

Using the source code control system GitHub to manage your SAS code

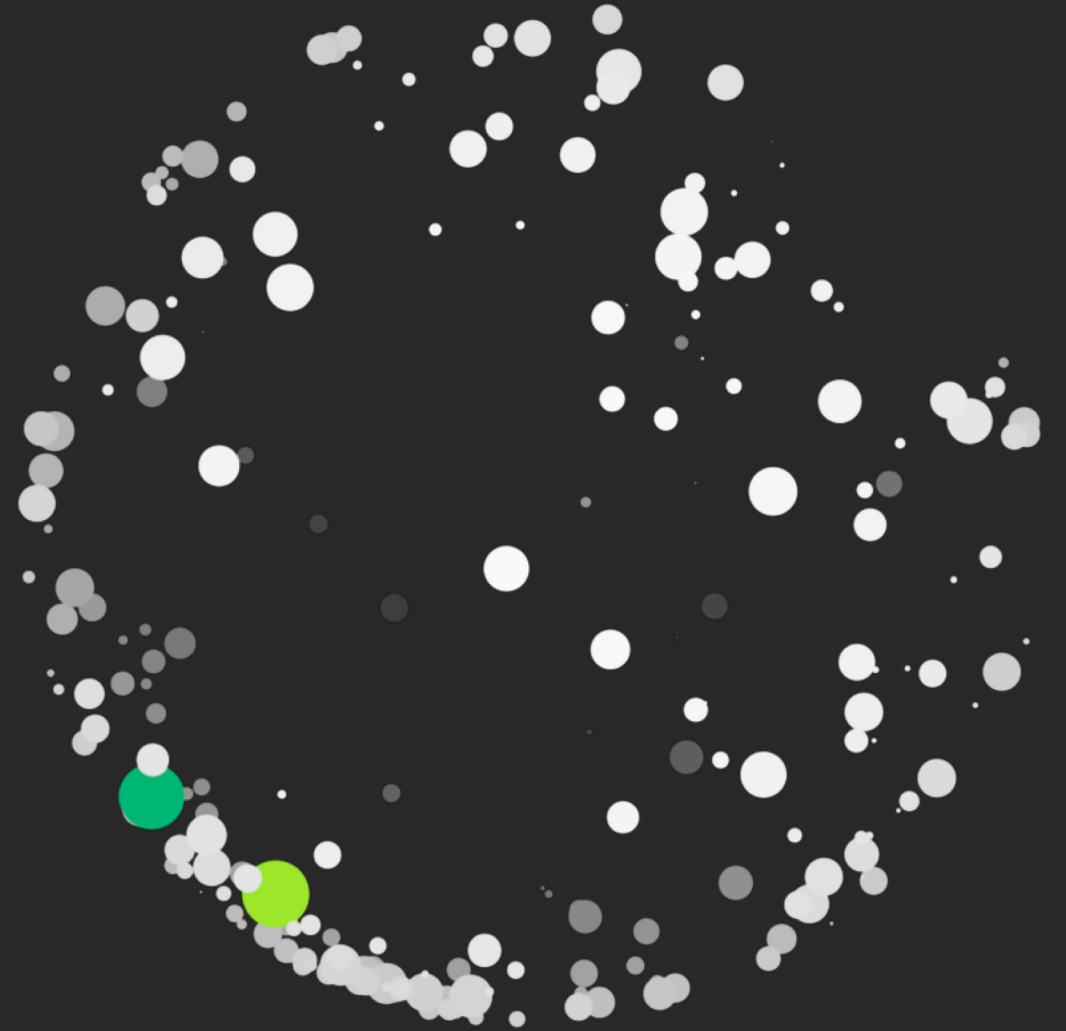
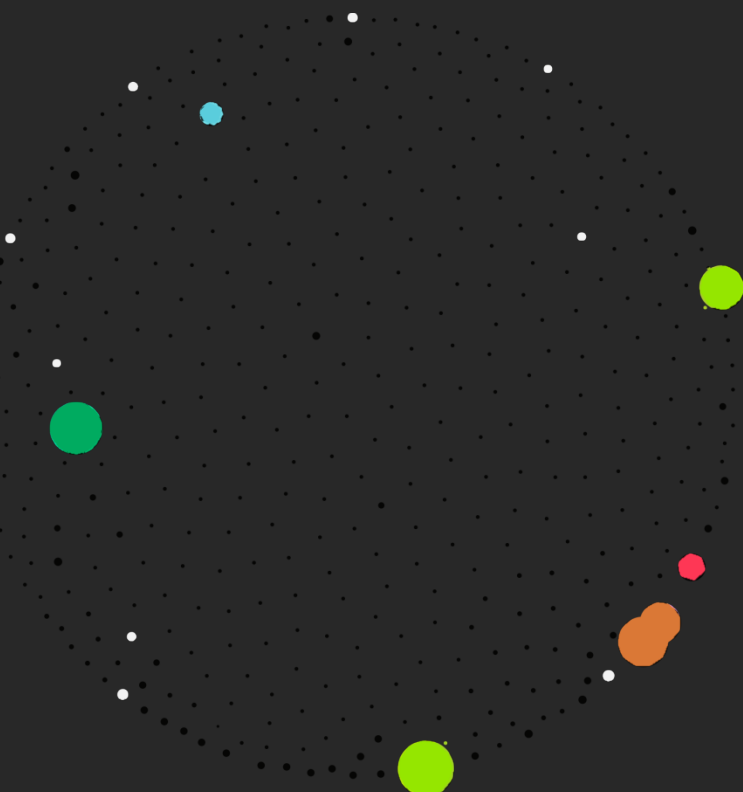


