

WebSphere Process Server Hypervisor Edition

Stand-alone images for use out of CloudBurst Appliance

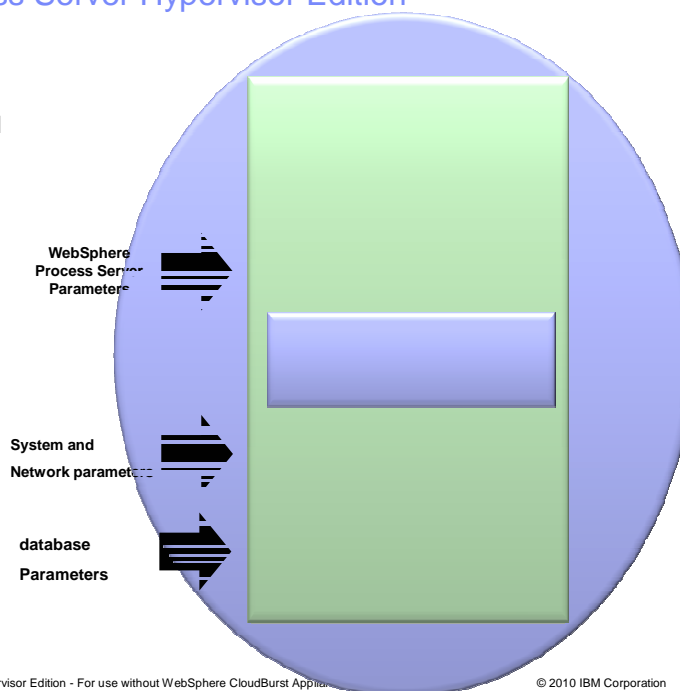


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This presentation provides details on how you can use the WebSphere® Process Server Hypervisor Edition Novell SUSE Linux® Enterprise Server for x86 (32-bit) image without WebSphere CloudBurst™ Appliance.

IBM WebSphere Process Server Hypervisor Edition

- Preinstalled, configured, and tuned
- Open Virtualization Format (OVF) standard packaging
- WebSphere Process Server 6.2 and 7.0
- Two virtual image formats:
 - **Stand-alone image**
 - VMware ESX, ESXi 3.5 and above only
 - **WebSphere CloudBurst image**



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WebSphere Process Server Hypervisor Edition - For use without WebSphere CloudBurst Appliance

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The WebSphere Process Server Hypervisor Edition package includes the operating system and the WebSphere Process Server that you can use to easily create, deploy, and manage WebSphere Process Server environments and applications using hypervisors.

The virtual images are available as stand-alone Hypervisor Edition images that can be used directly with a hypervisor, and as images that can be imported into the WebSphere CloudBurst catalog. This presentation covers details on how the stand-alone hypervisor edition images can be used.

Using the image without an appliance provides a cost-effective way to quickly deploy a virtual system without having a full cloud environment. Each virtual machine is configured as a component of a WebSphere Process Server environment. Details on components or parts as they are referred to in the Hypervisor Edition images are covered later on in the presentation. Stand-alone images for WebSphere Process Server Hypervisor Edition are available for version 6.2 and version 7.0.

Details on how to use WebSphere Process Server hypervisor images with WebSphere CloudBurst Appliance are covered in a separate presentation available on IBM Education Assistant.

What is included in the WebSphere Process Server Hypervisor Edition

- WebSphere Process Server Hypervisor Edition images for use without WebSphere CloudBurst Appliance
 - WebSphere Process Server Hypervisor Edition V7.0 Novell SUSE Linux Enterprise Server for x86 (32-bit)
 - WebSphere Process Server Hypervisor Edition V6.2 Novell SUSE Linux Enterprise Server for x86 (32-bit)
- What the image contains
 - Pre installed guest operating system (SUSE Linux Enterprise Server version 11)
 - DB2® Workgroup Server Edition version 9.5 for 32-bit
 - Set of patterns that represent common WebSphere Process Server deployment topologies
 - Set of parts that can be used to configure your own custom topology

WebSphere Process Server Hypervisor Edition stand-alone images use the SUSE Linux Enterprise Server as the operating system and can be deployed to VMware ESX or ESXi hypervisors. The images contain pre-installed guest operating system, with parts to build a WebSphere Process Server topology. DB2 Workgroup Server Edition version 9.5 for 32-bit is also packaged for use. IBM Update Installer for WebSphere software and IBM Installation Manager are also preinstalled for maintenance.

