

Restore Azure VM Instance from backup

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Overview

Platform:	Azure
Owner of this SOP:	Fully Managed POD A
Cloud Services:	Domain Joined Virtual Machines

Problem

- When server didn't boot due to patching or any OS corruption..
- When requesters are asking us restore the VM from backup

tester	Reviewer
@ Ramkumar Samudram (Deactivated)	

Process:


Raise a Normal Change Request

Please open a Normal change request and get it approved before executing the resize activity. And respective stake holders and application owners should be informed prior to this activity.

Solution

Restore the VM OS disk from restore Point

- Shutdown the problematic VM. E.g MAUE10ETPOD017
- Make a note of existing OS disk name, Size and disk SKU

 **MAUE10ETPOD017-osdisk** ✕ ...

Disk

Search (Ctrl+/) << + Create VM + Create snapshot 🗑 Delete ↻ Refresh

Overview

Activity log

Access control (IAM)

Tags

Settings

Configuration

Size + performance

Encryption

Networking

Disk Export

Properties

Essentials

Resource group (Move) : it-aue1-npe-arg-fmpodawin2019

Disk state : Reserved

Location : Australia East

Subscription (Move) : it-npe-toolingdev

Subscription ID : 01818878-c294-4617-a15a-8b7934a433c4

Time created : 1/13/2022, 4:09:07 PM

Tags (Edit) : BusinessUnit : FMPODA CostCentre : TBD CreatedBy : ramkumar.samudram@bhp.com CreatedDate : 24/12/2021 DeploymentType

Disk size : 128 GiB

Disk sku : Standard SSD LRS

Managed by : MAUE10ETPOD017

Operating system : Windows

Max shares : 0

Availability zone : None

Security type : Standard

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days

- Create one staging OS disk through powershell
- Select-AzSubscription it-npe-toolingdev

```
$rg_name = "it-aue1-npe-arg-fmpodawin2019"
$location = "Australia East"
$disk_name = "MAUE10ETPOD017-os-staging"
```

```
$diskconfig = New-AzDiskConfig -Location $location -DiskSizeGB 127 -AccountType Standard_LRS -OsType Windows -CreateOption Empty
```

```
New-AzDisk -ResourceGroupName $rg_name -DiskName $disk_name -Disk $diskconfig
```

```
PS C:\Users\914967> $rg_name = "it-ae1-npe-arg-fmpodawin2019"
$location = "Australia East"
$disk_name = "MAUE10ETPOD017-os-staging"

PS C:\Users\914967> $location
Australia East

PS C:\Users\914967> $diskconfig = New-AzDiskConfig -Location $location -DiskSizeGB 127 -AccountType Standard_LRS -OsType Windows

PS C:\Users\914967> $disk = New-AzDisk -ResourceGroupName $rg_name -DiskName $disk_name -Disk $diskconfig

PS C:\Users\914967> $disk

ResourceGroupName      : it-ae1-npe-arg-fmpodawin2019
ManagedBy              :
ManagedByExtended      : {}
Sku                     : Microsoft.Azure.Management.Compute.Models.DiskSku
Zones                   :
TimeCreated              : 18-01-2022 16:13:29
OsType                   : Windows
HyperVGeneration        :
CreationData             : Microsoft.Azure.Management.Compute.Models.CreationData
DiskSizeGB              : 127
DiskSizeBytes           : 136365211648
UniqueId                : d1dffa95-500b-4497-af2f-4e899b4fffd5b
EncryptionSettingsCollection :
ProvisioningState        : Succeeded
DiskIOPSReadWrite        : 500
DiskMBpsReadWrite        : 60
DiskIOPSReadOnly         :
DiskMBpsReadOnly         :
```

- Swap the existing OS disk with newly created staging disk

Swap OS Disk ...

Swap the OS disk for a backup disk or another disk for VM troubleshooting, [Learn more](#).

Choose disk *

MAUE10ETPOD017-os-staging



This VM will be stopped (deallocated) and the OS disk will be replaced. Any existing data on the OS disk will be lost.

Confirm you want to swap the OS disk for this VM by entering the name of the vm 'MAUE10ETPOD017'

MAUE10ETPOD017

- OS disk Swap has completed.

Home > MAUE10ETPOD017

Speaking: Subhankar Ghosh



MAUE10ETPOD017 | Disks ...

