

User Manual for Sandbox Execution Tool

Overview

The **Sandbox Execution Tool** is a PowerShell-based application designed to execute external executables in a controlled Windows Sandbox environment. This tool allows users to run potentially unsafe executables without affecting the host system, capturing their output for analysis. The tool includes a graphical user interface (GUI) for ease of use.

Features

- **Execute External Programs:** Run any executable file in a Windows Sandbox.
- **Output Capture:** Redirects the output of the executable to a specified file.
- **Network Control:** Option to disable network access for the sandboxed application.
- **Read-Only Mode:** Restrict file access to the mapped folder.
- **Timeout Setting:** Specify a timeout for the execution to prevent hanging processes.
- **User-Friendly GUI:** Simple interface for selecting files and configuring options.

Requirements

- **Windows 10/11:** The tool requires a Windows operating system with Windows Sandbox enabled.
- **PowerShell:** The tool is built using PowerShell and requires PowerShell to be installed.
- **Windows Sandbox:** Ensure that Windows Sandbox is enabled in Windows Features.

Installation

1. **Download the Tool:** Obtain the Execute.ps1 and gui.ps1 files.
2. **Place Files:** Store both files in the same directory for proper execution.
3. **Enable Windows Sandbox:** Ensure that Windows Sandbox is enabled in your Windows Features.

Usage Instructions

Running the Tool

1. **Open PowerShell:**
 - Press Win + X and select Windows PowerShell.
2. **Setup the execution environment**
 - Some window system does not allow to execute script within powershell, we need to enable this by using the command
`Set-ExecutionPolicy RemoteSigned`
3. **Navigate to the Tool Directory:**
 - Use the cd command to change to the directory where the scripts are located:

```
cd C:\path\to\your\tool
```

4. Launch the Script:

- Run the script to open the Sandbox Execution Tool. There are two possible ways:

```
.\Execute.ps1 -file "C:\{{pathToYourFolder}}\{{your_executable.exe}}" -execParams  
"--param1 -param2" -output "{{output_file}}.txt" -hostFolder  
"C:\{{path\to\your\executableFolder}}" -NoNetwork -timeout 20
```

Or

```
.\Execute.ps1
```

- If you execute the script with full parameters, it will automatically perform its tasks. However, if you run it with no parameters at all, a GUI will be triggered to offer user with manual input selection for each required parameter.

Executing the script manually

```
PS C:\Users\920322\Workspace\SandBox> .\Execute.ps1 -file "C:\Users\920322\Workspace\SandBox\SandBox.exe" -hostFolder "C:\User  
s\920322" -execParams "-output -param 123" -output "output2.txt" -NoNetwork -timeout 20  
-output -param 123  
Launching Windows Sandbox...  
Waiting for output (timeout: 20 seconds)...  
Results saved to: C:\Users\920322\output2.txt  
Execution completed.
```

1. Following the sample syntax to fully execute the script, with required parameters:

- file:** path to the executable
- output:** the output file name
- hostFolder:** the folder to contain the output file
- execParams:** the parameter string that will be used by the executable
- NoNetWork:** flag to disable network use of the script
- ReadOnly:** flag to restrict file access
- timeout:** flag to set the timeout for the script execution

Using the GUI

1. Executable Selection:

- Click the **Browse** button to select the executable file you want to run. The file must be an .exe file.
- Input the corresponding parameter for the executable, left empty if none is required

2. Output Settings:

- Specify the name of the output file where the results will be saved (e.g., output.txt).
- Specify the host folder where the output file will be saved. The default is C:\Users

