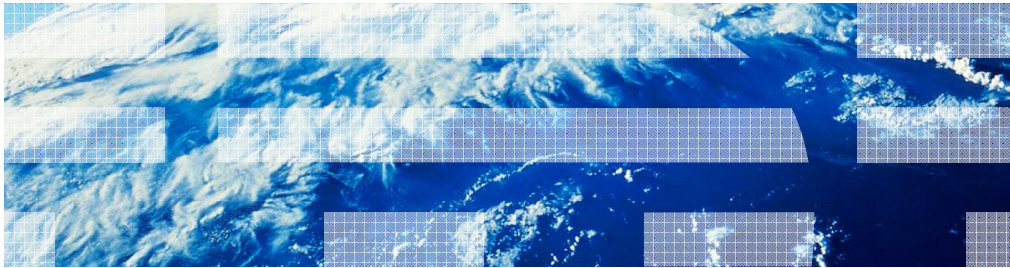IBM

IBM WebSphere CloudBurst Appliance

Virtual system administration

WebSphere software

This presentation covers the virtual system page of the WebSphere® CloudBurst™ console.

Table of contents

- Managing virtual systems
- Managing virtual machines
- Virtual machine consoles

Virtual system administration

This presentation describes management and monitoring features available for virtual systems and the virtual machines they contain. Finally it shows several methods that are available to access the virtual machines.
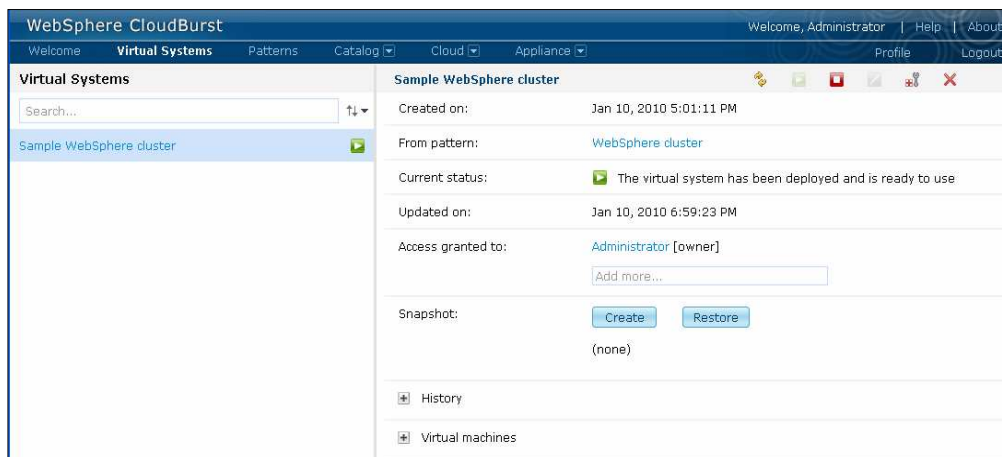
Virtual systems view

- Virtual system information
- Start and stop virtual system
- WebSphere Application Server integrated solutions console
- SSH
- VNC

Managing and monitoring your patterns once they are deployed can be achieved by going to the "Virtual Systems" tab. This allows you to view environment metrics, access the WebSphere Application Server integrated solutions console and log on to the operating system directly.

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Virtual system administration

- From this view you can control and view all aspects of your virtual system

When you select "Virtual Systems" from the Welcome screen you will see a list of deployed patterns that are visible to you. If you do not see any virtual systems listed you must log in as an administrator and grant access to your non-administrator user name. When you select a virtual system from the list on the left side of the console you will be presented with summary information about the virtual system.

Start and stop virtual system

Stop virtual system

Store virtual system

Delete virtual system

Start virtual system

Apply emergency fix to virtual system

Sample WebSphere cluster

Created on: Jan 10, 2010 5:01:11 PM

From pattern: WebSphere cluster

Current status: The virtual ... yed and is r...

Updated on: Jan 10, 2010 6:59:23 PM

Access granted to: Administrator [owner]

Add more...

Snapshot: Create   Restore

(none)

+ History

+ Virtual machines

The virtual system's view offers the basic functions of starting, stopping and deleting the virtual systems from the cloud. These actions affect all of the virtual machines that are part of the virtual system. Deleting a virtual system will release all of its resources, such as hypervisor storage and IP addresses back to the pool.

Two additional features deserve a deeper look: emergency fixes and storing virtual systems.

IBM maintains the virtual images that come preloaded on WebSphere CloudBurst. When a new fix pack is available these virtual images are updated and available for import into the WebSphere CloudBurst appliance. However, it is not always feasible to wait for the virtual images to be updated. In such cases you can apply an emergency fix directly to the running virtual system. The emergency fix is specific to the virtual system to which it was applied; what this means is that if you re-deploy the pattern, this emergency fix is not present in the virtual system. You will need to either update the virtual image and re-deploy the pattern or reapply the emergency fix after the pattern has been re-deployed.

