

# **ASSESSMENT CENTER SCORING SERVICE<sup>SM</sup> USER MANUAL**

Version 1.8

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Assessment Center Scoring Service<sup>SM</sup> User Manual is © 2007-2020 David Cella, Ph.D., Richard Gershon, Ph.D., Michael Bass, M.S., & Nan Rothrock, Ph.D.

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## General Information

### *What is the HealthMeasures Scoring Service<sup>SM</sup>?*

The [Health Measures Scoring Service](#) (HM-SS) is a software application which automates and facilitates IRT calculated scoring of short form data from the four [HealthMeasures](#) measurement systems, [PROMIS](#), [NeuroQoL](#), [ASCQ-Me](#) and [NIH Toolbox](#). The HM-SS accepts a user's data file and produces an output file containing IRT scores, i.e. Theta, T-score and standard error (SE).

The HM-SS was developed to allow users administering HealthMeasures short forms outside of Assessment Center (AC), e.g. via paper and pencil or other computer-based data collection systems, to more effectively utilize IRT scoring.

### *How do I access HM-SS?*

The HM-SS is an open application available to anyone interested. It is located at: [www.assessmentcenter.net/ac\\_scoringervice](http://www.assessmentcenter.net/ac_scoringervice). Alternatively, a link to the HM-SS may be found on the Assessment Center home page.

### *What HealthMeasures instruments can be scored using the HM-SS?*

Currently, the HM-SS is available for scoring existing PROMIS, NeuroQoL, ASCQ-Me and NIH Toolbox-Emotion short forms available in AC or custom short forms users create from public item banks. The scoring service uses publicly available instruments/items and their corresponding IRT parameters per calibration samples to produce scores.

### *What are the steps involved in utilizing the HM-SS?*

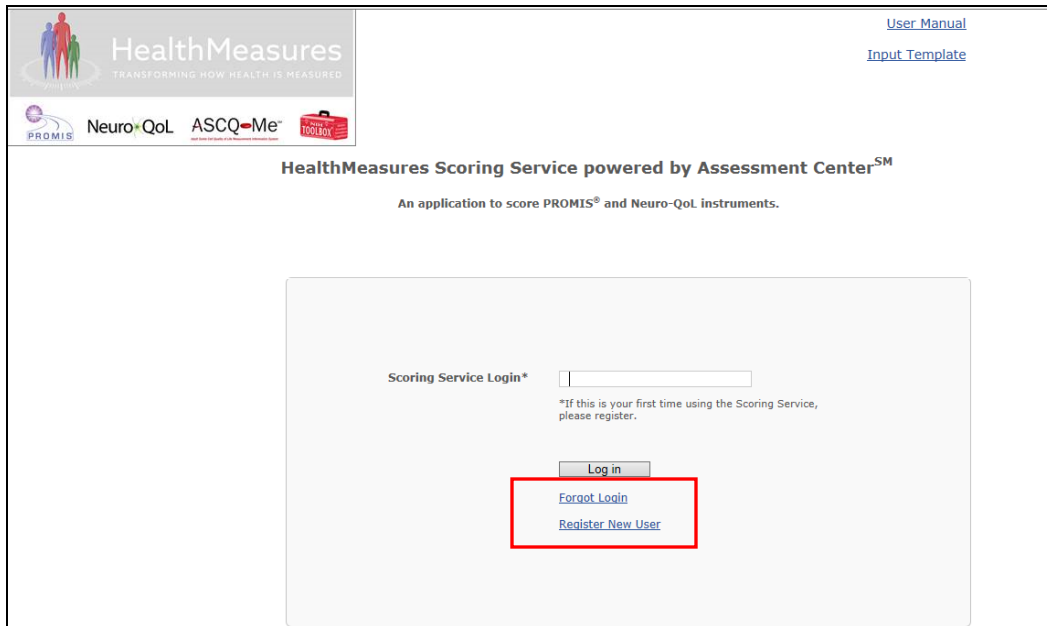
There are several steps which must be completed to obtain scores from the HM-SS. These steps are listed below. Descriptions of how to complete each step is detailed throughout this manual.

