

Team Foundation Server  
on **Azure IaaS**  
Supplement Guide  
for  
TFS Proxy Server

Visual Studio ALM Rangers



Microsoft



Visual Studio

## TFS on Azure IaaS Supplement – Improve performance for remote teams with TFS Proxy Server

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# Improve performance for remote teams with TFS Proxy Server

## Introduction

This addendum is a supplement for the main TFS on Azure IaaS guide, which delivers practical and scenario based guidance for the implementation of Team Foundation Server (TFS) on Azure IaaS.

## Context

In this supplement, we improve performance for remote teams with TFS Proxy Server in the Windows Azure proof of concept instance as introduced in the main guide.

We are creating a TFS Proxy Server in the same subscription as our TFS Farm. This is a choice and you can use a different subscription if you like.

We wrote this walkthrough to use certain objects that we created for the TFS Farm deployment. If you create a TFS Proxy in a different subscription, you will need to duplicate the following objects in that subscription before proceeding:

- DNS Server registration
- Local Area Network

### NOTE

Use this supplement in conjunction with its companion guides “TFS Planning Guide” and TFS on Azure IaaS”.

## What you'll need

- Windows Azure proof of concept instance as introduced in the main guide

## Visual Studio ALM Rangers

*The Visual Studio ALM Rangers provide professional guidance, practical experience and gap-filling solutions to the ALM community.* They are a special group with members from the Visual Studio Product group, Microsoft Services, Microsoft Most Valuable Professionals (MVP) and Visual Studio Community Leads. Membership information is available [online](#)<sup>1</sup>.

## Additional ALM Rangers Resources

Understanding the ALM Rangers – <http://aka.ms/vsarunderstand>

Visual Studio ALM Ranger Solutions – <http://aka.ms/vsarsolutions>

# Walkthrough

## Overview

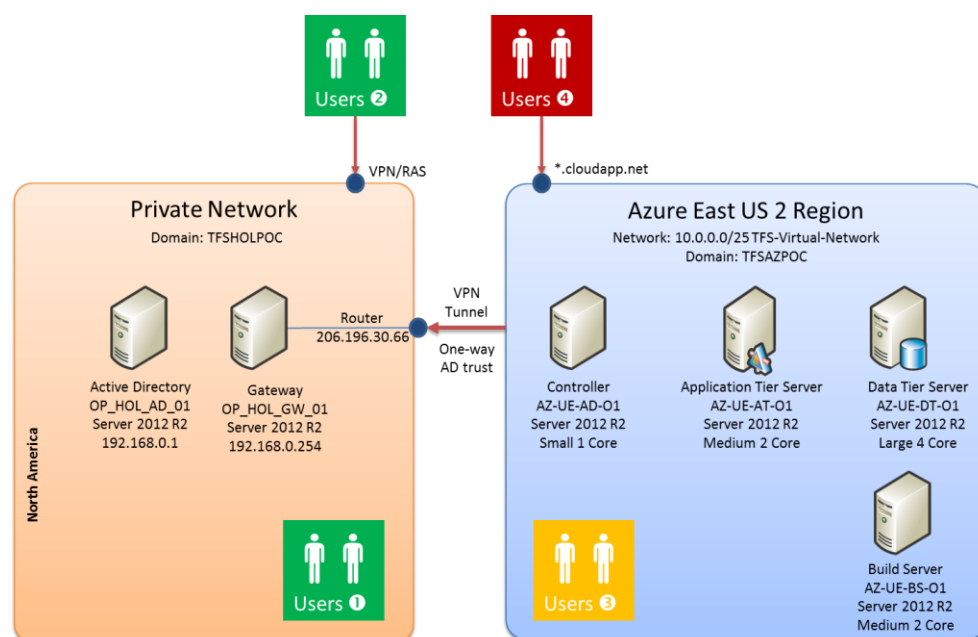


Figure 1 - Proof of concept instance

In this walkthrough, we will add a TFS Proxy in the North Europe region to improve performance for teams in the European region.

