Creating a system pool that supports relocation

Prerequisites:

Make sure that you have met the following prerequisites before you complete the steps in this quick start guide:

- An IBM Flex System Manager management node is installed in a chassis and is managing the devices in that chassis, which include one or more compute nodes that have been discovered by the IBM Flex System Manager management node. For more information, see the following quick start guides:
  - *Installing the IBM Flex System Enterprise Chassis*
  - *Configuring components of the IBM Flex System Enterprise Chassis*
  - *Configuring the IBM Flex System Manager management node*
  - *Selecting one or more chassis to be managed in the IBM Flex Systems Manager domain* or *Adding a chassis to an existing Flex System Manager management domain*

- Two or more Power Systems or X-Architecture compute nodes are configured, and the compute nodes have been discovered by the IBM Flex System Manager management node.

  For more information about configuring X-Architecture compute nodes, see the *Configuring an IBM X-Architecture compute node's settings using IBM Advanced Settings Utility (ASU)* quick start guide.

- SAN storage is configured for the virtual servers that are capable of relocation. Validate that the server, storage, and network resources and image repository are configured correctly.

- Create one or more workloads on one or more of the compute nodes:
  - Ensure that the VMControl image repository is set up and configured. For more information about creating image repositories, see the following topic:

    In the information center (Internet):
    http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_c_learnmore_repositories.html

    The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to:
    IBM Flex System information → Management devices and solutions → IBM Flex System Manager management node → Managing virtualized resources → VMControl → Managing virtual appliances and workloads

  - Create and populate a server system pool. For more information about creating a server system pool, see the *Creating and populating a server system pool* quick start guide.

  - Deploy a virtual appliance workload. For more information about deploying a virtual appliance workload, see the *Deploying a virtual appliance workload* quick start guide.

Background:

There are several scenarios where you can use virtual server relocation within a system pool:

1. **Highly available workloads using resilient system pools.** Within a resilient system pool, VMControl monitors for hardware failures and takes action to relocate the virtual servers that are on the host experiencing the failure to other hosts in the system pool. The goal is to relocate all of the virtual servers before the predicted failure occurs.

   There are two modes to specify on a workload that is marked resilient:
   - Automate mode. In automate mode, VMControl automatically relocates virtual servers when a predictive failure event is received
   - Approve mode. In approve mode, an event is sent to the operator when a predictive failure is received. The operator can open that event and review the proposed relocation plan. The administrator can then approve or reject the relocation.

2. **Host maintenance.** System pool relocation is used in instances when the server administrator places one of the hosts in the pool in maintenance. For example, an administrator may wish to move all virtual servers from a host in order to update firmware or software on the host. When a host is placed in maintenance mode, running workloads are moved to other hosts in the pool during the maintenance on the host. When the administrator removes the host from maintenance mode, the host again becomes eligible as the target for future virtual server relocations.

3. **Automatic optimization of system pools.** If you choose to have VMControl monitor the health of the system pool and optimize the use of the resources, VMControl uses relocation to move workloads within the pool. Based on resource use, VMControl automatically moves workloads within the pool to most efficiently use server resources and to balance workloads across the hosts in the system pool.

For more information, see the topics at the following links:

Topic	Link
Putting a host into maintenance mode	In the information center (Internet): http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_t_put_host_in_maintenance_mode.html

The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to: IBM Flex System information→ Management devices and solutions→ IBM Flex System Manager management node→ Managing virtualized resources→ VMControl→ Managing server system pools→ Putting a host into maintenance mode |
| Server system | In the information center (Internet): |

Topic	Link
pool optimization	http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_c_learnmore_system_pool_optimization_settings.html The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to: IBM Flex System information→ Management devices and solutions→ IBM Flex System Manager management node→ Managing virtualized resources→ VMControl→ Managing server system pools→ Server system pool optimization
Managing server system pools	In the information center (Internet): http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_t_managing_pools.html The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to: IBM Flex System information→ Management devices and solutions→ IBM Flex System Manager management node→ Managing virtualized resources→ VMControl→ Managing server system pools
System pools with automated network relocation and logical network provisioning	In the information center (Internet): http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_c_learnmore_system_pools_relocation.html The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to: IBM Flex System information→ Management devices and solutions→ IBM Flex System Manager management node→ Managing virtualized resources→ VMControl→ Managing server system pools→ Creating server system pools→ System pools with automated network relocation and logical network provisioning

Steps:

Complete the following steps to create a system pool that supports relocation:

1. Log in to the IBM Flex System Manager node and select VMControl:
   a) Log in to the IBM Flex System Manager user interface with a user account that has sufficient privileges to configure devices managed by the IBM Flex System Manager management node.
   b) Select the Plug-ins tab on the Home page.
   c) Click **VMControl**.

2. Ensure that you have a server system pool created:

    a) From the VMControl summary page, click the System Pools tab.
    b) Ensure that the view is set to Server system pools.
    c) Verify that a system pool exists. If a pool does not exist, complete the steps in the *Creating and populating a server system pool* quick start guide to create a system pool and populate it with compute nodes. When you create the system pool and specify the pooling criteria options, click the resilience policy checkbox so that this server system pool is able to automatically relocate virtual servers.
    d) Verify that there are a minimum of two compute nodes in the server system pool.

