

# IBM WebSphere CloudBurst Appliance V2.0

## Command-line tool



This presentation covers the WebSphere® CloudBurst™ command-line tool.

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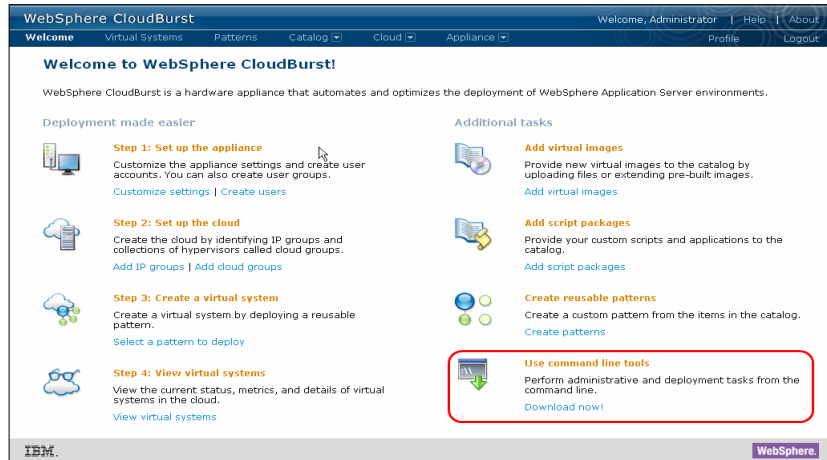
This presentation will cover the download and installation of the command-line tool, command syntax and examples.

## ***Download and installation***

The next section will discuss the command-line tool download and installation.

## Download command-line tool

- Download the command-line tool environment to your local system



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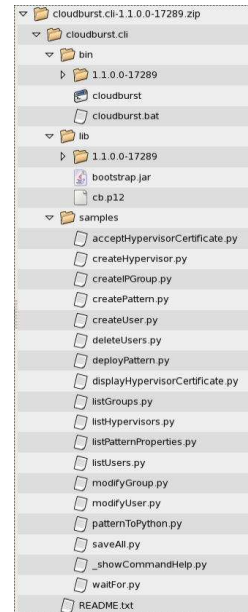
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Before you are able to interact with a WebSphere CloudBurst appliance using the command-line tool you will need to download the environment to your local system. The download link is located in the main welcome page under the “Use command-line tools” section.

## Extract command-line tool

- Command-line tool download is packaged as “cloudburst.cli-<version>.zip”
- Extract into local file system
- Contains both Windows® and Linux® utilities
- Requires Java™ Runtime Environment (JRE), version 6 or above



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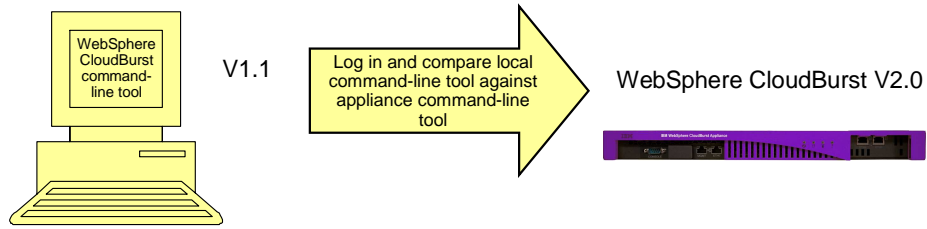
The command-line tool environment is packaged in the .zip format. This single archive file contains both the Windows and Linux versions of command-line tool environment.

Extract this package into a directory of your choosing. This will create a directory called “cloudburst.cli”. The “cloudburst.cli” directory is where you will interact with WebSphere CloudBurst by way of the command-line tool.

The WebSphere CloudBurst command-line tool requires a Java Runtime Environment version six or above.

## Automatic update (1 of 2)

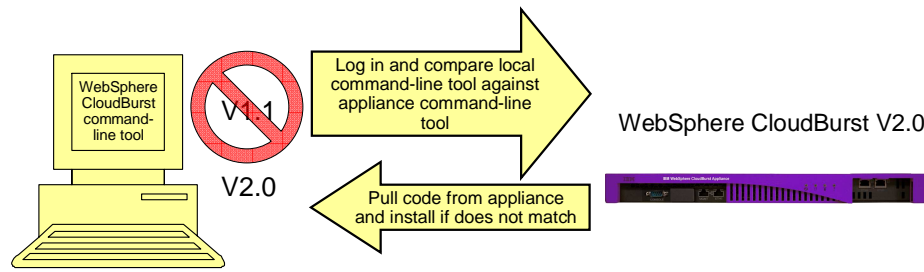
- Command-line tool updates its codebase to match codebase of appliance it is connecting to



The command-line tool runs a small piece of bootstrapping code when it starts. This code compares the version of the appliance to the version of the command-line tool.

