



Resource Migration Guide for ASM to ARM

Step by Step Guide

Prepared for

CSP Partners

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1 Introduction

This guide aims to provide step-by-step guidance on how Azure Service Management model resources hosted in either EA or Direct Azure subscriptions can be migrated to Azure Resource Manager.

Moving ASM resources to ARM is first step towards migrating to a CSP tenancy.

If you are a Microsoft partner with intent to migrate ASM resources (identified as supported for the move) from Direct/PAYG or Enterprise Agreement Azure subscriptions into your CSP tenancy without any downtime, these steps need to be completed before the subscription change.

2 Scope and limitations

2.1 Current Tested Capabilities

Subject to exceptions and limitations also stated later:

- Migrate existing resources from ASM to ARM
- No downtime process, keeping all data (like IPs and settings) – management plane migration

2.2 Known Limitations and Considerations

- Read through the [supported and unsupported features and configurations](#) and make sure the resources planned for migration are supported for the transition.
- ExpressRoute gateways and Application Gateways are not currently supported for migration from ASM to Resource Manager – full list of unsupported configurations is found in the [supported and unsupported features and configurations article](#).
- While VPN Gateways classic can be migrated to ARM following [this guide](#), moving a VPN Gateway across subscriptions is not yet supported.

2.3 Migration overview

This section provides an overview of the process for your understanding of the concepts. Make sure to give a full read on step by step walkthrough before attempting to perform migration(s).

Preparing the Virtual Machines for the CSP migration, involves two steps:

1. ASM to ARM migration – this is completed in the same source subscription, using the subscription administrator – as it is done in ASM, it will require “service administrator” or “co-administrator” rights.

The detailed resource migration can be completed following these guides:

- [Migrate IaaS resources from Classic to Azure Resource Manager using Azure PowerShell](#)
- [Migrate IaaS resources from Classic to Azure Resource Manager using Azure CLI](#)

2. Once VMs are in ARM – there is a dependency on a Secret used by WinRM, which needs to be removed

This can be done through PowerShell, CLI or GUI – each step detailed below.

The best method to migrate from ASM to ARM depends on the existing set of services under the subscription subject to migration. Based on the tests done by our team, the easiest method is to migrate the Virtual Network (full steps described in the [PowerShell guide](#)):

- Migrate the Virtual Network – this will also migrate all the Virtual Machines connected to that network (step called “[Migrate virtual machines in a virtual network](#)”)
- Migrate the Storage Accounts – once the Virtual Network and VMs are migrated, you will need to migrate the storage accounts (step called “[Migrate a storage account](#)”)

In the scenario where certain resources are left in the source subscription, there should be a proper analysis for dependencies across the subscription and a plan formulated which considers that if multiple resources share the same Virtual Network, all these resources would need to be moved together, or unlinked from the Virtual Network before the migration.

3 ASM to ARM Migration Walkthrough:

3.1 Overall steps:

Here are the major milestones this section will walk you through:

- Move VMs from ASM to ARM – via [PowerShell](#) or [CLI](#)
- Move VM dependencies in the same Resource Group – [full procedure](#)
- Remove “secrets” dependency

Below you can find a high-level example. For the step by step guide, follow the links above.

Once the resources are migrated from ASM to ARM, there will be 3 RGs created by the platform:

- One for each of the Cloud Services – which has the name of the Cloud Service and ends with “-migrated” in the end. This RG will contain all the VMs in that Cloud Service.
- One for the Virtual Network – starting with the name of the virtual network and ending with “-migrated”
- Once the storage accounts are migrated, they will also have a RG with their name and ending with “-migrated”

Once the migration is complete, and resources are in ARM, they can be moved between Resource Groups as needed. This can be done through the same [move procedure](#) as above, without changing the subscription. The move is done with no service downtime, and could also be scripted.

There should be a naming convention and an RBAC design for these resources. Once the migration is complete, both the proper naming of the RGs and the RBAC can be configured, without any downtime to the services.

