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The PowerShell script Deploy-IntegrationTopicSubResource.ps1 is designed to deploy Azure resources using an ARM (Azure Resource Manager) template and its parameters file. Here's a breakdown of the script, its components, and usage instructions.

# Power Shell Script Breakdown

**Parameters**

The script begins by defining several parameters, which allow for customization during execution:

powershell

Copy code

Param(

[string] [Parameter(Mandatory=$true)] $ResourceGroupLocation,

[string] $ResourceGroupName = 'cnc-700015-dev-01',

[switch] $UploadArtifacts,

[string] $StorageAccountName,

[string] $StorageContainerName = $ResourceGroupName.ToLowerInvariant() + '-stageartifacts',

[string] $TemplateFile = 'StudentTopicResource.template.json',

[string] $TemplateParametersFile = 'StudentTopicResource.parameters.json',

[string] $ArtifactStagingDirectory = '.',

[string] $DSCSourceFolder = 'DSC',

[switch] $ValidateOnly

)

* **$ResourceGroupLocation**: The location/region where the Azure Resource Group will be deployed. This is mandatory.
* **$ResourceGroupName**: The name of the Azure Resource Group. Defaults to 'cnc-700015-dev-01'.
* **$UploadArtifacts**: A switch to determine if artifacts should be uploaded.
* **$StorageAccountName**: The name of the Azure Storage Account for uploading artifacts.
* **$StorageContainerName**: The name of the storage container, defaulting to '<ResourceGroupName>-stageartifacts'.
* **$TemplateFile**: The ARM template file to use. Defaults to 'StudentTopicResource.template.json'.
* **$TemplateParametersFile**: The ARM template parameters file. Defaults to 'StudentTopicResource.parameters.json'.
* **$ArtifactStagingDirectory**: The directory containing the artifacts to upload. Defaults to the current directory.
* **$DSCSourceFolder**: The folder containing DSC (Desired State Configuration) files. Defaults to 'DSC'.
* **$ValidateOnly**: A switch to validate the template without actual deployment.

**Usage Instructions**

To use this script, you need to run it in a PowerShell environment with the Azure module installed and authenticated to your Azure account. Here’s how to execute it with various options:

1. **Basic Deployment**:

powershell

Copy code

.\Deploy-IntegrationTopicSubResource.ps1 -ResourceGroupLocation 'East US' -ResourceGroupName 'MyResourceGroup'

1. **Deployment with Artifacts Upload**:

powershell

Copy code

.\Deploy-IntegrationTopicSubResource.ps1 -ResourceGroupLocation 'East US' -ResourceGroupName 'MyResourceGroup' `

-UploadArtifacts `

-StorageAccountName 'MyStorageAccount'

1. **Validate Only**:

powershell

Copy code

.\Deploy-IntegrationTopicSubResource.ps1 -ResourceGroupLocation 'East US' -ResourceGroupName 'MyResourceGroup' -ValidateOnly

1. **Custom Template and Parameters**:

powershell

Copy code

.\Deploy-IntegrationTopicSubResource.ps1 -ResourceGroupLocation 'East US' -ResourceGroupName 'MyResourceGroup' `

-TemplateFile 'CustomTemplate.json' `

-TemplateParametersFile 'CustomParameters.json'

**Additional Notes**

* Ensure the required Azure PowerShell modules are installed and you are logged into your Azure account.
* Modify the parameters as per your requirements.
* Make sure the paths to the template and parameter files are correct.

# ARM Template Parameters

IntegrationTopicSubResource.parameters.json

This JSON file contains parameter values that are used by an ARM template to deploy and configure Azure resources. It includes metadata to describe the purpose of each parameter.

