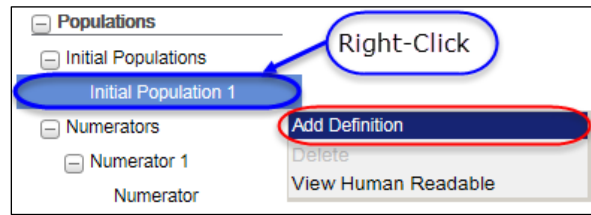


Figure 16: New Add Definition Option



1.33 Double-check message added to Population Workspace

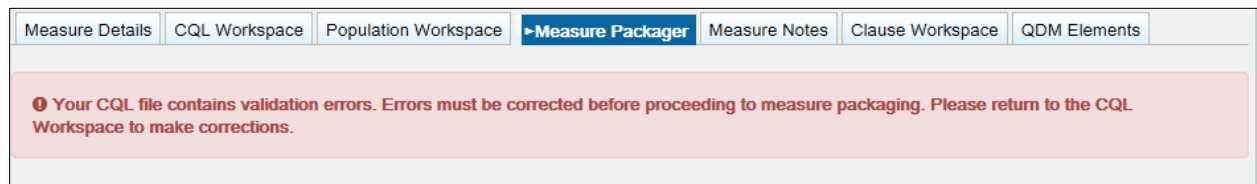
A new double-check validation and message has been added to the Population Workspace. Now, when a user attempts to navigate between any of the population workspace sub-tabs (Populations, Measure Observations and Stratifications), without having saved any in-progress work, a message will display prompting them to save their work.

Measure Packager

1.34 Measure Packager Tab Will Not Display if There are Errors in CQL

A check has been added to not load the Measure Packager tab if there are errors in the CQL logic. If the measure CQL contains errors, the tab will not load. Instead, an error message will be shown to the user informing them that they will need to correct the errors prior to packaging. Once the errors have been corrected, the tab will load as normal and will have retained any information previously entered.

Figure 17: Error Message Shown on Measure Packager



1.35 Measure Packager Will Only Display Populations with Paired Definition or Function

Users will not see populations on the measure packager tab that do not have a paired definition or function. In order to utilize a population in a measure package, each population must have a definition or function attached to that population. For example, because of this check, users will no longer see denominator exclusions as an available population for inclusion into their measure grouping if they have not paired a definition to denominator exclusions on the Population Workspace.

1.36 Return Type Validations on Measure Packager Tab

A number of type-checking validations have been implemented on the measure packager tab. These validations have been put in place to prevent users from saving and packaging their measures incorrectly. The validations will occur on the “Save Grouping” button of the Package Grouping section. The validations and associated error messages for these type-checking validations are shown below:

When there is an incorrect return type in measure grouping population(s) for a Patient-based Measure, you will see the following message.

“For Patient-based Measures, all definitions directly added to populations must return a Boolean.”

For an Incorrect return type in measure grouping population(s) in an Episode-based Measure, the system will return,

“For Episode-based Measures, all definitions directly added to populations must return a list of the same type.”

If you have a Measure Observation in a Patient-Based Ratio Measure the system will return,

“Measure Observations can only be added to a measure grouping in a Ratio measure, if the measure is Episode-based.”

For the incorrect number of arguments within a Measure Observation, you will see,

“Measure Observations added to a measure grouping may only contain a user-defined function that has exactly 1 argument in the argument list.”

When the return types for your Measure Population and your Measure Observation do not match, the system will return,

“Measure Observations added to a measure grouping must have an argument that returns the same type as the definition directly applied to the Measure Population associated with the Measure Observation.”

And finally, when you have an incorrect Return type in your Measure Observation the system will tell you,

“Measure Observations added to a measure grouping must contain a user-defined function that returns an integer, a decimal, or a quantity.”

Similar validations will also occur upon measure package. If you made changes to your logic but forgot to re-save your measure groupings the measure packager will catch the return type errors and direct you back to the save grouping button for more details on those errors.

1.37 Ability to use Definitions as Supplemental Data Elements.

Users will be able to use definitions from their measures as Supplemental Data Elements. The four default SDEs will still be auto-populated and applied to their Supplemental Data Elements. However, users will now be able to add any definitions from their measure into the SDE section.

1.38 Association functionality Displays on Measure Packager tab

When a measure contains added associations, those associations will display automatically on the Package Grouping section of the Measure Packager tab without the user needing to expand the section. Previously, the user was required to expand this section in order to select the check boxes of the associations.

