IBM Software Defined Environments

Oracle E-Business Suite 12.1 virtual appliance management using IBM PowerVC 1.2.1.2 – hints and tips

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Abstract

This document is intended to give a step by step walkthrough of the processes needed to manage and install an Oracle E-Business Suite 12.1 virtual appliance with AIX® 7.1 on IBM Power Systems™ servers.

A virtual appliance is defined as a software package that includes the operating system, middleware tools, and the business applications along with the intelligence to self-install and self-configure.

In this paper each step of the process from capturing the AIX virtual server image with Oracle E-Business Suite 12.1 as a virtual appliance using IBM PowerVC™, to managing and deploying the virtual appliance to a new virtual machine is outlined in technical detail. This document uses ‘Step’ markers to identify each milestone process in the logical flow from capture of the virtual server image to deployment of the virtual appliance.

This document also includes the installation of PowerVC on both AIX on Power® platforms, and for completeness, the configuration of an x86 Red Hat Enterprise Linux® 6.4 KVM virtual machine.

Although all steps are provided in detail, further reference should be made to the published PowerVC documentation in the IBM Knowledgebase, and Oracle E-Business Suite related information at the Oracle E-Business Suite documentation library.

Refer to the 'Additional Resources' section at the end of this document for additional documentation and links.

The value proposition for using PowerVC for virtual machine capture and deployment over traditional methods of environment duplication is that PowerVC reduces or removes entirely the chance of human error during the creation of a new virtual machine. The time taken to replicate a VM using PowerVC is significantly reduced from 15 hours to 30 minutes or less, with an unlimited number of redeployments possible.

PowerVC functionality means that Oracle E-Business Suite VM images can be captured and deployed more accurately, with less effort and quickly, again and again, limited only by physical resources.

About PowerVC and Oracle E-Business Suite

IBM PowerVC 1.2.1.2

PowerVC is the new advanced virtualization management offering, built on OpenStack, that delivers advanced virtualization management for IBM AIX and Linux environments on the IBM Power Systems platform.

PowerVC offers quick time to value and a low cost of ownership, and is designed to be simple and easy of use. IBM Power Systems servers now include POWER8™ processors which, along with the PowerVC technology, are designed to help clients dynamically build an infrastructure that supports a Software Defined Environment or a cloud infrastructure.
What is OpenStack?

OpenStack is a set of software tools for building and managing cloud computing platforms for public and private clouds. Backed by some of the biggest companies in software development and hosting, as well as thousands of individual community members, many think that OpenStack is the future of cloud computing. OpenStack is managed by the OpenStack foundation, a non-profit organization which oversees both development and community-building around the project.

IBM is a Platinum member of the OpenStack community.

Refer to the following links for more information:

http://www.openstack.org/
http://www.openstack.org/foundation/

Oracle E-Business Suite

Oracle E-Business Suite version 12.1 has been used in this document as a typical example of an Oracle installation for capture and deployment using IBM PowerVC. There are specific additional steps required during the capture and deployment referred to as ‘cloning’ of the Oracle E-Business Suite software. Refer to Oracle documentation for specific details on running these processes. This document only briefly touches upon the cloning processes involved.

Oracle E-Business Suite 12.1 is not the latest version of the Oracle Enterprise Business Suite, as the current version is 12.2. This version was used simply as an example, and it uses the Rapid Install wizard for installation. Installing a more recent versions will also need to use the rapid install of 12.1, but with subsequent Release Update Patches (RUP) installations to update to the desired version.

System configuration

Hardware and software

PowerVC - IBM Power 780

Operating system: Red Hat Enterprise Linux 2.6.32.358.el6.ppc64 6.4

Processors: 2

Memory: 16 GB

Storage: 200GB V7000

AIX logical partition (virtual server) with Oracle E-Business Suite 12.1

Operating system: AIX 7.1 7100-03-03-1415

Processors: 2

Memory: 24 GB
Storage: 300GB V7000

**PowerVC (KVM) – IBM 3570 x86**

Operating system: Red Hat Enterprise Linux x86 6.4

Processors: 2

Memory: 10 GB

Storage: 200GB

The PowerVC KVM installation on x86 is included to show the configuration of the KVM VM environment.

The configurations used for the ‘manage from (PowerVC)’ and ‘manage to (Oracle E-Business Suite 12.1)’ are supplied as examples only. The PowerVC configuration is a typical configuration only, and can be configured with as little as 30GB of disk, but this would significantly impact performance. The PowerVC configuration can be modified based on the number of virtual appliances that are going to be managed in the cloud environment.

---

**Project architecture and scope**

This project is intended to show a simplified step by step process of capturing an AIX virtual server with Oracle E-Business Suite as a virtual appliance and deploying the virtual appliance on the same or another Power System server.

The project aims to show all steps with hints and tips, from identification of the AIX virtual server with Oracle E-Business Suite virtual machine (VM), capturing the virtual server using IBM PowerVC 1.2.1.2, to deployment and activation of the virtual server image.

All steps are identified in this section, and expanded in detail in the following body of the document.

---

**Project architecture**

The project architecture can be visualized in Figure 1 below.
Explanation of processes

The following sections explain each of the processes involved in the capture and deployment of an AIX virtual server with Oracle E-Business Suite 12.1.

The following bullet points may help to explain the process flow:

- PowerVC 1.2.1.2 is installed in its own RHEL Linux 6.4 Power VM (this is also the case if the installation is on an x86 platform, either stand alone, or in a KVM environment).
- PowerVC is built ‘upon’ Openstack. The Openstack version is ‘IceHouse’.
- Openstack is installed as a part of the PowerVC installation, there is no additional installation process.
- The Oracle E-Business Suite 12.1 application needs to be ‘pre-cloned’ using the Oracle cloning software.
Capture of a virtual machine must be through the previously identified HMC. See following sections.

- The capturing ‘source’ virtual machine must be primed with the ‘activation engine’ prior to capture.
- The source LPAR must have a single disk allocated to it (this is the case with this demonstration), or, if it has additional disks, then links will be made to the additional disks, only the rootvg image will be copied.
- Before deployment, the virtual appliance ‘.ovf’ file may need to be modified for customization deployment purposes.
- Deploy the virtual appliance to the HMC.
- Start the new VM.
- Complete the Oracle E-Business Suite 12.1 cloning by running the previously installed Oracle cloning software.

Note: In this lab example, the Oracle E-Business Suite database and application tier are on the same virtual machine.

It is possible to run the Oracle E-Business Suite cloning software over a two tier configuration, but this is not covered in this white paper.

**Time / cost benefit**

What are the compelling reasons for using PowerVC to create a new VM hosting a new version of Oracle E-Business Suite 12.1 (or any version) over the traditional method of creating the new VM manually from scratch?

The reasons can be summarized as follows:

- Manual installation:
  - The virtual machine resources need to be manually assigned.
  - The virtual machine operating system needs to be installed.
  - The virtual machine AIX TL level needs to be applied.
  - The Oracle E-Business Suite 12.1 installation software loaded, plus fixes applied.
  - System pre requisites for Oracle E-Business Suite checked.
  - Oracle E-Business Suite installation conducted.
  - Oracle E-Business Suite fixes applied (if applicable).
  - Testing conducted.

