

Instructions for Working with RETRO.NET

RETRO.NET

RETRO, a.k.a., Requirements Tracing On Target is a software tool developed at the University of Kentucky for the purpose of supporting the requirements tracing process. RETRO automates candidate link generation on tracing tasks.

RETRO Installation

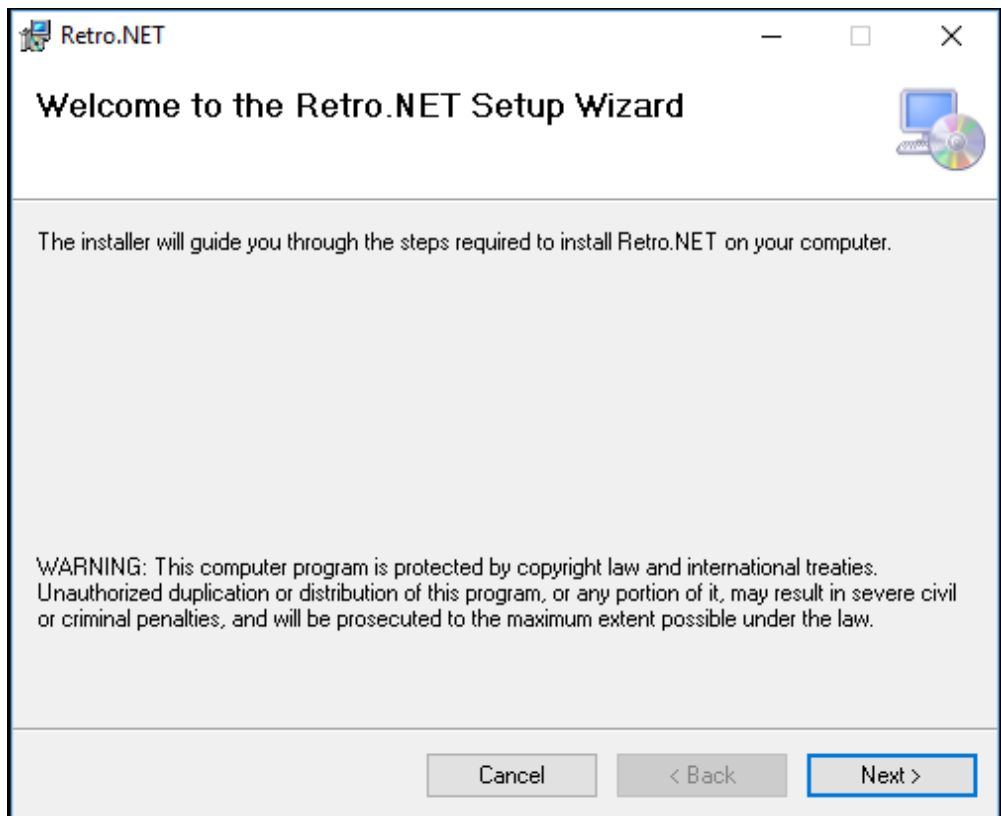
RETRO is a .NET program. At present RETRO, has been tested only on the Windows operating system. Additionally, RETRO will only work on Windows machines that have the .NET framework installed. To my knowledge, the workstations at the University of Kentucky CS, RGAN, CIVIL, Mechanical Labs with windows machines have the required .NET framework installed on them.

To download RETRO, type the following URL in your web browser and download the zip file:

https://cs.uky.edu/~bch229/Retro_tool.zip

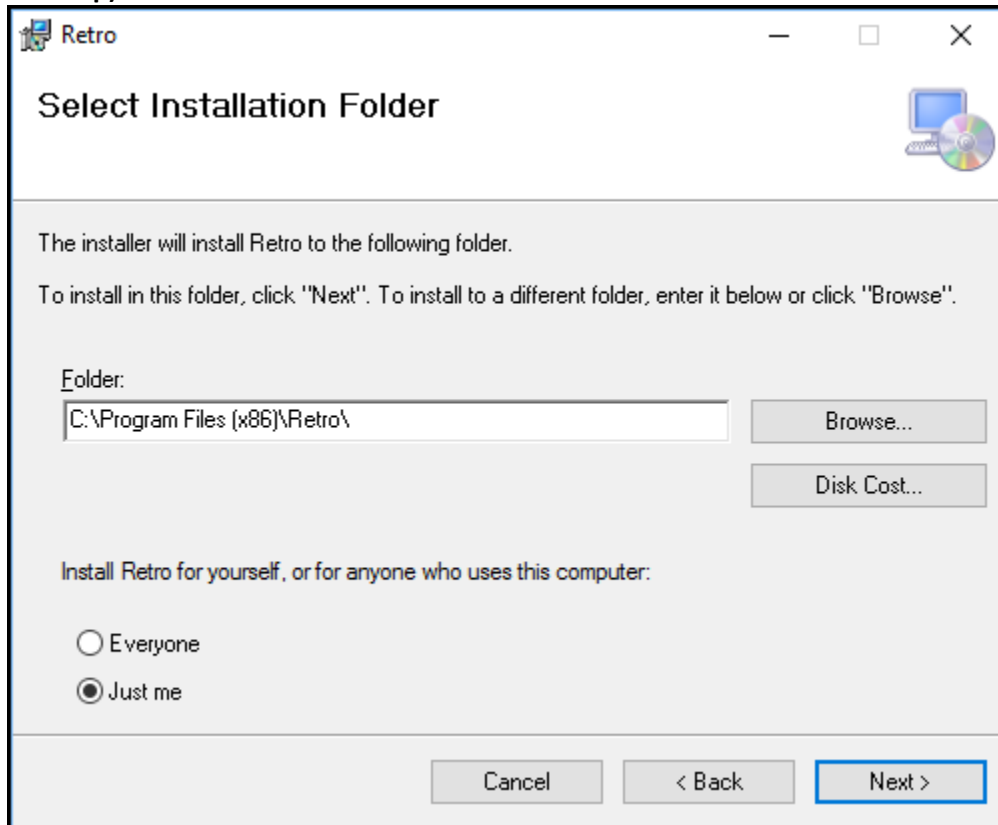
After downloading the zip file, extract the **Retro_tool** folder. Enter the **Retro_tool** folder and launch the application by clicking on **Retro.msi** (Windows installer package).

