



Automation Azure with PowerShell Beyond the PowerShell Module

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Session Topics

- Azure PowerShell Module
- Azure VM Custom Script Extension
- Azure VM DSC Extension
- Azure Automation
- REST endpoints

PowerShell Module

Module work working with Azure resources

- Windows, macOS, Linux, and as a Docker image
- PowerShell for .net standard
- PowerShell Core (focus for this session)

Azure module for PowerShell Core

Some notes on pwsh.

- Install-Module Az
- Get-AzRMVM > Get-AzVM
- Enable AzRM aliasing (**Enable-AzureRmAlias**)

Authentication

Methods for authenticating the PowerShell module with Azure

- Connect-AzAccount
- Connect-AzAccount -ServicePrincipal -ApplicationID <> -Credential <> -TenantId
- Enable-AzContextAutosave
- Disable-AzContextAutosave

Demo - PowerShell Module

Azure VM Extensions

Provide dynamic features, supplied by Microsoft and third parties, executed by the Azure VM Agent.

- VM Agent installs, configures, and executes extensions
- Added with any Azure management tooling
- Can be added at or after deployment time

Azure VM Extensions cont..

Many extensions available

- Custom Script
- DSC
- BgInfo
- Chef
- Puppet

VM Custom Script Extension

Scripts copied to VM and executed locally

- Windows: PowerShell
- Linux: Bash
- Azure PS module > 8.0
- Stored in blob storage or HTTP accessible location (GitHub)
- Only one script can be specified

VM Custom Script Extension cont..

Benefits

- No need for VM endpoint or PowerShell remoting
- Configure new virtual machines
- Manage existing virtual machines

Demo – Custom Script Extension

PowerShell DSC

PowerShell language extension used to declaratively specify, apply, and maintain software configurations.

- Declarative **Configurations**: define and configure infrastructure
- DSC **Resources**: configuration logic, grouped into modules
- Removes need for complex logic

Azure VM DSC Extension

Apply DSC configuration to new or existing Azure virtual machines,

- **Set-AzVMDscExtension**: Injects configurations
- **Get-AzVMDscExtensionStatus**: retrieves status
- **RemoveAzVMDscExtension**: removes handler, not configuration

Publishing a DSC Configuration

The **Publish-AzureRMDSCConfiguration** command automates the prep work.

- Creates .zip of configuration and resources
- Publishes file to Azure Storage
- Can also publish locally

Demo – DSC Extension

Azure Automation

An Azure hosted Runbook / technical workflow solution.

- Process automation: PowerShell and Python runbooks
- Configuration management: PowerShell DSC
- Update management:

Azure Automation Cont..

Process Automation

- Runbooks for the cloud and on-premises
- Trigger manually, on a schedule, by webhook or event
- Capability for graphical authoring

Demo – Azure Automation

Azure REST Interfaces

Sometimes, perhaps, you may want to work with a raw REST interface.

- Service endpoints that support HTTP methods
- Create, retrieve, update, delete
- Service Principle for authentication

Demo – Rest Interface