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|  | ISAAP Accessibility Feature Codes Updated 6 April 2016 |

Revision History

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| Revision Description | Author/Modifier | Date |
| 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 |
| Added footnote detailing the three-letter codes for braille | Brandt Redd | April 6, 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](http://www.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](http://x.ofthat.com/papers/fourlayer.pdf) 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](http://www.ietf.org/rfc/rfc2119.txt).

## 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](http://www.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]](#footnote-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 (obsolete[[2]](#footnote-2)) | Uncontracted braille |
|  | TDS\_BT\_G2 (obsolete) | Contracted braille |
|  | TDS\_BT\_NM (obsolete) | Nemeth math braille |
| **ClosedCaptioning** | TDS\_ClosedCap0 | Closed captioning not available (default) |
|  | 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]](#footnote-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) |
|  | 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\_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 |
|  | 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\_NoiseBuf | Noise buffers (obsolete) [[4]](#footnote-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](https://en.wikipedia.org/wiki/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 |
| 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 |  |

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). [↑](#footnote-ref-1)
2. TDS\_BT\_G1, TDS\_BT\_G2, and TDS\_BT\_NM are legacy codes and should not be used in the future because they don’t offer sufficient detail. When encountered, TDS\_BT\_G1 and TDS\_BT\_NM should both be converted to TDS\_BT\_EXN. TDS\_BT\_G2 should be converted to TDS\_BT\_ECN. [↑](#footnote-ref-2)
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. [↑](#footnote-ref-3)
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. [↑](#footnote-ref-4)