Preserving and enhancing Native language resources in tribal libraries, archives, and museums

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Andrea Berez-Kroeker, Kaipuleohone Digital Archive

Sustainable Heritage Network
ATALM 2015, Washington, DC

INSTITUTE of Museum and Library SERVICES

Overview

- working with collections
  - enhancing access
  - long-term preservation
- working with digital audio -- Audacity
  - audio capture (digitization)
  - audio editing
- metadata
- transcription and translation -- SayMore
- recording – MukurtuMobile
- dictionary making – LexiquePro

Goal of this workshop

- Introduce the field of digital language archiving
- Provide an overview of resources available for working with Native language materials

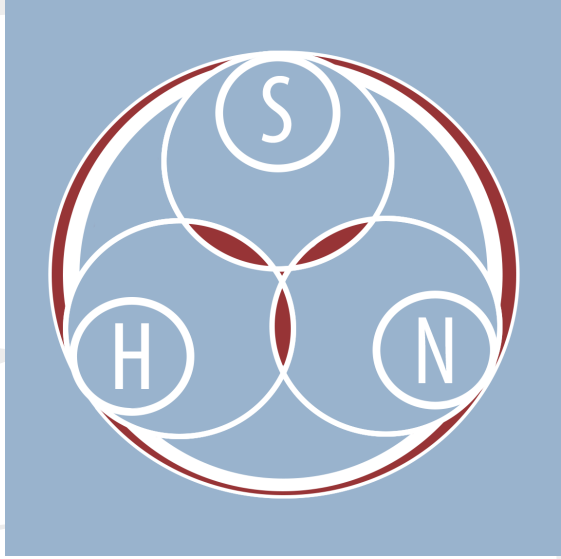
Kaipuleohone

University of Hawai'i Digital Language Archive

Alaska Native Language Archive

ANLA
Alaska Native Language Archive

Sustainable Heritage Network



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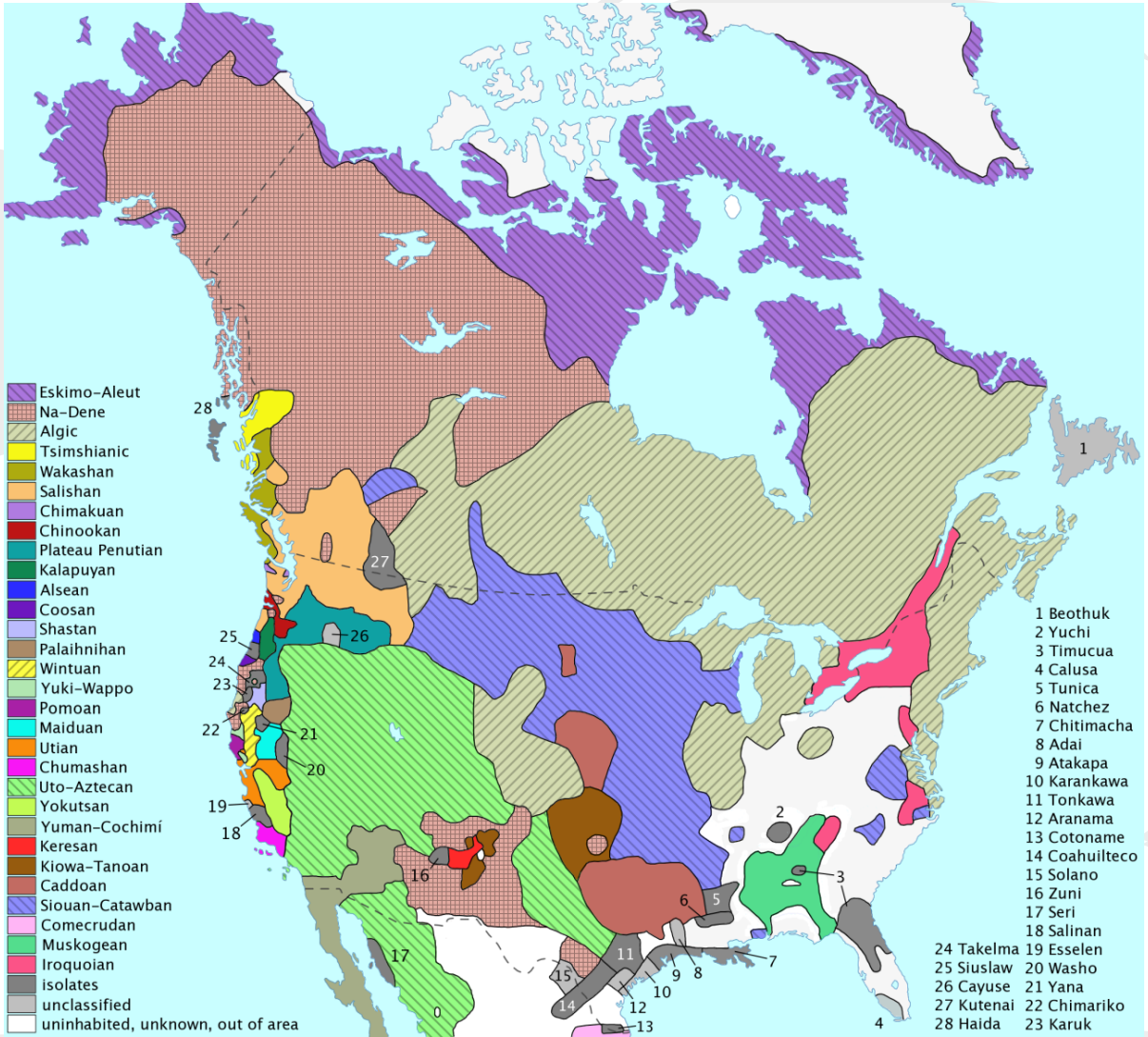
Language Documentation

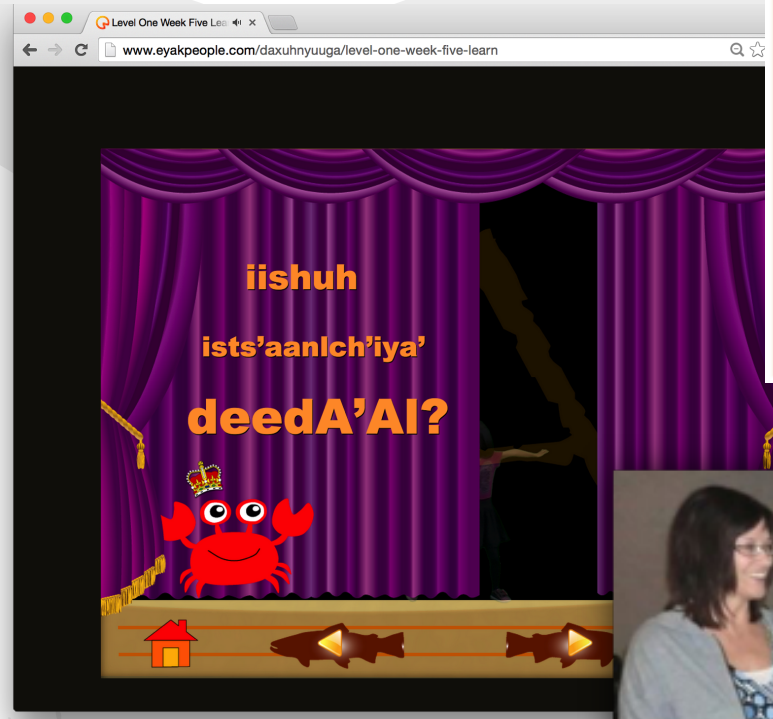


Documentation → Revitalization

λəɬš

λəɬš-g (noun, unclassified, with -g-thematic) 'dirt' (of any kind) LMA, Rezanov Тлюкушке 'Глина Lehm, Thon', λəɬšgyəq̓d 'in the mud' M, λəɬšg k̓uqəx̌ə=łe? 'there's dirt all over the place' L, ʔəw λəɬšg ʔəłk̓uʔd 'wipe that dirt (away)!' L.

ɬl-λəɬšg (noun, unclassified?, with ɬl-thematic 'ground') 'mud' (regular mud on the ground, also



Working with collections

- creating appropriate linguistic metadata descriptions
- acquiring and working with digital audio/video
- linking text and audio/video
- transcription and translation
- enhancing access through creation of websites, mobile apps and interactive resources

Digital language archiving as a field

- Open Language Archives Community (OLAC), 2001
- Digital Endangered Languages and Musics Archiving Network (DELAMAN), 2003
- Electronic Meta-structures for Endangered Languages Data (E-MELD), 2005

Digitization ≠ Preservation

Digitization is the process of transforming analog material into binary electronic (digital) form, especially for storage and use in a computer.

Preservation is the professional discipline of protecting materials by minimizing chemical and physical deterioration and damage to minimize the loss of information and to extend the life of cultural property.

(definitions from the Society of American Archivists)

Digitization alone will not ensure preservation without a long-term strategy and commitment to digital preservation.

