

**Technical Whitepaper** 

# Onboard Dell HCI Configuration Profile (HCP) policies to Azure Arc from Windows Admin Center

#### Abstract

This white paper provides guidance to onboard Dell HCI Configuration Profile (HCP) Policies to Azure Arc so that administrators can leverage those policies and can check the compliance against the cluster.

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# Revisions

Date	Description
June 2022	Initial release
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### Acknowledgments

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## Acronyms

Acronyms	Expansion
iDRAC	Integrated Dell Remote Access Controller
OMIMSWAC	OpenManage Integration with Microsoft Windows Admin Center
MS API	Microsoft Application Programming Interface
HCI	Hyper-Converged Infrastructure
HCP	HCI Configuration Profile

## **Executive Summary**

This white paper provides guidance for onboarding Dell Azure Policies to Azure Arc so that administrators can leverage those policies to monitor cluster compliance.

## **Intended Audience**

The intended audience of this document are IT administrators who use OMIMSWAC to onboard HCP policies to Azure Arc to monitor Dell Integrated System for Microsoft Azure Stack HCI (also known as Azure Stack HCI cluster) created using AX nodes from Dell Technologies.

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# 1 Introduction

Since Azure Arc is the one of the primary management tools for resource management on cloud and hybrid platforms, it is essential that Dell HCI Configuration Profile (HCP) policies help administrators maintain HCP compliance throughout HCI cluster/host lifecycle.

Dell HCP is the specification (collection) from Dell that captures the best practice configuration recommendation for Azure Stack HCI solutions from Dell. Therefore, Dell Technologies recommends that administrators strictly adhere to the HCP recommendations to improve the performance and resilience of their HCI solutions.

OMIMSWAC helps administrators to onboard Dell HCP Policies to Azure Arc so that they can leverage those policies to monitor cluster compliance.

Prerequisites: For more information, see Prerequisite.

Onboarding policies into Azure: For more information, see Onboarding policies into Azure.

Onboarded Policies Report: For more information, see Export the Onboarded Policies Report.

Update HCP Policies: For more information, see Update HCP Policies.

Remediate HCP Policies: For more information, see <u>Remediate HCP Policies</u>.

## 2 Prerequisites

Ensure your Azure Stack HCI cluster meets the following prerequisites before you onboard HCP policies to Azure Arc:

- Users must have an Azure subscription.
- WAC gateway must be registered into Azure. For more information, see <u>WAC Gateway</u> <u>Registration into Azure</u>.
- Azure Stack HCI Cluster nodes must have Dell supported model & OS and all node models & OS must be same across the cluster. For more information, see <u>Model and OS check</u>.
- "OMIWAC Premium License" is required for each of the nodes. For more information, see <u>Verify</u> <u>License Details</u>.

If any of the prerequisite checks fail, OMIMSWAC blocks the onboarding policies to the Azure Arc.

#### 2.1 Register WAC Gateway with Azure

For information about registering Windows Admin Center with Azure, see Microsoft documents.

#### 2.2 Model and OS Check

In OMIMSWAC, when you click the **Azure Integration** option from the view dropdown menu, the extension checks the cluster's model and OS. Ensure your cluster meets the following prerequisites for model and OS.

 Azure Stack HCI Cluster nodes must have Dell supported models & OS and all node models & OS must be the same across the cluster.

OMIMSWAC 3.0 and higher versions supports YX4X and YX5X PowerEdge servers for onboarding HCP policies to Azure. For more information about the supported models, see the <u>compatibility</u> <u>matrix</u> in the user's guide.

Use the latest version of the extension and refer to the updated compatibility matrix. You can also refer the "About" page in the extension for updated documentation.

**Note:** If any of the cluster nodes fail the model or OS check, an error banner message will appear and block further steps. For more information, see <u>Troubleshooting</u> section 7.1

#### 2.3 Verify License Details

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In OMIMSWAC, you can view node details and their licenses from the iDRAC inventory. The iDRAC inventory attributes are optimized to improve usability.

Perform the following steps to check license details:

- 1. In the Windows Admin Center, connect to a server or cluster.
- 2. In the left pane of the Windows Admin Center, under **EXTENSIONS**, click **Dell OpenManage Integration**.
- Select Overview in view menu drop down and select individual node name in node drop down for cluster connections. You can see the OMIWAC license details in System Details section. Also, you can click iDRAC Details link in the right-side corner of System Details section to view more about the license details.

 To view the license details, click on a license attribute name. For example, iDRAC9 Enterprise License, OME Server Configuration Management, OMIWAC Premium License for MSFT HCI Solutions, and more.

Note: By default, AX nodes include OMIWAC Premium license as part of the base solution.

