

Welcome to the

2019  
Global Azure  
BOOTCAMP

# 2019

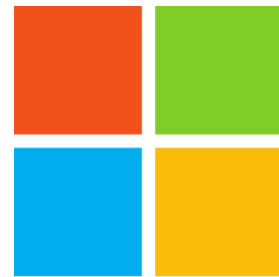
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Global Azure  
**BOOTCAMP**

Bengaluru, India

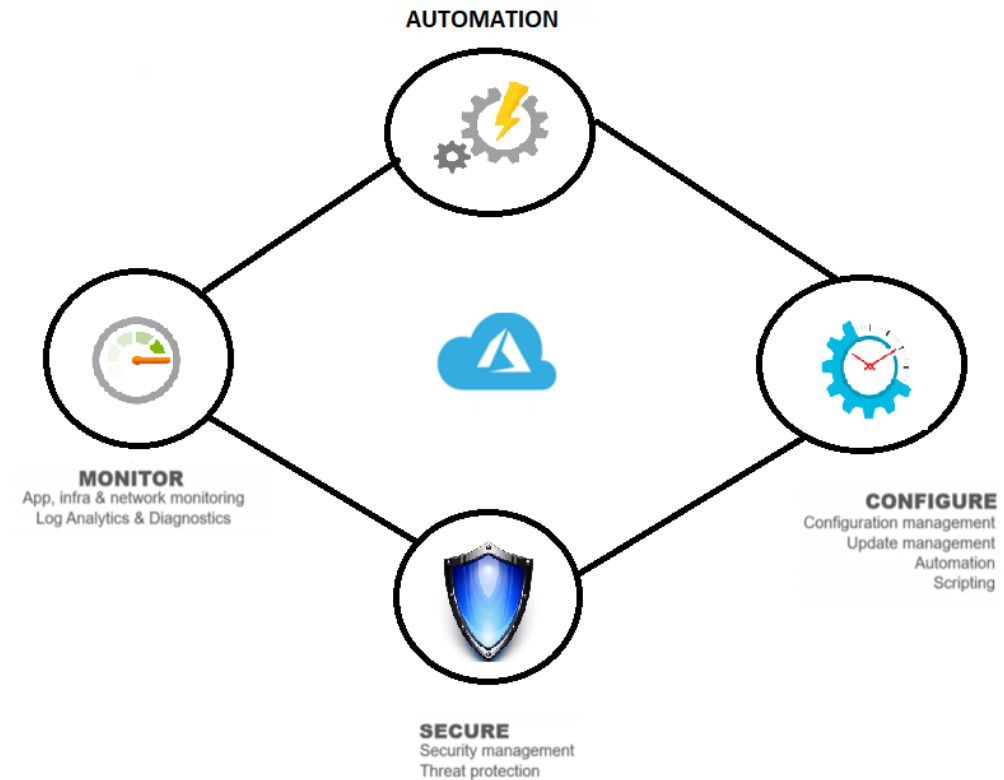
# Our Supporters

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...

