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A Cloud Automation Solution

HC10 Configuration for Hyper-V Failover Cluster

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1) Introduction

HC Hyper-V module is an additional layer above the hypervisor, facilitating easy creation and management of virtual machines through a web-based UI. It strengthens the overall functionality of Hyper-V by furnishing a web platform to Data Centers and VPS Providers, allowing them a firm grip over various configurations of CPU, memory, storage and networking.

This article provides information regarding configuration of a Hyper-V failover cluster in HC panel. The explanation will also show a sample Hyper-V environment and will go over the server level and HC related requirements for the cluster to work seamlessly with HC panel.

2) System Requirements for Hyper-V Failover Cluster

2.1) Hyper-V Front-End Requirements

HC panel gives you the flexibility to design your Hyper-V front-end environment any way you want which suits your business needs. The article will go over the steps in this document using which you can then integrate all your front-end nodes in HC panel and will show how any VM owner related changes at the backend will be reflected in HC panel GUI.

The only requirement from HC's end is that the all the Hyper-V nodes are part of Active Directory Domain and VM migration is not configured against stand-alone servers.

2.2) Failover Storage Configuration Requirements

HC panel has few requirements when it comes to the storage solution implemented for the failover cluster. They are as under:

1. Any sort of central storage needs to be configured such as iSCSI, fiber etc.
2. Cluster Shared Volumes needs to be enabled in the failover cluster. Cluster storage volume path (e.g. **C:\Cluster Storage\Volume\..**) should be visible to all nodes in the cluster.

3) HC Supported Hyper-V Failover Scenarios

Hosting Controller has tailored its Hyper-V solution after going through the feedback provided by many of its valued clients. And based on this feedback, it has provided the support for both Quick Migration and Live Migration in Hosting Controller control panel.

4) Prominent Features and Practices of HC Hyper-V Cluster Implementation

4.1) Practices

1. The storage configurations of all the Hyper-V nodes need to be identical in HC panel.
2. All the nodes of the failover cluster must be added in HC panel and HC Agent installer must be deployed on each of them. HC Agent installation comprises of few clicks only and can be followed on each Hyper-V node by consulting this document: https://help.hostingcontroller.com/hc10/default.aspx?pageid=hc_agent_installation
3. The **HCP provisioningService** (HC Agent service) needs to run under domain\administrator account on all Hyper-V nodes.

4.2) Features

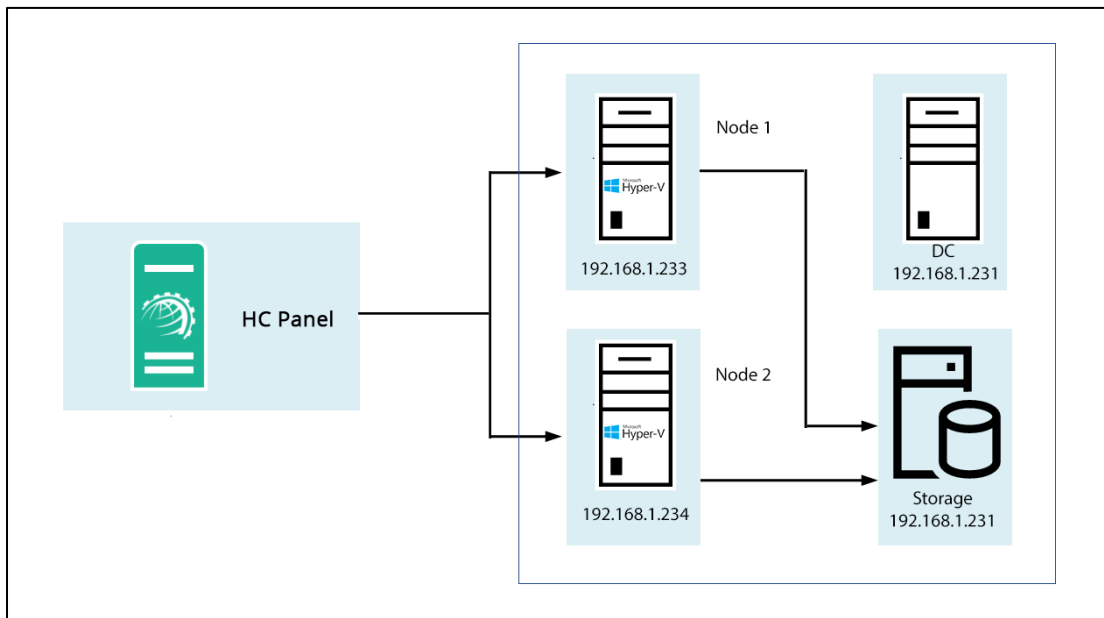
1. After Hyper-V failover cluster has been configured in HC panel, all the future VMs provisioned via the panel will automatically be in a failover state.
2. If a node goes down, Hyper-V cluster then migrates all the VMs located on this node to the next node. This process may include Quick or Live migration. The change of VM owners will be reflected in HC panel and all the VMs will be shown affiliated with the updated Hyper-V node. There is no manual intervention required for the whole process to reflect the changes in HC panel.