This process can be highly prone to human error, and has to be conducted in its entirety for all additional instances.

- PowerVC
  - Initial build of the Oracle E-Business Suite 12.1 environment still needs to be conducted.
  - The image capture and deployment is largely automated and can be conducted by someone with little experience with Oracle E-Business Suite 12.1.
  - The resulting virtual machine will be an exact image of the source virtual machine.
  - The capture and deployment process is fast in comparison.
  - The captured image can be deployed multiple times.
  - Pre and post ENS cloning is straight forward, and easy.
Compute, memory and disk resources can be manipulated during deployment.

**Respective timeline comparison**

This timeline comparison shows the time that can be saved using PowerVC to create new instances of an Oracle E-Business Suite virtual image over the traditional manual method for installation. The resulting Oracle E-Business Suite installation is a clean installation.

![Timeline Comparison](image)

**Figure 2. Oracle E-Business Suite 12.1 traditional manual installation method (hours)**

![Timeline Comparison](image)

**Figure 3. Oracle E-Business Suite 12.1 PowerVC virtual appliance initial capture and deploy (hours)**

Whilst there is a significant time benefit to using a PowerVC virtual appliance to create a new AIX virtual machine with Oracle E-Business Suite 12.1 installed, there is also the major benefit that with
every iteration of the deployment of an Oracle E-Business Suite VA, it will be exactly the same as the captured image. This removes the need to test the application environment after each deployment.

Subsequent deployment times using PowerVC are greatly reduced as there is no requirement to re-capture the VA, simply deploy the VA as many times as required.

Notes:
1. Times will vary dependent upon system configuration and user experience.
2. PowerVC initial time does not include one off installation of PowerVC (est. 2:00 hours) and installation of Oracle E-Business Suite 12.1 (est. 15:30 hrs).
3. PowerVC subsequent deployment of a virtual appliance is significantly reduced due to the fact that the VA can be deployed many times using the same captured virtual appliance.

Summary of time graph finding

The time graphs show that using the traditional build from ‘scratch’ method (first graph), the elapsed time can be as high at 15 hours. This method is prone to error, and would require functional testing of the resulting AIX virtual machine. Subsequent VM builds would take the same amount of time.

An initial PowerVC virtual appliance capture and deploy to a VM would take in the region of 4:10 hours due to the need to functional test the AIX virtual machine prior to PowerVC capture. Subsequent deployments would take only 1:10 hours as there is no requirement to re-capture the AIX VM.

A minimum deployment with no customization, only involving deployment and Oracle E-Business Suite post-cloning would take in the region of 30 minutes.

Note: Times shown are the times experienced by the author and can vary between installations.
Process Steps

It is possible to break down the capture and deployment of an Oracle E-Business Suite 12.1 environment into the following logical steps:

1. Install PowerVC 1.2.1.2 on Power / Red Hat Linux 6.4.
   This document outlines the installation of PowerVC on a power platform, and also on an x86 platform under KVM. The expected time for installation is 20 minutes in total.

2. Install Resource Control and Monitoring (RCM).
   RCM is required for communication to the Power Hardware Management Console (HMC).

3. Configure PowerVC to the HMC.
   Through the PowerVC console, communicate to the target HMC to import definitions of the Hosts, storage, networks and supported VM's.

4. Identify the Source Oracle E-Business Suite 12.1 AIX virtual machine.
   Identify the Oracle E-Business Suite 12.1 virtual machine in the PowerVC workbench.

5. Run Oracle E-Business Suite Pre-Cloning software.
   Pre-Cloning is the running of Oracle pre cloning software which will prepare the Oracle E-Business Suite installation for transfer to a new system IP address and name.

6. Install the AIX virtual machine activation engine.
   The AIX activation engine is required to be active for every capture instance. It must be run each time the VM is captured by PowerVC.

7. Capture the VM and create the Virtual Appliance.
   The process of capturing the VM in PowerVC. Normally is an automated process.

8. Modify the Open Virtualization format (.OVF) file in the PowerVC VIL repository.
   Modify the associated .OVF file in the event that customization is required when deploying the captured virtual appliance.

9. Deploy the virtual appliance.
   The process of deploying the VM from the PowerVC display.

10. Activate the new AIX virtual machine.
    Activation of the deployed virtual appliance is automated, and proceeds the successful deployment. Once successfully activated (started), the activation engine will complete the installation with supplied parameters, and the VM will be available for use.

    Run Oracle E-Business Suite Post Cloning software.

12. Add additional disk LUN's.

Capture and deployment is by default a single disk process. This is a restriction of OpenStack, but will be remedied in future releases.

Multiple disk installations will result in symbolic links being made to disks other than the boot disk which will be captured. On deployment, the same symbolic links will be activated linking back to the original data links.

New disks should be added to the environment and data copied to the new disks, and the symbolic links removed. This can be a lengthy process dependent upon the system configuration, and the amount of data and number of disks.

These steps are outlined in detail in the remainder of this document.
Install PowerVC 1.2.1.2 on RHEL 6.4 on Power

This section outlines the process to install the PowerVC 1.2.1.2 on the Power Systems server in a RHEL 6.4 virtual machine. For installing on a Red Hat Linux x86 virtual machine, refer to the section later in this document for configuring the environment and performing the installation.

Check the IBM Fix Central website for the latest fix pack for PowerVC. These fixes are cumulative, so can be installed as a new installation, or installed over a current previous release.

http://www-933.ibm.com/support/fixcentral/

The latest version to install on AIX is Fix Pack 2 (FP2). Download and place in the following staging area. The current version of PowerVC installed on the demonstration system is PowerVC PPC 1.2.1.2.

Configure YUM for the PowerVC install

Before installing PowerVC 1.2.1.2, you must configure the YUM repository. This is to ensure that any required packages that were not installed as part of the operating system install can be installed during the PowerVC install.

In a VNC display, enter the following. Ensure the iso image is present on the PowerVC install VM.

```
# mkdir -p /mnt/rhel64
# mount -t iso9660 -o loop /tmp/rhel6.4/RHEL6.4-20130130.0-Server-ppc64-DVD1.iso
```
Unpack the PowerVC1212 image

The image which was downloaded was powervc-update-ppc-rhel-1.2.1.2.tgz. Unpack using command ‘tar –zxv’. This will unpack to folder powervc-1.2.1.2. Navigate to this folder.

Set the file size to unlimited by typing the following command: ulimit –f unlimited.

Run the command: /update and follow the prompts.

Note: Refer to the install log in /opt/ibm/powervc/log for any failed installation messages.

Accept the license agreement, and let the installation complete successfully.

Upon completion, open a browser and use the following url to open the PowerVC login page: https://9.52.156.187 (your system ip address or name).

In PowerVC, check the version number to confirm that the update has been successful.
Installation is now completed.

