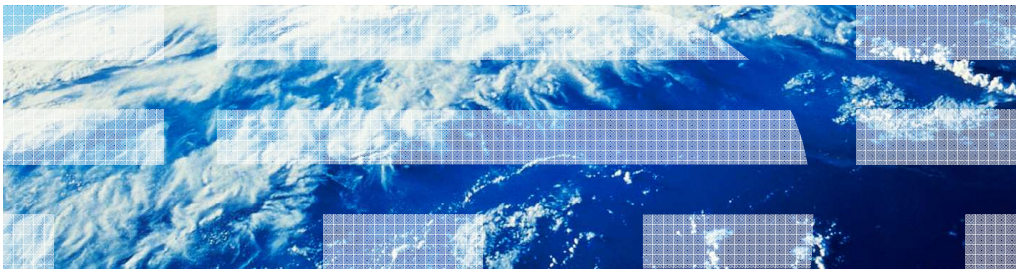
IBM WebSphere CloudBurst Appliance V2.0.0.2

New feature overview



This presentation will cover the new features introduced in IBM WebSphere® CloudBurst™ Appliance V2.0.0.2.

Table of contents

This presentation will cover the new features of the IBM WebSphere CloudBurst Appliance V2.0.0.2 release of the product. The topics covered are “PowerVM Configuration”, “Environment Profiles”, “Virtual user username definition”, “Post-deployment image actions”, “Reporting”, and a few miscellaneous enhancements. As you can see there are many new features introduced in the V2.0.0.2 release.

Section

PowerVM configuration

This section will cover the PowerVM configuration.

PowerVM prerequisites (1 of 3)

Component	WebSphere CloudBurst version 2.0.0.1 and earlier	WebSphere CloudBurst version 2.0.0.2 and later
Power Systems™	POWER5™ System POWER6® System	POWER5 System POWER6 System POWER7® System
Power Systems Firmware	POWER5 System - xx240_382 or later POWER6 System - xx350_049 or later	POWER5 System - xx240_382 or later POWER6 System - xx350_049 or later POWER7 System - xx710_065 or later
IBM Systems Director	IBM Systems Director 6.1 IBM Systems Director update 6.1.1.2 Fixpack for VMControl Support	IBM Systems Director 6.2 IBM Systems Director update 6.2.0.1 JPA efix (Fixpack for VMControl support might be needed)
VMControl Plugin	VMControl 2.1 Fixpack for VMControl	VMControl 2.3 VMControl 2.3.0.1 (Fixpack for VMControl support might be needed)
VMControl Plugin version	Standard	Standard or Enterprise

Note: To use POWER7, you must use WebSphere Application Server Hypervisor Edition 7.0.0.13 for PowerVM; this image bundles AIX 6.1.4

New feature overview

There are some detailed specifications to consider to use IBM PowerVM hypervisors and IBM Systems Director VMControl managers with IBM WebSphere CloudBurst Appliance. The next several pages show the required levels for V2.0.0.2 for IBM PowerVM hypervisors.

If the version information in the table does not say "or later" then the version requirement is the exact level stated.

PowerVM prerequisites (2 of 3)

Component	WebSphere CloudBurst version 2.0.0.1 and earlier	WebSphere CloudBurst version 2.0.0.2 and later
AIX® for Network Installation Manager (NIM) and IBM System Director and VMControl Plugin	6.1.3.1 - 6100-03-01-921	6.1.4.4 - 6100-04-04-1014
NIM	Master 6.1.3.0 Client 6.1.3.0 Spot 6.1.3.0	Master 6.1.4.2 Client 6.1.4.3 Spot 6.1.4.2
dsm.core	6.1.3.1	6.1.4.2
Hardware Monitor Console (HMC)	7.3.5.M02 MH01194 + MH01195 + MH01197 + MH01204 + MH01207 + MH01217 + MH01221 + MH01225 + MH01229	7.7.2.M0 MH01233 + MH01235
HMC Hardware	7042-CR5 7042-CR4 with 2GB MES 7310-CR4 with 2GB MES	7042-CR5

This slide is a continuation of the PowerVM prerequisites.

