

Enterprise Health Management Platform Integration and Transition Support (eHMP ITS)

OSEHRA OS X Installation Guide



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1. Introduction

The purpose of this guide is to demonstrate how to install a full eHMP stack on Mac OS X El Capitan.

Note: The components required to install eHMP are version specific and many are installed globally in the /usr/local directory. If you are concerned the eHMP installation process will impact your development toolchain for other projects it is recommended that you create a new user environment specifically for installing eHMP. To do this follow the instructions for creating a user with administrative rights at https://support.apple.com/kb/PH21994?locale=en_US

2. Prerequisites

To install the complete eHMP development environment, you will need a Mac OS X running El Capitan (10.11), at least 100GB of free hard drive space, and 16 GB of RAM. You must also have an Apple ID. To sign up for an Apple ID, follow the instructions at <https://appleid.apple.com/account>

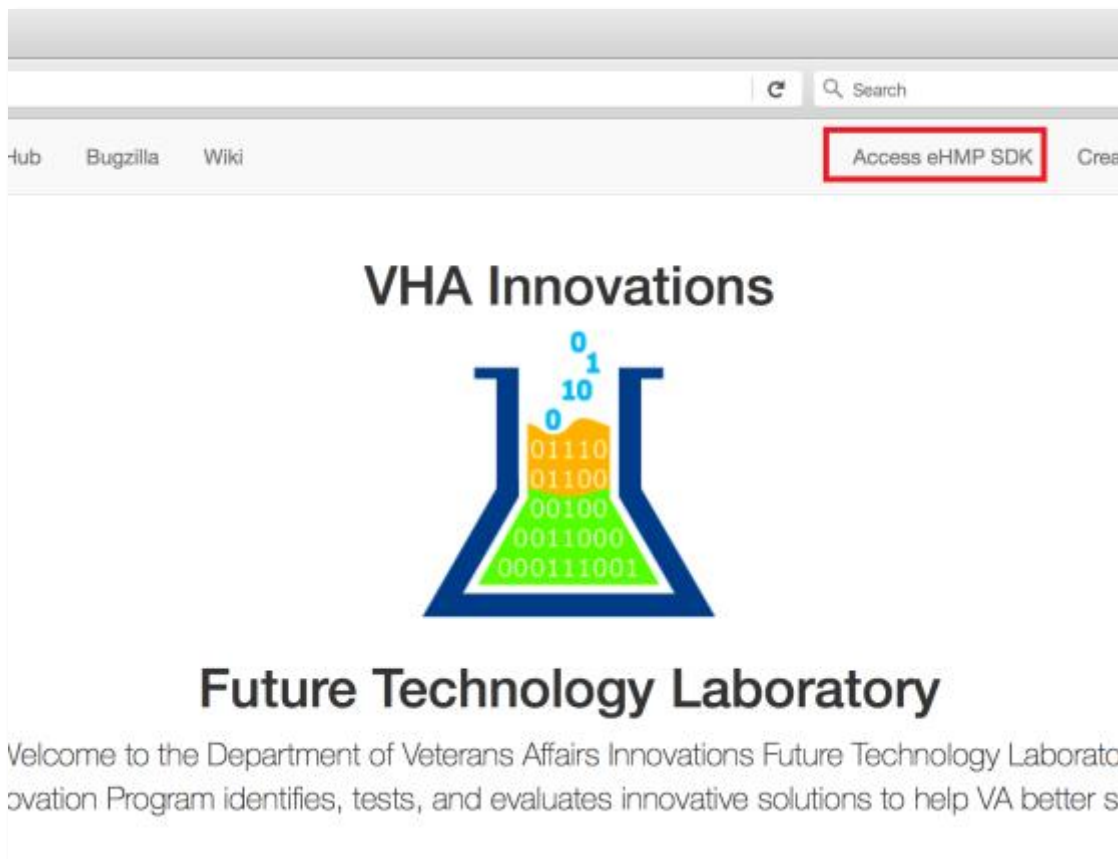


Figure 1: Access eHMP SDK Link

2.1. Disable Auto Update

To disable Auto Update:

1. From the Apple menu, select “System Preferences”.



Figure 2: System Preferences Menu

2. Open the “App Store”.



Figure 3: App Store Preferences

3. Clear the “Automatically check for updates” checkbox.
4. Close System Preferences.

2.2. Disable Smart Quotes

Disabling Smart Quotes prevents OS X from automatically converting quote and dash characters to special characters. To disable Smart Quotes:

1. From the Apple menu, select "System Preferences".
2. Select "Keyboard".
3. Click the "Text" tab.

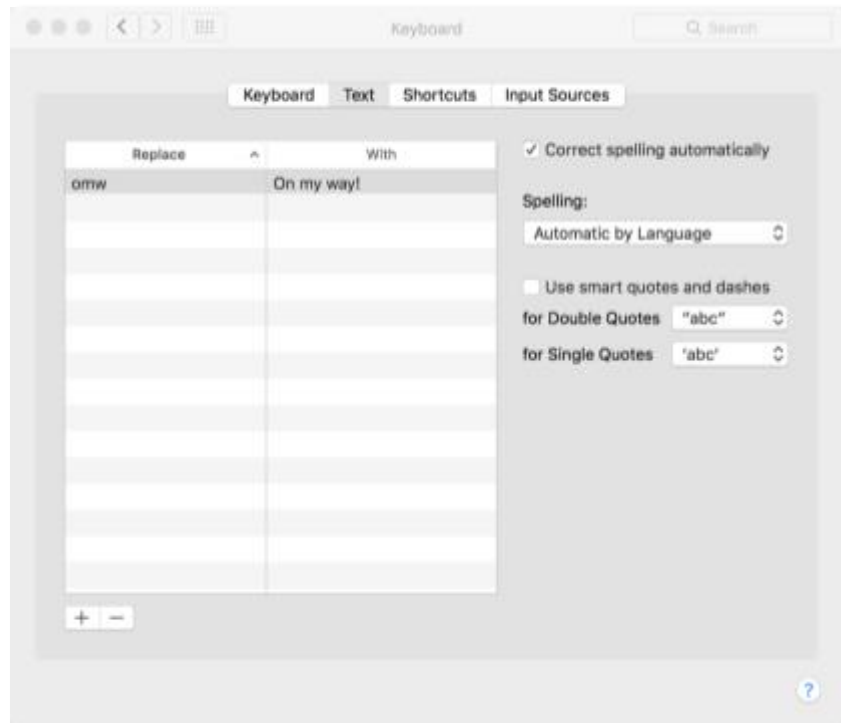


Figure 4: Keyboard Preferences

4. Clear the "Use smart quotes and dashes" checkbox.
5. Close System Preferences.

2.2.1. Install Xcode Command Line Tools (CLT)

To install the Command Line Tools:

1. Open <https://developer.apple.com/downloads/> and log in using your Apple ID.
2. Download the Command Line Tools for OS X 10.11 for Xcode 7.2 disk image from Downloads for App Developers folder.
Note: Versions later than 7.2 will work



