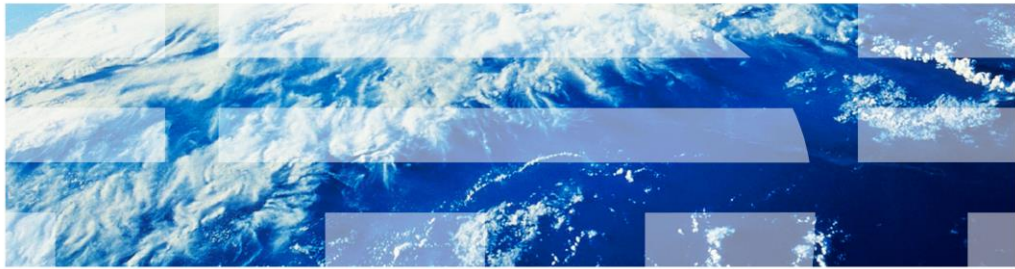


---

# IBM Workload Deployer

## Environment profiles



This presentation will cover environment profiles for IBM Workload Deployer.

---

## Table of contents

- Overview
- Environment profile configuration
- Variable substitution
- Environment profile limits, licensing
- Environment profile command-line interface
- Environment profile deployment
- Summary

This presentation will cover all aspects of environment profiles. It will start off with configuration of an environment profile and end with pattern deployment using environment profiles.

Section

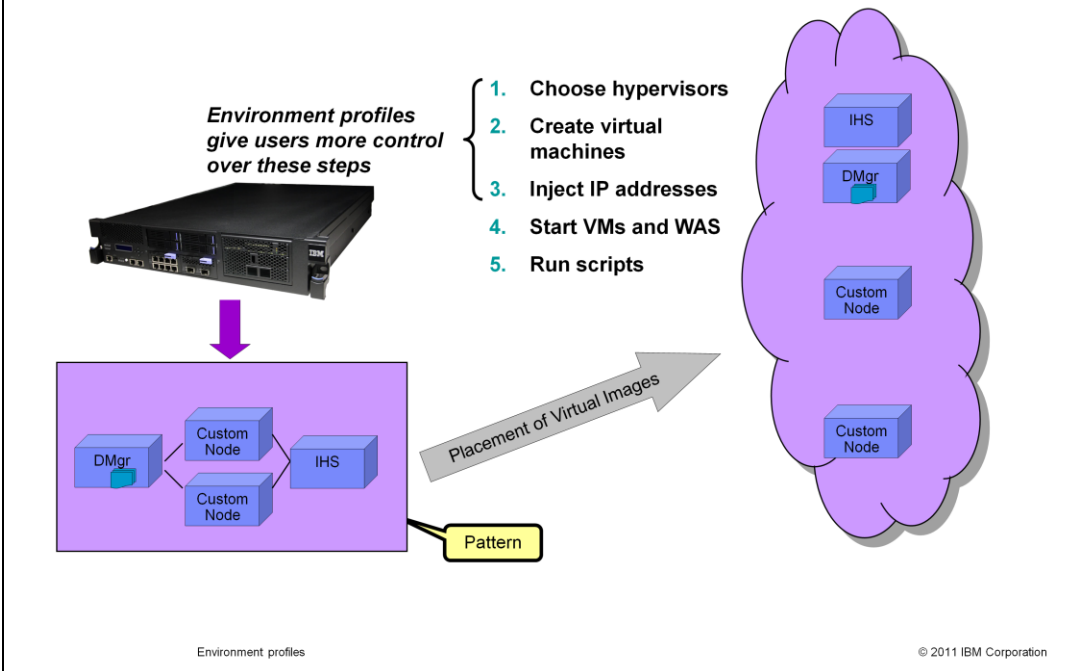
## ***Overview***

Environment profiles

© 2011 IBM Corporation

This section will give an overview of environment profiles.

## Overview



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.

The graphic in this slide highlights the steps or configuration points in which environment profiles encompass.

