

How to deploy a virtual machine on a Granite Datastore

Solution Guide

Riverbed Technical Marketing

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Introduction

This solution guide describes how to deploy a virtual machine on a Granite Datastore or in other words how to how to use Granite Edge Blockstore as ESX datastore.

Audience

This paper is written for server, storage, backup and network administrators familiar with administering and managing distributed office environments using common network and storage protocols such as iSCSI, SCSI, TCP, CIFS, HTTP, FTP, and NFS.

To understand the concepts presented in this document, the reader must also be familiar with:

- Riverbed Steelhead® appliance installation and configuration process
- Riverbed Steelhead management interface

Additional Resources

For a complete list and the most current version of Riverbed documentation log in to the Riverbed support website located at <https://support.riverbed.com>.

The Riverbed Knowledge Base is a database of known issues, how-to documents, system requirements, and common error messages. You can browse titles or search for key words and strings. To access the Riverbed Knowledge Base, log in to the Riverbed Support site located at <https://support.riverbed.com>.

How to provision an iSCSI LUN to VSP

Note 1: Make sure that the Granite Core is communicating with the storage system, the Granite Edge is communicating with the Core, and the steelhead appliances are optimizing Granite traffic.

Note 2: In this example the LUN on the storage system has been already formatted with the VMFS file system and a virtual machine has been deployed on the VMFS Datastore.

On the Core, provision the LUN to the Granite Edge and allow the VSP ESXi iSCSI initiator access to connect to this LUN.

1. Navigate to **Configure > Storage > LUNs** and select the LUN to expose to the Granite Edge appliance. Under the **Edge Mapping** tab select the appropriate **Granite Edge Identifier** and click on the **Update Mapping** button.

The screenshot shows the Riverbed Granite Core web interface. The navigation bar includes Home, Configure, Reports, Support, Save, and Healthy. The main content area is titled 'Configure > Storage > LUNs'. Below this, there's a section for 'Status of all configured iSCSI Luns.' with a table of LUNs. The table has columns: LUN, Status, Portal, Size, Pinned, Prepop, Granite Edge, and Remove. Two LUNs are listed: 'Cdrive (P3Pd8ZkuEivW)' with status 'Connected' and 'Cdrive2 (P3Pd8Zn4E/Tv)' with status 'Unmapped'. Below the table, the 'Edge Mapping' tab is selected, showing a dropdown for 'Granite Edge' set to 'EdgeHA' and an 'Update Mapping' button highlighted with a yellow box.

1. Log in to the Steelhead EX appliance.
2. Navigate to **Configure > Virtualization > Virtual Services platform** and take note of the VSP ESXi server IQN.

The screenshot shows the Riverbed Steelhead EX web interface. The navigation bar includes Home, Configure, Reports, Support, Save, Restart, and Degraded. The main content area is titled 'Configure > Virtualization > Virtual Services Platform'. Below this, there's a section for 'Allocated Resources' showing 6 CPU cores, 10.3 GB of memory, and 1.2 TB of disk space. To the right, the 'VSP Status' section shows 'Status: available', 'ESXi Management IP Address: 10.32.160.164', and 'IQN: iqn.1998-01.com.vmware:localhost-15af38f7', with the IQN highlighted by a yellow box. A 'Restart VSP' button is also present. Below this, the 'ESXi Reinstallation Wizard' section is visible, with a 'Launch ESXi Reinstallation Wizard' button.

3. Log back in to the Granite Core appliance and create an initiator record for the VSP ESXi server.
4. Navigate to **Configure > Granite Edges**, under the appropriate Granite Edge Identifier click on the

5. Type the VSP ESXi Server IQN and click on the **Add Initiator** button to commit the operation.

Add a Granite Edge

Granite Edge	Connection	Duration
EdgeHA	Connected	2d 3h 11m 56s

[Status](#)
[Target Settings](#)
[Initiators](#)
[Initiator Groups](#)
[LUNs](#)
[Prepopulation](#)

Add an Initiator

Initiator Name:

Add to Initiator Group: [New Group](#)

Authentication:

Add Initiator

Initiator	Authent
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By default LUN access is denied to all iSCSI initiators at the branch. Modify the access list to allow access.

6. Navigate to **Configure > Storage > Granite Edges**, select the appropriate Granite Edge Identifier and click on the **LUNs** button.
7. Click on **Edit** in the **Initiators Granted Access** box.
8. Grant VSP ESXi server permission by clicking the **Add** button.

Add a Granite Edge

Granite Edge	Connection	Duration	IP Address	Mapped LUNs	LUN Capacity	Remov
EdgeHA	Connected	2d 3h 12m 50s	10.32.160.162	1 LUN	43.00 GB	

[Status](#)
[Target Settings](#)
[Initiators](#)
[Initiator Groups](#)
[LUNs](#)
[Prepopulation](#)

Map LUNs to this Granite Edge

LUN	Size	Online/Offline	Accessible	Pinned	Unmap
Cdive2 (P3Pd8Zn4E/Tv)	43.0049 GB	Online	No	No	

Manage Access Lists (To perform other operations on this LUN, click here.)

