

# Psychometric Preparation for Digital Transition

- Psychometric Training 2016
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# Today's topic

- History: Paper-Pencil Era, variable map
- Digital Transition
- Content Ingestion Tool (CIT)
- Project Rex (Q-i simulator on PC)
- Using JSON output to verify the variable list

# History

- **Paper-Pencil Era**

- Materials Needed

- Manual
- Stimulus Books
- Record form
- Variable list (created by Psychometrics)
- Variable map (connects the record form)

- What you need to do:

- Get familiar with the test
- Understand the administration rules
- Learn the content in detail
- Know the Score flow

# History (cont.)

- Paper-Pencil Era (Variable map)

record form

SAS Variables	Description	Type Of Data	Acceptable Value
<b>Non-Page variables</b>			
wais5_teid	Test event ID	numeric	0-999999
wais5_eid	Consent form ID (cfid)	numeric	0-999999
wais5_cf	Clinical Case	numeric	0,1-9
wais5_sex	Sex	string	M,F,-9
wais5_hand	Handedness	numeric	1,-1,-9
wais5_doty	Test date year	numeric	2016
wais5_dotm	Test date month	numeric	1-12
wais5_dotd	Test date day	numeric	1-31
wais5_doby	Birth date year	numeric	1900-2016
wais5_dobm	Birth date month	numeric	1-12
wais5_dobd	Birth date day	numeric	1-31
wais5_pl	Prescription lenses	numeric	0,1
wais5_plw	Prescription lenses wearing	numeric	0,1
wais5_ld	Assisted Listening device	numeric	0,1
wais5_ldw	Assisted Listening device wearing	numeric	0,1
wais5_vvw	Verbatim wearing	string	alphanumeric;-,-9
wais5_at	Answer to alternate item	numeric	1,-1,-9
wais5_gn	General Notes	string	alphanumeric;-
<b>Subtest variables</b>			
wais5_mr_st	mr Subtest Start Times	string	HH-MM-SS.99-9

Variable list

**1. Matrix Reasoning (MR)** wais5\_mr\_st  
HHMM or -9 Start Time: \_\_\_\_\_  
Hr. Min.

**Start** Sample Items A & B, then Item 3

**Reverse** Imperfect score on either of the first two items gives, go to Item 1 and administer in forward sequence.

**Discontinue** After 3 consecutive scores of 0

**Record & Score** Record subtest start and stop times. Circle response. Correct responses are in bold. Circle DK and NR, as appropriate. Score 0 or 1 point.

Item	Response	Score	Item	Response	Score
SA	wais5_mr_rsa	4	10.	1 2 3 4 5	DK NR 0 1
SB	wais5_mr_rsb	4	11.	1 2 3 4 5	DK NR 0 1
1.	wais5_mr_r01...	5	12.	1 2 3 4 5	DK NR 0 1
2.	1 2 3 4 5	DK NR 0 1	13.	1 2 3 4 5	DK NR 0 1
3.	1 2 3 4 5	DK NR 0 1	14.	1 2 3 4 5	DK NR 0 1
4.	1 2 3 4 5	DK NR 0 1	15.	1 2 3 4 5	DK NR 0 1

Variable Map

# Digital Transition



- What Psychometrics needs to do to fit into this digital transition?
  - Get familiar with the test
  - Understand the administration rules
  - Learn the content in detail (subtests, items, design)
  - Know the Score flow
  - Learn how the test is being administered on Q-i
  - Learn how the output variables reflect the feature of the digital administration software (Q-i)
- But for the digital assessment (especially development phases), the traditional materials may not be available.
  - ~~Manual~~
  - ~~Stimulus Books~~
  - ~~Record form~~

# Digital Transition (cont.)

- Paper vs. Digital

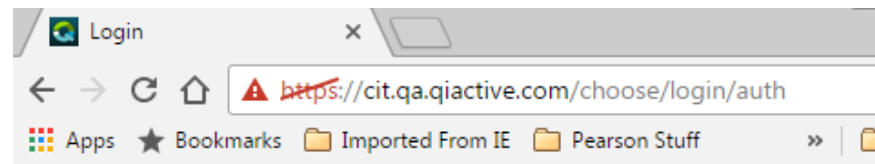
Things you need to know	Materials & Tools	
	Paper	Digital
Get familiar with the test	Manual/Stimulus book	CIT
Understand the administration rules	Manual/Record form	CIT/ Project Rex
Learn the content in detail	Manual/Stimulus book	CIT
Know the Score flow	Scoring specs/Record form	CIT/ Project Rex
Learn how the test is being administered on Q-i	----	Project Rex
Learn how the output variables reflect the feature of the digital administration software (Q-i)	Data from Rapid	JSON output

# Content Ingestion Tool (CIT)

The CIT is a platform used by RDs and Engineers to communicate how the test is being designed/built on Q-i.

Link: <https://cit.qa.qiactive.com/choose/login/auth>

- Request access from Digital Content Dev Team (Kristen Getz, Erik Gallemore, or Regina Tovar).
- Include in your request which tests that you need access to (Read-only access).



### Please Login


**Username:**

**Password:**

Remember me

# Content Ingestion Tool (cont.)

You may encounter some security issues after login, please proceed and trust the company website.



**Your connection is not private**

Attackers might be trying to steal your information from **cit.qa.qiactive.com** (for example, passwords, messages, or credit cards). NET::ERR\_CERT\_AUTHORITY\_INVALID

Automatically report details of possible security incidents to Google. [Privacy policy](#)

HIDE ADVANCED [Back to safety](#)

This server could not prove that it is **cit.qa.qiactive.com**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

[Proceed to cit.qa.qiactive.com \(unsafe\)](#)



# Content Ingestion Tool (cont.)

After logging in, click on the expansion button (+) next to the test name.

The screenshot displays the 'Q-interactive Content Tool' interface. On the left, a 'Test Navigation' sidebar lists various tests, with 'WAIS-IV' circled in red. The main content area is titled 'WAIS-5' and features a 'Media Library' tabbed interface. The 'Sort Order' tab is selected and circled in red. Below the tabs, a 'Subtest order' section contains a list of subtests with drag-and-drop handles:

Subtest order	
<b>Drag and Drop the Below Items to reorder</b>	
Set Relations	⬆️⬇️⬆️
Digit Span	⬆️⬇️⬆️
Vocabulary	⬆️⬇️⬆️
Block Design	⬆️⬇️⬆️
Matrix Reasoning	⬆️⬇️⬆️
Symbol Search	⬆️⬇️⬆️
Similarities	⬆️⬇️⬆️
Visual Puzzles	⬆️⬇️⬆️
Symbol Span	⬆️⬇️⬆️
Coding	⬆️⬇️⬆️

# Content Ingestion Tool (cont.)

Then, Click the expansion button (+) to expand/compress the test to subtest level.