Follow the instructions on the screen:



Select Installation Folder:

Next Select the desired location of the directory path to install folder. By Default, it would pick Program Files (x86) Directory (**Note: All Experimental Data will be stored in the installation folder selected at this step**)



Confirm the installation:

Confirm the installation by clicking on Next.

Installing the Retro.NET

At this step, it will check whether you have .NET framework already installed or not. If not already installed, it will go ahead and install it for you.

(On some windows machines, it may ask permission to allow installation for *“unknown publisher”*, Please go ahead and allow the application to install).

If you followed all steps properly, now you should have the “Retro.NET” icon for the software on Desktop.

Working With RETRO

Start the experiment:

Go to the Desktop screen and double click on Retro.NET desktop app.

Login to User Interface:

Now, you should see the Login Form on the screen.

(You will be provided with username and password from researcher separately).

Enter your given credentials to login in to the interface.

Projects. The tool will generate trace links and the low-level artifact will then be shown on the right side of the RETRO main window, and a high-level artifact will be shown on the left side. Tracing takes place from the high-level artifact to the low-level artifact.

Once the artifacts are loaded, the system will display several tabs for your use while tracing. The high-level artifact will be displayed on the All tab on the left, while the low-level artifact will be displayed on the By Recommendation tab on the right.

Each tab is separated into two areas. The top area is used to display the list of elements while the bottom tab is used to display the text of individual elements.

The high-level document area has two tabs, All and By keyword. The low-level document area has three tabs, All, By Keyword, and By recommendation. We briefly describe the functionality of each tab below.

All Tab. This tab displays all elements of the given (high/low level) artifact. For the high level document, this is the main view. For the low level document, it allows you to browse the entirety of the low level elements, whether they have been recommended.

By Keyword Tab. The Keyword tab is used to filter the elements of high and low level documents using simple keyword search. Any search string may be used and search strings may contain Boolean expressions.

By Recommendation Tab. The Recommendation tab is the main tab for the low-level artifact. It is used to show the candidate RTM produced by the automated process and offered to you for validation. The Recommendation tab shows low-level elements which the system recommends for the selected high-level element, sorted by weight (higher weight indicates the system predicts the link is more likely to be true).

Validating a link. All links provided to you are candidate links and require you to validate them. To perform this task first select the high-level element you want to look at. After this the candidate, low-level links are shown in the Recommendation tab of the low level artifact. Each candidate link has a status associated with it. The status is shown next to the low-level element ID. Three status values are available: Link, Not a Link and Default.

- **Link.** This status signifies the validated link. Assign this status to any link you believe to be correct. Only links with this status will be included in the final RTM you submit.

- Not a Link. This status signifies the candidate link is incorrect. Assign this status to any link you believe to be wrong.
- Default. This status is initially assigned by RETRO to ALL candidate links. Links marked as "Default" when submitting the final TM will not be included in it. You may use the "Default" status as the indication that the candidate link has not been explicitly validated/rejected yet.

To change a link status, select the desired status value from the list box and click off this row. The change will only be propagated after the click-off. Note, there is a status associated with high level elements as well.

Locating missing links. The candidate TM provided to you for validation may include incorrect candidate links. It may also omit valid links. If you believe that your candidate TM omits valid links it is your task to seek them out and include them in the final TM you submit. To perform this task first locate the high-level element for which you want to find missing low-level links. After this, select the All or keyword tabs from the low-level artifact window. You may now locate a low-level link that you determine should be a part of the final TM. To include this link in the TM, change the low-level status to Link and click off this row. The Link row will now be displayed in green.

Saving a project. At any time, you may save your current trace progress by either clicking the save icon in the toolbar or going to File! Save option on the main menu, or using the Ctrl+S shortcut. After saving the TM you may close the application. When you restart RETRO (on the same computer) the next time, you will see the same progress upon login in with your credentials.

Getting the final TM. After you complete the tracing task, you need to submit (or get) the final TM. You can view the XML document matching the current state of your TM at any time by using the Actions, Show XML option from the main menu of RETRO.NET

Submitting the Final RTM results back to researcher:

(You can also get the instructions on what files to send back by simply clicking on “Submit” button on the taskbar at the top of RETRO.NET tool.)

Upon completion of all high level and low level tracing task, to submit your final RTM please locate the following files: (Depending of your installation folder directory and the username given.)

RetroActions-username.csv

result.xml

result-username-final.xml

Compose your hands on activity report (please post that to Piazza) and then submit the files by email to hayes@cs.uky.edu with a subject of:

RETRO experiment (University) (Class number) (date)(rough estimate of total time took to finish experiment in hours: mins)

Attachments (3 files total)