WHITEPAPER

AZURE TAGGING BEST PRACTICES

Cloud Checkr

OVERVIEW

Azure offers its customers an agile cloud platform in terms of enterprise-class deployment and management features. However, in the real world, organizations face many challenges in creating a well-defined strategy to balance operational and cost efficiency in the cloud.

Azure tagging is a feature that was recently introduced into the Azure Resource Manager model, which can be leveraged to logically group and track resources, automate their deployments, and most importantly, provide visibility on the incurred costs. This whitepaper will explore the salient features that make Azure tagging a must-have in any dynamic Azure environment.

ORGANIZING RESOURCES USING AZURE TAGS

Azure tags are name-value pairs that are used to organize resources in Azure Portal. You can apply tags for individual resources or tag the resource group that they are part of. Implementing a proper tagging strategy can help organizations gain much better control over and visibility of the resources that are hosted in their Azure subscriptions.

The name-value pairs can be anything that helps identify the category that a specific resource belongs to. For example, you can add environment-related tags to VMs in order to determine whether the machine belongs to the test, QA, or production environment.

The possible tags in this use case could be Environment › Development, Environment › QA, or Environment › Production. You can easily sort your resources in the Azure portal using the tags to get a quick view of all of the resources that come under your development, QA, and production environments, as shown below.

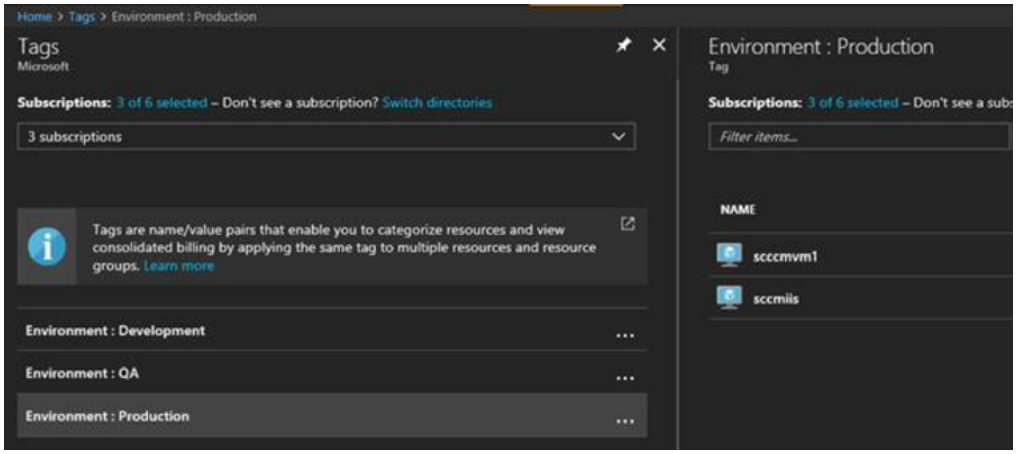


FIGURE 1:
Sorting sources using tags in Azure Portal

In the Azure Resource Manager (ARM) model, resource groups also provide a grouping functionality that you can use to group together all of the resources that share the same lifecycle. However, there is a fundamental difference between the usage of resource groups and tags. Resource groups provide a tightly coupled container structure to manage your resources, starting from provisioning and lifecycle management. Tags, on the other hand, are a loosely coupled form of grouping, and they can be associated with resources from multiple resource groups. You can associate the same tag with any resource within a subscription to make management and visibility easier.

THE ROLE OF TAGS IN CLOUD AUTOMATION

Azure Automation is a service that is available in the Azure portal that helps you automate many management tasks related to your resources in Azure and on-premises. Azure automation runbooks use PowerShell in the backend. Tags that you assign to resources in Azure can be referenced in the automation runbooks in order to execute specific tasks on the tagged resources. This makes life easier for an administrator who wants to automate tasks for a group of tagged resources, possibly from multiple resource groups.

There are many runbooks readily available from the automation runbook gallery that can be used to leverage tags. These runbooks can be reused by updating the name-value of the tags that are being used in your Azure environment.

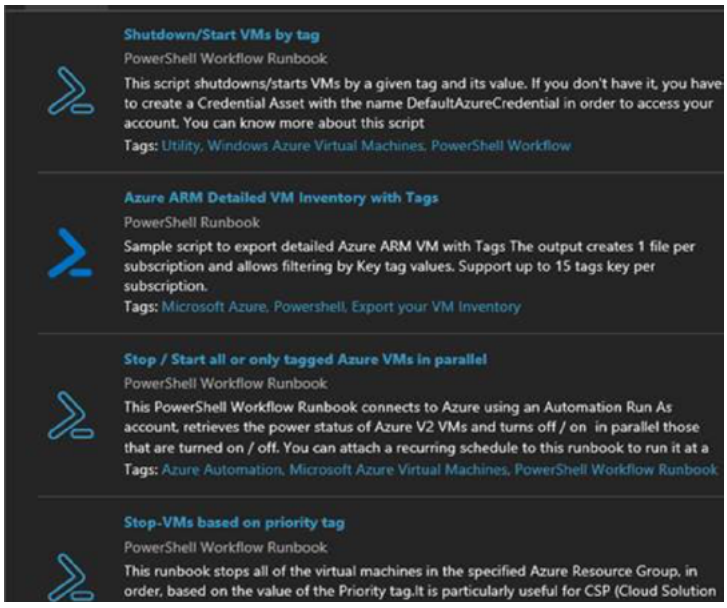
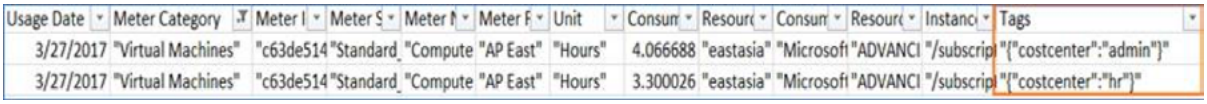


FIGURE 2:
Using tags in runbooks

USING AZURE TAGS FOR COST MANAGEMENT

The tags that you assign to resources will be reflected in your detailed Azure usage report, which is available in CSV format from the Account Management Portal. This report provides insights into the costs that have been incurred for the tagged resources, and you can analyze it further by sorting the usage based on tags.

