

Welcome to the

2019  
Global Azure  
BOOTCAMP

**2019**  

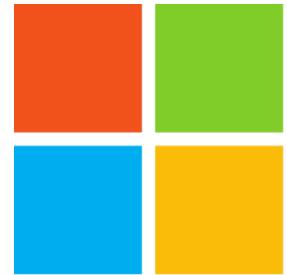
---

**Global Azure  
BOOTCAMP**

Bengaluru, India

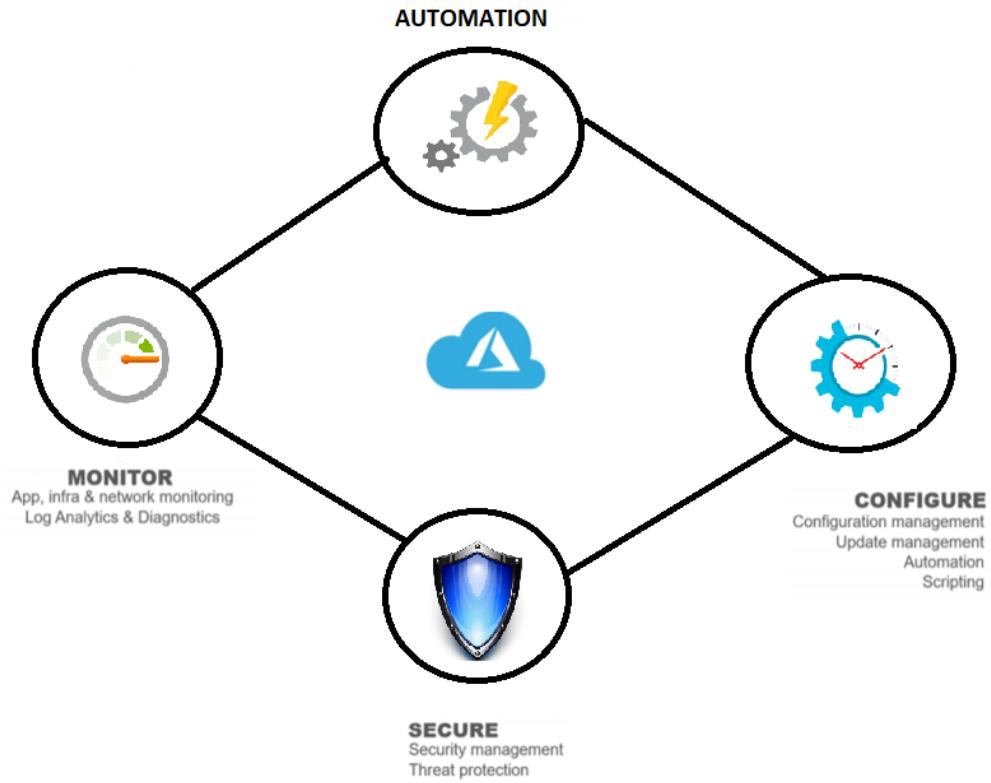
# Our Supporters

2019  
Global Azure  
**BOOTCAMP**



Microsoft

# Monitoring and Managing the Hybrid Infrastructure with Azure Monitor and Azure Automation



Keshav Jain  
Avinash Kumar

# About us.

Keshav

Around 10 years of experience in IT Infrastructure Management.

Working in DXC.Technology.

Prior to this, I was in Microsoft and worked on tools like Azure Monitor , Azure Automation and SCOM.

<https://www.linkedin.com/in/keshav-jain-016427121/>

Avinash

Around 9 years of experience in IT Infrastructure Management.

Working in Microsoft.

Works on Azure IAAS, Azure Automation and Hybrid Cloud.

<https://www.linkedin.com/in/avinash-kumar-1034b06b/>

We both were the part of the System Center team in 2014. He was the first one in our team to work on Automation and I picked up the “OMS” at the same time.

# Agenda.

- Monitoring.
- Manageability.
- Introduction to Azure Monitor and Log Analytics.
- Configure the Log Analytics Workspace.
- Introduction to Azure Automation.
- Running Automation Runbooks on Azure Automation.
- Executing the Automation Runbooks on Hybrid Environment.
- Automation State Configuration (PowerShell DSC).
- Integration of the Azure Monitor and Automation to do the Update Management, Change and Inventory Management.

# Monitoring

Monitoring is the act of collecting and analyzing data to audit the performance, health, and availability of your resources.

