

# StarWind Virtual SAN: Feature Configuration Guide for Deploying Zabbix Templates to Enable Centralized Infrastructure Monitoring

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**TECHNICAL PAPERS** 



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StarWind is a pioneer in virtualization and a company that participated in the development of this technology from its earliest days. Now the company is among the leading vendors of software and hardware hyper-converged solutions. The company's core product is the years-proven StarWind Virtual SAN, which allows SMB and ROBO to benefit from cost-efficient hyperconverged IT infrastructure. Having earned a reputation of reliability, StarWind created a hardware product line and is actively tapping into hyperconverged and storage appliances market. In 2016, Gartner named StarWind "Cool Vendor for Compute Platforms" following the success and popularity of StarWind HyperConverged Appliance. StarWind partners with world-known companies: Microsoft, VMware, Veeam, Intel, Dell, Mellanox, Citrix, Western Digital, etc.

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# Annotation

**Relevant Products** 

This guide is applicable to StarWind Virtual SAN and StarWind Virtual SAN Free (Version V8 (Build 15260, CVM Version 20231016) and later) and Zabbix v5.4.

Audience

This technical guide is intended for IT professionals and system administrators responsible for managing HCI environments, especially those overseeing multi-site deployments in diverse settings such as traditional data centers, remote industrial facilities, or mission-critical operations.

Expected Result

By following this guide, readers will gain the skills to set up and use StarWind Fleet Manager for centralized monitoring, automated updates, and efficient management of HCI environments. This enables improved performance, reliability, and scalability while reducing administrative overhead and operational costs.

# **System Requirements**

Since the configuration involves StarWind CVM, Zabbix agent, and Zabbix server, the system requirements are defined by the components used in the configuration.

Internet connectivity is required on StarWind CVM to install the Zabbix agent package.

Port 10050 (default) is required for connectivity to the Zabbix server.

StarWind CVM system requirements: https://www.starwindsoftware.com/system-requirements

Zabbix server system requirements: https://www.zabbix.com/documentation/5.4/en/manual/installation/requirements



# **Pre-Configuring Starwind Cvm For Zabbix Monitoring**

To configure the monitoring of StarWind CVM, the Zabbix Agent must first be installed on the CVM. This process requires SSH access to be enabled on the StarWind CVM.

Follow the steps below to enable SSH and install the Zabbix Agent on the StarWind CVM:

✓		- 0 X
	://172.27.31.177	🖈 🚓 Incognito :
	StarWind Hyperconvergence	
	Login	
	Password	
	Stay signed in	
	Sign in	

1. Using the browser, log into the StarWind CVM web console.

NOTE: The StarWind CVM web console IP address can be found in the terminal user interface (TUI).





2. Click the button at the top right of the window to access StarWind CVM settings.

3. Navigate to Services and click the Edit button.

Se	ettings					
	General	Services	Plugins	Software update	Downloads	NVMe-oF service settings
	Appliance lis	t				
	sw-cvm-gr	aid-01		1		

4. Locate the SSH server and press the Run button.



sw-cvm-graid-01				×
Refresh Au	tostart 👻			
Name ≑	Description \$	State \$	Dependencies 🜲	Autos \$
O TUI console	Text User Interface of StarWind Appli	Running		Enabled
O NFS server	NFS server and services	Running	nfs-idmapd.service,	Enabled
O Nginx server	nginx - high performance web server	Running	network-online.target	Enabled
Samba server	Samba SMB Daemon	Running	network-online.target	Enabled
<ul> <li>SSH server</li> </ul>	OpenBSD Secure Shell server	Stopped		Enabled
Show <b>5</b> - 1-5 of 15			Page: 1 🗸	of 3 🕢 🕨
			ĺ	Close

- 5. In the window, press the Start button to start the SSH service.
- 6. Make sure the SSH server state is Running, and then click Close.



sw-cvm-graid-01				×
C Refresh Au	itostart 👻			
Name 🌩	Description \$	State ≑	Dependencies ≑	Autos ≑
O TUI console	Text User Interface of StarWind Appli	Running		Enabled
O NFS server	NFS server and services	Running	nfs-idmapd.service,	Enabled
O Nginx server	nginx - high performance web server	Running	network-online.target	Enabled
Samba server	Samba SMB Daemon	Running	network-online.target	Enabled
SSH server	OpenBSD Secure Shell server	Running		Enabled
Show <b>5</b> - 1-5 of 15			Page: 1 -	of 3 🔹 🕨
				Close

- 7. Connect to StarWind CVM via SSH client client (e.g., Putty).
- 8. Type sudo su and type in the password: |



NOTE: The user must have an administrator role. Use the account created during the initial installation wizard or create a new one via Web UI (*Users* -> + -> *Fill in the blanks* -> *Specify user roles* -> *Create*).\

NOTE: The steps below imply internet connectivity in the StarWind CVM.

