

# VMware/Hyper-V Backup Plug-in User Guide

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### TECHNICAL SUPPORT AND SERVICES

If you have questions about installing or using this software, check this and other documents first - you will find answers to most of your questions here or there. If you need further assistance, please contact us.



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## Welcome

This document has been developed to help both users familiar with the StarWind products and novice users to get started with Hyper-V/VMware Backup Plug-in without any difficulties.

The StarWind team stands behind its products and does its best to make your experience with Backup Plug-in effective and pleasant.



## Hyper-V/VMware Backup Plug-in

## **Backup Plug-in Benefits**

- Fast and reliable backup and restore of virtual machines
- Full integration with StarWind Management Console ensures flat learning curve for users familiar with StarWind solutions
- Built-in Global Deduplication saves up to 80% of disk space
- Simple installation and management of backup infrastructure reduces management overhead and drastically saves time
- Backups are stored in original hypervisor format (VHD for Hyper-V and VMDK for VMware), which enables rapid VM restore and smooth operation with the third-party software
- Agentless architecture of this software does not require shutdown of hypervisor and guest VMs for the installation
- Support of all VMware and Hyper-V features



## **System Requirements**

#### **Backup Plug-in System Requirements**

The recommended OS for running Backup Plug-in is Windows 2008 Server R2 (64 bit).

#### Supported OS for Hyper-V Backup:

- Microsoft Hyper-V Server 2008 R2 SP1
- Windows Server 2008 R2 Hyper-V SP1

#### Supported guest operating systems (32/64 bit) for Hyper-V Backup:

- MS Windows XP SP2
- MS Windows Vista
- MS Windows 7
- MS Windows Server 2003
- MS Windows Server 2008 R2
- Linux-based OS

#### Virtual Machine Support for Hyper-V Backup:

- All guest operating systems supported by Hyper-V
- Any application
- Any file system

#### **Used Ports:**

• TCP Port 9090

#### Supported virtualization platforms for VMware Backup:

- vSphere 5.0
- vSphere 4.0 and 4.1
- Full ESX and ESX i hypervisor support

#### Virtual machine support for VMware Backup:

- All guest operating systems supported by VMware
- Any application
- Any file system

### **Used Ports:**

• TCP Port 9090

#### Memory requirements for StarWind deduplication target

Blocksize	Targetsize	Memory requirements	Deduplication rates
4 KB	1 TB	3500 Mb	Х
8 KB	1 TB	1700 Mb	X-15%

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16 KB	1 TB	850 Mb	X-30%
32 KB	1 TB	400 Mb	X-45%



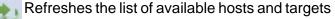
## **Getting Started**

### **StarWind Management Console Workspace Elements**

Backup Plug-in is managed from StarWind Management Console.

#### Management Console elements:

- **Console tree** serves for navigation to the Management Console items: StarWind Servers, Backup, Archives, ESX and Hyper-V servers.
- **Menu bar** is a panel on the top of the Management Console window that provides the controls (buttons) to perform the operations available in the software, namely:





Connects to the selected host

Disconnects from the selected host

- Connects a previously installed backup server to the Console. The backup server manages ESX and Hyper-V servers, storage pools, and archives.
- Removes the selected host

**Opens Backup Wizard** 

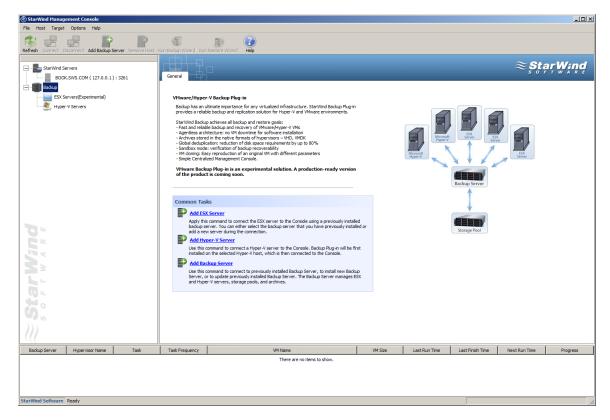
Opens Restore Wizard



Launches Backup Plug-in Help

• Main area serves for configuration of backup, restore, and other operations. The Main area changes dynamically depending on an item selected on the Console tree and provides actual information regarding current processes, states, and software capabilities.





Expand the **Backup** item on the Console tree to view its subitems.

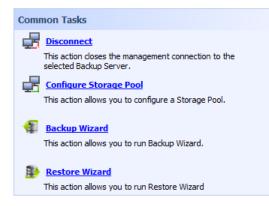
From the **Common Tasks** section, you can perform the following actions:

- Add ESX Server allows adding an ESX server to StarWind Management Console.
- Add Hyper-V Server allows adding a Hyper-V server to StarWind Management Console.
- Install New Backup Server configures a backup sever on a remote computer.
- Add Existing Backup Server connects a previously installed server to the Console.

As soon as you add a backup server it appears on the Console tree under the **Backup Servers** item.

Click a backup server to view the common tasks:





- **Disconnect** closes the management connection to a selected backup server.
- **Configure Storage Pool** Storage pool is a location where your archives are stored. You will be prompted to create a storage pool when you backup your virtual machines for the first time. The current version of Backup Plug-in allows configuring only one storage pool.
- Backup Wizard initiates backup of virtual machines.
- Restore Wizard initiates recovery of VMs from the selected archive.



## **Installation Procedure**

#### Set up StarWind Management Console with Hyper-V/VMware Backup Plug-in:

- 1. Download StarWind Backup Plug-in: <u>http://www.starwindsoftware.com/customer/</u> <u>download/starwind.exe</u>
- 2. Launch the setup file and follow the wizard's steps to install StarWind Management Console.
- 3. Click **Next** to continue.

Setup - StarWind iSCSI Se	rver 📃 🗙
	Welcome to the StarWind iSCSI Server Setup Wizard
	This will install StarWind iSCSI Server v.6.0.4765_test (build 20120827) on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	Cancel

- 4. Read and accept the terms of the License Agreement.
- 5. Click **Next** to continue.



🛞 Setup - StarWind iSCSI Server
License Agreement Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
StarWind Software
StarWind iSCSI Target StarWind Software End User License Agreement
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING
Do not use or load install this software the StarWind iSCSI Target or any associated materials (collectively refered to as, the "Software") until you have carefully read the following terms and conditions. By loading installing or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree with the terms, do not
C accept the agreement
C I do not accept the agreement
< <u>B</u> ack Next > Cancel

- 6. Read the information about the StarWind product. Click **Next** to continue.
- 7. Click Next to continue.

Setup - StarWind iSCSI Server	
Information Please read the following important information before continuing.	
When you are ready to continue with Setup, click Next.	
StarWind iSCSI SAN Version 6.0	-
New Features and Improvements	
<ul> <li>High availability:</li> <li>3-node HA configuration. Synchronous mirroring between 3 nodes of ar HA storage cluster. Such storage architectule ensures higher uptime an higher performance compared to a 2-node HA configuration.</li> <li>HA device nodes manager. You can add, remove, or switch nodes of H cluster on the running device instead of the creation of a new HA device from scratch.</li> <li>An HA device can now use other types of StarWind devices (deduplicated, thin-provisioned IBV, or DiskBridge devices) for storing data. Thus, you can apply deduplication, thin provision, snapshot technologies, etc., for the data stored on the HA device. Experimental</li> </ul>	d
< <u>B</u> ack <u>N</u> ext >	Cancel

- 8. Click **Browse** to select the installation path.
- 9. Click **Next** to continue.



Setup - StarWind iSCSI Server	_ 🗆 🗙
Select Destination Location Where should StarWind iSCSI Server be installed?	
Setup will install StarWind iSCSI Server into the following folder.	
To continue, click Next. If you would like to select a different folder, click Browse.	
C:\Program Files\StarWind Software\StarWind Browse	
At least 1.2 MB of free disk space is required.	
< <u>B</u> ack <u>N</u> ext >	Cancel

- 10. Select the **Full installation** type.
- 11. Click **Next** to continue.

Setup - StarWind iSCSI Server	
Select Components Which components should be installed?	
Select the components you want to install; clear the components install. Click Next when you are ready to continue.	you do not want to
Full installation	
StarWind iSCSI Server Service	7,0 MB
StarPort Driver (transport for Mirror devices)	0,1 MB
StarWind Management Console	88,9 MB
Current selection requires at least 110,3 MB of disk space.	
< <u>B</u> ack	Next > Cancel

- 12. Select the **Start Menu** folder.
- 13. Click **Next** to continue.



Setup - StarWind iSCSI Server	
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Setup will create the program's shortcuts in the following Start Menu folder	
To continue, click Next. If you would like to select a different folder, click Browse.	
StarWind Software\StarWind Browse	
< <u>B</u> ack <u>N</u> ext >	Cancel

- 14. Select the corresponding checkbox if you want to create a desktop icon.
- 15. Click **Next** to continue.

Setup - StarWind iSCSI Server		
Select Additional Tasks Which additional tasks should be performed	)	
Select the additional tasks you would like Se iSCSI Server, then click Next.	tup to perform while installir	ig StarWind
Additional icons:		
Create a desktop icon		
	< Back Next :	Cancel

- 16. Make sure you have specified the correct settings. Click **Back** if you need to make any changes.
- 17. Click **Install** to continue.



etup - StarWind iSCSI Server		
Ready to Install Setup is now ready to begin installing Star	Wind iSCSI Server on your computer.	<b>M</b>
Click Install to continue with the installation change any settings.	n, or click Back if you want to review or	
Destination location: C:\Program Files\StarWind Software\	StarWind	-
Setup type: Full installation		
Selected components: StarWind iSCSI Server Service StarPort Driver (transport for Mirror de StarWind Management Console	vices)	
Start Menu folder: StarWind Software\StarWind		<b>T</b>
Starvvina Soltware (Starvvina		

- 18. After the installation process is completed, you will be prompted to apply either a time-limited fully functional evaluation key, a FREE version license key, or a fully unlocked commercial license key that is supplied after the purchase of StarWind product. Select the appropriate option.
- 19. Click **Next** to continue.

Setup - StarWind iSCSI S	erver _
License key	
Get your license key	Ö
	alled StarWind you need to apply either evaluation key or FREE I license key you've got with your purchase. If you don't have st one now!
Request time-limited f	fully functional evaluation key
C Request FREE version	on key
🔿 Thank you, I do have	e a key already
	Next >

20. Select the Launch StarWind Management Console checkbox, and click Finish to close the wizard.



🛞 Setup - StarWind iSCSI Server				
Completing the StarWind iSCSI         Setup has finished installing StarWind iSCSI Server on your         computer. The application may be launched by selecting the         installed icons.         Click Finish to exit Setup.         Image: Click StarWind Management Console				
< <u>B</u> ack <u>F</u> inish				

**Note:** The Management Console of Backup Plug-in is available as a part of StarWind Management Console that can be installed on any machine within the same subnetwork.



## Licensing and Registration

#### To register StarWind Management Console:

1. Generate a license key using the following link:

http://www.starwindsoftware.com/registration-iscsi-san

- 2. Save the license file locally on your computer.
- 3. After the installation of StarWind Management Console, you will be prompted to apply either a time-limited fully functional evaluation key, a FREE version key, or a fully unlocked commercial license key that is supplied with the acquired StarWind product. Select the appropriate option during the installation process.

🛞 Setup - StarWind iSCSI Server
License key Get your license key
Now when you have installed StarWind you need to apply either evaluation key or FREE version key or commercial license key you've got with your purchase. If you don't have any key it's time to request one now!
Request time-limited fully functional evaluation key
C Request FREE version key
C Thank you, I do have a key already
Next >

4. As you launch StarWind Console for the first time, you will need to enter your license key. Click **Apply key** if you already have it.

StarWind Mana	gement Console
IF FF 00" BF 4D A3 EE D CC1	StarWind Server Activation
~	To proceed you need to apply your key. It could be either time-limited evaluation key, free version key or commercial license key you've got with your purchase. If you don't have any key it's time to request one now.
	You can request time-limited fully functional evaluation key <u>here</u> .
	You can request FREE version key <u>here</u> .
	Close Apply key

5. Click Load to navigate to your license file or enter appropriate information manually.

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6. Click OK.

StarWind License	×
C Load license from file License File:	Load
C Enter license information manually	
License ID;	
License Key:	
	<u> </u>
1	<u> </u>
ок	Cancel

**To register Backup Plug-in,** follow the registration procedure described for StarWind Management Console. You will not be able to connect to the Backup Server, if you do not register Hyper-V/VMware Backup Plug-in. The following message will appear every time you try to do so.

StarWind Management Console			
License key must be applied.			
Enter key Get free	Demo		

#### Alternative way to register your backup license:

- 1. Select a backup server on the Console tree.
- 2. Click the **Configuration** tab.
- 3. Click the **Registration** item.
- 4. Click Modify.
- 5. Click **Load** to navigate to your license file or enter appropriate information manually.
- 6. Click OK.



