



(U) Engineering Development Group (EDG)

(S//OC/NF) Scribbles v1.0 User's Guide

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1. (U) Introduction

(S//OC/NF) Scribbles (SCRIB) is a document watermarking tool that can be used to batch process a number of documents in a pre-seeded input directory. It generates a random watermark for each document, inserts that watermark into the document, saves all such processed documents in an output directory, and creates a log file which identifies the watermarks inserted into each document.

2. (S//OC/NF) Scribbles Requirements

(S//OC/NF) The Scribbles document watermarking tool has been successfully tested on the following:

- A) Microsoft Office 2013 (on Windows 8.1 x64)
- B) Documents from Office versions 97-2016 (Office 95 documents will not work!)
- C) Documents that are not be locked forms, encrypted, or password-protected.

It may work on other, similar platforms without modification. If you have an operational need to run it on a different platform, and are having trouble, please contact CCI/EDG/AED/OSB for assistance.

3. (S//OC/NF) Setting up the Scribbles tool

(S//OC/NF) Scribbles is intended for **off-line preprocessing** of Microsoft Office documents. The Scribbles executable should be set up on a Windows system for batch preprocessing of documents that will be watermarked before being returned to their desired location(s). **The Scribbles executable, parameter files, receipts and log files should not be installed on a target machine, nor left in a location where it might be collected by an adversary.**

(S//OC/NF) First, find the file server or media containing the Scribbles deliverables.
Then:

- i) Find the Scribbles tools (“Scribbles.exe” and “ScribblesConfig_exampleParams.xml”), which should be located in the deliverables folder at “**BINSENSITIVE_but_UNCLASSIFIED**”;
- ii) Copy the entire folder onto an appropriate system with Microsoft Office installed; and
- iii) Change into the directory you just copied over.

4. (S//OC/NF) Configuring the watermark parameters

(S//OC/NF) Before running the tool, it is a very good idea to configure the watermark parameters. Scribbles ships with an example parameters file (“[ScribblesConfig_exampleParams.xml](#)”), which you should have copied over to your system in step 3(A). If you open that XML file, you should see something like the following (the XML formatting below was copied from Notepad++) :

```
<?xml version="1.0" encoding="UTF-8"?>
<Scribble_WatermarkParameters>
  <URL_Scheme Value="http"/>
  <HostServerNameList Value="watermarks.example.com"/>
  <HostRootPathList Value="rootPath1,rootPath2"/>
  <HostSubDirsList Value="subDir1,subDir2,subDir3"/>
  <HostFileNameList Value="fakeFileName1,fakeFileName2,fakeFileName3"/>
  <HostFileExtList Value=".jpg,.png,.gif"/>

  <Input_Directory Value=".\\InputDir"/>
  <Output_Directory Value=".\\OutputDir"/>

  <Input_WatermarkLog Value="Z:\WORK\Scribbles\Scribbles\bin\Debug\WatermarkLog.tsv"/>
  <Output_WatermarkLog Value="Z:\WORK\Scribbles\Scribbles\bin\Debug\WatermarkLog.tsv"/>
</Scribble_WatermarkParameters>
```

(S//OC/NF) You should replace the server name, root path, subdirectory paths, fake file names and fake file extensions with whatever values are appropriate for the deployment.

(S//OC/NF) When generating a watermark, Scribbles will automatically select a value at random for a parameter that has more than one value (such as "[HostRootPathList](#)", "[HostSubDirsList](#)", "[HostFileNameList](#)", and "[HostFileExtList](#)" in the sample config. file above).

