Leee Jeffries Consulting

FSLogix Storage and Scalability Testing

Introduction and Usage V1.0

Version	Date	Author	Comment
1.0	19/11/18	Leee Jeffries	

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Revision History

Version	Completed by	Notes	Date
1.0	Leee Jeffries	Initial Document Creation	19/11/2018

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Introduction

FSLogix have the requirement to generate information about storage performance to be published for their products. To achieve this goal a custom load testing environment has been designed and publicly been made available on GitHub to be deployed in an automated fashion.

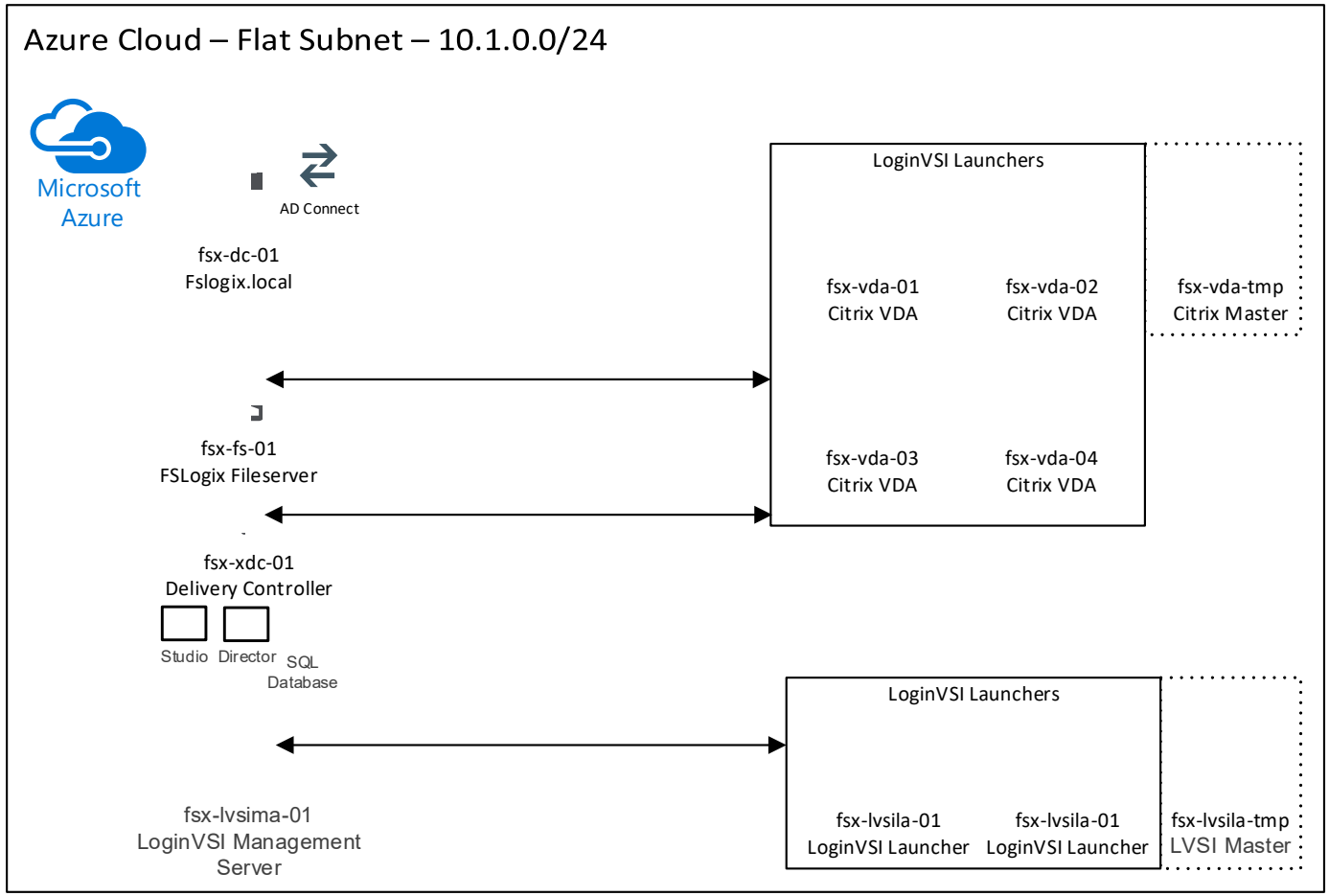
This document will explain the layout of the components within the environment, the necessary manual steps to prepare the test environment and finally a wrap up of any manual steps required to tweak policies once the environment is ready.

