

Step-by-Step Guide to Switchless setup with Open-E DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA

Software Version: DSS ver. 7.00 up12, up16

Presentation updated: May 2015

TO SET UP ACTIVE-ACTIVE iSCSI FAILOVER AND VMWARE HA-CLUSTER, PERFORM THE FOLLOWING STEPS:

Set up DSS V7 A-A iSCSI Failover:

1. Hardware configuration
2. Network Configuration
3. Configure the node-b and node-a
4. Create targets (node-a and node-b)
5. Configure Failover (node-a and node-b)
6. Start Failover Service

Configure VMware HA-Cluster:

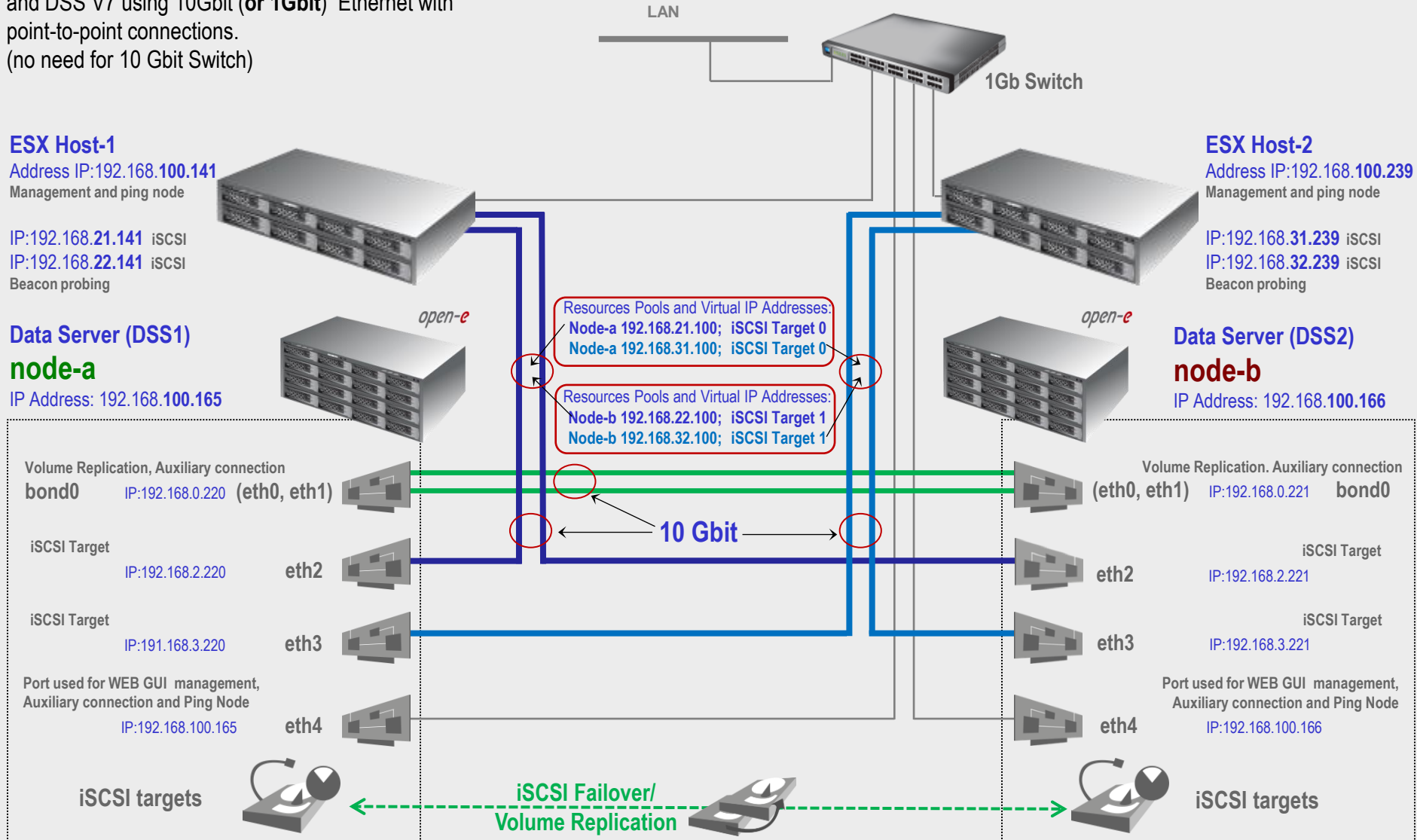
7. Create Cluster
8. Adding Hosts
9. Configure networking
10. Configure Storage Adapters
11. Reconfigure for vSphere HA
12. HA Cluster – clear alarms

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*

Hardware Requirements:

High Available Cluster with VMware ESX 5.x or 6.x and DSS V7 using 10Gbit (or 1Gbit) Ethernet with point-to-point connections.
(no need for 10 Gbit Switch)

1. Hardware Configuration



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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

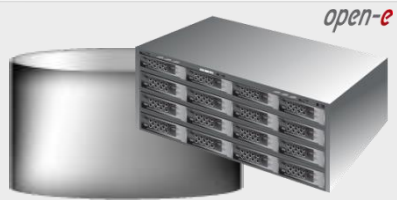
2. Network Configuration

After logging on to the Open-E DSS V7 (node-a), go to **SETUP** and choose the "Network interfaces" option.

In the **Hostname** box, replace the "dss" letters in front of the numbers with "node-a" server, in this example "node-a-31797157" and click the **apply** button (this will require a reboot).

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces'. On the left, a list of network interfaces (eth0, eth1, eth2, eth3, eth4) is shown, with eth3 selected. The main content area is divided into three sections: 'Server Name', 'Hostname', and 'DNS settings'. The 'Server Name' section has a 'Server name' field containing 'dss-a' and a 'Comment' field containing 'Data Storage Software'. The 'Hostname' section has a 'Hostname' field containing 'node-a-31797157'. The 'DNS settings' section has an empty 'DNS' field. Each section has an 'apply' button. At the bottom, there is an 'Event Viewer' icon and a notice: 'This is a TRIAL version. 57 day(s) left for evaluation. Data Storage Software V7 - All rights reserved.'

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Data Server (DSS2)
node-b
IP Address: 192.168.100.166

2. Network Configuration

Next, after logging on to the Open-E DSS V7 (node-b), go to **SETUP** and choose the "Network interfaces" option. You should do the same as for the "node-a". In the **Hostname** box, replace the "dss" letters in front of the numbers with "node-b" server, in this example "node-b-73670603" and click the **apply** button (this will require a reboot).

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Network interfaces'. On the left, a list of interfaces (eth0, eth1, eth2, eth3, eth4) is shown, with eth3 selected. On the right, three configuration panels are visible: 'Server Name' (with 'Server name' set to 'dss-b' and 'Comment' set to 'Data Storage Software'), 'Hostname' (with 'Hostname' set to 'node-b-73670603'), and 'DNS settings' (with an empty 'DNS' field). Each panel has an 'apply' button. The footer indicates 'Event Viewer' and 'This is a TRIAL version. 57 day(s) left for evaluation.' The bottom of the page shows 'Data Storage Software V7 - All rights reserved.'

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

2. Network Configuration

Next, select **Interfaces** and in the "Create new bond interface" function check two boxes with **eth0** and **eth1**. Next, in the field **Create** select a bonding mode. In this example select **New balance-rr**.

In the field **Address IP** enter 192.168.0.220 and in the **Netmask** field enter 255.255.255.0. Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

Perform the same set bonding on node-b with Address IP: 192.168.0.221

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

Select the appropriate volume group (vg00) from the list on the left and create a new iSCSI volume of the required size. Please set 2 logical volumes in the Active-Active option.

Next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button. The volumes must be the same size as the other node or you will not be able to create the Replication task.

Vol. groups

- vg00

Vol. replication

- Use volume replication
- File I/O
- Initialize
- Rate: medium
- Block I/O

Volume manager

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.13
Free	2784.81

Action: new iSCSI volume
Options: Just create volume

add: 100 GB (+0.12 GB for replication)

apply

Please apply changes or press "reload" button to discard

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

Set 2nd logical volume (lv0001), next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button.

Similarly, two logical volumes of the same sizes (100 and 101 GB) should be set on node-b.

Vol. groups

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓		N/A	100.00
System volumes						
SWAP						4.00
Reserved for snapshots						0.00
Reserved for system						4.00
Reserved for replication						0.13
Free						2684.81

Vol. replication

Use volume replication

File I/O

Initialize

Rate:

Block I/O

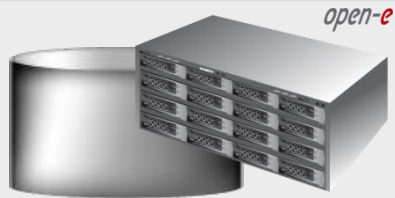
0 GB (+0.12 GB for replication) 2684.81

Please apply changes or press "reload" button to discard

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

On the node-a, go to "Volume replication".
Within Volume replication mode function, check the Destination box for lv0001 and check the Source box for lv0000.
Then, click the **apply** button.

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Data Server (DSS2)

node-b

IP Address: 192.168.100.166

3. Configure the node-b

Now, on the node-b, go to "Volume replication".

Within Volume replication mode function, check the Destination box for lv0000 and check the Source box for lv0001.

Then, click the **apply** button.

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: Configuration > Volume manager > Volume replication

Vol. groups

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
lv0001	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

apply

Please apply changes or press "reload" button to discard

Hosts Binding

Define remote node

Remote node IP address:

Remote node GUI (administrator) password:

connect

Create new volume replication task

Info

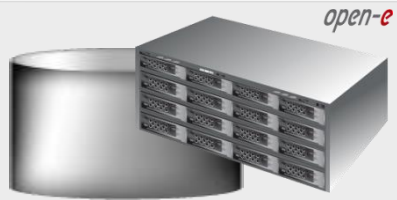
Volume replication tasks can not be created because there is no remote node connected.

★ Event Viewer

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

In the **Hosts binding** function, enter the IP address of node-b (in our example, this would be 192.168.0.221), enter node-b administrator password and click the **apply** button.

The screenshot shows the open-e Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume replication'. The main content area is divided into several sections:

- Vol. groups:** A list containing 'vg00'.
- Vol. replication mode:** A table showing replication settings for logical volumes.
- Hosts Binding:** A section for defining a remote node with input fields for IP address and password.
- Create new volume replication task:** A section with an info message stating that tasks cannot be created because no remote node is connected.

At the bottom of the interface, there is an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The footer contains the text 'Data Storage Software V7 - All rights reserved.' and the website 'www.open-e.com'.

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lv0001	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remote node IP address: 192.168.0.221
Remote node GUI (administrator) password:

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Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

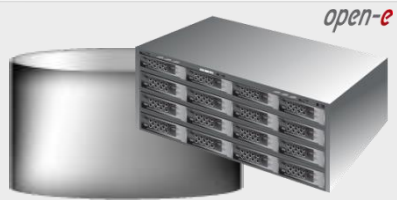
In the **Create new volume replication task**, enter the task name in the **Task name** field, then click on the  button. In the **Destination volume** field, select the appropriate volume (in this example, **lv0000**). Next, click the **create** button.

The screenshot shows the open-e web interface for configuring a volume replication task. The breadcrumb trail is: Configuration > Volume manager > Volume replication. The interface is divided into several panels:

- Vol. groups:** Shows a single group named 'vg00'.
- Hosts Binding:** Shows a remote node configuration with Host name: node-b-7..., IP address: 192.168.0.221, and Status: Reachable. A 'disconnect' button is present.
- Create new volume replication task:** This panel is the focus of the instructions. It contains three input fields: 'Task name' (with value 'm0000'), 'Source volume' (with value 'lv0000'), and 'Destination volume' (with value 'lv0000'). A right-pointing arrow button is next to the destination volume field. A 'create' button is at the bottom right. A note at the bottom says: 'Please apply changes or press "reload" button to discard'.
- Replication tasks manager:** Shows an 'Info' message: 'No tasks have been found.'

At the bottom of the interface, there is an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The footer text reads: 'Data Storage Software V7 - All rights reserved.'

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Data Server (DSS1)
node-a
IP Address: 192.168.100.165

3. Configure the node-a

Now, in the **Replication tasks manager** function, click the corresponding "play" button to start the Replication task on the node-a.

The screenshot shows the open-e Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Volume replication' under 'Volume manager'. The left sidebar shows 'Vol. groups' with 'vg00' and 'Vol. replication'. The main content area has several sections: 'Hosts Binding' showing a remote node 'node-b-7...' with IP '192.168.0.221' and status 'Reachable'; 'Create new volume replication task' with an info message; and 'Replication tasks manager' with a table of tasks. A blue arrow points from the text box to the 'play' button in the 'Replication tasks manager' table.

Name	Start time	Action
m0000	2015-05-15 19:26:53	[play] [stop] [delete]

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Data Server (DSS2)

node-b

IP Address: 192.168.100.166

3. Configure the node-b

Next, go to the node-b.
Within **Create new volume replication task**, enter the task name in the **Task name** field, then click on the  button.
In the **Destination volume** field, select the appropriate volume (in this example, **lv0001**).

The screenshot shows the open-e web interface for configuring volume replication. The breadcrumb trail is: Configuration > Volume manager > Volume replication. The 'Remote node' section shows 'Host name: node-a-3...' and 'IP address: 192.168.0.220' with a 'Status: Reachable' indicator and a 'disconnect' button. The 'Create new volume replication task' form has the following fields: 'Task name' (m0001), 'Source volume' (lv0001), and 'Destination volume' (lv0001). A right arrow button is next to the destination volume field, and a 'create' button is at the bottom. A 'Replication tasks manager' table at the bottom shows a task named 'm0000_reverse' with a start time of 'n/a' and action buttons for play, stop, and delete. The footer indicates 'This is a TRIAL version. 57 day(s) left for evaluation.' and 'Data Storage Software V7 - All rights reserved.'

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Data Server (DSS2)

node-b

IP Address: 192.168.100.166

3. Configure the node-b

In the **Replication tasks manager** function, click the corresponding "play" button to start the Replication task on the node-b: **m0001**.

In this box you can find information about currently running replication tasks.

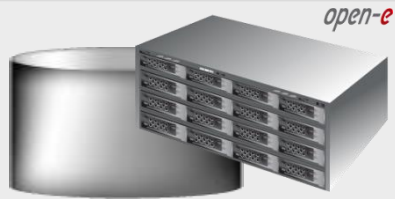
When a task is started a date and time will appear.

The screenshot shows the open-e web interface for Data Storage Software V7. The navigation menu includes SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The current page is 'Configuration > Volume manager > Volume replication'. The left sidebar shows a tree view with 'Vol. groups' containing 'vg00' and 'Vol. replication' containing 'm0000_reverse' and 'm0001'. The main content area has three panels: 'Hosts Binding' showing a remote node 'node-a-3...' with IP '192.168.0.220' and status 'Reachable', a 'disconnect' button, and a 'Create new volume replication task' panel with an info message: 'No volumes with replication functionality found or all volumes have a task assigned already.' The 'Replication tasks manager' panel shows a table with two rows:

Name	Start time	Action
m0000_reverse	n/a	[play] [stop] [delete]
m0001	n/a	[play] [stop] [delete]

At the bottom, there is an 'Event Viewer' icon and a footer note: 'This is a TRIAL version. 57 day(s) left for evaluation. Data Storage Software V7 - All rights reserved.'

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*




Data Server (DSS1)

node-a

IP Address: 192.168.100.165

3. Configure the node-a

You can check the status of Volume Replication anytime in **STATUS** -> "Tasks" menu.

Click on the  button, located next to a task name (in this case **m0000**) to display detailed information on the current replication task.

NOTE:

Please allow the replication task to complete (similar to above with status being "Consistent") before writing to the iSCSI Logical Volume.

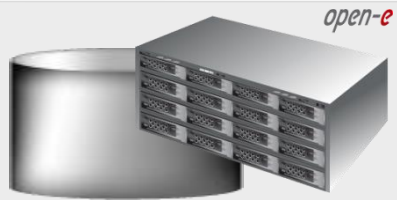
The screenshot shows the open-e web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'STATUS' menu is expanded to show 'Tasks'. The 'Tasks' menu lists 'Data (File) Replication', 'Antivirus', 'Volume Replication', and 'Snapshots'. The 'Volume Replication' task is selected, showing a table of 'Running tasks' with one entry: 'm0000' (Volume replication) starting at 2015-05-15 19:26:53. A dropdown arrow next to the task name is highlighted. The detailed view for 'm0000' shows the following information:

Name	Type	Start time
m0000	Volume replication	2015-05-15 19:26:53

Protocol type: Synchronous
Connection: Connected
Source info:
Logical volume: lv0000
Consistency: Consistent
Destination info:
Logical volume: lv0000
Consistency: Consistent
IP address: 192.168.0.221

At the bottom, there is an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The footer contains 'Data Storage Software V7 - All rights reserved'.