Hypervisor edition image format

- Hypervisor Edition Image formats
 - VMWare OVF Format and VMWare ESX Format

VMware requirements	Compressed image files to download	Files extracted from compressed packages
ESX image		
VMware ESX or ESXi 3.5.x	wpslv.v7.linux.esx.binary.x86.tgz wpslv.v7.linux.esx.metadata.x86.tgz wpslv.v7.linux.esx.profiles.x86.tgz wpslv.v7.linux.esx.os.x86.tgz	WebSphere_Binaries.vmdk WebSphere_Binaries-flat.vmdk WebSphere_Profiles.vmdk WebSphere_Profiles-flat.vmdk SLES11-32.vmdk SLES11-32-flat.vmdk WebSphere_V7.vmx WebSphere_V7_activation.vmx
OVF image		
VMware ESX or ESXi 3.5.x	wpslv.v7.linux.ovf.binary.x86.tgz wpslv.v7.linux.ovf.metadata.x86.tgz wpslv.v7.linux.ovf.profiles.x86.tgz wpslv.v7.linux.ovf.os.x86.tgz	WPS_V7-disk1.vmdk WPS_V7-disk2.vmdk WPS_V7-disk3.vmdk WPS_V7.ovf

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WebSphere Process Server Hypervisor Edition images are available in two different formats. The files you download depend on whether you plan to use the VMWare ESX or VMWare OVF version of the virtual image. The individual files that comprise each format and the extracted contents for each format are shown here.

Pattern parts

This section will discuss the pattern parts that are available with the WebSphere Process Server Hypervisor Edition virtual images.



WebSphere Process Server Hypervisor Edition - parts

- Database
- Extendable nodes
- Stand-alone server
- Deployment manager
- Custom nodes
- Proxy server
- Basic function nodes
- Basic function control node
- Full function control node

WebSphere Process Server Hypervisor Edition has nine pattern parts.

There are several simpler pattern parts, including a database part, extendable nodes, a stand-alone server, a deployment manager, custom nodes, and a proxy server.

There are three pattern parts that are more advanced parts, including a basic function node, a basic function control node, and a full function control node.

Parts description

- Stand-alone server
 - Contains WebSphere process server installation with stand-alone server instance and DB2 installed
- Extendable node
 - Contains just the installation of WebSphere Process Server
- Database part
 - Contains the installation of DB2 database.
 - Can be configured for deployment manager or for the clustered topology
- Custom node
 - Provides an unconfigured node for use with a deployment manager or a part with control nodes
- Proxy server
 - Contains a proxy server instance used for load distribution

The stand-alone server part contains an operating system with a pre-installed WebSphere Process Server, with a single server profile created and a DB2 database installed.

The extendable node pattern contains the operating system with only the WebSphere Process Server part installed.

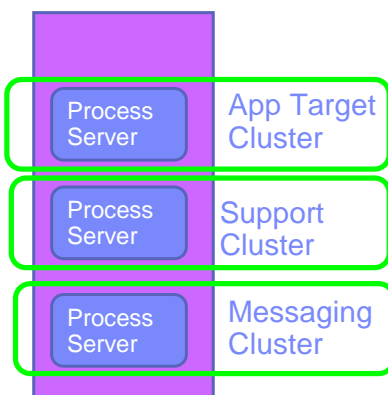
The database pattern part contains only the operating system with a DB2 database instance installed.

The custom node pattern part contains an unconfigured node that can be used in conjunction with a deployment manager, or a pattern part that contains a deployment manager such as one of the control nodes.

The proxy server pattern part contains an operating system deployment with a single proxy server installed to handle load distribution for your deployment.

Parts description - Basic function nodes

- Basic function nodes



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The WebSphere Process Server basic function node pattern part is the first part that is more complex than the other simpler pattern parts.

