



Hyper-V 2012 R2 Beta plugin

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Introduction to Hyper-V 2012 R2 Beta plugin

The Abiquo Hyper-V 2012 R2 Beta plugin is a limited release for Abiquo 2.6. There are some changes to the features supported from the version released in Abiquo 2.6. These are described in the features section below. The plugin has been tested with **Abiquo 2.6.5**.

The plugin is not compatible with previous versions of Hyper-V. This means that you cannot use it with Hyper-V **2008** and **2012 R1**. You **must not** have any hypervisors of these previous versions registered in Abiquo when you install the plugin. The Hyper-V 2012 R2 **configuration** is the same process as for Hyper-V 2012 R1. The wiki page for this configuration is also included below.

Hyper-V 2012 R2 Beta features


One connection to each Hyper-V server

Abiquo cannot make multiple concurrent connections to Windows-based machines.

For Hyper-V, set the [Abiquo Configuration Property](#) "abiquo.virtualfactory.openSession" to 1.

Shared datastore disks not deleted by Hyper-V

When you undeploy VMs with a shared datastore, Abiquo 2.6 GA does not delete shared datastore files due to a limitation of WMI that the disks "cannot be found". The VM cannot be deployed again because the deploy fails saying that the disk already exists. You can access the shared datastore to delete the disks directly after you undeploy.

 **Changes in Hyper-V 2012 R2 Beta**

- Synthetic Ethernet Port (NO 4 NIC limit)
- SCSI for primary disks
- Live migration is supported when VMs are moved to different datastores (Storage Live Migration)
- NUMA configurations for processors

Hyper-V General Features

Feature	Description
Active Directory Integration	<input checked="" type="checkbox"/> You can log in with an AD user or a local user. Use an Administrator account
High Availability	<input checked="" type="checkbox"/> Abiquo HA does not support Hyper-V
Live Migration	<input checked="" type="checkbox"/> Abiquo detects live migration of virtual machines with storage migration <ul style="list-style-type: none"> • Before moving from Hyper-V manager, check the destination datastore is enabled in Abiquo, or the move will not be detected. <ul style="list-style-type: none"> • VM Moves deployed in the same datastore are not supported (but should be supported using the Abiquo 3.0 plugin) • Abiquo uses Msvm_MigrationJob to detect moved VMs. These jobs exist for 5 minutes. <ul style="list-style-type: none"> • Set the VSM polling interval for Hyper-V to less than 5 minutes or detection cannot be guaranteed
Templates	Abiquo supports VHD and VHDX templates <ul style="list-style-type: none"> • All VHDX disks can be resized (enlarged) • No conversions from VHDX to other formats or vice versa <ul style="list-style-type: none"> • Only VHD templates can be made persistent
Virtual Machine NICs	<ul style="list-style-type: none"> • Synthetic Ethernet Port is used <ul style="list-style-type: none"> • NO limit of 4 NICs per virtual machine
Dynamic Memory	<input checked="" type="checkbox"/> Dynamic Memory is disabled for R2 in relation to unsupported NUMA processors
Remote Access	<input checked="" type="checkbox"/> Remote access through the eye icon is not supported but VM connection details are provided

Hyper-V Storage Features

Feature	Description
Datstores	<ul style="list-style-type: none"> • Local disk • SMB share
Disk Controllers	<ul style="list-style-type: none"> • The primary system disk can be mounted on a SCSI or IDE controller • By default Hyper-V uses SCSI for primary and secondary disks • IDE is not recommended <ul style="list-style-type: none"> • Each IDE controller supports 2 disks • There is a known bug that may mean you can only use 1 secondary IDE disk
System Disks	<ul style="list-style-type: none"> ✓ SCSI ✓ IDE
Non-persistent Storage	<ul style="list-style-type: none"> ✓ Auxiliary hard disks on the Hyper-V datastore are always created in VHDX format
Persistent Storage	<ul style="list-style-type: none"> ✓ iSCSI integrated storage ✓ Generic iSCSI storage ✗ NFS persistent storage is not available on Hyper-V
Persistent Virtual Machines	<ul style="list-style-type: none"> ✗ VHDX ✓ VHD <ul style="list-style-type: none"> • By default persistent virtual machine disks are mounted on SCSI controllers
Live Migration	<ul style="list-style-type: none"> ✓ Live migration is supported if the VM storage is moved to a different datastore