- **Know** what devices and applications make up the Digital Transformation.
- **Keep an eye on those devices** in terms of availability, health status and performance and assessing their performance periodically.
- **Reporting to provide details about what has happened/is happening.**

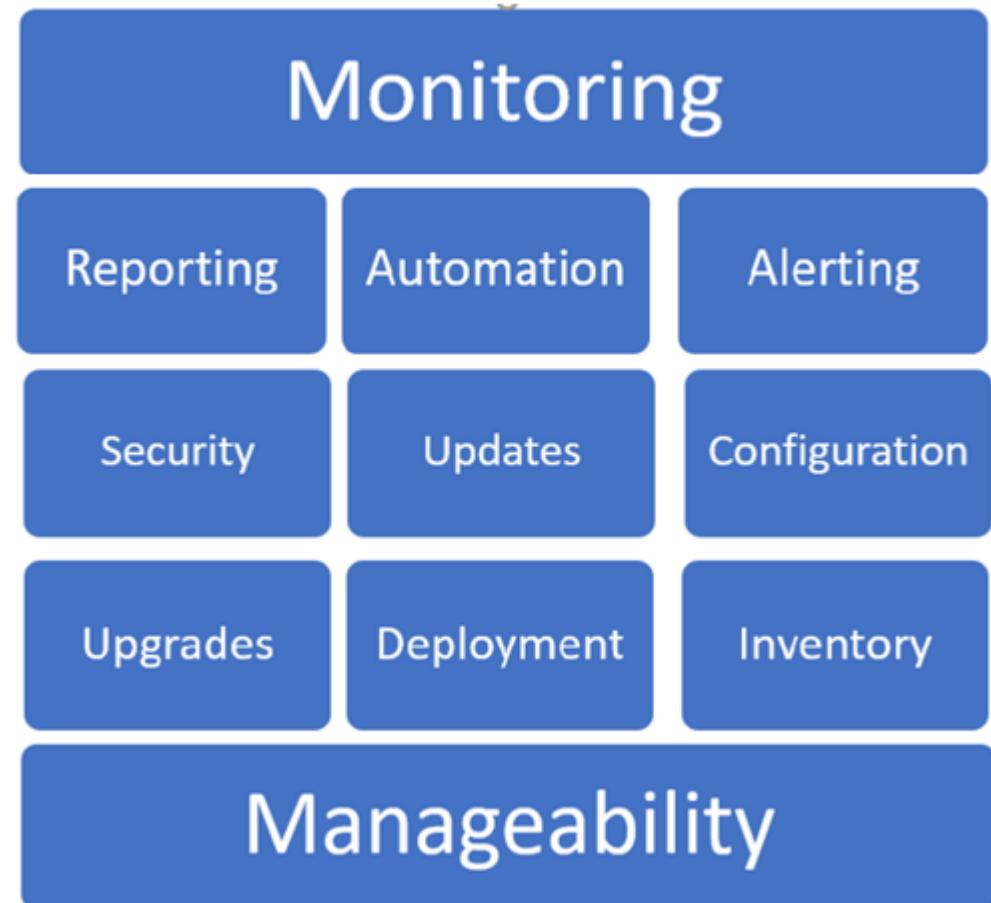
And many more things...

# Only Monitoring ?

Nobody wants to do "Only Monitoring".

Everyone wants :-

- End to End Full Stack Monitoring.
- Resiliency in their infrastructure.
- Fix the problem ASAP.
- Predict the failures and outages.
- Infrastructure secure from all threats.
- Keep their infrastructure updated by applying the appropriate updates.
- Assess the health of the infrastructure.
- Keep the data for future assessment.

