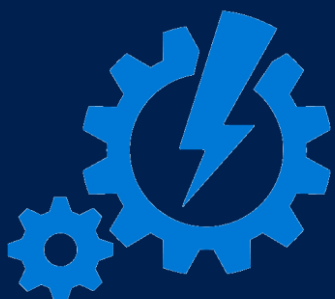




Writing PowerShell Modules for SMA and Azure Automation



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Consulting

About Myself

- Independent Consultant
– TY Consulting Pty Ltd
- MVP – Cloud and
Datacenter Management
- System Center and OMS
- SCOM Management
Pack Developer
- In love with PowerShell
since 2008 (PoSh v1.0)

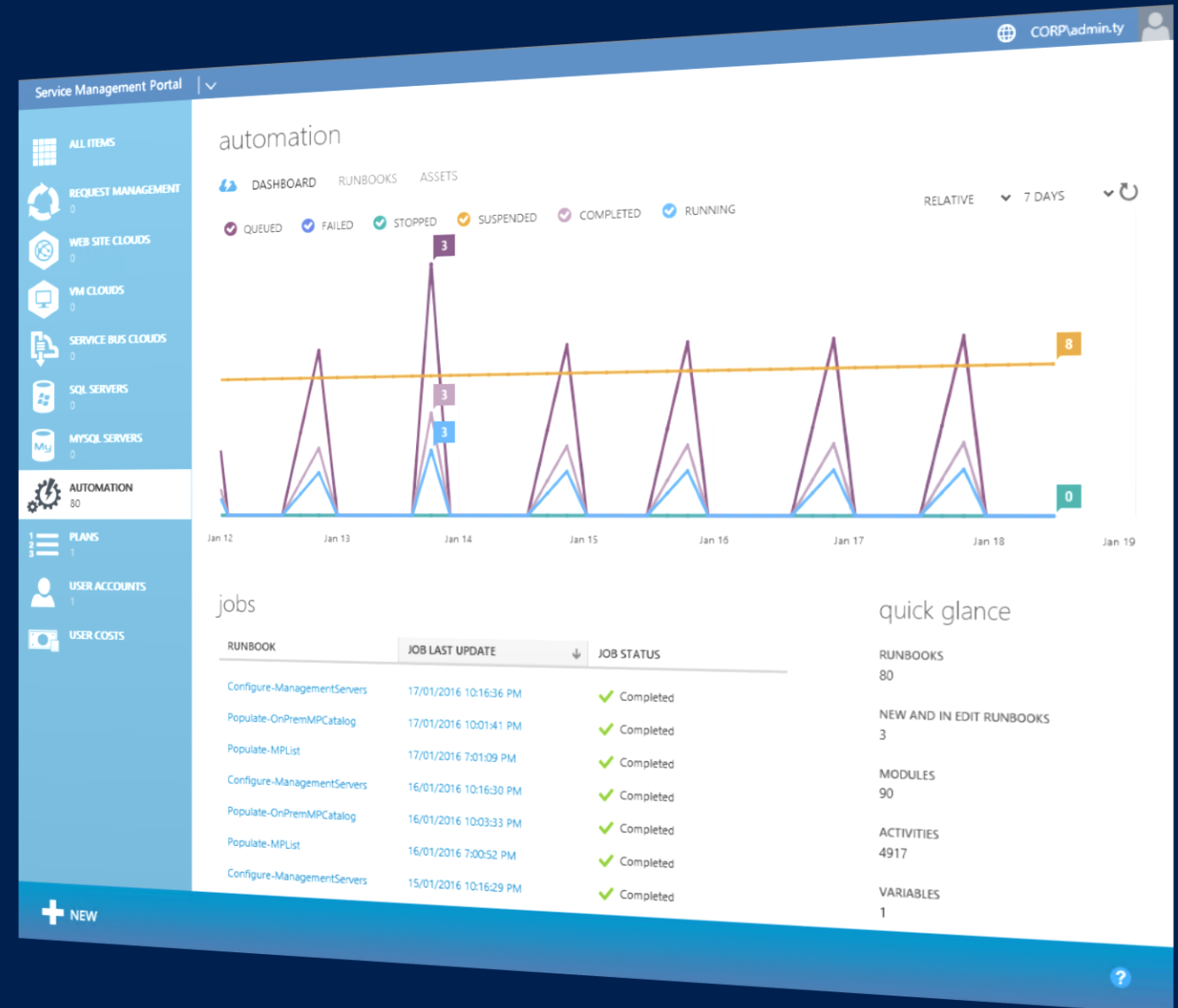


Agenda

- ➔ Quick Introduction to SMA and Azure Automation
- ➔ Introduction to Integration Modules
- ➔ Creating Integration Modules
- ➔ Tips on how to use 3rd party DLLs in your modules
- ➔ Publishing your modules
- ➔ Recommended resources
- ➔ Q & A

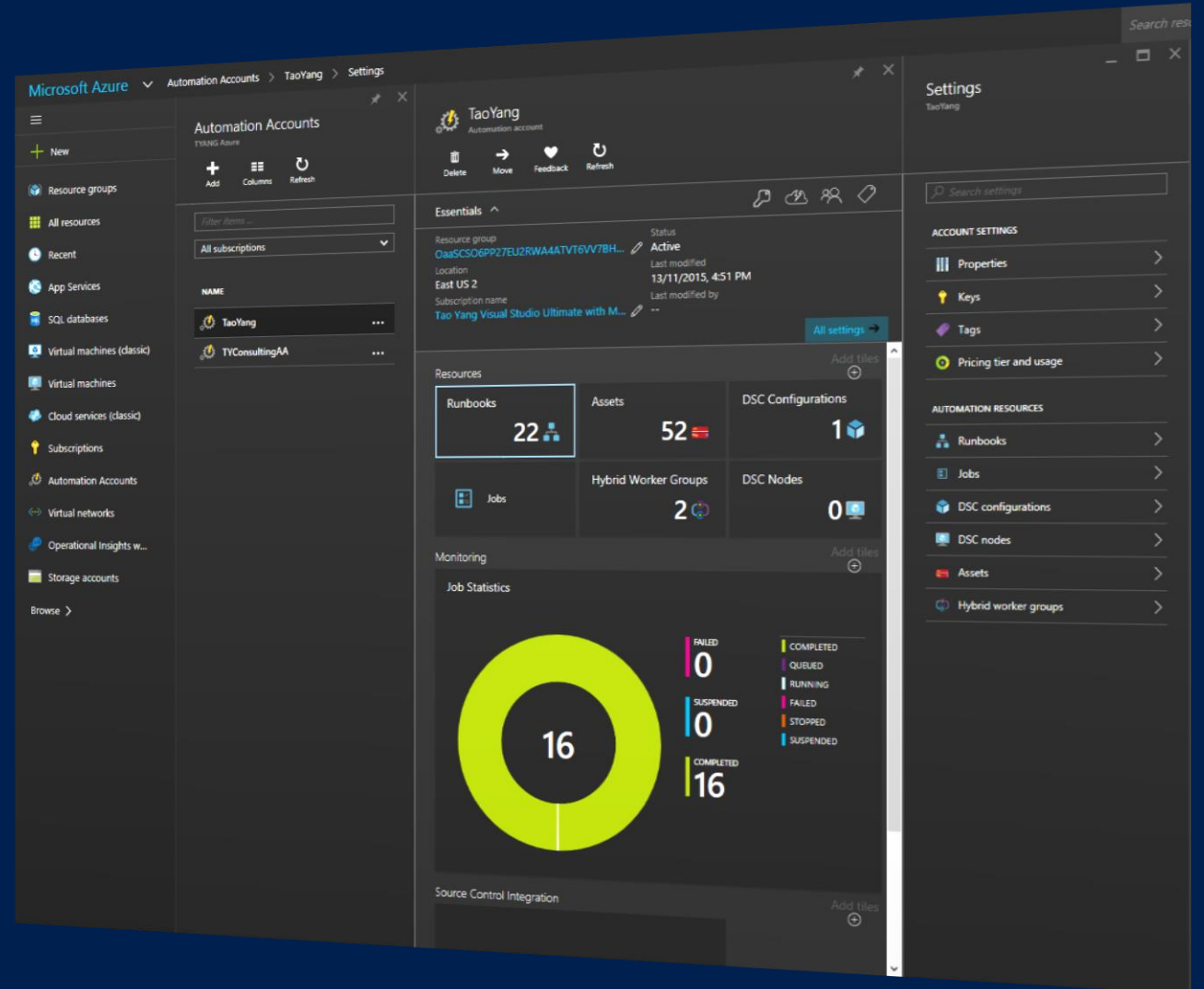
What is SMA?