One possible use case would be if you want to chargeback Azure resource costs to their respective internal departments. The resources that are being used by the department can be tagged using a cost center name-value pair tag, and the costs that are incurred by the department can easily be isolated from the usage report using the assigned tag.



Usage Date	Meter Category	Meter I	Meter S	Meter N	Meter R	Unit	Consum	Resourc	Consum	Resourc	Instanc	Tags
3/27/2017	"Virtual Machines"	"c63de514	"Standard_	"Compute	"AP East"	"Hours"	4.066688	"eastasia"	"Microsoft	"ADVANCI	"/subscrip	"{"costcenter":"admin"}"
3/27/2017	"Virtual Machines"	"c63de514	"Standard_	"Compute	"AP East"	"Hours"	3.300026	"eastasia"	"Microsoft	"ADVANCI	"/subscrip	"{"costcenter":"hr"}"

FIGURE 2:
Tags reflected in the Azure usage report

AZURE TAGGING BEST PRACTICES

Adding tags to your Azure resources is very simple and can be done using Azure Portal, Azure PowerShell, CLI, or ARM JSON templates. You can tag any resources in Azure, and using this service is free. The tagging is done on the Azure platform level and does not impact the performance of the resource in any way. However, there are certain rules and limitations associated with tagging that users should be aware of:

- Each resource can have a maximum of 15 tags associated with it. Resources in this case can be individual resources like VM, Network, etc., or the resource group that they are part of.
- Resources that are deployed using the classic deployment model do not support tagging. It is an exclusive feature of the ARM model.
- The maximum number of characters for a tag name is 512. For storage accounts, this is limited even further to 128 characters.
- The maximum number of characters for a tag value is 256.
- You should use JSON strings via ARM templates when you want to assign multiple values to a tag name.
- There is no inheritance hierarchy for tags (e.g., tags applied at the resource group level are not inherited by any member resources).
- The tag name prefixes “Azure,” “Windows,” and “Microsoft” are reserved and cannot be used.

While tagging can help you manage your resources more effectively, it is also important to adopt a good tagging strategy that will help you get the most out of this feature. The following best practice guidelines can be used for implementing a good tagging strategy:

- The tags you are using should help you identify the context of the resource usage. They might be based on the project name, version, tier, environment, data profile, etc. The names and values should be tailored according to your organization's needs.
- Use a standard naming convention for resources in order to maintain consistency in your Azure environment. Define the standards that are applicable for tags and enforce them using Azure policies.
- Use tags early on, ideally when you create the resources. This will help you manage the resources more efficiently. Adding tags retroactively is inefficient, and it requires additional administrative overhead to streamline the process.
- Automate the tagging process using tools like PowerShell, CLI, ARM templates, etc. We recommend that you create standard, reusable templates or scripts to optimize the process.
- Monitor tagging practices and make amendments to naming conventions and processes as needed. Sanity checks on the environment should be conducted periodically in order to remove obsolete tags and avoid a "tag sprawl."

USE CLOUDCHECKR TO LEVERAGE TAGGING

Cloudcheckr provides comprehensive insights into your Azure environment usage, compliance, and security posture based on the tags that are applied. There are many benefits of using CloudCheckr to effectively leverage your tagging:

- **Management and monitoring:** CloudCheckr provides detailed information about resources based on the tags associated with them. You can also look up resources based on a resource's name and find tags that are associated with it. This gives a single-pane view of the tagging strategy that is being implemented by the organization, and can help make corrections wherever they are needed.
- **Compliance with standards:** You can compare tags that are in compliance with standards against the tagging strategy of your own organization using customized reports that are available through CloudCheckr. With this information, you can establish rules for your own tagging strategy, which can then be used to create reports about improperly tagged resources.
- **Cost analysis:** Cloudcheckr provides cost analysis reports based on tags that are associated with resources in a subscription. Alerts can be created in order to keep an eye on the costs that are being incurred by hosted resources, and you can add filters based on the tags that are being used.

- **Control with tag mapping:** You can add additional tags to your Azure cost reports based on any of the existing tag names and values in the Azure usage report. This is helpful in scenarios where you want to create reports that summarize the costs that are being incurred by multiple tags in each subscription. This functionality allows for enhanced control over the existing tagging strategy by making corrections wherever they are needed in terms of cost allocation.
- **Better insight into Azure inventory and security:** CloudCheckr provides inventory reports of untagged resources in Azure. These reports can be analyzed by administrators and used to associate with the required tags wherever it is appropriate. CloudCheckr has built-in compliance and security checks that can be leveraged to provide insights about the environment's security posture. These reports can be further customized using tags, thereby easing the infrastructure management overhead.

CloudCheckr has many advanced features and reporting capabilities that will help you make the most of your Azure tagging. We encourage you to try out the product and see the benefits for yourself.

Additional Resources

Use tags to organize your Azure resources

Naming conventions

Need CloudCheckr for your organization? Learn more at **www.cloudcheckr.com**.

Cloud Checkr

342 N GOODMAN ST,
ROCHESTER, NY 14607

1-833-CLDCHCK

www.cloudcheckr.com