Distributed Item Review:
Administrator User Guide

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Acknowledgements

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Distributed Item Review: Administrator User Guide

The Distributed Item Review (DIR; Behavioral Research and Teaching, 2013) is a secure and flexible, web-based system designed to present test items to expert reviewers across a broad geographic area for evaluation of important dimensions of quality (e.g., alignment with standards, bias, sensitivity, and student accessibility). The DIR is comprised of essential features that allow system administrators to design and conduct customized review studies, in which test items are bulk uploaded, paired with target academic content/performance standards and images, and then organized and assigned for review by selected experts (e.g., content and field experts, education leaders and practitioners, education researchers, and test and curricula developers). Administrators can choose from predefined item review questions, or design new review questions pertinent to their study. A variety of administrator-designed support resources can be uploaded and associated with item review studies. Web-based reporting features offer administrators a “quick view” of reviewer progress and study completeness; comma separated value (.csv) reporting functionality allows data files to be securely downloaded and saved in a table-structured format for use in statistical analyses (e.g., SPSS, R).

The following document provides detailed information about the DIR system, framed by a step-by-step administrator’s guide to successfully creating and conducting test item reviews using the DIR. A DIR administrator may alter the sequence of the steps outlined, and possibly omit or alter a given step, we present the steps in the order that follows to comprehensively and parsimoniously discuss the principle steps, having successfully conducted several review studies across diverse research contexts. This administrator user guide can be downloaded at: http://www.brtprojects.org/publications/technical-reports.
Prior to reading this user guide and attempting to create a DIR item review, we recommend prospective administrators view the DIR System Introduction—downloadable as a Portable Document Format (.pdf) at: http://www.brtprojects.org/publications/presentations. The slides give prospective DIR administrators an overview of the system, offering a jumpstart to proceeding through this guide.

**Step One: Registering a User Account in the DIR**

Prior to registering an account with the DIR, a prospective administrator or user should ensure their device meets the system requirements. The DIR system is largely platform independent (i.e., Windows, Android, Macintosh), functional across devices (e.g., desktop, laptop, tablet, and mobile), and compatible with common web browsers (e.g., Internet Explorer, Firefox, Chrome, Safari). Additionally, upon creating an account a DIR user assents to our User Agreement and Privacy Policy, which can be found along with a complete listing of system requirements at: http://brtitemreview.com/about#system-requirements.

To register a new user account with the DIR, click the “Register” button at the bottom of the DIR homepage (http://brtitemreview.com), displayed in the screenshot, below. On the New User Registration page, complete the required fields and click “Register”. Additional fields (e.g., Educator Role, Years Experience,
Degrees) are helpful for disaggregating item response data, and should be required of all review study participants (see screenshot, below).

Once a new user account has been registered, users receive an email welcoming them to the DIR system. If intending to register as an administrator, a researcher from Behavioral Research and Teaching (BRT) at the University of Oregon (http://www.brtprojects.org), the developers and managing directors of the DIR system, will adjust the status from user to administrator once approved, giving the ability to create and conduct item reviews in the DIR. Once a DIR administrator, reviewer user accounts are accessible through the “Users” button located in the left essential features panel.

**Step Two: Creating a Review in the DIR**

The DIR is comprised of several essential features. Reviews are the broadest essential feature, and can be thought of as the main house that frames other system features necessary for conducting item reviews using the DIR. Administrators create and define Reviews based on their
item review study’s design and goals. Once logged into the DIR, a panel of essential feature buttons always appears on the left side of the DIR Administration page (see screenshot, below).

To create a new Review, click the “Reviews” button. A list of existing Reviews appears—click “Create Review” to navigate to the Reviews / Create page. Several fields define a Review. These fields are displayed in Table 1, along with a description of their purpose and functionality. All fields are typically completed to describe the item review study for reviewers.

