Removing Excel Workbook & Sheet Protection

2019–07–05

1   Overview

It is a little-known fact that Excel workbook files (`.xlsx` or `.xlsm` files) are ZIP files with a different filename extension. Furthermore, both workbook protection and sheet protection may be removed from an Excel workbook file without the protection password. The process to do this consists of four major steps:

1. Unzip the `.xlsx` or `.xlsm` file so that its contents may be modified in the following steps.

2. Remove the `<workbookProtection ...  />` XML tag from the `xl\workbook.xml` file.

3. Remove the `<sheetProtection ...  />` XML tag from any `.xml` file in the `xl\worksheets\` directory.

4. Zip the modified Excel workbook file contents, using the `.xlsx` or `.xlsm` filename extension for the resulting ZIP file.

Section 2 has detailed instructions for removing both workbook protection and sheet protection from an Excel workbook file using only standard Windows utilities. Section 3 on Page 22 explains why this is so easy.

2   Detailed Instructions

Our example file is `Protected.xlsx`, in which Sheet1 is protected and workbook protection is enabled, as shown in Figure 1.
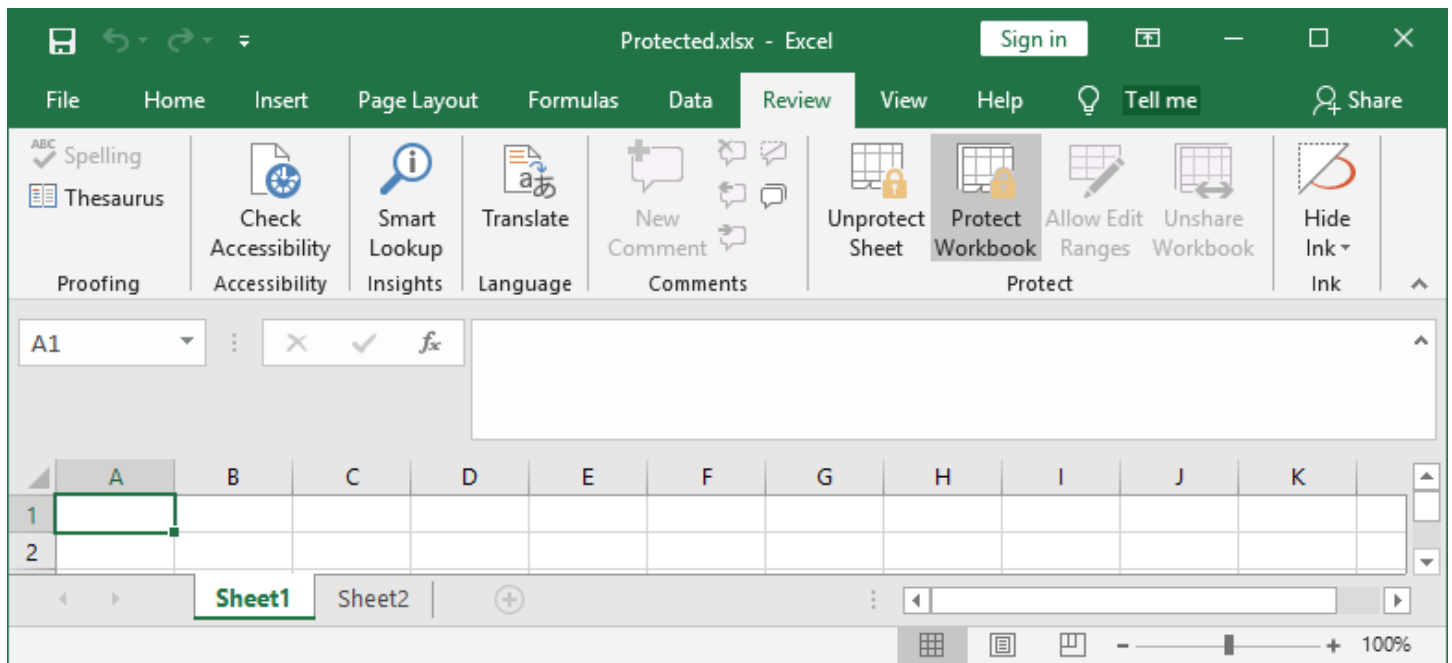

Figure 1: `Protected.xlsx`, our example file prior to removing protection.

Step 1   Begin by renaming `Protected.xlsx` to `Protected.zip`. Click "Yes" when File Explorer asks if you're sure (See Figure 2).
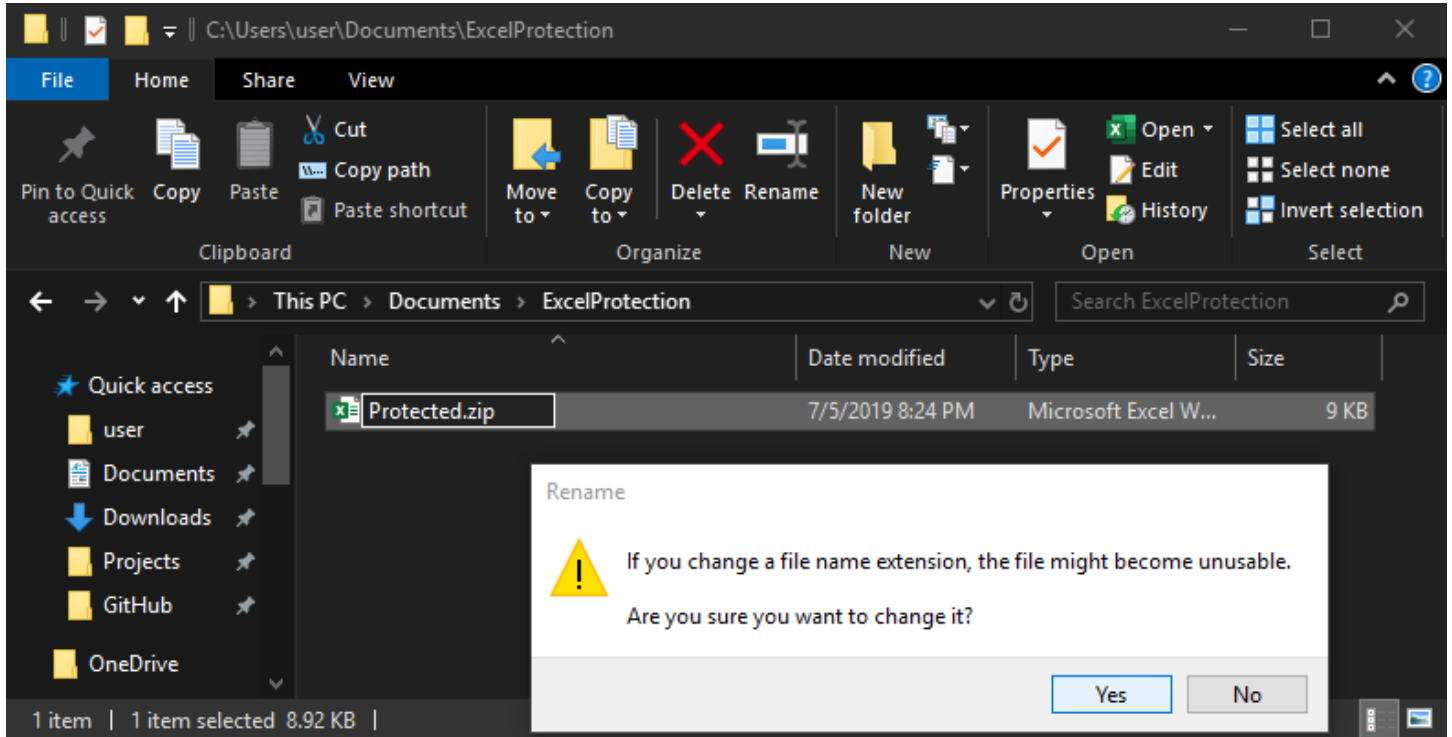

Figure 2: Renaming `Protected.xlsx` to `Protected.zip`. Yes, we are sure.

Step 2 Now, right click `Protected.zip` and click "Extract All..." as in Figure 3.
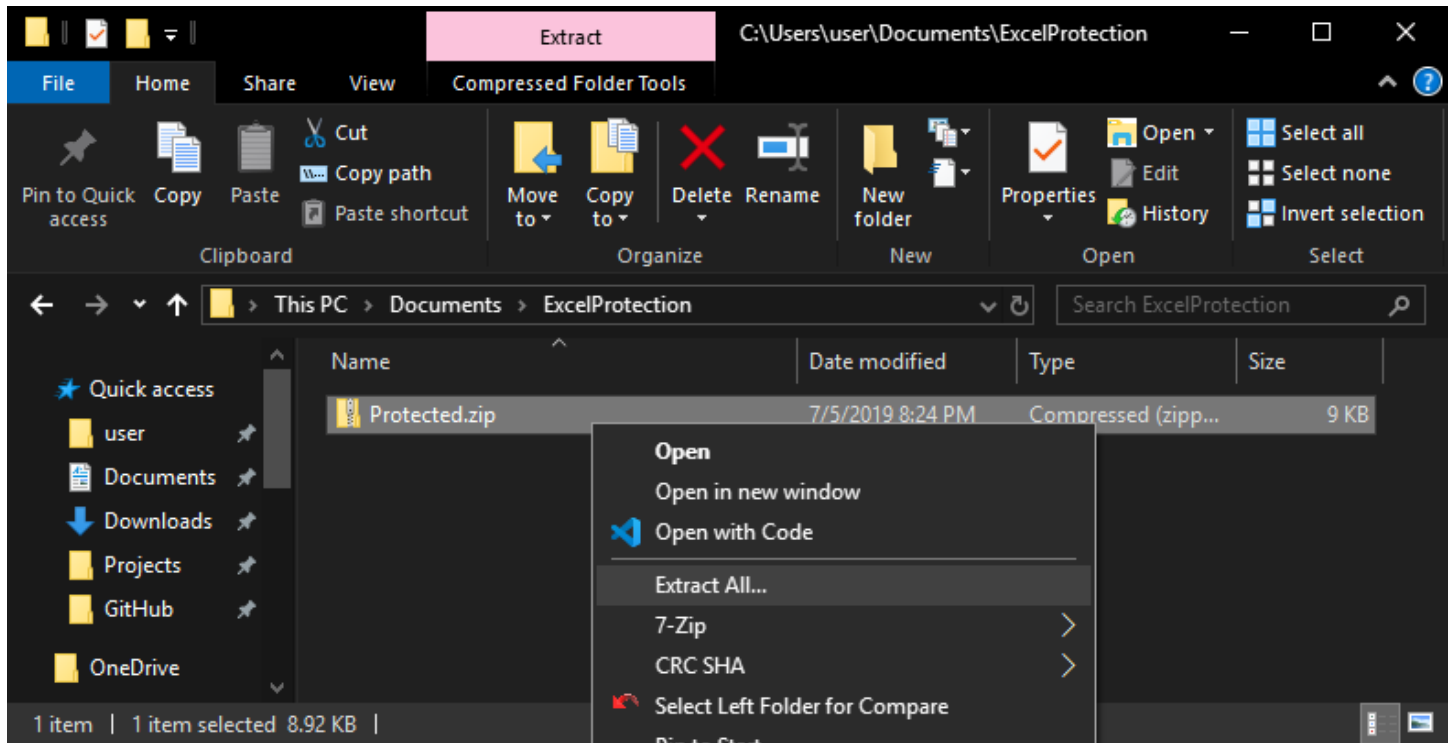

Figure 3: Unzipping `Protected.zip`, formerly known as `Protected.xlsx`.