View : Overview 🗸 Node :	✓ Action ✓			
Overview (	) 🛈		Г	
© 1	O Unknown	🗗 Unlocked	O Unknown	0
Health	Secured Core (BIOS)	Infrastructure Lock	Hardware Compliance	OMIWAC License
System Details				iDRAC Detail
Node Name		Model	AX-640	
Manufacturer	Dell Inc.	Service Tag		
URL		Firmware Version		
IPMI Version	2.0	DNSRacName		
MAC Address		iDRAC License - Status		

Figure 1: Verify License Details from Overview page

11 items 1 selected $ imes$	Search	Q
Attribute Name	Attribute Value	
DNSDomainName		
URLString		
iDRAC9 Enterprise License - Status	0	
OME Server Configuration Management	ent - Statı 🥑	
OMIWAC Premium License for MSFT	HCI Soluti 🥑	
Pr The license description in iDRAC s License for Azure Stack HCI. IP	hows as OMIWAC Premium	it provides a complete
DNSRacName		
FirmwareVersion		
PermanentMACAddress		
InfrastructureLockStatus	6	
License Details		~
License Description OMIWAC Premium License for	MSFT HCI Solutions	
License Primary Status OK		
		Close

Figure 2: iDRAC Details pop-up page

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**Note**: Ensure that OMIWAC premium licenses are installed on all cluster nodes to use the Azure feature. For more information about OMIWAC premium licensing, see <u>OMIMSWAC Installation Guide</u>.

## 3 Onboard policies into Azure

In OMIMSWAC, when you click **Azure Integration** in **View** dropdown menu, the extension checks your cluster for all the prerequisites as mentioned in the previous sections. Once the prerequisites are met, proceed to onboard the policies.

To onboard policies into Azure, perform the following steps:

Step 1: Sign-In to Azure

Step 2: Onboarding Checklist

Step 3: Onboard HCP Policies

#### 3.1 Sign-In to Azure

Perform the following steps to sign-in to Azure:

1. Click Sign In. A Sign in pop up window appears. For more information, see Microsoft document.

View : Azure Integration 🗸	Node : All 🗸 Action 🗸
Dell Infrastructure Mar Integrate Dell Infrastructure man	agement at-scale from Azure Portal agement capabilities into Azure and get the benefits of full-stack management using Azur
<ol> <li>Recommendation</li> </ol>	
There are no charges for using A configuration of CPU core count	zure Policy on Azure resources. However, to maintain the total cost of ownership and perfo of the cluster. To configure the number of active CPU cores in a cluster, select the <u>Configur</u>
Learn more on Azure policies	C'
🔍 Step 1: Sign in to Azure	
Sign In	

Figure 3: Sign-in

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**Note**: Alternatively, you can also sign in to Azure from the **Overview** page. In **Azure Integration** section, click **Sign-in** to go to the Azure integration page. Sign-in pop up window will appear for you to sign In to the Azure.

Dell OpenMana	age Integration ed System for Microsoft Azure St All	Dell OpenMana           Image: State of the	d System for Microsoft Azure
Overview (	) 🛈	Overview (	) 🛈
₩ 2	© 2	₩ 2	◎ 2
Nodes	Health	Nodes	Health
Azure Integration ①		Azure Integration ()	
Integration Status 0 Not sig	sign In	Integration Status Signed	In Configure Cluster Settings

Figure 4: Sign-In from Overview page (before and after Sign-In status )

Once you have signed-In, step 2: Onboarding Checklist section is enabled.

		rosont Azure	Stack HCI (Nodes: 2)
View : Azure Integration 🗸	Node : All 🗸	Action 🗸	•
Dell Infrastructure Manage integrate Dell Infrastructure manager Recommendation	ement at-scal nent capabilities in	e from Az to Azure and	get the benefits of full-stack
There are no charges for using Azure configuration of CPU core count of th	Policy on Azure re e cluster. To config	sources. Howe	ever, to maintain the total co per of active CPU cores in a c
Learn more on Azure policies <sup>1</sup>			
Step 1: Sign in to Azure			

Figure 5: Sign-in status

**Note**: Sign-in to Azure is handled by Microsoft Windows Admin Center APIs and Dell extension does not have any control over it.

#### 3.2 Onboarding Checklist

- 1. After the **step 2: Onboarding Checklist** is enabled, OMIMSWAC will check the following list to ensure that the user and the cluster meet all the onboarding checklists:
  - User must have the following list of permissions to onboard the HCP policies into Azure. Signed in user has permission to
    - create and manage policy assignments
    - create and manage policy definitions
    - create and manage policy exemptions
    - create and manage policy sets

For more information about roles, see Microsoft document.