Storing a virtual system releases the resources associated with the virtual system and keeps the virtual system on the hypervisor so that it can be started at a later time. The delete operation releases the associated resources as well, but it also removes the virtual system from the hypervisor.

Virtual system information

Sample WebSphere cluster

Created on:	Jan 10, 2010 5:01:11 PM
From pattern:	WebSphere cluster
Current status:	The virtual system has been deployed and is ready to use
Updated on:	Jan 10, 2010 6:59:23 PM
Access granted to:	Administrator [owner]
	Add more...
Snapshot:	Create Restore
	(none)

History

Virtual machines

Pattern

Status

Authorized users

Snapshot

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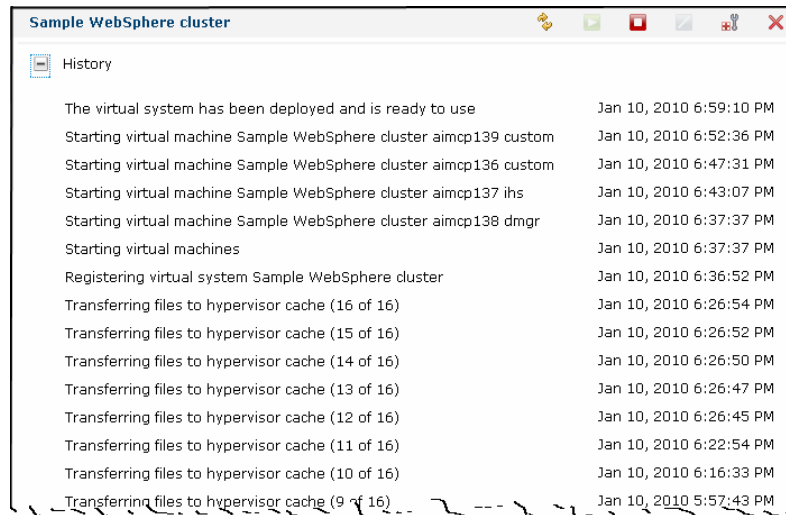The Virtual system panel provides several other informational and operational items.

The "From pattern" entry is the pattern from which the virtual system was created. The pattern name is a link to the management panel for the pattern.

"Current status" provides a high level view of the virtual system's status. A green arrow indicates that the virtual system is available and ready for use.

"Access granted to" shows a list of users on the WebSphere CloudBurst appliance who can manage the virtual system. Only the owner of a virtual system can grant access to it for other users. In this example, Administrator is the owner of the virtual system and only Administrator or users with "Cloud administration" permission can view the virtual system.

Virtual systems deployed to VMware ESX hypervisors provide the ability to save a copy of the entire current state of a virtual system. This copy is called a snapshot. Taking a snapshot of a virtual system will result in every virtual machine that makes up the virtual system having its own snapshot taken. Restoring from the snapshot takes you back to the state defined by the snapshot. WebSphere CloudBurst calls out to the hypervisors hosting the virtual machines to create or restore snapshots. The snapshots are stored on the hypervisor and not in the appliance.

Processing history

Sample WebSphere cluster

History

The virtual system has been deployed and is ready to use	Jan 10, 2010 6:59:10 PM
Starting virtual machine Sample WebSphere cluster aimcp139 custom	Jan 10, 2010 6:52:36 PM
Starting virtual machine Sample WebSphere cluster aimcp136 custom	Jan 10, 2010 6:47:31 PM
Starting virtual machine Sample WebSphere cluster aimcp137 ihs	Jan 10, 2010 6:43:07 PM
Starting virtual machine Sample WebSphere cluster aimcp138 dmgr	Jan 10, 2010 6:37:37 PM
Starting virtual machines	Jan 10, 2010 6:37:37 PM
Registering virtual system Sample WebSphere cluster	Jan 10, 2010 6:36:52 PM
Transferring files to hypervisor cache (16 of 16)	Jan 10, 2010 6:26:54 PM
Transferring files to hypervisor cache (15 of 16)	Jan 10, 2010 6:26:52 PM
Transferring files to hypervisor cache (14 of 16)	Jan 10, 2010 6:26:50 PM
Transferring files to hypervisor cache (13 of 16)	Jan 10, 2010 6:26:47 PM
Transferring files to hypervisor cache (12 of 16)	Jan 10, 2010 6:26:45 PM
Transferring files to hypervisor cache (11 of 16)	Jan 10, 2010 6:22:54 PM
Transferring files to hypervisor cache (10 of 16)	Jan 10, 2010 6:16:33 PM
Transferring files to hypervisor cache (9 of 16)	Jan 10, 2010 5:57:43 PM

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Expand the History section of the panel to see the entire history of the virtual system since deployment. Significant events in the virtual system life cycle are recorded, including resource allocation and virtual machine start and shutdown.