9. Add the apt repository for the Zabbix Agent from the official repository.

Use the *wget* command to download the latest \*.*deb* package.

Alternatively, save it locally and copy it to StarWind VSAN CVM with WinSCP, FileZilla, etc.



- 10. Type: dpkg -i <package\_name\_deb>.deb
- 11. Type: apt update
- 12. Install the Zabbix Agent: apt install zabbix-agent2

13. Repeat the steps above on each StarWind CVM that should be added to the monitoring.

## **Deploying Zabbix Server From Starwind'S Iso**

NOTE: Skip this step if a Zabbix server has already been deployed.

1. Deploy a VM that fits the minimum requirements.

2. Attach StarFleet ISO, downloaded here: https://www.starwindsoftware.com/fleet-management

- 3. Start the VM and boot from ISO for the OS installation.
- 4. Configure internet connectivity on the deployed VM.

# Setting Up The Zabbix Agent Inside Starwind Cvm

NOTE: The steps below require superuser privileges.

- 1. Connect to StarWind CVM via SSH client client (e.g., Putty).
- 2. Type *sudo su* and type in the password:

```
user@sw-cvm-graid-01:~$ sudo su
[sudo] password for user:
root@sw-cvm-graid-01:/home/user#
```

3. Open port 10050 for communication: ufw allow 10050

4. Grant permissions for Zabbix by editing */etc/sudoers* to allow Zabbix to restart StarWind VSAN services and reboot:



zabbix ALL=(ALL) NOPASSWD: /bin/systemctl restart starwind\*

zabbix ALL=(ALL) NOPASSWD: /sbin/reboot

Locate the Zabbix agent configuration file: nano
/etc/zabbix/zabbix\_agent2.conf

Edit the following lines in the configuration file:

PidFile=/var/run/zabbix/zabbix\_agent2.pid

LogFile=/var/log/zabbix/zabbix\_agent2.log

LogFileSize=0

Server=<zabbix server ip address>

ServerActive=<zabbix server ip address>

*HostMetadata=StarWind* 

Timeout=30

Include=/etc/zabbix/zabbix\_agent2.d/\*.conf

PluginTimeout=30

PluginSocket=/run/zabbix/agent.plugin.sock

ControlSocket=/run/zabbix/agent.sock

AllowKey=system.run[\*]

Include=/etc/zabbix/zabbix\_agent2.d/plugins.d/\*.conf

NOTE: Make sure that the correct values are set for the following lines:

Server=<zabbix server ip address>

ServerActive =<zabbix server ip address>

HostMetadata=StarWind



Timeout=30

PluginTimeout=30

AllowKey=system.run[\*]

Restart the Zabbix Agent in StarWind CVM: systemctl restart zabbix-agent2.service

# Integrating Starwind Cvm Into An Existing Deployment

This step involves connecting and importing the template into an already deployed Zabbix VM.

1. Login to the Zabbix Appliance.



Password

Remember me for 30 days

Sign in

2. Expand Data Collection and navigate to the Templates view.







3. Press Import in the top right corner to import StarFleet template.



### 4. Choose the file and press the Import button.

Import				×
* Import file	Choose File	No file chosen		
Advanced options		No file chosen		
Rules		Update existing Create new Delete missing		
	All			
		Import	Cance	el

NOTE: If the updated version of the template clashes with the existing *\*.json*, the differences between them will be listed.

Templates	
▼ Updated	teglater:
- Templates	comparet nut name i not
HCI	- webor: name: 'thankind Virtual SAN (VSAN) w0.0.0'
* Items	version; v8.0.0 groups:
StarWind log	- name: stoawind
stanwind-health.service	news: "fastWind log"
stanvind-license-manager.service	-ypy- tour_arises key: 'log('var/starvind/starvind'starvind'starVind'StarVind'StarVind'star)
stanwind-metrics-store.service	0 e3xyl 15 history: 7d
stanwind-san-and-nas-console.service	creads: 10' value ype: L0d
stanwind-updater.service	tripgers: expression: 'find/wtr/logi/wa//starvind/starvind-virtual-san/events/fstarvindwta-twents.log),,"tegeng*,"tD_775 (,+?)(D,,-!*)-1'
stanwind-voenter-plugin service	recovery was #8000000 #8000000 /vsr/starvind/star
	correlation mode: TAG WARE
v Triggers	- name: '10,775_ourrent node state has changed to "mot synchronized" (1172M.VALUE).zejsub(*(10_\d+) (.+?)(\$;.+)*, *\3*)}'
ID_775_ourrent node state has changed to "Not synchronized" ((ITEM	<ul> <li>name: '10.7% current node state bas charped to "Moit synchronized"</li> <li>priority, BCM</li> </ul>
	Total         2000
	Input Caroli

# **Adding Triggers And Customizing Monitoring**

This section describes adding a custom trigger to Zabbix based on the event codes. The distributed Zabbix template provides the essential templates. The complete list of StarWind VSAN events is available here. It is also possible to add other metrics, e.g.,



MDRAID or PCI storage monitoring.

