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CMS ENTERPRISE DATA ARCHITECTURE

NameChecker User Guide

Version 3.01

02/05/2020

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1. Introduction

NameChecker is a tool that performs data name translation and data name compliance analysis.

These two functions implement the Centers for Medicare & Medicaid Services (CMS) Data Administration and Engineering Services (DAES) Standards, Guidelines, and Operating Procedures as they apply to forming valid names of data entities, data attributes, database tables, and database columns.

The tool employs the CMS Standard Terms Glossary to check the validity of each name.

NameChecker will routinely be employed by data administrators or data modelers to verify the compliance of a set of data names against the CMS DAES standards. It may also be used to determine the correct abbreviation of a given business term or to expand an abbreviated name into the corresponding business name.

2. Getting Started

NameChecker uses Microsoft Excel and Visual Basic for Applications (VBA) to deliver its functionality. It is installed as an Excel Add-in and there are several steps that need to be followed before NameChecker is ready to use.

After installation, NameChecker will show up as a tab in the Fluent Ribbon at the top of the Excel window.

2.1 How to Download NameChecker

The NameChecker tool can be found on the CMS Data Administration website under the Tool Use section: https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/DataAdmin/ToolUse.html

Save the zip folder and extract its contents. Next, save the extracted NameChecker tool to an Excel Trusted Location as described in in Section 2.2 of this document.

2.2 How to Save NameChecker to an Excel Trusted Location

Excel Add-ins must be in a folder that Excel “trusts” in order to utilize them.

2.2.1 Navigate to the Trust Center

1. Click **File**
2. Click **Options**
3. Click **Trust Center**
4. Click **Trust Center Settings…**
5. Click **Trusted Locations**

In the Trusted Locations window, there will be pathways to Excel's default locations. If you do not have Administrator Privileges, you may not have access to this folder. Alternatively, users can add other folders to their trusted locations without needing Administrator permissions via the steps described in in section 2.2.3 of this document.