**Configuring Resource Monitoring and Control (RMC)**

For PowerVC to communicate to the HMC it needs to have RMC running. On Red Hat Linux this is not part of the standard iso build. Additional packages need to be installed. These packages are included in the IBM Tools for Linux repository.

The IBM Tools repository can be sourced from the following website:

Follow the instructions for downloading and installing the IBM Tools packages for the correct Linux release.

There are five critical packages which need to be installed to ensure RMC communicates correctly with the HMC, they are as follows:

- src*.rpm
- rsct.core.utilis*.rpm
- rsct.core*.rpm
- devices.chrp.base.ServiceRM*
- DynamicRM*.rpm

There are many reasons why RMC communication between an LPAR and the HMC may not work. The "rmcctrl" command, which is very useful in AIX to restart the rsct or RMC service, is also available in Linux on Power after installing the rsct filesets. rmcctrl is in /usr/sbin/rsct/bin and there is a link from /usr/bin/rmcctrl to /usr/sbin/rsct/bin/rmcctrl.

The following sequence restarts the RMC service without rebuilding the RMC identity of the LPAR:

rmcctrl -z
rmcctrl -A
rmcctrl -p

Further information about RMC can be found at the following website:


**PowerVC service check**

There are a number of useful commands to check the status of PowerVC and the underlying OpenStack services.

In a terminal window on the PowerVC VM, navigate to /opt/ibm/powervc/bin

1. Check the status of PowerVC services. This will display the status of all PowerVC services.
   .powervc-services status – ensure all services are running.
Check that all services are running.

2. Start / stop a single service.
   ```bash
   ./powervc-service nova start
   ```
   Issuing this command with no particular service will result in action on all services.

If any service is not running, navigate to /var/log. CD to the service which is not running, and check the log for the service.

In the screen capture above, assuming the ‘openstack-nova-compute-8233E8B_1041B6P’ service failed to start. Navigate to the appropriate log folder, and view the log file. These log files can become large, so delete the file, and attempt to start the service again, then review the log file again.

```
[root@icc-185 nova]# ls
api.log
compute-8233E8B_1041B6P.log
compute-8233E8B_1041B6P.log-20140831.gz
compute-8233E8B_1041B6P.log-20140901.gz
compute-8233E8B_1041B6P.log-20140902.gz
[root@icc-185 nova]# 
```

Additional tools can be found in /opt/ibm/powervc/powervc-validator/bin. Issue the command: ./powervc-validate –status.

---

**Initial PowerVC configuration**

**Initial login**

Login with the default values of root / (your root password).
Add the storage providers, fabrics and networks.
Add a Hardware Management Console (HMC) connection. This will then give a list of hosts which are compatible to be managed by PowerVC.

**Defining a host HMC and server(s)**

On clicking the ‘add host’ green cross, the above figure will be displayed showing available HMC’s. In this case we only want to add the host server 8233-E8B-SN1041B6P managed by hmc-92 system.

**Add storage provider and fabrics**

Click the storage provider and fabrics green cross in this order to add available resources.
After selecting storage and fabrics, the system will import the definitions of the volumes attached to the selected storage.

Add network resources

Click the storage provider and fabrics green cross in this order to add available network resources. Note that the network resources will normally be added through the discovery of host compatible virtual machines.
Add the network where this selected HMC host and the PowerVC reside.

**Identify the source Oracle E-Business Suite 12.1 AIX VM**

The source AIX virtual machine to be captured hosts an installation of the Oracle E-Business Suite 12.1 application. This is running on AIX 7.1 virtual machine.

This system resides in the HMC that was previously defined to PowerVC and can be seen in PowerVC by selecting the Host name, and clicking on the 'Managed Hosts' button. The AIX virtual machine we are using as the source is highlighted in the figure below.
Selecting the AIX virtual machine name will display further details.

At this time, the AIX virtual machine is active.
Resize virtual machines

It is possible to resize virtual machines by clicking the resize option in the work with VM display.

Resizing can be either manual, or using a pre-defined template. After deploying the VA and creating a new VM, it is only possible to resize the VM when it inactive.

When working with the VM, it is possible to start and stop the VM from within PowerVC.

PowerVC configuration

There are a number of configuration options which will make it easier to manage the deployment of new VM’s in the future.

Placement policy

Placement policy is the placing of virtual machines in a specific host. If there is more than one host defined, then with ‘Distribute’ selected, the VM will be ‘striped’ across multiple hosts. If ‘Place’ is defined then the VM will be placed on a single host until it is fully utilized, and then further VM’s will be placed on the next host.
Templates can be used to set a standard set of compute and storage characteristics for a new VM. This also features capped/uncapped processor capabilities, and a weighting and availability ration. These values can be maintained after deployment in both PowerVC and the HMC but will not become active until the VM is restarted.
It is also possible to configure storage groups.
Run Oracle E-Business Suite pre-cloning software

Cloning using the Grid Control 11g

Refer to the document http://docs.oracle.com/cd/E17559_01/em.111/e18709/T508706T512065.htm for detailed instruction on cloning the Oracle E-Business Suite 12.1 environment. This method of cloning uses Oracle Grid Control 11g.

Follow the Clone Procedures best practices provided by Oracle for cloning Oracle Applications. Clone Procedures provide a step-by-step interview process for initiating a clone job. For more information on concepts mentioned here, including configuring a Software Library and Target Systems, see the Enterprise Manager online help.

The Oracle Application Management Pack for Oracle E-Business Suite ships with the following clone types:

- **Clone Source to Target**: In Source to Target clone job, the source system data is extracted and applied on to a target system. On completion of the clone process, the source and target systems will have the same data and patch set level. The benefit of this procedure is that it creates an identical copy of production system.

- **Clone Source to Image**: The second category is Source to Image where the source system data is extracted and stored. The image extracted can be applied to any number of target systems. The benefit of this procedure is that it facilitates periodic backing up of the source system.

- **Deploy Image to Target**: The third category is Image to Target where an image is deployed on to a target system. The benefit of this procedure is that it allows for rapid deployment of standard preconfigured target systems.

- **Hot Mode Clone Source to Target**: This procedure is similar to Clone Source to Target, above, except that the source system does not need to be shut down.

- **Hot Mode Clone Source to Image**: This procedure is similar to Clone Source to Image, above, except that the source system does not need to be shut down.

- **Hot Mode Clone Image to Target**: This procedure is similar to Deploy Image to Target, above.

The type of installation will dictate which of the above clone procedure are followed. Refer to the ‘Additional References’ section at the end of this document.

Cloning using the bundled cloning scripts

Oracle E-Business Suite is delivered with a set of cloning scripts. In this case we will use these scripts to demonstrate cloning under a virtualization process.

The process can be split into two processes, pre-cloning, and post cloning. Pre-cloning will be described in this section, and post-cloning in a later section.
Run the following scripts:

**Script:**  adpreclone.pl - Db tier  **Pre – Requisites**

Iptables might disallow connection to 8000. Validate rules or disable iptables completely.

