National College of Ireland

Gaps in Secure Development and Improvements in Secure Development –
In Practice –
Artefact Configuration Manual

MSc Project Report
Programme Name MSCCYBETOP

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MSc Project Submission Sheet

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Gaps in Secure Development
and
Improvements in
Secure Development – In Practice
– Artefact Configuration Manual

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Overview
This document describes the outline and the usage of the Security Toolbox CLI that was developed as part of internship. This d

1   Introduction

This configuration manual outlines the usage of the Security Toolbox command line interface (CLI) tool. This manual accompanies the report which outlines the research and the reasons for the tool usage. This was generated as part of the internship and addressed security issues identified during the SDLC of software products being built. The Security Toolbox is used to address security vulnerability in ASP .Net Web Applications. 7 severe security items are addressed in automated manner that can be used as part of CI/CD pipeline or as a standalone tool. The CLI is compatible with all ASP.Net Web Applications.

It is recommended that tool is used in CI/CD environment to allow for the security issues to be addressed as part of the build process and deployment process which is embedded into the SDLC. The tool can be used in standalone manner however this may result in the fixes only being deployed to a local test environment as opposed an official test or UAT environment.

2 Usage with screenshots

The application has two main usage scenarios: CI/CD or standalone. This guide will illustrate the standalone use for brevity.

The CLI tool has a default or override use case. These will be illustrated below with the addition of the help features and possible overrides that can be used.

2.1 Default

Default usage of the application will just run in the directory the CLI tool is placed in. A screenshot below figure 1 shows default use case. The output is displayed to the console. In this instance, it will give a list of what the tool is doing, the outputs applied and what updates will be applied. As the application is enhanced more updates will be applied. This informs the user of the actions of tools and where they occurred this will also appear in the logs of the CI/CD tool too.
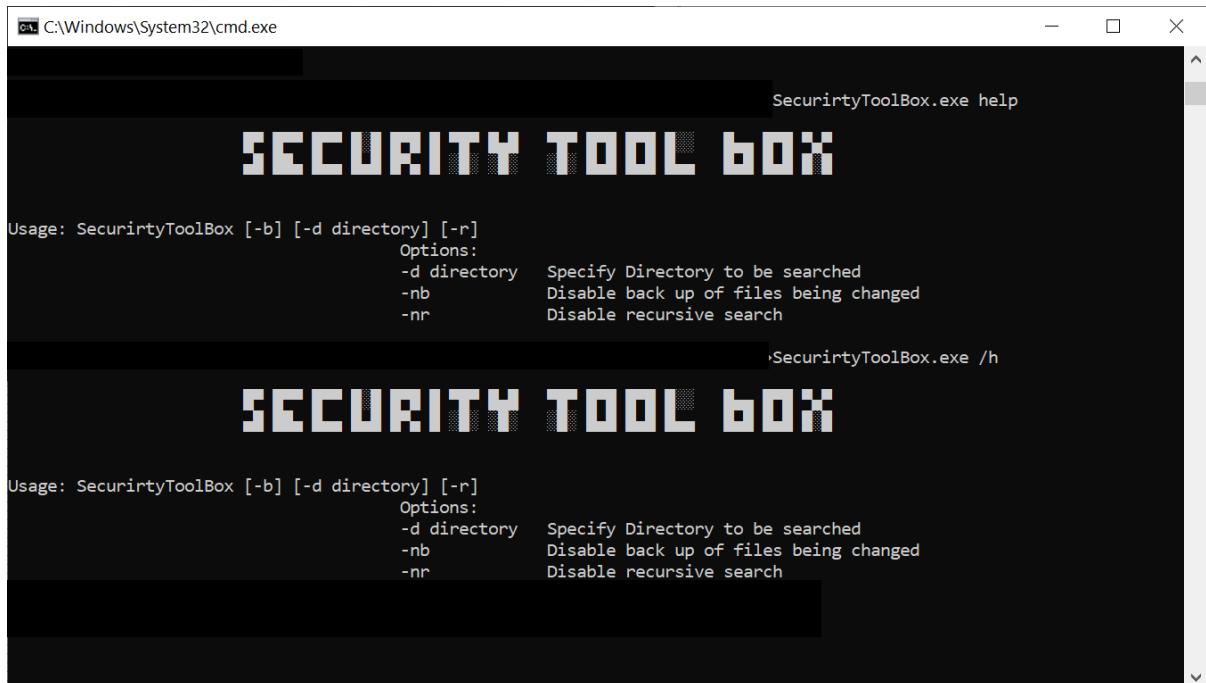

Figure 1: Default usage

2.2 Help

If the CLI tool is run with the parameters "-h", "/h", "help", the list of parameters that can be passed into the CLI tool will be displayed with a brief description. This will give the latest set of overrides available for the application.