Section


## ***Environment profile configuration***

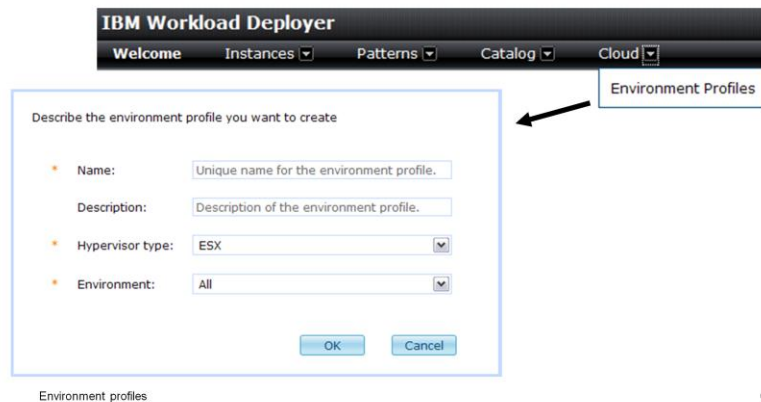
Environment profiles

© 2011 IBM Corporation

This section will cover environment profile configuration.

## Environment profile

- Create and manage environment profiles by navigating to **Cloud -> Environment Profiles**
- Create an environment profile by clicking 
  - Enter unique name
  - Specify a hypervisor type
  - Specify an environment



IBM Workload Deployer

Welcome Instances Patterns Catalog Cloud

Environment Profiles

Describe the environment profile you want to create

Name: Unique name for the environment profile.

Description: Description of the environment profile.

Hypervisor type: ESX

Environment: All

OK Cancel

Environment profiles

© 2011 IBM Corporation

To create and manage your environment profiles, navigate to “Environment Profiles”. To create an environment profile click the green “+” icon. This will bring up a panel where you must enter a unique name for the profile, specify a hypervisor type and environment.

All hypervisors in a profile must be of the same type. “Hypervisor type” can be ESX, PowerVM™ or z/VM.

“Environment” field is used to group like profiles. There are eight grouping options: “All”, “Development”, “Test”, “Quality Assurance”, “Performance”, “Research”, “Production” and “Pre-Production”.

## Environment profile configuration

The screenshot shows the 'Environment profile configuration' window. It contains several fields and sections:

- Virtual machine name format:** A text field containing 'None provided'.
- IP addresses provided by:** A dropdown menu currently showing 'IP Groups'.
- Deploy to cloud groups:** A table with columns for 'Name' and 'Alias', and an 'Add more...' button below it.
- Environment limits:** A section with a plus icon and a label.
- Access granted to:** A text field containing 'Administrator [owner]' and an 'Add more...' button below it.

Four arrows point from the right side of the window to the following list of instructions:

- Specify the virtual machine name format using pre-defined variables
- Choose who will manage the IP addresses
- Select available cloud groups
- Set Environment limits

At the bottom of the window, it says 'Environment profiles' on the left and '© 2011 IBM Corporation' on the right.

Before the environment profile is ready to use, you must provide additional configuration information. The “Environment Profiles” window provides fields to group related deployment configuration options together, like virtual machine names, IP address assignment responsibility, and cloud groups.

The “Virtual machine name format” field allows you to overwrite the VM name format using pre-defined variables. For IBM PowerVM and VMware ESX supported variables are  $\${hostname}$ ,  $\${n-counter}$  and  $\${vs-name}$ . For z/VM, only  $\${n-counter}$  is supported at this time.

You must choose whether you want the IP address for a virtual machine to be provided by Workload Deployer or if you want to specify the IP address for individual parts when the pattern is being deployed, called “Pattern deployer”. The IP address must not exist in the selected IP group in this case of “Pattern deployer” option.

The “Deploy to cloud groups” field allows you to select available cloud groups that are configured and ready for use. Only valid cloud groups that are configured with the correct hypervisor type are displayed.

The Access granted to field specifies access to this environment profile for other users or groups of users. Initially this field is set to the role of the owner of the environment profile. By default, the Add more box contains the “Everyone” user group. When a user or group has been added, click the link beside the entry to toggle between the allowable access levels (read, write, or all)

## Environment profile deployment ready

Description:	<a href="#">Environment profile for deployer 99</a>
Hypervisor type:	PowerVM
Environment:	Production <input type="button" value="v"/>
Created on:	Aug 9, 2011 2:41:14 PM
Current status:	✔ Environment profile can now be use for deployments
Updated on:	Aug 9, 2011 4:40:48 PM
Virtual machine name format:	<a href="#">None provided</a>
IP addresses provided by:	IP Groups <input type="button" value="v"/>

- **Current status** reflects current status of environment profile

Once your environment profile is completed and ready to use, the “Current status” field is updated and will display a green check mark.