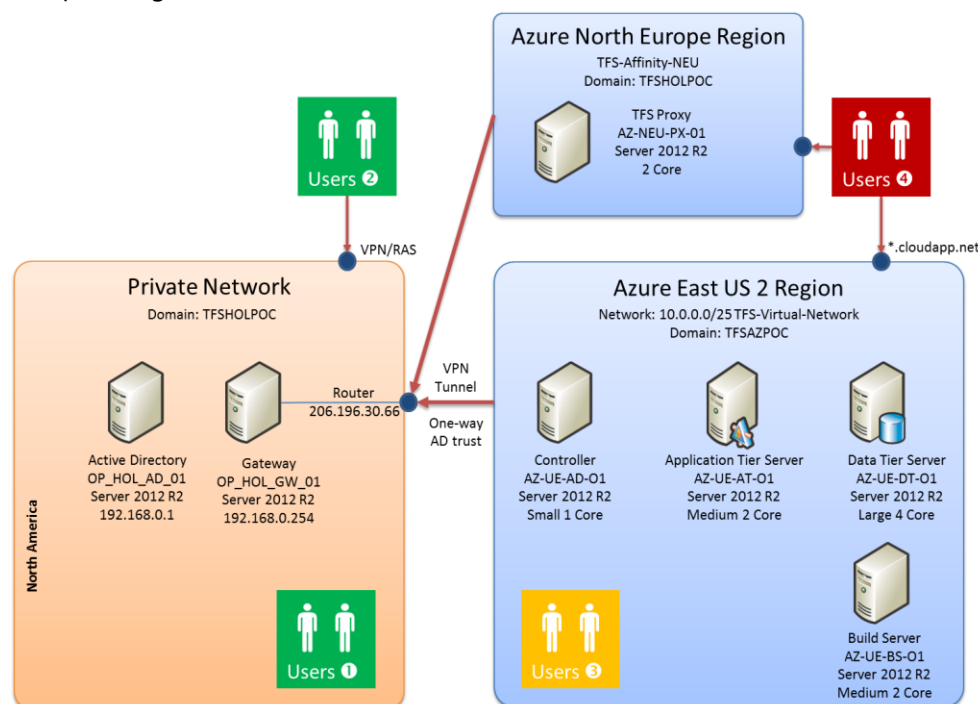
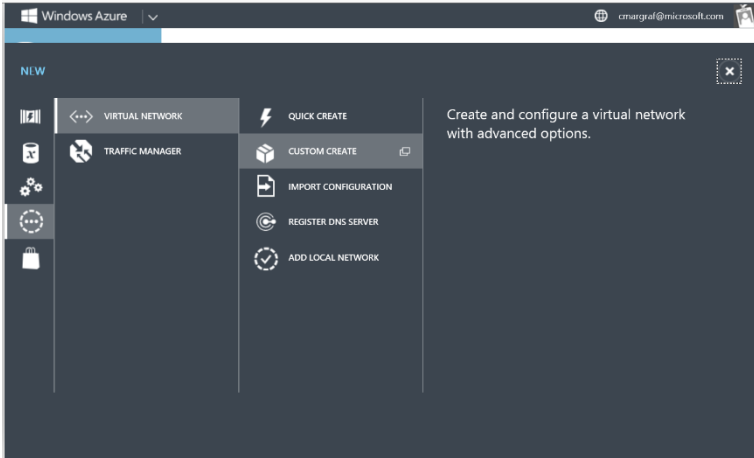
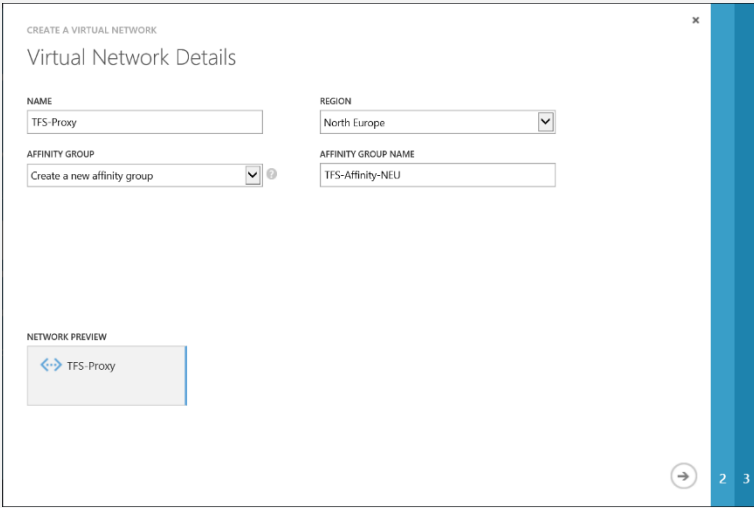


