet Heslop, Kim Burlingame, William Block

Cornell Institute for Social and Economic Research (CISER), Correspondence Address: Florio O. Arguillas, Jr., Ph.D., Research Associate, Cornell Institute for Social and Economic Research (CISER), Ithaca, NY 14850, USA. foa2@cornell.edu, +1-607-255-7838

Article Information

This article is published at the Digital Repository of Technische Universität Berlin, URN urn:nbn:de:kobv:83-opus4-51287, <http://nbn-resolving.de/urn:nbn:de:kobv:83-opus4-51287>. It is part of ATLAS.ti User Conference 2013 : Fostering Dialog on Qualitative Methods, edited by Susanne Frieze and Thomas Ringmayr. Berlin: Universitätsverlag der TU Berlin, 2014, ISBN 978-3-7983-2692-7 (composite publication), URN urn:nbn:de:kobv:83-opus4-51577, <http://nbn-resolving.de/urn:nbn:de:kobv:83-opus4-51577>