# AZURE TRAFFIC MANAGER
# BY

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DEEP AZURE @MCKESSON

## Problem Statement

Tech survey ecommerce site need a better solution for their application which is deployed geographically in different zones across the world for them performance and uptime are the main key points to keep their site up and running with no single point of failure.

## Overview of Technology

Microsoft Azure Traffic manager is the point of discussion here. Briefly about it, Microsoft Azure Traffic Manager allows control the distribution of user traffic for service endpoints in different datacenters. Service endpoints supported by traffic manager include Azure VMs, Web Apps, and cloud services. It can also be used with external , non-Azure endpoints.

- Traffic Manager uses DNS to direct client requests to most appropriate endpoint.
- Endpoints based on traffic-routing method and Health of the endpoints.

## Traffic Manager benefits

- Improves the availability of critical applications
- Improves the responsiveness of high-performance applications
- Performs service maintenance without downtime
- Combines on-premises and Cloud-based applications
- Distribute traffic for large, complex deployments

## Traffic Manager routing methods

Azure traffic Manager supports four traffic-routing methods to determine how to route network traffic to the various service endpoints. Traffic Manager applies the traffic-routing method to each DNS query it receives. Below are four traffic routing methods.

- Priority
- Weighted
- Performance
- Geographic

# High Level Overview of steps

1. Four Azure windows based VMs each with a power shell script
2. Installed Java 1.8 JDK, NetBeans IDE 8.2 along with Glassfish Server 4.1 on all of them
3. Installed Oracle Database 11g Express Edition on one of the VM
4. Ran SQL queries to ingest data on the database
5. Deployed survey and survey admin apps on Glassfish server by changing libraries
6. Updated JDBC connection string to talk to the DB respectively from each GlassFish Server.
7. Ran PowerShell script to Create Azure Traffic Manager Profile ‘performance’ based
8. Create DNS for the site using DNS Zone and did a CNAME to point to Traffic Manager Profile.

## Data Set

Survey URLs:
http://gsrworld.techsurvey.com/survey/index.xhtml
Survey Admin URLs:
http://gsrworld.techsurvey.com/surveyadmin/home.jsp

Traffic Manager Survey URLs:
http://gen-unique.trafficmanager.net/survey/index.xhtml
Traffic Manager Survey Admin URL:
http://gen-unique.trafficmanager.net/surveyadmin/home.jsp

- Online-Survey-System-Java-Project - Size: 3..2 MB
- I haven’t included other tools as they are big like netbeans, oracle db and java jdk
- Power shell scripts are included

## Hardware

- Windows Server 2012 R2
- Azure Traffic Manager

## Software:

- NetBeans IDE 8.2
- GlassFish Server 4.1
- Java JDK 1.8
- Oracle Database 11g Express Edition
- JDBC Driver  - ojdbc7.jar
- JSF Libraries – 1.2, 2.2
- My PC with Apache 2.4
- MY PC with host entry change

## References:

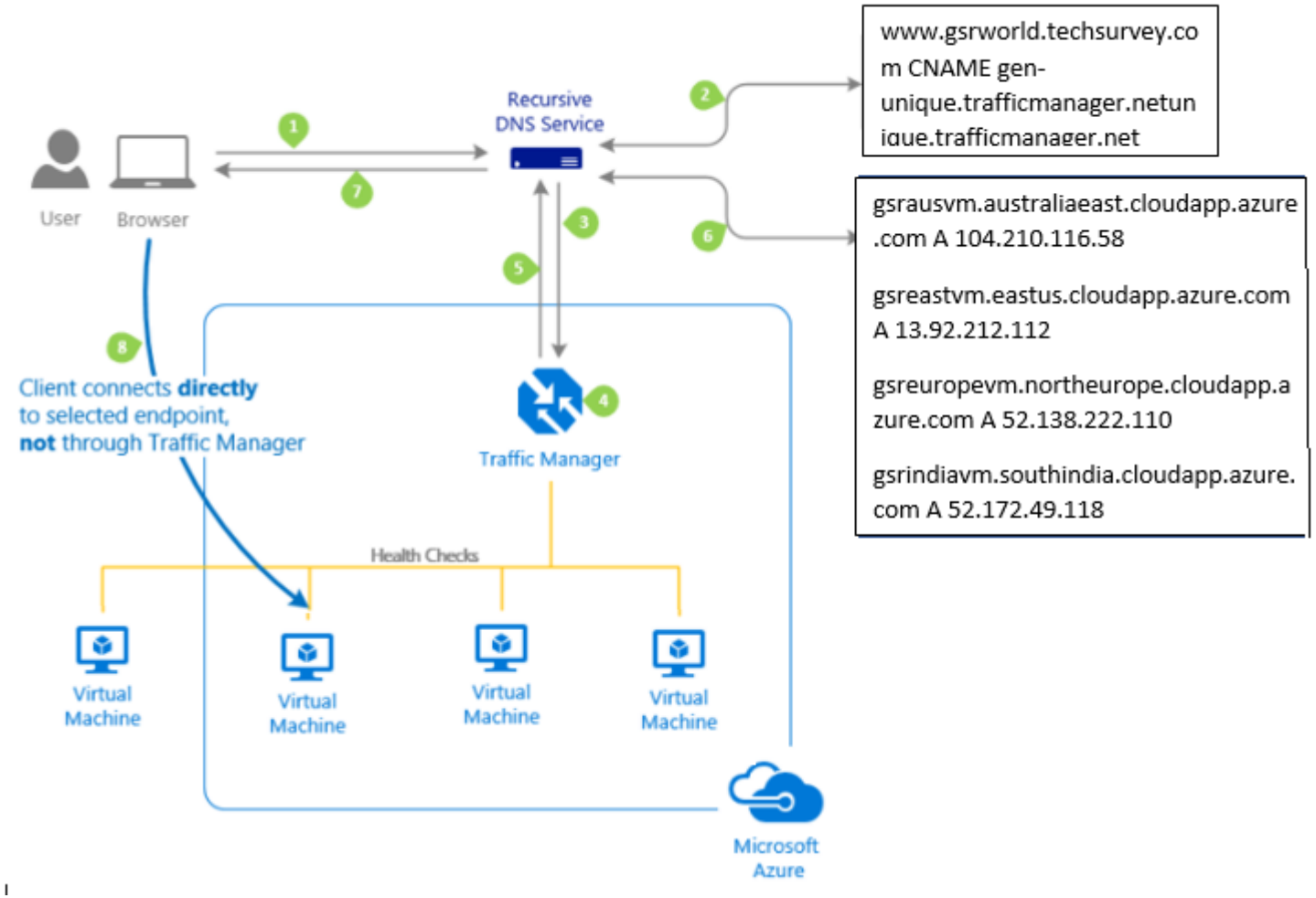
http://www.codewithc.com/online-survey-system-project-java/

## Lessons Learned & Pros/Cons

- Need to disable Windows Firewall which was not allowing incoming traffic
- NSGs can able applied at the network interface level or the subnet level for a VM.

- Not able to submit the survey – may be a code but couldn’t figure out.
- DNS zone Site DNS CNAME to Azure Traffic Manager Profile not working so I used my PC with apache as a portal DNS Server

# Depiction of flow of Trafffic for gsrworld.techsurvey.com Site



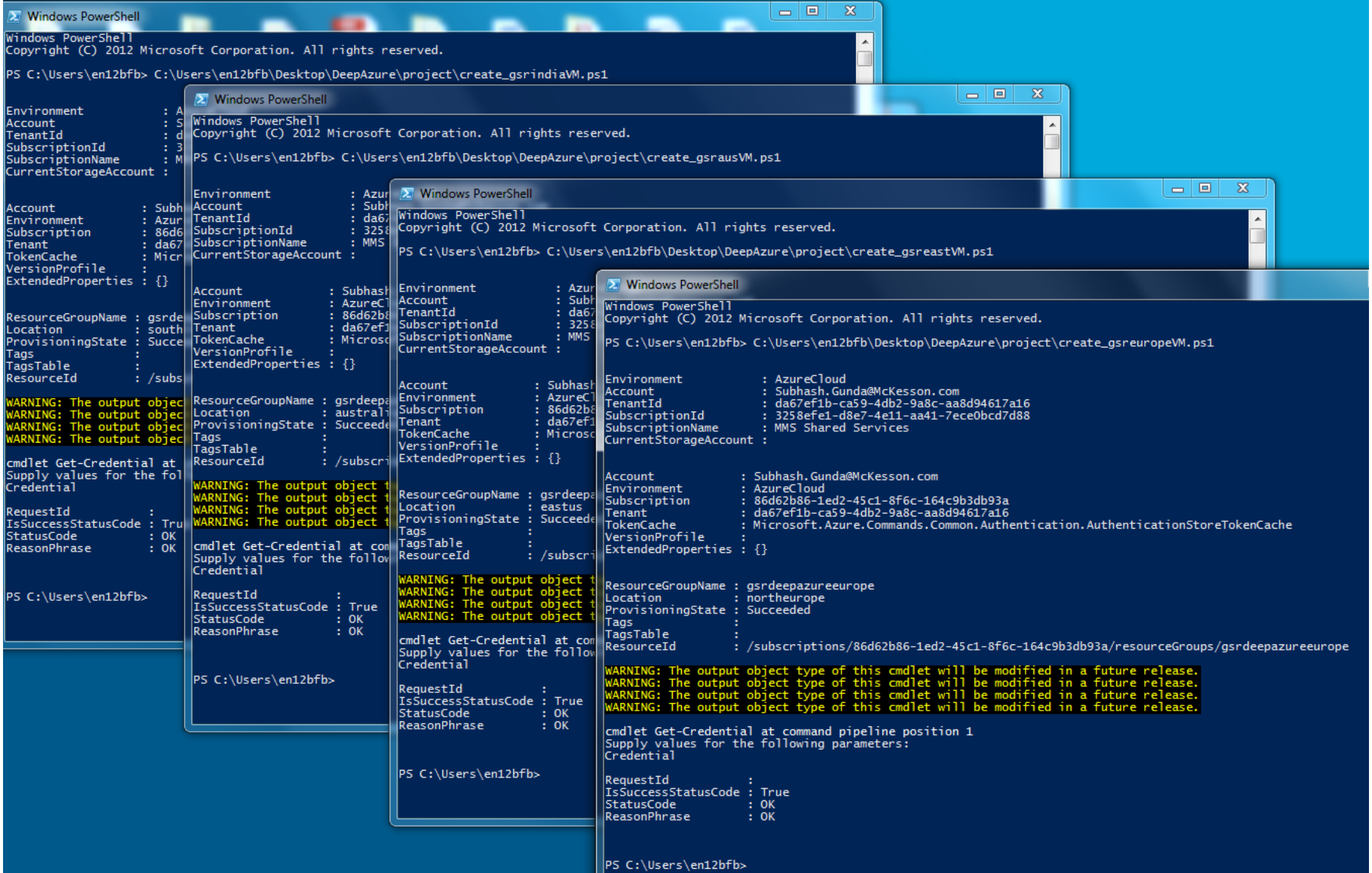
# Power Shell Script for the Europe VM And its Execution

