SAS® GLOBAL FORUM 2018

USERS PROGRAM

April 8 – 11 | Denver, CO

#SASGF

Extracting a Git Repository from SAS® Enterprise Guide™ 7.1

Shahriar Khosravi

BMO Financial Group, Canada

ABSTRACT

SAS® Enterprise Guide™ 7.1 includes an easy-to-use change tracking capability that is based on the Git version control system. This feature allows the user to maintain and manage the history of changes to all scripts in SAS® Enterprise Guide™. Furthermore, the user has the ability to access and modify the existing history of an externally-controlled script from within SAS® Enterprise Guide™. Although this is an extremely useful feature, it does not currently support extracting the embedded Git repository. In some cases, it may be necessary to extract the embedded history for use outside of SAS® Enterprise Guide™. For example, as the number of contributors to a project grows, it may be more efficient to manage the version control process using an external application that supports branch creation and merging. The main objective of this e-poster is to demonstrate a way to extract the embedded Git repository from a SAS® Enterprise Guide™ project.

BACKGROUND

Question from SAS Support

- Is it possible to extract the Git repository from a SAS EG project?

SAS Response

sas THE POWER TO KNOW.

Edmund,

Currently there is not a way to extract the embedded program history in SAS Enterprise Guide. The SAS Enterprise Guide R&D manager believes this is a good suggestion and I will be opening a formal suggestion for this feature to be added to a future release of SAS Enterprise Guide.

Sorry to report that this is not possible currently.

Tiffany

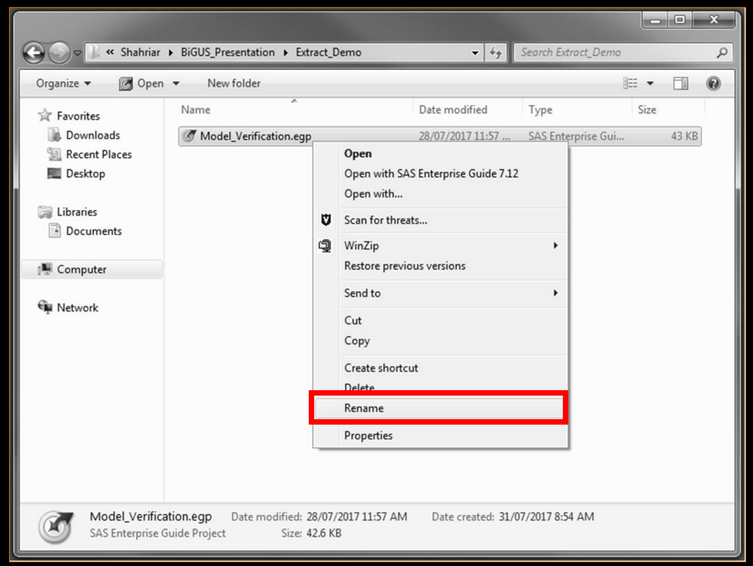
WHY

Limitations of Version Control in SAS EG

- Multiple developers cannot contribute concurrently to the same project
- Not possible to create and maintain a ‘central repository’ that multiple developers could interact with simultaneously
- No functionality for working on separate ‘branches’ within the same project
- In some cases it may be necessary to extract the embedded repository and use it outside of SAS EG

HOW: STEP 1

- Save a backup copy of your SAS EG project
- Right-click on the EG project
- Select ‘Rename’ to replace ‘.egp’ with ‘.zip’
- This ticks your operating system into thinking that the SAS EG project is simply a compressed folder!



