

User Guide: Flood Risk Products Quality Control Tool

Overview

The Federal Emergency Management Agency (FEMA) is providing a new functionality which technical users may download and integrate into ArcGIS Desktop, called the Flood Risk Products (FRP) Quality Control (QC) Tool Release 1.0 (FRP QC Tool R1.0).

The FRP QC Tool R1.0 is an automated QC tool for use by FRP production teams when conducting QC on FRP Database (DB) prior to submitting data into the Mapping Information Platform (MIP). The Tool provides technical users with a new functionality to improve the quality of FRP data by ensuring Water Surface Elevation (WSEL) and depth grid products comply with FEMA standards. The FRP QC Tool is downloadable which users can integrate into ArcGIS Desktop.

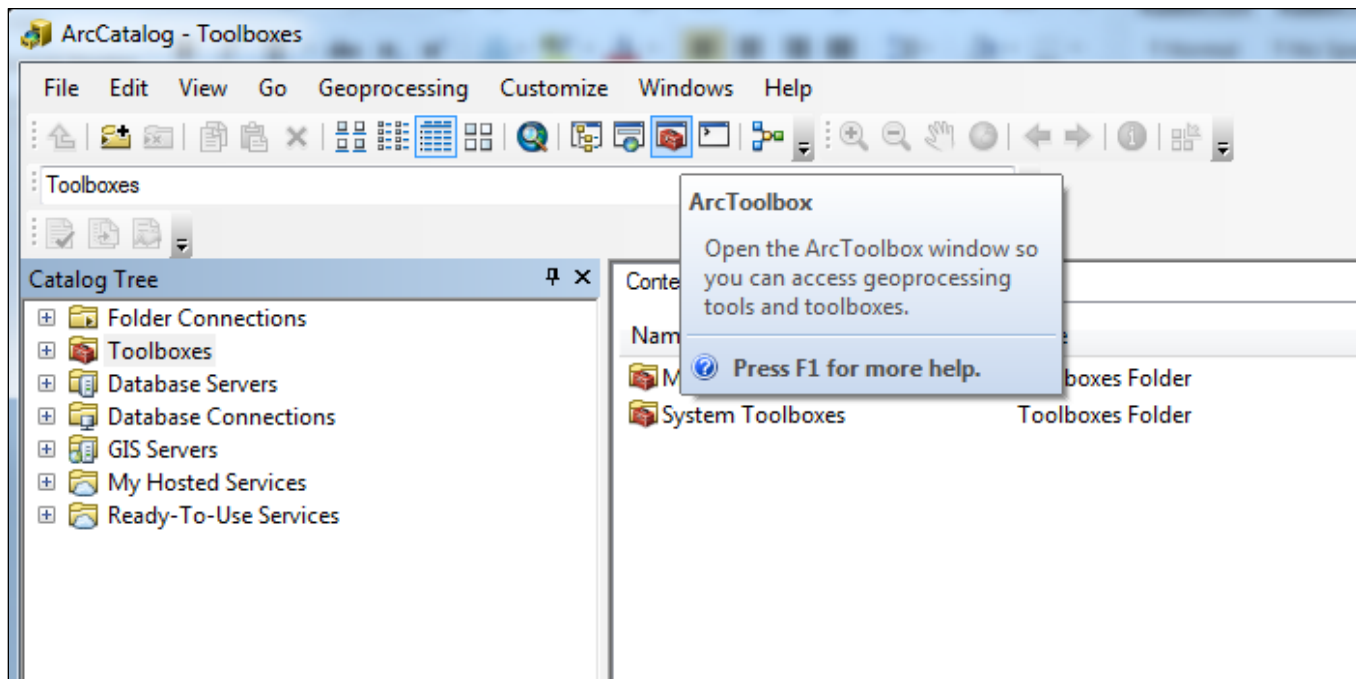
The FRP QC Tool will allow users to upload FRP data for validation in regard to data integrity, attribute values, and spatial features. This new functionality will be accessible through the ArcCatalog toolbox feature in ArcGIS Desktop and will allow users to select their FRP data and corresponding Flood Insurance Rate Map (FIRM) data as inputs to be checked in the tool. It requires the user to have ArcGIS Desktop 10.5.1 or a newer version. The Desktop Basic level license or above is required, as well as the Spatial Analyst extension.