Step 3 The window that pops up will let you pick the directory where the contents of `Protected.zip` will go; Figure 4 keeps the default directory. Click the "Extract" button.
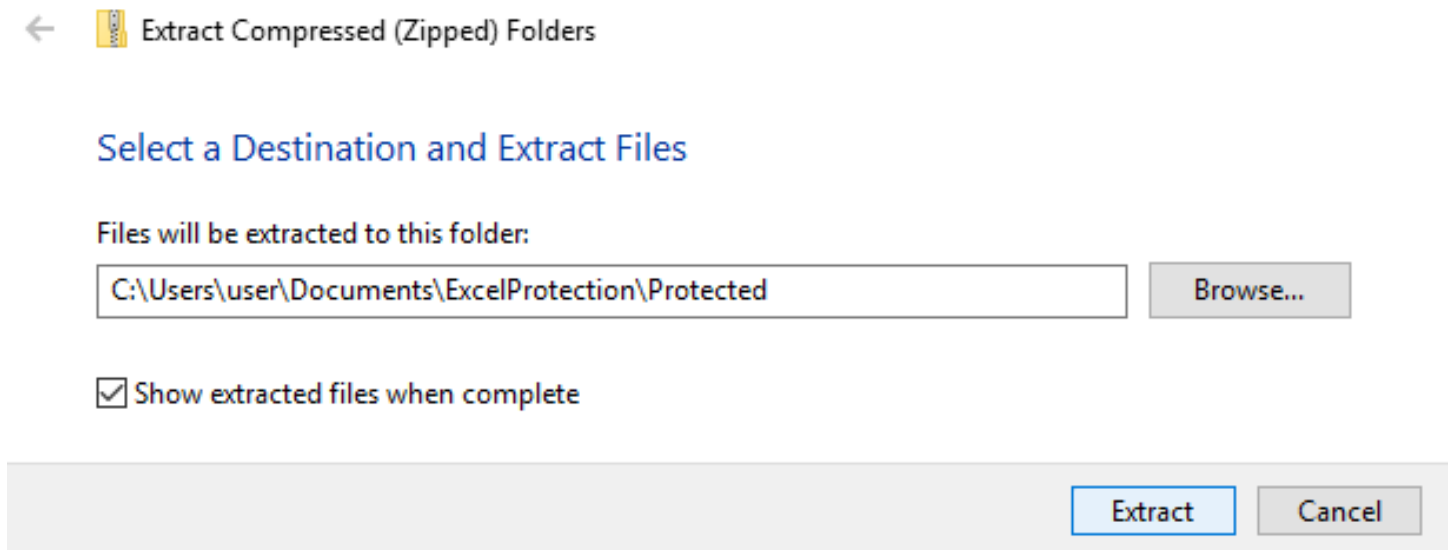

Figure 4: Choosing where to place the contents of `Protected.zip`.

Step 4 A new File Explorer window will open showing the contents of `Protected.zip`, as in Figure 5.
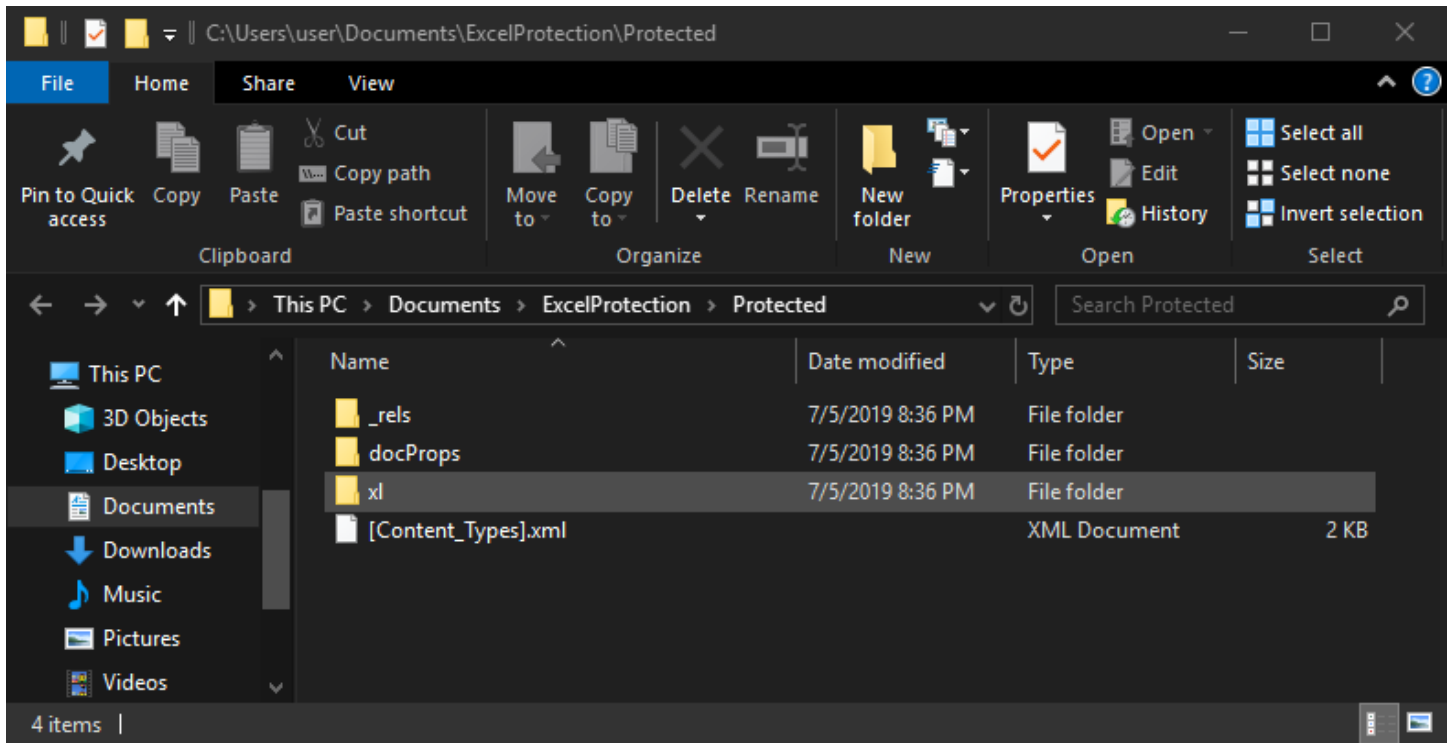

Figure 5: The contents of `Protected.zip`.

Step 5 If you only want to remove sheet protection and not workbook protection, skip to **Step 11**. If you want to remove workbook protection, navigate to the `xl\` directory, right click `workbook.xml`, select "Open with", and click "Notepad" (Figure 6).
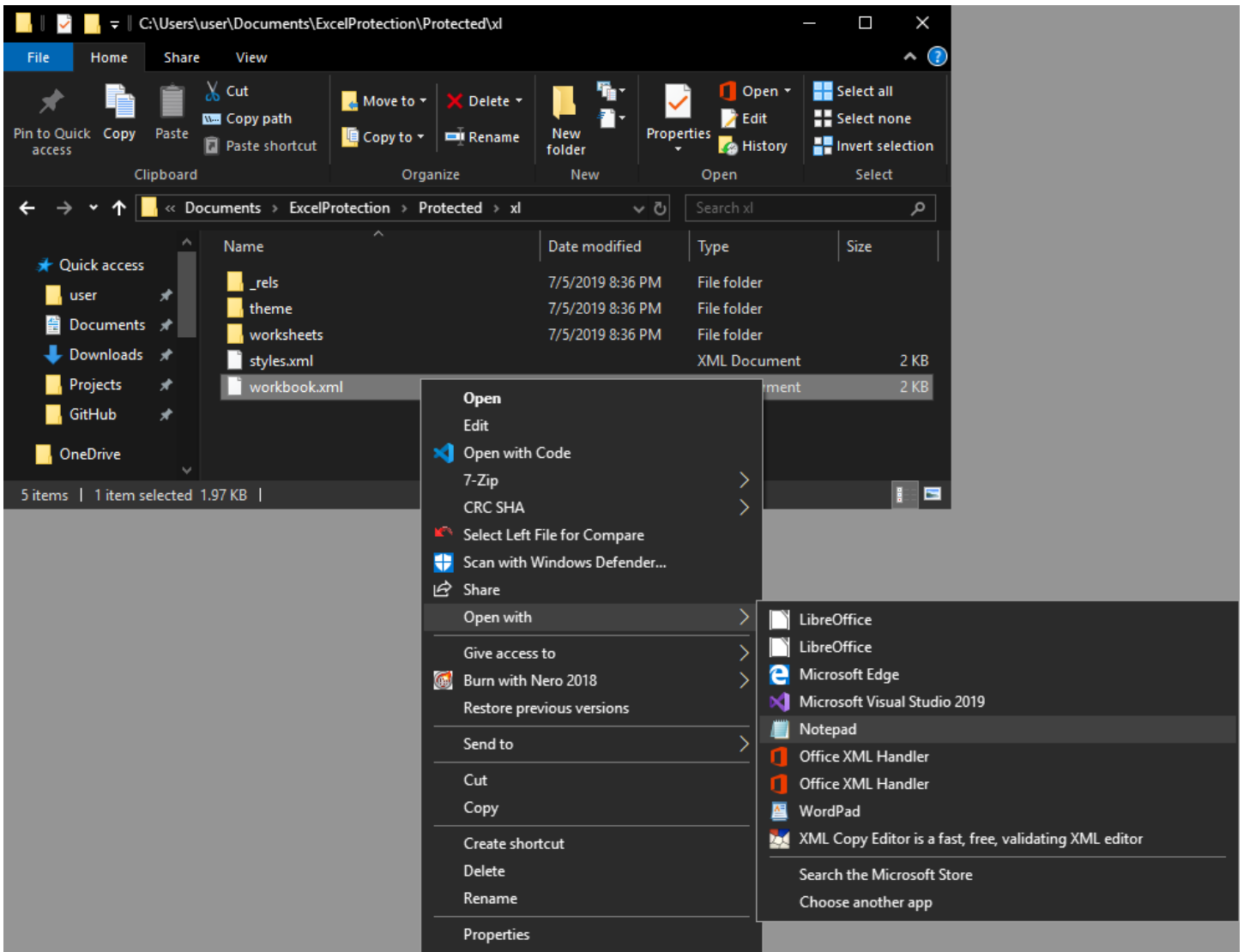

Figure 6: Opening `xl\workbook.xml` with Notepad.