The testing environment is made up of different software vendors products:

- All Virtual Machines run a Windows Server 2016 OS
- A Virtual Desktop experience is deployed utilising Citrix Virtual Apps and Desktops
- FSLogix Profile and Office 365 Containers
- Office 365 email using Exchange Online
- LoginVSI is used as the load testing solution

Infrastructure Layout

Below is a diagram of the infrastructure components used in the testing process.



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Infrastructure Components

Domain Controller/Active Directory

Name	Description	Roles	Size	Qty
Fsx-dc-01	Domain Controller	Active Directory and AD Connect	Standard_DS2_v2	1

Citrix Controller

Name	Description	Roles	Size	Qty
Fsx-xdc-01	Citrix Controller/Storefront and Jump Server (RDP)	Citrix Controller SQL Express Director Storefront	Standard_DS3_v2	1

FSLogix Fileserver

Name	Description	Roles	Size	Qty
Fsx-fs-01	FSLogix Fileserver	File Sharing	Standard_DS2_v2	1

LoginVSI Management

Name	Description	Roles	Size	Qty
Fsx-lvsima-01	LoginVSI Management Server	LoginVSI	Standard_DS2_v2	1

LoginVSI Launcher

Name	Description	Roles	Size	Qty
Fsx-lvsila-##	FSLogix Fileserver	File Sharing	Standard_DS2_v2	2

Citrix Session Servers

Name	Description	Roles	Size	Qty
Fsx-vda-##	Session Servers	Citrix VDA	Standard_D8S_v3	4

Prerequisites

To be able to deploy and utilise this testing environment you must have the following items available:

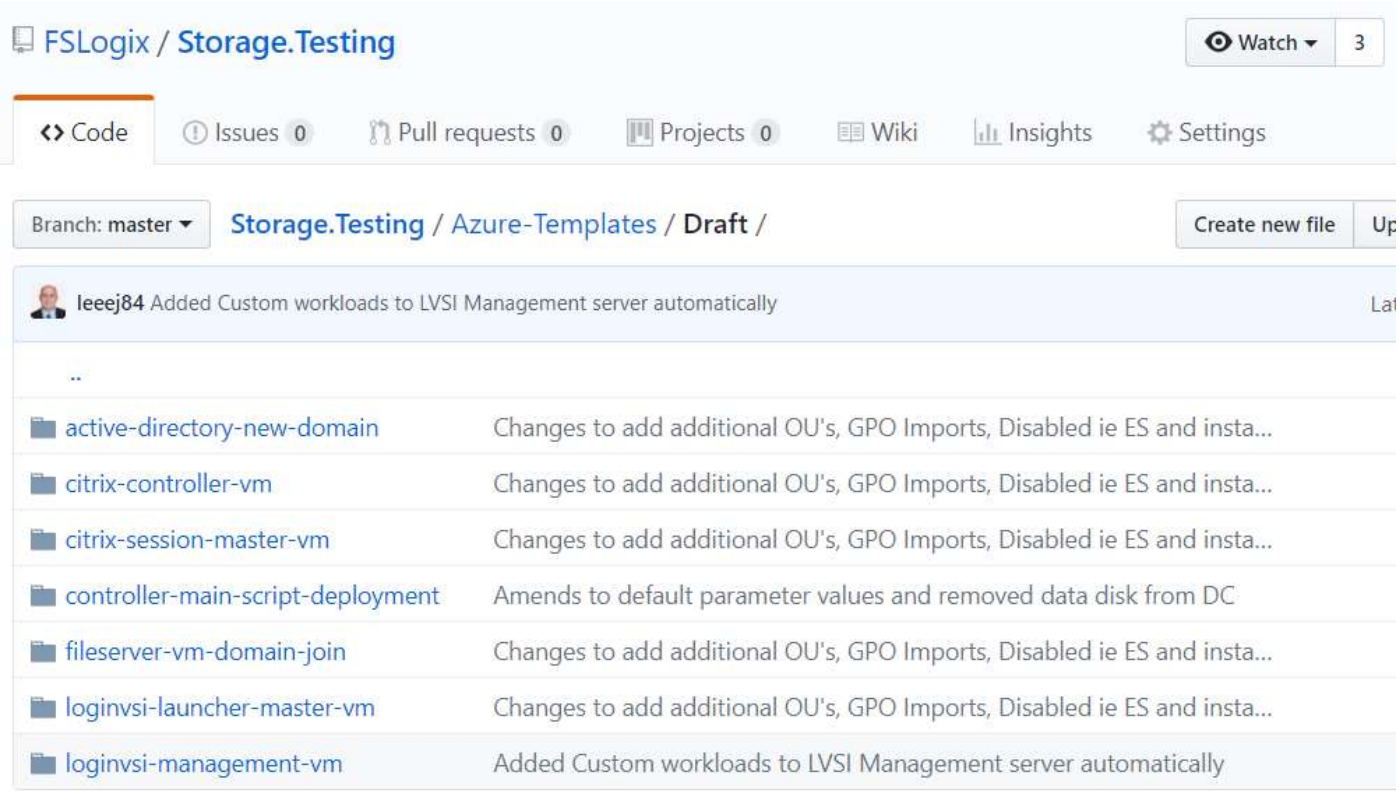
- An AzureRM Subscription
    - The ability to deploy Virtual Machines and Resources as well as VNETs
- A LoginVSI license for the total amount of users you wish to test with
- A Citrix Evaluation license or similar
- An Office 365 Email account for each test user or Exchange Server accessible from Azure
    - Administration rights in Office 365 to import PST files to email accounts
- Knowledge of Citrix Virtual Apps and Desktops – Machine Catalog Generation
    - AzureRM Global Administrator account to create the hosting connection
- Knowledge of LoginVSI load testing configuration

Scripted Automation

The test environment utilising AzureRM JSON Templates to define the infrastructure as code and allow an environment to be spun up and configured. PowerShell is utilised heavily after a Virtual Machine has been started to install all software in use for testing.

All scripts can be located on GitHub:

https://github.com/FSLogix/Storage.Testing/tree/master/Azure-Templates



Each Virtual Machine role that is required to be deployed has its own Azure Script, all these scripts are tied together and deployed in one go using the “controller-main-script-deployment” json file.

This is the file that is provided to Azure to specify the environment and will be covered in more detail later in this document.

Email Account Content Generation

This testing environment has been configured to utilise Office 365 email accounts and for the Outlook .ost file storage requirements to be ascertained by preloading the accounts with email content. This content generation was a scripted process using a small Mercury Mail Server setup. The PowerShell script uses publicly available content to randomly create emails with attachments and random test.

Once an account was filled with approximately 2.3GB of email content, it was exported as a PST and then imported into the Office 365 accounts for testing purposes.