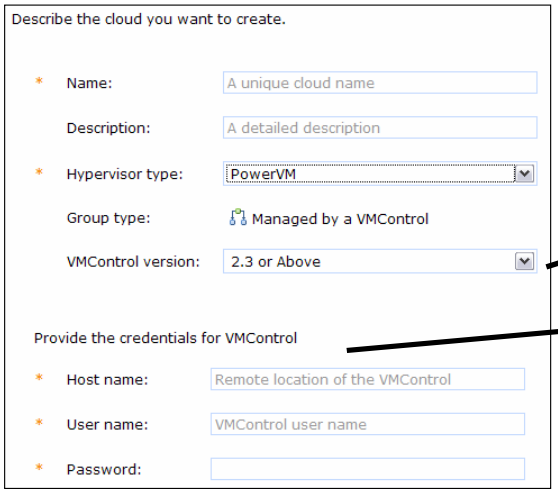
PowerVM prerequisites (3 of 3)

Component	WebSphere CloudBurst version 2.0.0.1 and earlier	WebSphere CloudBurst version 2.0.0.2 and later
Agents	DirectorCommonAgent 6.1.0.3 DirectorCommonAgent 6.1.1.1 cas.agent 1.4.1.1	DirectorCommonAgent 6.2.0.1 DirectorPlatformAgent 6.2.0.1 cas.agent 1.4.2.2
VIOS	2.1.1.10-FP22	2.1.3.10-FP23

This slide is a continuation of the PowerVM prerequisites.

PowerVM VMControl version 2.3 or later configuration

- Navigate to **Cloud > Cloud Groups**



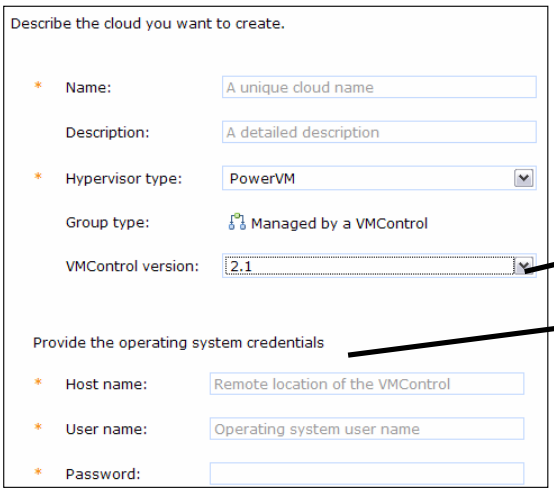
- Select the appropriate VMControl version
- Provide the credentials for VMControl

New feature overview

There have been some updates to the user interface when creating a cloud group using a IBM PowerVM hypervisor for version 2.0.0.2. You must now select the version of IBM Systems Director VMControl. Before version 2.0.0.2 this field was not displayed. The credential for VMControl section is displayed if you selected version 2.3 or later in the VMControl version field.

PowerVM VMControl version 2.1 configuration

- Navigate to **Cloud > Cloud Groups**



- Select the appropriate VMControl version
- Provider the operating system credentials

