

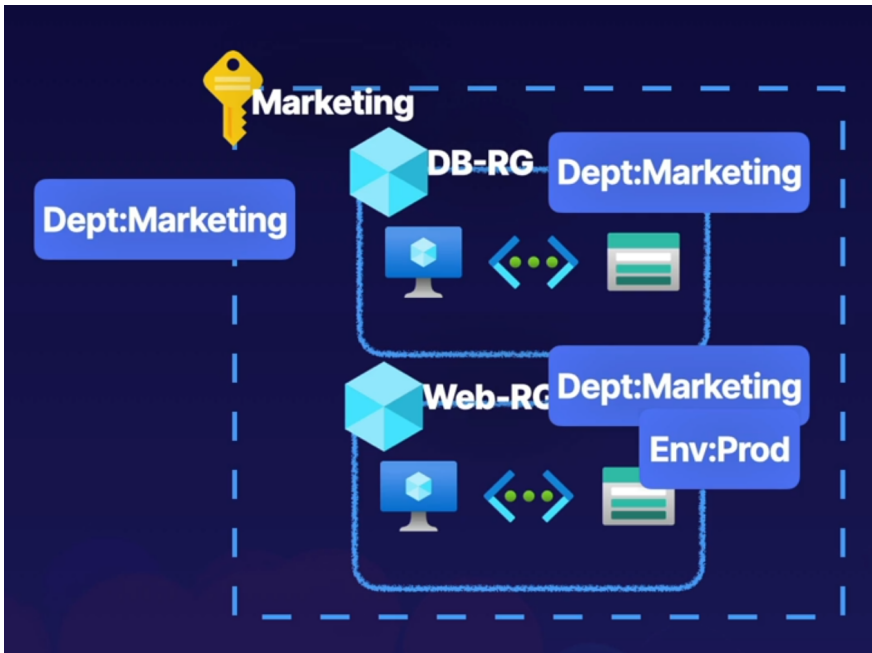
AZ-104 - Governance and Compliance - Tagging Resources

Control and organize Azure resources with Azure Resource Manager

Tags

What are tags: its a form of Name:Value

- Dept:Marketing - For example if create tag Dept:Marketing and tag all resources from Marketing this will help identify and provide billing to this resources to the Marketing department.
- Env:Prod - Identify wheather an environment is in production or dev



- Name can be 512 characters, and value can be 256 characters.
- Storage accounts can have a name with only 128 characters.
- Tags are not inherited.
- A resource can have 50 tags max.

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1-1e630682-playground-sandbox | Tags ✨ ☆ ...

Resource group

Search << Delete all

Overview

Activity log

Access control (IAM)

Tags ←

Resource visualizer

Events

Settings

Deployments

Security

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Locks

Cost Management

Cost analysis

Cost alerts (preview)

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. Tag names are case insensitive, b
Do not enter names or values that could make your resources less secure or that contain personal/sensitive information because tag data will be replicated globally.

Name	Value

1-1e630682-playground-sandbox (Resource group)
No changes

Here we can create tags, tags are not allowed to have the same name

Search << Delete all

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 - Cost alerts (preview)

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Do not enter names or values that could make your resources less secure or that contain personal/sensitive information because tag data will be replicated globally.

Name	Value
ms-resource-usage	: production
env	: dev
env	:
Invalid tag name. The tag name 'env' is already used. Tag names are case-insensitive.	
	:

1-1e630682-playground-sandbox (Resource group)
3 to be added

Lets test with the following ARM template.

(refer to [Arm Template here to investigate how to deploy an ARM template](#))