The Script for content generation can be found here:

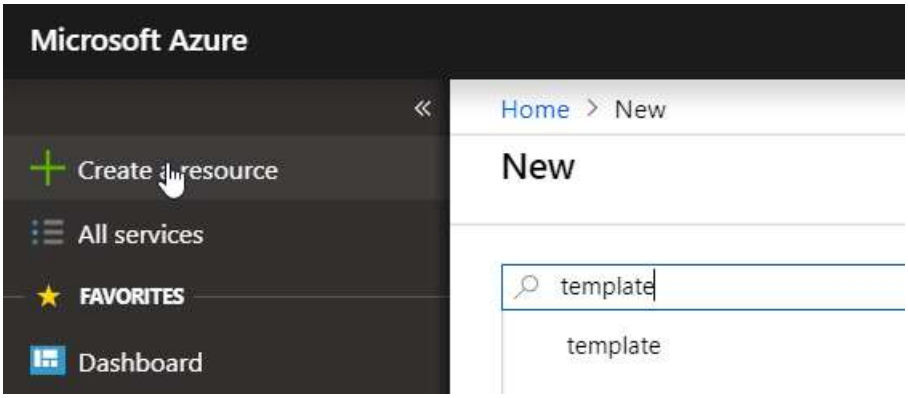
https://github.com/leeej84/Random-Email-Content-Generator

The addon content used by the script can be located here:

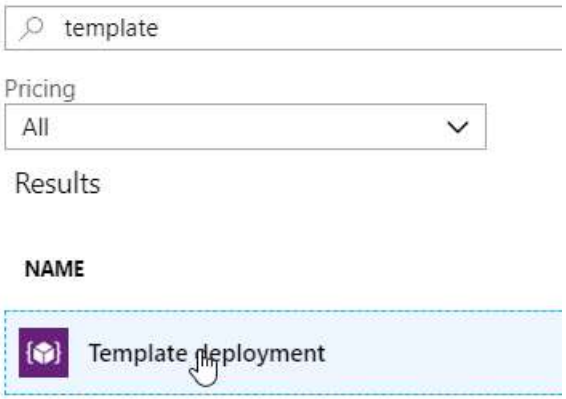
https://www.leeejeffries.com/wp-content/uploads/2018/09/Random_Content.zip

Running Up a Test Environment

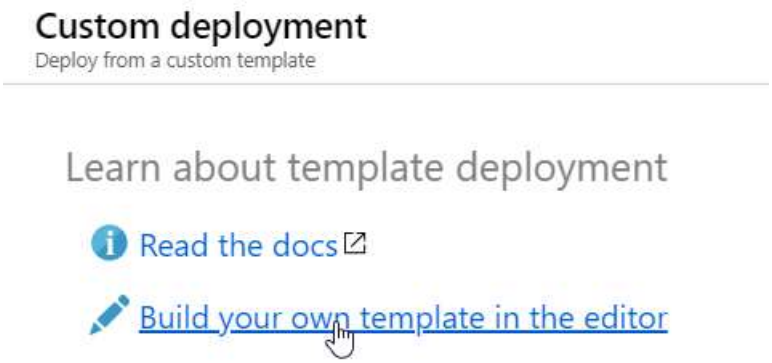
To begin the deployment of the test environment you will need to first login to Azure https://portal.azure.com, select “Create a resource”, type “template” in the search box and press enter.



Select “Template Deployment” from the list and then “Create” on the next prompt.