3.2 Roles

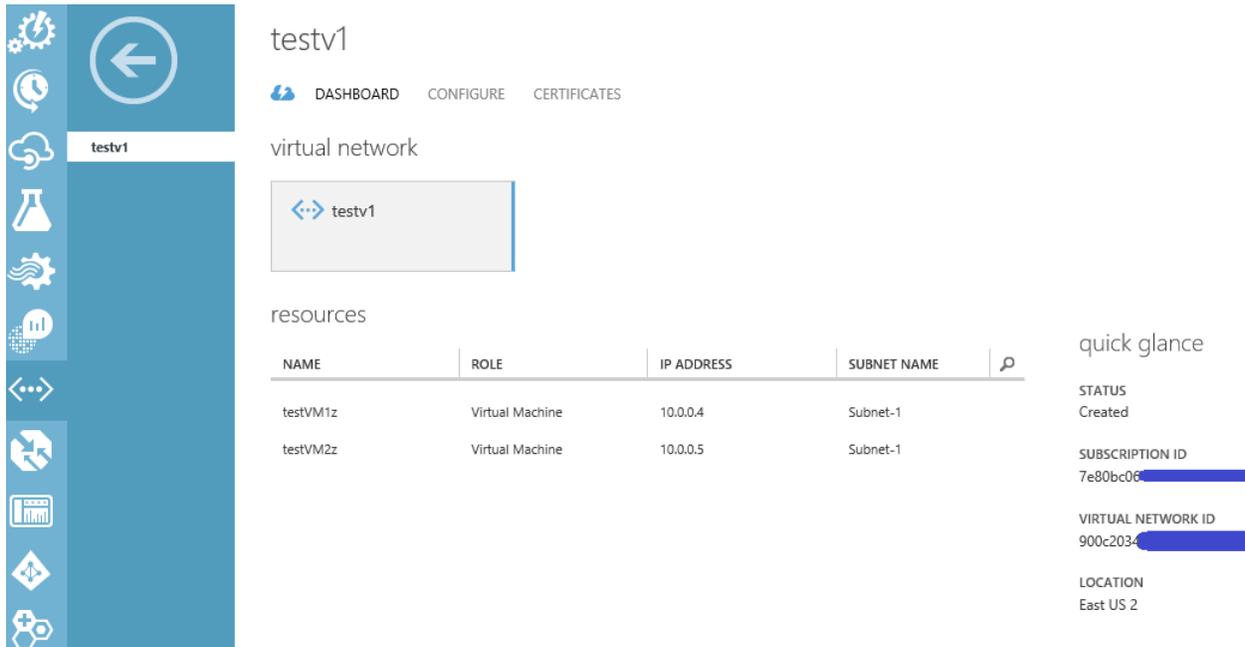
All the steps in this migration from ASM to ARM require the use of either the Service Administrator, or Co-Administrator of that subscription.

Once in ARM, you can continue to use the Service Administrator / Co-Administrator, as they have Owner/Contributor roles as well.

3.3 Move VMs from ASM to ARM

Steps below are high-level ([this](#) is the detailed PowerShell guide, and [this](#) is the detailed CLI guide):

- The Virtual Network in ASM



testv1

DASHBOARD CONFIGURE CERTIFICATES

virtual network

testv1

resources

NAME	ROLE	IP ADDRESS	SUBNET NAME	
testVM1z	Virtual Machine	10.0.0.4	Subnet-1	
testVM2z	Virtual Machine	10.0.0.5	Subnet-1	

quick glance

STATUS
Created

SUBSCRIPTION ID
7e80bc06-██████████

VIRTUAL NETWORK ID
900c2034-██████████

LOCATION
East US 2

- And the Virtual Machines in ASM, connected to the testv1 network



virtual machines

INSTANCES IMAGES DISKS

NAME	STATUS	SUBSCRIPTION	LOCATION	DNS NAME	
testVM1z	Running	██████████	East US 2	testvm1z.cloudapp.net	
testVM2z	Running	██████████	East US 2	testvm2z.cloudapp.net	