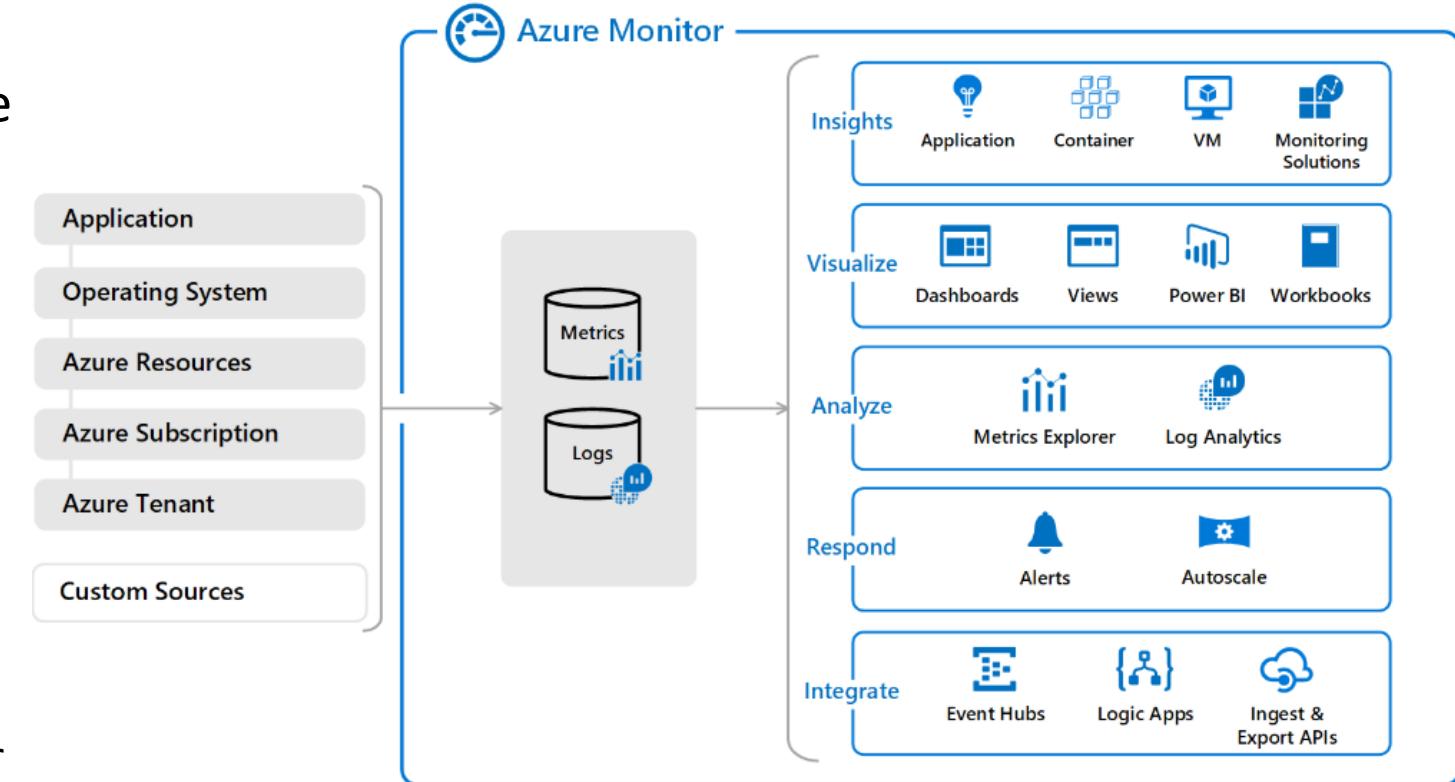


*In simple words, when something goes wrong, the system should have the power to automatically fix it or automatically alert someone or even automatically create a ticket in a service desk and assign it to a queue.*

# Azure Monitor

Azure Monitor provides sophisticated tools for collecting and analyzing telemetry that allow you to maximize the performance and availability of your cloud and on-premises resources and applications.

- Provides easy mechanism for collecting telemetry Data
- Built-in dashboards and visualizations that help you quickly understand the trends.
- Proactively identify issues and automatically respond to alerts.
- Flexible enough to get integrated with partner integrations to help you bring your DevOps, ITSM, SIEM and other custom tools.



# Lets Configure the Monitoring !

- Log data collected by Azure Monitor is stored in a Log Analytics workspace.
- Workspace stores collected machine data in a specified region.
- Here you can Manage and protect Azure or AWS, Windows Server or Linux with a cost-effective, all-in-one cloud IT management solution.

Home > New > Log Analytics > Log Analytics \

### Log Analytics workspace □ X

Create new or link existing workspace

Create New  Link Existing

**\* Log Analytics Workspace** i

**\* Subscription**  
 ▼

**\* Resource group** i  
 Create new  Use existing

**\* Location**  
 ▼

---

**\* Pricing tier** >

# Azure Automation.

Azure Automation delivers a cloud-based automation and configuration service that provides consistent management across your Azure and non-Azure environments.

- Build / Deploy resources
- Configure VMs.
- Monitor
- Protect
- Govern



## Process Automation

Orchestrate processes using graphical, PowerShell, and Python runbooks



## Configuration Management

Collect inventory  
 Track changes  
 Configure desired state



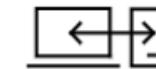
## Update Management

Assess compliance  
 Schedule update installation



## Shared capabilities

Role based access control  
 Secure, global store for variables, credentials, certificates, connections  
 Flexible scheduling  
 Shared modules  
 Source control support  
 Auditing  
 Tags