Groups Granted Access [Edit](#)

None

Initiators Granted Access [Hide](#)

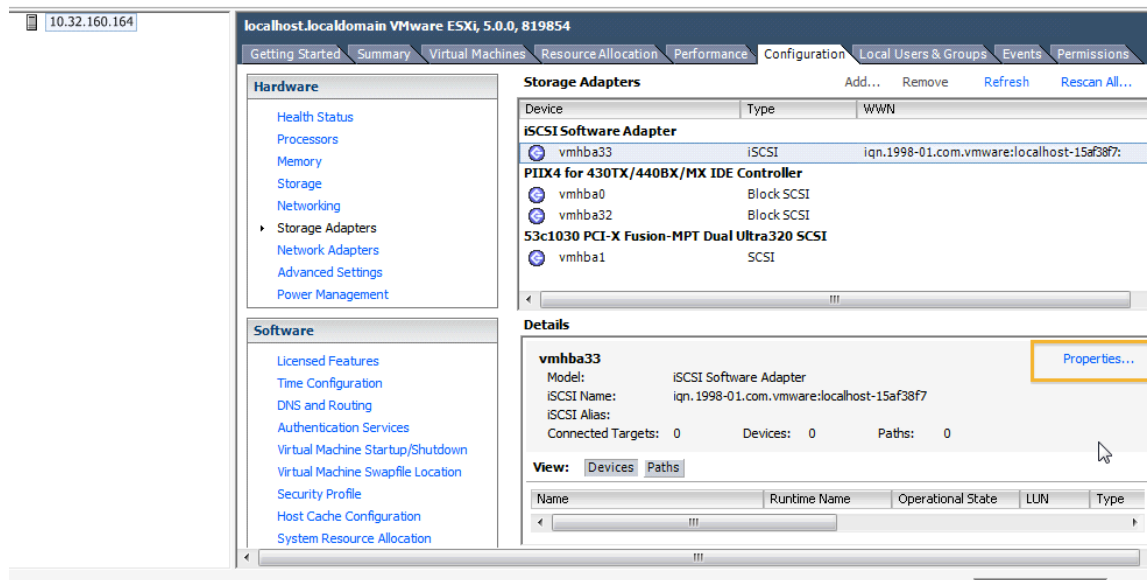
None

Not Granted

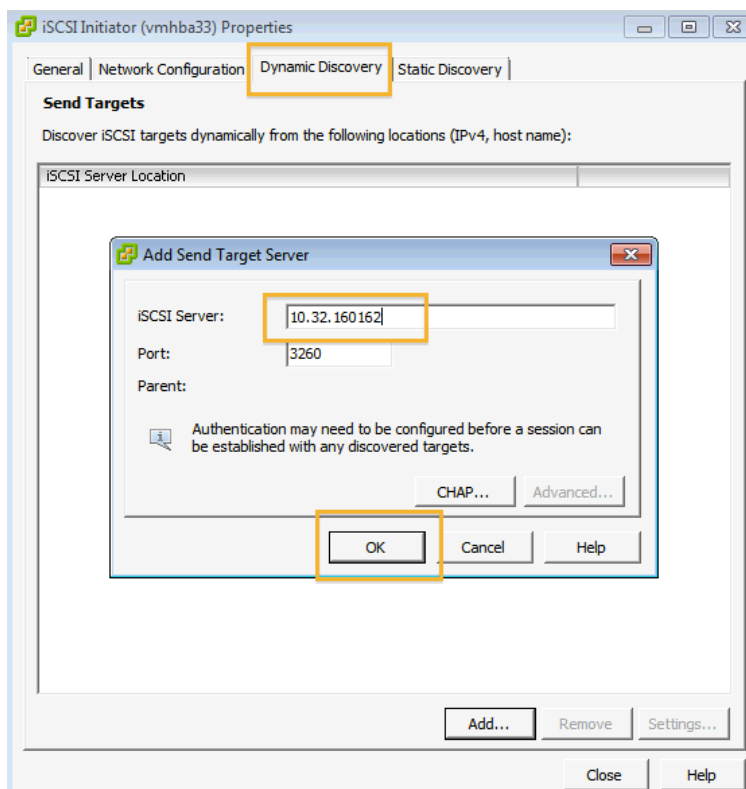
01.com.vmware:localhost-15af38f7

[Add](#) [Remove](#)

9. To import the LUN into the VSP ESXi server, log in using VMware vSphere client and navigate to the **Configuration** tab and open the **Properties** window from the left **Storage Adapters** menu.



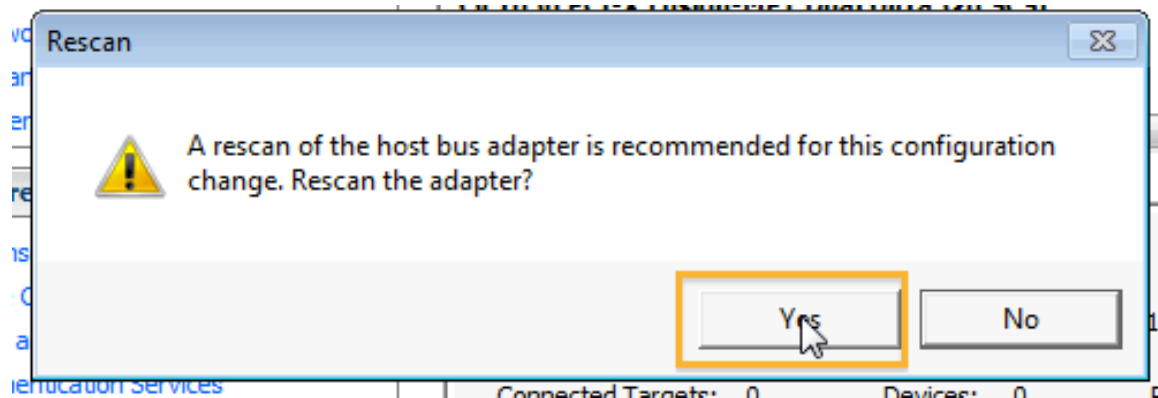
10. Navigate to the **Dynamic Discovery** tab of the **iSCSI Initiator Properties** window, click on the **Add...** button to enter the IP address of the primary interface of the Steelhead EX appliance into the **iSCSI Server** field and click **OK**.