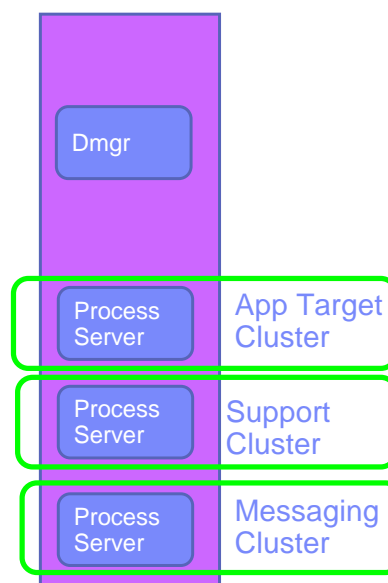
This pattern part contains three server instances deployed in a single virtual machine.

This pattern part cannot be used on its own, it must be deployed as part of a larger pattern that contains a deployment manager in order for it to be of any use.

This pattern part can be used when building a custom pattern with clustering support for WebSphere Process Server deployments.

Parts description - Basic function control nodes

- Basic function control node
 - Remote messaging, remote support Process Server deployment pattern in a single virtual machine.
 - No DB2 server and no proxy server



The second of the more complex pattern parts is the basic function control node.

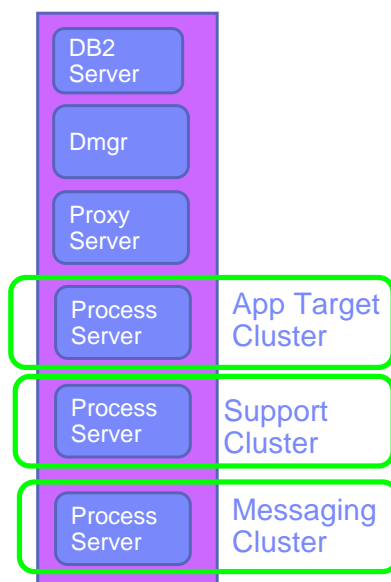
The word control in the description of this pattern part helps to identify it as a pattern part that contains a deployment manager.

This pattern part is an extension of the basic function node, with a deployment manager as part of the same virtual machine.

This pattern part does not contain a DB2 database or a proxy server as part of its topology.

Parts description - Full function control nodes

- Full function control node
 - Consists of all the Process Server components running in a single virtual machine organized similarly to a production environment
 - Contains deployment manager, a database instance, a proxy server and cluster members



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The final complex pattern part that is provided with WebSphere Process Server virtual image is the full function control node.

This pattern part contains a DB2 server instance, a deployment manager, a Proxy Server instance, and a basic control node with three servers.

All of the included components run on a single virtual machine instance.

This pattern part can be used with a basic function node to begin to build a scalable deployment of WebSphere Process Server.

Deployment and activation

This section will discuss the steps involved in deploying and activating the images for both VMWare ESX and VMWare OVF format images

Prerequisites

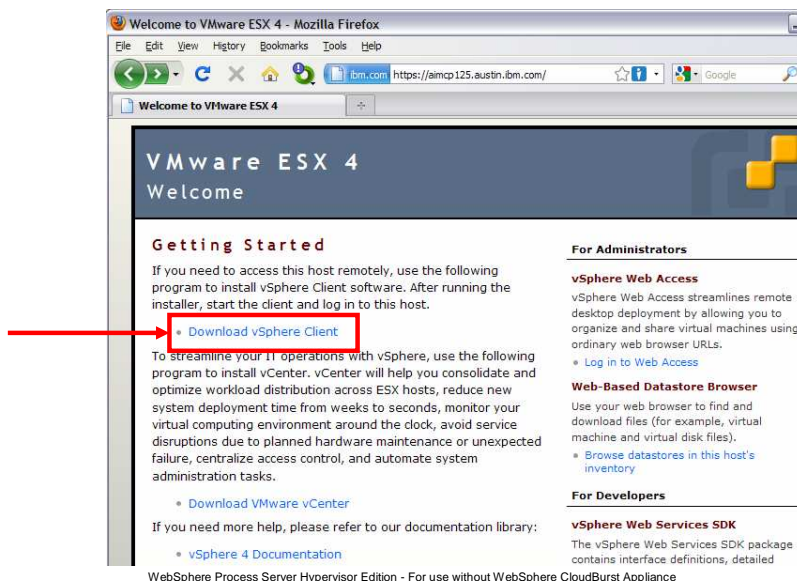
- **host name** or **IP address** of the hypervisor machine
- Must have a **hypervisor client** installed on a workstation capable of resolving the host name or ip-address of the hypervisor machine
- Must have **root permission** to log into the hypervisor machine
- Host name, domain, static ip-address, subnet mask, gateway, primary and secondary DNS Servers you want to use for the virtual image during runtime.
 - Or you can use *Dynamic Host Configuration Protocol (DHCP)* if your environment supports it.
 - Note: Do not use the same static ip-address already used by the machine running the hypervisor