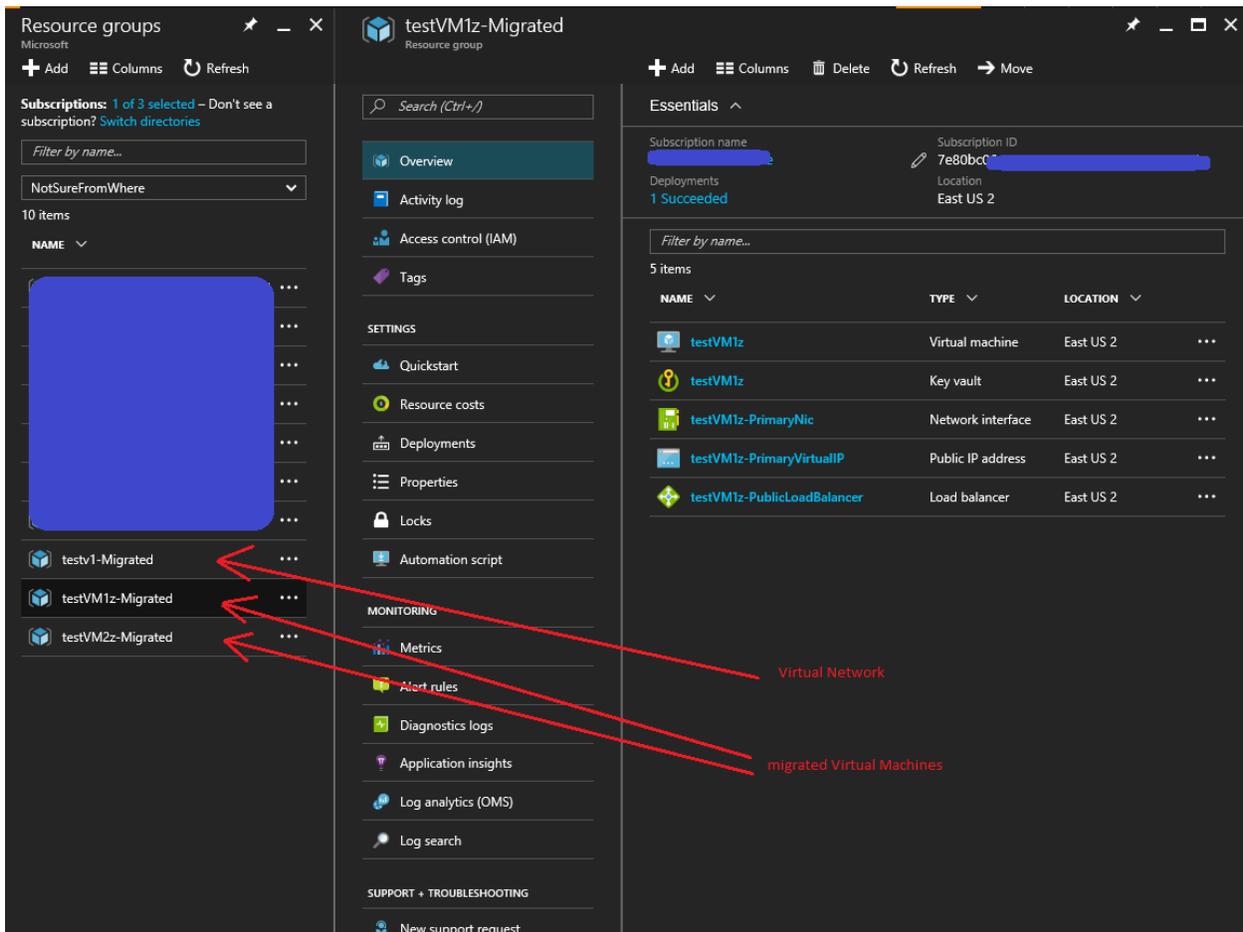
- Migrating the virtual network will also migrate both VMs connected to this vnetwork

```
PS C:\Users\rtiberiu> $vnetName = "testv1"
PS C:\Users\rtiberiu> Move-AzureVirtualNetwork -Prepare -VirtualNetworkName $vnetName
OperationDescription      OperationId                OperationStatus
-----