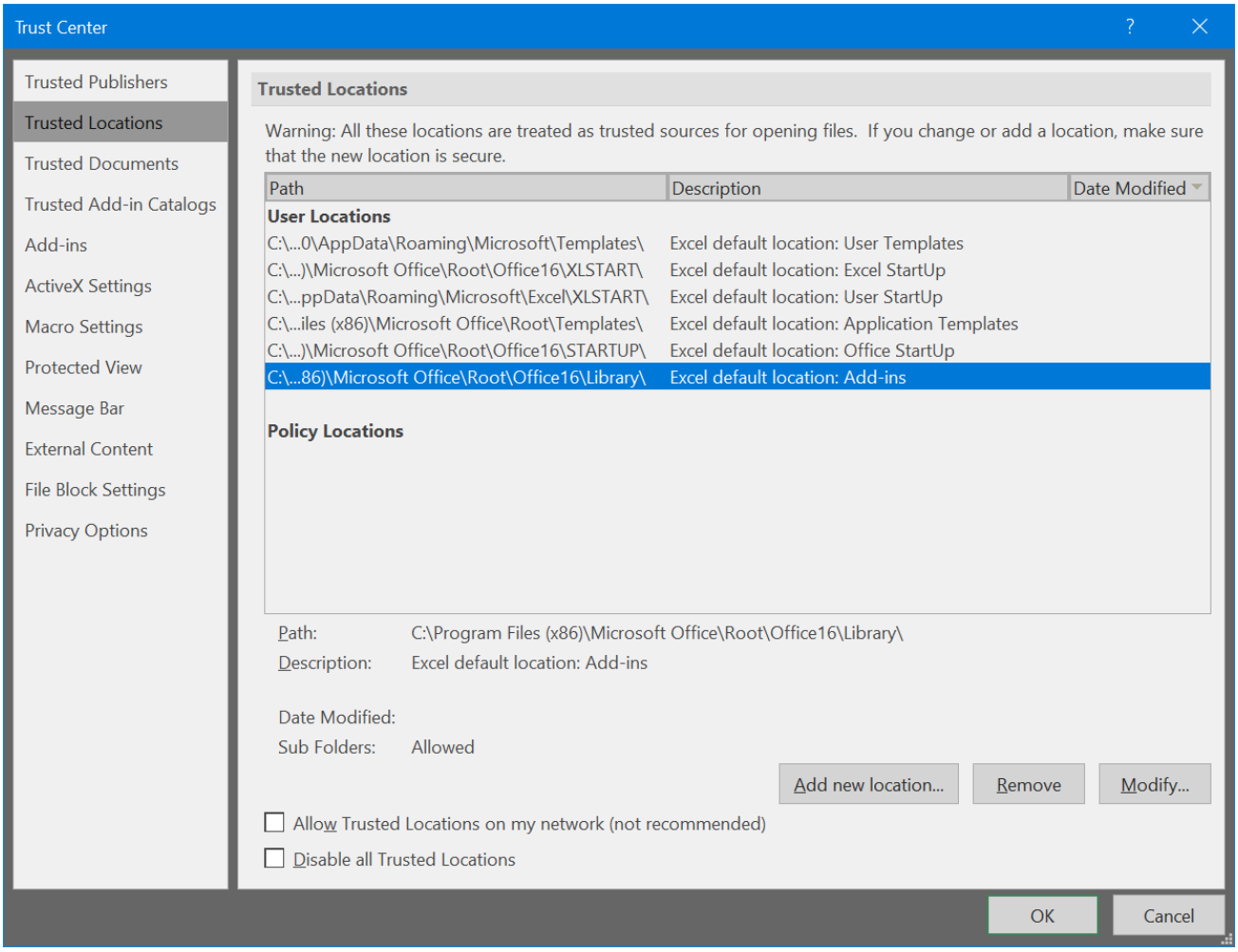


Figure 1 – Trust Center Window

2.2.2 How to Add a New Trusted Location

1. In the Trust Center window, click **Add new location…**
2. Select the location where NameChecker is saved with **Browse**
3. Enter a description for the location, e.g., "NameChecker Add-in"
4. (Optional) Select the check box **Subfolders of this location are also trusted** to allow all folders within this folder to also be trusted by Excel.

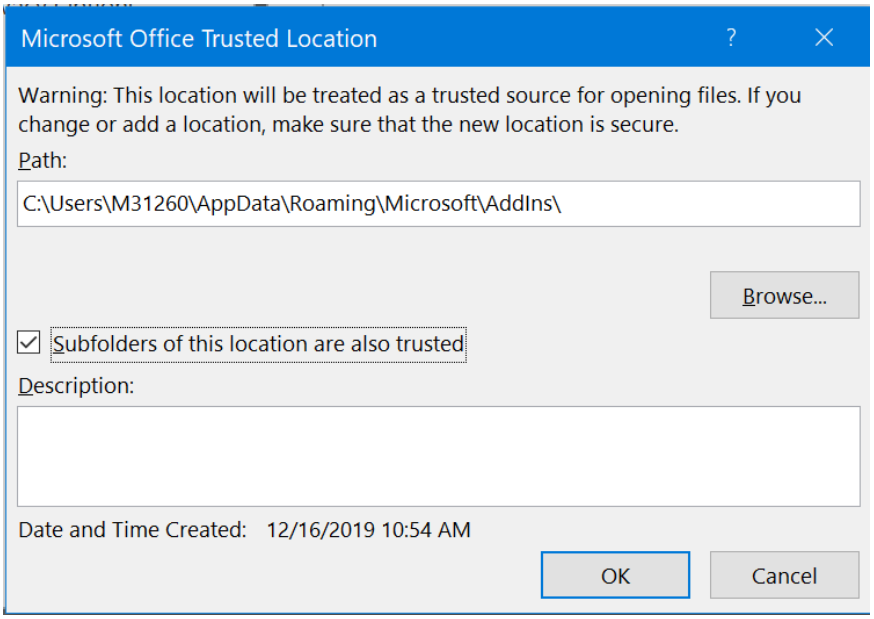


Figure 2 - Adding New Trusted Location

5. Click **OK**

2.3 How to Add NameChecker to the list of Excel's Add-ins

NameChecker must now be added to the list of Excel's Add-ins.

First, add the Developer tab to the Fluent Ribbon to access the Visual Basic Editor and convenient shortcuts that will save time in this guide.

