



IBM Software Group

# IBM® WebSphere® Extended Deployment V6.1

## ***WebSphere Virtual Enterprise***

*Formerly Operations Optimization*

### ***Creating health policies***



@business on demand.

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This presentation will cover configuring health policies in WebSphere Extended Deployment V6.1

This module was originally recorded for WebSphere Extended Deployment Operations Optimization, which is now called WebSphere Virtual Enterprise. Though the module uses the previous names, the technical material covered is still accurate.

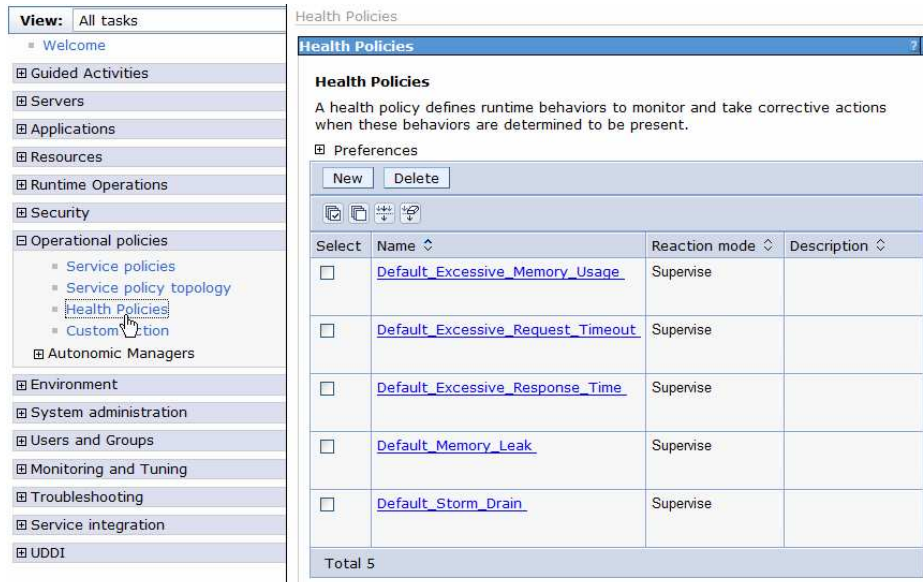
## Agenda

- Configuring health policies
- Configuring the health controller



The presentation will walk through the process of creating a health policy, and discuss configuration options for the health controller.

## Creating a health policy



**View:** All tasks

- Welcome
- Guided Activities
- Servers
- Applications
- Resources
- Runtime Operations
- Security
- Operational policies
  - Service policies
  - Service policy topology
  - Health Policies**
  - Customization
- Autonomic Managers
- Environment
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

**Health Policies**

A health policy defines runtime behaviors to monitor and take corrective actions when these behaviors are determined to be present.

Preferences

New Delete

Select	Name	Reaction mode	Description
<input type="checkbox"/>	<a href="#">Default_Excessive_Memory_Usage</a>	Supervise	
<input type="checkbox"/>	<a href="#">Default_Excessive_Request_Timeout</a>	Supervise	
<input type="checkbox"/>	<a href="#">Default_Excessive_Response_Time</a>	Supervise	
<input type="checkbox"/>	<a href="#">Default_Memory_Leak</a>	Supervise	
<input type="checkbox"/>	<a href="#">Default_Storm_Drain</a>	Supervise	

Total 5

Health policies can be created and modified in the Administrative Console under the 'operational policies' menu item. You can modify the default policies or create your own policies.

Use the 'New' button to configure a new health policy.

## Creating a health policy: Step 1

The screenshot shows a dialog box titled "Create a new health policy" with a help icon. The main text reads: "Create a new health policy. Define the general properties, including the health condition, and the servers, clusters, and dynamic clusters to be monitored." On the left, a vertical pane lists four steps: "Step 1: Define health policy general properties" (highlighted with a right-pointing arrow), "Step 2: Define health policy health condition properties", "Step 3: Specify members to be monitored", and "Step 4: Confirm health policy creation". The main area is titled "Define health policy general properties" and contains a form with the following fields: "Name" (text box containing "Test\_Condition"), "Description" (text box containing "Sample memory leak detection health policy"), and a dropdown menu for "Age-based condition" (currently selected). A dropdown menu is open below the "Age-based condition" field, listing the following options: "Age-based condition", "Excessive request timeout condition", "Excessive response time condition", "Memory condition: excessive memory usage", "Memory condition: memory leak", "Storm drain condition", and "Workload condition". At the bottom of the dialog are "Next" and "Cancel" buttons.



When creating a new health policy, you first specify a name and choose the type of condition for which you want to monitor. In this example, a memory leak condition will be configured. The available condition types are discussed in the presentation titled 'Health Monitoring Overview'.

## Creating a health policy: Step 2

**Create a new health policy**

Create a new health policy. Define the general properties, including the health condition, and the servers, clusters, and dynamic clusters to be monitored.

Step 1: Define health policy general properties  
 → Step 2: Define health policy health condition properties  
 Step 3: Specify members to be monitored  
 Step 4: Confirm health policy creation

**Define health policy health condition properties**

**Health condition properties**

Detection level:

Fast (more false alarms)  
 Standard (some false alarms)  
 Slow (fewer false alarms)

**Health management monitor reaction**

Reaction mode  
 Supervise

Take the following actions when the health condition breaches

Add step Delete step Move up Move down

Select	Step	Action	Target server	Target node
<input type="checkbox"/>	1	Take JVM heap dumps	Sick server	Node hosting sick server
<input type="checkbox"/>	2	Restart server	Sick server	Node hosting sick server

Previous Next Cancel

5

This step shows the options that are available when configuring a memory leak condition. To more accurately detect a true leak, the system must wait for a longer memory growth pattern to develop. The three available detection levels give you the choice of balancing accuracy against detection speed. The action list specifies the actions that the health controller will take when the health policy is breached. The health controller will perform the actions sequentially in the order they appear in the list. The default reaction for a memory leak condition is to trigger a Java™ heap dump, then restart the server.