There are **13+** tabs of subtest information. Click through each tab to explore.

I've found “**iButton**” and “**Rules**” provide the most information related to test administration/scoring.

## WAIS-5

- ⊕ Set Relations
- ⊕ Digit Span
- ⊕ Vocabulary
- ⊕ Block Design
- ⊕ Matrix Reasoning
- ⊕ Symbol Search
- ⊕ Similarities
- ⊕ Visual Puzzles
- ⊕ Symbol Span
- ⊕ Coding
- ⊕ Information
- ⊕ Figure Weights
- ⊕ Response Booklet Symbol Search
- ⊕ Arithmetic
- ⊕ Response Booklet Coding
- ⊕ Auditory Working Memory

### WAIS-5 -> Vocabulary

The screenshot displays the 'Vocabulary' page for WAIS-5. At the top, there is a navigation bar with tabs: Basic Info, Metadata, Item Group Sort Order, Overview, iButton, Instructions, Speech Bubble, Contextual Events, Rules, Skills Analysis, Snippets, and Observations. Below this is a 'History' section. The main content area is titled 'Item Group Sorter' and contains the instruction 'Drag and Drop the Below Items to reorder'. There are two items listed: 'Item 1' and 'Items 2-16', each with a plus sign icon to its right.

# Content Ingestion Tool (cont.)

Then, Click the expansion button (+) to expand/compress the subtest to the item level.

There are **multiple** tabs of item information. Click through each tab to explore.

The “**Scoring Method**” provides the most information related to item scoring.

- [-] CVLT-3-Alternate
- [-] CVLT-3-Short
- [-] CVLT-3-Standard
- [-] GFTA-3-Spanish
- [-] Training-Test
- [-] WAIS-5
  - [-] Set Relations
  - [-] Digit Span
  - [-] Vocabulary
    - [-] Item 1
    - [-] Items 2-16
      - Item 2. Bed
      - [-] Item 3. Apple
      - [-] Item 4. Glove
      - Item 5. Curious
      - Item 6. Terminate
      - Item 7. Ponder
      - Item 8. Confide
      - Item 9. Remorse
      - Item 10. Acute
      - Item 11. Compassion
      - Item 12. Evolve
      - Item 13. Fortitude
      - Item 14. Encumber
      - Item 15. Pragmatic
      - Item 16. Palliate
- [-] Block Design
- [-] Matrix Reasoning
- [-] Symbol Search
- [-] Similarities
- [-] Visual Puzzles
- [-] Symbol Span
- [-] Coding

The screenshot displays the 'Scoring Method' tab of the Content Ingestion Tool. The 'Scoring Method' tab is highlighted with a red circle. The main content area is titled 'Picklist' and features a 'List Type' dropdown menu set to 'Pick List'. Below this, there is a section for 'Math ML Help' with a 'Use Editor for Answer Text' checkbox. Three answer groups are listed: '0 Point Answer Group', '1 Point Answer Group', and '2 Point Answer Group'. Each group has a plus sign on the left and a close icon on the right. At the bottom, there is a green button labeled 'Add New Answer Group'.

# Content Ingestion Tool (cont.)

In order to understand the test, the most important thing is making sure to click on every possible field while exploring all subtests, item groups and items. Andrea has created a separate slide with more details concerning the available information ([K:\flea market\q-i training](#)).

Let's go to the website for a demo.

Link: <https://cit.qa.qiactive.com/choose/login/auth>

# Project Rex simulator (Q-i)

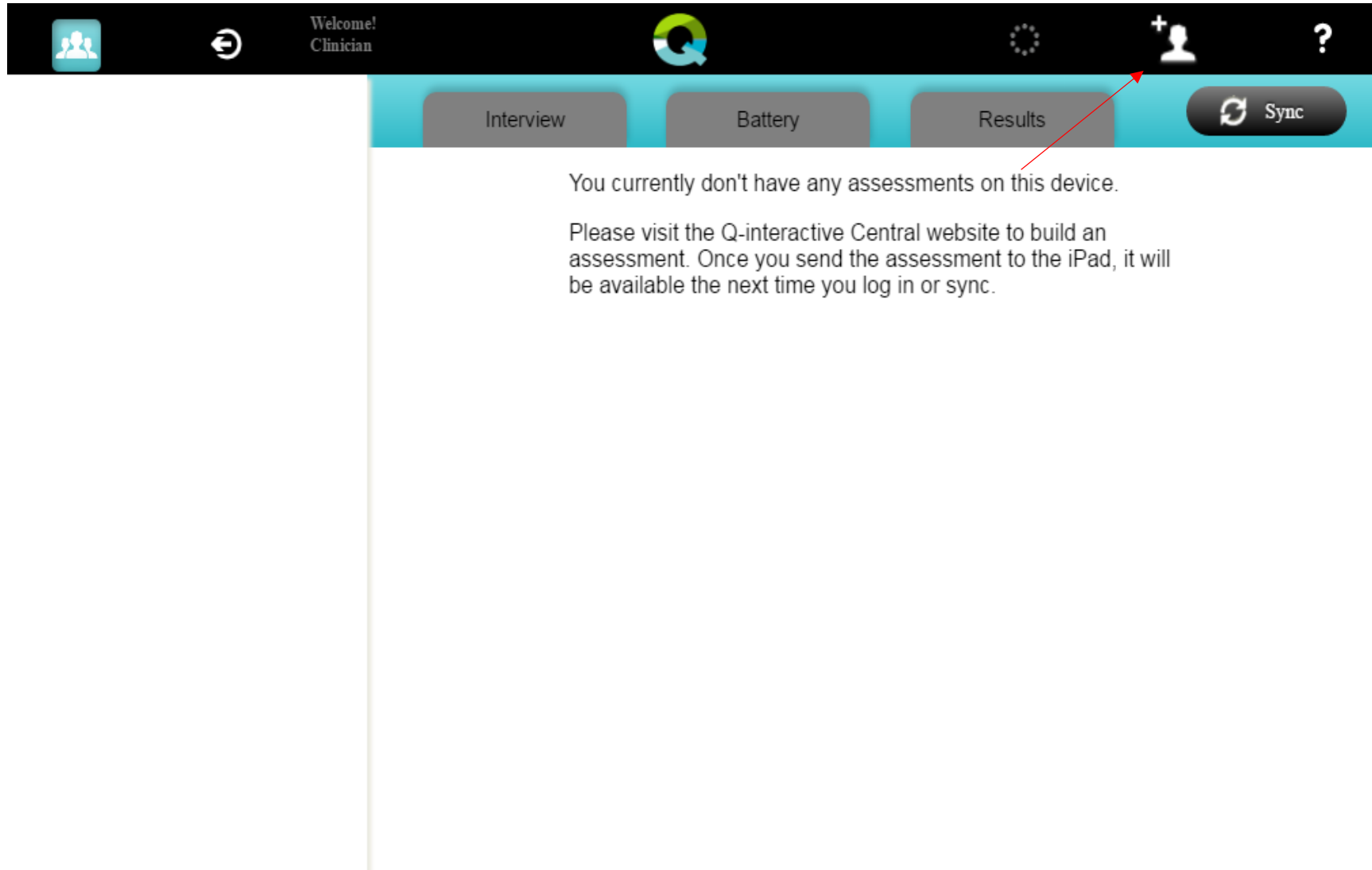
- Project Rex a simulator you can run on your computer that mirrors Q-interactive. It helps Psychometrics understand the administration rules, score flow, and to know how the test is truly being administered on Q-i.
- It helps with all of the variable list/mapping.
- It also helps with creating system cases and edge cases.