Figure 5: Screenshot of Apple Developer Downloads

3. Double-click the disk image and follow the prompts to install the Command Line Tools.

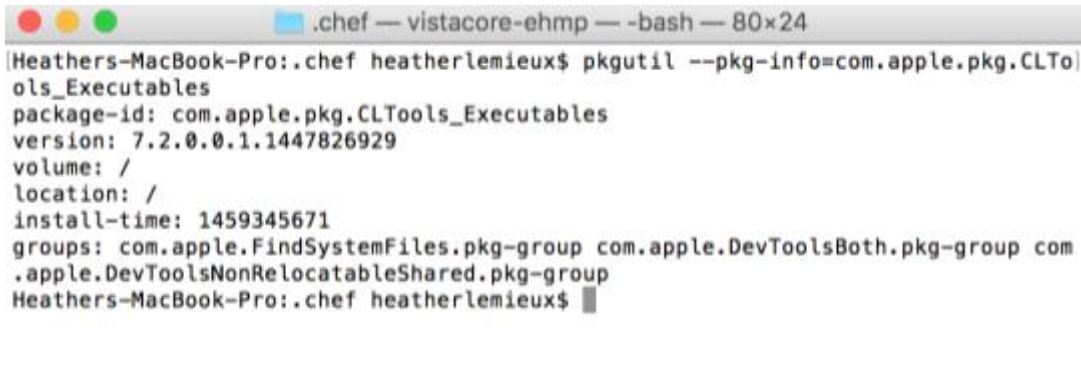


Figure 6: Disk Image for Command Line Tools

2.2.2. Verifying Installation of Command Line Tools

To test the CLT:

From Terminal, type `pkgutil --pkg-info=com.apple.pkg.CLTools_Executables`.



```
.chef — vistacore-ehmp — -bash — 80x24
Heathers-MacBook-Pro:~chef heatherlemieux$ pkgutil --pkg-info=com.apple.pkg.CLTools_Executables
package-id: com.apple.pkg.CLTools_Executables
version: 7.2.0.0.1.1447826929
volume: /
location: /
install-time: 1459345671
groups: com.apple.FindSystemFiles.pkg-group com.apple.DevToolsBoth.pkg-group com.apple.DevToolsNonRelocatableShared.pkg-group
Heathers-MacBook-Pro:~chef heatherlemieux$
```

Figure 7: Verifying that Xcode Command Line Tools has been installed

2.3. Remove contents from ~/Downloads Folder

To avoid conflicts with files downloaded and used by the installation and configuration scripts, move the contents of your ~/Downloads directory to a temporary location (~/Downloads/tmp, for example). Examples of such files include googlechrome.dmg and firefox.dmg. Once the installation and configuration are complete, the files can be returned to their original location.

2.4. Install Chef Client and Uninstall Chef-dk

2.4.1. Chef Client

Get the newest Chef Client version from a trustworthy source and install it. At the time these instructions were written, the procedure is:

1. Go to the Mac OS X page for Chef Client Download (<https://downloads.chef.io/chef-client/mac/>) and select the newest version.
2. Click the Download link for Mac OS X 10.11 to download the client.
3. Double-click the disk image and follow the prompts to install the Chef client.

2.4.2. Uninstall Chef-dk

If you already have chef-dk installed on your machine, please follow the uninstall instructions located here: <https://docs.chef.io/uninstall.htm#chef-dk-title>

2.5. Download and Run the Configure Workspace Script

The configure workspace script will ensure that the components required to build and run eHMP are installed on your machine. It will also create a ~/Projects/vistacore directory for you.

To download and run the Configure Workspace Script:

1. Download the configure workspace script to your Downloads folder from http://nexus.vaftl.us:8081/nexus/content/repositories/setup/workspace-setup/configure_workspace/0.1.0/configure_workspace-0.1.0.sh.
2. In Terminal, run the following commands:

```
cd ~/Downloads  
sudo sh configure_workspace-0.1.0.sh
```
3. The script will complete the configuration by itself and does not require user input. Note that the script will open and run two installers (Google Chrome and FireFox). This should be allowed to continue; manually installing these applications may cause conflict with the workspace configuration.

Note: While the Technical Reference Model (TRM) does not officially approve FireFox, it is used by eHMP and other web-based applications for development purposes.

Note: You may see while the configure workspace script is running that chef-dk failed to install. Sometimes this message is erroneously displayed. To verify that it was installed, you can run the following command from inside Terminal: `ls /opt/chefdk/` if the directory exists you should see its contents. If it doesn't the message "No such file or directory exists" will appear. If chef-dk did not install, remove `chefdk-0.4.0.1.dmg` from ~/Downloads and ensure that there are no disks mounted before re-running the configure workspace script.