Shown here are some of the prerequisites that you need to have before you start the deployment and activation. You need to install the hypervisor client so that you can directly interact with the hypervisor storage, and to activate the images. You should have a hypervisor client already installed on a workstation. If not, you must have a browser capable of resolving the host name or IP address of the hypervisor machine so that you can connect to the hypervisor web interface to download the client installation image.

You should gather the information regarding the host name, domain, static IP address, subnet mask, gateway, and primary and secondary DNS Servers that you want to use for the HVE virtual image during runtime. Or you can use DHCP if your environment supports it. Do not use the same static IP address already used by the machine running the hypervisor. You need root access to the hypervisor in order to deploy and activate the images.

Install hypervisor client

- Use the hypervisor machine host name as URL in the browser



If you do not have the hypervisor client installed on the workstation where you want to deploy images from, you can download the client by using the hypervisor host name as a URL in the browser. Download the client code and install it.

Deployment for VMWare OVF format

This section will discuss the steps involved in deploying the images for VMWare OVF format images

Deployment for OVF format images

- Extract the contents of the compressed VMware Open Virtualization (OVF) formatted installable images
- Use VMware Open Virtualization Format (OVF) Tool to import the virtual appliance
 - download the OVF tool from
 - <http://communities.vmware.com/community/developer/forums/ovf>
 - Install the tool – instructions provided in user guide
 - http://www.vmware.com/support/developer/ovf/ovf20/ovftool_201_userguide.pdf
 - Run the command
 - `ovftool -ds=dataStore sourceLocator targetLocator`
 - Ex: `ovftool -ds=aimcp125:storage1 /download/ovf/WPS_V7.ovf vi://aimcp125.austin.ibm.com`

Before you can deploy the image to hypervisor, extract the contents of the compressed VMware Open Virtualization Format(OVF) formatted installable images. You need Open Virtualization Format (OVF) Tool to import the virtual appliance. Download and install the tool from the link shown here. Installation instructions are provided in the user guide. Use the OVF tool to import the package. Usage of the command is shown here. *dataStore* is the target data store name, *sourceLocator* is the path for the .ovf file you extracted, and *targetLocator* is the name of the ESX server in VI format. This will import the images onto the hypervisor data store. If you want to have multiple virtual machines each containing a different part to create a pattern, you need to repeat this process for every part needed in the pattern. Once the images are deployed, the next step is activation of the images which is covered later on in the presentation.

Deployment for ESX format

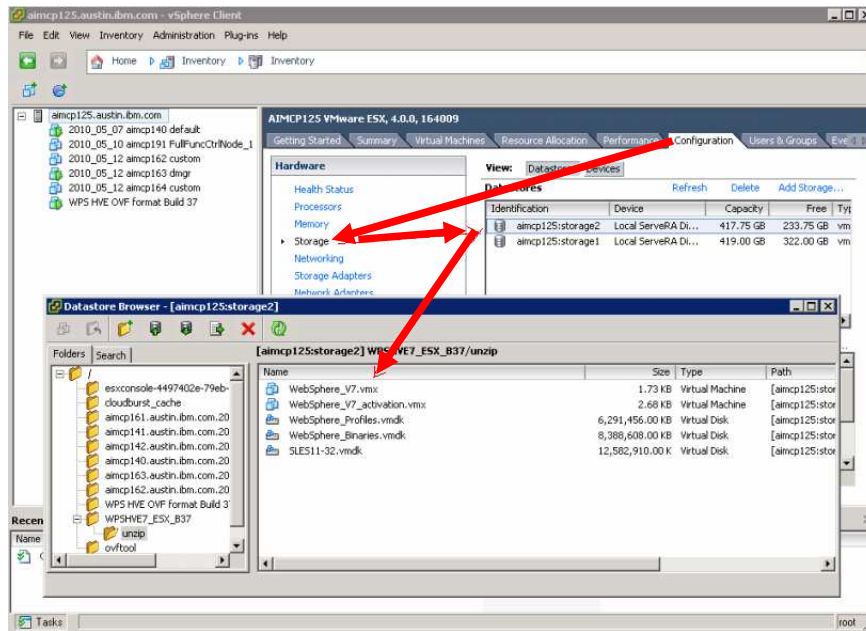
This section will discuss the steps involved in deploying the images for ESX format images

