

Smarter Balanced Item and Stimulus Metadata Specification

Draft 30 September 2014

Table 1. Revision History

Description	Author/Modifier	Date
1. Initial draft, based on collaboration Smartsheet, which contained information copied from AIR's 7/23/14 draft metadata spec and ETS's Field Test metadata fields	Byron Sartain, Kevin King	September 16, 2014
2. Editorial Review	Marty McCall	
3. Editorial Review	Brandt Redd	September 23, 2014
4. Revision based on initial staff editorial review	Byron Sartain, Kevin King	
6. Review at AIR	David Lopez de Quintana	
7. Final Revision	Byron Sartain, Kevin King	
Approval by Lead Psychometrician	Marty McCall	
Approval by Chief Technology Officer	Brandt Redd	

Background

The purpose of this document is to provide an item and stimulus metadata specification that will be used for SmarterApp items. This specification represents the combined work of Smarter Balanced and various vendors working on related contracts. At the end of July 2014, WestEd—the project management partner (PMP) for Smarter Balanced—organized a comprehensive metadata review effort involving the Lead Psychometrician, the Chief Technology Officer, and staff from AIR, ETS, and CTB/McGraw-Hill. These initial collaboration meetings were followed by sessions involving Smarter Balanced staff and PMP for detailed discussion of metadata fields. Questions were directed to contractors as necessary throughout the process. This document resulted from those meetings and inquiries, culminating in CTO and Chief Psychometrician review and confirmation of these specified metadata fields.

Metadata Fields

The fields in the table below adhere to the following guidelines:

- **Case sensitivity:** Field names are case sensitive
- **Order sensitivity:** Fields are not order-sensitive
- **Optional fields:** By default, optional fields do not need to be included in the metadata file. A missing optional field is simply treated as not present or not applicable. Optional fields are specified with a “no” in the “Required” column.
- **Field Numbers:** The field numbers in the first column are for convenience in referencing this version of this specification. They are arbitrary and could be changed or eliminated in future versions of the spec.