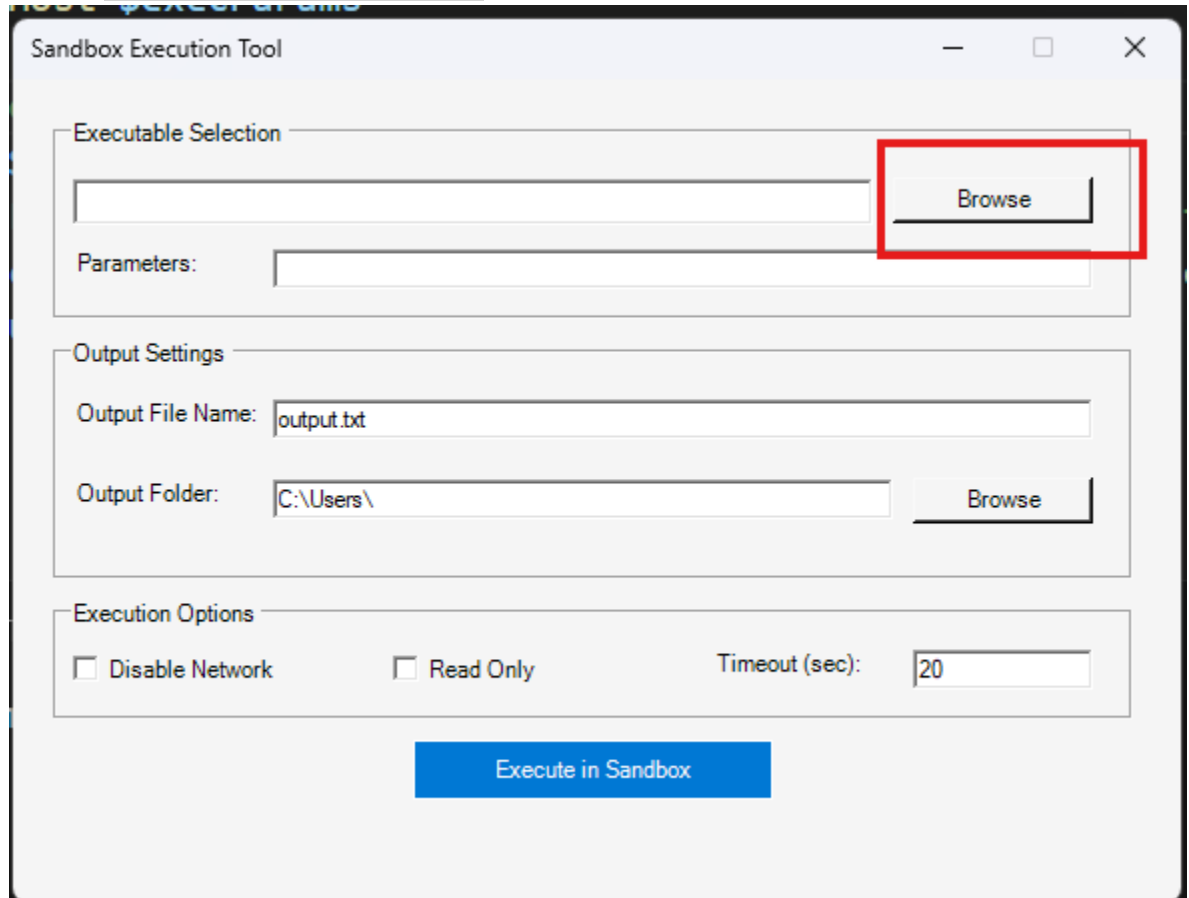
3. Execution Options:

- Disable Network:** Check this box if you want to disable network access for the executable.
- Read Only:** Check this box to restrict file access to the mapped folder.

- **Timeout:** Set the timeout duration in seconds for the execution (default is 120 seconds).
4. **Execute:**
 - Click the **Execute in Sandbox** button to run the selected executable in the Windows Sandbox.

Example Usage

1. **Select an Executable:**
 - Choose C:\path\to\your\executable.exe by click the **Browse** button



The screenshot shows the 'Sandbox Execution Tool' window. It has three main sections: 'Executable Selection', 'Output Settings', and 'Execution Options'. In the 'Executable Selection' section, there is a text input field and a 'Browse' button, which is highlighted with a red rectangle. The 'Parameters' field is empty. In the 'Output Settings' section, the 'Output File Name' is 'output.txt' and the 'Output Folder' is 'C:\Users\' with its own 'Browse' button. In the 'Execution Options' section, there are checkboxes for 'Disable Network' and 'Read Only', both of which are unchecked, and a 'Timeout (sec):' field with the value '20'. At the bottom, there is a large blue button labeled 'Execute in Sandbox'.

2. **Set Output File:**
 - Enter {{output_file}}.txt as the output file name.
3. **Set Host Folder:**
 - Ensure the host folder is set to an existing folder, in which the output file will be created.