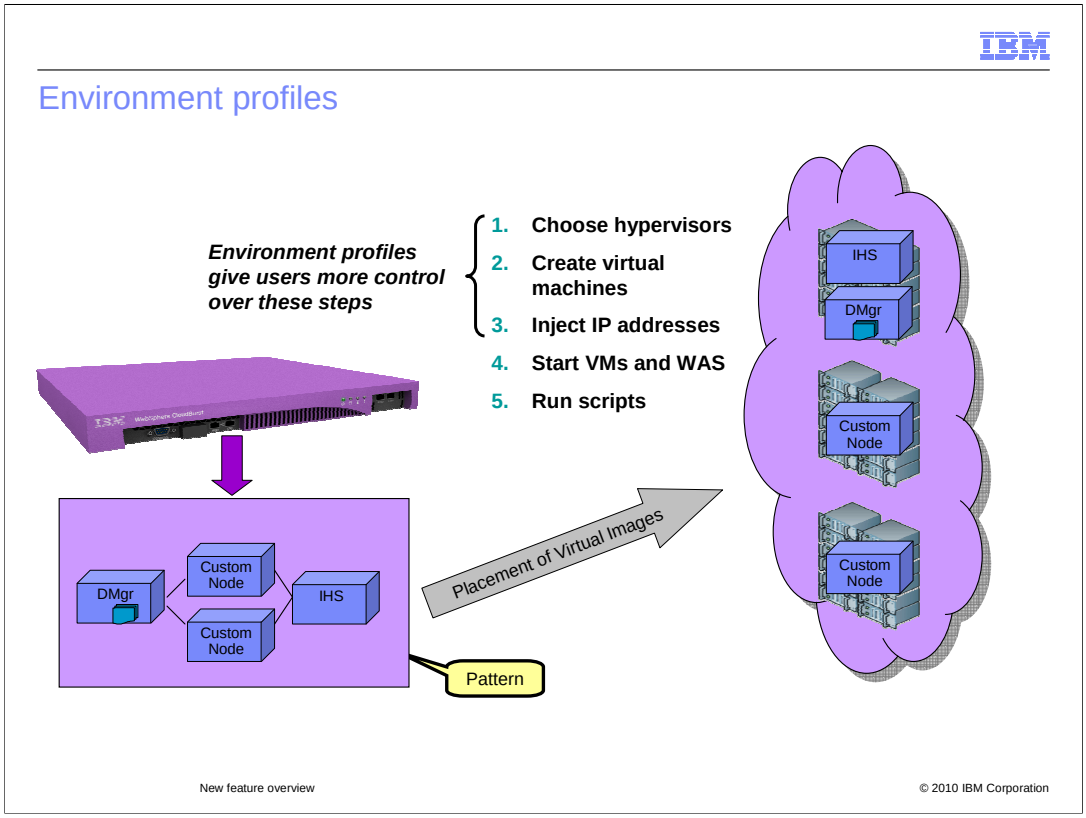
New feature overview

If you select version 2.1 in the VMControl version field, and are using WebSphere CloudBurst version 2.0.0.2, you must provide the operating system credentials. Before version 2.0.0.2 you provided the required information to access IBM Systems Director VMControl in this section.

Section

Environment profiles

This section will give an overview of environment profiles.



Environment profiles give you the ability to group related deployment configuration, like virtual machine name format, IP address assignment responsibility and cloud groups. Environment profiles also give you the ability to deploy a single pattern to multiple cloud groups.

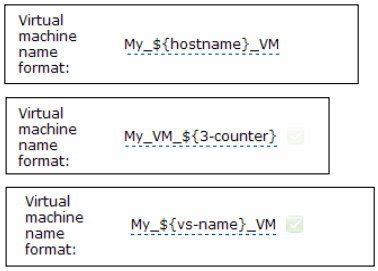
Section

Variable substitution

This section will cover the variable substitution possibilities.

Environment profile variable substitution rules

- Virtual machine name format can include predefined variables
  - For ESX and PowerVM hypervisors
    - ${*hostname*}
      - Replaced with the hostname of the virtual machine.
    - ${n-*counter*}
      - Replaced with a counter of n digits.
    - ${*vs-name*}
      - Replaced with the name of the virtual system.
- For z/VM
  - Only ${n-counter} is supported



The environment profile “Virtual machine name” field supports three pre-defined variables. Those variables are ${hostname}, ${vs-name} and ${n-counter}.

${hostname} is replaced with the hostname of the virtual machine.

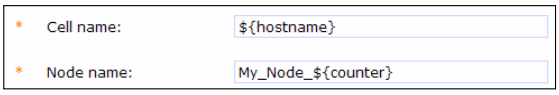
${n-counter} is replaced with a counter made up of n digits. For example, if you specified ${5-counter} you end up with “00001”, “00002”. ${n-counter} supports only prefixes.

${vs-name} is replaced with the name of the virtual system.

z/VM only has support for the ${n-counter} in version 2.0.0.2 of the product.

Pattern deployment variable substitution rules

- For pattern deployments the pattern used to generate cell name and node name can use pre-defined attributes by including these strings in the cell or node name field:
  - For ESX, PowerVM and z/VM:
    - ${*hostname*}
      - Replaced with the hostname of the virtual machine.
    - ${*counter*}
      - Replaced with a deterministic counter (that is 1, 2, 3)
- Variables cannot be combined
  - My_${hostname}_${counter} is not allowed
- Prefixes or postfixes are NOT accepted with ${hostname}
- Only prefixes are allowed with ${counter}



Pattern deployment gives you the ability to use variable substitution when defining your cell and node names. All three platforms support the variables: ${hostname} and ${counter}.

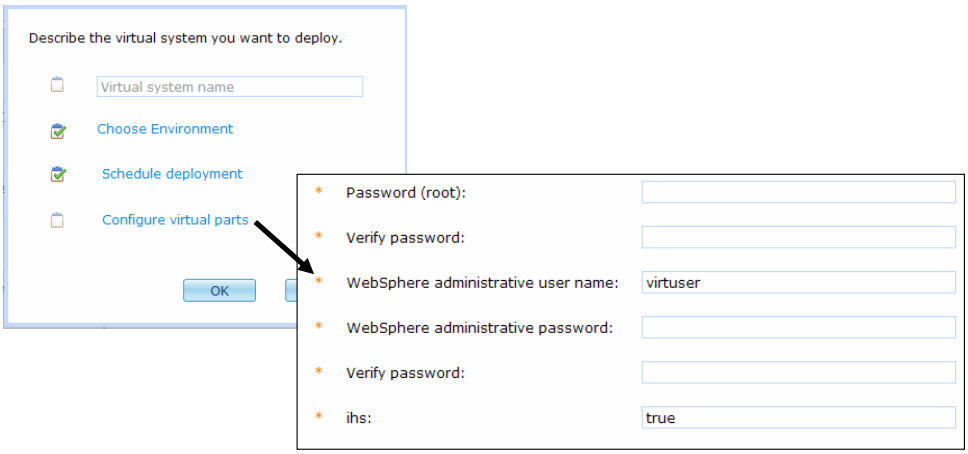
${hostname} is replaced with the hostname of the virtual machine. Prefixes and postfixes are not supported with ${hostname} variable. If you enter either of these they are deleted.