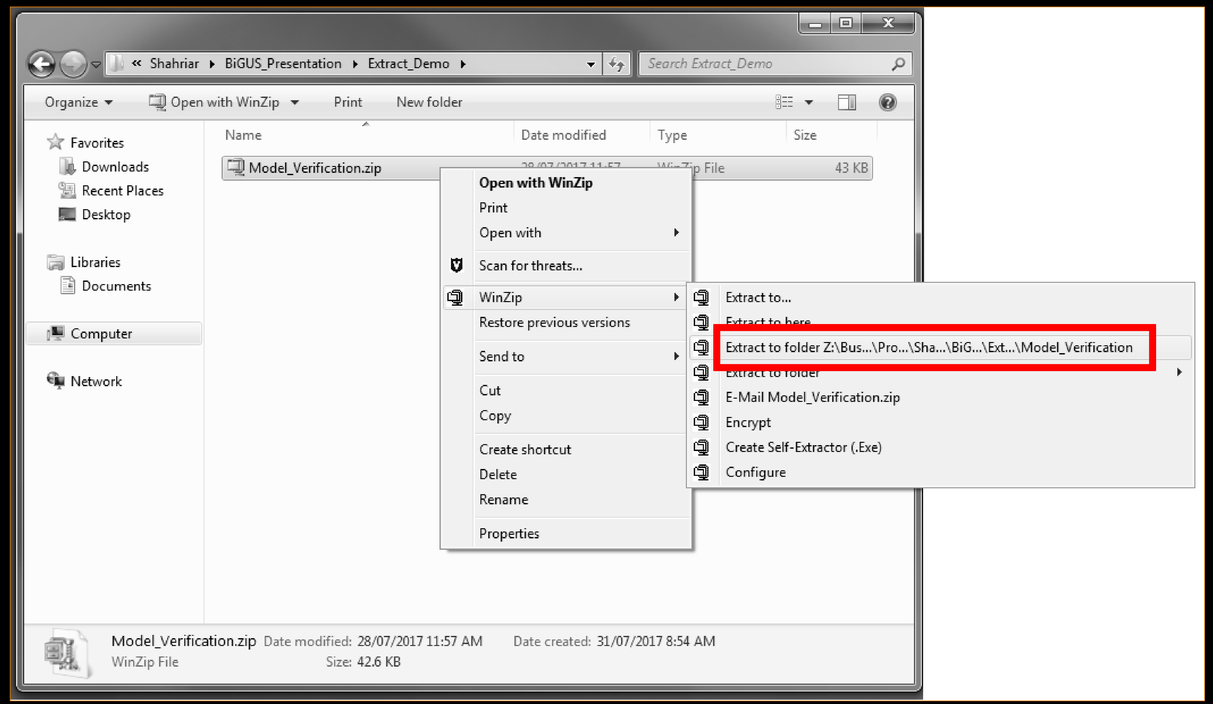
Extracting a Git Repository from SAS® Enterprise Guide™ 7.1

Shahriar Khosravi

BMO Financial Group, Canada

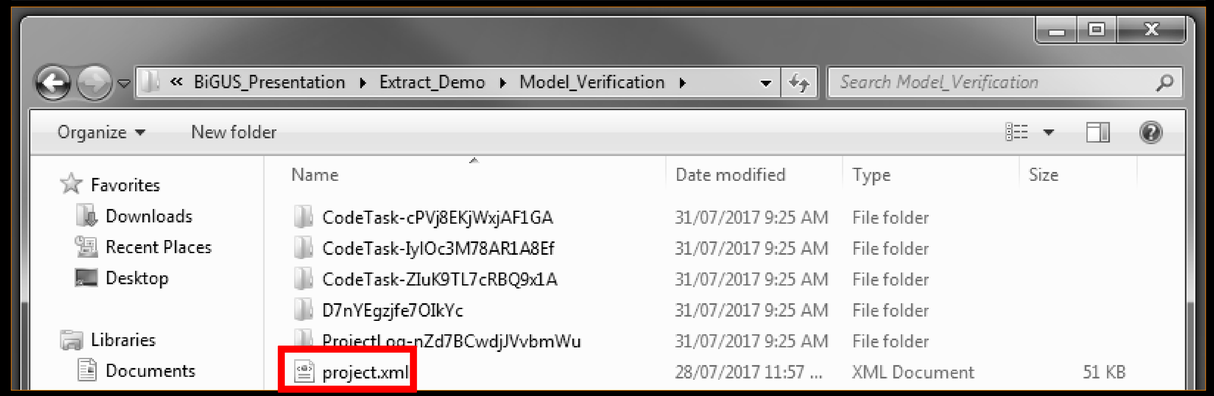
HOW: STEP 2

- Extract the contents of the compressed folder
- The extracted folder includes a Git repository containing the history of all scripts, if a Git repository is already initiated inside the SAS EG project

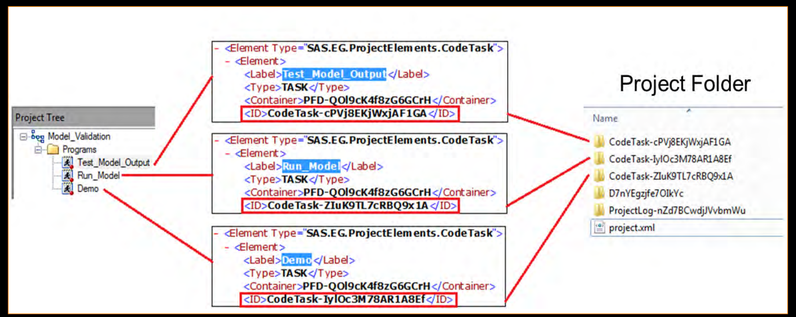


HOW: STEP 3

- Every script (or code) and its history is contained within a separate folder whose name starts with ‘CodeTask-’
- The XML file ‘project.xml’ holds the mapping information for all scripts