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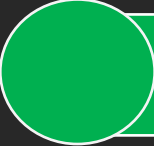
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WHAT IS GITHUB



Git is an open source version control system



It stores programs, program revisions and modifications in a central repository



Git is a command line tool, but there are also programs available with a graphical user interface



GitHub is a online service, developer can store their projects there and network with like-minded people



It is possible to create public and private repositories

TERMINOLOGY AND PROCESS

Repository

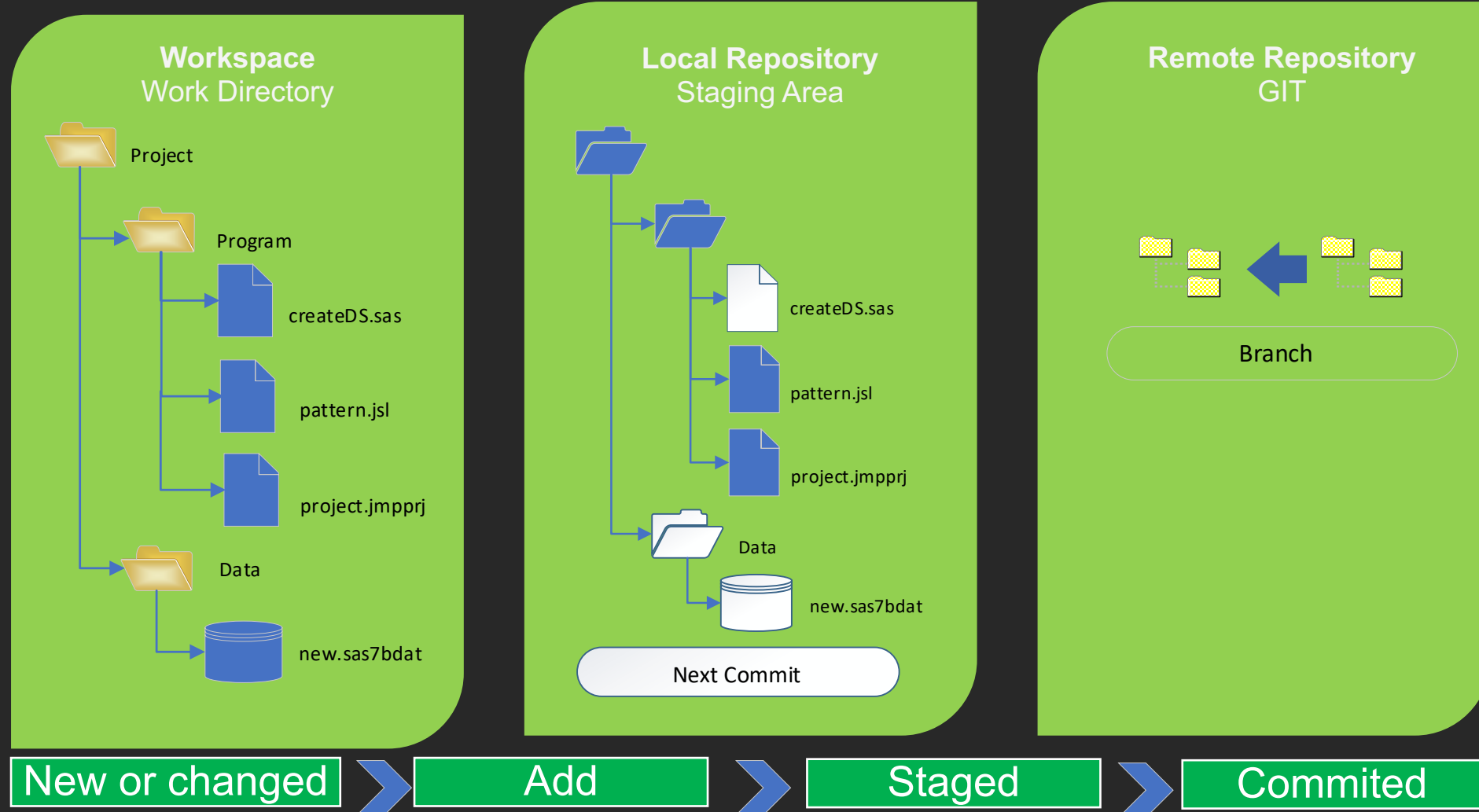
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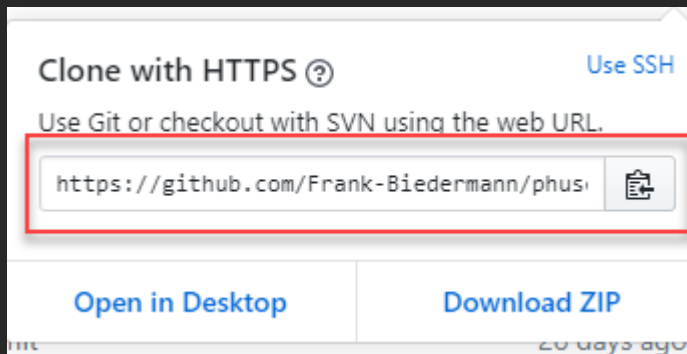