StarWind Management Console						- D ×
File Host Target Options Help						
Refresh Connect Disconnect Add Backup Server Remove Host	Run Backup Wizard Run Restore Wizard Help					
StarWind Servers BOOK.SWS.COM (127.0.0.1): 3251 Bodus Hyper-V Servers StarWind Servers Hyper-V Servers StarU (172.15.0.64): 3261 Staruge Pools Hyper-V servers StarU ECX servers(Experimental)	General       Configuration       Hypervisor Log         Management Console Settings       Management Interface         Management Interface       Management Interface	Registration         General Features         General Features         Servers Per License         Image: Constraint of the servers have a se	starWind Badu 15	d med Last Fruch Time	≈ Sta s o r	Modify Modify Progress
		There are no items to show.				
StarWind Software Ready						11



## **Configuration and Management**

### Adding ESX Servers

ESX servers can be added both to a new backup server and to an existing backup server. To add an ESX server to an existing backup server, you should previously install a backup server and connect it to the Management Console.

#### To add an ESX server to a new backup server:

- 1. Run ESX Server Connection Wizard:
  - Click the **Backup** item from the Console tree and select**Add ESX Server** from the **Common Tasks**.
  - Right-click the **Backup** item from the Console tree and select**Add ESX Server** from the shortcut menu.
- 2. As ESX Server Connection Wizard appears, click Next to continue.
- 3. Select connection to a new backup server.
- 4. Click **Next** to continue.

	r Connection Wizard
	ction options
Sel	ect how to connect the ESX Server
0	Connect the ESX Server to the existing Backup Server
	Use this option to connect the ESX host to the previously installed Backup Server. If there is no installed Backup Server or you need to create a new one, use the "Connect the ESX Server to a new Backup Server" option.
$\odot$	Connect the ESX Server to a new Backup Server
	Use this option to create a new Backup Server. To create a Backup Server, specify its parameters (IP address, username, and password). Then, you will need to specify connection parameters of the ESX server.
	< Back Next > Cancel Help

5. Specify IP address, user name and password of a new backup server in the corresponding text fields.

**Note:** Specify the domain in the **Username** text field in the following way: domain

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#### \username.

6. Click **Next** to continue.

ESX Server Connection	Wizard
Backup Server inst Enter parameters	allation of the remote or local computer to install Backup Server
Backup Server	Enter IP address, username and password of the remote server where Backup Server will be installed. If you need to install Backup Server to the local computer, you should enter real IP address of this computer (not 127.0.0.1). Specify the domain in the Username text field in the following way: domain\username.
Install Backup Serv	er on:
C This computer	
• A remote comp	puter
Host:	172.16.0.64
Username:	domain\username
Password:	••••••
	< <u>B</u> ack <u>N</u> ext > Cancel Help

7. Specify IP address, user name, and password of the ESX server you want to connect.

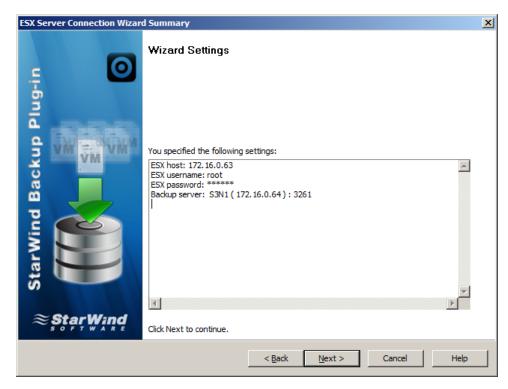
**Note:** TCP Port 9090 should be opened.

8. Click **Next** to continue.



ESX Server Connec	ction Wizard	1			
	ESX Server connection Enter parameters of the ESX Server to be connected				
ESX Server	Enter IP address, username and password of the ESX Server you want to connect.				
Host:	192.168.1.245				
Username:	root				
Password:	•••••				
	< <u>B</u> ack <u>N</u> ext > Cancel Help				

9. Check the specified settings. Click **Back** if you need to make any changes. Click **Next** to continue.



10. Click **Finish** to close the wizard.



ESX Server Connection Wizar	d	×
StarWind Backup Plug-in StarWind Backup Plug-in StarWind StarWi	Result details Details: ESX Server was added successfully Click Finish to dose ESX Server connection Wizard.	
	< <u>B</u> ack <b>Finish</b> Cancel	Help

To add ESX servers to the existing backup server:

- 1. Run ESX Server Connection Wizard:
  - Click the **Backup** item from the Console tree and select**Add ESX Server** from the **Common Tasks**.
  - Right-click the **Backup** item from the Console tree and selectAdd ESX Server from the shortcut menu.
- 2. As ESX Server Connection Wizard appears, click Next to continue.
- 3. Select connection to the existing backup server.

**Note:** You should previously install a backup server and connect it to the Management Console.

4. Click **Next** to continue.



5X Serve	er Connection Wizard			
	Connection options Select how to connect the ESX Server			
۲	Connect the ESX Server to the existing Backup Server Use this option to connect the ESX host to the previously installed Backup Server. If there is no installed Backup Server or you need to create a new one, use the "Connect the ESX Server to a new Backup Server" option.			
c	Connect the ESX Server to a new Backup Server Use this option to create a new Backup Server. To create a Backup Server, specify its parameters (IP address, username, and password). Then, you will need to specify connection parameters of the ESX server.			
	< <u>B</u> ack Next > Cancel Help			

- 5. Select a backup server for your ESX host.
- 6. Click **Next** to continue.

and the Community	
Backup Server Select an existing Backup Server	
Select a Backup Server that you will connect the Backup Server.	he ESX host to. ESX Server management will be made by the selected
IP	Name
<	

7. Specify IP address, user name, and password of the ESX server you want to connect.



## **Note:** TCP Port 9090 should be opened.

8. Click **Next** to continue.

SX Server Conne	ection Wizard
ESX Server co Enter parar	meters of the ESX Server to be connected
Host:	192. 168. 1.245
Username:	root
Password:	•••••
Enter IP addre	ess, username and password of the ESX Server you want to connect.
	c Back Neutra Concel Hale
	< Back Next > Cancel Help

9. Check the specified settings. Click **Back** if you need to make any changes. Click **Next** to continue.



ESX Server Connection Wizar	d Summary	×
- 0	Wizard Settings	
StarWind Backup Plug-in	I	
	You specified the following settings: ESX host: 192.168.1.245	]
d Bac	ESX username: root ESX password: ***** Backup server: 192.168.0.208 : 3261	
win 関		
Star		
≈ştạr₩ind	Click Next to continue.	1
	< Back Next > Cancel Help	

10. Click **Finish** to close the wizard.

ESX Server Connection Wizar	d	×
Plug-in	Result details	
StarWind Backup Plug-in	Details: ESX Server was added successfully	*
<b>≋StarWind</b>	Click Finish to close ESX Server connection Wizard.	
	< <u>Back</u> Finish Cancel	Help



## Configuring and Connecting a New Backup Server

To install Backup Plug-in:

- 1. Run Backup Plug-in Setup Wizard:
  - Click the **Backup** item from the Console tree and select **Install New Backup Server** from the **Common Tasks**.
  - Right-click the **Backup** item from the Console tree and select **Install New Backup Server** from the shortcut menu.
- 2. Backup Setup Wizard appears. Click Next to continue.
- 3. Specify IP address, user name and password of a new backup server in the corresponding text fields.

**Note:** Specify the domain in the **Username** text field in the following way: domain \username.

4. Click **Next** to continue.

ckup Pl	ug-in Setup Wizard		
	ackup Server parameters ter parameters of the new Backup Server.		
۰	Install New Backup Server or update previ Install or update Backup Server on the local or the		
0	Connect previously installed Backup Server Enter IP address of the Backup Server to be conn	er.	
	Host;		
		< Back Next >	Cancel Help



	ers of the new Backup Server.
Backup Server	Enter IP address, username and password of the remote server where Backup Server will be installed. If you need to install Backup Server to the local computer, you should enter real IP address of this computer (not 127.0.0.1). Specify the domain in the Username text field in the following way: domain\username.
Install Backup S	erver on:
C This compu	ter
• A remote c	omputer
Host:	192.168.0.208
Username:	domain \administrator
Password:	

**Note:** TCP Port 9090 should be opened.

5. Check installation settings. Click **Back** if you need to make any changes. Click **Next** to start the installation process.



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6. Click **Finish** to close the wizard.

Backup Plug-in Setup Wizard		×
p Plug-in	Installation Process Details	
StarWind Backup Plug-in	Details: Backup solution was successfully installed	4
		1
	< <u>Back</u> Finish Cancel	Help

To add an existing backup server:

- 1. Select Add Existing Backup Server from the Common Tasks list or click Add Existing Backup Server on the Menu bar.
- 2. Specify IP address of a backup server that you add in the **Add Existing Backup Server** dialog.
- 3. Click **OK**.



Backup Pl	ug-in Setup Wi	zard	×
	ackup Server p ter parameters of	arameters The new Backup Server.	
c		ackup Server or update previously installed Backup Server is Backup Server on the local or the remote computer	
۲		viously installed Backup Server. ss of the Backup Server to be connected.	
	Host:	172.16.0.64	
		< Back Next > Cancel Help	

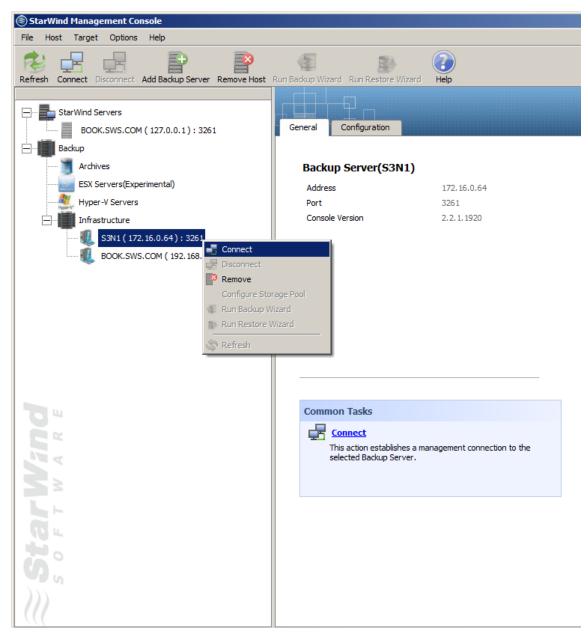
## **Note:** TCP Port 9090 should be opened.

4. On the Console tree, expand the **Backup Server** item to view the added backup server.

### To connect a backup server to the Management Console:

- 1. On the Console tree, expand the **Backup** item.
- 2. Right-click the backup server you need to connect to the Management Console.
- 3. On the shortcut menu, click **Connect** (or click Connect on the **Common Tasks** section).





4. To connect to the backup server, click **OK**.

**Note:** By default login and password are empty. It is strongly recommended to change login and password after the first connection.



Login	
20	Enter the username and password to connect to Backup Server. By default login and password are empty. It's recommended to change login and password after the first connection.
	Login:
	Password:
	Save password OK Cancel

5. After the backup server is connected you can add ESX servers and perform backup and restore operations.

#### To change login and/or password:

- 1. On the Console tree, expand the **Backup Servers** item.
- 2. Click the name of your physical server.
- 3. On the Main area, select the **Configuration** tab.
- 4. Click Management Interface in the Backup Server Settings pane.
- 5. Click **Modify** to change the default authentication parameters.
- 6. Enter a new user name. Specify and confirm a new password.
- 7. Click OK.

StarWind Management Console		_ 🗆 🗵
File Host Target Options Help		
Refresh Connect Disconnect Add Backup Server Remove Hos	e Be G	
		~ ~
		<i>≋ StarWind</i>
BOOK.SWS.COM ( 127.0.0.1 ) : 3261	General Configuration Hypervisor Log	50778482
Backup		
🕀 📑 Archives	Management Console Settings Management Interface	
ESX Servers(Experimental)		
Hyper-V Servers		Modify
Infrastructure	Advanced Settings Username Password *****	
S3N1 ( 172.16.0.64 ) : 3261		
Storage Pools	Backup Server Settings	
Hyper-V servers	Anagement	
ESX servers(Experimental)	Authentication Parameters	
BOOK.SWS.COM (192.168.0.223): 3261	Authentication	
	C observation detries declarated	
	© Use basic authentication	
	Username:	
	Password:	
	Confirm password:	
	OK Cancel	
10 M	Cancel	
3		
Backup Server Hypervisor Name Task	Task Frequency VM Name VM Size Last Run Time Last Finish Time	Next Run Time Progress
	There are no items to show.	
StarWind Software Ready		1





## **Adding Hyper-V Servers**

To add a Hyper-V server to a new backup server:

- 1. Run Backup Plug-in Setup Wizard:
  - Click the **Backup** item from the Console tree and select **Add Hyper-V Server** from the **Common Tasks**.
  - Right-click the **Backup** item from the Console tree and select **Add Hyper-V Server** from the shortcut menu.