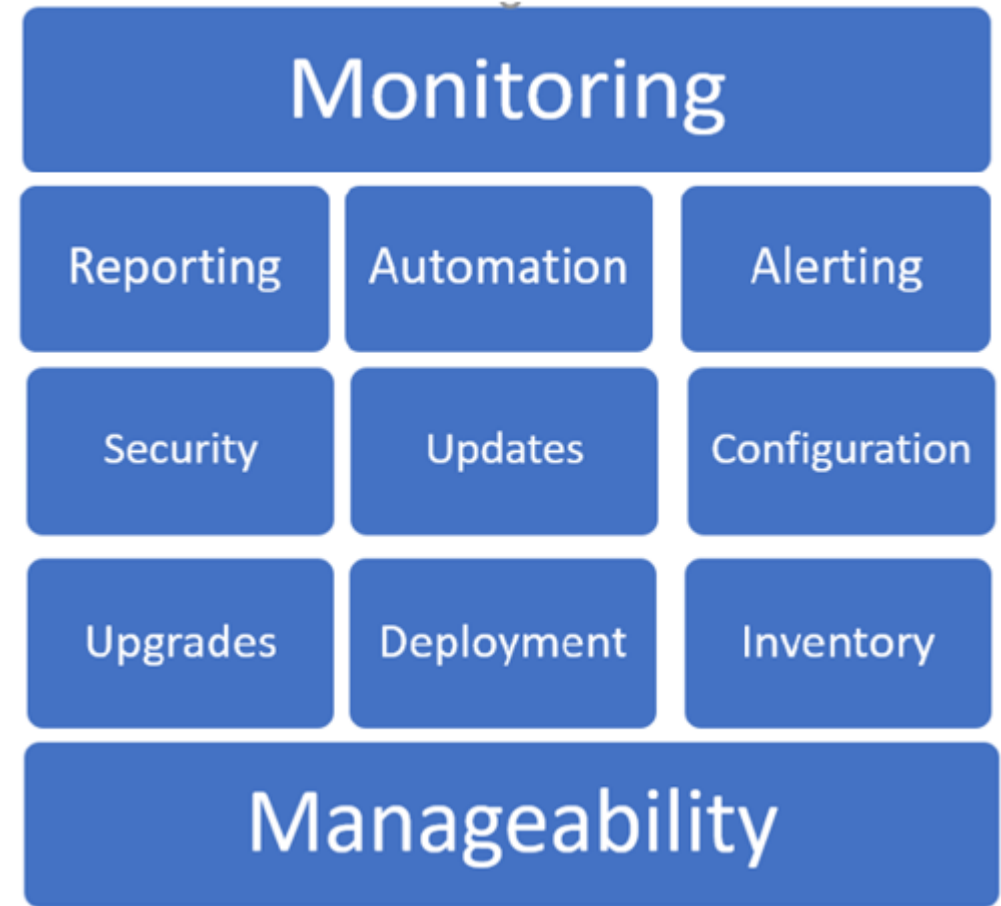
# Only Monitoring ?

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.

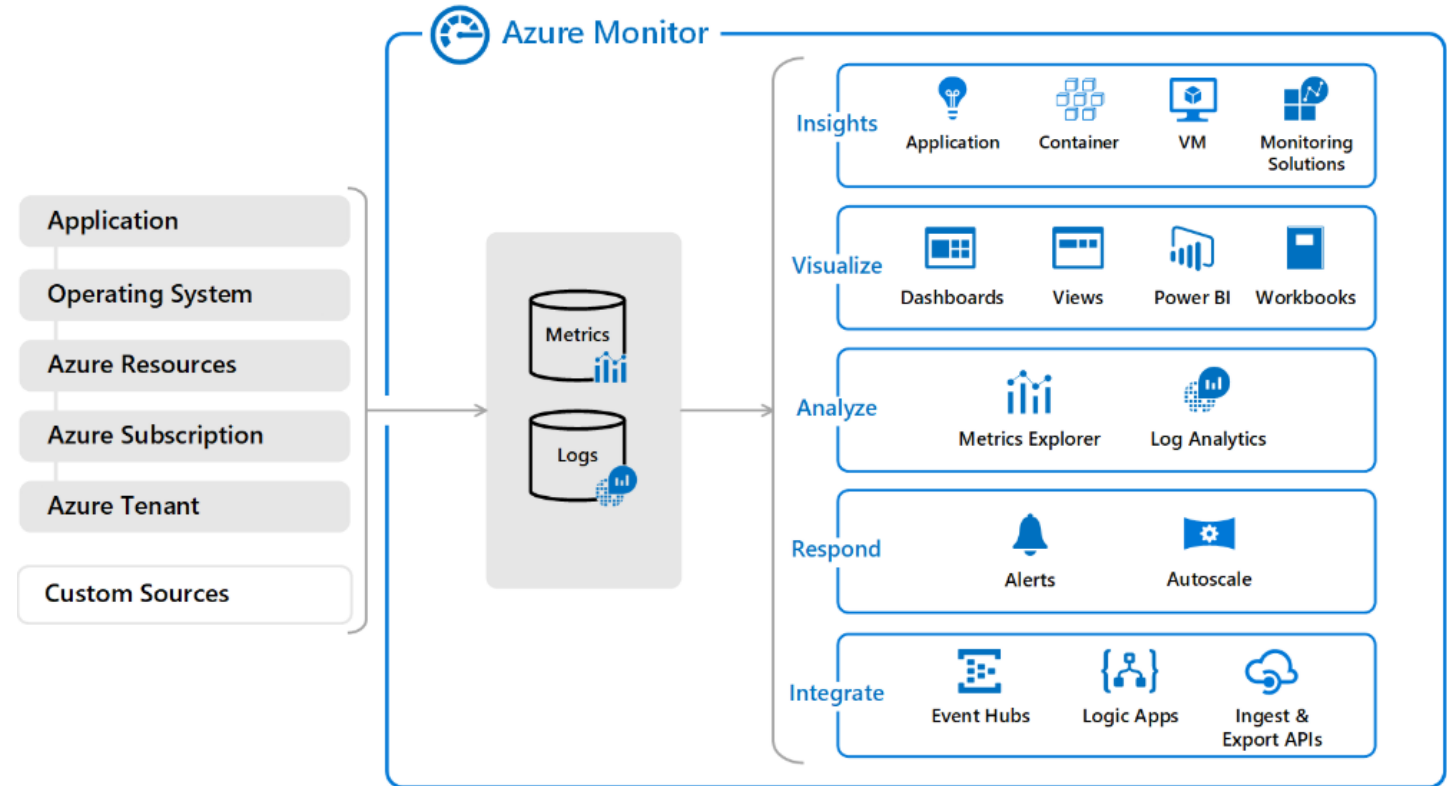
*In simple words, when something goes wrong, the system should have the power to automatically fix it or automatically alert someone or even automatically create a ticket in a service desk and assign it to a queue.*