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Data Server (DSS1)
node-a
IP Address: 192.168.100.165

4. Create targets

Choose **CONFIGURATION**, "iSCSI target manager" and "Targets" from the top menu.

In the **Create new target** function, uncheck the box **Target Default Name**.
In the **Name** field, enter a name for the new target and click **apply** to confirm.

NOTE:

Both systems must have the same Target name.

The screenshot displays the open-e web interface for configuring iSCSI targets. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'CONFIGURATION' menu is active, showing a breadcrumb trail: 'You are here: Configuration > iSCSI target manager > Targets'. The main content area is divided into two panels. The top panel, titled 'Create new target', contains a form with the following fields: 'Target Default Name' (checkbox, unchecked), 'Name' (text input with value 'iqn.2015-05:target0'), and 'Alias' (text input with value 'target0'). A red 'apply' button is located at the bottom right of this panel. Below the form is a section titled 'Discovery CHAP user access' with two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. A second red 'apply' button is at the bottom right of this section. The bottom of the interface features an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The footer text reads 'Data Storage Software V7 - All rights reserved.'



Data Server (DSS1)
node-a
IP Address: 192.168.100.165

4. Create targets

Next, you must set the 2nd target. Within the **Create new target** function, uncheck the box **Target Default Name**.

In the **Name** field, enter a name for the 2nd new target and click **apply** to confirm.

The screenshot shows the open-e web interface for configuring iSCSI targets. The main navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Targets' under 'Configuration > iSCSI target manager > Targets'. The 'Create new target' panel displays a success message: 'New target has been created successfully!'. Below this, a lightbulb icon suggests a next step: 'What would you like to do next? Add Logical Units to the new target (take me to a settings page for this target)'. The 'Target Default Name' checkbox is unchecked. The 'Name' field is filled with 'iqn.2015-05:target1' and the 'Alias' field is filled with 'target1'. A red 'apply' button is visible. Below this panel is the 'Discovery CHAP user access' panel with two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. A second red 'apply' button is at the bottom right of this panel. The footer of the interface includes 'Event Viewer' and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation. Data Storage Software V7 - All rights reserved.'

NOTE:

Similar on node-a, please set at the node-b, also set two targets with the same Target name.



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

4. Create targets

After that, select **target0** within the **Targets** field.

The screenshot shows the open-e web interface for configuring iSCSI targets. The breadcrumb path is: Configuration > iSCSI target manager > Targets > iqn.2015-05:target0 (target0). The interface is divided into two main panels: 'Targets' and 'Target volume manager'.

Targets Panel: Shows a list of targets. 'target0' is selected and highlighted in grey, while 'target1' is unselected.

Target volume manager Panel: Contains several sections:

- Info:** Two informational messages. The first states that logical volumes are selected as mirror destinations and that direct access is not possible. The second notes that the target must have a LUN 0 for data to be accessible.
- Logical volumes attached to this target:** A table showing no attached volumes.
- Available logical volumes:** A table listing two volumes for attachment.

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	5T7CPT4cbIN1wXRZ	0	write-through	attach
lv0001	iSCSI	I9405bHjBIRUNY85	0	write-through	attach

At the bottom of the interface, there is an 'Event Viewer' section and a footer indicating it is a trial version with 57 days left for evaluation.

NOTE:

Volumes on both sides must have the same SCSI ID and LUN# for example: lv0000 SCSI ID on node-a = lv0000 SCSI ID on node-b.

In this case before clicking the **attach** button please copy the SCSI ID and LUN# from this node.



Data Server (DSS2)

node-b

IP Address: 192.168.100.166

4. Create targets

After that, select **target0** within the **Targets** field and click **attach** button located under **Action**.

NOTE:

Volumes on both sides must have the same SCSI ID and LUN# for example: lv0000 SCSI ID on node-a = lv0000 SCSI ID on node-b.

In this case before clicking the **attach** button please paste the SCSI ID and LUN# (previously copied) from node-a .

The screenshot shows the open-e web interface for 'DATA STORAGE SOFTWARE V7'. The breadcrumb trail is 'Configuration > iSCSI target manager > Targets > iqn.2015-05:target0 (target0)'. The 'Targets' section on the left shows a list with 'target0' selected. The 'Target volume manager' section on the right contains two informational messages and a table of logical volumes.

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	6T7CPT4cbIN1wXRZ	0	write-through	attach
lv0001	iSCSI	i1WTcQPb1zcl09An	0	write-through	attach



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

4. Create targets

After that, select **target1** within the **Targets** field and click **attach** button located under **Action**.

NOTE:

Before clicking the **attach** button again, please copy the SCSI ID and LUN# from this node.

The screenshot shows the open-e web interface for configuring iSCSI targets. The breadcrumb path is: Configuration > iSCSI target manager > Targets > iqn.2015-05target1 (target1). The 'Targets' section on the left lists 'target0' and 'target1', with 'target1' selected. The 'Target volume manager' section on the right contains two informational messages and a table of logical volumes. The table 'Available logical volumes' has the following data:

Volume	Type	SCSI ID	LUN	Access mode	Action
l0001		iqn.2015-05target1	0	write-through	attach

The 'attach' button is highlighted with a red arrow pointing from the blue instruction box. Below the table is the 'CHAP user access authentication' section with radio buttons for 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'.



Data Server (DSS2)

node-b

IP Address: 192.168.100.166

4. Create targets

Next go to node-b, select **target1** within the **Targets** field and click **attach** button located under **Action**.

NOTE:

Before clicking the **attach** button again, please paste the SCSI ID and LUN# (previously copied) from the node-a.

The screenshot shows the open-e web interface for configuring iSCSI targets. The breadcrumb trail indicates the user is in the configuration area for target 'iqn.2015-05:target1 (target1)'. The 'Targets' section on the left shows 'target1' is selected. The 'Target volume manager' section on the right provides information about the target and lists available logical volumes. The 'Available logical volumes' table is as follows:

Volume	Type	SCSI ID	LUN	Access mode	Action
M0001	iSCSI	19405bHJIBIRUNY85	0	write-through	attach

The 'attach' button for the selected volume is highlighted with a red border. Below this, the 'CHAP user access authentication' section is visible, with 'No CHAP user access authentication' selected. An 'apply' button is located at the bottom right of this section.

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Data Server (DSS1)
node-a
IP Address: 192.168.100.165

5. Configure failover

On the node-a, go to **SETUP** and select "Failover".

In the **Auxiliary paths** function, click the **add new auxiliary path** button.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

Auxiliary paths

Status	node-a-3... interface (local node)	node-b-7... interface (remote node)
Inactive	bond0 (192.168.0.220)	bond0 (192.168.0.221)

add new auxiliary path

Ping nodes

Ping node IP address	node-a-3... status (local node)	node-b-7... status (remote node)
No ping nodes defined.		

add new ping node

Failover trigger policy

- Ignore I/O errors
- Trigger failover on I/O errors (any volume)
- Trigger failover on I/O errors (only volumes configured in failover)

Event Viewer | This is a TRIAL version. 57 day(s) left for evaluation.

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DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

Next, select the **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

The screenshot shows the open-e web interface for configuring failover. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The main content area is titled 'You are here: Setup > Failover'. Below this, there are sections for 'Auxiliary paths' and 'Ping nodes'. The 'Auxiliary paths' section contains a table with columns for 'Status', 'node-a-3... interface (local node)', and 'node-b-7... interface (remote node)'. Below the table is a 'New auxiliary path' form with dropdown menus for 'Interface on local node' and 'Interface on remote node', both set to 'eth4 (192.168.100.165)'. There are 'cancel' and 'add new auxiliary path' buttons. The 'Ping nodes' section has a table with columns for 'Ping node IP address', 'node-a-3... status (local node)', and 'node-b-7... status (remote node)'. It shows 'No ping nodes defined.' and an 'add new ping node' button. The footer includes 'Event Viewer', 'This is a TRIAL version. 57 day(s) left for evaluation.', and 'Data Storage Software V7 - All rights reserved.'

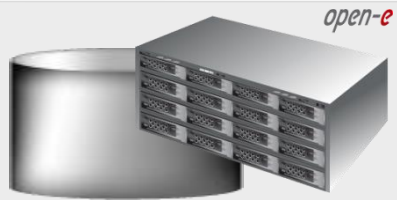
Status	node-a-3... interface (local node)	node-b-7... interface (remote node)
Inactive	bond0 (192.168.0.220)	bond0 (192.168.0.221)

Ping node IP address	node-a-3... status (local node)	node-b-7... status (remote node)
No ping nodes defined.		

IMPORTANT NOTE:

Switchless environment setup is different than one with a switch. Here, auxiliary paths cannot be set via iSCSI-export path. This is why the Volume Replication NICs should be selected and the GUI NICs.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

Info
Auxiliary path has been created successfully.

Status	node-a-3... interface (local node)	node-b-7... interface (remote node)	
Inactive	eth4 (192.168.100.165)	eth4 (192.168.100.166)	
Inactive	bond0 (192.168.0.220)	bond0 (192.168.0.221)	

[add new auxiliary path](#)

Ping nodes

Ping node IP address	node-a-3... status (local node)	node-b-7... status (remote node)
No ping nodes defined.		

[add new ping node](#)

Failover trigger policy

- Ignore I/O errors
- Trigger failover on I/O errors (any volume)
- Trigger failover on I/O errors (only volumes configured in failover)

[Show advanced options](#)

★ Event Viewer | This is a TRIAL version. 57 day(s) left for evaluation.

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In the Ping nodes function, click the **add new ping node** button.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

In the **Ping nodes** function, enter IP addresses of management ports both **ESX Hosts**.

In the **IP address** field enter IP address and click the **add new ping node** button (according to the configuration in the third slide).

In this example, IP address of the first ping node is: 192.168.100.141 and the second ping node: 192.168.100.239.

Auxiliary path has been created successfully.

Status	node-a-3... interface (local node)	node-b-7... interface (remote node)	
Inactive	eth4 (192.168.100.165)	eth4 (192.168.100.166)	🗑️
Inactive	bond0 (192.168.0.220)	bond0 (192.168.0.221)	🗑️

Ping nodes

Info
Ping node has been added successfully.

Ping node IP address	node-a-3... status (local node)	node-b-7... status (remote node)	
192.168.100.141	Reachable	Reachable	🗑️
192.168.100.239	Reachable	Reachable	🗑️

Failover trigger policy

Ignore I/O errors

IMPORTANT NOTE:

Switchless environment setup is different than one with a switch. Here, ping nodes must be configured on the GUI NICs which are connected to a switch.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

Next, go to the **Resources pool Manager** function (on node-a resources) and click the **add virtual IP** button.

The screenshot shows the open-e web interface for Data Storage Software V7. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Resources pool manager' for 'node-a-31797157 resources (local node)'. The status is 'unknown' and synchronization is 'not configured'. There are buttons for 'move' and 'sync between nodes'. Below this, there are tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'Virtual IP addresses' tab is active, showing 'No virtual IPs defined.' and an 'add virtual IP' button. This same structure is repeated for 'node-b-73670603 resources (remote node)'. At the bottom, there is an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The footer contains 'Data Storage Software V7 - All rights reserved'.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

Enter the **Virtual IP**, (in this example 192.168.21.100 according to the configuration in the third slide) and select two appropriate interfaces on local and remote nodes that are in the same network. Then, click the **add** button. The **Virtual IP Address** must be a separate network from the NICs that are on the nodes. Having the Virtual IP on the same network of any of the nodes NIC's can cause routing issues in a failover event.

The screenshot shows the 'Resources pool manager' interface for 'node-a-31797157 resources (local node)'. The 'Virtual IP addresses' tab is active, showing the 'add virtual IP' form. The form fields are: Virtual IP: 192.168.21.100, Interface on local node: eth2 (192.168.2.220), Interface on remote node: eth2 (192.168.2.221), Netmask: 255.255.255.0, and Broadcast (optional):. There are 'cancel' and 'add' buttons at the bottom of the form. Below the form, there is a section for 'node-b-73670603 resources (remote node)' with a 'move' button. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The top right corner says 'DATA STORAGE SOFTWARE V7'. The bottom status bar indicates 'This is a TRIAL version. 57 day(s) left for evaluation.' and 'Data Storage Software V7 - All rights reserved.'

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

Now, still on node-a resources (local node) enter the next Virtual IP address. Click **add virtual IP** enter **Virtual IP**, (in this example 192.168.31.100), and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

The screenshot shows the open-e web interface for configuring failover. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. The main content area is titled 'Resources pool manager' and shows 'node-a-31797157 resources (local node)'. The status is 'unknown' and synchronization is 'not configured'. There are 'move' and 'sync between nodes' buttons. Below this, there are tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'add virtual IP' form is active, showing the following fields: Virtual IP: 192.168.31.100; Interface on local node: eth3 (192.168.3.220); Interface on remote node: eth3 (192.168.3.221); Netmask: 255.255.255.0; Broadcast (optional): (empty). There are 'cancel' and 'add' buttons at the bottom of the form. Below the form, there is a section for 'node-b-73670603 resources (remote node)'. The footer includes 'Event Viewer' and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation.' The bottom of the page has the URL 'www.open-e.com' and the page number '29'.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

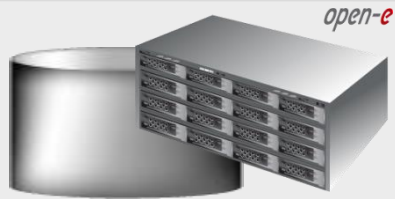
node-a

IP Address: 192.168.100.165

5. Configure failover

When you are finished with setting the virtual IP, go to the **iSCSI resources** tab on the **local node resources** and click the **add or remove targets** button.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

After moving the target "iqn.2015-05:target0" from the available targets to Targets already in cluster, click the **apply** button.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

Now you have 4 **Virtual IP** addresses configured on two interfaces (eth2, eth3).

IMPORTANT NOTE:

Switchless environment setup is different than one with a switch.

The first ESX host will have assigned subnet **21** to access Target**0** and subnet **22** to access Target**1**

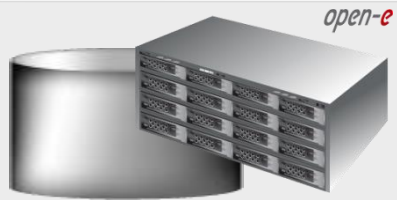
The second ESX host will have assigned subnet **31** to access Target**0** and subnet **32** to access Target**1**

The screenshot shows the 'Resources pool manager' interface for 'node-a-31797157 resources (local node)'. It displays two virtual IP addresses: 192.168.21.100 and 192.168.31.100. Each is associated with a local interface (eth2 or eth3) and a remote interface on node-b. The synchronization status is 'synced'. A table below shows the mapping of virtual IPs to local and remote interfaces.

Virtual IP	Interface on local node:	Interface on remote node:
192.168.21.100	eth2 (192.168.2.220)	eth2 (192.168.2.221)
192.168.31.100	eth3 (192.168.3.220)	eth3 (192.168.3.221)

The same configuration is visible for 'node-b-73670603 resources (remote node)'. The interface also shows 'Virtual IP addresses' and 'iSCSI resources' tabs, and an 'add virtual IP' button.

DSS V7 Active-Active iSCSI Failover Storage Cluster and VMware HA *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

5. Configure failover

In **iSCSI resources** both targets are configured.

The screenshot shows the open-e web interface for configuring iSCSI resources. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The main content area is titled 'Resources Pool Manager' and shows two nodes: 'node-a-31797157 resources (local node)' and 'node-b-73670603 resources (remote node)'. Both nodes are in an 'inactive' state and have a 'synced' synchronization status. The 'iSCSI resources' tab is selected for both nodes. Under 'node-a', there is one iSCSI target: 'target0 (iqn.2015-05:target0)'. It has a replication task 'm0000' with a logical volume 'lv0000' and a replication task state of 'OK'. Under 'node-b', there is one iSCSI target: 'target1 (iqn.2015-05:target1)'. It has a replication task 'm0001_reverse' with a logical volume 'lv0001' and a replication task state of 'OK'. A blue callout box points to the 'iSCSI resources' section of both nodes, stating that both targets are configured. The bottom of the interface shows an 'Event Viewer' icon and a trial notice: 'This is a TRIAL version. 57 day(s) left for evaluation. Data Storage Software V7 - All rights reserved.'



Data Server (DSS1)

node-a

IP Address: 192.168.100.165

6. Start Failover Service

Scroll to the top of the **Failover Manager** function.

At this point, both nodes are ready to start the Failover.