Table 2. Metadata Fields

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
001	Identifier	A system-independent identifier, which is the primary, unique identifier of this item, preferably a UUID.	f5aec190-9359-11e3-baa8-0800200c9a66	Derived from http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf LOM:1.1:General.Identifier.	xsd:token	40	Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	Yes	1	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
002	Variant	Indicates that this item is a variant of other items with the same ID value. Variants include translations into different languages (e.g. English and Spanish) and renditions into different formats (e.g. SAAIF, QTI, ARI).	en 3		xsd:token	40		No	0..1	
003	Version	Reflects the version of the item as created by the authoring application. Item authoring application versioning rules are beyond the scope of this document.	4.2 alpha	http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf LOM:2.1:Lifecycle.Version	xsd:token	30	<one or more printable ASCII character>	Yes	1	
009	Subject	Subject name. The current SmarterApp items all have subjects (MATH, ELA, StudentHelp). However, items of any subjects can be authored.	ELA		xsd:token	30	<one or more printable ASCII character>	Yes	1	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
010	Status	This metadata will correspond to a value that represents the item lifecycle.	Developing	Derived from http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf LOM:2.2 Lifecycle.status	xsd:token	30	Developing Active/Operational Field Test Embedded Field Test Field Tested Pilot Equating Released Ready for Operational Ready for Field Test Ready for Pilot Test Pilot Tested Ready for Field Review Field Reviewed Operational Equating Rejected	No	1	
012	Keyword	Comma-separated list of arbitrary keywords used for indexing searches	("en","finance,economics,18th century")	Derived from http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf LOM:1.5 General.keyword	xsd:token	30	<one or more printable ASCII character>	No	[0..n]	
017	BrailleType	Which Braille files to create. BRF=Braille Ready Format. PRN=printer file	PRN		xsd:token	15	BRF, PRN, Not Brailleable	No	1	
018	EnemyItem	The UUID of an item that cannot be administered with this item. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	83d4c2b0-99a1-11e3-a5e2-0800200c9a66		xsd:token	40	<item identifier>	No	[0..n]	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
020	PtWritingType	A description of the purpose of writing performance task (applies to writing performance tasks only)	Informative		xsd:token	15	Explanatory, Opinion, Informative, Argumentative, Narrative	No	1	
023	ItemAuthorIdentifier	A text string identifying the original item author or authors. It can be of any format including Firstname Lastname or any other identifying string.	Jonathan Smith		xsd:token	100	<one or more printable ASCII character>	No	[0..n]	
024	LastModifiedBy	A text string identifying the person who last modified the item. It can be of any format including Firstname Lastname or any other identifying string.	Andrea Davidson		xsd:token	100	<one or more printable ASCII character>	No	[0..n]	
025	SufficientEvidenceOfClaim	Explains how what the student does proves they have the skills and knowledge expressed in the claim and target.	This item shows that students can produce effective writing for a range of purposes and audiences.		xsd:token	300	<one or more printable ASCII character>	No	[0..n]	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
029	MathematicalPractice	Specify the mathematical practices (1-8) associated with the item/task. The eight mathematical practices correspond to the following list: 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. None: If none of the above apply	5		xsd:token	4	1,2,3,4,5,6,7,8,Non e	No	[0..n]	
030	Notes	Notes that may aid in understanding the purpose of this item. For TE items, include the TE template name here. One entry per language.	("en","This is an annotation")		xsd:token	300	("en","<one or more printable ASCII character>")	No	[0..n]	
032	StimulusType	Type of stimulus	audio		xsd:token	16	Text, Audio, Audiovisual, Chart, Graph, Picture/Graphic, Table, N/A	No	1	
033	StimulusName	Title of the stimulus passage	Bugs are the Best		xsd:token	50	<one or more printable ASCII character>	No	1	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
034	StimulusSource	Specify any stimulus material used and/or source required for factual information. All sources must be reliable and reproducible. If none, leave blank.	http://quickfacts.census.gov/qfd/states/06000.html		xsd:token	150	<one or more printable ASCII character>	No	1	
035	StimulusGenre	Describes the nature of the stimulus	Informational Text		xsd:token	20	Literary Text, Listening, Informational Text, Video	No	1	
036	StimulusLength	description, related to number of items supported by the stimulus Long = 18-20 items Short = 9-10 items	Long		xsd:token	6	Long, Short, Medium	No	1	
037	AssociatedTutorial	UUID or reference to associated tutorial resource. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	4a50ffd0-a53c-11e3-a5e2-0800200c9a66		xsd:token	40	Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	No	1	
038	AssociatedWordlist	UUID or reference to associated wordlist (glossary) resource. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	35320c20-a53c-11e3-a5e2-0800200c9a66		xsd:token	40	Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	No	1	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
039	PrimaryStandard	Enter the number(s) of the CCSS standard(s). Includes Content Standards Publication key:Standards Key. This can be any level of the hierarchy contained in the standards publication	SBAC-ELA-V1:4-CR 6-8 8-L-1b.		xsd:token	40	<Standards publication>:<standards key>	No	1	
040	SecondaryStandard	Enter the number(s) of the CCSS standard(s). Includes Content Standards Publication key:Standards Key. This can be any level of the hierarchy contained in the standards publication	SBAC-MA-V1:1 MD J-4 a/s		xsd:token	40	<Standards publication>:<standards key>	No	[0..n]	
042	ScorePoints	A comma-separated list of all possible scores for the item 1-point item: "0,1" 2-point item: "0,1,2" 3-point item: "0,1,2,3" 4-point item: "0,1,2,3,4" 5-point item: "0,1,2,3,4,5" 6-point item: "0,1,2,3,4,5,6" NA is used for stimuli and for wordlists and tutorial items.	0,1,2		xsd:token	100	"0,1" "0,1,2" "0,1,2,3" "0,1,2,3,4" "0,1,2,3,4,5" "0,1,2,3,4,5,6" NA <Comma-separated list of integer values greater than or equal to zero>	No	[1..n]	
045	StimulusGraphic	Does the stimulus contain a graphic?	Yes		xsd:boolean	3	Yes,No	No	1	
048	DepthOfKnowledge	Depth of Knowledge level of the item. NA is used for stimuli and for wordlists and tutorial items; 1-4 for all other item types, representing the range from less complex (1) to most complex (4).	3		xsd:token	2	1,2,3,4,NA	No	1	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