Virtual machine

Search (Ctrl+/)



Save



Discard



Refresh



Additional settings



Feedback



Troubleshoot

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption ⓘ
MAUE10ETPOD017-os-staging	Standard HDD LRS	127	500	60	SSE with PMK

- Delete the old OS disk

MAUE10ETPOD017-osdisk

Disk

Search (Ctrl+/) << + Create VM + Create snapshot Delete Refresh

Overview

- Activity log
- Access control (IAM)
- Tags

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- Configuration
- Size + performance
- Encryption
- Networking
- Disk Export
- Properties
- Locks

Essentials

Resource group (Move) : it-aue1-npe-arg-fmpodwin2019

Disk size : 128 GiB

Disk state : Unattached

Disk sku : Standard SSD LRS

Location : Australia East

Managed by : ---

Subscription (Move) : it-npe-toolingdev

Operating system : Windows

Subscription ID : 01818878-c294-4617-a15a-8b7934a433c4

Max shares : 0

Time created : 1/13/2022, 4:09:07 PM

Availability zone : None

Security type : Standard

Tags (Edit) : BusinessUnit : FMPODA CostCentre : TBD CreatedBy : ramkumar.samudram@bhp.com CreatedDate : 24/12/2021

Disk must be attached to a VM to view metrics

- Go to the resource group “AzureBackupRG_australiaeast_1” and select the respective VM & Restore point, then create the new managed disk from it.

AzureBackup_20220117_100942 (AzureBackup_MAUE10ETPOD017_4513187369239483692/AzureBackup_2022...

Restore Point

Search (Ctrl+/) << Delete Refresh

Overview

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- Virtual machine metadata
- Properties
- Locks

Automation

- Tasks (preview)
- Export template

Support + troubleshooting

Essentials [JSON View](#)

Resource group : AzureBackupRG_australiaeast_1

Subscription : it-npe-toolingdev

Subscription ID : 01818878-c294-4617-a15a-8b7934a433c4

Status : Succeeded

Create time : 1/17/2022, 3:39:43 PM

Restore point collection : AzureBackup_MAUE10ETPOD017_4513187369239483692...

Included disks : 2

Consistency mode : ApplicationConsistent

Showing 2 of 2 disks

	Disks	Size(GiB)	Storage account type	Restore disk
<input checked="" type="checkbox"/>	MAUE10ETPOD017-osdisk	128	StandardSSD_LRS	Create disk from a restore point
	MAUE10ETPOD017-data	128	Premium_LRS	Create disk from a restore point

Create a managed disk ...

Expand panel to show

Project details

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

Subscription * ⓘ

Resource group * ⓘ

[Create new](#)

Disk details

Disk name * ⓘ

Region * ⓘ

Availability zone

Source type ⓘ

Disk restore point ⓘ

Restore point collection:
AzureBackup_MAUE10ETPOD017_4513187369239483692
Restore point: AzureBackup_20220117_100942
Disk: MAUE10ETPOD017-osdisk
[Select a disk restore point](#)

Size * ⓘ

[Change size](#)

[Review + create](#)

[< Previous](#)

[Next : Encryption >](#)

- Once Managed disk created, swap the OS disk again.

Swap OS Disk ...

Swap the OS disk for a backup disk or another disk for VM troubleshooting, [Learn more](#).

Choose disk *

MAUE10ETPOD017-osdisk ✓



This VM will be stopped (deallocated) and the OS disk will be replaced. Any existing data on the OS disk will be lost.

Confirm you want to swap the OS disk for this VM by entering the name of the vm 'MAUE10ETPOD017'

MAUE10ETPOD017 ✓

- Start the VM and validate it once OS disk swap has been completed

MAUE10ETPOD017 | Disks ...