In order to run the Failover service, click the **start** button and confirm this action by clicking the **start** button again.

NOTE:

If the start button is grayed out, the setup has not been completed.

The configuration of Active-Active iSCSI Failover is now complete.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

Failover Manager

Cluster status: Ready for Start

All required settings have been set up, cluster is ready to be started.

Important! Please refer to [Failover: Important notes](#) help for important information related to configuration and maintenance of failover services.

start

Resources pool

node-a-31797157 (local node) resources pool:

Status: inactive
Replication state: **synced**
Persistent reservation synchronization: inactive

node-b-73670603 (remote node) resources pool:

Status: inactive
Replication state: **synced**
Persistent reservation synchronization: inactive

[See details >](#)

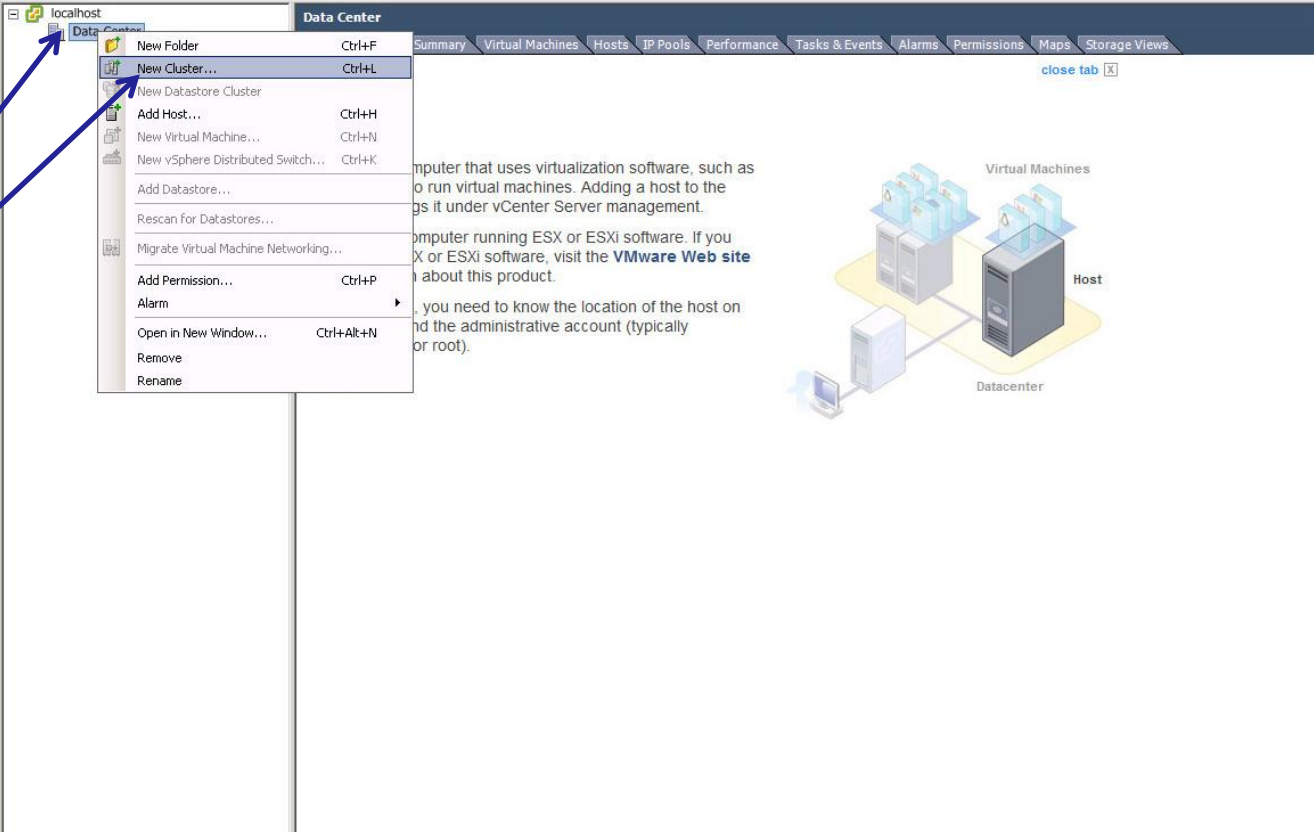
Network statuses	Remote node status
Ping nodes: 2 of 2 reachable	Remote node availability: Reachable
See details >	Remote node hostname: node-b-73670603
Auxiliary paths: 2 defined	Remote node IP: 192.168.0.221
See details >	See details >

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7. Create a new Cluster

In **vCenter Server**, please click right mouse on **Data Center**. Next, please select **New Cluster** from the context menu.

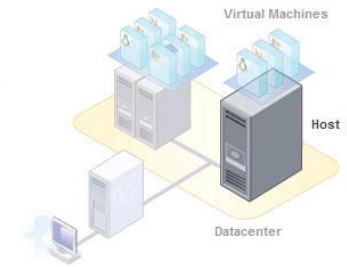


The screenshot shows the vCenter Server interface. The left pane displays a tree view with 'localhost' expanded to show 'Data Center'. A context menu is open over 'Data Center', listing options such as 'New Folder', 'New Cluster...', 'New Datastore Cluster', 'Add Host...', 'New Virtual Machine...', 'New vSphere Distributed Switch...', 'Add Datastore...', 'Rescan for Datastores...', 'Migrate Virtual Machine Networking...', 'Add Permission...', 'Alarm', 'Open in New Window...', 'Remove', and 'Rename'. The 'New Cluster...' option is highlighted. The main pane shows the 'Data Center' summary page with tabs for 'Summary', 'Virtual Machines', 'Hosts', 'IP Pools', 'Performance', 'Tasks & Events', 'Alarms', 'Permissions', 'Maps', and 'Storage Views'. A 'close tab' button is visible in the top right of the main pane.

computer that uses virtualization software, such as ESX or ESXi, to run virtual machines. Adding a host to the cluster registers it under vCenter Server management.

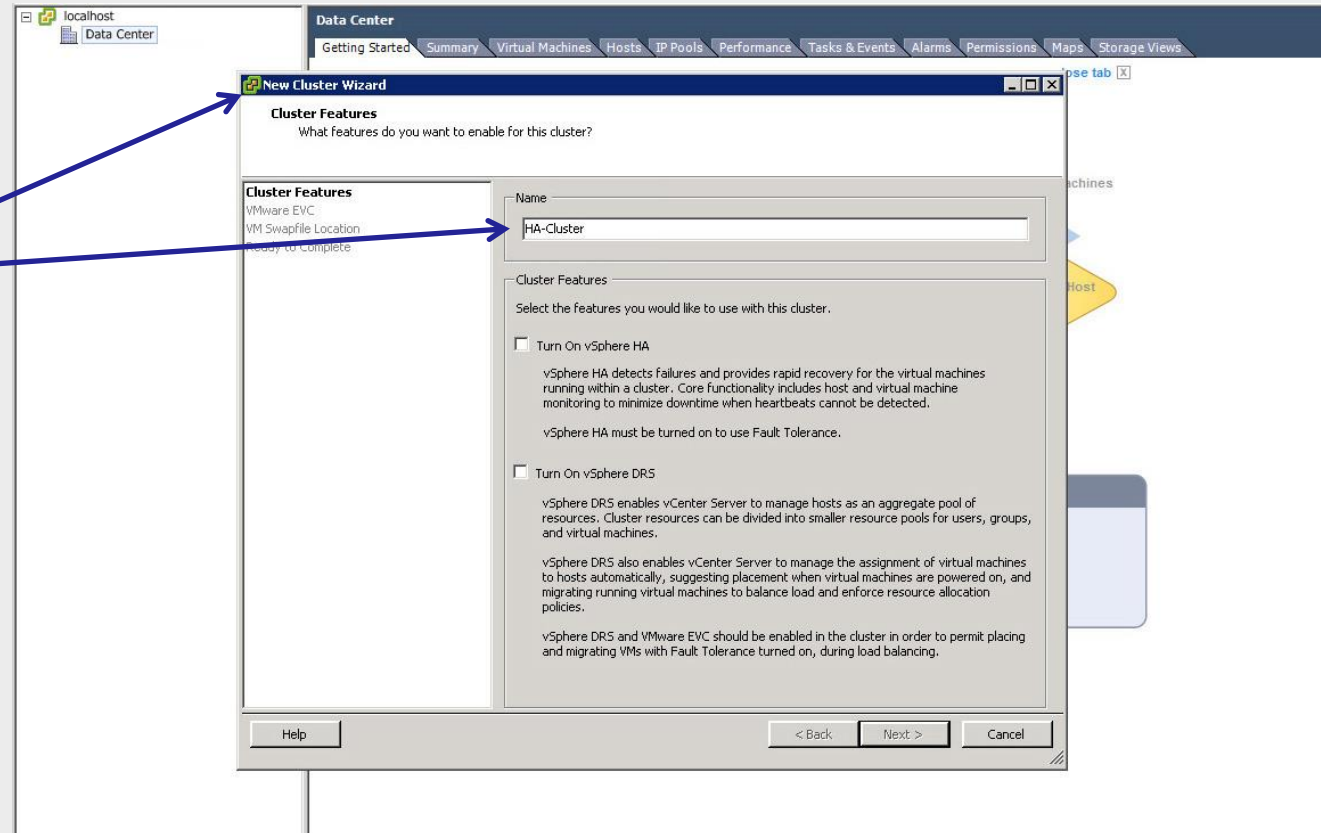
computer running ESX or ESXi software. If you are using ESX or ESXi software, visit the [VMware Web site](#) for more information about this product.

you need to know the location of the host on the network and the administrative account (typically root).

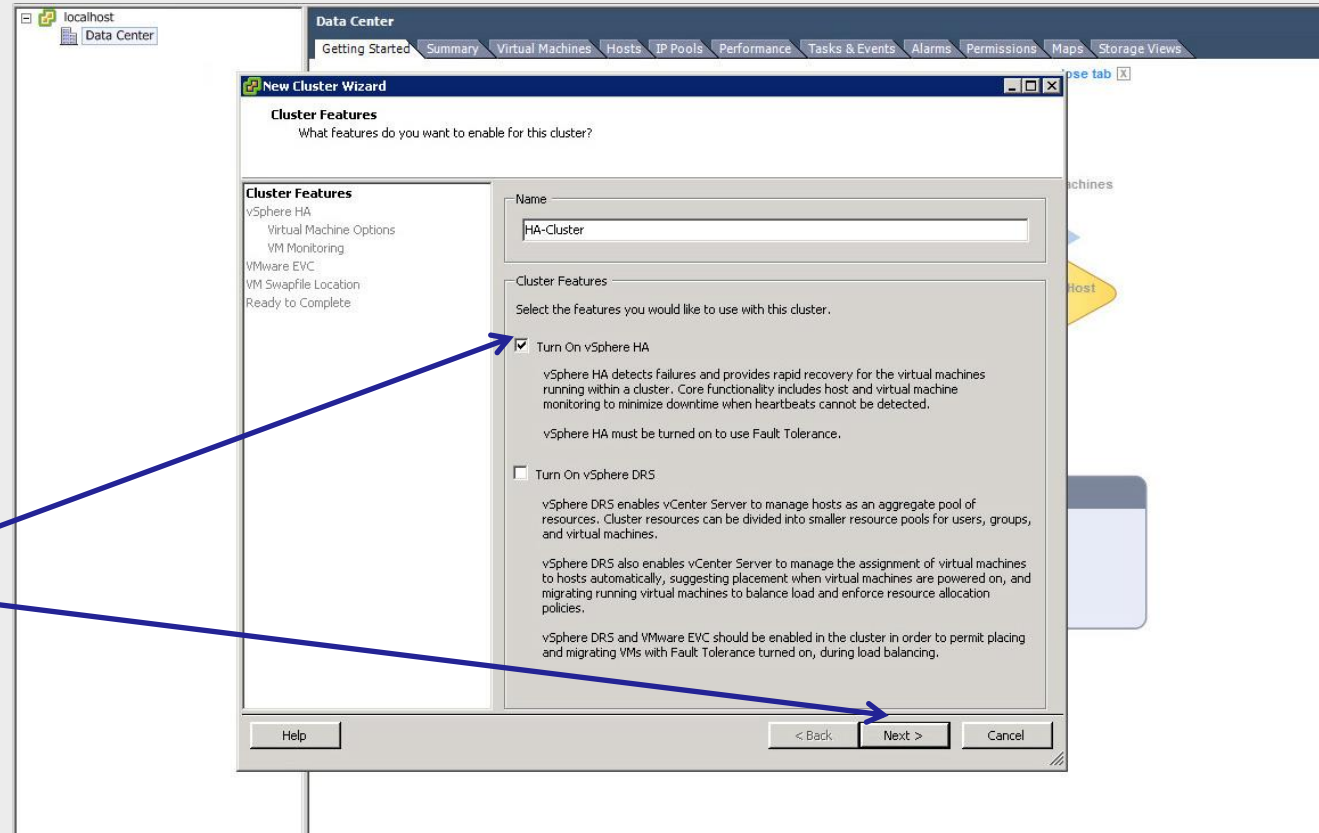


7. Create a new Cluster

In New Cluster Wizard window, please enter the name of new cluster. (in this example HA-Cluster)



7. Create a new Cluster



Check box **Turn On vSphere HA**
end click **Next** buttons to complete
the Wizard.

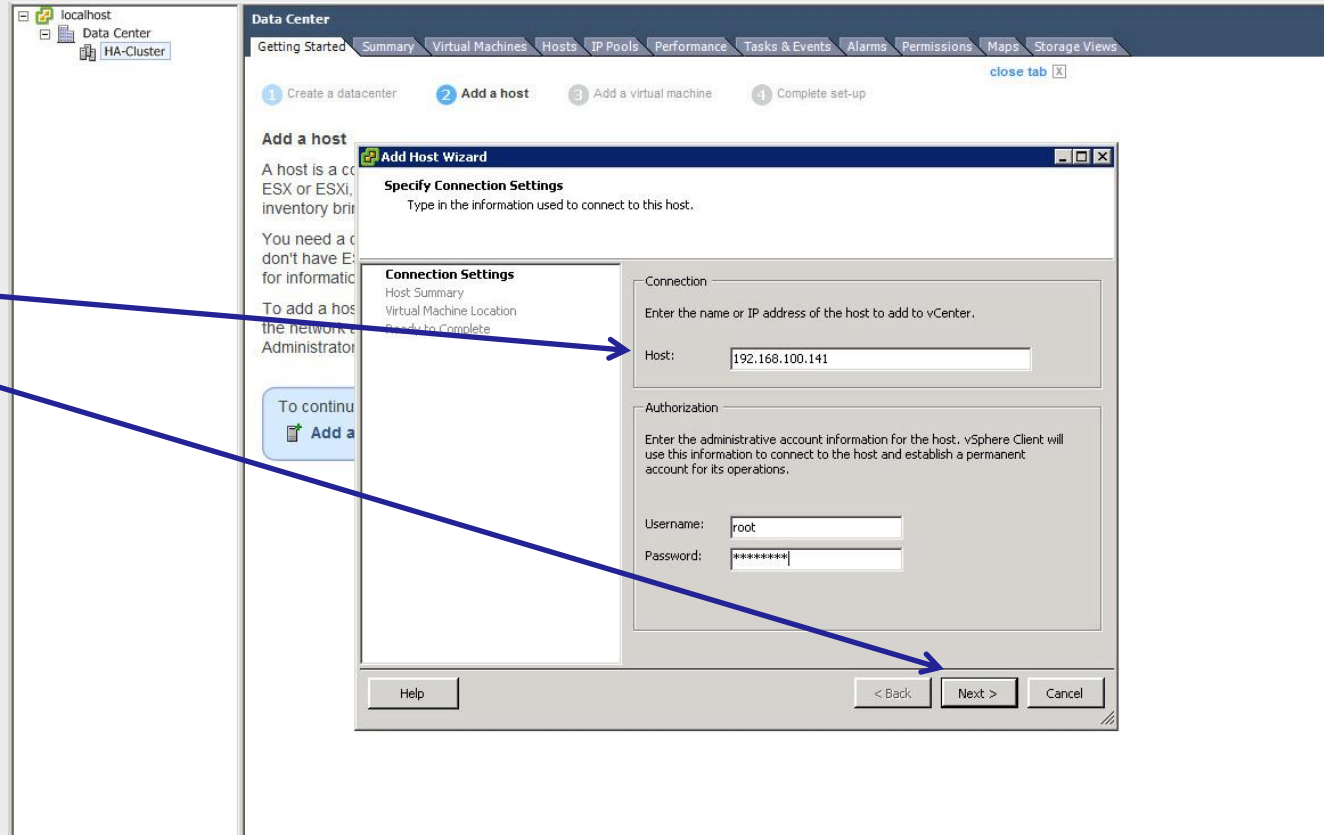
8. Adding a Hosts

Next, right-click on **HA-Cluster** and select **Add Host** from the context menu.