## Automatic update (2 of 2)

- Command-line tool updates its codebase to match codebase of appliance it is connecting to



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If the versions do not match, the command-line tool bootstrapping code downloads and installs the appliance's version of the command-line tool. All of this logic is completely hidden from the user.

# ***Syntax***

This section will go through the various modes you can interact with the command-line tool and the general syntax of the commands and data.



## Command-line tool operational modes

- Execute in interactive mode
  - cloudburst -h <host> -u <user> -p <password>
- Execute in single command mode
  - cloudburst -h <host> -u <user> -p <password> -c “<command>”
- Execute in batch mode
  - cloudburst -h <host> -u <user> -p <password> -f “<filepath>” <script\_args>
- Optional environment variables
  - CLOUDBURST\_HOSTNAME
  - CLOUDBURST\_USERID
  - CLOUDBURST\_PASSWORD
  - CLOUDBURST\_REAUTHENTICATE

There are three different ways in which you can interact with the command-line tool. It has an interactive mode, single command mode and a batch mode.

Interactive mode requires you to start the interpreter first and then you are free to enter commands individually. This mode supports command history and a subset of emacs commands.

Single command mode allows you to run a single command.

Batch mode allows you to pass in a file containing one or more commands.

All three operational modes require the host name or address of the WebSphere CloudBurst appliance, and a valid user name and password on that appliance. These arguments can be specified as part of the command invocation or through environment variables

A new environment variable can be set to automatically re-authenticate with WebSphere CloudBurst when the session times out.

IF this environment variable is set, you are not prompted to re-enter a username and password when you return to use the CLI after the session has timed out.

## Command-line tool syntax

- Command-line tool commands are written in Jython

```
cloudburst.<object_type>[.<command[<data_or_file>>]
```

- Data passed into the commands are in the JSON format
  - Passed in directly at command line
  - Placed in file and file location is passed into command

```
[  
  {  
    "name": "value",  
    ...  
  }  
]
```

The command-line tool uses Jython syntax to construct the commands and uses JSON syntax to construct the data objects passed to the commands.

If you are not familiar with JSON you can either read up on it or just keep a few things in mind when constructing your JSON objects. JSON objects are created from name/value pairs. Both the name and value should be contained within quotation marks and separated by a colon. Each name/value pair should be separated by a comma. And finally all name/value pairs should be contained within a set of square and wiggle brackets. JSON data can be specified directly on the command line or placed in a file and the file location passed to the command.

## ***Capabilities***

This section will cover some of the capabilities of the WebSphere CloudBurst command-line tool.

## What you can do (1 of 2)

- Manage
  - Virtual systems
  - Patterns
  - Catalog
  - Cloud resources
  - WebSphere CloudBurst Appliance
- Problem determination
  - Configure trace
  - View logs
  - Download trace

The WebSphere CloudBurst command-line tool provides an interpreted Jython scripting environment that allows you to manage a WebSphere CloudBurst Appliance from a remote machine. You can perform most functions that are available from the console.

You can list and query WebSphere CloudBurst configuration objects, such as virtual systems or IP groups. You can view and modify attributes on objects that are not marked read-only, including relationships between objects. You can create and remove objects.

On the appliance itself you can manage access control lists, users and groups. You can configure appliance settings such as Ethernet settings and time server settings; and you can configure backup and restore for the appliance, and upgrade the firmware.

Problem determination functions include the ability to query and configure appliance trace levels, view the error and trace files, and download the log files bundle.

## What you can do (2 of 2)

- Ability to manage appliance settings
  - Command-line resources to manage many of the settings found in the Appliance → Settings page
- Import and export patterns
- Import and export virtual image
- Emergency fixes
  - Upload and manage emergency fixes
  - Apply fixes to a virtual system
- Cooperation with external virtual machine management products
  - VMware VirtualCenter
  - IBM Systems Director support
- Additional samples

Using the command-line tools you can manage many of the settings found on the appliance settings page.

You can export patterns from one appliance and import into another appliance. Running the command-line interface command to export a pattern will produce a Jython script which can be used to reconstruct the pattern in another appliance.

Using the command-line tools, you can export a virtual image from one appliance and import into another appliance. You can use this feature as a way to transfer stand-alone virtual images between appliances, and use it in conjunction with the pattern export and import feature to replicate patterns on multiple appliances.

Other features include the ability to create and apply emergency fixes, and support for hypervisor management products such as VirtualCenter and System Director.

The command-line tools include sample scripts that demonstrate how to use many of the command-line tool capabilities. Sample scripts are located in the “cloudburst.cli/samples” directory when you download and extract the command-line tools.

For a full list of available features of the command-line tools, review the WebSphere CloudBurst information center.