- Cluster is registered and connected to Azure Arc. For more information, see Microsoft document.
- Cluster registered resource group must be available in the Azure.
- 2. After all the onboarding checklists are met, the next step 3: Onboard Policies is enabled.

L)ell ()penManage Integration	
HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2)     Avm Stack HCI (Content O)	
View: Azure Integration V Node : All V Action V	0
Dell Infrastructure Management at-scale from Azure Portal ntegrate Del Infrastructure management capabilities into Azure and get the benefits of full-stack management using Azure Arc.	
Decommentation     There are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of ownership and performance for your Azure Stack HCI duster at an optimal level, asse     ordingutation of CPU core count of the duster. To configure the number of active CPU cores in a duster, select the <u>Configure</u> them from View menu.	ss the
3. Step 1: Sign in to Azure	
Signed In	
Step 2: Onboarding Checklist	
Soon Details	0

Figure 6: Onboarding chek list show details

9

3. Click **Show Details** to see the list of checklists and their status.

- HCI Cluster	Name	Status	Heli
16	Cluster is registered and connected to Azure Arc	<b>Ø</b>	
view : Azure integra	Signed in user has permission to create and manage policy assig	gnments in the 📀	
Dell Infrastruct	Signed in user has permission to create and manage policy define	nitions in the re 🛛	
ntegrate Dell Infrastru	Signed in user has permission to create and manage policy exer	mptions in the r	
Recommendation	Signed in user has permission to create and manage policy sets	in the resource	
here are no charges f			
Learn more on Azu			
Step 1: Sign in to			
• Signed in			
= Step 2: Ophoardi			

Figure 7: Onboarding checklist pop up page

#### 3.3 Onboard HCP Policies

1. After the **Step 3: Onboard Policies** is enabled, click **View Subscription Details** to view the subscription and resource group info.

Dell OpenManage Integration	Azure Subscriptio	on Details
🗶 🛃 HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2) 🛛 Azure Sza	Azure Account	: Dell.com
View : Azure Integration 💙 Node : All 💙 Action 💙	Azure Subscription	:
Dell Infrastructure Management at-scale from Azure Portal	Resource Group	-
Integrate Dell Infrastructure management capabilities into Azure and get the benefits of full-stack mana	Azure Region	: East US
Recommendation		
There are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of o configuration of CPU core count of the cluster. To configure the number of active CPU cores in a cluster,		
Learn more on Azure policies		
Step 1: Sign in to Azure		
Signed In		
≣ Step 2: Onboarding Checklist		
Show Details		
Step 3: Onboard Policies View Subscription Details		

Figure 8: View subscription details

2. Click **Configure Cluster Settings** to configure the network topology and deployment model. **Cluster Settings** page appears.

HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2)     Arue Stack HCI Cented ()	The applicable policies will vary based on the settings. Choose applicable values as per distance configuration. Go thereigh the applicable values as per distance on the settings.
View : Azure Integration V Node : All V Action V	tooltips to understand more on the settings.
Dell Infrastructure Management at-scale from Azure Portal	Network Topology*
integrate Dell Infrastructure management capabilities into Azure and get the benefits of full-stack management using Azure Arc.	Fully-Converged 🗸
Recommendation	Deployment Model* 💿
There are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of ownership and performanc configuration of CPU core count of the cluster. To configure the number of active CPU cores in a cluster, select the <u>Configure</u> item	Switchless
Learn more on Azure, policies	
🔍 Step 1: Sign in to Azure	
Signed In	
Step 2: Onboarding Checklist	
Show.Details	
Step 3: Onboard Policies <u>View Subscription Details</u>	
Onboarded Dell HCP policy version 1.1.0.0	
Configure Cluster Settings Cluster settings need to be configured before onboarding the policies	

Figure 8: Cluster settings popup page

- a. Select the Network Topology and Deployment model. For more information, see <u>Appendix</u> section 8.1
- b. Click **Save.** All applicable policies for the cluster based on the selection and cluster node model are fetched.

**Note**: Alternatively, you can also click the **Configure Cluster Settings** link from the **Overview** page which will redirect to the "**Cluster Settings**" popup page.

View : Overview 🗸	Node : All 🗸	Action 🗸
Overview (		) 🛈
₩ 2		02
Nodes		Health
Azure Integration 🕕		

Figure 10: Configure cluster settings from overview page

3. If you want to change the network topology and deployment selection, click **Edit Cluster Settings** and repeat the above steps.

Step 3: Onboard Policies	View Subscription Details
Onboarded Dell HCP p	olicy version 1.2.0.0
Edit Cluster Settings	Cluster settings configured

Figure 11: Edit Settings pop up page

After the policies are fetched, Onboard Policies button is enabled.