Virtual machine

Search (Ctrl+J)

Save Discard Refresh Additional settings Feedback Troubleshoot

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OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption ⓘ
MAUE10ETPOD017-osdisk	Standard SSD LRS	128	500	60	SSE with PMK

Data disks

Filter by name

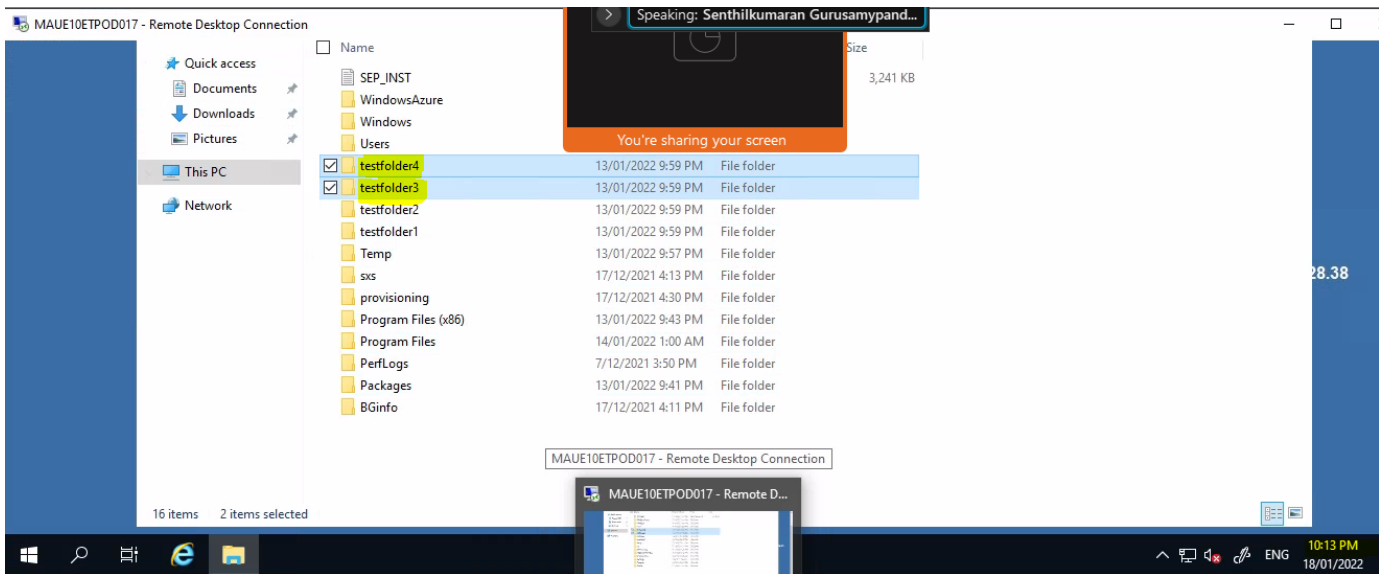
Showing 1 of 1 attached data disks

Create and attach a new disk

Attach existing disks

LUN ⓘ	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption ⓘ
11	MAUE10ETPOD017-data	Premium SSD LRS	128	500	100	SSE with PMK

- We can able to see the deleted files after restoring the disk



Run the terraform plan to make sure no changes identified by terraform state file

✓ Planned and finished

Triggered via UI

CURRENT

pa_guruse5 triggered a run from UI a few seconds ago

Run Details

✓ Plan finished a few seconds ago

Started a minute ago > Finished a few seconds ago

View raw log

Top

Bottom

Expand

Full screen

Reduce the verbosity of these warnings, use the -compact-warnings option.

Warning: Value for undeclared variable

The root module does not declare a variable named "spoke_client_secret" but a value was found in file "/terraform/terraform.tfvars". If you meant to use this value, add a "variable" block to the configuration.

To silence these warnings, use TF_VAR_... environment variables to provide certain "global" settings to all configurations in your organization. To reduce the verbosity of these warnings, use the -compact-warnings option.

Warning: Values for undeclared variables

In addition to the other similar warnings shown, 1 other variable(s) defined without being declared.

Download Sentinel mocks

?

Sentinel mocks can be used for [testing your Sentinel policies](#)

✓

Cost estimation finished a few seconds ago

Resources: **2 of 11** estimated - \$123.87/mo - +\$0.00

✓

Policy check passed a few seconds ago

Policies: **13** passed, **0** failed

—

Apply will not run

Comment: Leave feedback or record a decision.

Add Comment

Please follow the below Restore method if you want to restore more than 3 days old VMs.

- Restore the VM from backup

Home > MAUE10ETPOD001 >

Restore Virtual Machine

maue10etpod001

in progress

?

To create an alternate configuration when restoring your VM (from the following menus), use PowerShell cmdlets.