2.3.1 How to Add the Developer Tab

1. Click **File**
2. **Options**
3. **Customize Ribbon**
4. Under Main Tabs, select the option for **Developer**
5. Click **OK**

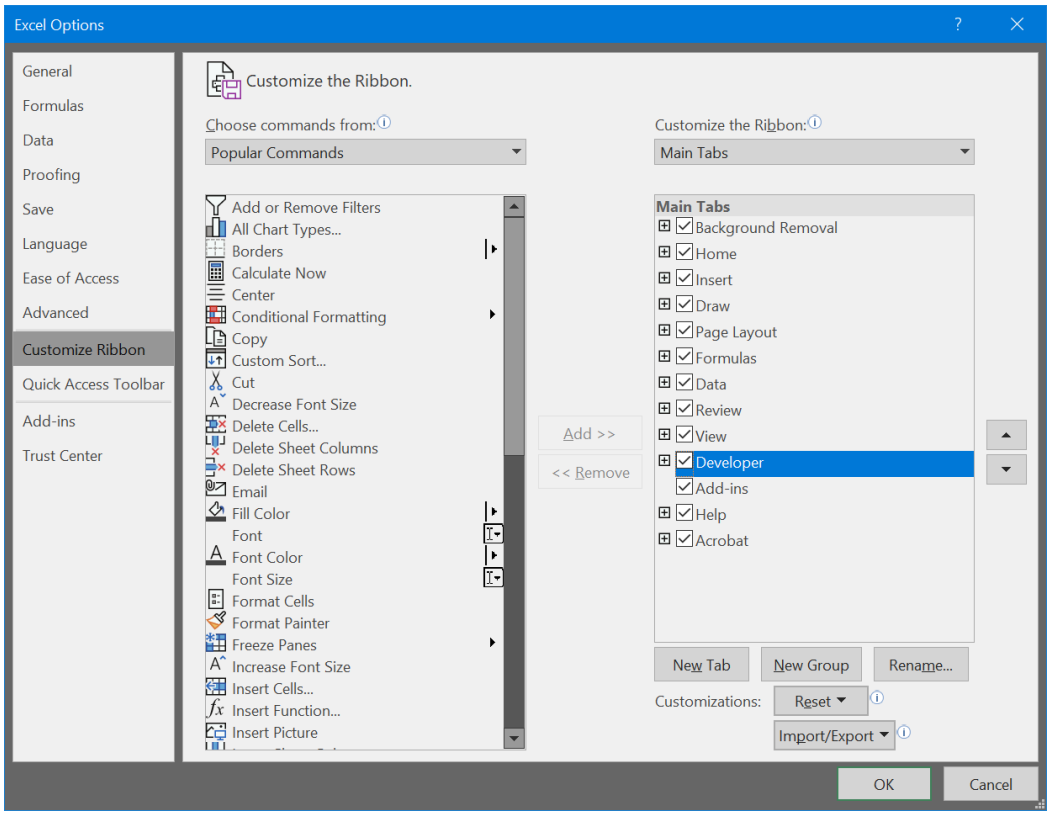


Figure 3 – Customize Ribbon and add the Developer Tab

Navigate to the Excel Add-ins window:

1. Click the **Developer** Tab
2. **Excel Add-ins**

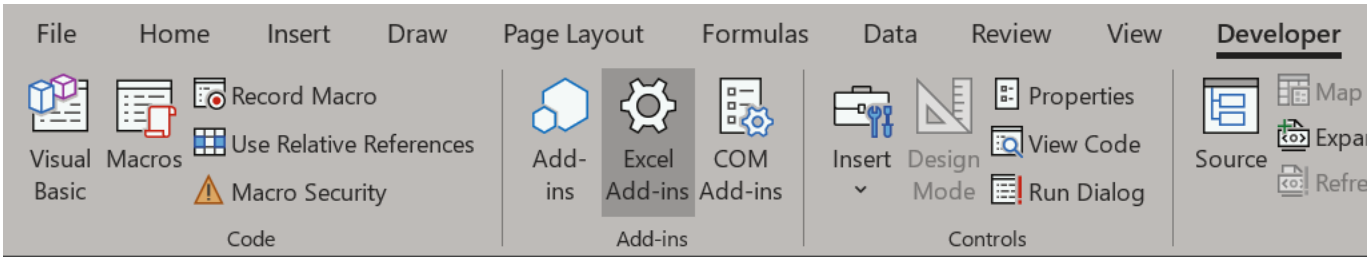


Figure 4 - Excel Add-ins Shortcut

The Add-ins window is where you can turn on and off optional Excel add-ins. Add NameChecker to this list and make sure its checkbox is checked:

1. Click **Browse** and navigating to the trusted location where NameChecker is saved
2. Select the NameChecker Add-in and click **OK**
3. Check the box next to its name in the Add-ins list

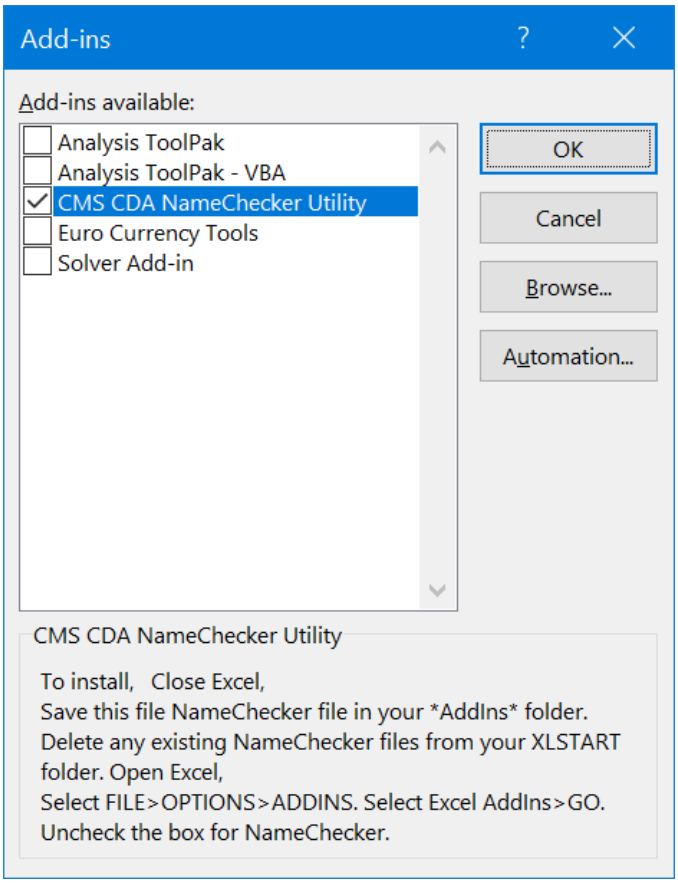


Figure 5 – Add-ins Window

4. Click **OK**

If installed properly, NameChecker will appear in the Fluent Ribbon at the top of the Excel window. It is recommended to close and reopen Excel to make sure NameChecker is still in the top Ribbon and has been installed properly.

Figure 6 – NameChecker Tab in the Fluent Ribbon

If you do not intend to use NameChecker often, you may want to disable it until needed as it can cause Excel to have a longer than normal start up time. In the same Add-ins window in figure 5, NameChecker can be turned on/off by clicking the check box next to “CMS CDA NameChecker Utility”.

2.4 How to Add VBA References

NameChecker relies on other VBA libraries for its functionalities. To ensure your installation has all of the required libraries,

2.4.1 How to Add the Visual Basic References

Navigate to the Visual Basic Editor:

1. Click the **Developer Tab**
2. Click the icon for the **Visual Basic Editor**

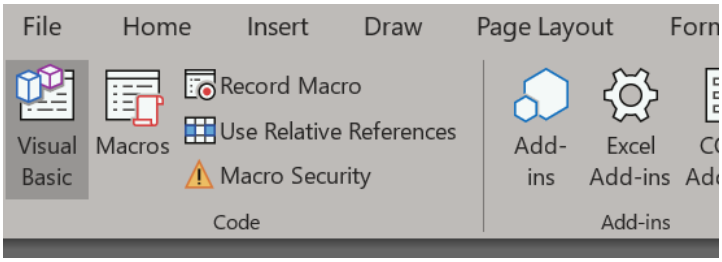


Figure 7 – Opening the Visual Basic Editor

3. In the VB editor window, click **Tools**
4. Select **References**

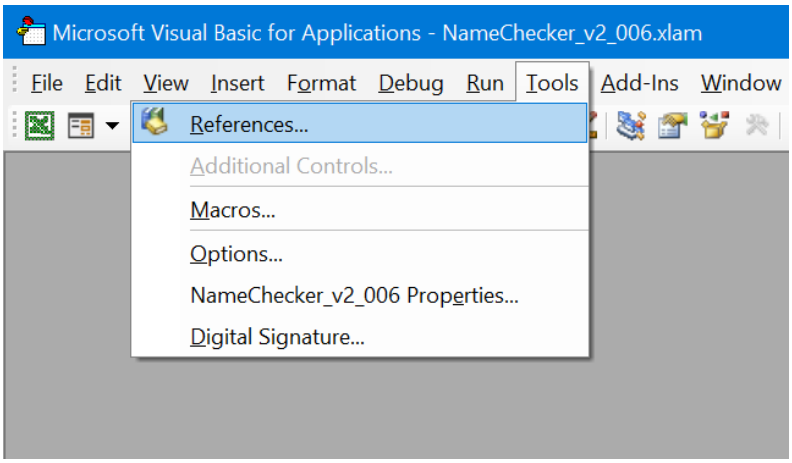


Figure 8 – Opening Visual Basic References Window

Review the displayed reference libraries and verify that all references shown in the following list and in Figure 7 with boxes checked (☑) are present. Other references are optional and may or may not be checked, depending on your Excel configuration.

Note: Depending of your Excel version, the list of libraries may vary. For Excel from Office 365 (Excel 2016) the list will include the following four libraries:

- Visual Basic for Applications
- Microsoft Excel 16.0 Object Library

- OLE Automation
- Microsoft Office 16.0 Object Library
- Microsoft Forms 2.0 Object Library (See section 2.4.2)

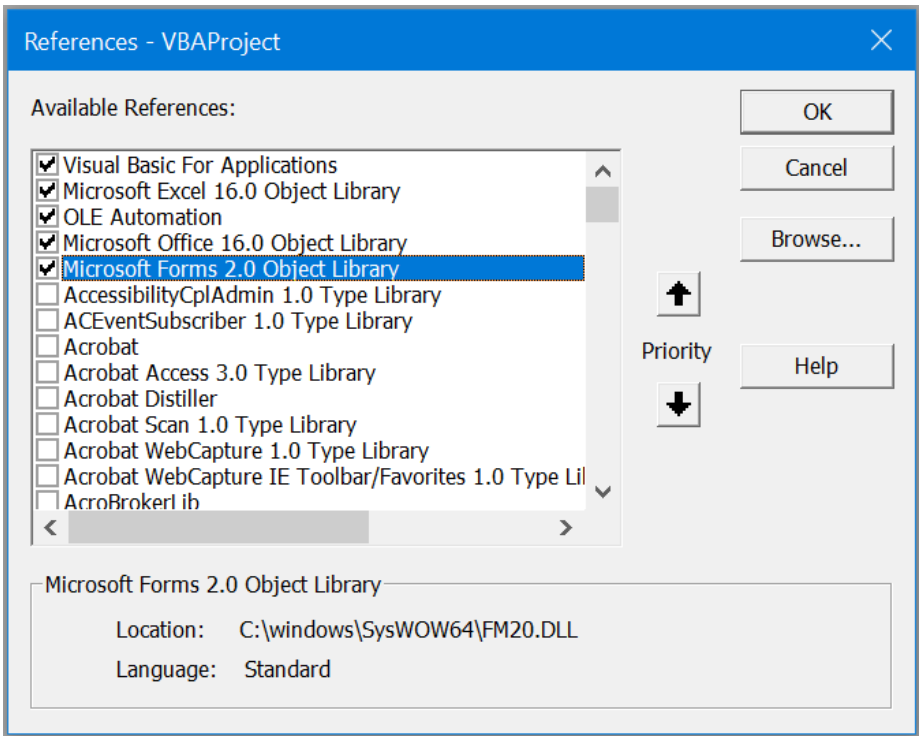


Figure 9 – Selecting References for NameChecker

2.4.2 Microsoft Forms 2.0 Object Library

If the Microsoft Forms 2.0 Object Library is already available in the list of references, check it, then skip this section.

If this reference is not available in the list,

1. **Browse…** for it from Microsoft Office's files.
2. On Window's Machines, navigate to **C:\Program Files (x86)\Microsoft Office\root\VFS\SystemX86** (32-bit) Or **C:\Program Files\Microsoft Office\root\VFS\System** (64-bit) depending on if Microsoft Office is installed as 32-bitor 64-bit
3. Search for a file called **FM20.DLL**
4. Click **OK**

3. Using NameChecker

NameChecker processes a vertical list of cells in an Excel worksheet from top to bottom. It begins with the currently active cell that the user has selected and proceeds downward through that column until the first empty cell is encountered. The results/report are displayed in a new worksheet created in the same workbook from which the tool was invoked.