StarWind Management Console		
File Host Target Options Help		
Refresh Connect Disconnect Add Backup Server Remove Host	Run Backup Wizard Run Restore Wizard	
StarWind Servers BOOK.SWS.COM (127.0.0.1): 3261	General General	≈stạr₩ind
Add Backup Server Add Backup Server Add Backup Server Add EXS Server Add EXS Server Add EXS Server Add EXS Server Comparison of the server Compari	Wower/Hyper-V Backup Plug-in         Bodus has an ulfimate importance for any virtualized infrastructure. StarWind Badus Pkug-in provides a relable badus and regication solution for Hyper-Y and Whware environments.         Bodus has an environment badus and retestore opait:         9: 4 and relable badus and recovery of Whware/Hyper-Wies         8: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 and relable badus and recovery of Whware/Hyper-Wies         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters         9: 4 doming: Easy reproduction of an original Wh with different parameters	Windowski       Windowski       Windowski       Windowski       Windowski         Windowski       Windowski       Windowski       Windowski         Windowski <td< th=""></td<>
Star Wind	Apply this command to connect the ESI server to the Console using a previously installed add a new server during the connection. Med <b>Ityper-V Server</b> Use this command to connect a Hyper-V server to the Console. Backup Plug-in will be first installed on the selected Hyper-V host, which is then connected to the Console. Med Backup Server Use this command to connect to previously installed Backup Server, to install new Backup Server, or to update previously installed Backup Server, The Backup Server manages ESX and Hyper-V servers, storage pools, and archives.	for Storage Pool
Backup Server Hypervisor Name Task	Task Frequency VM Name	VM Size Last Run Time Last Finish Time Next Run Time Progress
	There are no items to show.	
StarWind Software This command connects a Hyper-V server to t	he Console. The backup plug-in will be installed on the selected Hyper-V server. Then, the server will be con	nnected to the Console.

2. Backup Setup Wizard appears. Click Next to continue.

3. Specify IP address, user name and password of a Hyper-V server in the corresponding text fields.

**Note:** Specify the domain in the **Username** text field in the following way: domain \username.

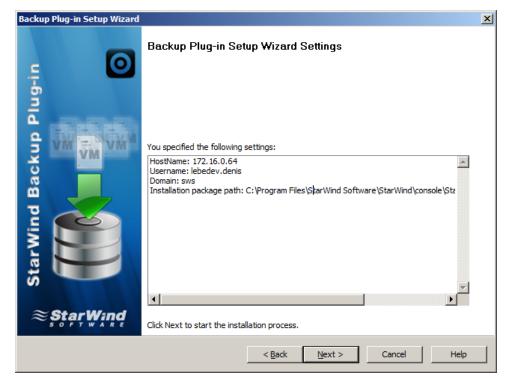
4. Click **Next** to continue.



	onnection Wizard
	Server parameters neters of the new Hyper-V Server.
Backup Serv	Enter parameters of the Hyper-V Server to be connected. Specify the domain in the Username field in the following way: domain\username. If Hyper-V Server you want to connect is installed on this computer, you should enter real IP address of this computer (not 127.0.0.1).
Host:	172.16.0.64
Username:	domain\username
Password:	•••••
	< Back Next > Cancel Help

**Note:** TCP Port 9090 should be opened.

5. Check installation settings. Click **Back** to make any changes. Click **Next** to start the installation process.





6. Click **Finish** to close the wizard.

Backup Plug-in Setup Wizard		×
o Plug-in	Installation Process Details	
StarWind Backup Plug-in	Details: Backup solution was successfully installed Click Finish to dose Backup Plug-in Setup Wizard.	*
	< <u>B</u> ack <b>Finish</b> Cancel	Help



## **Creating a Storage Pool**

A storage pool is used to store VM archives. The storage pool location and parameters are set at the stage of creation. Later, when you initiate the backup process it will be necessary only to select the created storage pool. The system will set all backup parameters automatically.

**Note:** The current version of Backup Plug-in allows for creation of one storage pool per a backup server.

**Note:** Backup Plug-in stores VM archives in the hypervisor original file format (VMDK for VMware and VHD for Hyper-V). Thus you can work with your archives using any third-party software that supports VMDK or VHD. Moreover, you can immediately restore Hyper-V virtual machines right from the archive.

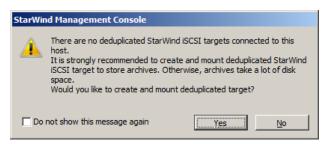
#### To create a storage pool:

1. You will be prompted to create a storage pool when you try to back up your VMs for the first time. Click **Yes** to launch the **Storage Pool Wizard**.



Alternatively, right-click the backup server, and select Configure Storage Pool.

2. If there is no StarWind target connected, the program shows the warning message. The message will recommend to create a deduplicated StarWind target, connect it to the backup server, and use it as a location for the storage pool.



**Note:** It is strongly recommended to store archives on Deduplicated StarWind target as it allows saving up to 80% of disk space. You can store archives on any other (undeduplicated) volume but in this case they will occupy much more disk space.

**Note:** Click the link to view how to <u>create and connect StarWind target</u> 2.

3. Storage Pool Wizard appears. Click Next to continue.

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- 4. Specify the name and location of your pool in the corresponding text fields.
- **Note:** If you have previously created Deduplicated StarWind target, it is recommended to define it as a location for your storage pool. In this case, all VM archives will be automatically deduplicated before they are written to the storage pool. That will let you save up to 80% of disk space.

#### 5. Click **Next** to continue.

	ame and select the volume where it arWind volume that was created b		ommended to create a storage
Storage pool name:	Storage Pool		
Description:			
Storage pool location:			
Volume	Capacity	Free	Type
D:\	833	588	Local
C:\	97	66	Local
Show all volumes			
Specify location manually	v.		

- 6. Specify the maximum number of stored archives per a VM in the corresponding text field.
- 7. Click **Next** to continue.



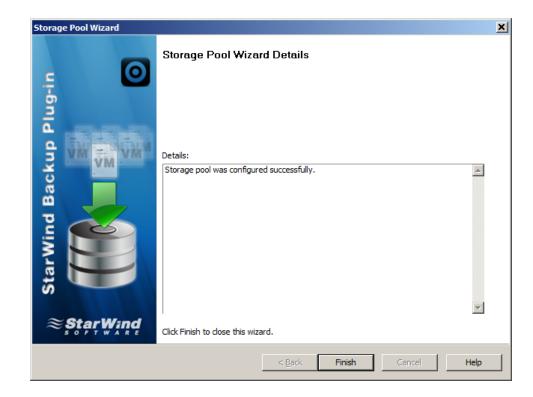
Storage Pool Wizard	×
Storage Pool common parameters Define the dean-up policy for a storage pool.	0
Storage Pool Policy Maximum number of stored archives per VM:	
This policy can be applied to the periodically created archives only. The oldest archives will be automatically deleted after exceeding the maximum number of stored archives. This policy cannot be applied to archives that are created using the "once" option.	
< Back Next > Cancel	Help

8. Make sure you have specified the correct settings. Click **Back** if you need to make any changes. Click **Next** to continue.

Storage Pool Wizard		×
<u> </u>	Storage Pool Wizard Settings	
StarWind Backup Plug-in	You specified the following settings:          Name: StoragePool         Location:         Number of archives: 7         Description:         I         Click Next to add the Storage Pool.	
	< <u>B</u> ack <u>N</u> ext > Cancel	Help

9. Click **Finish** to close the wizard.







## **Creating and Connecting a StarWind Target**

**Note:** StarWind target requires preliminary installation and launch of a StarWind server on the network.

#### To create a StarWind target:

1. The following message appears as you start creation of a storage pool. Click

Yes to confirm creation of a deduplicated StarWind target. Add Device Wizard opens.

StarWin	nd Management Console	
À	There are no deduplicated StarWind iSC host. It is strongly recommended to create an iSCSI target to store archives. Otherwis space. Would you like to create and mount ded	d mount deduplicated StarWind e, archives take a lot of disk
☐ Do	not show this message again	Yes <u>N</u> o

**Note:** You can also run the wizard by selecting one of the existing storage pools in the Main area and clicking **Add Deduplication Target** from the shortcut menu.

- 2. Specify the required parameters of the previously installed StarWind server.
- 3. Click **Next** to continue.

Add Device Wizard		×
Server Parameters Specify server para	neters.	0
Enter IP address, us was defined for the	ername and password of the installed StarWind server. Specify the authen StarWind Server. If you haven't installed the StarWind Server before, do th	tication type that his now.
Host:	192.168.0.247 Port:	3261
Authentication:	Basic	
Username:	root	
Password:	••••••	
	< <u>B</u> ack <u>N</u> ext > Ca	ncel Help



- 4. Specify the storage pool parameters, and read the information.
- 5. Click **Next** to continue.

Add Device Wizard	×
Creation of a deduplicated storage pool Enter the storage pool parameters.	$\bigcirc$
Storage pool size: 1 TB Specify the location and name of the file where the storag deduplication block size. Deduplication block size defines the	e compression ratio and RAM requirements of the StarWind es better compression efficiency but requires more memory. A it has lower RAM requirements. age pool vary depending on Deduplication block size:
	< <u>B</u> ack <u>N</u> ext > Cancel Help

6. Check the specified setting and click **Back** to make any changes. Click **Next** to continue.

Add Device Wizard		×
	Add Device Wizard	
Plug-in	The following device will be added: DDDiskEx1	
Backup I MA	You specified the following settings: Storage path : My Computer\D\dd\ddd.spdata Deduplication block size : 8K Storage size in MB : 102400 Metadata path : Metadata\D\dd\ddd.spmetadata	<u>_</u>
Starwind I	Cache metadata : Yes Create replica : No Device Cache mode : wb Device Cache size : 3000	
o ≋ştar₩ind	Click Next to add new device.	×
		Help



7. Click **Finish** to close the wizard.

Add Device Wizard		×
	Add Device Wizard	
Plug-ir	The following device was created: DDDiskEx1	
tarWind Backup Plug-in	Target name:  iqn.2008-08.com.starwindsoftware:192.16þ.0.247-target1	A
≋StarWind	To close this wizard click Finish.	Y
	< <u>B</u> ack <b>Finish</b> Cancel	Help



## **Backup of Virtual Machine(s)**

### **Backup Overview**

StarWind provides flexible backup engine that allows you to set up backup policy according to your individual needs.

StarWind performs two types of backup:

- Basic backup
- Incremental backup

**Basic backup** is the starting point for incremental backup. It stores all data of VMs that are selected to be backed up. Since Basic backup stores all VM information, frequent Basic backups result in faster and simpler restore operations.

**Incremental backup** stores all files changed since the last basic or incremental backup. The advantage of this backup type is that it takes less time to complete as well as occupies considerably less space. However, the restore process is more lengthy than that of the basic archives.

Backup system is "equipped" with backup scheduler that allows to set up single or periodical backup procedures based on your requirements. You can define the exact time when backup operation should begin, and perform backup operation:

- Once
- Daily
- Weekly
- Custom (set up periodicity of backup operations at any time interval)



### Performing a Backup

You can perform backup of a single virtual machine, as well as to back up several VMs simultaneously.

To make a backup, you should specify the following information in the Backup Wizard: virtual machines, a storage pool where backup files will be stored, and backup policy.

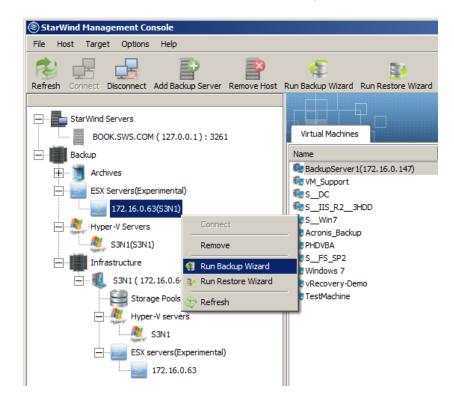
#### To perform a backup:

- 1. Launch the Backup Wizard, using one of the following ways:
- Click the

Run Backup Wizard

button from the Management Console toolbar.

- Click the Backup Wizard item in the **Common Tasks** section of StarWind Management Console (when the connected server is selected)
- Right-click the connected server and select Run Backup Wizard



• Right-click the needed virtual machine and back up it individually.