Deployment for ESX format images

- Extract the contents of the compressed ESX formatted installable images
- Launch VMware Infrastructure Client
 - Click Configuration → Storage, then select a data store.
 - Create a directory where you want to place the files
 - Place the extracted files inside one of the valid volumes under /vmfs/volumes/XXX.
- Register the virtual image on the hypervisor.
 - In VMware Infrastructure Client, right-click the WebSphere_<versionNumber>.vmx file and then click Add to inventory.

Before you can deploy the image to hypervisor, extract the contents of the compressed ESX formatted installable images. You need to move the extracted content to the hypervisor storage. Use the VMware Infrastructure Client to access the storage space of the hypervisor onto which you want to deploy the images. The data store browser will let you access the files in the storage and create new folders. Create a new directory and copy the files you extracted into this folder. Once the files are copied into hypervisor storage, you can add the image to inventory by right-clicking on the WebSphere_<versionNumber>.vmx file and then click Add to inventory. <versionNumber> can be either V7 or V62 depending on what product images you are activating.

Deployment for ESX format images



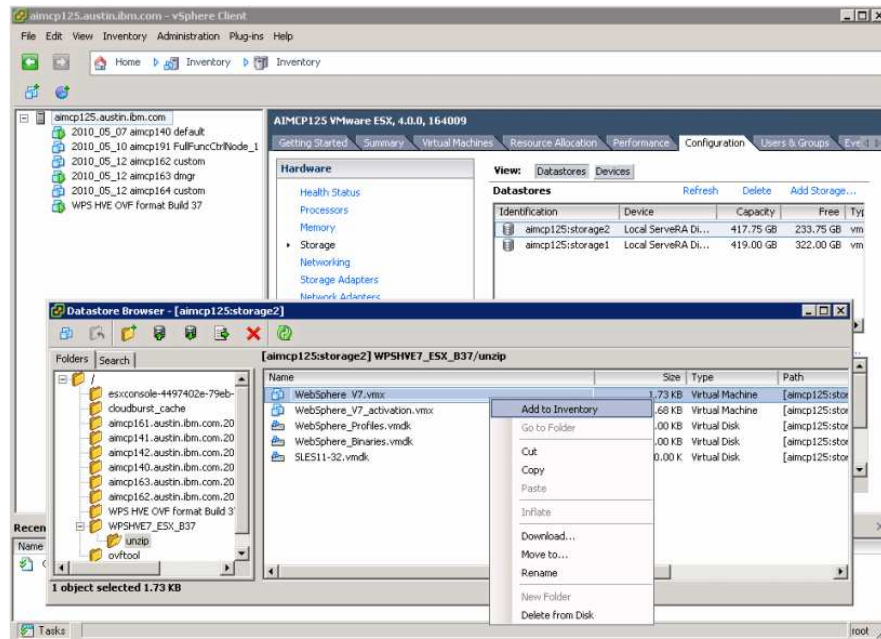
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This slide shows a screen capture of the VMware Infrastructure Client data store browser and the extracted contents of the compressed ESX formatted installable images that are moved onto hypervisor storage.

Deployment for ESX format images



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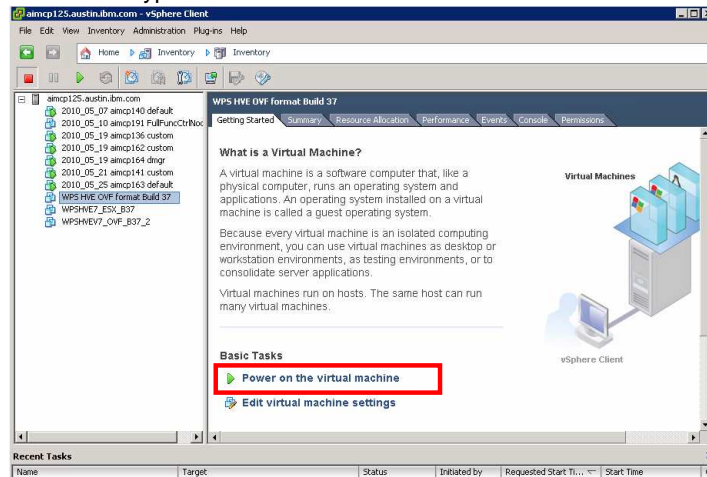
This slide shows the screen capture of adding the ESX format hypervisor images to the catalog.

