



Azure Technical Document

Version 1.4

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Backup Assure Azure Technical Document

Introduction

Backup Assure is designed to offer secure and automated backup solutions specifically tailored for Cisco appliance environments, such as Catalyst Center, Identity Services Engine (ISE), Firepower Management Center (FMC), and Cisco Unified Communications Manager (CUCM). This guide provides step-by-step instructions for deploying Backup Assure on Hyper-V, from configuring virtual disks to setting static network settings and mounting cloud-init ISO files. Following this guide will ensure a smooth setup experience for both new and experienced users.

VM Configuration Details:

- **Recommended VM Sizes :**
 - **B2s Standard:** 2vCPU, 4GB RAM, 1280 IOPS, Premium disk support (for very low workloads, small backups with no assurance or operation data)
 - **B2ms Standard:** 2vCPU, 8 GB RAM, 1920 IOPS, Premium disk support (for very low workloads, small backups and no assurance data, ISE operation ok for two node clusters)
 - **D2ds_v4/5 Standard:** 2vCPU, 8GB RAM, 3200/3750 IOPS, Premium disk support (for standard deployments, good fit for standard and large Catalyst Center)
 - **D4ds_v4/5 Standard:** 4vCPU, 16GB RAM, 6400 IOPS, Premium disk support (for larger deployments that need to backup all supported products to include XL appliances)
 - **F2s_v2 Standard:** 2vCPU, 4GB RAM, 3200 IOPS, Premium disk support (for very low workloads while supporting faster backups and restores)
 - **F4s_v2 Standard:** 4vCPU, 8GB RAM, 6400 IOPS, Premium disk support (Recommended for all workloads and supports faster backups and recoveries)
- **Cloud-init:** See **APPENDIX B: Cloud-init file**

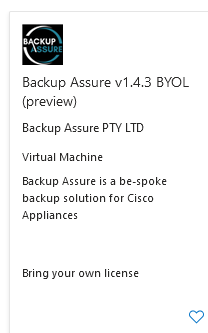
Deployment Steps:

1. Marketplace search terms:

- Backup
- Backup Assure

2. Category:

- Storage
- Compute



Basics

1. Select the subscription:

- Select resource group

2. Supported Regions:

- Australia
- New Zealand
- United States
- UK

3. Availability Options:

- Supported, Optional

4. Security Type:

- Standard

5. Image:

- Backup Assure v1.4.3 – Cisco Appliance Backup Solution BYOL – x64 Gen2

6. VM architecture:

- X64

7. Size:

- Recommended VM Sizes

8. Administration account:

- The selected administration account has access restricted on server build. The default username and password is used to gain access to the server. Any usernames build during the azure provisioning phase are not supported for use.

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ Microsoft Azure Sponsorship

Resource group * ⓘ BackupAssure_RG
[Create new](#)

Instance details

Virtual machine name * ⓘ BackupAssureMarketplaceVM

Region * ⓘ (Asia Pacific) Australia Southeast

Availability options ⓘ No infrastructure redundancy required

Security type ⓘ Standard

Image * ⓘ Backup Assure v1.4.3 - Cisco Appliance Backup Solution BYOL - x64 Gen2
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ
☐ Arm64
☒ x64
i Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ ☐

Size * ⓘ Standard_F4s_v2 - 4 vcpus, 8 GiB memory (A\$243.62/month)
[See all sizes](#)

Disks

Along with the OS disk an additional one or two disk is required for the server to function. If the server is used to backup Cisco Catalyst Center, we recommend deploying two disks with one for NFS and the other for the RSYNC and SCP backups. When Catalyst Center assurance backups are not required, a single disk can be provisioned. The NFS share is still present although will not have its own disk, and NFS will not be supported in single disk mode.