The screenshot shows the VMware vCenter console interface. In the left-hand navigation pane, the 'Data Center' view is selected, and the 'HA-Cluster' folder is right-clicked. A context menu is displayed with the following options: 'Add Host...' (Ctrl+H), 'New Virtual Machine...' (Ctrl+N), 'New Resource Pool...' (Ctrl+O), 'New vApp...' (Ctrl+A), 'Rescan for Datastores...', 'Host Profile', 'Add Permission...' (Ctrl+P), 'Alarm', 'Edit Settings...', 'Open in New Window...' (Ctrl+Alt+N), 'Remove', and 'Rename'. The 'Add Host...' option is highlighted. In the main console area, a progress bar shows the current step: '2 Add a host'. Below the progress bar, there is a blue callout box with the text: 'To continue vCenter Server setup, click Add a host.' and an 'Add a host' button. On the right side of the console, there is a diagram showing 'Virtual Machines' on top of a 'Host' within a 'Datacenter'.

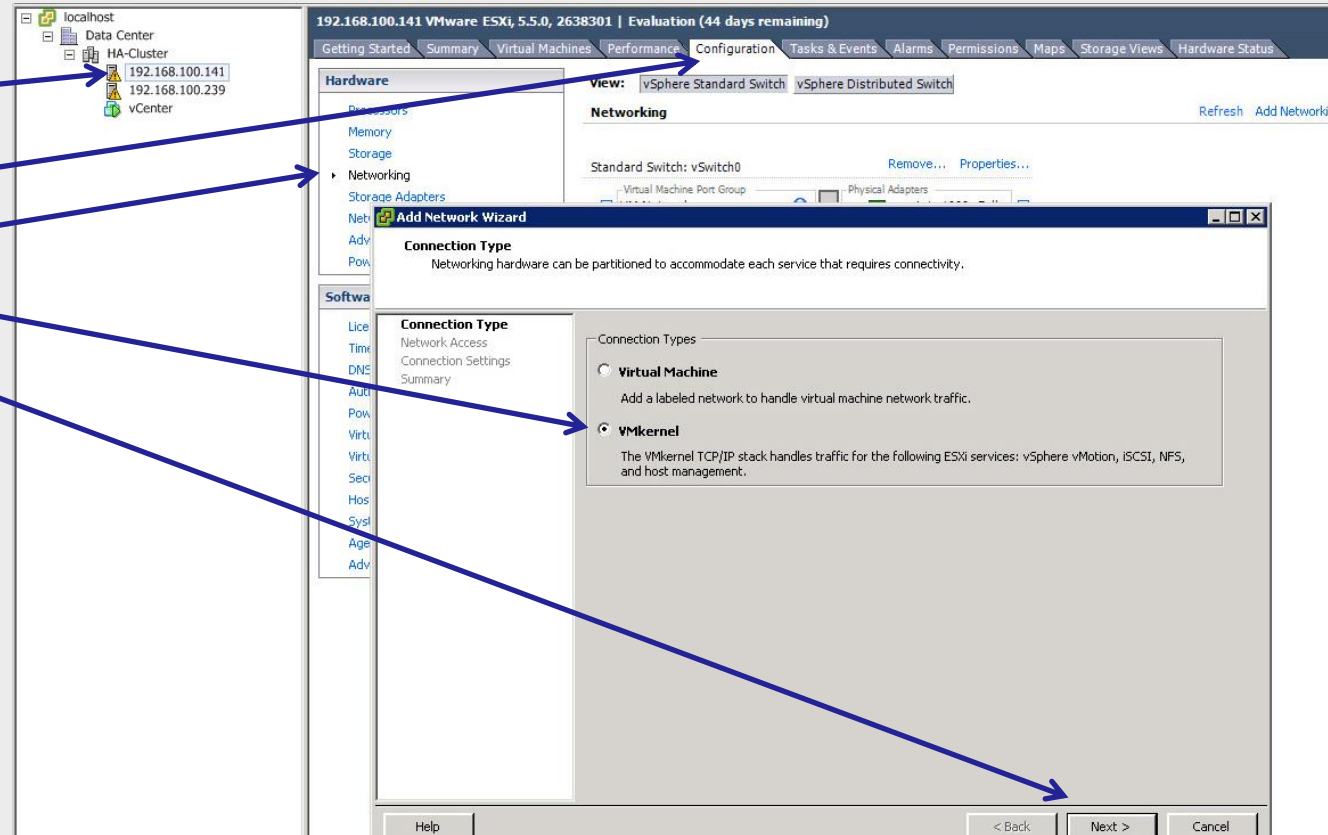
8. Adding a Hosts

Next, enter the IP address of the ESX Host-1 in the field **Host** and enter username and password. Click **Next** button. Repeat the same for the second host. In this example the first ESX Host IP address: 192.168.100.141 and second Host IP:192.168.100.239



9. Configure networking

After adding hosts, please click on the first host icon **192.168.100.141** on left branch, and go to **Configuration** tab, then select **Networking**. In the **Add Network Wizard** window, select **VMkernel** and click on **Next** button.



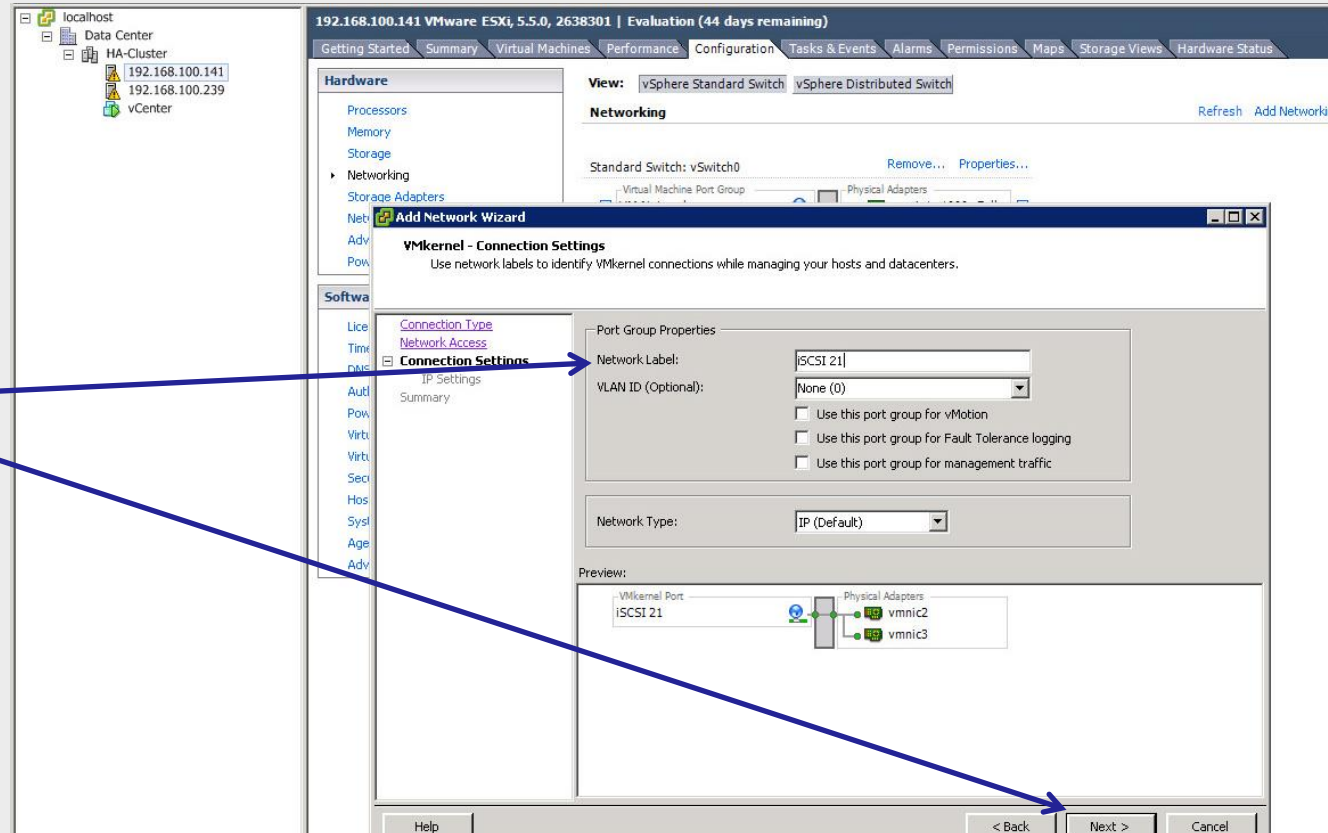
9. Configure networking

Next, select both vmnic 10Gbit ports and click on **Next** button.

The screenshot shows the VMware vSphere configuration wizard for a VMkernel network access. The 'Add Network Wizard' dialog is open, showing the 'VMkernel - Network Access' configuration. The 'Connection Type' is set to 'Network Access'. The 'Network Access' section is expanded, showing 'Connection Settings' and 'Summary'. The 'Summary' tab is selected, showing the configuration for a vSphere standard switch. The 'Create a vSphere standard switch' option is selected, and the 'Intel Corporation Ethernet Controller X540-AT2' is chosen. Two vmnic adapters, vmnic2 and vmnic3, are selected for the switch. The 'Use vSwitch0' option is unselected. The 'Preview' section shows the VMkernel port connected to the physical adapters vmnic2 and vmnic3. The 'Next >' button is highlighted with a blue arrow.

Connection Type	Speed	Networks
<input checked="" type="checkbox"/> Create a vSphere standard switch		
Intel Corporation Ethernet Controller X540-AT2		
<input checked="" type="checkbox"/> vmnic2	10000 Full	192.168.0.1-192.168.127.254
<input checked="" type="checkbox"/> vmnic3	10000 Full	192.168.0.1-192.168.127.254
<input type="checkbox"/> Use vSwitch0		
Intel Corporation I210 Gigabit Network Connection		
<input type="checkbox"/> vmnic1	1000 Full	172.16.10.201-172.16.10.201
<input type="checkbox"/> vmnic0	1000 Full	172.16.10.201-172.16.10.201

9. Configure networking



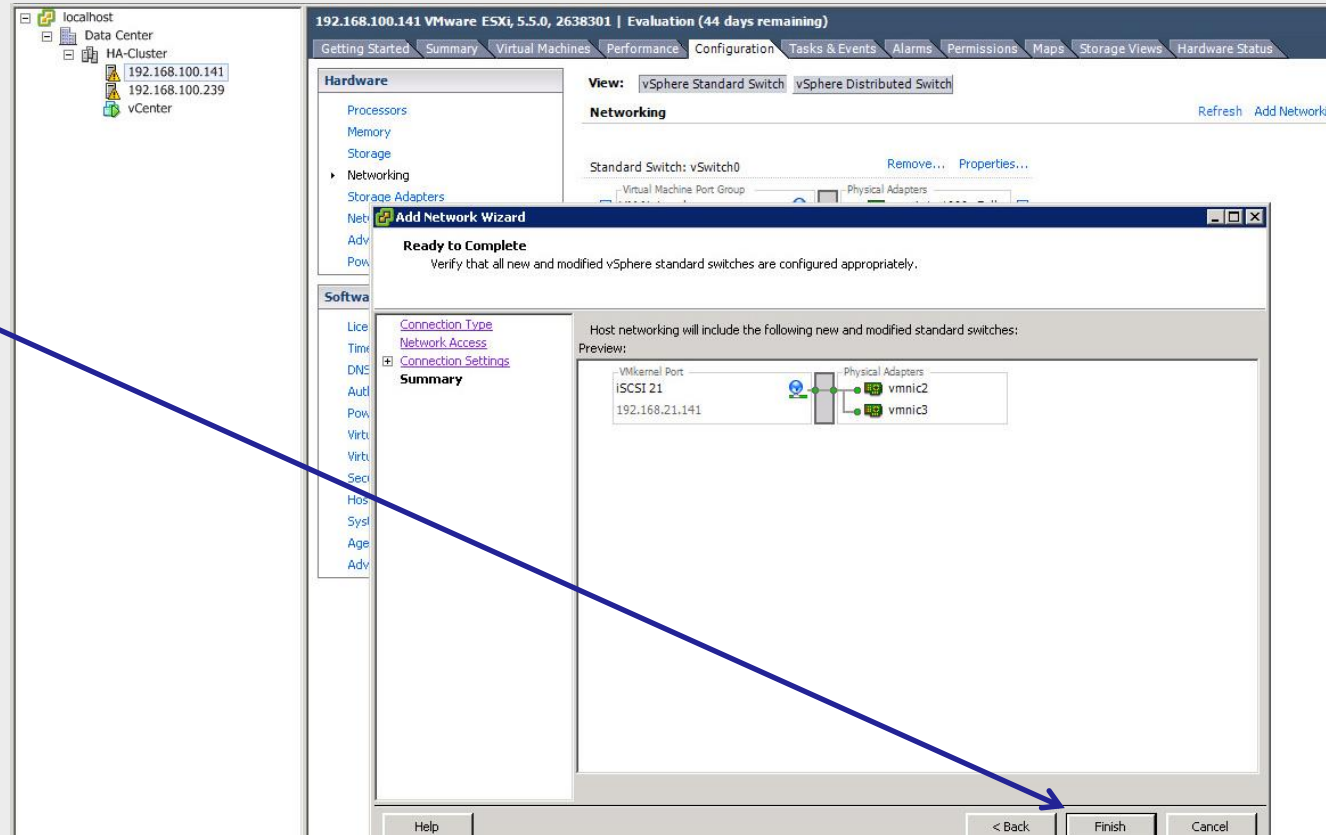
In Connection Settings, in the field Network Label enter iSCSI 21 and click on Next button.

9. Configure networking

The screenshot shows the VMware vSphere configuration wizard for a VMkernel. The 'Add Network Wizard' dialog is open, showing the 'IP Settings' tab. The 'Use the following IP settings' option is selected. The IP address is set to 192.168.21.141, the subnet mask is 255.255.255.0, and the VMkernel default gateway is 192.168.100.5. The preview shows the VMkernel port connected to the physical adapters vmnic2 and vmnic3.

Enter IP address, subnet mask and click on **Next** button.

9. Configure networking



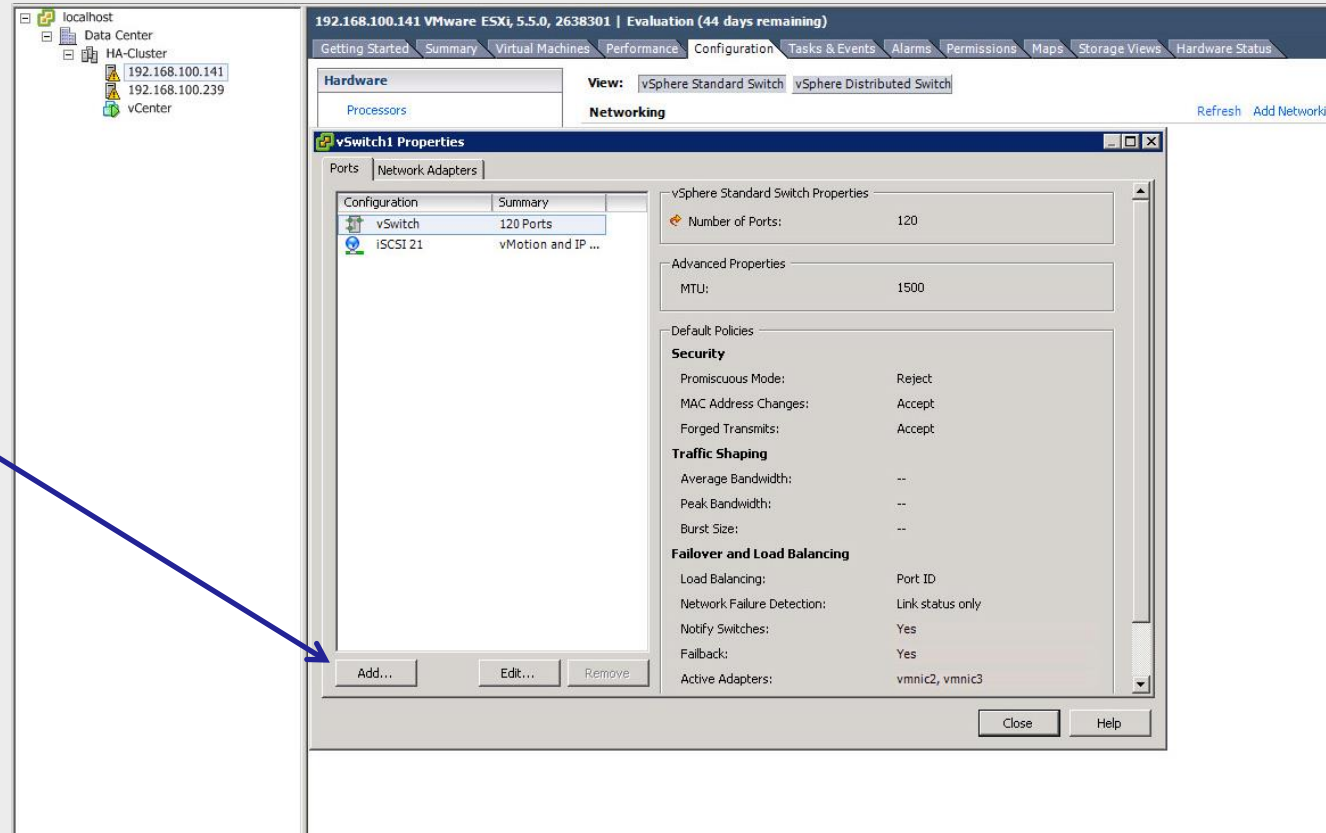
To complete the wizard, click on **Finish** button.