Backup ≠ Archiving

- A robust data backup and storage strategy should be part of your Data Management Plan
- However, backing up data is not the same as archiving
  - your hard drive is not an archive (even if you have lots of copies)
  - an archive provides an institutional commitment to long-term preservation

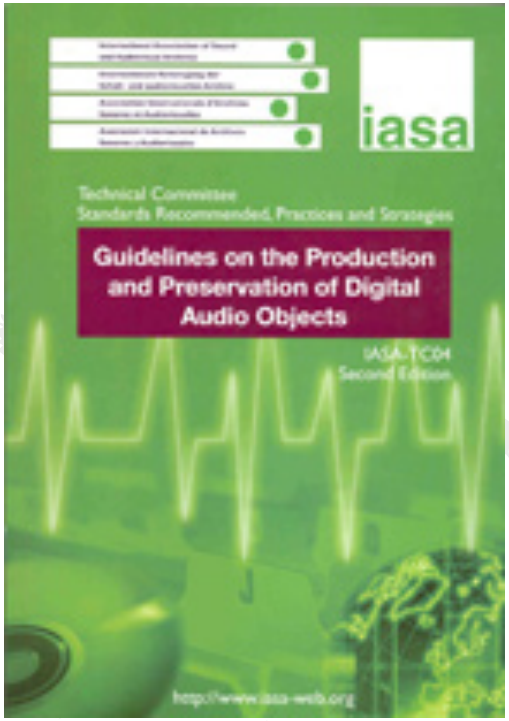
Digital Preservation

Best practice recommendation is to use a Digital Mass Storage System (DMSS).

Guidelines from International Association of Sound and Audiovisual Archives (IASA)

http://www.iasa-web.org/tc04/audio-preservation

Requires an institutional commitmente



Open-reel recordings

- Long life-span (> 40 yrs)
- Should be stored vertically
- Equipment increasingly difficult to find and maintain
- Try to use “play once” strategy, as older recordings may deteriorate during playback
- Speeds may not match; this can be adjusted by changing sample rate after transfer
- Proper setup (e.g., tape alignment) is critical to successful transfer
- Consider contracting with professional

Audio cassette recordings

- Shorter lifespan
- More fragile than open reel
- Equipment still widely available, but be sure to test prior to using with valuable recordings
- Never use fast-forward/rewind
- Try to use “play once” strategy, as older recordings may deteriorate during playback

Vinyl discs

Equipment fairly easy to find due to resurgence in collectors market

Optical Media (CD/DVD)

"The CD was initially marketed as the perfect permanent carrier, but this was soon shown not to be the case when many of the early discs failed. Even though subsequent technological development has improved on many of the early manufacturing faults, no credible claim can be made to permanence."

"... the risk of failure of a storage system based on this type technology is high when compared to other approaches."

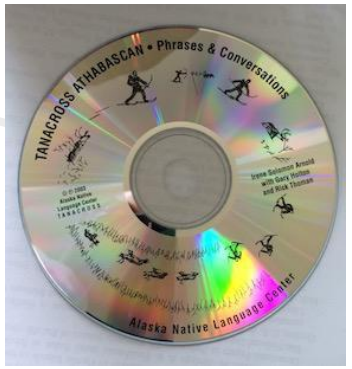
"Initial investigations indicate that recordable CDs do not necessarily proceed to failure in a linear way and that as a consequence small change in initial error rates could have a greater effect on useful life of the disc."

(Bradley 2009)

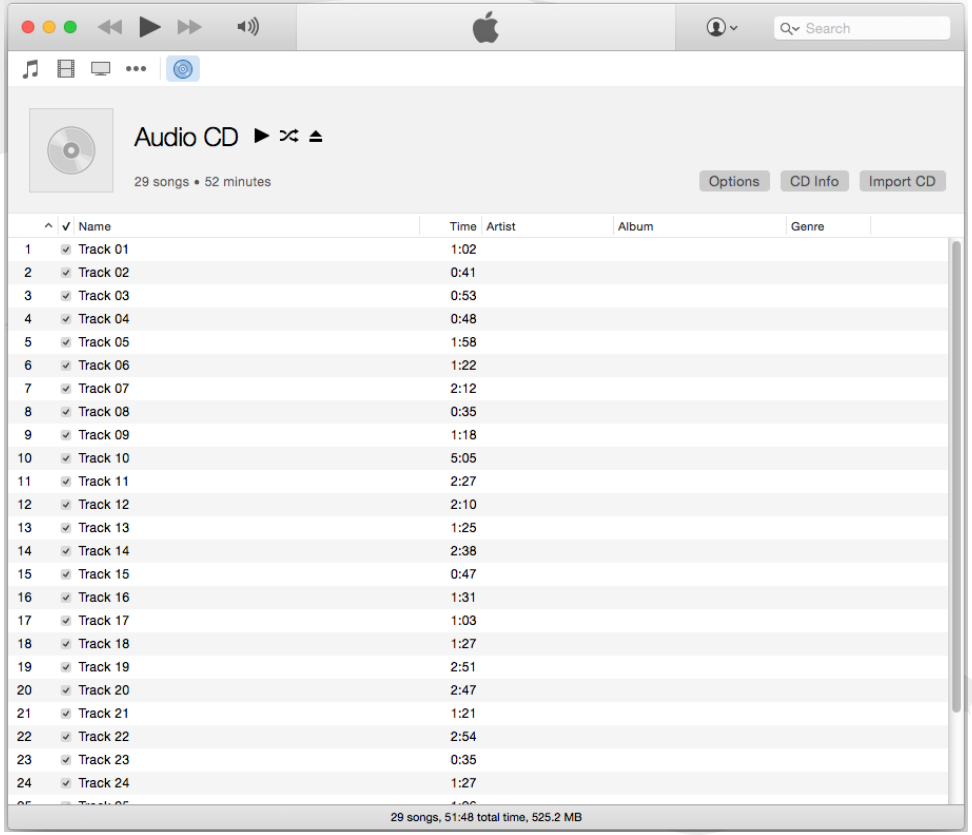
Optical Media (CD/DVD)

- Recommend transfer to Digital Mass Storage System (DMSS)
- Types of CD
  - data CD (regular computer files)
  - audio CD (special .cda files for CD player)
- Audio CD files

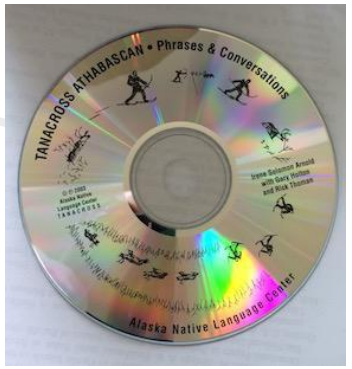
Extracting audio files from CD



- For “data disc” simply open CD and copy
- For “audio disc” use extraction software, e.g., iTunes



Extracting audio files from CD



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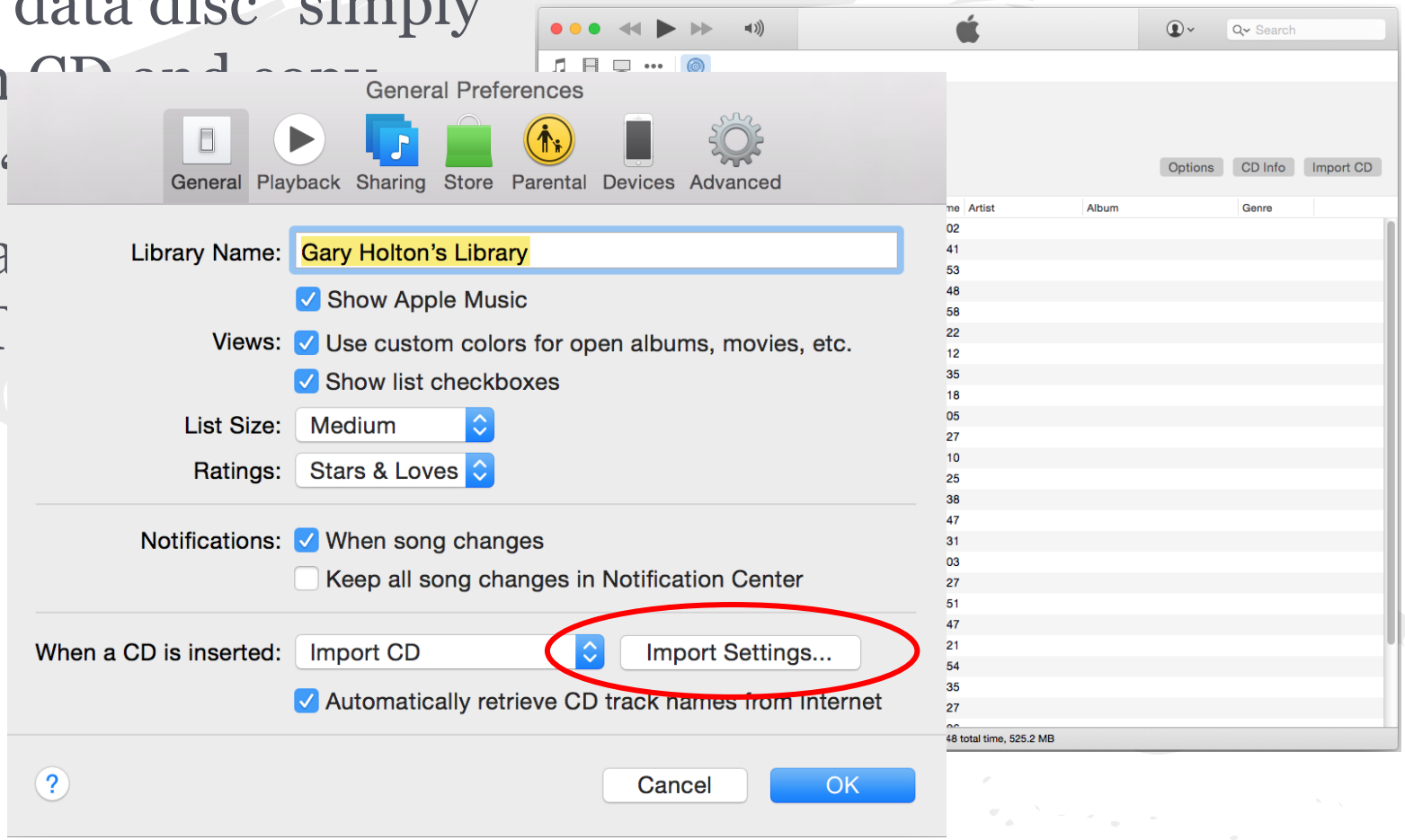

