

Git Installation Procedure

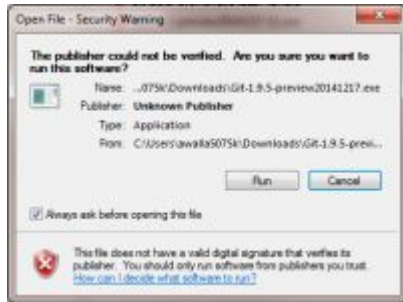

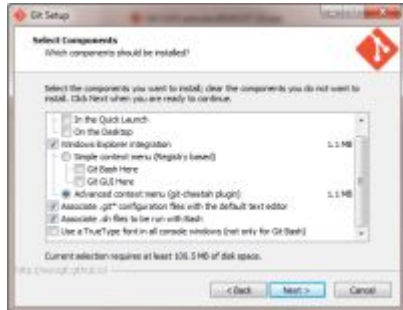
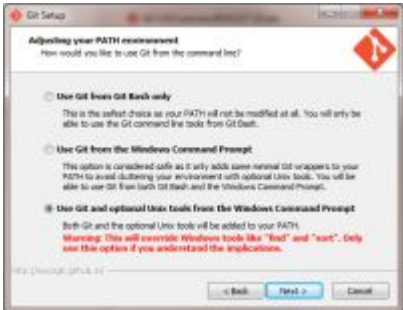

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Prerequisites

- Comcast workstation/laptop with Windows 7
 - A unix or linux server or VM established as a client to the [EM&M Git System](#)
- Comcast NTLogon with admin access on workstation
- Each analyst needs to install Git. See the Installing Git section of this document.

Installing Git

1. Click on the **DOWNLOADS** link at [Git for Windows](#). This will download a file like `Git-1.9.5-preview20141217.exe` to your downloads directory.
 - a. During the install you will encounter the following windows. Use settings/options with the selections indicated in the following windows (s/be defaults): (Click on the windows to enlarge)

Order	1	2	3
a		"yes" - "Allow..changes.." window	
b			



NOTES:

1. This Git installation is recommended by the [Git SCM site](#) for [Windows Installations](#). Since the EM&M Analyst primary workstation is Windows 7, this is the preferred approach using openSSH. Another option is [An Illustrated Guide to Git on Windows](#). Both provide the same tools. The main difference is the second option uses putty instead of openSSH. In the Putty case, the contents of environment variable **SSH_GIT** is set to use plink.exe. This will not work for the openSSH option.
2. For none windows systems, follow the Git installation instructions for the appropriate operating system. The remainder of this document can be used for any unix or linux environment.

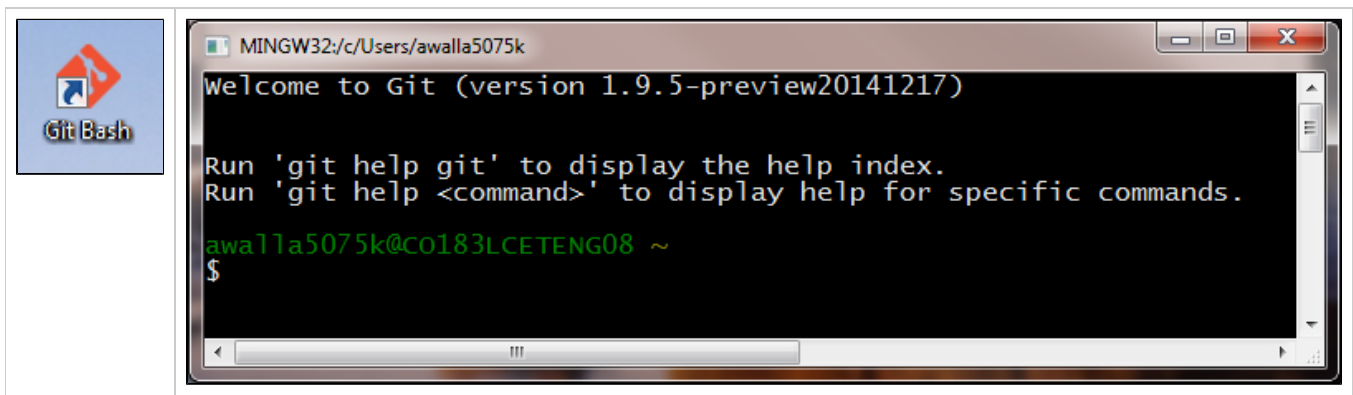
Upgrade Git

Follow the same steps for Installing Git in the previous section. Note the expected version release change after you are done.

Initial Git Configurations

After you have installed Git successfully, you have full Git functionality on your workstation.

Be sure to use the Git Bash session you just installed for the following sections.



In order to interface with the EM&M Git System, the following needs to be performed:

- Identify or Set \$HOME variable on your (Windows 7) Workstation.
- Build and Configure SSH key Usage.
- Identify yourself in Git:
 - Name
 - email
 - Setup your default editor
 - Setup the diff tool you will use
- Add SSH Aliases.
- Verify Git remote "origin".

The above bullets are covered in following sections with Links to each maintained in the "Table of Contents".