Section

## ***Variable substitution***

This section will cover variable substitution.

## Environment profile variable substitution rules

- **Virtual machine name format** field 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

Virtual machine name format: `My_${hostname}_VM`

Virtual machine name format: `My_VM_${3-counter}` ✓

Virtual machine name format: `My_${vs-name}_VM` ✓

The environment profile “Virtual machine name format” 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}` variable. Underscores cannot be used in the name.

## ***Environment profile limits, licensing***

This section will cover environment profile limits and licensing.

## Environment profile limits

- Deployments can be restricted by limits
  - CPU
  - memory
  - Storage
  - number of licenses

Setting the limit to 0 (default) is the same as saying no limit

Environment limits			
Type	Limit	In use	Reserved
Virtual CPU	0	0	0
Physical CPU	0.0	0.0	0.0
Virtual memory (MB)	1024	0	0
Storage (MB)	0	0	0

Product	Product ID	License type	License limit	License in use	License reserved
IBM WebSphere Application Server Hypervisor Edition	5724-X89	PVU	0	0	0

Environment profiles

© 2011 IBM Corporation

During deployment a user selects the environment profile they want to be enforced. IBM Workload Deployer validates deployment size (CPU, memory, storage and licenses) against the environment profile limits. If the requested deployment does not exceed the defined limits, the deployment progresses, otherwise the deployment will fail.

Environment profile limits allow you as an administrator to place limits on the amount of resources (virtual CPUs, memory, storage and licenses) that can be consumed by an environment profile. There are three fields that need to be explained, they are “Limit”, “In use” and “Reserved”. Limit is where you specify the upper limit on the number of a particular resource that can be consumed. “In use” defines what resources are currently in use, meaning what is currently deployed in the cloud. Reserved shows you what resources are consumed by a stored state or are currently in the process of being consumed. “In use” and reserved cannot exceed the limit.

## Environment limits, licenses

- Licenses can be limited

Product	Product ID	License type	License limit	License in use	License reserved
IBM WebSphere Application Server Hypervisor Edition	5724-X89	PVU	10	0	0
IBM HTTP Server WAS Hypervisor Edition on Novell SUSE Linux Enterprise Server	5725-C00	PVU	0	0	0
IBM WebSphere Appl Server Hypervisor Edition Intelligent Management Pack	5725-A27	PVU	0	0	0
IBM WORKLOAD DEPLOYER IMAGE FOR X86 SYSTEMS PROCESSOR VALUE UNIT PROCESSOR VALUE UNIT (PVU) LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	5725-D64	PVU	0	0	0

Environment profiles

© 2011 IBM Corporation

Environment profiles can be used to place limits on the number of licenses that are used.

## Deployment

- Select corresponding profile  
– Can be 'limited' by user

Environment limits

Access granted to:

Administrator [owner]

user1 [read] [remove]

Add more...

- 'user1' only able to deploy to certain environment profiles

Describe the virtual system you want to deploy.

Virtual system name:  
Sandy test single

Choose Environment

Choose cloud

In cloud group AIMCP158 Cloud

Choose profile

Type Test

Profile Environment Profile  
Environment Profile 99

Schedule deployment

Configure virtual parts

OK Cancel

Environment profiles

© 2011 IBM Corporation

Each profile has an access control list that limits the users who can use that profile. During deployment, the deployer selects the environment profile that is invoked.

## Environment profile limits, licensing

- License management by users
  - Given a limited number of licenses
  - Gives the ability to restrict how many a user or group can use

An administrator can restrict how many licenses a user, or group, can use.

## License limits exceeded

- Fails very quickly!