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2.6. Move the contents of the OSEHRA Code Package

The contents of the OSEHRA code package need to be inside the `~/Projects/vistacore` directory that was created by the `configure` workspace script. Refer to Figure 8 for an example directory structure.

Note: Figure 8 shows the hidden folders created by the `configure` workspace script. These folders are only visible if you have enabled the Finder setting to view hidden folders.

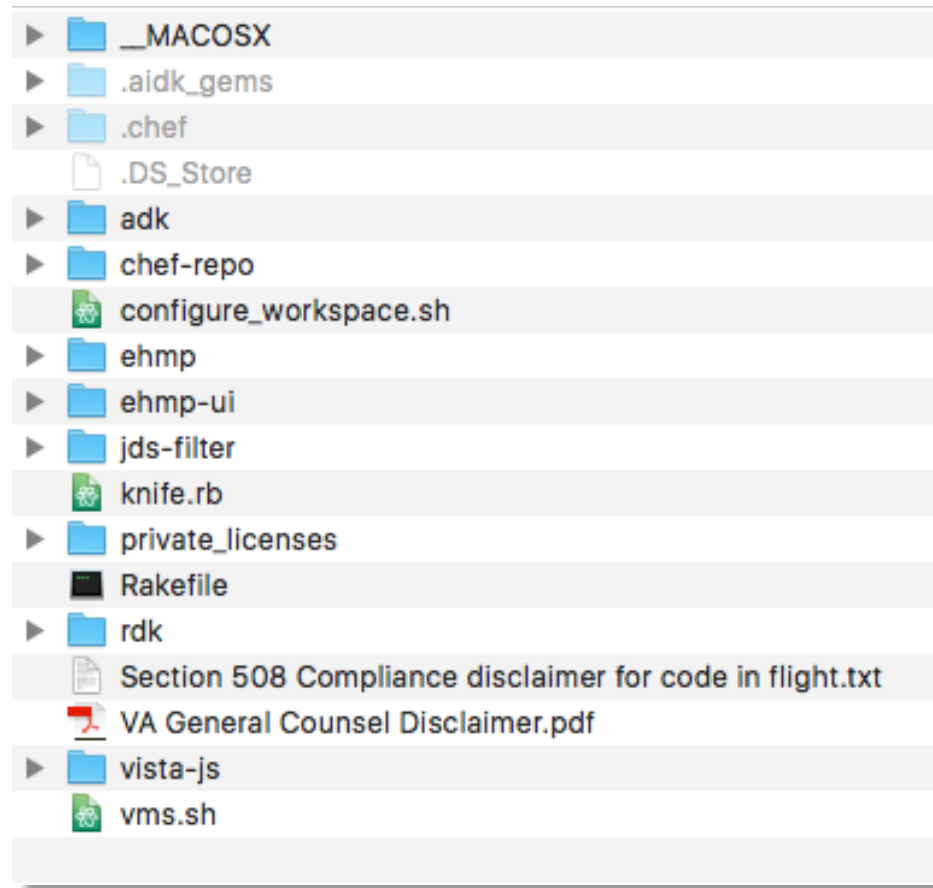


Figure 8: Example `~/Projects/vistacore` directory

2.7. Upgrade Vagrant

To install eHMP you will need to upgrade Vagrant to version 1.5.3:

1. Download vagrant 1.5.3 from https://releases.hashicorp.com/vagrant/1.5.3/vagrant_1.5.3.dmg
2. Double-click the disk image and follow the prompts to install

2.8. VirtualBox

The eHMP build scripts require VirtualBox 4.3.38. The configure workspace script will attempt to install VirtualBox 4.3.38 on your machine. However, if you had a different version of VirtualBox installed prior to running the configure workspace script you will need to manually upgrade/downgrade to VirtualBox 4.3.38. To install the required version of VirtualBox:

1. Download VirtualBox 4.3.38 from <http://download.virtualbox.org/virtualbox/4.3.38/VirtualBox-4.3.38-106717-OSX.dmg>
2. Double-click the disk image and follow the prompts to install

2.9. Replace knife.rb file

Since this installation utilizes a local chef repository you will need to replace the knife.rb file that was created by the configure workspace script. The replacement knife file is located inside the vistacore directory. The purpose of this file is to tell chef where to find the local chef repository.