- User can identify the folders based on the information inside the ‘project.xml’ file



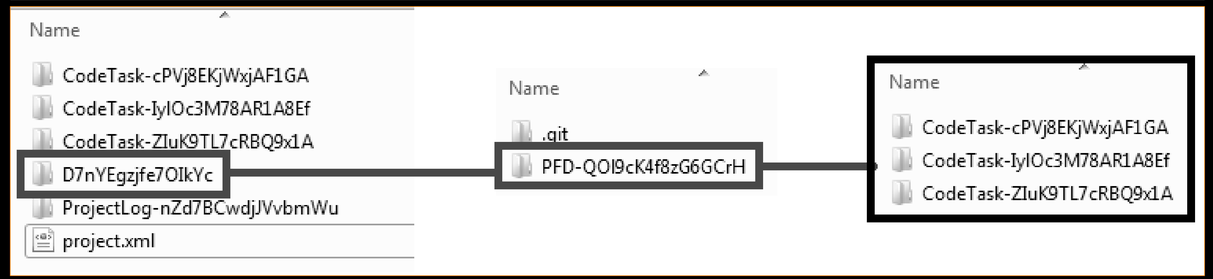
Extracting a Git Repository from SAS® Enterprise Guide™ 7.1

Shahriar Khosravi

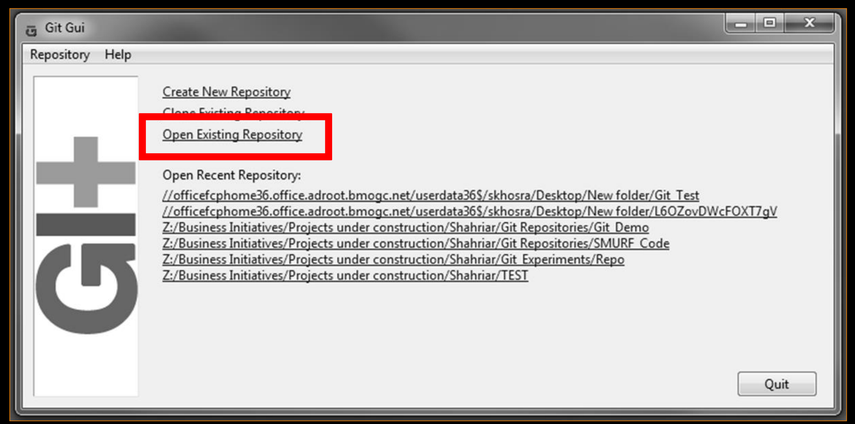
BMO Financial Group, Canada

HOW: STEP 4

- User can rename the Git folder and its contents for ease of use and understanding
- This can be done in the Git version control system in order to keep the original histories, and the process can be automated

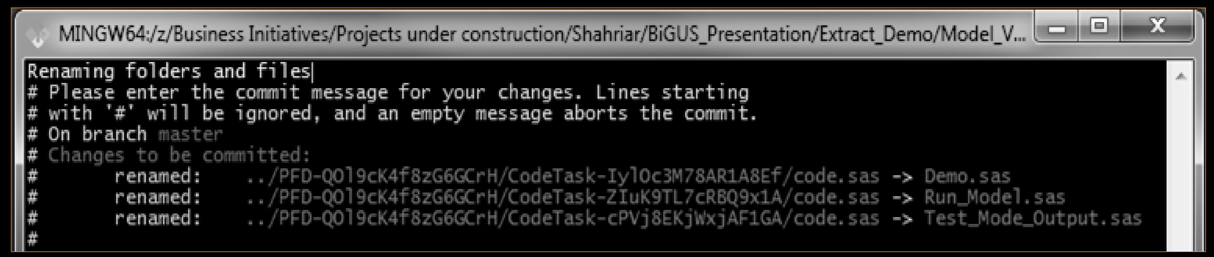


- The Git folder is already a repository, so it may be opened using any front-end software for Git (e.g. Git GUI)

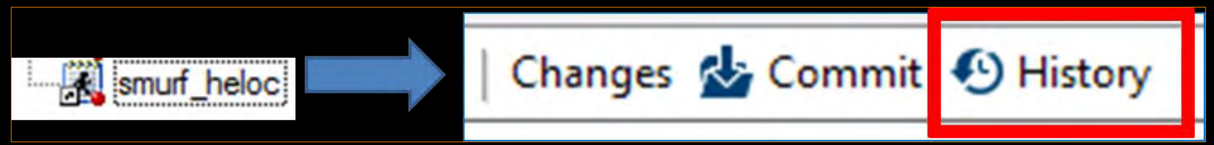


HOW: STEP 5

- When the renaming is done through Git using the ‘git mv’ command, it becomes part of the existing history
- Once the renaming is complete, the repository may be managed using Git or any other version control system