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Virtual	Machines	Hypervise	or Log		
Name			State	OS Version	
🖢 win_2	2008R2		Offline		
🖢 Wind	ows7x86		Offline		
VM V	Nin7		Online		
le VI	Back up VN	1	Online		
<u>مر ط</u>	Restore VIV	l .	Offling		
VM_	Action •				
Are	Clone		erties		
reati	Remove VN	٨	Name		Туре
	Remote de	sktop			
Arch 😂	Refresh				

- 2. As **Backup Wizard** opens, click **Next** to continue.
- 3. Select one or several virtual machines that you need to backup.

elect one or severa	l virtual machines for b	Hypervisor Name	Backup Server	State
VM DC 2008		192, 168, 1, 245	192, 168, 0, 208	Online
Windows7x86		192, 168, 1, 245	192, 168, 0, 208	Offlin
Windows7x00	ESX	192, 168, 1, 245	192, 168, 0, 208	Offlin
VM Win7	ESX	192, 168, 1, 245	192, 168, 0, 208	Online
win_2008R2	ESX	192, 168, 1, 245	192, 168, 0, 208	Offlin
Win2008	ESX	192, 168, 1, 245	192, 168, 0, 208	Offlin
VM_FS_Win20		192, 168, 1, 245	192, 168, 0, 208	Online
e: You can perform		only for VMs managed from	m the same Backup Server.	

4. Select the storage pool that will store virtual machine archives.



kup Wizard		
ommon Backup Para Select the storage p		$\odot$
Select the storage po	ool where archives will be stored	
Name	Path	Max Number of Stored Archives
StoragePool	E:\StoragePoolRoot	7
Select a storage pool v according to the define		periodically created archives will be regularly deleted

### 5. Specify backup frequency and time interval.

Description
Implies a single backup operation.
Performs backup every day at the specified time.
Performs backup once a week at the specified time
You can specify backup periodicity with any time interval.



mmon Backup Parameters Define the backup schedule.	
Backup Frequency	Archive Type
C Once C Daily	C Basic
C Weekly	
Run every 0 int hours 30 int minutes	
Specify the backup frequency and backup type. If you select the Ba full VM data. If you use the Incremental option, then the first archive only the data that changed from the moment of the previous backup For ESX virtual machines, incremental archives are created at once. and then it is converted into the incremental archive. That results in archive that is, however, compensated by the reduced archive size.	e will be full, and the following archives will save operation. For Hyper-V VMs, first the full archive is created

6. Specify type of archive.

<b>Archive type</b>	Description
Basic	Basic backup is the starting point for incremental backup. It stores all the data of VMs that are selected to be backed up. Since basic backup stores all VM information, frequent basic backups result in faster and simpler restore operations.
Incremental	Incremental backup stores all files changed since the last basic or incremental backup. The advantage of this backup type is that it takes less time to complete. However, the restore process is more lengthy that that of the basic archives.

- 7. Click **Next** to continue.
- 8. Specify the time when backup should be started.

Backuptime	Description
RunNow	Starts the backup operation immediately
Run Backup at	Allows to specify the exact time when backup operation should start.



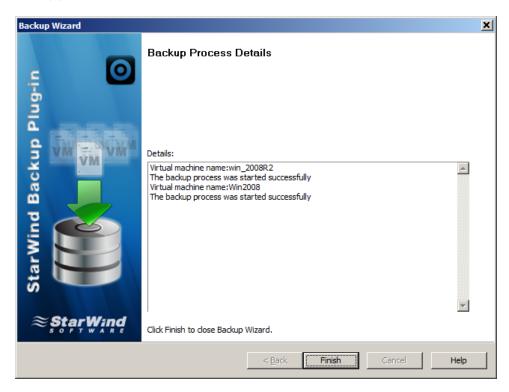
Backup Wizard	X
Common Backup Parameters Specify the backup time.	
Please, specify when the backup task is to be run    Run Now   Run Backup at	
Description:	
Autotest the archive after the backup (not supported for ESX)	
Specify the time when the backup task will start. To perform an autotest of the backup immediately after its creation, select the Autotest the archive after the backup checkbox. In this case, after the backup task is completed, a VM will be restored to an isolated environment, launched, and verified for OS recoverability. Then, the system will shut down the test VM, delete it, and generate a report.	
< <u>B</u> ack <u>N</u> ext > Cancel Help	

- 9. Select the **Autotest the archive after the backup** checkbox to perform an autotest of the backup immediately after its creation. In this case, after the backup task is completed, a VM will be restored to an isolated environment, launched, and verified for OS recoverability. Then, the system will shut down the test VM, delete it, and generate a report.
- 10. Click **Next** to continue.
- 11. In the **Backup Wizard Settings** window, view the details of the backup operation, and click **Next**.





12. Click **Finish** to complete the Wizard and perform backup of the selected virtual machine(s).



13. As soon as you start the backup process, the progress line appears in the bottom section of the Management Console.

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## **Note:** You can stop the backup process at any time.

Backup Server	Hypervisor Name	Task	Task Frequency	VM Name	VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
192.168.0.247	MAX	Backup(Base)	Periodical	L_DC	15,0 GB	28-08-2012 13:21	28-08-2012 13:20	28-08-2012 14:41	3 %
192.168.0.247	MAX	Backup(Increment)	Periodical	Win2008x86	15,0 GB	28-08-2012 12:43	28-08-2012 12:05	28-08-2012 13:53	28 %
192.168.0.247	MAX	Restore	Once	Windows7_x86	15,0 GB	28-08-2012 13:22	-		1 %
								Stop Process	
								🔄 Refresh	
arWind Software	Stop Process								

#### To stop a backup operation:

- 1. Select the backup progress line, and right-click it.
- 2. Click **Stop Process** from the shortcut menu.



## **Restore of Hyper-V/VMware Virtual Machines**

### **Restoring an Original Virtual Machine**

#### To restore the selected virtual machine:

- 1. On the **Virtual Machines** tab, select a VM that you need to restore. All archives of this VM appear below, on the **Archives** tab.
- 2. Right-click an archive with the VM you need to restore.
- 3. From the shortcut menu, select **Restore Original VM**.

StarWind Manage	ment Console												_ 🗆 ×
File Host Target	Options Help												
Refresh Connect Di	sconnect Add Backup S	Server Remove Host	ری Run Backup Wizard Run Re	store Wizard	() Help								
												$\sim$	Stor Mand
E StarWind Se					_							$\approx$	StạrWind
a la seconda de la se	SWS.COM ( 127.0.0.1 ]	): 3261		lypervisor Log									
Backup			Name		State Online	OS Version Windows 7 Ent	Size 15.0 GB	IP 192,168.0,214	Mem 512				
🗄 🗾 Archive	25		L_Win_7(15 Gb)		Online	Windows 7 Ent	15.0 GB	192.168.0.214	512				
ESX Se	rvers(Experimental)		€L_DC		Online	Windows Serve	15.0 GB	192.168.0.166	512				
	72.16.0.63(S3N1)		🔩 Win2008R2not domain		Online	Windows Serve	15.0 GB	192.168.0.142	512				
Hyper-	V Servers		🔩 Win2008x86		Online	Windows Serve		192.168.0.208	512				
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IAX(MAX.SWS.COM)		Новая Виртуальная М @ L_Serv	лашина 2	Offine Online	Windows Serve	0.0 GB 15.0 GB	192.168.0.169	0 512				
Hoter's'	ructure		Ginux-SentOS		Offine		0.0 GB		0				
			Win2008R23HDD		Online	Windows Serve	50.0 GB	192.168.0.199	512				
	53N1 (172.16.0.64):3		🧠 新しい仮想マシン		Offline		0.0 GB		0				
i ⊡-¶. !	MAX.SWS.COM ( 192.16	58.0.247): 3261											
	Storage Pools												
ė (	📒 Hyper-V servers		[ Windows7_x86 ]										
	AT MAX		Archives Virtual Mach	ine Properties									
	ESX servers(Experi	mental)	Creation Time		Name	Тур	2	VM Name		OS	Size	IP	Description
			27-08-2012 22:11:	40	BaseImage_1	VHD	image	Windows7 v86		Windows 7 Enterprise	6 11,0 GB	192.168.0.214	
			3 28-08-2012 02:31:		BaseImage_2	VHD	inag	Lestore Original VM		Windows 7 Enterprise		192.168.0.214	
A A			3 28-08-2012 07:34:	43	BaseImage_3	VHD	11102	aunch VM from Archive		Windows 7 Enterprise	6 11,0 GB	192.168.0.214	
								lestore in Sandbox					
Star Wind			Archive Properties				_	est Archive	_ [				
- F-			Name:		BaseImage_		R	temove Archive					×
and the			File path:			ı olRoot\Windows7_x8	<10- ST R	lefresh	_	=4-CA8E088675D9.xml			
			Creation time:		27-08-2012					4-CAGI 00007303.XIII			
10			Last write time:		27-08-2012								
			Size in MB:		12284	LOTIONE							
			Type:		VHD image								
111			Description:										_
													•
Backup Server	Hypervisor Name	Task	Task Frequency		VM	Name		VM Size	1	Last Run Time	Last Finish Tin	ne Next Run Tir	ne Progress
192.168.0.247	MAX	Backup(Base)	Periodical		L.	DC		15,0 GB		28-08-2012 11:45	28-08-2012 11	:44 28-08-2012 1	3:05 55 %
192.168.0.247	MAX	Backup(Increment)	Periodical			008x86		15,0 GB		28-08-2012 12:43	28-08-2012 12		
192.168.0.247	MAX	Backup(Increment)	Periodical		Win2008F	R23HDD		50,0 GB		28-08-2012 11:10	28-08-2012 09	:57 28-08-2012 1	2:20 96 %
1													
CL 105 1 C D									_				
StarWind Software	Restore machine from the	ne current image											11.

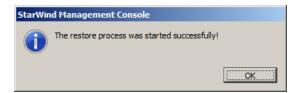
- 4. Click **Start virtual machine after restore** to launch a VM immediately after the restore operation is completed.
- 5. Click **Yes** in the confirmation message box to confirm the restore request.

**Note:** The data restore from earlier backup version results in loss of data saved after this version.



StarWin	nd Management Console	
	Are you sure you want to restore the selected virtual machine?	
	Virtual machine to restore: Win2008x64 Archive name: BaseImage_0 Archive creation time: 18-06-2012 11:16:48	
🔽 Sta	rt virtual machine after restore Yes <u>No</u>	
	arning! Restoring data from this backup version will result in loss of ata saved after this version.	

6. Click **OK** to continue.



7. The restore progress line appears in the bottom part of StarWind Management Console.

#### To stop the restore process:

- 1. Right-click the restore progress line.
- 2. Click **Stop Process** from the shortcut menu.

	-								
Backup Server	Hypervisor Name	Task	Task Frequency	VM Name	VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
192.168.0.247	MAX	Backup(Base)	Periodical	L_DC	15,0 GB	28-08-2012 13:21	28-08-2012 13:20	28-08-2012 14:41	3 %
192.168.0.247	MAX	Backup(Increment)	Periodical	Win2008x86	15,0 GB	28-08-2012 12:43	28-08-2012 12:05	28-08-2012 13:53	28 %
192.168.0.247	MAX	Restore	Once	Windows7_x86	15,0 GB	28-08-2012 13:22	-		1 %
								Stop Process	
								Sec	
								🔄 Refresh	
starWind Software	Stop Process								
									1777



### **Restoring a VM with the Restore Wizard**

#### To restore a virtual machine using the Restore Wizard:

1. Launch the **Restore Wizard** by one of the following ways:

Similarly to <u>using the Backup Wizard</u> you can launch the Restore Wizard by one of the following ways:

Click the

button from the Management Console toolbar.

- Click the **Restore Wizard** item on the **Common Tasks** section of StarWind Management Console (when the connected server is selected)
- Right-click a connected server and select Run Restore Wizard



ile Host Target Options Help	
resh Connect Disconnect Add Backup Server Remove Ho	ost_Run Backup Wizard Run Restore Wizard Help
StarWind Servers BOOK.SWS.COM (127.0.0.1): 3261 Backup Comparison of the servers ESX Servers(Experimental) Figure ESX Servers(Experimental) Figure ESX Servers Figure Archives ESX Servers(Experimental) Figure ESX Servers MAX(MAX.SWS.COM) Figure Infrastructure SIN1 (172.16.0.64): 3261 MAX.SWS.COM (192.168.0.247): 3261	General       Configuration       Hypervisor Log         Backup Server(MAX.SWS.COM)       Console Version       2.2.1.1920         Backup Server Version       2.2.1.1924         Common Version       2.2.1.1775         License Type       StarWind Backup Plug-in         Servers Per License       4
Storage Pools	Connect Disconnect Remove Configure Storage Pool Run Backup Wizard Run Restore Wizard Refresh
SOFTWAR	<ul> <li>Disconnect         This action doses the management connection to the selected Backup Server.     </li> <li>Configure Storage Pool         This action allows you to configure a Storage Pool.     </li> <li>Backup Wizard         This action allows you to run Backup Wizard.     </li> <li>Restore Wizard         This action allows you to run Restore Wizard     </li> </ul>

- 2. In the **Restore Wizard** window, click **Next** to continue.
- 3. Select a VM that you need to restore from the list of VMs. Click the scroll arrows to view all virtual machines connected to the selected server.
- 4. Click **Next** to proceed.