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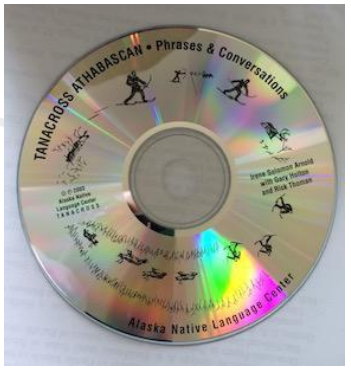

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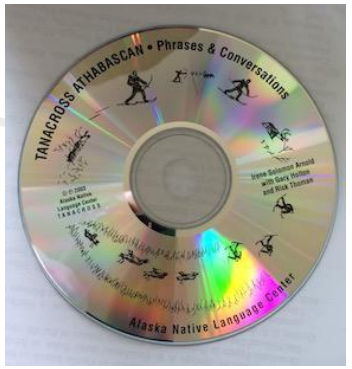
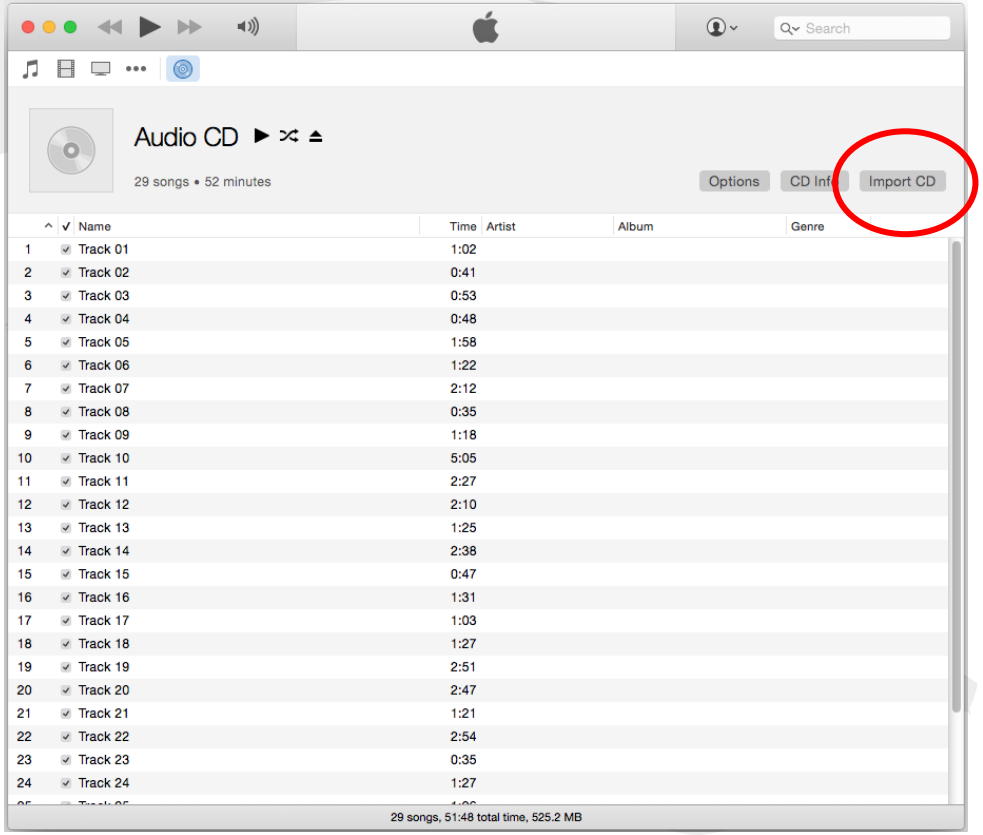


- For “data disc” simply open CD and copy
- For “audio disc” use extraction software, e.g., iTunes
- Following import choose “reveal in Finder” to find the extracted .wav file.



Digital best practice

- language archives and language documenters were forced to grapple with digital preservation early, due to:
  - looming obsolescence of media formats
  - vast amounts of born digital data being produced by language documentation programs (and resulting risk of “digital carnage” in which data become effectively inaccessible)

Text standards

- store documents as plain text or images
- use Unicode font encoding
  - describes characters based on their meanings rather than their appearance
  - ł
  - LATIN SMALL LETTER L WITH STROKE
  - Unicode: U+0142

Text standards

always use unicode

Des_h_en Gaay gha Naxts&eldeg

Stories about the "Little Shaman"
as told by Laura Sanford

ibed and translated by Gary Holton and Irene Solomon Arnold

1	**Des_h_en Gaay e;Å Stu& Ta;& e;Å**	The Little Shaman and Old Paul
2	**Deshen Gaay e;Å Nts™□i□dh e;Å**	The Little Shaman and the Otter
3	**Deshen Gaay Ch&etth‰□i□& e;Å Xuughah Nitch&elne□y**	The Little Shaman Finds Food
4	**Deshen Gaay Shos Daghinshah**	The Little Shaman Escapes from a Bear
5	**Deshen Gaay Ld™il Xu;ughah Undik**	The Little Shaman Gets Tea
6	**Deshen Gaay dets&‰□& Xa;ch&a;lkeh**	The Little Shaman Shoots Himself
7		
8		

Recording standards

- Ideally, all audio should be recorded as uncompressed, linear PCM (e.g., .wav, .aif files)
- 96 kHz / 24 bit
- Lossy compression (.mp3, .m4a) cannot capture the full dynamic range of Native language, particularly “creaky” voice and glottalized sounds
- Compressed audio should be converted to linear PCM for archiving; however, the original recording format should be identified in the metadata

Metadata for language documentation

- Open Language Archives Community (OLAC)
  - http://language-archives.org
- ISLE MetaData Initiative (IMDI)
  - http://www.mpi.nl/IMDI/
- AILLA Metadata
  - http://www.ailla.utexas.org/site/metadata.html
- A Gentle Introduction to Metadata by Jeff Good
  - http://linguistics.berkeley.edu/~jcgood/bifocal/GentleMetadata.html
- Metadata in Language Documentation and Description
  - http://www.hrelp.org/events/external/lsa2011/

Minimal descriptive metadata

- Date
- Location
- Subject language (use ISO 639-3 codes)
- Contributors (participants)
- Contributor bios
  - age, gender, languages, parents' languages

[Tanana Valley War story]

Title	[Tanana Valley War story]
Created (W3CDTF)	2001-02-15
Creator (speaker)	Evan, Hester
Creator (speaker)	Petersen, Cecilia
Creator (recorder)	Kari, James
Description	Tanana Valley War Story, Lower Tanana Notes, story (unknown origin). Ts. Hester Evan's telling of the Tanana Valley War Story at College Hill with Jim Kari on February 15, 2001. Two versions of Lower Tanana Notes (June 2005, July 2005) with ms. edits. These include LT with Toklat dialect from Hester Evan and Celia Peterson (sisters). Ts. Story of unknown origin.
Subject (ISO639-3)	Lower Tanana [taa]
Language (ISO639-3)	[en]
Subject (OLAC)	Language documentation
Type (DCMI)	Text
Type (OLAC)	Discourse type: Narrative
Publisher	Alaska Native Language Archive
Identifier (URI)	http://www.uaf.edu/anla/item.xml?id=TN981K2001b