${counter} will result in a deterministic counter being applied to your cell or node name. For example, if you do not add the ${counter} variable your node names for a single multi-node deployment may be node_5, node_6, node_7 and so forth. By adding the ${counter} variable you are ensuring that the count starts at 1, so you will have node_1, node_2 and so forth. Prefixes only are supported with the ${counter} variable.

This section will give an overview of the enhancements that are available with WebSphere Application Server version 7.0.0.13 Hypervisor Edition.

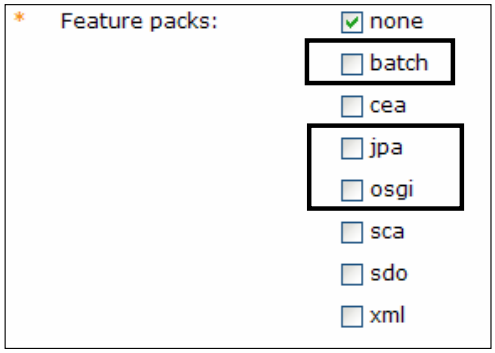
Virtual user username definition

- Available for WebSphere Application Server version 7.0.0.13 or later
  - Configure the **virtuser** username



New with WebSphere Application Server Hypervisor Edition version 7.0.0.13 is the ability to define the WebSphere administrative user name. Before V7.0.0.13, “virtuser” was hardcoded as the WebSphere administrative user name and it was not configurable. This can be specified at pattern creation or virtual system deployment.

New feature pack support



New feature overview

Also new with WebSphere Application Server Hypervisor Edition version 7.0.0.13 are three additional feature packs: batch, osgi and jpa.

The first one, batch, is “WebSphere Application Server Feature Pack for Modern Batch V1.0”. This feature pack allows the WebSphere Application Server to accommodate batch work alongside the more traditional transactional applications. Batch work might take hours or even days to finish and can use large amounts of memory or processing power while it runs. The support for batch includes a Web-based application for managing jobs, called the job management console. Through this console, you can submit jobs, monitor job execution, perform operational actions against jobs, and view job logs.

The next two feature packs, jpa and osgi, are closely related and actually shipped together in one feature pack called “WebSphere Application Server Feature Pack for OSGi Applications and Java Persistence API 2.0 ”. These feature packs complement each other by allowing developers to develop applications in a more modular fashion.

OSGi technology helps to solve various application development challenges around complexity, extensibility, and maintenance. It integrates Apache Aries technologies into WebSphere Application Server which include the OSGi Blueprint Container and the Apache Aries application assembly model. You can use this feature pack to deploy and manage web applications as a set of versioned OSGi bundles. You can also configure one or more bundle repositories, as part of the provisioning infrastructure, to host common bundles that multiple applications use, and to simplify the deployment of applications that use those common bundles.

JPA, or Java Persistence API, represents a simplification of the persistence programming model. It implements support for Apache OpenJPA 2.0. JPA provides a mechanism for managing persistence and object-relational mapping and functions for the EJB 3.0 and later specifications. JPA standardizes object-relational mapping by using annotations or XML to map objects into one or more tables of a database.

