

# Implementing Computer-Audio Recorded Interviewing (CARI) Using Blaise 4.8.2

13<sup>th</sup> International Blaise Users Conference

William E. Dyer, Jr.  
Malcolm Robert Wallace  
Technology Management Office

# Outline

- Introduction
- CARI Requirements
- Blaise 4.8.2 CARI Settings
- CARI Testing Considerations
- CARI Systems Testing Results
- Conclusion

# Integrate with Legacy Systems



USCENSUSBUREAU

*Helping You Make Informed Decisions*

# Sponsors Expect Heavy Lifting



USCENSUSBUREAU

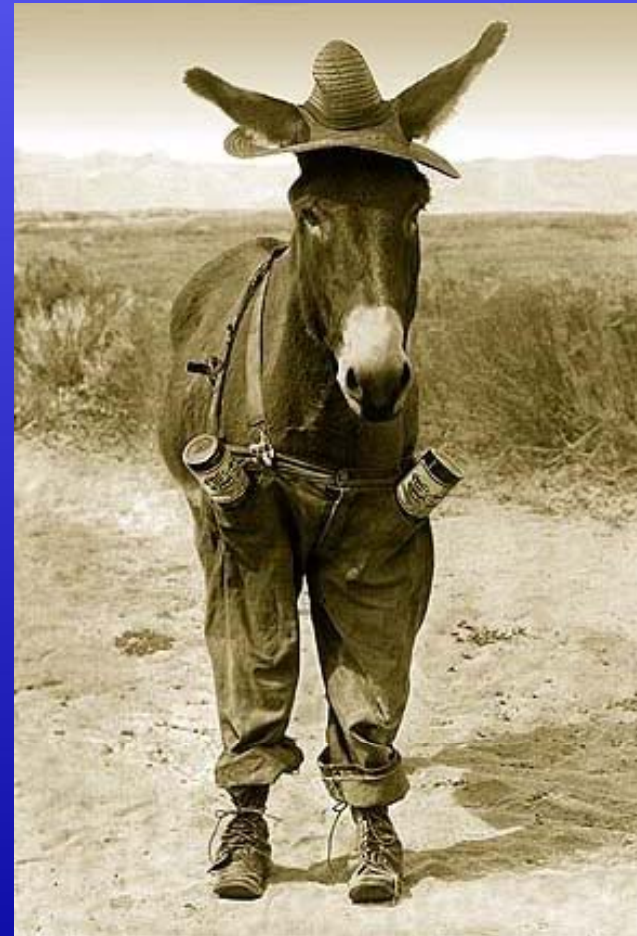
*Helping You Make Informed Decisions*

# CARI Without Constraints



# CARI Requirements

- Simplify where possible
- Make some compromises
- A few requirements help
- Recognize limitations
- Teamwork is a must
- Ask if you don't understand
- Steal from the best
- Save the good work



# CARI Requirements

## A. General Criteria

- Create Sound and Image Files
- Quality recordings
- CARI Transparent to the interviewer
- Bounding questions (questions around the target question)
- Sampling
- Irregular navigation
- Multi-person households
- Work for CATI and CAPI