This resource description follows the metadata standard of the Open Language Archives Community.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<olac:olac
    xmlns:olac="http://www.language-archives.org/OLAC/1.1/"
    xmlns:dc="http://purl.org/dc/elements/1.1/"
    xmlns:dcterms="http://purl.org/dc/terms/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <dc:title>[Tanana Valley War story]</dc:title>
    <dcterms:created xsi:type="dcterms:W3CDTF">2001-02-15</dcterms:created>
    <dc:creator xsi:type="olac:role" olac:code="speaker">Evan, Hester</dc:creator>
    <dc:creator xsi:type="olac:role" olac:code="speaker">Petersen, Cecilia</dc:creator>
    <dc:creator xsi:type="olac:role" olac:code="recorder">Kari, James</dc:creator>
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    <dc:identifier
xsi:type="dcterms:URI">http://www.uaf.edu/anla/item.xml?id=TN981K2001b</dc:identifier>
</olac:olac>
```

Preservation vs. Presentation

- First take care of preservation;
- then make flashy, pretty products.

Rights management

- Open access ≠ free use
- Concerns about access are often really concerns about use
- Usage is governed by license agreements and is independent of access
- Many language archives make use of Creative Commons license (creativecommons.org):
  - Attribution-NonCommercial-ShareAlike (CC BY-NC-SA)
  - Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)

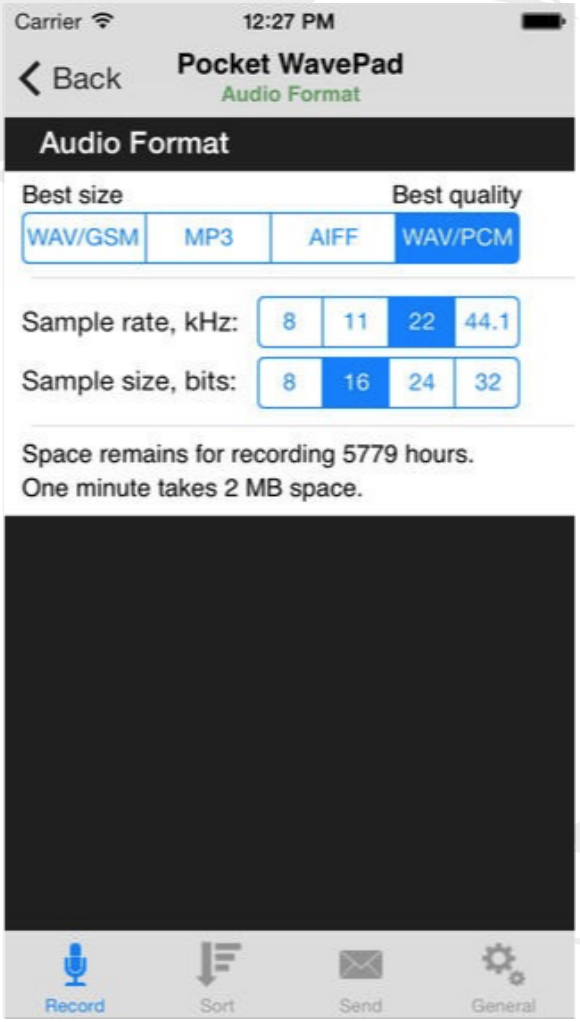
Access restrictions

- usage-based
  - non-commercial use (this takes care of 99%)
- member-based
  - tribal members
  - family members
  - research/education project members
- Be sure that conditions for access are easily operationalizable
- Think about what a 22nd century archivist will need to know in order to implement the restrictions

Recording on mobile devices

- Some of the best language documentation is being done by kids with iPhones
- While iPhone recording is not recommended best practice, it can be made better
- use an app which records uncompressed audio (WavePad)
- file naming conventions
- regular backup / download of recordings

Recording on mobile devices



Recording on mobile devices

Using Audacity to open and edit audio files

- Audacity is free, open source software for both Windows and Mac computers that edits and records audio.
- Free download: http://audacityteam.org/
- In this course, we will use Audacity to perform basic editing and conversion of digital recordings.
  - sample clip & transcription at http://tinyurl.com/atalm2015-sampleclip

Opening files

- To open an existing recording in Audacity, select “Open...” from the “File” menu.
  - This will bring up a window in which you can select the audio file you want to work with.
  - Using this window, navigate to where that file is saved, and double---click on its icon to open it.
- Audacity should then open the file, and you can continue working with it from there like any other recording. Audacity isn’t able to open all audio formats, but it should be able to open WAV, AIFF, and MP3 files.

Audacity: Editing files

- Now that your recording is open, there are probably some parts at the beginning and end that you don't need. Let's trim those off.
- Click the *Skip to Start* button in the toolbar.
- With the cursor, click just before the point where you started talking
- Choose "Edit>Select Track Start to Cursor"
- The region before you started talking will be selected.

Editing files

- Choose “Edit>Delete.”
- The region before you started talking will be deleted.
- Now you can also delete the blank space at the end of your recording—try doing this by just dragging your mouse over the area you want to delete.

Increasing the volume

- Sometimes our language recordings are too quiet even after we carefully adjusted the input levels. If this happens, you can use Audacity to make your whole recording a little louder.
- Use CTRL-A to select the entire recording.
- Choose “Effects>Normalize…” then click the OK button.
- This will adjust the volume of your entire recording.

Saving a file after editing it

- To save your entire recording in Audacity, choose “File>Export…”
- When saving your file, make sure that the Format selected in the bottom selection box is set to WAV (Microsoft) signed 16 bit PCM.
- This makes sure that your recording is saved as an uncompressed, lossless WAV file, a format that virtually all audio programs can use and which doesn't throw away any information from the original recording.