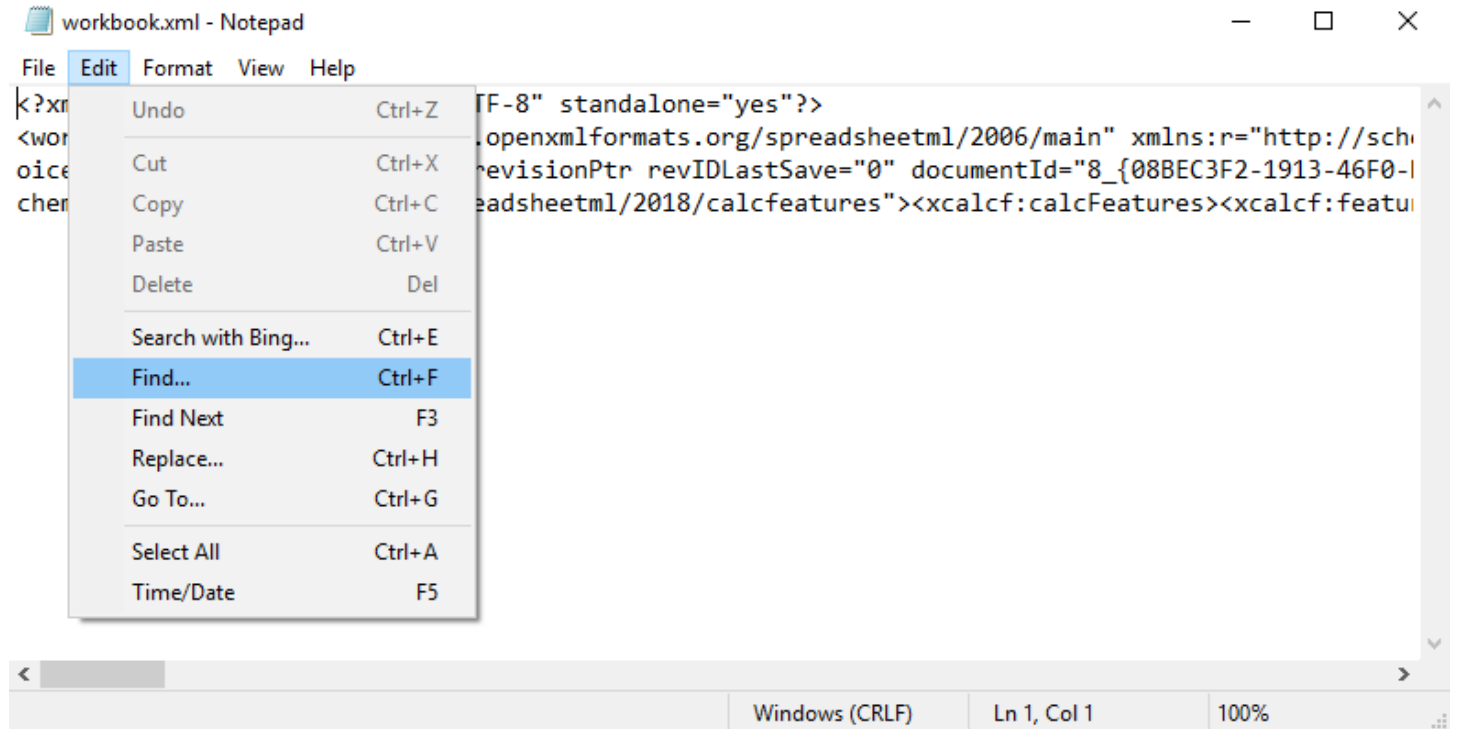**Step 6**   With `xl\workbook.xml` open in Notepad, either click Edit→Find... as in Figure 7 or key Ctrl + F.

Figure 7: Searching `xl\workbook.xml` with Notepad's Find dialog.

Step 7 When the Find dialog pops up, type `<workbookProtection` in the "Find what:" box and click the "Find Next" button (Figure 8).
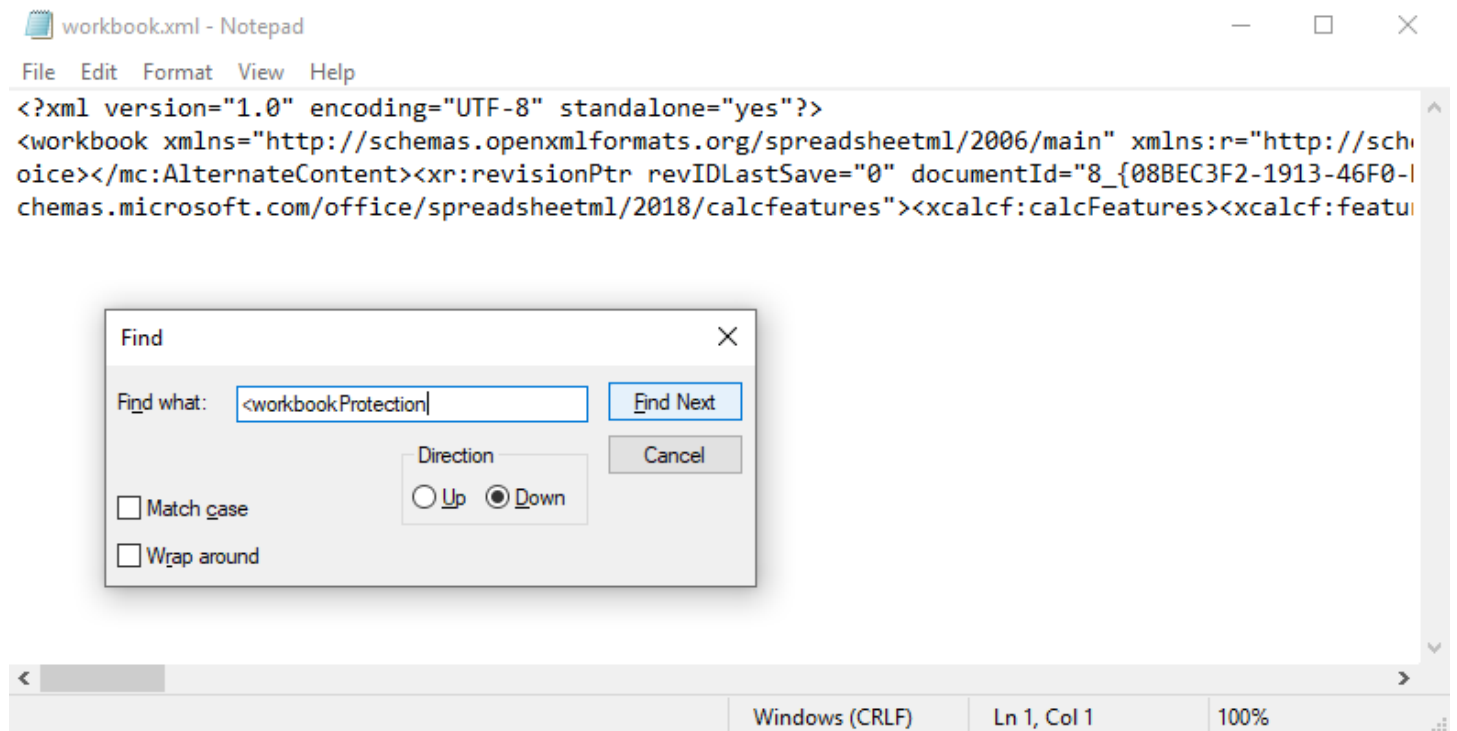

Figure 8: Finding the `<workbookProtection ... />` XML tag in `xl\workbook.xml`.

Step 8 If workbook protection was enabled, Notepad will find the `<workbookProtection ... />` XML tag. In this case, close the Find dialog (Figure 9) and proceed to **Step 9**. If there is no `<workbookProtection ... />` XML tag, close Notepad and skip to **Step 11**.

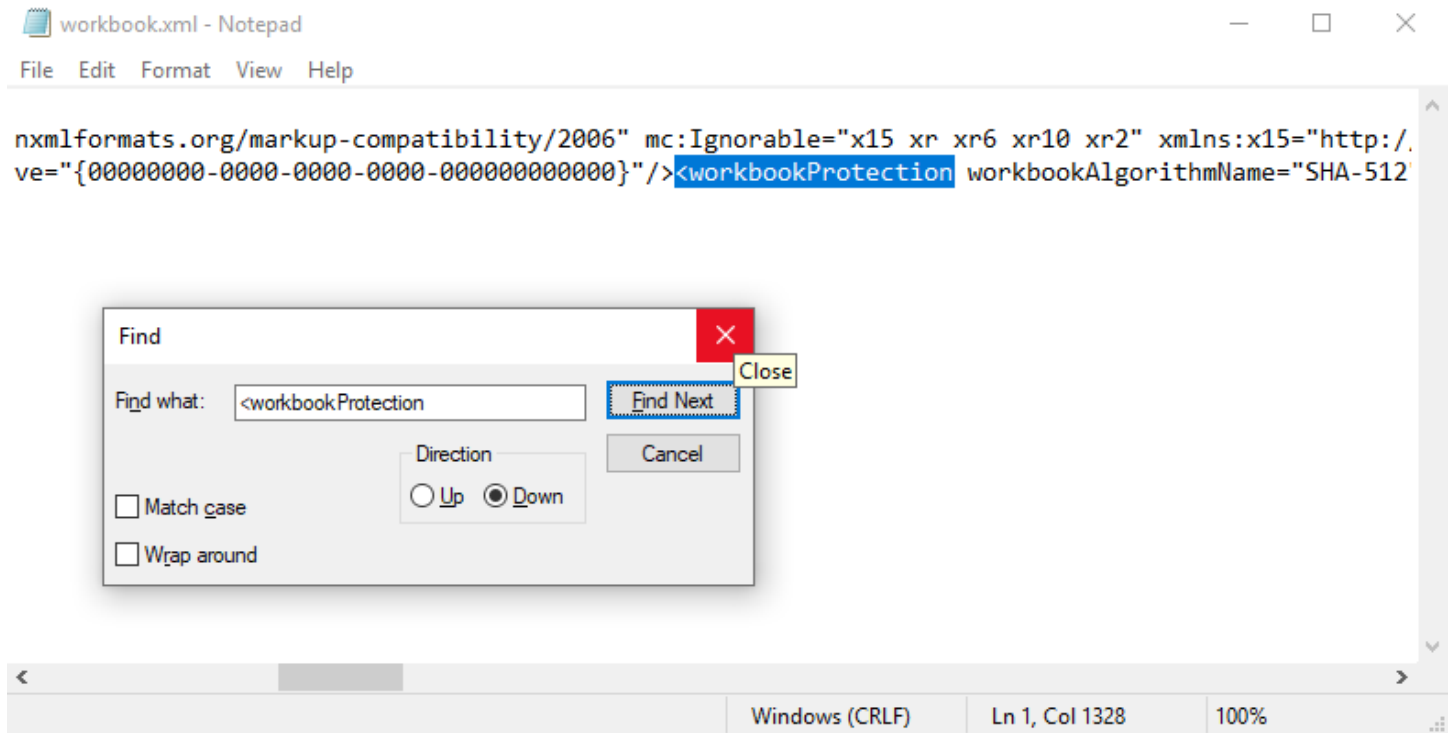Figure 9: Found the `<workbookProtection ... />` XML tag in `xl\workbook.xml`.