Table 1
Review Field Names and Associated Descriptions

<table>
<thead>
<tr>
<th>Reviews / Create Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>Content area subject (English Language Arts, Math, or Science)</td>
</tr>
<tr>
<td>Title</td>
<td>Title of the item review (may house multiple Assignments—see Step 7)</td>
</tr>
<tr>
<td>Date</td>
<td>General date description for item review (e.g., Fall 2016)</td>
</tr>
<tr>
<td>Start/End Dates</td>
<td>Calendar dates that control when the item review study opens and closes to reviewers</td>
</tr>
<tr>
<td>Grade(s)</td>
<td>Description of the grade(s) level</td>
</tr>
<tr>
<td>Resources</td>
<td>List of support Resources—see Step 6—that can be selected for use across Reviews and Assignments</td>
</tr>
<tr>
<td>Review Instructions</td>
<td>Instructions for the item review</td>
</tr>
<tr>
<td>Email Notice Message</td>
<td>Email notification that reviewers receive once they create a DIR user account</td>
</tr>
<tr>
<td>Questions</td>
<td>List of item review Questions—see Step 5—that can be selected (drag/drop) for use across Reviews and Assignments</td>
</tr>
<tr>
<td>Review Questions</td>
<td>Item review Questions selected for a particular review</td>
</tr>
</tbody>
</table>
The Reviews / Create (or Edit) page is shown, below. When populating fields that require substantial amounts of text (e.g., Review Instructions, Email Notice Message) administrators should draft the text in a word processing program, and then copy/paste the desired text into the target field, to better ensure accuracy. A screenshot of a sample Review with populated fields is shown, below. Note that the Review fields are populated through a combination of drop-down selection (e.g., Subject), point-and-click (e.g., Start / End Date, Resources), and typed-text (e.g., Title, Review Instructions) procedures. Note, also, that some Review fields require essential features be previously defined. For example, to select and order Review Questions (drag-and-drop from Questions), they must first be created in the DIR (see Step 5). Similarly, in order to select Resources, they must first be created and uploaded into the DIR (see Step 6). In other words, the DIR administrator creates a new Review in order to provide the framework for the study they are conducting, and because a Review must exist in order to create Items in the DIR (see Step 4); however, an administrator
typically returns to the *Review / Edit* page several times over the course of creating, refining, and finalizing a test item review study in the DIR.

**Step 3: Creating and Uploading Standards in the DIR**

Typically, the essential feature addressed after creating a *Review* is creating/uploading academic content or performance *Standards*—created either individually or in bulk (recommended). To create *Standards* using the DIR’s bulk upload functionality, click the “Standards” button, located in the left essential features panel, to navigate to the *Standards / Bulk Upload* page (see screenshot, below). The administrator must create a .csv spreadsheet (for example, using Excel) with four column headers: *Standard ID*, *Subject*, *Domain*, and *Description*. The *Standard ID* and *Subject* fields are required to contain information in the .csv spreadsheet. *Domain* and *Description*, while not required to contain information, are almost always populated in the .csv, as they typically convey relevant information for reviewers evaluating the alignment between test items and target standards. A portion of a sample .csv is shown in the screenshot, below. Note, in this example the optional *Domain* and *Description* fields contain information. The two Math standards shown are from the Oregon Extended Assessment, for which we developed essentialized standards by decreasing relevant Common Core State Standards (CCSS) in depth, breath, and complexity. Therefore, in this sample .csv information in the *Domain* field represents the CCSS’s standard, and information in the
Description field represents the essentialized standard at three levels of complexity (Low [L], Medium [M], and High [H]). In a different review study, the Domain field might represent the CCSS domain (e.g., Geometry, Functions), while the Description field would then represent the actual CCSS standard. Thus, the type of Standards created for the test item review, and therefore, the way in which the .csv spreadsheet is populated with information, depends on the particular review study that the administrator is conducting in the DIR.

Each row in the .csv spreadsheet represents a single academic content or performance standard. Of critical importance is that each Standard ID is unique, so that it can be associated with a target Item. Typically, Item IDs contain the target Standard ID to which it is aligned. Item naming convention is discussed in greater detail, below (see Step 4). Once the .csv is populated with all standards, including across Subjects (currently, english, math, or science) if necessary, the .csv file is uploaded by clicking on the “Choose File” button, navigating to the location of the .csv, selecting it, and then clicking “Upload” on the Standards / Bulk
Upload page. Once uploaded into the DIR, an administrator should consider spot-checking several standards to ensure correctness. Simply, click on the “Standards” button located in the left essential features panel to navigate to the Standards page, and then click on a particular standard (see screenshot, above). Completing spot-checks is particularly important for standards that contain non-alphabetic symbols (e.g., division/square root symbols in math standards) as they may display improperly during bulk upload from the .csv to the DIR.

**Step 4: Creating and uploading Items in the DIR**

Once Standards are uploaded into the DIR, the administrator typically creates Items, and associates them with target standards. Like Standards, Items can be created either individually or in bulk (recommended). To create Items using the DIR’s bulk upload functionality, click the “Items” button located in the left essential features panel, to navigate to the Items / Bulk Upload page (see screenshot, below).