Run as Oracle user.

Before proceeding ensure DB is up.

Script:

eclone.pl
Db tier

```
# cd /u01/app/oracle/VIS/11.2.0/appsutil/scripts/VIS_ICC-178
# ./adpreclone.pl dbTier
```

Copyright (c) 2011 Oracle Corporation
Redwood Shores, California, USA

Oracle E-Business Suite Rapid Clone

Version 12.2

adpreclone Version 120.31.12020000.4

Enter the APPS User Password: apps

Running:
perl /u01/app/oracle/VIS/11.2.0/appsutil/bin/adclone.pl
java=/u01/app/oracle/VIS/11.2.0/appsutil/jre mode=stage
stage=/u01/app/oracle/VIS/11.2.0/appsutil/clone component=dbTier method=CUSTOM
dbctx=/u01/app/oracle/VIS/11.2.0/appsutil/VIS_ICC-178.xml showProgress

Beginning database tier Stage - Tue Aug 19 05:30:16 2014

```
/u01/app/oracle/VIS/11.2.0/appsutil/jre/bin/java -Xmx600M -DCONTEXT_VALIDATED=false -Doracle.installer.oui_loc=/u01/app/oracle/VIS/11.2.0/oui -classpath /u01/app/oracle/VIS/11.2.0/lib/xmlparserv2.jar:/u01/app/oracle/VIS/11.2.0/jdbc/lib/ojdbc6.jar:/u01/app/oracle/VIS/11.2.0/appsutil/java:/u01/app/oracle/VIS/11.2.0/oui/jlib/OraInstaller.jar:/u01/app/oracle/VIS/11.2.0/oui/jlib/ewt3.jar:/u01/app/oracle/VIS/11.2.0/oui/jlib/share.jar:/u01/app/oracle/VIS/11.2.0/jlib/srvm.jar:/u01/app/oracle/VIS/11.2.0/jlib/ojmisc.jar oracle.apps.ad.clone.StageDBTier -e /u01/app/oracle/VIS/11.2.0/appsutil/VIS_ICC-178.xml -stage
```
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http://www.ibm.com/support/techdocs

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Script: adpreclone.pl - Apps tier Pre – Requisites

Before proceeding ensure both DB and App services are up and DB pre-cloning is completed.
Run as Oracle user.

Script: adpreclone.pl - Apps tier Run

```
# cd /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/admin/scripts
# ./adpreclone.pl appsTier
```

Copyright (c) 2011 Oracle Corporation
Redwood Shores, California, USA

Oracle E-Business Suite Rapid Clone
Version 12.2
adpreclone Version 120.31.12020000.3

Enter the Weblogic AdminServer password :

Checking the status of the Oracle WebLogic Administration Server....

Running perl
```
/u01/app/oracle/VIS/fs1/EBSSapps/app1/ad/12.0.0/patch/115/bin/adProvisionEBS.pl
ebs-get-serverstatus -contextfile=/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/app1/admin/VIS_ICC-178.xml -servername=AdminServer -promptmsg=hide
```
The Oracle WebLogic Administration Server is up.

Running:
```
perl /u01/app/oracle/VIS/fs1/EBSapps/appl/ad/12.0.0/bin/adclone.pl
java=/u01/app/oracle/VIS/fs1/FMW_Home/jrockit32 mode=stage
stage=/u01/app/oracle/VIS/fs1/apps/comn/clone component=appsTier method=
appctx=/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/appl/admin/VIS_ICC-178.xml
showProgress
```

Beginning application tier Stage - Tue Aug 19 05:40:43 2014
```
/u01/app/oracle/VIS/fs1/FMW_Home/jrockit32/bin/java -Xmx600M -
DCONTEXT_VALIDATED=false -Doracle.installer.oui_loc=/oui -classpath
```

Log file located at /u01/app/oracle/VIS/11.2.0/appsutil/log/VIS_ICC-178/StageDBTier_08190430.log

\  50% completed

Completed Stage...
Pre-clone procedure has now completed successfully.

**Run the AIX LPAR activation engine**

The activation engine is required to ‘prime’ the source LPAR prior to capture using PowerVC. This has to be installed and activated every time the LPAR is captured.

**Installing the activation engine**

1. On the PowerVC system, navigate to /opt/ibm/powervc/activation-engine.
2. Copy the vmc.vsae.tar file to the LPAR to be captured.
3. Place the file in the following folder /opt/ibm/powervc/activation-engine.
4. Unzip the file using the command ‘tar –xvf’.
5. Navigate to the source LPAR, and to the activation-engine folder.
6. Issue the following command ‘./aix-install.sh’.

Ensure the installation completes successfully.

**Run the activation engine**

If the activation engine has never been run on this LPAR then issue the following command ‘/opt/ibm/ae/AE.sh –R’.

To prepare the VM a second time, or subsequent times, run the following commands:
'rm /opt/ibm/ae/AP/*'

'cp /opt/ibm/ae/AS/vmc-network-restore/resetenv /opt/ibm/ae/AP.ovf-env.xml'

And then run:

'./opt/ibm/ae/AE.sh –R' again.

When running the AE.sh command, the VM will close down, this is normal. A VM must be in a shutdown state to be able to be captured. The VM is now ready to be captured.

**Capture the VM and create the virtual appliance**

In PowerVC, click on the Virtual Machines icon in the left margin.

Highlight the virtual machine to be captured. This is the VM which was previously identified and prepared with the PowerVC Activation Engine, and the Oracle E-Business Suite pre-clone software.

Ensure that the status of the virtual machine is set to ‘Shutoff’.
Click on capture and check the messages to ensure the capture has completed successfully. There will now be a virtual appliance created with the same name.

Capturing multiple disk virtual machines

If the Oracle E-Business Suite virtual machine spans multiple disks the PowerVC will only capture the disk containing the boot image. You will be prompted to identify the boot volume.
Symbolic links will be saved as part of the virtual appliance referring to the remaining disks. Upon deployment, the symbolic links will point to the original disks.

**Custom .OVF file in the PowerVC repository**

**Why create a custom .ovf file?**

A custom .ovf file can be used to create a new image based on the previously captured image but will allow you to customize properties.

To create a custom OVF, take the default OVF template from PowerVC at:

```
/usr/lib/python2.6/site-packages/powervc_nova/virt/ibmpowervm/templates/ibmpowervm.ovf
```

Copy it and then copy-paste the custom Product Section element in between these two elements, toward the bottom of the file:

```
</ovf:ProductSection>

<!-- paste custom Product Section element here -->

</ovf:VirtualSystem>
```

Run `/usr/bin/powervc-volume-image-import --name <name> --os-distro <aix/rhel/sles> --volume <volume-to-import> --activation-type ae --ovf <location_of_custom_ovf>`

Note: The `--name` field must be a new unique name.

The volume name is the volume ID value.