5) Lab Environment

The configuration of Hyper-V failover with HC panel can best be explained through a simple Hosting Controller lab environment and demonstrating how it can be configured in the control panel.

The lab consists of the following:

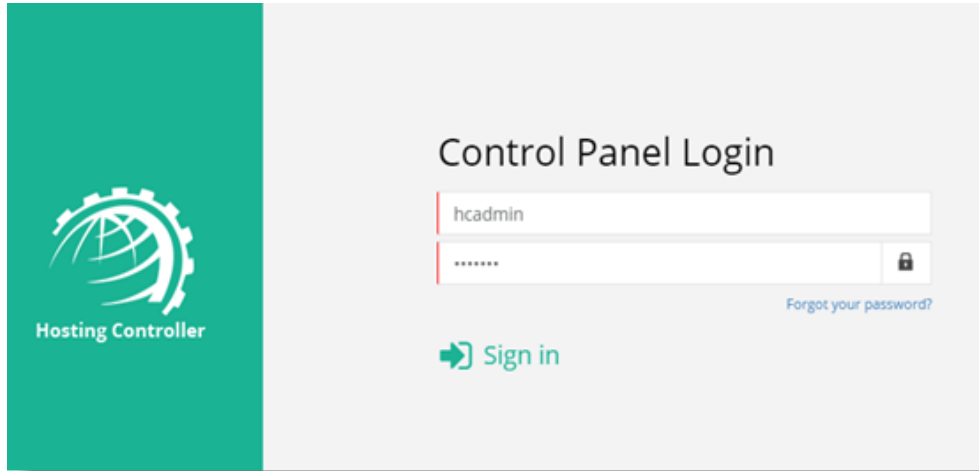
- WS 2016 DC – 192.168.1.231 – Windows Server 2016 Standard is DC for the test lab.
- WS 2016 Storage Server iSCSI Target – 192.168.1.231
- WS 2016 Node 1– 192.168.1.233 – Windows Server 2016 Standard – Failover Cluster Node 1.
- WS 2016 Node 2– 192.168.1.234 – Windows Server 2016 Standard – Failover Cluster Node 2.
- Private Network IP for Failover Cluster is 192.168.1.235