Link: [http://10.72.2.226/homeUI\\_en.html](http://10.72.2.226/homeUI_en.html)

- What you need to learn today?
  - How to run Project Rex on PC
  - How to start/stop the stopwatch for timed subtests so that the entire subtest items are simulated
  - How to pull your simulated JSON results

# Project Rex simulator (cont.)

- **Step 1:** Open in the browser and click the little man on the top right



# Project Rex simulator (cont.)

- **Step 2:** Fill in the following blank cells with mock information:

- Examinee
- Examinee ID
- DoB (optional if you are using a pre-existing client from the simulator)
- Battery ID

The screenshot shows a mobile application interface for a simulator. At the top, there is a navigation bar with a 'Welcome! Clinician' message and a 'Sync' button. Below the navigation bar, there are three tabs: 'Interview', 'Battery', and 'Results'. The 'Battery' tab is selected. The main content area displays a 'New Client Information Form' with a 'Paste Battery Json' button. The form contains several fields, some of which are circled in red:

- Examinee:** A text input field containing 'Ou'.
- Examinee ID:** A text input field containing '1234'. Below this field is a red error message: '(One or more alphanumeric characters)'. This field is circled in red.
- Scheduled Test Date:** A date input field containing '09 / 29 / 2016'.
- Scheduled Test Time:** A time input field containing '09 : 11 AM'.
- DoB:** A date input field containing '12 / 14 / 2009'. This field is circled in red.
- Gender:** A dropdown menu with 'Male' selected.
- Battery ID:** A text input field containing '1234'. This field is circled in red.

At the bottom of the form, there are two buttons: 'Cancel' and 'Add'.

**Slide 15**

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**EBR35**

**Changed entire slide**

Ehler, Benjamin R, 10/12/2016



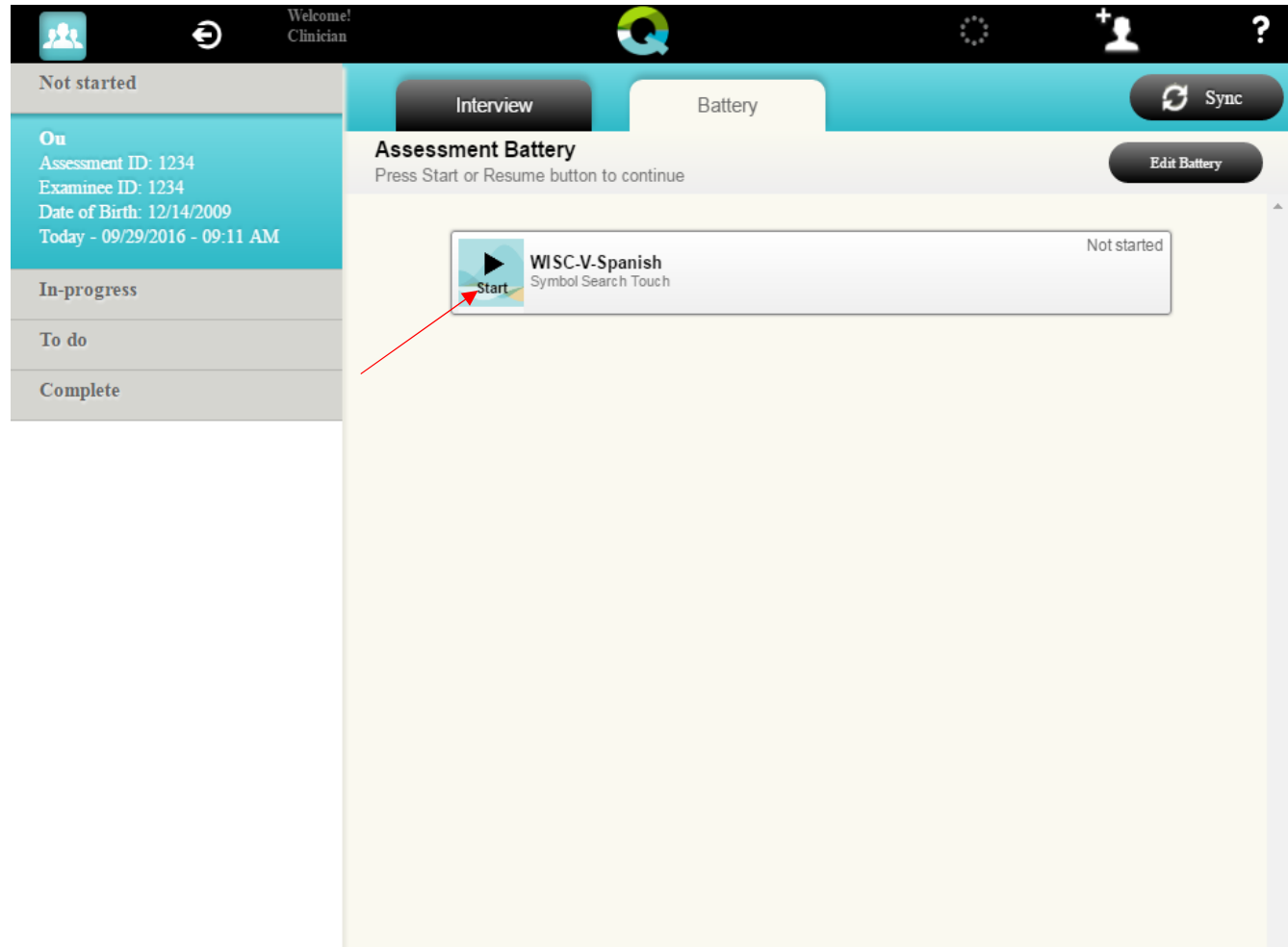
# Project Rex simulator (cont.)