COPY AN EXISTING REPOSITORY AND COMMIT FILES

The function GITFN_CLONE clones a remote GitHub repository to a local computer or server folder.

Example 1: Using HTTPS

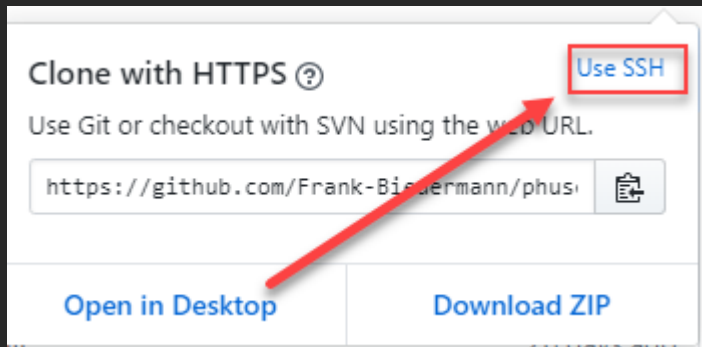
```
data _null_;  
  RC=GITFN_CLONE("https://github.com/Frank-Biedermann/phuse2019.git",  
    "C:\tmp\git_phuse2019");  
run;
```



COPY AN EXISTING REPOSITORY AND COMMIT FILES

Example 2:

```
data _null_;  
  RC=GITFN_CLONE("git@github.com:Frank-Biedermann/phuse2019.git",  
    "C:\tmp\git_phuse2019",  
    "git",  
    "password for the SSH key",  
    "ssh public key",  
    "ssh private key");  
run;
```