3. Create a workload. Use one of the following methods to create a workload:

    - Complete the steps in the *Deploying a virtual appliance workload* quick start guide to deploy a new workload to the system pool.
    - Use the Group as workload task on the Workloads tab to group one or more existing virtual servers into a resilient workload that is to be managed as part of the system pool. For more information see the following topic:

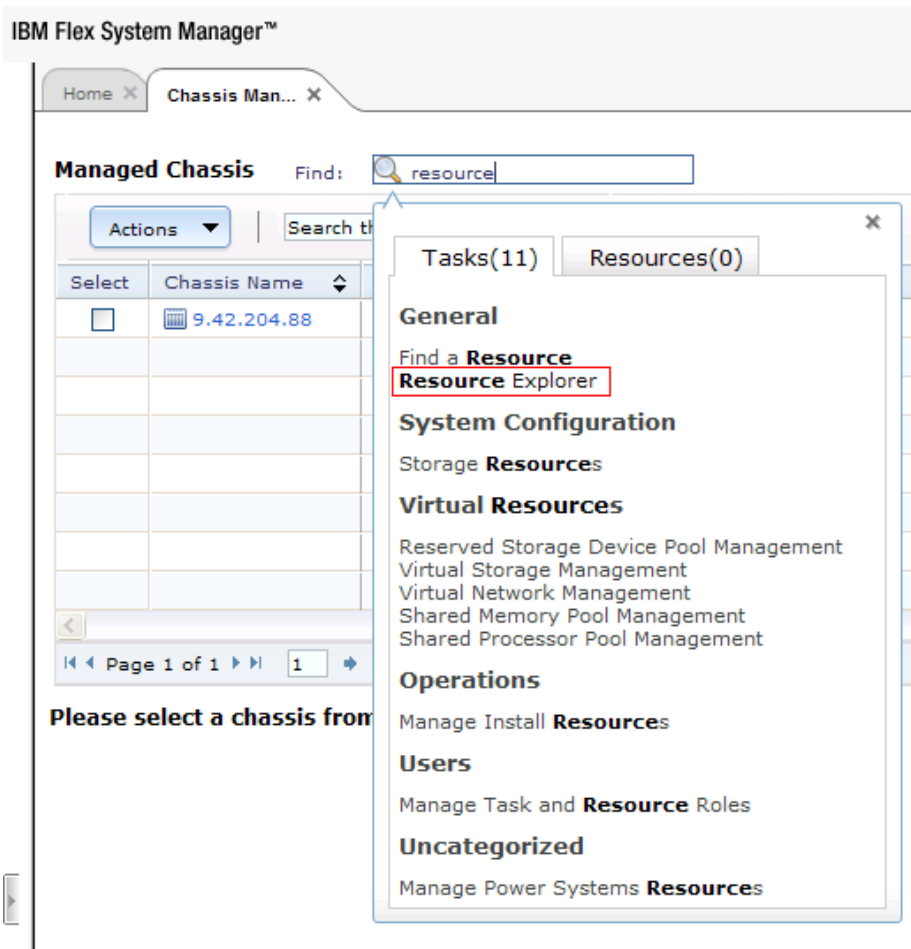   In the information center (Internet):
        http://pic.dhe.ibm.com/infocenter/flexsys/information/topic/com.ibm.acc.8731.doc/com.ibm.director.vim.helps.doc/fsd0_vim_t_group_as_workload.html

        The IBM Flex System product documentation is also available on the IBM Flex System Manager management node. To access the installed documentation, click Information Center from the IBM Flex System Manager Home page and then navigate to:
        IBM Flex System information→Management devices and solutions→IBM Flex System Manager management node→ Managing virtualized resources→ VMControl→Managing virtual appliances and workloads→Getting started with virtual appliances and workloads→Grouping virtual servers to create a workload

    Right-click the workload and click **Edit…** to mark the workload as resilient. Select either Automate or Approve mode to specify how VMControl should respond when it becomes aware of an impending hardware failure.

4. Verify that you can relocate a virtual server within the pool by completing the steps in *Relocating a virtual server from one host to another* quick start guide.

5. Verify that you can relocate the virtual servers on a host by putting the host into maintenance mode.
    a) From the VMControl summary page, select the System Pools tab.
    b) Ensure that the view is set to Server system pools
    c) Find a host that is a member of the server system pool that has one or more workloads running.
    d) Go to the Resource Explorer page and navigate to the host you found in the previous step. To get to the Resource Explorer page, type resource in the Find field on the Chassis Manager page or any other page that has a Find field, then select Resource Explorer from the drop-down as shown here:

IBM Flex System Manager™

Home ✕ | Chassis Man... ✕

Managed Chassis   Find: 🔍 resource

Actions ▼ | Search th

Select	Chassis Name ⬍	
☐	🖳 9.42.204.88	

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Please select a chassis from

Tasks(11)   Resources(0)

General

Find a **Resource**
Resource Explorer

System Configuration

Storage **Resource**s

Virtual Resources

Reserved Storage Device Pool Management
Virtual Storage Management
Virtual Network Management
Shared Memory Pool Management
Shared Processor Pool Management

Operations

Manage Install **Resource**s

Users

Manage Task and **Resource** Roles

Uncategorized

Manage Power Systems **Resource**s

e) Click **Actions** and select **Availability**. Then select **Enter Maintenance Mode**.
f) Select the Virtual Servers/Hosts tab in VMControl. On this tab, you see a list of hosts and the virtual servers that are on them.
g) You will see all of the virtual servers moved from the host you put in maintenance mode to other hosts in the system pool.

6. Verify you can re-populate a host by removing the host from maintenance mode. Go to the Resource Explorer page and navigate to the host you previously put in maintenance mode. Click **Actions** and select **Availability**, then select **Exit Maintenance Mode**.