Arm template for TAG test

```
{
  "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
    "storageAccountName": {
      "type": "string",
      "metadata": {
        "description": "Name of storage account"
      }
    },
    "adminUsername": {
      "type": "string",
      "metadata": {
        "description": "Admin username"
      }
    },
    "adminPassword": {
      "type": "securestring",
      "metadata": {
        "description": "Admin password"
      }
    },
    "dnsNameforLBIP": {
```

```
"type": "string",
"metadata": {
  "description": "DNS for Load Balancer IP"
}
},
"vmNamePrefix": {
  "type": "string",
  "defaultValue": "myVM",
  "metadata": {
    "description": "Prefix to use for VM names"
  }
},
"imagePublisher": {
  "type": "string",
  "defaultValue": "MicrosoftWindowsServer",
  "metadata": {
    "description": "Image Publisher"
  }
},
"imageOffer": {
  "type": "string",
  "defaultValue": "WindowsServer",
  "metadata": {
    "description": "Image Offer"
  }
},
"imageSKU": {
  "type": "string",
  "defaultValue": "2019-Datacenter",
  "metadata": {
    "description": "Image SKU"
  }
},
"lbName": {
  "type": "string",
  "defaultValue": "myLB",
  "metadata": {
    "description": "Load Balancer name"
  }
},
"nicNamePrefix": {
  "type": "string",
  "defaultValue": "nic",
  "metadata": {
    "description": "Network Interface name prefix"
  }
},
"publicIPAddressName": {
  "type": "string",
  "defaultValue": "myPublicIP",
  "metadata": {
    "description": "Public IP Name"
  }
}
```

```

    }
  },
  "vnetName": {
    "type": "string",
    "defaultValue": "myVNET",
    "metadata": {
      "description": "VNET name"
    }
  },
  "vmSize": {
    "type": "string",
    "defaultValue": "Standard_D2s_v3",
    "metadata": {
      "description": "Size of the VM"
    }
  },
  "location": {
    "type": "string",
    "defaultValue": "[resourceGroup().location]",
    "metadata": {
      "description": "Location for all resources"
    }
  }
},
"variables": {
  "storageAccountType": "Standard_LRS",
  "availabilitySetName": "myAvSet",
  "addressPrefix": "10.0.0.0/16",
  "subnetName": "Subnet-1",
  "subnetPrefix": "10.0.0.0/24",
  "publicIPAddressType": "Dynamic",
  "subnetRef": "[resourceId('Microsoft.Network/virtualNetworks/subnets', parameters('vnetName'), variables('s
  "publicIPAddressID": "[resourceId('Microsoft.Network/publicIPAddresses',parameters('publicIPAddressName'))]",
  "numberOfInstances": 2
},
"resources": [
  {
    "type": "Microsoft.Storage/storageAccounts",
    "name": "[parameters('storageAccountName')]",
    "apiVersion": "2019-06-01",
    "location": "[parameters('location')]",
    "sku": {
      "name": "[variables('storageAccountType')]"
    },
    "kind": "StorageV2"
  },
  {
    "type": "Microsoft.Compute/availabilitySets",
    "name": "[variables('availabilitySetName')]",
    "apiVersion": "2019-12-01",
    "location": "[parameters('location')]",
    "properties": {