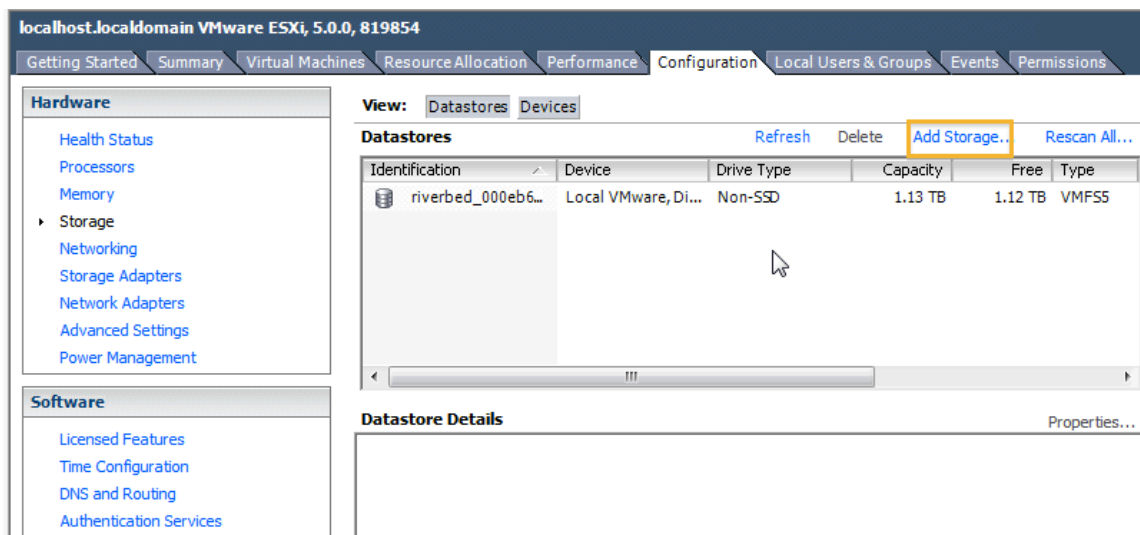
Note: Do NOT use static discovery and do NOT add any VMkernel adapters on the network configuration tab. Just enter the IP address of the Steelhead EX /Granite Edge primary interface on the

Dynamic Discovery tab. ESX will automatically discover the Granite Edge IQN and all the MPIO paths.

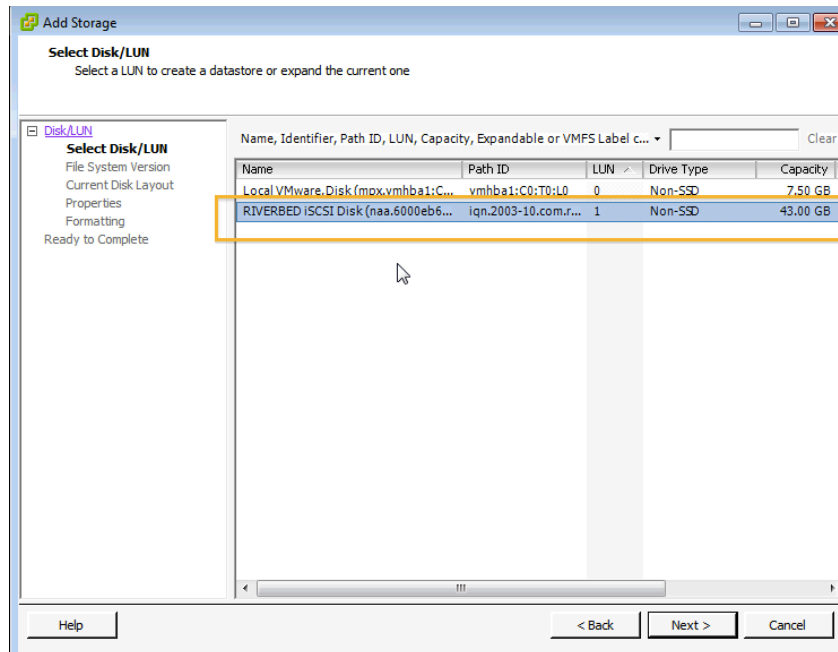
11. Close the window, answer **Yes** to the request coming from the VMware ESX server to rescan the host bus adapter.