The administrator must create a .csv spreadsheet with nine column headers (fields): Item ID, Group, Standards, Item Information, Prompt, Option A, Option B, Option C, and Correct.
Column fields a description of their purpose and functionality are displayed in Table 2—also shown on the Items / Bulk Upload page in the DIR. Item ID and Standards fields are required to contain information in the .csv; populating additional column fields once again depends on the nature of the test items to be reviewed in the DIR.

Table 2

*Items .csv Field Names and Associated Descriptions*

<table>
<thead>
<tr>
<th>Items / Bulk Upload</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item ID (required)</td>
<td>Unique item identifier</td>
</tr>
<tr>
<td>Group (optional)</td>
<td>Item group / task (e.g., Grade level of test item)</td>
</tr>
<tr>
<td>Standards (required)</td>
<td>A colon-delimited standards identifier that ideally links to Item ID</td>
</tr>
<tr>
<td>Item Information (optional)</td>
<td>Scoring protocol and information (i.e., for test administrator booklets)</td>
</tr>
<tr>
<td>Prompt (optional)</td>
<td>Item prompt text (i.e., test item prompt that the student sees in their testing booklet)</td>
</tr>
<tr>
<td>Option A (optional)</td>
<td>Response option A text (i.e., for selected-response item types)</td>
</tr>
<tr>
<td>Option B (optional)</td>
<td>Response option B text (i.e., for selected-response item types)</td>
</tr>
<tr>
<td>Option C (optional)</td>
<td>Response option C text (i.e., for selected-response item types)</td>
</tr>
<tr>
<td>Correct (optional)</td>
<td>Letter of correct response option (a, b, or c); 'a' is assumed to be correct if field is missing information</td>
</tr>
</tbody>
</table>

For example, if test items exist in the form of image files (e.g., screenshots of items from a computer-based testing environment, or screenshots of items from a .pdf / .docx of a testing booklet), the DIR administrator could follow these seven steps—essentially providing information in the Item ID, Standards, and possibly the Correct column fields in the .csv—to upload and associate Items with corresponding Standards and images:

1. Populate the Item ID and Standards, fields for all items (rows) in the .csv.
2. Create a zipped folder (.zip) containing the image files (e.g., .jpg, .png, .gif, .svg) with individual file names of the corresponding *Item ID*.

3. Optionally, for items with three response options (i.e., like the Oregon Extended Assessment) the administrator can populate the *Correct* field with the correct response option for each test item (a, b, or c).

4. Select the proper *Review* from the drop-down menu on the *Items / Bulk Upload* page.

5. Upload the .csv file by clicking on the “Choose File” button under *Items File*, navigating to the location of the .csv, and selecting it.

6. Upload the .zip folder containing the test item images by clicking on the “Choose File” button under *Images Archive*, navigating to the .csv location, and selecting it.

7. Click “Upload” at the bottom of the *Items / Bulk Upload* page.

A sample screenshot of an image file of a publically released
Grade 5 practice science item from the Oregon Extended Assessment is shown above, followed by a screenshot just below of what the item looks like from a reviewer’s perspective once it is uploaded into the DIR and associated with a standard and image file following the seven steps enumerated above. Note that additional DIR essential features are also shown in the latter screenshot (i.e., *Questions* and *Resources*), which are discussed in greater detail, below (see Steps 5 and 6, respectively).

Alternatively, if test items do not yet exist in an electronic form like an image file, an administrator could populate the additional column fields in the *Items*.csv, and essentially build the test items in the DIR. In the screenshot shown below, all column fields in a sample .csv are populated. This particular .csv was used to build and bulk upload publically released Grade 3 practice math items for the Oregon Extended Assessment. Notice these math items are selected-response item types, with three answer options (a, b, and c). Thus, it is worth emphasizing once again that the manner in which an administrator uses the .csv to create *Items* in the DIR is wholly dependent on the nature of the test items to be reviewed in the DIR.