Saving a file after editing it

- **Note:** Be careful **not** to select “Save Project” in the File menu: this will produce a set of files that only Audacity can read!
  - You can use “Save Project” if you want to continue editing later.
- Instead, be sure to save your recordings as WAV files using the “Export...” option in the File menu, as described above.

Saving a file after editing it

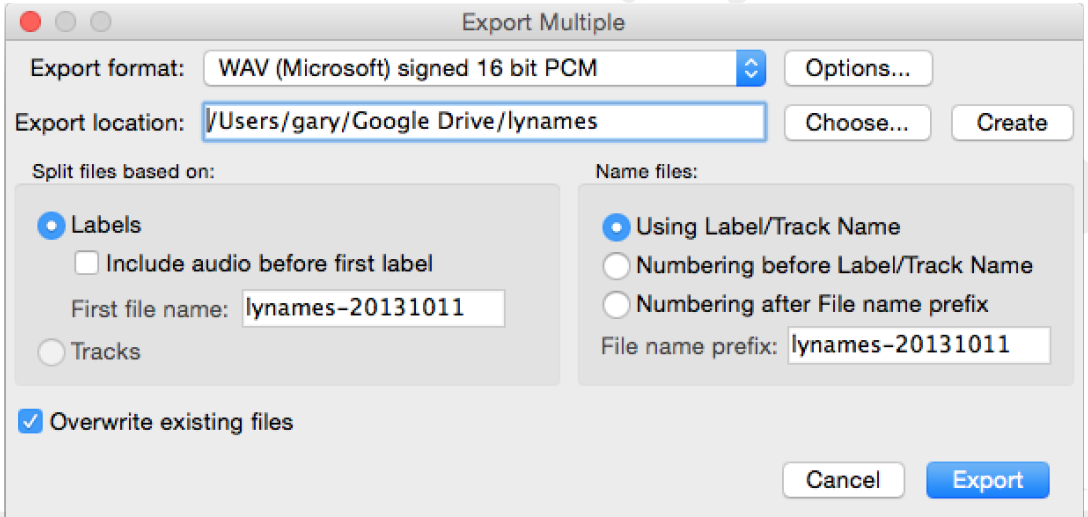
- **Note:** Be careful **not** to select “Save Project” in the File menu: this will produce a set of files that only Audacity can read!
  - You can use “Save Project” if you want to continue editing later.
- Instead, be sure to save your recordings as WAV files using the “Export...” option in the File menu, as described above.

Saving just a part of a recording

- Once you have selected the portion of audio you want to extract, enter the 'File' menu, then select Export selection.... Choose a name and location for your audio clip.
- The section of audio that you highlighted should then be saved as a separate WAV file, which can then be used independently.
- **Note**: Just as before, do not select Save Project in the File menu. Instead, select Export selection..., which will produce nice, uncompressed WAV files for later use.

Creating audio clips

- To create an audio clip highlight a portion of the recording and choose **Tracks | Add Label At Selection**
- Type a name for the label in the box which appears
- You can use the sliders to adjust the boundaries of the labeled clip
- When you have finished creating clips choose **File | Export Multiple**



SayMore
Language Documentation Productivity

What is SayMore?

- SayMore is a Language Documentation Project Management software.
- Allows you to:
  - Track projects and metadata
  - Track people
  - Do basic transcription and translation
- Free download at http://saymore.palaso.org/

SayMore
Language Documentation Productivity

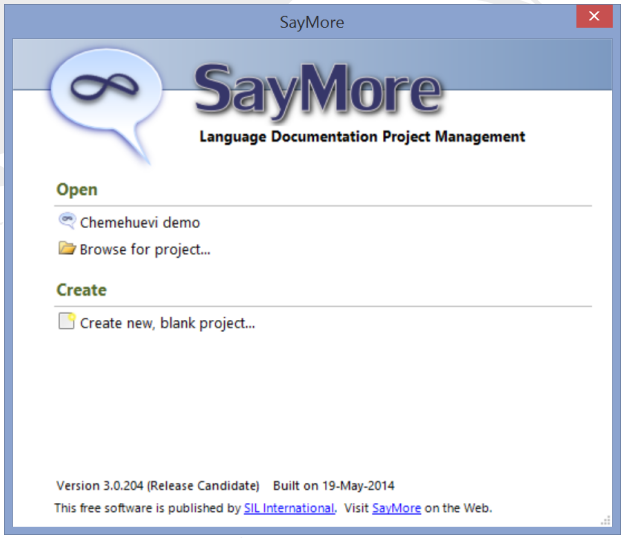
What is SayMore?

- SayMore is a Language Documentation Project Management software.
- Free download at http://saymore.palaso.org/
- Sample audio clip at http://tinyurl.com/atalm2015-sampleclip
- Wifi: Renaissance Conference atalm2015

SayMore
Language Documentation Productivity

Creating a project

- The first time you open SayMore you will be brought to an opening window, like this:

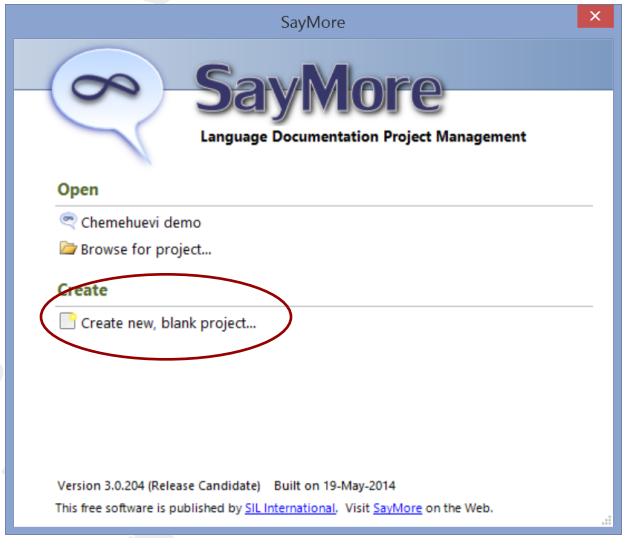


- Let's create a new project.

SayMore
Language Documentation Productivity

Creating a project

- Click on the **“Create new, blank project…”**
- Give your project a name.
  - I’m going to call this one “Otomi demo”



- SayMore will create a new project and save it onto your computer.

SayMore
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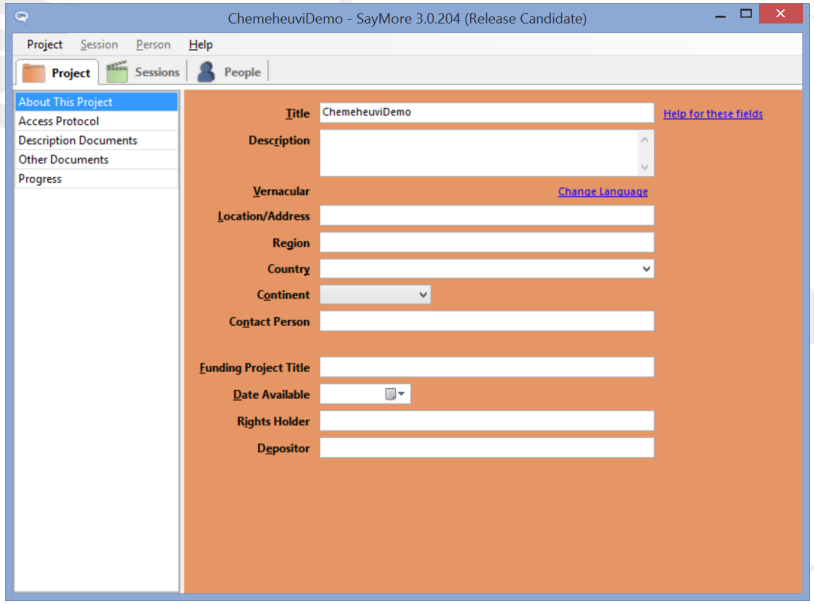
Project Metadata

- The next window is where you will begin to enter your metadata. Include as much information as you can in each field under **About This Project.**



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Project Metadata

- Notice that on the left hand side of the window there are four other types of information you can include in the metadata of your project.
  - **Access Protocol:** This field allows you to specify how the data will be accessed. There are some default selections along with the ability to select **None** (no access protocol) or **Custom** (set up you own access protocol for your data).

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Project Metadata

- Notice that on the left hand side of the window there are four other types of information you can include in the metadata of your project.
  - **Description Documents**: This field allows you to upload documents that describe your project and data. For example, if one of your recordings involves a speaker reading a list of words you could add a copy of that document here (we can associate the list document with the actual recording later). You can also upload your consent forms.

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Project Metadata

- Notice that on the left hand side of the window there are four other types of information you can include in the metadata of your project.
  - **Other Documents**: This is another location to upload documents that don't seem to fit anywhere else. For example, an e-mail conversation about how a particular verb is used could be documented and archived here.

