The purpose of this tutorial is to show you how to configure and manage z/VM and its virtual machines through the xCAT-UI. This tutorial assumes that you have already installed xCAT and its dependencies.

Table of Contents

1. Terminology
2. Limitations
3. Logging into xCAT
4. Initializing the Database
5. Uploading the Linux ISO
6. Adding Resources
7. Provision a Virtual Machine
8. Managing Your Virtual Machines
9. Cloning a Virtual Machine
10. Setting Up Self-Service
11. Creating a User for Self-Service
12. Using the Self-Service Page
13. Connecting to Other z/VMs in the SSI cluster
1. Terminology

The following terminologies are used throughout this document. Below are its descriptions.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>node</td>
<td>A physical or virtual machine</td>
</tr>
<tr>
<td>group</td>
<td>A collection of nodes. User can group nodes that share the same attribute</td>
</tr>
<tr>
<td></td>
<td>together in a group.</td>
</tr>
<tr>
<td>host</td>
<td>A physical or virtual machine</td>
</tr>
<tr>
<td>profile</td>
<td>A unique name given to an autoyast of kickstart template. It is not the</td>
</tr>
<tr>
<td></td>
<td>same as the z/VM user profile.</td>
</tr>
<tr>
<td>table</td>
<td>A database table</td>
</tr>
<tr>
<td>template</td>
<td>An autoyast or kickstart template used to automate the installation of</td>
</tr>
<tr>
<td></td>
<td>Linux.</td>
</tr>
</tbody>
</table>
2. Limitations

There are a few limitations associated with the xCAT version that is embedded within z/VM 6.3. They are as follows.

- The default vSwitch setup for xCAT and the zHCP cannot be used by any other virtual machines. It is meant to be exclusively used by the xCAT and zHCP appliance.
- Ganglia is not supported or included in the xCAT or zHCP appliance. However, you can install a full-version xCAT from Sourceforge to use Ganglia.
3. Logging into xCAT

Log into the xCAT-UI by going to https://<hostname>/xcat, where <hostname> is the IP address or hostname of your xCAT MN. The default user name and password is: admin/admin (only in z/VM 6.3 embedded version).

![Login screen](image)

Figure 3.1. Login screen

On the first login, you will be brought to the Help page, where you can find a simple set of instructions on various xCAT pages.

![Help page](image)

Figure 3.2. Help page
Note that the xCAT-UI theme in this tutorial is set to “Sunny”, which is different from the default, “Start”. You can change the theme at any time by clicking on “Settings” (on the top right corner of the page) and selecting “Change xCAT theme”.

Figure 3.3. Change the xCAT-UI theme

It is recommended that you change the admin password, so that your system and xCAT is more secure. This is done by clicking on “Settings” in the upper right corner of the page, selecting “Change password”, and entering the new password in the dialog (as below).

Figure 3.4. Change the user password

4. Initializing the Database

Before trying to provision any virtual machine, you must run through some configuration that is specific to your site.

1) Go to the Configure page and set up your “networks” table.

When the Configure page loads, the default tab that is selected is “Tables”. On this tab, you will find all the tables used by xCAT. The most important ones for z/VM are:
hosts – Contains the IP address and hostname for each node, or a regex for determining the IP address and hostname for a group.
mac – Contains a listing of each node’s MAC address.
networks – Contains listing of networks reachable by xCAT, where each network entry contains the subnet mask, nameserver, etc.
nodethm – Determines which plugin will be used to manage a node.
nodetype – Contains info about nodes, e.g. operating system, arch, etc.
osimage – Contains a listing of templates/images to be used by xCAT, either diskful or diskless.
passwd – Contains passwords for users.
policy – Equivalent to an access control list. Controls access to xCAT for users and processes.
site – Contains xCAT site specific info about.
zvm – Contains z/VM specific information about nodes in xCAT, e.g. user ID, zHCP, etc.

In general, you will not have to deal with these tables directly. The xCAT-UI setups the table entries for you automatically through the fields that you provide when perform certain actions, e.g. adding an existing node.

![Networks table](image)

Figure 4.1. Networks table

The networks table contain info about the networks you want xCAT to know about. It is important that you give a value for the net, mask, mgtifname, gateway, and nameserver for each network.

To create a new entry in the table, click on “Add row”. Click on the appropriate column to edit. Once your are satisfied with how the table looks, click on “Save”. Note that no changes will be saved unless you click on “Save”. Close the networks tab.