- **Step 3:** Choose assessment product and subtests you want to administer/simulate



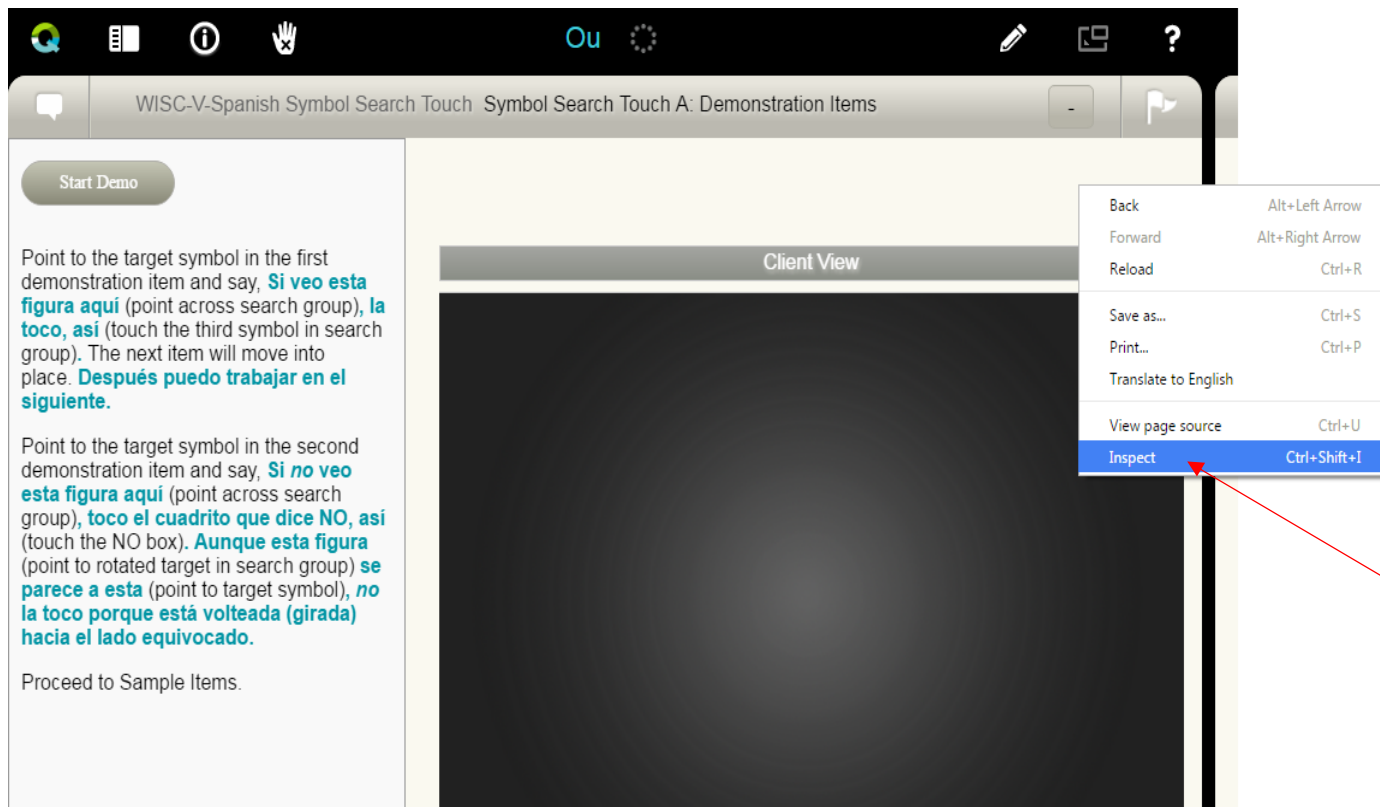
# Project Rex simulator (cont.)

- **Step 4:** Launch the test through Project Rex



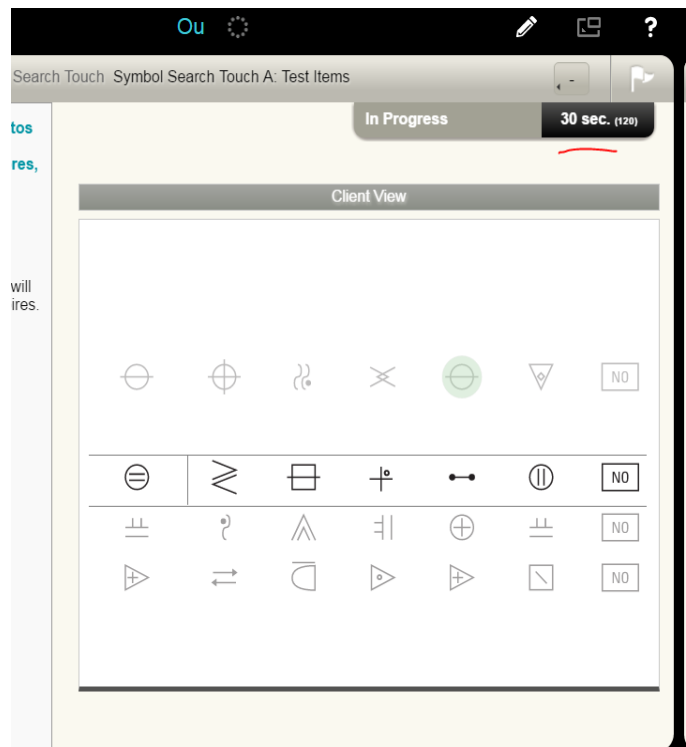
# Project Rex simulator (cont.)

- **Step 5:** Administer test. Once the test is launching, right click your mouse and select “inspect”, which will open up a side-panel with tabs of javascript



# Project Rex simulator (cont.)

- **Step 6:** In Console tab, you can either query the current item or Pause the stopwatch