The screenshot displays the IBM Workload Deployer web interface. The main content area shows details for a virtual system named 'Sandy test single'. The 'Current status' is 'Environment profile will be over license capacity.' The 'History' section shows a sequence of events: 'Reserving cloud resources' at 9:50:09 PM, 'Deployment has been queued' at 9:49:59 PM, and a failure message 'Environment profile will be over license capacity.' at 9:50:16 PM, which is highlighted with a red box. The interface includes a navigation menu at the top with options like 'Welcome', 'Instances', 'Patterns', 'Catalog', 'Reports', 'Cloud', 'Appliance', 'Profile', and 'Logout'. The bottom of the page shows 'Environment profiles' and a copyright notice '© 2011 IBM Corporation'.

The resources that are needed by the virtual system are checked before any deployment action. If the requested resources exceed the profile limits the deployment will fail.



---

Section

## ***Environment profiles command-line interface***

This section will cover the environment profile command-line interface.

## Overview

- Command-line interface includes **EnvironmentProfile** object to support environment profiles
- **EnvironmentProfile** object can be used to query, manipulate, add and remove environment profiles
- CLI help is available:
  - help(`deployer.environmentprofile`)

The command-line interface supports environment profiles using the “EnvironmentProfile” object.

An “EnvironmentProfile” object represents a particular environment profile defined in IBM Workload Deployer. Use the EnvironmentProfile object to query and manipulate the environment profile definition on the appliance. Attributes of the EnvironmentProfile object, and relationships between the environment profile and other resources on the IBM Workload Deployer appliance, are represented as Jython attributes on the EnvironmentProfile object. You can manipulate these Jython attributes using standard Jython mechanisms to make changes to the corresponding data on the IBM Workload Deployer appliance.

For a full list of the supported “EnvironmentProfile” operations run the command-line interface help operation on “`deployer.environmentprofile`”.

## Example

- Sample script to create and configure an environment profile

```
My_Profile=deployer.environmentprofiles<<{'name':'My_Profile','platform':'ESX',
'environment':deployer.environmentprofile.TEST_ENVIRONMENT}
My_Clouds=deployer.clouds['VMware_aimcp071_CG'][0]
My_IPGroup=deployer.ipgroups['VMware_IP 136 - 154'][0]
My_Profile.clouds.addCloud(My_Clouds)
My_Profile.clouds[My_Clouds].ipgroups.addIPGroup(My_IPGroup)
```
- Associate an environment profile with a pattern at deployment time using the command-line interface wizard

```
cloud or environment profile (* to select from list): *
Clouds:
1. CloudGroup1
2. CloudGroup2
Environment profiles:
3. My_Profile
cloud or environment profile (* to select from list): 3
```

Environment profiles

© 2011 IBM Corporation

This slide includes an example script to create, configure and associate an environment profile with a pattern.

The create and configure example contains these commands: First, it creates an environment profile passing in a few select parameters (that is “name”, “platform” and “environment”). Second, a handle to an existing cloud group is retrieved. Third, a handle to an existing IP group is retrieved. Fourth, the cloud group is added to the environment profile. Fifth and the last step, one of the IP groups associated with the cloud group you just added is marked for use. Note, the handle that you got to the IP group in step three was used to mark the specific IP group contained in the cloud group that you wanted to use. When you add a cloud group to an environment profile all of its associated IP groups are brought along free of charge, but none are marked for use until explicitly marked.

There are two approaches to associating an environment profile with a pattern at deployment. Choice one, is to using straight command-line interface commands. Choice two, is to use the command-line interface wizard. The example provided uses the wizard. The built in help command and information center contain specific information on how to build the command not using the wizard.

## ***Deployment using environment profiles***

This section will cover the deployment process using environment profiles.

## Deploy using environment profile

Describe the virtual system you want to deploy.

DF - WebSphere Cluster VS

Choose Environment

Use cloud

In cloud group FVT Cloud

Use profile

Environment type All

Environment profile EnvProf\_aimcp

Schedule deployment

Configure virtual parts

OK Cancel

- Choose “Use profile”
- Select a pre-defined environment type for which the environment profile was categorized as
- Choose the environment profile

You can either deploy your pattern to a specific cloud group (default) or you can deploy the pattern using an environment profile that specifies a cloud group or cloud groups to which to deploy.