- System Center Service Management Automation
- Introduced in System Center 2012 R2 release
- Automation engine based on PowerShell Workflow
- 64-bit Architecture
- Managed via Windows Azure Pack Admin Portal (Automation Tab)



What is Azure Automation

- SMA Equivalent on Azure with Much More
- Part of OMS
- <https://portal.azure.com>
- Types of Runbooks:
 - PowerShell Workflow
 - PowerShell
 - Graphical
- Hybrid Workers
- Webhook Support
- PowerShell DSC
- Source Control Integration
 - Github
 - Visual Studio Online coming soon

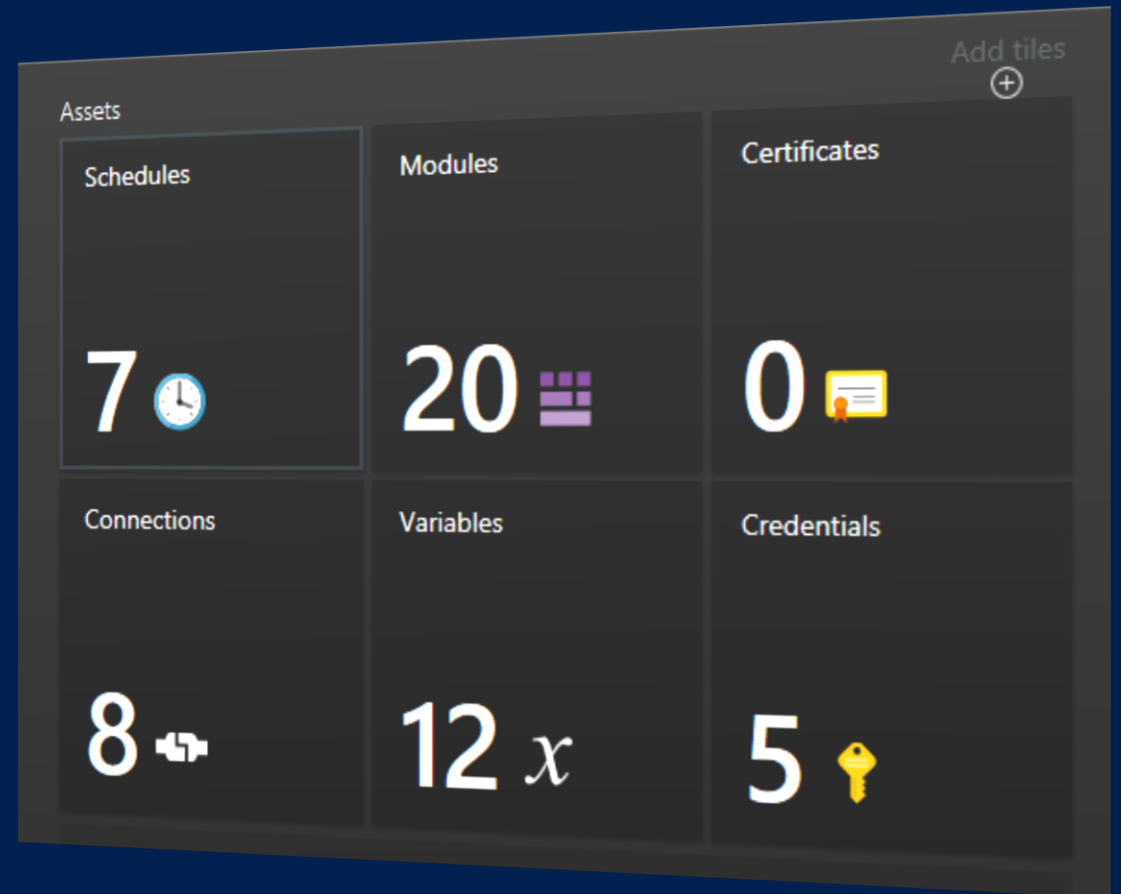


SMA and Azure Automation Assets

Additional objects that runbooks can utilise

- Schedules
- Modules
- Connections
- Variables
- Credentials
- Certificates *

* Only available in Azure Automation



Integration Modules

- ➔ Named after:
 - ➔ System Center Orchestrator – **Integration** Packs
 - ➔ PowerShell - **Modules**
- ➔ It is basically a PowerShell Module
 - ➔ Zipped into a .zip file