2) If you want to use regular expressions to determine your nodes IP address and hostname, open
the hosts table and create an entry based on the group name, which will later hold your nodes.

Figure 4.2. Hosts table

Above, any nodes within the “all” group will have an IP address determined by 
|zhost(\d+)|9.60.27.($1+0)|. This takes the digits at the end of the node name and appends it as the last digit of the IP address, e.g. zhost123 = 9.60.27.123. Any nodes within the “all” group will have a hostname determined by |(.*)|($1).endicott.ibm.com|. This takes the node name and appends it with “endicott.ibm.com”, e.g. zhost123 = zhost123.endicott.ibm.com. You can create a custom regex based on your specific needs. Remember to hit “Save” when you are complete. Close the hosts tab.

3) Set the default password for new nodes provisioned by xCAT.

Add a new entry into the passwd table, where the key = system, username = root, and password = <root password>. Hit Save when you are complete. Close the passwd tab when done.
5. Uploading the Linux ISO

In order for xCAT to install Linux onto any virtual machines, a Linux ISO must be provided. Upload the Linux ISO(s) that will be used to install Linux onto your virtual machines.

1) Go into the Configure page and select the “Files” tab to see your xCAT repository. Note that you can only upload onto /install subdirectories. You can easily create a new folder under /install or go into /install/uploads, which was already created for this purpose.

![xCAT repository screenshot](image.jpg)

Figure 5.1. xCAT repository

Notice the following piece of info on the page.

**Total size: 13.5G | Available: 1.5G**

If you do not see this piece of info, then you probably did not configure the xCAT repository correctly. Verify that the disks that you allocated for the repository are properly formatted using CPFMTXA. Detach these disks from xCAT and re-IPL xCAT in order to try the setup again.

It is strongly recommended that you have at least 6 GB available in the xCAT repository. A typical
Linux ISO requires around 3 GB. When using xCAT copycds function, it copies the ISO contents onto xCAT, requiring about the same amount of storage.

2) Click on “Upload” to upload an ISO file. It will bring up a local file browser, from where you can select the ISO file. Note that you must download the distribution specific ISO file onto your workstation beforehand.

![Figure 5.2. Upload file](image)

It is important to note that during the upload phase, you cannot close the dialog. It should take several minutes to upload an ISO image file (2GB - 3GB), depending on your network connection. Go for a cup of tea.

Note that when uploading files. You should do this securely through the https connection, i.e. https://<localhost>/xcat. You might encounter problems using plain http.

3) Now the ISO needs to be copied onto xCAT. Go into the Provision page and select the “Images” tab. There you will find a table containing all the images known by xCAT. There maybe a few templates already present.

You will need to go into Advanced - Copy CDs. Click on “Browse” to browse the xCAT repository and find the ISO you had just uploaded.
You need to specify the architecture and distribution for the ISO. Otherwise, xCAT will attempt to name it for you. Once you are done, click on “Copy”. This will create several entries within the osimage table for the distribution. There will be several entries that do not apply to z/VM, i.e. anything other than *-s390x-install-compute. You can delete them by selecting them and clicking on “Remove”.

6. Adding Resources

Now that you have the Linux ISO setup, you need to verify that there are enough resources (e.g. network and disks) which you can use to create new virtual machines.

Before you begin, verify that your zvm table is correct. Open the Configure page and find the zvm table under the “Tables” tab. It should look similar to the one below.
Notice that there are entries for the z/VM system CEC and LPAR.

1) Go into the Provision page and open the Resources tab for z/VM. The Networks section will be opened by default.
Figure 6.1. Networks known to xCAT

Add additional networks you may need by clicking on “Add” and selecting the desired network type and z/VM system to create it on. Delete any network by selecting the network and clicking on “Delete”.

When you add a new network, there are advanced configurations that you can set by clicking on “Advanced”. Advanced options include: VLAN ID, port type, transport layer, etc. These options will be set to their defaults.
2) Make sure there are enough ECKD/FCP disks attached to your z/VM system.
You can attach more DASD to the z/VM system by simply clicking on “Add”. Note that the disk has to already be attached to SYSTEM and formatted using CPFMTXA or CPFORMAT. You can remove any DASD by selecting the DASD from the table and clicking on “Remove”.

Figure 6.4 Remove disk

3) If you have native SCSI/FCP devices, they can be added into xCAT. Note that z/VM does not have an equivalent of a DirMaint disk pool for native SCSI/FCP devices, other than using EDEVs. xCAT manages native SCSI/FCP devices using an internal pool that it keeps and manages itself.

