Revision History

Revision Description	Author/Modifier	Date
Added the Simplified Test Directions and 100s Number Table feature codes	Alex Dean	July 13, 2016
Corrected legacy braille codes to indicate that TDS_BT_NM indicates *contracted* braille with Nemeth math. Previous revisions erroneously indicated uncontracted braille.	Brandt Redd	July 8, 2016
Added footnote detailing the three-letter codes for braille	Brandt Redd	April 6, 2016
Added the BrailleType feature family and codes; Added the IllustrationGlossary feature family and codes; Adjusted the Language feature family by making obsolete the Braille feature code	Alex Dean	March 23, 2016

Introduction

The Individual Student Assessment Accessibility Profile (ISAAP) process represents a thoughtful and systematic approach to addressing student access needs for the Smarter Balanced assessments. The ISAAP tool may be used to facilitate the selection of Designated Supports and Accommodations. The Accessibility Feature Codes defined in this specification are the digital encoding of those accessibility settings. The feature codes can be combined with Accessibility Feature Delivery Codes to indicate whether a feature was designated for, made available to, and/or used by a student.

The SmarterBalanced.org website includes Usability, Accessibility, and Accommodations Guidelines (UAAG) and the process for developing an ISAAP for each student.

In the Four-Layer Framework for Data Standards this specification operates at the data dictionary and logical data model layers. This spec also includes a suggested serialization format that can be incorporated into other specifications.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

Listing Accessibility Feature Codes at Registration

Each accessibility feature setting has a specific code. Table 1 lists the current set of feature codes. This specification will be updated when accessibility features are added.

The ISAAP set of features to be made available to a student can be described by a simple list of codes which are recorded during test registration and provided to the test delivery system.

The list of codes for a particular student can be serialized in any method that is appropriate to the file format (e.g. CSV, XML, JSON, etc.). A common method is to use a semicolon-delimited list. Here is an example:

TDS_CCInvert;TDS_ESN;NEDS_Other(Mechanical Pencil)

This would indicate that the student is designated to receive reverse contrast (white on black text), stacked Spanish translation, and a custom indication that they should be provided with a mechanical pencil – presumably for use with scratch paper since the test is online.

Listing Accessibility Feature Codes when Reporting

When reporting, each Accessibility Feature Code is paired with a "Delivery Code" which indicates whether the feature was designated, made available, and/or used. For each of these contexts (designated, made available, used) the values can be "U" (unknown), "Y" (yes), or "N" (no). So "YYU" indicates that a feature was designated and made available but it is unknown whether it was used. Table 2 lists the full set of delivery codes.

A common format for reporting Delivery Codes is to list the feature code followed by a colon and the delivery code. These pairs are combined into a list using semicolon delimiters. For example:

TDS_CCInvert:UYU;TDS_ESN:UYU;NEDS_Other(Mechanical Pencil):YUU

This would indicate that "inverted color contrast", and "Spanish stacked translation" were made available to the student and that "separate setting" was designated for the student.

Table 1 lists the current Accessibility Feature Codes. Please see the Usability, Accessibility, and Accommodations Guidelines (UAAG) on SmarterBalanced.org for detailed descriptions of these accessibility resources. See the UAAG and the annual ISAAP configuration files for the codes designated for per-student selection in each grade and subject.

Codes are case-insensitive. Systems generating codes SHOULD use the cases as shown in the table. Systems receiving codes MUST be case-insensitive when interpreting codes.

Table 1: Accessibility Feature Codes

Feature Family	Feature Code	Description
AmericanSignLanguage	TDS_ASL0	Do not show ASL Videos (default)
	TDS_ASL1	Show ASL Videos
BrailleType	TDS_BT0	No Braille (default)
	TDS_BT_EXN[1]	EBAE – Uncontracted – Nemeth Math
	TDS_BT_ECN	EBAE – Contracted – Nemeth Math
	TDS_BT_EXT	EBAE – Uncontracted – UEB Math
	TDS_BT_ECT	EBAE – Contracted – UEB Math
	TDS_BT_UXN	UEB – Uncontracted – Nemeth Math
	TDS_BT_UCN	UEB – Contracted – Nemeth Math
	TDS_BT_UXT	UEB – Uncontracted – UEB Math
	TDS_BT_UCT	UEB – Contracted – UEB Math
	TDS_BT_G1 (legacy[2])	Uncontracted braille
	TDS_BT_G2 (legacy)	Contracted braille
	TDS_BT_NM (legacy)	Nemeth math braille (contracted)
ClosedCaptioning	TDS_ClosedCap0	Closed captioning not available (default)