Virtual machines

- View virtual system and WebSphere Application Server metrics
- Access the operating system using SSH

Virtual machines	3 total - 3 started				
Name	CPU	Memory	SSH	Actions	
Test Multi App Again Sam aimcp139 dmgr	1%	95%	Login	View	
Test Multi App Again Sam aimcp138 custom	0%	99%	Login	View	
Test Multi App Again Sam aimcp141 custom	1%	98%	Login	View	

Each virtual system consists of one or more virtual machines. Expand Virtual machines to see a list of the virtual machines that make up the virtual system. The pattern used to create this virtual system was a cluster pattern. Therefore, several virtual machines are included.

The initial virtual machine information indicates the amount of processor capacity currently used and the amount of allocated memory currently used. In this example 95% of the memory allocated for the first virtual machine has been used. If the indicator is green then either the processor or memory is operating within in normal limits. Yellow indicators tell you that the item should be monitored and possible adjustments made. A red indicator is a warning and action should be taken immediately.

Expanding a virtual machine will present you with information about the virtual machine. This page is divided into four sections that provide varying levels of information and detail. It contains information such as the hypervisor where the virtual machine is installed, what IP was assigned and the cell and node name of the WebSphere Application Server environment.

WebSphere CloudBurst assumes the responsibility of assigning IP addresses to the virtual machines and placement of those virtual machines in the cloud. Since this is the case, WebSphere CloudBurst provides you with a WebSphere Application Server integrated solutions console link, SSH link and in some cases a VNC link into the operating system. These links are found under the Consoles section.

Virtual machine - General information

- General information that is pertinent to the virtual machine

General information

Created on:	May 19, 2010 3:11:17 PM
From virtual image:	WebSphere Application Server 7.0.0.11
Current status:	▶ Virtual machine has been started
Updated on:	May 24, 2010 6:07:00 PM
On hypervisor:	aimcp125.austin.ibm.com
In cloud group:	aimcp157.cloudGroup
Registered as:	DMGR_1
Stored on:	aimcp125:storage2

In the "General Information" section you will find information pertinent to the virtual machine. You can monitor the virtual machine's status from here. The host hypervisor is displayed and is linked from this panel, as is the cloud group the virtual machine is part of.

Virtual machine – Hardware and network

• Hardware and network information pertinent to the virtual machine

Hardware and network

Virtual CPU count:	1
Virtual memory (MB):	1024
Located at:	aimcp164.austin.ibm.com (9.3.75.164)
SSH public key:	id_rsa.pub
MAC address:	00:50:56:b6:00:11

In the "Hardware and network" section you will find information pertinent to the virtual machine. The number of processors and virtual memory configured on the virtual machine are displayed. The host name and IP address shown are assigned to the virtual machine by WebSphere CloudBurst during virtual machine deployment. SSH public key information is also displayed. The link to the public key shows the contents of the key.

Virtual machine – Operating system

- Operating system information that is pertinent to the virtual machine

Operating system

Name:	Linux
Type:	SUSE LINUX
Version:	2.6.27.45-0.1-vmi

In the "Operating system" section you will find the type and version of the operating system that your virtual machine was created on.

Virtual machine – WebSphere configuration

• WebSphere configuration information that is pertinent to the virtual machine

⊕ WebSphere configuration

Cell name:	CloudBurstCell0
Node name:	CloudBurstNode0
Profile name:	DefaultDmgr01

Show all environment variables

WebSphere
Application
Server
environment
variables

ADMIN_CONSOLE_URL	http://aimcp164.austin.ibm.com:9060/ibm/console
ADVANCED_FEATURE_SELECTED	false
AMT_MEM	955924
APP_SERVICE_COMMAND	/opt/IBM/AE/AS/installAppService.sh
APP_SERVICE_COMMAND_LOG	/opt/IBM/WebSphere/AppServer/updateInstaller/logs
APP_SERVICE_PACKAGE_LOCATION	/tmp/update/app
AUGMENT_LIST	none
AUTOSTART	true
CELL_NAME	CloudBurstCell0
DELETE_VIRTUAL_MACHINE	/opt/IBM/AE/AS/removeWASVM.sh
DMGR_FEDERATE	false
HOSTNAME	aimcp164.austin.ibm.com
JMGR_REGISTER	false
NODE_NAME	CloudBurstNode0

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In the "WebSphere configuration" section you can locate the cell, node and profile names for the virtual machine. Click the link to Show all environment variables. This opens a separate browser tab or window with a list of WebSphere Application Server environment variables. The list is read only.