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Project Metadata

- Notice that on the left hand side of the window there are four other types of information you can include in the metadata of your project.
  - **Progress:** This field allows you to keep track of how much you have done and the general progress you have made with your materials.

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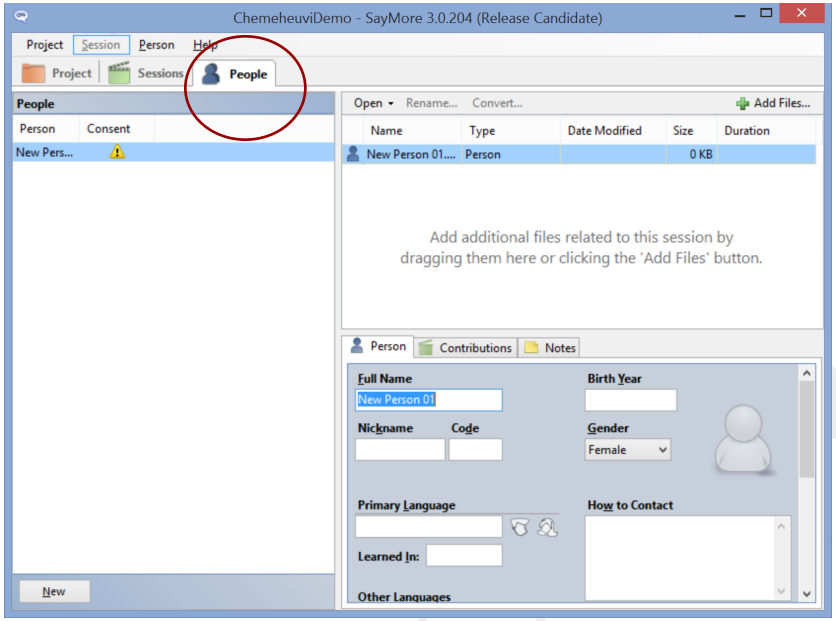
Adding people to your project

- While creating a new session is really the meat and potatoes of our work here, we are going to work with the **People** section first.

- On the top of the main window, notice that there are three tabs labeled **Project**, **Sessions**, and **People**.

- Click on the **People** tab, which will change the window.



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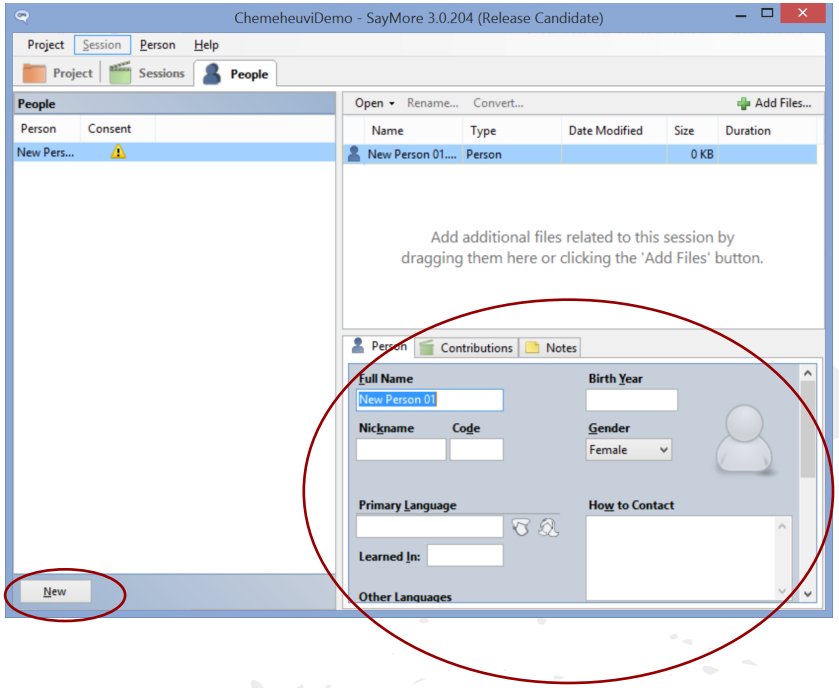
Adding people to your project

- In the bottom left hand corner you will see a button called **New** click on this and it will allow you to create a new “person” in your project.
- After clicking **New** you should notice that at the bottom right hand side is a set of new fields for you to enter information
- Please fill in as much information as you can here.



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Creating "sessions"

- Now we are going to create a session. This is where we are going to document our audio and video files and create a transcript of what was said.
- A "session" is everything related to a single recording event, including
  - audio files
  - transcripts,
  - metadata, etc.
- We usually need a separate session for each recording.

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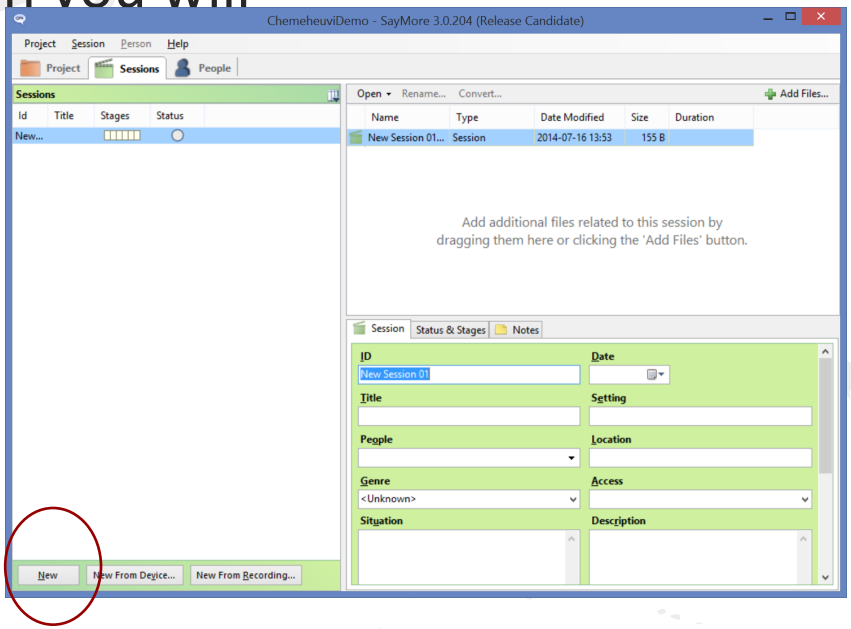
Creating "sessions"

- The first step will be to click the **Session** tab. This will take you to the area where you can add your session.

- Just like with adding a person you will click **New** in the bottom left hand corner. This will create a new session.



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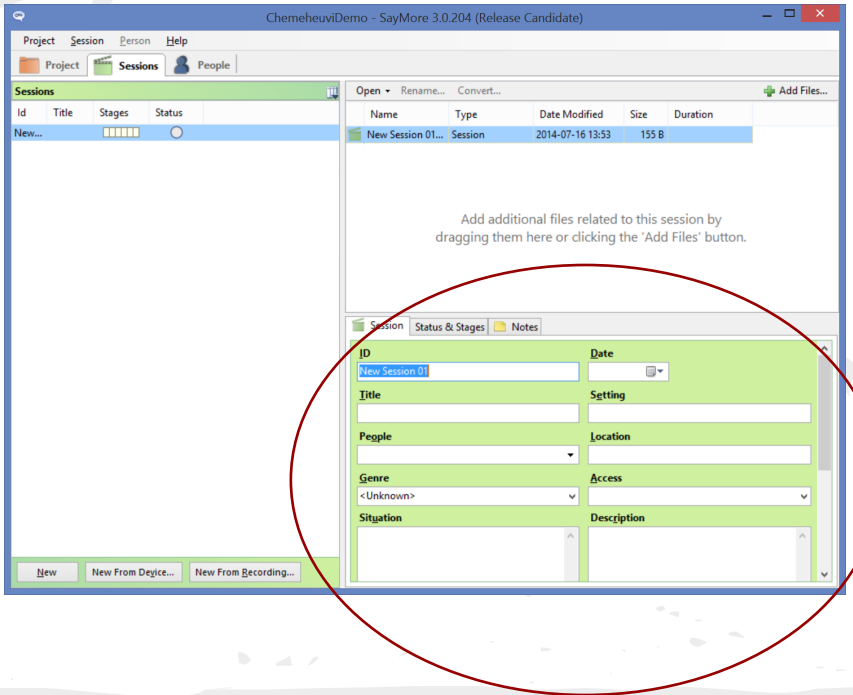
Creating "sessions"

- Now in the bottom right hand corner you will see empty metadata fields for describing your recording. Add as much information as you know.

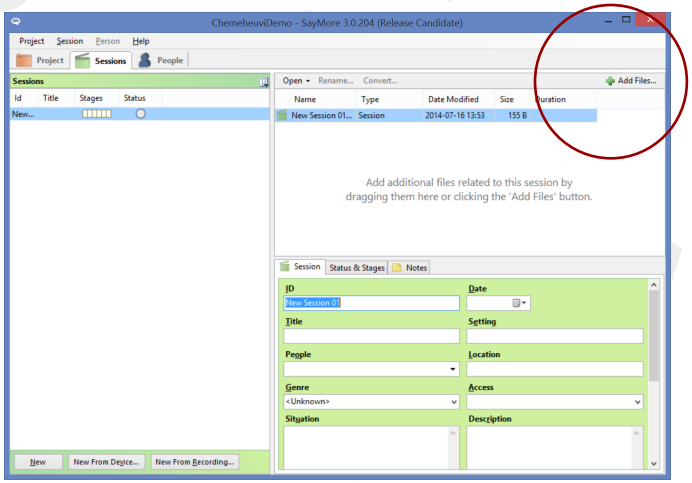


SayMore
Language Documentation Productivity

Creating "sessions"

- Now in the top right hand corner of the window there is a button labeled **+Add Files…**,
  - **sample clip & transcription at http://tinyurl.com/atalm2015-sampleclip**

- Click on this and then find where you have your audio file saved on your computer or your thumb drive.
  Click on that file and select **Open**.



- This will add that file to your session.

SayMore
Language Documentation Productivity

Creating "sessions"

- Click on the audio file to see information about the recording in the bottom right hand part of the window.
- You can click on the **Audio** tab and listen to the file as well.

SayMore
Language Documentation Productivity

Transcribing

- Click on the **Start Annotating** tab to begin transcribing/translating.
- Select a **Segmentation Method** to divide the audio into chunks.
- The “auto segmenter” works well, and you can always make manual changes later.
  - So select “Use auto segmenter” and click **Get Started…**

SayMore
Language Documentation Productivity

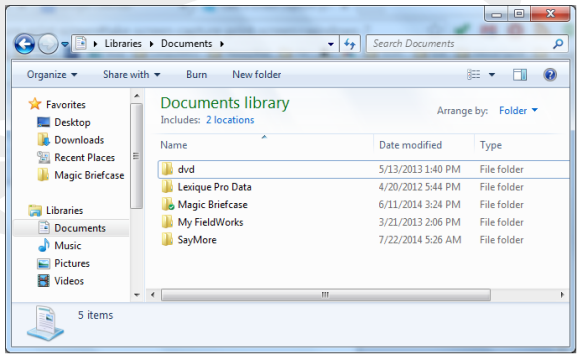
Transcribing

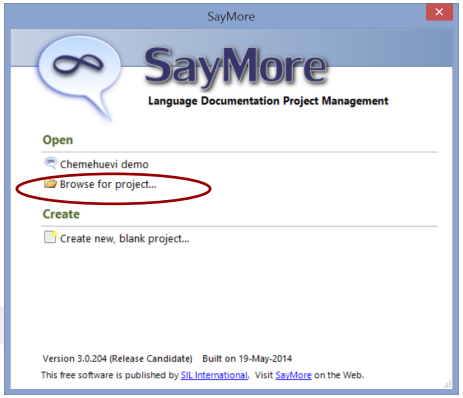
- Once SayMore has segmented your recording, you can listen to each clip and transcribe and translate it.
- If you want to change where segment boundaries are you can click on the **Segment** link.
  - In this new window you can adjust the boundaries of the segments to your liking.
- You can also export your transcript as plain text or other formats.

SayMore
Language Documentation Productivity

Saving your work

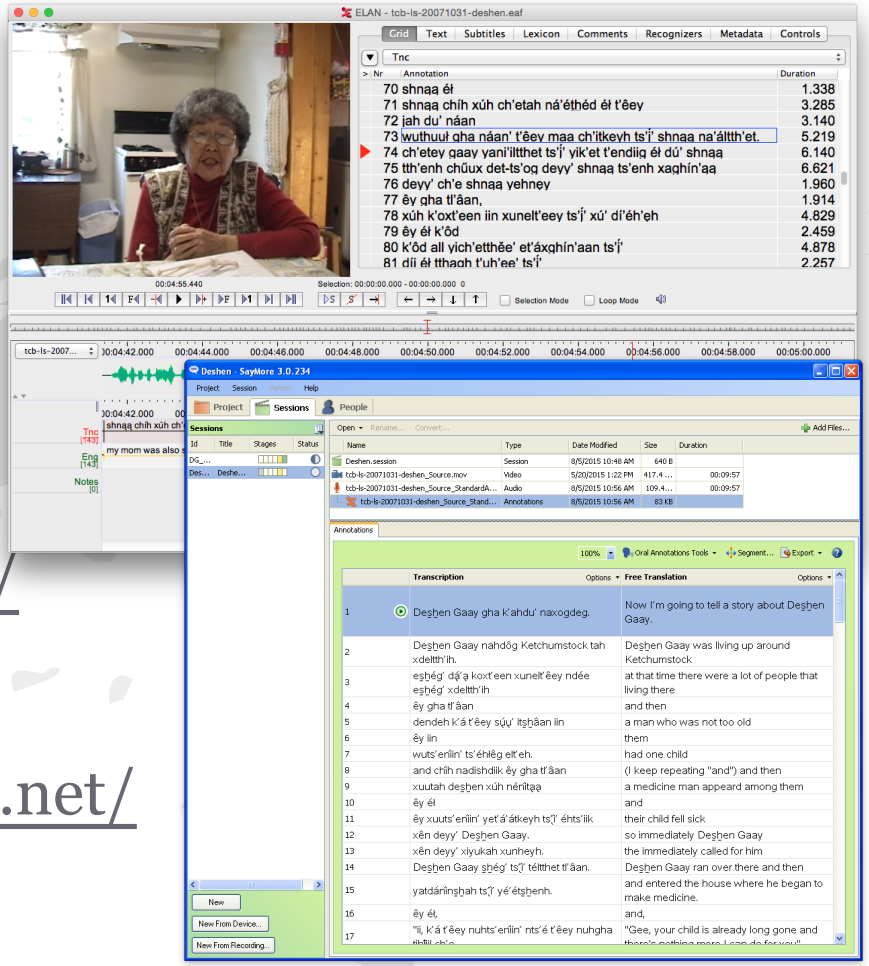
- SayMore automatically saves all of your session, person, and project information, to the Documents Folder of your computer.





- Next time you want to work on your project in SayMore, Go to Project > Open/Create Session > Browse for Project…

Other Transcription Tools



- SayMore
  - http://saymore.palaso.org/
- TranscriberAG
  - http://transag.sourceforge.net/
- ELAN
  - http://tla.mpi.nl/tools/tla-tools/elan/
- Create “stand-off” annotation in a separate file without altering the original media file.

ELAN XML