<ul> <li>Onboarded Dell HCP p</li> </ul>	olicy version 1.2.0.0
Edit Cluster Settings	Oluster settings configured
Onboard Policies	

Figure 12: Onboard Policies

4. Click **Onboard Policies** to view the applicable policies for upload.

Onboard Dell HCP policies for Azure Arc page appears on the right. In this page, the policies are grouped into three categories:

- Dell HCI Hardware configuration policy
- Dell HCI OS configuration policy
- Dell HCI Cluster configuration policy

Each group has a toggle button to collapse and expand the selections. All policies are shown as selected, and the user can de-select only non-mandatory policies.

Dell Openivianage integration	Onboard Dell HCI Configuration Profile Policies for Azure Arc
HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2)     Acure 92	Onboard Dell HCI Configuration Profile (HCP) policies recommended below into Azure Arc. Onco onboarded, log into the Azure and verify the compliance status of your clusters.
View : Azure Integration 👻 Node : All 💙 Action 🗡	You have previously onboarded Dell HCP policy version 1.1.0.0. You have following policies available as part of the Dell HCP policy version 1.2.0.0
Dell Infrastructure Management at-scale from Azure Portal	✓ Dell HCI Hardware Configuration Policy
ntegrate Dell Infrastructure management capabilities into Azure and get the benefits of full-stack mana	Dell HCI OS Configuration Policy
Recommendation	Dell HCI Cluster Configuration Policy
here are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of o polynomial on of CPU core count of the cluster. To configure the number of active CPU cores in a cluster.	Z ChusterState, Up
Learn more on Azure policies Cf	KotagePoolHealthStatus, True
3 Step 1: Sign in to Azure	This operation may take few minutes. Once onboarded, use the Azure portal to check
Signed In	comparate
Step 2: Onboarding Checklist	If you have multiple clusters on the same subscription and same policies onboarded for them, updating policy for this cluster will update for other clusters as well.
Show.Details	
Step 3: Onboard Policies View Subscription Details	
Onboarded Dell HCP policy version 1.1.0.0	
Edit Cluster Settings   Cluster settings configured	
Onhourd Ballicler	

Figure 13: Onboard Policies

**Note**: Alternatively, you can also click the **Configure** link from the **Overview** page which will redirect to "**Onboard Dell HCI Configuration Profile Policies for Azure Arc**" popup window in Azure page.

0	
Ø Unknown	🔓 Unlocked
Secured Core (BIOS)	Infrastructure Lock
	O     O     Unknown     Secured Core (BIOS)



5. Click Onboard to onboard the policies into Azure.



Figure 15: Onboard Dell HCI Configuration Profile Policies for Azure Arc

After you click **Onboard**, the popup closes and the onboarding of the policies to Azure begins. Policies are created in Azure and respective policy definitions along with policy assignments.

Onboarded Dell HC	P policy version 1.2.0.0	
Edit Cluster Settings	Cluster settings configured	
Onboard Policies	Policies Onboarding	

Figure 16: Onboarding Policies

 After Onboarding is complete, View Details and Export Details links are available. For both Success/ Failure, corresponding notifications are shown with additional context.

Onboarded Dell HCP p	olicy version 1.2.0.0
Edit Cluster Settings	<ul> <li>Cluster settings configured</li> </ul>
Only and Pallation	

Figure 17: Policies Onboarded- status

7. Click View Details to view the details of each policy creation and assignments status.

graden	Policy Onboarding Status	
HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2)	▲ Dell HCI Hardware Configuration Policy ③	
View : Azure Integration 🌱 Node : All 💙 Action 💙	ProcVirtualization_Enabled	Success
	ProcX2Apic_Enabled	Success
Dell Infrastructure Management at-scale from Azure Portal	ControlledTurbo_Enabled	Success
integrate Dei Intrastructure management capabilities into Azure and get the benefits of rule-stack mana	SysProfile_PerfOptimized	Success
Recommendation	SriovGlobalEnable_Enabled	Success
There are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of o	TpmSecurity_On	Success
D Learn more on Azure policies r:*	AcPwrRcvry_On	Success
	AcPwrRcvryDelay_Random	Success
Step 1: Sign in to Azure	SecureBoot_Enabled	Success
Signed In	ServerPwr.1.PSRedPolicy_A-B-Grid-Redundant	Success
	OS-BMC.1.AdminState_Enabled	Success
E Step 2: Onboarding Checklist	▲ Dell HCLOS Configuration Policy	
	NIC2_PhysicalAdapterVMSwitch_True	Success
Show Details	MgmtLowPriorityAttribute	Success
	Management_Mellanox_SET	Success
Step 3: Onboard Policies View Subscription Details	NIC2_Mellanox_SET	Success
Ophoarded Dell HCP policy unrises 1300	Management_Mellanox_Physical	Success
Choosided Delinter policy version 12200	NIC2_Mellanox_Physical	Success
Edit Cluster Settings Cluster settings configured	MultiChannel_True	Success
Onhoard Policies		

Figure 18: View Details - Onboarded Policies Status

**Note:** By using this feature, you can use the same policies across multiple clusters to manage multiple clusters at scale in Azure Arc.