## Additional features

- Prompting for username and password
- Support for working with multi-image patterns
- Support for license management features
- Virtual image OVA import using CLI provides progress bar to gauge progress

Additional features of the command-line tools for WebSphere CloudBurst V2.0 include prompting for username and password, support for multi image patterns, license management support, and a progress bar when importing new virtual image OVA files. If you start the command-line tool and omit the username or password information, it will prompt you to enter those credentials. Also, if you leave your command-line tool session open and inactive, the command line tool session will time out and you will then be prompted again to provide user credentials to resume your session. The session time out is based on the timeout security setting on the appliance settings page. When working with the command line tool to compose patterns and deploy virtual systems, you can now compose patterns that contain parts from multiple virtual images, as you can in the WebSphere CloudBurst administrative console. The license management settings that have been added to the administrative console to warn, ignore, or enforce license tracking of deployed virtual systems can be managed using the command line tools in WebSphere CloudBurst V2.0. The final new feature added to the command-line tools includes a progress bar when uploading a new virtual image to the catalog. When an OVA upload is initiated from the command-line, a progress bar will show the progress of the upload to help gauge when the upload will complete.

## ***Examples***

This section contains a set of examples. These examples are run against the hypervisor object, but the same syntax and commands can be applied to any object type. This section by no means covers every command or syntax format, but it should provide you with enough information to increase your comfort level with the command-line tool.

## Creating a hypervisor manually

- Create a hypervisor
  - `cloudburst.hypervisors.create(<DATA_OR_FILE_PATH>)`

```
>>> cloudburst.hypervisors.create(['address':'venus01.rainmaker.raleigh.ibm.com','userid':'root','type':'ESX','name':'Venus01','password':'password'])
{
  "address": "https://venus01.rainmaker.raleigh.ibm.com/sdk",
  "certificate": (nested object),
  "certified": "1",
  "cloud": None,
  "created": Tue Mar 31 18:27:10 2009,
  "currentmessage": "RM03106",
  "currentmessage_text": "Maintenance mode (must add to a cloud group to start)",
  "currentstatus": "RM01025",
  "currentstatus_text": "Maintenance mode",
  "desiredstatus": "RM01025",
  "desiredstatus_text": "Maintenance mode",
  "id": 2,
  "name": "Venus01",
  "networks": (nested object),
  "password": "123854203095921",
  "storage": (nested object),
  "type": "ESX",
  "updated": Tue Mar 31 18:27:10 2009,
  "userid": "root"
}
```

There are two ways to create each object type in WebSphere CloudBurst. You can create using the manual method or using the WebSphere CloudBurst wizard. The example in this slide is using the manual method. This approach requires that you pass the JSON data in at the command line directly or pass in a file that contains the JSON data.



## Creating a hypervisor using wizard

- Create a hypervisor using the WebSphere CloudBurst wizard
  - cloudburst.hypervisors.create(cloudburst.wizard)
  - Will be prompted for each attribute

```
>>> cloudburst.hypervisors.create(cloudburst.wizard)
Enter ? for help.
name: Venus01
type: ESX
address: https://venus01.rainanker.raleigh.ibm.com/sdk
userid: root
password: password
{
  "address": "https://venus01.rainanker.raleigh.ibm.com/sdk",
  "certificate": (nested object),
  "certified": "I",
  "cloud": None,
  "created": "Tue Mar 31 18:32:05 2009",
  "currentmessage": "RM03106",
  "currentmessage_text": "Maintenance mode (must add to a cloud group to start)",
  "currentstatus": "RM01025",
  "currentstatus_text": "Maintenance mode",
  "desiredstatus": "RM01025",
  "desiredstatus_text": "Maintenance mode",
  "id": 3,
  "name": "Venus01",
  "networks": (nested object),
  "password": "123854232431522",
  "storage": (nested object),
  "type": "ESX",
  "updated": "Tue Mar 31 18:32:05 2009",
  "userid": "root"
}
```

This slide shows an example of using the WebSphere CloudBurst wizard. When using the wizard you are not required to pass in the data in JSON format instead you are prompted for each piece of required data. Each object type can be created using the manual or wizard approach.