1.39 Populations and Measure Groupings are Reset upon Deletion

If a definition is used in a Population, or a function is used in a Measure Observation, and that expression is deleted; the expression will be removed from the Population(s) and the Measure Groupings will be reset. This functionality has been added to ensure users are adding valid definitions to their Populations and Measure Observations.

MAT Exports

1.40 Added three new Files to the Export Package

There are three new exports that have been added to the eCQM package:

- CQL Library: contains all of the Clinical Quality Language logic that that has been included in the populations, stratifications, and/or measure observations when the measure was packaged.
- Expression Logical Model (ELM) file: contains a machine-readable XML expression of the CQL.
- JSON: Javascript Object Notation open standard file format.

1.41 Simple XML no longer available

The Simple XML export is no longer available when packaging a measure. The three new exports provide all necessary information in a standardized format.

1.42 Removed the Value Set Excel Spreadsheet from the Exports

The Value Set Excel Spreadsheet will no longer be provided upon export. The Value Set Authority Center is the source of truth for code and value set information.

1.43 Changes Made to HQMF Export

The HQMF Export will now be based on CQL expressions created in the new CQL workspace. The HQMF export has also been updated to include Data Criteria (QDM Data Elements) and Terminology Information in the export as per the new standards template set by CQL 1.2.

1.44 Changes Made to Human Readable Export

The Human Readable export will now show definitions, logic, and populations with CQL expressions rather than clauses.

The human readable export has also been updated to include two new sections: Data Criteria (QDM Data Elements) and Terminology. These sections contain the code and value set data and references used in the measure, set by the new standards template from CQL 1.2.

There were many changes made to the Human Readable exports. Many of these changes were made based off implementer feedback or necessary changes after implementing the CQL Formatter. See the list below for an overview of the changes made:

- Removed the expand/collapse labels from each section (labels only, the expand/collapse functionality remains)
- Removed syntax highlighting
- Enabled copying of text in the measure status code
- Removed the Measurement Period parameter reference. The only reference to the measurement period is stated in the measure description table.
- Margins of the logic descriptions now match the width of the measure description table.
- Ensured consistent re-sizing when compressing or expanding the webpage.
- Removed quotations from the Supplemental Data Elements section
- Removed the nested logic from the Population Criteria section
- Removed the gray background from logic section, the background is now a uniform white
- Added a new Definition section to display all definitions used within the CQL
- Added a new Function section to display all functions used within the CQL
- New Measure Types will show on HQMF and Human Readable exports

1.45 eMeasure to eCQM name change in MAT and outputs

In accordance with CMS guidelines, we have identified and changed all the locations where “eMeasure” was being used in the MAT tool and in any MAT outputs. Below is a summary of these changes:

MAT:

- My Measures > Export screen: replaced “eMeasure” with “eCQM” for two outputs
- Measure Details screen: replaced “eMeasure” with “eCQM” in three locations

Human Readable output:

- There were three locations in the Human Readable where eMeasure was being used and was converted to eCQM

eCQM Package zip-file:

- The .xml output file name was modified to read as “_eCQM.xml”

HQMF output:

- There was one location in the HQMF that replaced “eMeasure” with “eCQM”

Miscellaneous Measures

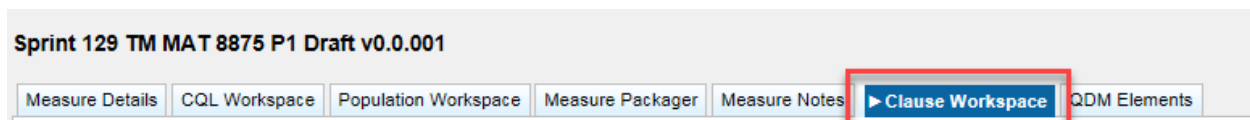
1.46 *Limited editing for Locked and Read-Only Measures in CQL*

Locked and read-only measures may not be edited in the MAT.

1.47 *Clause Workspace Read-only*

The Clause Workspace is now read-only and is intended for reference purposes for previously packaged non-CQL measures. This is read-only space.

Figure 2: Showing Location of Clause Workspace



1.48 *Added the Ability to Use Special Characters in the Measure Name*

The Measure Authoring Tool now allows the use of special characters within the measure name when creating and naming measures.

1.49 *Cloning Measures in the CQL MAT*

- CQL measures: Users have the ability to clone CQL measures.
- Non-CQL measures: Users are unable to clone a measure that was written prior to the implementation of CQL into the MAT. A new draft must be created to convert the measure to CQL before it may be cloned.