The FRP QC Tool will produce a detailed error report for data which fails one or more quality checks for the user to review. Validation of FRP data will allow for an increase in the accuracy of data provided to the public and for data conformity across regions. The error report will be a Microsoft Excel spreadsheet which details the specific quality checks which their data failed or passed.

Instructions To Download the FRP QC Tool

1. Confirm the version of ArcGIS Desktop including Spatial Analyst extension is 10.5.1 or a newer version. The ArcGIS Desktop needs to have the Basic level license or above.
2. Visit the FEMA Mapping Information Platform (MIP) Tools & Links page:
https://hazards.fema.gov/femaportal/wps/portal!/ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINLlx8zcwDgt2dDNw9fHy9Q1wNDSBAvyDbUREA4duh_A!!/
3. Find the FRP QC Tool download link
4. Download the file called "FRPQCTool.zip"
5. Extract the zip file to a folder of choice on the computer. Remember the folder name and location where the file is saved
6. Open ArcGIS
7. Open the ArcCatalog

8. Click “ArcToolbox” symbol in the tool bar, featured in the below screenshot



8.1 If the toolbar is not viewed:

8.1.1 Click on “Customize”

8.1.2 Click “Toolbars”

8.1.3 Make sure the Standard toolbar is checked on

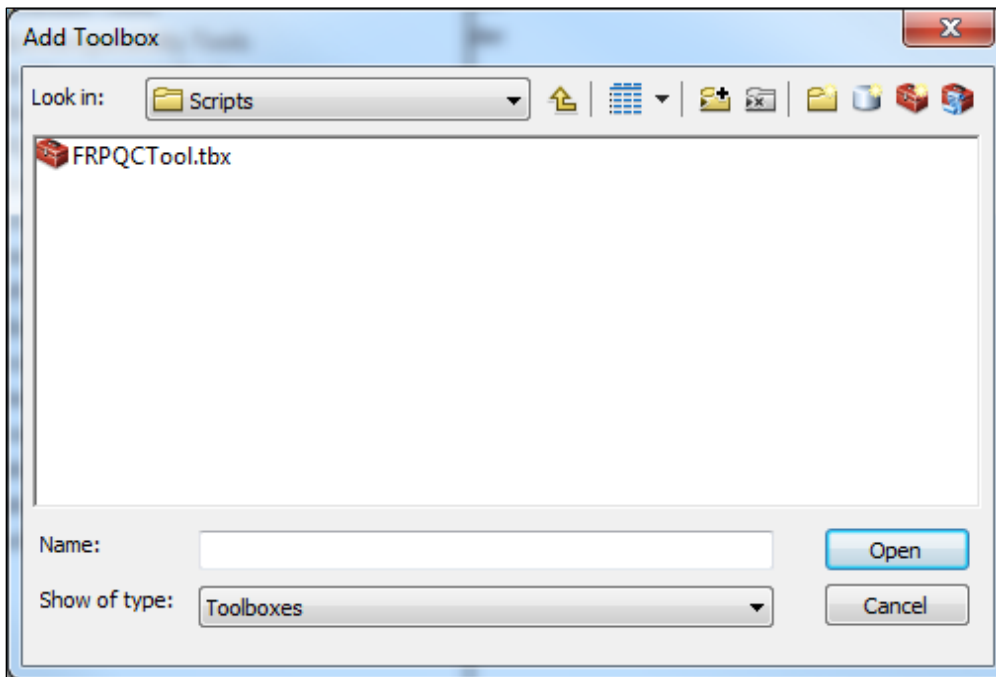
9. After bringing up ArcToolbox, right click the white area below the current toolboxes

10. Click “Add Toolbox...” This will bring up a browse folder screen that will allow pathing through file explorer

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11. Path to the folder where the FRPQCTool.zip was extracted, and then go to that path