Move-AzureVirtualNetwork ed9232cd-d-                Succeeded

PS C:\Users\rtiberiu> Move-AzureVirtualNetwork -Commit -VirtualNetworkName $vnetName
OperationDescription      OperationId                OperationStatus
-----
Move-AzureVirtualNetwork c733d4c-                Succeeded

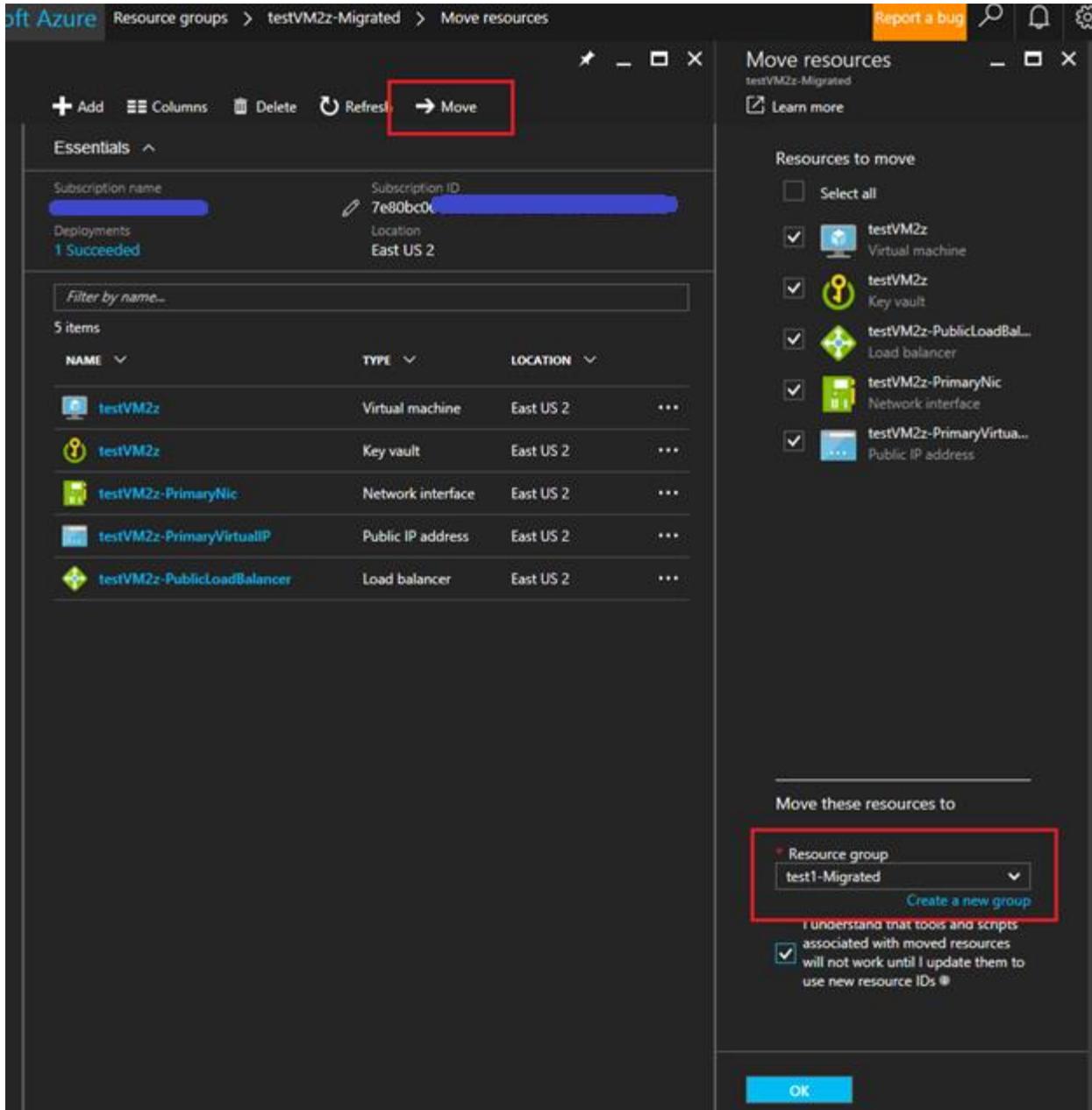
PS C:\Users\rtiberiu>
```