From inside Terminal run the following command:

```
cp -f ~/Projects/vistacore/knife.rb ~/Projects/vistacore/.chef/
```

2.10. Download ancillary components.

These components have licensing agreements that prevent us from distributing them. Download (without renaming) the following files and place them in the specified folders. Do not unzip the files after downloading. Use Chrome or Firefox to download the files as Safari utilizes a different naming schema that will prevent the build from working, and will attempt to automatically unzip the file.

2.10.1. Backbone Session Storage

1. Download Backbone_sessionstorage.js latest revision (4) from <https://gist.github.com/davemo/3875274>.
2. Place the file in ~/Projects/vistacore/private_licenses/bower/backbone-sessionStorage

2.10.2. Highstock

1. Download Highstock-4.2.5 from: <http://www.highcharts.com/download>
2. Place the file in ~/Projects/vistacore/private_licenses/bower/

2.10.3. Java

1. Download Java jdk-8u66-linux-x64.tar.gz from: <http://www.oracle.com/technetwork/java/javase/downloads/java-archive-javase8-2177648.html#jdk-8u66-oth-JPR>
2. Place the file in ~/Projects/vistacore/private_licenses/java

2.10.4. Oracle

1. Download Oracle express edition from:
<http://www.oracle.com/technetwork/database/database-technologies/express-edition/downloads/index.html>
2. Download Oracle linux.x64_11gR2_database_1of2.zip and linux.x64_11gR2_database_2of2.zip from:
<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html>
3. Place all three files in ~/Projects/vistacore/private_licenses/oracle

2.10.5. Cache-Server

1. Download the rpm for Cache server from:
http://nexus.vaf1.us:8081/nexus/service/local/repositories/ehmp/content/yum-managed/fakepath/cache-server/2014.1.3.775.0-1.rh.x86_64.rpm/cache-server-2014.1.3.775.0-1.rh.x86_64.rpm
2. Place the rpm and the license for intersystems caché for Red Hat Enterprise Linux x86-64 in ~/Projects/vistacore/private_licenses/cache_server/
3. The cache license should be named cache.key