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lect the virtual machine to l	be restored -			
Name	Туре	Hypervisor Name	Backup Server	State
Windows7_x86	Hyper-V	MAX	192.168.0.247	Offline
Win2008R2not domain	Hyper-V	MAX	192.168.0.247	Online
LWin_2008_rus_original	Hyper-V	MAX	192.168.0.247	Offline
Win2008x64	Hyper-V	MAX	192.168.0.247	Online
L_Win_7(15 Gb)(3)(done)	Hyper-V	MAX	192.168.0.247	Offline
TNECLTSAV01	Hyper-V	MAX	192.168.0.247	Offline
L_Win_7(15 Gb)(2)	Hyper-V	MAX	192.168.0.247	Online
WinX64	Hyper-V	MAX	192.168.0.247	Offline
Win2008R2	Hyper-V	MAX	192.168.0.247	Offline
Win2008x86	Hyper-V	MAX	192.168.0.247	Offline
vRecovery	Hyper-V	MAX	192.168.0.247	Online
L_Win_7(15 Gb)	Hyper-V	MAX	192.168.0.247	Online
Новая Виртуальная М	Hyper-V	MAX	192.168.0.247	Offline
Ginux-SentOS	Hyper-V	MAX	192.168.0.247	Offline

**Note:** Any virtual machine can be restored from any other VM archive, if needed. However, it is not recommended since a VM may be restored with incorrect settings.

- 5. To view all VM archives, select the **Show archives of other virtual machines** checkbox.
- 6. Click **Next** to continue.



tore Wizard								×
Common Restore Para Select a VM archive	ameters						0	
Creation Time	Name BaseImage_0	Type VHD image	VM Name Win2008x64	OS Windows S	Size 15,0	IP	Description	
Show archives of ot	ner virtual machine	25						
		1.			-			
Select an archive of the archive of another VM,					for reco	very. You can	select an	
					for reco	very. You can	select an	

7. Define parameters of the VM that will be applied after its restore.

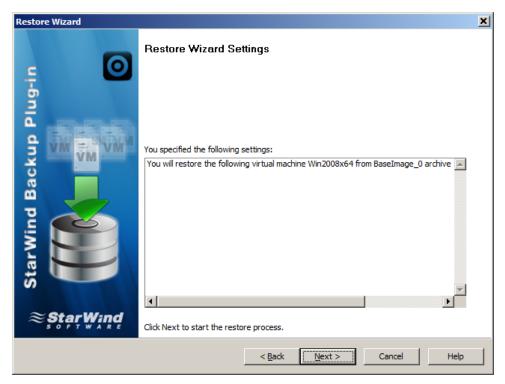
**Note:** These restore parameters can be applied to Hyper-V VMs only. Restore Wizard of ESX virtual machines doesn't provide such options.

8. Click **Next** to continue.



store W	ïzard
	ecify the restore parameters
Define	e the VM parameters (GUID, IP, MAC) that will be applied to a VM after restore.
•	Leave the existing VM parameters After restore, you can preserve the selected VM parameters (IP address, MAC address, VM name, and so on) if they changed since the moment of archive creation.
0	Get VM parameters from an archive and apply them after restore It is possible to get the original parameters from an archive in order to recover the exact VM parameters at the moment of archive creation.
0	Generate new VM parameters You can also generate new parameters in order to create a unique VM.
	< <u>B</u> ack Next > Cancel Help

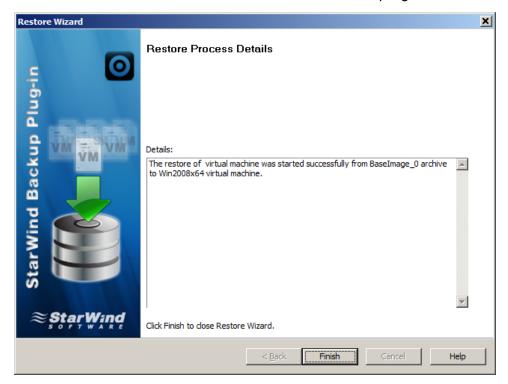
- 9. Make sure the restore settings have been specified correctly.
- 10. Click **Next** to continue.



11. In the **Details** area, check the restore process details.



12. Click **Finish** to complete the **Restore Wizard**. The progress line appears at the bottom section of the Console and shows how restore progresses.



#### To stop the restore process:

- 1. Right-click the restore progress line that you need.
- 2. Click **Stop process** from the shortcut menu.



## **Hyper-V Specific Restore**

The Backup Plug-in provides additional options for restore of Hyper-V virtual machines.

#### To restore VMs stored in Hyper-V native VHD format you can also use:

1. Manual restore of individual files and folders from an archive.

Enables simple restore process of separated files and folders. You need just attach an archive to a VM as a new volume and copy the files you need.

2. Rapid restore of VMs from an archive.

Allows quick launch of a VM directly from an archive.

3. Restore of VMs in Sandbox.

Restores VMs to an emulated environment for testing and verification.



## Manual Restore of Individual Files and Folders

**Note:** The individual file restore option is available for archives stored in VHD format only.

**Note:** You can attach a VHD archive of the selected machine or any other archive that contains files that you need to restore.

You need to launch Disk Management inside of a virtual machine that will keep the restored files.

#### To copy individual files for restore:

- 1. Share the folder where archives are stored to make it available on the network.
- 2. Using **Remote Desktop** open virtual machine where the restored files will be located.
- 3. Launch Disk Manager. The Server Manager window is opened.

**Note:** To launch Disk Manager: click **Start**, then click **Run**, type **compmgmt.msc**, and click **OK**.

Bite       Action       Yew       Help         Image: Server Manager (S2M7)       Image: Server (S2M7)       Image: Server (S2M7)	
Server Manager (S2N7)     Disk Management     Volume List + Graphical Vew     Actions       Image: Server Banager (S2N7)     Disk Management     Volume List + Graphical Vew     Actions       Image: Server Banager (S2N7)     Volume List + Graphical Vew     Capacity: F     Disk Management       Image: Server Banager (S2N7)     Single Bask: NTF5     Healthy (Stock, Page File, Grash Dump, Primary Partition)     Single Bask: NTF5     Healthy (Primary Partition)     Single Bask: NTF5     Healthy (Primary Partition)     279,46 GB     Image: Single Bask: NTF5     Healthy (Primary Partition)     279,46 GB     Image: Single Bask: NTF5     Healthy (Single Cash)     279,46 GB     Image: Single Bask: NTF5     Image: Netther Single Bask: NTF5     Healthy (Single Cash)     279,46 GB     Image: Single Bask: NTF5     Image: Netther Single Bask: NTF5     Healthy (Single Cash)     279,46 GB     Image: Single Bask: NTF5     Image: Netther Single Bask: NTF5     Image: Netther Single Bask: NTF5     Image: Netther Single Bask: NTF5     Net Single Bask: NTF5     Image: Netther Single Bask: NTF5     Image: Netther Single Bask: NTF5     Net Single Bask: NTF5     N	
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	_

4. Right-click **Disk Management** in the Console tree and click **Attach VHD** from the shortcut menu.

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File Action Vi	ew Help	
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Server Manage     Roles     Diagnostics     Diagnostics     Storage     Window	er (52N7)	Disk Management

5. Select a VHD-file that you need to restore.

Attach Virtual Hard Disk	×
Specify the virtual hard disk location on the computer.	
Location:	
E:\StoragePoolRoot\LWin_2008 - 4\BaseImage_0\Di	Browse
Read-only.	
ОК	Cancel

- 6. Right-click the VHD icon and click **Online** from the shortcut menu (if needed).
- 7. Using the VHD shortcut menu, assign a letter to it (if needed).
- 8. Copy the files you need from the new volume.



Server Manager									
File Action View Help									
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Server Manager (S2N7)	Disk Management	: Volume List	+ Graphical Viev	N				1	Actions
Roles     Reles     Reles     Reles	Volume	Layout Typ	e File System	Status			Capacity F		Disk Management -
E im Diagnostics	(C:)		ic NTFS	Healthy (Boot, Page File,		np, Primary Partition)		Г	More Actions
🗉 👬 Configuration	(G:)		ic NTFS	Healthy (Active, Primary P			60,00 GB 5	L	
🖃 🚰 Storage	New Volume (D:)			Healthy (Primary Partition Healthy (Primary Partition			877,80 GB 1 279,46 GB 2	L	
Windows Server Backup Disk Management	System Reserved			Healthy (System, Active,		artition)	84 MB 5	L	
	۲ ا Basic ا Basic ا	New Yolume	: (E:)						
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	Basic 931,51 GB Online	System R 84 MB NTF5 Healthy (Sy	16 MB 53,61 Unallo Health	GB NTF5 y (Boot, Page File, Crash [	877,80	olume (D:) GB NTFS (Primary Partition)			
	Basic 60,00 GB Online	(G:) 60,00 GB NTF Healthy (Activ	5 re, Primary Partit	tion)		Open Explore Mark Partition as A Change Drive Lette			-
	Unailocated	Primary pa	tition			Format Extend Volume Shrink Volume Add Mirror Delete Volume			
						Properties			
						Help			

9. Right-click the VHD icon, and select **Detach VHD** from the shortcut menu.



### **Restore of VMs from an Archive**

**Note:** Restore of a selected VM directly from an archive is available for VHD format only. **To restore VMs directly from an archive:** 

- 1. Go to the **Storage Pools** item on the Console Tree and select the needed storage pool.
- 2. Right-click the archive, containing the needed VM and select Launch VM from Archive.

StarWind Manage	ment Console											_
e Host Target	Options Help											
	connect Add Backup		Cun Backup Wizard Run F	Restore Wizard He								
StarWind Ser	vers SWS.COM ( 127.0.0.1	): 3261	Storage Pools								≋ઙૢૢ	'n <b>ŗ</b> ₩'n
-			Name	Path	Used Space	Free Space	State	Max Num	er of Stored Archive	(per a VM) Des	cription	
∃ IIII Backup ⊞ III Archives			storage	I:\StoragePoolRoot	165 GB	850 GB	active	4				
~												
T	vers(Experimental)											
	72.16.0.63(S3N1)											
😑 🌉 Hyper-I	/ Servers		Archives									
🥂 м	AX(MAX.SWS.COM)		Name	Hypervisor Nam	e Creation Time		Туре	VM Name	OS	Size	IP	Description
Infrast	ructure		BaseImage_7		28-08-2012 13:21:31		VHD image			15,0 GB		
	3N1 (172.16.0.64) :	3261	BaseImage_1		28-08-2012 12:43:30		VHD image			15,0 GB		
			BaseImage_2		28-08-2012 10:56:05		VHD image			15,0 GB		
	IAX.SWS.COM ( 192.1	68.0.247): 3261	BaseImage_4		28-08-2012 12:09:43		VHD image			15,0 GB		
	Storage Pools		BaseImage_1	MAX	27-08-2012 22:11:40		VHD image	Windows	7_x86 Windov	s 7 Enterpri 11,0 GB	192.168.0.214	
ė 🧸	其 Hyper-V servers		BaseImage_2	MAX	28-08-2012 02:31:08		VHD image	Windows?	7_x86 Windov	s 7 Enterpri 11,0 GB	192.168.0.214	
	A MAX		🧊 BaseImage_3	MAX	Destana Original VM		VHD image	Windows		s 7 Enterpri 11,0 GB		
	ESX servers(Exper	imentall	🖃 🗂 BaseImage_0	MAX	Restore Original VM Launch VM from Archive		VHD image	Win2008F		s Server 20 15,0 GB	192.168.0.199	
	a cox servers(cxper	mentaly	- 👸 IncrementalIn		Restore in Sandbox	-	VHD image	Win2008F	_	s Server 20 15,0 GB	192.168.0.199	
			IncrementalIn		Test Archive	-	VHD image	Win2008F		s Server 20 15,0 GB	192.168.0.199	
			BaseImage_0	MAX	rescarchive		VHD image	L_Win_7(		s 7 Enterpri 15,0 GB	192.168.0.141	
SOFTWAR			BaseImage_1	MAX	Remove Archive		VHD image	L_Win_7(		s 7 Enterpri 15,0 GB	192.168.0.141	
			BaseImage_0	MAX	Refresh		VHD image	Win2008		s Server (R) 15,0 GB s Server (R) 15,0 GB	192.168.0.208 192.168.0.208	
			Incrementalin		28-08-2012 12:43:12		VHD image VHD image	Win2008> Win2008>		s Server (R) 15,0 GB s Server (R) 15,0 GB	192.168.0.208	
			BaseImage_0	MAX	27-08-2012 12:40:11		VHD image	L_Serv		s Server 20 15,0 GB	192.168.0.169	
			IncrementalIn		28-08-2012 10:52:54		VHD image	L_Serv		s Server 20 15,0 GB	192.168.0.169	
- I			IncrementalIn		28-08-2012 12:40:14		VHD image	L_Serv		s Server 20 15,0 GB	192.168.0.169	
			BaseImage_3	MAX	28-08-2012 01:38:57		VHD image	L_DC		s Server 20 8,0 GB	169.254.232.78	
			BaseImage_4	MAX	28-08-2012 05:46:00		VHD image	L_DC		s Server 20 8,0 GB	169.254.232.78	
			BaseImage_5	MAX	28-08-2012 10:09:53		VHD image	L_DC	Window	s Server 20 8,0 GB	169.254.232.78	
			BaseImage_6	MAX	28-08-2012 11:45:45		VHD image	L_DC	Window	s Server 20 8,0 GB	169.254.232.78	
)												
(			· · ·									
ckup Server	Hypervisor Name	Task	Task Frequency		VM Name			VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
2.168.0.247	MAX	Backup(Base)	Periodical		L_DC			15,0 GB	28-08-2012 13:21	28-08-2012 13:20		9 %
2.168.0.247	MAX	Backup(Increment)	Periodical		Win2008x86			15,0 GB	28-08-2012 12:43			35 %
2.168.0.247	MAX	Restore	Once		Windows7_x86			15,0 GB	28-08-2012 13:22		-	11 %
												_
	aunch VM from Archive											

3. Read the warning and select the checkbox, if you agree to run the VM from the archive. Click **Yes** to continue.

**Note:** Running a VM directly from an archive leads to loss of data integrity. If the archive contains increments, they will be lost.