```
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a21" TIME_SLOT_REF1="ts41" TIME_SLOT_REF2="ts42">
            <ANNOTATION_VALUE>nch'u nu'idyul.</ANNOTATION_VALUE>
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
    <ANNOTATION>
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a22" TIME_SLOT_REF1="ts43" TIME_SLOT_REF2="ts44">
            <ANNOTATION_VALUE>Nch'u nu'idyul. Vach'ala gunen, "Nda eł dinin din?"</ANNOTATION_VALUE>
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
    <ANNOTATION>
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a23" TIME_SLOT_REF1="ts45" TIME_SLOT_REF2="ts46">
            <ANNOTATION_VALUE>Tałqun idi'eła yeh nutasdyu.</ANNOTATION_VALUE>
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
    <ANNOTATION>
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a24" TIME_SLOT_REF1="ts47" TIME_SLOT_REF2="ts48">
            <ANNOTATION_VALUE>Ał ghini yegh nu'idyu eła yet'e ch'andal'ats.</ANNOTATION_VALUE>
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
    <ANNOTATION>
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a25" TIME_SLOT_REF1="ts49" TIME_SLOT_REF2="ts50">
            <ANNOTATION_VALUE>Ał ghini yegh degheydghilu ha kił kił yighetneq ch'u chench' yeh ch'eyiłt'eq'.</ANNOTATION_\
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
    <ANNOTATION>
        <ALIGNABLE_ANNOTATION ANNOTATION_ID="a26" TIME_SLOT_REF1="ts51" TIME_SLOT_REF2="ts52">
            <ANNOTATION_VALUE>"Nch'qinaghiłnik'a shughu chindałyuggi," yełni.</ANNOTATION_VALUE>
        </ALIGNABLE_ANNOTATION>
    </ANNOTATION>
</TIER>
<TIER DEFAULT_LOCALE="en" LINGUISTIC_TYPE_REF="free translation" PARENT_REF="Denaina_text" TIER_ID="English_Free_Translati
    <ANNOTATION>
        <REF_ANNOTATION ANNOTATION_ID="a27" ANNOTATION_REF="a1">
```

Mukurtu mobile

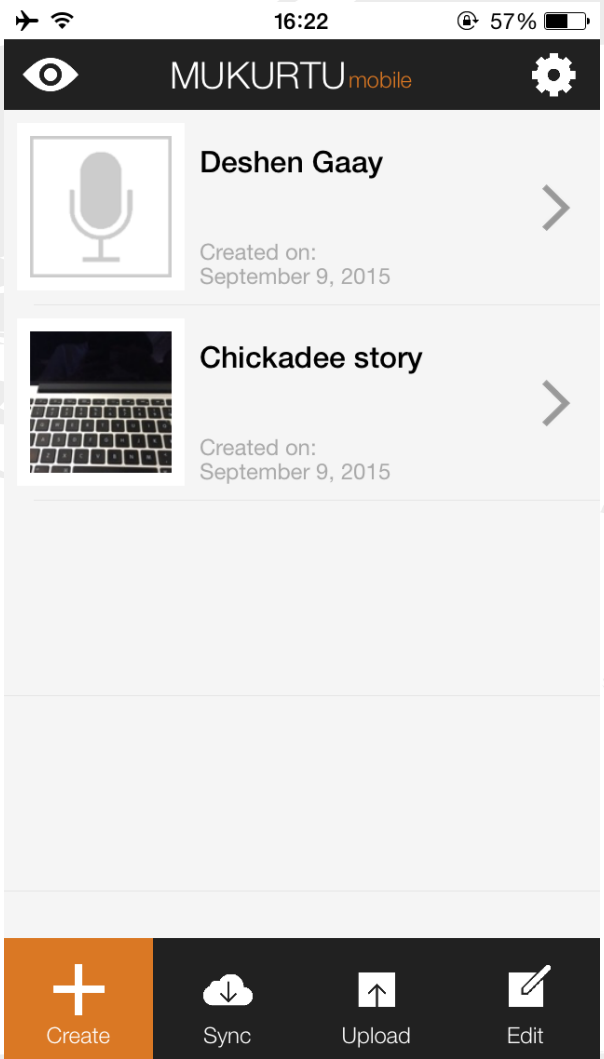
What is Mukurtu?

- Mukurtu (MOOK-oo-too) is a grassroots project aiming to empower communities to manage, share, and exchange their digital heritage in culturally relevant and ethically-minded ways. We are committed to maintaining an open, community-driven approach to Mukurtu's continued development. Our first priority is to help build a platform that fosters relationships of respect and trust.

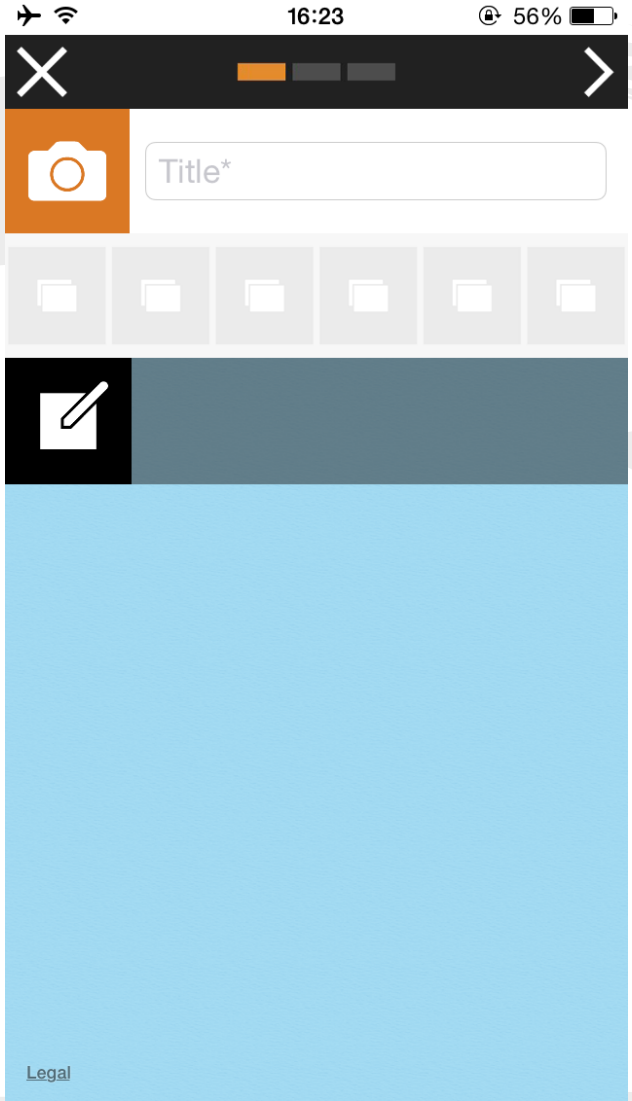
Mukurtu Mobile for language documentation

- Mukurtu Mobile allows the creation of digital content using a mobile device (currently iPhone/iPad)
- Add images, text, audio, video
- Add descriptive metadata
- Add cultural protocols
- Sync with Mukurtu repository

Mukurtu Mobile

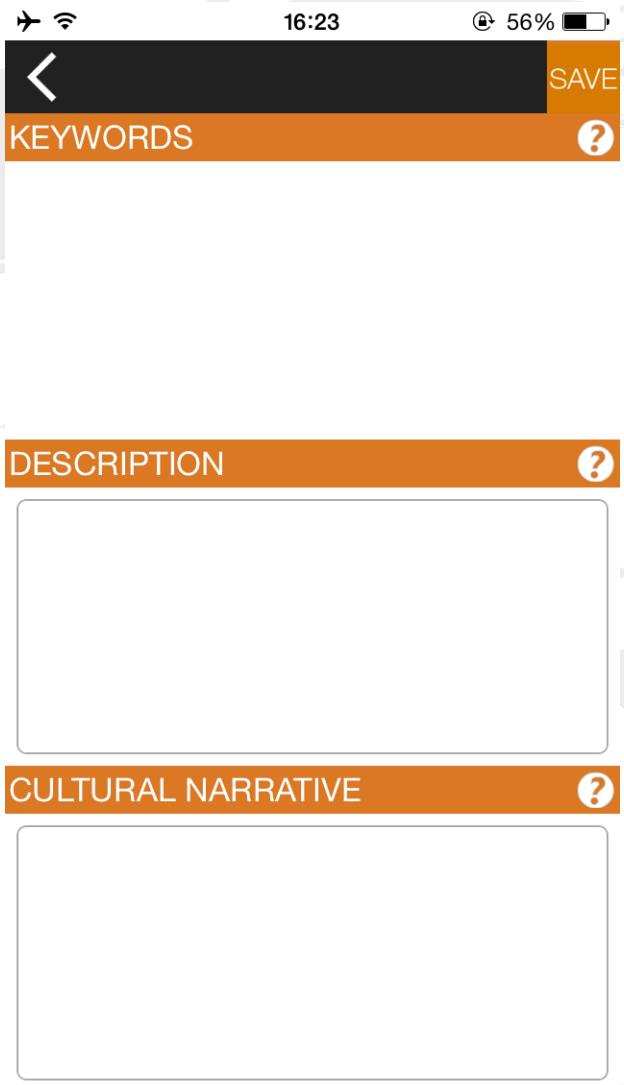


Mukurtu Mobile

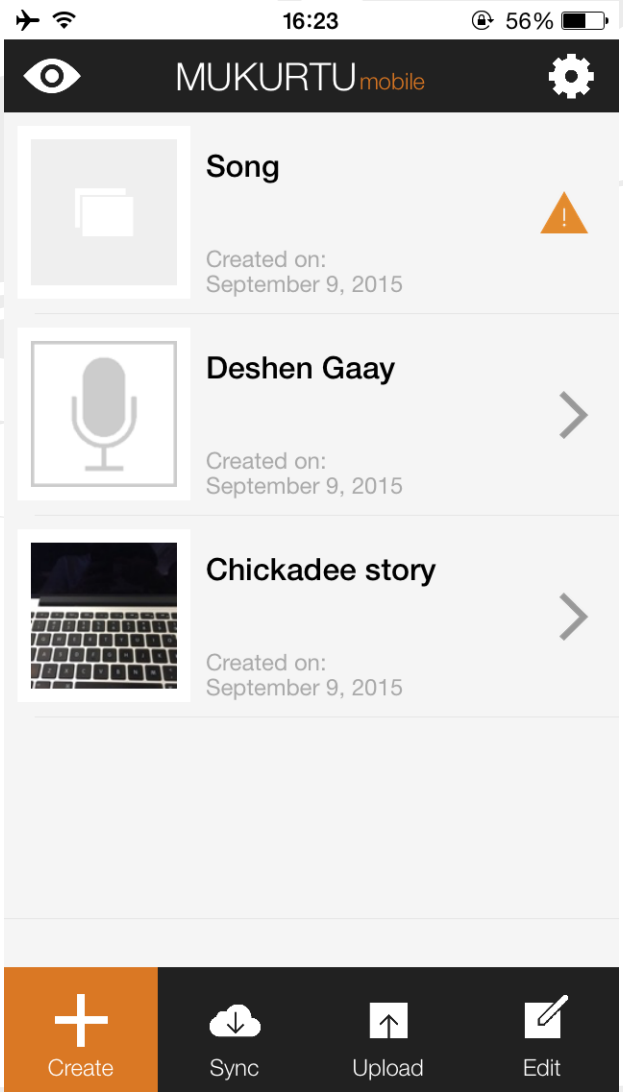


Mukurtu Mobile

Mukurtu Mobile



Mukurtu Mobile

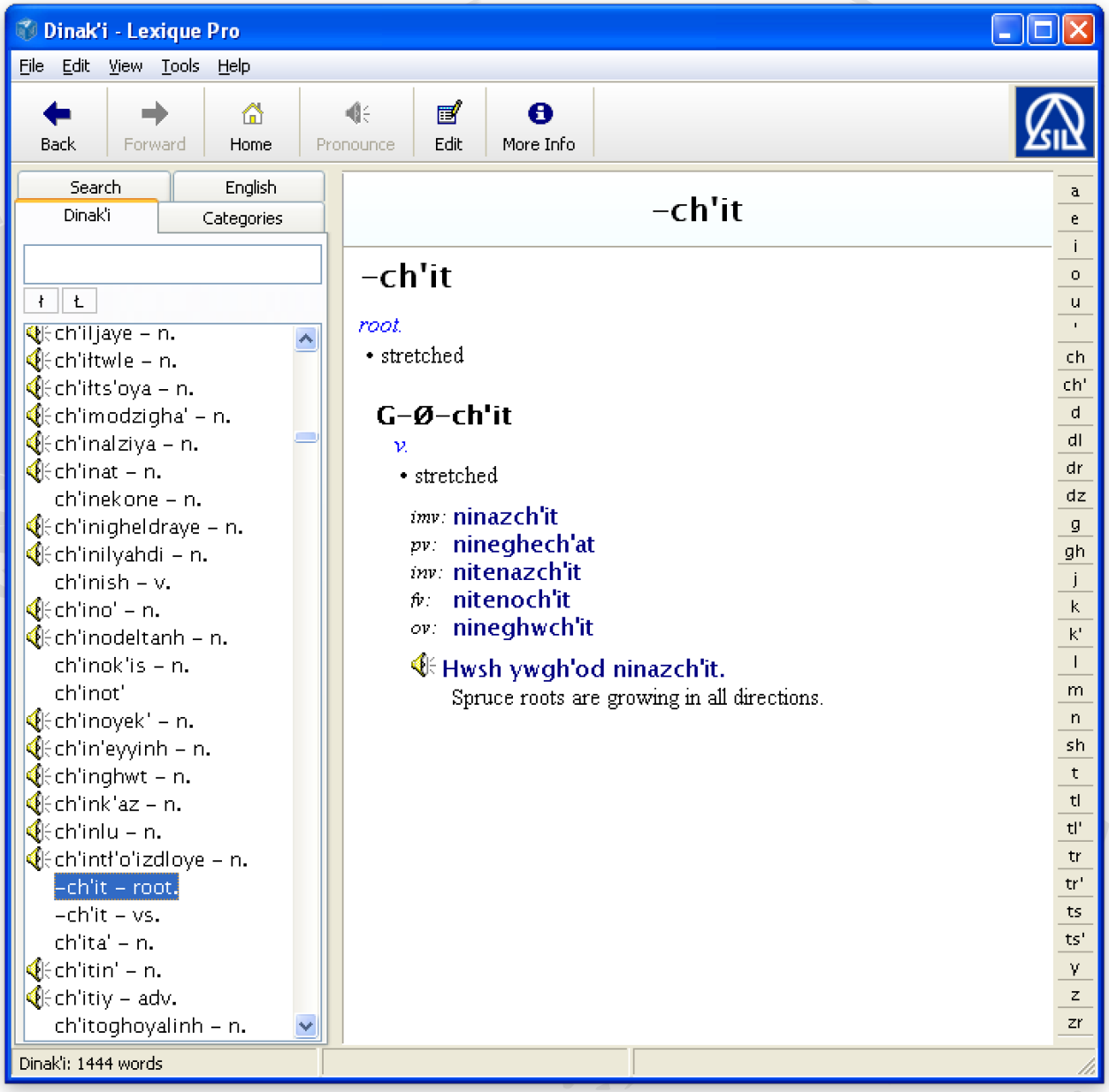


Lexical database (dictionary) tools

- Toolbox - www.sil.org/computing/toolbox
- Fieldworks - fieldworks.sil.org
- Lexique Pro - www.lexiquepro.com
- Miromaa - www.miromaa.org.au
- WeSay - wesay.palaso.org
- TshwaneLex - tshwanedje.com/tshwanelex

- Ensure that the tool is able to export to LIFt XML

LexiquePro


Dinak'i - Lexique Pro
File Edit View Tools Help
Back Forward Home Pronounce Edit More Info
Search English
Dinak'i Categories
ch'iljaye – n.
ch'iłtwle – n.
ch'iłts'oya – n.
ch'imodzigha' – n.
ch'inalziya – n.
ch'inat – n.
ch'inekone – n.
ch'inigheldraye – n.
ch'inilyahdi – n.
ch'inish – v.
ch'ino' – n.
ch'inodeltanh – n.
ch'inok'is – n.
ch'inot'
ch'inoyek' – n.
ch'in'eyyinh – n.
ch'inghwt – n.
ch'ink'az – n.
ch'inlu – n.
ch'intł'o'izdloye – n.
–ch'it – root.
–ch'it – vs.
ch'ita' – n.
ch'itin' – n.
ch'itiy – adv.
ch'itoghoyalinh – n.
–ch'it
–ch'it
root.
• stretched
G–Ø–ch'it
v.
• stretched
imv: ninazch'it
pv: nineghech'at
inv: nitenazch'it
fv: nitenoch'it
ov: nineghwch'it
Hwsh ywgh'od ninazch'it.
Spruce roots are growing in all directions.
a e i o u ' ch ch' d dl dr dz g gh j k k' l m n sh t tl tl' tr tr' ts ts' y z zr
Dinak'i: 1444 words

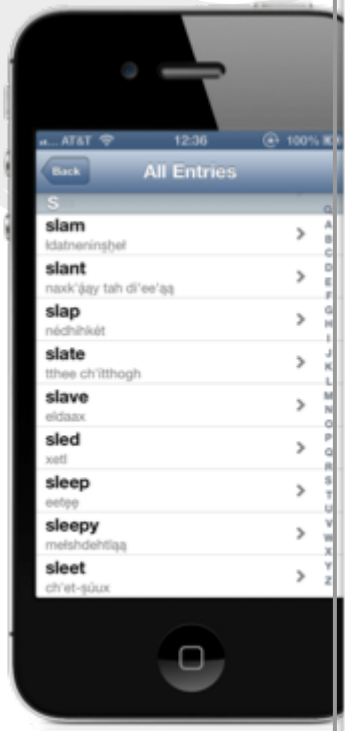
LexiquePro text file