- ▶ %Folder extracted zip file%/FRPQCTool/Scripts and should see the file FRPQCTool.tbx, featured in the below screenshot



12. Single click (do not double click) on the file

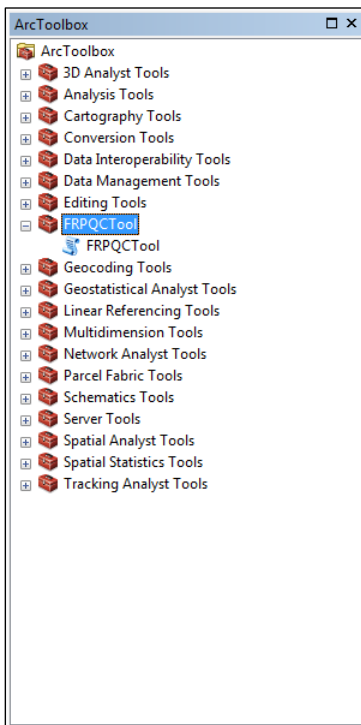
13. Click open. This will add the toolbox to the ArcToolbox

Instructions To Use the FRP QC Tool

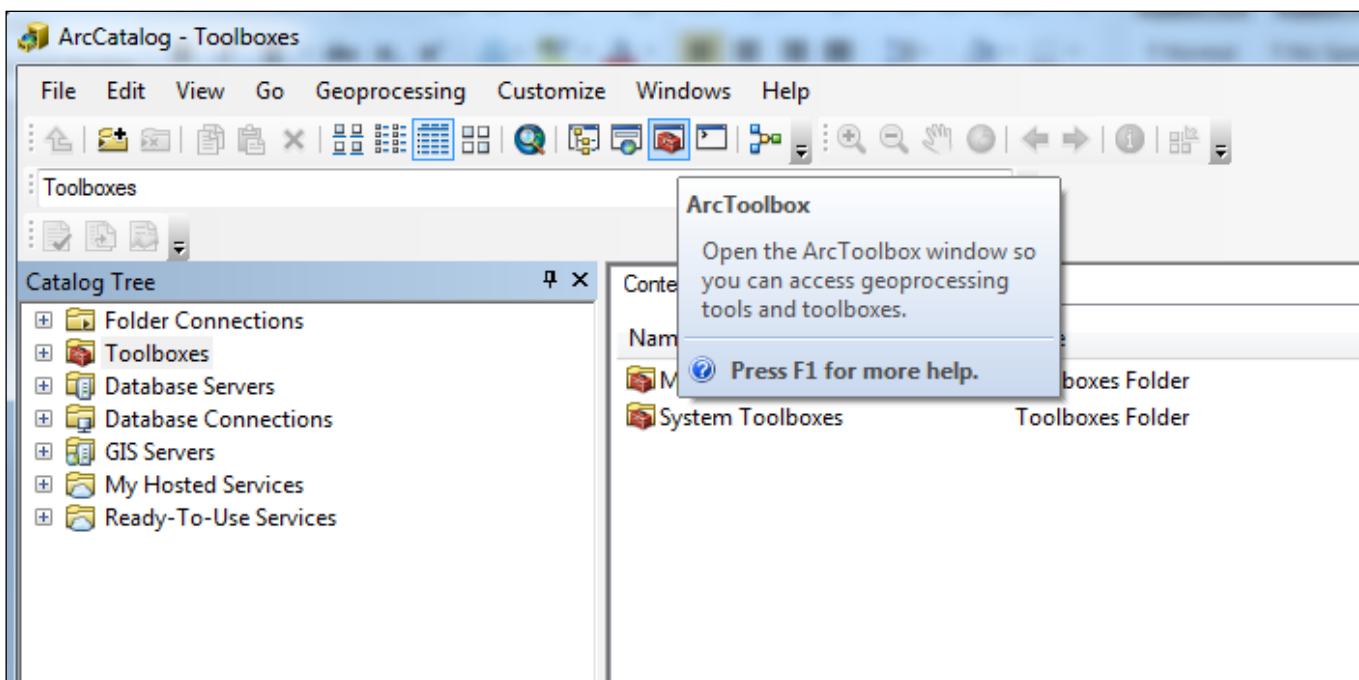
1. Save a copy of the dataset. The Tool generates raster grids that are added to the dataset that the user selects as input. Use a copy of the dataset in the FRP QC Tool in order to maintain an unmodified version of the original dataset
2. Open ArcGIS
3. Open the ArcCatalog

