

Managing Resourcing in Azure

Russell Seymour, Chef, Principal Engineer

@russellseymour

Agenda

- How do you manage resources in Azure?
- Features
- How it works
- Demo
- Deploy it into own subscription
- Links and Commands
- Questions

How do you manage resources in Azure?

- Greatest strength is also weakness
- Methods
 - When the bill get too large
 - Infrastructure team that builds and manages resources
 - Gut feeling
 - Third party software
- Azure Reaper was born
 - Manage lifecycle of Resource Group
 - Operating times for virtual machines
 - Multiple Subscriptions



Features

- Base settings in database
- Tag overrides for some settings
- Resource Groups and VMs can be exempted
- Time zone awareness
- Slack Notifications
 - User filter
- Dry run mode
- Support multiple subscriptions

How it works - Resource Groups

- Resource Groups
 - No owner metadata applied by default

```
> az group show -n rjs-cc19-breakout
{
  "id": "/subscriptions/1e0b427a-d58b-494e-ae4f-ee558463ebbf/resourceGroups/rjs-cc19-breakout",
  "location": "westeurope",
  "managedBy": null,
  "name": "rjs-cc19-breakout",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null
}
```

- Azure Monitoring Alerts

The screenshot shows the 'AZReaper-ActivityLogAlert' configuration page in the Azure portal. The page is divided into two main sections: 'Rules management' on the left and 'Action groups configured for this alert rule' on the right.

Rules management:

- Save:** Save, Discard, Disable, Delete
- * RESOURCE:** Partner Engineering (HIER)
- * CONDITION:** Whenever the Administrative Activity Log "Create Resource Group (su" (checked)
- Add:** Add
- Info:** We currently support configuring only two metrics signals or one log signal. Alerts will be triggered when the conditions for all the above configured criteria are met.

Action groups configured for this alert rule:

ACTION GROUP NAME	CONTAIN ACTIONS
AZReaper-ActionGroup	1 Email, 1 LogicApp

Associated action rules on the same scope (Preview):

No action rules. Create one.

Create action rule: Create action rule

Info: Configure this action across resources in this scope using Action rules (preview). Action rules allows you to set granular control of notifications, suppression and run diagnostics for quick troubleshooting. [Learn more](#)

How it works - Azure Functions

- Tagger – queue triggered

New RG created



Azure Queue



Tagger function

- Reaper – timer triggered

Timer Trigger



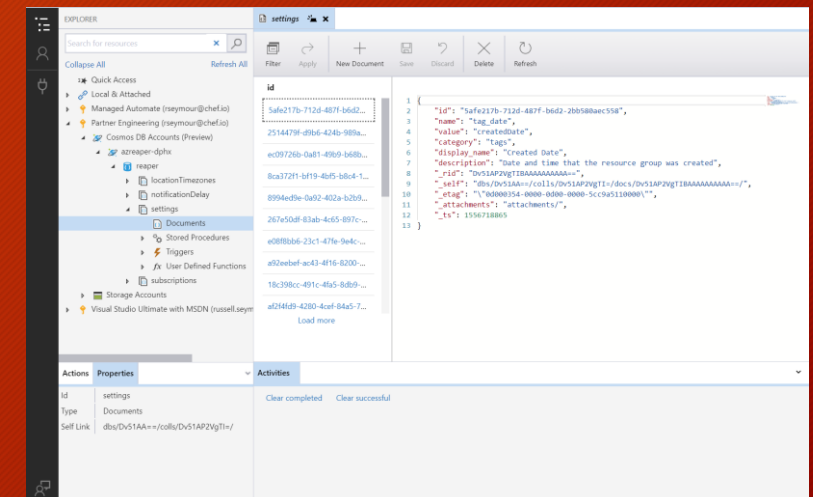
Reaper Function



Delete RG

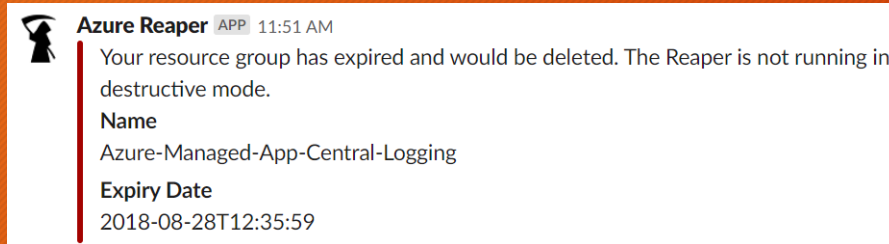
Start /
Stop VM

- Operations – HTTP triggered



How it works - Slack Notifications

- Slack Notifications

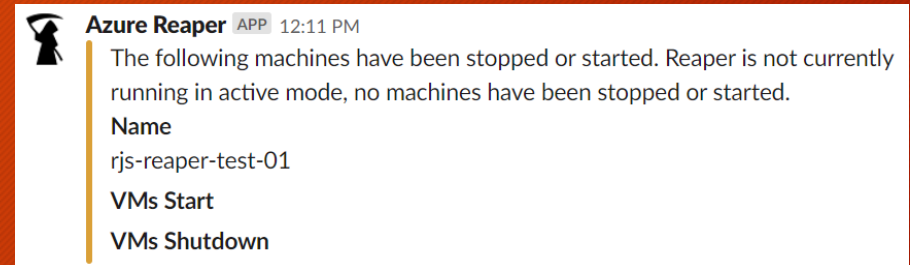


A Slack notification from the 'Azure Reaper' bot. The notification has a red vertical bar on the left. The text inside the notification reads: 'Your resource group has expired and would be deleted. The Reaper is not running in destructive mode.' Below this, there is a table with two rows: 'Name' with the value 'Azure-Managed-App-Central-Logging' and 'Expiry Date' with the value '2018-08-28T12:35:59'.