Activation of deployed images

This section will discuss the steps involved in activation of the images. The activation steps are the same for both format images.

Powering up a deployed image

- Before beginning the activation of the virtual machine you must first power up the deployed image located on the hypervisor.



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You need to power on the virtual machines before you can activate the images. Use the hypervisor client to select the virtual machine and power on the virtual system.

Step-by-step - Image activation walk through using hypervisor client

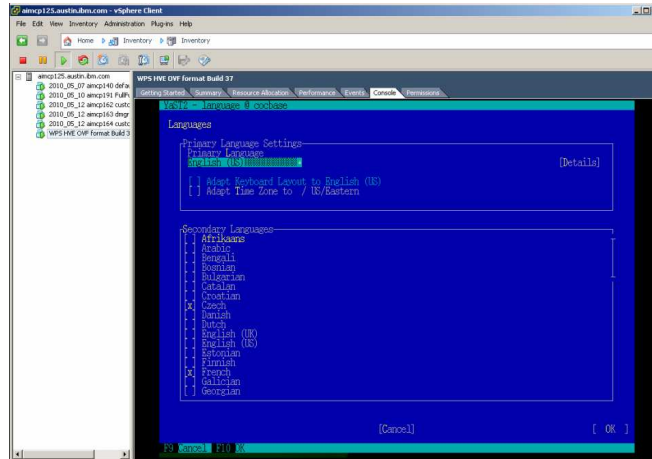
- Log in to the virtual machine operating system using the default username and password
 - Default values for WebSphere Process Server Hypervisor Edition V7.0 Novell SUSE Linux Enterprise Server for x86 (32-bit) are
 - Username – root
 - Password – password
- Accept the licenses for all the products
- Configure operating system specific tasks
 - Setup language, network and so on..
- WebSphere Process Server Hypervisor Edition Runtime Configuration tool is launched after the operating system configuration tool
 - Select the part you want to the configure for this virtual machine
 - Configure the part attributes (cell name, node name, password etc...)
 - After action is complete
 - configure a Network Time Protocol (NTP) server or manually set the current date, time, and time zone for the virtual image
 - Necessary for proper federation of nodes in different virtual machines

Shown here are some of the important steps involved in activation of the image. Log into the operating system using the default user name and password. Accept the licenses for the VMware tools, SUSE Linux operating system, and WebSphere Process Server. Finish the configuration of the operating system, which includes tasks like setting up language, network setup, and others. Once you are done with configuration of operating system, the WebSphere Process Server Hypervisor Edition Runtime Configuration tool is launched. In this tool, you are prompted to select the WebSphere Hypervisor Edition parts you want to configure on this virtual machine. Once you select a part, you are prompted to configure the part attributes. The virtual image is loaded on the hypervisor with the specified configuration and the operating system desktop is displayed. Log in to the operating system and configure a Network Time Protocol (NTP) server or manually set the current date, time, and time zone for the virtual image so as to ensure proper federation.

The next couple of slides show some of the panels you will see during activation.

Step-by-step - Image activation walk through using hypervisor client

- After a successful login you will see the first activation panel.
 - Here is where you select the primary and secondary languages you want to use for the system.
 - You can also choose to set the keyboard layout and time zone according to the primary language if required.