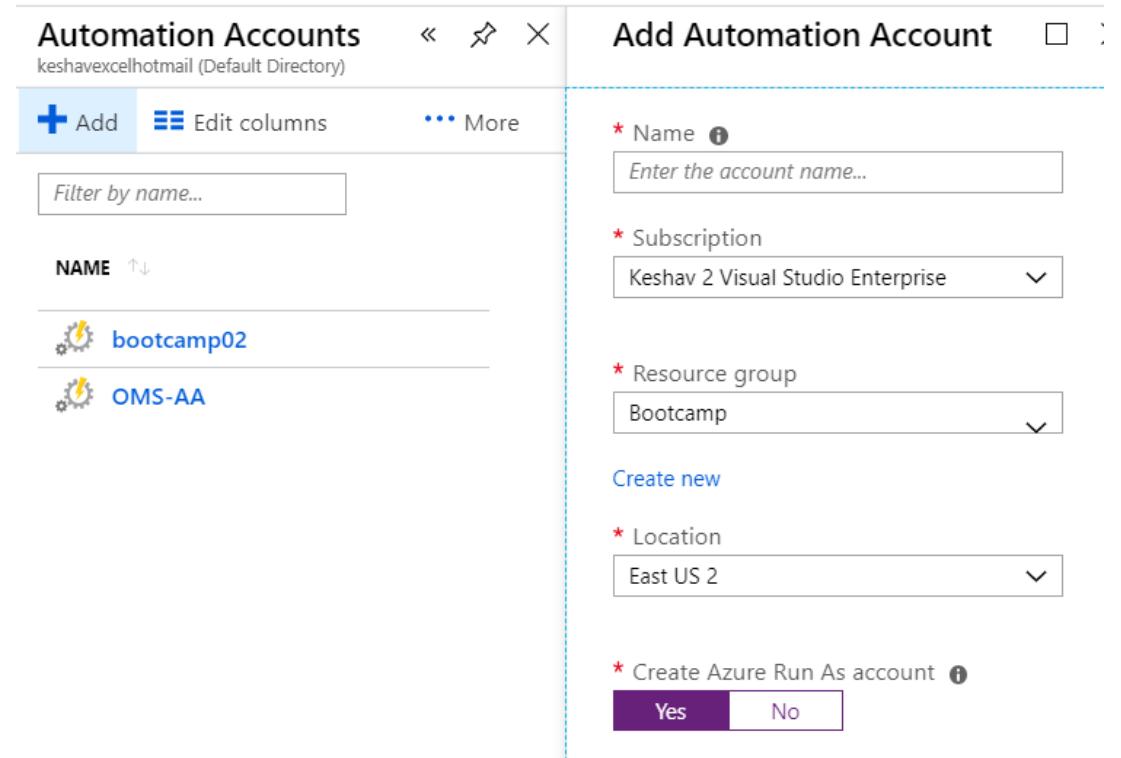


## Heterogeneous

Windows & Linux  
 Azure and on-premises

# Configuring the Azure Automation Account.

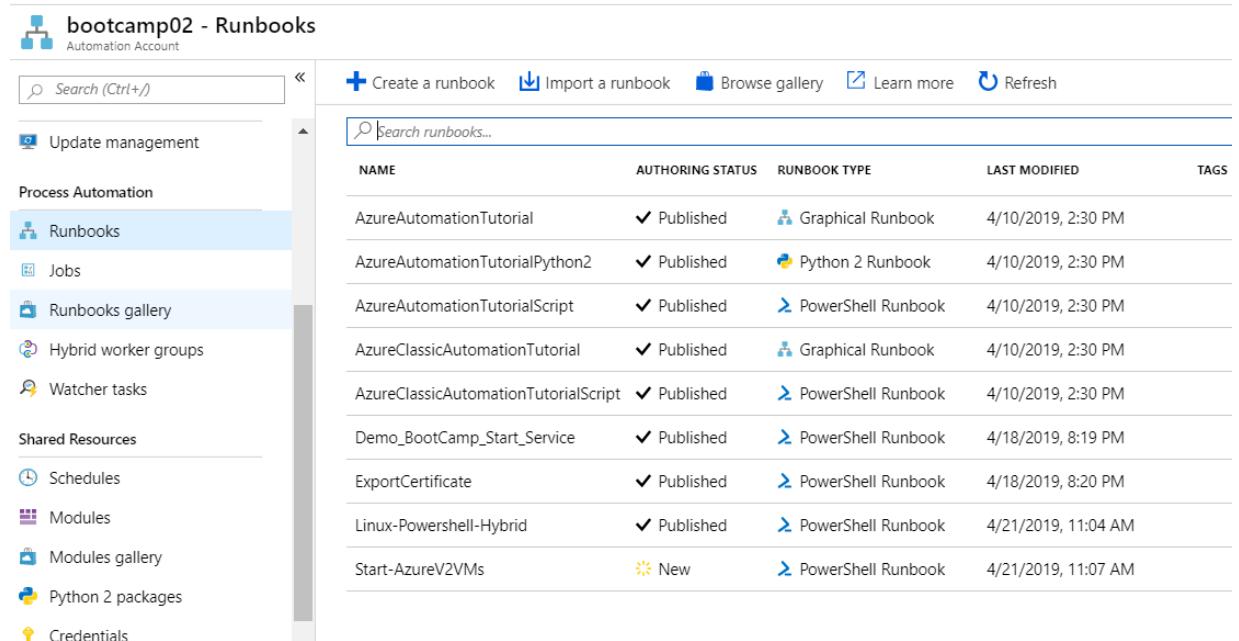
- Automation to configure and automate operational tasks across a hybrid environment.
- Control hybrid environments.
- Integrate management systems using serverless runbooks.
- Ensure consistent management for Windows and Linux.