<table>
<thead>
<tr>
<th>Item ID/D</th>
<th>Group</th>
<th>Standards</th>
<th>Item Information</th>
<th>Prompt</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
<th>Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 M030AT1_1_04</td>
<td>M030AT1.1</td>
<td>(L) Here is a feather on a hat. This hat has one feather. (Point to the student materials.) If you have one hat, how many feathers do you have: 1, 2, or 3?</td>
<td>If you have one hat, how many feathers do you have?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>a</td>
<td></td>
</tr>
<tr>
<td>3 M030AT1_2_04</td>
<td>M030AT1.2</td>
<td>(L) Here are 4 hats with a dashed line between them. (Point to student materials.) How many hats are on one side on the dashed line: 1, 2, or 3?</td>
<td>How many hats are on one side on the dashed line?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>b</td>
<td></td>
</tr>
<tr>
<td>4 M030AT4_9_02</td>
<td>M030AT4.9</td>
<td>(L) Here are some grapes. (Point to student materials.) How many grapes are there: 5, 6, or 7?</td>
<td>How many grapes are there?</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>c</td>
<td></td>
</tr>
<tr>
<td>5 M03NBT1_2_03</td>
<td>M03NBT1.2</td>
<td>(L) Here is an addition problem. (Point to student materials.) 6 + 8 = which number: 8, 10, or 14?</td>
<td>6 + 8 = ___?</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>c</td>
<td></td>
</tr>
<tr>
<td>6 M030AT1_2_M08</td>
<td>M030AT1.2</td>
<td>(L) Here are two trees with some apples. (Point to student materials.) There are 8 apples all together. How many apples are on one tree: 4, 5, or 6?</td>
<td>How many apples are on one tree?</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>a</td>
<td></td>
</tr>
</tbody>
</table>

Additionally, in the sample .csv above, note the similarity between the information in the *Item ID* and paired *Standard* fields. Earlier, it was mentioned that the *Item ID* typically contains
the associated *Standard ID* to which it is aligned, and that is the case in this example. The first test item in the above .csv (row 2) is identified using an *Item ID* of M03OAT1.1_L04. The first 9 characters of that *Item ID* are the same (in order) as the associated *Standard* to which it is aligned, where: *M* = Math, *03* = Grade 3, *OAT1.1* = Operations and Algebraic Thinking (essentialized CCSS domain/standard), and *L04* = Low complexity level item #4 (a coding particular to the Oregon Extended Assessment). **Thus, for the purpose of conducting test item reviews in the DIR it is critical that both Item IDs and Standard IDs are unique. Further, it is highly recommended that these unique identifiers consist of relevant information that conspicuously associates test Items with their target Standards.** In the example *Item ID*, the test item identifier (M03OAT1.1_L04) provides relevant information such as content area, grade, and complexity levels, specifically contains the standard identifier, and yet, is unique from other items in a manner that maintains database integrity for later analysis of test item review data.

**Step 5: Creating Questions in the DIR**

Review *Questions* are study-specific, and once created by administrators, are selected and assigned to all *Items* in *Reviews* from the *Review / Create* or *Edit* pages (see Step 2, above). *Questions* are customizable, and allow test items to be reviewed by experts for important dimensions of quality, including alignment with standards, bias, sensitivity, and student accessibility. Current response option formats include:

- *Yes/No* (binary) e.g., Item is free of bias,
- *Numeric* (Likert / ordinal rating scale) e.g., Rate the strength of alignment between the test item and standard/s,
- *Text Box* (single-line constructed response) e.g., Reword the item prompt to be more inclusive of diverse populations, and
- **Comment** (multiple-line constructed response) e.g., For any "0" or "No" rating, please provide a rationale and recommendation/s for improving the item.

To create **Questions**, click the “Questions” button, located in the left essential features panel, to navigate to the **Questions** page (see screenshot, below). Next, click the “Create Question” button to navigate to the **Questions / Create** page. Select **Type** and the response **Format**, add relevant **Text**, including any text explicative of numeric response options, and then click “Create” to save the question. An example **Question** with a three-point numeric response option is shown in the screenshot, below. Once created, **Questions** are selected from the **Review / Create or Edit** page using the DIR’s drag-and-drop functionality (see Step 2).

![Questions page screenshot](image-url)

![Questions / Create page screenshot](image-url)
Step 6: Creating Resources in the DIR

Resources are study-specific, and once created by administrators, are selected from the Review / Create or Edit pages (see Step 2). The purpose of the Resources essential feature is to allow DIR administrators to create/upload electronic resources that are pertinent to their research study and that support reviewers in the process of examining test item quality. Current Resources formats include, but are not necessarily limited to:

- **PDFs** (e.g., reviewer/study training slides, academic content/performance standards, state accessibility/accommodations manuals),
- **Word (or other word processing) documents** (e.g., item-development templates),
- **Videos** (e.g., reviewer/study training webinars, representative testing population, test administration examples), and
- **Image files** (e.g., standard essentialization flow chart, sample item images).

