Smarter Balanced Item and Stimulus Metadata Specification

Table 1. Revision History

Description	Date
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	16 September 2014
Draft release to SmarterApp.org	27 October 2014
Acceptance Candidate	25 November 2014
Addition of the <IrtStatDomain> element in the IrtDimension hierarchy.	26 May 2016

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
	Primary Fields									
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	
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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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]	

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/qtiv2p1/imsqti_metadata_v2p1.xsd QTI 2.1:interactionType, https://ceds.ed.gov/cedselementdetails.aspx?termid=6117, and Reference [2].	xsd:token	30	EBSR EQ ER GI HT HTQ MC MI MS NL SA TI TUT WER WORDLIST Stimulus Plus QTI interaction types	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	

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	
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/standards/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]	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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]	
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	
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/CEDSElementDetails.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	
015	IntendedGrade	Grade pool for which the item was authored. 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	04	Values can be referenced here: https://ceds.ed.gov/CEDSElementDetails.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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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/CEDSElementDetails.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	
017	BrailleType	Which Braille files to create. BRF=Braille Ready Format. PRN=printer file	PRN		xsd:token	15	BRF, PRN, Not Braillable	No	1	
017 a	BrailleStandard	The Braille format standard used for the braille transation	contracted		xsd:token	40		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]	
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]	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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]	
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	
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	

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,None	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]	
031	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]	

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Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
031 a	AssociatedStimulusVersion	Version of stimulus used with this item for this data collection			xsd:token	40		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	
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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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	
041	MaximumNumberOfPoints	Maximum points possible as authored. Not applicable to stimuli, wordlsts, and tutorial items; 1-6 for all other item types.	2		xsd:token	2	1,2,3,4,5,6,NA	No	1	
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 wordlsts 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]	
043	ItemSpecFormat	Items may be encoded in the SamrterApp Assessment Item Format (SAAIF) or the IMS QTI format. Future formats may be supported in the future. When the same item is stored in multiple formats, the identifiers will be the same but the variant and versions will be different.	SmarterApp		xsd:token	11	QTI, SmarterApp	Yes	1	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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]	
045	StimulusGraphic	Does the stimulus contain a graphic?	Yes		xsd:boolean	3	Yes,No	No	1	
047	EducationalDifficulty	Difficulty estimated by the item writer: low (easy), medium, hard	medium		xsd:token	6	Low,Medium,Hard	No	1	
048	DepthOfKnowledge	Depth of Knowledge level of the item. NA is used for stimuli and for wordlsts 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	
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
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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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	
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	
055	AchievementQuintile	Quintiles, from 1 (low) to 5 (high)	2		xsd:integer	1	1, 2, 3, 4, 5	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	
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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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	
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	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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 Performance Task	Yes		xsd:boolean	3	Yes, No	No	1	
069	PerformanceTaskComponentItem	Part of a Performance Task	Yes		xsd:boolean	3	Yes, No	No	1	
070	PtSequence	Indicates the location of an item within a Performance Task set. It will be populated for ELA PT Items.	2		xsd:integer	1	1,2,3,4	No	1	
071	PtMetadataTypeOfWriting	Narrative, argumentative, informational (for stim and long essay only)	A		xsd:token	1	N, A , I	No	1	
072	PtClassroomActivity	ID of associated Performance Task classroom activity	Yes		xsd:token	3	Yes, No	No	1	
073 a	PtIdentifier	Unique ID of performance task this item is associated with			xsd:token	40		No	1	
073 b	PtVersion	Version of PT used with this item for this data collection			xsd:token	40		No	1	
074	AccessibilityTagsASLLanguage	Does the item have an ASL video associated with it?	Yes		xsd:boolean	3	Yes, No	No	1	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
075 a	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	
075 b	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	
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]	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
301	Claim	Claim item is associated with (See also the Standard Alignment properties below)			Numeric		1,2,3,4	Yes		
302	Target	Target item is associated with			Character		Math: A-Z; ELA:1-99	Yes		
					Standard Alignment					
	An assessment item may be aligned to multiple standard publications such as the Common Core State Standards or the Smarter Balanced Test Blueprint (which is aligned to the Common Core). In the XML rendition, each set of alignments is collected in a <StandardPublication> element. Each <StandardPublication> element must have one primary standard and zero or more secondary standards. See Table 3 for examples of the XML layout.									
	Publication	The name of the standard publication to which this alignment set belongs.	SBAC-MA-V1		xsd:token	40		No	1	
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]	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
				IRT Fields						

An assessment item may have multiple sets of IRT parameters. In the XML rendition of the metadata, these sets are collected in an <IrtDimension> element. See Table 3 for details on the layout of IR dimensions and their corresponding parameters.

Each IRT parameter has a name and a value. The following are IRT parameters that have been defined to date.