For more details on initial setup, refer to [First-Time Git setup](#).

Identify the \$HOME variable on Your Workstation

1. Click on Start (Lower Right Windows Bubble)
2. Right Click on **Computer** and select **Properties**
3. Select **Advanced system settings**

- Click on the **Environment Variables...** button on the "Advanced" tab of the System Properties window
- Verify there is a **HOME** variable in the **System variables** list. This variable is referenced by SSH when supporting remote functionality with the [EM&M Git System](#).
 - Should be set to C:\Users\[your NTLogon].
 - Create (New button) or adjust (edit button) the **HOME** system variable accordingly.

Build and Configure SSH key Usage

The EM&M Git Repository System encompasses two servers, a [primary](#) server and a [fail-over](#) server. This is where EM&M deployments are managed from. In order to gain access to these servers, you'll need to email your public SSH key to the EM&M Configuration Management (CM) team, (Currently this is Andrew Wallace, Robert Sell, and Bruce Woodcock). You can reference [Generating Your SSH Public Key](#) for more details on the following instructions.

Execute the following in your new Git Bash window.
`$ cd ~/.ssh (c:\Users\awalla5075k\.ssh)`

- If you do not have a `~/.ssh` directory, create it:
 - `$ mkdir c:\Users\awalla5075k\.ssh` (Substitute your ntlogon for awalla5075k)
 - Set the `~/.ssh` permissions to 740 (**`$ chmod -R 740 ~/.ssh`**)
 - Set the file permissions in `~/.ssh` to 740 (**Just verify, should be done from previous step.**)
- Note the `~/` utilizes the workstation system **HOME** variable for your NTLogon.
 Generate key pair using your NTLogon
`$ ssh-keygen -t rsa -f [Your NTLogon]` (all lower-case, no mixed case.)
- NOTE:** It is recommended you enter nothing for the pass phrase.

The following two files will be generated:

- [Your NTLogon] - Your **private** key file
 - [Your NTLogon].pub - Your **public** key file
- NOTE: Never send your private key in an email.**

Email your **public** key file to the CM Team (Robert Sell, Andrew Wallace, Bruce Woodcock, Abhilash Nair). Reference the [Access Management](#) section of the [Version Management Implimentation](#) document. Select one of the access mentioned indicating this in the email. CC your manager on this email.

(You can use Windows Explorer local to your `~/.ssh` to attach your public key to the email.)

You will not be able to interact with the EM&M managed remote repos until your ssh key has been setup by the CM team. In the meantime, you can continue with the next section [Identify Yourself in Git](#). You can also create and experiment with Git repos using the `"git init"` command.

Once the EM&M CM team has replied back to you about successfully setting up your ssh public key on the [EM&M Git System](#), you are ready to move to the [Add SSH Alias](#) section below.

For more information about EM&M SSH key pairs, refer to the [EM&M SSH Key Usage Policy](#).

Identify Yourself in Git (You can do this in a new `~/git-repos` directory)

- Enter your first and last name:
`$ git config --global user.name "Andy Wallace"`
- Enter your Comcast email address:
`$ git config --global user.email Andrew_Wallace@cable.comcast.com`
- Setup your editor:
`$ git config --global core.editor vim`
- Setup you diff tool:
`$ git config --global merge.tool vimdiff`

You can run the following command to see all of you Git settings:

	<code>\$ git config --list</code>
	<code>core.symlinks=false</code>
	<code>core.autocrlf=true</code>
	<code>color.diff=auto</code>
	<code>color.status=auto</code>
	<code>color.branch=auto</code>
	<code>color.interactive=true</code>
	<code>pack.packsizelimit=2g</code>

	help.format=html
	http.sslcainfo=/bin/curl-ca-bundle.crt
	sendemail.smtpserver=/bin/msmtp.exe
	diff.astextplain.textconv=astextplain
	rebase.autosquash=true
	user.name=Andy Wallace
	user.email=Andrew_Wallace@cable.comcast.com
	core.editor=vim
	merge.tool=gvimdiff
	gui.recentrepo=C:/Users/awalla5075k/1st_Project
	gui.recentrepo=C:/Users/awalla5075k/git-test/CFX_BR_CEMP_CMTTools

	awalla5075k@CO183LCETENG08 ~
	\$

- Be sure your git workarea(s) on your windows workstation are on the C Drive.
 - awalla5075k@CO183LCETENG08 /h
 - \$ pwd
 - /h
 -
 - awalla5075k@CO183LCETENG08 /h
 - \$ cd ~/ (or cd \$HOME)
 -
 - awalla5075k@CO183LCETENG08 ~
 - \$ pwd
 - /c/Users/awalla5075k
 -
 - awalla5075k@CO183LCETENG08 ~
 - \$

Add SSH Aliases

To reduce typing and minimize ssh key issues, the following is done to provide ssh aliases for the EMM Git System servers. Add a config file under the ~/.ssh on your workstation for your NTLogon as follows.