Use this feature only in case of emergency. Otherwise, choose **Restore Original VM** or **Restore in Sandbox** options.

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StarWin	d Management Console
$\bigcirc$	Are you sure you want to run the selected machine from current archive?
	Virtual machine to restore: L_Win_7(15 Gb)(2) Archive name: BaseImage_0 Archive creation time: 19-06-2012 14:51:59
🔽 I ag	ree to run a VM from the selected archive Yes No
If Us	arning! Running a VM directly from an archive will lead to the loss of its data integrity. this archive stores increments, they all will be lost. e this feature for an urgent VM launch only. Otherwise use Restore Original VM or istore in Sandbox features.

4. Click **OK** to continue.

StarWin	d Management Console	
1	The restore process was started successfully!	
		OK

5. The needed VM appears in the Hyper-V Manager window.

Hyper-¥ Manager								
File Action View Window H	telp							
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Hyper-V Manager	Virtual Machines							Ξ
	Name 🔺	State	CPU Usage	Assigned Memory	Memory Demand	Memory Status	Uptime	
	Ginux-SentOS	Off						
		Off						
	📔 LWin_2008_rus_original	Off						
	📔 L_Win_7(15 Gb)	Running	0%	512 MB			05:07:09	
		Running	0%	512 MB			04:55:54	
	L_Win_7(15 Gb)(2)(sandbox, L_Win_7(15 Gb)(2)\BaseImage_0)	Running	0%	512 MB			00:04:03	
		Off						
	TNECLTSAV01	Off						
	VRecovery	Running	0%	512 MB			05:06:57	
	Win2008DC	Off						
	Win2008R2	Off						
	📱 Win2008R2not domain	Running	0%	512 MB			04:56:20	
	📲 Win2008x64	Running	0%	512 MB			04:56:23	
		Off						
		Off						
	JulinX64	Off						Ľ



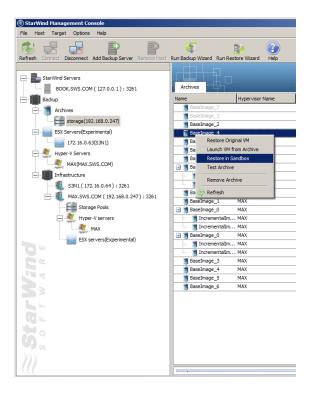
### **Restore in Sandbox**

**Vote:** Restore in Sandbox is available for VHD format only.

Sandbox mode allows running VMs in an emulated environment without affecting original VM files. It is mostly used for testing purposes and verification of archive recoverability.

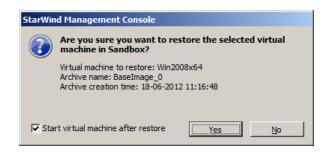
#### To restore a VM in Sandbox mode:

1. Go to the **Archives** item on the Console tree. Right-click the need archive from the list of available archives and select **Restore in Sandbox**.



2. Click **Yes** to restore the VM in Sandbox. If need to start a VM after the restore process, select the appropriate checkbox.

**Note:** Running a VM from an archive in Sandbox mode in no way affects the original virtual machine.



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3. Click **OK** to complete the restore operation.





# More Options for VM, Archive, and Storage Pool Management

### Actions that can be performed on Virtual Machines

#### To view the list of virtual machines located on a definite ESX/Hyper-V host:

- 1. Expand **Backup** on the Console tree.
- 2. Click **ESX servers** or **Hyper-V servers** item to expand it. You can see all physical machines running VMware ESX and Hyper-V, respectively.
- 3. Select the server to view all virtual machines hosted on it. The **Virtual Machines** tab appears on the Main area providing the list of all VMs located on the selected host.

In the current version of Backup Plug-in the following actions that can be performed on ESX virtual machines:

Action	What does it do?
Power On	Starts a virtual machine and brings its state online
Power Off	Turns off a virtual machine and brings its state offline
Remove	Removes a virtual machine

#### Actions that can be performed on Hyper-V VMs include:

Action	What does it do?
Power On	Starts a virtual machine and brings its state online
Power Off	Turns off a virtual machine and brings its state offline
Reset	Restarts a virtual machine
Pause	Temporarily halts virtual machine operations
Suspend	Hibernates a virtual machine preserving its states
Shut down	Shuts down a virtual machine
Resume	Resumes virtual machine operations after Reset or Pause.
Remove	Removes a virtual machine

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StarWind Management Console File Host Target Options Help								_0
Refresh Connect Disconnect Add Backup Server Remove Host	Run Backup Wizard Run Restore Wizard	() Help						
StarWind Servers     BOOK:SWS.COM (127.0.0.1) : 3261     Bodkup	Virtual Machines Hypervisor Lo	9 State	OS Version Size	IP	Memory 0		≋ş	<b>ŞtạrWind</b>
Ardives Ardive	Construction     C	Online Online Online Online Offline Offline Offline Offline	Window 7 Ent         15.0 GB           Window Serve         50.0 GB           Window Serve         50.0 GB	192, 168,0, 141 192, 168,0, 166 192, 168,0, 142 192, 168,0, 142 192, 168,0, 169 192, 168,0, 169	512         Bac           512         Bac           512         Ret           512         O           0         Act           0         Ret           512         Clo           0         Ret           0         Ret           0         Ret           0         Ret		Power On Power Off Reset Pause Suspend Shut Down Resume	
MAX ESX servers(Experimental)	[L_Win_7(15 Gb)]	5						
	Creation Time	Name	Туре	VM Name	OS	Size	IP	Description
A R	3 27-08-2012 19:40:04 28-08-2012 02:59:14	BaseImage_0 BaseImage_1	VHD image VHD image	L_Win_7(15 Gb) L_Win_7(15 Gb)	Windows 7 Enterpr Windows 7 Enterpr		192.168.0.141 192.168.0.141	
s o F T W A R	Archive Properties							

#### To perform an operation:

- 1. Select a virtual machine and right-click it.
- 2. Click Action on the shortcut menu.
- 3. Choose the operation that you need to perform.

**Note:** You can also run Remote Desktop for VMs. This action is available for running VMs available on the local network and can be accessed through Windows Remote Desktop.



### Making a VM Clone

A clone is a complete virtual machine copy that differs in the network settings only (GUID, IP address, Name, MAC). Clones are used for running a VM in the testing environment without affecting the original VM operating in production.

Clones can also be used for deployment of new virtual machines. It is possible to clone a VM with the required OS and applications as many times as necessary rather than installing the same OS and programs on several new VMs.

**Note:** Clones can be made for Hyper-V virtual machines only.

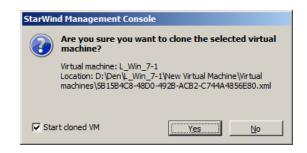
#### To make a clone of a virtual machine:

- 1. Expand **Backup** on the Console tree.
- 2. Expand **Hyper-V Servers** and click the name of a host where a VM that need to be cloned is located.
- 3. Under the **Virtual Machines** tab of the Main area all VMs located on the selected Hyper-V host are listed.
- 4. Click the required virtual machine and choose **Clone** from the shortcut menu.

StarWind Management Console								_0×
File Host Target Options Help	E 3							
Refresh Connect Disconnect Add Backup Server Remove Host		Help						
							≈0	StarWind
BOOK.SWS.COM (127.0.0.1) : 3261	Virtual Machines Hypervisor Log						$\sim_s$	StarWind
Book.sws.com (127.0.0.1): 3261	Name	State OS Version	Size	IP	Memory			
Archives	Windows7_roc	-Offine	0.0 GB	1.2	0			
storage(192.168.0.247)	CBack up VM CRestore VM	nline Windows 7 E nline Windows Ser		192.168.0.141 192.168.0.166	512 512			
ESX Servers(Experimental)	Win200883	hine Windows Ser		192.168.0.142	512			
172.16.0.63(S3N1)	Win2008x8 Action	hine Windows Ser	ve 15.0 GB	192.168.0.208	512			
Hyper-V Servers	Clone Clone Clone Remove VM	fline Nine Windows Ser	0.0 GB ve 15.0 GB	192, 168, 0, 169	0 512			
MAX(MAX.SWS.COM)	Ginux-Sent	ffine	0.0 GB	1521100101105	0			
Infrastructure	Win2008R2	hine Windows Ser		192.168.0.199	512 0			
S3N1 ( 172.16.0.64 ) : 3261	転新しい仮想 S Refresh	ffine	0.0 GB		U			
Storage Pools								
Hyper-V servers								
A MAX	[Windows7_x86]							
ESX servers(Experimental)	Archives Virtual Machine Properties							
	Creation Time	Name	Туре	VM Name	OS	Size	IP	Description
	27-08-2012 22:11:40	BaseImage_1	VHD image	Windows7_x86	Windows 7 Enterprise 6.		192.168.0.214	
	28-08-2012 02:31:08 28-08-2012 07:34:43	BaseImage_2 BaseImage_3	VHD image VHD image	Windows7_x86 Windows7_x86	Windows 7 Enterprise 6. Windows 7 Enterprise 6.		192.168.0.214 192.168.0.214	
Star Wind		buscandge_s	the image	11100107_000	Windows / Enterprise of		192.100.0.211	
23	Archive Properties							
and the second sec								
6								
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- 5. Click the **Start cloned VM** checkbox if you need your clone to be launched.
- 6. Click **Yes** to perform the operation.



7. The cloned virtual machine appears in the **Virtual Machines** list in the Management Console interface.

StarWind Management Console						
e Host Target Options Help						
fresh Connect Disconnect Add Backup Server Remove Host	Run Barkun Wizard Run Restore Wizard	Help				
		nap				
	┙ <u>┎╘╈</u> ╪┿╼╤ <mark>╸</mark> ┍┑					
BOOK.SWS.COM ( 127.0.0.1 ) : 3261	Virtual Machines Hypervisor Lo	g				
Backup	Name	State	OS Version	Size	IP	Memory
Archives	Reg Windows7_x86	Offine		0.0 GB		0
	t	Online	Windows 7 Ent	15.0 GB	192.168.0.141	512
storage(192.168.0.247)	€L_DC	Online	Windows Serve	15.0 GB	192.168.0.166	512
ESX Servers(Experimental)	🔩 Win2008R2not domain	Online	Windows Serve		192.168.0.142	512
172.16.0.63(S3N1)	🧤 Win2008x86	Online	Windows Serve		192.168.0.208	512
	🍓 Новая Виртуальная Машина 2	Offine		0.0 GB		0
Hyper-V Servers	t_Serv	Online	Windows Serve		192.168.0.169	512
MAX(MAX.SWS.COM)	Ginux-SentOS	Offine		0.0 GB		0
	Win2008R23HDD	Online	Windows Serve		192.168.0.199	512
	●新しい仮想マシン	Offine		0.0 GB		0
	Windows7_x86(clone)	Offine		0.0 GB		0
Hyper-V servers	[Windows7_x86(clone)]					
ESX servers(Experimental)	Archives Virtual Machine Propertie	s				
the second se						
	Creation Time	Name	Ту	pe	VM Name	OS
		Name	T	pe	VM Name There are no items to	
W A R A	Creation Time Archive Properties	Name	Ty	pe		
W A R A		Name	77	pe		
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		Name	τ <sub>λ</sub>	pe		
		Name	(7	pe		
		Name	Τ,	pe		
W IN C		Name	τ <sub>3</sub>	pe		
		Name	۲۱ 	pe		
W IN C		Name	<u></u>	pe		

The VM clone also appears in the list of virtual machines in the **Hyper-V Manager**. It is possible to work with a VM clone the same way as with an ordinary virtual machine. Clones are labeled by the word clone in brackets **(clone)** in order to distinguish them from virtual machines.