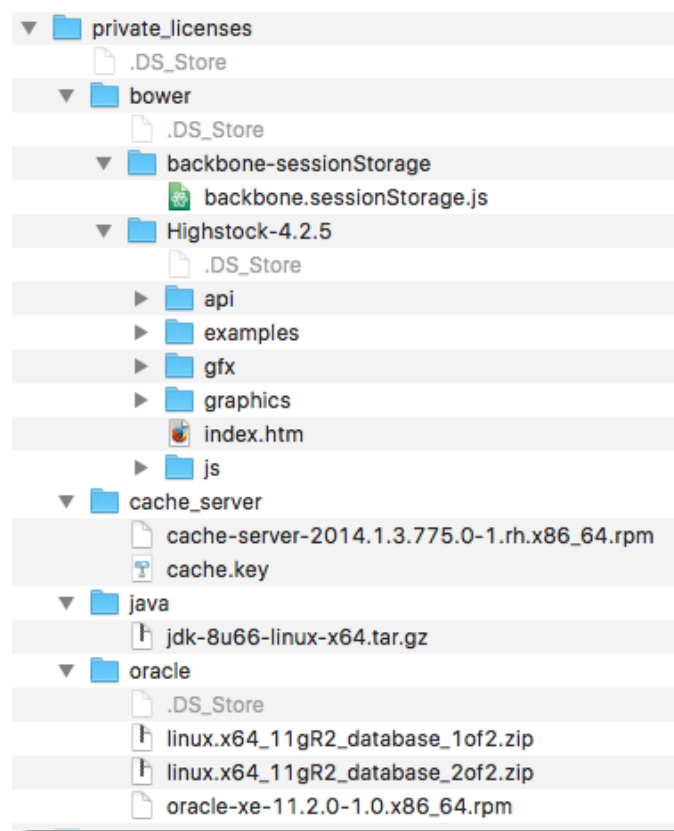


Figure 9: Example ~/Projects/vistacore/private_licenses directory

3. Deploy eHMP Virtual Machines (VMs)

Working in your Development Workspace will require you to use the command line. Depending on how you like to navigate in your development workspace, you can do all of your work in one window or you can set up profiles to navigate each repository individually. This project works in four different Git repositories, which you set up previously in these instructions: ehmp, rdk, adk, and ehmp-ui.

Within each repository, the primary area is the product folder (for items related to the product we are building). In general, when you are building, developing, and debugging the product, you will be directed to the product folder.

These instructions assume that you are working in a single terminal window.

Note: These tasks can take a long time. Internet connectivity interruptions will cause the process to fail. If a failure occurs, re-run the scripts until successful. If re-running the script does not remedy the failure, run the command with the --debug flag and attach the output to a help desk ticket by going to <https://help.vaftl.us>.

3.1. Deploy eHMP Back End

Deploying the back end primarily refers to the eHMP repository stack of servers (jds, mocks, vista-kodak, vista-panorama, vxsync) and the rdk resource server (rdk and sometimes jbpmp). Deploying the eHMP back end is a three-step process: deployAllDev, deployRdkDev, and deployjbpmpdev.

3.1.1. deployAllDev

The gradle task “deployAllDev” deploys five virtual machines; if you open VirtualBox, you will see each VM as it deployed.

- jds-<USERNAME>-master
- mocks-<USERNAME>-master
- vista-kodak-<USERNAME>-master
- vista-panorama-<USERNAME>-master
- vxsync-<USERNAME>-master

To execute deployAllDev:

1. Open a new terminal window and enter the following commands:

```
cd ~/Projects/vistacore/ehmp/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle deployalldev
```

3.1.2. deployRdkDev

To execute deployRdkDev:

1. Open a new terminal window and enter the following commands:

```
cd ~/Projects/vistacore/rdk/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle deployRdkDev
gradle deployjbpmdev
```

Note:jbpm may take a long time to download and install. This is normal, please be patient.

3.2. Verify Back End Deployment

After ehmp and the rdk successfully build, you can test it by navigating to <http://172.16.4.105:8888/resource/resourcedirectory>. You should see the list of resources available.