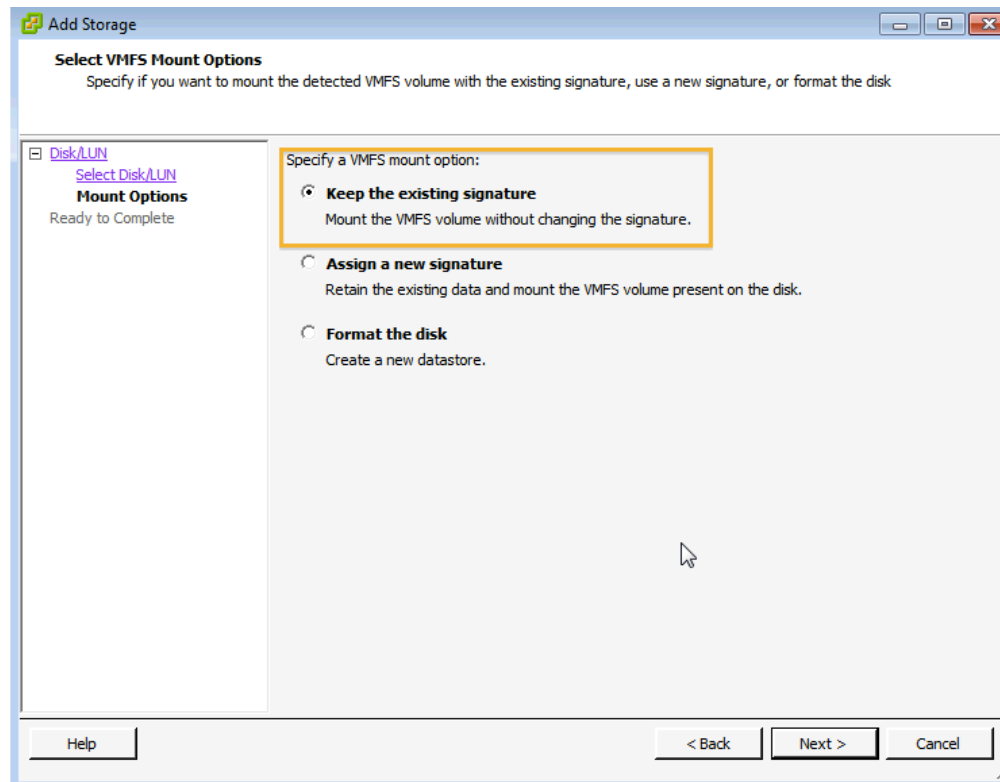
12. Navigate to the **Storage** menu of the ESX server **Configuration** tab, click on the **Add Storage...** link to open the Add Storage wizard.



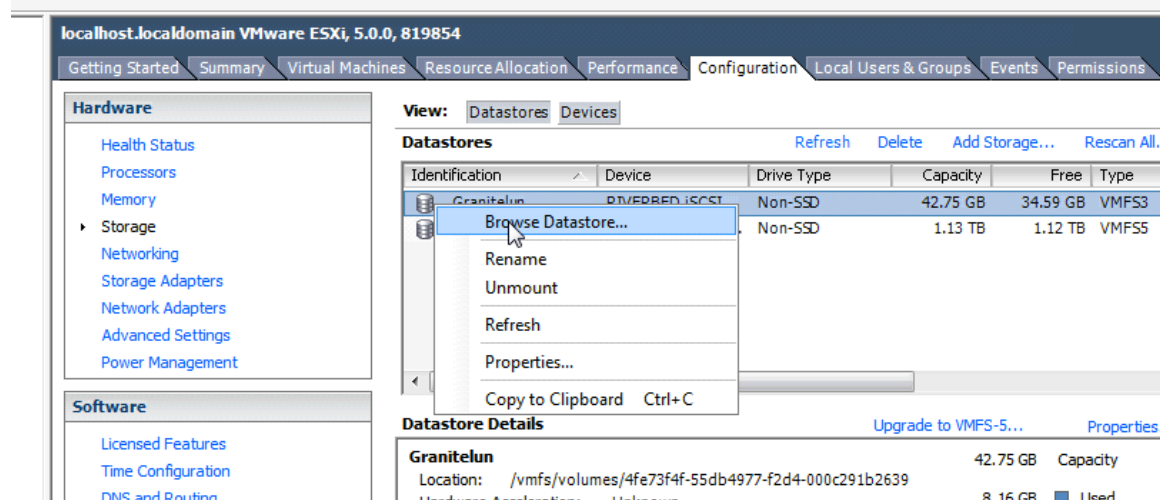
13. In the first step of the wizard select the **RIVERBED iSCSI disk**.



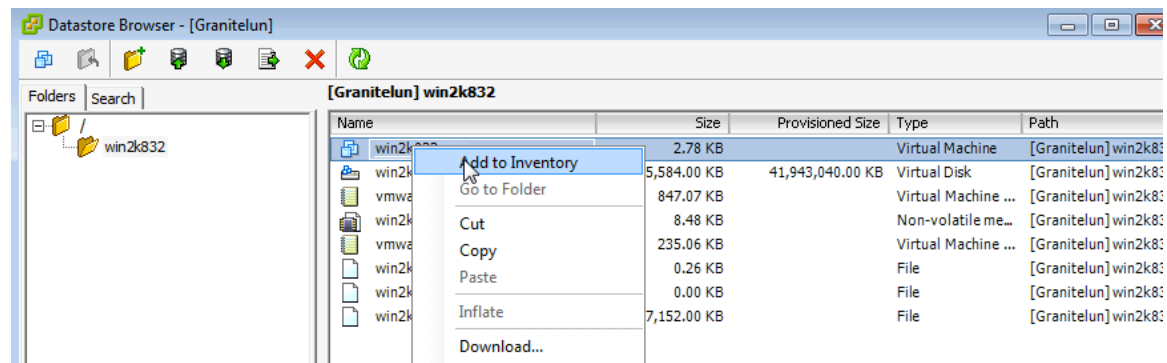
14. Under **Mount Options** select **Keep the existing Signature** if prompted. This means that the LUN has already been formatted with the VMFS file system.