Figure 2 - TFS Proxy in Europe region

## Update the Network

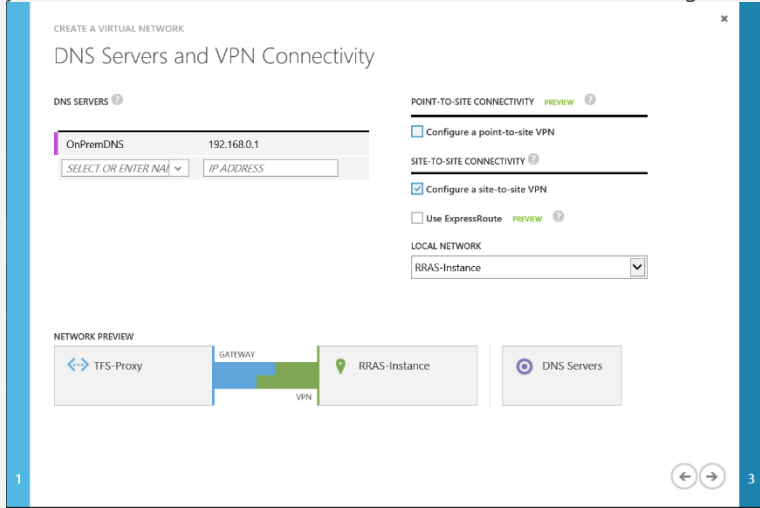
Step	Instructions
1 Create new network for TFS Proxy ☐ - Done	<ul style="list-style-type: none"><li>Create a new virtual network instance by accessing the Custom Create function from the Azure Portal.</li></ul> 
2 Configure network ☐ - Done	<ul style="list-style-type: none"><li>Specify a name for the new virtual network, and select a region. You will create a new affinity group as part of this step.</li></ul> <div><div>NOTE</div><div>Affinity groups are region-specific. Specify a name for the new affinity group.</div></div>  <ul style="list-style-type: none"><li>Click <b>Next</b>.</li><li>Choose your on-premises DNS from the list available, or add the IP of your on-prem DNS.</li></ul>

## TFS on Azure IaaS Supplement – Walkthrough

Step

Instructions

- Check only the box **Configure Site to Site VPN**. Choose your local network. The IP you selected for your DNS server must be available on this network's address range.