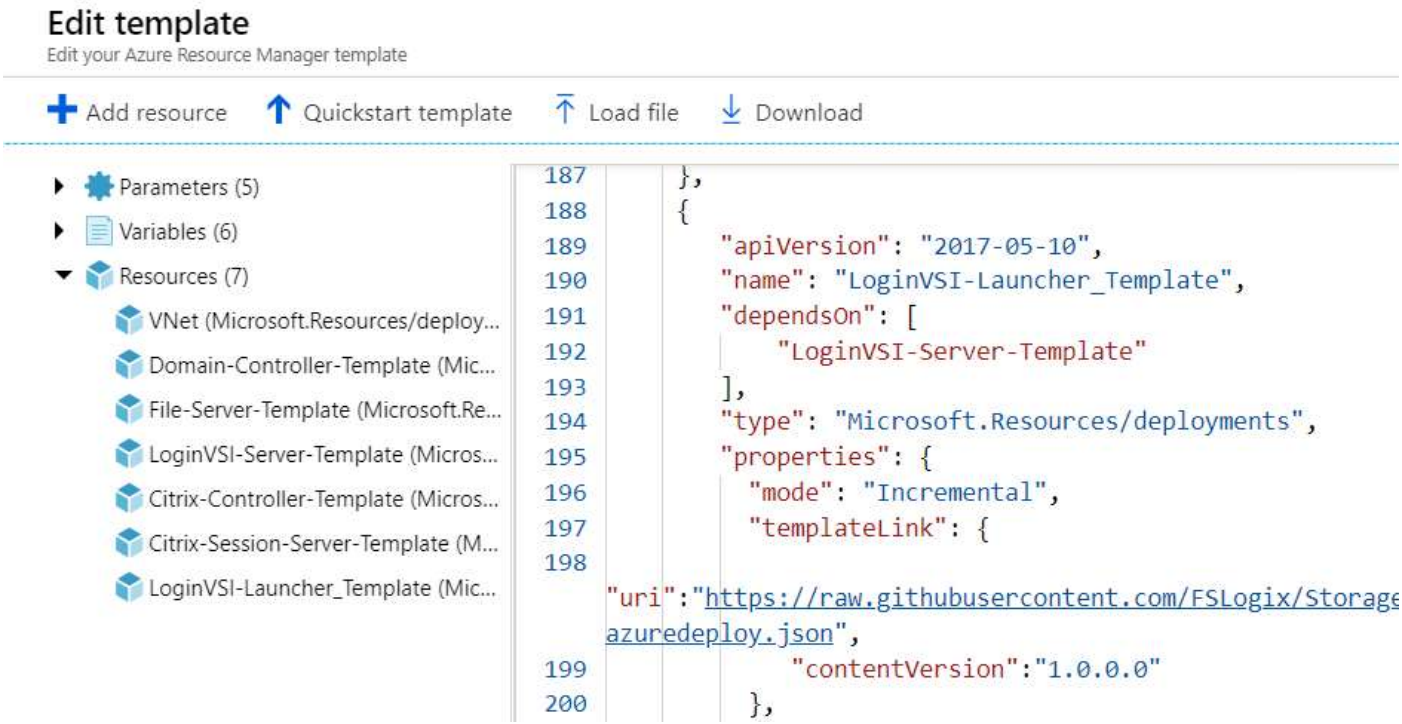
Select “Build your own template in the editor”.



You'll be presented with the editor, open a new browser tab and navigate to here:

https://raw.githubusercontent.com/FSLogix/Storage.Testing/master/Azure-Templates/Draft/controller-main-script-deployment/azuredeploy.json