---

[1] The three letters at the end of braille codes indicate options for literary braille, contracting, and choice of math code. For literary braille, E=EBAE and U=UEB. For contracting, X=Uncontracted and C=Contracted. For math braille codes, N=Nemeth and T=UEB math (based on Taylor math). So TDS_BT_UCN means UEB (U), Contracted (C), and Nemeth Math (N).

[2] TDS_BT_G1, TDS_BT_G2, and TDS_BT_NM are legacy codes and will be phased out by the 2018-2019 school year in conjunction with the rollout of support for Unified English Braille. TDS_BT_G1 should be converted to TDS_BT_EXN, TDS_BT_G2 should be converted to TDS_BT_ECN and TDS_BT_NM should be converted to TDS_BT_ECN.

Feature Family	Feature Code	Description
	TDS_ClosedCap1	Closed captioning available
ColorContrast	TDS_CC0	Black on White (default)
	TDS_CCInvert	Reverse Contrast
	TDS_CCMagenta	BlackOnRose
	TDS_CCMedGrayLtGray	Medium Gray on Light Gray
	TDS_CCYellowB	Yellow on Blue
Highlight	TDS_Highlight1	Permit highlighting (default)
	TDS_Highlight0	Disable highlighting
IllustrationGlossary	TDS_ILG0	Illustration glossary off (default)
	TDS_ILG1	Illustration glossary on
Language	ENU	English (default)
	ESN	Spanish stacked translation (math only)
	ENU-Braille (obsolete[3])	Braille
Mark for Review	TDS_MfR1	Allow mark for review (default)
	TDS_MfR0	Disable mark for review
Masking	TDS_Masking0	Masking not available (default)
	TDS_Masking1	Masking available: allows blocking of content that is not of immediate need or that might be distracting to the student.
Notepad (comments)	TDS_SCNotepad	Notepad available (default)
	TDS_SC0	Notepad disabled
PermissiveMode	TDS_PM0	Permissive mode disabled (default)
	TDS_PM1	Permissive mode enabled: Allows assistive technology software such as screen readers, magnifiers, etc. to be run on the computer. When disabled, only the secure web browser is allowed to run.
PrintOnDemand	TDS_PoD0	Print on demand disabled (default)
	TDS_PoD_Stim	Allows students to request a printout of the item stimulus.
	TDS_PoD_Item	Print on Demand for items
	TDS_PoD_Stim&TDS_PoD_Item	Print on Demand for items and stimuli
PrintSize	TDS_PS_L0	Default initial print size. (default)
	TDS_PS_L1	Initial print size set to zoom level 1
	TDS_PS_L2	Initial print size set to zoom level 2
	TDS_PS_L3	Initial print size set to zoom level 3
	TDS_PS_L4	Initial print size set to zoom level 4
StreamlinedInterface	TDS_TS_Modern TDS_SLM0	Standard layout with stimulus displayed alongside assessment items.
	TDS_TS_Accessibility TDS_SLM1	Streamlined layout with stimulus displayed above and items displayed below. All tool and navigation buttons are on the bottom of the screen. Important: The streamlined interface is not intended to be tablet compatible.
Strikethrough	TDS_ST1	Strikethrough enabled (default)
	TDS_ST0	Strikethrough disabled
System Volume Control	TDS_SVC1	System volume control enabled
TextToSpeech	TDS_TTS0	No text-to-speech available. (default)

[3] Language should be specified as English (ENU) or Spanish (ESN). Braille is indicated by the BrailleType code. The ENU-Braille code is obsolete and should be converted to ENU.