The screenshot shows the Azure portal interface for managing Automation Accounts. On the left, the 'Automation Accounts' blade is open, showing a list of existing accounts: 'bootcamp02' and 'OMS-AA'. The 'bootcamp02' account is highlighted. On the right, a 'Add Automation Account' dialog box is displayed, prompting for new account details. The 'Name' field is empty with placeholder text 'Enter the account name...'. The 'Subscription' dropdown is set to 'Keshav 2 Visual Studio Enterprise'. The 'Resource group' dropdown is set to 'Bootcamp'. The 'Location' dropdown is set to 'East US 2'. At the bottom, a 'Create Azure Run As account' checkbox is present with 'Yes' and 'No' buttons.

# Running runbooks thru Azure Automation.

With Azure Automation we can automate frequent, time-consuming, and error-prone cloud management tasks.



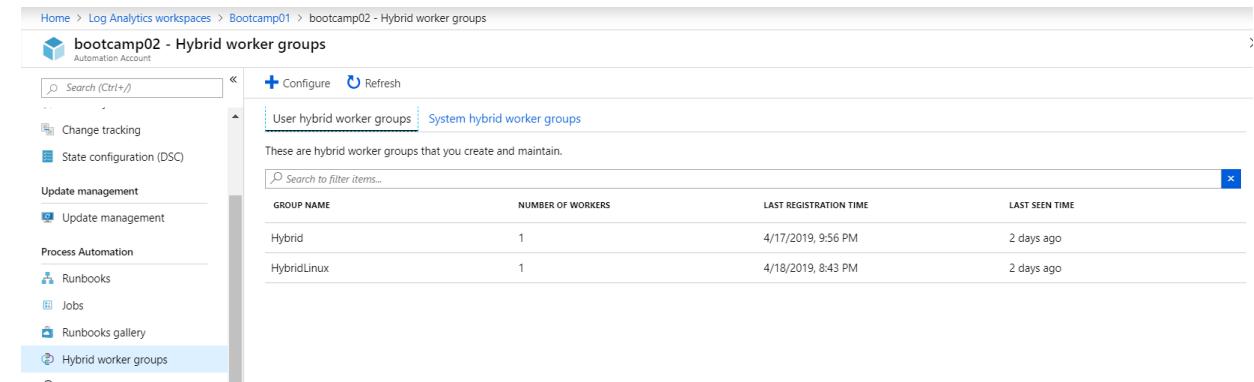
The screenshot shows the Azure Automation Runbooks list for the account 'bootcamp02'. The left sidebar shows navigation options: Update management, Process Automation (Runbooks, Jobs, Runbooks gallery, Hybrid worker groups, Watcher tasks), and Shared Resources (Schedules, Modules, Modules gallery, Python 2 packages, Credentials). The main area displays a table of runbooks with columns: NAME, AUTHORIZING STATUS, RUNBOOK TYPE, LAST MODIFIED, and TAGS. The table lists the following runbooks:

NAME	AUTHORIZING STATUS	RUNBOOK TYPE	LAST MODIFIED	TAGS
AzureAutomationTutorial	✓ Published	Graphical Runbook	4/10/2019, 2:30 PM	
AzureAutomationTutorialPython2	✓ Published	Python 2 Runbook	4/10/2019, 2:30 PM	
AzureAutomationTutorialScript	✓ Published	PowerShell Runbook	4/10/2019, 2:30 PM	
AzureClassicAutomationTutorial	✓ Published	Graphical Runbook	4/10/2019, 2:30 PM	
AzureClassicAutomationTutorialScript	✓ Published	PowerShell Runbook	4/10/2019, 2:30 PM	
Demo_BootCamp_Start_Service	✓ Published	PowerShell Runbook	4/18/2019, 8:19 PM	
ExportCertificate	✓ Published	PowerShell Runbook	4/18/2019, 8:20 PM	
Linux-Powershell-Hybrid	✓ Published	PowerShell Runbook	4/21/2019, 11:04 AM	
Start-AzureV2VMs	💡 New	PowerShell Runbook	4/21/2019, 11:07 AM	

# Executing the Runbook on Hybrid Environment

Runbooks in Azure Automation might not have access to resources in other clouds or in your on-premises environment because they run on the Azure cloud platform.

We can use the Hybrid Runbook Worker feature of Azure Automation to run runbooks directly on the computer that's hosting the role and against resources in the environment to manage those local resources.



GROUP NAME	NUMBER OF WORKERS	LAST REGISTRATION TIME	LAST SEEN TIME
Hybrid	1	4/17/2019, 9:56 PM	2 days ago
HybridLinux	1	4/18/2019, 8:43 PM	2 days ago

# Desired State Configuration.

Azure Automation State Configuration is an Azure service that allows you to write, manage, and compile PowerShell Desired State Configuration (DSC) configurations, import DSC Resources, and assign configurations to target nodes.