Install Hyper-V 2012 R2 Beta plugin on the Abiquo Server

1. Stop the Abiquo Tomcat server.
2. Remove the following directories from the tomcat root directory (by default /opt/abiquo/tomcat):
 - a. work
 - b. temp
3. In the Abiquo tomcat webapps directory, remove the jar file for the Hyper-V plugin. This file is called **hyperv-plugin-X.X.X.jar** where X.X.X is the plugin version number. It is in the WEB-INF/lib directory of each of the following web apps:
 - a. api
 - b. nodecollector
 - c. virtualfactory
 - d. vsm
4. Replace the file with the Abiquo Hyper-V 2012 R2 Beta plugin jar file called **hyperv-plugin-R2-Beta-2.6.jar**
5. Start the Abiquo Tomcat server.

Hyper-V 2012 R2 Beta configuration

This section explains how to configure Hyper-V for use with Abiquo.

The basic steps for Hyper-V configuration are:

1. Configure Registry
 - a. Add the Hyper-V to a Windows domain
 - b. Run the powershell as the domain admin
2. Enable remote desktop (optional)
3. Configure Network
 - a. Configure firewall to allow incoming connections
 - b. Create vSwitch in Hyper-V Manager
4. Configure Storage
 - a. Enable iSCSI
 - b. Change initiator IQN
 - c. Mount shared datastore (samba)

This configuration requires registry modifications.

Hyper-V configuration steps for management through DCOM

Abiquo uses the WMI API, through [J-Interop](#) and [JWbem](#) libraries.

See <http://sourceforge.net/p/j-interop/code/138/tree/trunk/j-interop/src/readme.htm>

Therefore, you will need to make the registry modifications described below to enable remote management and monitoring of Hyper-V.

Add Hyper-V to a Windows Domain

Add the Hyper-V server to a Windows Domain.

Automatically Edit the Registry

Download the powershell script in the attached file [change_registry.ps1](#)

Log in as the domain admin. Use the fully qualified domain name, e.g. MY-DOMAIN\administrator

Run the powershell script.

This script will set the owner of the following registry keys to be changed to the user who runs the script.

- The manual process to change domain owner and edit registry keys is described in [Hyper-V Manual Registry Configuration](#)

Registry Changes

These registry changes are included in the attached file [hypervconfig.reg](#).

```

Windows Registry Editor Version 5.00

[HKEY_CLASSES_ROOT\AppID\{76A64158-CB41-11D1-8B02-00600806D9B6}]
"DllSurrogate"=""

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}]
@="WBEM Scripting Locator"
"AppID"="{76a64158-cb41-11d1-8b02-00600806d9b6}"

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\InProcServer32]
@=hex(2):25,00,53,00,79,00,73,00,74,00,65,00,6d,00,52,00,6f,00,6f,00,74,00,25,\
00,5c,00,73,00,79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,77,00,62,00,\
65,00,6d,00,5c,00,77,00,62,00,65,00,6d,00,64,00,69,00,73,00,70,00,2e,00,64,\
00,6c,00,6c,00,00,00
"ThreadingModel"="Both"

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\ProgID]
@="WbemScripting.SWbemLocator.1"

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\Programmable]

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\TypeLib]
@="{565783C6-CB41-11D1-8B02-00600806D9B6}"

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\Version]
@="1.0"

[HKEY_CLASSES_ROOT\CLSID\{76A64158-CB41-11D1-8B02-00600806D9B6}\VersionIndependentProgID]
@="WbemScripting.SWbemLocator"