CREATE A VIRTUAL NETWORK

### DNS Servers and VPN Connectivity

**DNS SERVERS**

OnPremDNS 192.168.0.1

SELECT OR ENTER NAME IP ADDRESS

**POINT-TO-SITE CONNECTIVITY**

☐ Configure a point-to-site VPN

**SITE-TO-SITE CONNECTIVITY**

☒ Configure a site-to-site VPN

☐ Use ExpressRoute

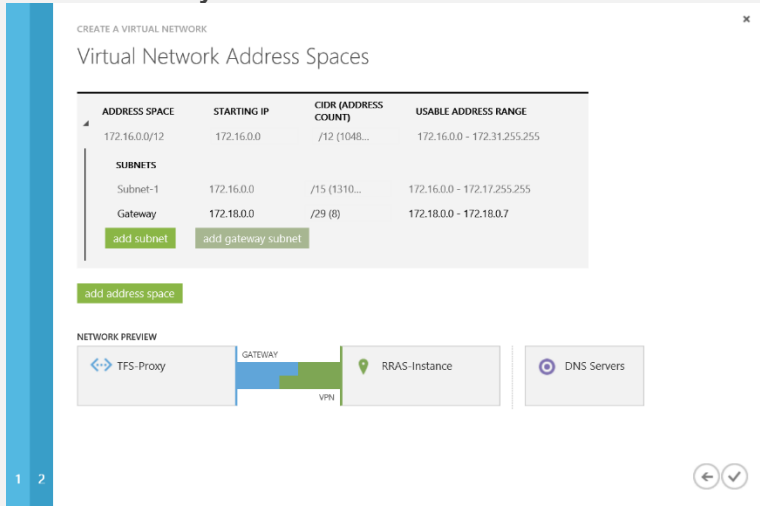
**LOCAL NETWORK**

RRAS-Instance

**NETWORK PREVIEW**

TFS-Proxy GATEWAY VPN RRAS-Instance DNS Servers

- Click **Next**
- Assign a **virtual address space** that is unused. In this case, we are using the 172.16.0.0 range of IPs.
- Click **Add Gateway Subnet**.



CREATE A VIRTUAL NETWORK

### Virtual Network Address Spaces

ADDRESS SPACE	STARTING IP	CIDR (ADDRESS COUNT)	USABLE ADDRESS RANGE
172.16.0.0/12	172.16.0.0	/12 (1048...)	172.16.0.0 - 172.31.255.255

**SUBNETS**

Subnet-1	172.16.0.0	/15 (1310...)	172.16.0.0 - 172.17.255.255
Gateway	172.18.0.0	/29 (8)	172.18.0.0 - 172.18.0.7
<a href="#">add subnet</a>	<a href="#">add gateway subnet</a>		

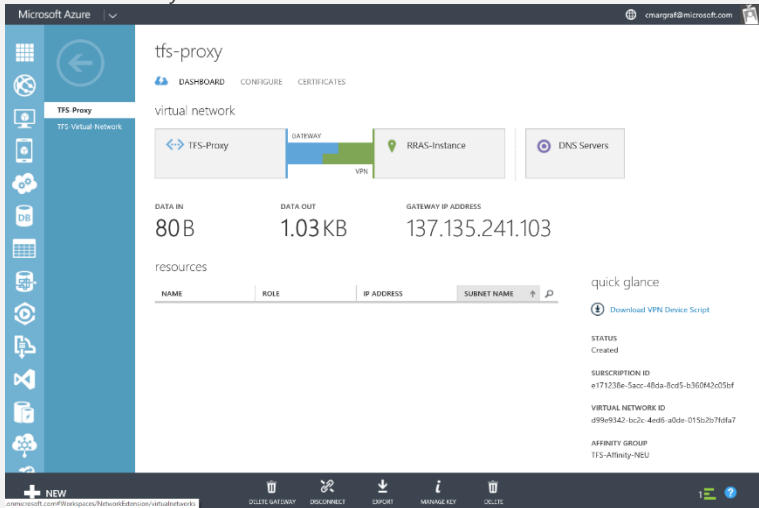
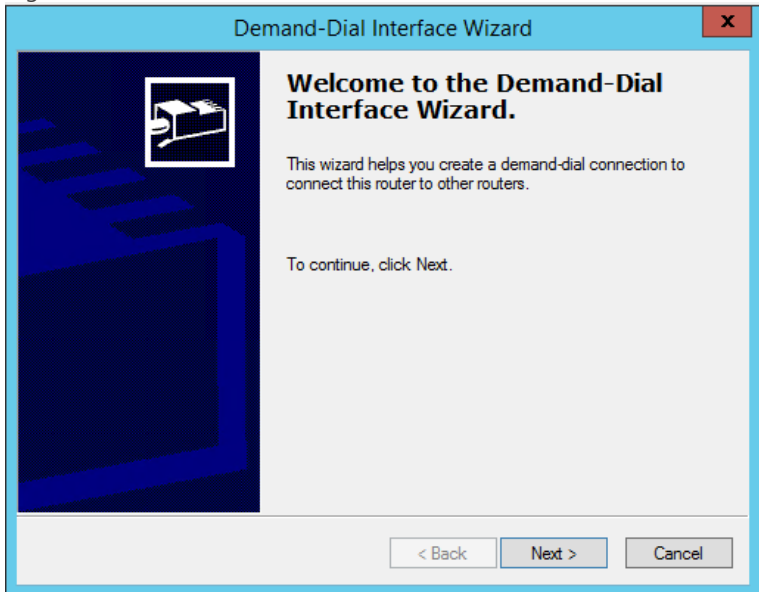
[add address space](#)

