



A Practical Introduction to Docker: at Red Hat

Scott McCarty
Senior Solutions Architect, RHCA
03/21/2014





Agenda

- **What is Docker**
- **Why Docker Matters**
- **How Docker Works**
- **How to Use Docker**
- **Q&A**
- **Conclusion**



What is Docker

What is Docker

- User Space Tools
- Linux Containers
- Branch and Commit File System





Why Docker Matters

Easier Testing



A terminal window titled "Terminal" with a menu bar containing "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal prompt is "[root@keith ~]#". The command entered is "docker run -i -t -rm rhel7b-base man systemd". The cursor is positioned at the end of the command. The terminal has a scroll bar on the right side.

```
[root@keith ~]# docker run -i -t -rm rhel7b-base man systemd
```



Easier Testing

```
Terminal
File Edit View Search Terminal Help
SYSTEMD(1)                systemd                SYSTEMD(1)

NAME
    systemd, init - systemd system and service manager

SYNOPSIS
    systemd [OPTIONS...]

    init [OPTIONS...] {COMMAND}

DESCRIPTION
    systemd is a system and service manager for Linux
    operating systems. When run as first process on boot
    (as PID 1), it acts as init system that brings up
    and maintains userspace services.

    For compatibility with SysV, if systemd is called as
    nual page systemd(1) line 1 (press h for help or q to quit)
```



Easier Testing

- See the man page from RHEL7
- Verify the command line options of a program
- Test the functionality of a specific version of software
- Scratch pad that is NOT my system
- Need a single daemon running
 - and I don't care what distribution of Linux it runs





How Docker Works (On RHEL)

How Docker Works

- Process isolation
 - Cgroups
 - LXC instead of KVM
- Layered file system
 - Device Mapper: Alexander Larson (Red Hatter)
 - Base image
 - Commits
- Network
 - Bridge: docker0
 - Network Address Translation



How Docker Works

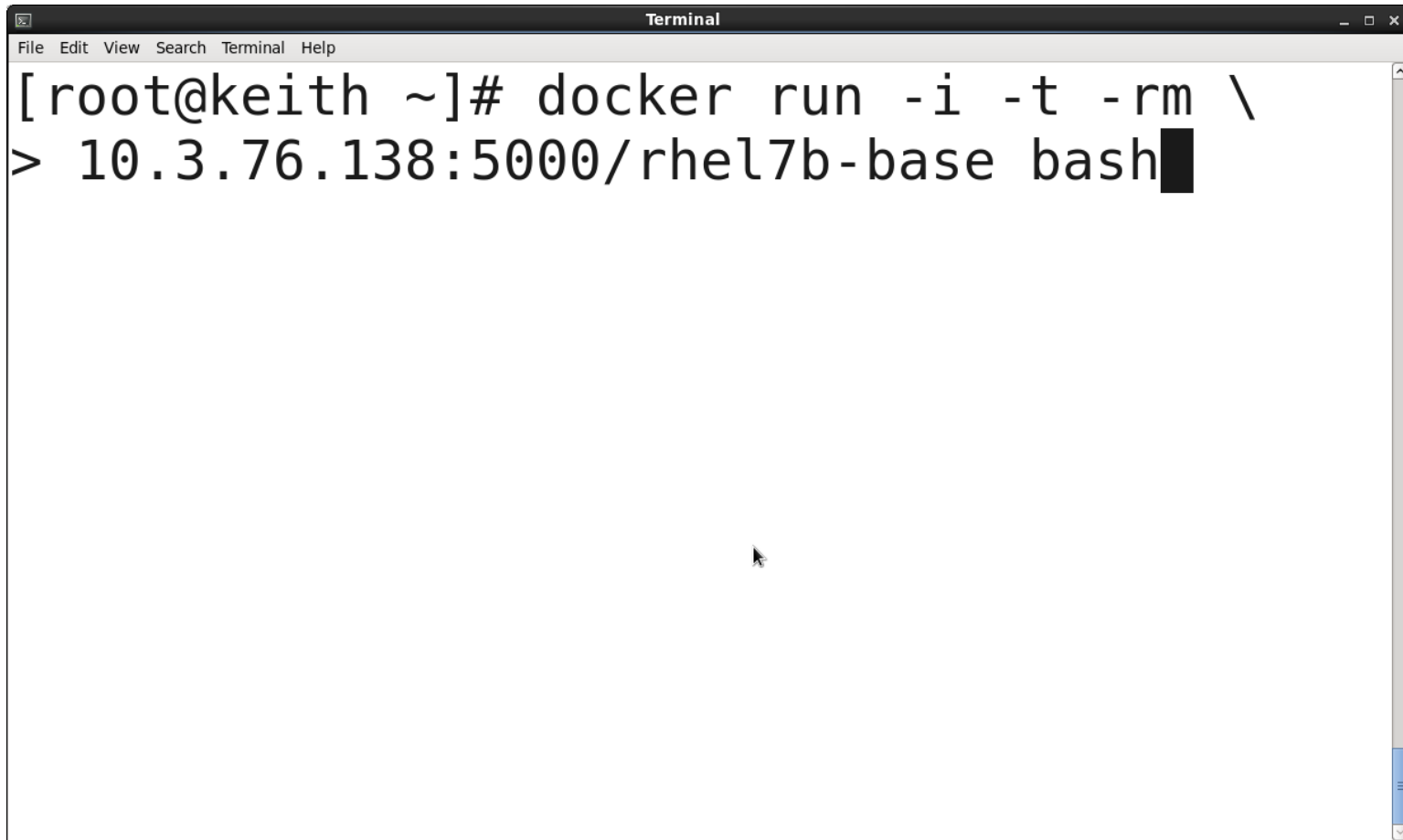
- Blueprints
 - Dockerfile blueprints can blue print changes between base image and layers
 - Can be used to create easy to manage core builds
 - Excellent base for application of Puppet modules
- Registry of usable images
 - Ecosystem forming
 - Docker Inc. (*formerly dotCloud*): hosted public registry
 - Quay.io: Private registries for end users
 - Red Hat is embracing in RHEL7, but works in RHEL6





How to Use Docker (on RHEL)

How to Use Docker

A terminal window titled "Terminal" with a menu bar containing "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal content shows a root user at a machine named "keith" in the home directory (~) typing a Docker command. The command is split across two lines: the first line is "[root@keith ~]# docker run -i -t -rm \" and the second line is "> 10.3.76.138:5000/rhel7b-base bash". A black cursor is positioned at the end of the second line.

```
[root@keith ~]# docker run -i -t -rm \  
> 10.3.76.138:5000/rhel7b-base bash
```



How to Use Docker

- Install user space tools from EPEL
- Pulls image from registry server set up in SA Lab
- Get started in 5 minutes



Caveats

- Device Mapper driver is new
- There are bugs
 - Containers & Images can't be deleted
 - New container has no network connectivity
- Complicated software such as Satellite 6 can be a challenge





Question and Answers

Conclusion & Call to Action

- Docker will make your life easier as a:
 - Solutions Architect
 - Consultant
 - Technical Account Manager
 - Anyone who tests Red Hat Software
- Infrastructure is already set up in the SA lab to make this easier.
- Dig in to the Docker Mojo page, it will take you 10 minutes to get value back





More Information

Introduce Red Hat solutions and services

- Mojo Group
 - <https://mojo.redhat.com/groups/docker-infrastructure>
- Detailed Instructions
 - <https://mojo.redhat.com/docs/DOC-945600>

