**How to set up MPS Build Environment on a fresh CentOS 7 Minimal installation:**

These instructions were written while working with a Virtual Machine having 512 Mb of RAM and 30 GB of storage space. Qual RPMs are around 72Mb each and the PSI (PXE System Installer) images are around 226Mb each. If you plan to store multiple images, then keep this in mind when considering available storage space.

1. **Update your system and install stuff:**sudo yum install -y epel-release   
   sudo yum update  
   sudo yum install git  
   sudo yum install createrepo  
   sudo yum install tito
2. **Clone mps-builder repo:**cd  
   git clone <https://github.com/mapcollab/mps-builder.git>
3. **Install docker (**[**https://docs.docker.com/v1.8/installation/centos/#install-without-the-script**](https://docs.docker.com/v1.8/installation/centos/#install-without-the-script)**):**sudo vi /etc/yum.repos.d/docker.repo  
    [dockerrepo]  
    name=Docker Repository baseurl=<https://yum.dockerproject.org/repo/main/centos/7> enabled=1  
    gpgcheck=1  
    gpgkey=<https://yum.dockerproject.org/gpg>  
   sudo yum install docker-engine  
   sudo service docker start  
   sudo chkconfig docker on
4. **Verify Docker install and use group to remove sudo (group may already exist):**sudo docker run hello-world  
   sudo groupadd docker  
   sudo usermod -aG docker your\_username  
   reboot  
   docker run hello-world
5. **Create Docker image from top directory of MPS Build Environment (a large number of warnings may occur; from my experience, this is normal and doesn't hinder the end result):**cd mps-builder  
   docker build -t mps/mpsbuilder:centos7 dockerfile/
6. **Enter the docker to build kernel, packages, and initial PSI image, then exit (this will take forever and requires Github credentials):**echo "cd /mnt/workspace && ./build.sh all" > build.script  
   docker run -i --net="host" --rm=true -u root --privileged=true \  
    -v `pwd`:/mnt/workspace \   
    -v /dev:/dev \   
    -t mps/mpsbuilder:centos7  
   git config --global credential.helper 'cache --timeout=7200'  
   /bin/bash /mnt/workspace/build.script  
   exit

**How to build current QUAL RPM and PSI image for PXE booting:**

1. **Clone current QUAL repository:**cdgit clone <https://repo-tav.tklabs.com:8102/scm/qual/qual.git>cd qual
2. **Checkout dev/QUAL branch (once everything has been moved to master branch, this step is unnecessary):**git checkout dev/QUAL
3. **Navigate to directory with QUAL spec file and initialize tito tool:**cd srctito init
4. **Build qual RPM with tito tool (repeat this step inside the qual/src/simulator directory to build qual-vm RPM for development use):**tito tag --keep-versionsudo tito build --rpm --offline
5. **Copy RPM file to MPS Build Environment repository (repeat with qual-vm-1.0.1.x86\_64.rpm for development use; note that version numbers may change):**sudo cp /tmp/tito/x86\_64/qual-1.0.1.x86\_64.rpm ~/mps-builder/repo/packages/x86\_64/
6. **Update MPS Build Environment repository and replace package list with QUAL package list:**sudo createrepo --update ~/mps-builder/repo/packages  
   sudo cp ~/qual/src/pkgs-psi.inc.ks ~/mps-builder/config/
7. **Add qual-vm to the bottom of package list (this is for development build ONLY):**sudo vi ~/mps-builder/config/pkgs-psi.inc.ks  
    qual-vm
8. **Navigate to mps-builder directory and prepare to build PSI image:**cd ~/mps-builder/echo "cd /mnt/workspace && ./build.sh psi" > build.script
9. **Build PSI image that will be located in the ~/mps-builder/bin/ directory:**docker run --net="host" --rm=true -u root --privileged=true \  
    -v `pwd`:/mnt/workspace \   
    -v /dev:/dev \   
    -t mps/mpsbuilder:centos7 \  
    /bin/bash "/mnt/workspace/build.script"