Edit (or create) ~/.ssh/config and add the following lines adjusted for [your NTLogon](#):

```
$ vim ~/.ssh/config
```

```
#####
#####
### EMM Git System SSH Client Config file          ###
###                                               ###
### This code block required for EEM Git System Access.  ###
###                                               ###
### Reference link "EM&M Git Users Guide" in one of the  ###
### following URLs for details.                    ###
###   http://emm-git1.sys.comcast.net   (primary server)  ###
###   http://emm-git2.sys.comcast.net   (fail-over server) ###
###                                               ###
### Place this code block in file ~/.ssh/config on your  ###
### workstation. If ~/.ssh/config already exists, add   ###
### this code block to file ~/.ssh/config.             ###
###                                               ###
### DISCLAIMER:                                       ###
###   This code block not designed to work with wildcard ###
###   definition for Host (Host *) in the ~/.ssh/config ###
###   file.                                           ###
###                                               ###
#####
Host emm-git primary
    User git
    Hostname emm-git1.sys.comcast.net
    Port 22
    IdentityFile ~/.ssh/[Your NTLogon]

Host emm-gitA fail-over
    User git
    Hostname emm-git2.sys.comcast.net
    Port 22
    IdentityFile ~/.ssh/[Your NTLogon]
#####
#####
```

:wq

This file allows you to enter commands like this:

```
$ git clone emm-git:CFX-EMM-GITSystem
```

Rather than this:

```
$ git clone ssh://git@emm-git1.sys.comcast.net/CFX-EMM-GITSystem
```

You should now have the following in your ~/.ssh directory:

```
awalla5075k@CO183LCETENG08 ~/.ssh
$ ls -la
total 20
drwxr-xr-x 15 awalla50 Administ 4096 Dec 2 10:14 .
drwxr-xr-x 1 awalla50 Administ 12288 Feb 17 12:12 ..
-rw-r-- 1 awalla50 Administ 1679 Dec 2 10:12 awalla5075k
-rw-r-- 1 awalla50 Administ 408 Dec 2 10:12 awalla5075k.pub
-rw-r-- 1 awalla50 Administ 1749 Jul 17 2014 config
```

```
awalla5075k@CO183LCETENG08 ~/.ssh
$
```

Validation

For a full set of supported options now available to you, refer to the [EM&M Git Users Guide](#).

Enter the following command in your git bash window to confirm your ssh key is functioning correctly. The output identifies the repos you can work with on the [EM&M Git System](#):

```
$ ssh git@emm-git info
```

NOTES:

1. Be sure to read all comments whenever you enter git or ssh commands that interface with the EMM Git System. They usually contain some indication of what you need to enter next.
2. The first time you use your ssh key to make a connection to the EMM Git System, you will get some verbiage and a prompt asking to establish this connection. You need to enter "yes" at this prompt. Following is an example of this:

```
awalla5075k@CO183LCETENG08 ~/git-repos
$ ssh git@emm-git info
The authenticity of host 'emm-git1.sys.comcast.net (172.28.98.231)' can't be established.
RSA key fingerprint is 21:2e:ff:47:0e:36:d2:b1:70:14:13:86:82:a5:da:4b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'emm-git1.sys.comcast.net,172.28.98.231' (RSA) to the list of known
hosts.
WARNING: This system is solely for the use of authorized Comcast employees and contractors.
```

3. Sometimes the git configuration on your workstation may be in need of adjustment. There is usually instructions on what you need to enter next.

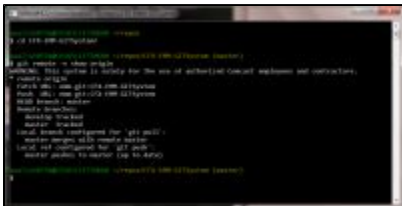
do the following on your workstation in your new Git Bash Session:



```
git@emm-git1.sys.comcast.net:~$ git remote add origin git@emm-git1.sys.comcast.net:~/git-repos
The authenticity of host 'emm-git1.sys.comcast.net (172.28.98.231)' can't be established.
RSA key fingerprint is 21:2e:ff:47:0e:36:d2:b1:70:14:13:86:82:a5:da:4b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'emm-git1.sys.comcast.net,172.28.98.231' (RSA) to the list of known
hosts.
WARNING: This system is solely for the use of authorized Comcast employees and contractors.
git@emm-git1.sys.comcast.net:~$
```

Now you have established a git repo local on your workstation from the EM&M Git System. You can verify the git remote origin in the local copy on your workstation.

The git remote "origin" should be setup for communication between your workstation repo and the associated EM&M Git System repo. Reference [git remote](#) for more details.



```
git@emm-git1.sys.comcast.net:~$ git remote -v
origin  git@emm-git1.sys.comcast.net:~/git-repos (fetch)
origin  git@emm-git1.sys.comcast.net:~/git-repos (push)
```

If you are unable to mimic the above Git bash sessions on your workstation, review the [Add SSH Aliases](#) section of this document. If you are still having issues, Contact the EM&M CM Team (Andrew Wallace, Robert Sell, or Bruce Woodcock).

EM&M Git System Introduction

Review the [EM&M Git System Introduction](#) presentation. The final slides contributed to the outline of the Session 2 - EM&M Procedures training.