1. Download Input File from HM-SS homepage and insert data to be scored
2. Log into HM-SS and complete Upload process
3. Receive email from HM-SS and review Output Files in attachments

## Homepage

### *Do I need to register to use the HM-SS?*

A simple registration is required prior to the first use of the HM-SS. To register, navigate the HM-SS homepage and click on the Register New User link. You will be navigated to an HM-SS Registration screen from which you will need to create an HM-SS login and to enter some basic information. There is no password required for the HM-SS. After initial registration, you will navigate back to the HM-SS homepage and enter your login and click the Log In button to access the application. If you forget your login at any point, you may navigate to the HM-SS homepage and click the "Forgot Login" link immediately under the Login field. The system will send your login information to the email address you entered at the time of registration.



### ***What additional information is accessible from the HM-SS homepage?***

In the upper right hand corner of the HM-SS homepage there are two hyperlinks which allow users to access the [HM-SS user manual](#) and input file template. The User Manual opens as a PDF and may be saved outside of the system for future reference. The Input file template should be used as guide of how users should structure their dataset so that it may be read and analyzed by the HM-SS. Please see the input file section below for additional details on how to structure the file.

## **Input File**

Begin by creating an input file for each HealthMeasures short form. The template is available on the HM-SS homepage by clicking on the Input Template in the upper right. It is recommended you download the file, delete the template content, populate (i.e. cut/paste) the file with your data, and save as a csv file. You may give the input file any name you wish but the format, specific column headers and file type must not be modified. You should complete one template per instrument. One template can be used to score the same instrument at multiple timepoints (e.g., baseline, 1-month follow-up).

<b>Fields: HealthMeasures Scoring Service Input file fields</b>	
Here is information about the fields in the input file required by the HealthMeasures Scoring Service.	
<b>PIN</b>	Unique participant ID you use to identify your participants. This can include letters, numbers, and symbols.
<b>Assmnt</b>	Data collection time point (e.g. assessment 1, assessment 2). A single input file can be used to score the same instrument administered at multiple timepoints.
<b>&lt;Insert Item ID&gt;</b>	Item ID used in Assessment Center. You can find the correct item ID on PROMIS and Neuro-QOL PDFs. The PDFs can be accessed by conducting an instrument search on the <a href="#">Search/View Measures</a> page of the <a href="#">HealthMeasures</a> website. Once you have found the instrument you are interested in, click on the instrument name to open the PDF. There will be as many of item ID columns as there are items in the instrument (i.e. one item per column). The header row will be the item ID while the remaining row will consist of actual response scores.

## Additional Rules and Information

*Below is a list of additional rules and information pertaining to the HM-SS:*

1. The first five rows of the input file are automatically checked by the HM-SS upon upload. If the template headers have been modified or if there are other format/readability issues, the system will present an error message and not process the file.
2. To ensure efficient processing of data files, the size of input files cannot exceed 200 KB, about 4,000 data rows. If there is a file that exceeds this amount, it is recommended the data is separated into multiple files.
3. To indicate when a participant did not answer an item, whether because it was skipped or not applicable, either the word "SKIP" or a blank field should be listed in the input file instead of a score. Other codes for missing data (e.g., NA, 999) will not be recognized by the HM-SS and will result in the participant not being scored.
4. Input file must be in CSV or "comma-separated version" format. If you are located outside of the United States, you may need to change regional settings on your computer to ensure periods are used for decimal places and commas are used to separate lists.
5. Only one instrument may be scored at a time. If you have more than one instrument to score, you will need to upload your data multiple times, i.e. in multiple templates.
6. The items available for scoring by the HM-SS are items from select instruments in Assessment Center. If your dataset includes an item that is not on an applicable instrument in Assessment Center, it will not be scored.
7. Only items which have item calibrations, i.e. IRT parameters entered in Assessment Center, are eligible for scoring.
8. Data uploaded to the HM-SS is not saved or stored.
9. The IRT model used in the HM-SS is the Graded Response Model.
10. HM-SS scoring rules mirror the scoring rules used in Assessment Center.