Feature Family	Feature Code	Description
	TDS_TTS_Item	Text-to-speech available for items.
	TDS_TTS_Stim	Text-to-speech available for stimuli.
	TDS_TTS_Stim&TDS_TTS_Item	Text-to-speech available for stimuli and items.
Translation (Glossary)	(default)	If no code is specified, English glossary is made available by default.
	TDS_WL0	No glossary (suppresses all glossaries
	TDS_WL_Glossary	English glossary
	TDS_WL_ArabicGloss	Arabic glossary
	TDS_WL_CantoneseGloss	Cantonese glossary
	TDS_WL_ESNGloss	Spanish glossary
	TDS_WL_KoreanGloss	Korean glossary
	TDS_WL_MandarinGloss	Mandarin glossary
	TDS_WL_PunjabiGloss	Punjabi glossary
	TDS_WL_RussianGloss	Russian glossary
	TDS_WL_TagalGloss	Filipino glossary
	TDS_WL_UkrainianGloss	Ukrainian glossary
	TDS_WL_VietnameseGloss	Vietnamese glossary
	Multiple	English one language glossaries can be combined using an ampersand. The language glossary should be specified first. E.g. TDS_WL_MandarinGloss&TDS_WL_Glossary
NonEmbeddedDesignatedSupports	NEDS0	No non-embedded designated supports (default)
	NEDS_BD	Bilingual dictionary
	NEDS_CC	Color Contrast
	NEDS_CO	Color Overlay
	NEDS_Mag	Magnification
	NEDS_RA_Items	Read aloud items
	NEDS_RA_Stimuli	Read aloud stimuli
	NEDS_RA_ESN	Read aloud items Spanish
	NEDS_RA_Stimuli_ESN	Read aloud stimuli Spanish
	NEDS_SC_Items	Scribe items (non-writing)
	NEDS_SS	Separate setting
	NEDS_TArabic	Arabic glossary
	NEDS_TCantonese	Cantonese glossary
	NEDS_TFilipino	Filipino glossary
	NEDS_TKorean	Korean glossary
	NEDS_TMandarin	Mandarin glossary
	NEDS_TPunjabi	Punjabi glossary
	NEDS_TRussianGta	Russian glossary
	NEDS_TSpanish	Spanish glossary
	NEDS_TUkrainian	Ukrainian glossary
	NEDS_TVietnamese	Vietnamese glossary
	NEDS_TransDirs	Translated test directions
	NEDS_SimpDirs	Simplified test directions
	NEDS_NoiseBuf	Noise buffers
	NEDS_Other(*text*)	A custom non-embedded designated support (see below)
NonEmbeddedAccommodations	NEA0	No non-embedded accommodations (default)
	NEA_AR	Alternate response options

Feature Family	Feature Code	Description
	NEA_RA_Stimuli	Read aloud stimuli
	NEA_SC_WritItems	Scribe items (writing)
	NEA_STT	Speech-to-Text
	NEA_Abacus	Abacus
	NEA_Calc	Calculator
	NEA_MT	Multiplication Table
	NEA_NumTbl	100s Number Table
	NEA_NoiseBuf	Noise buffers (obsolete) [4]

Non-Embedded designated supports and non-embedded accommodations are accessibility features provided by the school or test administrator. They include paper documents such as a multiplication table or translated test directions.

"NEDS_Other(*text*)" provides a means for describing a custom accessibility resource that should be provided by the test administrator. The description is included between the parentheses. For example, NEDS_Other(Mechanical Pencil).

Descriptions are limited to 100 characters and MUST NOT include any of the following characters: open parentheses, close parentheses, colon, semicolon, comma, percent, carriage return, or linefeed. Percent encoding such as that used in URL query strings SHOULD be used to encode special characters.

Accessibility Feature Delivery Codes

The Accessibility Feature Delivery Codes indicate whether a feature was designated, made available, and/or used by the student.

The 2015 version of the test delivery system does not sense whether the student actually uses an accessibility feature. Likewise, it cannot sense whether a non-embedded accommodation or support was made available. Therefore, only a subset of these codes are used in the 2015 release.

The 2015 version of "Data Warehouse Data Specification – Student Assessments" uses the numeric codes.

Feature delivery codes are case-insensitive. Systems generating codes SHOULD use upper case as shown in the table. Systems receiving codes MUST be case-insensitive when interpreting codes.