After capturing the VM above, you will see a volume created in the Storage portion of the UI. Use the id of that volume for the command above. This will create a new image with the custom OVF loaded.

```
e.g. powervc-volume-image-import --name Imported_AIX_7_3_3 --os-distro aix --volume 78af8967-9a80-424a-91d8-d7ca125953cfv --activation-type ae --ovf /tmp
```
Deploy the virtual appliance

In the image repository in PowerVC, select the image to be deployed, then click the deploy button.

In the compute template section, set the processor, memory and disk characteristics. Also set the storage template (PowerVC will attempt to allocate the required disk from the storage pool).

Select the primary network, and give the virtual machine a new, unused IP address on that network.

The activation input section can be used to input parameters for classes defined in the custom .ovf file.
Click ‘Deploy’.

Now switch to the virtual machine display, and monitor the progress of the VM being built.
When completed, the state should be ‘Running’. Check the HMC entry to ensure that the deployed virtual machine has the same status.

The deployed virtual machine will be given a unique name. In PowerVC view the VM details display and check the name given matches the name in the HMC.

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power state:</td>
</tr>
<tr>
<td>Task state:</td>
</tr>
<tr>
<td>Disk config:</td>
</tr>
<tr>
<td>Hypervisor host name:</td>
</tr>
<tr>
<td>Hypervisor partition name:</td>
</tr>
</tbody>
</table>

**Activate the new AIX VM**

The new VM will be activated automatically upon deployment. The activation engine will be activated and will configure the VM with the captured parameters.
Run Oracle E-Business Suite post-cloning software

When the virtual appliance has been deployed, there are additional Oracle E-Business Suite scripts which need to be run.

Run the following scripts:

**Script:** adcfgclone.pl - Db tier  
**Pre – Requisites**

- Log in as oracle user.
- Need to have expect and telnet client installed.
- Need to ensure refhost.xml is updated (see appendix)
- FMW specific ORACLE_HOMEs defined earlier must be detached (see appendix)

No oracle services are required to be running at this stage

**Script:** adcfgclone.pl - Db tier  
**Run**

$ cd /u01/app/oracle/VIS/11.2.0/appsutil/clone/bin
$ perl ./adcfgclone.pl dbTier

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Redwood Shores, California, USA
Oracle E-Business Suite Rapid Clone
Version 12.2
adcfgclone Version 120.63.12020000.7.1202010.2

Enter the APPS password : apps

Running:
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/..jre/bin/java -Xmx600M -cp
/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/java:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/
xmparserv2.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/ojdbc5.jar oracle.apps.ad.context.CloneContext -e
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/..context/db/CTXORIG.xml -validate
-pairsfile /tmp/adpairsfile_2359.lst -stage
/u01/app/oracle/VIS/11.2.0/appsutil/clone 2> /tmp/adcfgclone_2359.err; echo $? >
/tmp/adcfgclone_2359.res
Log file located at
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/CloneContext_0819051531.log

Provide the values required for creation of the new Database Context file.

Target System Hostname (virtual or normal) [ICC-123] :

Target Instance is RAC (y/n) [n] :

Target System Database SID : VIS

Target System Base Directory : /u01/app/oracle/VIS/11.2.0

Target System utl_file_dir Directory List : /u01/app/tmp

Number of DATA_TOP's on the Target System [1] :

Target System DATA_TOP Directory 1 [/u01/app/oracle/VIS/data] :

Target System RDBMS ORACLE_HOME Directory [/u01/app/oracle/VIS/11.2.0/11.2.0] :

Do you want to preserve the Display [null] (y/n) : n

Target System Display [ICC-123:0.0] :

Do you want the target system to have the same port values as the source system (y/n) [y] ? :

Complete port information available at
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/out/VIS_ICC-123/portpool.lst

Creating the new Database Context file from :
/u01/app/oracle/VIS/11.2.0/appsutil/template/adxdbctx.tmp

The new database context file has been created :
/u01/app/oracle/VIS/11.2.0/appsutil/VIS_ICC-123.xml

Log file located at
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/CloneContext_0819051531.log

Check Clone Context logfile
/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/CloneContext_0819051531.log for
details.

Running Rapid Clone with command:
Running:
perl /u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/adclone.pl
java=/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/../jre mode=apply
stage=/u01/app/oracle/VIS/11.2.0/appsutil/clone component=dbTier method=CUSTOM
dbctxtg=/u01/app/oracle/VIS/11.2.0/appsutil/VIS_ICC-123.xml showProgress
contextValidated=true

Beginning database tier Apply - Tue Aug 19 06:16:35 2014

/u01/app/oracle/VIS/11.2.0/appsutil/clone/bin/../../jre/bin/java -Xmx600M -
DCONTEXT_VALIDATED=true -Doracleinstaller.oui_loc=/u01/app/oracle/VIS/11.2.0/oui -classpath
/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/xmlparserv2.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/ojdbc6.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/java:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/oui/OraInstaller.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/oui/ewt3.jar:/u01/app/oracle/VIS/11.
2.0/appsutil/clone/jlib/oui/share.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/ou/srvm.jar:/u01/app/oracle/VIS/11.2.0/appsutil/clone/jlib/ojmisc.jar
oracle.apps.ad.clone.ApplyDBTier -e /u01/app/oracle/VIS/11.2.0/appsutil/VIS_ICC-123.xml -stage /u01/app/oracle/VIS/11.2.0/appsutil/clone -showProgress
APPS Password : Log file located at
/u01/app/oracle/VIS/11.2.0/appsutil/log/VIS_ICC-123/ApplyDBTier_08190516.log
15% completed
Completed Apply...
Tue Aug 19 06:20:14 2014
Starting database listener for VIS:
Running:
/u01/app/oracle/VIS/11.2.0/appsutil/scripts/VIS_ICC-123/addInctl1.sh start VIS
Logfile: /u01/app/oracle/VIS/11.2.0/appsutil/log/VIS_ICC-123/addInctl1.txt
You are running addInctl1.sh version 120.4
Starting listener process VIS ...
Listener VIS has already been started.
addInctl1.sh: exiting with status 0
addInctl1.sh: check the logfile /u01/app/oracle/VIS/11.2.0/appsutil/log/VIS_ICC-123/addInctl1.txt for more information ...