 - ➔ With an additional optional connection JSON document
- ➔ Automatically deployed to Runbook workers
 - ➔ Except for Azure Automation Hybrid Workers - for now...
- ➔ SMA Portable Module

SMA Portable Module

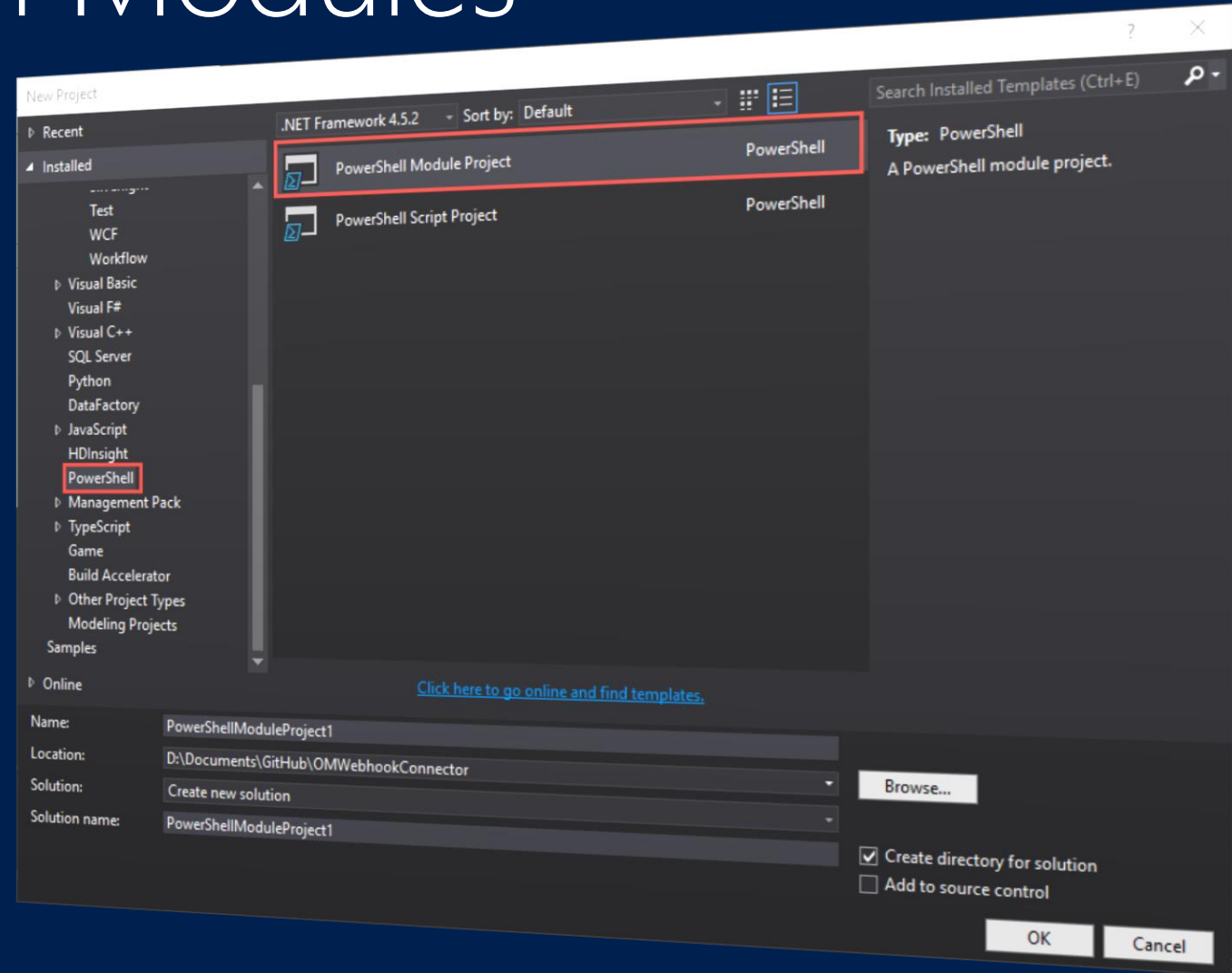
- ➔ Middle-man between the runbook and the real PS Module
- ➔ The Original module must be installed on the runbook worker outside of SMA
- ➔ Not Portable at all, but totally Opposite!

```
try { $params = $PSBoundParameters; OperationsManager\Export-SCOMManagementPack @params } catch {  
$message = '' + $env:COMPUTERNAME + ' does not have the OperationsManager module installed.  
Either this cmdlet must be called from an inlinescript against a machine with the  
OperationsManager module installed, or you must install the OperationsManager module on ' + $env:  
COMPUTERNAME; if($_.FullyQualifiedErrorId -eq "CouldNotAutoLoadModule") { throw $message } else {  
throw $_ } }
```

```
-}
```