9. Configure networking

Next click on **Properties**

The screenshot shows the VMware vSphere Configuration page for a host. The left sidebar displays a tree view with 'Data Center' expanded to show an 'HA-Cluster' containing two ESXi hosts (192.168.100.141 and 192.168.100.239) and a vCenter. The main content area is titled '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)'. The 'Configuration' tab is active, showing a 'View' dropdown set to 'vSphere Standard Switch' and 'vSphere Distributed Switch'. The 'Networking' section is expanded, showing two standard switches: vSwitch0 and vSwitch1. vSwitch0 is connected to 'VM Network' and 'Management Network'. vSwitch1 is connected to 'iSCSI 21'. A blue arrow points from the 'Properties...' link next to vSwitch0 to the 'Next click on Properties' text box.

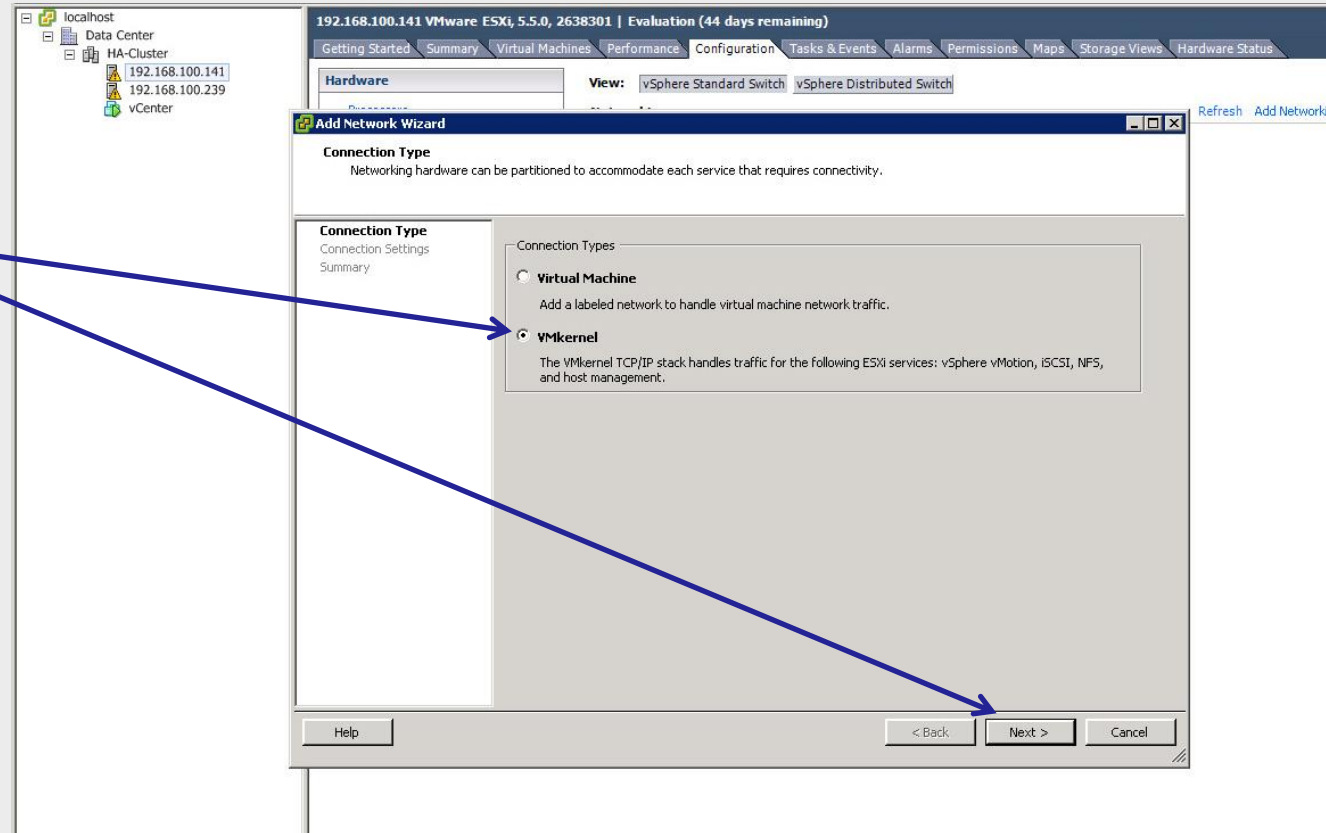
9. Configure networking



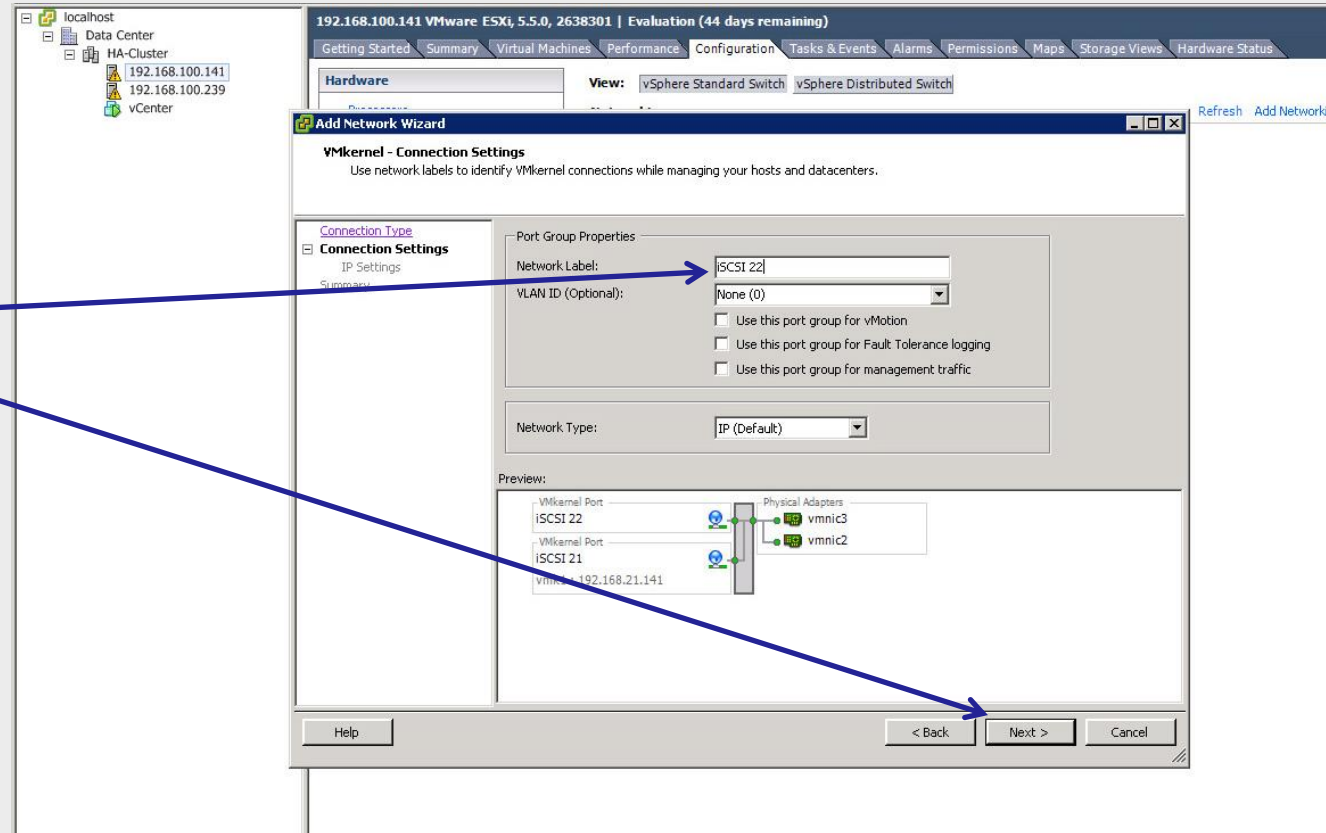
In vSwitch1 Properties click on Add button.

9. Configure networking

Next, select **VMkernel** and click on **Next** button.



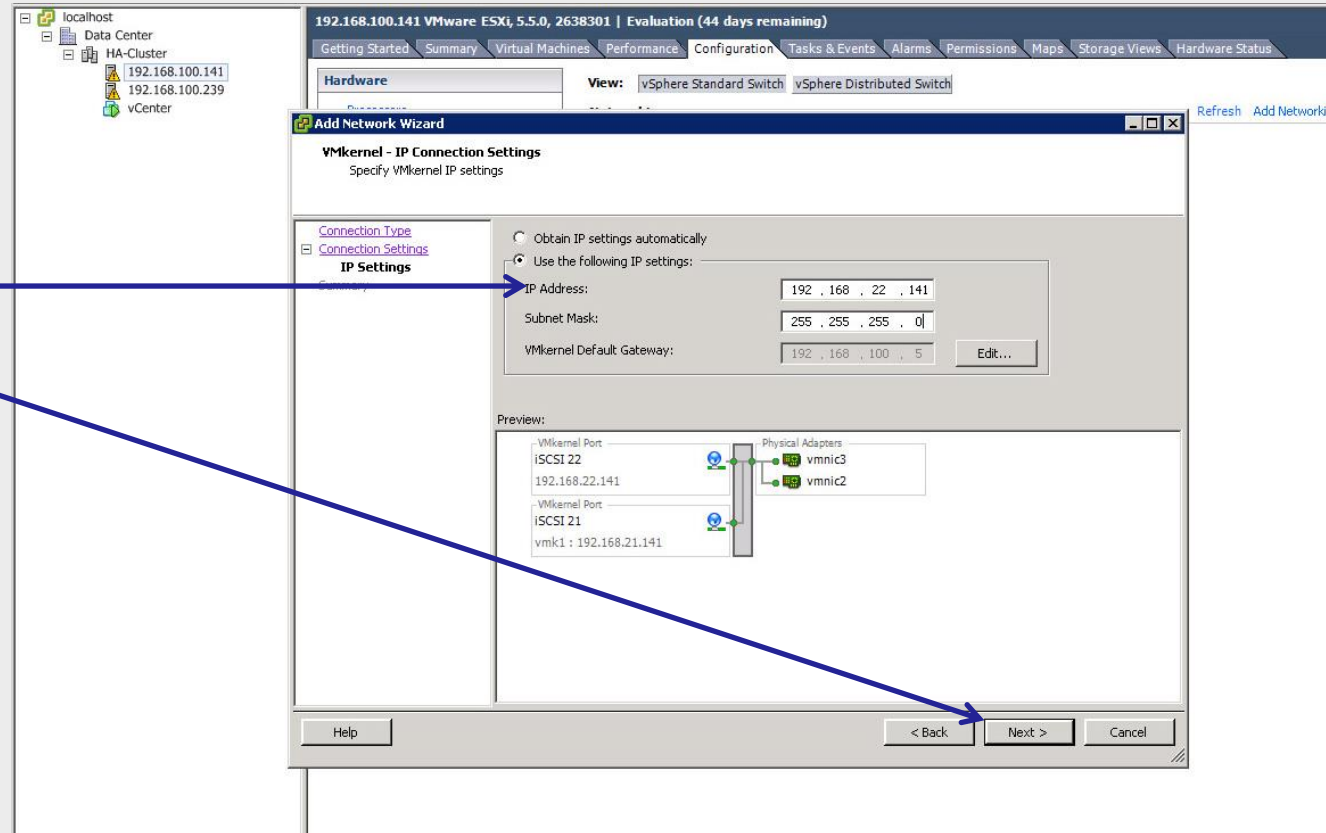
9. Configure networking



In Network Label field please enter iSCSI 22 and click on **Next** button.

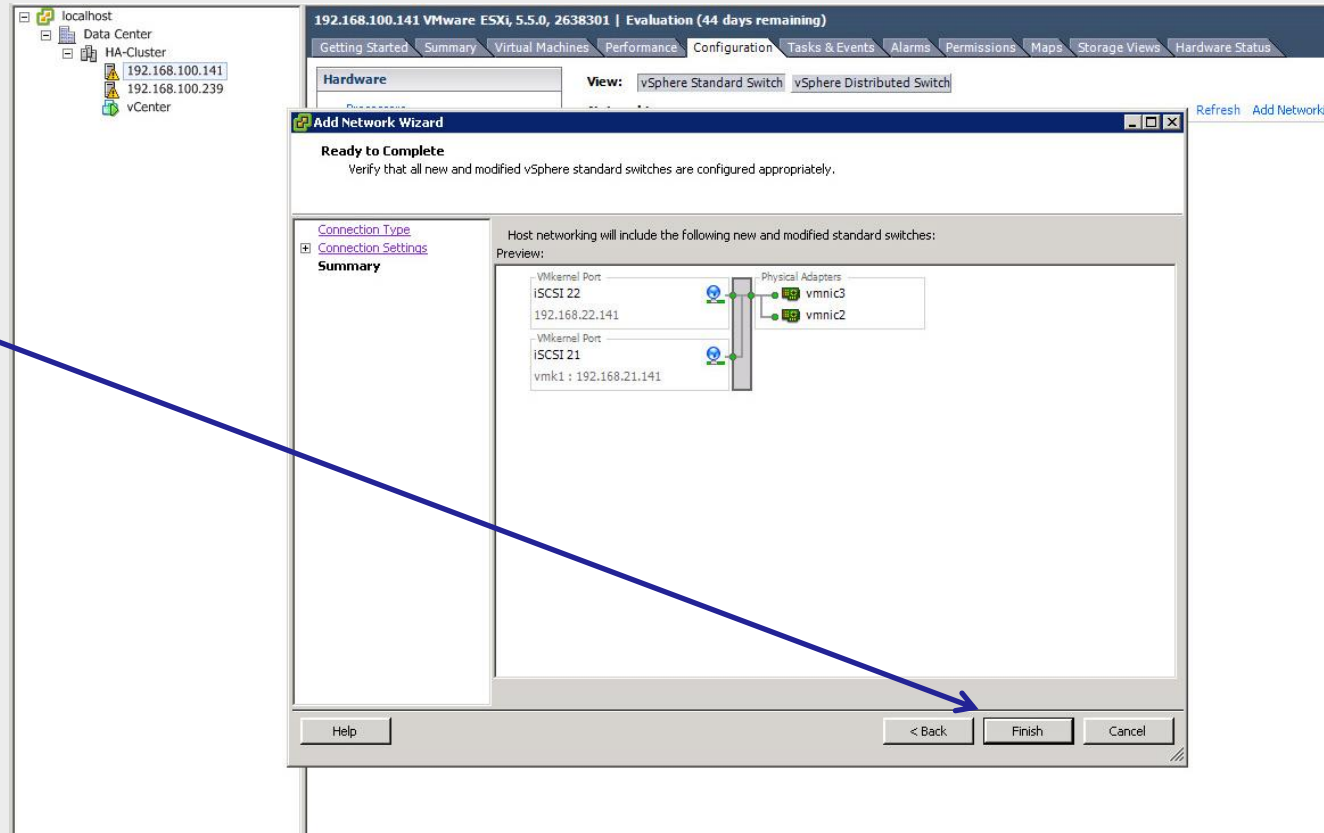
9. Configure networking

Enter IP address, subnet mask and click on Next button.