## Built-in pull server.

Azure Automation State Configuration provides a DSC pull server similar to the Windows Feature DSC-Service so that target nodes automatically receive configurations, conform to the desired state, and report back on their compliance.

**The built-in pull server in Azure Automation eliminates the need to set up and maintain your own pull server. Azure Automation can target virtual or physical Windows or Linux machines, in the cloud or on-premises.**

Node	Status	Node Configuration	Last Seen	Version
MyFirstVM	Compliant		4/16/2019, 12:11 AM	2.77.0.0
WinServer	Compliant		4/16/2019, 4:29 PM	2.77.0.0

# Integrating the Automation and Log Analytics Workspace.

Home > Log Analytics workspaces > Bootcamp01 > Overview > Management Tools > Automation & Control

## Automation & Control

Microsoft



### Automation & Control

Microsoft

[Create](#)

[Save for later](#)

Automation & Control in Operations Management Suite (OMS) delivers unified capabilities to deploy, configure, and maintain your infrastructure and applications in Azure or any other cloud, including on-premises, across Windows Server and Linux.

- Integrate process automation and configuration for automated delivery of services using PowerShell or graphical authoring
- Combine change tracking with configuration management to identify and apply desired configurations and enable compliance
- Deliver orchestrated update management for both Windows Server and Linux from the cloud

#### Useful Links

[Automation + Control](#)  
[Azure Automation](#)  
[Log Analytics](#)  
[Pricing Details](#)

Home > Log Analytics workspaces > Bootcamp01 > Overview > Management Tools > Automation & Control

## Automation & Control

Create new Solution

\* Log Analytics Workspace

BootCampBan

Log Analytics Workspace settings

BootCampBan

#### Recommended solutions

Automation Hybrid Worker

Change Tracking

Update Management

## Log Analytics workspace

Create new or link existing workspace

\* Log Analytics Workspace

BootCampBan

\* Subscription

Keshav Azure Subscription

\* Resource group i

Use existing

AzureBootCamp

\* Location

West Europe

\* Pricing tier

OMS

Automation account

BootCamp

# Update Management

- Azure Update Management is a service included as part of your Azure Subscription that enables you to assess your update status across your environment and manage your Windows and Linux server patching from a single pane of glass, both for on-premises and Azure, or in other cloud providers.



## Update Management

Enable consistent control and compliance of this VM with Update Management. This service is included with Azure virtual machines. You only pay for logs stored in Log Analytics. This service requires a Log Analytics workspace and an Automation account. You can use your existing workspace and account or let us configure the nearest workspace and account for use.

Enable for this VM  Enable for VMs in this subscription

Location: East US  
 Log Analytics workspace: Bootcamp01  
 Automation account subscription: Keshav 2 Visual Studio Enterprise  
 Automation account: bootcamp02

**Enable**

Home > Log Analytics workspaces > Bootcamp01 > bootcamp02 - Update management

 bootcamp02 - Update management

Automation Account

UPDAT

Update management

Update management

Schedule update deployment  Add Azure VMs  Add non-Azure machine  Manage machines

2 machines do not have 'Update Management' enabled. [Click to manage machines](#)

Non-compliant machines: 1 out of 1

Machines need attention (1)

Critical and security	1	Critical	0
Other	0	Security	3
Not assessed	0	Others	28

Missing updates (31)

Machines (1) Missing updates (31) Deployment schedules History

# Inventory and Change Management

- Get an inventory of operating system resources including installed applications and other configuration items.
- Track changes across services, daemons, software, registry, and files to promptly investigate issues. The inventory of your VM in-guest resources gives you visibility into installed applications as well as other configuration items you wish to track.
- Rich reporting and search is available to quickly find detailed information to help understand everything that is configured within the VM.

Home > bootcamp02 - Inventory

**bootcamp02 - Inventory**  
Automation Account

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

**Configuration Management**

Inventory

Change tracking

State configuration (DSC)



## Change Tracking

Enable consistent control and compliance of this VM with Change Tracking and Inventory.

This service is included with Azure virtual machines. You only pay for logs stored in Log Analytics.

This service requires a Log Analytics workspace and an Automation account. You can use your existing workspace and account or let us configure the nearest workspace and account for use.