Windows PowerShell ISE

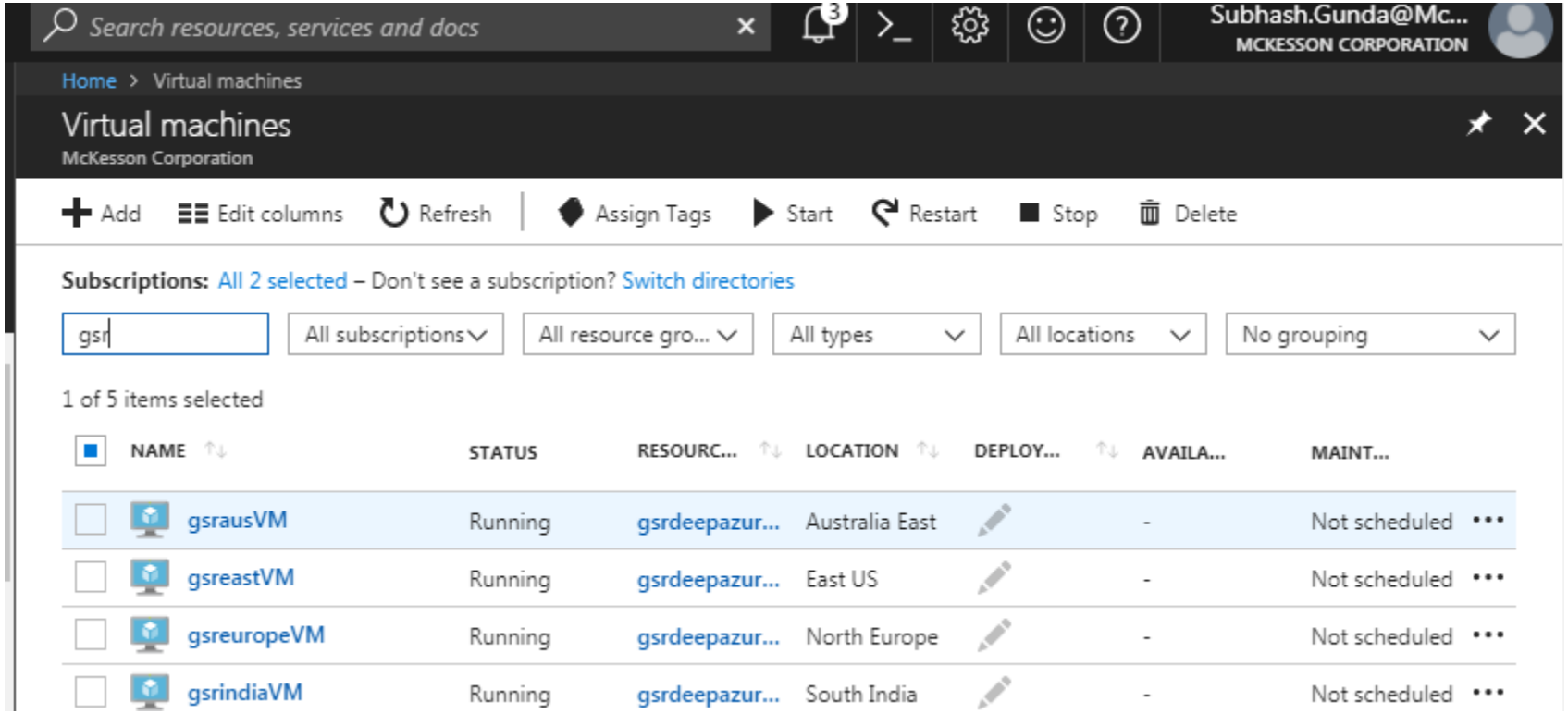
File Edit View Tools Debug Add-ons Help

create_gsreuropeVM.ps1

```
23
24  # Login to azure portal
25  Login-AzureRmAccount
26
27  # Select the desired subscription
28  Select-AzureRmSubscription -SubscriptionName "McKesson Deep Dive Training (4)"
29
30  # Resource Group
31  New-AzureRmResourceGroup -Name $ResourceGroupName -Location $Location
32
33  # Storage
34  $StorageAccount = New-AzureRmStorageAccount -ResourceGroupName $ResourceGroupName -Name $StorageName -Type $StorageType -Location $Location
35
36  # Network
37  $PIp = New-AzureRmPublicIpAddress -Name $InterfaceName -ResourceGroupName $ResourceGroupName -Location $Location -AllocationMethod Static
38  $rule1 = New-AzureRmNetworkSecurityRuleConfig -Name rdp-rule -Description "Allow RDP" -Access Allow -Protocol Tcp -Direction Inbound -Priority 100 -SourceAddressPrefix Internet
39  $rule2 = New-AzureRmNetworkSecurityRuleConfig -Name web-rule -Description "Allow HTTP" -Access Allow -Protocol Tcp -Direction Inbound -Priority 101 -SourceAddressPrefix Interne
40  $nsg = New-AzureRmNetworkSecurityGroup -ResourceGroupName $ResourceGroupName -Location $Location -Name $NSGName -SecurityRules $rule1,$rule2
41  $SubnetConfig = New-AzureRmVirtualNetworkSubnetConfig -Name $Subnet1Name -AddressPrefix $VNetSubnetAddressPrefix -NetworkSecurityGroup $nsg
42  $VNet = New-AzureRmVirtualNetwork -Name $VNetName -ResourceGroupName $ResourceGroupName -Location $Location -AddressPrefix $VNetAddressPrefix -Subnet $SubnetConfig
43  $Interface = New-AzureRmNetworkInterface -Name $InterfaceName -ResourceGroupName $ResourceGroupName -Location $Location -SubnetId $VNet.Subnets[0].Id -PublicIpAddressId $PIp.Id
44
45  # Compute
46
47  ## Setup local VM object
48  $Credential = Get-Credential
49  $VirtualMachine = New-AzureRmVMConfig -VMName $VMName -VMSize $VMSize
50  $VirtualMachine = Set-AzureRmVMOperatingSystem -VM $VirtualMachine -Windows -ComputerName $ComputerName -Credential $Credential -ProvisionVMAgent -EnableAutoUpdate
51  $VirtualMachine = Set-AzureRmVMSourceImage -VM $VirtualMachine -PublisherName MicrosoftWindowsServer -Offer WindowsServer -Skus 2012-R2-Datacenter -Version "latest"
52  $VirtualMachine = Add-AzureRmVMNetworkInterface -VM $VirtualMachine -Id $Interface.Id
53  $OSDiskUri = $StorageAccount.PrimaryEndpoints.Blob.ToString() + "vhds/" + $OSDiskName + ".vhd"
54  $VirtualMachine = Set-AzureRmVMOSDisk -VM $VirtualMachine -Name $OSDiskName -VhdUri $OSDiskUri -CreateOption FromImage
55
56  ## Create the VM in Azure
57  New-AzureRmVM -ResourceGroupName $ResourceGroupName -Location $Location -VM $VirtualMachine
```