052	PresentationFormat	Format of item presentation. For example, Text, text with graphics, graphics, audio, simulation, animation, etc..	audio		xsd:token	19	Audio Graphics only Animation Simulation Text Text with graphics Audiovisual	Yes	1	
053	ResponseFormat	Format of the response	CR Essay	See "SmarterApp Assessment Item Format Specification (http://www.smarterapp.org/specs/AssessmentItemFormat.html)"	xsd:token	30	EBSR, eq, er, gi, htq, mc, mi, ms, nl, pass, sa, SIM, ti, tut, wer, wordlist	No	1	
056	StimulusReadabilityFK	From stimulus placemat Flesch-Kincaid value	30	http://en.wikipedia.org/wiki/Flesch-Kincaid_readability_test	xsd:integer	3	FK = 0 to 100	No	1	
057	StimulusReadabilityLexile	From stimulus placemat Lexile value	600	http://www.lexile.com	xsd:integer	4	Lexile = integers 400-1200	No	1	
066	StimulusLiteraryNonFiction	Division of RL and RI. LNF = Literary Non Fiction, Sci = Science, SocSci = Social Science	LNF		xsd:token	6	LNF, Sci, SocSci	No	1	
067	StimulusPerformanceTask	Stimulus for a PT	Yes		xsd:boolean	3	Yes, No	No	1	
069	PerformanceTaskComponentItem	Part of a PT	Yes		xsd:boolean	3	Yes, No	No	1	
070	PtSequence	Indicates the location of an item within a PT set. It will be populated for ELA PT Items.	2		xsd:integer	1	1,2,3,4	No	1	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
071	PtMetadataTypeOfWriting	Narrative, argumentative, informational (for stim and long essay only)	A		xsd:token	1	N, A, I	No	1	
072	PtClassroomActivity	Associated classroom activity	Yes		xsd:token	3	Yes, No	No	1	
074	AccessibilityTagsASLLanguage	Does the item have an ASL video associated with it?	Yes		xsd:boolean	3	Yes, No	No	1	
077	AlgebraFunctionDescriptor	Algebra Function Descriptor: (1) Linear (2) Exponential (3) Quadratic (4) Polynomial (5) Rational (6) Radical (7) Absolute Value (8) Logarithmic (9) Trigonometric (10) Step (11) Piecewise (12) Square root (13) Cube root	9		xsd:integer	2	1,2,3,4,5,6,7,8,9,10,11,12,13	No	[0..n]	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
IRT Fields										
	IRT_A	IRT a-parameter		IRT_Step4	IRT step value 4 for polytomous items					
	IRT_A_SE	IRT a-parameter standard error		IRT_Step4_SE	IRT step value 4 standard error					
	IRT_B	IRT b-parameter		IRT_Step5	IRT step value 5 for polytomous items					
	IRT_B_SE	IRT b-parameter standard error		IRT_Step5_SE	IRT step value 5 standard error					
	IRT_C	IRT c-parameter		IRT_Step6	IRT step value 6 for polytomous items					
	IRT_C_SE	IRT c-parameter standard error		IRT_Step6_SE	IRT step value 6 standard error					
	IRT_Step1	IRT step value 1 for polytomous items		IRT_Step7	IRT step value 7 for polytomous items					
	IRT_Step1_SE	IRT step value 1 standard error		IRT_Step7_SE	IRT step value 7 standard error					
	IRT_Step2	IRT step value 2 for polytomous items		IRT_Step8	IRT step value 8 for polytomous items					
	IRT_Step2_SE	IRT step value 2 standard error		IRT_Step8_SE	IRT step value 8 standard error					
	IRT_Step3	IRT step value 3 for polytomous items		IRT_Fit1	Item fit statistics 1; G square					
	IRT_Step3_SE	IRT step value 3 standard error		IRT_Fit2	Item fit statistics 2; Placeholder					
081	IrtModelType	Define IRT (Item Response Theory) Model being used	IRT3pl	http://en.wikipedia.org/wiki/Item_response_theory	xsd:token	7	IRT3pl IRT3pln IRTGPC IRTPCL Raw	No	[0..n]	
082	IrtWeight	IRT model weight. Precision of up to 16 decimal places.	1		xsd:double	20	<any non-negative double-precision floating point number>	No	[0..n]	
083	IrtDimensionPurpose	Purpose of the current IRT dimension	Elocution		xsd:token	30	<one or more printable ASCII character>	No	[0..n]	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
084	IrtRecodeRule	IRT model recode rule			xsd:token	20	<one or more printable ASCII character>	No	[0..n]	
085	IrtScore	IRT score per dimension (or recoded)	5		xsd:integer	3	0...999	No	[0..n]	
101	Excluded_from_All_Analysis	AIR and CTB indicated "Do not use" (DNU) or "Do not score" (DNS) items to not include in analysis for item issues related to test delivery and scoring. Value "Y" indicates that this item was not included in Field Test analyses.			Character					
102	Excluded_from_IRT_Analysis	The item was excluded from IRT analyses as a result of being rejected at content data review or causing program convergence issues. Value "Y" indicates that this item was not included in IRT analyses.			Character					
105	Student_Grade	The student grade from which the item statistics were obtained. When an item is used in multiple grades, this field indicates the grade of the students who took the item, regardless of the grade for which the item was intended.			Numeric					
107	Sample_Size	The number of students included to calculate this set of item statistics			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
122	Percent_ChoosingA	Percentage of students selecting MC item option A			Numeric					
123	Percent_ChoosingB	Percentage of students selecting MC item option B			Numeric					
124	Percent_ChoosingC	Percentage of students selecting MC item option C			Numeric					
125	Percent_ChoosingD	Percentage of students selecting MC item option D			Numeric					
126	Percent_ChoosingE	Percentage of students selecting MC item option E			Numeric					
127	Percent_ChoosingF	Percentage of students selecting MC item option F			Numeric					
128	Percent_ChoosingG	Percentage of students selecting MC item option G			Numeric					
129	Percent_Obtaining_0	Percentage of students obtaining score 0			Numeric					
130	Percent_Obtaining_1	Percentage of students obtaining score 1			Numeric					
131	Percent_Obtaining_2	Percentage of students obtaining score 2			Numeric					
132	Percent_Obtaining_3	Percentage of students obtaining score 3			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
133	Percent_Obtaining_4	Percentage of students obtaining score 4			Numeric					
134	Percent_Obtaining_5	Percentage of students obtaining score 5			Numeric					
135	Percent_Obtaining_6	Percentage of students obtaining score 6			Numeric					
136	Percent_Obtaining_7	Percentage of students obtaining score 7			Numeric					
137	Percent_Obtaining_8	Percentage of students obtaining score 8			Numeric					
138	Biserial_OptionA	Biserial for MC item option A			Numeric					
139	Biserial_OptionB	Biserial for MC item option B			Numeric					
140	Biserial_OptionC	Biserial for MC item option C			Numeric					
141	Biserial_OptionD	Biserial for MC item option D			Numeric					
142	Biserial_OptionE	Biserial for MC item option E			Numeric					
143	Biserial_OptionF	Biserial for MC item option F			Numeric					
144	Biserial_OptionG	Biserial for MC item option G			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