8. Once the policies are successfully onboarded to Azure, users can view the onboarded policies in the Azure portal. For more information, see <u>Microsoft document</u>.

$\equiv$ Microsoft Azure	𝒫 Search resources, services, and docs (G+/)		E 🚱	P © R	DELL TECHNOLOGIES (DELLON	- (
Home > Policy Policy   Definitions	**					×
P Search (Ctrl+/) ≪	+ Policy definition + Initiative definition	🕐 Refresh				
<ul> <li>Getting started</li> <li>Compliance</li> </ul>	Scope Definition type AzD1N-8DC-Openmana.  All definition types	Category     Categories	Search [Dell]			
<ul> <li>Remediation</li> <li>Events</li> </ul>	Now export your definitions and assignments to GitHub and manage then	n using actions! Click on 'Export definition' menu option. Le	arn more			
Authoring	Name 14	Definition location $\uparrow \downarrow$ Policies $\uparrow \downarrow$	Type ↑↓	Definition type ↑↓	Category ↑↓	
Assignments	O [Dell] Exempted Policy	AzD1N-BDC-Openmanag	Custom	Policy		
Definitions	Cluster Configuration Policy	AzD1N-BDC-Openmanag 2	Custom	Initiative	Cluster Attributes	
Exemptions	🖀 [Dell] Hardware Configuration Policy	AzD1N-BDC-Openmanag 15	Custom	Initiative	HW Attributes	
	Configuration Policy	AzD1N-BDC-Openmanag 15	Custom	Initiative	OS Attributes	

Figure 19: HCP Policy Details in Azure Portal

E Microsoft Azure      P Search resources, services, and docs (G+/)		۶.	<b>G</b> (	Q @	)	ନ	@Dell. Dell technologies (dellon.
Home > Policy >							
[Dell] [] Hardware Configuration Policy							
🕞 Assign 🥒 Edit initiative 🕒 Duplicate initiative 📋 Delete initiative 今 Export initiative							
↑ Essentials							
Name : [Dell] Hardware Configuration Policy	Definition location : AzD1N-BDC-Openmanage-	Sx01					
Description : [Dell] Hardware Configuration Policy	Definition ID : /subscriptions/				/provid	ers/Micro	soft.Authorization/polic
Category : HW Attributes	Type : Custom						
Version :							
Automated Microsoft managed Assignments (1) Parameters							
Scope Search           AzD1N-BDC-Openimana         Filter by name or ID							
Assignment name ↑↓	Scope	A	ssigned	by			
[Dell] [ Hardware Configuration Policy	AzD1N-BDC-Openmanage-Sx01/AX640AZV2CLS-46ec	c737a		0	Dell.com		

Figure 20: Policy Assignment in Azure Portal

Microsoft Azure     /     Search resources, services, and docs (G+/)			E 🕞 Q 🚳	Dell TECHNOLOGIES (DELLON
Home > Policy >				
[Dell] [] Hardware Configuration Policy				×
🕒 Assign 🖉 Edit initiative 🕒 Duplicate initiative 🧻 Delete initiative 🙃 Export initiative				
↑ Essentials				
Name : [Dell] Hardware Configuration Policy	Definition location	: AzD1N-BDC-Openmanage-Sx01		
Description : [Dell] Hardware Configuration Policy	Definition ID	: /subscriptions/		/providers/Microsoft.Authorization/polic
Category : HW Attributes	Туре	: Custom		
Version :				
Automated         Microsoft managed         Assignments (1)         Parameters           Filter by reference ID, policy nam         All effects         V         All types         V		24 - X		
Policy ↑↓	Effect Type ↑↓	Туре ↑↓	Reference ID 1	Ψ.
[Dell EMC][Hardware]SystemAttribute	AuditIfNotExists	Custom	ProcVirtualizatio	on_Enabled
[Dell EMC][Hardware]SystemAttribute	AuditIfNotExists	Custom	ProcX2Apic_Ena	abled
[Dell EMC][Hardware]SystemAttribute	AuditIfNotExists	Custom	ControlledTurb	p_Enabled
[Dell EMC][Hardware]SystemAttribute	AuditIfNotExists	Custom	SysProfile_PerfC	ptimized
[Dell EMC][Hardware]SystemAttribute	AuditIfNotExists	Custom	SriovGlobalEnal	ble_Enabled