Step 9 Now, highlight the whole XML tag starting with the "<" in `<workbookProtection` and ending with the first next occurrence of "/>". In this example, the whole tag is

```
<workbookProtection workbookAlgorithmName="SHA-512" workbookHashValue="pY1kqnA
vEfWeMOouZOT9cBze8IbZXhkGZ3lxDWRSh3NG/EYtJtlHBnmvAkdVNwHydNEqQBSQRIX9qfSLF4U
oeg==" workbookSaltValue="GLOE+zLU0+ea6QALWOTQ8g==" workbookSpinCount="100000"
lockStructure="1"/>
```

The tag contents will vary in each file; the important thing is to highlight the whole tag. See Figure 10.
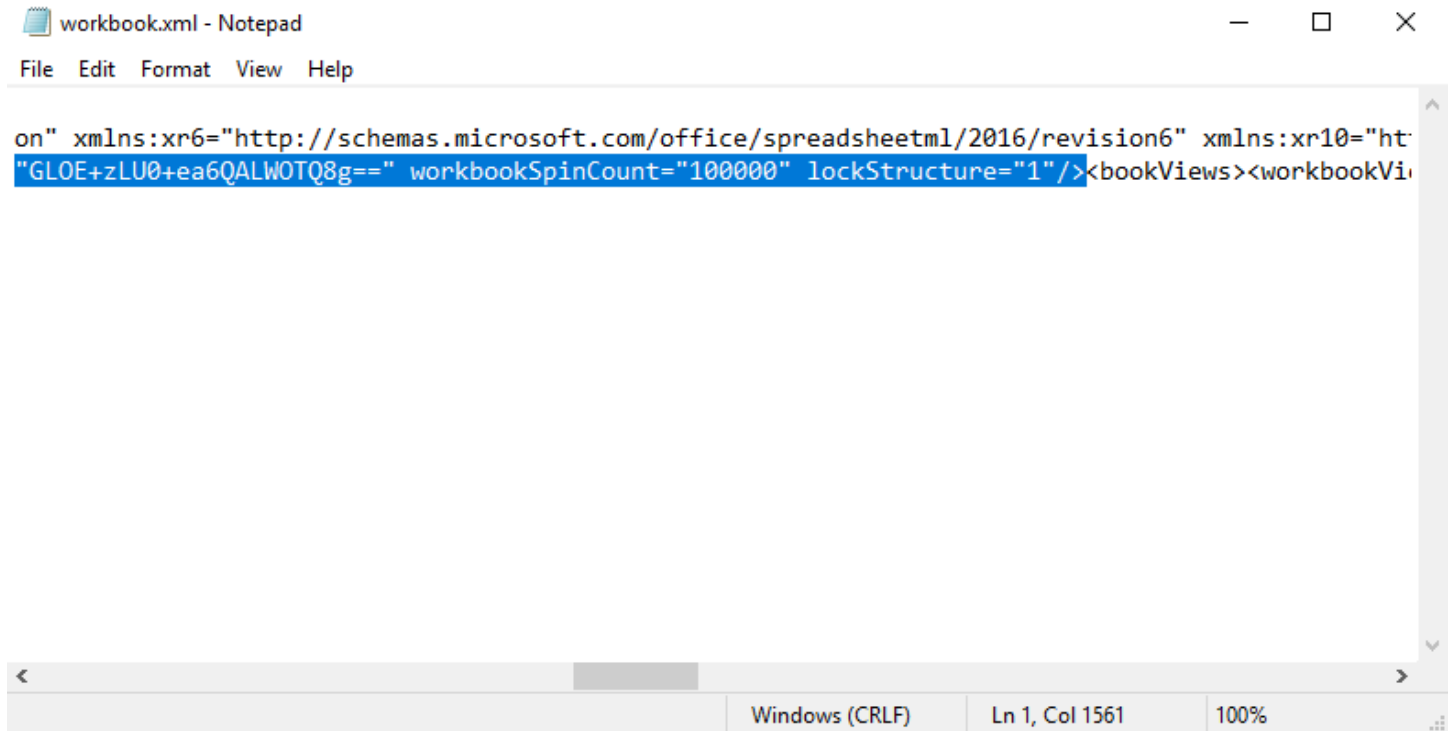

Figure 10: Highlighting the `<workbookProtection ...  />` XML tag in `xl\workbook.xml`. Only the end of the tag is shown.

Step 10   Delete the whole `<workbookProtection ...   />` XML tag, click File→Save in Notepad (Figure 11) or key Ctrl + S, then close Notepad.
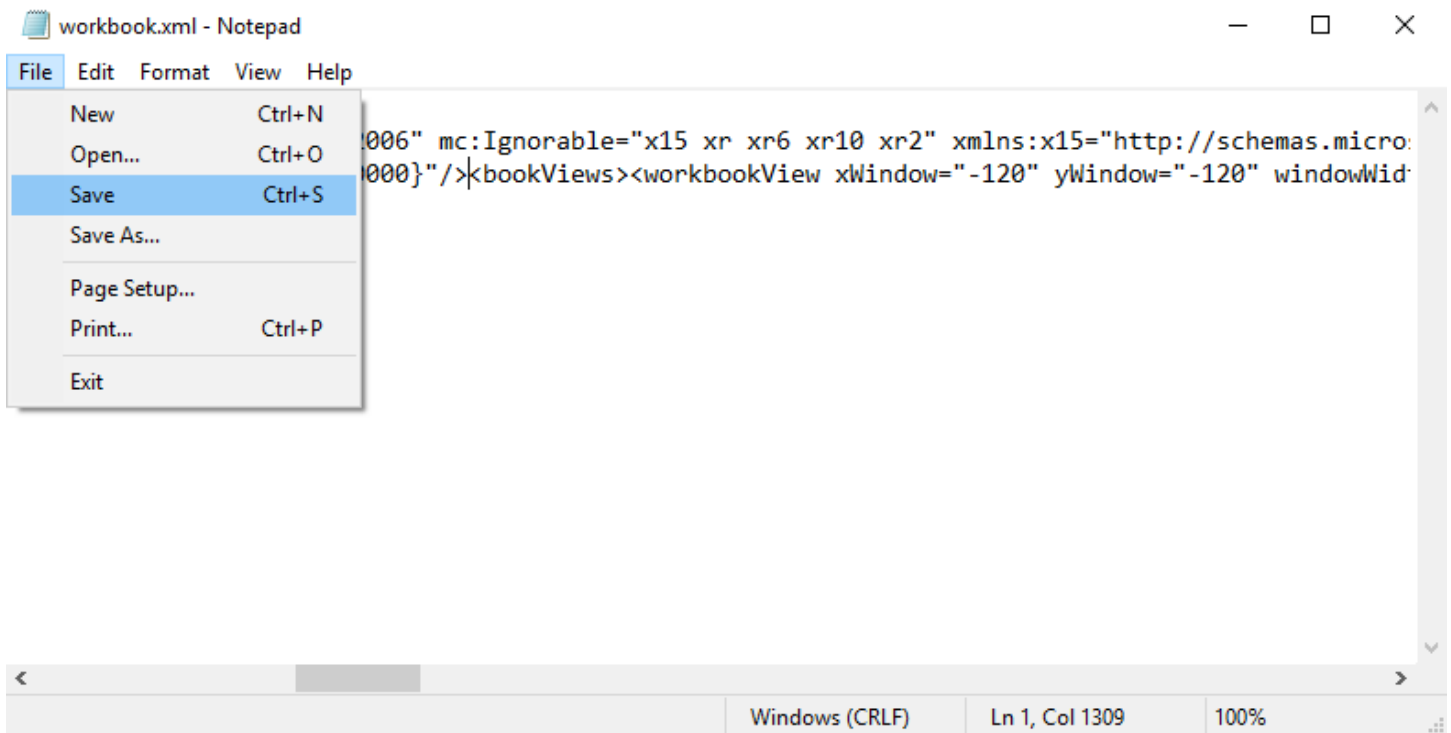

Figure 11: Saving `xl\workbook.xml` after deleting the `<workbookProtection ...   />` XML tag.

Step 11 In `Protected.xlsx`, Sheet1 is protected. To remove this protection, navigate to the `xl\worksheets\` directory, right click `sheet1.xml`, select "Open with", and click "Notepad" (Figure 12).
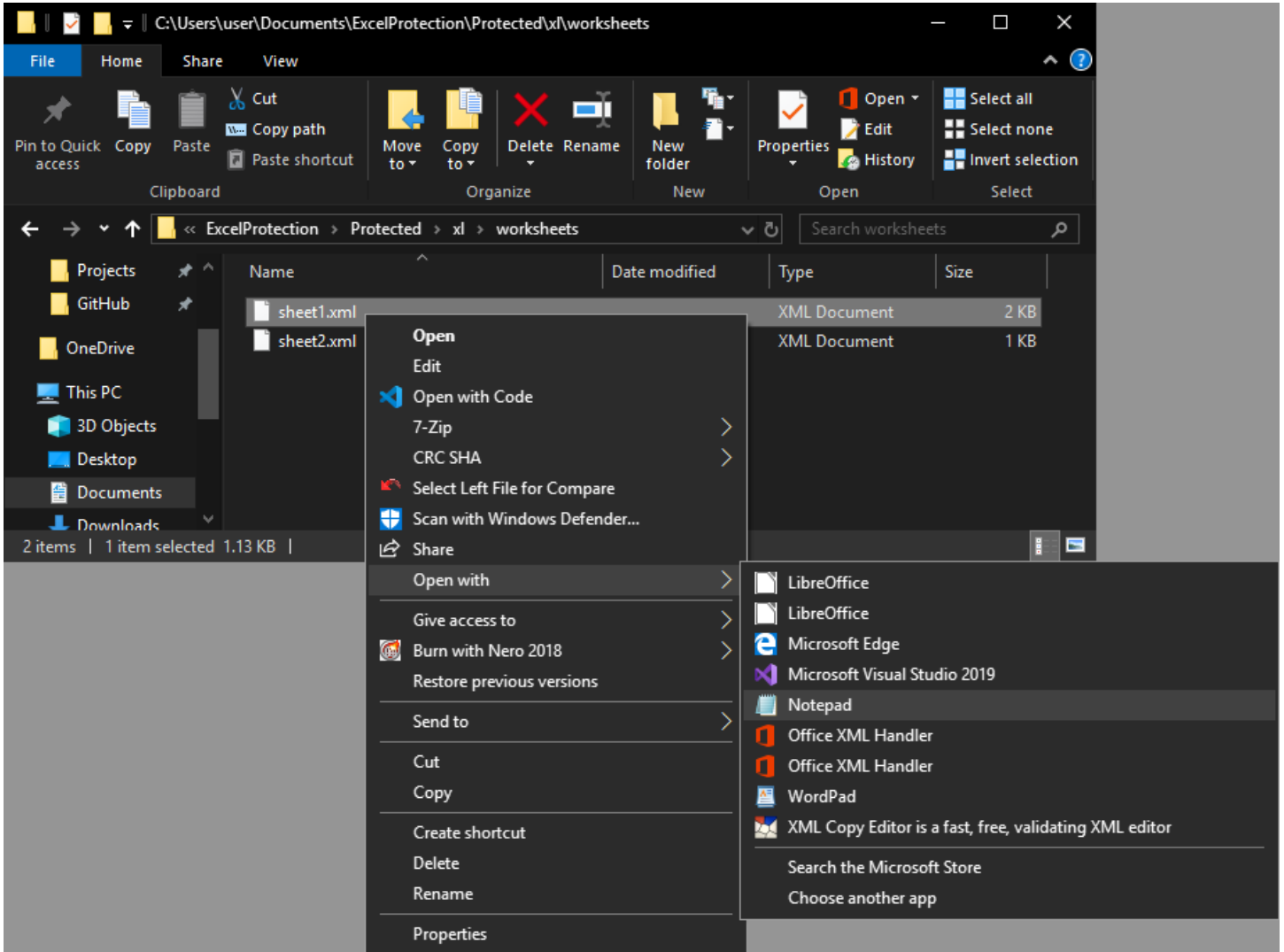

Figure 12: Opening `xl\worksheets\sheet1.xml` with Notepad.