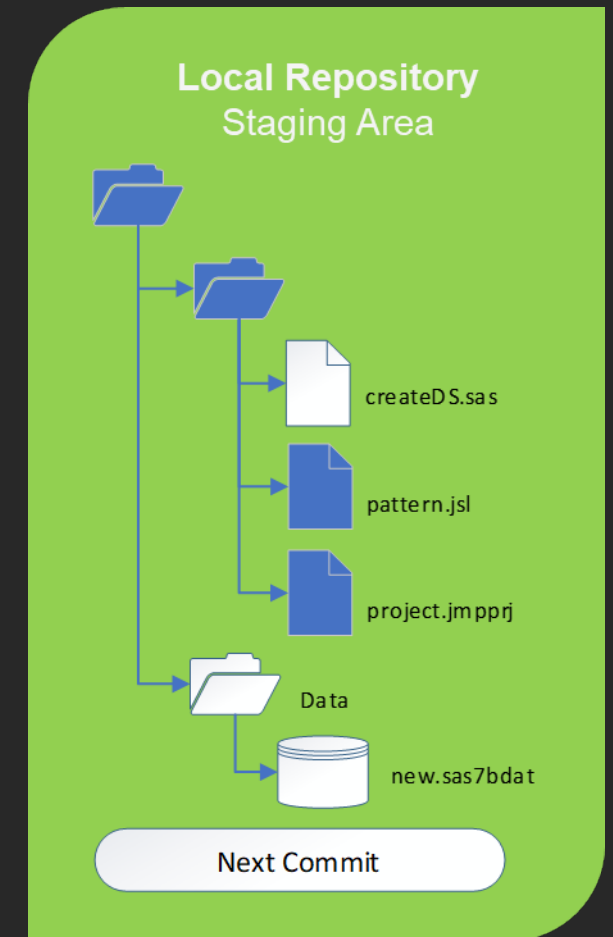
COPY AN EXISTING REPOSITORY AND COMMIT FILES

The function GITFN_IDX_ADD prepares (stages) one or more files for committing

```
data _null_;  
  RC=GITFN_IDX_ADD("C:\tmp\git_phuse2019",  
    "createDS.sas", "new.sas7bdat", "new",  
    "pattern.jsl", "project.jmpprj", "modified"  
  );  
run;
```

The function GITFN_COMMIT commits the previously staged files to the local repository

```
data _null_;  
  RC=GITFN_COMMIT("C:\tmp\git_phuse2019",  
    "HEAD",  
    "Frank Biedermann",  
    "frank.biedermann@example.com",  
    "first commit");  
run;
```



PUSH UND PULL

The function GITFN_PUSH sends all committed files from a local repository to a remote GitHub repository.

Example 1: User/Password Authentication

```
data _null_;  
RC=GITFN_PUSH("C:\tmp\git_phuse2019",  
"Frank.Biedermann@example.com",  
"GitHub password");  
run;
```

Example 2: Using Secure Shell (SSH)

```
data _null_;  
RC=GITFN_PUSH("C:\tmp\git_phuse2019",  
"SSH user",  
"password for the SSH key",  
"SSH public key",  
"SSH private key");  
);  
run;
```

Remote Repository
GIT



Branch

PUSH UND PULL

The function GITFN_PULL pulls changes from the remote repository into the local repository.

Example 1: Public repositories

```
data _null_;  
  RC=GITFN_PULL("C:\tmp\git_phuse2019");  
run;
```

Example 2: User/Password Authentication

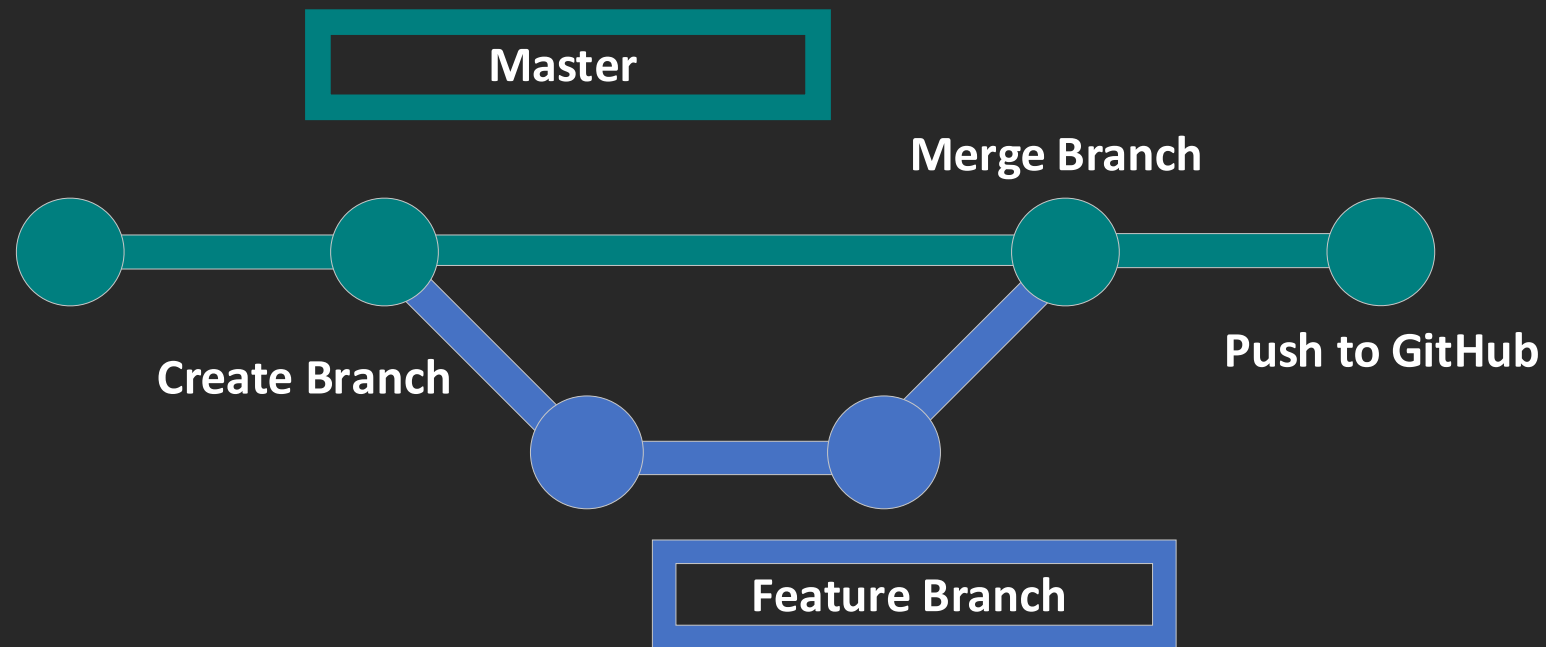
```
data _null_;  
  RC=GITFN_PULL("C:\tmp\git_phuse2019",  
    "Frank.Biedermann@example.com",  
    "GitHub password");  
run;
```