Figure 6.5 Native SCSI/FCP disks known to xCAT
Add new native SCSI/FCP devices by clicking on “Add”. Delete any native SCSI/FCP devices by selecting the device and clicking on “Remove”.

You must provide the z/VM system to add the zFCP device to, the zFCP pool name, its status (free or used), the zFCP device WWPN (port name) and LUN (unit number), and size. The FCP channel range is optional. It is used by xCAT to search and automatically assigned an FCP channel to a VM. Note that xCAT does not yet support NPIV and multipathing. These features are planned for later releases.

7. Provision a Virtual Machine

Before provisioning any VM, you must first connect the network that you plan to use to the appropriate zHCP. The network used by the VM must be among the ones shared with the zHCP.

1) Go into the Nodes page and click on the zHCP node from the Nodes tab to open its inventory. Click on “Add NIC” to connect the network to the zHCP. If you re-IPL z/VM, you must have some way to re-grant VSWITCH access for the zHCP, either by a COMMAND statement in its directory entry or through the PROFILE EXEC.
Figure 7.1. zHCP inventory

Figure 7.2. NICs section of the zHCP inventory
Once you have the desired networks connected to the zHCP, you will be ready to provision your first VM.

2) Go into the Provision page and open the z/VM provision tab.
Defining a VM requires that you specify the group, node name, z/VM user ID, IP address, and hostname. Note that you must click on “Advanced” in order to enter in the IP address and hostname.

Next, select the OS image (autoyast or kickstart) that will install the Linux operating system onto your VM. These OS images are generated when you copied the ISO onto xCAT earlier.

Next, define your VM directory entry. The directory entry contains the hardware configuration for your VM, minus the storage. Notice that there is a checkbox named “Use default”. This will be covered later in this tutorial, but its purpose is to automatically generate a user directory entry for you based on the OS image template you selected.

Finally, add the storage required by the OS image. The default OS image (i.e. compute) is configured to use one 3390-mod9/3390-mod3 with the root partition mounted on it and to use static IP (DHCP if using Sourceforge version).

Once you are ready, click on Provision, and it should create a VM and install Linux onto via using an autoyast/kickstart template.

If the provision is successful, you will see a message similar to the following.
3) Open a VNC viewer to see the installation status. It may be a few minutes before you can open one. There are several free VNC viewers which you can download, e.g. RealVNC.

The default VNC login password is “12345678”. Once logged in, you will see the installation status, as below.
When the installation is complete, you will be able to access and use your Linux virtual machine.

4) Log onto your Linux using Putty or any other method. The default root password (e.g. xcat) is the same one you set in the passwd table earlier. You can change the password upon login using the command “passwd”.

The default templates (i.e. compute) are configured to use one 3390-mod9/3390-mod3 with the root partition mounted on it and to use static IP (DHCP if using Sourceforge version). The templates can be found under https://<hostname>/install/custom/install/.
By default, there should be “compute” and “zfcp” templates (tmpl) and package lists (pkglist) for both RHEL and SLES distributions under /install/custom/install/<os>, where <os> is the distribution. “compute” templates are created for ECKD devices. “zfcp” templates are created for native SCSI/FCP devices.

You can create your own autoyast or kickstart template based on your needs. Configuring kickstart templates is simple. However, autoyast templates are harder to configure, but there is a script which you can used to create one for xCAT (http://sourceforge.net/p/xcat/code/HEAD/tree/xcat-core/branches/2.8/xCAT-server/share/xcat/scripts/mkay4z).

Each OS template comes with a package list (.pkglist) that is configured to install the base software package. You can add more software packages in the pkglist. Optionally, you can select custom postscripts to be run after installation or during bootup. These postscripts are used for customization, e.g. installation of DB2. These postscripts must reside under /install/postscripts. The node group or actual node must have its postscripts specified in the postscripts table.

By default every node has the following postscripts: syslog, remoteshell, and synchfiles. They also have the following postbootscripts: otherpkgs.
More information on customizing autoyast/kickstart templates can be found at http://sourceforge.net/apps/mediawiki/xcat/index.php?title=XCAT_zVM#Appendix_B:_Customizing_Autoyast_and_Kickstart.

8. Managing Your Virtual Machines

Every virtual machine/nodes known by xCAT (including the one you just provisioned, i.e. zhost11) can be found in the Nodes page.