(S//OC/NF) For example, these are a few of the watermarks that would be generated using the parameters in the example above:

```
http://watermarks.example.com/rootPath1/subDir3/5zfjggj16esmab3rgqz2piejtkiluaxi/fakeFileName3.gif
http://watermarks.example.com/rootPath2/subDir2/ofq44w41g04m1n_vuh6g056ai1a5ecm/fakeFileName1.png
http://watermarks.example.com/rootPath1/subDir2/1e1m6dq4qz7xh1cht5eq2ylqyzpx58pwy/fakeFileName2.jpg
http://watermarks.example.com/rootPath2/subDir3/rae0dbepwt8fygws1h3idt_1-0oq4gz/fakeFileName2.png
```

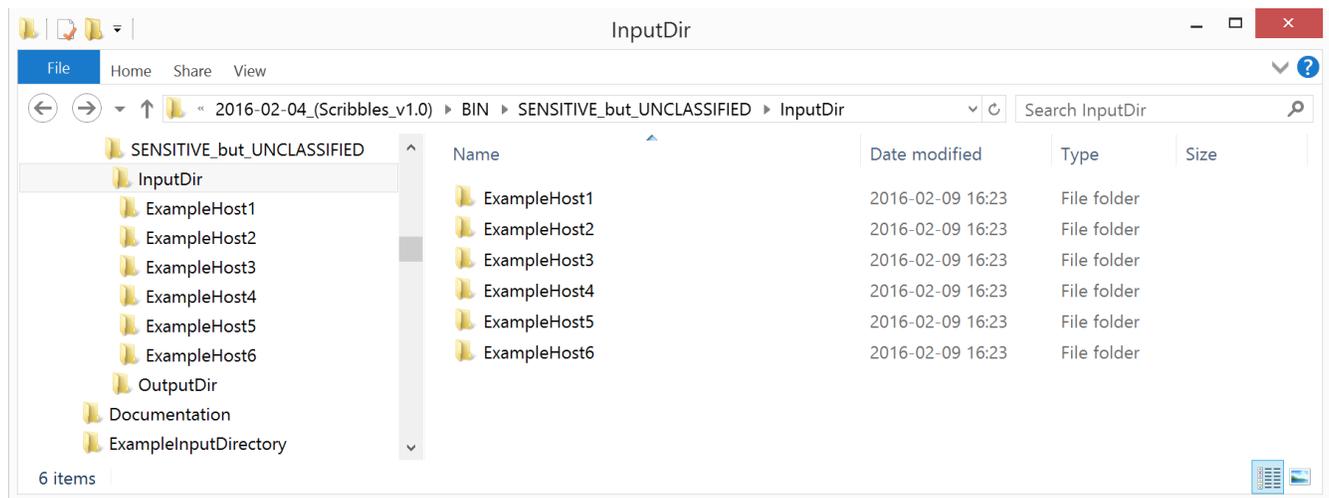
(S//OC/NF) So please make sure that the watermarks generated conform to the infrastructure that will be used to monitor the incoming document watermark activity.

5. (S//OC/NF) Running Scribbles for batch document watermarking

(S//OC/NF) Scribbles is able to watermark multiple documents in one batch. This section describes how to use the tool to accomplish such a task.

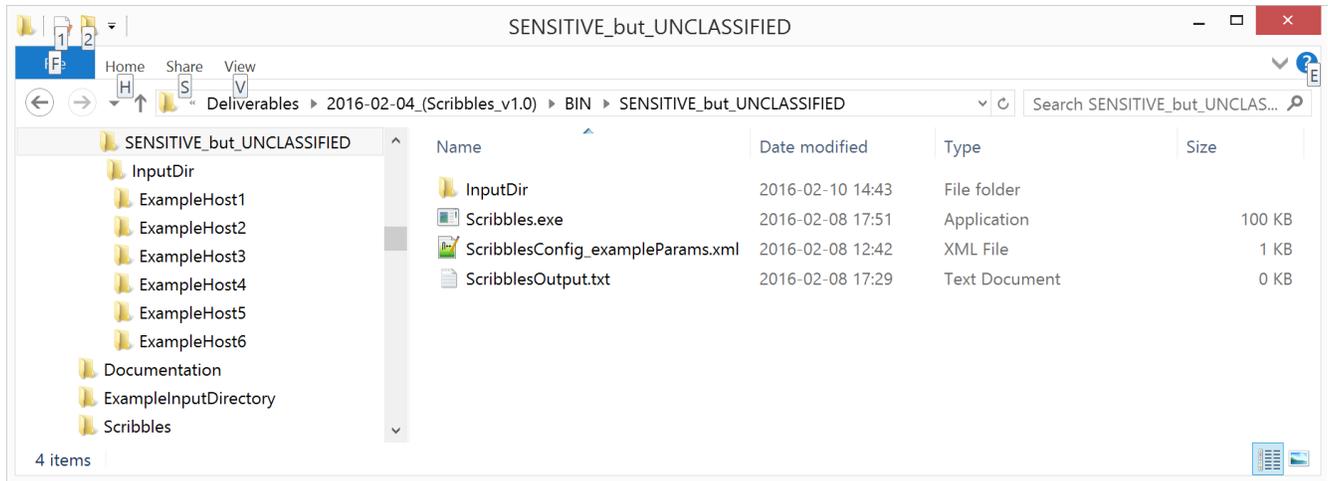
A) (S//OC/NF) How to prepare the input directory:

(S//OC/NF) Scribbles is designed to watermark several groups of documents that will live on several different hosts. For example, say you want to watermark a group of documents that will reside on six different workstations in a network (in this example, labeled "ExampleHost1", "ExampleHost2", ... "ExampleHost6"). Prepare the Scribbles input directory by collecting the documents from each host computer into a separate folder, like in the image below:



B) (S//OC/NF) Running the Scribbles tool:

(S//OC/NF) First, make sure that you've configured the input parameters file, as described in Section 4 above. For simplicity, we assume that the example input directory is directory in the same folder as the Scribbles binary and the parameters file, as illustrated below:



With the folder layout above, you can run Scribbles with the following command:

```
".\Scribbles.exe --inputReceiptFile ScribblesConfig_exampleParams.xml -inputDir=.\InputDir
--outputDir=.\OutputDir >> ScribblesOutput.txt"
```

This runs Scribbles with the input parameter file "ScribblesConfig_exampleParams.xml", using ".\InputDir" as the input directory, ".\OutputDir" as the output directory, and redirects the console output log to the file "ScribblesOutput.txt". An example of this program execution follows:

The screenshot shows a Windows Command Prompt window titled "C:\Windows\system32\cmd.exe". The command entered is:


```
Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED>Scribbles.exe --inputReceiptFile ScribblesConfig_exampleParams.xml --inputDir=.\InputDir --outputDir=.\OutputDir >> .\ScribblesOutput.txt
```

 The output shows two warnings about external images in PowerPoint files and prompts to watermark them. The user enters 'w' for both prompts. The final output is:


```
Scribbles.exe: PowerPoint file .\InputDir\ExampleHost5\TestPowerPointPres1.pptx will be watermarked.
scribbles.exe: WARNING -- watermarking PowerPoint file .\InputDir\ExampleHost6\TestPowerPointPres2.ppt will alert 'end-users' about "external images".
Scribbles.exe: Do you want to Skip it (S), Watermark THIS file (W), or watermark ALL PowerPoint files (A)? (S/C/A)
w
Scribbles.exe: PowerPoint file .\InputDir\ExampleHost6\TestPowerPointPres2.ppt will be watermarked.
Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED>
```

Notice that (in the screenshot on the previous page) even though the program output has been redirected to an output file, the Scribbles tool still prints prompts for the user to confirm, such as watermarking certain possibly-alerting files (such as PowerPoint presentations). Other prompts that Scribbles will display are things like replacing or regenerating previously-watermarked files, etc.