1.50 *Added Patient-based Indicator Field*

Users can indicate whether a measure is patient-based or episode-based. The patient-based indicator is a dropdown menu with two options, “Yes” or “No”. The dropdown selection can be found on the Create New Measure page and there will also be a read-only field on the General Information section of the Measure Details tab. Both options may not be available for selection depending on which measure scoring type has been chosen. If the measure has a scoring type of Cohort, Proportion, or Ratio, the user may select either “Yes” or “No”. If the measure has a scoring type of Continuous Variable, the user may

only select “No”. If a user edits a measure and changes the measure scoring type, the patient-based indicator will be reset to its default state, based on the new measure scoring type.

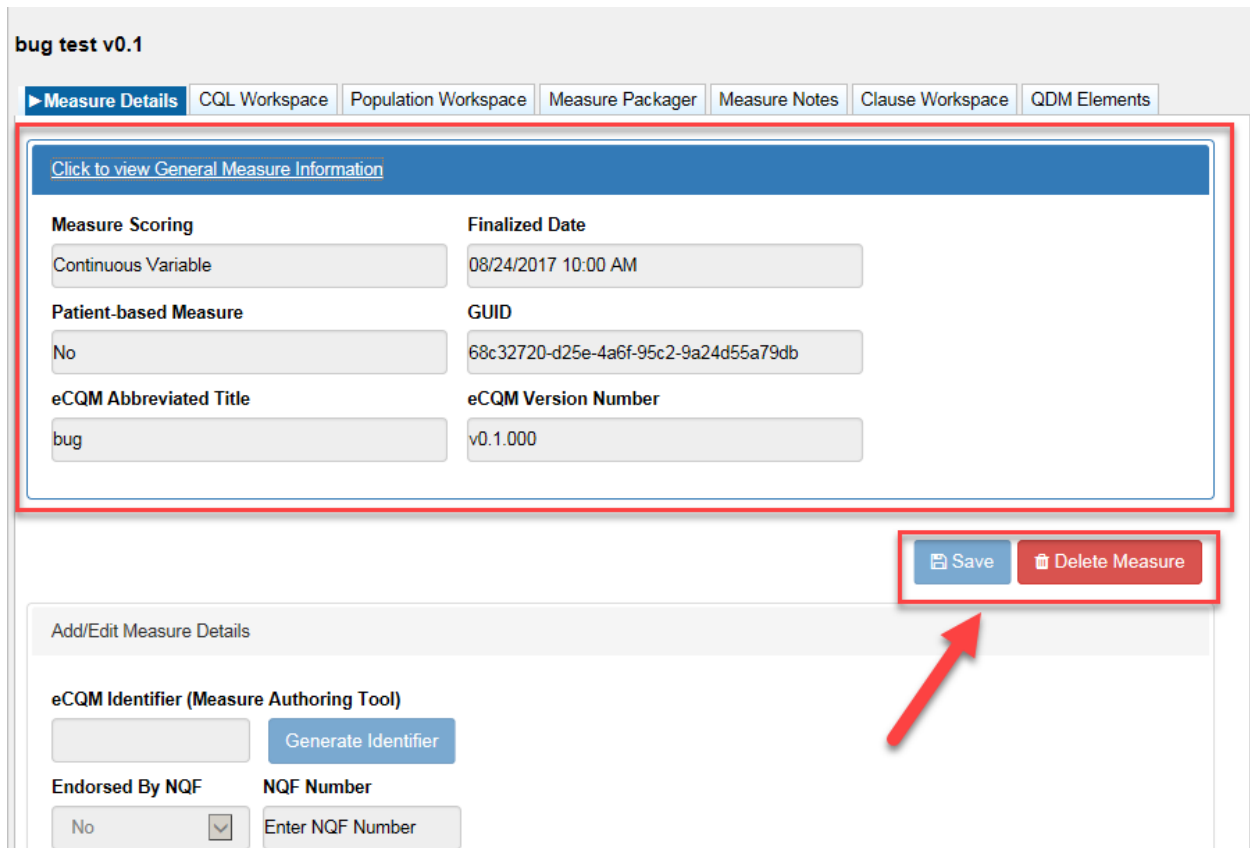
1.51 Modified the Measure Details page

Much of the Measure Details page has been updated. The General Measure Information is now shown in a collapsible field right at the top. Clicking on the heading will open the information for viewing, clicking again will collapse the field. Everything in this field is read-only.

The Endorsed by NQF and the NQF number fields have been moved next to each other. The Measure Steward List has been changed to a dropdown list. The rest of the fields on the Measure Details have received updated styling and look slightly different, with no changes to functionality.