Name	Description	Name	Description
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	RT_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

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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]	

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]	
086	IrtParameter/Name	Name of the IRT parameter	IRT_A		xsd:token	30	See table of IRT names above.	No	[0..n]	
087	IrtParameter/Value	Value of the IRT parameter	1.07		xsd:double	20		No	[0..n]	
097	Administration	Spring 2014 Field Test			Character			No	[)..n]	
	Field Test Data									
100 a	WER_ItemSubItemA	The A dimension (organization) of the ELA PT WER items			Character					
100 b	WER_ItemSubItemB	The B dimension (evidence/elaboration) of the ELA PT WER items.			Character					
100 c	WER_ItemSubItemC	The C dimension (convention) of the ELA PT WER items.			Character					
100 d	WER_ItemSubItemD	The up-rounded average of the A and B dimensions of the ELA PT WER items.			Character					

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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			No		
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			No		
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			No		
107	Sample_Size	The number of students included to calculate this set of item statistics			Numeric			No		
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					

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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					
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					

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
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					
122	Percent_ChoosingA	Percentage of students selecting MC item option A			Numeric			No		
123	Percent_ChoosingB	Percentage of students selecting MC item option B			Numeric			No		
124	Percent_ChoosingC	Percentage of students selecting MC item option C			Numeric			No		
125	Percent_ChoosingD	Percentage of students selecting MC item option D			Numeric			No		
126	Percent_ChoosingE	Percentage of students selecting MC item option E			Numeric			No		
127	Percent_ChoosingF	Percentage of students selecting MC item option F			Numeric			No		
128	Percent_ChoosingG	Percentage of students selecting MC item option G			Numeric			No		

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
129	Percent_Obtaining_0	Percentage of students obtaining score 0			Numeric			No		
130	Percent_Obtaining_1	Percentage of students obtaining score 1			Numeric			No		
131	Percent_Obtaining_2	Percentage of students obtaining score 2			Numeric			No		
132	Percent_Obtaining_3	Percentage of students obtaining score 3			Numeric			No		
133	Percent_Obtaining_4	Percentage of students obtaining score 4			Numeric			No		
134	Percent_Obtaining_5	Percentage of students obtaining score 5			Numeric			No		
135	Percent_Obtaining_6	Percentage of students obtaining score 6			Numeric			No		
136	Percent_Obtaining_7	Percentage of students obtaining score 7			Numeric			No		
137	Percent_Obtaining_8	Percentage of students obtaining score 8			Numeric			No		
138	Biserial_OptionA	Biserial for MC item option A			Numeric			No		
139	Biserial_OptionB	Biserial for MC item option B			Numeric			No		
140	Biserial_OptionC	Biserial for MC item option C			Numeric			No		
141	Biserial_OptionD	Biserial for MC item option D			Numeric			No		

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
142	Biserial_OptionE	Biserial for MC item option E			Numeric			No		
143	Biserial_OptionF	Biserial for MC item option F			Numeric			No		
144	Biserial_OptionG	Biserial for MC item option G			Numeric			No		
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			No		
146	Pt_biserial_OptionA	Point-biserial for MC item option A			Numeric			No		
147	Pt_biserial_OptionB	Point-biserial for MC item option B			Numeric			No		
148	Pt_biserial_OptionC	Point-biserial for MC item option C			Numeric			No		
149	Pt_biserial_OptionD	Point-biserial for MC item option D			Numeric			No		
150	Pt_biserial_OptionE	Point-biserial for MC item option E			Numeric			No		
151	Pt_biserial_OptionF	Point-biserial for MC item option F			Numeric			No		
152	Pt_biserial_OptionG	Point-biserial for MC item option G			Numeric			No		

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

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

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
175	N_Cat_2	Number of students obtaining the score of 2			Numeric			No		
176	MeanCritScore_Cat_2	Mean criterion score of those testers at score category 2			Numeric			No		
177	N_Cat_3	Number of students obtaining the score of 3			Numeric			No		
178	MeanCritScore_Cat_3	Mean criterion score of those testers at score category 3			Numeric			No		
179	N_Cat_4	Number of students obtaining the score of 4			Numeric			No		
180	MeanCritScore_Cat_4	Mean criterion score of those testers at score category 4			Numeric			No		
181	N_Cat_5	Number of students obtaining the score of 5			Numeric			No		
182	MeanCritScore_Cat_5	Mean criterion score of those testers at score category 5			Numeric			No		
183	N_Cat_6	Number of students obtaining the score of 6			Numeric			No		
184	MeanCritScore_Cat_6	Mean criterion score of those testers at score category 6			Numeric			No		
185	N_Cat_7	Number of students obtaining the score of 7			Numeric			No		

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
186	MeanCritScore_Cat_7	Mean criterion score of those testers at score category 7			Numeric			No		
187	N_Cat_8	Number of students obtaining the score of 8			Numeric			No		
188	MeanCritScore_Cat_8	Mean criterion score of those testers at score category 8			Numeric			No		
189	DIFCat_Female_v_Male	Female vs. Male DIF category; B+, B-, C+, C-			Character			No		
190	DIFCat_Asian_v_White	Asian vs. White DIF category; B+, B-, C+, C-			Character			No		
191	DIFCat_Black_v_White	Black vs. White DIF category; B+, B-, C+, C-			Character			No		
192	DIFCat_Hispanic_v_White	Hispanic vs. White DIF category; B+, B-, C+, C-			Character			No		
193	DIFCat_NativeA_v_White	Native American vs. White DIF category; B+, B-, C+, C-			Character			No		
194	DIFCat_IEP_v_NonIEP	IEP students vs. non IEP students; B+, B-, C+, C-			Character			No		
195	DIFCat_LEP_v_NonLEP	LEP students vs. non LEP students; B+, B-, C+, C-			Character			No		
196	DIFCat_Title1_v_NonTitle1	Title 1 eligible students vs. non eligible students; B+, B-, C+, C-			Character			No		
197	N_Male	Number of male students			Numeric			No		