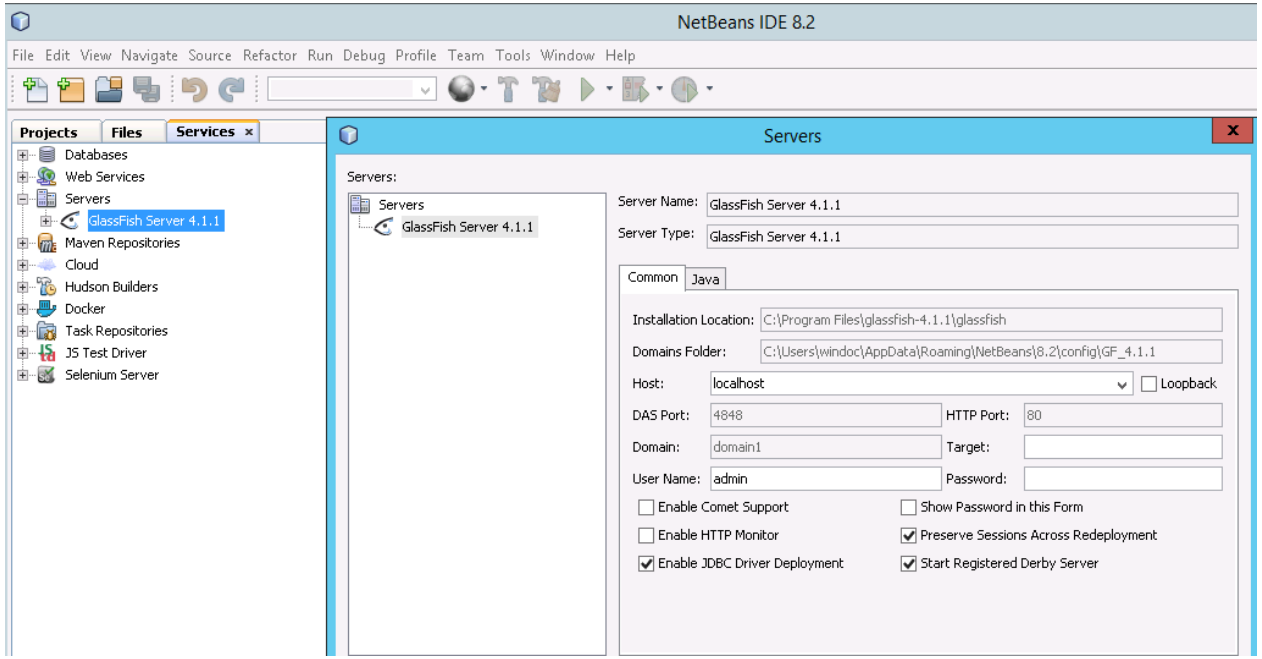

Windows PowerShell
Windows PowerShell
Copyright (C) 2012 Microsoft Corporation. All rights reserved.
PS C:\Users\en12bfb> C:\Users\en12bfb\Desktop\DeepAzure\project\create_gsrindiaVM.ps1
PS C:\Users\en12bfb> C:\Users\en12bfb\Desktop\DeepAzure\project\create_gsrausVM.ps1
PS C:\Users\en12bfb> C:\Users\en12bfb\Desktop\DeepAzure\project\create_gsreastVM.ps1
PS C:\Users\en12bfb> C:\Users\en12bfb\Desktop\DeepAzure\project\create_gsreuropeVM.ps1
Environment : AzureCloud
Account : Subhash.Gunda@McKesson.com
TenantId : da67ef1b-ca59-4db2-9a8c-aa8d94617a16
SubscriptionId : 3258efe1-d8e7-4e11-aa41-7ece0bcd7d88
SubscriptionName : MMS Shared Services
CurrentStorageAccount :
Account : Subhash.Gunda@McKesson.com
Environment : AzureCloud
Subscription : 86d62b86-1ed2-45c1-8f6c-164c9b3db93a
Tenant : da67ef1b-ca59-4db2-9a8c-aa8d94617a16
TokenCache : Microsoft.Azure.Commands.Common.Authentication.AuthenticationStoreTokenCache
VersionProfile :
ExtendedProperties : {}
ResourceGroupName : gsrdeepazureeurope
Location : northeurope
ProvisioningState : Succeeded
Tags :
TagsTable :
ResourceId : /subscriptions/86d62b86-1ed2-45c1-8f6c-164c9b3db93a/resourceGroups/gsrdeepazureeurope
WARNING: The output object type of this cmdlet will be modified in a future release.
cmdlet Get-Credential at command pipeline position 1
Supply values for the following parameters:
Credential
RequestId :
IsSuccessStatusCode : True
StatusCode : OK
ReasonPhrase : OK
PS C:\Users\en12bfb>

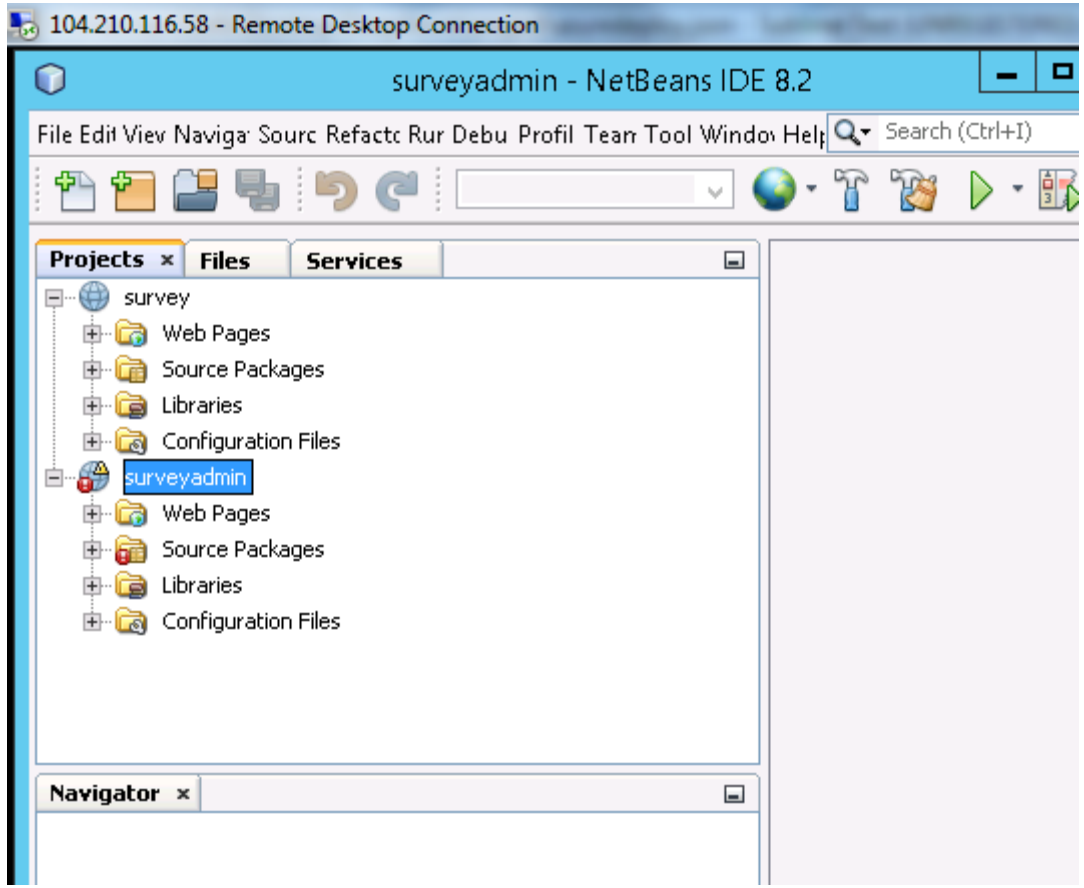
# List of all the VMs on Azure portal after Execution



# Software Installation

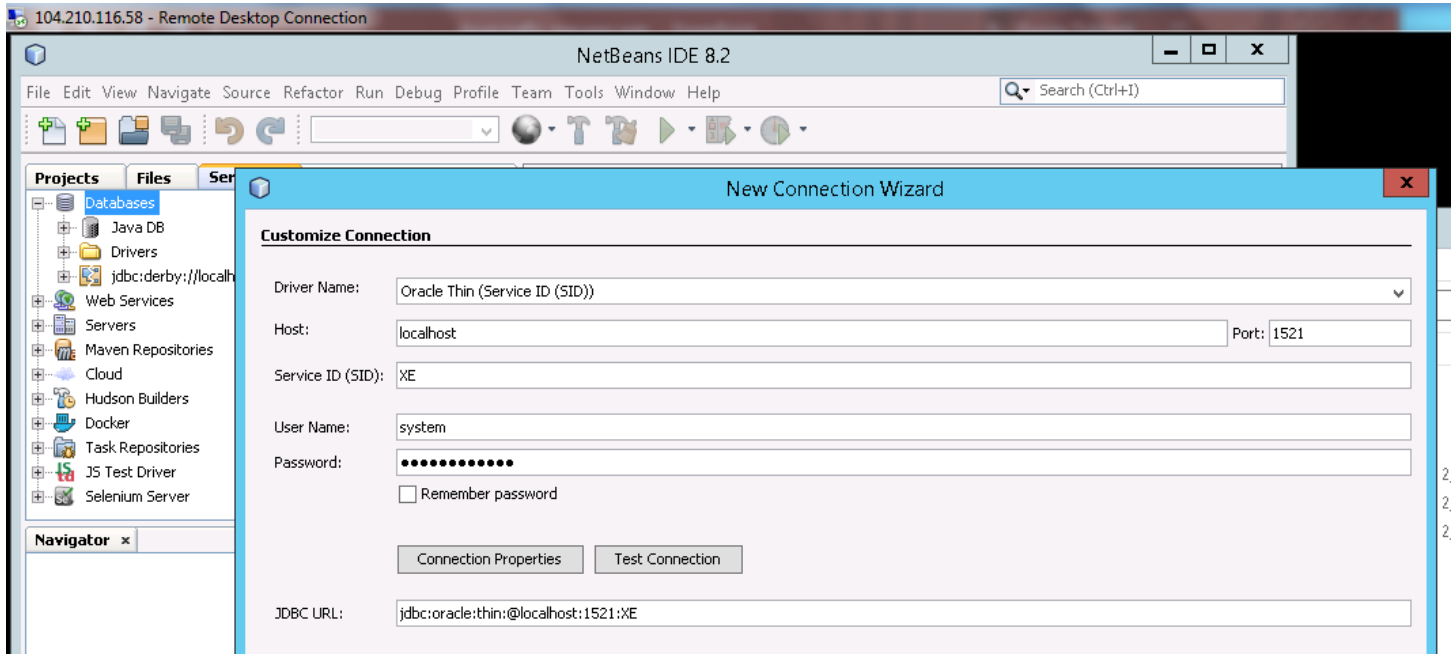
- RDP to the VMS
- Install Java 1.8 JDK
- Install NetBeans 8.2 along with GlassFish Server
- Update port for GlassFish Server to be 80