- It is also possible to view the Git history of an externally managed script within SAS EG
- Simply drag and drop the external script into the SAS EG project
- Click ‘History’ from the top bar menu to view the external Git history



SAS® GLOBAL FORUM 2018

April 8 – 11 | Denver, CO
Colorado Convention Center

#SASGF

Paper 2132-2018

Extracting the Embedded Git Repository from a SAS® Enterprise Guide™ 7.1 Project

Shahriar Khosravi, BMO Financial Group

ABSTRACT

SAS® Enterprise Guide™ 7.1 includes an easy-to-use change tracking capability that is based on the Git version control system. This feature allows the user to maintain and manage the history of changes to all scripts in SAS® Enterprise Guide™. Furthermore, the user has the ability to access and modify the existing history of an externally-controlled script from within SAS® Enterprise Guide™. Although this is an extremely useful feature, it does not currently support extracting the embedded Git repository. In some cases, it may be necessary to extract the embedded history for use outside of SAS® Enterprise Guide™. For example, as the number of contributors to a project grows, it may be more efficient to manage the version control process using an external application that supports branch creation and merging. The main objective of this paper is to demonstrate a way to extract the embedded Git repository from a SAS® Enterprise Guide™ project.

INTRODUCTION

Version control is an essential part of any successful software development initiative for a number of reasons. First and foremost, version control allows efficient and organized tracking of code changes throughout the development process. Furthermore, it facilitates collaboration between multiple developers contributing to the same project without the risk of accidental rollbacks or development conflicts. It is therefore worthwhile to learn to use the code tracking capabilities that are readily available inside SAS® Enterprise Guide™.

SAS® Enterprise Guide™ provides a simplified version of the Git version control system for all scripts inside a project. This simplified variant of Git allows the user to initiate a repository within a project, make commits, review commit history, and revert back to previous versions of the code, all within Enterprise Guide. This is an extremely useful feature that every SAS® Enterprise Guide™ user should become familiar with for efficient code development.

While the version control feature inside SAS® Enterprise Guide™ is extremely useful, it does not currently support extracting the embedded history from a project. In some cases, this could prove to be a significant limitation. For example, if the number of developers grows, it becomes increasingly difficult to keep passing around the same project to multiple developers and maintain the history of all scripts. In addition, the simplified Git system does not support branching or interaction with remote repositories. Although this is not a decisive limitation in small-scale projects, it is a significant shortfall for large-scale projects that arise from an initial SAS® Enterprise Guide™ package.

The main objective of this paper is to demonstrate a step-by-step approach for extracting the embedded Git repository from inside of a SAS® Enterprise Guide™ project. At the time of writing the present paper, this workaround is most likely considered a “hack”, and not an officially endorsed solution by SAS®. However, this approach will hopefully help those SAS® Enterprise Guide™ users who have been looking for a way to accomplish this without success.

ASSUMPTIONS

Before we demonstrate the extraction process, it is important to note a few assumptions made throughout the present paper:

1) You have SAS® Enterprise Guide™ installed on your personal computer, which runs on a Windows operating system;

2) You have an Enterprise Guide project with an existing Git history for some or all of its scripts; and

3) You have a front-end software (such as Git-GUI) installed on your personal computer for interacting with a Git repository.

EXTRACTING THE GIT REPOSITORY

We are now ready to demonstrate how an existing embedded Git repository may be extracted from a SAS® Enterprise Guide™ project. We will showcase the process in a step-by-step fashion using illustrations in order to help the reader follow the procedure easily.

STEP 1

It is essential to save a backup copy of your SAS® Enterprise Guide™ project before attempting to follow this procedure. The reason is that during the extraction process, the Enterprise Guide project used will be converted to a compressed folder, *and may no longer be usable*.

STEP 2

Right-click on the SAS® Enterprise Guide™ project and select 'Rename' in order to replace the '.egp' extension with '.zip', as shown Figure 1.