145	Item_Total_Pearson_Correlation	Point-biserial for dichotomous items and point-polyserial for polytomous items. The total/criterion score in the LOFT-delivered Field Test is the average AIS of all items taken by a student.			Numeric					
146	Pt_biserial_OptionA	Point-biserial for MC item option A			Numeric					
147	Pt_biserial_OptionB	Point-biserial for MC item option B			Numeric					
148	Pt_biserial_OptionC	Point-biserial for MC item option C			Numeric					
149	Pt_biserial_OptionD	Point-biserial for MC item option D			Numeric					
150	Pt_biserial_OptionE	Point-biserial for MC item option E			Numeric					
151	Pt_biserial_OptionF	Point-biserial for MC item option F			Numeric					
152	Pt_biserial_OptionG	Point-biserial for MC item option G			Numeric					
153	N_ChoosingA	Number of students choosing MC item option A			Numeric					
154	MeanCritScore_OptionA	Mean criterion score of those students choosing option A			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
155	N_choosingB	Number of students choosing MC item option B			Numeric					
156	MeanCritScore_OptionB	Mean criterion score of those students choosing option B			Numeric					
157	N_ChoosingC	Number of students choosing MC item option C			Numeric					
158	MeanCritScore_OptionC	Mean criterion score of those students choosing option C			Numeric					
159	N_ChoosingD	Number of students choosing MC item option D			Numeric					
160	MeanCritScore_OptionD	Mean criterion score of those students choosing option D			Numeric					
161	N_ChoosingE	Number of students choosing MC item option E			Numeric					
162	MeanCritScore_OptionE	Mean criterion score of those students choosing option E			Numeric					
163	N_ChoosingF	Number of students choosing MC item option F			Numeric					
164	MeanCritScore_OptionF	Mean criterion score of those students choosing option F			Numeric					
165	N_ChoosingG	Number of students choosing MC item option G			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
166	MeanCritScore_OptionG	Mean criterion score of those students choosing option G			Numeric					
167	N_Omitting	Number of students omitting the item			Numeric					
168	MeanCritScore_Omit	Mean criterion score of those that omitted the item			Numeric					
169	N_Reached	Number of students reaching the item			Numeric					
170	MeanCritScore_Reached	Mean criterion score of those that reached the item			Numeric					
171	N_Cat_0	Number of students obtaining the score of 0			Numeric					
172	MeanCritScore_Cat_0	Mean criterion score of those testers at score category 0			Numeric					
173	N_Cat_1	Number of students obtaining the score of 1			Numeric					
174	MeanCritScore_Cat_1	Mean criterion score of those testers at score category 1			Numeric					
175	N_Cat_2	Number of students obtaining the score of 2			Numeric					
176	MeanCritScore_Cat_2	Mean criterion score of those testers at score category 2			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
177	N_Cat_3	Number of students obtaining the score of 3			Numeric					
178	MeanCritScore_Cat_3	Mean criterion score of those testers at score category 3			Numeric					
179	N_Cat_4	Number of students obtaining the score of 4			Numeric					
180	MeanCritScore_Cat_4	Mean criterion score of those testers at score category 4			Numeric					
181	N_Cat_5	Number of students obtaining the score of 5			Numeric					
182	MeanCritScore_Cat_5	Mean criterion score of those testers at score category 5			Numeric					
183	N_Cat_6	Number of students obtaining the score of 6			Numeric					
184	MeanCritScore_Cat_6	Mean criterion score of those testers at score category 6			Numeric					
185	N_Cat_7	Number of students obtaining the score of 7			Numeric					
186	MeanCritScore_Cat_7	Mean criterion score of those testers at score category 7			Numeric					
187	N_Cat_8	Number of students obtaining the score of 8			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
188	MeanCritScore_Cat_8	Mean criterion score of those testers at score category 8			Numeric					
189	DIFCat_Female_v_Male	Female vs. Male DIF category; B+, B-, C+, C-			Character					
190	DIFCat_Asian_v_White	Asian vs. White DIF category; B+, B-, C+, C-			Character					
191	DIFCat_Black_v_White	Black vs. White DIF category; B+, B-, C+, C-			Character					
192	DIFCat_Hispanic_v_White	Hispanic vs. White DIF category; B+, B-, C+, C-			Character					
193	DIFCat_NativeA_v_White	Native American vs. White DIF category; B+, B-, C+, C-			Character					
194	DIFCat_IEP_v_NonIEP	IEP students vs. non IEP students; B+, B-, C+, C-			Character					
195	DIFCat_LEP_v_NonLEP	LEP students vs. non LEP students; B+, B-, C+, C-			Character					
196	DIFCat_Title1_v_NonTitle1	Title 1 eligible students vs. non eligible students; B+, B-, C+, C-			Character					
197	N_Male	Number of male students			Numeric					
198	N_Female	Number of female students			Numeric					
199	N_White	Number of white students			Numeric					
200	N_Asian	Number of Asian students			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
201	N_Black	Number of black students			Numeric					
202	N_Hispanic	Number of Hispanic students			Numeric					
203	N_NativeAmerican	Number of native American students			Numeric					
204	N_IEP	Number of IEP students			Numeric					
205	N_LEP	Number of LEP students			Numeric					
206	N_Title1	Number of Title 1 eligible students			Numeric					
207	MHDDIF_F_M	The MH-D-DIF from the comparison of Female vs. Male students.			Numeric					
208	SMD_F_M	Standardized mean differences from the comparison of Female vs. Male students.			Numeric					
209	MHDDIF_Asian_White	The MH-D-DIF from the comparison of Asian vs. White students.			Numeric					
210	SMD_Asian_White	Standardized mean differences from the comparison of Asian vs. White students.			Numeric					
211	MHDDIF_Black_White	The MH-D-DIF from the comparison of Black vs. White students.			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
212	SMD_Black_White	Standardized mean differences from the comparison of Black vs. White students.			Numeric					
213	MHDDIF_Hispanic_White	The MH-D-DIF from the comparison of Hispanic vs. White students.			Numeric					
214	SMD_Hispanic_White	Standardized mean differences from the comparison of Hispanic vs. White students.			Numeric					
215	MHDDIF_NativeA_White	The MH-D-DIF from the comparison of Native American vs. White students.			Numeric					
216	SMD_NativeA_White	Standardized mean differences from the comparison of Native American vs. White students.			Numeric					
217	MHDDIF_IEP_NonIEP	The MH-D-DIF from the comparison of students in Individualized Education Program (IEP) vs. non IEP students.			Numeric					
218	SMD_IEP_NonIEP	Standardized mean differences from the comparison of IEP vs. non IEP students.			Numeric					
219	MHDDIF_LEP_NonLEP	The MH-D-DIF from the comparison of students with Limited English Proficiency (LEP) vs. non LEP students.			Numeric					