**NETWORK PREVIEW**

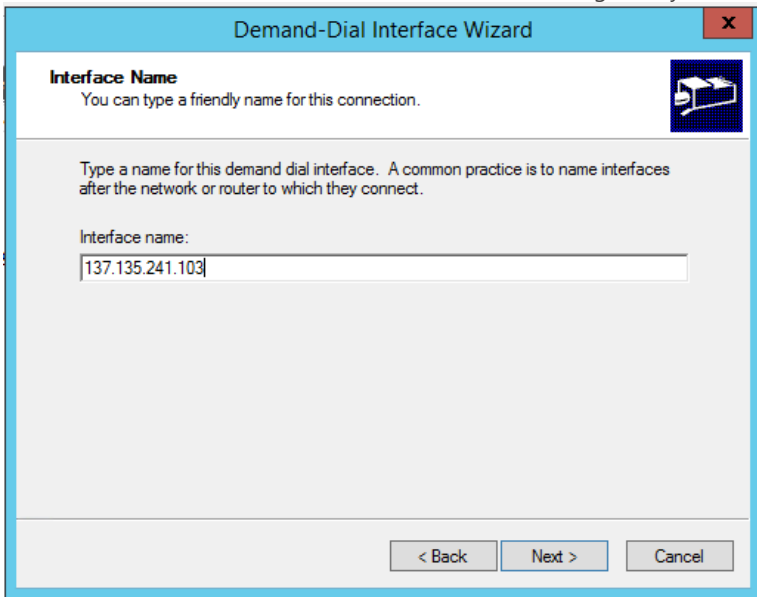
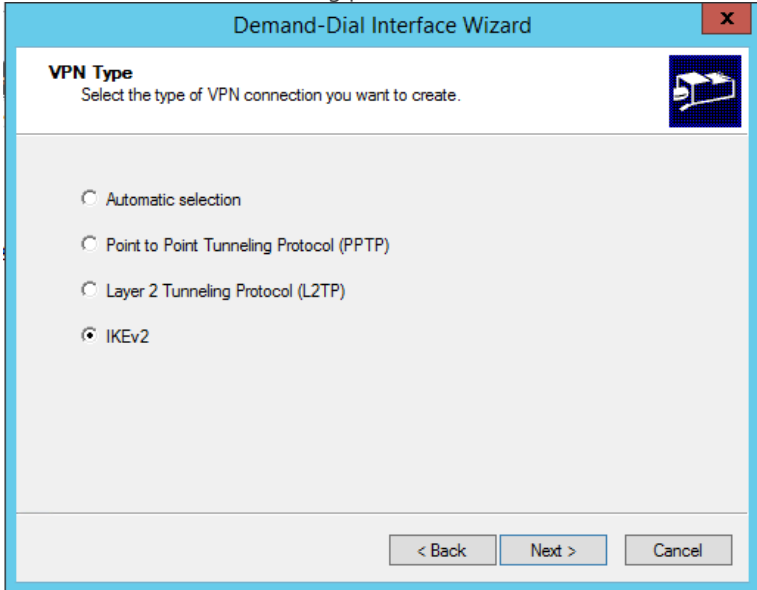
TFS-Proxy GATEWAY VPN RRAS-Instance DNS Servers

- Click **Next** to Finish the Wizard.
- On the Dashboard page for the newly created Virtual Network, click **Create Gateway**.