*Expect a small set of names to require several minutes, with larger sets of candidate names requiring significantly longer times, up to a couple of hours. Times will vary per comuter.

3.1 Add the CMS Standard Terms List

NameChecker uses the CMS Standard Terms list in checking the validity of entity and attribute names. The Standard Terms list is required in order to run NameChecker.

3.1.1 Download CMS Standard Terms

The CMS Standard Terms can be found on the Data Administration website at the bottom of the main page under Downloads: https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/DataAdmin/index.html

Save the zip folder and extract its contents.

The standard terms file has a name in the format "CMS_FULL_STD_TERM_yyymmdd.csv" and contains a complete list of up-to-date standard terms. You may use it for both new and legacy projects. You may also see files like "CMS_NEW_STD_TERM_yyymmdd.csv" or "CMS_OLD_STD_TERM_yyymmdd.csv" in the source directory – they are term lists from older versions of NameChecker.

If you like, you may use the specific New or Old terms file for your project if you clearly understand what you are doing. In all other cases, use the generic ull terms file.

3.1.2 Add the Standard Terms List

To add the Standard Terms list

1. Click the **NameChecker** tab
2. Click **Standard Terms List**

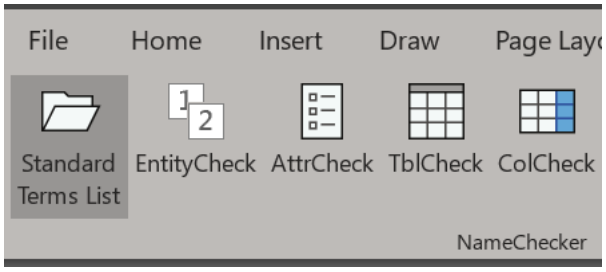


Figure 10 - Standard Terms List Button

3. Navigate to the folder where the Standard Terms list is saved and select the .xlsx file

NameChecker opens the Standard Terms list in another Excel workbook during the user's Excel session. The tool makes modifications to the standards file for processing; it discards these changes and closes the standards file after completing a NameChecker function. Therefore, it is advisable to avoid editing or saving the standards file during the time it is open for use by NameChecker.

3.2 NameChecker Button Functions

All of NameChecker's functions are run by the buttons in the top ribbon under the NameChecker tab.

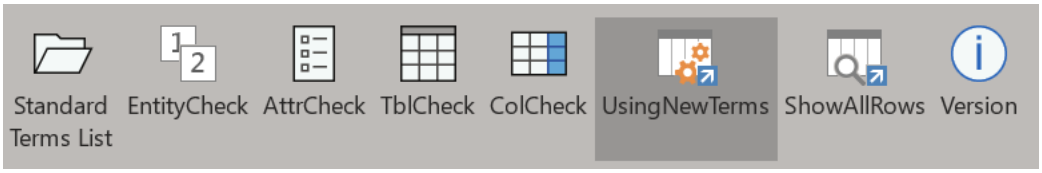
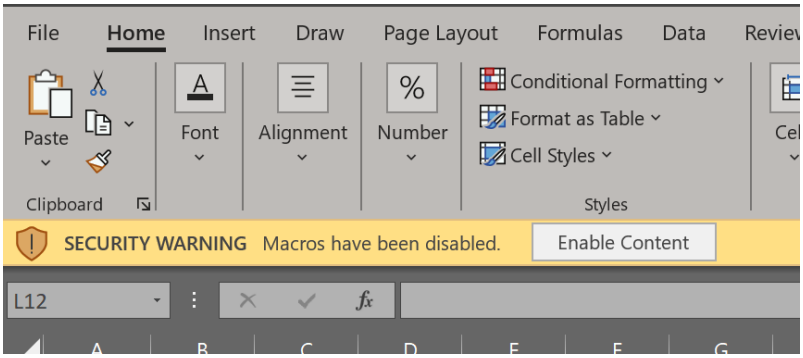


Figure 11 - NameChecker Buttons

To prepare to process a list of names, select the cell at the top of the column. Avoid clicking on the column heading if one is present.

*Be mindful of when NameChecker is going to reach an empty cell. Processing time can be long for large list, so it is therefore a good idea to break up large lists by inserting empty rows as stop points. The processing time elapsed will always display in the results, so that can be used as a measure for determining your preferred batch size. You can interrupt a running Excel macro by pressing **Esc** or **Ctrl + Break** to stop the process.