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
220	SMD_LEP_NonLEP	Standardized mean differences from the comparison of LEP vs. non LEP students.			Numeric					
221	MHDDIF_Title1_NonTitle1	The MH-D-DIF from the comparison of students who are eligible or not eligible for Title 1.			Numeric					
222	SMD_Title1_NonTitle1	Standardized mean differences from the comparison of students who are eligible or not eligible for Title 1.			Numeric					
Changes Pending										
011	Language	Supported language(s) for this item. Each code consists of a lower-case 3-character representation of the language name, as defined by the ISO-639-2 standard. An optional extension of -Braille may be appended. This field does not apply to Wordlists or Tutorials. This field can be repeated to accommodate multiple languages.	eng	http://www.loc.gov/stan-dards/iso639-2/php/English_list.php	xsd:token	11	<3-letter ISO-639-2 code for the language name> plus an optional extension of -Braille	No	[1..n]	
026	Claim2Category	REVISED: Applies to ELA writing sub-claim scores, type of Claim 2 item: (O)rganization, (E)vidence/Elaboration, (C)onventions.	E		xsd:token	1	O, E, C	No	1	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
027	Claim2RevisionCategory	Applies to ELA writing sub-claim scores. BW=Brief Write R=Revision	R		xsd:token	2	BW,R	No	1	
028	AllowCalculator	Is calculator use allowed by Smarter Calculator policy? Only applicable to Math items.	Yes		xsd:boolean	3	required, permitted, prohibited	No	1	
044	EvidenceStatement	Indicates the evidence that could be observed in order to know the student met the target.	This item requires the student to identify a central idea in the text and support it with relevant details.		xsd:token	300	<one or more printable ASCII character>	Yes	[0..n]	
049	EligibleAssessmentType	Assessment type for which this item is targeted. The field accommodates multiple values.	summative		xsd:token	13	summative, interim	No	[0..n]	
051	SpecificationsVersion	Smarter Balanced Item Specification year, e.g. 2012 version, 2013 revised version	2013		xsd:integer	4	<any four-digit integer>	No	1	2012–n
054	ScoringMethod	Scoring method; field accommodates multiple values.	HandScored		xsd:token	40	Automatic with (keys) Automatic with key Automatic with machine rubric Automatic, graphic, response scoring Hand scored	No	1	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
058	StimulusLiteraryMeaning	Qualitative Readability Rating of the complexity of meaning(s) in a literary passage.	Very		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
059	StimulusLiteraryTextStructure	Qualitative Readability Rating of the organizational structure's complexity in a literary passage, accounting also for any organizational clarification that accompanying images provide.	Moderately		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
060	StimulusLiteraryLangFeatures	Qualitative Readability Rating of the complexity of Language Usage in a literary passage.	Exceedingly		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
061	StimulusLiteraryKnowledgeDemands	Qualitative Readability Rating of the complexity of a literary passage on account of life experiences, intertextuality, and cultural knowledge.	Very		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
062	StimulusInfoPurpose	Qualitative readability rating of the complexity involved in interpreting an informational passage's purpose.	Very		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
063	StimulusInfoTextStructure	Qualitative Readability Rating of the organizational structure's complexity in an informational passage, accounting also for any organizational clarification that accompanying images provide.	Slightly		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
064	StimulusInfoLanguageFeatures	Qualitative Readability Rating of the complexity of Language Usage in an informational passage.	Exceedingly		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
065	StimulusInfoKnowledgeDemands	Qualitative Readability Rating of the complexity of an informational passage on account of life experiences, intertextuality, and cultural knowledge, and/or subject matter knowledge.	Very		xsd:token	11	Exceedingly, Very, Moderately, Slightly	No	1	
075a	ELAContentTaskModel	The item specifications list allowable task models for each claim and target. We use these to identify the task models (e.g., for Claim 3 Target 4 items, the task model for MC items is 1.)	1		xsd:integer	3	1...999	No	1	
075b	MathContentTaskModel	The item specifications list allowable task models for each claim and target. We use these to identify the task models (e.g., for Claim 3 Target 4 items, the task model for MC items is 1.)	1		xsd:integer	3	1...999	No	1	
076	MathSubTaskModel	The item specifications list allowable task models for each claim and target. We use these to identify the task models (e.g., for Claim 3 Target 4 items, the task model for MC items is 1.) Used only for Math	1		xsd:integer	3	1...999	No	1	
100a	WER_ItemSubItemA	The A dimension (organization) of the ELA PT WER items			Character					
100b	WER_ItemSubItemB	The B dimension (evidence/elaboration) of the ELA PT WER items.			Character					