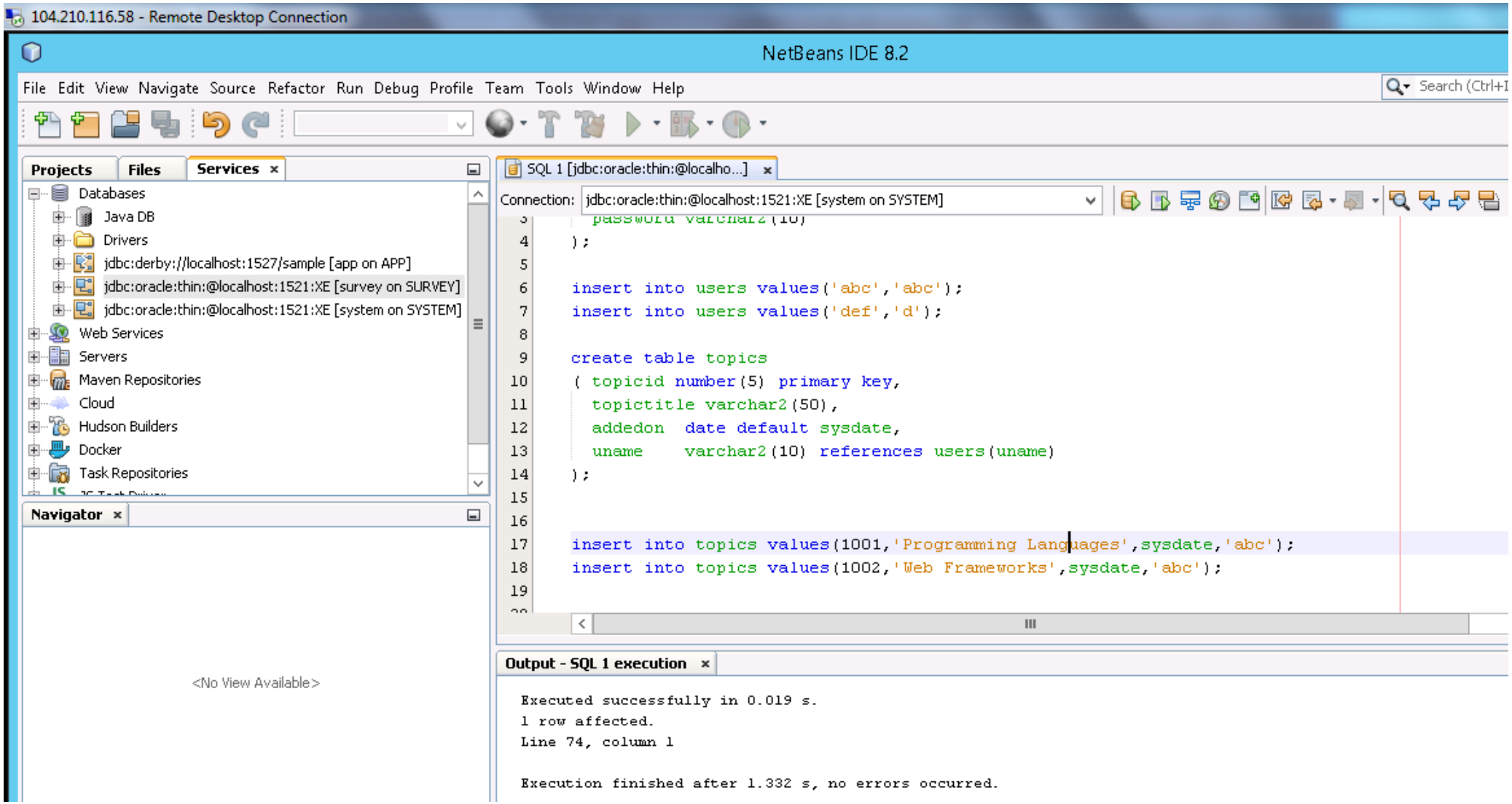

104.210.116.58 - Remote Desktop Connection
surveyadmin - NetBeans IDE 8.2
File Edit View Naviga Sourc Refacto Run Debu Profil Team Tool Windo Help
Search (Ctrl+I)
Projects
Files
Services
survey
Web Pages
Source Packages
Libraries
Configuration Files
surveyadmin
Web Pages
Source Packages
Libraries
Configuration Files
Navigator

# Oracle Database 11g Express Edition Steps

- Install Oracle Database 11g Express Edition on one of the VM in this case Australia VM
- Connect to the DB with IDS and ingest data from web app folder