1) Go into the Nodes page to view nodes known by xCAT. There are two tabs in the Nodes page, i.e. “Summary” and “Nodes”. The “Summary” tab summarizes all the nodes within a group by their status, OS, architecture, provision, and type in a pie chart. The “Nodes” tab shows all the nodes within a group in a table. You will find more detail about the nodes in the Nodes tab, as well as perform actions against each the node.
Figure 8.1. Nodes summary charts
The power status of any node can be determined by clicking on the “power” link on top of the fourth column. It will update that column and show whether the underlying z/VM user ID is logged on or not. The same concept applies to the “status” column. The “monitor” column shows whether the node is monitored by Ganglia or not. Note that Ganglia has to be installed on xCAT and the node in order for the column to show anything. It is not supported within the embedded version in z/VM.

2) Click on any node to bring up its software and hardware inventory. It will look similar to below.
You can add or remove any hardware components on the node. Click on “Add processor”, “Add disk”, “Add dedicated device”, “Add zFCP”, or “Add NIC” to add these components. Each component can also be removed by clicking on their virtual device address link (in **blue**).

For advanced users, the directory entry can be directly edited. Click on the “Show directory” entry link on the top right corner of the node tab. You need to double click on the directory entry in order to edit it. Otherwise, you will not see the “Save” and “Cancel” buttons.
3) Add existing VMs into xCAT. Click on the “Add node” link, on the left side. It will bring up the following dialog.

You can use this dialog to add a z/VM hypervisor or z/VM virtual machine into xCAT. Note that if you
decide to add a z/VM hypervisor, you need to first add the zHCP that will be managing it. Otherwise, xCAT cannot directly interact with the z/VM system. If you did not specify a regex pattern for the group to determine the IP and hostname, you must specify the IP and hostname in the dialog above.

4) Once you added an existing Linux virtual machine into xCAT, you must exchange the xCAT public key with it in order for xCAT to manage it.

Click on the node that you recently added. Go to Configuration – Unlock.

This will bring up another tab, where you can specify the root password.

Click on the Unlock button to begin the process. Once done, you will see a message similar to below.

Figure 8.6. Unlock node

If some nodes have the same password, you can select the node range and run through the “Unlock” process once.

5) Any node that you created through xCAT or added into xCAT can be easily removed, either from the directory manager, xCAT database, or both.

Check on the nodes which you want to delete, and open Actions – Delete. It will bring up a tab similar to the one below. By default, the node(s) you selected will be deleted from both the directory manager and xCAT database. If you want just the xCAT database, then check the “Only delete entries in database” option.
9. Cloning a Virtual Machine

Provisioning new virtual machines through autoyast or kickstart gives you a vanilla Linux. It may not have the desired setup that you want. In such case, you can clone an existing node that you already have, where everything is already set up.

1) Go into the Nodes page and open the Nodes tab for the appropriate group your source node is in. Select the node and open Actions – Clone. It will bring up a tab where you can specify the new target node, user ID, group, IP, hostname, and disk pool. The group and disk pool perform auto-complete. You just need to enter the first few letters of the group or disk pool name, and xCAT will help you determine the rest.

Once the cloning is complete, you will see a message similar to the one below. It may take some time for before your node is cloned. This depends on whether you have FLASHCOPY. Otherwise,
xCAT will use Linux DD, which can take some time. During this process, the source VM will be powered off (if it is online).

**Figure 9.2. Successful clone message**

Note that these messages will not be displayed in real-time. They will appear all together at the end, so do not worry if nothing appears for a while.

2) When ready, log onto your Linux using Putty or any other method. The default root password is the same one you had for your original source node. You can change the password upon login using the command “passwd”.

Note that the source VM was powered down for cloning. You will have to restart that VM manually, by selecting the node and clicking Actions - Power on.

10. Setting Up Self-Service

xCAT provides a rudimentary self-service page. You can create users to request new VMs and manage their own VMs (within limits). However, you must first setup the self-service page using the following instructions.

1) Go into the Configure page and open the “Service” tab for z/VM. There you can configure the profiles, templates, and groups. The “Profiles” section should open by default.
A profile determines the default disk pool, disk size, and user directory entry for a node for a matching OS image profile. For example, the OS image sles11sp2-s390x-install-compute has the profile name of “compute”. The naming convention for OS images is `<os>-<arch>-<provmethod>-<profile>`. You can create as many profiles as desired. Each profile has a unique hardware and/or software configuration. This can be used to generate the default directory entry in the Provision page when you select the “Use default” checkbox, and can be used in the self-service page.

2) To create a new profile, click on “Create”. A dialog will be brought up, where you can specify the default disk pool, disk size, and directory entry for a given profile.
Once ready, click on Save to save the profile.