∐≝Hyper-¥ Manager								
File Action View Window He	elp							
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Hyper-V Manager	Virtual Machines							
	Name 🔶	State	CPU Usage	Assigned Memory	Memory Demand	Memory Status	Uptime	Status
	📱 L_Win_7-1	Running	0%	512 MB			00:27:36	
1	L_Win_7-1(clone)	Running	0%	512 MB			00:05:00	
	L_Win_Serv_2008R2(0.104) S_Exchange S_Exchange S_FS_win2008R2 Win_200 win_200 %64 Win2003x64	Off Running Off Off Off Off Off	0%	512 MB			00:27:05	
	4							Þ



### Actions that can be performed on VM Archives

#### To view the list of virtual machines located on a definite host:

- 1. Expand the **Backup** item on the Console tree.
- 2. Click **ESX servers** or **Hyper-V servers** item to expand it. You can see all physical machines running VMware ESX or Hyper-V.
- 3. Select the server to view virtual machines hosted on it. The **Virtual Machines** tab appears on the Main area providing the list of all VMs located on the selected host.
- 4. When you select a VM on the **Virtual Machines** tab, its archives appear on the **Archives** tab below.

#### To view the list of archives stored in a definite Storage Pool:

- 1. Expand the **Backup** item on the Console tree and the **Archives** item.
- 2. Select one of the storage pools.
- 3. The list of archives stored on the selected storage pool appears on the **Archives** tab.

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BOOK.SWS.COM (127.0.0.1): 3261	Archives							5 0	FTWA
Backup	Name	Hypervisor Name	Creation Time	Type	VM Name	os	Size	IP	Description
Archives	BaseImage_7		28-08-2012 13:21:31	VHD image			15,0 GB		
	BaseImage_1		28-08-2012 13:19:54	VHD image			15,0 GB		
storage(192.168.0.247)	BaseImage_2		28-08-2012 10:56:05	VHD image			15,0 GB		
ESX Servers(Experimental)	BaseImage_4		28-08-2012 12:09:43	VHD image			15,0 GB		
172, 16.0, 63(S3N1)	BaseImage_1	MAX	27-08-2012 22:11:40	VHD image	Windows7_x86	Windows 7 Enterpri	11,0 GB	192.168.0.214	
Hyper-V Servers	BaseImage_2	MAX	28-08-2012 02:31:08	VHD image	Windows7_x86	Windows 7 Enterpri	11,0 GB	192.168.0.214	
NOT THE REAL PROPERTY OF THE R	BaseImage_3	MAX	28-08-2012 07:34:43	VHD image	Windows7_x86	Windows 7 Enterpri	11,0 GB	192.168.0.214	
MAX(MAX.SWS.COM)	🖃 🗂 BaseImage_0	MAX	27-08-2012 19:40:15	VHD image	Win2008R23HDD	Windows Server 20	15,0 GB	192.168.0.199	
- Infrastructure	Incremental	m MAX	28-08-2012 07:03:59	VHD image	Win2008R23HDD	Windows Server 20	15,0 GB	192.168.0.199	
S3N1 ( 172, 16.0,64 ) ; 3261	Incremental	m MAX	28-08-2012 11:09:55	VHD image	Win2008R23HDD	Windows Server 20	15,0 GB	192.168.0.199	
2	BaseImage_0	MAX	27-08-2012 19:40:04	VHD image	L_Win_7(15 Gb)	Windows 7 Enterpri	15,0 GB	192.168.0.141	
- WAX.SWS.COM (192.168.0.247): 3261	BaseImage_1	MAX	28-08-2012 02:59:14	VHD image	L_Win_7(15 Gb)	Windows 7 Enterpri	15,0 GB	192.168.0.141	
Storage Pools	🖃 📲 BaseImage_0	MAX	27-08-2012 19:40:09	VHD image	Win2008x86	Windows Server (R)	. 15,0 GB	192.168.0.208	
🖃 🌉 Hyper-V servers	- 🧊 Incremental	m MAX	28-08-2012 10:51:39	VHD image	Win2008x86	Windows Server (R)	. 15,0 GB	192.168.0.208	
MAX MAX	💷 🧃 Incremental	m MAX	28-08-2012 12:43:12	VHD image	Win2008x86	Windows Server (R)	. 15,0 GB	192.168.0.208	
Hyper V	BaseImage_1	MAX	28-08-2012 12:43:30	VHD image	Win2008x86	Windows Server (R)	. 15,0 GB	192.168.0.208	
ESX servers(Experimental)	BaseImage_0	MAX	27-08-2012 19:40:11	VHD image	L_Serv	Windows Server 20	15,0 GB	192.168.0.169	
	- Incremental	m MAX	28-08-2012 10:52:54	VHD image	L_Serv	Windows Server 20	15,0 GB	192.168.0.169	
	Incremental	m MAX	28-08-2012 12:40:14	VHD image	L_Serv	Windows Server 20	15,0 GB	192.168.0.169	
	BaseImage_3	MAX	28-08-2012 01:38:57	VHD image	L_DC	Windows Server 20	8,0 GB	169.254.232.78	
	BaseImage_4	MAX	28-08-2012 05:46:00	VHD image	L_DC	Windows Server 20	8,0 GB	169.254.232.78	
	BaseImage_5	MAX	28-08-2012 10:09:53	VHD image	L_DC	Windows Server 20	8,0 GB	169.254.232.78	
	BaseImage_6	MAX	28-08-2012 11:45:45	VHD image	L_DC	Windows Server 20	8,0 GB	169.254.232.78	

**Note:** To delete all archives from the selected Storage pool, right-click the storage pool, and choose **Clear** from the shortcut menu.

#### The following actions that can be performed on VMware archives:

Feature What does it do?

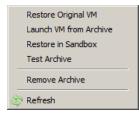
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Restore Original VM	Restores a virtual machine to its original state
Remove archive	Deletes an archive
Refresh	Makes a refresh of a virtual machine

#### The following actions that can be performed on Hyper-V archives:

Feature	What does it do?
Restore Original VM	Restores a virtual machine to its original state
Launch VM from Archive	Restores a virtual machine directly from an archive. Allows quick recovery and is used in case of emergency.
Restore in Sandbox	Restores and launches a VM from an archive in an emulated virtual environment. Used for testing a VM operability.
Test archive	Restores a VM into a temporary folder and launches it after restore is completed. Then VM is shut down and both VM and temporary folder are deleted. This feature allows to test integrity and operability of any archive.
Remove archive	Deletes an archive
Refresh	Makes a refresh of a virtual machine





### **Testing Archives**

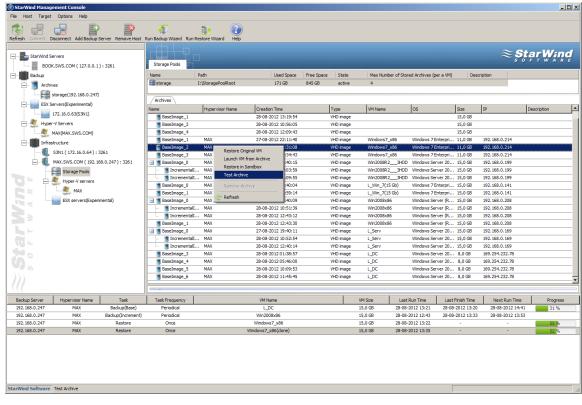
**Note:** Testing can be performed for Hyper-V virtual machines only.

This feature allows verification of integrity and operability of any archive. Performance of this operation requires restoration of an archive in Sandbox, and further VM launch, testing, and shutdown. After the test launch Sandbox is cleared and the report is sent via e-mail.

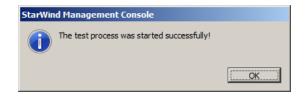
#### To test an archive:

1. Expand the **Backup Servers** item on the Console tree and select one of the connected backup servers. Click the **Storage Pools** item.

2. Right-click the needed archive from the list of available archives and select the **Test Archive** option.



3. Click **OK** to proceed the testing.





### Actions that can be performed on a Storage pool

All VM archives are sent to a storage pool where they are stored.

• Use the following link to view how to create and configure a storage pool 3.

To delete all archives stored in a storage pool:

- 1. Expand **Backup** on the Console tree.
- 2. Expand Backup Servers on the Console tree.
- 3. Click **Storage Pools**. Your storage pool appears on the **Storage Pools** tab in the Main area.
- 4. Right-click the storage pool that you need to clear, and select **Clear** from the shortcut menu.
- 5. The following message appears.

StarWin	id Management Console
	Are you sure you want to clear the selected storage pool? Storage pool: sp Description:
	pree to delete all data from <u>Y</u> es <u>N</u> o
A w	arning! All archives stored in the selected storage pool will be deleted.

- 6. Select the checkbox to confirm that you are ready to clear the storage pool.
- 7. Click **Yes** to complete the operation. The system will delete all archives from the storage pool.



### **StarWind Management Console Interface**

### **Understanding Current Tasks Tab**

When the **Backup** item is expanded in the Console tree, you can monitor the processes taking place using the **Current Tasks** tab. Each activity is displayed in the table that contains:

- Hypervisor Name- Shows the hypervisor name
- **Task** Shows the task: Backup (Incremental or Base), or Restore.
- **Task Frequency** Shows how frequently backup is performed (Once, Daily, Weekly, Custom). For the restore operation it is always Once.
- VM Name Shows the name of a virtual machine that is being involved in the process.
- VM Size Shows the size of a VM involved in the process.
- Last Run Time If backup schedule is set to Daily, Weekly, or Custom, this field shows when the periodical backup was started the last time.
- Last Finish Time If backup schedule is set to Daily, Weekly, or Custom, this field shows when the periodical backup was finished the last time.
- Next Run Time If backup schedule is set to Daily or Weekly, or Custom, this field shows when the next periodical backup will be performed.
- Progress Displays the progress bar showing how backup or restore process is progressing

Backup Server	Hypervisor Name	Task	Task Frequency	VM Name	VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
192.168.0.247	MAX	Backup(Base)	Periodical	L_DC	15,0 GB	28-08-2012 13:21	28-08-2012 13:20	28-08-2012 14:41	33 %
192.168.0.247	MAX	Backup(Increment)	Periodical	Win2008x86	15,0 GB	28-08-2012 12:43	28-08-2012 13:33	28-08-2012 13:53	
192.168.0.247	MAX	Restore	Once	Windows7_x86	15,0 GB	28-08-2012 13:22	-	-	57 %
192.168.0.247	MAX	Restore	Once	Windows7_x86(done)	15,0 GB	28-08-2012 13:35	-	-	59 %
StarWind Software	Ready								1



### **Using the Configuration Tab**

The **Configuration** tab appears on the Main area when you expand the **Backup** item in the Console tree, and select one of the Backup Servers.

The Configuration tab contains Management Console Settings and Backup Server Settings.

Management Console Settings allows configuring:

- Management Interface:
  - Backup Server Location Shows IP-address and port number of the backup server.

File Host Target Options Help								- 🗆 ×
Refresh Connect Disconnect Add Backup Server Remove Host	Run Backup Wizard Run	Restore Wizard Help						
StarWind Servers BOOK.SWS.COM (127.0.0.1) : 3261 Bodup Ardives Storage (32.168.0.247) Storage (32.168.0.247) Storage Solution MAX(MAX.SWS.COM) Infrastructure MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) MAX(MAX.SWS.COM) Storage Pools MAX ESX servers(Experimental) ESX servers(Experimental)	Management	er Settings e <u>ment Interface</u> ation	Management Interface Backup Server Location Host Port	MAX.SWS.COM 3261	(192.168.0.247)		≈ <u>sta</u>	<b>Y W A R E</b>
Backup Server Hypervisor Name Task	Task Frequency	VM Na		VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
192.168.0.247 MAX Backup(Base)	Periodical	LD		15,0 GB	28-08-2012 13:21	28-08-2012 13:20	28-08-2012 14:41	34 %
192.168.0.247 MAX Backup(Increment)		Win200		15,0 GB	28-08-2012 12:43	28-08-2012 13:33	28-08-2012 13:53	TO AL
192.168.0.247 MAX Restore 192.168.0.247 MAX Restore	Once	Windows Windows7 >		15,0 GB 15,0 GB	28-08-2012 13:22 28-08-2012 13:35		-	59 % 63 %
StarWind Software Ready								

• Advanced Settings - The value "Enable" activates the feature that automatically makes connection to all existing backup servers when the Management Console is launched.

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General Configuration Hypervisor Log		≈ Star Wind
Management Console Settings           Image: Management Interface           Image: Advanced Settings	Advanced Settings Auto connection The value "Enable" activates the feature that automatically makes connection to all existing backup servers when Management	Enable
Backup Server Settings          Image: Management Interface         Image: Registration         Image: Event Notifications	Console is launched	

Backup Server Settings allows configuring:

- Management Interface
  - Authentication Parameters Allows changing the existing authentication

parameters for accessing a backup server. Click**Modify** to change Username and Password.

Authentication parameters		Modify
Login		
Password	*****	

 Registration – Allows you to register your license. Click the Modify item on the Configuration tab to enter a license. The License dialog box appears. Download the Backup license file by clicking the Load button or enter the license information manually.