## Upload

After logging into HM-SS you will be navigated to the Upload page from which you provide information and your input file so that your dataset may be analyzed. The HM-SS is designed to analyze one instrument at a time. If you have multiple instruments to be analyzed, you will need to create an input file for each instrument and upload each input file individually.

## Upload Process

There are several steps required prior to upload of a data input file.

### Step 1: Type of Short Form Selection

Select the type of short form you will be uploading, i.e. an Existing Short Form or a Custom Short Form. An existing short form is one of the HealthMeasures instruments available in Assessment Center. You would choose this option if all the items in your instrument are the same as those on any of the public short forms – you can determine if this is the case by cross checking the Item IDs within your dataset with those in the applicable short form on Assessment Center. You will need to select Custom Short Form if the instrument you are uploading is a subset of HealthMeasures bank items. It is important to note a valid short form should only contain items from a single domain, e.g. fatigue, depression, etc.

Also, HM-SS scores items based upon a selected calibration sample. Therefore, if you include an item(s) in your dataset which does not have the calibration sample you select on the HM-SS Upload page, that item(s) will not be included in the instruments score.

HealthMeasures Scoring Service: Upload [Log Out](#)

What type of short form instrument will you be scoring during this upload?

Existing Short Form or Profile  Custom Short Form

### [Step 2: Instrument Search](#)

To aid users in finding the instrument they would like to score, there are several search criteria available. The first three, Measurement System, Respondents and Domain, are drop lists populated with content from Assessment Center’s database. The final is an open text keyword search which queries the Instrument Name field using the search term entered here, e.g. search term “profile” will cause all profile instruments (e.g. PROMIS-29 Profile v2.1) to appear in results.

HealthMeasures Scoring Service: Upload [Log Out](#)

What type of short form instrument will you be scoring during this upload?

Existing Short Form or Profile  Custom Short Form

To search, make a selection from drop lists or enter keyword.

Select Measurement System Select Respondents Select Domain Enter Keyword Search

### [Step 3: Original Instrument Selection](#)

After you select the type of short form you will be scoring, a results box will appear from which you will need to select the instrument from which the items you are scoring originated. If you are scoring an Existing short form, the results will be populated with HealthMeasures short forms. If you are scoring a Custom short form, the results will be populated with HealthMeasures item banks. The results will contain instrument names as they are defined in Assessment Center. If you are unsure which instrument to select, you will want to review the possible instruments in [Assessment Center](#). Once you have selected the desired instrument, click the Score button to proceed.

### Step 3: Selection of Calibration Sample

After the applicable originating instrument has been selected, you will need to select the calibration sample to be used in scoring. The calibration sample drop list will contain all the calibration samples associated with any of the instrument’s items within Assessment Center. It is important to know the calibration sample you intend to use prior to navigating to the HM-SS. If you are uncertain about which calibration sample to use, consult with colleagues and/or [Health Measures Scoring Manuals](#). All instruments in Assessment Center have a default calibrations sample. The default calibration samples can be identified in the HM-SS by the phrase “(default)” listed after the sample name.

If any of the items within your input file do not have item parameter statistics for the selected calibration sample within Assessment Center, they will not be scored (see [Assessment Center User Manual](#) for further explanation of Item Statistics and Calibrations Samples).

### Step 4: Enter File Name and Verify Email Address

Once the calibration sample has been selected, the HM-SS will display two open text fields in which you will need to enter information. First, enter the name HM-SS should give the output file produced after scoring is complete. It is best to use a descriptive name so the file may be easily recognized, e.g. PROMIS Anxiety 7a\_Scores. Next, enter the email address to which you would like the output file sent. The email fields will be pre-populated with the address provided at registration. Edit where applicable.