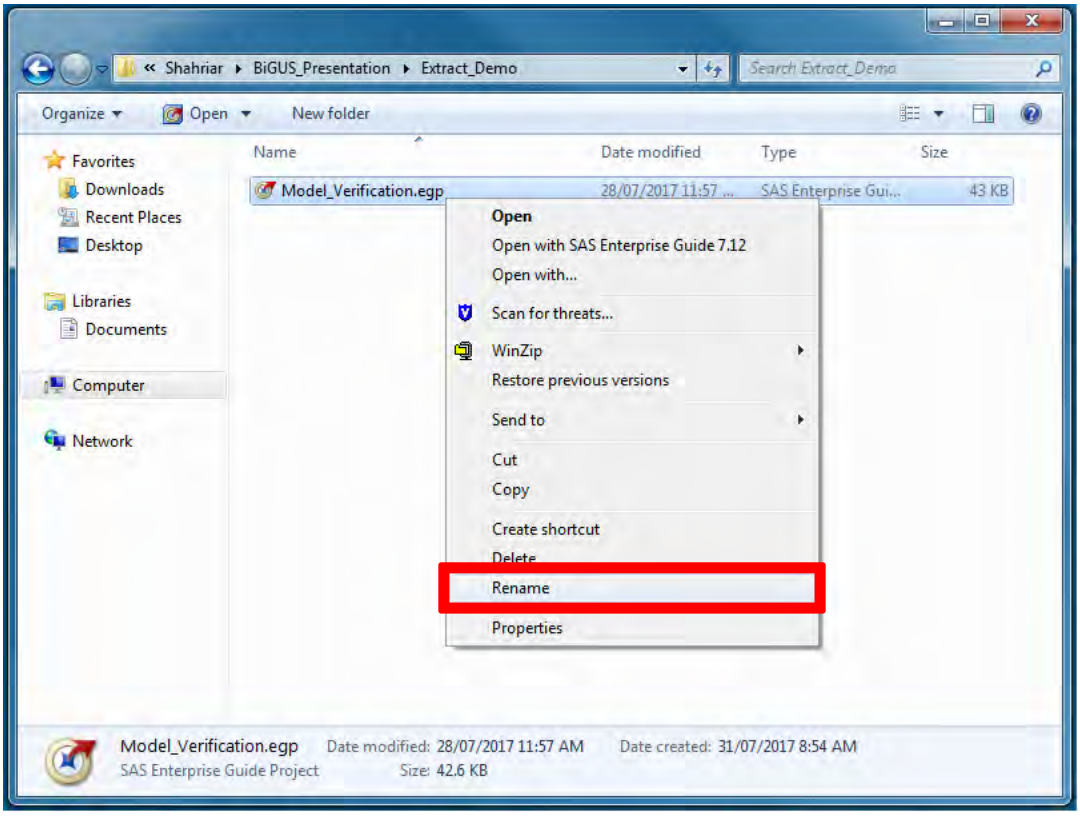


Figure 1. Rename the '.egp' extension to '.zip'.

STEP 3

After the completion of Step 1, the Enterprise Guide project is converted to a compressed folder. The contents of this compressed folder may be extracted using any extraction utility, as shown in Figure 2.