1. OS disk

- **OS Disk Size:** Image default
- **OS Disk Type:** Premium SSD
- **Delete with VM:** Optional
- **Key Management:** Platform-managed key

2. Set Additional Disk Sizes:

- During deployment, the admin must set the sizes for two additional disks using the disk sizing guide in **APPENDIX A: Disk Sizing Guidelines**.
- The first disk is designated for **NFS Assurance backups**.
 - **Source type:** None (empty disk)
 - **Size:**
 - **APPENDIX A: Disk Sizing Guidelines**
 - **Recommended performance tier:** default for disk size
 - **Enable share disk:** No
 - **Delete disk with VM:** Optional
- The second disk is designated for **SFTP/SCP/SSH backups**.
 - **Source Type:** None (empty disk)
 - **Size:**
 - **APPENDIX A: Disk Sizing Guidelines**
 - **Recommended performance tier:** P30+, P40 recommended
 - **Enable share disk:** No
 - **Delete disk with VM:** Optional

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

VM disk encryption

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host

☐

Encryption at host is not registered for the selected subscription. [Learn more](#)

OS disk

OS disk size

OS disk type *

Delete with VM

☒

Key management





Enable Ultra Disk compatibility

☐

Ultra disk is not supported in Australia Southeast.

Data disks for BackupAssureMarketplaceVM

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host cachi...	Delete with VM	
0	BackupAssureMarket...	2048	Premium SSD LRS	None	<input checked="" type="checkbox"/>	 
1	BackupAssureMarket...	512	Premium SSD LRS	None	<input checked="" type="checkbox"/>	 

[Create and attach a new disk](#) [Attach an existing disk](#)

Networking Configuration

When Backup Assure is assigned to a routed VNet and can be accessed without a public IP address, we suggest leaving the Public IP to None.

1. Network Interface

- **Virtual network:** Required (VNET that Cisco appliances can access)
- **Subnet:** Required (Subnet that Cisco appliances can access)
- **Public IP:** Optional (Not recommended)

2. NIC network security group:

- Advanced

3. Configure network security group: (new) ports available in the post configuration section

Basics Disks **Networking** Management Monitoring Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network *

BackupAssureConfigVMVNET
[Create new](#)

Subnet *

BackupAssureMarketPlaceTestSubnet (10.34.113.0/24)
[Manage subnet configuration](#)

Public IP

None
[Create new](#)

NIC network security group

☐ None

☐ Basic

☒ Advanced

This VM image has preconfigured NSG rules

Configure network security group *

(new) BackupAssureMarketplaceVM-nsg
[Create new](#)

Delete NIC when VM is deleted

☐

Enable accelerated networking

☐

The selected VM size does not support accelerated networking.

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Load balancing options

☒ None

☐ Azure load balancer
Supports all TCP/UDP network traffic, port-forwarding, and outbound flows.

☐ Application gateway
Web traffic load balancer for HTTP/HTTPS with URL-based routing, SSL termination, session persistence, and web application firewall.

Management

There is no management configuration requirements for Backup Assure.

Monitoring

There is no Monitoring requirements for Backup Assure. We do recommend enabling some of the monitoring features for your VM.

Advanced

Backup Assure requires the custom data to be populated to successfully build the virtual machine.

1. Custom data and cloud init

○ APPENDIX B: Cloud-init file

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.

Extensions

Extensions provide post-deployment configuration and automation.

Extensions ⓘ

[Select an extension to install](#)

VM applications

VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. [Learn more](#) ⓘ

[Select a VM application to install](#)

Custom data and cloud init

Pass a cloud-init script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMs](#) ⓘ

Custom data

```
#cloud-config
hostname: BackupAssureMarketplaceVM
manage_etc_hosts: true

bootcmd:
- |
  # Detect the primary network interface
```

ⓘ Custom data on the selected image will be processed by cloud-init.
[Learn more about custom data for VMs](#) ⓘ

User data

Pass a script, configuration file, or other data that will be accessible to your applications throughout the lifetime of the virtual machine. Don't use user data for storing your secrets or passwords. [Learn more about user data for VMs](#) ⓘ

Enable user data

☐

Review and create

Review and create will provide you with the hourly rate of your Backup Assure server. In the BYOD release, you must also purchase a Backup Assure license for your product. Purchases can be made direct or through a Backup Assure authorised reseller.