3) Open the “Templates” section.

Figure 10.3. z/VM templates
A template is usually an autoyast or kickstart template used to install Linux onto a VM. Note that a corresponding autoyast/kickstart template (tmpl) and package list (pkglist) must be provided and uploaded onto /install/custom/install/<os>, where <os> is the OS distribution in order for xCAT to use it. Otherwise, you will not be able to install Linux using Autoyast or Kickstart.

4) To add a new template, click on the “Create” button.

![Create image](image.png)

**Figure 10.4. New OS image template**

You must specify the OS architecture, OS version, profile (matching the profile you had created earlier), provision method (i.e. “install” for autoyast/kickstart installations), and optionally a description of that template. The image name will be automatically generated for you based on the OS version, architecture, provision method, and profile name, e.g. rhel6.2-s390x-install-compute. Note that in order for users to select this OS image, you must check the “Selectable” checkbox. Otherwise, this OS image will be hidden from users in the self-service page.

5) Go to the “Groups” section”. 
A group is a grouping of nodes that usually share the same attributes. If a node belongs to a group, its IP address and hostname can be determined by a regular expression. Otherwise, xCAT assigns the node an IP address and hostname from an IP pool.

6) To define a group, click on the “Create” button.
You must specify the group name, description, and IP pool. Other fields are optional, and you can specify "" (double quotes) or ‘’ (single quotes) as a value for these fields. Each entry in the IP pool is new-line separated. An entry follows the following convention: short_hostname,IP_address,fully-qualified_hostname. For example, zhost10.9.60.27.52,zhost10.endicott.ibm.com. Note that in order for users to select this group, you must check the “Selectable” checkbox. Otherwise, this group will be hidden from users in the self-service page.

When a user goes into the self-service page and requests a new node, an IP address and hostname will automatically be assigned to it. xCAT goes through each entry in the IP pool for the requested group and checks if it is already defined in xCAT, if it is in /etc/hosts, and if it is pingable. If an entry in the IP pool does not meet any those conditions, then that IP/hostname entry is free and available.

Click on Save when you are done.

11. Creating a User for Self-Service

Now that the self-service page is configured, you must create a user to log into the self-service page.

1) Go into the Configure page and open the “Users” tab.

![xCAT users](image)

Figure 11.1. xCAT users

The table above is based on the xCAT policy table. It is equivalent to an access control list and controls access to xCAT for both users and processes.
2) To add a new user, click on the “Create” button.

![User Configuration Interface]

Figure 11.2. New xCAT user

You must specify the user name, user type, and password. A user can be given guest or administrator privileges. These just determine the commands that user has access to. You can make it much more granular by editing the commands a user (guest or administrator) has access to. By default, all commands are allowed. You can optionally specify the noderange (a.k.a. group name) that the user has access to. The commands used by xCAT are:

Used by guests:
- authcheck - Authentication check used by xCAT-UI
- lsdef - List xCAT data object definitions
- nodestat - Obtains the node status, e.g. ping or noping
- tabdump - Display an xCAT database table
- rinv - Gathers node inventory
- rpower - Powers on or off an node
- rmvm - Deletes a node (from the directory manager)
- webportal - Custom set of APIs used by the self-service page
webrun - Custom set of APIs used by the xCAT-UI

Used by administrators (specific to z/VM):
  - authcheck - Authentication check used by xCAT-UI
  - chhypervisor - Configure the virtualization hosts
  - chtab - Add, delete, or update rows in the database tables
  - chvm - Configure the VM
  - lsdef - List xCAT data object definitions
  - lsqm - List z/VM configuration
  - makedns - Sets up domain name services (DNS)
  - makedhcp - Creates and updates DHCP configuration files
  - makehosts - Sets up /etc/hosts from the xCAT hosts table
  - mkdef - Creates xCAT data object definitions
  - mkvm - Creates z/VM virtual machines
  - nodeadd - Adds nodes to the xCAT cluster database
  - nodestat - Display the running status of each node in a noderange
  - tabdump - Display an xCAT database table
  - tabedit - View an xCAT database table in an editor and make changes
  - rinv - Gathers node inventory
  - rpower - Powers on or off an node
  - rmigrate - Execute migration of a guest VM between hosts/hypervisors
  - rmvm - Deletes a node (from the directory manager)
  - rnetboot - Cause the range of nodes to boot to network (a.k.a. IPL)
  - rscan - Collects node information from one or more hardware control points
  - webportal - Custom set of APIs used by the self-service page
  - webrun - Custom set of APIs used by the xCAT-UI

In order for the user to provision any virtual machine, you must provide a limit of how many VMs they can provision and manage. Add the number of VMs a user can into the comments field as: 

max-vm: <#>, where <#> is the maximum number of VMs that user can have.