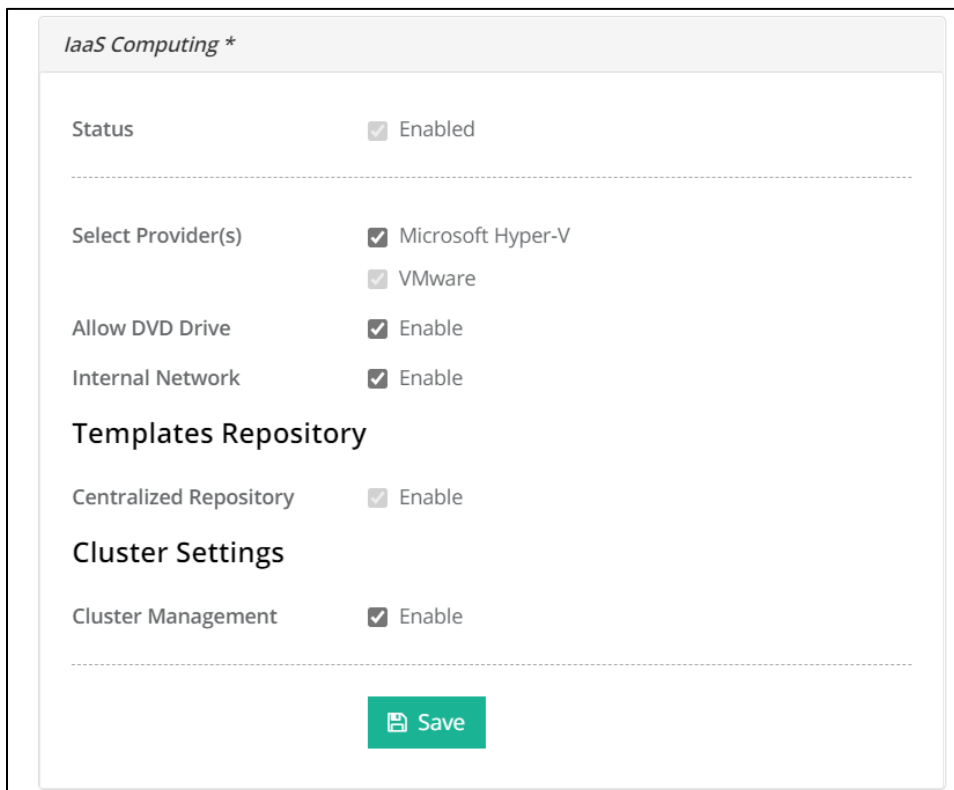
6) Configuring the Panel

To configure the panel, follow the steps as stated for complete and easy Hyper-V server configuration:

1. Log on to HC panel as a Global Admin user.



2. To enable Hyper-V server, click  at top right corner of HC panel and go to **Server Manager >> Cluster Settings**. Under **On-premises** tab and **IaaS Computing** section, select **Enabled** checkbox. Enable Hyper-V checkbox. Next enable **Cluster Management**. Enabling Cluster Management will automatically enable **Centralized Repository**. Finally click on **Save** button.



3. Add all your Hyper-V Nodes to HC. To add a Hyper-V node to the cluster, go to **Server Manager >> Servers**. Click **Add Server >> On-premises Windows**. Here against the **Server's Friendly Name** field insert the exact hostname of the Hyper-V node. Next, against the **Admin User** field, insert the credentials of Domain Administrator. Click **Check Connectivity**.

