

```
PowerShell 6 (x64)
class Session {
    [string]$Title = "PowerShell Classes"
    [string]$Speaker = "Jan-Henrik Damaschke"
    [string]$Event = "PowerShell Saturday"

    Session ()
    {
        Write-Host "Welcome!"
    }
}
```

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Agenda

- Class basics
- Working with classes
- Cross Platform
- Azure Storage Table wrapper
- Questions

Class basics – Class keyword

```
Class Calculator
{
    [double]$operand

    Calculator([int]$operand)
    {
        $this.operand = $operand
    }

    [double]Add([int]$operand)
    {
        Write-Host "Increasing $($this.operand) by $($operand)"
        $this.operand = $this.operand + $operand
        return $this.operand
    }
    ...
}
```

DEMO



Class basics - Overloads

```
Class Calculator
{
  hidden [double]$operand = 0

  Calculator([int]$operand)
  {
    $tmpValue = 0
    [double]::TryParse($operand, [ref]$tmpValue)
    $this._operand = $tmpValue
  }

  Calculator() {}

  ...
}
```


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Class basics – Class Methods

```
Class Calculator
{
    hidden [double]$operand = 0
    static $history = @()
    ...
    [void]Add([int]$operand)
    {
        $message = "Increasing $($this.operand) by $($operand)"
        $this.operand = $this.operand + $operand
        $this._WriteHistory($message)
    }

    hidden [void]_WriteHistory($entry)
    {
        $entry = "$entry : $($this.operand)"
        Write-Host $entry
        [Calculator]::history += $entry
    }
}
```


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Class basics – Inheritance

```
Class VmEntity : Microsoft.Azure.Cosmos.Table.TableEntity {  
    [string]$Name  
    [string]$Id  
    [string]$VmSize  
    [string]$OsType  
  
    VmEntity($region, $resourceId, $name, $vmSize, $osType) {  
        $this.PartitionKey = $region  
        $this.RowKey = $resourceId.replace('/', '')  
        $this.Name = $name  
        $this.Id = $resourceId  
        $this.VmSize = $vmSize  
        $this.OsType = $osType  
    }  
}
```

Class basics – Interfaces

```
class MyComparable : system.IComparable
{
    [int] CompareTo([object] $obj)
    {
        return 0;
    }
}
```

Working with classes

- Inside of scripts
- Inside of modules
- Multiple classes in multiple files
- Load classes only with: using module .\TableStorage.psm1

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Cross platform

- Based on .Net (core)
- PowerShell >= 5 compatible
- Cross platform PowerShell 6/7
- COM/Win32 APIs not available
- Debugging with VSCode/WSL

Cross platform - setup

- Activate and install WSL (e.g. Ubuntu 18.04 LTS)
- Install PowerShell in Ubuntu (aka.ms/install-powershell)
- Install "Remote – WSL" (`ms-vscode-remote.remote-wsl`) extension
- Open new WSL Windows and click "Install in WSL" for PS extension

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Azure Storage Table Wrapper

- Use Table Storage Client from within PowerShell
- Abstract handling of .Net assemblies
- Use .Net Namespaces imported by AzTable
- Alternative to PowerShell Module AzTable (CosmosDB)

Microsoft Implementation

AzureRmStorageTableCoreHelper.psm1:

```
if ($UpdateExisting)
{
    return ($Table.Execute([Microsoft.Azure.Cosmos.Table.TableOperation]::InsertOrReplace($entity)))
}
else
{
    return ($Table.Execute([Microsoft.Azure.Cosmos.Table.TableOperation]::Insert($entity)))
}
```

Source: <https://github.com/paulomarquesc/AzureRmStorageTable>

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Advanced topics – Create setter/getter

Constructor:

```
$properties = "timestamp", "ttl", "timeout", "bytes", "duration", "interval"
foreach($property in $properties)
{
    $this._AddProperty($property)
}
```

Method:

```
hidden _AddProperty([string]$propName)
{
    $property = new-object management.automation.PsScriptProperty $propName, `
    {$propname = $propname; return $this."_$propName"}.GetNewClosure(), `
    {param($value) $propname = $propname; $this."_$propName" = $value}. `
    GetNewClosure()
    $this.psobject.properties.add($property)
}
```


Links

<https://github.com/it-insights/PowerShell-Examples>

<https://www.itinsights.org/Create-Advanced-Ping-Class-in-PowerShell/>

https://docs.microsoft.com/en-us/powershell/module/microsoft.powershell.core/about/about_classes

<https://github.com/PowerShell/PowerShell>

<https://github.com/paulomarquesc/AzureRmStorageTable>

Questions