Maintenance separation

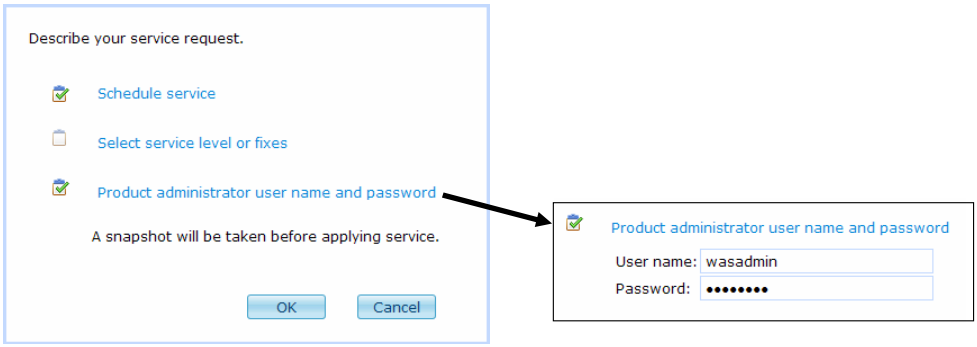
- Optionally disable operating system maintenance for your deployed virtual systems
- For each virtual machine that you want to apply only application server maintenance, include this variable in the /etc/virtualimage.properties file:
  - OS_SERVICE_SKIP=TRUE
- When you apply the fix package that is generated when importing an updated virtual image, only application server updates are applied
  - Available starting in 7.0.0.13, 6.1.0.33
- Use this option when you:
  - Have operating system-level image customizations that you do not want to overwrite with IBM-provided maintenance
  - Have an agreement with the operating system vendor to get maintenance from them

Another change that is new with WebSphere Application Server Hypervisor Edition V7.0.0.13 is the ability to disable operating system maintenance for your deployed virtual systems. If you have customized the operating system that is deployed as part of your virtual system, you might not want maintenance automatically installed when you apply a new fixpack as it will overwrite your customizations. In order to prevent your customizations from being overwritten, you can set this new variable, OS_SERVICE_SKIP, to TRUE in the /etc/virtualimage.properties file on the virtual systems. You will need to apply operating system maintenance yourself in this case then. This is also available with the WebSphere Application Server Hypervisor Edition V6.1.0.33 image.

This section will cover the post-deployment image action improvements.

WebSphere CloudBurst password sync with target virtual machine

- Navigate to **Virtual Systems > your_vs** and click 

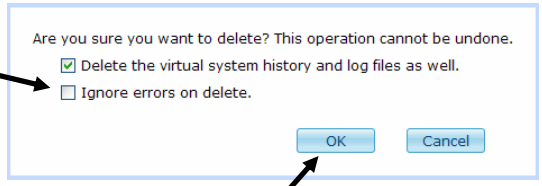


Application passwords on a virtual machine can be changed by a user over time for security or other reasons. Previously, WebSphere CloudBurst Appliance assumed the password was the originally configured password, and if it had changed, WebSphere CloudBurst will fail. There are several instances on WebSphere CloudBurst where a user will now be prompted for a password, such as maintenance. This addresses the situation where you update the password post deployment.

Removing a virtual system

- Navigate to **Virtual Systems > your_vs** and click ✕

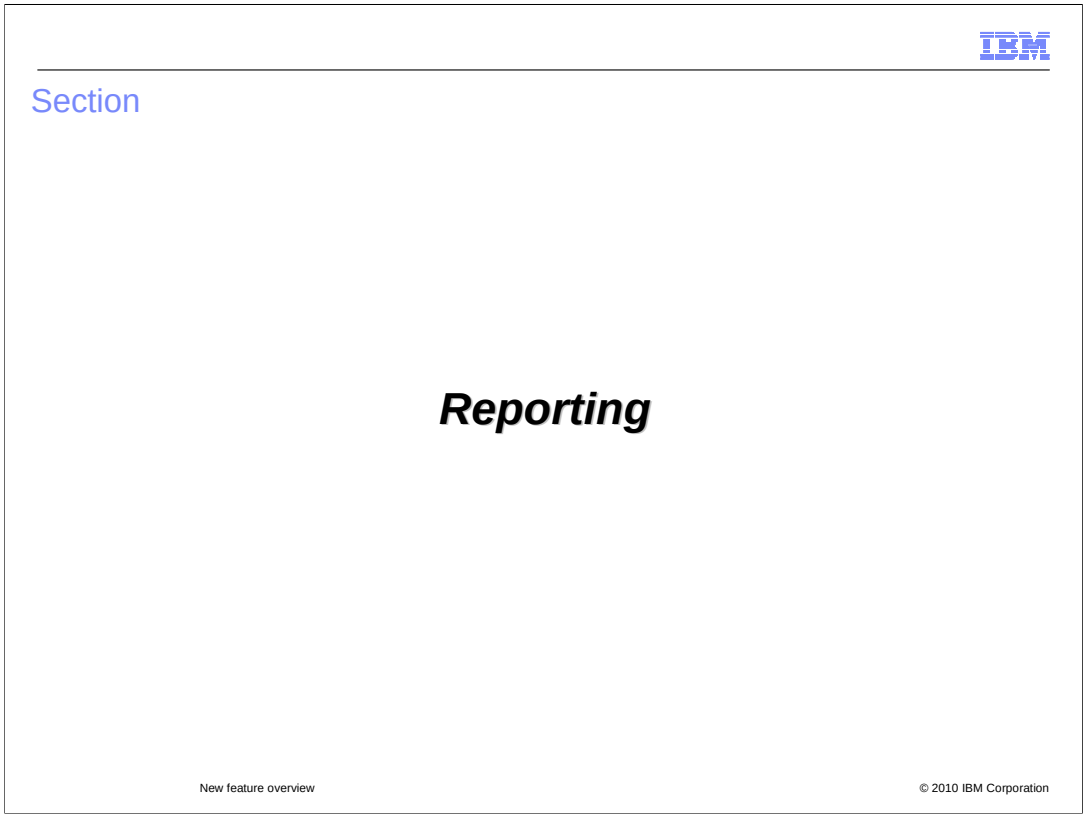
Use the **Ignore errors on delete** option to force deletion of the virtual system