Add Server (On-premises Windows)
×

General Information

Server's Friendly Name

IP Address

Admin User

Password

Check Connectivity

Server Role(s) in Cluster

Select Server Role

- IaaS Computing
- Web Server
- DNS Server
- Mail Server
- Database Server

Add Server & Configure >
Cancel

Add Server (On-premises Windows)
×

General Information

Server's Friendly Name

IP Address

Admin User

Password


Check Connectivity

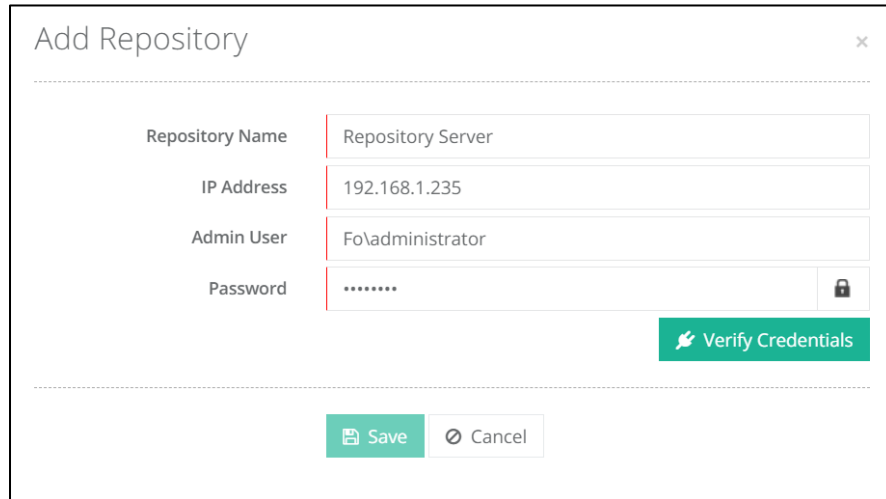
Server Role(s) in Cluster

Select Server Role

- IaaS Computing
- Web Server
- DNS Server
- Mail Server
- Database Server

Add Server & Configure >
Cancel

4. Add Repository Server. Repository Server allows OS templates to be stored in a central location. The Repository Server is a separate Windows server where these OS templates are stored. To add a Repository Server, from top right corner of your screen, click  and then go to **Virtual Module Configuration >> Repository Management**.



Add Repository

Repository Name: Repository Server


IP Address: 192.168.1.235

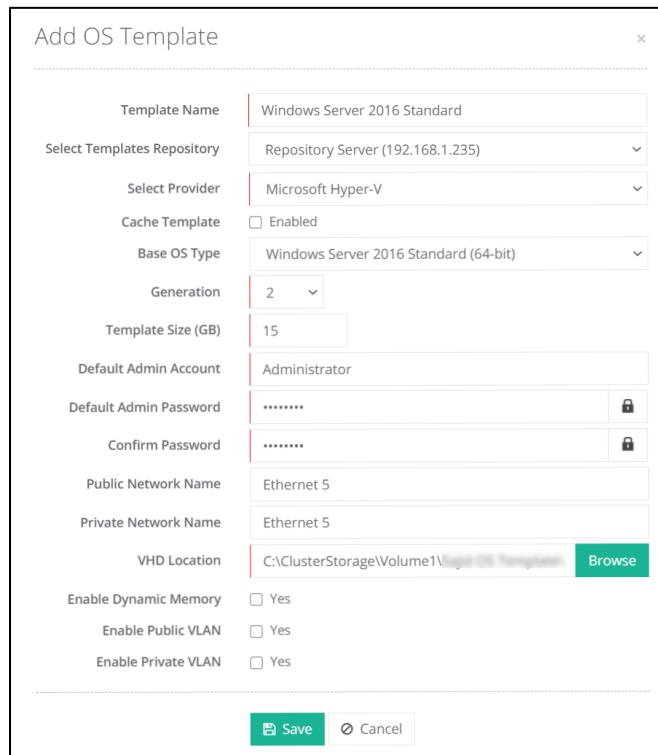
Admin User: Fo\administrator

Password:

Verify Credentials

Save Cancel

5. Add OS template against Repository Server. From top right corner of your screen, click  and then go to **Virtual Module Configuration >> OS Templates >> + Add OS Template**.



Add OS Template

Template Name: Windows Server 2016 Standard

Select Templates Repository: Repository Server (192.168.1.235)

Select Provider: Microsoft Hyper-V

Cache Template: Enabled

Base OS Type: Windows Server 2016 Standard (64-bit)

Generation: 2

Template Size (GB): 15

Default Admin Account: Administrator

Default Admin Password:

Confirm Password:

Public Network Name: Ethernet 5

Private Network Name: Ethernet 5


VHD Location: C:\ClusterStorage\Volume1\... Browse

Enable Dynamic Memory: Yes

Enable Public VLAN: Yes

Enable Private VLAN: Yes

Save Cancel

6. Add a failover cluster. To add a failover cluster, from top right corner of your screen, click  and then go to **Virtual Module Configuration >> Failover Cluster Management >> + Add Failover Cluster**.

Associated Servers

While creating a failover cluster, you can choose all the Hyper-V hosts that will be part of the cluster. These will be the associated failover nodes. A typical Hyper-V failover cluster setup consists of 2 or more nodes. If one or more of the clustered nodes fail or suffer performance issues, the workloads (virtual machines, services, processes, etc.) will be shifted to an available node, so that the virtual machines can resume their normal operations again.