# CARI Requirements

## B. Specific Requirements

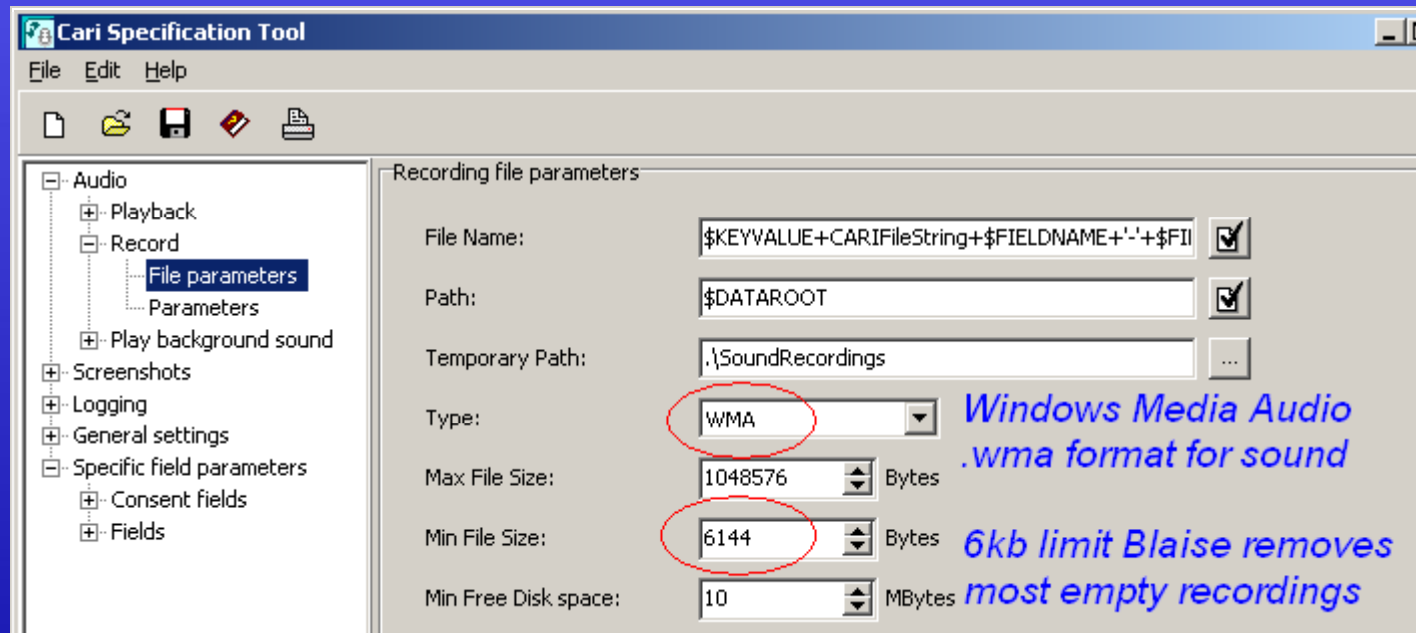
- Record up to 238 unique questions
- Only record the first 5 people in roster
- Use a CARI Sample flag to control CARI recordings
- Build in a system “emergency exit” that stops CARI
- Stop recordings after 60 seconds
- Consent should only be recorded if the respondent agreed to be recorded.
- If the respondent changes, then “automatically” re-ask the consent question

# CARI Challenges

- How do we implement CARI consent?
- What should the max recording length be?
- How do CARI files impact transmissions?
- How big will these files be?
- What settings do we need to use?
- What information do the back-end systems need?
- Concurrent with instrument development

# CARI Settings – Using the BCI

Audio | Record | File parameters



File Name:

**\$KEYVALUE+CARIFileString+\$FIELDNAME+'-'+'\$FILEDATE+\$FILETIME**

# CARI Settings

## Audio | Record | Parameters

Recorder parameters

Enabled:  True

Chance:  %

Bits per sample:

Channels:  STEREO

Time limit:

Overall time limit:

Sample rate:

Device number:

Codec index:

Max. nr. of fields:

Sequencing *Set the sequence number on the file for irregular navigation*

Snippet

Record consent *Capture the consent question and answer*

OCSS00191123456782200Sect04.Person4A[2].PPOBMAC-20101001113308(01).wma	9,668	Windows Media Aud...
OCSS00191123456782200Sect04.Person4A[2].PPOBMAC-20101001113312(01).jpg	36,196	JPG File

# CARI Settings

## Screenshots | File parameters

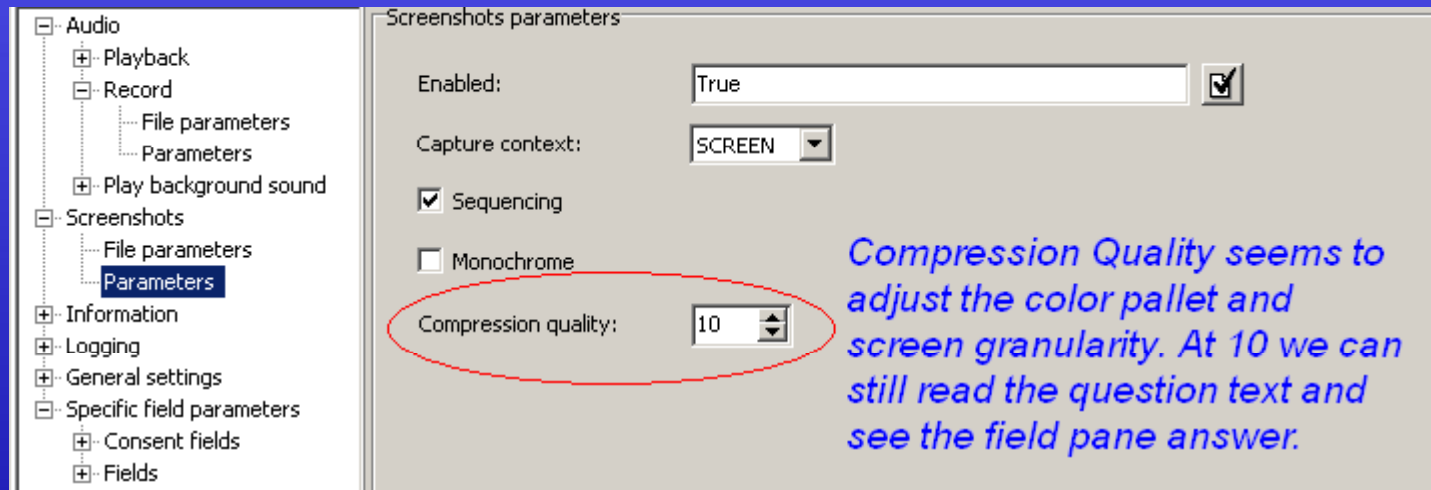
The screenshot shows the 'Screenshots file parameters' dialog box. On the left is a tree view with categories: Audio (Playback, Record, Play background sound), Screenshots (File parameters, Parameters), Information, Logging, and General settings. The 'File parameters' sub-section under 'Screenshots' is selected. The main area contains the following fields:

File Name:	<input type="text" value="\$KEYVALUE+CARIFileString+\$FIELDNAME+'.'+\$FI"/>	<input checked="" type="checkbox"/>
Path:	<input type="text" value="\$DATAROOT"/>	<input checked="" type="checkbox"/>
Temporary Path:	<input type="text" value=".\ScreenShots"/>	<input type="button" value="..."/>
Type:	<input type="text" value="JPG"/>	<input type="button" value="v"/>
Min Free Disk space:	<input type="text" value="10"/>	<input type="button" value="v"/> MBytes

*Select image file type from .jpg .bmp .gif*

# CARI Settings

## Screenshots | Parameters



The screenshot shows the 'Screenshots parameters' configuration window. On the left is a tree view with categories like Audio, Record, Screenshots, Information, Logging, General settings, and Specific field parameters. The 'Screenshots' category is expanded, and 'Parameters' is selected. The main panel shows the following settings:

- Enabled: True
- Capture context: SCREEN
- Sequencing
- Monochrome
- Compression quality: 10

*Compression Quality seems to adjust the color pallet and screen granularity. At 10 we can still read the question text and see the field pane answer.*

# CARI Settings

## Specific field parameters | Consent fields

Consent fields parameters			
Name	Consent	Time limit	Record
Front.CARICON1	CARICON_FLAG = 1	60	True
Recorder.CARICON2	CARICON_FLAG = 1	60	True
WebCATIFront.CARICON1	CARICON_FLAG = 1	60	True

# CARI Settings

## Specific field parameters | Fields

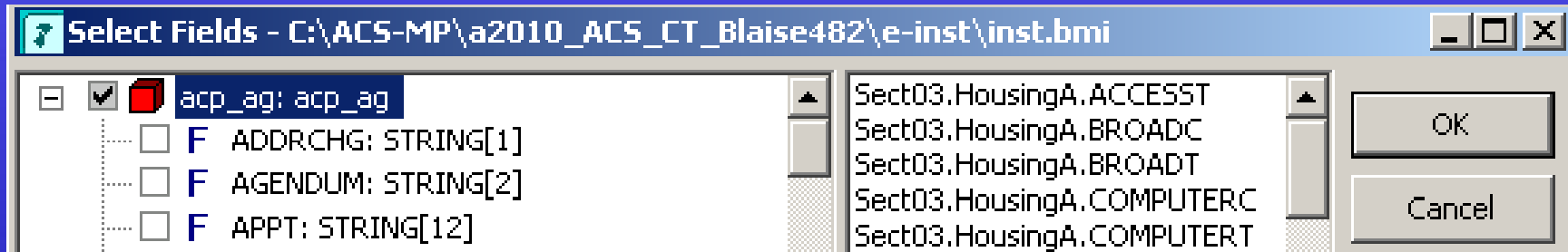
Name	Enabled	Chance	Time limit	Snippet
Sect03.HousingA.ACCESSST	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False
Sect03.HousingA.BROADC	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False
Sect03.HousingA.BROADT	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False
Sect03.HousingA.COMPUTERC	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False
Sect03.HousingA.COMPUTERT	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False
Sect03.HousingA.COMPUTYPC	((RT1002.CARISAMPLE = '1') OR (SP	100%	60	False

CARI fields are easy to manage using the Specification tool.