Table 2: Accessibility Feature Delivery Codes

Feature Delivery Code	Numeric Code	Designated	Available	Used	Notes	Reported by v1
UUU	0	unknown	unknown	unknown		
UUN	1	unknown	unknown	No		
UUY	2	unknown	unknown	Yes		
UNU	3	unknown	No	unknown		X
UNN	4	unknown	No	No		X
UNY	5	unknown	No	Yes	Invalid state	
UYU	6	unknown	Yes	unknown		X

---

[4] Noise buffers were previously included as a non-embedded Accommodation. That code, NEA_NoiseBuf, is obsolete. New code should use the NEDS_NoiseBuf which is a non-embedded designated support.

Feature Delivery Code	Numeric Code	Designated	Available	Used	Notes	Reported by v1
UYN	7	unknown	Yes	No		
UYY	8	unknown	Yes	Yes		
NUU	9	No	unknown	unknown		
NUN	10	No	unknown	No		
NUY	11	No	unknown	Yes	Testing irregularity	
NNU	12	No	No	unknown		
NNN	13	No	No	No		
NNY	14	No	No	Yes	Invalid state	
NYU	15	No	Yes	unknown		
NYN	16	No	Yes	No		
NYY	17	No	Yes	Yes	Testing irregularity	
YUU	18	Yes	unknown	unknown		X
YUN	19	Yes	unknown	No		
YUY	20	Yes	unknown	Yes		
YNU	21	Yes	No	unknown	Testing irregularity	
YNN	22	Yes	No	No	Testing irregularity	
YNY	23	Yes	No	Yes	Invalid state	
YYU	24	Yes	Yes	unknown		X
YYN	25	Yes	Yes	No		
YYY	26	Yes	Yes	Yes		

Additional Accessibility Feature Codes

The following additional codes are defined by the test delivery system. Many of these codes reference features that are offered by default (such as dictionaries), are used for internal configuration and messaging (such as audio controls or Braille embossing), or that are designated by the test (such as calculator type). Others provide for features that are not presently used by Smarter Balanced Tests. And some report on features that were made available during the test (such as Pool Filters)

AudioPlaybackControls	TDS_APC_PSP	Play Stop and Pause (default)
Calculator	TDS_Calc0	No Calculator
	TDS_CalcSciInv&Tds_CalcGraphingInv&TDS_CalcRegress	Scientific Graphing and Regression Calculator
	TDS_CalcBasic	Basic Calculator
	TDS_SciInv	Scientific Calculator
Dictionary	TDS_Dict0	No Dictionary
	TDS_Dict_SD2	Merriam Webster Elementary Dictionary
	TDS_Dict_SD3	Merriam Webster Intermediate Dictionary
	TDS_Dict_SD4	Merriam Webster School Dictionary

	TDS_DO_All	All Dictionary Options
Emboss (Braille)	TDS_Emboss0	No embossing (default)
	TDS_Emboss_Stim&TDS_Emboss_Item	Emboss stimuli and items
Emboss Request Type	TDS_ERT0	Not Applicable (default
	TDS_ERT_OR&TDS_ERT_Auto	Auto Request
	TDS_ERT_OR	Emboss on request
Expandable Passages	TDS_ExpandablePassages0	Expandable Passages Off
	TDS_ExpandablePassages1	Expandable Passages On (default)
Font Type	TDS_FT_Serif	Times New Roman
	TDS_FT_Verdana	Verdana
Global Notes	TDS_GN0	Global Notes Off
	TDS_GN1	Global Notes On (default)
Hardware Checks	TDS_HWPlayback	Check Playback Capabilities
Item Font Size	TDS_IF_S14	14pt items
Item Tools Menu	TDS_ITM1	On
	TDS_ITM0	Off
Passage Font Size	TDS_F_S14	14pt Passages
Mute System Volume	TDS_Mute0	Not muted (default)
	TDS_Mute1	Muted
Review Screen Layout	TDS_RSL_ListView	List view
Pool Filter	OFFGRADE BELOW IN	Below-grade items included in pool
	OFFGRADE BELOW OUT	Below-grade items not included in pool
	OFFGRADE ABOVE IN	Above-grade items included in pool
	OFFGRADE ABOVE OUT	Above-grade items not included in pool
Test Shell	TDS_TS_Universal	Universal test shell
Thesaurus	TDS_TH0	No thesaurus
	TDS_TH_TA	Merriam Webster Intermediate Thesaurus
Thesaurus Options	TDS_TO_All	All thesaurus options
Text-to-Speech Pausing	TTS_AA0	