Example 3: Public repositories

```
data _null_;  
  RC=GITFN_PULL("C:\tmp\git_phuse2019",  
    "SSH user",  
    "password for the SSH key",  
    "SSH public key",  
    "SSH private key");  
  );  
run;
```

BRANCHES

In simple words, a branch in Git is an individual project within a Git repository. Several branches can contain the same folders and files expect of some code line changes. Or these can contain completely different files and folders.



BRANCHES

The function GITFN_NEW_BRANCH creates a new branch in the local repository.

```
data _null_;  
  rc=GITFN_NEW_BRANCH("C:\tmp\git_phuse2019-1",  
    "1d5b505f0381f90f664e6ffda9fd28e34e43fcff",  
    "phuse2019-1", 1);  
run;
```

GITFN_COMMIT_GET returns the following attribute from a commit object in the local repository: **COMMIT ID**, AUTHOR, EMAIL, MESSAGE, PARENT_IDS, TIME

```
data _null_; length commit_id $200;  
  rc=GITFN_COMMIT_GET(1,"C:\tmp\git_phuse2019", "id", commit_id);  
  put commit_id=;  
run;
```

```
SAS log:  
commit_id=1d5b505f0381f90f664e6ffda9fd28e34e43fcff
```

BRANCHES

The function GITFN_CO_BRANCH checks a branch out to the local repository. You can use the function also to switch between branches.

```
data _null_;  
  RC=GITFN_CO_BRANCH("C:\tmp\git_phuse2019", "phuse2019-1");  
run;
```

GITFN_MRG_BRANCH merges a GitHub branch with a checked-out branch. The merge result is stored in the local repository.

```
data _null_;  
  rc=GITFN_MRG_BRANCH(  
    "C:\tmp\git_phuse2019",  
    "master",  
    "Frank Biedermann",  
    "Frank.Biedermann@example.com");  
run;
```

BRANCHES

The function GITFN_DEL_BRANCH deletes a branch in the local repository.

```
data _null_;  
rc=GITFN_DEL_BRANCH(  
    "C:\tmp\git_phuse2019",  
    "phuse2019-1");  
run;
```

MORE FUNCTIONS

Status of repository files

Description	Function name
Get status objects	GITFN_STATUS
Return attributes from status objects	GITFN_STATUS_GET
Clear status objects	GITFN_STATUSFREE

Get number of committed objects

Description	Function name
Get commit log	GITFN_COMMIT_LOG
Get commit objects	GITFN_COMMIT_GET
Clear commit objects	GITFN_COMMITFREE

MORE FUNCTIONS

Compare two commits

Description	Function name
Return the number of changes	GITFN_DIFF
Return attributes from a diff object	GITFN_DIFF_GET
Clear diff record	GITFN_DIFF_FREE