### Step 5: File selection & Upload

The final step is to upload your input file. The required format of the HM-SS input file must be adhered to if the HM-SS is to score your data. It is important to download the Input File Template from the [HM-SS homepage](#). Please see the Input file section above for detailed information on how to structure your input file(s). To initiate the upload, first click the browse button. This action will start your computer's file upload process. Next, follow the applicable steps to select the appropriate file. Once the file has been selected, click the Upload button to finalize the upload and begin the scoring process. You will receive a confirmation message once the upload is complete.




## Scored Data

### *How will I receive my scores from the HM-SS?*

The HM-SS will score the uploaded dataset and send an email to the address provided on the Upload page. The amount of time required to complete the scoring will depend upon the file size and the number of requests currently being processed. An email will be sent once the scoring is complete, usually within 5 minutes. Larger files may take a few minutes longer to process. The email will contain two or three files. The first will be a csv file with your instrument's scores. This file mirrors the Assessment Scores data export from Assessment Center. Please see the table below for a description of each output file column. Each output file will contain a header at the top of the spreadsheet which lists when the report (output file) was generated and the original instrument and calibration sample selections.

<b>Fields: HealthMeasures Scoring Service Output (.csv) file fields</b>	
Here is information about the fields in the output file provided by the HealthMeasures Scoring Service.	
<b>PIN</b>	Unique participant ID
<b>Assmnt</b>	Data collection time point (e.g. assessment 1, assessment 2).
<b>Inst</b>	Instrument name as entered in the "Provide an instrument name (label) to be used for the output file" field within the HM-SS.
<b>RawScore</b>	Cumulative score of responses provided by participants.
<b>Theta</b>	Instrument score.



	 <b>Warning:</b> When reviewing PROMIS short form scores it is important to verify the appropriate number of items have been answered. <a href="#">HealthMeasures Scoring Manuals</a> can be referenced for scoring rules.
<b>TScore</b>	Transformed score based on a $(10 * \text{Theta} + 50)$ formula for PROMIS, NeuroQoL and ASCQ-Me instruments. Toolbox instruments will use a different <a href="#">formula</a> to produce the uncorrected standard score which is presented in the TScore field.
<b>SE</b>	Standard Error
<b>ScrdCnt</b>	Count of items which were used to provide Theta, Tscore and SE values.   <b>FYI!</b> This is a quick way to determine if any items within the uploaded dataset were not used to provide a score. Some reasons for why an item would not be used are 1. It is not included in the original instrument within Assessment Center or 2. It does not have item calibrations within Assessment Center.
<b>ItmCnt</b>	Count of items to which participants responded.   <b>FYI!</b> This is a quick way to review if a participant did not respond to any items.

The second file included in the email from the HM-SS is a log file. This file is intended to provide information regarding how the HM-SS read and analyzed your input file. Please see the table below for a description of the information included in the log file.

Fields: HealthMeasures Scoring Service Log file fields	
Here is information about the fields in the HM-SS log file.	
<b>List of Items</b>	Item IDs present within the uploaded dataset
<b>Item in selected short form or parent bank?</b>	Yes/No as to whether Item ID is present in the original instrument selected within the HM-SS.
<b>Item used to calculate score?</b>	Yes/No as to whether item was used in Theta, Tscore and SE calculations.

A third file may be included in the email from the HM-SS. This file is labeled with the instrument name entered into the HM-SS and the phrase “\_notscored”. It details participants which could not be scored by the HM-SS. The primary reason why a participant could not be scored is their response scores in the uploaded dataset do not match those of the original instrument in Assessment Center.

Fields: HealthMeasures Scoring Service “Not Scored” file fields	
Here is information about the fields in the HM-SS log file.	
<b>The following participants could not be scored. Please verify your original instrument selection or review the input file to ensure the item IDs and response scores match those in the original instrument.</b>	List of input file participants PINs who could not be scored by the HM-SS
<b>Subsequent columns (unlabeled)</b>	The data present in input file for each respective participant who could not be scored.