Script: adcfgclone.pl - Apps tier Pre – Requisites
Log in as oracle user.
Remove the FMW directory structure in "Run Edition"
$ rm -fr /u01/app/oracle/VIS/fs1/FMW_Home
Ensure DB is up and running and configure clone

Script: adcfgclone.pl - Apps tier Run
$ cd /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/
$ perl ./adcfgclone.pl appsTier

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Oracle E-Business Suite Rapid Clone
Version 12.2
adcfgclone Version 120.63.12020000.7
Enter the APPS password :
Enter the Weblogic AdminServer password :
Running:
/u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/../jre/bin/java -Xmx600M -classpath
/u01/app/oracle/VIS/fs1/EBSapps/comn/clone/jlib/obfuscatepassword.jar:/u01/app/or
Do you want to add a node (yes/no) [no] :

Running:
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/bin/..//jre/bin/java -Xmx600M -classpath
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/obfuscatepassword.jar:/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/ojmisc.jar:/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/java oracle.apps.ad.clone.util.OPWrapper
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/bin/../FMW/tempinfo.txt
Do you want to add a node (yes/no) [no] :

Running:
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/bin/..//jre/bin/java -Xmx600M -classpath
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/obfuscatepassword.jar:/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/ojmisc.jar:/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/jlib/java oracle.apps.ad.clone.util.OPWrapper
/u01/app/oracle/VIS/fs1/EBSapps/comm/clone/bin/../FMW/EBSDataSource

Do you want to preserve the Display [ICC-178:0.0] (y/n)  : n
Target System Display [ICC-123:0.0] :
Target System Root Service [enabled] :
Target System Web Administration [enabled] :
Target System Web Entry Point Services [enabled] :
Target System Web Application Services [enabled] :
Target System Batch Processing Services [enabled] :
Target System Other Services [disabled] :

Do you want the target system to have the same port values as the source system (y/n) [y] ? :
Complete port information available at /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/out/VIS_ICC-178/portpool.lst

UTL_FILE_DIR on database tier consists of the following directories.
1. /usr/tmp
2. /u01/app/tmp
3. /u01/app/oracle/VIS/11.2.0/appsutil/outbound/VIS_ICC-123
4. /usr/tmp
Choose a value which will be set as APPLPTMP value on the target node [1] : 2

Creating the new APPL TOP Context file from:
/u01/app/oracle/VIS/fs1/EBSapps/appl/ad/12.0.0/admin/template/adxmlctx.tmp

The new APPL TOP context file has been created:
/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/appl/admin/VIS_ICC178.xml

Log file located at /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/CloneContext_0819071054.log
Check Clone Context logfile /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/CloneContext_0819071054.log for details.

Running Rapid Clone with command:
Running:
perl /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/adclone.pl/javabyte=/u01/app/oracle/VIS/fs1/EBSapps/comn/clone/bin/./jre mode=apply
stage=/u01/app/oracle/VIS/fs1/EBSapps/comn/clone component=appsTier method=CUSTOM
appctxtg=/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/appl/admin/VIS_ICC-178.xml
showProgress contextValidated=true

FMW Pre-requisite check log file location :
/u01/app/oracle/VIS/fs1/EBSapps/comn/clone/FMW/logs/prereqcheck.log

Running: /u01/app/oracle/VIS/fs1/EBSapps/comn/clone/FMW/t2pjdk/bin/java -classpath
/u01/app/oracle/VIS/fs1/EBSapps/comn/clone/prereq/webtier/Scripts/ext/jlib
Beginning application tier Apply - Tue Aug 19 07:12:54 2014

Completed Apply...
Tue Aug 19 07:41:25 2014

Do you want to startup the Application Services for VIS? (y/n) [y] : n

Services not started

### start node manager
[root@ICC-123 fs1]#/inst/apps/VIS_ICC-123/admin/scripts/adnodemgrctl.sh start
You are running adnodemgrctl1.sh version 120.11.12020000.4

Enter the WebLogic Admin password:

Starting the Node Manager...

NMProcess: <Sep 2, 2014 3:05:36 AM> <INFO> <Loading domains file:
/u01/app/oracle/VIS/fs1/FMW_Home/wlserver_10.3/common/nodemanager/nmHome1/nodemanager.domain>

NMProcess: Sep 2, 2014 3:05:36 AM weblogic.nodemanager.server.NMServerConfig
initDomainsMap

NMProcess: INFO: Loading domains file:
/u01/app/oracle/VIS/fs1/FMW_Home/wlserver_10.3/common/nodemanager/nmHome1/nodemanager.domains

NMProcess: Sep 2, 2014 3:05:36 AM weblogic.nodemanager.server.NMServer <init>
NMProcess: INFO: Loaded node manager configuration properties from
'/u01/app/oracle/VIS/fs1/FMW_Home/wlserver_10.3/common/nodemanager/nmHome1/nodeman
ager.properties'
Refer /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/logs/appl/admin/log/adnodemgrctl.txt for details

adnodemgrctl.sh: exiting with status 0
adnodemgrctl.sh: check the logfile /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/logs/appl/admin/log/adnodemgrctl.txt for more information ...

### Start app tier services

$ cd /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/admin/scripts
$ su applmgr "-c ./adstrtal.sh apps/apps"

You are running adstrtal.sh version 120.24.12020000.6

Enter the WebLogic Server password:
The logfile for this session is located at
/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/logs/appl/admin/log/adstrtal.log

Executing service control script:
/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/admin/scripts/jtffmctl.sh start
Timeout specified in context file: 100 second(s)

script returned:
************************************************
You are running jtffmctl.sh version 120.3.12020000.4

Validating Fulfillment patch level via
/u01/app/oracle/VIS/fs1/EBSapps/comn/java/classes
Fulfillment patch level validated.
Starting Fulfillment Server for VIS on port 9300 ...
jtffmctl.sh: exiting with status 0
.end std out.

---

**Script: adpreclone.pl - Patches Pre – Requisites**

Log in as oracle user.

1. Pre-clone "Run Edition" even though you've done that earlier on previous host (this is different from how RapidClone worked in E-Business Suite 12.1). Make sure Apps tier services are up and running.

```
cd /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/admin/scripts
./adpreclone.pl appsTier
```

2. Remove the entire fs2 directory structure in "Patch Edition"

```
rm -fr /u01/app/oracle/VIS/fs2/*
```

3. Copy E-Business Suite apps and inst directories from the run edition; take care to follow symlinks
4. Ensure DB is up and running and configure clone

```bash
$ cp -RH /u01/app/oracle/VIS/fs1/EBSapps /u01/app/oracle/VIS/fs2/
$ cp -RH /u01/app/oracle/VIS/fs1/inst /u01/app/oracle/VIS/fs2/
```

**Script:**  
`adpreclone.pl - Patches Run`

```bash
$ cd /u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/
$ perl ./adcfgclone.pl appsTier
```

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Redwood Shores, California, USA  

Oracle E-Business Suite Rapid Clone  
Version 12.2  
adcfgclone Version 120.63.12020000.7

Enter the APPS password :  
Enter the Weblogic AdminServer password :  
Running:
```
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/../jre/bin/java -Xmx600M -classpath 
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/obfuscatepassword.jar:/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/ojmisc.jar:/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/java oracle.apps.ad.clone.util.OPWrapper /u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/../../../FMW/tempinfo.txt
```

Running:
```
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/../jre/bin/java -Xmx600M -classpath 
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/obfuscatepassword.jar:/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/ojmisc.jar:/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/jlib/java oracle.apps.ad.clone.util.OPWrapper /u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/../../../FMW/EBSDatasource
```

Do you want to add a node (yes/no) [no] :
Running:
```
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/../jre/bin/java -Xmx600M -classpath 
```

Log file located at  
```
/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/CloneContext_0819090143.log
```

Target System File Edition type [run] : patch  
Location of Run File System context file :  
```
/u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-123/appl/admin/VIS_ICC-123.xml
```
Provide the values required for creation of the new APPL_TOP Context file.