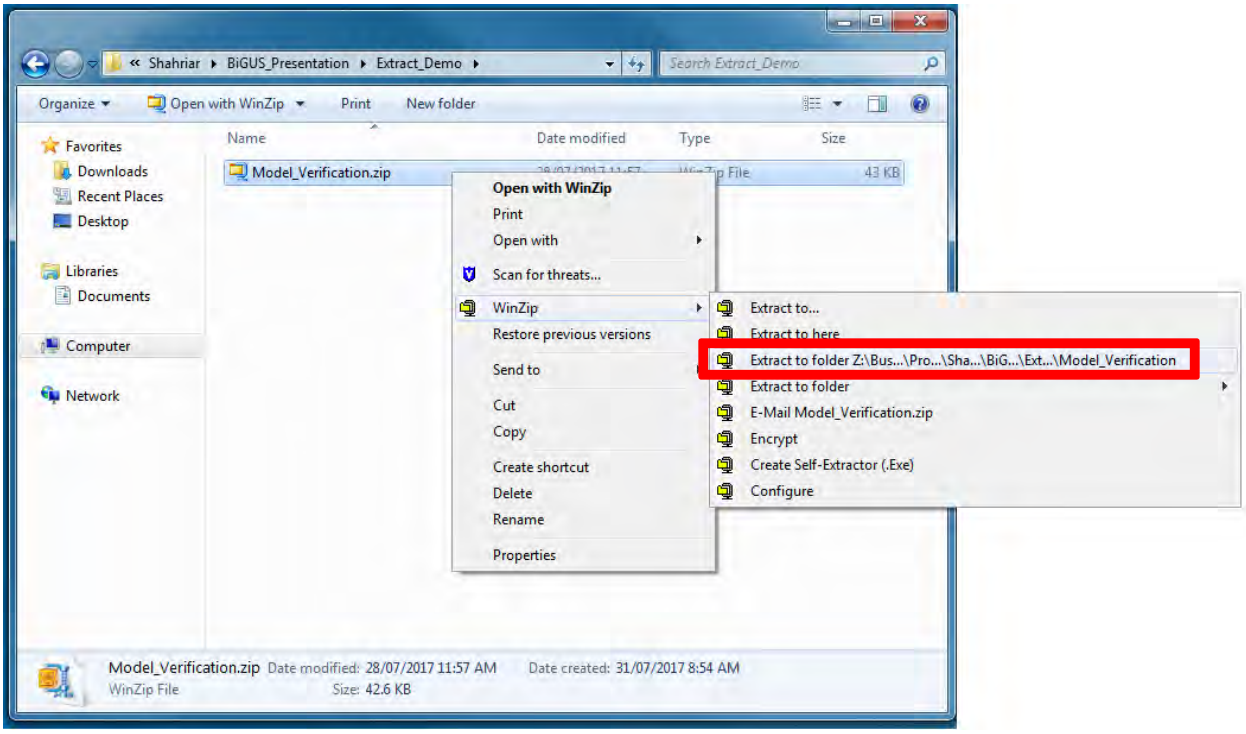


Figure 2. Extract the contents of the compressed folder

STEP 4

Once the compressed folder is unpacked, review the contents inside and locate the file ‘project.xml’, as shown in Figure 3.

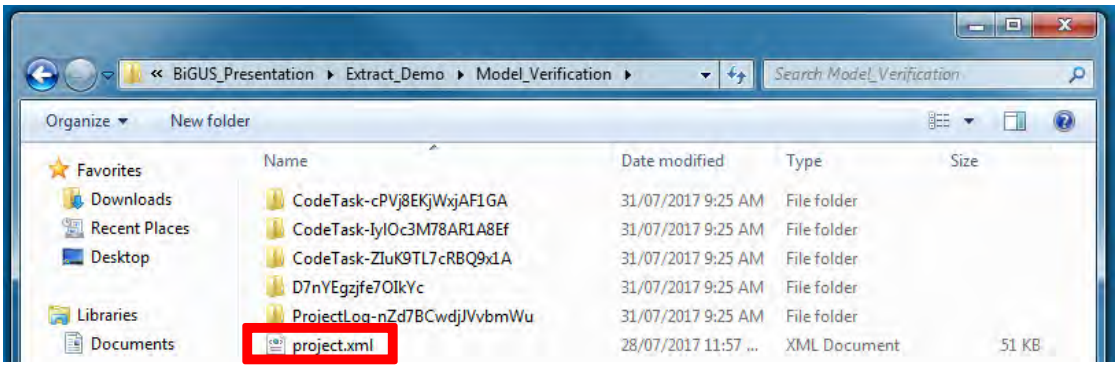


Figure 3. View the 'project.xml' file in any XML editor of your choice (e.g. Mozilla Firefox)

This file contains the mapping between the scripts in your original SAS® Enterprise Guide™ project and the folders contained in the current path. More specifically, each of the folders that begin with the phrase ‘Code-Task’ contains one of the scripts in your original Enterprise Guide project. The ‘project.xml’ file allows you to associate each one your original scripts inside the project with a ‘Code-Task’ folder in the current path, as shown in Figure 4.

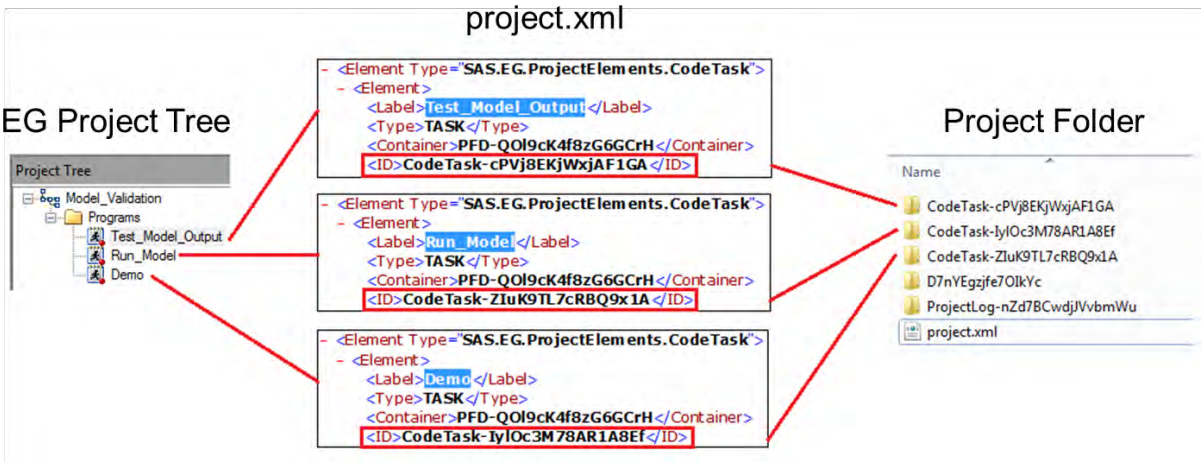


Figure 4. The 'project.xml' file allows you to identify the correct 'Code-Task' folders containing the original scripts in your Enterprise Guide project

Note that in the 'project.xml' file, there exists an XML 'Label' tag with the same name as the name of each of your original scripts in the project. The name of the corresponding 'Code-Task' folders containing each of your scripts is included in the associated 'ID' tag, as shown in Figure 4.