Figure 21: Policy Definition in Azure Portal

	$\wp$ Search resources, services, and docs (G+/)			D G	Q 🔅	ଡ ନ	@Dell Dell technologies (dellon
Home > Policy > [Dell]	Hardware Configuration Policy > [Dell]	Hardware Configuration Policy >					
Assignment Details	·						×
View definition     Edit assignmen     Selected Scopes     1 selected subscription	t 🕞 Assign to another scope 📋 Delete assignme	nt 😨 Create Remediation Task 🖉 Create	exemption				
Compliance state ①	Overall resource compliance ①	Resources by compliance state 🕕	Non-compliant policies 🕕				
Compliant	100%	0 - Compliant 0 - Exempt 0 - Non-compliant	O out of 0				
Policies Non-compliant resources	Events						
Name	↑↓ Effect Type ↑↓ Complia	ance state	↑↓ Non-Compliant Resources	ŕ.	J Total res	ources	$\uparrow_{\downarrow}$
[Dell EMC][Hardware]SystemAttribut	e AuditIfNotExists 🖉 Com	pliant	0		0		••••
[Dell EMC][Hardware]SystemAttribut	e AuditIfNotExists 🛇 Com	pliant	0		0		
[Dell EMC][Hardware]SystemAttribut	e AuditlfNotExists 🔮 Com	pliant	0		0		
[Dell EMC][Hardware]SystemAttribut	e AuditIfNotExists 🖉 Com	pliant	0		0		

Figure 22: Policy Compliance in Azure Portal

**Note:** The policy compliance report is available on Azure Arc as well as in the OMIMSWAC HCP Compliance page, providing a consistent management experience.

# 4 Export the Onboarded Policies Report

Once the policies are successfully onboarded to Azure Arc (section 3.1-3.3), users can export the onboarded policies details in an excel (.xls) file.

#### Click Export Details to download the details

Onboarded Dell HCP period	olicy version 1.2.0.0
	Cluster settings configured
Edit Cluster Settings	Cluster settings configured
Onboard Policies	Policies Ophoarded View Details Export Details

#### Figure 23: Export Details

AutoSave 💽 🛱 🏷	<b>-</b>	×	nboardedPolic	ies	_	1.2.0.0	ļ
File Home Insert	Draw P	age Layout	Formulas	Data	Review	View He	elp
Paste B I U	~ 11 ~ ⊞ ~	∽ A^ A` <u>∧</u> ∽ <u>A</u> ∽	= = =	- ≫ - • • •	\$₽ ~	Sensitivity	G
Clipboard Is	Font	Fa	Ali	gnment	G.	Sensitivity	1
• : ×	$\sqrt{-f_x}$	Subscriptio	n Info Details	5			
🖉 Not set 🛛 🖓	istomer Comr	nunication -	Pu	ublic	•	Internal U	Us
A			В				ī
1 Subscription Info Details	]						1
2 Cluster Name :		.co	m				
3 Azure Account :		@Dell.c	om				
4 Azure Subscription :							
5 Resource Group :							I.
6 Azure Region :	East US						
7 Policy Uploaded Time :							
8							
9							
0							
1							_
Subscription	Info Ass	ignments	Initiatives	Policies	+		

Figure 24: Export Details - Excel file

# 5 Onboard updated HCP Policies to Azure

When onboarded policies in Azure Arc are changed (section 3.1 - 3.3), you can use the "Onboard Policies" button to reload the policy.

**Note:** If a new version of Dell HCP policy is available, you will get a notification with following message "A new version of Dell HCP policy <version number> is available for update. Go to Azure Integration from View menu or Overview page and onboard the policies into Azure Arc."



Figure 25: HCP Policy New Version Notification

1 If there are any changes in the policy, to update the previously uploaded policies, click **Onboard Policies**. The version of the policy, which is currently present in Azure, is displayed.



Figure 26: HCP Policy Version

2 **Onboard Dell HCI Configuration Profile Policies for Azure Arc** page appears on the right. You can see the version details of the policy being uploaded in the pop up.



Figure 27: HCP Policy Version in pop up

# 6 Remediate HCP Policies

After you onboard the policies into Azure Arc (see <u>Onboard policies into Azure</u>), you can use OpenManage Integration in Windows Admin Center to manage Dell HCP policy compliance. This includes remediating Dell HCP policy to fix any non-compliant policies in an automated fashion using Cluster-Aware Update framework.