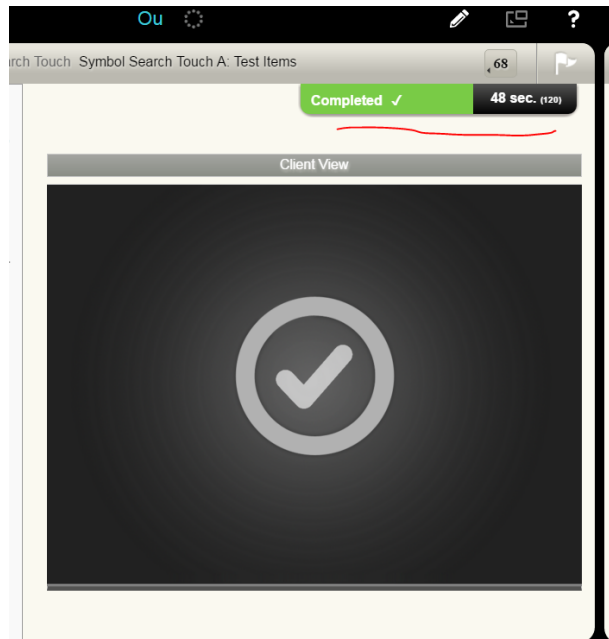


```
Elements Console Sources Network Timeline >> X
top Preserve log
Content: development build on testDirector.is?a54f1b8...:2732
master, commit 7db9ef2 at 2016-09-29 07:00 -0500
Got from cache: battery/wisc-v-spanish/test-json/wisc-v-spanish.json testDirector.is?a54f1b8...:28867
Got from cache: norm-tables/compositeScore/wisc-v.txt testDirector.is?a54f1b8...:28867
Got from cache: battery/wisc-v-spanish/subtest-json/wisc-v-spanish-symbol_search_touch.json testDirector.is?a54f1b8...:28867
UID: ST:WISC-V-Spanish:Symbol testDirector.is?a54f1b8...:38114
Search Touch:begin:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Going to: ST:WISC-V-Spanish:Symbol testDirector.is?a54f1b8...:2732
Search Touch:begin:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is?a54f1b8...:2732
ssundefined
Swiping to ADM:wiscv-esp-symbolsearchtouch-demoa:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is?a54f1b8...:2732
ssundefined
Swiping to ADM:wiscv-esp-symbolsearchtouch-samplea:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is?a54f1b8...:2732
ssundefined
Swiping to ADM:wiscv-esp-symbolsearchtouch-testa:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
> q = pearson.testStateService.getCurrentItem()
< Administrable {forceReloadBefore: false,
  > suppressInstructionCard: false, maxTime: 120,
  > shouldShowStimTouches: false, isWritingRequired: false;}
> q.stopwatch.stop()
< undefined
> q.stopwatch.stop
< function () {
  > if (!this._started) {
  >   return;
  > }
  > this._started = false;
  > this._elapsedTimeComponents.other +=
  > this._elapsedTimeComponents.currentSlice;
  > this._elapsedTimeComponents.currentSli...
  > |
```

q = pearson.testStateService.getCurrentItem()  
q.stopwatch.stop()

# Project Rex simulator (cont.)

- **Step 7:** Once the subtest is fully administered, restart the stopwatch



```
top
Preserve log
Search Touch:begin:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Going to: ST:WISC-V- testDirector.is2a54f1b8.:2732
Spanish:Symbol Search Touch:begin:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is2a54f1b8.:2732
ssundefined
Swiping to ADH:wiscv-esp- testDirector.is2a54f1b8.:2732
symbolsearchtouch-demoa:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is2a54f1b8.:2732
ssundefined
Swiping to ADH:wiscv-esp- testDirector.is2a54f1b8.:2732
symbolsearchtouch-samplea:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
Unable to find score with ID testDirector.is2a54f1b8.:2732
ssundefined
Swiping to ADH:wiscv-esp- testDirector.is2a54f1b8.:2732
symbolsearchtouch-testa:SID:08FC72C3-1BE5-4657-8E87-51754F521FEB
> q = pearson.testStateService.getCurrentItem()
< Administrable {forceReloadBefore: false,
  > suppressInstructionCard: false, maxTime: 120,
  > shouldShowTimTouches: false, isWritingRequired: false..}
> q.stopwatch.stop()
< undefined
> q.stopwatch.stop
< function () {
  > if (this._started) {
  >   return;
  > }
  > this._started = false;
  > this._elapsedTimeComponents.other +=
  > this._elapsedTimeComponents.currentSlice;
  > this._elapsedTimeComponents.currentSL...
> q.stopwatch.start()
< undefined
> q.stopwatch.start
< function () {
  > if (this._started) {
  >   return;
  > }
  > this._startTimeStamp =
  > pearson.getCurrentTime().getTime();
  > this._started = true;
  > this._hasStartedRunning = true;
  > this._scheduleTick();
  > th...
```

q.stopwatch.start()

# Project Rex simulator (cont.)

- **Step 9:** Make sure the subtest is fully administered (see the summary page)

The screenshot shows the 'End of Subtest' summary page for the WISC-V-Spanish Symbol Search Touch subtest. The page is titled 'WISC-V-Spanish Symbol Search Touch End of Subtest' and includes a 'Results' button in the top right corner. The subtest name 'Symbol Search Touch' is displayed with a score of '-'. Under the 'Item Raw Scores' section, three items are listed: 'Symbol Search Touch A: Demonstration Items' with a score of '-', 'Symbol Search Touch A: Sample Items' with a score of '-', and 'Symbol Search Touch A: Test Items' with a score of '68'. The 'Additional Measures' section shows 'Subtest Completion Time: 20 min. 58 sec.' and 'Average Subtest Completion Time: 3 min.'. The 'Notes' section lists 'General Notes: -', 'Subtest Notes: -', and 'Item Notes: -'. The 'Rules Triggered' section shows 'Discontinue Used: No' and 'Reverse Used: No'.

WISC-V-Spanish Symbol Search Touch  
End of Subtest

Results

Symbol Search Touch -

**Item Raw Scores**

Symbol Search Touch A: Demonstration Items ..... -

Symbol Search Touch A: Sample Items ..... -

→ Symbol Search Touch A: Test Items ..... 68

**Additional Measures**

Subtest Completion Time: 20 min. 58 sec.  
Average Subtest Completion Time: 3 min.

**Notes**

General Notes: -  
Subtest Notes: -  
Item Notes: -

**Rules Triggered**

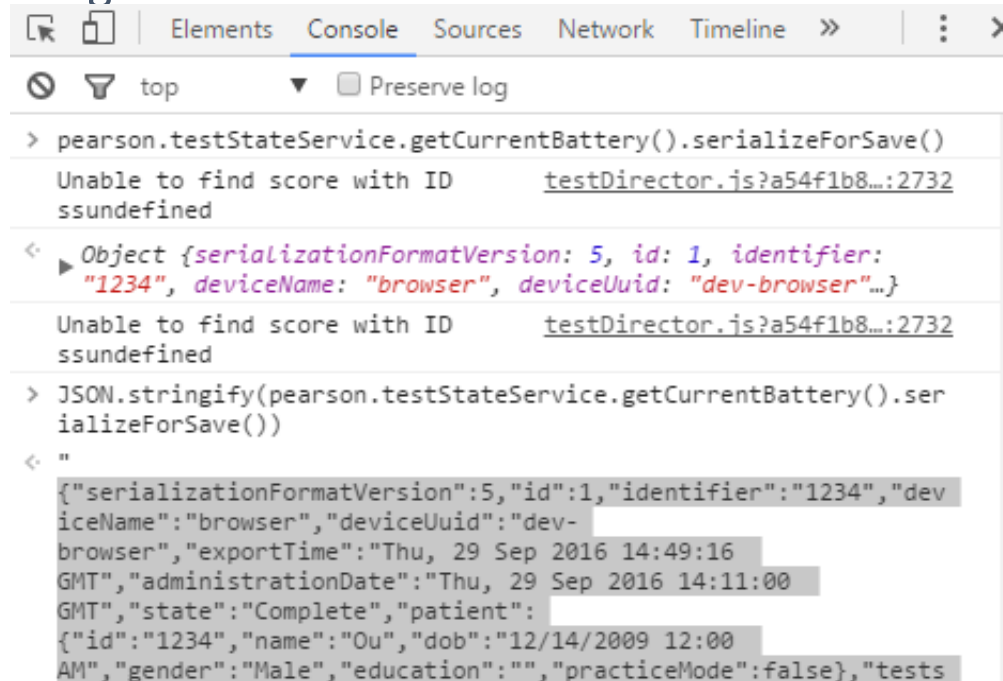
Discontinue Used: No  
Reverse Used: No

# Project Rex simulator (cont.)

- **Step 10:** Multiple ways to save your results in a JSON file (**option 1**)

- `JSON.stringify(pearson.testStateService.getCurrentBattery().serializeForSave())`

- The JSON format file is shown in the console. You can copy/paste to any of your JSON editing tools.