Sandbox Execution Tool

Executable Selection

C:\Users\920322\Workspace\SandBox\WindowSandbox\Hello.exe Browse

Parameters:

Output Settings

Output File Name: output.txt

Output Folder: C:\Users\920322\Workspace\SandBox Browse

Execution Options

☐ Disable Network ☐ Read Only Timeout (sec): 20

Execute in Sandbox

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4. **Execution Options:**

- Optionally check **Disable Network** and **Read Only**.
- If necessary, add the timeout for the program to execute, the default value is 20 seconds

Sandbox Execution Tool

Executable Selection

C:\Users\920322\Workspace\SandBox\WindowSandbox\Hello.exe Browse

Parameters:

Output Settings

Output File Name: output.txt

Output Folder: C:\Users\920322\Workspace\SandBox Browse

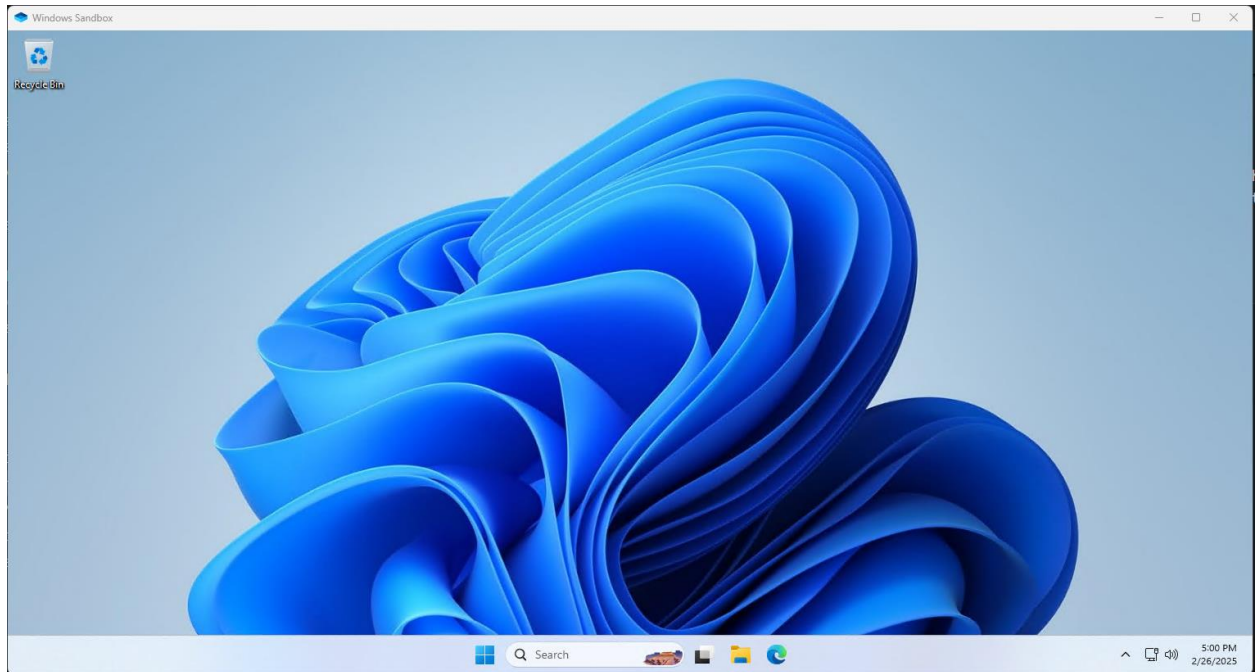
Execution Options

☐ Disable Network ☐ Read Only Timeout (sec): 20

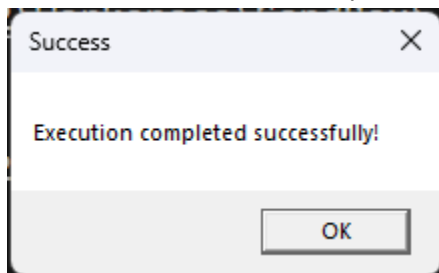
Execute in Sandbox

5. **Run the Tool:**

- Click **Execute in Sandbox**. The tool will launch the Windows Sandbox, run the executable, and capture the output.
- The window Sandbox will be open for a brief moment to run the executable in a secured environment



- After that it will automatically closed, with a notification window popup



- Finally, the notification about success execution will appear

```
PS C:\Users\920322\Workspace\SandBox> .\Execute.ps1

Launching Windows Sandbox...
Waiting for output (timeout: 20 seconds)...
Results saved to: C:\Users\920322\Workspace\SandBox\output.txt
Execution completed.
Cancel
```

Output

- After execution, the output will be saved in the specified output file (e.g., C:\Users\920322\Workspace\SandBox\output.txt).
- If the execution completes successfully, a message box will confirm the completion.

Error Handling

- If any required fields are not filled, or if the specified files or folders do not exist, the tool will display an error message.
- Ensure that the executable and host folder paths are valid before executing.

Conclusion

The Sandbox Execution Tool provides a safe and efficient way to run executables in a controlled environment, capturing their output for further analysis. By following the instructions in this manual, users can easily utilize the tool for various applications in computer science education and research.