Target System Fusion Middleware Home set to `/u01/app/oracle/VIS/fs2/FMW_Home`
Target System Web Oracle Home set to `/u01/app/oracle/VIS/fs2/FMW_Home/webtier`
Target System Appl TOP set to `/u01/app/oracle/VIS/fs2/EBSapps/appl`
Target System COMMON TOP set to `/u01/app/oracle/VIS/fs2/EBSapps/comn`

RC-00217: Warning: Configuration home directory (s_config_home) evaluates to `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123`. A directory with this name already exists and is not empty.

Do you want to continue (y/n) : y

Target System Instance Top set to `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123`
Target System Port Pool [0-99] : 1

Checking the port pool 1
done: Port Pool 1 is free
Report file located at `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/temp/portpool.lst`
Complete port information available at `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/temp/portpool.lst`

UTL_FILE_DIR on database tier consists of the following directories.
1. `/usr/tmp`
2. `/u01/app/tmp`
3. `/u01/app/oracle/VIS/11.2.0/appsutil/outbound/VIS_ICC-123`
4. `/usr/tmp`

Choose a value which will be set as APPLPTMP value on the target node [1] : 2

Backing up `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/appl/admin/VIS_ICC-123.xml` to `/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/appl/admin/VIS_ICC-123.xml0.bak`

Creating the new APPL_TOP Context file from:
`/u01/app/oracle/VIS/fs2/EBSapps/appl/ad/12.0.0/admin/template/adxmlctx.tmp`
The new APPL_TOP context file has been created:
`/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/appl/admin/VIS_ICC-123.xml`

Log file located at
`/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/CloneContext_0819090143.log`
Check Clone Context logfile
`/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/CloneContext_0819090143.log` for details.

Running Rapid Clone with command:
Running:
perl `/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/adclone.pl`
java=`/u01/app/oracle/VIS/fs2/EBSapps/comn/clone/bin/.../jre mode=apply`
stage=`/u01/app/oracle/VIS/fs2/EBSapps/comn/clone component=appsTier method=CUSTOM`
apptxtg=`/u01/app/oracle/VIS/fs2/inst/apps/VIS_ICC-123/appl/admin/VIS_ICC-123.xml`
showProgress contextValidated=true
FMW Pre-requisite check log file location:
/u01/app/oracle/VIS/fs2/EBSapps/comm/clone/FMW/logs/prereqcheck.log

Running:

Beginning application tier Apply - Tue Aug 19 09:02:10 2014


100% completed

Completed Apply...

Post cloning – additional reference scripts

```bash
## Start/Stop App server
# cd /u01/app/oracle/VIS/fs1/inst/apps/VIS_ICC-178/admin/scripts
# ./adstpall.sh apps/apps

## Start/Stop DB server
# cd /u01/app/oracle/VIS/11.2.0/appsutil/scripts/VIS_ICC-178
# ./addinctl.sh stop VIS
# ./addbctl.sh stop
```
# Update refhost.xml

Before cloning Apps tier, we must un-register previously defined ORACLE_HOME in oraInventory.

```xml
<code>$ cat /u01/app/oraInventory/ContentsXML/inventory.xml</code>

```xml
<?xml version="1.0" standalone="yes" ?>
<!-- Copyright (c) 2009 Oracle Corporation. All rights Reserved -->
<!-- Do not modify the contents of this file by hand. -->
<INVENTORY>
    <COMPOSITEHOME_LIST>
        <VERSION_INFO>
            <SAVED_WITH>10.1.0.6.0</SAVED_WITH>
            <MINIMUM_VER>2.1.0.6.0</MINIMUM_VER>
        </VERSION_INFO>
        <HOME_LIST>
            <HOME NAME="OraDb11g_home1" LOC="/u01/app/oracle/VIS/11.2.0" TYPE="O" IDX="1"/>
            <HOME NAME="OH1413570746" LOC="/u01/app/oracle/VIS/fs2/FMW_Home/oracle_common" TYPE="O" IDX="2">
                <REFHOMELIST>
                    <REFHOME LOC="/u01/app/oracle/VIS/fs2/FMW_Home/webtier"/>
                </REFHOMELIST>
            </HOME>
            <HOME NAME="OH1451482788" LOC="/u01/app/oracle/VIS/fs2/FMW_Home/webtier" TYPE="O" IDX="3">
                <DEPHOMELIST>
                    <DEPHOME LOC="/u01/app/oracle/VIS/fs2/FMW_Home/oracle_common"/>
                </DEPHOMELIST>
            </HOME>
            <HOME NAME="u01_app_oracle_VIS_fs2_Oracle_EBS_app" LOC="/u01/app/oracle/VIS/fs2/FMW_Home/Oracle_EBS-app1" TYPE="O" IDX="4"/>
            <HOME NAME="VIS_TOOLS_u01_app_oracle_VIS_fs2_EBSapps_10_1_2" LOC="/u01/app/oracle/VIS/fs2/EBSapps/10.1.2" TYPE="O" IDX="5"/>
            <HOME NAME="OH1480577499" LOC="/u01/app/oracle/VIS/fs1/FMW_Home/oracle_common" TYPE="O" IDX="6">
                <REFHOMELIST>
                    <REFHOME LOC="/u01/app/oracle/VIS/fs1/FMW_Home/webtier"/>
                </REFHOMELIST>
            </HOME>
            <HOME NAME="OH1846412155" LOC="/u01/app/oracle/VIS/fs1/FMW_Home/webtier" TYPE="O" IDX="7">
                <DEPHOMELIST>
                    <DEPHOME LOC="/u01/app/oracle/VIS/fs1/FMW_Home/oracle_common"/>
                </DEPHOMELIST>
            </HOME>
            <HOME NAME="u01_app_oracle_VIS_fs1_Oracle_EBS_app" LOC="/u01/app/oracle/VIS/fs1/FMW_Home/Oracle_EBS-app1" TYPE="O" IDX="8"/>
            <HOME NAME="VIS_TOOLS_u01_app_oracle_VIS_fs1_EBSapps_10_1_2" LOC="/u01/app/oracle/VIS/fs1/EBSapps/10.1.2" TYPE="O" IDX="9"/>
        </HOME_LIST>
    </INVENTORY>
</code>

As applmgr user, follow ORACLE_HOME detachment in this order since nested homes must be detached first (e.g. webtier)

___Run Edition:___

```pre
$ cd /u01/app/oracle/VIS/fs1/FMW_Home/oracle_common/oui/bin
```
Add additional disk LUNs

In a single disk capture environment, i.e. a system that has only one disk attached to the captured virtual appliance, there is no need to perform any further steps for adding disk, other than adding disk to create more available space when using a template deployment VA.
In the case that the captured VA contains multiple disks, the boot disk only will be captured (this is prompted for identification as part of the capture process). Additional disks will have symbolic links and will be linked upon deployment back to the original disks. This means that the captured applications, in this case Oracle E-Business Suite 12.1 will still work upon completion of the post cloning software tasks, but it is unlikely that using the original disks is not the desired result.