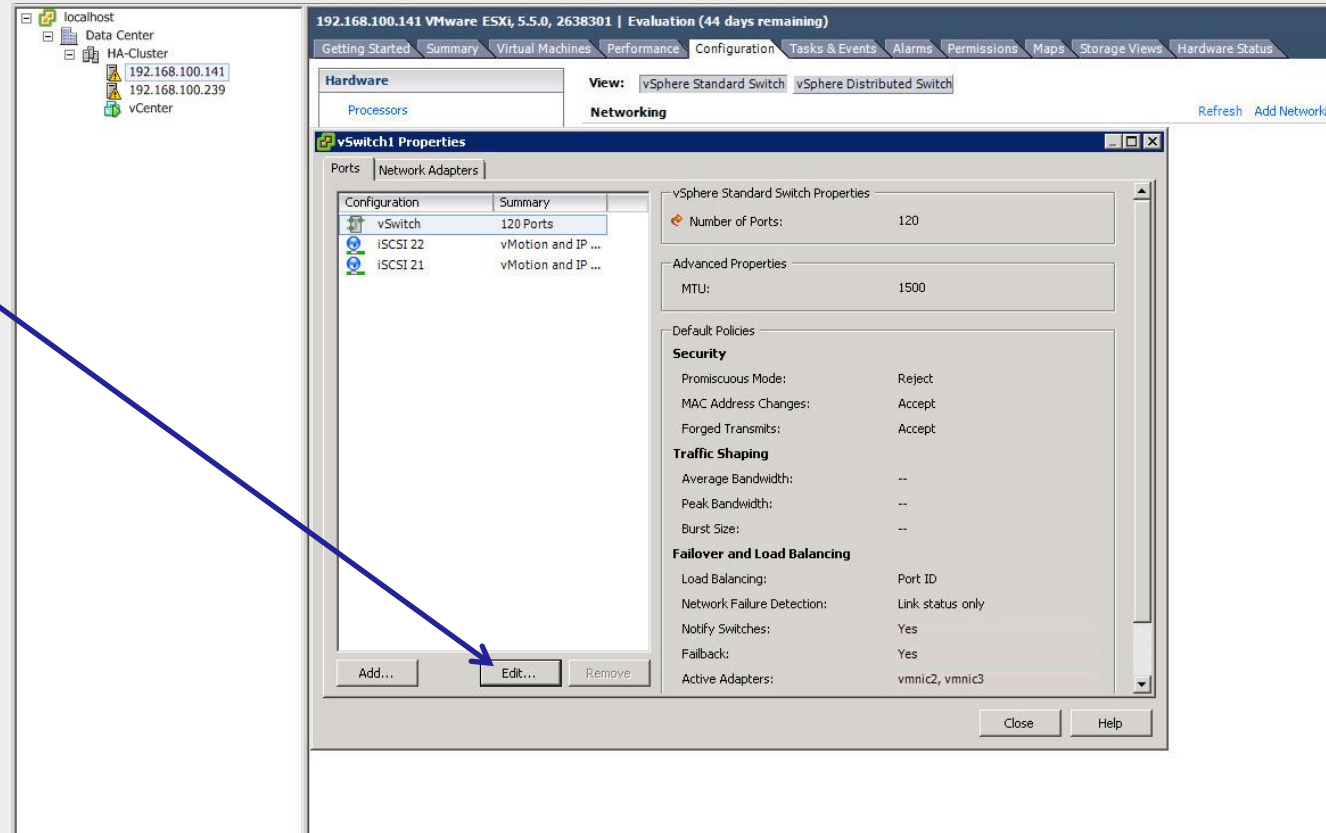


9. Configure networking

To complete the wizard, click on **Finish** button.

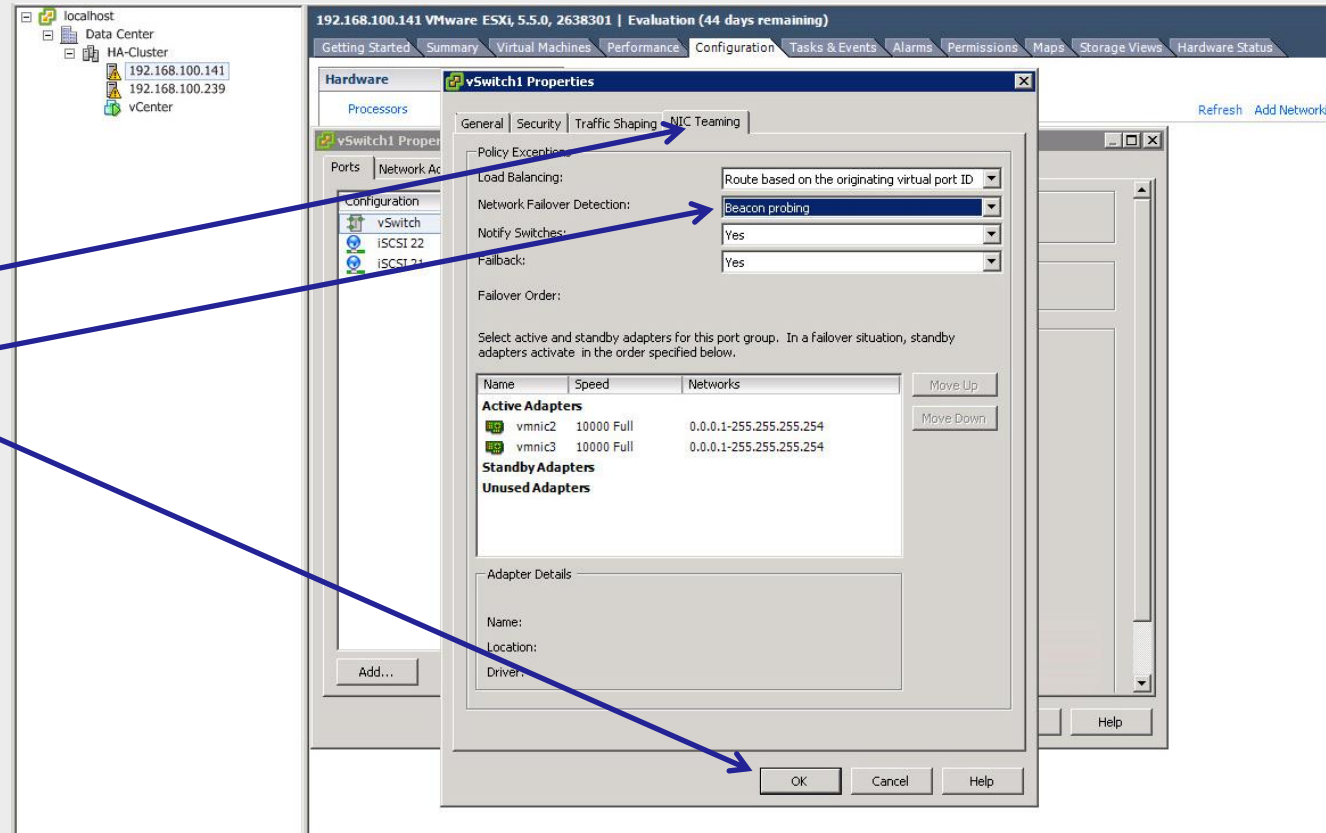


9. Configure networking

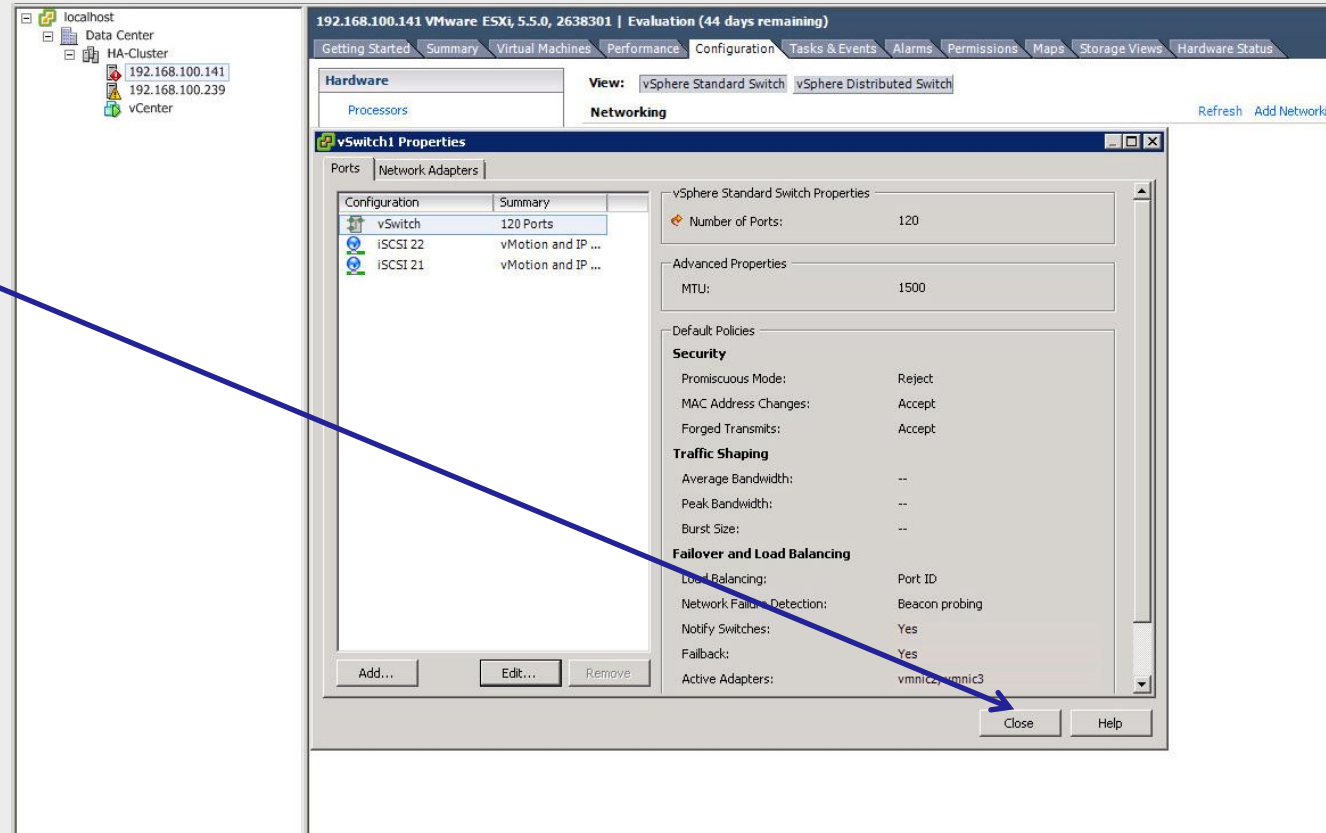


In vSwitch1 Properties, click the Edit button.

9. Configure networking



9. Configure networking



Now, click on Close button.

9. Configure networking

View of completed network configuration.

The screenshot displays the VMware vSphere Configuration Manager interface for a host named '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)'. The left sidebar shows a tree view with 'Data Center' containing an 'HA-Cluster' with two ESXi hosts (192.168.100.141 and 192.168.100.239) and a 'vCenter' instance. The main pane is divided into 'Hardware' and 'Software' sections. The 'Networking' section is expanded, showing two vSwitches: vSwitch0 and vSwitch1. vSwitch0 is connected to physical adapters vmnic1 and vmnic0, both at 1000 Full. vSwitch1 is connected to physical adapters vmnic3 and vmnic2, both at 10000 Full. vSwitch0 has a 'VM Network' port group with '1 virtual machine(s)' connected, and a 'Management Network' with IP addresses 192.168.100.141 and fe80::21e:67ff:fed1:d06f. vSwitch1 has two 'iSCSI' port groups: 'iSCSI 22' with IP 192.168.22.141 and 'iSCSI 21' with IP 192.168.21.141. A blue arrow points from the text box on the left to the 'Networking' section of the configuration pane.

9. Configure networking

Repeat the same procedure to configure the second host.

The screenshot shows the VMware vSphere configuration interface for host 192.168.100.239. The interface is divided into two main panes. The left pane shows a tree view of the vCenter environment, including a Data Center, an HA-Cluster, and two hosts (192.168.100.141 and 192.168.100.239). A blue box on the left contains the text "Repeat the same procedure to configure the second host." with arrows pointing to the HA-Cluster and vCenter icons. The right pane shows the configuration for the selected host, with the 'Configuration' tab selected. The 'Networking' section is expanded, showing two vSwitches: vSwitch0 and vSwitch1. vSwitch0 is connected to VM Network and Management Network. vSwitch1 is connected to iSCSI 32 and iSCSI 31. The interface also shows the 'Hardware' and 'Software' sections.

10. Configure Storage Adapters

Next, click on **Storage Adapters**, select iSCSI Software Adapter, right-mouse-click and select **Properties**.

The screenshot shows the VMware vSphere configuration console for a host named '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)'. The 'Configuration' tab is active, and the 'Storage Adapters' section is expanded. The 'Storage Adapters' table lists several adapters:

Device	Type	WWN
iSCSI Software Adapter		
vmhba37	iSCSI	iqn.1998-01.com.vmware:55408308-6c5c-fae6-09...
Lynx Point AHCI Controller		
vmhba0	Block SCSI	
vmhba33	Block SCSI	
vmhba34	Block SCSI	
vmhba35	Block SCSI	
vmhba36	Block SCSI	

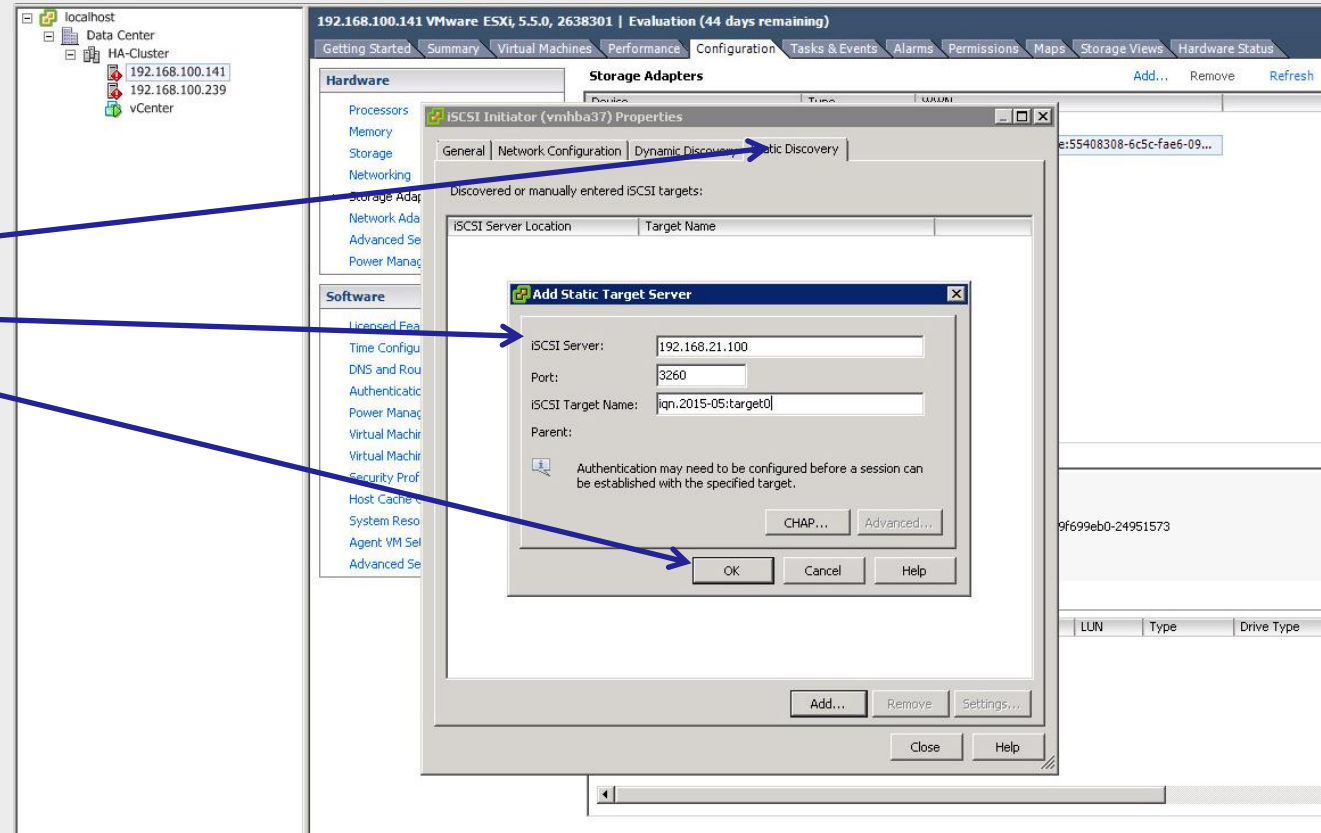
The 'vmhba37' adapter is selected, and a context menu is open with 'Properties...' selected. The 'Details' section for 'vmhba37' shows:

- Model: iSCSI Software Adapter
- iSCSI Name: iqn.1998-01.com.vmware:55408308-6c5c-fae6-092e-a0369f699eb0-24951573
- iSCSI Alias:
- Connected Targets: 0 Devices: 0 Paths: 0

The 'View' section has 'Devices' and 'Paths' tabs. Below is a table with columns: Name, Runtime Name, Operational State, LUN, Type, Drive Type.