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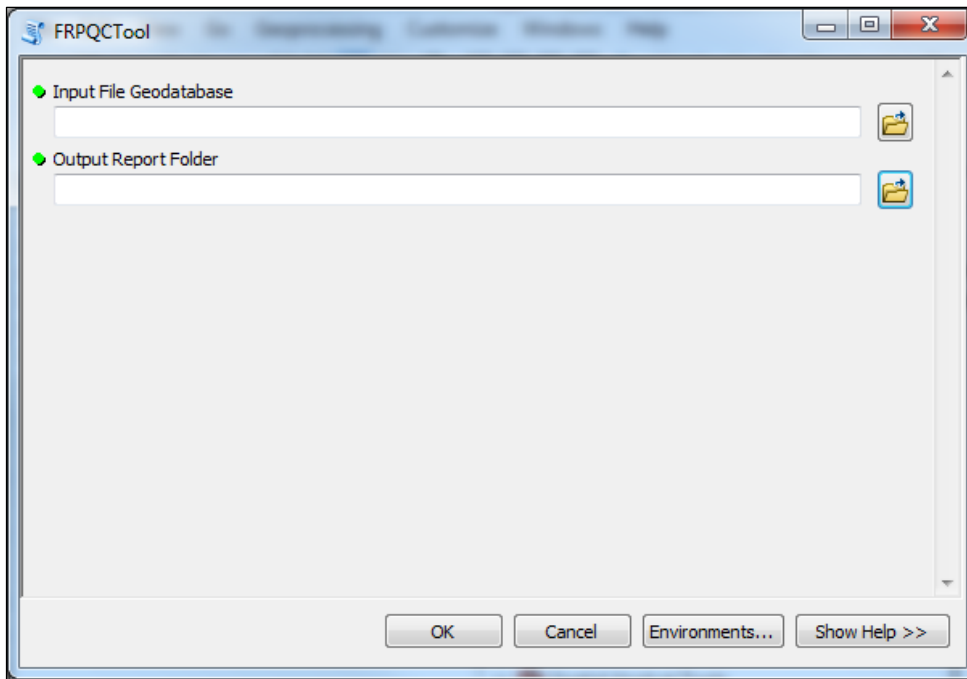
4. Click “ArcToolbox” symbol on the toolbar, featured in the below screenshot



5. Click the “+” button next to “FRPQC Tool” in the toolbar to expand the FRPQC Tool toolbox, featured in the below screenshot



6. Double click on the “FRPQCTool” that appeared under the “FRPQC Tool” line that was expanded. This will bring up the menu featured in the below screenshot