Figure 2 illustrates the overrides and their uses.

e.g.: "SecurirtyToolBox.exe -h" "SecurirtyToolBox.exe /h" "SecurirtyToolBox.exe help".

Figure 2: Help

2.3 Override

The tool supports a directory override where to search for configurations files. The ability to disable back up of configuration files when tool is run. The final override is the ability to disable recursive search if not required.
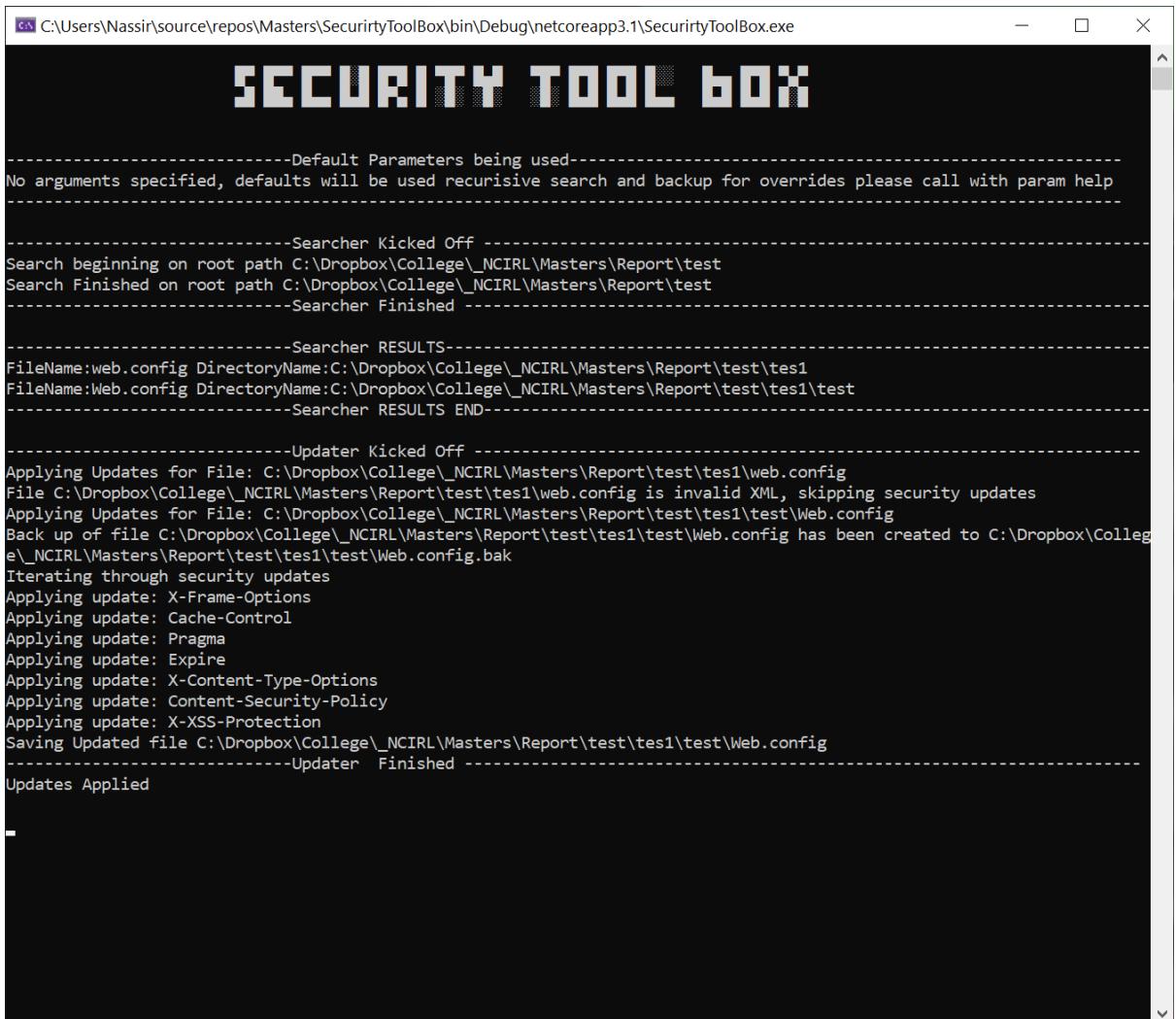
2.4 Path

The reason for path override is that it allows for an instance where the configuration files may be in a remote directory or not in the directory of the CI/CD build tool and this needs to specify explicitly. This allows for the tool to search any path as required by the build tool.

2.5 Disable of back of files being changed

While back up files can be useful in testing or investigation scenarios, they may provide confusion to developers and may end up going into production due to error. This option allows for the updates to occur with only details being logged as opposed a backup of the changed file(s) existing on the build server.

2.6 Disable recursive search

This option stops the time consuming process of recursively searching directories for configuration files and will search the root directory. This may suit specific use cases where configuration file will only be in the root directory.