Creating Integration Modules

- ➔ Same way as creating PowerShell modules
 - ➔ New-ModuleManifest cmdlet
 - ➔ Or Using Visual Studio
- ➔ Defining the psd1 file
 - ➔ RootModule
 - ➔ Author & CompanyName
 - ➔ Copyright & Description
 - ➔ FunctionsToExport
 - ➔ CmdletsToExport
 - ➔ NestedModules
 - ➔ FileList



Demo – Module Manifest
.psd1 file

Start Coding Your Functions or Cmdlets

- ➔ Place your functions in .psm1 files and cmdlets in .DLL files
- ➔ Your PS Module may require custom / 3rd party .DLL files
- ➔ Placing ALL required files into the module folder (including 3rd party .dll files)

Demo – How to Utilise 3rd Party .DLL files

Defining Connections in Integration Modules

- ➔ Only 1 Connection Type Per Module
- ➔ Defined in "<Module Name>-Automation.json" file
- ➔ Define each field:
 - ➔ Field Name
 - ➔ Mandatory vs Optional
 - ➔ Encrypted vs Unencrypted
 - ➔ Type (String, Integer, Boolean)
- ➔ When runbooks retrieve the connection, a Hashtable is returned, and encrypted value is decrypted

Demo – Integration Module Connection File

Deploying Your Module

- ➔ Zip your module folder and upload to SMA or Azure Automation
- ➔ The Module will be automatically deployed to:
 - ➔ SMA Runbook Workers
 - ➔ Azure Automation Azure Workers
 - ➔ Hybrid Worker support will come soon

Publishing Your Module to PowerShellGallery

- ➞ Sharing you work with the community
- ➞ Deploying to Azure Automation Directly from www.PowerShellGallery.com
- ➞ **Make sure you run PSScriptAnalyzer and fix ALL critical issues BEFORE publishing to PowerShellGallery!**
 - ➞ PSScriptAnalyzer - <https://www.powershellgallery.com/packages/PSScriptAnalyzer>

Demo – Deploying Modules from PowerShellGallery

Azure Automation Useful Links

MVA Training

Automating the Cloud with Azure Automation - <https://mva.microsoft.com/en-US/training-courses/automating-the-cloud-with-azure-automation-8323>

Links

Azure Automation Blog - <https://azure.microsoft.com/en-us/blog/tag/azure-automation/>

Orchestration Blog - <http://blogs.technet.com/b/orchestrator/>

Azure Automation eBook: <https://mva.microsoft.com/ebooks>

PowerShell Gallery: <https://www.powershellgallery.com/>

System Center Orchestrator Migration toolkit - <https://azure.microsoft.com/en-us/documentation/articles/automation-orchestrator-migration/>

Azure Automation Authoring Toolkit - <https://www.powershellgallery.com/packages/AzureAutomationAuthoringToolkit/>