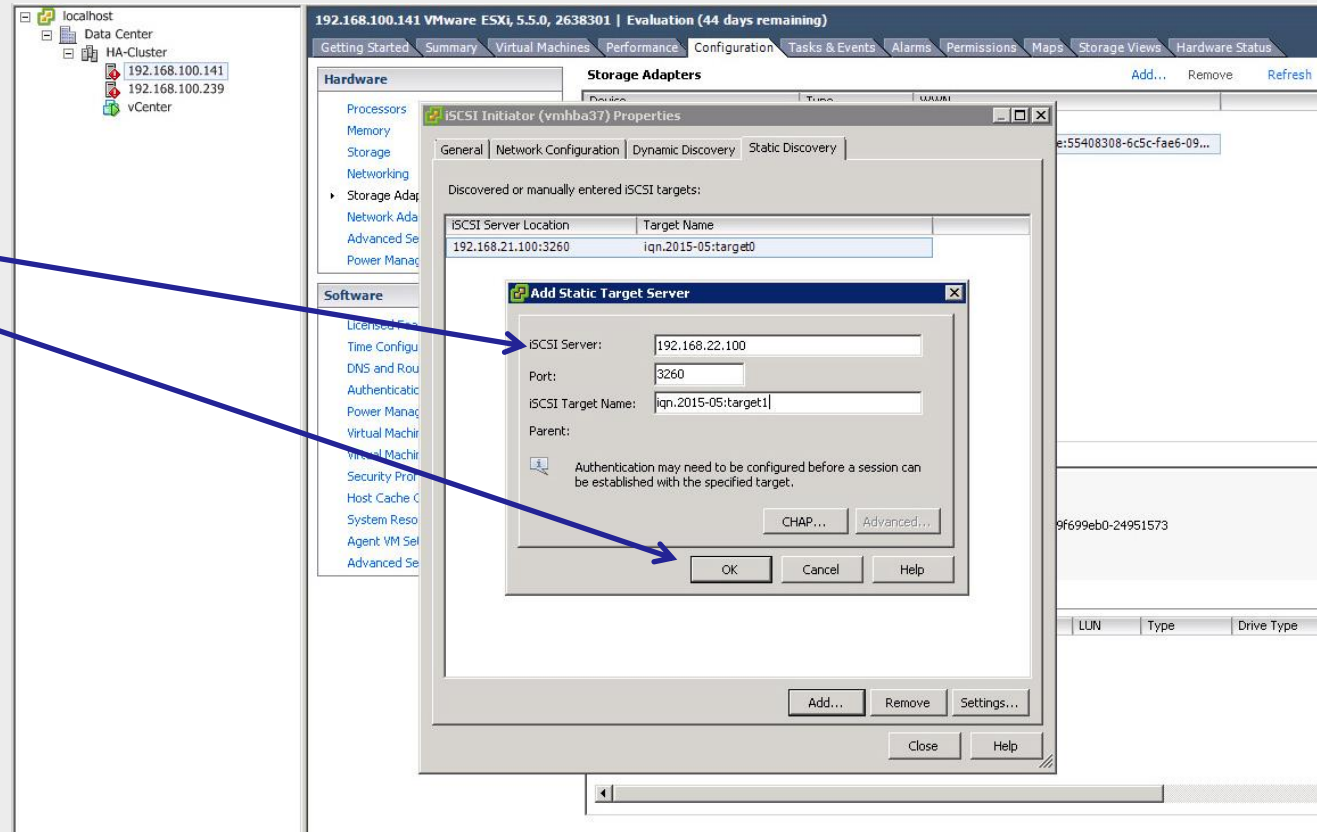
10. Configure Storage Adapters

In iSCSI Initiator (vmhba37) Properties select **Static Discovery** tab. Next, click on **Add**, enter IP address and the iSCSI Target Name and click **OK** button.



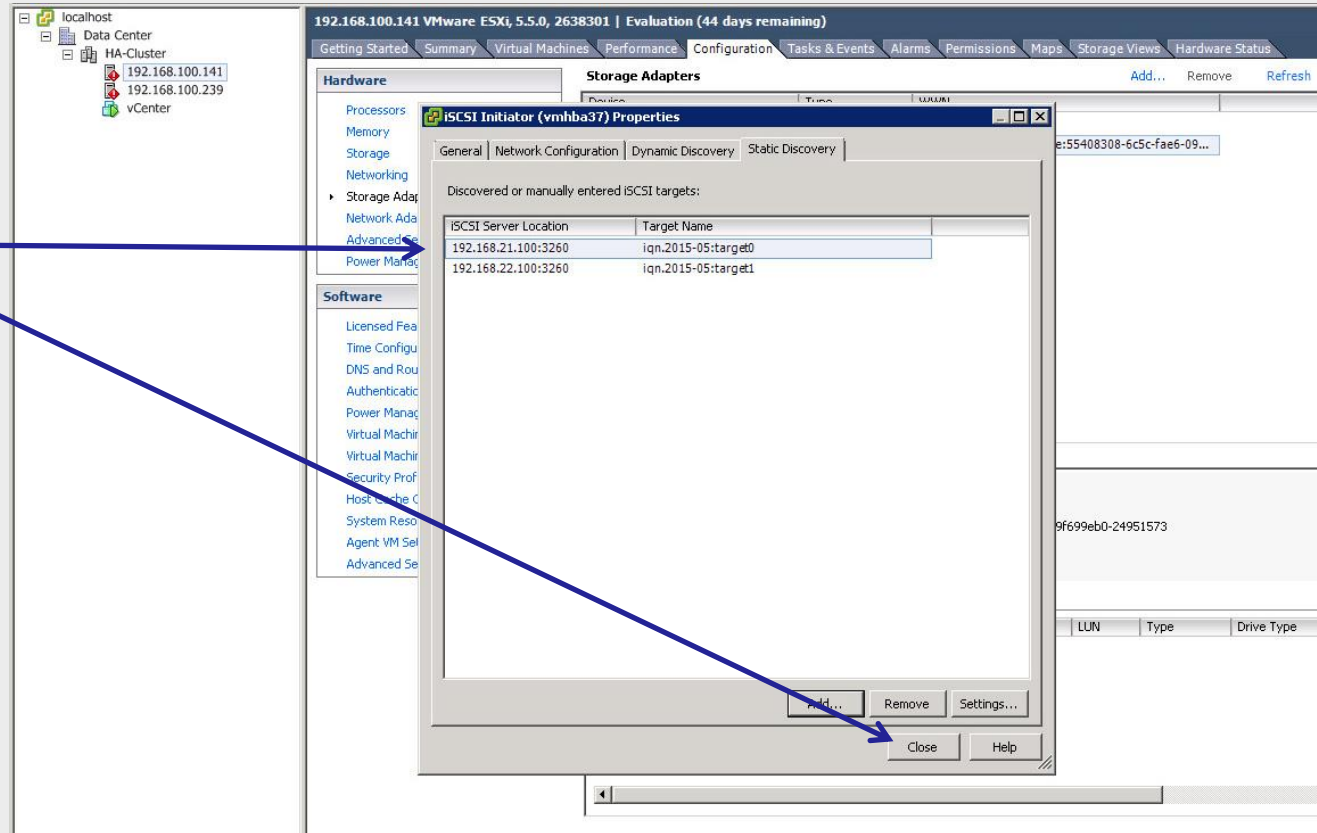
10. Configure Storage Adapters

Next, configure second iSCSI Target, and click **OK** button.



10. Configure Storage Adapters

To complete the initiator settings, click **Close** button.



10. Configure Storage Adapters

Next, click **Yes** button in order to rescan the adapter.

The screenshot shows the VMware vSphere configuration console for a host at 192.168.100.141. The left sidebar shows a tree view with 'Data Center' > 'HA-Cluster' > '192.168.100.141' selected. The main pane is in the 'Configuration' tab, showing the 'Storage Adapters' section. Under 'Lynx Point AHCI Controller', several adapters (vmhba0-36) are listed. A 'Rescan' dialog box is open, displaying a warning icon and the text: 'A rescan of the host bus adapter is recommended for this configuration change. Rescan the adapter?'. The dialog has 'Ja' (Yes) and 'Nein' (No) buttons. A blue arrow from the text box on the left points to the 'Ja' button. Below the dialog, the 'Connected Targets' section shows 0 devices and 0 paths. The 'View' section has 'Devices' and 'Paths' tabs, with a table below it.

Name	Runtime Name	Operational State	LUN	Type	Drive Type
------	--------------	-------------------	-----	------	------------

10. Configure Storage Adapters

After rescanning, the **iSCSI Software Adapter** will show two iSCSI devices that is the DSS V7 targets.

The screenshot shows the VMware ESXi configuration interface for a host at 192.168.100.141. The left sidebar shows a tree view with 'Data Center' expanded to 'HA-Cluster', which contains two ESXi hosts and a vCenter. The main content area is titled '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)'. The 'Configuration' tab is active, and the 'Storage Adapters' section is expanded. Under 'Storage Adapters', there are two sections: 'iSCSI Software Adapter' and 'Lynx Point AHCI Controller'. The 'iSCSI Software Adapter' section shows a table with one entry: 'vmhba37' of type 'iSCSI' with WQN 'iqn.1998-01.com.vmware:55408308-6c5c-fae6-09...'. The 'Lynx Point AHCI Controller' section shows a list of six controllers: 'vmhba0' through 'vmhba36', all of type 'Block SCSI'. Below this, the 'Details' section for 'vmhba37' is shown. It includes fields for Model, iSCSI Name, iSCSI Alias, and Connected Targets (2), Devices (2), and Paths (2). At the bottom, there is a table with columns: Name, Runtime Name, Operational State, LUN, Type, Drive Type, Transport, and Capacity. Two rows are visible, both representing iSCSI disks connected to vmhba37.

Name	Runtime Name	Operational State	LUN	Type	Drive Type	Transport	Cap
SCST_BIO iSCSI Disk (eui.4939344...	vmhba37:C0:T1:L0	Mounted	0	disk	Non-SSD	iSCSI	10
SCST_BIO iSCSI Disk (eui.3654374...	vmhba37:C0:T0:L0	Mounted	0	disk	Non-SSD	iSCSI	10

10. Configure Storage Adapters

Next, select **Storage** and click on **Add Storage**. In **Add Storage** window click on **Next** button.

The screenshot shows the VMware vSphere configuration interface for a host named '192.168.100.141'. The left-hand navigation pane has 'Storage' selected under the 'Hardware' section. The main area shows the 'Add Storage' wizard. The 'Select Storage Type' step is active, with 'Disk/LUN' selected. The 'Next >' button at the bottom right is highlighted with a blue arrow.

Identification	Status	Device	Drive Type	Capacity	Free	Type	La:
datastore1	Normal	Local ATA Disk (t...	SSD	104,25 GB	47,77 GB	VMFS5	15

10. Configure Storage Adapters

Next, select the first target and click Next button.

The screenshot shows the VMware vSphere configuration interface for a host named '192.168.100.141'. The 'Storage' section is expanded, and the 'Add Storage' dialog box is open. The dialog is titled 'Select Disk/LUN' and contains a table of available storage targets. The first target is selected. The 'Next >' button is highlighted with a blue arrow.

Name	Path ID	LUN	Drive Type	Capacity
SCST_BIO ISCSI Disk (eui.36543743...	iqn.2015-05:targe...	0	Non-SSD	100,00 GB
SCST_BIO ISCSI Disk (eui.4939344f...	iqn.2015-05:targe...	0	Non-SSD	101,00 GB

10. Configure Storage Adapters

Click **Next** button.

The screenshot shows the VMware vSphere configuration interface for a host named '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)'. The 'Configuration' tab is active, and the 'Storage' section is expanded. A dialog box titled 'Add Storage' is open, showing the 'File System Version' configuration for a new datastore. The 'File System Version' section has two options: 'VMFS-5' (selected) and 'VMFS-3'. The 'VMFS-5' option is selected, and the 'Next >' button is highlighted with a blue arrow pointing to it from a text box on the left.

Identification	Status	Device	Drive Type	Capacity	Free	Type	La
datastore1	Normal	Local ATA Disk (t...	SSD	104,25 GB	47,77 GB	VMFS5	15

File System Version

Specify the version of the VMFS for the datastore

File System Version

- VMFS-5**
Select this option to enable additional capabilities, such as 2TB+ support. VMFS-5 is not supported by hosts with an ESX version older than 5.0.
- VMFS-3**
Select this option if the datastore will be accessed by legacy hosts.

< Back Next > Cancel

10. Configure Storage Adapters

In Current Disk Layout click Next button.

The screenshot shows the VMware vSphere configuration interface for a host named '192.168.100.141'. The 'Add Storage' wizard is open, and the 'Current Disk Layout' step is selected. The wizard displays a table of disk details and a 'Next >' button. A blue callout box points to the 'Next >' button.

Identification	Status	Device	Drive Type	Capacity	Free	Type	La
datastore1	Normal	Local ATA Disk (t...	SSD	104,25 GB	47,77 GB	VMFS5	15

Device	Drive Type	Capacity	Available	LUN
SCST_BIO iSCSI Disk (eui.365...	Non-SSD	100,00 GB	100,00 GB	0

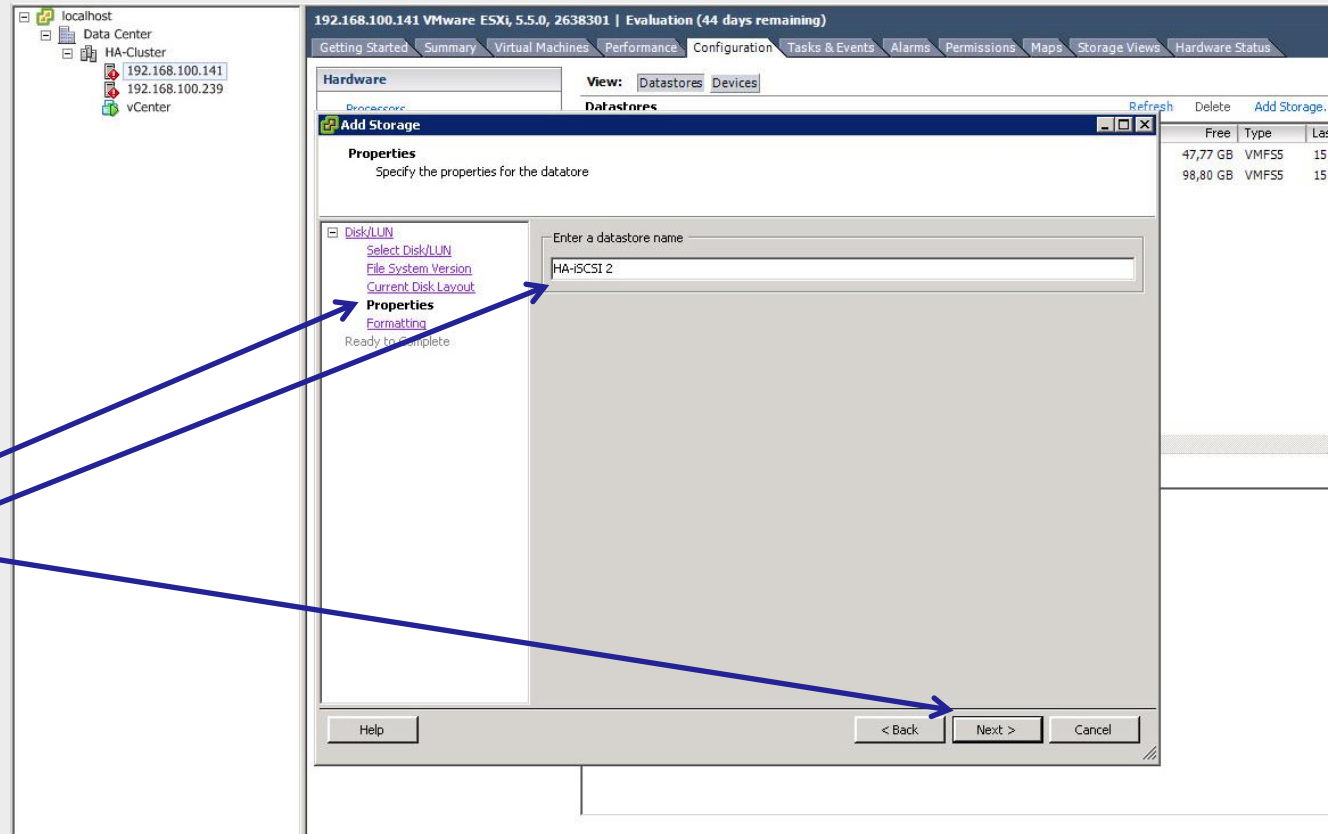
The hard disk is blank.