15. Right click on the **newly added Granite** datastore to browse it and add the pre installed virtual machine to the inventory

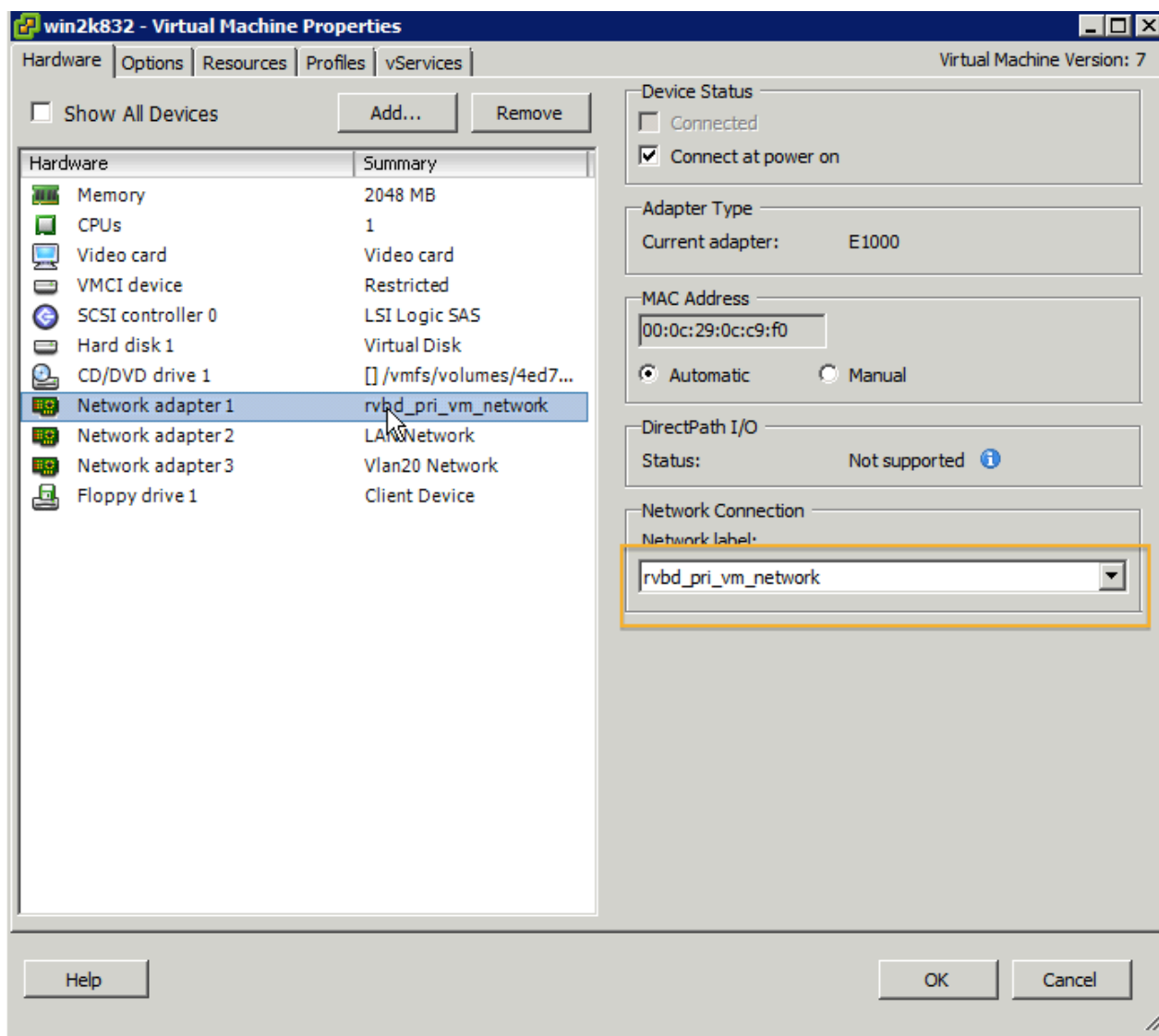


16. Right click on **OS .vmx file** and click on **Add to Inventory**.



Edit the **virtual machine settings** and make sure the **Network Adapters** are connected and the appropriate network labels are selected. Select **rvbd_pri_vm_network** to map the virtual machine network interface to the primary interface of the Steelhead EX appliance or **rvbd_aux_vm_network** to map it to the aux interface.

Note: Do not select the **rvbd_hpn_vm_network**, this is a private network used internally by RiOS to communicate with ESXi.

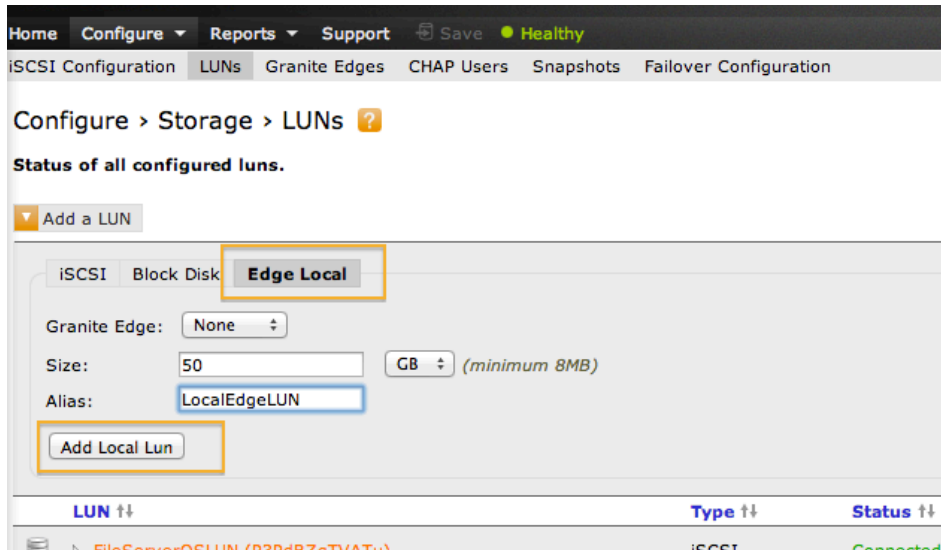


17.