Step 12 With `xl\worksheets\sheet1.xml` open in Notepad, either click Edit→Find... as in Figure 13 or key Ctrl + F.
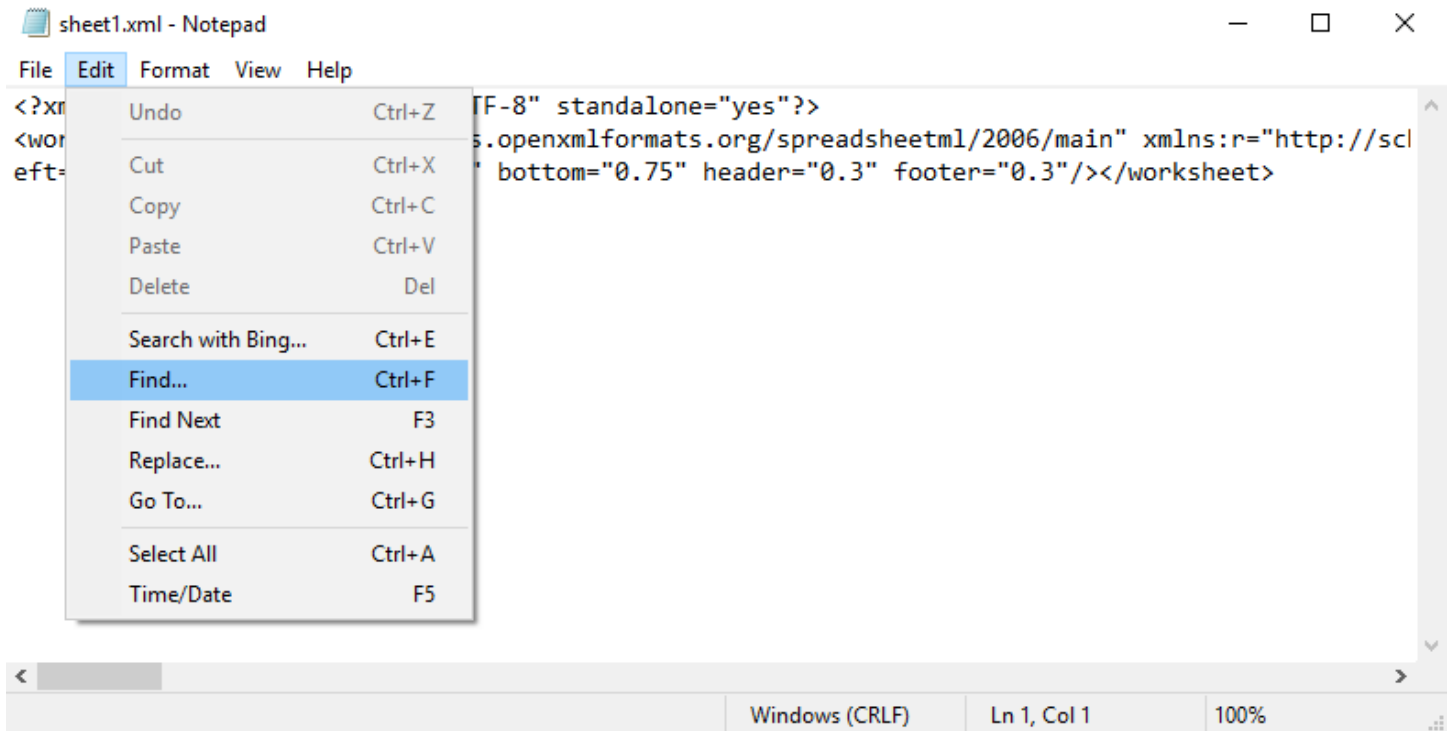

Figure 13: Searching `xl\worksheets\sheet1.xml` with Notepad's Find dialog.

Step 13 When the Find dialog pops up, type `<sheetProtection` in the "Find what:" box and click the "Find Next" button (Figure 14).
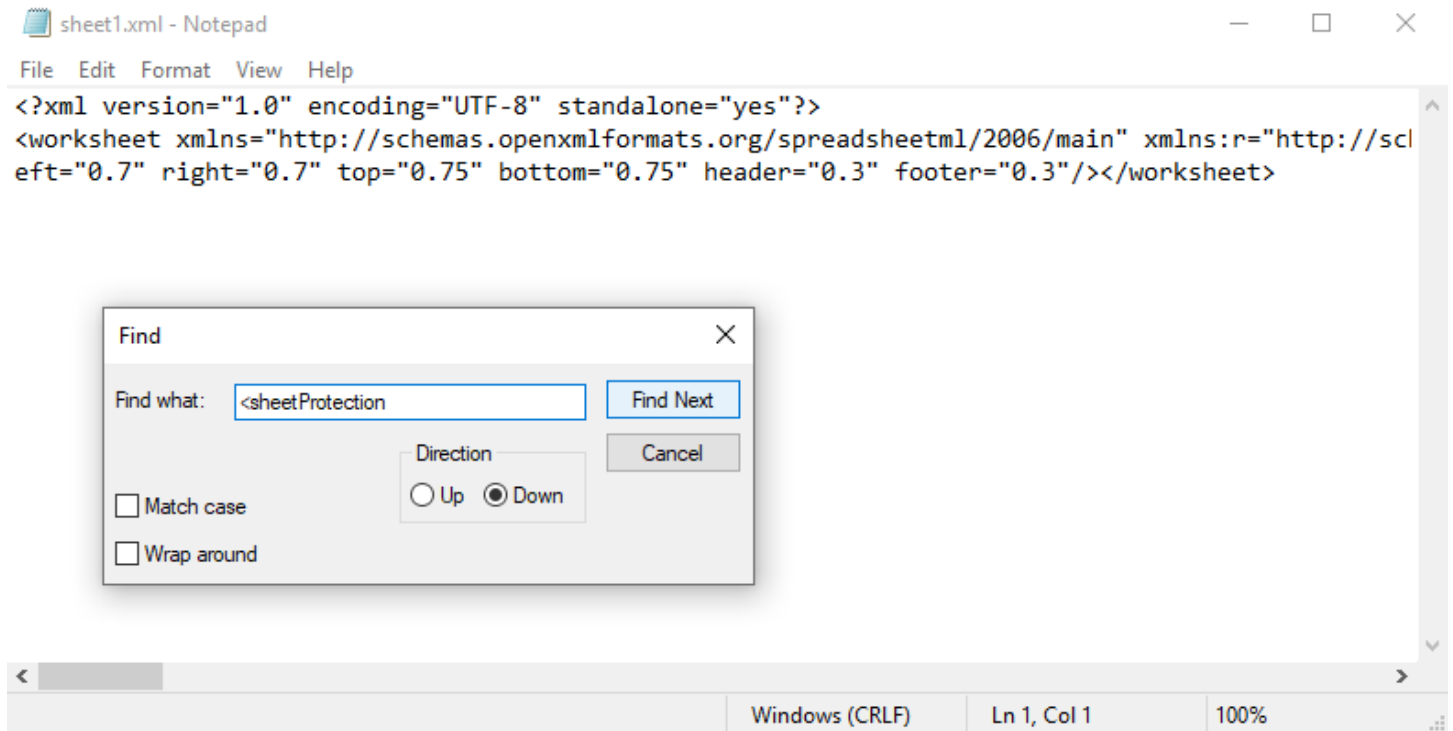

Figure 14: Finding the `<sheetProtection ... />` XML tag in `xl\worksheets\sheet1.xml`.

Step 14 If sheet protection was enabled for Sheet1, Notepad will find the `<sheetProtection ...` `/>` XML tag. In this case, close the Find dialog (Figure 15) and proceed to **Step 15**. If there is no `<sheetProtection ...` `/>` XML tag, close Notepad and either (1) go to **Step 11** to unprotect another sheet or (2) skip to **Step 17**.