Azure Reaper APP 11:51 AM

Your resource group has expired and would be deleted. The Reaper is not running in destructive mode.

Name	Azure-Managed-App-Central-Logging
Expiry Date	2018-08-28T12:35:59



A Slack notification from the 'Azure Reaper' bot. The notification has a yellow vertical bar on the left. The text inside the notification reads: 'The following machines have been stopped or started. Reaper is not currently running in active mode, no machines have been stopped or started.' Below this, there is a table with two rows: 'Name' with the value 'rjs-reaper-test-01' and 'VMs Start' with the value 'VMs Shutdown'.

Azure Reaper APP 12:11 PM

The following machines have been stopped or started. Reaper is not currently running in active mode, no machines have been stopped or started.

Name	rjs-reaper-test-01
VMs Start	VMs Shutdown

- Email Address
- User filter

How it works (3)

Tag Name	Description	Example
createdDate *	When the Resource Group was created	2019-05-21 1500
daysOfWeek	What days of the week virtual machines are permitted to run on	1,2,3,4,5
inUse	The resource group is “live” and should not be considered for reaping	
owner *	Owner of the resource group	Russell Seymour
ownerEmail *	Email address of the owner	rseymour@chef.io
startStopTime	Start and stop time of the machine	0800 - 1500
timezone	What timezone should be used when considering the time	Central Standard Time

Azure Reaper Demo

Deployment

- Azure Reaper - Open Source
 - Deployment Templates
 - C# Code
 - <http://bit.ly/azure-reaper>

- Documentation

<input type="checkbox"/>	NAME	TYPE	LOCATION	RESOURCE TYPE
<input type="checkbox"/>	AZReaper-APIConnection	API Connection	West Europe	Microsoft.Web/connections
<input type="checkbox"/>	AZReaper-AppInsights	Application Insights	West Europe	Microsoft.Insights/components
<input type="checkbox"/>	azureaper-dphx	Azure Cosmos DB acco...	West Europe	Microsoft.DocumentDB/databas...
<input type="checkbox"/>	azureaper-dphx	App Service	West Europe	Microsoft.Web/sites
<input type="checkbox"/>	AZReaper-LogAlert-LogicApp	Logic app	West Europe	Microsoft.Logic/workflows
<input type="checkbox"/>	AZReaper-ServicePlan	App Service plan	West Europe	Microsoft.Web/serverFarms
<input type="checkbox"/>	dphxdqofbj44k	Storage account	West Europe	Microsoft.Storage/storageAccou...

Azure Reaper Deployment

Search Azure Reaper Deployment

Azure Reaper Deploy

Reading time: 1 minute

Overview

This repository contains all of the templates that are required to deploy the Azure Reaper. It only concerns the deployment of the Reaper, if information about how the Reaper works and settings is required then please go to [Azure Reaper](#).

When deploying the functions, the built in Continuous Delivery options in Azure Functions are utilised. This means that the code is taken from the `release` branch of [github.com/chef-partners/azure-reaper](#) by default. Whenever we update the code, all Azure Reaper instances that have been deployed using that will be updated to the code in that branch. If this is something that is not desired then please fork the Azure Reaper code so that updates only occur when required.

Quick Start

Tip: It is highly recommended that the documentation is read and understood before deploying the Reaper into an Azure subscription.

In order to deploy the template a parameters file is required. The following shows an example of such a file:

```
{
  "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentParameters.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
    "prefix": {
      "value": "rjs-reaper"
    }
  }
}
```

This site uses [Just the Docs](#), a documentation theme for Jekyll.

Azure Reaper Application

Search Azure Reaper Application

Azure Reaper

Reading time: 1 minute

Note: Please refer to the [Azure Reaper Deployment](#) for information on how to deploy the Reaper. The documentation here is about how the Reaper works

The Azure Reaper is an Azure Function that has been developed to assist in the management of resources in Azure.

The reaper considers to things:

- 1 Resource Group age
- 2 Virtual Machines within a Resource Group

By default the reaper will delete a resource group after 7 days. There are reasons that this may not be practical, such as preparing for a demonstration or it contains a live service, in this case tags can be applied to the groups to change the default behaviour.

After the Reaper has considered a resource group, it will look at the power state of any virtual machines in that group. It will ensure that machines are only running between "office hours" (whatever that has been defined as). If a machine is running outside of these hours it will be shutdown and vice versa. Again this default behaviour can be overridden using tags.

The Reaper does not do all this without letting people know what is going on. It does this using Slack. Part of the configuration defines how to communicate with Slack. Built into the Reaper is a notification delay system which prevents people from being bombarded by the Reaper each time it runs.

This site uses [Just the Docs](#), a documentation theme for Jekyll.

What's next

- Settings UI
 - React website running out of Azure Website
- Two way bot in Slack
- Individual base settings
- Scaling
 - Can support multiple subscriptions
 - Only one function
- Fix issues
 - Notification delay is not reliable
 - When using SPNs groups do not get tagged properly

Gist of Links and Commands



<http://bit.ly/2Q6P7wa>

Thank you