Restore Type *

Create new virtual machine

Virtual machine name *

maue10etpod005

Resource group *

it-aue1-npe-arg-fmpodawin2019

Virtual network *

it-aue1-npe-vnt-10.125.121.0 (it-aue1-npe-arg-network)

Subnet *

sub-iaas

Staging Location *

it1fmpodastorage1ald (StandardLRS)

[Can't find your storage account?](#)

?

The identities listed here are based on the MSI configurations in the corresponding Recovery services vault. [Learn more.](#)

Identities

●

Disabled

Restore

- Once new server provisioned from backup, Create the snapshot of OS disk from newly provisioned VM.

[Home](#) >

Snapshots

BHP (BHPB.onmicrosoft.com)

+ Create



Manage view



Refresh



Export to CSV



Open query



Assign tags



Feedback

Filter for

Create

Subscription == it-npe-toolingdev

Resource group == all

Location == all

+ Add filter

Showing 1 to 2 of 2 records.

<input type="checkbox"/> Name ↑↓	Source disk ↑↓	Snapshot t... ↑↓	Time created ↑↓	Source... ↑↓
<input type="checkbox"/> snapshot-02122020	testinginstance2_OsDisk_...	Full	12/2/2020, 10:51:57 AM	127
<input type="checkbox"/> TestSnapshot-12032020	testinginstance1_OsDisk_...	Full	12/3/2020, 1:52:48 PM	127

- Select the resource group to which the server belongs.
- Give the snapshot a name.
- Select which disks you need and create the snapshot.

Create snapshot ...

✓ Validation passed

Basics Encryption Networking Tags Review + create

Basics

Subscription	it-npe-toolingdev
Resource group	it-aue1-npe-arg-fmpodawin2019
Region	Australia East
Name	Winsnapshot_27122021
Source subscription	it-npe-toolingdev
Source type	disk
Source disk	MAUE10ETPOD001-osdisk
Security type	Standard
Storage type	Standard_ZRS
Snapshot type	Full

Encryption

Encryption type	Platform-managed key
-----------------	----------------------

Create

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Next >

[Download a template for automation](#)

- Create the fully managed disk from snapshot which created. The only additional item required is a disk name. Give it an appropriate name and submit the request.

Create a managed disk ...

✓ Validation passed

Basics Encryption Networking Advanced Tags Review + create

Basics

Subscription	it-npe-toolingdev
Resource group	it-aue1-npe-arg-fmpodawin2019
Region	Australia East
Disk name	MAUE10ETPOD001-restoreOSdisk
Availability zone	None
Source type	Snapshot
Source subscription	it-npe-toolingdev
Source snapshot	Winsnapshot_27122021
Security type	Standard

Size

Size	128 GiB
Storage type	Standard SSD LRS

Create

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[Download a template for automation](#)

- Once the disk is created, the next step is swap the OS disk with newly managed disk which was restored from snapshot.



MAUE10ETPOD001 | Disks ...

Virtual machine



Save



Discard



Refresh



Additional settings



Troubleshoot



Overview



Activity log



Access control (IAM)



Tags



Diagnose and solve problems

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Networking



Connect



Windows Admin Center
(preview)



Disks



Size



Security

OS disk



Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS
MAUE10ETPOD001-osdisk	Standard SSD LRS	128	500

Data disks



Filter by name

Showing 0 of 0 attached data disks



Create and attach a new disk



Attach existing disks

LUN ⓘ	Disk name	Storage type	Size (GiB)	Max IOPS
-------	-----------	--------------	------------	----------

No data disks attached

[Home](#) > [MAUE10ETPOD001](#) >

Swap OS Disk ...

Swap the OS disk for a backup disk or another disk for VM troubleshooting, [Learn more](#).

Choose disk *

MAUE10ETPOD001-restoreOSdisk



This VM will be stopped (deallocated) and the OS disk will be replaced. Any existing data on the OS disk will be lost.