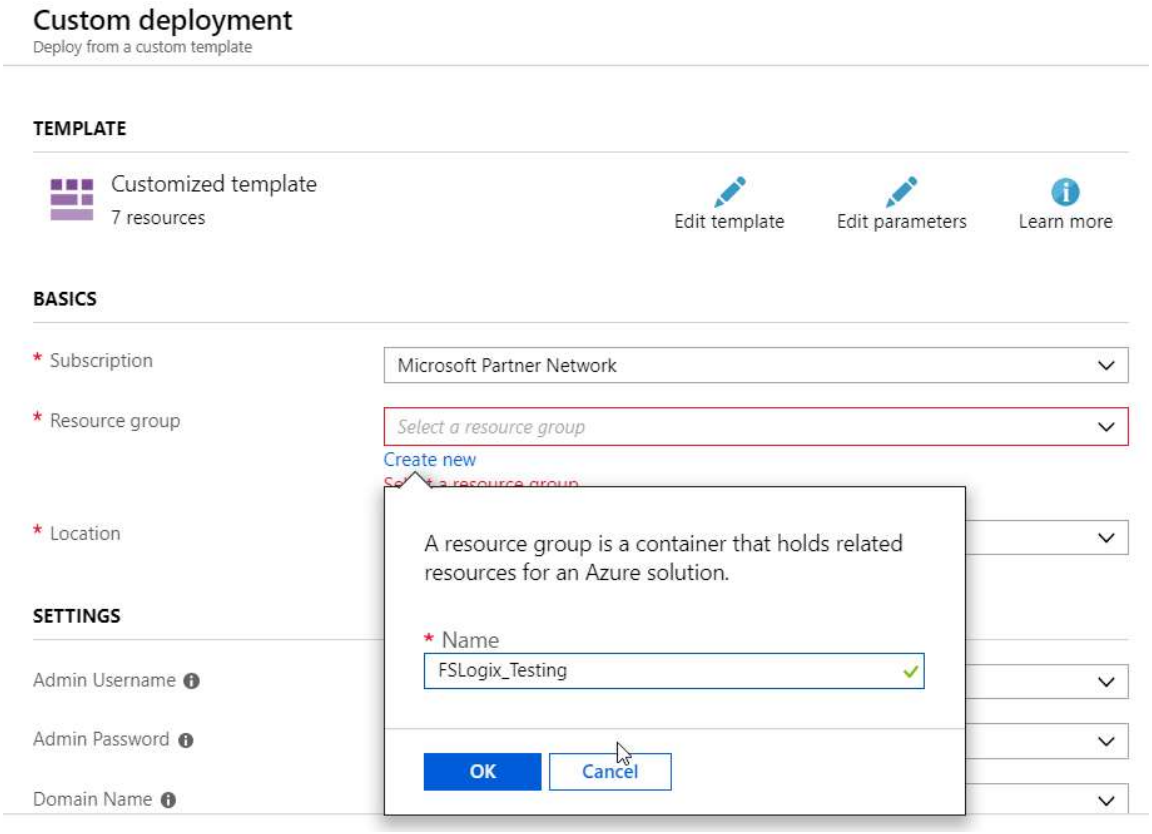
Copy and paste all the content presented and paste it into the Azure Template Editor in the previous tab.



You should end up with a tree on the left-hand side displaying all the components that will be deployed as part of the template.

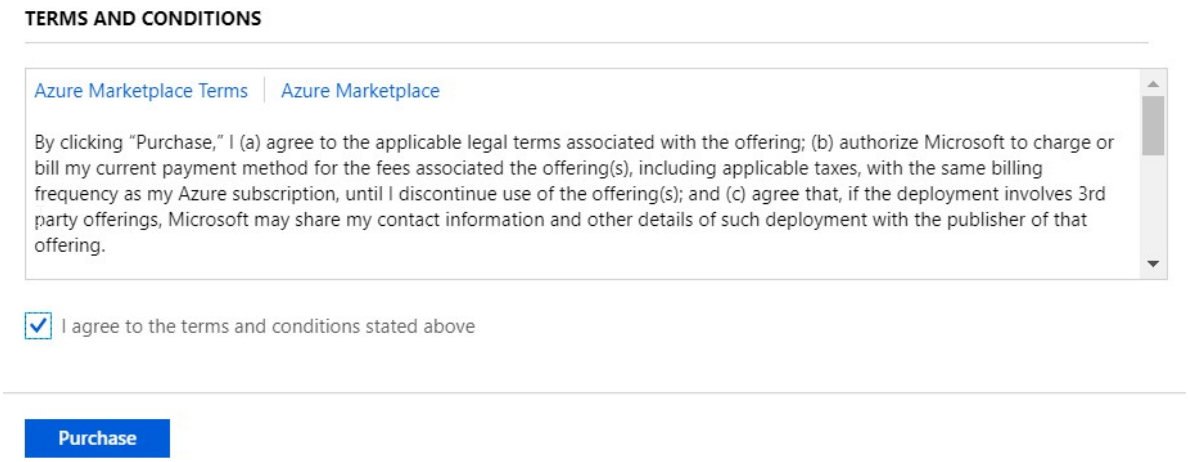
Select "Save" in the bottom left-hand corner.