## TFS on Azure IaaS Supplement – Walkthrough

Step	Instructions
	<ul style="list-style-type: none"> <li>This process will take some time. Once it is complete, you will see the external IP address of the newly created Gateway.</li> </ul> 
<p>3</p> <p>Set-up on-premises gateway</p> <p>☐ - Done</p>	<ul style="list-style-type: none"> <li>Access your Routing and Remote Access Server.</li> <li>Start the <b>Routing and Remote Access Application from Server Manager</b>.</li> <li>Right Click on Network Interfaces and select <b>New Demand Dial Interface</b>.</li> </ul>  <ul style="list-style-type: none"> <li>Click <b>Next</b>.</li> </ul>

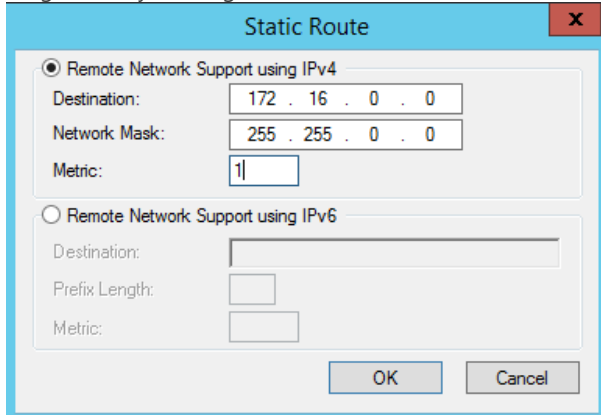


Step	Instructions
	<ul style="list-style-type: none"><li>Enter the external IP address of the new virtual network gateway. See above.<div>The screenshot shows the 'Demand-Dial Interface Wizard' window. The title bar is blue with a close button. The main area has a header 'Interface Name' with a sub-header 'You can type a friendly name for this connection.' Below this is a text box labeled 'Interface name:' containing the IP address '137.135.241.103'. At the bottom are three buttons: '&lt; Back', 'Next &gt;', and 'Cancel'.</div></li><li>Click <b>Next</b>.</li><li>Select <b>IKEv2</b> as the VPN routing protocol.<div>The screenshot shows the 'Demand-Dial Interface Wizard' window at the 'VPN Type' step. The title bar is blue with a close button. The main area has a header 'VPN Type' with a sub-header 'Select the type of VPN connection you want to create.' Below this are four radio button options: 'Automatic selection', 'Point to Point Tunneling Protocol (PPTP)', 'Layer 2 Tunneling Protocol (L2TP)', and 'IKEv2'. The 'IKEv2' option is selected. At the bottom are three buttons: '&lt; Back', 'Next &gt;', and 'Cancel'.</div></li></ul>

## Step

## Instructions

- Enter the starting IP of the virtual network you configured above and the subnet mask that matches the range of IPs you assigned. Enter **1** for **Metric**.



**Static Route**

☒ Remote Network Support using IPv4

Destination: 172 . 16 . 0 . 0

Network Mask: 255 . 255 . 0 . 0

Metric: 1

☐ Remote Network Support using IPv6

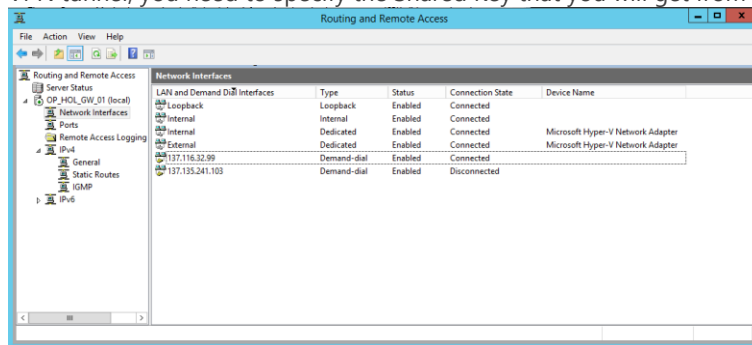
Destination:

Prefix Length:

Metric:

OK Cancel

- Click **OK**.
- The new network interface should display in the list with a status of Disconnected. Before connecting the VPN tunnel, you need to specify the Shared Key that you will get from the Azure Management Portal.



- Select the new Virtual Network from the Azure Management Portal and view the Dashboard.
- Click on **Manage Shared Key** at the bottom of the page.
- Click **Regenerate Key**. Once you regenerate the Key, click the **Copy** button.

## Manage Shared Key

Use this key to configure your local network VPN device to connect to the virtual network.