To create Resources, click the “Resources” button, located in the left essential features panel, to navigate to the Resources page (see screenshot, below). Next, click the “Create Resource” button to navigate to the Resources / Create page. Enter a Title for the Resource, and add any relevant descriptive text to explain what the Resource is and how it should be used.

![Resources Table](image)
in the context of reviewing test items. Click on the “Choose File” button, navigate to the location of the desired Resource, and then click “Create” to upload and save the resource in the DIR. An example video Resource is shown in the screenshot, below. Once created, Resources are selected from the Review / Create or Edit by clicking on the bubble next to each Resource pertinent to a particular Review study (see Step 2).

**Step 7: Creating Review Assignments in the DIR**

Once the preceding essential features relevant to a particular review study are created/uploaded into the DIR (i.e., Reviews, Items, Standards, Questions, and Resources), and once all prospective reviewers have registered DIR User accounts, Assignments are created. Assignments directly reflect the review study design, including how study participants (reviewers) are matched to test items. Essentially Assignments allow DIR administrators to:

- Bulk select/group and order test Items (and therefore, associated standards/images) by content area, grade, and/or other item-level characteristics,
- Select and designate reviewers to selected/grouped Items, and
- Provide assignment-specific directions to reviewers.

To create an Assignment, click the “Assignments” button, located in the left essential features panel, to navigate to the Assignments page (see screenshot, below). Next, click the
“Create Assignment” button to navigate to the Assignments / Create or Edit page. Using the drop-down menu, select the Review that will house the Assignment to be created, enter a Title, and add any relevant descriptive text to explain what the Assignment is, and how it should be completed, including any specific recommendations or suggestions necessary for completing the Assignment review successfully. In the Reviewers box, click the boxes next to the names of each reviewer assigned to the group of Items associated with the Assignment.

![Assignments Table](image)

To select and order Items to appear in a given Assignment (and Review), use the drag-and-drop functionality to move test items from the Items box to the Assignment Items box in the exact order desired. The Paste Item IDs functionality allows Item IDs to be organized in bulk in the desired order in another program (e.g., Excel), and then copy/pasted into the Assignment Items box—convenient for Assignments consisting of many Items. An example Assignment, with reviewers selected (Steve and Shawn, a special educator and a general educator, respectively), is shown in the screenshot, below. Based on the Review and Title fields this Assignment is organized by grade (Grade 5) and content area (science). Additionally, Items were selected using
the bulk ordering feature through an Excel spreadsheet consisting of the relevant Item IDs—this particular Assignment consisted of 496 Items, with a “sister” Assignment consisting of the same Items, counter-balanced (reverse-ordered) in their presentation to reviewers.

**Step 8: Using DIR Reports Features**

The DIR offers two types of Reports features: (a) an HTML (web-based) report that offers administrators a “quick view” of reviewer progress, and thus, Review/Assignment completeness, and (b) a .csv report that allows data files to be securely downloaded and saved in a table-structured format for import into spreadsheet and statistical programs (e.g., Excel, SPSS, R). Access both types of
Reports by clicking on the “Reports” button located in the left essential features panel, and navigating to the Reports page (see screenshot, above). Reports are organized by Review, and then by Assignment (once a Review is selected). An example of an HTML, or “quick view”, report is shown in the screenshot, below, followed by a sample .csv report.

Summary and Contact Information

The DIR is a flexible, online system designed to securely distribute test items to experts for review of important dimensions of quality (e.g., alignment with standards, bias, sensitivity, and student accessibility). The DIR’s essential features allow system administrators to design and conduct customized review studies, in which test items are bulk uploaded, associated with academic content/performance standards and item imagery, and then organized and assigned for
evaluation by recruited reviewers (e.g., content and field experts, education leaders and practitioners, education researchers, and test and curricula developers). A variety of resources can be uploaded and associated with item review studies to support reviewers in their examination of test items. Reporting features allow administrators to quickly assess reviewer progress and study completeness, or securely download review data in a table-structured format for use in statistical analyses (HTML and .csv, respectively). For more information about the DIR, or to discuss use of the system, please contact Dr. P. Shawn Irvin at BRT by email at pirvin@uoregon.edu, or phone at (541) 346-3535.
References