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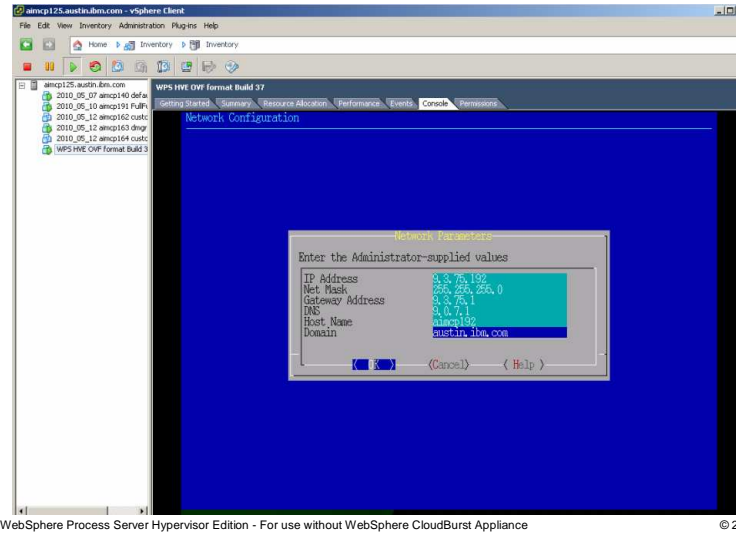
WebSphere® Business Server Hypervisor Edition - For use without WebSphere® Operational Appliance

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Shown here is the screen capture of a panel in the operating system configuration tool. In this panel, you are prompted to select the language and time zone.

Step-by-step - Image activation walk through using hypervisor client

- Provide IP address and other network information



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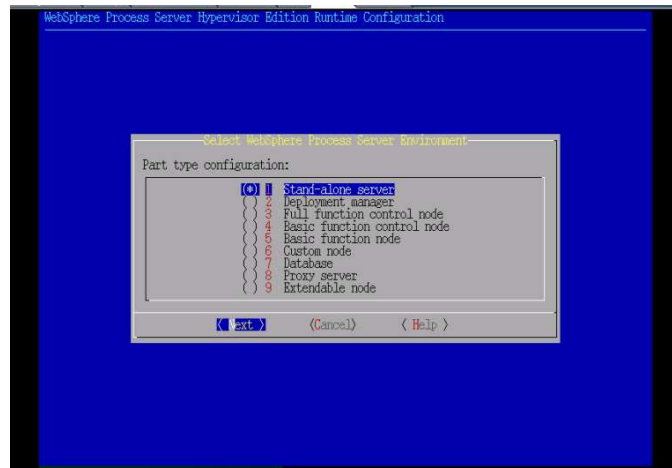
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Shown here is the screen capture of a panel in the operating system configuration tool. In this panel, you are prompted to provide the network parameters.

Step-by-step - Image activation walk through using hypervisor client

- WebSphere Process Server Hypervisor Edition Runtime Configuration tool
- In this panel, you are prompted to select the part you want to activate on the virtual machine
- Note: You can only select one choice on this panel



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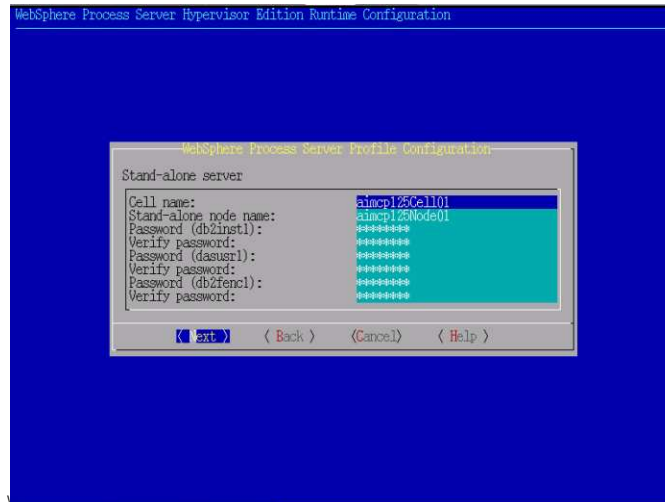
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Shown here is the screen capture of a panel in the WebSphere Process Server Hypervisor Edition Runtime Configuration tool. In this panel, you are prompted to select the part you want to configure on the virtual machine. You can only choose one part per virtual machine.

Step-by-step - Image activation walk through using hypervisor client

- In this panel, provide the cell name and node name for the environment or you can use the default names



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In this panel, you are prompted to provide the properties for the part you selected. Properties include cell name, node name, passwords, and so on.