Once the start and stop points are ready, use one of the button functions in the NameChecker tab to start a check. If Excel displays a security warning asking for permission to execute macros, click on the Enable Macros button to allow the utility to execute.



If the Macros are disabled and Excel does not display the Enable Content prompt, then a solution is to Enable all macros. This will allow all macros to run without a prompt.

1. Go to the **Trust Center Settings**
2. Select **Macro Settings**
3. Select the option **Enable all macros**
4. Restart Excel

Table 1 - NameChecker Button Functions

Button	Functionality
Standard Terms List	The Standard Terms List button allows the user to select the desired spreadsheet to use as the standard terms list. The file path of the currently selected standard terms list displays when hovering over the button with the mouse.
EntityCheck	The EntityCheck button analyzes entity names for compliance and translates from entity names to table names.
AttrCheck	The AttrCheck button analyzes attribute names for compliance and translates from attribute names to column names.
TblCheck	The TblCheck button analyzes table names for compliance and translates from table names to entity names. This function is not used by the DAES team in logical model reviews and currently disabled.
ColCheck	The ColCheck button analyzes column names for compliance and translates from column names to attribute names. This function is not used by the DAES team in logical model reviews and currently disabled.
UsingNewTerms	The UsingNewTerms button displays the current operating mode and can be toggled to change the processing mode between the new and old standard terms logic rules.
ShowAllRows	By default, compliant term rows are hidden in order to draw attention to terms with errors or warnings. These terms and their results may be shown if desired by clicking the ShowAllRows button.
Version	The Version button will display the installed version of NameChecker.

4. Interpreting NameChecker's Results

Each execution of the NameChecker utility will create a new worksheet in your workbook to display the results of the compliance analysis and translation. The new sheet will be named "Ent" or "Atr" or "Tbl" or "Col", according to the function performed. If new checks are run in a workbook where NameChecker results already exist, the corresponding new result sheet names will have digits appended to the name for uniqueness, e.g., "Atr2018912122926".

Note:

- The tool creates several temporary worksheets in the user's workbook during the execution of a NameChecker function.
- The tool does not remove them as the function terminates. You need to remove them manually.

4.1 Columns

The columns displayed in the results worksheet depend on the type of check function used and the selected operating mode.

4.2 Color Codes

In the results sheet, the analyzed names will display in the first column (column “A”). Only names that come back with errors or warnings will show, unless the **ShowAllRows** button is selected. The analyzed names are color coded as follows:

Table 2 - Color Coding for Analyzed Names

Color	Color Name	Definition
	Red	Red indicates a name with one or more errors. Those names will display in the leftmost column of the results sheet.
	Yellow-green	Greenish-yellow indicates a term with warnings or an indeterminate compliance outcome.

In the tenth column (column “J”) and beyond, the analysis results for the individual words making up the candidate name. These term parts are also color coded:

Table 3 - Color Coding for Analyzed Term Parts

Color	Color Name	Definition
	Red	Red indicates a word not found in the standards list.
	Green	Green indicates an approved term. Approved (green) terms may be given another color based upon further analysis.
	Blue	Blue indicates an approved representation term.
	Khaki	Khaki indicates an approved object class term.

4.3 Other Results

The results worksheet will also include:

1. Name of the workbook used
2. Standard Terms Mode used (New/Old)
3. File path of the Standard Terms file used
4. NameChecker function used
5. Name of the NameChecker Add-in file used

6. Number of names checked
7. Number of names with errors
8. Elapsed time of the check
9. Date and time when the check finished

5. Troubleshooting and Support

Contact the DAES team with questions about this guide or the NameChecker tool by e-mailing DataAdmin@cms.hhs.gov.

5.1 Re-installing a New Version of NameChecker

If you are experienced problems with replacing an old version of NameChecker, make sure to repeat the steps described in Section 2.3 ("Add NameChecker to Add-Ins") of this document.

5.2 NameChecker Menu is Missing from the Fluent Ribbon after Closing and Reopening Excel

NameChecker should appear in the Fluent Ribbon after closing and reopening Excel, as seen below.

However, if NameChecker does not appear after reopening Excel, then the issue may be that the location of the tool is not in an Excel Trusted Location. Repeat the steps in section 2.2 and section 2.3.