If you select “Use profile” to deploy the pattern, you will have to select the “Environment type” and a valid “Environment profile” from the drop down lists.

Environment profiles are optional.

## Configure virtual image parts

Fill in the required values for this part of the pattern.

Name:	<input type="text" value="DMGRPart"/>
* In cloud group:	<input type="text" value="FVT Cloud"/>
* IP Group:	<input type="text" value="WSTI Private"/>
* Addresses:	<input type="text" value="Host name"/> <input type="text" value="IP address"/>
* Virtual CPUs:	<input type="text" value="1"/>
* Memory size (MB):	<input type="text" value="2048"/>
* Reserve physical CPUs:	<input type="text" value="False"/>
* Cell name:	<input type="text" value="CloudBurstCell"/>

OK Cancel

- For each virtual image part these can be configured
  - Destination cloud group
  - IP group
  - Define address for each part (environment profile "Pattern deployer" option configured)

Environment profiles

© 2011 IBM Corporation

If a pattern is associated with an environment profile at deployment time then you will have additional parameters to configure for each virtual image part. For each part you will specify a cloud group and IP group. If your environment profile was configured with multiple cloud groups then it is possible to deploy a single pattern to multiple cloud groups.

The "Addresses" field is enabled when the environment profile is set to "Pattern deployer" in the field that indicates who is responsible for assigning the IP address or host name. If you recall, there were two options. Option one (default), IP Group, assigns the IP address and hostname. Option two, pattern deployer is responsible for assigning this information (see screen capture).

One special note about "Pattern deployer" is that the IP address or hostname that you choose must not be defined in the IP group. It is added by Workload Deployer after deployment of the pattern. If you choose an IP address that has been defined in the IP group the pattern deployment will fail with a message indicating that the IP is already in use.

## Virtual system link to associated environment profile

DF - Single server	
Created on:	Oct 8, 2010 10:41:20 AM
From pattern:	<a href="#">DF - WebSphere single server</a>
Using Environment profile:	<a href="#">Test profile</a>
Current status:	The virtual system has been deployed and is ready to use
Updated on:	Oct 8, 2010 10:48:51 AM
Access granted to:	<a href="#">Administrator [owner]</a>
	<a href="#">Add more...</a>

- Link provided to the environment profile used to create the virtual system

Environment profiles

© 2011 IBM Corporation

This field specifies the environment profile, if one was used to create this virtual system, by providing a link to that environment profile. Clicking the link displays the details for that environment profile. If none was specified, then this field says None provided.

Section

## ***Summary***

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



---

## Summary

- Environment profile configuration
- Variable substitution
- Environment profile limits, licensing
- Environment profile command-line interface
- Environment profile deployment

This presentation covered environment profiles from configuration to deployment.

---

## Trademarks, disclaimer, and copyright information

IBM, the IBM logo, ibm.com, Current, PowerVM, and z/VM are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of other IBM trademarks is available on the web at "[Copyright and trademark information](http://www.ibm.com/legal/copytrade.shtml)" at <http://www.ibm.com/legal/copytrade.shtml>

Other company, product, or service names may be trademarks or service marks of others.

THE INFORMATION CONTAINED IN THIS PRESENTATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. WHILE EFFORTS WERE MADE TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION CONTAINED IN THIS PRESENTATION, IT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IN ADDITION, THIS INFORMATION IS BASED ON IBM'S CURRENT PRODUCT PLANS AND STRATEGY, WHICH ARE SUBJECT TO CHANGE BY IBM WITHOUT NOTICE. IBM SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES ARISING OUT OF THE USE OF, OR OTHERWISE RELATED TO, THIS PRESENTATION OR ANY OTHER DOCUMENTATION. NOTHING CONTAINED IN THIS PRESENTATION IS INTENDED TO, NOR SHALL HAVE THE EFFECT OF, CREATING ANY WARRANTIES OR REPRESENTATIONS FROM IBM (OR ITS SUPPLIERS OR LICENSORS), OR ALTERING THE TERMS AND CONDITIONS OF ANY AGREEMENT OR LICENSE GOVERNING THE USE OF IBM PRODUCTS OR SOFTWARE.

© Copyright International Business Machines Corporation 2011. All rights reserved.