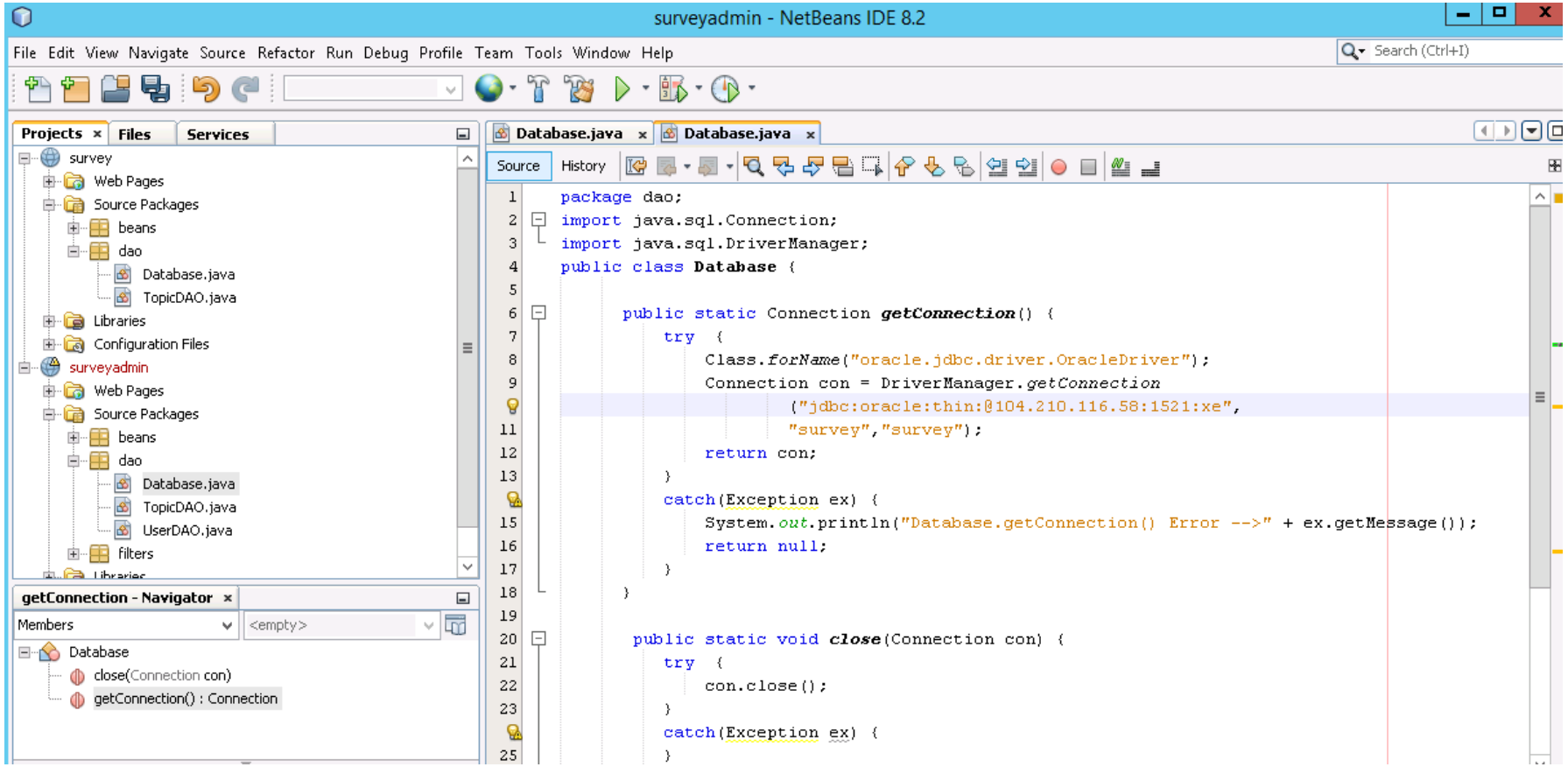


# Ingesting Data in to the DB

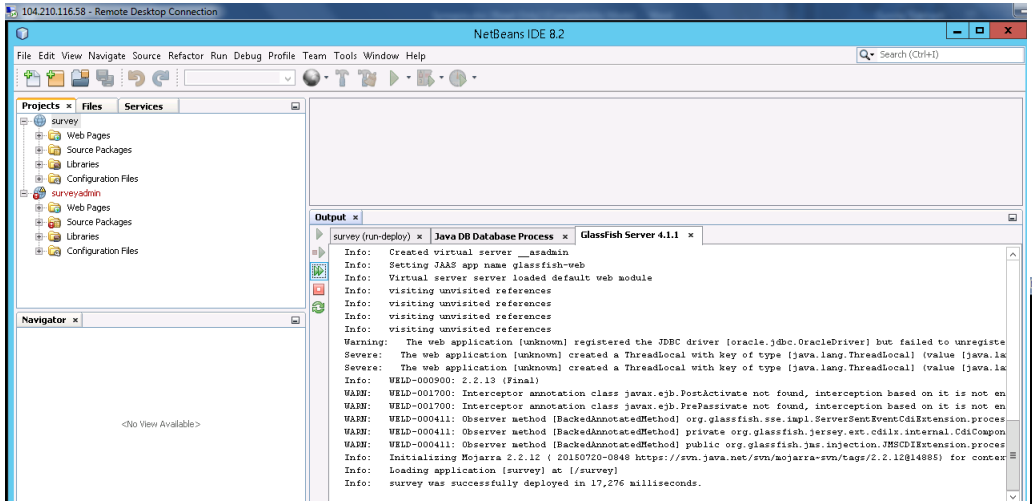


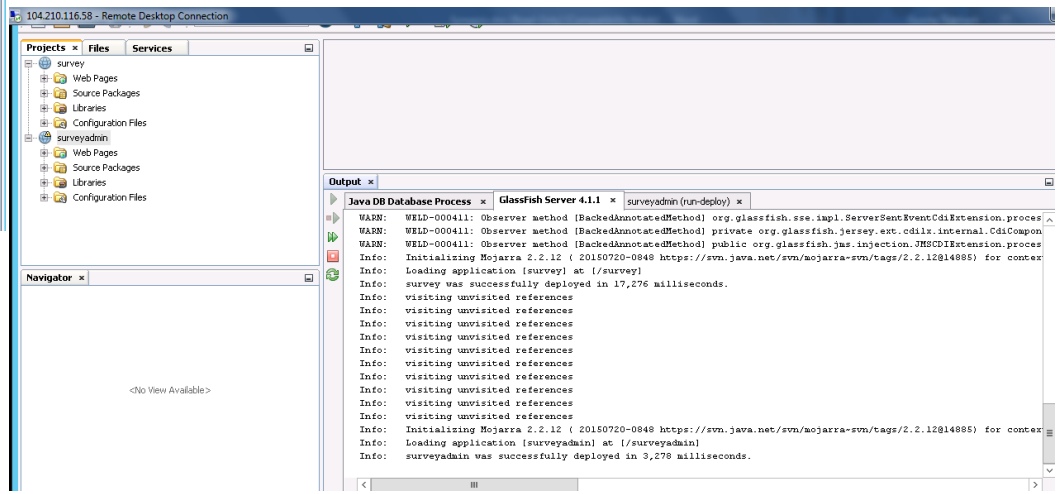
# Java Program Changes

- Import survery and surveyadmin projects in to the IDE
- Make changes to Database.java file on eastus, india, Europe VMs to point to the public IP of Australia VM database instance



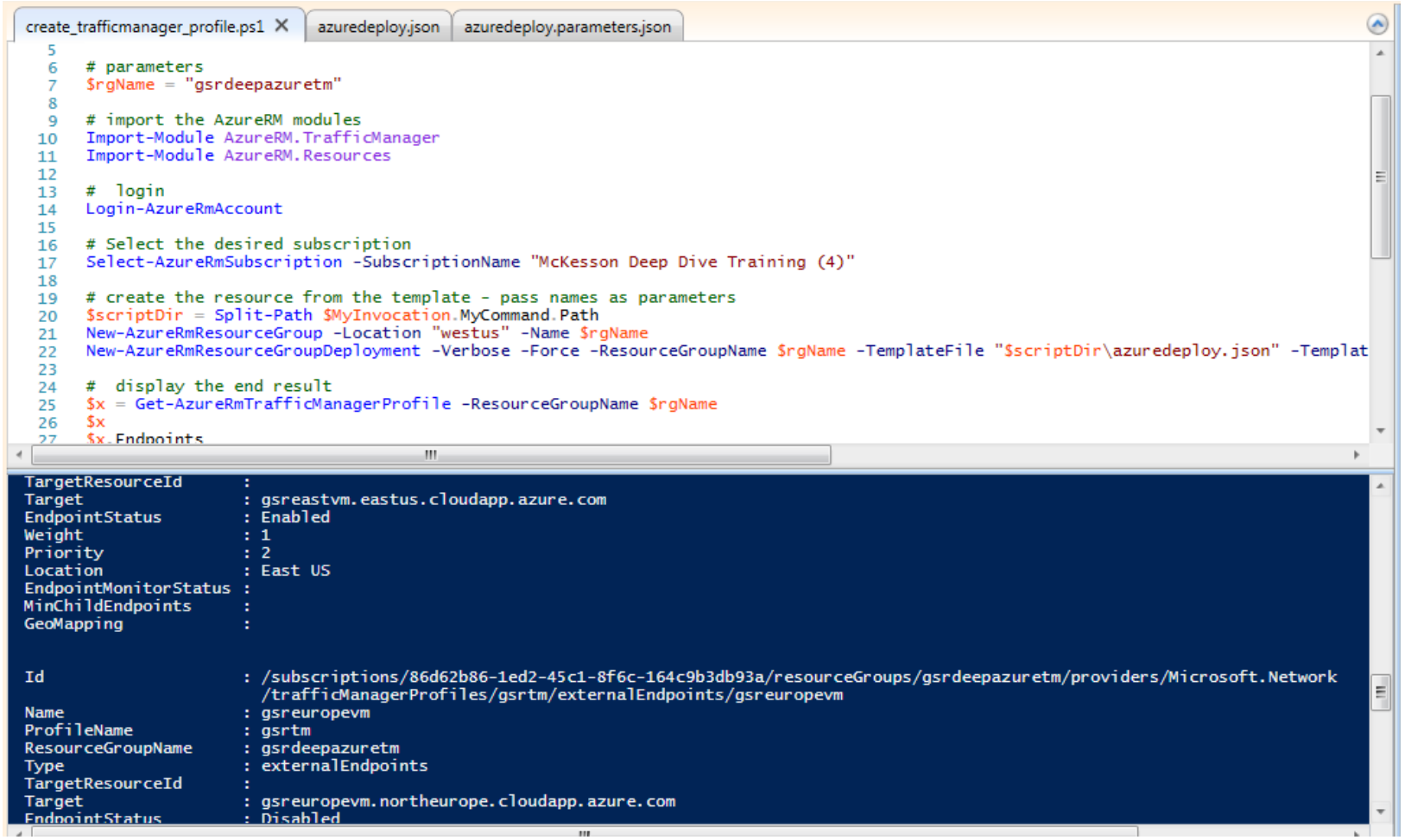
# Deploy Changes



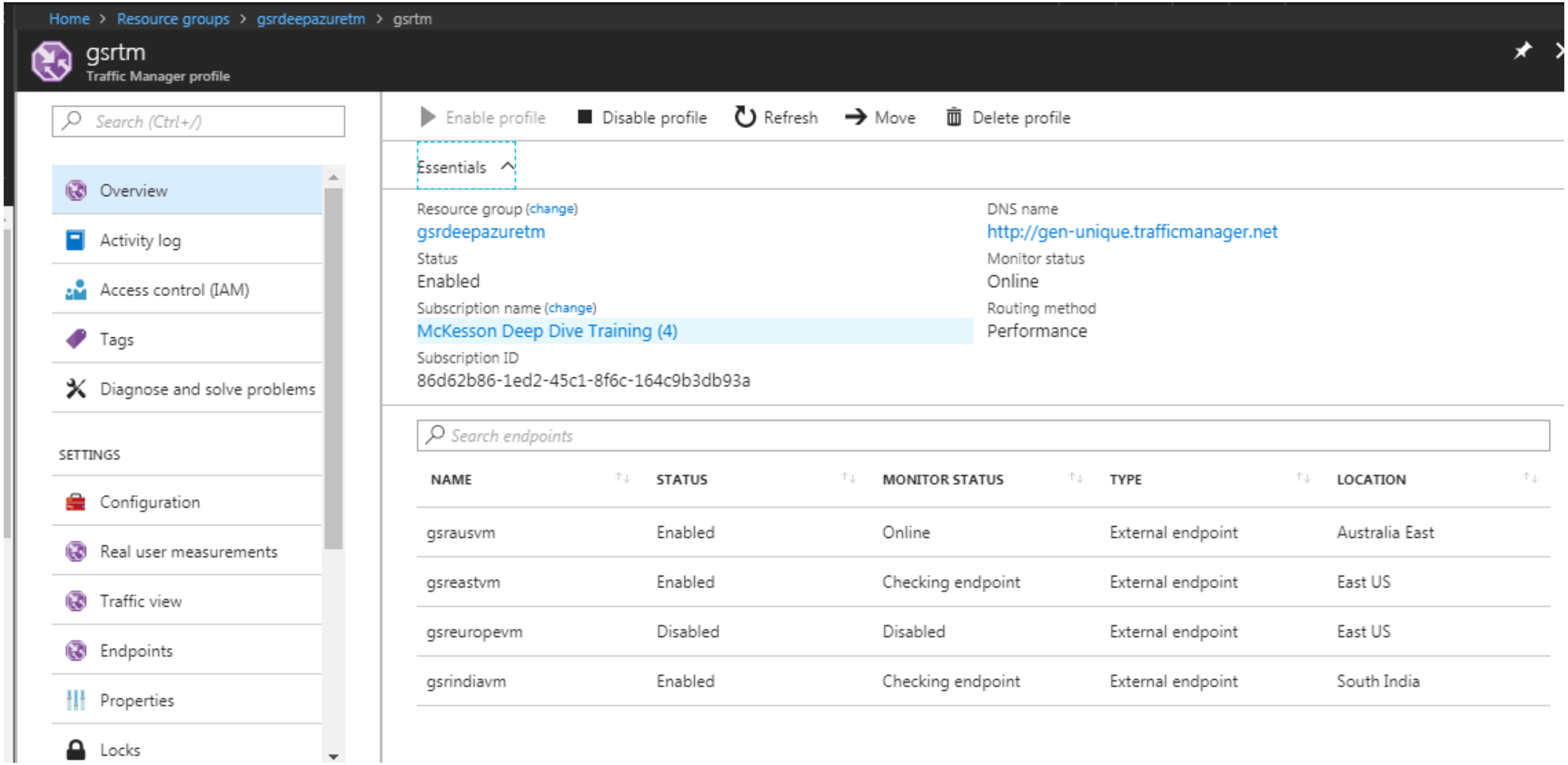



# Create Azure Traffic Manager Profile

- File updated to include the end points
- Run the power shell Script
- create_trafficmanager_profile.ps1
- Azuredeploy
- azuredeploy.parameters