Step-by-step - Image activation walk through using hypervisor client

- Now, the activation process will begin to configure (create) the environment based on your previous selections

```

WPS HVE OVF Format Build 37
Getting Started | Summary | Resource Allocation | Performance | Events | Console | Parameters

exitting validateParams with rc 0
Writing Variable profile: CELL_NAME=aiaacp125Cell01 :: WebSphere Cell Name
Finished writing Variable profile: CELL_NAME=aiaacp125Cell01 :: WebSphere Cell Name
Writing Variable profile: NODE_NAME=aiaacp125Node01 :: WebSphere Node Name
Finished writing Variable profile: NODE_NAME=aiaacp125Node01 :: WebSphere Node Name
Writing Variable profile: ADMIN_CONSOLE_URL=http://aiaacp192.austin.ibm.com:9060/ibm/console :: WebSp
Here Administrative Console URL
Finished writing Variable profile: ADMIN_CONSOLE_URL=http://aiaacp192.austin.ibm.com:9060/ibm/console
:: WebSphere Administrative Console URL
Start resetting DB2
Stopping DB2
DB200001 The FORCE APPLICATION command completed successfully.
DB210241 This command is asynchronous and may not be effective immediately.

Dropping databases
DB200001 The DROP DATABASE command completed successfully.
DB200001 The DROP DATABASE command completed successfully.
DB200001 The DROP DATABASE command completed successfully.
SQL1003N The database alias name or database name "TEMP" could not be
found. SQLSTATE=42705
DB200001 The TERMINATE command completed successfully.
SQL1004N RESERVE processing was successful.
Stopping DB2
SQL4407W The DB2 Administration Server was stopped successfully.
Disable the fault monitor processes
Disabling autostart
Done resetting DB2
Script: /opt/ibm/AS/AS/utills
Starting DB2
/opt/ibm/AS/AS/utills/ibmclean: Removing DB2 engine and client's IPC resources for db2inst1.
Starting DB2
SQL1003N RESERVE processing was successful.
Starting DB2
SQL4409W The DB2 Administration Server was started successfully.
Starting ProcSV01 Profile Creation
  
```

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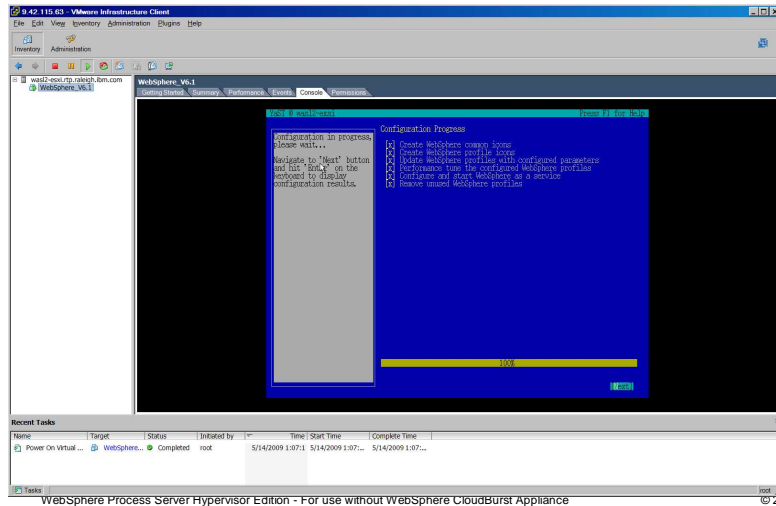
WebSphere Hypervisor Edition - For use without WebSphere GlobalStart Appliance

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Once the part properties are specified, the activation process begins.

Step-by-step - Image activation walk through using hypervisor client

- Finally, the configuration (activation) of the environment is 100% complete. Click next to continue



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Once the activation is complete, you can log into the virtual machine and start using the part you configured.

WebSphere Process Server Hypervisor – Product folders

- WebSphere Process Server installed under /opt/ibm/ProcessServerXX
- WebSphere Update installer installed in /opt/ibm/ProcessServerXX/UpdateInstaller
- Installation Manager in /opt/IBM/IM
- DB2 installed in /opt/ibm/db2

Shown here are the locations of the various products installed on the virtual machine. WebSphere update installer and IBM installation manager are installed by default.

Summary and references

- This presentation covered details on
 - What is WebSphere Process Server Hypervisor Edition?
 - Parts provided with the hypervisor edition
 - How to use WebSphere Hypervisor Edition images with hypervisors
 - How to deploy and activate the images

In summary, this presentation provided details on what the WebSphere Process Server Hypervisor Edition is, and the parts it provides to simplify the process of creating various topologies quickly. Details on how to deploy the image to a hypervisor and the steps involved in activation of the image were also discussed.

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