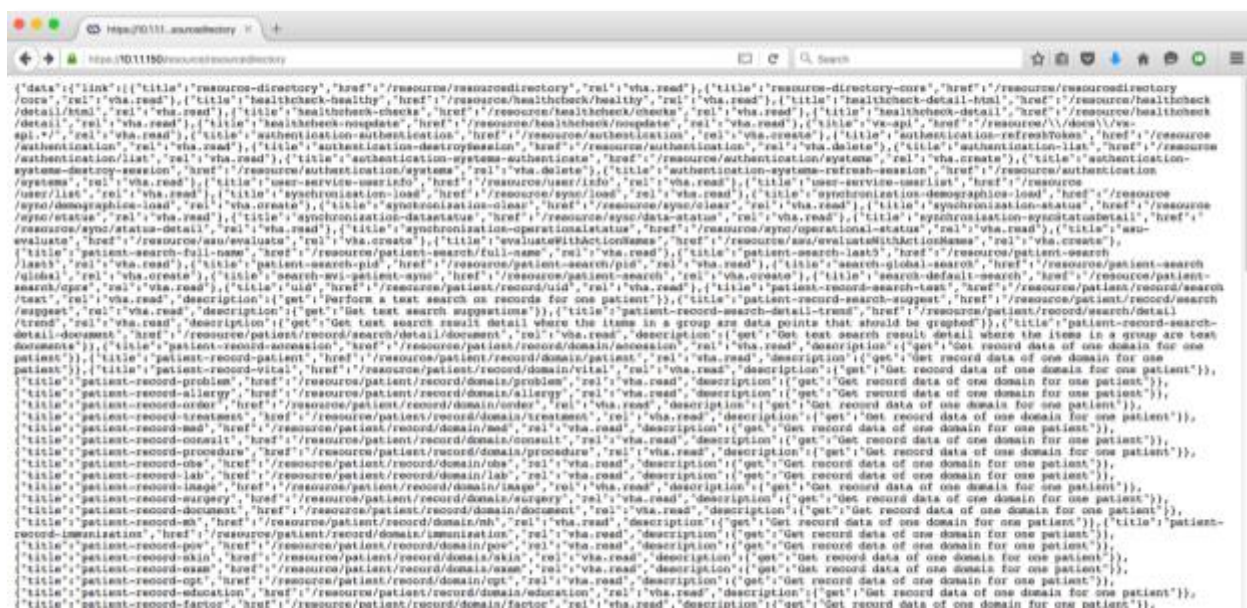


Figure 10: Resource Directory Test

Note: After installing jbpm it may be necessary to re-deploy the rdk. If you do not see the list of available resources, try re-running the rdk install command listed in section 4.1.2.

3.3. Deploy eHMP Front End

Deploying the front end primarily refers to the ehmp-ui server, which includes the adk. To deploy the eHMP front end:

1. Open a new terminal window and enter the following commands:

```
cd ~/Projects/vistacore/adk/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle clean build
```

2. Open a new terminal window and enter the following commands:

```
cd ~/Projects/vistacore/ehmp-ui/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle build deployehmp-uilocaldev
```

3.4. Verify Full Deployment

The easiest way to verify full deployment is to check that the eHMP application comes up in Firefox or Chrome (the two eHMP-supported browsers). Safari has known issues displaying eHMP. You can check this by navigating to <https://172.16.1.150/>; this is the address of your local installation of eHMP.