- Once migrated, these are the RGs where the objects are placed.



3.3.1 Move VM dependencies in the same RG

Moving between subscriptions will require all these objects are moved inside the same Resource Group. Moving objects between resource groups is done with no downtime, by clicking the "Move" option on the Resource Group blade.



The screenshot shows the Azure portal interface for moving resources. The main pane displays a table of resources to be moved:

NAME	TYPE	LOCATION
testVM2z	Virtual machine	East US 2
testVM2z	Key vault	East US 2
testVM2z-PrimaryNic	Network interface	East US 2
testVM2z-PrimaryVirtualIP	Public IP address	East US 2
testVM2z-PublicLoadBalancer	Load balancer	East US 2

The right-hand pane shows the 'Move resources' dialog with the following details:

- Resources to move:** A list of resources with checkboxes, all of which are checked.
- Move these resources to:** A dropdown menu for 'Resource group' is set to 'test1-Migrated'.
- Confirmation:** A checkbox is checked, indicating that the user understands that tools and scripts associated with moved resources will not work until they are updated to use new resource IDs.

- Once all resources are migrated, a single RG will contain all dependencies:

Notifications

Dismiss all

✓ Moving resources complete

Successfully moved 'krportalvhdsxhtt51pk48nd' from resource group 'krportalvhdsxhtt51pk48nd-Migrated' in subscription '...' to resource group 'testVM1z-Migrated' in subscription '...'.

✓ Moving resources complete

Successfully moved 'testv1' from resource group 'testv1-Migrated' in subscription '...' to resource group 'testVM1z-Migrated' in subscription '...'.

✓ Moving resources complete

Successfully moved 5 resources from resource group 'testVM2z-Migrated' in subscription '...' to resource group 'testVM1z-Migrated' in subscription '...'.

+ Add
☰ Columns
🗑 Delete
🔄 Refresh
➡ Move

Essentials ^

Subscription name: [redacted]

Subscription ID: 7e80bc06-...30

Deployments: 1 Succeeded

Location: East US 2

12 items

NAME ▾	TYPE ▾	LOCATION ▾	⋮
krportalvhdsxhtt51pk48nd	Storage account	East US	⋮
testv1	Virtual network	East US 2	⋮
testVM1z	Virtual machine	East US 2	⋮
testVM1z	Key vault	East US 2	⋮
testVM1z-PrimaryNic	Network interface	East US 2	⋮
testVM1z-PrimaryVirtualIP	Public IP address	East US 2	⋮
testVM1z-PublicLoadBalancer	Load balancer	East US 2	⋮
testVM2z	Virtual machine	East US 2	⋮
testVM2z	Key vault	East US 2	⋮
testVM2z-PrimaryNic	Network interface	East US 2	⋮
testVM2z-PrimaryVirtualIP	Public IP address	East US 2	⋮
testVM2z-PublicLoadBalancer	Load balancer	East US 2	⋮

3.3.2 Remove “secrets” dependency

VMs originally created in ASM, when converted to ARM, carry a specific secrets dependency that needs to be removed before being able to be moved over to a CSP subscription. This section explains the procedure to do so.

As outlined above, there are three options to remove the “secrets” dependencies:

- **Using PowerShell**

```
$vm = Get-AzureRmVM -ResourceGroupName $rgName -Name $vmName
$vm.OSProfile.Secrets = New-Object -TypeName
"System.Collections.Generic.List[Microsoft.Azure.Management.Compu
te.Models.VaultSecretGroup]"
Update-AzureRmVM -ResourceGroupName $rgName -VM $vm -Debug
```
- **Using CLI 2.0**

```
az vm update -g rgname -n vmname --set osProfile.Secrets=[]
```
- **Using resources.azure.com**

In the example below, we are using resources.azure.com to remove the secret.