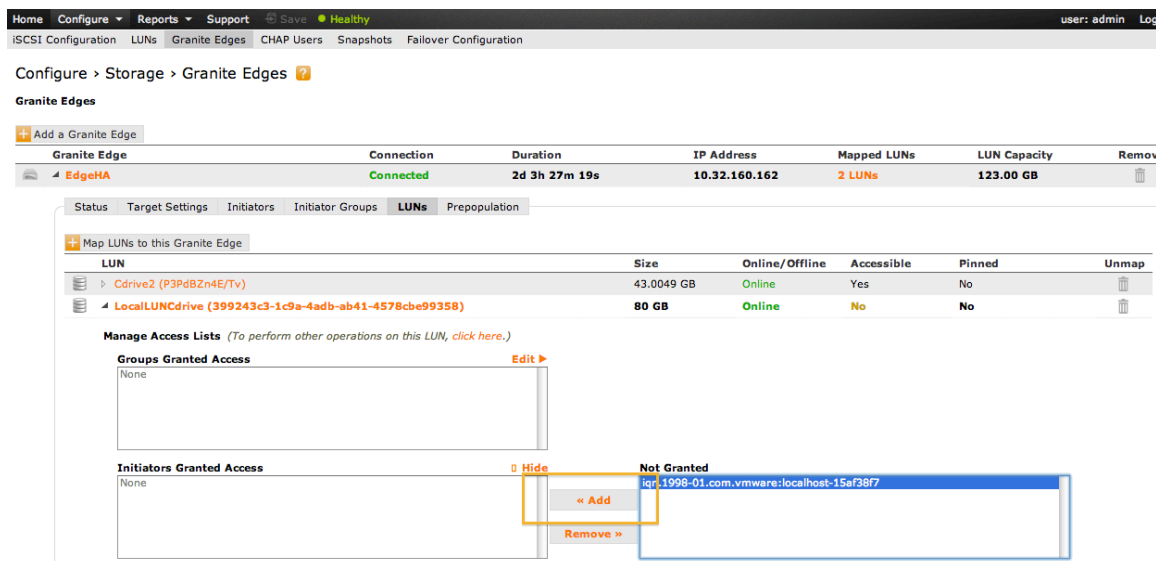
18. You can now boot and start using the virtual machine.

How to provision a Local Granite LUN to VSP

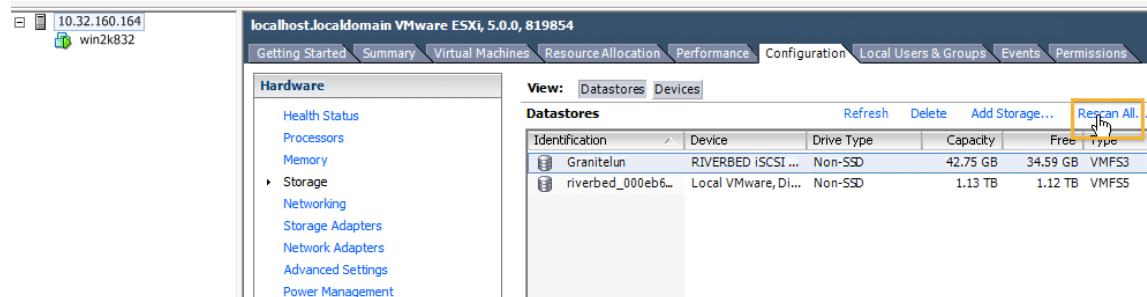
1. Navigate to **Configure > Storage > LUNs** and click the **Add a LUN** button.
2. Select the **Edge Local** tab.
3. Select the appropriate **Granite Edge Identifier** from the dropdown box.
4. Select the **size** of the LUN.
5. Enter an **alias** name for the LUN.
6. Click the **Add Local LUN** button.



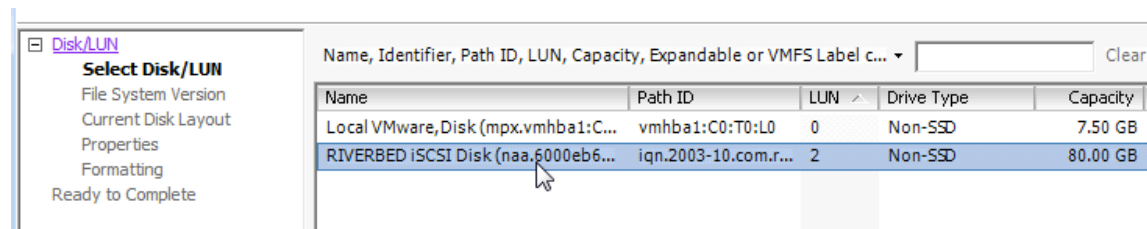
7. Navigate to **Configure > Storage > Granite Edges**, select the appropriate Granite Edge Identifier and click on the **LUNs** button.
8. Select the Local LUN just created.
9. Click on **Edit** in the **Initiators Granted Access** box.
10. Grant VSP ESX server permission by clicking the **Add** button.



11. To import the LOCAL LUN into the VSP ESXi server, log in using VMware vSphere client and navigate to the **Configuration** tab and click the **Rescan All** button from the left **Storage Adapters** menu.