Click **OK** to delete the virtual system with the parameters you specified

New feature overview

If you are using WebSphere CloudBurst version 2.0.0.2 or later, when deleting a virtual system, you are presented the option to ignore any errors that occur with the deletion. If you attempt to delete a virtual system and all associated virtual machines cannot be deleted, the delete fails. You can use the Ignore errors on delete option to force deletion of the virtual system. An example where this situation happens is if you delete the virtual machine directly on the hypervisor and then proceed to delete the virtual system in the WebSphere CloudBurst.

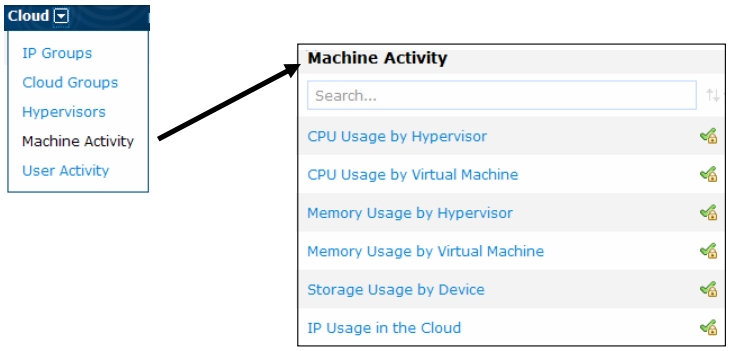


WebSphere CloudBurst includes system usage reports to track the resources being used in the cloud. A diverse set of reports is available to provide specific data you can use for planning purposes. Your system usage reports are generated to track both physical and virtual resource utilization.

You must have “Cloud administrator” authority to view these reports.

Machine Activity reports

- Navigate to **Cloud > Machine Activity**
- A list of the available reports is displayed in the left pane of user interface



New feature overview

For WebSpere cloudburst version 2.0.0.2 or later, to view machine activity, navigate to Cloud > Machine Activity. Before version 2.0.0.2 you selected Cloud > Reports.

Once displayed click the report name in the left pane to generate and view a specific report in the right pane. After choosing a report a report is generated with the default settings. The default setting is to include data from the last 30 days for each hypervisor or virtual machine.

The following reports are available:

CPU Usage by Hypervisor provides information about the percent of the processor that is being used for each hypervisor.

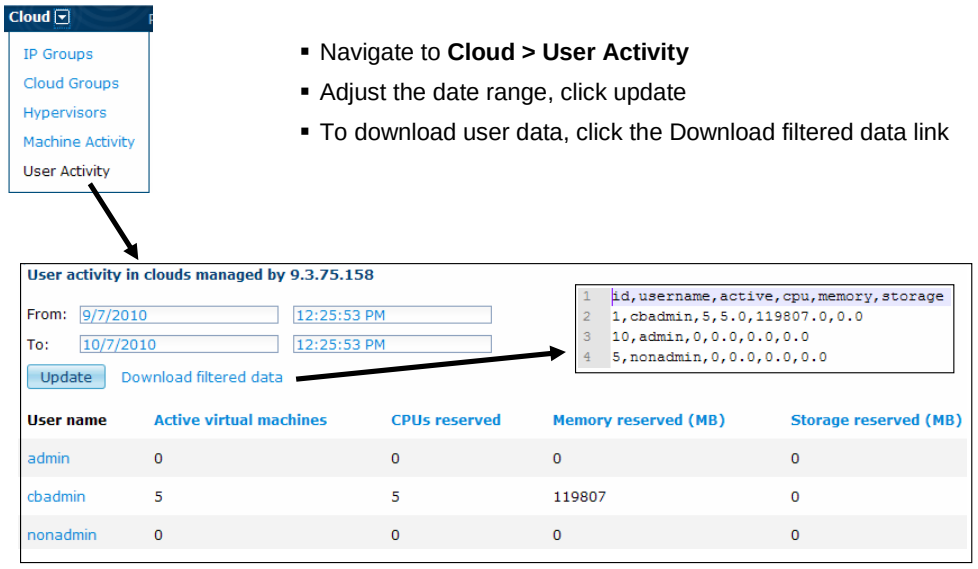
CPU Usage by Virtual Machine, provides information about the percent of the CPU that is being used for each virtual machine. The amount of virtual CPU that is available for a virtual machine is defined when the virtual machine is added to a pattern.