STEP 5

Once all of the 'Code-Task' folders have been identified, there remain two additional folders to be identified. One is intended to keep any logs saved as part of your original project, and its name begins with the phrase 'ProjectLog'. This leaves us with only one remaining folder in the current path. This folder contains the Git history for all of the scripts in your original SAS® Enterprise Guide™ project. This is illustrated in Figure 5.

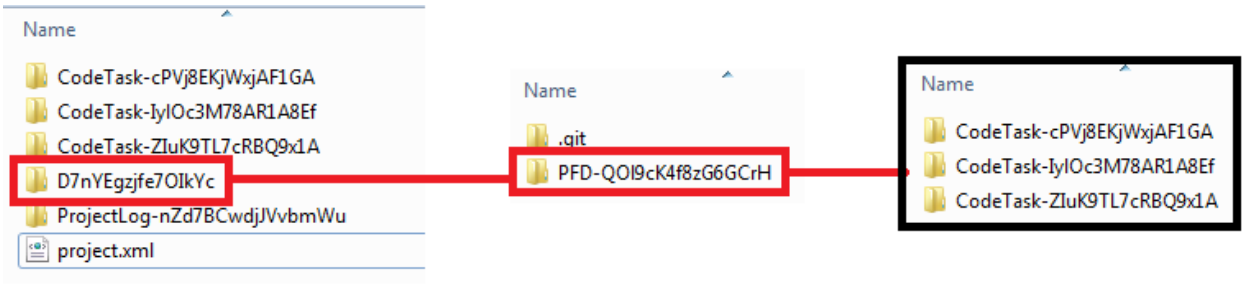


Figure 5. The remaining folder is the one that contains the Git history for all of the scripts in the Enterprise Guide project

This highlighted folder is essentially a Git folder, and is readily available to be cloned or opened using any version control software that works with Git (e.g. Git-GUI). In our case, we will demonstrate how this step can be accomplished using Git-GUI for those readers who use the same software. This is illustrated in Figure 6.

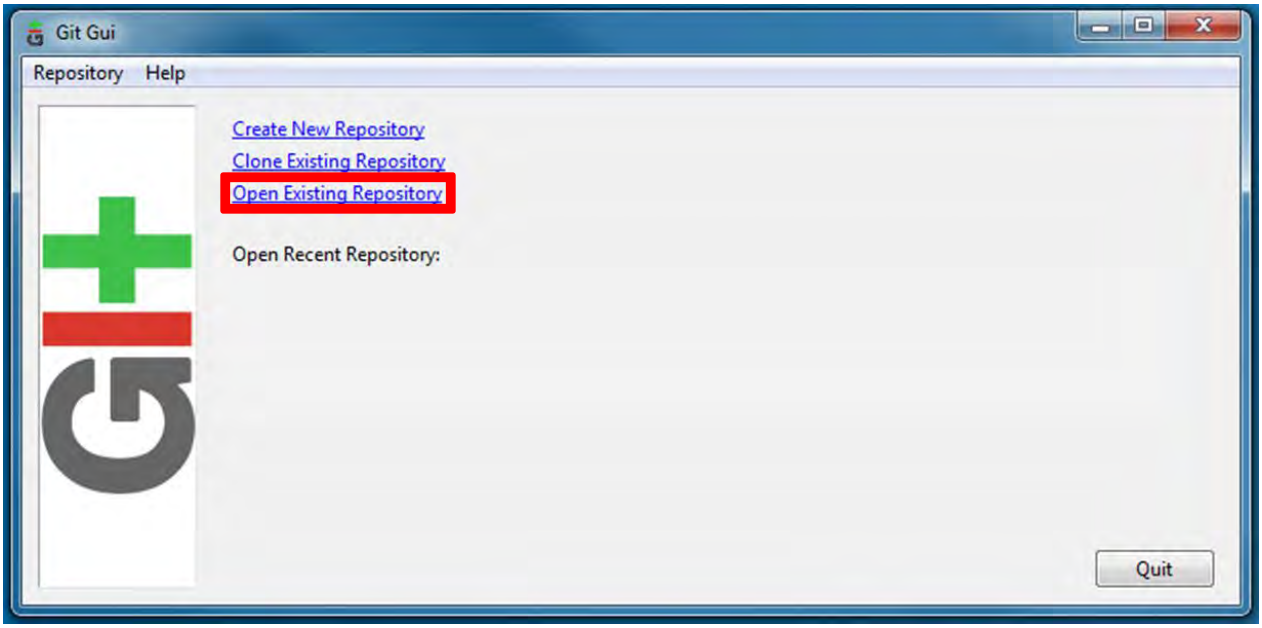


Figure 6. Select 'Open Existing Repository' from Git-GUI and then choose the Git folder identified in this step