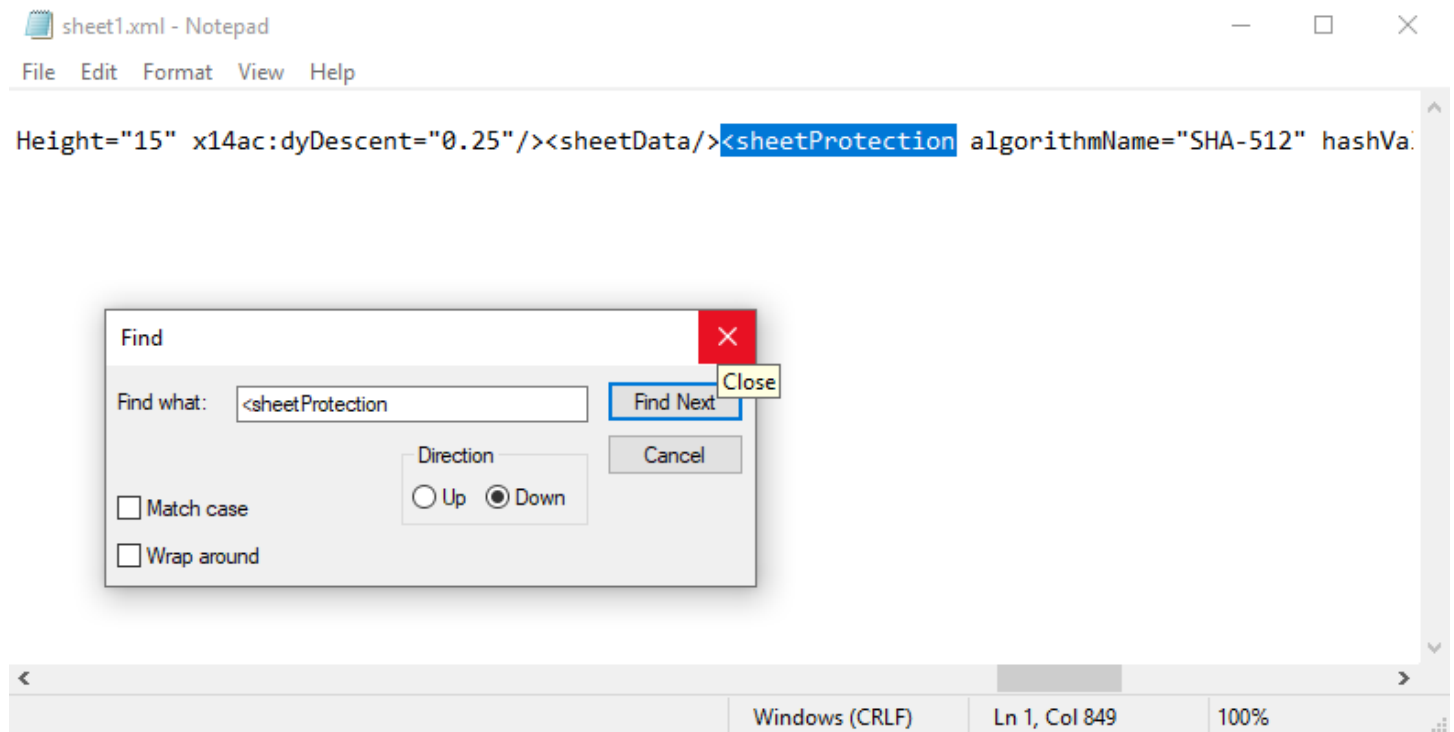Figure 15: Found the `<sheetProtection ...` `/>` XML tag in `xl\worksheets\sheet1.xml`.

Step 15   Now, highlight the whole XML tag starting with the "<" in `<sheetProtection` and ending with the first next occurrence of "/>". In this example, the whole tag is

```
<sheetProtection algorithmName="SHA-512" hashValue="1qhdHWcruZ6MOt9G9YITOPUMGG
Z1Hru5XMWlTxgrUj4ycWuGzl7ED2RnWdgQe8OYrU7v14dmt/zSoACtVEjIoQ==" saltValue="wZg
SkeZQ6LJic41v7DZLkA==" spinCount="100000" sheet="1" objects="1" scenarios="1"/>
```

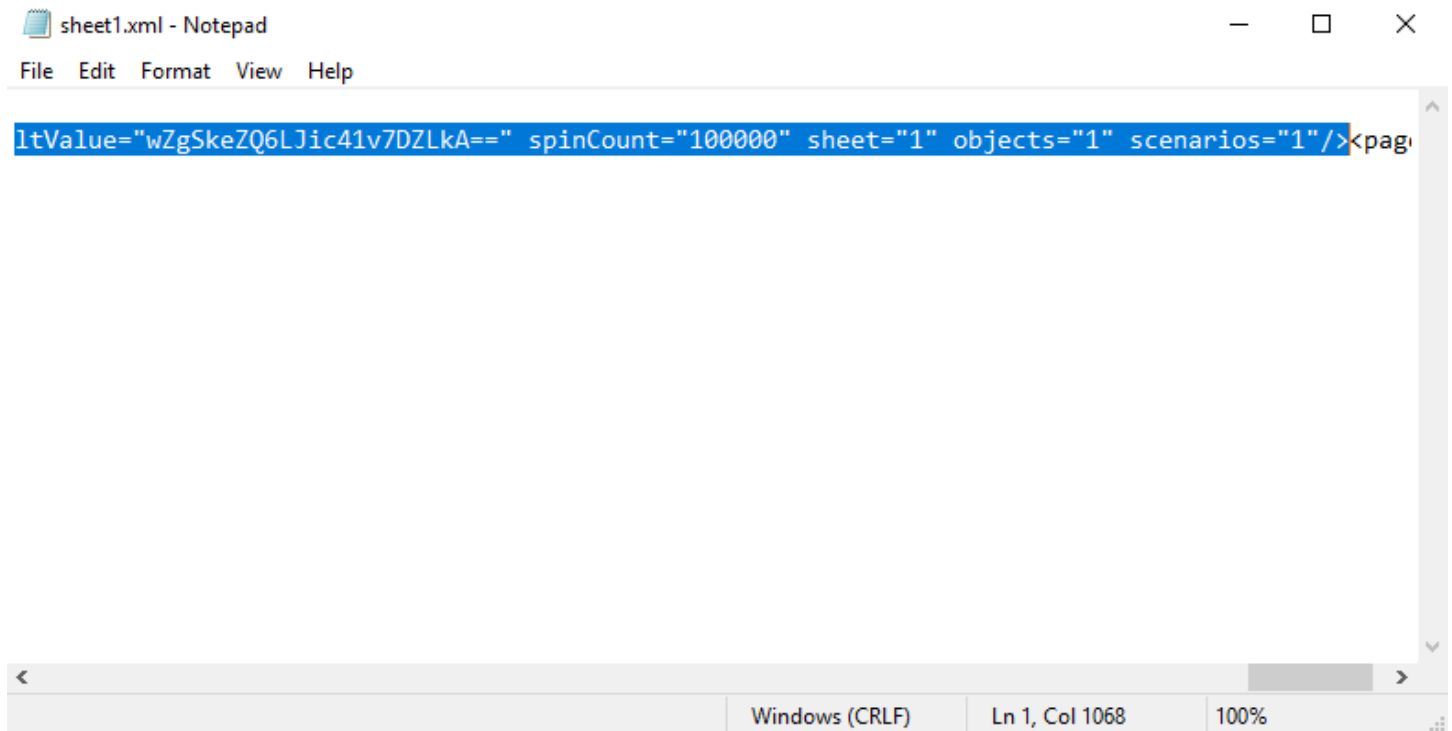The tag contents will vary in each file; the important thing is to highlight the whole tag. See Figure 16.

Figure 16: Highlighting the `<sheetProtection ... />` XML tag in `xl\worksheets\sheet1.xml`. Only the end of the tag is shown.

15

Step 16 Delete the whole `<sheetProtection ...  />` XML tag, click File→Save in Notepad (Figure 17) or key Ctrl + S, then close Notepad. If there are other sheets to unprotect, repeat **Steps 11–16** for each sheet. If there are no more sheets to unprotect, proceed to **Step 17**.

Figure 17: Saving `xl\worksheets\sheet1.xml` after deleting the `<sheetProtection ...  />` XML tag.

Step 17 We are done modifying the Excel workbook file contents; all that remains is to ZIP the contents back up. Navigate to the directory where you stored the unzipped contents of the Excel workbook file back in **Step 3**. This is the directory that holds the `xl\` directory, as shown in Figure 18.
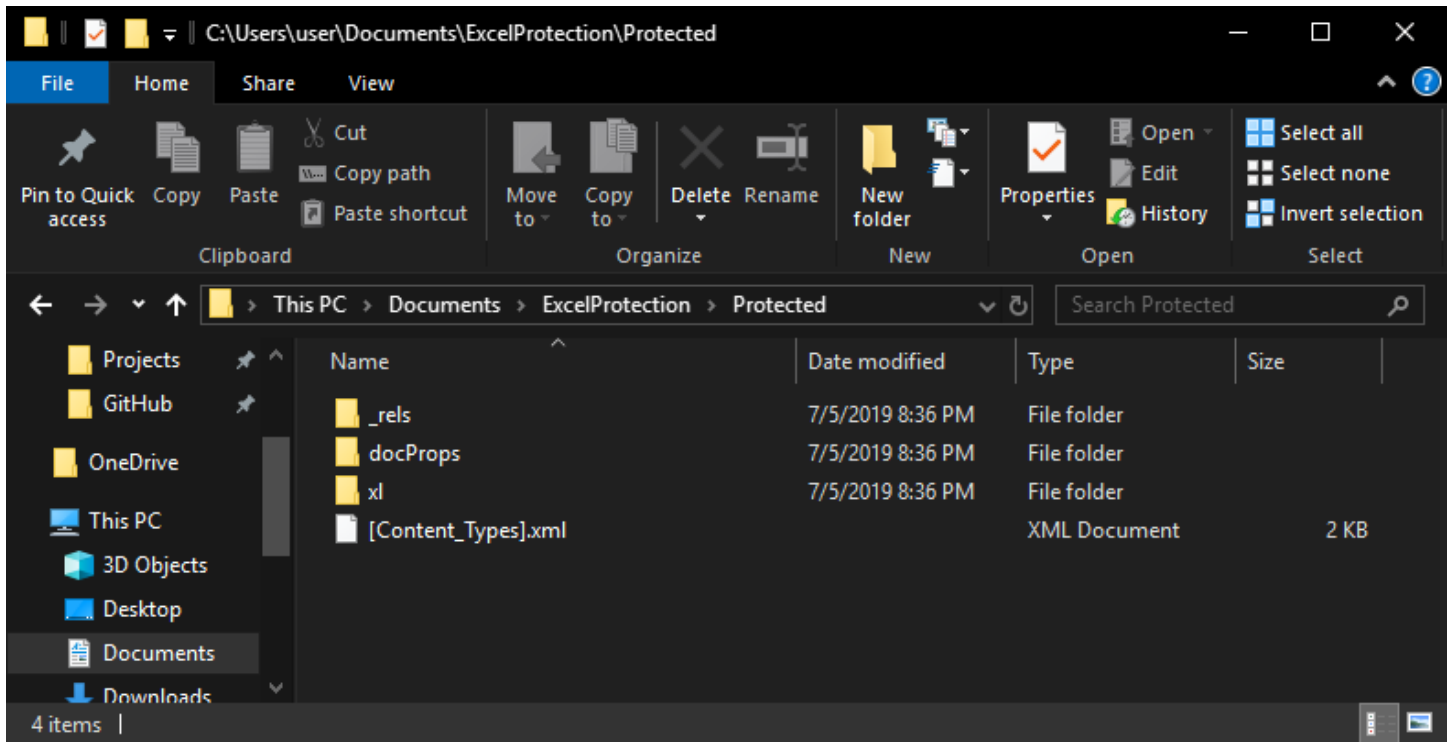

Figure 18: Back to the directory holding the (now modified) unzipped Excel workbook file contents.