When done, click on Save. Your new user will appear in the table after you click on “Refresh”.

12. Using the Self-Service Page

The self-service page is separate from the main xCAT-UI. Log into the self-service page by going to https://<hostname>/xcat/service.php, where <hostname> is the IP address or hostname of your xCAT MN. The self-service login screen should look the same as the main login screen.

1) Log into the self-service page using the account you previously created.
When you login, you will notice that you have no nodes. This is because you have not provisioned any.

2) Open the Provision tab for z/VM to provision a new virtual machine.
It is simple to create a new VM. Select one choice from the following categories - z/VM, group, and template. These (except z/VM) are the categories that you had set up earlier in the Configure - z/VM Service tab.

3) To create a new VM, simply select a choice within each category, and click on the "Provision". xCAT will create a new virtual machine and install Linux onto it based on the template selected. If the operation was successful, you should see a similar message.

Notice that an IP address, hostname, and root password is assigned to the node. You can change the root password upon first login.

4) You can open a VNC viewer to see the installation status. There are several free VNC viewers which you can download, e.g. RealVNC. Note that it could take a few minutes before you can access the VNC session.
The default VNC login password is 12345678. Once logged in, you will see the installation status, as below.

5) Open the “Manage” tab. Once Linux has been installed onto your VM, you will be able to see the VM in the nodes table.
Notice that there are limited actions that can be performed by a self-service user. They can only: power on/off, shutdown, clone, unlock, or delete a node. Also, the nodes table shows a limited set of attributes for the nodes, i.e. architecture, group, hcp, hostname, IP, mgt, OS, and user ID.

6) Before anything can be done on the new node, you must first exchange the xCAT public key with the node (zhost13).

If the key exchange was successful, you will see the following message.

7) Once unlocked, click on the node (zhost13) to view its inventory.
Notice that the self-service inventory is different from the normal inventory you saw previously (in the main xCAT-UI). That is, you cannot add or remove virtual hardware components from the node. The xCAT-UI self service page has a limited set of actions that users can perform. It is not intended that users be able to do everything an administrator could do.
13. Connecting to Other z/VMs in the SSI cluster

xCAT is designed to manage multiple z/VM partitions. Detailed instructions are contained in the z/VM 6.3 SMAPI programming book. Below is a snippet of those instructions.

1) Log onto the z/VM system to access the xCAT public SSH key.
   ⇒ LOGON MAINT
   ⇒ LINK XCAT 191 291 RR
   ⇒ ACCESS 291 Z

2) Send the file ID_RSA PUB Z (public SSH key) to other z/VM systems which you want to manage.

3) Place the ID_RSA PUB file on both the MAINT 193 and 493 minidisks of the other z/VM systems.

4) Restart the zHCP servers on those other systems. They will pick up the xCAT public SSH key on boot up and allow xCAT to manage the underlying z/VM hypervisor.

5) Ensure that the XCAT user ID on the other z/VM systems is not started by SMAPI initialization. On those other z/VM system, you must update the DMSISVR NAMES file and comment out the reference to “:server. XCAT”. The newly updated DMSSISVR NAMES should contain the following:
   * Management server for xcat
   * :server.XCAT
   * :type.XCAT
   * :subtype.MGR

6) Add the zHCPs of the other z/VM systems into xCAT.

Open the Nodes page and click on the “Add node” link, on the left side. It will bring up the following dialog, where you must provide the zHCP info.
Repeat this step for other zHCPs.

7) Click on “Add node” again and add the z/VM hypervisor into xCAT.

It is not necessary to provide the z/VM IP address or hostname, since xCAT does not directly interact with the z/VM system. However, you must provide the appropriate zHCP that you add earlier.
Repeat this step for other z/VM hypervisors.

9) Collect information about the newly added zHCP(s). They include attributes such as: user ID, z/VM host, operating system version, etc.

Go into the “Nodes” tab, select the newly added zHCP(s), and click on Configuration - Scan.

![Figure 13.3 Scan zHCP](image)

Make sure to check off the “Write output to xCAT database”. This saves the data found in the xCAT tables. Click on “Ok”.

It is important to run the scan because the system resources page depends on detailed information about each zHCP in order to properly query the z/VM system resources.
The End