```
\_sh v3.0  400  MDF 4.0
\_DateStampHasFourDigitYear

\lx adinh
\sf /audio/o_adinh.wav
\ps pp
\de lacking
\ge lacking
\re lacking ; out of
\xv Mega adinh nedanisjininh.
\xe I ran out of flour.
\sfx /audio/o_adinh_sentence.wav
\dt 19/Sep/2013

\lx ageya
\sf /audio/o_ageya.wav
\ps n
\de otter
\ge otter
\re otter
\xv Ageya tso' kayih k'its hineteghełtonh.
\xe The otter has a trail into the beaver house.
\sfx /audio/o_ageya_sentence.wav
\sd mammal
\dt 28/Sep/2013
```

Dictionary apps




```
{
    "headword" : "eat",
    "subentries" : [
        {
            "tc" : "nach'ih'áał",
            "audio" : "eat1.m4a",
            "definition" : "I am eating",
        "paradigm" :
            {
                "type" : "imperfective",
                "1sg" : "nach'ih'áał",
                "1pl" : "nayits'e'áał",
                "2sg" : "nach'in'áał",
                "2pl" : "nach'ah'áał",
                "3sg" : "nach'e'áał",
                "3pl" : "nach'exen'áał",
                "audio" : "eat12.m4a"
            },
            "examples" : [
                {
                    "example" : "łuug ih'áał",
                    "audio" : "eat11.m4a",
                    "gloss" : "I am eating fish",
                }
            ]
        },
        {
            "tc" : "nach'ih'áatl ",
            "definition" : "I ate (something)",
```

Where to get more training

- Collaborative Institute on Language Documentation (CoLang) www.alaska.edu/colang2016
- Canadian Indigenous Languages and Literacy Development Institute (CILLDI) www.cilldi.ualberta.ca
- Northwest Indian Language Institute (NILI) pages.uoregon.edu/nwili/
- American Indian Language Development Institute (AILDI) aildi.arizona.edu
- Indigenous Language Institute (ILI) www.indigenous-language.org
- Advocates for Indigenous California Language Survival www.aicls.org
- National Breath of Life Archival Institute nationalbreathoflife.org

Funding for language projects

- Administration for Native Americans
- Documenting Endangered Languages (NSF/NEH)
  - see presentation Saturday at 2:00 pm
- American Philosophical Society
- Jacobs Fund
- Endangered Language Fund

You guys I want to put this one in
your heart, in your mind.
That one day—how many
recordings I make for you?
Respect, take care.
Don't say "I lost that recording."
My words are very strong words,
you gotta keep that recording.

--Ellen Demit

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