```

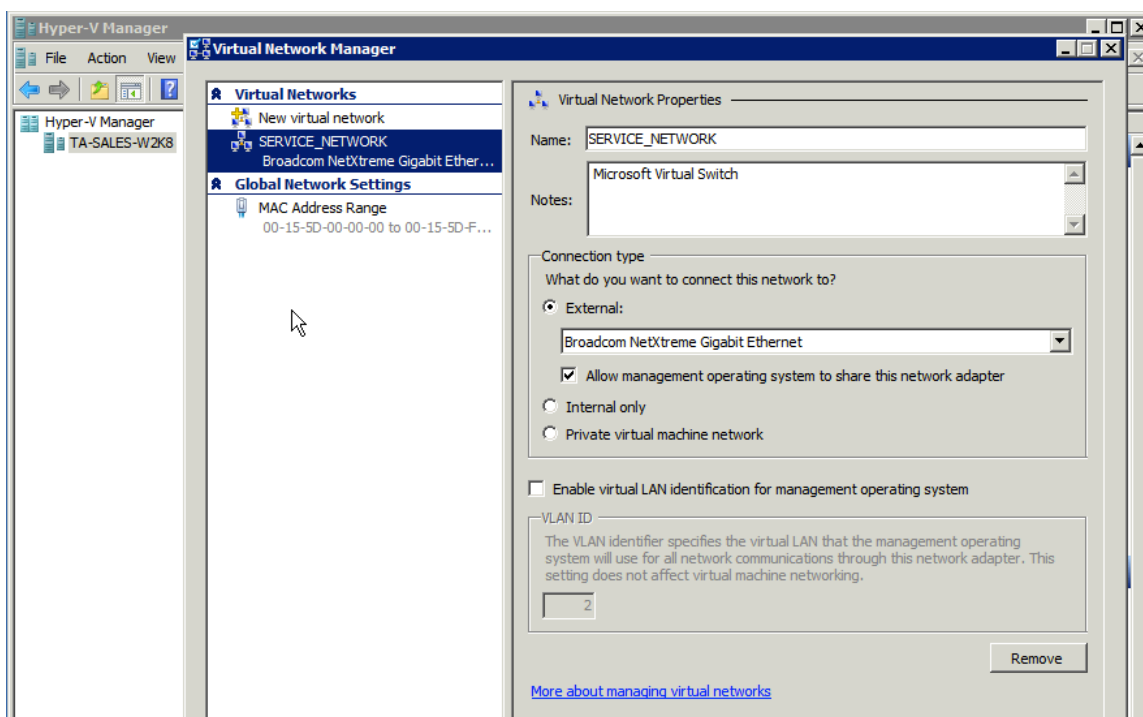
Configure Network for Hyper-V

Configure the network in Hyper-V Manager by checking the MAC addressing and add a new network attached to the service network interface.

Configure VLANs

To allow Abiquo to manage VLANs in this Hyper-V server, add a new network attached to the service network interface. The network name should use appropriate characters and can be chosen by the network administrator.

In Hyper-V Manager, go to Virtual Switch Manager -> New virtual network switch. Use the default options with 'External' type



Configure Persistent iSCSI Storage

This section describes how to configure persistent iSCSI storage.

- Disk Management is in Win8MetroUI + Settings + "Create and format hard disk partitions"

Install iSCSI Service

The first thing you need to do is enable the iSCSI service and set it to start automatically