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
100c	WER_ItemSubItemC	The C dimension (convention) of the ELA PT WER items.			Character					
100d	WER_ItemSubItemD	The up-rounded average of the A and B dimensions of the ELA PT WER items.			Character					
110	StatFlagLowAvgItemScore	Item flags according to item statistics: A=Low Average Item Score (less than .10).			Character					
111	StatFlagScoreCatLowN	Item flags according to item statistics: B=CR items with percentage obtaining any score category <3%.			Character					
112	StatFlagHighStudLowScorePt	Item flags according to item statistics: C=CR items with higher criterion score mean for students in a lower score-point category.			Character					
113	StatFlagHighAbilityPropChooseDistractor	Item flags according to item statistics: D=MC items with proportionally more higher ability students select a distractor over the key.			Character					
114	StatFlagHighAbilityAvgChooseDistractor	Item flags according to item statistics: F=MC items with higher criterion score mean for students choosing a distractor than the mean for those choosing the key.			Character					

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
115	StatFlagHighAvgItemScore	Item flags according to item statistics: H=High Average Item Score (greater than .95).			Character					
116	StatFlagHighNotRespond	Item flags according to item statistics: N=High Percent of Not Responding (Omits + Not Reached).			Character					
117	StatFlagHighOmits	Item flags according to item statistics: O=High Percent of Omits.			Character					
118	StatFlagPosDistrBiserial	Item flags according to item statistics: P=MC items with positive distractor biserial correlation.			Character					
119	StatFlagLowItemTtlCorr	Item flags according to item statistics: R=Low item-total correlation (less than .30).			Character					
120	StatFlagSmallerAISatHigherGrade	Item flags according to item statistics: V=Smaller AIS at a higher grade level. Z=Flagged by statisticians as an additional item that needs content review.			Character					
121	StatFlagNeedContentRvw	Z=Flagged by statisticians as an additional item that needs content review.			Character					
301	Claim	Claim item is associated with			Numeric		1,2,3,4	Yes		
302	Target	Target item is associated with			Character		Math: A-Z; ELA:1-99	Yes		

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
303	Minimum points scored	Lowest score category used in statistical analysis-usually zero			Numeric		Integer			
304	PT ID	Unique ID of performance task item is associated with			Numeric		Integer			
305	PT version	Version of PT used with this item for this data collection			Numeric		Integer			
306	PT Classroom Activity ID	Classroom activity associated with this PT			Numeric		Integer			
307	Stimulus version	Version of stimulus used with this item for this data collection			Numeric		Integer			
308	BrailleStandard	(partner tag to BrailleType)					contracted, uncontracted			
309	ElfQuantitative	Easy Listening Formula; a quantitative listenability rating calculated by counting the number of syllables (above one) for each word. Figure indicates grade level associated with the calculated ratio.		ELA and Literacy Stimulus Specifications				No		
310	StimulusListeningPurpose	Qualitative Listenability Rating of the auditory complexity of a passage based on purpose, audience, and presentation.		ELA and Literacy Stimulus Specifications			low, medium, high	No		
311	StimulusListeningAuditoryStructure	Qualitative Listenability Rating of the auditory complexity of a passage based on organization and sound variety.		ELA and Literacy Stimulus Specifications			low, medium, high	No		