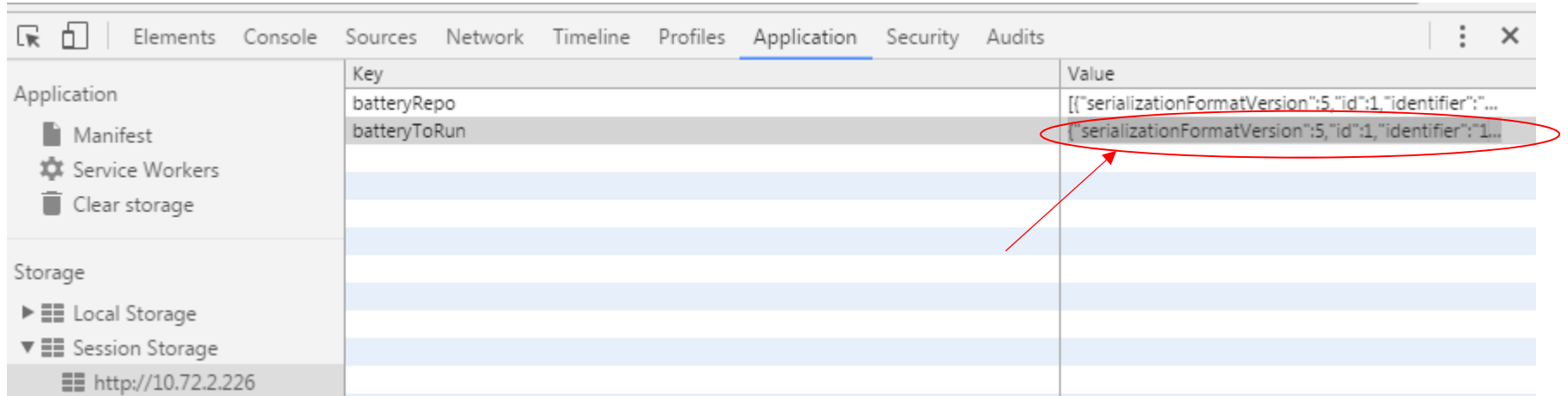


```
Elements Console Sources Network Timeline >> | : X
top [ ] Preserve log
> pearson.testStateService.getCurrentBattery().serializeForSave()
Unable to find score with ID testDirector.js?a54f1b8...:2732
ssundefined
< Object {serializationFormatVersion: 5, id: 1, identifier:
  "1234", deviceName: "browser", deviceUuid: "dev-browser"...}
Unable to find score with ID testDirector.js?a54f1b8...:2732
ssundefined
> JSON.stringify(pearson.testStateService.getCurrentBattery().ser
ializeForSave())
< "
{"serializationFormatVersion":5,"id":1,"identifier":"1234","dev
iceName":"browser","deviceUuid":"dev-
browser","exportTime":"Thu, 29 Sep 2016 14:49:16
GMT","administrationDate":"Thu, 29 Sep 2016 14:11:00
GMT","state":"Complete","patient":
{"id":"1234","name":"Ou","dob":"12/14/2009 12:00
AM","gender":"Male","education":"","practiceMode":false},"tests
```

# Project Rex simulator (cont.)

- **Step 10:** Multiple ways to save your results in JSON file (**option 2**)

- Go to Application\Session Storage\ BatteryToRun\ Value, then Copy/Paste files to your JSON editing tool.



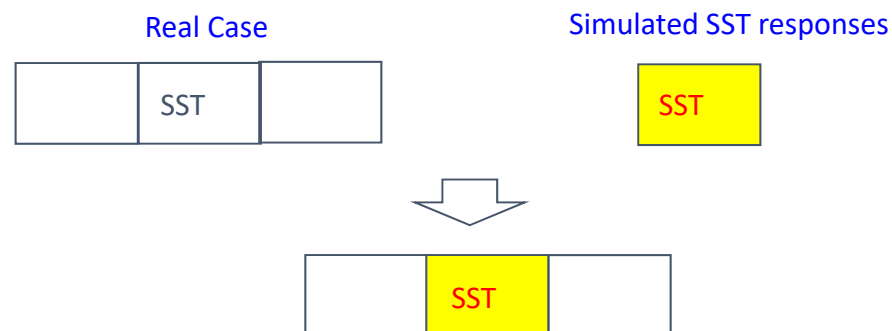
A separate document has been created with more details ([K:\flea market\q-i training](#)).



# Project Rex simulator (cont.)

- **Summary**

- Project Rex can help you create cases with specific conditions.
- Pausing the stopwatch helps you complete the entire timed subtest.
- The simulated cases (JSON output files) can be easily used/modified as system cases.
- **Example: WISC5 Spanish-Symbol Search Touch (SST) 1-75 items (form B)**
  - The maximum item number in the real sample data is 53. So, the system variables from item 54 to item 75 are missing. The fully-administered simulated cases are used to replace all the responses for the SST.