**Structure and Contents**

1. **Schema**:
   * The $schema property defines the location of the JSON schema that describes the structure of the parameters file.

json

Copy code

"$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentParameters.json#"

1. **Content Version**:
   * The contentVersion property specifies the version of the parameters file. This helps in versioning and updating the file if changes are made.

json

Copy code

"contentVersion": "1.0.0.0"

1. **Parameters**:
   * The parameters section defines the values that will be passed to the ARM template. Each parameter includes metadata and the actual value to be used during deployment.

json

Copy code

"parameters": {

"asb\_namespace": {

"metadata": {

"description": "ASB NameSpace"

},

"value": "<<Name Space>>"

},

"asb\_topic\_Subscription\_names": {

"metadata": {

"description": "Names of Topics:Subscription to be created under Azure Service Bus"

},

"value": [

"<<Topic Name>>:<<Subscription name>>",

"anth-att-lea-sbt-01:anth-att-lea-ext-sbts-01",

"anth-ack-not-sbt-01:anth-ack-not-sbts-01"

]

}

}

Let’s break down each parameter:

* + **asb\_namespace**:
    - **Metadata**: Provides a description, which is "ASB NameSpace". This describes the namespace under which Azure Service Bus (ASB) resources will be created.
    - **Value**: The value assigned is "Ath-700015-dev-sb-01", which indicates the name of the Azure Service Bus namespace to be used or created.

json

Copy code

"asb\_namespace": {

"metadata": {

"description": "ASB NameSpace"

},

"value": "Ath-700015-dev-sb-01"

}

* + **asb\_topic\_Subscription\_names**:
    - **Metadata**: Describes the parameter as the "Names of Topics

to be created under Azure Service Bus". This parameter will likely be used to define topics and their associated subscriptions within the Service Bus.

* + - **Value**: This is an array of strings, each following the format "topicName:subscriptionName", indicating the names of topics and their respective subscriptions. Example values include "anth-gra-lea-sbt-01:anth-gra-lea-ext-sbts-01".

json

Copy code

"asb\_topic\_Subscription\_names": {

"metadata": {

"description": "Names of Topics:Subscription to be created under Azure Service Bus"

},

"value": [

"anth-gra-lea-sbt-01:anth-gra-lea-ext-sbts-01",

"anth-att-lea-sbt-01:anth-att-lea-ext-sbts-01",

"anth-ack-not-sbt-01:anth-ack-not-sbts-01"

]

}

**Usage in ARM Templates**

The parameters defined in the IntegrationTopicSubResource.parameters.json file are used to dynamically configure the ARM template during deployment. They allow for reusable and flexible template deployments without hardcoding specific values.

**Example ARM Template Integration**

An ARM template might include these parameters as follows:

json

Copy code

{

"$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",

"contentVersion": "1.0.0.0",

"parameters": {

"asb\_namespace": {

"type": "string",

"metadata": {

"description": "ASB NameSpace"

}

},

"asb\_topic\_Subscription\_names": {

"type": "array",

"metadata": {

"description": "Names of Topics:Subscription to be created under Azure Service Bus"

}

}

},

"resources": [

{

"type": "Microsoft.ServiceBus/namespaces",

"apiVersion": "2021-01-01-preview",

"name": "[parameters('asb\_namespace')]",

"location": "[resourceGroup().location]",

"properties": {}

},

{

"type": "Microsoft.ServiceBus/namespaces/topics",

"apiVersion": "2021-01-01-preview",

"name": "[concat(parameters('asb\_namespace'), '/', split(parameters('asb\_topic\_Subscription\_names')[0], ':')[0])]",

"location": "[resourceGroup().location]",

"properties": {}

},

{

"type": "Microsoft.ServiceBus/namespaces/topics/subscriptions",

"apiVersion": "2021-01-01-preview",

"name": "[concat(parameters('asb\_namespace'), '/', split(parameters('asb\_topic\_Subscription\_names')[0], ':')[0], '/', split(parameters('asb\_topic\_Subscription\_names')[0], ':')[1])]",

"location": "[resourceGroup().location]",

"properties": {}

}

]

}

**Conclusion**

The IntegrationTopicSubResource.parameters.json file provides a flexible way to specify deployment configurations for Azure resources, especially for Azure Service Bus topics and subscriptions. It allows users to define essential deployment details without altering the core ARM template, promoting reuse and simplifying parameter management across different environments.