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
312	StimulusListeningOralLangFeatures	Qualitative Listenability Rating of the auditory complexity of a passage based on conventionality of language, vocabulary, and delivery.		ELA and Literacy Stimulus Specifications			low, medium, high	No		
313	StimulusListeningKnowledgeDemands	Qualitative Listenability Rating of the auditory complexity of a passage based on subject matter knowledge required, allusions/reference, and the use of images.		ELA and Literacy Stimulus Specifications			low, medium, high	No		
314	LicensedWorkStandardNumber	The ISBN or ISSN of the licensed work.						No		
315	LicensedWorkTitle	Title of the work or publication. For periodicals it is the title of the periodical, not of the article.						No		
316	LicensedWorkArticleTitle	Title of the article in a periodical (if applicable)						No		
317	LicensedWorkAuthor	Author of the licensed work.						No		
318	LicensedWorkPublisher	Publisher of the licensed work.						No		
319	LicensedWorkDate	Publication date of the licensed work.						No		
320	LicensedWorkLocation	Location of the publisher of the licensed work (from the copyright page or masthead).						No		

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
321	LicensedWorkVolNum	Volume/Number/Series (if applicable). E.g. "Volume 3 Number 5"						No		
322	LicensedWorkCcld	The CCC ID Number (if available)						No		
Resolution Still Required										
005	AlternateIdentifier	Alternate identifier for this item from other systems. When a new identifier is created for this item, the existing value in the "identifier" field is added as another instance of AlternateIdentifier.	28716		xsd:token	40	System-specific unique identifier. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	No	[0..n]	
013	SecurityStatus	Indicates the secure status of the item. The item is considered secure through field testing, as summative use. The item is considered non-secure for release and interim use purposes.	Secure		xsd:token	20	Secure, Non-secure	Yes	1	
097	Administration	Spring 2014 Field Test			Character			No		
031 a	AssociatedStimulus	A UUID of an associated stimulus. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	41d7ec7b-2ed7-4b7b-96dc-9c1d9ada6891		xsd:token	40	A unique identifier for the associated stimulus. Preferably, a universally unique identifier. Due to system variations, may contain a unique identifier that is not a UUID.	No	[0..n]	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
015	IntendedGrade	Lowest grade pool in which the item can be included. Leading zero required for grades 1-9. IT - Infant/toddler PR - Preschool PK - Prekindergarten TK - Transitional Kindergarten KG - Kindergarten PS - Postsecondary UG - Ungraded NA - Not Applicable, used for resources only	4	Values can be referenced here: https://ceds.ed.gov/CE/DS/ElementDetails.aspx?TermId=5100 However there is no CEDS equivalent for these item-related grade levels	xsd:token	2	IT, PR, PK, TK, KG, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, PS, UG, NA	Yes	1	
055	AchievementQuintile	Quintiles, from 1 (low) to 5 (high)	2		xsd:integer	1	1, 2, 3, 4, 5	No	1	

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
007	InteractionType	QTI Interaction type. Allowable value definitions: (Refer to CEDS standard definition at https://ceds.ed.gov/cedselementdetails.aspx?termid=6117 for details on the QTI interaction types listed in Allowable Values). Additionally, the following definitions from Reference [2] apply: EBSR: Evidence Based Selected Response EQ: Equation ER: Extended Response GI: Grid HT: Hot Text HTQ: Hot Text (QTI) MC: Multiple Choice MI: Match Interaction MS: Multi-Select NL: Natural Language SA: Short Answer TI: Table Interaction TUT: Tutorial WER: Writing Extended Response WORDLIST: Wordlist (Glossary) Stimulus: Also known as Passage, a non-interactive "item" associated with one or more assessment items.	choiceInteraction	Derived from http://www.imsglobal.org/xsd/qti/qti2p1/imsqti_metadata_v2p1.xsd QTI 2.1:interactionType, https://ceds.ed.gov/cedselementdetails.aspx?termid=6117 , and Reference [2].	xsd:token	30	associateInteraction choiceInteraction customInteraction drawingInteraction endAttemptInteraction extendedTextInteraction gapMatchInteraction graphicAssociateInteraction graphicGapMatchInteraction graphicOrderInteraction hotspotInteraction hottextInteraction inlineChoiceInteraction matchInteraction mediaInteraction orderInteraction positionObjectInteraction selectPointInteraction sliderInteraction textEntryInteraction uploadInteraction EBSR EQ ER GI HT HTQ MC MI MS NL SA TI TUT WER WORDLIST Stimulus	Yes	1	32