Associated Repositories

A repository is a central storage location where .vhdx files are stored. The clustered nodes fetch OS templates (.vhdx files) from this central location. The central storage can be on an entirely separate server or on any of the servers in the environment, but the cluster storage volume path (e.g. C:\Cluster Storage\Volume\..) should be visible to all nodes in the cluster. The repository has a virtual IP (192.168.1.235 in this case) that enables the active node to fetch from the central location. Therefore no matter which node is active, it will always fetch from the same central location. Central storage can be any of the storage methods such as iSCSI, fiber etc.

Add Failover Cluster ✕

Success: Cluster connected successfully. ✕

General Settings

Friendly Name	<input type="text" value="Failover Cluster"/>
Failover IP	<input type="text" value="192.168.1.235"/>
Admin User	<input type="text" value="fo\administrator"/>
Password	<input type="password" value="....."/> 

Check Connectivity

Associated Servers

Select Servers

- Node1 (192.168.1.233)
- Node2 (192.168.1.234)
- Web-Hosting (192.168.10.13)

Associated Repositories

Select Repository

Before creating a Failover Cluster, please create a repository and attach an OS template with it.

Save Cancel

7. Add set of IPs for virtual machines. IP addresses can be added with the help of the link http://help.hostingcontroller.com/hc10/default.aspx#pageid=configuring_public_ip_addresses

Add Public IP Address

Select Server: Failover Cluster (192.168.1.235)

IP Address Range: 192.168.1.68 To 70

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

Preferred DNS: 8.8.8.8

Alternate DNS: 8.8.8.8

MAC Address: 5A:12:C1:77:09:0A

Save Cancel

8. Finally create a virtual machine. Virtual machines can be provisioned via HC panel in failover cluster environment from: **Provisioning >> Virtual Machines >> Create Virtual Machine**.

Create Virtual Machine

Virtual Machine Configurations

Owner: Create Virtual Machine for myself

Base OS Type: Cent OS (64-bit)

Select Provider: Microsoft Hyper-V

Select Virtualization Server: Failover Cluster (192.168.1.235)

Select Offering: I'll choose my own offering

CPU Cores: 1

RAM Size (MB): 512

VHD Size (GB): 4

Assign Public IP Address: Yes

Assign Private IP Address: Yes

Public VLAN: Do not assign VLAN.

Virtual Machine Details

Virtual Machine Name: example-vm

Description: CentOS Virtual Machine creation process through Hosting Controller control panel

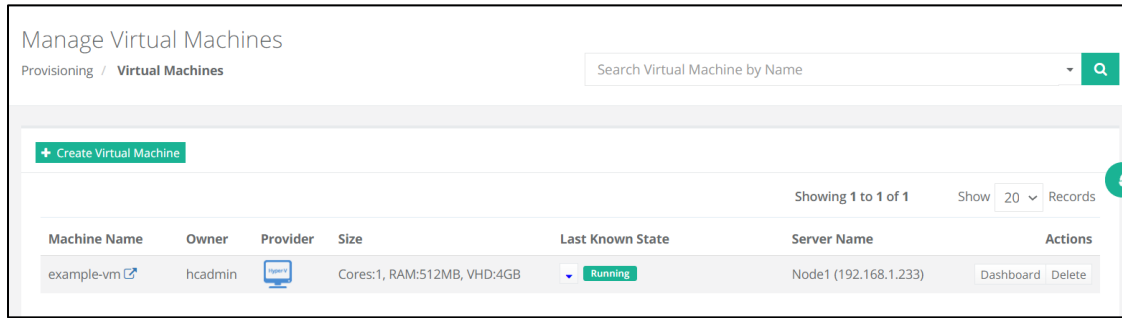
Admin Account: Administrator name will be shown on details page

Password:

Confirm Password:

Create-Virtual Machine Cancel

9. That's it. A virtual machine has been added through the Hyper-V failover cluster.



7) Contact Us

If you have your environment ready and want to test the HC panel Hyper-V failover capabilities, you can contact our support team at support@hostingcontroller.com and we will configure your panel for you.