The Memory Usage by Hypervisor report provides information about the percent of the memory that is being used for each hypervisor.

The Memory Usage by Virtual Machine report provides information about the percent of the memory that is being used for each virtual machine. The amount of virtual memory that is available for a virtual machine is defined when the virtual machine is added to a pattern.

The Storage Usage by Device report provides information about the percent of storage that is being used. Storage is defined for each hypervisor. The IP Usage in the Cloud report provides information about the percent of the IP address that are being used.

User Activity reports



- Navigate to **Cloud > User Activity**
- Adjust the date range, click update
- To download user data, click the Download filtered data link

New feature overview

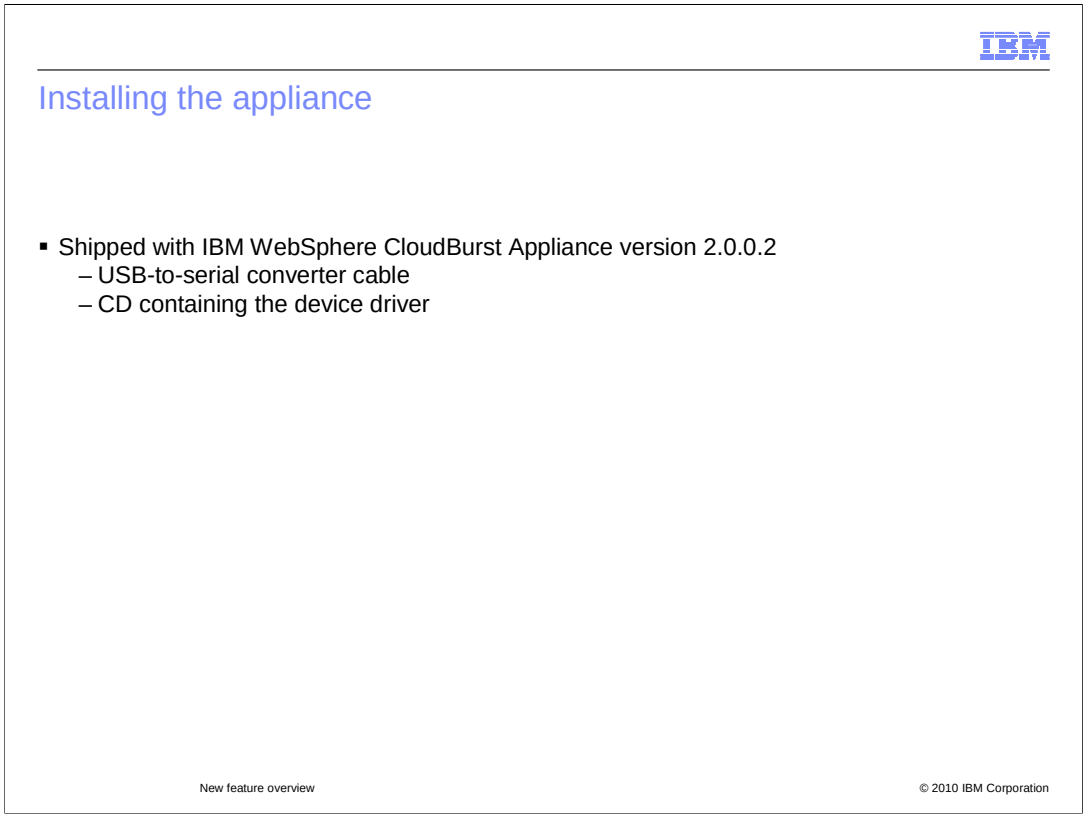
Also with version 2.0.0.2 or later, you can access reports to track user activity in the clouds that are managed by the appliance.

You can click the download filtered data link to download the user-activity.csv file. This report displays the number of active virtual machines and CPUs used and the amount of memory and storage used over the selected time period.