Item and Stimulus Metadata Specification

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
041	MaximumNumberOfPoints	Maximum points. NA is used for stimuli and for wordlists and tutorial items; 1-6 for all other item types.	2		xsd:token	2	1,2,3,4,5,6,NA	No	1	
251	Maximum points scored	Highest score category used in statistical analysis			Numeric		Integer			
014	MinimumGrade	Lowest grade pool in which the item can be included. Leading zero required for grades 1-9. IT - Infant/toddler PR - Preschool PK - Prekindergarten TK - Transitional Kindergarten KG - Kindergarten PS - Postsecondary UG - Ungraded NA - Not Applicable, used for resources only	4	Values can be referenced here: https://ceds.ed.gov/CE/DSElementDetails.aspx?TermId=5100 However there is no CEDS equivalent for these item-related grade levels	xsd:token	2	IT, PR, PK, TK, KG, 01, 02, 03, 04, 05, 06, 07, 08, 09,10, 11, 12, 13, PS, UG, NA	Yes	1	
016	MaximumGrade	Lowest grade pool in which the item can be included. Leading zero required for grades 1-9. IT - Infant/toddler PR - Preschool PK - Prekindergarten TK - Transitional Kindergarten KG - Kindergarten PS - Postsecondary UG - Ungraded NA - Not Applicable, used for resources only	6	Values can be referenced here: https://ceds.ed.gov/CE/DSElementDetails.aspx?TermId=5100 However there is no CEDS equivalent for these item-related grade levels	xsd:token	2	IT, PR, PK, TK, KG, 01, 02, 03, 04, 05, 06, 07, 08, 09,10, 11, 12, 13, PS, UG, NA	Yes	1	
043	ItemSpecFormat	Items may follow the SmarterApp specification or the QTI specification. When the same item is stored in both formats, the identifiers will be the same but the variant and versions will be different.	SmarterApp		xsd:token	11	QTI, SmarterApp	Yes	1	

Table 3. Example of Hierarchical Layout of IrtDimension

Metadata File XML Section	Comment
<pre> <?xml version="1.0" encoding="ISO-8859-1" ?> <metadata> <smarterAppMetadata xmlns="http://www.smarterapp.org/ns/1/assessment_item_metadata"> <Identifier>652</Identifier> <SmarterAppItemDescriptor>MAT.06.TE.1.000G.H.xxx</SmarterAppItemDescriptor> <InteractionType>GI</InteractionType> <Version>21</Version> <Subject>MATH</Subject> <Language>eng</Language> <Language>spa</Language> <SecurityStatus>Non-secure</SecurityStatus> <MinimumGrade>05</MinimumGrade> <IntendedGrade>06</IntendedGrade> <MaximumGrade>06</MaximumGrade> <BrailleType>Not Brailleable</BrailleType> <AllowCalculator>Yes</AllowCalculator> <MathematicalPractice>6</MathematicalPractice> <AssociatedTutorial>1075</AssociatedTutorial> <AssociatedWordlist>1311</AssociatedWordlist> <StandardPublication> <Publication>SBAC-MA-V1</Publication> <PrimaryStandard>1 G H-6 a/s 6.G.2</PrimaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> </StandardPublication> <StandardPublication> <Publication>SBAC-MA-V2</Publication> <PrimaryStandard>1 G H-6 a/s 6.G.2</PrimaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> <SecondaryStandard>1 G H-6 a/s 6.G.2</SecondaryStandard> </StandardPublication> <MaximumNumberOfPoints>1</MaximumNumberOfPoints> <ScorePoints>"0,1"</ScorePoints> <ItemSpecFormat>SmarterApp</ItemSpecFormat> <StimulusFormat>Standard</StimulusFormat> <EducationalDifficulty>Medium</EducationalDifficulty> <DepthOfKnowledge>2</DepthOfKnowledge> <AdministrationDate>Pilot</AdministrationDate> </pre>	<p>Generic start of item metadata file</p> <p>All metadata elements except IrtDimension and its sub-elements</p>

Metadata File XML Section	Comment
<pre> <IrtDimension> <IrtDimensionPurpose>Computation</IrtDimensionPurpose> <IrtModelType>IRT3pl</IrtModelType> <IrtScore>1</IrtScore> <IrtWeight>1.0</IrtWeight> <IrtParameter> <Name>a</Name> <Value>1.0</Value > </IrtParameter > <IrtParameter> <Name>b</Name> <Value>-0.4</Value > </IrtParameter> <IrtParameter> <Name>c</Name> <Value>0.33</Value > </IrtParameter > </IrtDimension> </pre>	First dimension parameters
<pre> <IrtDimension> <IrtDimensionPurpose>Abstraction</IrtDimensionPurpose> <IrtModelType>IRT3pl</IrtModelType> <IrtScore>2</IrtScore> <IrtWeight>1.0</IrtWeight> <IrtParameter> <Name>a</Name> <Value>0.86</Value > </IrtParameter > <IrtParameter> <Name>b</Name> <Value>1.05</Value > </IrtParameter > <IrtParameter> <Name>c</Name> <Value>0.15</Value > </IrtParameter> </IrtDimension> </pre>	Second dimension parameters
<pre></smarterAppMetadata></pre>	End of SmarterApp metadata
<pre> <OtherMetadata1>Standard</OtherMetadata1> <OtherMetadata2>Medium</OtherMetadata2> </pre>	Other, non-SmarterApp metadata
<pre></metadata></pre>	End of metadata