```

```
"platformFaultDomainCount": 2,
"platformUpdateDomainCount": 5
},
"sku": {
  "name": "Aligned"
}
},
{
  "apiVersion": "2020-05-01",
  "type": "Microsoft.Network/publicIPAddresses",
  "name": "[parameters('publicIPAddressName')]",
  "location": "[parameters('location')]",
  "properties": {
    "publicIPAllocationMethod": "[variables('publicIPAllocationType')]",
    "dnsSettings": {
      "domainNameLabel": "[parameters('dnsNameforLBIP')]"
    }
  }
},
{
  "apiVersion": "2020-05-01",
  "type": "Microsoft.Network/virtualNetworks",
  "name": "[parameters('vnetName')]",
  "location": "[parameters('location')]",
  "properties": {
    "addressSpace": {
      "addressPrefixes": [
        "[variables('addressPrefix')]"
      ]
    },
    "subnets": [
      {
        "name": "[variables('subnetName')]",
        "properties": {
          "addressPrefix": "[variables('subnetPrefix')]"
        }
      }
    ]
  }
},
{
  "apiVersion": "2020-05-01",
  "type": "Microsoft.Network/networkInterfaces",
  "name": "[concat(parameters('nicNamePrefix'), copyindex())]",
  "location": "[parameters('location')]",
  "copy": {
    "name": "nicLoop",
    "count": "[variables('numberOfInstances')]"
  },
  "dependsOn": [
    "[resourceId('Microsoft.Network/virtualNetworks/', parameters('vnetName'))]",
    "[resourceId('Microsoft.Network/loadBalancers/', parameters('lbName'))]"
  ]
}
```

```

],
"properties": {
  "ipConfigurations": [
    {
      "name": "ipconfig1",
      "properties": {
        "privateIPAllocationMethod": "Dynamic",
        "subnet": {
          "id": "[variables('subnetRef')]"
        },
        "loadBalancerBackendAddressPools": [
          {
            "id": "[resourceId('Microsoft.Network/loadBalancers/backendAddressPools', parameters('lbName'), 'Ba
          ]
        ],
        "loadBalancerInboundNatRules": [
          {
            "id": "[resourceId('Microsoft.Network/loadBalancers/inboundNatRules', parameters('lbName'), concat
          ]
        ]
      }
    ]
  }
},
{
  "apiVersion": "2020-05-01",
  "name": "[parameters('lbName')]",
  "type": "Microsoft.Network/loadBalancers",
  "location": "[parameters('location')]",
  "dependsOn": [
    "[resourceId('Microsoft.Network/publicIPAddresses/', parameters('publicIPAddressName'))]"
  ],
  "properties": {
    "frontendIPConfigurations": [
      {
        "name": "LoadBalancerFrontEnd",
        "properties": {
          "publicIPAddress": {
            "id": "[variables('publicIPAddressID')]"
          }
        }
      ]
    ],
    "backendAddressPools": [
      {
        "name": "BackendPool1"
      ]
    ],
    "inboundNatRules": [
      {
        "name": "RDP-VM0",

```

```
"properties": {
  "frontendIPConfiguration": {
    "id": "[resourceId('Microsoft.Network/loadBalancers/frontendIPConfigurations', parameters('lbName'), '
  },
  "protocol": "Tcp",
  "frontendPort": 50001,
  "backendPort": 3389,
  "enableFloatingIP": false
}
},
{
  "name": "RDP-VM1",
  "properties": {
    "frontendIPConfiguration": {
      "id": "[resourceId('Microsoft.Network/loadBalancers/frontendIPConfigurations', parameters('lbName'), '
    },
    "protocol": "Tcp",
    "frontendPort": 50002,
    "backendPort": 3389,
    "enableFloatingIP": false
  }
}
],
"loadBalancingRules": [
  {
    "name": "LBRule",
    "properties": {
      "frontendIPConfiguration": {
        "id": "[resourceId('Microsoft.Network/loadBalancers/frontendIPConfigurations', parameters('lbName'), '
      },
      "backendAddressPool": {
        "id": "[resourceId('Microsoft.Network/loadBalancers/backendAddressPools', parameters('lbName'), 'Bac

    },
    "protocol": "Tcp",
    "frontendPort": 80,
    "backendPort": 80,
    "enableFloatingIP": false,
    "idleTimeoutInMinutes": 5,
    "probe": {
      "id": "[resourceId('Microsoft.Network/loadBalancers/probes', parameters('lbName'), 'tcpProbe')]"
    }
  }
}
],
"probes": [
  {
    "name": "tcpProbe",
    "properties": {
      "protocol": "Tcp",
      "port": 80,
      "intervalInSeconds": 5,
```

```

        "numberOfProbes": 2
    }
}
]
},
{
  "apiVersion": "2019-12-01",
  "type": "Microsoft.Compute/virtualMachines",
  "name": "[concat(parameters('vmNamePrefix'), copyindex())]",
  "copy": {
    "name": "virtualMachineLoop",
    "count": "[variables('numberOfInstances')]"
  },
  "location": "[parameters('location')]",
  "dependsOn": [
    "[resourceId('Microsoft.Storage/storageAccounts/', parameters('storageAccountName'))]",
    "[resourceId('Microsoft.Network/networkInterfaces/', concat(parameters('nicNamePrefix'), copyindex()))]",
    "[resourceId('Microsoft.Compute/availabilitySets/', variables('availabilitySetName'))]"
  ],
  "properties": {
    "availabilitySet": {
      "id": "[resourceId('Microsoft.Compute/availabilitySets', variables('availabilitySetName'))]"
    },
    "hardwareProfile": {
      "vmSize": "[parameters('vmSize')]"
    },
    "osProfile": {
      "computerName": "[concat(parameters('vmNamePrefix'), copyIndex())]",
      "adminUsername": "[parameters('adminUsername')]",
      "adminPassword": "[parameters('adminPassword')]"
    },
    "storageProfile": {
      "imageReference": {
        "publisher": "[parameters('imagePublisher')]",
        "offer": "[parameters('imageOffer')]",
        "sku": "[parameters('imageSKU')]",
        "version": "latest"
      },
      "osDisk": {
        "createOption": "FromImage"
      }
    },
    "networkProfile": {
      "networkInterfaces": [
        {
          "id": "[resourceId('Microsoft.Network/networkInterfaces', concat(parameters('nicNamePrefix'), copyindex
        ]
      ],
      "diagnosticsProfile": {
        "bootDiagnostics": {