Dell OpenManage Integration
🔀 🗃 HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2) 🛛 Azure Stack HCI Certified 🔿
View : Compliance     HCP     Node : All     Action
HCP Compliance
Compliance Summary
Check if your HCI cluster is compliant with Dell HCI Configuration Profile (HCP) policies
Check Compliance Fix Compliance Export compliance summary Configure Cluster Settings

Figure 28: Check Compliance in HCP Compliance

Click **Check Compliance** to automatically compare the recommended rules packaged together in the Dell HCP policy definitions with the cluster settings. These rules include configurations addressing the hardware, cluster symmetry, cluster operations, and security.

HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Noc View : Compliance      HCP      Node : All      Action	You can fix the policies mentioned under Automatic Fixes section by clicking on Apply. Furthermore, follow the recommendations to fix the policies manually listed in the Manual Fixes section.
HCP Compliance	▲ Dell Hardware Symmetry Policy
Compliance Summary	O Remediate the policy by adding, removing, or replacing devices. Please follow Dell recommendations here.
Theck if your HCI cluster is compliant with Dell HCI Configuration Profile (HCP) policie:	▲ Dell OS Configuration Policy
Re-Check Compliance Fix Compliance Export compliance summary Cor	<ul> <li>Remediate the policy by adding, removing, or replacing devices. Please follow Dell recommendations. View.Recommendations Export</li> </ul>
Compliance last checked :08-Dec-2022 13:26:16 IST	Dell Infrastructure Lock Policy
	O Dell Technologies recommends to enable the infrastructure lock from the Security feature using Actions or View menu.
Overall Compliance	Automatic Fixes
67%	By default, all mandatory policies are selected. You can exclude optional policies, if any. To fix the HCP compliance in hardware configuration policies, nodes must be restarted. Select any one restart option, and then click Apply to start the remediation operation. This may take some time.
0170	▲ Dell Hardware Configuration Policy
	BIOS Configuration Policy
	Vil Configuration Policy
Learn about HCP. Policies Cf	<ul> <li>Remediation of the above policies shall bring the hardware configuration settings as per Dell recommended values. Also, selection of NIC or BICS shall involve rebooting of the nodes. Please select below one of the reboot option.</li> </ul>
Policy Summary	
ndicates the summary of compliance status of HCI clusters against the Dell HCI Confic	Cancel Apply

#### Figure 29: Fix Compliance

Once the compliance report is generated and if any non-compliant policies are identified by Dell HCP Policies, then you can proceed to fix them using **Fix Compliance**. On the **Fix Compliance** window, follow the recommendations to fix the compliance issues. Some fixes may require manual intervention and others can be corrected in a fully automated manner.

Any automated fixes that require a reboot of the Azure Stack HCI cluster nodes will be performed in a cluster-aware fashion, which results in no interruption to running workloads. For more information about remediating using HCP policies, see <u>Validate and Remediate Azure Stack HCI clusters</u> in the user's guide.

# 7 Troubleshooting

#### 7.1 Model and OS Check Failure

If any of the cluster nodes fail the model or OS check, an error banner message will appear and block further steps.

Dell Infrastructure Mana Integrate Dell Infrastructure mana	gement at-scale from Azure Portal gement capabilities into Azure and get the benefits of full-stack management using Azure Arc.
The Azure Policy Onboarding information about supported	cannot be used because either the cluster nodes are unsupported or have different models. For all cluster nodes, use nodes that are supported and of same model. For models, refer https://infohub.delltechnologies.com/t/support-matrix/ or see the user's guide.
Recommendation There are no charges for using Azi core count of the cluster. To config     Learn more on Azure policies c	rre Policy on Azure resources. However, to maintain the total cost of ownership and performance for your Azure Stack HCI cluster at an optimal level, assess the configuration of CPL ure the number of active CPU cores in a cluster, select the <u>Configure</u> item from View menu.
Step 1: Sign in to Azure	
j≣ Step 2: Onboarding Checklis	
Show Details	0
Step 3: Onboard Policies Vi	ew Subscription Details
Configure Cluster Settings Onboard Policies	Cluster settings need to be configured before onboarding the policies

#### Figure 30: Error Banner for Model Check Failure

Dell Infrastructure Mana Integrate Dell Infrastructure mana	Igement at-scale from Azure Portal gement capabilities into Azure and get the benefits of full-stack management using Azure Arc.
The Azure Policy Onboarding and of same version. For info	feature cannot be used because either the OS installed on cluster nodes are unsupported or have different versions. For all cluster nodes, use nodes with OS that are supported rmation about supported OS, refer https://infohub.delltechnologies.com/t/support-matrix/ or see the user's guide.
Recommendation There are no charges for using Azi core count of the cluster. To config     Learn more on Azure policies C	re Policy on Azure resources. However, to maintain the total cost of ownership and performance for your Azure Stack HCI cluster at an optimal level, assess the configuration of CPU jure the number of active CPU cores in a cluster, select the <u>Configure</u> item from View menu.
Sign In	
I≣ Step 2: Onboarding Checklis	
Show Details	0
Step 3: Onboard Policies Vi	ew Subscription Details
Configure Cluster Settings	Cluster settings need to be configured before onboarding the policies

Figure 31: Error Banner for OS Check Failure

For more information about the supported models, see the <u>compatibility matrix</u> in the user's guide.