Cool Tools – [BlCariSpec.exe](#)

# CARI Settings

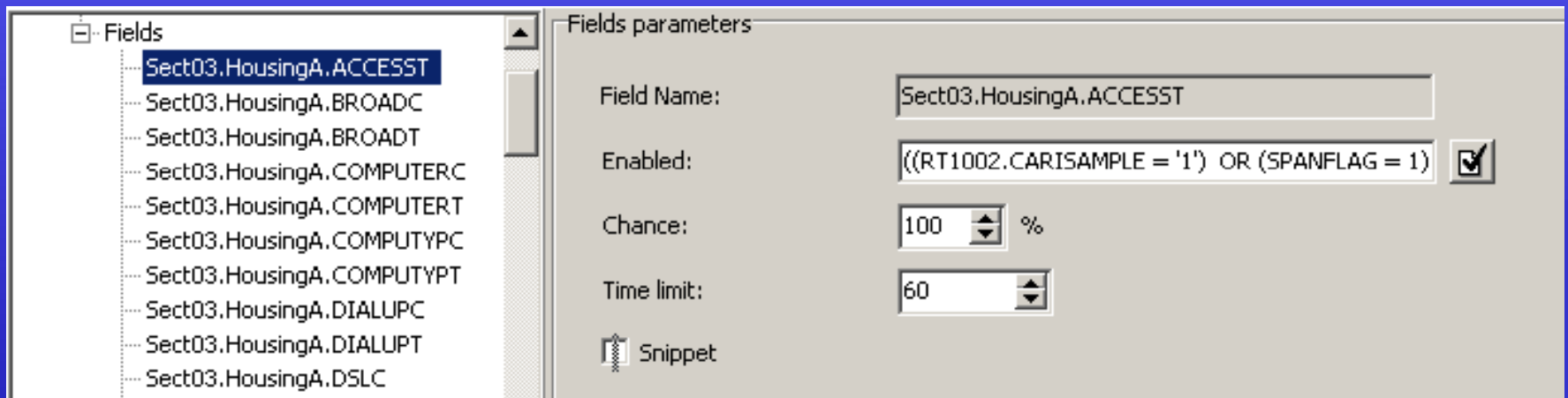
Specific field parameters | Fields | Add



Select fields to add from the existing .bmi

# CARI Settings

Specific field parameters | Fields | Edit



Fields may be edited easily for testing, research & development or debugging.

# CARI Testing Considerations

- Verify that the instrument is:
  - Creating sound and image files when you expect
  - Creating pairs of sound/image files
  - Creating sound/image files for all potential CARI fields
  - Not creating any unexpected sound/image files
- Verify that your BCI file settings are working
- \*\* Verify that Consent is working as expected
- Conduct Testing in pairs – talking out loud
- Review sound/image file naming
- Review quality of Sound/Image files

# Consent Considerations

- Consent asked in multiple places
- What if respondent changes his/her mind?
  - Added a parallel tab
  - CARICON\_Flag=1
- What if interview changes respondents?
  - “Force” Re-ask of Consent

Name	Consent	Time limit	Record
Front.CARICON1	CARICON_FLAG = 1	60	True
Recorder.CARICON2	CARICON_FLAG = 1	60	True
WebCATIFront.CARICON1	CARICON_FLAG = 1	60	True

# Testing Results



**We Broke WebCATI**

**They weren't happy with us**



# Testing Results – Sound Files

WMA Files	CAPI	CATI	Findings
Median Size of Files	10kb	14kb	CATI about 40% Larger
Size of 60 Second Recordings	40kb	68kb	CATI about 60% larger
WMA files per megabyte	92	68	Fairly large number of recordings per Meg

\* WMA files were about 12 times smaller than MP3 files

\* WMA file compression varies. Ours ranged around 30-45%, better than MP3 file compression