Finally, the save and delete measure buttons can now be found at both the top and the bottom of the page, users will be able to select these buttons without scrolling to the top or bottom of their screen.

Figure 19: General Measure Information section of Measure Details page



1.52 Added Three New Measure Types

Three new measure types have been made available on the Measure Details screen. If used these measure types will reflect in all MAT Exports. New measure types shown below:

- Appropriate Use Process
- Intermediate Clinical Outcome
- Patient Reported Outcome Performance

CQL to ELM Parser

1.53 CQL to ELM Parser version 1.2.16

The CQL to ELM parser has been upgraded to version, 1.2.16.

Non-CQL Measures

1.54 Removed all data from the Population Workspace upon Drafting into CQL

When a user drafts a non-CQL measure in the MAT, all data from the Population Workspace will be cleared to enable the user to continue with the measure in the correct CQL format.

1.55 Removed all Specific Occurrences upon Drafting into CQL

When a user drafts a non-CQL measure in the MAT, any QDM elements designated as a Specific Occurrence will be removed as this is not valid within CQL.

1.56 Added Default SDE Definitions to Measures Drafted into the CQL Format

When a user drafts a non-CQL measure in the MAT, the system will add the four default Supplemental Data Element (SDE) definitions into the definitions section of the CQL Workspace and add them to the Measure Packager on the right-hand side of the Supplemental Data Element Section.

1.57 Removed all Birthdate and Expired Value Sets Upon Drafting Into CQL

When a user drafts a non-CQL measure in the MAT, any value set named Birthdate or Expired will be removed as these codes are added by default in the CQL version of the MAT.

1.58 Disabled and Moved the QDM Elements Tab

With Clinical Quality Language (CQL), it can be a hindrance when a value set is strictly paired with a datatype. The flexibility to use value sets in a multitude of ways within CQL means a whole new way of dealing with them in the MAT. As such, the QDM Elements tab has been disabled and

moved to the far right of the Measure Composer tabs and will serve in a read-only capacity for measures that have not yet been converted into a CQL measure version 5.4 or higher.

System Fixes

2.1 NQF Endorsement Field in Measure Details Defaults to 'No'

Within the Measure Composer > Measure Details tab, MAT users may identify the eMeasure as being endorsed by the National Quality Forum (NQF), if applicable. This field now defaults to 'No'.

2.2 Shared Measure functionality on the Recent Activity table

An issue was found and corrected to maintain icon functionality between the Measures and Recent Activity tables. Prior to the fix, if a versioned measure was shared and then drafted by the shared user, the icons in the Recent Activity table were left in read-only status.

2.3 Apostrophes in Value Sets

A fix was put in place following a user submitted ticket to allow for value sets with apostrophes in the value set name to be handled by the MAT. Prior to the fix, any apostrophe in the value set name caused errors when packaging the measure.

2.4 "Let" clause causing packaging issues

A user submitted issue was fixed where anytime a "Let" clause was used within an expression; the user was not able to package their measure. The bug was identified, and a fix was put in place to allow for the use of this clause.

Known Issues

3.1 Incorrect export scenario for non-CQL measures

There is a known issue in the MAT version 5.4. The issue is unlikely to occur unless a specific set of actions are followed. This issue occurs when a user clicks on the export icon for a measure that has been converted into the new CQL format, then selects one of the exports that are only available in a CQL file to view. Then if that user goes to a QDM Logic Based measure that has had a measure package created and tries to export the whole measure package, this causes a blank browser page to generate instead of

the chosen export package for the non-CQL measure. There are multiple, simple workarounds for this issue. Users use the bulk export feature found under the Export column on the All Measures table, or they may logout and login again, this time beginning the sequence with the non-CQL measure. This issue will be resolved with the next release of the MAT.

Public Website Updates

The following updates have been made on the MAT public website, <https://www.emeasuretool.cms.gov/>.

4.1 Added a “Subject” Field to the Contact Us Submission Form

An additional field, “Subject”, has been added to the Contact Us form found on the MAT public website, <https://www.emeasuretool.cms.gov/>. This field allows users to specify a descriptive subject on their request and will assist the MAT support team in triaging communications.

4.2 Update verbiage on MAT Public Website to reflect change to using CQL

Text within the MAT public Website www.emeasuretool.cms.gov was updated to accommodate the change to using Clinical Quality Language (CQL) as the language for expressing Electronic Clinical Quality Measures (eCQMs), and to reflect the new exports associated with the new version of the tool.