As an illustration, the console output from the previous run of the Scribbles tool would look like so:

```

Scribbles.exe: Starting...
Scribbles.exe: Verifying options and loading defaults where necessary...
Scribbles.exe: Writing options out to receipt file (Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCL
Scribbles.exe: Re-loading options to verify receipt file...
Scribbles.exe: Unable to open existing watermark log .\WatermarkLog.tsv.
(Documents will not be checked against existing watermarks.)

Opening document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost1\Te
Adding watermark image to section 1...
UnZipping contents of document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\E
Inserting watermark link(s) into document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\
Re-packing Word document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\Examp
Created new watermark output file at [Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\Outp
Creating new watermark log file [.\WatermarkLog.tsv]...
Appending watermark information to log file...

Opening document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2\Te
Converting document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2
Re-opening document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2
Adding watermark image to section 1...
UnZipping contents of document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\E
File Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2\TestWordDoc2.d
Inserting watermark link(s) into document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\
Re-packing Word document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\Examp
Re-opening document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2
Converting document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost2
Error attempting to add MS Word watermark to output file Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but
[
Call was rejected by callee. (Exception from HRESULT: 0x80010001 (RPC_E_CALL_REJECTED))
]

Opening spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost3
UnZipping contents of spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDi
Inserting watermark link(s) into spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFI
Re-packing XLSX spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\Exam
Created new watermark output file at [Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\Outp
Appending watermark information to log file...

Opening spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost4
Converting spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHo
UnZipping contents of spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDi
Inserting watermark link(s) into spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFI
Re-packing XLSX spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\Exam
Converting spreadsheet Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHo
Created new watermark output file at [Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\Outp
Appending watermark information to log file...

Opening presentation Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\ExampleHost
UnZipping contents of presentation Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputD
Inserting watermark link(s) into presentation Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIF
Re-packing PPTX presentation Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\OutputDir\Exa
Created new watermark output file at [Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLASSIFIED\Outp
Appending watermark information to log file...

Error attempting to watermark PowerPoint document Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLA
[
Creating an instance of the COM component with CLSID {91493441-5A91-11CF-8700-00AA0060263B} from the IClassFactory failed due to the
]

All done!
Receipt file with watermark parameters saved at [Z:\WORK\Scribbles\Deliverables\2016-02-04_(Scribbles_v1.0)\BIN\SENSITIVE_but_UNCLAS
Watermark log file can be found at [.\WatermarkLog.tsv]...
Happy hunting!

<
Last updated: 16:14:16 | Last match: 16:14:16 Total matches: 2

```

(This log file was monitored using the very useful tool "Tail for Win32", available at ["https://sourceforge.net/projects/tailforwin32/"](https://sourceforge.net/projects/tailforwin32/).)

C) (S//OC/NF) Dealing with errors encountered while running Scribbles:

Sharp-eyed readers may notice that the example above generated a couple of errors. Scribbles sometimes generates errors for transient reasons (for example, occasionally the Microsoft Office applications do not properly clean up their resources right away). In order to properly watermark documents after such errors, please make sure to close any currently-running Microsoft Office applications. Once you have ensured that all running Office applications are closed, please run Scribbles again with the same input parameters. This should watermark any documents that may have been missed on the first pass.

Of course, if you have persistent errors watermarking any particular documents, please contact the Scribbles developers in CCI/EDG/AED/OSB for assistance.

6. (S//OC/NF) WARNING – Important Scribbles Application Compatibility Information

Please note that these watermarks have only been tested with Microsoft Office applications. **If the targeted end-user opens them up in a different application, such as OpenOffice or LibreOffice, the watermark images and URLs may be visible to the end-user. For this reason, always make sure that the host names and URL components are logically consistent with the original content. If you are concerned that the targeted end-user may open these documents in a non-Microsoft Office application, please take some test documents and evaluate them in the likely application before deploying them.**

Also note that, depending on whether the targeted end-user downloads a watermarked document file from an Internet file server, the Office application may open the document in "Protected View" mode. In this case, the watermark URL will not beacon in until the user pushes the "Enable Editing" button.

7. (U) Conclusion

This document has provided basic instructions to use the Scribbles batch processing tool to inject watermarks into multiple Microsoft Office documents. If you are having trouble using Scribbles, or if you would like to report a bug, request new features or additions/revisions to this manual, please contact CCI/EDG/AED/OSB for assistance.