1. To access trigger configuration, navigate to Data Collection > Templates.







2. Locate the template that corresponds to StarWind VSAN CVM monitoring.

HCI	Hosts 2 Items 8	Triggers 10 Graphs	Dashboards	Discovery	Web	StarWind	v8.0.0
						Virtual SAN	
						(VSAN)	
						v8.0.0	

- 3. Click Triggers and select Create Trigger in the top-right corner.
- 4. In the New Trigger window, fill in the required fields, such as Name.

New trigger		
Trigger Tags Dependencies		
* Name		
Event name		
Operational data		
Severity	Not classified Information Warning Average High Disaster	
* Expression		Add
OK event generation	Expression Recovery expression None	
PROBLEM event generation mode	Single Multiple	
OK event closes	All problems All problems if tag values match	
Allow manual close		
Menu entry name 🕐		
Menu entry URL		
Description		
		Add Cancel

5. In the Expression field, add a custom trigger to monitor StarWind events:

```
find(/HCI/log[/var/starwind/starwind-virtual-
san/events/StarWindVSA-Events.log],, "regexp", "ID_<EVENT_ID>
(.*?)(#;.*)")=1
```

6. To resolve alerts, configure recovery expression like this:



```
find(/HCI/log[/var/starwind/starwind-virtual-
san/events/StarWindVSA-Events.log],,"regexp","ID_<EVENT_ID>
(.?)(#;.)")=1
```

NOTE: As an example, EVENT\_ID\_775 (local device synchronization drop) can be resolved by EVENT\_ID\_773 (local device synchronization completion).

7. In the Tags tab, add/modify Tags.

NOTE: Tags simplify navigation and improve alert organization. For example, { ${ITEM.VALUE}.regsub("(ID_773|ID_775) (.?)(#;.*)", "\3")$ } can be used for identifying a device that becomes not synchronized and synchronized.

New trigg	ger					? X
Trigger	Tags					
		Trigger tags	Inherited and trigger tags			
	Tags					
					Add	Cancel

# **Connect Starwind Cvm To Zabbix**

1. To create a Host Group, navigate to Data Collection > Host Groups and press Create Host Group in the top right corner.



ZA	ABBIX «	5
	ance	Q
	Dashboards	
<u>11,Q</u>	Monitoring	~
e <del>[</del> 6	Services	~
$\bigcirc$	Inventory	~
-11	Reports	~
¥	Data collection	^
	Template groups	
	Host groups	
	Templates	
	Hosts	
	Maintenance	
	Event correlation	
	Discovery	



- 2. Name the group, e.g., StarWind.
- 3. Enable Autoregistration to add StarWind nodes.

NOTE: This step will automatically connect all CVM instances on the network that can communicate via the 10050 port with the Zabbix server.

$\cap$			Required server performance
<u> </u>	Alerts	^	High availability cluster
	Actions	<	Trigger actions
	Media types		Service actions
	Scripts		Discovery actions
			Autoregistration actions
0Ô	Users	~	Internal actions

4. Ensure that all necessary fields in the Action tab are completed.

NOTE: Host metadata can be changed, but they should be aligned with ones set for the agent side.

Action	Action						
Action Operations 3							
* Name	StarWind CVM auto	registration					
Conditions							
	A	Host metadata contains StarWind					
Enabled							
	* At least one operation	on must exist.					
			Update	Clone Delete Cancel			

5. Review the operations tab and edit them if required.

NOTE: At least one operation must exist.



Action					? 🗙		
Action Operations 3							
* Name	StarWind CVM autor	registration					
Conditions							
	A	Host metadata contains StarWind					
Enabled							
	* At least one operation must exist.						
				Update Clone Delete C			

# Conclusion

Managing hyperconverged infrastructure (HCI) across multiple sites can be complex, but StarWind Fleet Manager simplifies the process by integrating seamlessly with Zabbix. This guide equips IT professionals with the tools to implement centralized monitoring, automate maintenance, and optimize multi-site HCI environments. Whether you're overseeing traditional data centers or remote, mission-critical operations, StarWind Fleet Manager ensures reliable performance, scalability, and efficient resource management, empowering you to focus on strategic goals rather than infrastructure challenges.



## Contacts

US Headquarters	EMEA and APAC		
<ul> <li>+1 617 829 44 95</li> <li>+1 617 507 58 45</li> <li>+1 866 790 26 46</li> </ul>	<ul> <li>+44 2037 691 857 (United Kingdom)</li> <li>+49 800 100 68 26 (Germany)</li> <li>+34 629 03 07 17 (Spain and Portugal)</li> <li>+33 788 60 30 06 (France)</li> </ul>		
Customer Support Portal:	https://www.starwind.com/support		
Support Forum:	https://www.starwind.com/forums		

General Information: info@starwind.com

Sales: sales@starwind.com



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