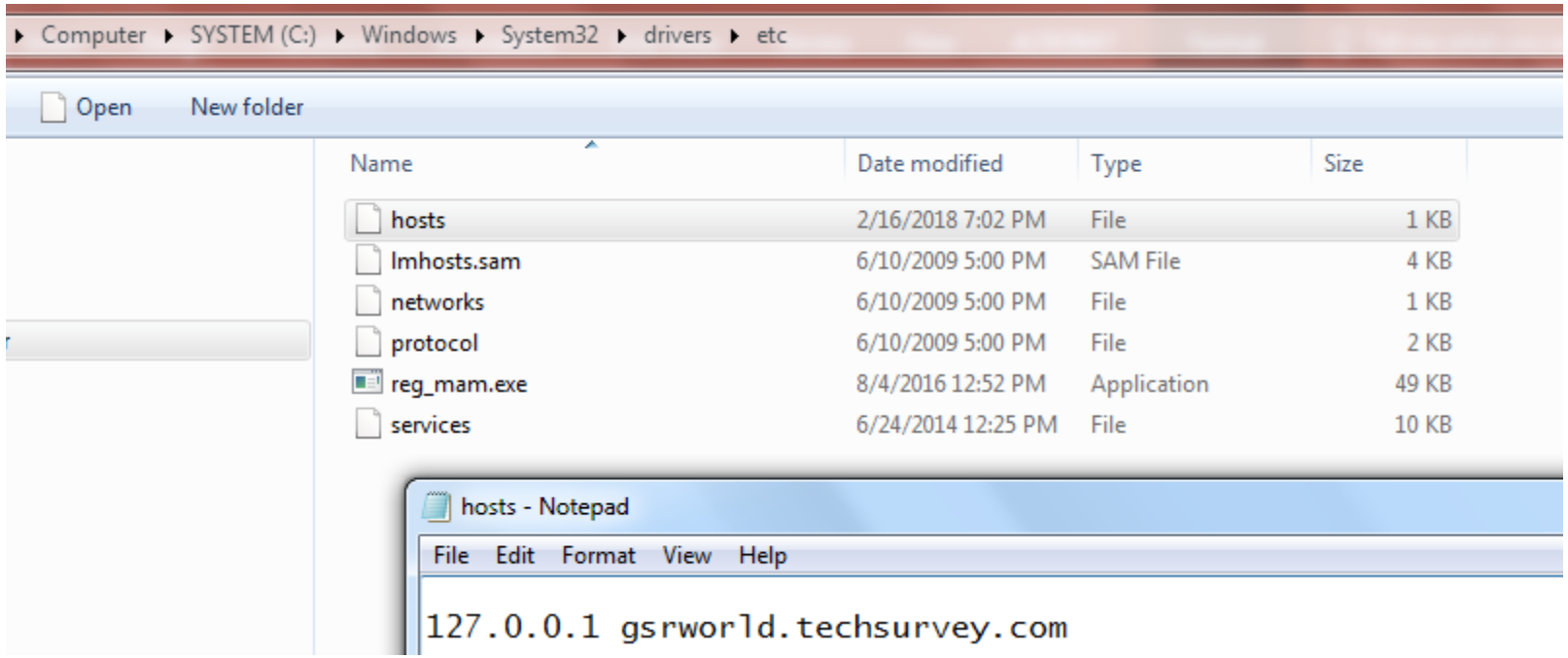


# Configuration of Traffic Manager Profile



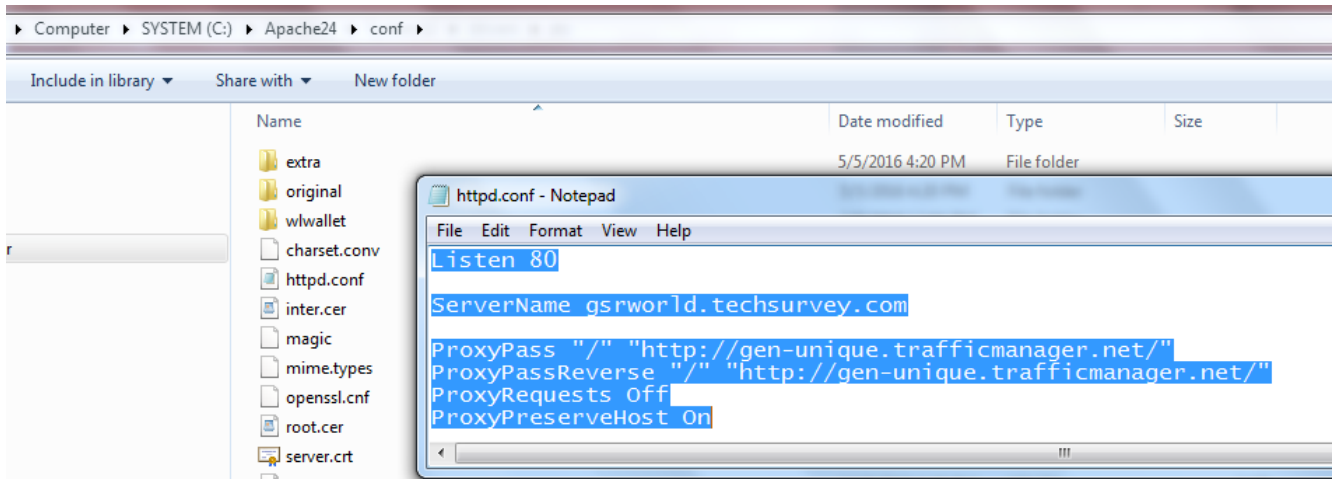
# Hosts Entry Change on a workstation

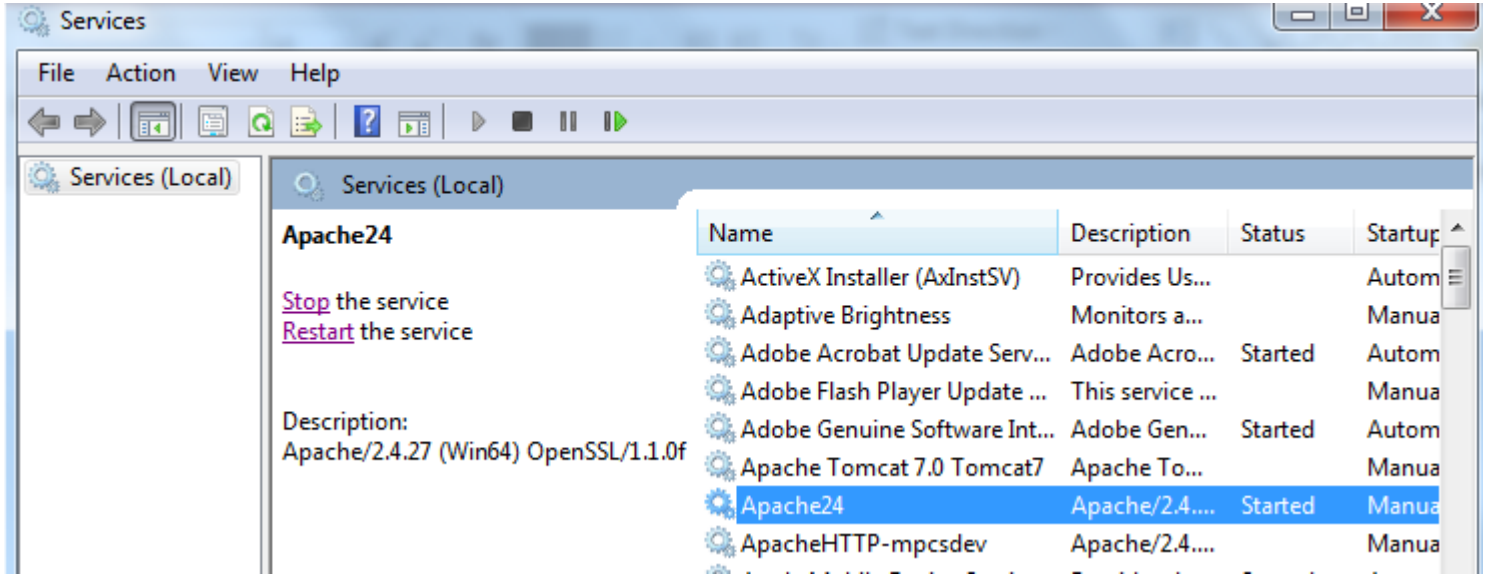
As really don't have a DNS to play with I am using my pc with hosts entry change to mimic the demo.