# 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

Create new or link existing workspace

☒ Create New ☐ Link Existing

\* Log Analytics Workspace ⓘ

\* Subscription

\* Resource group ⓘ  
☒ 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



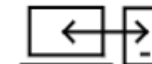
## Update Management

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



## Heterogenous

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.

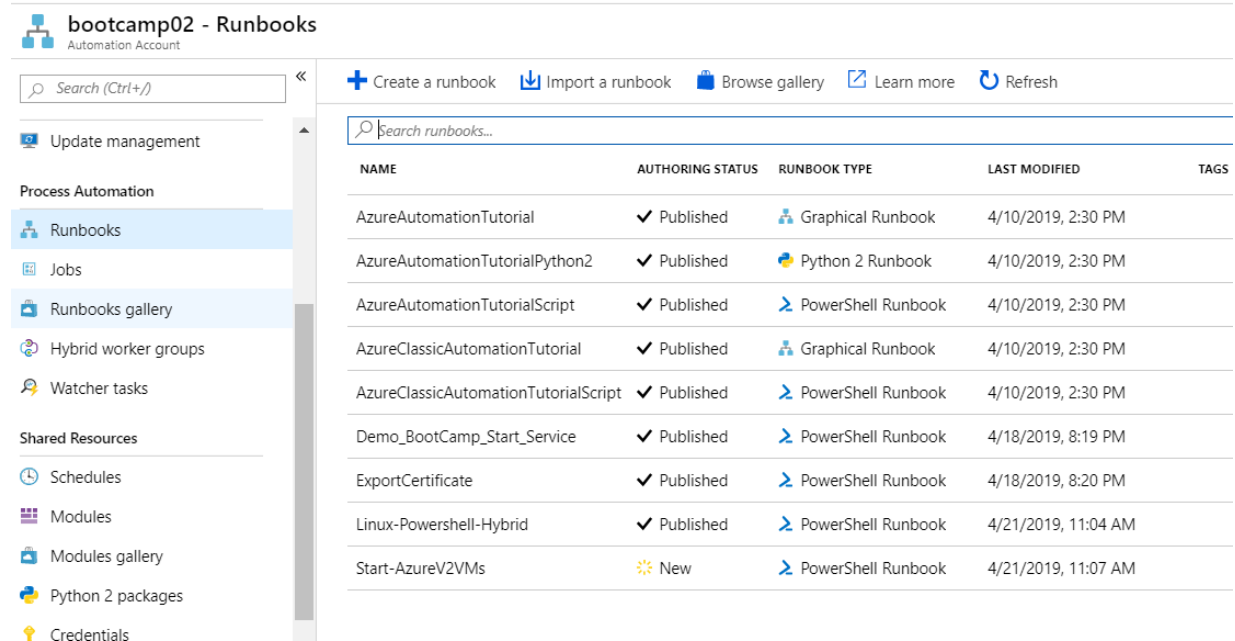
The screenshot displays the Azure portal interface for managing Automation Accounts. On the left, the 'Automation Accounts' list is shown for the directory 'keshavexcelhotmail (Default Directory)'. It includes a table with columns for 'NAME' and a list of existing accounts: 'bootcamp02' and 'OMS-AA'. On the right, the 'Add Automation Account' dialog is open, featuring the following fields:

- Name:** A text input field with the placeholder 'Enter the account name...'.
- Subscription:** A dropdown menu currently set to 'Keshav 2 Visual Studio Enterprise'.
- Resource group:** A dropdown menu currently set to 'Bootcamp'.
- Location:** A dropdown menu currently set to 'East US 2'.
- Create Azure Run As account:** A toggle switch currently set to 'Yes'.

At the bottom of the dialog, there are 'Yes' and 'No' buttons to confirm the creation of the Run As account.

# Running runbooks thru Azure Automation.

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



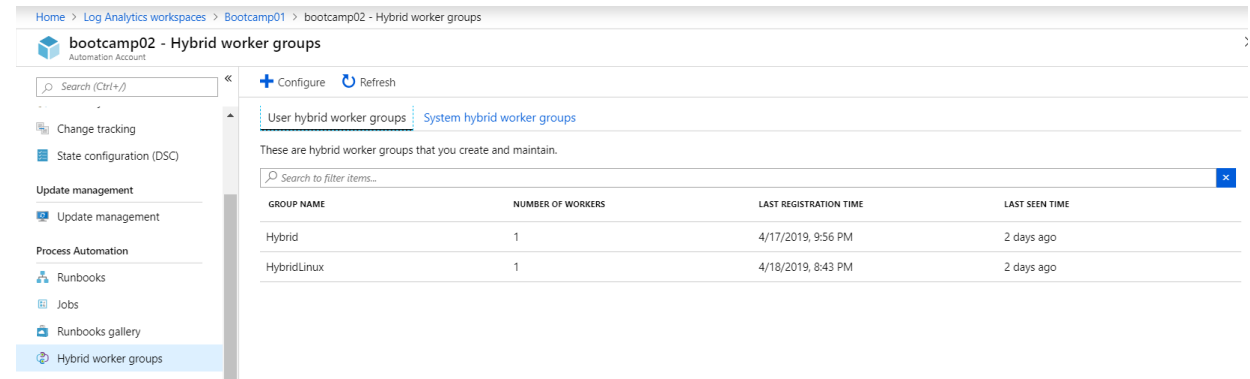
The screenshot shows the 'bootcamp02 - Runbooks' interface in the Azure Automation portal. The left sidebar contains a navigation menu with sections: 'Update management', 'Process Automation' (containing 'Runbooks', 'Jobs', 'Runbooks gallery', 'Hybrid worker groups', and 'Watcher tasks'), and 'Shared Resources' (containing 'Schedules', 'Modules', 'Modules gallery', 'Python 2 packages', and 'Credentials'). The 'Runbooks' item is selected. The main area displays a table of runbooks with columns: NAME, AUTHORIZING STATUS, RUNBOOK TYPE, LAST MODIFIED, and TAGS. The table lists 10 runbooks, with the last one, 'Start-AzureV2VMs', marked as 'New'.

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.



The screenshot shows the Azure Automation console interface. The breadcrumb navigation at the top reads: Home > Log Analytics workspaces > Bootcamp01 > bootcamp02 - Hybrid worker groups. The main heading is "bootcamp02 - Hybrid worker groups" with a sub-label "Automation Account". On the left, a navigation pane lists various features, with "Hybrid worker groups" selected. The main content area has tabs for "User hybrid worker groups" (active) and "System hybrid worker groups". Below the tabs, a message states: "These are hybrid worker groups that you create and maintain." A search bar is present. A table lists the worker groups:

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

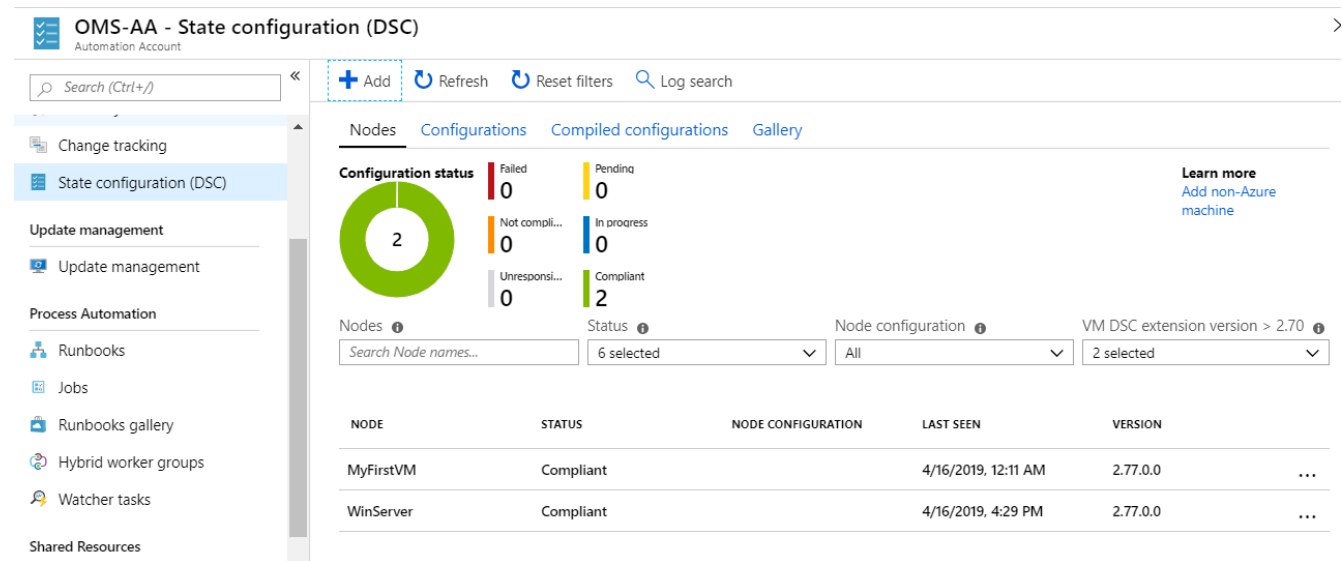
# Desired State Configuration.

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.**




# 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 v
- \* Resource group ⓘ  
☒ Use existing  
AzureBootCamp v
- \* Location  
West Europe v
- \* 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**

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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](#)

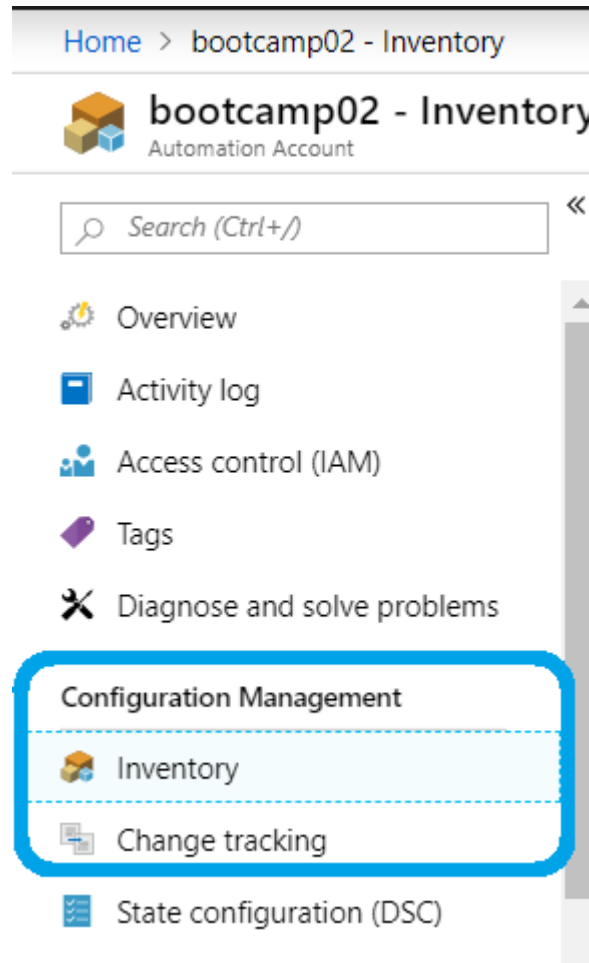
Non-compliant machines (1)		Machines need attention (1)		Missing updates (31)	
1 out of 1		Critical and security 1		Critical 0	
		Other 0		Security 3	
		Not assessed 0		Others 28	

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.