# Using JSON output to verify the variable list

- Original .json File in Notepad (WISC-V Spanish Example)

```
{  "identifiier": "*****",  "deviceUuid": "*****",  "hasObservations": false,  "notes": [],  "examiners": ["2FBEA7F0518635C5E0532E0F190AF277"],  "administrationDate": "Fri, 15 Apr 2016 19:41:00 GMT",  "grades": [],  "serializationFormatVersion": 5,  "subtests": [  "subtestGUID": "545ad72d485b49adb6eefc8282904c9c",  "wasStarted": true,  "summaryScreenVisited": true,  "testGUID": "3ca6f1f8ec884525b36aef1dd5b97ef",  "dataCollectionTimes": null,  "derivedState": {  "scaledScore": null,  "customScoringFields": [],  "graphConfig": {  "scoreLabel": "give.sharedSummarySheets.scaledScoreLabel",  "interval": 1  },  "min": 1,  "max": 19,  "state": "complete",  "customScoringType": "wiscv",  "totalTodos": 0,  "totalRawScore": 22,  "todoItemIds": [],  "displayType": "showscore",  "display": {  "score": 22,  "displayType": "showscore"  },  "rawScoreData": {  "bd_pRank": "63",  "bd_scaled": 11,  "bd_raw": 22,  "rotationErrors": 0,  "dimensionErrors": 1,  "rules": [  "mode": "start",  "skipToQuestionId": "wisc-v-esp-blockdesign-item3",  "positionToResumeTo": null,  "itemTriggeredResumeId": null,  "gradesStartingPointItemId": null  },  "subtestId": 916,  "title": "Block Design",  "discontinueUsed": true,  "subtestInstanceID": "06BB069A-3096-48A2-8C79-A1516950D755",  "completionTime": 399514,  "reverseUsed": false,  "questionsInOrderAdministered": [  "QWT:wisc-v-esp-blockdesign-item1",  "QWT:wisc-v-esp-blockdesign-item2",  "QWT:wisc-v-esp-blockdesign-item3",  "ADM:wisc-v-esp-blockdesign-item4:SID:06BB069A-3096-48A2-8C79-A1516950D755",  "ADM:wisc-v-esp-blockdesign-item5:SID:06BB069A-3096-48A2-8C79-A1516950D755",  "ADM:wisc-v-esp-blockdesign-item6:SID:06BB069A-3096-48A2-8C79-A1516950D755",  "ADM:wisc-v-esp-blockdesign-item7:SID:06BB069A-3096-48A2-8C79-A1516950D755",  "ADM:wisc-v-esp-blockdesign-item8:SID:06BB069A-3096-48A2-8C79-A1516950D755",  "ADM:wisc-v-esp-blockdesign-item9:SID:06BB069A-3096-48A2-8C79-A1516950D755"  ],  "normType": "wisc-v",  "startTime": "Tue, 10 May 2016 17:05:52 GMT",  "abbr": "bd",  "itemGroups": [  "derivedState": {  "totalRawScore": 10,  "maxTime": 30,  "isItemSetReversestopPoint": false,  "shouldShowDiscontinue": false,  "shouldShowGrayedScore": false,  "scoreDisplay": {  "score": 2,  "displayType": "showscore"  },  "ceButtonShouldNotCountTowardsSubtestTotal": false,  "simpleSkip": false,  "wasSkippedForStartingPoint": false,  "description": null,  "isStartingPoint": true,  "type": "blockDesign",  "completionTime": 1,  "is2x2WithTopRowOffset": false,  "predefinedBehavior": {  "width": 2,  "rotation": 5  },  "expectedState": {  "blocks": [  "isResponseCorrect": false,  "type": "blockDesign"  ],  "rawScore": 2,  "wasAdministered": true,  "reversedState": false,  "startTime": "2016-05-10T17:05:52.927Z",  "id": "wisc-v-esp-blockdesign-item1-546"  }
```

# Using JSON output to verify the variable list (cont.)

## A Better Way to Locally View .json Files



Notepad++

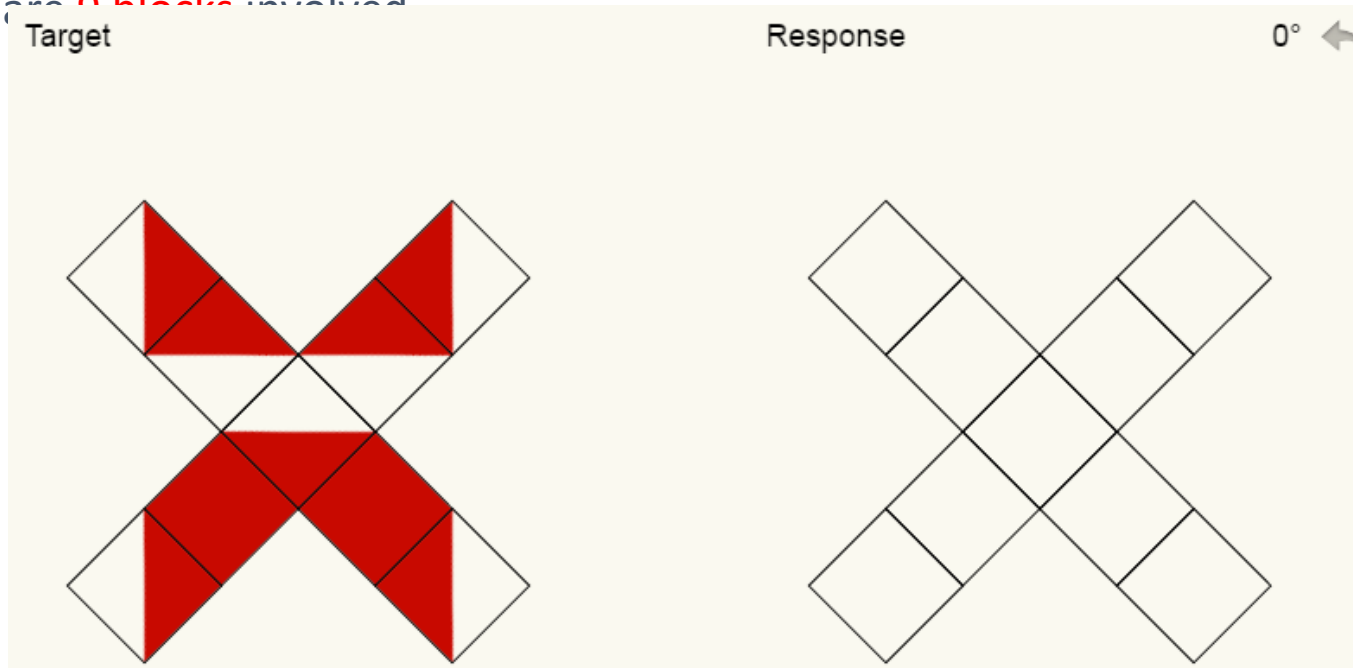
- Open Your .json File
- Plugins
  - Plugin Manager
    - Show Plugin Manager
      - Available Tab
      - Check JSTool
- Plugins
  - JSTool
    - Json Viewer

```
[-] subtests : [Array]
  [+ [0] : [Object]
  [+ [1] : [Object]
  [+ [2] : [Object]
    testGUID : "545ad72d485b49adb6eefc8282904c9c"
    wasStarted : true
    summaryScreenVisited : true
    subtestGUID : "70c92044eaac42028cca839168eda6b0"
    dataCollectionTimes : null
    [+ derivedState : [Object]
      displayName : "Matrix Reasoning"
      subtestType : "subtest"
    [+ customData : [Object]
    [-] rules : [Array]
      [+ [0] : [Object]
      [+ [1] : [Object]
```

# Using JSON output to verify the variable list (cont.)

## Example: WISC-V Spanish Block Design Item 13

Psychometrically, we assume there might be **9 variables** related to this item, because there are **9 blocks** involved.