Step 18   Highlight all the files and folders that make up the unzipped Excel workbook file contents as in Figure 19.
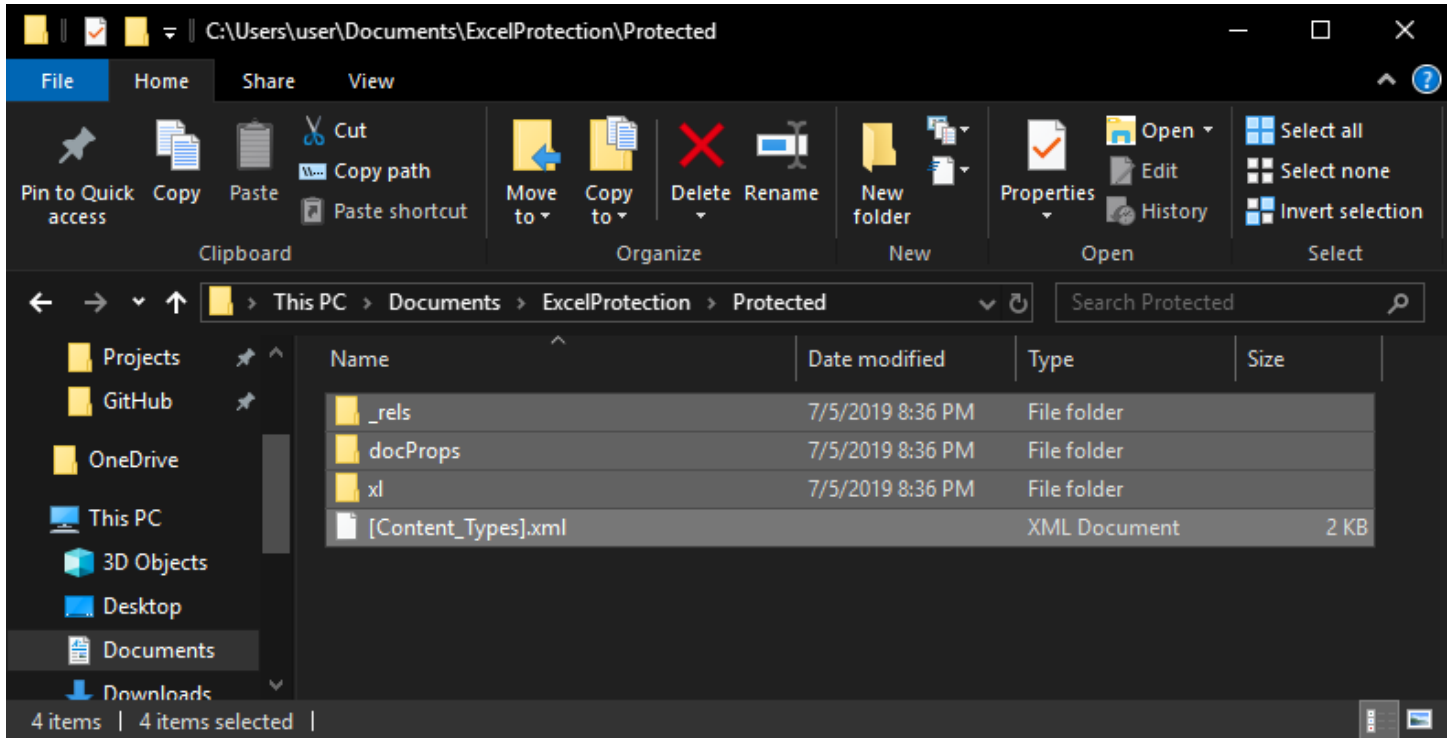

Figure 19: Highlighting all the contents of the unzipped Excel workbook file.

Step 19   Right click any of the highlighted items, select "Send to", and click "Compressed (zipped) folder" (Figure 20).
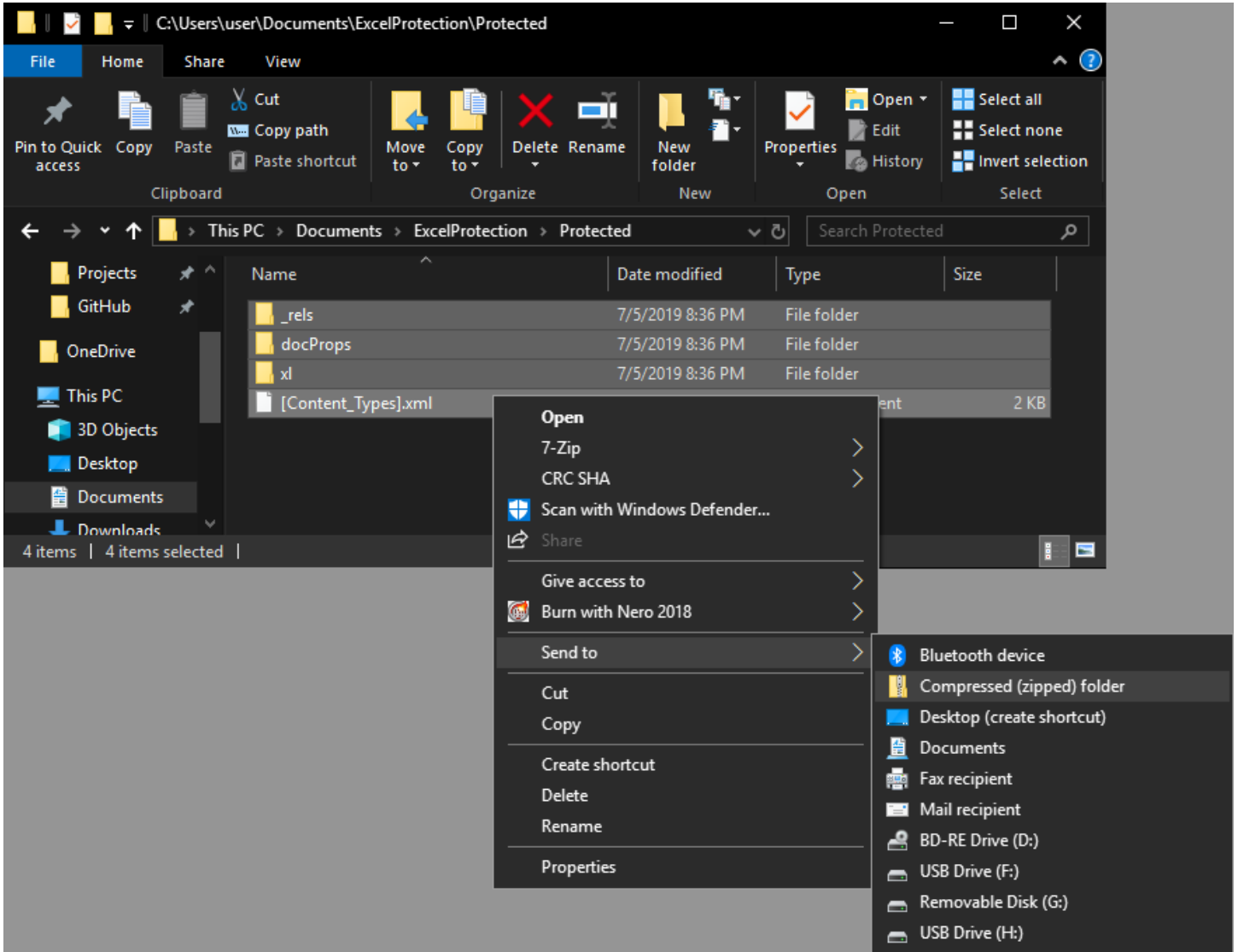

Figure 20: Zipping the modified Excel workbook file contents.

Step 20   The default `.zip` filename is `[Content_Types].zip` (Figure 21). Change it to something else, making sure that the file name extension is `.xlsx` or `.xlsm` and not `.zip`. In Figure 22, `NotProtected.xlsx` is chosen. Click "Yes" when asked if you're sure you want to change the file name extension.
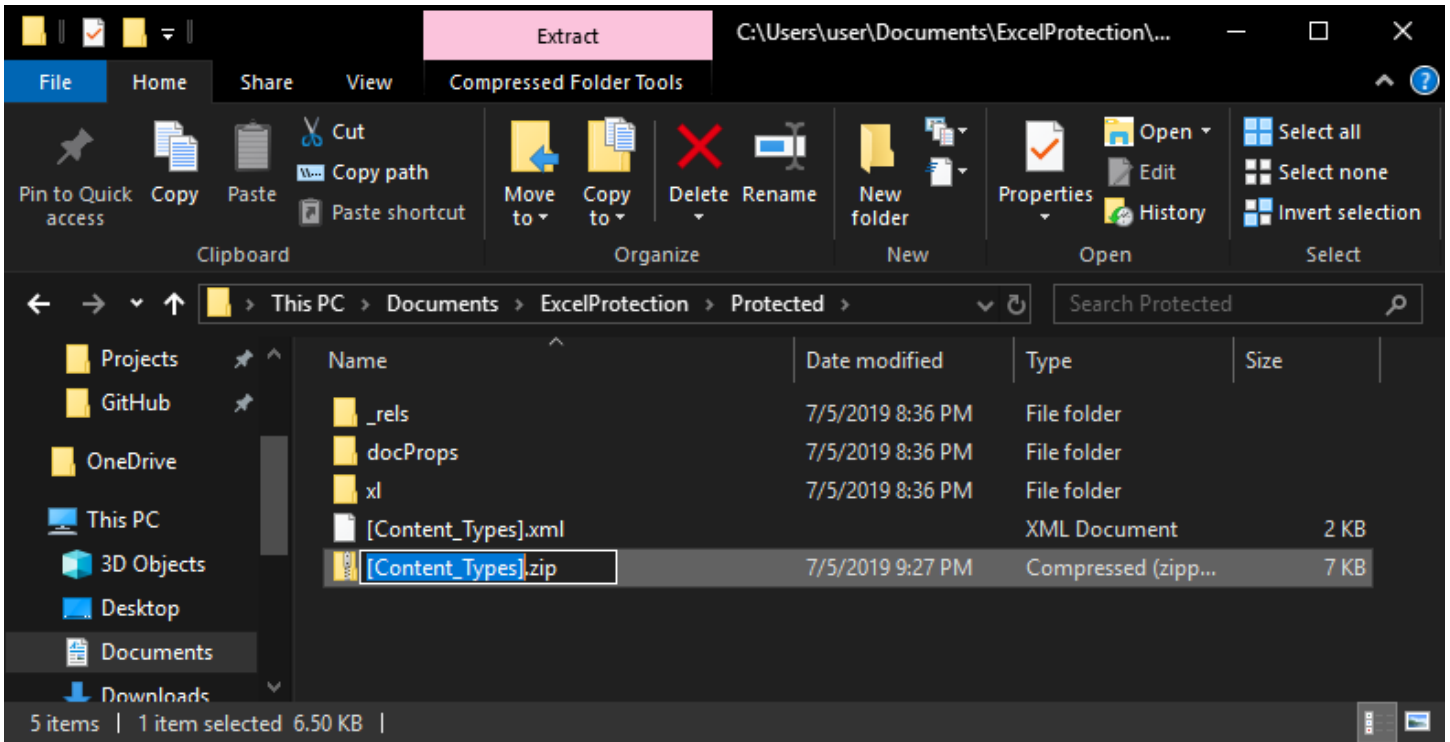