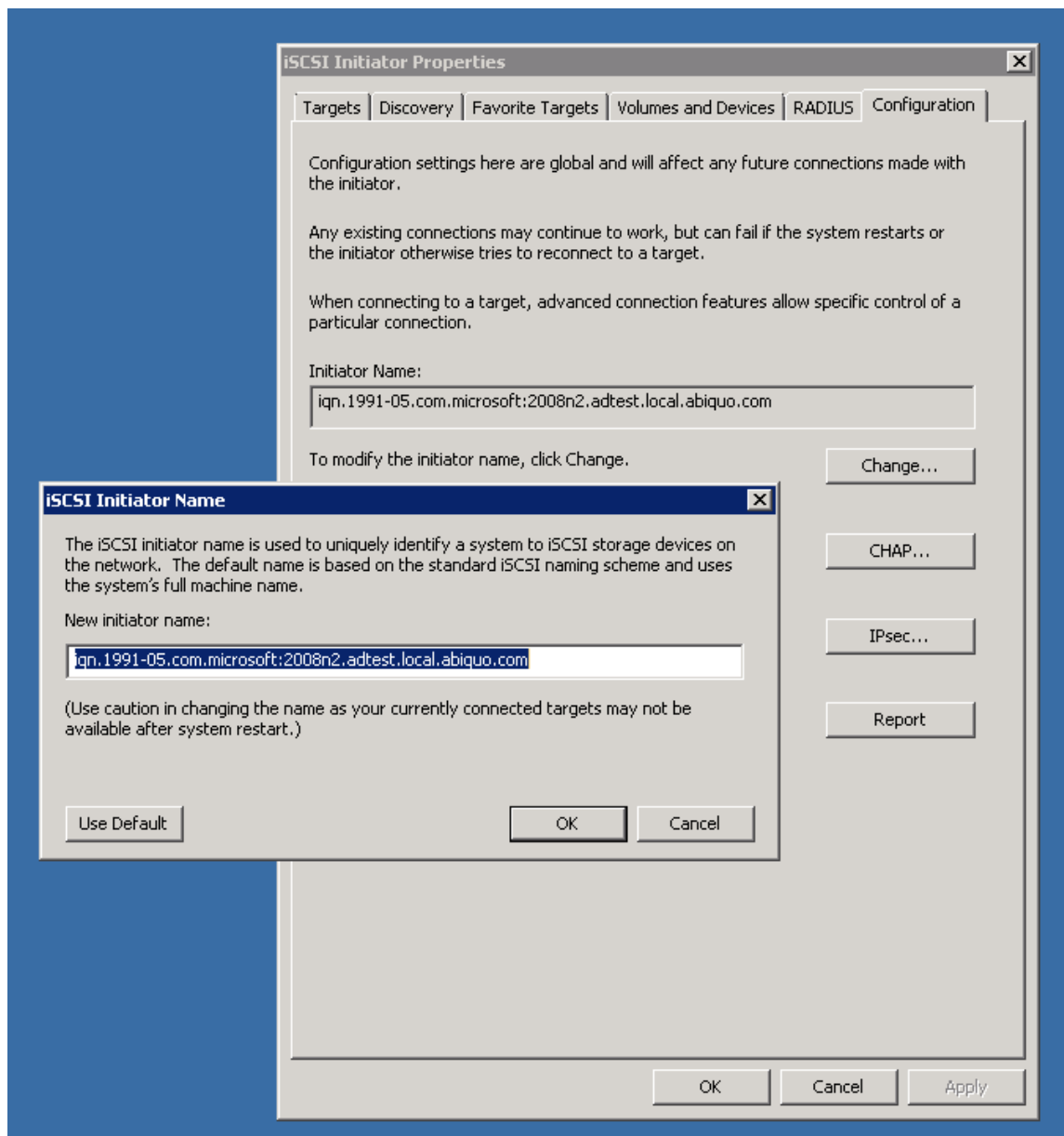
```
C:\Users\Administrator> sc config msiscsi start= auto
ChangeServiceConfig SUCCESS

C:\Users\Administrator> net start msiscsi
The Microsoft iSCSI Initiator Service service is starting.
The Microsoft iSCSI Initiator Service service was started successfully.
```

Manually Set Initiator IQN

- iSCSI Configuration**
 Run `iscsicpl` to open the iSCSI configuration popup on a Core installation

Once the iSCSI service is enabled, you must **manually** set the initiator IQN for the machine. To do this, go to *Start > Administrative tools > iSCSI Initiator*, and select the *Configuration* tab. Click the *Change* button. The following dialog appears:



You can accept the default value. **You MUST do these steps manually** even if the value of the initiator IQN field does not change. If this is not done manually, the initiator IQN will be dynamically computed based on the host and domain name, and may change without any warning, making the external storage volumes inaccessible.

iSCSI Firewall Rule

See Configure Firewall below to set the iSCSI firewall rules via netsh.

SAN Policy Configuration

Open a command line and run the following commands to set the appropriate SAN Policy:

```
diskpart
san_policy=OfflineAll
exit
```

Configure Firewall for Abiquo and Hyper-V

For information about configuring Windows Firewall, please contact Abiquo Support.

Check Abiquo Configuration Properties File and Samba Service

Open an SSH session to the Abiquo server and check the following items:

Samba Server

- Is the SAMBA server up and running?
Start the service with the following command.

```
/etc/init.d/smb start
```

- Samba server must be started at boot

```
chkconfig smb on
```

Abiquo Configuration Properties

Set the maximum number of open virtual factory sessions to 1.