Use the latest version of the extension and refer to the updated compatibility matrix. You can also refer the "About" page in the extension for updated documentation.

#### 7.2 Onboarding Checklist Failure

If any of the checklist items fail, see the recommendations on the Onboarding Checklist page to fix them and then click **Refresh** to get the latest status.

Dell OpenManage Integration	
🗙 🛃 HCI Cluster - Dell Integrated System for Microsoft Azure Stack HCI (Nodes: 2) 🛛 Azure Stack HCI Certified 🛈	
View : Azure Integration     View : All       View : Azure Integration     View : All	
Dell Infrastructure Management at-scale from Azure Portal Integrate Dell Infrastructure management capabilities into Azure and get the benefits of full-stack management using Azure	Arc.
Recommendation	
There are no charges for using Azure Policy on Azure resources. However, to maintain the total cost of ownership and perfor configure the number of active CPU cores in a cluster, select the <u>Configure</u> item from View menu.	rman
● Learn more on Azure policies	
्, Step 1: Sign in to Azure	
Signed In	
f≣ Step 2: Onboarding Checklist	
Show Details	
Step 3: Onboard Policies View Subscription Details	

Figure 32: Onboarding Checklist Failure Status

HCI Cluster -			
	Name	Status	Help
View : Azure Integra	Cluster is registered and connected to Azure Arc	Ø	
	Signed in user has permission to create and manage pol	icy a 🕕	More Info
Dell Infrastructi ntegrate Dell Infrastru	Signed in user has permission to create and manage pol	icy d 🏮	More Info
	Signed in user has permission to create and manage pol	icy e 🏮	More Info
here are no charges f onfigure the number	Signed in user has permission to create and manage pol	icy s 🚺	More Info
Step 1: Sign in to			
Step 2: Onboardi			

Figure 33: Onboarding Checklist popup page – Failure Status

# 8 Appendix

#### 8.1 Network Topology and Deployment Model

- i. Network Topology:
  - Fully converged: All storage ports from the server are connected to the same network fabric.
     Within the host operating system, the NIC ports are used for both storage and management/VM traffic.
  - Non-Converged: The storage traffic is separated from the management/VM traffic using dedicated storage network adapters.
    - Non-Converged-Physical: Storage traffic is on the physical storage network adapter ports and management/VM traffic through a SET created using network ports of the server rNDC.
    - Non-Converged-SET: Storage traffic uses virtual adapters in the host operating system connected to a SET.

For more information, see <u>Reference Guide—Network Integration and Host Network</u> <u>Configuration Options.</u>

- ii. Deployment Model:
  - Scalable: Ability of the infrastructure to handle increased load. The Dell Solutions for Azure Stack HCI scalable architectures support from 2 to 16 nodes in a cluster.
  - Switchless: This Microsoft HCI Solutions from Dell Technologies infrastructure type offers two to four nodes in a switchless configuration for storage traffic. This infrastructure can be implemented using any of the validated and supported AX nodes. However, the number of nodes in a cluster varies between the AX node models and the number of network adapters that each model supports.
  - Stretch: A stretched cluster with Azure Stack HCI consists of servers residing at two different locations or sites, with each site having two or more servers, replicating volumes either in synchronous or asynchronous mode.

For more information, see <u>Reference Guide—Network Integration and Host Network</u> <u>Configuration Options.</u>

## 9 Conclusion

Using this white paper, one can easily use OMIMSWAC to onboard Dell policies on Azure Arc for monitoring Azure Stack HCI clusters using Azure.

# A Technical Support and Resources

For more information about the user documentation, see the OpenManage Integration with Microsoft Windows Admin Center product support page at <a href="https://www.dell.com/support">https://www.dell.com/support</a>.

#### A.1 Related Resources

- OMIMSWAC's User's Guide, Release Notes, and Security Configuration Guide, see <u>link</u>.
- Microsoft Windows Admin Center Overview, see link.
- Connect and manage Azure Stack HCI registration, see link.
- Azure built-in roles, see <u>link</u>.
- Create and manage policies to enforce compliance, see link.
- Register Windows Admin Center with Azure, see link.