You will now be asked to put in a Resource Group name.



Create a new resource group and select “OK”.

Scroll to the bottom of the screen and agree to the terms and conditions. Select “Purchase” to kick off the installation.,



Sit back and wait for the environment to be ready.

Note: PowerShell scripts will run for longer than the AzureRM deployment. If you logon and see a process running, please let it finish.

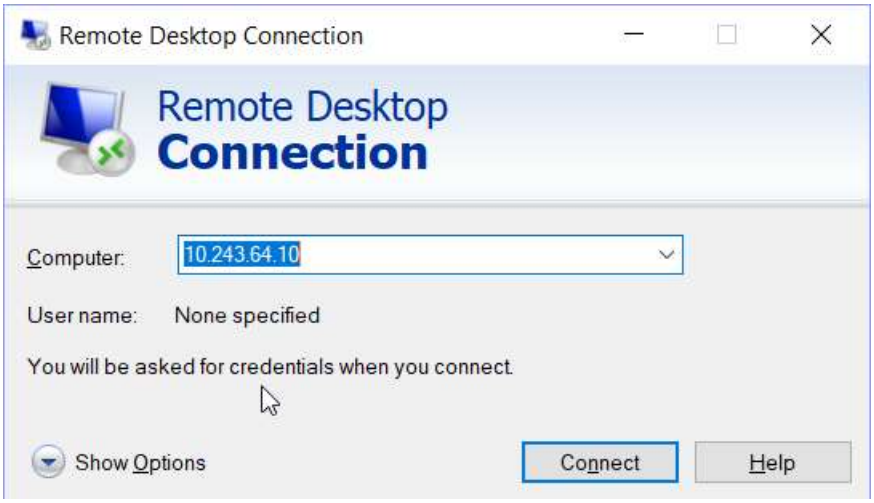
Connecting to the Environment

A remote connection to the environment is provided using a Remote desktop connection to the Domain Controller within the testing environment.

To access this, log in to Azure and select the fsx-dc-01 Virtual Machine, take a copy of the external IP address and login using the external IP.

Username: fsadmin

Password: Password100!



From this virtual machine RDP can be used to access all other servers.

Note: I recommend editing the Network Security Group in Azure to tie access to Remote Desktop down to a specific external IP address if the environment will be running for a long period of time. It's a large security risk to have port 3389 open to the outside world

Manual Steps before Testing

Master Image Preparation

Any applications that you wish to test with are required to be installed on the Master Image Virtual Machine – fsx-vda-tmp.

Fire up this virtual machine and install what is relevant to your organisation, Microsoft Office is a requirement.

Shut this machine down after all software has been installed.

LoginVSI Launcher Preparation

The Citrix VDA is already installed on the LoginVSI Launcher, so this machine can be left powered down.

Machine Catalog Creation

A new hosting connection must be created to connect to AzureRM from Citrix Studio. This can be done through the Citrix Studio snap in on fsx-xdc-01.

Once this is completely move forward to create your Session Servers.

The VDA is configured on the LoginVSI launcher image so that a separate machine catalog can be created for the launchers to be utilised by LoginVSI.

LoginVSI Workload Configuration

The LoginVSI software has been installed but not configured, this can be configured by connecting to fsx-lvsima-01.

For information on further settings visit the LoginVSI documentation page:

https://www.loginvsi.com/documentation/index.php?title=Login_VSI

Group Policy Settings

There are several policies for different test scenarios configured in the environment.

The scenarios currently configured are as follows:

- FSLogix Profile and O365 Container with Search Indexing
- FSLogix Profile and O365 Container without Search Indexing
- FSLogix Profile and O365 Container but with OST files redirected to the network share

Enable or Disabled the necessary Group Policy settings within the Group Policy Management console.