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Price

Backup Assure v1.4.3 BYOL
by Backup Assure PTY LTD
[Microsoft Enterprise Contract | Amendment](#) | [Privacy policy](#)

Not covered by credits ⓘ

0.0000 AUD/hr

1 X Standard F4s v2
by Microsoft
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ

0.3337 AUD/hr

[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Name	<input type="text" value="your name"/>
Preferred e-mail address	<input type="text" value="your email"/>
Preferred phone number	<input type="text" value="your phone number"/>

Basics

Subscription	Microsoft Azure Sponsorship
Resource group	BackupAssure_RG
Virtual machine name	BackupAssureMarketplaceVM
Region	Australia Southeast
Availability options	No infrastructure redundancy required
Zone options	Self-selected zone
Security type	Standard
Image	Backup Assure v1.4.3 - Cisco Appliance Backup Solution BYOL - Gen2
VM architecture	x64
Size	Standard F4s v2 (4 vcpus, 8 GiB memory)
Enable Hibernation	No
Authentication type	SSH public key
Username	azureuser
SSH Key format	RSA

Post-Deployment Instructions:

1. Wait **at least 5 minutes** after deployment for initialization.
2. Access the Web UI: `https://{ip address}`
 - Login with:
 - Username: backupadmin
 - Password: Password!

Mandatory First Steps

- Accept the End User License Agreement (EULA).
- Navigate to the **Time Settings** tab:
 - Verify and configure the correct time zone and NTP settings.
- Navigate to the **User Tab**:
 - Change the password for the **backupadmin** user.

Intended Use

- **Backup Types Supported:**
 - NFS backups of
 - Cisco Catalyst Center Assurance
 - SCP/SFTP/RSYNC backups of:
 - Catalyst Center
 - ISE
 - FMC
 - CUCM
- **Administrative Features:**
 - Set NFS purge policy and time
 - Time settings
 - User password change
 - Define retention policies.
 - Set up email alerts.

Support and Maintenance

- **Support Contact:**
 - Email: support@backupassure.io
 - Schedule: <https://backupassure.io/schedule>
- **Licensing:**
 - Includes a **7-day trial** upon initial installation.
 - A valid license is required for continued use and support beyond the trial period.
 - License inquiries: sales@backupassure.io
- **Updates:**
 - Updates are provided as packages and can be uploaded via the Web UI.
 - Packages are available at <https://backupassure.io>.

Other Customizations

- **Modifications:**
 - Customers are prohibited from modifying the appliance outside of the approved Backup Assure update packages.
 - Unauthorized modifications or exploits are violations of the [Terms and Conditions](#).
 - Open a support case for any questions regarding customisations or modifications.
 - Check the [FAQ](#)

APPENDIX A: Disk Sizing Guidelines

RSYNC Sizing Guide

Small Disk Recommendations

- DNA2-HW-APL and DN3-HW-APL deployments
 - 50GB per day max
- ISE Clusters less than 5 nodes
 - 1GB or less config backup per day
 - 5GB or less operational backup per day
- Smaller FMC deployments with no more than two firewalls
 - 2GB per day for FMC
 - 2GB per day per FTD

Medium Disk Recommendations

- DNA2-HW-APL-L and DN3-HW-APL-L deployments
 - 100GB per day max
- ISE Clusters of less than 10 nodes
 - 2GB or less config backup per day
 - 25GB or less operational backup per day
- Medium FMC Deployments with no more than four firewalls
 - 4GB per day for FMC
 - 4GB per day per FTD

Large Disk Recommendations

- DNA2-HW-APL-XL and DN3-HW-APL-XL deployments
 - 300GB per day max
- ISE Clusters of more than 10 nodes
 - 2GB or less config backup per day
 - 50GB or less operational backup per day
- Large FMC Deployments with up to six firewalls
 - 6GB per day for FMC
 - 4GB per day per FTD

Backup Disk Recommended Sizing

- **Small**
 - NFS Disk 2TB or 2048GB
 - RSYNC Disk 350GB for Catalyst Center + additional product space
- **Medium**
 - NFS Disk 3TB or 3072GB
 - RSYNC Disk 500GB for Catalyst Center + additional product space
- **Large**
 - NFS Disk 8TB or 8192GB
 - RSYNC Disk 1.5TB or 1536GB for Catalyst Center + additional product space

APPENDIX B: Cloud-init file

Attach this file to the Marketplace VM during the deploy phase.