- Navigate to resources.azure.com and browse to your subscription -> resourceGroups and find the name of the Resource group where objects were migrated
- For each of the VMs click the Microsoft.Compute resource, remove the “secrets” entry values, and click the PUT button – this will validate the change and apply it

```

8-   "osDisk": {
9-     "osType": "Windows",
10-    "name": "testVM1z-testVM1z-0-201612031024340660",
11-    "createOption": "Attach",
12-    "vhd": {
13-      "uri": "https://86portalvhdsrsjjxccw43g7.blob.core.windows.net/vhds/testVM1z-testVM1z-2016-12-03.vhd"
14-    },
15-    "caching": "ReadWrite"
16-  },
17-  "dataDisks": []
18- },
19-  "osProfile": {
20-    "windowsConfiguration": {
21-      "provisionVMAgent": true,
22-      "enableAutomaticUpdates": true,
23-      "winRM": {
24-        "listeners": [
25-          {
26-            "protocol": "Https",
27-            "certificateUrl": "https://testvm1z.vault.azure.net/secrets/181007959F602F091A8E1F5DE456A4752404A2C
28-            /3affbcd998a0467595d68708f5c2c9e1"
29-          }
30-        ]
31-      }
32-    },
33-    "secrets": [
34-      {
35-        "sourceVault": {
36-          "id": "/subscriptions/7e80bc06-.../resourceGroups/testVM1z-Migrated/providers
37-          /Microsoft.KeyVault/vaults/testVM1z"
38-        },
39-        "vaultCertificates": [
40-          {
41-            "certificateUrl": "https://testvm1z.vault.azure.net/secrets/181007959F602F091A8E1F5DE456A4752404A2C
42-            /3affbcd998a0467595d68708f5c2c9e1",
43-            "certificateStore": "My"
44-          }
45-        ]
46-      }
47-    ],
48-    "networkProfile": {
49-      "networkInterfaces": [

```

- once removed, they should look like this:

testVM1z

Data (GET, PUT) Actions (POST, DELETE) Create Documentation PowerShell

GET Edit <https://management.azure.com/subscriptions/7e80bc06-.../resourceGroups/testVM1z-Migrated/providers/Micro...>

```

1- {
2-   "properties": {
3-     "vmId": "24b5710a-0859-4d17-a874-042ed5c018cf",
4-     "hardwareProfile": {
5-       "vmSize": "Standard_D2_v2"
6-     },
7-     "storageProfile": {
8-       "osDisk": {
9-         "osType": "Windows",
10-        "name": "testVM1z-testVM1z-0-201612031024340660",
11-        "createOption": "Attach",
12-        "vhd": {
13-          "uri": "https://86portalvhdsrsjjxccw43g7.blob.core.windows.net/vhds/testVM1z-testVM1z-2016-12-03.vhd"
14-        },
15-        "caching": "ReadWrite"
16-      },
17-      "dataDisks": []
18-    },
19-    "osProfile": {
20-      "windowsConfiguration": {
21-        "provisionVMAgent": true,
22-        "enableAutomaticUpdates": true,
23-        "winRM": {
24-          "listeners": [
25-            {
26-              "protocol": "Https",
27-              "certificateUrl": "https://testvm1z.vault.azure.net/secrets/181007959F602F091A8E1F5DE456A4752404A2C
28-              /3affbcd998a0467595d68708f5c2c9e1"
29-            }
30-          ]
31-        }
32-      },
33-      "secrets": []
34-    },
35-    "networkProfile": {

```

- do the same for all the VMs migrated.

At this point, the resources are ready to be moved to a different subscription. The next step towards moving the resources in the CSP subscription is to follow the “Resource transfer guidance from any ARM to CSP subscription” walkthrough.