Enable for this VM  Enable for VMs in this subscription

### Location

East US

### Log Analytics workspace

KeshavDxc

### Automation account subscription

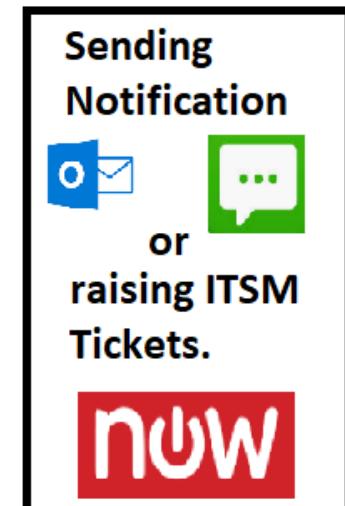
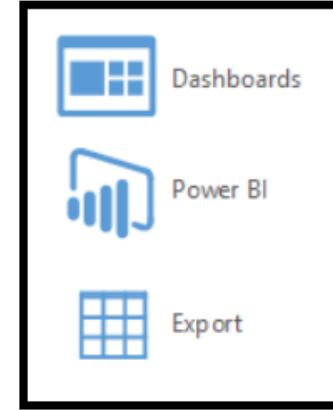
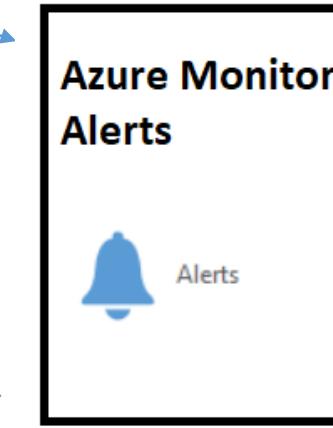
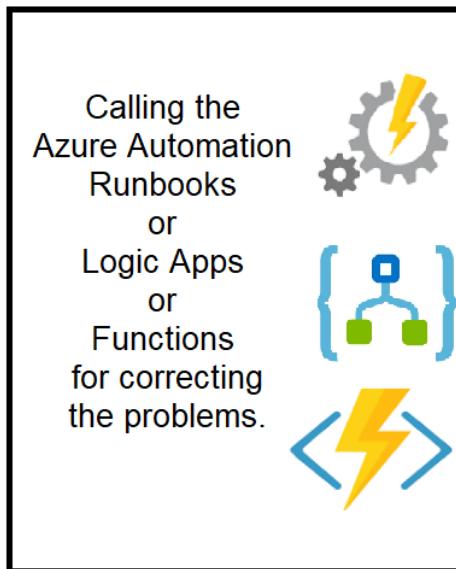
Keshav Azure Subscription