Confirm you want to swap the OS disk for this VM by entering the name of the vm 'MAUE10ETPOD001'

MAUE10ETPOD001



MAUE10ETPOD001 | Disks ...
Virtual machine

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OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)
MAUE10ETPOD001-restoreOSdisk	Standard SSD LRS	128	500	60

Data disks

Filter by name

Showing 1 of 1 attached data disks

+ Create and attach a new disk Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)
11	MAUE10ETPOD001-data	Premium SSD LRS	256	1100	125

- Make the note of existing disk name and delete it. Here the disk name is "MAUE10ETPOD001-osdisk"

Home > **MAUE10ETPOD001-osdisk** ...
Disk

Search (Ctrl+/) + Create VM + Create snapshot Delete Refresh

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Essentials

Resource group (Move) : IT-AUE1-NPE-ARG-FMPODAWIN2019	Disk size : 128 GiB
Disk state : Unattached	Disk sku : Standard SSD LRS
Location : Australia East	Managed by : ---
Subscription (Move) : it-npe-toolingdev	Operating system : Windows
Subscription ID : 01818878-c294-4617-a15a-8b7934a433c4	Max shares : 0
Time created : 12/22/2021, 6:16:40 PM	Availability zone : None
	Security type : Standard

Tags (Edit) : BusinessUnit : FMPODA CostCentre : TBD CreatedDate : 2021-12-22T12:46:36.9119474Z DeploymentType : aut

! Disk must be attached to a VM to view metrics

- Create the fully managed disk (second time) from snapshot which we created recently from restored VM. This time provide the disk name which we noted before delete the existing disk. Here the disk name is "MAUE10ETPOD001-osdisk".

Create a managed disk ...

✓ Validation passed

Basics Encryption Networking Advanced Tags Review + create

Basics

Subscription	it-npe-toolingdev
Resource group	it-aue1-npe-arg-fmpodawin2019
Region	Australia East
Disk name	MAUE10ETPOD001-osdisk
Availability zone	None
Source type	Snapshot
Source subscription	it-npe-toolingdev
Source snapshot	Winsnapshot_27122021
Security type	Standard

Size

Size	128 GiB
Storage type	Standard SSD LRS

Encryption

Create

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[Download a template for automation](#)

- Swap the OS disk again

Swap OS Disk ...

Swap the OS disk for a backup disk or another disk for VM troubleshooting, [Learn more](#).

Choose disk *

MAUE10ETPOD001-osdisk



This VM will be stopped (deallocated) and the OS disk will be replaced. Any existing data on the OS disk will be lost.

Confirm you want to swap the OS disk for this VM by entering the name of the vm 'MAUE10ETPOD001'

MAUE10ETPOD001



MAUE10ETPOD001 | Disks ...

Virtual machine

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Continuous delivery

Availability + scaling

OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)
MAUE10ETPOD001-osdisk	Standard SSD LRS	128	500	60

Data disks

Filter by name

Showing 1 of 1 attached data disks

Create and attach a new disk

Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)
11	MAUE10ETPOD001-data	Premium SSD LRS	256	1100	125

- Power on the VM from Azure Portal once swap disk activity complete. Logon to the server and validate it.

Post Restore Validation

- Logon to Gitlab and go to the respective repo
- Re-run the pipeline again without any modifications

Status	Pipeline ID	Triggerer	Commit	Stages
<div><div>blocked</div></div>	<div>#437304050</div> <div>latest</div>	<div></div>	<div>main → 02aa3eed</div> <div> win vm rebuilding</div>	<div><div><div>✓</div><div>✓</div><div>✓</div><div>⚙</div><div>●</div></div></div>

- Check the respective terraform plan and confirm that there is no changes deducted by terraform state file

Planned and finished

Queued from GitLab CI/CD Pipeline

CURRENT

API Integration triggered a run from API 4 minutes ago

Run Details

Plan finished

2 minutes ago

Resources: 0 to add, 0 to change, 0 to destroy

Started 4 minutes ago

Finished 2 minutes ago

No changes


Your infrastructure matches the configuration

Terraform 1.1.0

Download raw log

✓ Planned and finished

Queued from GitLab CI/CD Pipeline

 API Integration triggered a run from API 6 minutes ago

✓ Plan finished 4 minutes ago

✓ Cost estimation finished 4 minutes ago

✓ Policy check passed 4 minutes ago

— Apply will not run

Related articles

- [Create a Linux VM from Snapshot](#)
- [Rightsizing Domain Joined Linux VMs – Secondary Storage \(Upsize\)](#)
- [Instance Management - Terminate Virtual Machine](#)
- [Creating Azure File share with Private Endpoint and Storage account](#)
- [Rightsizing Domain Joined Windows VMs – Data Disk \(Upsize\)](#)