This will open the existing repository and allow the user to interact with it using the full capabilities of the Git version control system.

STEP 6

Now that the repository has been extracted, there is still one minor tweak that could be extremely useful. Recall that the original scripts from the SAS® Enterprise Guide™ project are contained in folders inside the extracted repository. The name of these folders begins with the phrase 'Code-Task' and is followed by a string of characters that are not very descriptive for the purpose of code tracking. In order to solve this issue, the user may simply rename each folder to the same name of the original scripts using the Git 'mv' command, as shown in Figure 7.

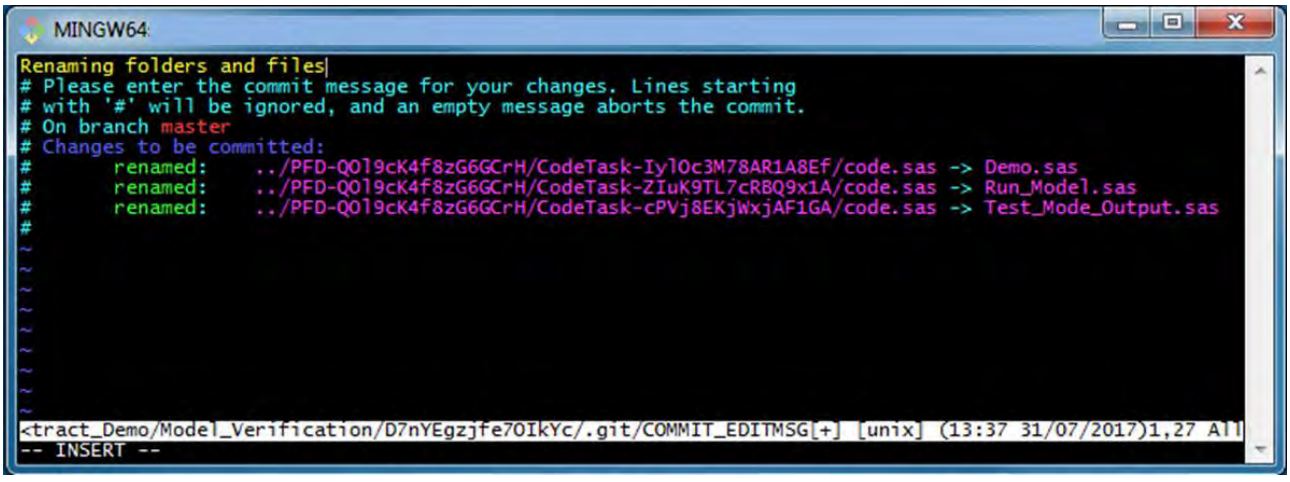


Figure 7. Use the Git 'mv' command in order to rename the previously identified 'Code-Task' folders to the names of the corresponding scripts from the original Enterprise Guide project

When this renaming is accomplished using the Git 'mv' command, it becomes part of the existing history and provides a checkpoint for the user to mark when the repository was extracted from SAS® Enterprise Guide™.

Congratulations! You have successfully extracted the embedded Git repository from your Enterprise Guide project. Now, you are free to take full advantage of all of the capabilities provided by the Git version control system, or convert the repository to any other version control system of your choice for further use.

CONCLUSION

In this paper, we demonstrated a workaround to extract an embedded Git repository from a SAS® Enterprise Guide™ project. This workaround involves converting the Enterprise Guide project to a compressed folder, and identifying the relevant Git folders for the purpose of accessing the existing history.

ACKNOWLEDGMENTS

The author gratefully acknowledges the encouragement and support provided by Anita Measey and Edmund Lee throughout the process of preparing this submission. Furthermore, financial support provided by BMO Financial Group is appreciated.

RECOMMENDED READING

For further information on using the Git version control system for the purpose of tracking code changes, please visit the following webpage:

- https://git-scm.com/

CONTACT INFORMATION

Your comments and questions on the workaround presented in this paper are valued and encouraged. Please feel free to contact the author at Shahriar.Khosravi@BMO.com or Shahriar.Khosravi@gmail.com.