Section

Miscellaneous

This section will cover various miscellaneous topics.



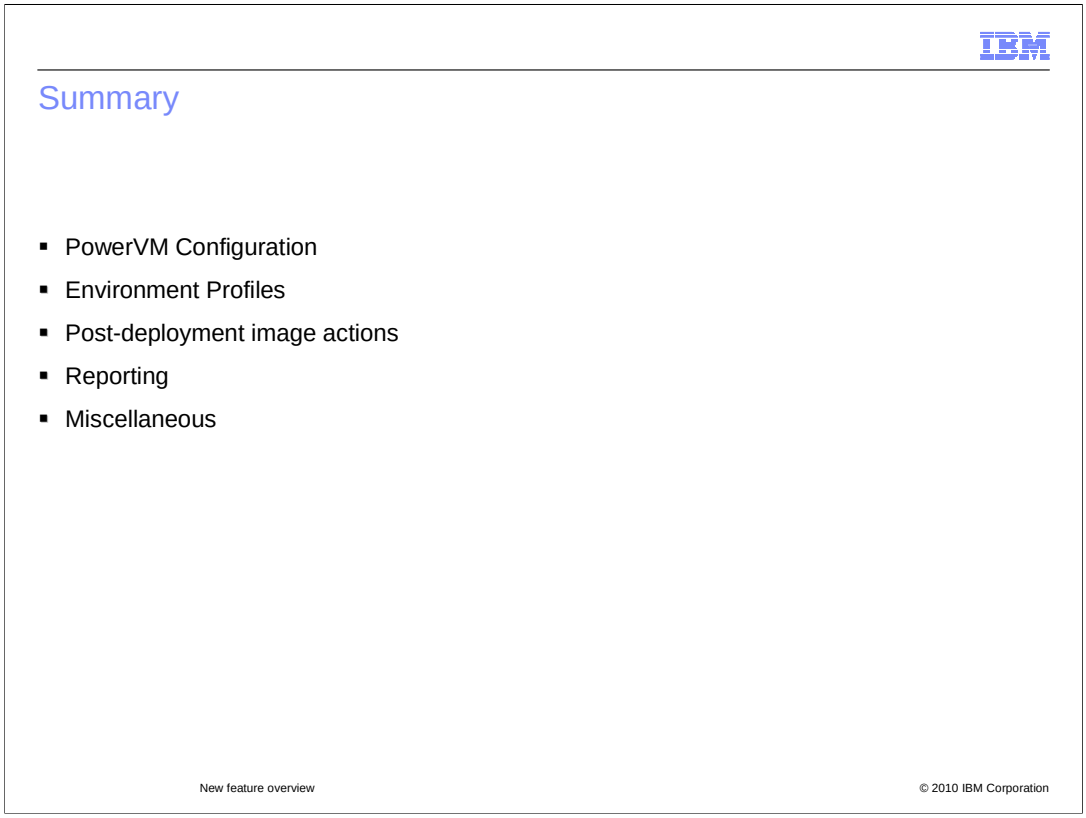
The front panel of the WebSphere CloudBurst Appliance has the console connector. The serial cable that is shipped with the appliance connects to it from either an ASCII terminal, a simple device that transmits and receives ASCII data or a PC that is running terminal emulation software to the appliance. If the terminal or PC is not equipped with a serial port, use a USB-to-serial converter cable to make this connection. If you are using WebSphere CloudBurst version 2.0.0.2 or later, this cable was provided with the appliance. A CD with the device driver is also provided with the appliance.

Reference

- For more information about PowerVM hypervisors, see: http://publib.boulder.ibm.com/eserver/roadmap_powervm.html.
- IBM z/VM® version 5.3, 5.4, or 6.1 with Directory Maintenance Facility (DirMaint™) enabled. For more information about z/VM hypervisors, see: http://www.vm.ibm.com/library/.
- For more information about VMware hypervisors, see: http://www.vmware.com/support/pubs/.

Additional information about the hypervisors for each platform can be found at the links listed here.

This section will give an overview of what you covered in the presentation.



This presentation covered the new features of the IBM WebSphere CloudBurst Appliance V2.0.0.2. The topics covered were PowerVM system requirements and configuration updates. Environment Profiles were covered and were shown to be able to group together some aspects of a deployment. You can now define your own WebSphere Application server administrative user name rather than be forced to use the default, ‘virtuser’. You were shown the enhancements to the WebSphere CloudBurst reporting capability. Finally, you covered many small, but no less important, enhancements to the product, such as Post-deployment image actions and virtual machine names.

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