## Frequently Asked Questions (FAQs)

### ***Are there directions for the formatting of the input files?***

Please see the Input file template on the homepage. The information within the template should guide you with how to format the file. The first column is labeled PIN and should be populated with a unique identifier for each participant. The second column is labeled Assmnt and should be populated with a numerical value indicating an assessment timepoint, e.g. 1=baseline/first assessment, 2=follow-up/second assessment, etc. The remaining column headers are item IDs for the specific instrument to be scored. As noted above, it is best to download and save the template, then cut/paste your data into the file before uploading it to the HM-SS.

### ***What is the required file type (e.g., .csv, .xlsx) of the input file?***

The file type must be a .csv. CSV stands for comma separated values. While it is best to use the input template from the HM-SS homepage, users may change the file extension of other spreadsheet applications, such as Excel (.xlsx), to .csv.

### ***How will I know what response scores to use in my input file?***

Scoring information can be found via the [HealthMeasures website](#). Public short forms have PDF versions which contain response scores for each item/response. To access the PDFs, search for instruments on the HealthMeasures [Search & View Measures](#) page. Search results will contain a link to the PDF, where applicable.

### ***Is there a size limit to the input file?***

Yes, the input file has a size limit of 200 KB, about 4,000 data rows. The size limit was imposed due to the extensive time and server effort required to process large files. If you have an input file that is larger than 200KB, you will want to split the data into two or more input files and upload them separately.

### ***How should users label the variables?***

The variables, i.e. item IDs, used in an input file must be consistent with the item IDs contained within the applicable public instrument on Assessment Center. For example if a user has used the PROMIS SF v1.0 - Anxiety 7a in data collection, they will need to use the following Item IDs in the HM-SS input file: EDANX01, EDANX05, EDANX30, EDANX40, EDANX46, EDANX53, EDANX54. If these Item IDs are not used, the HM-SS will not identify the items and will not be able to produce a score. The Item IDs cannot be modified in any way, e.g. ED\_ANX30 will not be recognized by HM-SS.

### ***Does it matter what order these Item IDs are in?***

After the first two columns, which must always be PIN and Assmnt, the item ID headers may be in any order.

### ***Can an ID variable be included?***

Yes, the participant identifier field is PIN. Any value may be used here to uniquely identify participants. Another identifier field may not be added to the input file as it would be unreadable to the HM-SS.

### ***Are there specific rules I should follow when creating a custom short form?***

The HM-SS scores instruments based upon your original instrument and calibration sample selections. If any of a custom short form's items are not from the selected original instrument, they will not be

scored. For more information on creating and scoring instruments, please see the [Assessment Center User Manual](#) and [Health Measures scoring manuals](#).

***How does the system know which items to score?***

A user enters the instrument from which the items originated in the HM-SS, i.e. “Select your item bank from which items originated” or “Select your Short Form” drop list. The HM-SS will use the items within the original instrument and with the calibration sample selected by the user in the HM-SS to score the items within the Input file.

***What is the minimum number of responses required to calculate a score?***

The HM-SS does not have a minimum number of responses required to calculate a score, i.e. a score will be produced regardless of the number of item to which a participant responded. However, users should independently assess the number of scored items for each participant (see ScrdCnt field in Output file) to determine if they have responded to the appropriate number of items as determined by PROMIS and NeuroQOL scoring rules (see [HealthMeasures Scoring Manuals](#) for further details).

***May I use the HM-SS to score Toolbox instruments?***

Currently, only the Toolbox Emotion instruments are available for scoring via the HM-SS.

***What should I do if I am having problems with HM-SS?***

This User Manual is the main help feature for HM-SS. You may also refer to [HealthMeasures website](#) for additional documentation. Center administrators may be contacted at [help@healthmeasures.net](mailto:help@healthmeasures.net) for additional assistance and information.