### Automation account

OMS-AA

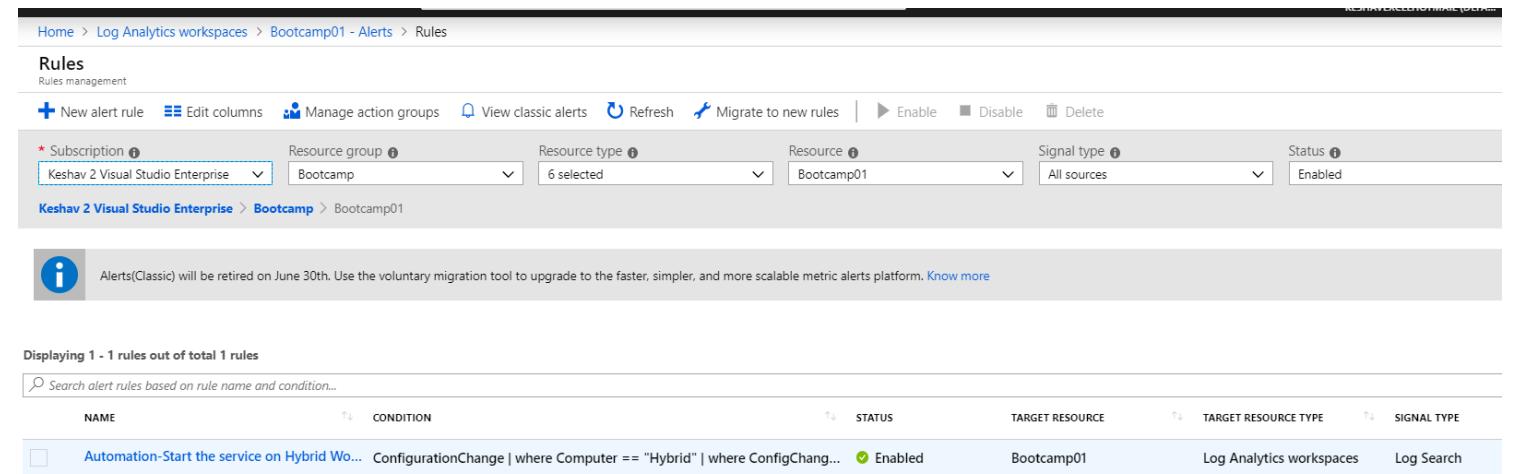
Enable

# Auto correcting the issues.



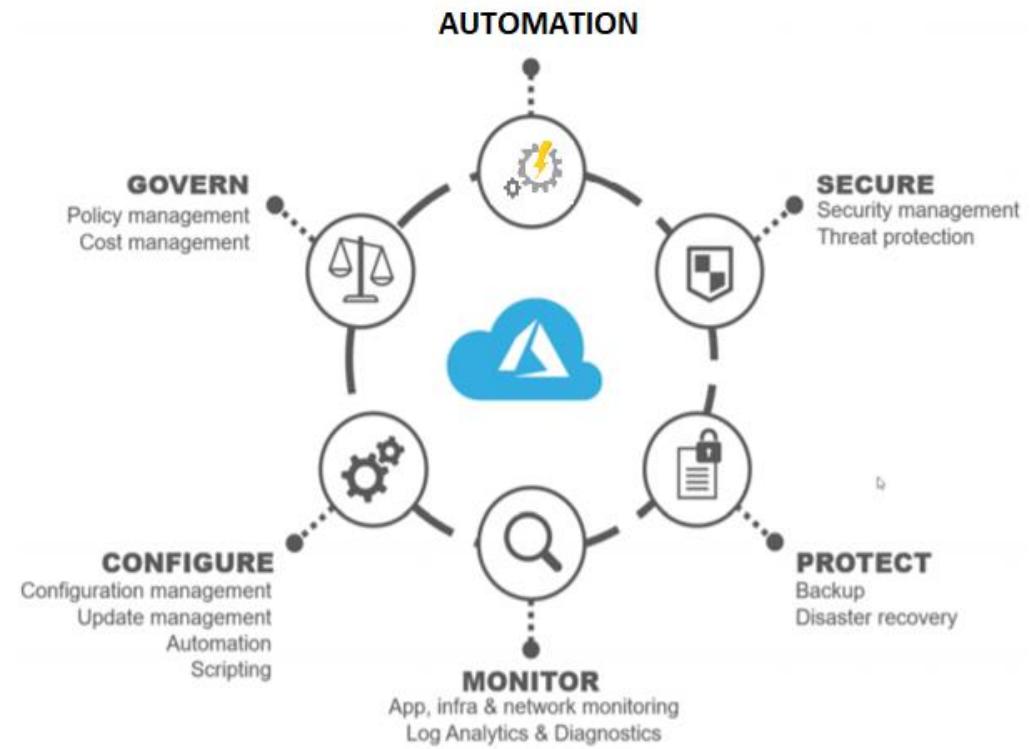
# Auto correcting the issues with Azure Alerts.

Azure Alerts proactively notify you when important conditions are found in your monitoring data. They allow you to identify and address issues before the users of your system notice them.



The screenshot shows the Azure Log Analytics workspace Rules management page. The URL is [Home > Log Analytics workspaces > Bootcamp01 - Alerts > Rules](#). The page title is "Rules" and the sub-title is "Rules management". The top navigation bar includes "New alert rule", "Edit columns", "Manage action groups", "View classic alerts", "Refresh", "Migrate to new rules", "Enable", "Disable", and "Delete". The search bar filters by "Subscription" (Keshav 2 Visual Studio Enterprise), "Resource group" (Bootcamp), "Resource type" (6 selected), "Resource" (Bootcamp01), "Signal type" (All sources), and "Status" (Enabled). A message at the bottom left states: "Alerts(Classic) will be retired on June 30th. Use the voluntary migration tool to upgrade to the faster, simpler, and more scalable metric alerts platform. [Know more](#)". Below this, a table displays "Displaying 1 - 1 rules out of total 1 rules". The table has columns: NAME, CONDITION, STATUS, TARGET RESOURCE, TARGET RESOURCE TYPE, and SIGNAL TYPE. The single rule is: "Automation-Start the service on Hybrid Wo..." with the condition "ConfigurationChange | where Computer == "Hybrid" | where ConfigChang...", status "Enabled", target resource "Bootcamp01", target resource type "Log Analytics workspaces", and signal type "Log Search".

- ✓ *Monitoring the infrastructure and then triggering a Automation when something goes wrong.*
- ✓ *Dashboards to analyze the health of the infrastructure.*
- ✓ *Quick deployment of the resources by automating their deployment with use of ARM templates, PowerShell script, Azure DSC.*
- ✓ *Controlling the cost of the Azure Infrastructure by scaling them down.*
- ✓ *Deploying and managing the updates on windows or Unix or Linux machines.*
- ✓ *Assessing the Machines\Applications before they goes for upgrades.*
- ✓ *Integrating it with ITSM tools and other tools*



If you have questions about the event or to report any issues



Use the HASHTAG

# #askgab19

And the organizers and volunteers will try to support!

Please share our event on the WWW by any means



Use the HASHTAG

**#gabblr19**

extensively

# Find all the online locations here

Join our Meetup group here

<http://bit.ly/azrmeetup>

Check the event photos here

<http://bit.ly/gab19-photos>

Note: You could also upload your selfies and other photos you have taken at the event

Check slide decks and other samples presented at the event here

<http://bit.ly/gab2019-repo>

# Thanks