Figure 21: Default file name when zipping the Excel workbook file contents.
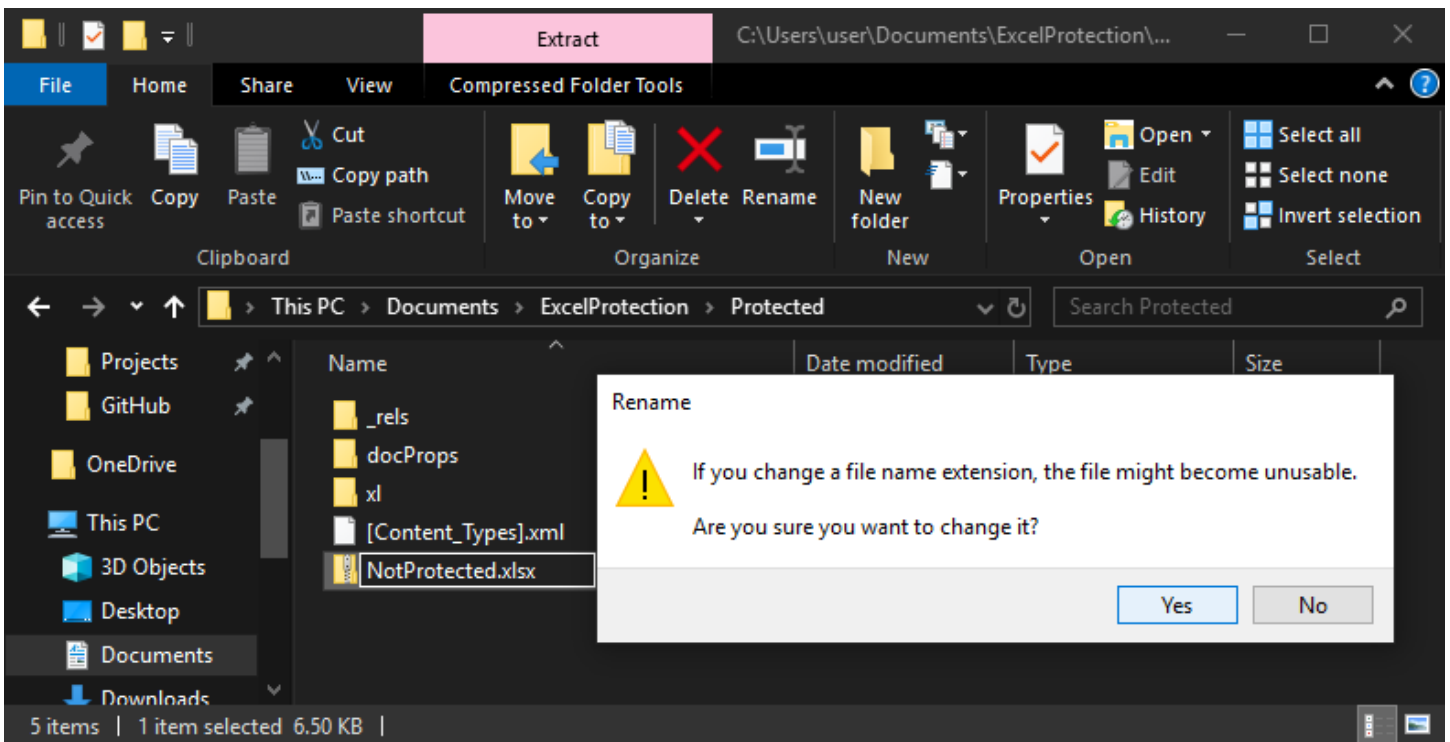

Figure 22: Choosing a better file name with `.xlsx` or `.xlsm` extension. Yes, we're sure.

THE END We now have an Excel workbook file named `NotProtected.xlsx` (Figure 23). It really is no longer protected (Figure 24).
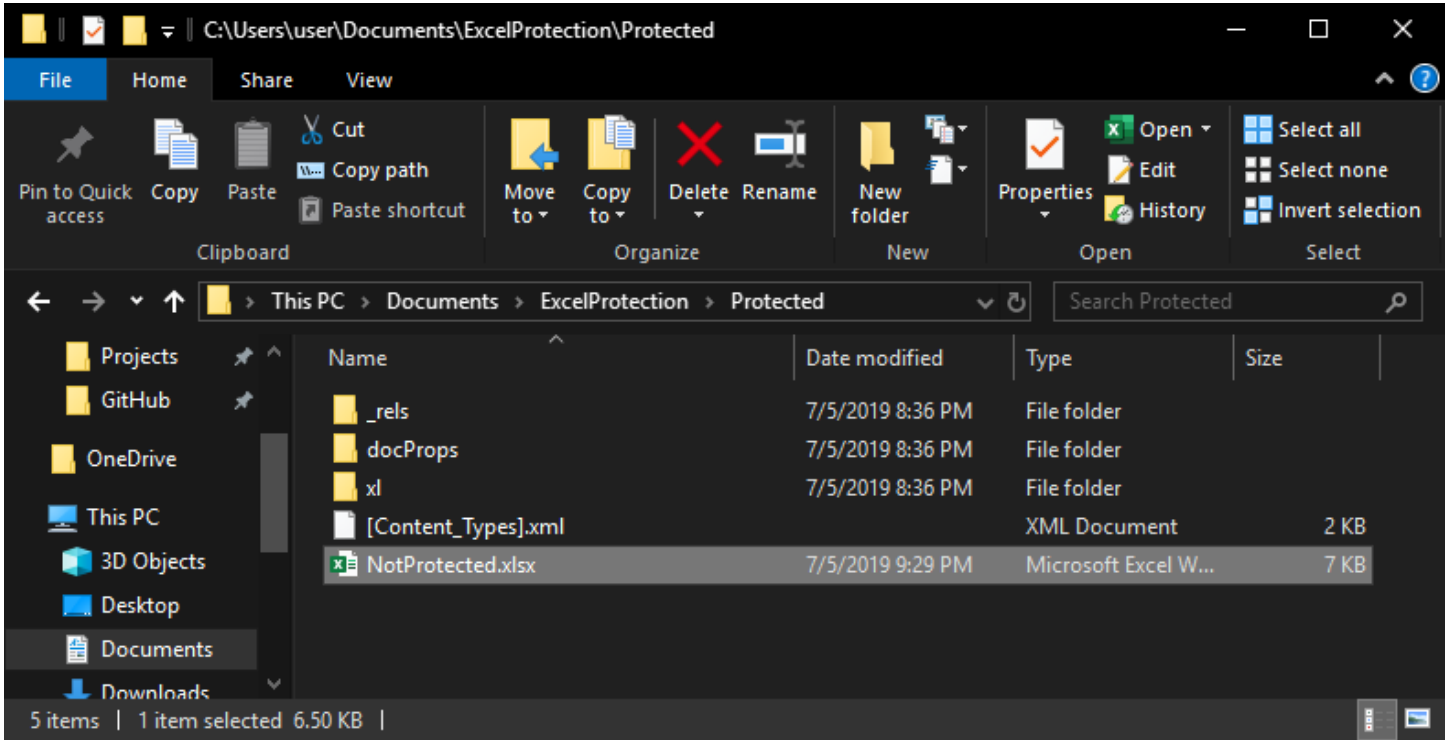

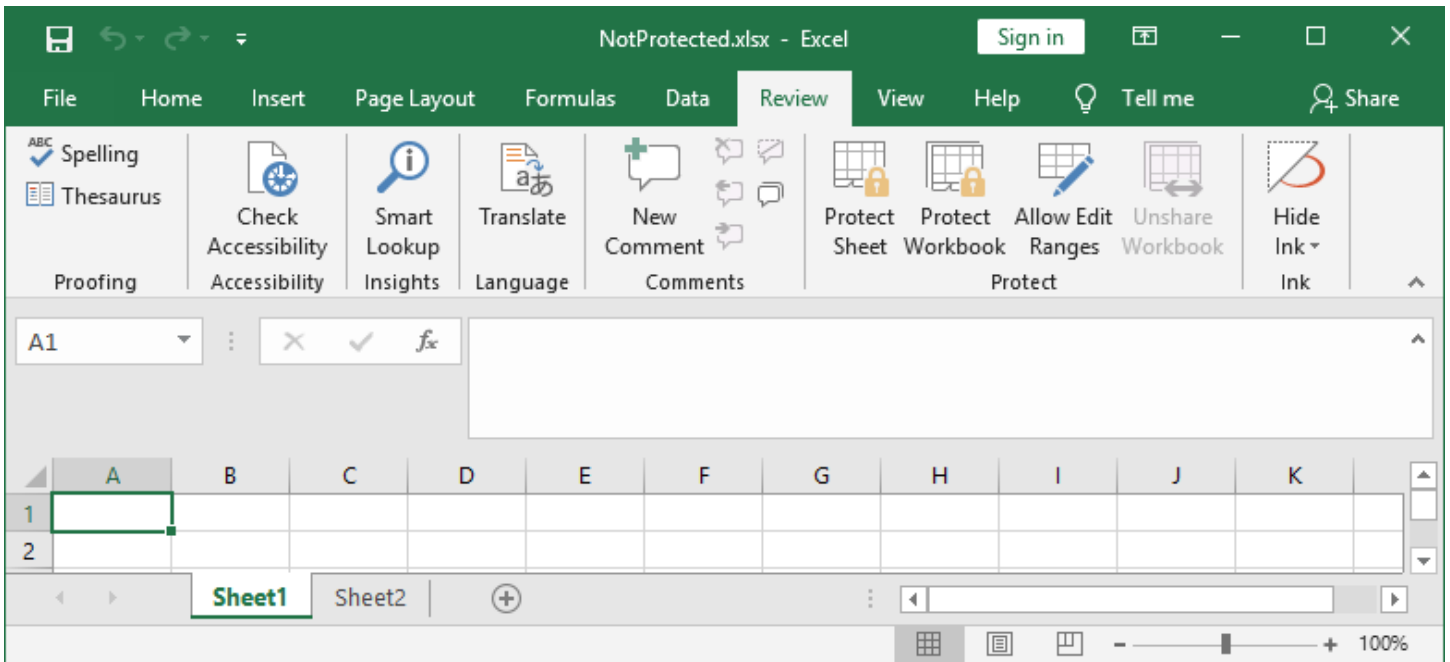Figure 23: Our new, unprotected Excel workbook file `NotProtected.xlsx`.

Figure 24: Our modified workbook opened in Excel. Both workbook protection and sheet protection are gone.

3   Why is This so Easy?

Excel workbook files are Office Open XML files, and as such their format is specified by the ECMA-376 standard. Regarding workbook protection, Section 18.2.29 of ECMA-376-1:2016 states the following.

> Applications might use workbook protection to prevent anyone from accidentally changing, moving, or deleting important data. This protection can be ignored by applications which choose not to support this optional protection mechanism.

Section 18.2.29 also contains the following note.

> Worksheet or workbook element protection should not be confused with file security. It is not meant to make your workbook safe from unintentional modification, and cannot protect it from malicious modification.

I do question whether the *not* in "It is *not* meant to make..." is a typo, but this quibble does not affect the point that workbook protection and sheet protection were never intended to provide file security. If someone takes the steps outlined in Section 2 of this document in order to modify an Excel workbook file, they are certainly not doing so on accident, and workbook protection was not designed to stop them.