WebSphere logs

• Displays installed script packages and the associated logs

Script Packages

ILMT Agent Install Package   ☑ May 19, 2010 3:30:33 PM   remote_std_out.log
                                                           remote_std_err.log
                                                           cloudburst_collect1274297433366.zip

The "Script Packages" section is divided into log files and other important files generated when the script package runs and when the application server starts. The archive file contains a collection of log files, error files, and the activity log. This archive file is very useful for debugging and troubleshooting any problems with the initial deployment of the package.

VNC console

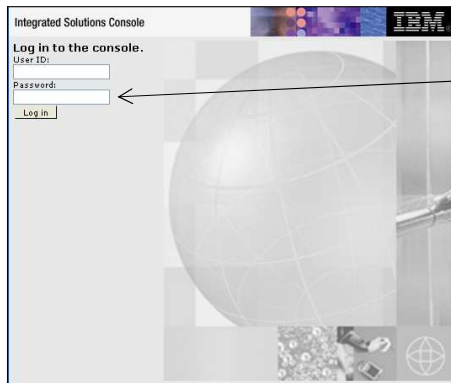•Use the Consoles section to access VNC
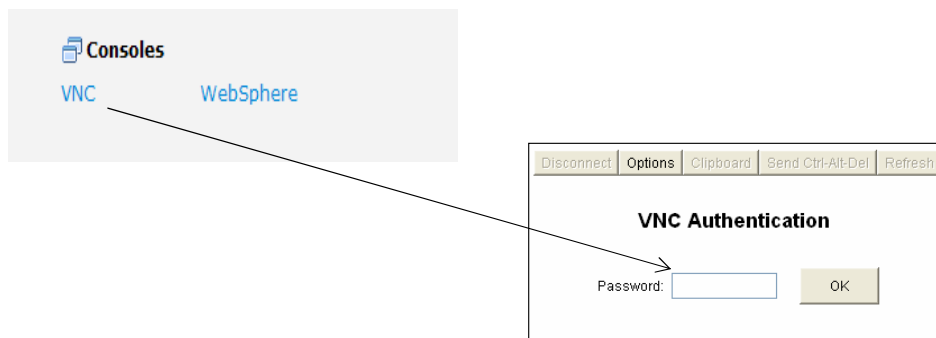
The "Consoles" section contains several links that you will find useful.

During pattern creation, the default setting is for your host operating system to be configured to accept VNC connections. If a virtual machine was created with VNC access enabled, the "VNC" link opens a VNC session in a separate browser window. The new browser window initially shows a VNC authentication panel to allow access to the virtual image. VNC server password is the password configured for the virtuser ID when deploying the pattern to create the virtual system. Once you have entered the VNC server password, you can use VNC to remotely control the virtual image. The VNC link is only available for virtual machines hosted on a VMware ESX hypervisor.

WebSphere integrated solutions console

- Deployment manager only

Consoles

VNC   WebSphere

• Use the Consoles section to access WebSphere

If the virtual machine hosts a WebSphere Deployment manager, The "WebSphere" link opens a separate browser window to the Integrated Solution Console (also known as the WebSphere administrative console) log-in panel. You can log-in with the ID "virtuser" and the password configured when deploying the pattern to create the virtual system. From the integrated solutions console, you can perform normal administrative tasks on the configuration.

SSH console

- All hypervisor types

Name	CPU	Memory	SSH	Actions
For licensing test aimcp164 dmgr			Login	
				View

User name
Password
Login   Cancel

Last login: Mon Apr 27 09:53:19 2009
IBM WebSphere Application Server Hypervisor Edition

aimcp138:~ #
aimcp138:~ #

The "SSH" link on the virtual machine status line will open a separate browser window with an SSH session to the virtual machine. You must provide a user name and password that are valid on the virtual machine. The console does not connect your client directly to the target virtual machine. Instead, the WebSphere CloudBurst appliance manages the SSH connection and acts as a proxy between the client browser session and the virtual machine.

Summary

- Information
- Control
  - Start, stop, update
- Virtual machine
  - Metrics
  - Configuration information
  - Logs
- Virtual machine consoles
  - SSH
  - VNC
  - WebSphere

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This presentation described the virtual system page of the WebSphere CloudBurst console. This page provides configuration information for virtual systems deployed through the WebSphere CloudBurst appliance. You can easily start and stop the virtual machines that make up the virtual system or apply updates to the virtual machines. You can also create an operational snapshot of the virtual machines or restore from a previously created snapshot. High level operational metrics and detailed configuration information are provided for each virtual machine contained in the virtual system. You can access virtual machines directly in several ways: an SSH session provides low-level access to a virtual machine terminal environment, and a VNC session allows you to access the virtual machines desktop. Finally, a link is provided to the WebSphere Integrated Solutions Console.

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