## Listing hypervisors

- List a specific hypervisor by name
  - `cloudburst.hypervisors["HV-aimcp059"]`
- List all hypervisors
  - `cloudburst.hypervisors`

```
>>> cloudburst.hypervisors
{
  <
    "address": "https://aimcp059.austin.ibm.com/sdk",
    "certificate": <nested object>,
    "certified": "I",
    "cloud": <nested object>,
    "created": Tue Mar 31 10:58:35 2009,
    "currentmessage_text": "RM03103",
    "currentmessage_text": "Started <move to maintenance mode to make changes>",
    "currentstatus": "RM01006",
    "currentstatus_text": "Started",
    "desiredstatus": "RM01006",
    "desiredstatus_text": "Started",
    "id": 1,
    "name": "HU-aimcp059",
    "networks": <nested object>,
    "password": "12385151154670",
    "storage": <nested object>,
    "type": "ESX",
    "updated": Tue Mar 31 11:03:52 2009,
    "userid": "root"
  >,
  <
    "address": "https://venus01.rainanker.raleigh.ibm.com/sdk",
    "certificate": <nested object>,
    "certified": "I",
    "cloud": None,
    "created": Tue Mar 31 18:32:05 2009,
  >
}
```

You can either list all objects by type or list a specific object using the name of the object. The screen capture in this slide shows the listing of all hypervisors using the `cloudburst.hypervisors` command.

## Modifying and deleting hypervisors

- Modifying an attribute is two steps
  - Get a handle to the object
  - Modify the attribute

```
>>> hyper = cloudburst.hypervisors["Venus01"][0]
>>> hyper.delete()
```

- Delete an object

```
>>> hyper = cloudburst.hypervisors["Venus01"][0]
>>> hyper.delete()
```

Modifying an object's attribute and deleting an object are consistent across object types.

Modifying an object attribute is a two step process. The first step is to get a handle to the object. The second step is to modify the attribute.

You can delete an object by calling the delete method on the object you want to delete.

## Building a multi image pattern with the CLI step 1

- Basic steps
  - Create the pattern
  - Add the pattern parts from the different virtual images
- Create the pattern:

```
patternName = 'My multi pattern'
```

```
pattern = cloudburst.patterns << {  
  'name': patternName,  
  'description': 'My multi image pattern built with CLI'  
}
```

This example shows how to create a multi image pattern using the command-line tools. The pattern that this sample creates has a WebSphere Application Server 7.0.0.11 deployment manager on SuSe Linux, with a federated WebSphere Application Server 7.0.0.11 custom node on Red Hat Enterprise Linux 5.

To start building your pattern, first you create the pattern object and give your new pattern a name.

## Building a multi image pattern with the CLI step 2

- Add the pattern parts to the pattern you created

```
#get was 7.0.0.11 images
was7lmg = cloudburst.virtualimages["WebSphere Application Server 7.0.0.11"]
#get the SUSE image
suselmg = [ vi for vi in was7lmg if vi.operatingsystemdescription.find("SUSE")
>= 0 ][0]
#get the SUSE image Dmgr part
suseDMGR = suselmg.parts["Deployment manager"][0]
#get the Red Hat image
redhatlmg = [ vi for vi in was7lmg if vi.operatingsystemdescription.find("RHEL")
>= 0 ][0]
#get the Red Hat custom node part
redhatCustomNode = redhatlmg.parts["Custom nodes"][0]
#add the parts to the pattern
pattern.parts << suseDMGR
pattern.parts << redhatCustomNode
```

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Once you have created your pattern, you can add pattern parts to it.

The parts can come from different virtual images. In this example you can see that first you can search for virtual images that are WebSphere Application Server 7.0.0.11 type images.

Then from the images found, you can select the image for SuSe Linux, and the image for Red Hat Linux.

Once you have those images, you can select the deployment manager and custom node parts.

You can then add those parts to the pattern you created, and your pattern is created with a deployment manager from one image, and a custom node from another.

This code is just for example purposes and has no error handling included. You should include error handling when writing command-line scripts to build customized patterns.

## Setting license PVUs

- Find the appropriate product in the `cloudburst.licenseawareness.products` array
- Set the `totalallocation` property to the PVU value

```
cloudburst.licenseawareness.products["IBM WebSphere Application Server Hypervisor Edition"].totalallocation=100
```

In order to set the PVUs for a particular product license in WebSphere CloudBurst 2.0 using the command-line tools, you must first find the product you want to set the license PVU value for in the `cloudburst.licenseawareness.products` array. Once you have a handle to the license product object you want to modify, you can set the `totalallocation` property to the number of PVUs you want to allocate for that product.

## ***Summary***

The next section provides a summary of this presentation.

## Summary

- There are three ways to interact with WebSphere CloudBurst
  - Administrative console
  - REST APIs
  - Command-line tool
- Setting up an operational command-line tool environment is a five minute activity
  - Download
  - Unzip
- The WebSphere CloudBurst command-line tool syntax is simple yet flexible
- This presentation listed some but not all of the available commands

There are three ways to interact with the WebSphere CloudBurst appliance and they are the administrative console, REST APIs and the command-line tool. If you are looking to automate WebSphere CloudBurst tasks, the command-line tool is a great option.

Getting an operational command-line tool environment can take as little as five minutes which is the amount of time it takes to download and extract the package.

This presentation went through just a subset of the available commands and syntax but it should have demonstrated to you just how flexible and easy it is to use.





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