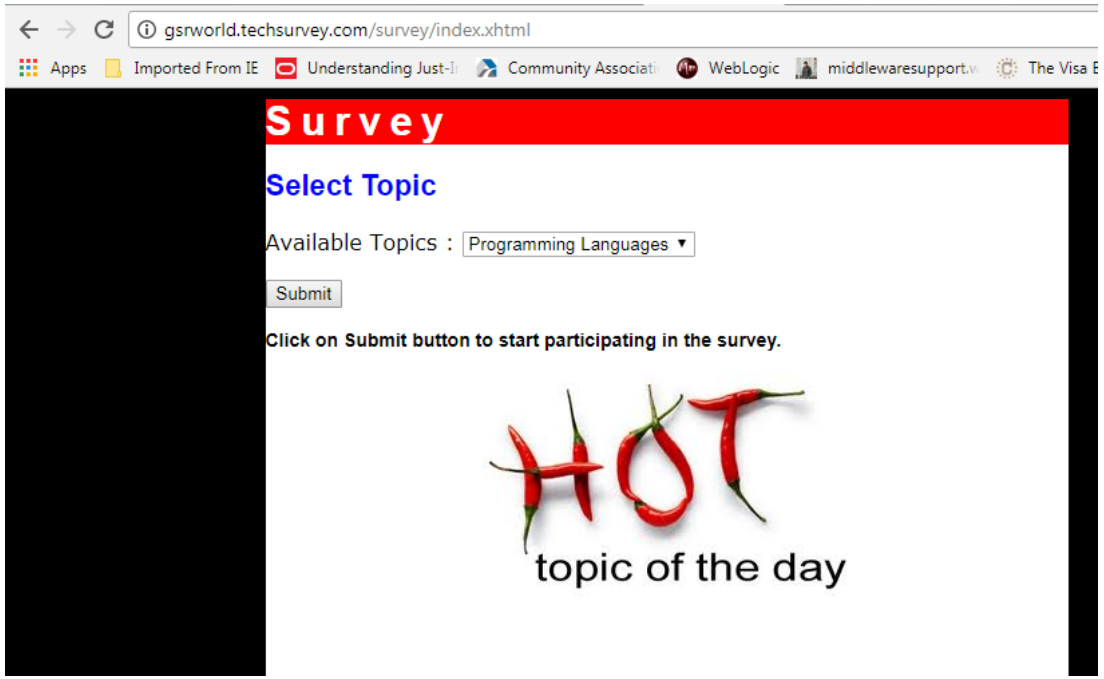
# Install Apache and Configure on Workstation

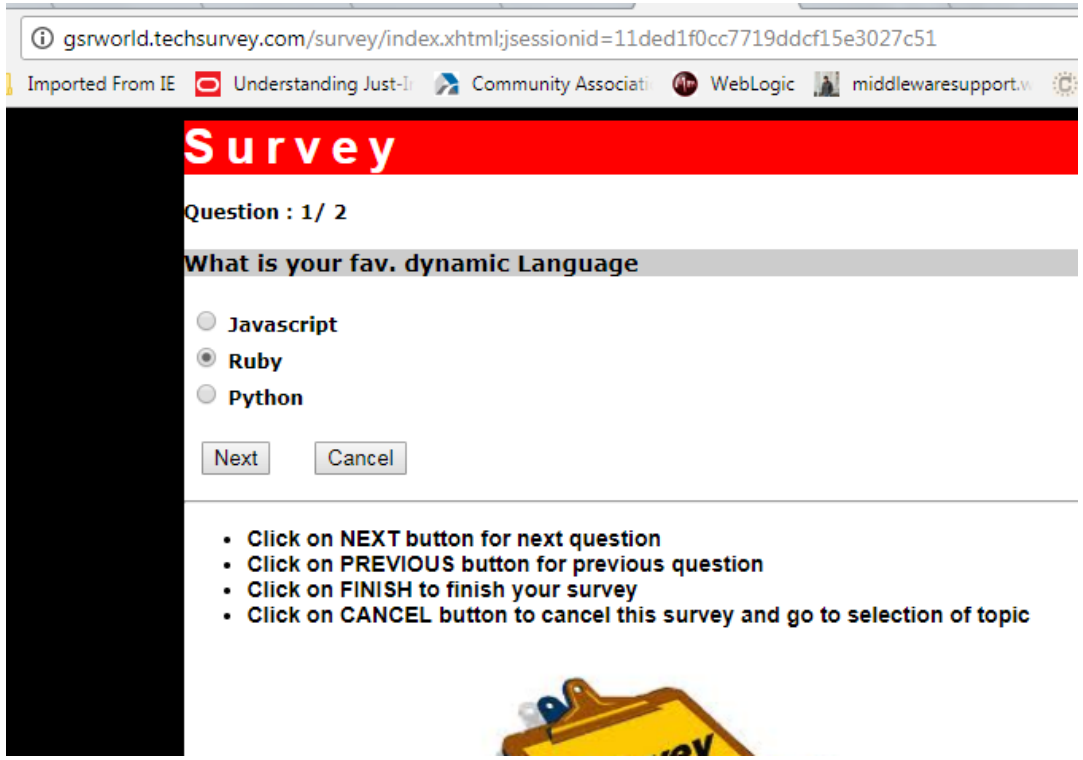
- Install Apache 2.4
- Configure to include the servername
- Use reverse proxy to route traffic to Traffic Manager
- Start Apache 2.4 service