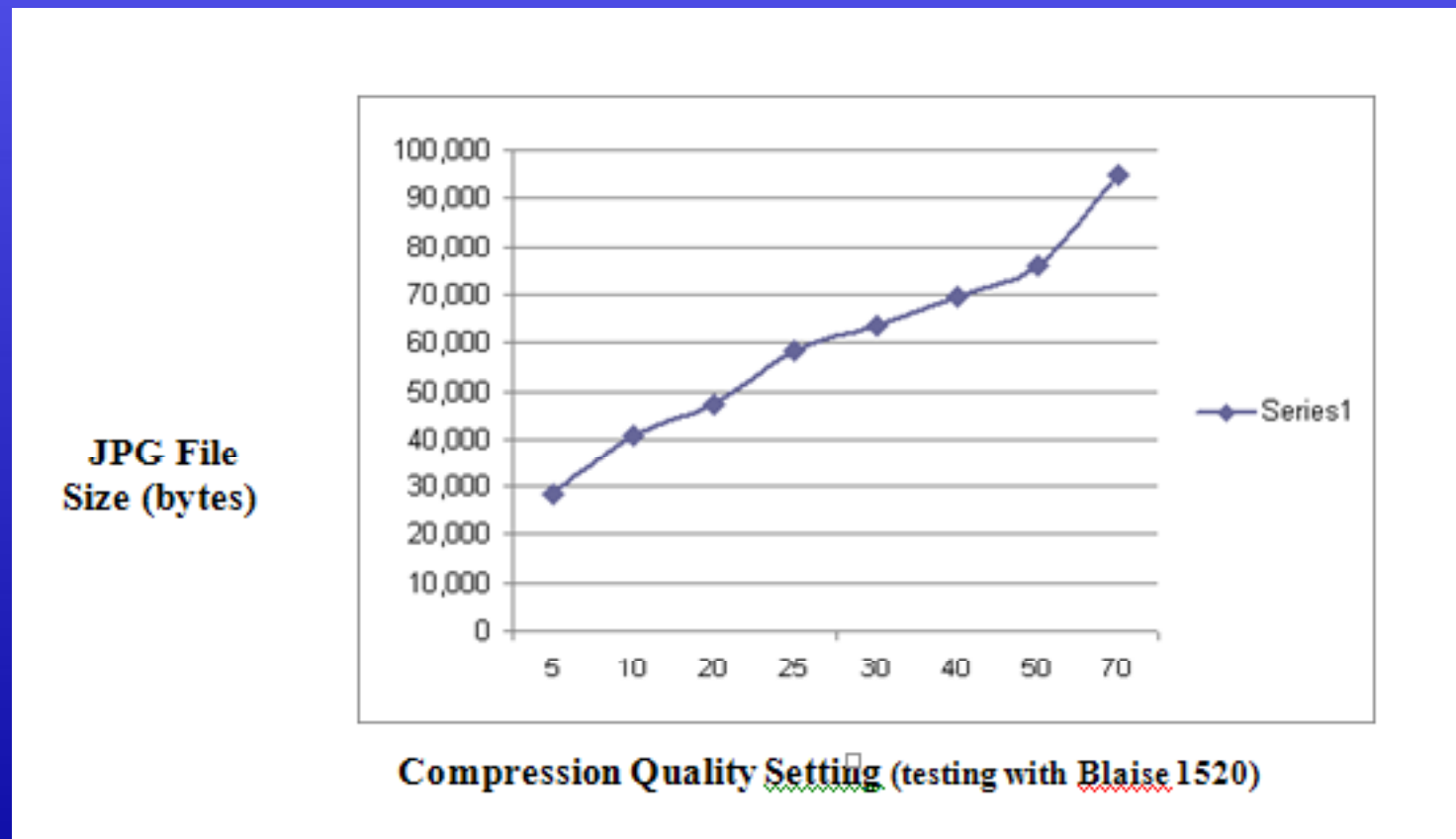
# Testing Results – Image Files

JPG Files (10% Compression)	CAPI	CATI	Findings
Median Size of Files	38kb	30kb	CAPI about 30% larger
Size of Smallest JPG	32kb	27kb	Image file sizes don't vary as much as sound
Size of Largest JPG	52kb	40kb	
JPG files per megabyte	26	35	**Image files average 2 to 3 times the size of sound files

\* Regular JPG files were very large – Many over 100kb

\* GIF files caused significant instrument lag (2-6 seconds)

# Blaise JPG Compression Quality



# Conclusion

- Implementing CARI with Blaise 4.8.2 is relatively simple once you've identified ideal sound and image settings
- CARI can produce LOTS of sound & image files.
- BICariSpec.exe is an excellent tool
- Consent is important and can be a little challenging
- Instrument testing should be modified accordingly
- \*We wish to thank Statistics Netherlands for adding CARI into Blaise!!

# QUESTIONS?

## Contact Information:

William E. Dyer, Jr.

Phone: (301) 763-7727

e-mail: [william.e.dyer.jr@census.gov](mailto:william.e.dyer.jr@census.gov)

Malcolm Robert Wallace

Phone: (301) 763-7713

e-mail: [malcolm.robert.wallace@census.gov](mailto:malcolm.robert.wallace@census.gov)

U.S. Census Bureau  
Technologies Management Office