## 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 ⓘ

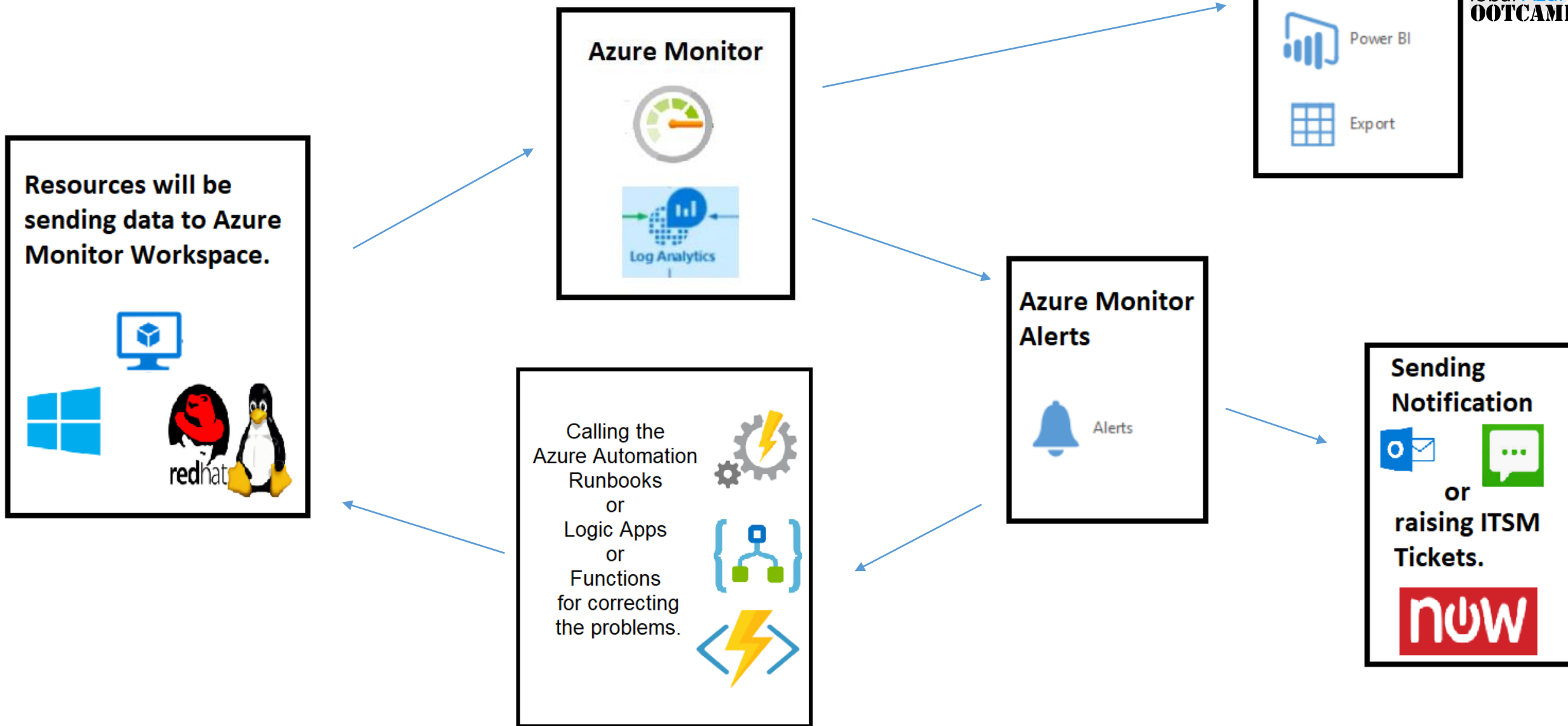
Keshav Azure Subscription

Automation account ⓘ

OMS-AA

Enable

# Auto correcting the issues.



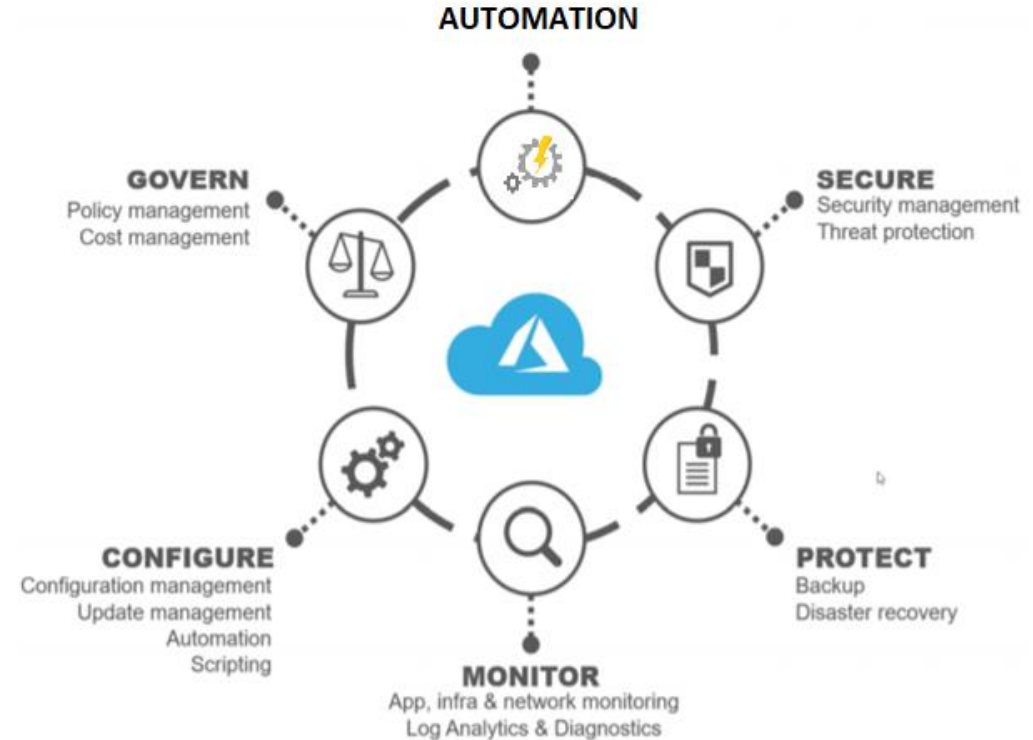
# Auto correcting the issues with Azure Alerts.

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 Alerts Rules management page. The breadcrumb navigation is: Home > Log Analytics workspaces > Bootcamp01 - Alerts > Rules. The page title is "Rules" with a subtitle "Rules management". Below the title is a toolbar with buttons: New alert rule, Edit columns, Manage action groups, View classic alerts, Refresh, Migrate to new rules, Enable, Disable, and Delete. A filter bar shows: Subscription (Keshav 2 Visual Studio Enterprise), Resource group (Bootcamp), Resource type (6 selected), Resource (Bootcamp01), Signal type (All sources), and Status (Enabled). Below the filter bar is a message: "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". The main content area shows "Displaying 1 - 1 rules out of total 1 rules" and a search bar. Below the search bar is a table with columns: NAME, CONDITION, STATUS, TARGET RESOURCE, TARGET RESOURCE TYPE, and SIGNAL TYPE. The table contains one rule: "Automation-Start the service on Hybrid Wo..." with condition "ConfigurationChange | where Computer == 'Hybrid' | where ConfigChang...", status "Enabled", target resource "Bootcamp01", target resource type "Log Analytics workspaces", and signal type "Log Search".

NAME	CONDITION	STATUS	TARGET RESOURCE	TARGET RESOURCE TYPE	SIGNAL TYPE
Automation-Start the service on Hybrid Wo...	ConfigurationChange   where Computer == "Hybrid"   where ConfigChang...	Enabled	Bootcamp01	Log Analytics workspaces	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