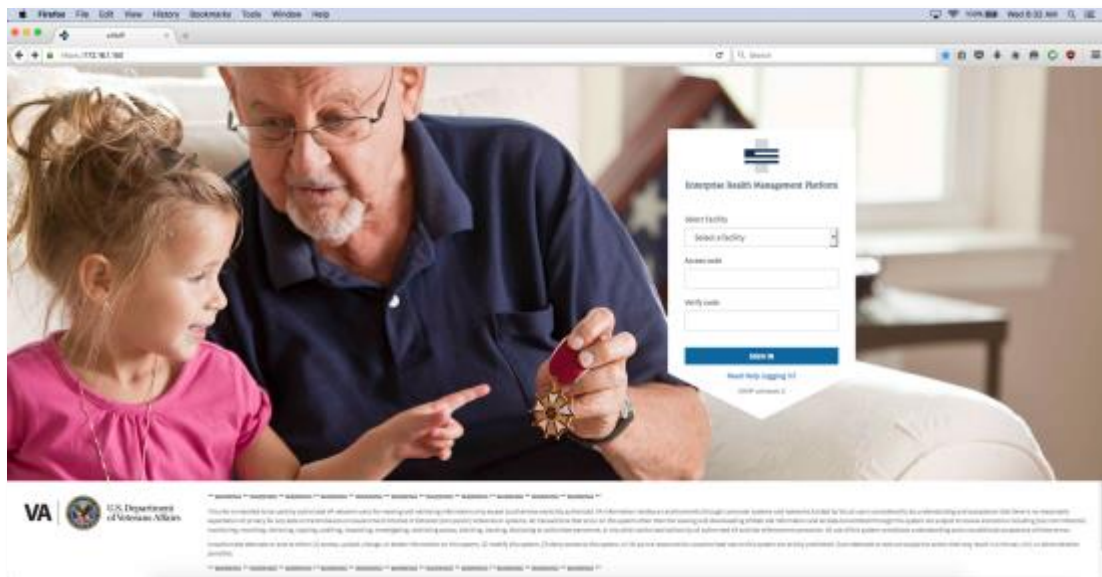


Figure 11: Local eHMP

Note: If this page does not display, you may need to manually start the httpd service on the ehmp-ui VM. To do this, in Terminal navigate to ~/Projects/vistacore/.chef/vms. Then run the following commands:
vagrant ssh ehmp-ui-<insert your username>-master then run service httpd start

Note: If this page does not load content correctly you may have to manually move backbone.sessionStorage.js from ~/Projects/vistacore/private_licenses/bower/backbone-sessionStorage to ~/Projects/vistacore/adk/product/production/_assets/libs/bower/backbone/backbone-sessionStorage/

3.4.1. Local eHMP Credentials

Use the following test credentials to interact with the local eHMP. First, select a facility from the drop-down list and then choose and enter one of the credentials provided in the following table.

Access Code	Verify Code	Notes
mx1234	mx1234!!	Role: Clinician, Provider Permissions: read
vk1234	vk1234!!	Role: Clinician, Provider Permissions: add, cosign, discontinue, edit, exe, read, release, remove, sign
tk1234	tk1234!!	Role: Pharmacist, Non-Provider Permissions: add, edit (limited), read, release (only for med order)
md1234	md1234!!	Role: Lab Tech, Provider Permissions: add, cosign (lab order only), edit, read

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4. Working with Virtual Machines

Use the `vms.sh` script to start and stop eHMP Project VMs.

4.1. Using the `vms.sh` script

To start and stop project VMs, open Terminal.

To start VMs that have been stopped enter the following commands:

```
cd %homepath%/Projects/vistacore
sh vms.sh master startAll
```

To stop running Project VMs enter the following commands:

```
cd %homepath%/Projects/vistacore
sh vms.sh master stopAll
```

You must always stop the VMs using this script before shutting down the host machine, otherwise you may corrupt the VM and be unable to recover them.

4.2. Accessing a VM

To log into a specific VM enter the following commands into Terminal:

```
cd ~/Projects/vistacore/.chef/vms
vagrant ssh <name of vm excluding .vm extension>
```

5. Uninstalling eHMP

Uninstalling eHMP is a two-step process.

5.1. Remove eHMP VMs

To uninstall and remove eHMP VMs from your machine, enter the following commands into Terminal:

```
cd ~/Projects/vistacore/ehmp-ui/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle destroyehmp-ui

cd ~/Projects/vistacore/rdk/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle destroyrdk

cd ~/Projects/vistacore/ehmp/product
source ../infrastructure/set.env.sh
export CHEF_REPO=local
gradle destroyall
```

5.2. Remove eHMP Repository

You can now safely delete the ~/Projects/vistacore folder and its contents.

6. Helpful Links

- Apple ID Account registration: <https://appleid.apple.com/account>
- Apple Developer Downloads List: <https://developer.apple.com/downloads>
- Chef Client: https://packages.chef.io/stable/mac_os_x/
- Configure Workspace Script:
http://nexus.vaftl.us:8081/nexus/content/repositories/setup/workspace-setup/configure_workspace/0.1.0/configure_workspace-0.1.0.sh
- Vagrant: https://releases.hashicorp.com/vagrant/1.5.3/vagrant_1.5.3.dmg
- eHMP Wiki: <http://wiki.vaftl.us/groups/ehmp/>
- eHMP Help desk: <https://help.vaftl.us>