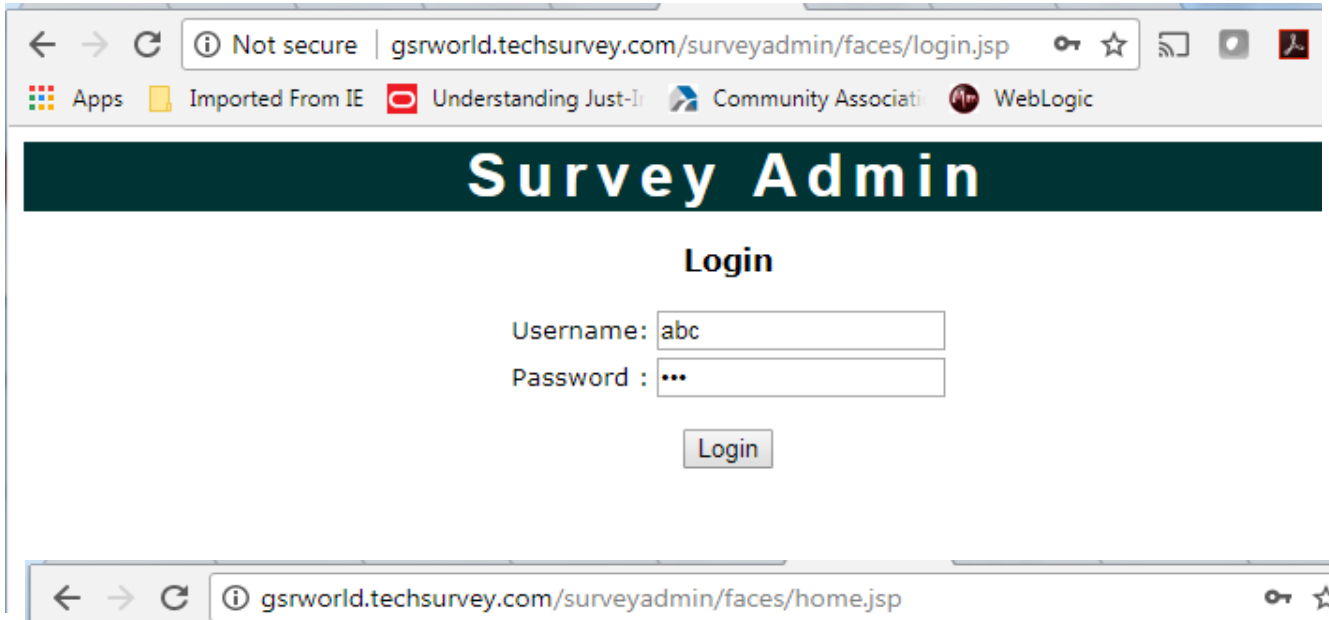
# Access Site to Submit Survey

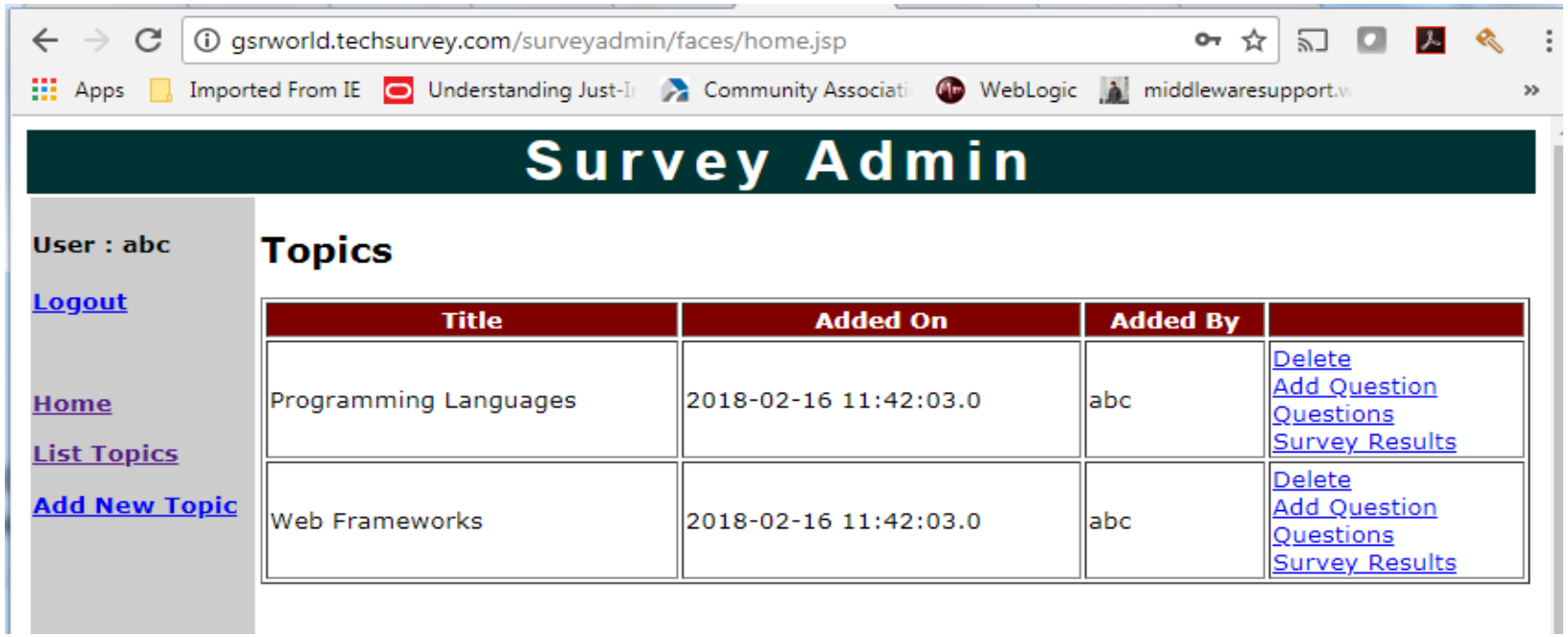


# Access Survey Admin Site to View the entries

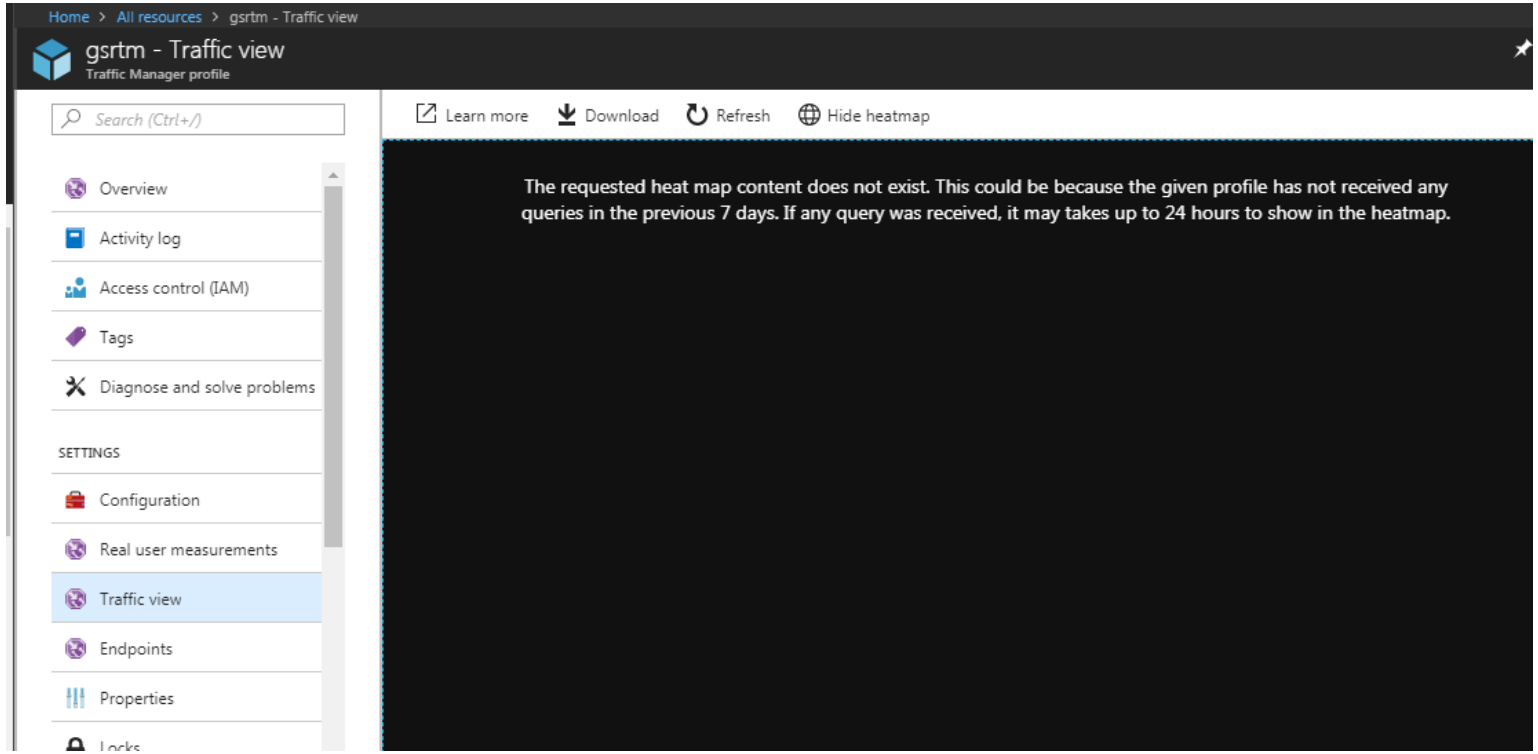
- Access Surveyadmin site here to view the survey content.

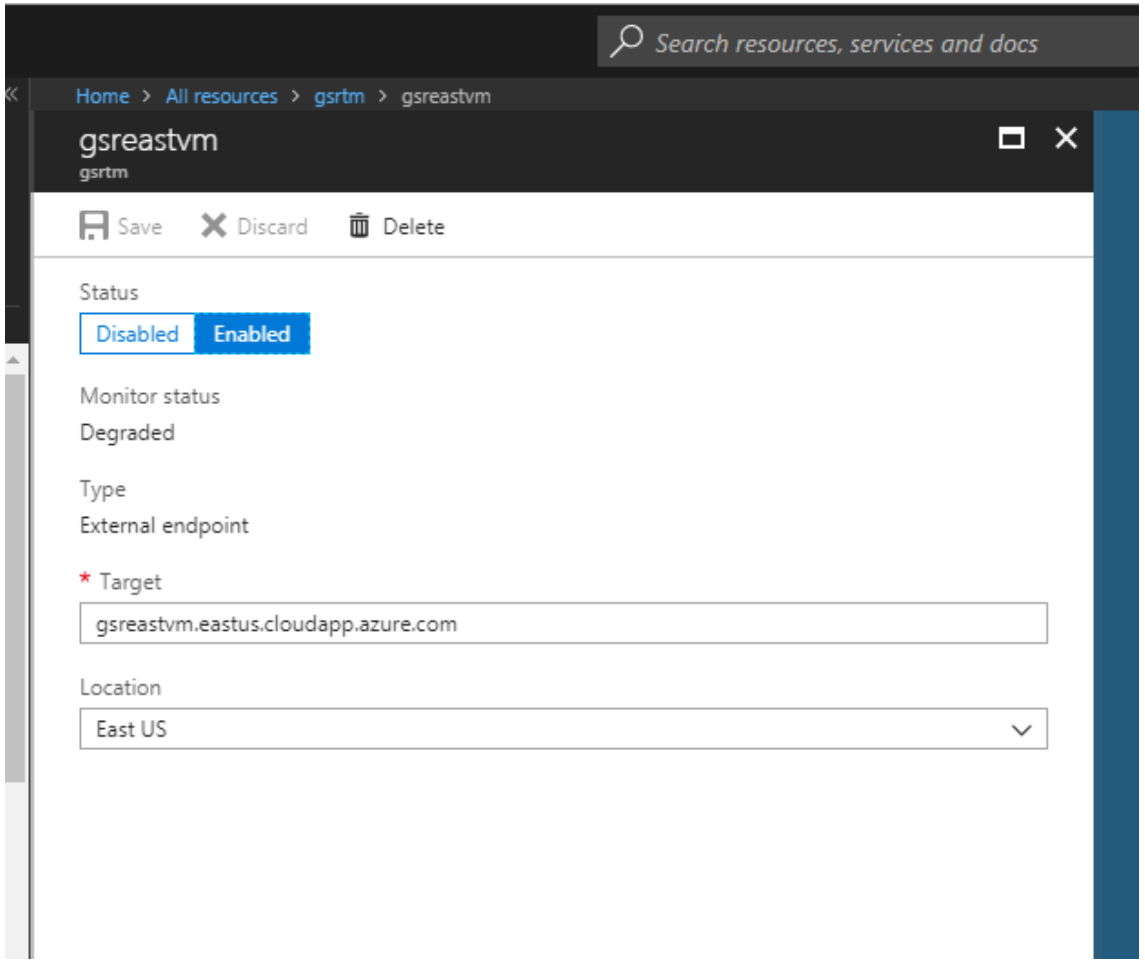


# Testing Site with Traffic Manager

- For some reason I couldn't see the traffic view
- But I figured it ended up on one of the VM and I killed the service
- TM routed my traffic to a second node.



# Enable or Disable Node on Traffic Manager

- We can enable or disable the nodes according for maintenance