To handle this issue, add additional disks to the VM, and copy the data from the symbolic link disks to the new disks, and then delete the symbolic links, this will result in a totally new VM, with an independent copy of the data disks.

This completes the capture and deployment of an AIX virtual machine running an Oracle E-Business Suite workload using PowerVC 1.2.1.2.

### Installing PowerVC on x86 RHEL 6.4 in a KVM VM

This section outlines the procedure to install the PowerVC1.2.1.x on a Red Hat Linux 6.4 x86 environment in a KVM virtual machine.

#### Configuring the KVM virtual machines

Installation of the PowerVC VM is through the HOST system KVM management display. Give the PowerVC VM a meaningful name. In this case we are going to call it PowerVC121.

The VM was configured as follows:

<table>
<thead>
<tr>
<th>Virtual Machine</th>
<th>System Name</th>
<th>Disk</th>
<th>Memory</th>
<th>Virtual CPU’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerVC121</td>
<td>Icc-143</td>
<td>200 GB /root</td>
<td>20 GB</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 GB /home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: memory and cpu allocation can be increased to improve performance at a later time.

#### Installing and configuring a KVM virtual machine

This section will outline the steps required to configure the PowerVC121 VM.

To install the Red Hat Enterprise Linux operating system, ensure the RHEL .iso file is stored on the hosting system. The file will have a similar name to the following:

- `Rhel-server-6.4-x86_64-dvd.iso`

From the KVM display, select, ‘Create a new VM’.
Enter the new VM name; ‘PowerVC121’ Click ‘Forward’.

Select the RHEL installation image, and Click ‘Forward’.
Increase the memory to 20GB, and CPUs to 2, Click ‘Forward’.

Increase the disk value to the total of /root and /home as required in the previous table. Click ‘Forward’.

Click ‘Finish’.

The Red Hat installation display will now be shown.
Accept all default values.

Enter a system name when prompted.

Please name this computer. The hostname identifies the computer on a network.

Hostname: icc-143

Follow the prompts to the following display:
Check the ‘Review and Modify partitioning layout’ and click ‘Next’.

Set the storage values for /root and /home.
Click ‘Next’.

In the installation type display, select ‘Desktop’ and check the ‘Customize now’. Click ‘Next’.

You can further customize the software selection now, or after install via the software management application.

- [ ] Customize later
- [ ] Customize now

When presented with the package display, select ‘Servers’ and check ‘FTP’. Click ‘Next’.

- [ ] Backup Server
- [ ] CIFS file server
- [ ] Directory Server
- [ ] E-mail server
- [x] FTP server
- [ ] Identity Management Server
- [ ] NFS file server
- [ ] Network Infrastructure Server
- [ ] Network Storage Server
- [ ] Print Server
- [ ] Server Platform
- [ ] System administration tools

When the RHEL package installation is complete, the system will reboot. Follow the default values for the remainder of the screens.

RHEL 6.4 installation is now complete.

**Configuring the KVM virtual machine for networking**

This section covers the requirements to enabling the following:

1. Configuring the VM client IP addressing for external network access.
2. Allowing access to the ‘host’ system from a VM client.
3. Installing FTP for communication with non-Linux systems.
4. Turning off SELINUX support.

**Configure the client IP for external communication**

The KVM client is installed with RHEL 6.4 but needs to be able to communicate to required network, therefore, it is necessary to make the following settings:

1. Enable ‘MACVTAP’. This is a new protocol for RHEL installations. This makes the configuration very easy.
In the active server window, select ‘Details’ and select ‘Console’.

Now select the Ethernet node.

Select as shown. Click ‘Apply’. Note: this will not show the change immediately, a reboot is required.

2. Set the ip address of the VM.
   Navigate to the network config display.
   Set ‘capture automatic’ to auto.
Click on 'IPV4 Settings'.

Enter the required parameters for your network.
Re-booting the VM at this point will give access to the external network, but will NOT give access to
the host system which contains the installation media for the SmartCloud installation.

**Configure the host system for an isolated network**

The KVM host does not automatically give network access to the client VM. There is a need to create
a separate internal network which we will call 'isolated' during the configuration. The steps below
outline the process for this:

1. Configure the HOST system with following setting:
   Create a file as /tmp/isolated.xml
   Add:
   ```xml
   <network>
     <name>isolated</name>
     <ip address='192.168.254.1' network='255.255.255.0'>
       <dhcp>
         <range start='192.168.254.1' end='192.168.254.243' />
       </dhcp>
     </ip>
   </network>
   
   </network>
   ```
   
2. Set the network to autostart:
   ```
   Virsh net-define /tmp/isolated.xml
   Virsh net-autostart isolated
   Virsh net-start isolated
   ```

3. On the host system, use virsh command 'virsh edit xxxxxxxx (VM name), set the following after
   the </network> entry:
   ```xml
   <interface type ='network'>
     <source network='isolated'/>
     Vmodel type='virtio'/>
   </interface>
   ```

For this to be enabled, you will need to reboot the HOST system, after shutting down any client VM’s.
To test the configuration, ping the VM from outside the host network (from your PC). And to test the
isolated network, ping 192.168.154.1 from the VM just created.

You should now be able to communicate to the host physical system, and also to other VM’s using
ping, and sftp.
**FTP package for RHEL Linux**

SFTP will enable each VM to communicate within the physical machine. You may need to FTP to an external system within your network. If this is not a Linux system then you need to run FTP and not SFTP.

You will need to install the following package on each VM.

```text
ftp-0.17-53.el6.x86_64.rpm
```

Use the command `ftp <ip address of target>` to start the ftp session.

**Reset SELINUX support**

It is a requirement to turn off SELINUX support on each of the Linux guest partitions.

On each partition, edit the file `/etc/sysconfig/selinux`.

Change the setting for SELINUX to permissive.

*Note: Installation will fail if this is not correctly set. Refer to the install log in `/opt/ibm/powervc/log` for any failed installation messages.*

Restart the VM.

The configuration of the RHEL6.4 KVM environment is now complete, follow the steps to install PowerVC in section ‘Install the PowerVC1.2.1.2 on Power, RHEL6.4’.
**Additional Resources**

IBM PowerVC Knowledge base:

http://www-01.ibm.com/support/knowledgcenter/#!/SSXK2N/welcome

Oracle E-Business Suite, visit the Oracle E-Business Suite Documentation Library at:

http://docs.oracle.com/cd/E18727_01/index.htm

Oracle E-Business Suite cloning.

My Oracle Support Knowledge Document 783188.1, "Certified RAC Scenarios for E-Business Suite Cloning"


http://docs.oracle.com/cd/E17559_01/em.111/e18709/T508706T512065.htm
About the Author

Neil Bryan is an IBM employee based in IBM Foster City, California working as part of the IBM International Competency Center specializing in Oracle product enablement on the IBM AIX platform.

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