In the Create a virtual machine, select the advanced tab and find the custom-data or cloud-init section.

```
#cloud-config
hostname: your-hostname
manage_etc_hosts: true

bootcmd:
  - |
    # Detect the primary network interface
    primary_interface=$(ip -o link show | awk '$2 !~ "lo:" {print substr($2, 1, length($2)-1);
exit}')

    # Write the network configuration for the primary interface
    cat <<EOF > /etc/sysconfig/network-scripts/ifcfg-$primary_interface
    DEVICE=$primary_interface
    BOOTPROTO=dhcp
    ONBOOT=yes
    EOF

    # Restart the network service to apply the configuration
    if systemctl is-active --quiet NetworkManager; then
        nmcli connection reload
        nmcli device disconnect $primary_interface
        nmcli device connect $primary_interface
    else
        systemctl restart network
    fi

runcmd:
  - |
    #!/bin/bash
    # Display a professional message on the console
    echo "Backup Assure is currently building. Please refrain from logging in until you see
'Backup Assure is ready' message." | tee /dev/console
    sleep 5

    # Find unpartitioned disks
    unpartitioned_disks=($(lsblk -dnpo NAME,TYPE | awk '$2 == "disk" {print $1}' | while read
disk; do
        if ! lsblk -no PARTTYPE "$disk" | grep -q .; then echo "$disk"; fi
    done))

    num_disks=${#unpartitioned_disks[@]}

    if [ "$num_disks" -eq 1 ]; then
        echo "One additional unpartitioned disk found. Partitioning and mounting it to /backups"
        parted "${unpartitioned_disks[0]}" --script mklabel gpt
        sleep 2
        parted "${unpartitioned_disks[0]}" --script mkpart primary ext4 0% 100%
        sleep 2
        mkfs.ext4 "${unpartitioned_disks[0]}1"
        sleep 2
        UUID=$(blkid -s UUID -o value "${unpartitioned_disks[0]}1")
        mkdir -p /backups
        mount -U "$UUID" /backups/
        echo "UUID=$UUID /backups/ ext4 defaults 0 0" >> /etc/fstab
        mkdir -p /backups/rsync
        mkdir -p /backups/nfs

    elif [ "$num_disks" -eq 2 ]; then
        echo "Two additional unpartitioned disks found. Partitioning and mounting them"
```

```
# Partition and format each disk
for disk in "${unpartitioned_disks[@]}; do
    parted "$disk" --script mklabel gpt
    sleep 2
    parted "$disk" --script mkpart primary ext4 0% 100%
    sleep 2
    mkfs.ext4 "${disk}1"
    sleep 2
done

# Mount the first disk to /backups/nfs
UUID_nfs=$(blkid -s UUID -o value "${unpartitioned_disks[0]}1")
mkdir -p /backups/nfs
mount -U "$UUID_nfs" /backups/nfs
echo "UUID=$UUID_nfs /backups/nfs ext4 defaults 0 0" >> /etc/fstab

# Mount the second disk to /backups/rsync
UUID_rsync=$(blkid -s UUID -o value "${unpartitioned_disks[1]}1")
mkdir -p /backups/rsync
mount -U "$UUID_rsync" /backups/rsync
echo "UUID=$UUID_rsync /backups/rsync ext4 defaults 0 0" >> /etc/fstab

else
    echo "No unpartitioned disks found or unexpected number of disks ($num_disks). No action
taken."
fi

# Clear the console after the script completes
clear
sleep 5
```