View Licensing and Registration 18 to get all details on this process.



StartWind Stanzagement Console  File Host Target Options Help  Referent Connect Add Backup Server Remove Host  Backup Ba	An Bodup Wizard Run Restore Wizard General Configuration Hypervisor Log Management Console Settings Management Interface Management Interface Management Interface Management Interface Exclup Server Settings Exclup Server Settings Exclup Server Settings Exclup Server Settings Exclup Server Settings Exclus	Registration General Features Usense Type Servers Per License Conse File: C Enter License Informatio License File: C Enter License Informatio License ID License ID License ID	StarWind Bada 15		d a a a	≈ <i>\$ţ</i>	todiv
Backup Server Hypervisor Name Task	Task Frequency	VM Name	VM Size	Last Run Time	Last Finish Time	Next Run Time	Progress
StarWind Software Ready		There are no items to show.					

• Event Notification – Allows you to set an email notification about errors or any other events on the server. Click the Modify item on the Configuration tab. In the Set event notification rule dialog specify notification parameters, and click OK.

Set	ev	en	t notification rule		X
			Action		
-	ilter	r	Acuon		
	Act	tion	Туре		
		d s	end e-mail	-	
		cti	on parameters		
	1.				
		Ξ	Properties		
			Send To	name@mail.com	
			Send From	Iname@mail.com	
			Subject	Event notification	
			Outgoing mail server (SMTP)	smtp.name@mail.com	
			Server Port	25	
				OK Cancel	

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### **Understanding the Storage Pool List Tab**

The **Storage Pools** tab appears when you select the **Storage Pools** item on the Console tree. It allows to view all existing storage pools with all archives that they contain.

**Note:** The current version of VMware Backup Plug-in allows creation of one storage pool.

Storage Pools													
Name	Path		Space	Free Space	State	Max Number of Stored Arc	thives (per a VM)	Description					
\$2	D:\StoragePoolRoot	53 G	3	269 GB	active	4							
Archives													
lame		Creation Time				Туре	VM Name		OS	Size	IP	Description	
🕘 🍵 BaseImag		21-06-2012 13:14:38				VMDK image	VM_FS_Win2008S			14,0 GB			
	mentalImage_0	21-06-2012 13:38:22				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
	mentalImage_1	21-06-2012 13:48:24				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
	mentalImage_2	21-06-2012 13:58:24				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
	mentalImage_3	21-06-2012 14:08:29				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
	mentalImage_4	21-06-2012 14:18:26				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
	mentalImage_5	21-06-2012 14:28:25				Incremental VMDK image	VM_FS_Win2008S			0,0 GB			
🗉 🗂 BaseImag		21-06-2012 13:19:10				VMDK image	SFS_Win2008F			1,0 GB			
	mentalImage_0	21-05-2012 14:14:11				Incremental VMDK image	SFS_Win2008F	2		0,0 GB			
BaseImag		21-06-2012 13:14:34				VMDK image	VM_Win7			10,0 GB			
	mentalimage_1	21-06-2012 13:43:17				Incremental VMDK image	VM_Win7			0,0 GB			
	mentalImage_2 mentalImage_3	21-06-2012 13:53:21				Incremental VMDK image Incremental VMDK image	VM_Win7			0,0 GB			
	mentalimage_3 mentalimage_4	21-06-2012 14:03:18 21-06-2012 14:13:18					VM_Win7 VM_Win7			0,0 GB 0,0 GB			
	mentalimage_4 mentalimage_5	21-06-2012 14:13:18				Incremental VMDK image Incremental VMDK image	VM_Win7 VM_Win7			0,0 GB			
- Incret	mentaumage_5	21-06-2012 14:23:18				Incremental VMDK image	VM_Wh7			0,0 GB			
Archive Prop	erties												

The Storage Pools tab displays the following information:

- Name Shows a storage pool name
- **Path** Shows location when a storage pool is stored
- Used Space Shows how much storage space is currently occupied by the stored data
- **State** The state Active indicates that the storage pool has been configured and is available for storing of backups. The state Not valid indicates that there are no configured storage pools.
- Max Number of Stored Archives Shows the maximal number of archives (per virtual machine) that will be stored. This value is specified at the stage of a storage pool creation. When the number of archives exceeds the specified value, they are automatically deleted from the storage pool.
- **Description** Shows the storage pool description.

The **Archives** tab provides the list of all archives stored in a storage pool and allows to view the details of virtual machine(s) backed up in an archive:

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- Name Shows the archive's name
- Creation Time Shows the date and time when an archive was created
- **Type** Shows the format of archive file.
- VM Name Shows a name of VM that was backed up in an archive
- **OS** Shows an operating system running on a VM
- Size Shows the size of the archive
- IP Shows IP-address of a virtual machine
- **Description** Shows a VM description

The Archive Properties section displays the detailed properties of a selected archive.

Archive Properties	
Name:	BaseImage_0
File path:	D:\StoragePoolRoot\node1_VM2\BaseImage_0\Config.vmx
Creation time:	08-06-2012 10:46:18
Last write time:	08-06-2012 11:15:39
Size in MB:	15360
Type:	VMDK image
Description:	



### **Understanding the ESX List Tab**

The ESX list tab appears when you select the ESX Servers item on the Console tree.

The tab displays all ESX hosts and their details:

- Name Shows a name of the selected ESX server
- IP Shows IP-address of the selected ESX server
- State Shows a state of the selected ESX server. It can be Connected or Disconnected.

StarWind Hanagement Console											
File Host Target	Options Help										
Refresh Connect E	Disconnect Add Backup	Server Remove Host	Eun Backup Wizard Ru	n Restore Wizard Help							
										pproxşta	
	K.SWS.COM ( 127.0.0.1	):3261	ESX list	1							
Backup			Name	IP State							
Archi				172.16.0.63 Conne	cted						
1	gs(172.16.0.64)										
	Servers(Experimental)										
	172.16.0.63(S3N1)										
ingers'	r-V Servers										
inger v	S3N1(S3N1)										
	structure S3N1 (172.16.0.64) : 3										
	Storage Pools	5261									
	S3N1										
	ESX servers(Experi	imental)									
	172.16.0.63										
	MAX.SWS.COM ( 192.16	58.0.247): 3261	Common Ta	sks							
			Add ES	X Server							
L. L.			Apply th	is command to connect the ESX ser	ver to the Console using a previously installed						
			backup add a n	server. You can either select the ba ew server during the connection.	ackup server that you have previously installed	lor					
				p Wizard							
			This act	ion allows you to run Backup Wizard	d.						
0			Resto	- Minud							
				ion allows you to run Restore Wizar	ď						
				÷							
Backup Server	Hypervisor Name	Task	Task Frequency		VM Name	VM S	Size	Last Run Time	Last Finish Time	Next Run Time	Progress
172.16.0.64	172.16.0.63	Backup(Base)	Once		s_pc	50,0	) GB	28-08-2012 13:55	-	-	0 %
StarWind Software	Ready										11



### **Understanding the Hyper-V Hosts Tab**

This tab appears when you select the **Hyper-V** servers item on the Console tree.

The upper area of the tab displays all Hyper-V hosts and their details:

- Name Shows a name of a Hyper-V host
- IP Shows IP address of a Hyper-V host
- State Shows a state of a Hyper-V host. It can be online or offline.

Net	StarWind Management Console		_ 🗆 🗙						
Refere         Outcome:         Decement         Add backup Givere         Reverse Huger Market         Media           Book,Strist Coll         127,00.11; 1281         Image: Strikt S									
BOXCSW5.COM (122.0.0.1):3351         Hyper-V Hots         Advise         g (172.16.0.4)         BOXCSW5.COM (122.06.1):3351         Write       IP         BOXCSW5.COM (122.06.0.4)         BOXCSW5.COM (122.06.0.4):3351         BOXCSW5.COM (122.06.0.4):3251									
Backar       P       State         Archves       P(22:15.6.4)       Still.sens.com       orine         Still Structure       Still Structure </td <td></td> <td></td> <td><b>Şt</b>ạr Wind</td>			<b>Şt</b> ạr Wind						
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Windowski       System       System <td></td> <td></td> <td></td>									
Statewest@paymental   ImperVisewest   Statisticitie   ImperVisewest   ImperVisewest <td></td> <td></td> <td></td>									
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Infrastructure       GG free of 97/3         Processors       Intel(R) Xen(R) CPU E530 @ 2.530#         Structure       S3711         EX servers/Experimental)       352 33 0#         MAX.SWS.COM (192.188.0.247) : 3261       Servers/Experimental)         MAX.SWS.COM (192.188.0.247) : 3261       Memory usage         Bedug Server       Maxematic Muther         Maxematic Muther       Servers/Experimental)         Maxematic Muther       Server to the Console. Eadup Plug in will be first intel of the sected https:// how you to run Badup Waard.         Maxematic Muther       Maxematic Muther         Maxematic Muther       Server Waard         Maxematic Muther       Tits action allows you to run Badup Waard.         Maxematic Muther       Maxematic Muther         Maxematic Muther									
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COULINGE 8.2 233 GHz 533 GB   EX are versible partnental) 1500 Miz   MXLSUS.COM (192.168.0.247): 3261 Menory usage   B2 28 MB   4825 MB	S3N1 ( 172. 16.0.64 ) : 3261								
Bodug Server Task     1000 Mtr      1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr     1000 Mtr <td>Storage Pools</td> <td></td> <td></td>	Storage Pools								
Bodug Server hypervor Name Task Task Memory usage 8128 MB	Hyper-V servers								
Extraversity-permentaly       4925 MB         MAX.SWS.COM (192.168.0.247) : 3261       4925 MB         Common Tasks       Mit command to connect a Hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server to the Console. Backup Plug in will be first insteled on the sected Hyper-V hyper-V server         Backup Server       Maxer         Backup Server       hypervsor Name         Task       Task Frequency         Monte       Maxer         Backup Server       hypervsor Name         Task       Task Frequency         Monte       Maxer	\$3N1								
Badup Server       Task       Task Progensy         Badup Server       Task Task Progensy       WM Name       MS Serve Task Task Progensy									
Badup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress	MAX.SWS.COM (192.168.0.247): 3261								
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress									
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress		Common Tasks							
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress		D Add Hyper-V Server							
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress	N N N N N N N N N N N N N N N N N N N								
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress									
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress									
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress									
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress									
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress		This action allows you to run ressore virzaru							
Bodup Server         Hypervisor Name         Task         Task         VM Name         VM Size         Last Run Time         Next Run Time         Progress	S .								
	Backup Server Hypervisor Name Task	Task Frequency VM Name VM Size Last Run Time Last Finish Time Next Run	Time Progress						
			-						
Caralle J.C. Brance	StarWind Software Ready								

The bottom area of the **Hyper-V Hosts** tab displays the technical parameters of the Hyper-V server: processors, CPU and memory usage.



### **Understanding the Virtual Machines Tab**

The **Virtual Machines** tab appears on the Main area when any server is selected on the Console tree.

The tab displays the list of virtual machines located on a selected host:

- Name Shows a VM name
- State Shows a VM state. Depending on the action performed on a virtual machine, its state may be Online and Offline
- **OS Version** Shows operating system running on a virtual machine
- Size Shows the size of the VM
- IP Shows an IP-address of a virtual machine
- Memory Shows RAM capacity of a virtual machine

Host Target Options												_1
	Help											
	P P	<u>(</u>	84	$\bigcirc$								
	Add Backup Server Remove Host			Help								
Connect Exactimeter	Add backup derver i Kenlove hoat		in Reatore wizero	nep								
											$\approx$ s	tar Wind
		Virtual Machines	Hypervisor Log								5 0	FTWAR
BOOK.SWS.COM	(127.0.0.1): 3261											
Backup		Name		State	OS Version	Size	IP	Memory				
🖶 🛅 Archives		t_DC		Online	Windows Serve		172.16.0.75	512				
gs(172.16.0	0.64)	C_FS		Online Online	Windows Serve Windows Serve		172.16.0.97	512 512				
ESX Servers(Expe		Server		Online	Windows Serve		172.16.0.103	800				
Hyper-V Servers		Serv_IIS		Online	Windows Serve	20.0 GB	172.16.0.83	512				
		C_Web_S		Online	Windows Serve	15.0 GB		512				
\$3N1(\$3N1)												
Infrastructure												
🚊 👢 S3N1 ( 172	.16.0.64): 3261											
Storag	ge Pools											
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inger V	All Pup Backup Mitrard											
ESX se	Bie Run Restore Wizard											
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S O F T W A R E		Archives Virtual N Creation Time		Name	Try	20					Next Run Time	Description

The **Archives** tab displays all archives of a virtual machine that is currently selected in the VM list, and archive properties. The **Archive properties** are the same on **Storage Pool** and **Virtual Machines** tabs.

The **Virtual Machine Properties** tab displays the properties of a selected virtual machine.

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