The condition-specific options and default action list vary for the different standard conditions. All health policy types allow you to select between Automatic and Supervised Reaction mode, add additional actions, and reorder the action list.

To add an additional action to the action list, select “Add step.”

## Add custom action: Step 2a

Health Policy Action Plan Step Definition

Creation of a action plan step definition for use in the health policy

→ Step 1: Select step type

Step 2: Select target

Step 3: Confirm step

Select step type

Predefined health policy action

Predefined action: Restart server

Custom health

Custom action: m

- Restart server
- Take thread dumps
- Take JVM heap dumps
- Place server in maintenance mode
- Place server in maintenance mode and break affinity
- Place server out of maintenance mode

Next Cancel

You can specify one of the predefined health policy actions, or you can choose from the list of custom actions that have been defined. Predefined actions are always performed on the sick server.

## Add custom action: Step 2a

Health Policy Action Plan Step Definition

Creation of a action plan step definition for use in the health policy

Step 1: Select step type

Step 2: Select target

Step 3: Confirm step

Select step type

Predefined health policy action

Predefined action: Restart server

Custom health policy action

Custom action: myCustomAction

myCustomAction

SampleCustomJavaAction

Next Cancel

Health Policy Action Plan Step Definition

Creation of a action plan step definition for use in the health policy

Step 1: Select step type

Step 2: Select target

Step 3: Confirm step

Select target

Target node

hostCNode01

Target server

FinancialAdvice\_DC\_hostCNode01

Previous Next Cancel

7

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If you have defined custom health policy actions, you can select one from the custom action list. For custom health policy actions you must also specify which specific server is the target of the action.

## Creating a health policy: Step 2

Take the following actions when the health condition breaches

Select	Step	Action	Target server	Target node
<input type="checkbox"/>	1	Place server in maintenance mode and break affinity	Sick server	Node hosting sick server
<input type="checkbox"/>	2	DumpApplicationState		hostACellManager01
<input type="checkbox"/>	3	Take JVM heap dumps	Sick server	Node hosting sick server
<input type="checkbox"/>	4	Restart server	Sick server	Node hosting sick server
<input type="checkbox"/>	5	Place server out of maintenance mode	Sick server	Node hosting sick server



You can create complex action plans with numerous steps which occur sequentially in the order specified.



## Creating a health policy: Step 3

**Create a new health policy**

Create a new health policy. Define the general properties, including the health condition, and the Application Servers, Clusters, and Dynamic Clusters to be monitored.

Step 1: Define health policy general properties

Step 2: Define health policy health condition properties

→ Step 3: Specify members to be monitored

Step 4: Confirm health policy creation

**Specify members to be monitored**

**Memberships**

Member type:

Available for Membership

- StockTrade\_DC
- AccountManagement\_DC

Members of **Test\_Condition:**

- FinancialAdvice\_DC (Dynamic Clusters)

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After defining the condition and the reaction list, choose the members of your cell that should be monitored for this condition. The pop-up menu labeled 'Member type' populates the 'Available for Membership' list with all resources of the chosen type. Use the 'Add' and 'Remove' buttons to choose which members should be monitored.

## Creating a health policy: Step 4

**Create a new health policy**

Create a new health policy. Define the general properties, including the health condition, and the Application Servers, Clusters, and Dynamic Clusters to be monitored.

Step 1: Define health policy general properties	<b>Confirm health policy creation</b>  The following is a summary of your selections. Click Finish to complete the health policy creation. If there are settings you want to change, click Previous to review the health policy settings.  The following actions will be performed:  A new health policy, "Test_Condition", will be created with a reaction mode of "Automatic". The health policy will have an memory condition: memory leak health condition of "Standard detection, standard probability of false alarms" detection level. The health policy will have the following Dynamic Clusters as members: "FinancialAdvice_DC".
Step 2: Define health policy health condition properties	
Step 3: Specify members to be monitored	
→ Step 4: Confirm health policy creation	



Step four displays the options you have chosen for this health policy. Click finish to create the policy. Remember that you must save your changes before this policy will take effect.

## Configuring the health controller

Operational Policies → Autonomic Managers → Health Controller

Global Health Controller Parameters

**Global Health Controller Parameters**

These parameters are used to configure the global Health Controller parameters. These parameters are used by the Health Controller in cooperation with the defined Health Policies.

Configuration Runtime

**General Properties**

Enable health monitoring

Control cycle length: 5 Minutes

Maximum consecutive restarts: 3

Restart timeout: 5 Minutes

Minimum restart interval: 0 Minutes

**Prohibited restart times**

Add Remove

Start	End	Sun	Mon	Tue	Wed	Thu	Fri	Sat
<input type="checkbox"/> 00:00:00	<input type="checkbox"/> 00:00:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply OK Reset Cancel

11

The health controller itself also has configurable properties, including how often it should run, and how many times in a row a server can be restarted. You can also define 'prohibited restart times', during which the health controller will not restart servers, even if they are in violation of a health policy. This can be useful for restricting restarts to non-peak times.

## Summary

- A health policy define a group of servers, a health condition, and a reaction
  - ▶ The reaction will be triggered if a server reaches the defined condition
- Health policies are easily configured using a wizard in the administrative console



A health policy makes administering a group of servers easier by defining a health condition for which a group of servers should be monitored. A health policy can notify the operator or take automatic corrective action when the condition is detected. Health policies can be easily created using a wizard in the Administrative Console.

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