- ➖ Abiquo cannot make multiple concurrent connections to Windows-based machines.
The [Abiquo Configuration Property](#) "abiquo.virtualfactory.openSession" must be set to 1 to enable the Hyper-V plugin to work correctly.

```
abiquo.virtualfactory.openSession = 1
```

Check the SMB path in the config file `/opt/abiquo/config/abiquo.properties`


```
abiquo.appliancemanager.localRepositoryPath = /opt/vm_repository/  
abiquo.appliancemanager.repositoryLocation = 192.168.1.10:/opt/vm_repository  
  
abiquo.virtualfactory.hyperv.repositoryLocation = //<SERVER_IP>/vm_repository  
abiquo.virtualfactory.xenserver.repositoryLocation = 192.168.1.10:/opt/vm_repository  
abiquo.virtualfactory.vmware.repositoryLocation = 192.168.1.10:/opt/vm_repository
```

Restart the Abiquo Tomcat server

```
/etc/init.d/abiquo-tomcat restart
```

Hyper-V in the Abiquo Platform

Remote Access

In Hyper-V 2012, there is no VNC/RDP access through the eye icon. Abiquo provides RDP connection details for VMs. Users will require access to the hypervisor to connect to VMs.

Abiquo recommends xfreerdp. When you click the eye icon, Abiquo opens a popup displaying the connection details in xfreerdp format.

```
xfreerdp /d:my.domain.com /u:Administrator /p:abiquo!  
/vmconnect:27b6f5f6-7c83-447c-83c3-b4093dc16f14 /v:10.60.10.230
```

Best Practices

Datstores

Abiquo will allow you to configure a system drive as the datastore. However, this is not recommended because of disk latency or potential disk space problems. You can use a local datastore or an SMB share.

Linux Guests

Linux Integration Services are required for disk controller detection.

Prepare to Add a Hyper-V Hypervisor to Abiquo

Create a virtual switch for use by Hyper-V before you add it to Abiquo, for example, using Hyper-V Manager.

Create a [Network Service Type](#) in Abiquo before you add the hypervisor.

Adding Hyper-V to the Abiquo GUI

Create a physical machine with a hypervisor type of Hyper-V.

General Information

Enter the User name. It can be an Active Directory login or local user.

In Abiquo 2.6, use an Administrator account.

Create Physical Machine

General Information | Network interfaces | IPMI | Datastores

Name * BCN_HYPERV_01

Rack * BCN_Rack_02

Description WIN-8T3C9SFQA4V

CPU 4

RAM 4086 MB

Hypervisor type Hyper-V

IP * 10.60.1.77

User * bcn.abiquo.com\abiquo

Password * *****

Port 0

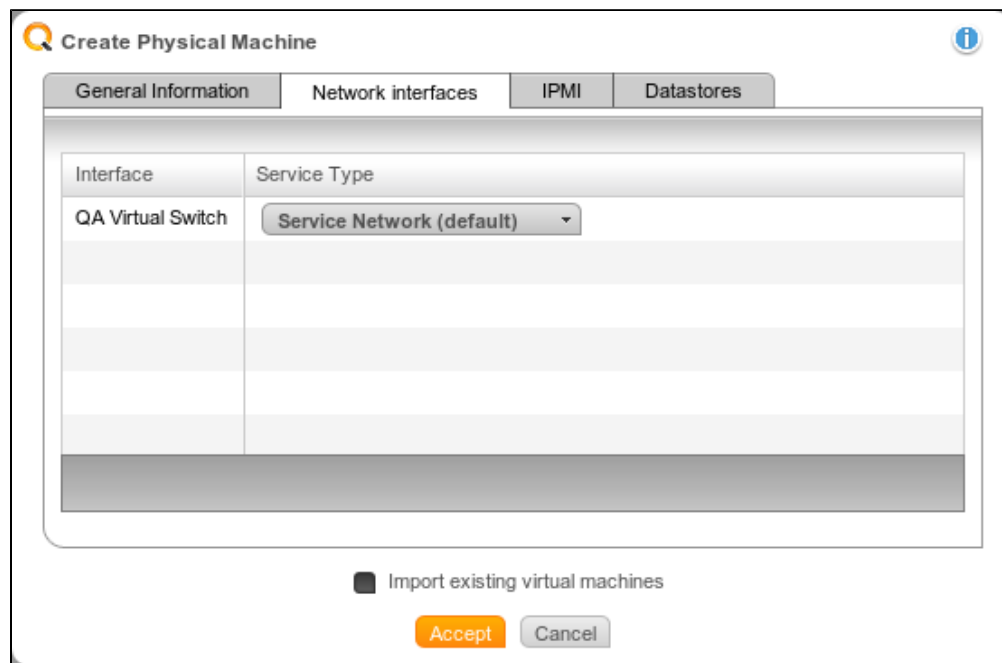
State Check

Import existing virtual machines

Accept Cancel

Network Interfaces

Select the network service type for your virtual switch.