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

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

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
219	MHDDIF_LEP_NonLEP	The MH-D-DIF from the comparison of students with Limited English Proficiency (LEP) vs. non LEP students.			Numeric			No		
220	SMD_LEP_NonLEP	Standardized mean differences from the comparison of LEP vs. non LEP students.			Numeric			No		
221	MHDDIF_Title1_NonTitle1	The MH-D-DIF from the comparison of students who are eligible or not eligible for Title 1.			Numeric			No		
222	SMD_Title1_NonTitle1	Standardized mean differences from the comparison of students who are eligible or not eligible for Title 1.			Numeric			No		
251	MaximumPointsScored	Highest score category used in statistical analysis. Typically the highest score achieved by students in the field test.	3		xsd:token	2	Integer	No	1	
252	MinimumPointsScored	Lowest score category used in statistical analysis-usually zero. Based on results from the field test.			Numeric		Integer			
253	IRT_Category_ReCoding	Informational; the revised score categories for Field Test IRT calibration due to fewer than optimal number of scored responses in some score categories; for example, "0,1,1" indicates that that a 2-point item was collapsed into a 1-point item by changing the students' scores from "2" to "1"; "0,0,1" indicates that that a 2-point item was collapsed into a 1-point item by changing the students' scores from "1" to "0" and "2" to "1";			xsd:token	8		No		

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
					Licensed Content Info					
350	LicensedWorkStandardNumber	The ISBN or ISSN of the licensed work.						No	1	
351	LicensedWorkTitle	Title of the work or publication. For periodicals it is the title of the periodical, not of the article.						No	1	
352	LicensedWorkArticleTitle	Title of the article in a periodical (if applicable)						No	1	
353	LicensedWorkAuthor	Author of the licensed work.						No	1	
354	LicensedWorkPublisher	Publisher of the licensed work.						No	1	
355	LicensedWorkDate	Publication date of the licensed work.						No	1	
356	LicensedWorkLocation	Location of the publisher of the licensed work (from the copyright page or masthead).						No	1	
357	LicensedWorkVolNum	Volume/Number/Series (if applicable). E.g. "Volume 3 Number 5"						No	1	
358	LicensedWorkCccId	The Copyright Clearance Center CCC ID Number (if available)						No	1	

Field No.	Field	Description	Example	Reference	Data Type	Max. Width	Allowable Values	Required	Cardinality	Value Range
					Other Tags					
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		
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		

Table 3. Example of Hierarchical Layout of IrtDimension

Metadata File XML Section	Comment

```<?xml version="1.0" encoding="ISO-8859-1" ?>```
```<metadata>```
  ```<smarterAppMetadata xmlns="http://www.smarterapp.org/ns/1/assessment_item_metadata">```
	Generic start of item metadata file

```<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 Braillable</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>```
	All metadata elements except IrtDimension and its sub-elements

Metadata File XML Section	Comment

``xml
<IrtDimension>
  <IrtDimensionPurpose>Computation</IrtDimensionPurpose>
  <IrtModelType>IRT3pl</IrtModelType>
  <IrtStatDomain>Online</IrtStatDomain>
  <IrtScore>1</IrtScore>
  <IrtWeight>1.0</IrtWeight>
  <IrtParameter>
    <Name>IRT_A</Name>
    <Value>1.0</Value >
  </IrtParameter >
  <IrtParameter>
    <Name>IRT_B</Name>
    <Value>-0.4</Value >
  </IrtParameter>
  <IrtParameter>
    <Name>IRT_C</Name>
    <Value>0.33</Value >
  </IrtParameter >
</IrtDimension>
``
	First dimension parameters

``xml
<IrtDimension>
  <IrtDimensionPurpose>Abstraction</IrtDimensionPurpose>
  <IrtModelType>IRT3pl</IrtModelType>
  <IrtStatDomain>Online</IrtStatDomain>
  <IrtScore>2</IrtScore>
  <IrtWeight>1.0</IrtWeight>
  <IrtParameter>
    <Name>IRT_A</Name>
    <Value>0.86</Value >
  </IrtParameter >
  <IrtParameter>
    <Name>IRT_B</Name>
    <Value>1.05</Value >
  </IrtParameter >
  <IrtParameter>
    <Name>IRT_C</Name>
    <Value>0.15</Value >
  </IrtParameter>
</IrtDimension>
``
	Second dimension parameters

`</smarterAppMetadata>`	End of SmarterApp metadata

``xml
<OtherMetadata1>Standard</OtherMetadata1>
<OtherMetadata2>Medium</OtherMetadata2>
``
	Other, non-SmarterApp metadata

`</metadata>`	End of metadata