There is only one layout configuration available. Use the Next button to proceed with the other wizard pages.

A partition will be created and used

Buttons: Help, < Back, Next >, Cancel

10. Configure Storage Adapters



In **Properties** please enter a datastore name, and click **Next** button.

10. Configure Storage Adapters

To complete, click Finish button.

The screenshot shows the VMware vSphere configuration interface for a host named '192.168.100.141'. The 'Add Storage' dialog box is open, displaying the following information:

- Ready to Complete:** Review the disk layout and click Finish to add storage.
- Disk layout:**

Device	Drive Type	Capacity	LUN
SCST_BIO iSCSI Disk (eui.365437...	Non-SSD	100,00 GB	0
- Primary Partitions:**

File system	Capacity
VMFS (SCST_BIO iSCSI Disk (eui.3...	100,00 GB
- File system:**

Properties
Datstore name: HA-ISCSI 1
- Formatting:**

File system:	Block size:	Maximum file size:
vmfs-5	1 MB	2,00 TB

At the bottom of the dialog, there are three buttons: 'Help', '< Back', and 'Finish'. A blue arrow points from the 'Finish' button to the text box on the left.

10. Configure Storage Adapters

Go to second Host and select Storage.

192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)

Getting Started Summary Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Status

Hardware

- Processors
- Memory
- Storage**
- Networking
- Storage Adapters
- Network Adapters
- Advanced Settings
- Power Management

Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Power Management
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location
- Security Profile
- Host Cache Configuration
- System Resource Allocation
- Agent VM Settings
- Advanced Settings

View: Datastores Devices

Datastores

Identification	Status	Device	Drive Type	Capacity	Free	Type	La
datastore1	Normal	Local ATA Disk (t...	SSD	104,25 GB	47,77 GB	VMFSS	15
HA-iSCSI 1	Normal	SCST_BIO iSCSI ...	Non-SSD	99,75 GB	98,80 GB	VMFSS	15
HA-iSCSI 2	Normal	SCST_BIO iSCSI ...	Non-SSD	100,75 GB	99,80 GB	VMF50	15

Datastore Details

10. Configure Storage Adapters

Both Datastores must appear on the second host automatically.

The screenshot shows the VMware vSphere configuration interface for a host with IP 192.168.100.239. The left pane shows a tree view with 'Data Center' containing an 'HA-Cluster' with two hosts: 192.168.100.141 and 192.168.100.239. The main pane shows the configuration for the host 192.168.100.239, with the 'Configuration' tab selected. The 'Storage' section is expanded, showing 'Storage Adapters' and 'Datastores'. The 'Datastores' table is visible, listing three datastores: 'datastore1 (1)', 'HA-iSCSI 1', and 'HA-iSCSI 2'. The 'Datastore Details' section is empty.

Identification	Status	Device	Drive Type	Capacity	Free	Type	La
datastore1 (1)	Normal	Local ATA Disk (t...	SSD	104,25 GB	63,30 GB	VMFSS	15
HA-iSCSI 1	Normal	SCST_BIO iSCSI ...	Non-SSD	99,75 GB	98,80 GB	VMFSS	15
HA-iSCSI 2	Normal	SCST_BIO iSCSI ...	Non-SSD	100,75 GB	99,80 GB	VMFSS	15

10. Configure Storage Adapters

Next, select **Summary** tab.
Configuration issues are shown here, if any.

192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)

Getting Started | **Summary** | Virtual Machines | Performance | Configuration | Tasks & Events | Alarms | Permissions | Maps | Storage Views | Hardware Status

Configuration Issues
The number of vSphere HA heartbeat datastores for this host is 0, which is less than required: 2

General

Manufacturer:	Intel Corporation
Model:	S1200RP
CPU Cores:	4 CPUs x 3,392 GHz
Processor Type:	Intel(R) Xeon(R) CPU E3-1231 v3 @ 3.40GHz
License:	Evaluation Mode -
Processor Sockets:	1
Cores per Socket:	4
Logical Processors:	8
Hyperthreading:	Active
Number of NICs:	4
State:	Connected
Virtual Machines and Templates:	1
vMotion Enabled:	Yes
VMware EVC Mode:	Disabled
vSphere HA State:	Running (Master)
Host Configured for FT:	No
Active Tasks:	
Host Profile:	
Image Profile:	(Updated) Image21
Profile Compliance:	N/A
DirectPath I/O:	Not supported

Resources

CPU usage: **242 MHz** Capacity: 4 x 3,392 GHz

Memory usage: **9645,00 MB** Capacity: 16113,38 MB

Storage	Status	Drive Type
datastore1	Normal	SSD
HA-ISCSI 1	Normal	Non-SSD
HA-ISCSI 2	Normal	Non-SSD

Network

Network	Type	Sta
VM Network	Standard port group	

Fault Tolerance

Fault Tolerance Version: 5.0.0-5.0.0-5.0.0

[Refresh Virtual Machine Counts](#)

Total Primary VMs: 0
Powered On Primary VMs: 0

Total Secondary VMs: 0
Powered On Secondary VMs: 0

Commands

- New Virtual Machine
- Enter Maintenance Mode
- Reboot
- Shutdown
- Enter Standby Mode

11. HA-Cluster Settings

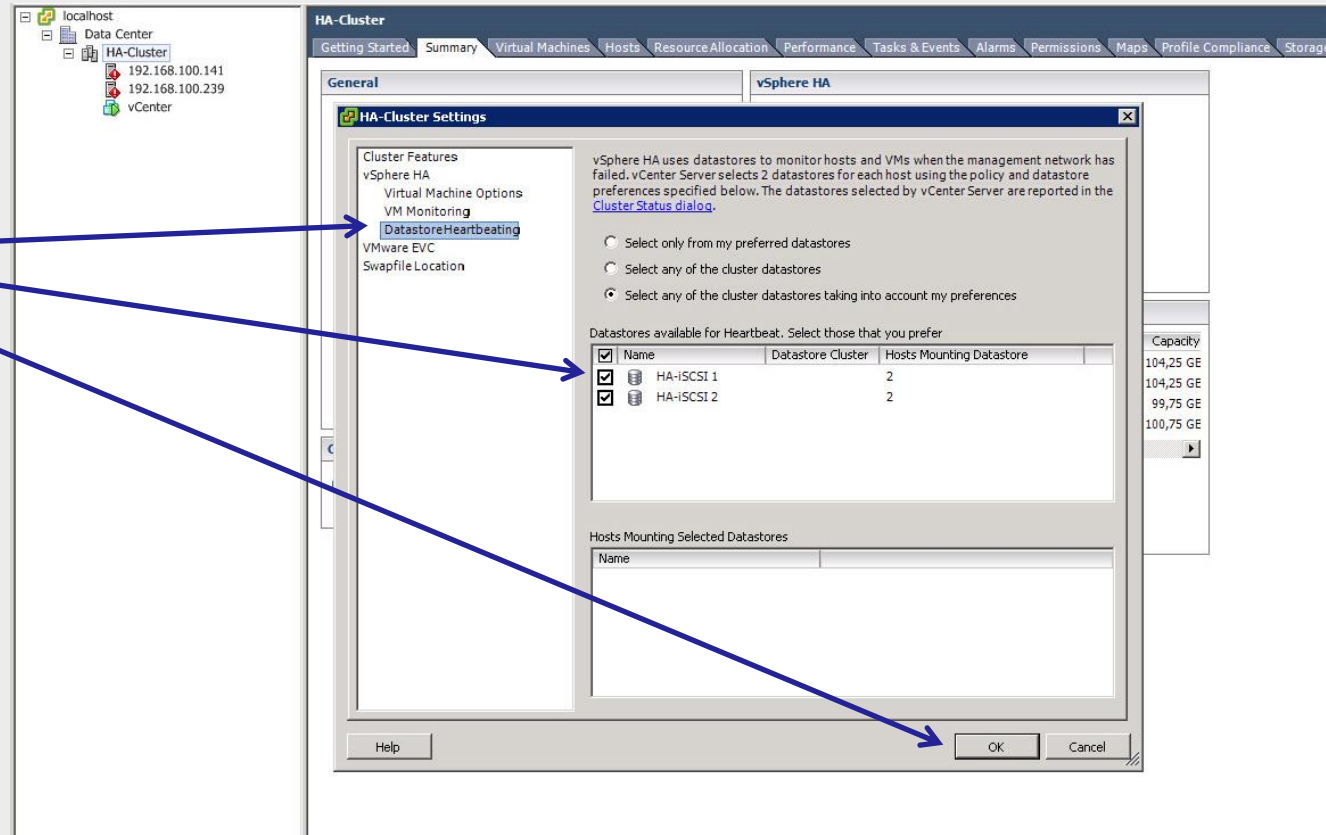
Next, select HA-Cluster icon, right-mouse-click and select **Edit Settings**

The screenshot shows the VMware vSphere interface for configuring an HA-Cluster. A context menu is open over the HA-Cluster icon in the left-hand tree view, with 'Edit Settings...' selected. The main panel shows various tabs for the HA-Cluster, including Summary, Virtual Machines, Hosts, Resource Allocation, Performance, Tasks & Events, Alarms, Permissions, Maps, Profile Compliance, and Storage. The Summary tab is active, displaying cluster statistics and a table of storage resources.

Storage resources	Status	Drive Type	Capacity
datastore1	✓ Normal	SSD	104,25 GE
datastore1 (1)	✓ Normal	SSD	104,25 GE
HA-ISCSI 1	✓ Normal	Non-SSD	99,75 GE
HA-ISCSI 2	✓ Normal	Non-SSD	100,75 GE

11. HA-Cluster Settings

In HA-Cluster Settings window, select **DatastoreHeartbeating** and check both datastores and click **OK** button.



11. Reconfigure for vSphere HA

Right-mouse-click on the first Host icon (192.168.100.141). Select **Reconfigure for vSphere HA**.

The screenshot shows the VMware vSphere interface. On the left, a tree view shows a Data Center containing an HA-Cluster with two hosts. The first host, 192.168.100.141, is selected, and a context menu is open. The menu includes options like 'New Virtual Machine...', 'Disconnect', 'Shut Down', and 'Reconfigure for vSphere HA'. The main panel displays the host's configuration, including hardware details (Intel Corporation S1200RP, 4 CPUs x 3,392 GHz) and resource usage (CPU: 238 MHz, Memory: 9645,00 MB). The 'Resources' section shows storage and network configurations. The 'Fault Tolerance' section shows the version as 5.0.0-5.0.0-5.0.0. The 'Commands' section at the bottom lists actions like 'New Virtual Machine', 'Enter Maintenance Mode', 'Reboot', 'Shutdown', 'Enter Standby Mode', and 'Reconfigure for vSphere HA'.

11. Reconfigure for vSphere HA

Repeat the same procedure for the second Host (192.168.100.239).

The screenshot shows the VMware vSphere Client interface for host 192.168.100.239. The left sidebar shows a tree view with 'Data Center', 'HA-Cluster', and two hosts: '192.168.100.141' and '192.168.100.239'. A blue arrow points from the text box to the '192.168.100.239' host. The main pane shows the host's configuration details, including a context menu with 'Reconfigure for vSphere HA' selected. The 'Resources' tab shows CPU usage at 207 MHz and memory usage at 1579,00 MB. The 'Fault Tolerance' section shows a version of 5.0.0-5.0.0-5.0.0.

Storage	Status	Drive Type
datastore1 (1)	✓ Normal	SSD
HA-iSCSI 1	✓ Normal	Non-SSD
HA-iSCSI 2	✓ Normal	Non-SSD

Network	Type	Sta
VM Network	Standard port group	✓

Fault Tolerance	
Fault Tolerance Version:	5.0.0-5.0.0-5.0.0
Total Primary VMs:	0
Powered On Primary VMs:	0
Total Secondary VMs:	0
Powered On Secondary VMs:	0

12. HA-Cluster Configuration

In order to clear alarms, in the **Alarms** tab select one, right-mouse-click and select **Clear**.

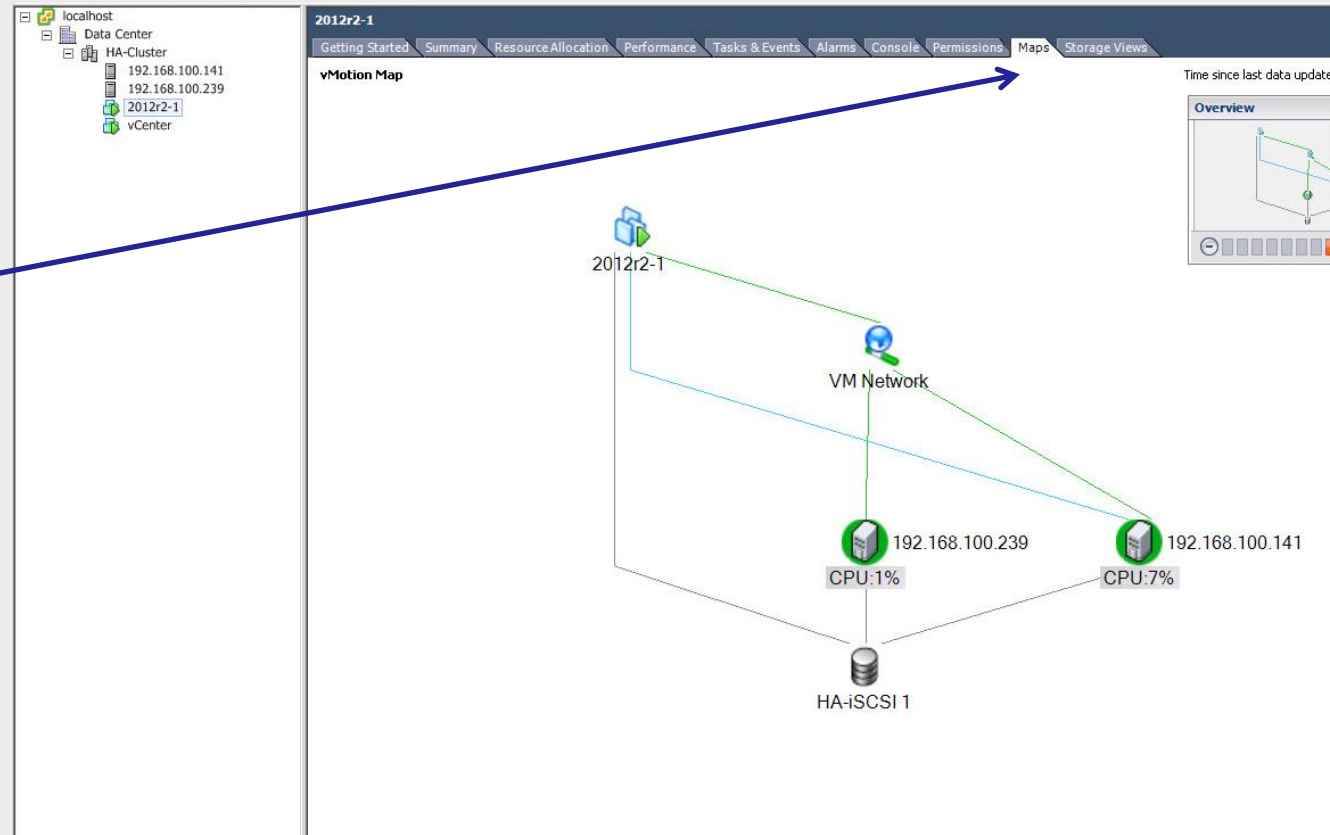
The screenshot shows the VMware vSphere interface with the 'Alarms' tab selected. The left sidebar shows a tree view with 'localhost' expanded to 'Data Center' and 'HA-Cluster', which contains two hosts: '192.168.100.141' and '192.168.100.239'. The main pane shows the '192.168.100.141 VMware ESXi, 5.5.0, 2638301 | Evaluation (44 days remaining)' view. The 'Alarms' tab is active, displaying a table of triggered alarms. A right-click context menu is open over the first alarm, with the 'Clear' option highlighted.

Object	Status	Name	Defined In	Triggered	Acknowledged	Acknowledged
192.168.100.141	Alert	Network connectivity...	localhost	15.05.2015 23:21:15		

- Acknowledge Alarm
- Clear
- Copy to Clipboard Ctrl+C

12. HA-Cluster Configuration

HA cluster configuration is complete.



Thank you!

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