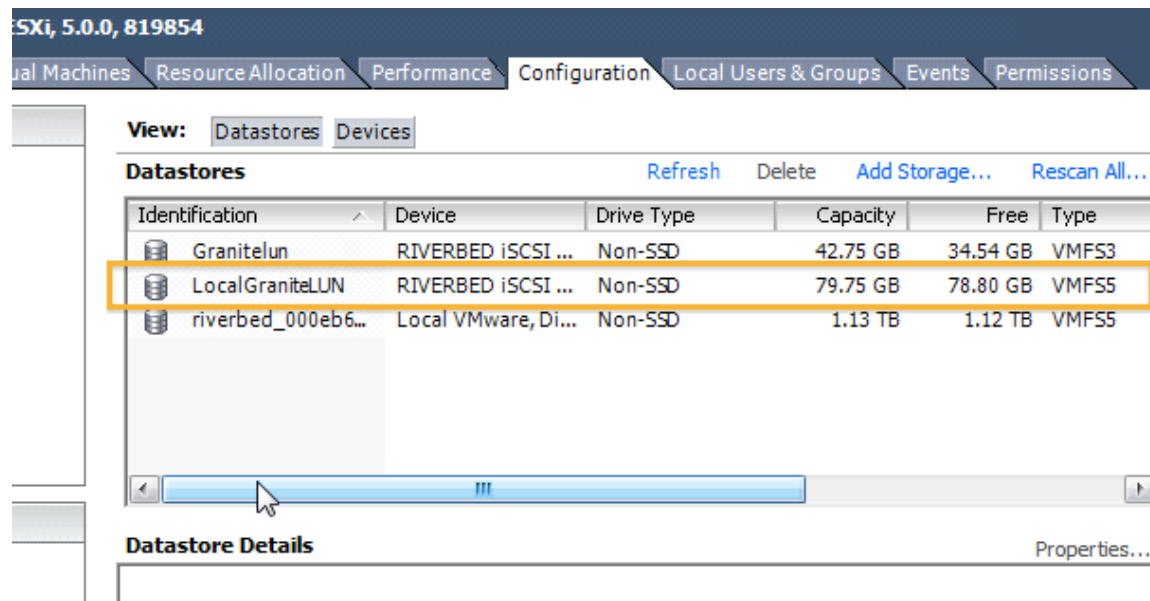
12. Click on the **Add Storage...** link to open the Add Storage wizard.
13. In the first step of the wizard, select the **RIVERBED iSCSI disk**.



14. As Storage Type select **Disk/LUN** and as File System Version select **VMFS-3 or VMFS-5**, click on the **Finish** button to complete the operation.

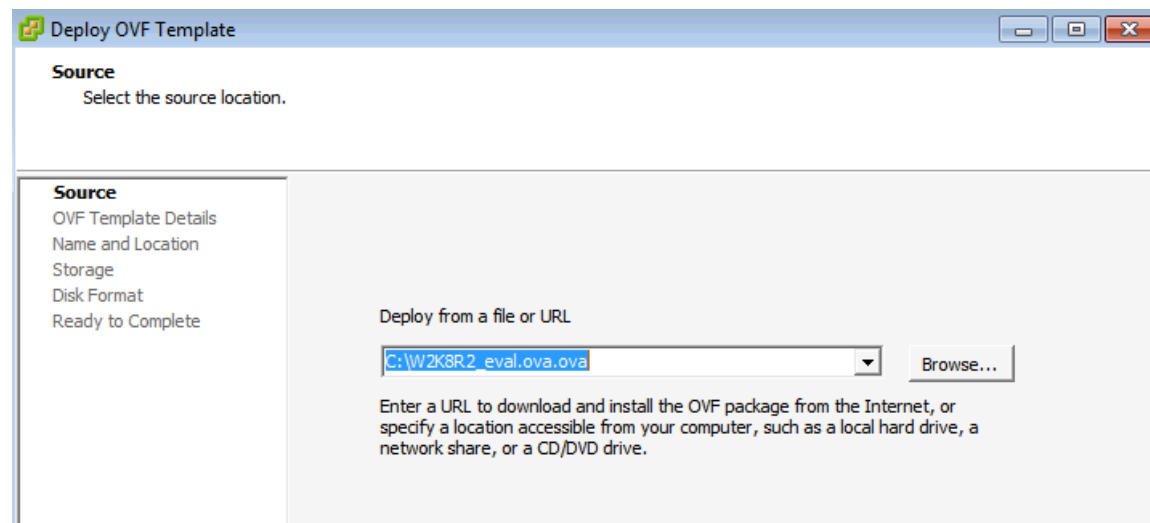
How to deploy a VSP virtual machine on Local Granite LUN

The VSP ESXi server should now show a new Datastore.