# Using JSON output to verify the variable list (cont.)

The fact is, there are 25 JSON variables related to this item. So, we need to create 25 variables to meet psychometric-system variable one-on-one connection requirement.

The diagram illustrates the mapping between a JSON structure and a list of variables. On the left, a JSON tree shows a 'subtests' array containing an object with a 'rules' array. This array contains a 'Block Design' rule with a 'questions' array. A red arrow points from the 'questions' array to the 'data' object in the middle JSON snippet. Another red arrow points from the 'blocks' array within the 'data' object to the 'Variable Name' column of the table on the right. The table lists 25 variables, each named 'wisc5\_bd\_d13\_1' through 'wisc5\_bd\_d13\_25', corresponding to the 25 elements in the 'blocks' array.

```
subtests : [Array]
  [0] : [Object]
    testGUID : "545ad72d485b49adb6eefc8282904c9c"
    wasStarted : true
    summaryScreenVisited : true
    subtestGUID : "3ca6f1f8ec884525b36aefe1dd5b97ef"
    dataCollectionTimes : null
    derivedState : [Object]
    displayName : "Block Design"
    subtestType : "subtest"
    customData : [Object]
    rules : [Array]
      subtestId : 916
      title : "Block Design"
      discontinueUsed : true
      subtestInstanceID : "06BB069A-3096-48A2-8C79-A1516910D755"
      completionTime : 399514
      reverseUsed : false
      questionsInOrderAdministered : [Array]
        normType : "wisc-v"
        startTime : "Tue, 10 May 2016 17:05:52 GMT"
        abbr : "bd"
      itemGroups : [Array]
        [0] : [Object]
        [1] : [Object]
        [2] : [Object]
          shouldSuppressScore : true
          derivedState : [Object]
          questions : [Array]
            [0] : [Object]
            [1] : [Object]
            [2] : [Object]
            [3] : [Object]
            [3] : [Object]
    [3] : [Object]
      maxTime : 120
      isItemSetReverseStopPoint : false
      derivedState : [Object]
      isStartingPoint : false
      wasSkippedForStartingPoint : false
      description : null
      type : "blockDesign"
      title : "Item 13"
      contextualEventButtons : [Object]
      predefinedBehavior : [Object]
      data : [Object]
        is2x2WithTopRowOffset : false
        width : 5
        expectedState : [Object]
        blocks : [Array]
          [0] : 6
          [1] : 6
          [2] : 3
          [3] : 6
          [4] : 6
          [5] : 6
          [6] : 6
          [7] : 1
          [8] : 6
          [9] : 6
          [10] : 2
          [11] : 1
          [12] : 4
          [13] : 5
          [14] : 3
          [15] : 6
          [16] : 6
          [17] : 5
          [18] : 6
          [19] : 6
          [20] : 6
          [21] : 6
          [22] : 2
          [23] : 6
          [24] : 6
        rotation : 45
```

Variable Name
wisc5_bd_d13_1
wisc5_bd_d13_2
wisc5_bd_d13_3
wisc5_bd_d13_4
wisc5_bd_d13_5
wisc5_bd_d13_6
wisc5_bd_d13_7
wisc5_bd_d13_8
wisc5_bd_d13_9
wisc5_bd_d13_10
wisc5_bd_d13_11
wisc5_bd_d13_12
wisc5_bd_d13_13
wisc5_bd_d13_14
wisc5_bd_d13_15
wisc5_bd_d13_16
wisc5_bd_d13_17
wisc5_bd_d13_18
wisc5_bd_d13_19
wisc5_bd_d13_20
wisc5_bd_d13_21
wisc5_bd_d13_22
wisc5_bd_d13_23
wisc5_bd_d13_24
wisc5_bd_d13_25

## Using JSON output to verify the variable list (cont.)

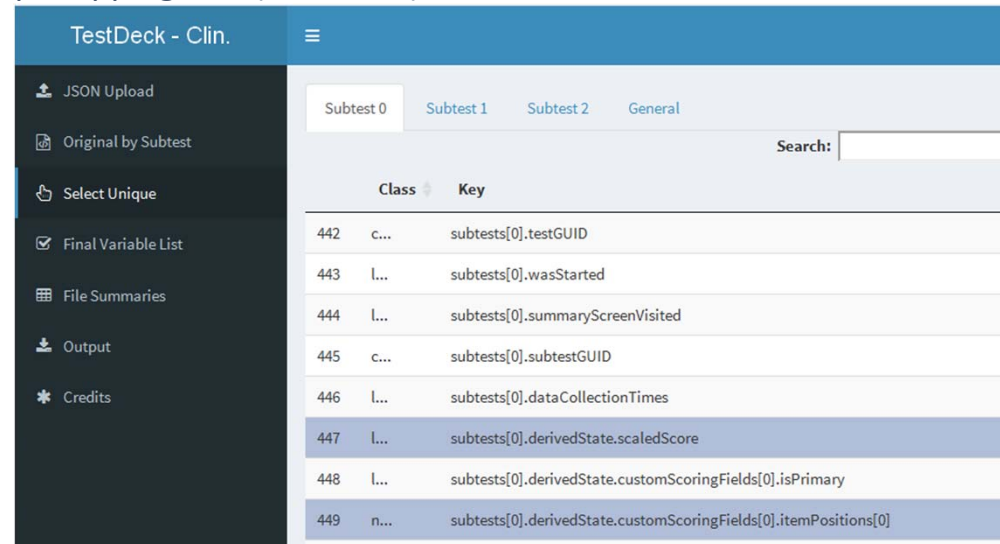
### Rules To Follow

1. The Psychometric variable list must reflect the feature of the system variables from digital administration software so that the psychometric-system variable **one-on-one** connection requirement is met
2. In the future, what value/variable type you see in the Q-i output file, will be directly mapped to the psychometric variable.
3. Psychometrics will no longer ask Field Research team to convert value/variable type/variable pattern for us.

Ben created a separate slide for this part with more details ([K:\flea market\q-i training](#)).

# Functions under development

1. Variable list/map mapping tool ([Ben & Ou](#))



	Class	Key
442	c...	subtests[0].testGUID
443	l...	subtests[0].wasStarted
444	l...	subtests[0].summaryScreenVisited
445	c...	subtests[0].subtestGUID
446	l...	subtests[0].dataCollectionTimes
447	l...	subtests[0].derivedState.scaledScore
448	l...	subtests[0].derivedState.customScoringFields[0].isPrimary
449	n...	subtests[0].derivedState.customScoringFields[0].itemPositions[0]

2. CIT-Master specs procedure exploration ([Ou](#))
3. Universal sas macro for parsed json/sas data conversion ([Wendy & Ou](#))
4. JSON/Aurora data comparison code/tool ([Ben & Ou](#))
5. System case simulation, converting input format file for digital platform application ([Suping, Ou, Ben](#))

# Acknowledgement

- Thanks to Kristen Getz for all her help, assistance, and information!