

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 titov
```

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>):

```
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:**

```
cd
git 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 src
tito 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-version
sudo 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"
```