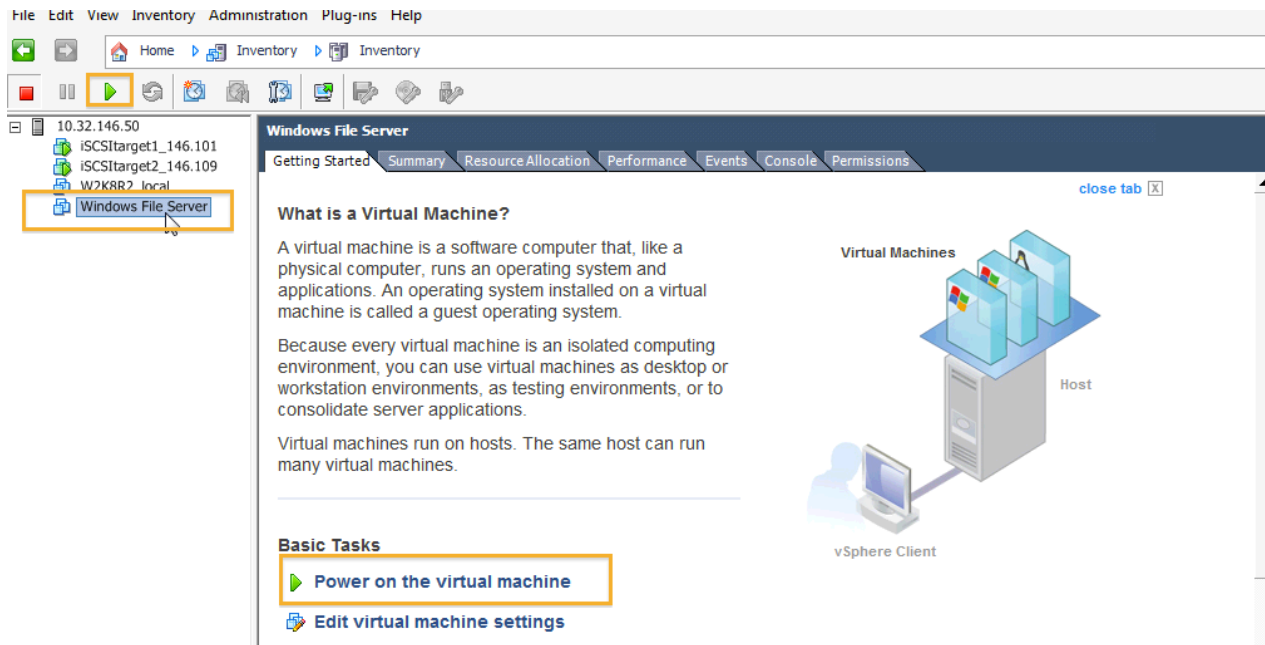


One way to deploy a Windows server virtual machine into this new Datastore is to deploy an OVA file.

To do so from the ESX Server file menu select **Deploy OVF Template...**, browse to the location of the OVA file and follow the wizard. Make sure you select the newly added **local Granite LUN Datastore** as virtual machine location, and for disk format **Thick Provision Lazy Zeroed** is recommended.

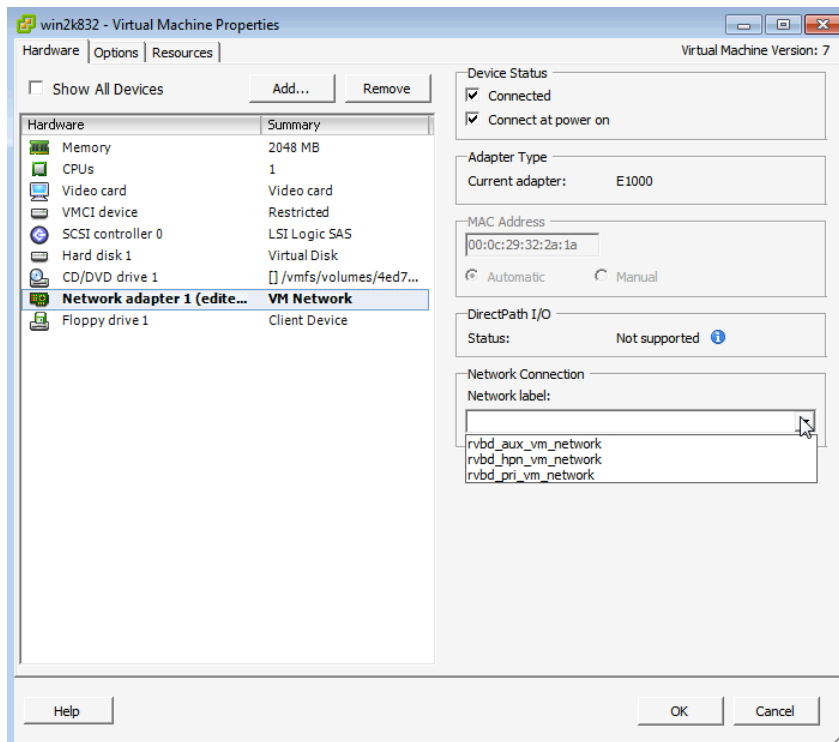


When the deployment process is finished you can power up the virtual file server, install any patches needed and install the Riverbed Granite Host Tools software package.



Make sure the **Network Adapters** are connected and the appropriate network labels are selected. Select **rvbd_pri_vm_network** to map the virtual machine network interface to the primary interface of the Steelhead EX appliance or **rvbd_aux_vm_network** to map it to the aux interface.

Note: Do not select the **rvbd_hpn_vm_network**, this is a private network used internally by RiOS to communicate with ESXi.



Appendix

How to install MPIO on a Windows Server

1. Open **Server Manager**. To open Server Manager, click **Start**, point to **Administrative Tools**, and then click **Server Manager**.
2. In the Server Manager tree, click **Features**.
3. In the **Features** area, click **Add Features**.
4. In the Add Features Wizard, on the **Select Features** page, select the **Multipath I/O** check box, and then click **Next**.
5. On the **Confirm Installation Selections** page, click **Install**.
6. When the installation has completed, on the **Installation Results** page, click **Close**. When prompted to restart the computer, click **Yes**.
7. After restarting the computer, the computer finalizes the MPIO installation.
8. Click **Close**

For more Info Check <http://technet.microsoft.com/en-us/library/ee619752%28v=ws.10%29.aspx>

Conclusion

Riverbed continues to help organizations gain better control over their IT infrastructure and consolidate more to lower costs and risks without impacting the performance required to ensure user productivity in branch offices. With the Granite solution, Riverbed enables a global storage infrastructure by intelligently accelerating storage across the WAN, enabling new efficiency with data management, protection, and recovery while ensuring performance at the edge. With Granite, organizations can:

- Reduce costs by eliminating storage from branch offices
- Improve management efficiency as maintenance and backup can take place at the data center
- Recover faster and more effectively since the data is stored centrally, protected more frequently, and can be streamed to the branch office as needed
- Improve security of data assets via centralization and state-of-the-art encryption capabilities

About Riverbed

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com.



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