```

```
"enabled": true,
"storageUri": "[reference(parameters('storageAccountName'), '2019-06-01').primaryEndpoints.blob]"
}
}
}
}
]
}
```

After deploying our VMs using the ARM template, we can see that the resource group show the tags we previously assign.

Home > Microsoft.Template-20240207182517 | Overview >

1-1e630682-playground-sandbox

Resource group

Search << + Create Manage view Delete resource group Refresh Export to CSV Open

- Overview
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- Resource visualizer
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- Policies
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Cost Management

- Cost analysis
- Cost alerts (preview)
- Budgets
- Advisor recommendations

Monitoring

- Insights (preview)

Essentials

Subscription (move) : [P8-Real Hands-On Labs](#)

Subscription ID : 9734ed68-621d-47ed-babd-269110dbacb1

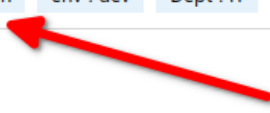
Tags (edit) : **ms-resource-usage : production** env : dev Dept : IT

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 11 of 11 records. Show hidden types

<input type="checkbox"/> Name ↑↓
<input type="checkbox"/> az11055444
<input type="checkbox"/> myAvSet
<input type="checkbox"/> myLB
<input type="checkbox"/> myPublicIP
<input type="checkbox"/> myVM0
<input type="checkbox"/> myVM0_OsDisk_1_3ecfd705fc94f7d8d8c78f808d329b2
<input type="checkbox"/> myVM1
<input type="checkbox"/> myVM1_OsDisk_1_17f5a6298cbd455999233655e854b035
<input type="checkbox"/> myVNET
<input type="checkbox"/> nic0
<input type="checkbox"/> nic1



If we go to our virtual machine we notice tags are not inherited from the resource group

Home > Microsoft.Template-20240207182517 | Overview > 1-1e630682-playground-sandbox >

myVM0
Virtual machine

Search << Connect Start Restart Stop Hibernate (preview) Capture Delete

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Connect

- Connect
- Bastion
- Windows Admin Center

Networking

- Network settings
- Load balancing
- Application security groups
- Network manager

Settings

- Disks
- Extensions + applications
- Configuration
- Advisor recommendations
- Properties

Essentials


Resource group (move) : [1-1e630682-playground-sandbox](#)

Status : Running

Location : East US

Subscription (move) : [P8-Real Hands-On Labs](#)

Subscription ID : 9734ed68-621d-47ed-babd-269110dbacb1

Tags (edit) : [Add tags](#) 

Properties Monitoring Capabilities (8) Recommendations Tutorials

Virtual machine

Computer name	myVM0
Operating system	Windows (Windows Server 2019 Datacenter)
Image publisher	MicrosoftWindowsServer
Image offer	WindowsServer
Image plan	2019-Datacenter
VM generation	V1
VM architecture	x64
Agent status	Ready
Agent version	2.7.41491.1102
Hibernation	Disabled
Host group	-
Host	-

Manage resources via tags, For example shutting down all VM's with a specific tag or developers can only update VMs with a specific tag.

Tags are not inheritance from the higher scope like a resource group, Each resource group must be tagged independently. You can use Azure policy to enforce tagging.

Revision #6

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