Pricing

Azure Automation Pricing - <https://azure.microsoft.com/en-us/pricing/details/automation/>

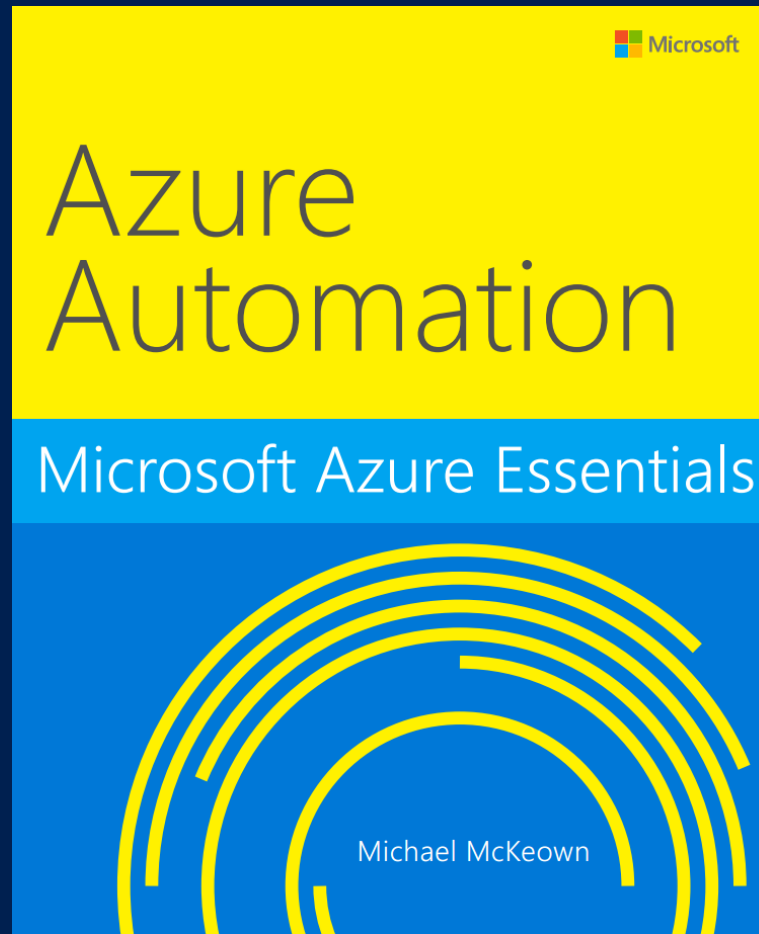
Free E-book: Inside the Microsoft Operations Management Suite

- Written by Microsoft MVPs and PFE
- Over 400 pages of comprehensive guide on OMS
- Download Preview version:
 - <https://gallery.technet.microsoft.com/Inside-the-Operations-2928e342>
- Azure Automation is covered in Chapter 6 in this book
- Sample source code and management pack available for download on Github
- Final Release will become available in **Jan 2016**



Azure Automation eBooks

➞ <http://www.microsoftvirtualacademy.com/ebooks>





System Center Universe Australia 2016

Friday 11 March 2016

Location: Crown Promenade Melbourne

Time: 8.00 AM – 7.00 PM

(Cocktail session and Prizes to be won)

For the FIRST time ever, SCU is coming to Australia!

This is a first-class community conference where you can mingle with experts and fellow industry professionals to explore new technologies. The conference has been running for many years in Asia, typically Singapore and Malaysia and also in Europe and USA.

This one day event will be showcasing upcoming System Center solutions and Cloud Technologies with integration of the latest Windows 10!



18+ breakout sessions



3 parallel tracks



Exhibition area



Ask the Expert session



Cocktail networking



Microsoft MVPs on site



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Friday 11th March 2016 – Crown Promenade

OR

Special 10% off discount if
ordering 5 or more tickets
(Individual ticket price \$225)

Use code: **OZDAY**

Ends 31st Jan 2016

Register :

<http://systemcenteruniverse.asia/australia/registration/>

Buy for yourself using the
Australia Day promotion @
\$250 a ticket [Normal Early bird
price is \$300]



Scan me to register

Questions?