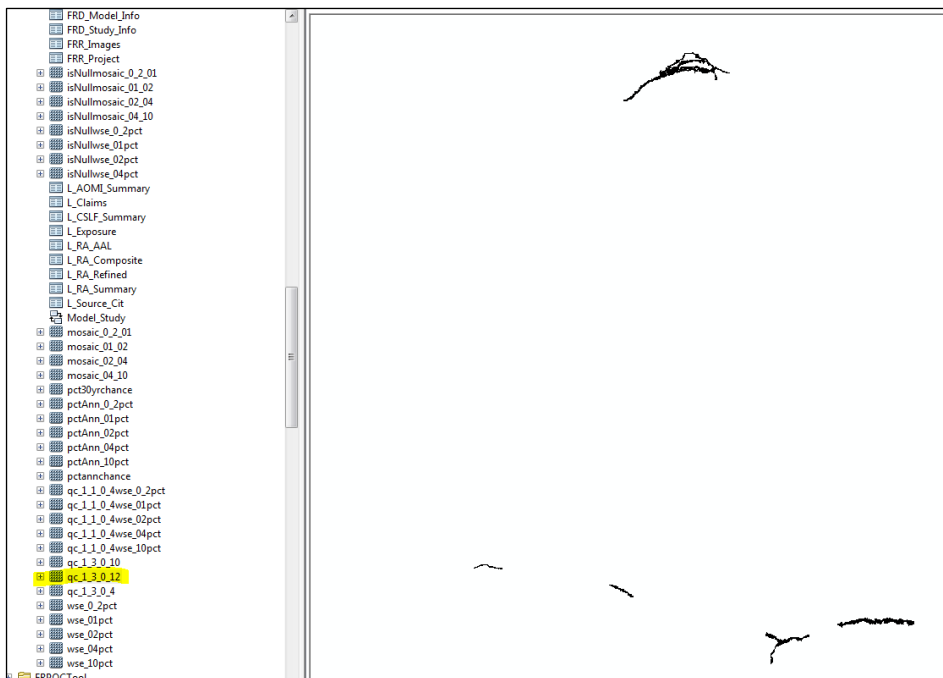
7. Follow this process for the “Input File Geodatabase” field:
 - 6.1 Click the folder button to the right of the “Input File Geodatabase” field which will bring up a browse folder panel
 - 6.2 Path to the FRPQC compliant gdb file to use as the input
 - 6.3 Single click (do not double click) on it
 - 6.4 Click “Add.” The text field below the “Input File Geodatabase” field should fill with the folder path and the file which was selected
8. Follow the same process for the “Output Report Folder” field:
 - 8.1 Click on the folder button to the right of the “Output Report Folder” field which will bring up a browse folder panel
 - 8.2 Choose the folder where the Output Report will be saved
 - 8.3 Single click (do not double click) on it
 - 8.4 Click “Add.” The text field below the “Output Report Folder” field should fill with the folder path and the file which was selected
9. Click OK to run FRPQC Tool
10. The FRP QC Tool will produce a detailed error report outlining the quality checks the data failed. The report will be saved in the same folder selected in step 8 in the “Output Report Folder” field

Report

The report generated by the FRP QC Tool will be in a Microsoft Excel spreadsheet format and will be saved in the folder selected in step 8 of the *Instructions to Use the FRP QC Tool*. The Microsoft Excel file will detail the specific quality checks which the data failed, with each row of the Excel spreadsheet outlining the specific failed check.

It also generates a temporary raster grid for certain failed checks, which highlights the reason for failure and allows the user to visualize where the error was identified. The generated raster grids are added to the dataset that the user selected as input. Users can easily identify the generated raster grids because it follows a specific naming convention (e.g. *qc_1_3_0_4* where *1_3_0_4* would be the rule that failed). Remember to follow step 1 of the *Instructions to Use the FRP QC Tool* which specifies to use a copy of the dataset to run the checks, so that the original dataset is not modified.

The user will need to review the Microsoft Excel file report and read each row of the file to learn which checks were failed. The user may need to click on each raster to analyze it and determine the data that failed the check, and how to fix it. Finally, the user should implement fixes to the identified issue to improve the quality of the data. After all failed checks have been resolved and the data passes the QC checks, the user can upload the data into the MIP.



Questions?

For MIP, FRP QC Tool, or IT system questions, contact the [MIP Help](mailto:miphelp@riskmapcds.com) team via telephone at 1-877-FEMA-MAP (1-877-336-2627) or via email at <mailto:miphelp@riskmapcds.com>.

For assistance using FEMA data or tools, or other flood mapping questions, contact a [FEMA Map Information eXchange \(FMIX\)](mailto:FEMAMapSpecialist@riskmapcds.com) Map Specialist via telephone at 1-877-FEMA-MAP (1-877-336-2627) or via email at <mailto:FEMAMapSpecialist@riskmapcds.com>.