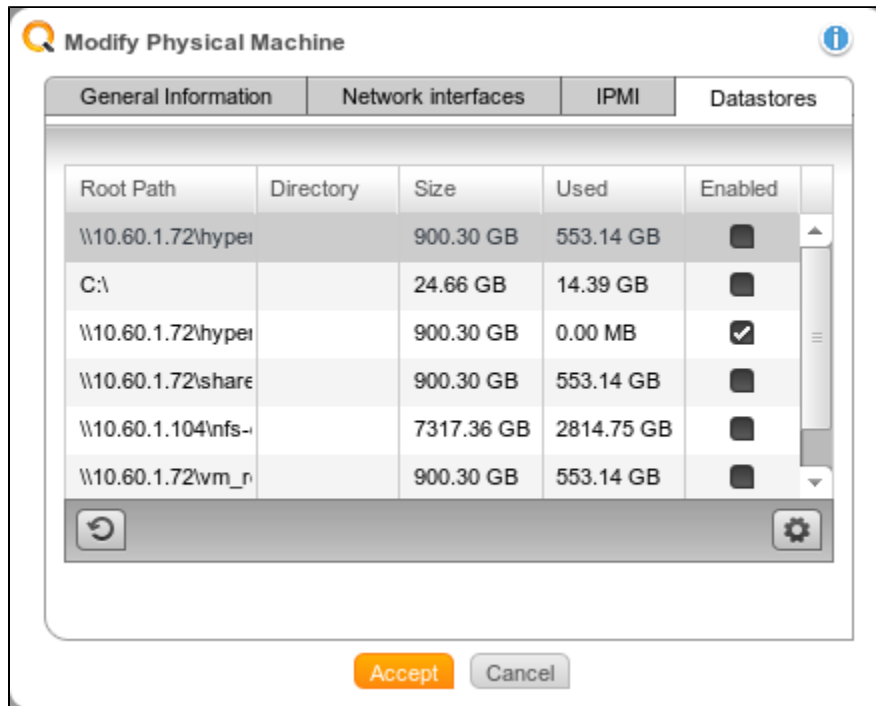
Datastore

The datastore must be a mapped drive. It can be:

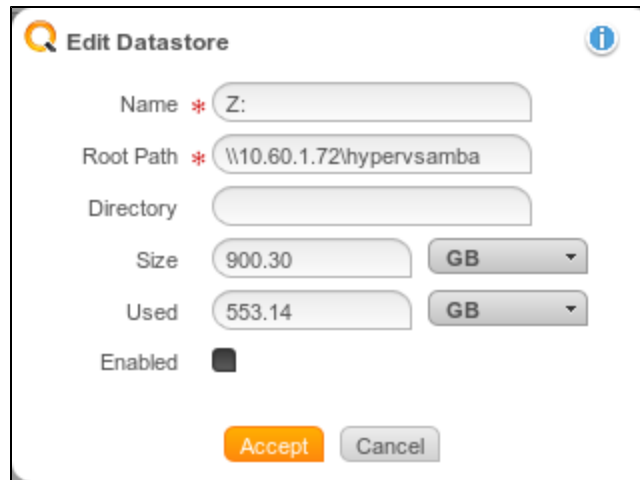
- local datastore (e.g. D:\)
 - Abiquo recommends that you do not use C:\
- SMB share (e.g. X: which has the share \\SMB_SERVER\sharefolder mounted)
 - this configuration is suitable for a shared datastore

The full datastore path is the root path + directory

SMB shares will display with the name of the SMB share (e.g. \\SMB_SERVER\sharefolder)



When you edit the datastore, you will see the drive name (e.g. X:\)



Configure your network service type before you add the Hyper-V machine to Abiquo.