### MANAGE SHARED KEY

Pw8x4slCplKig4w9VKPYa6YsrJvoNzO

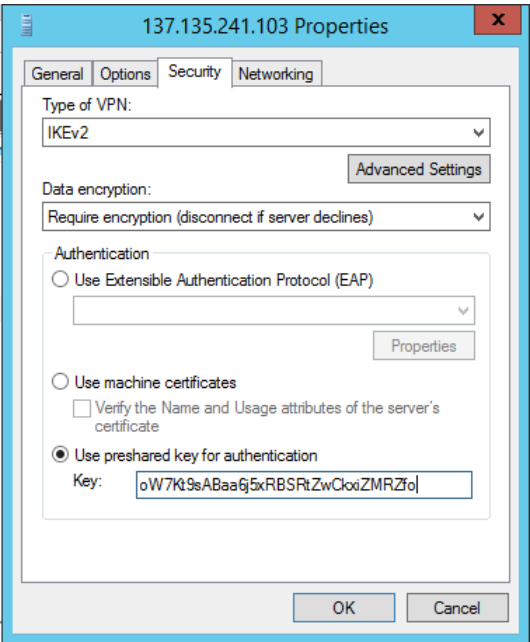
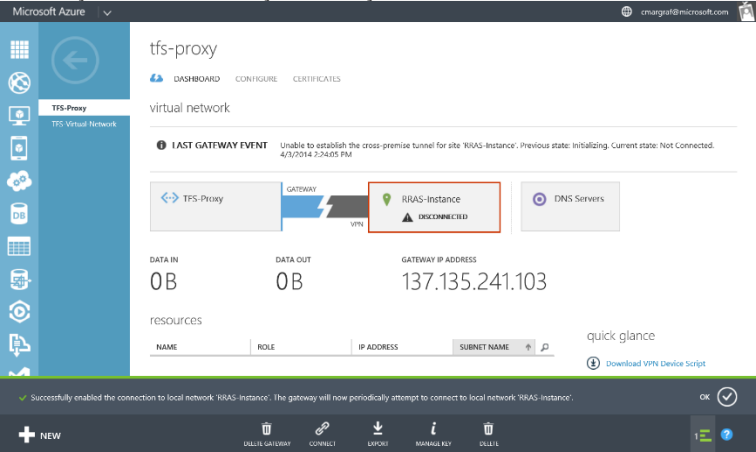


regenerate key



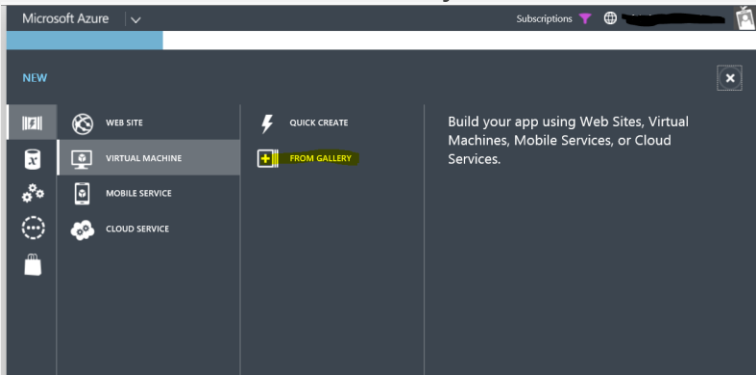
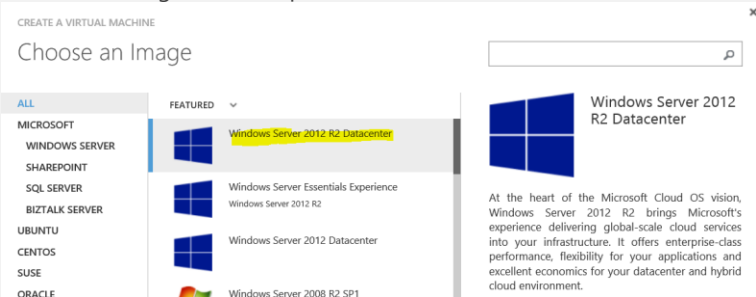
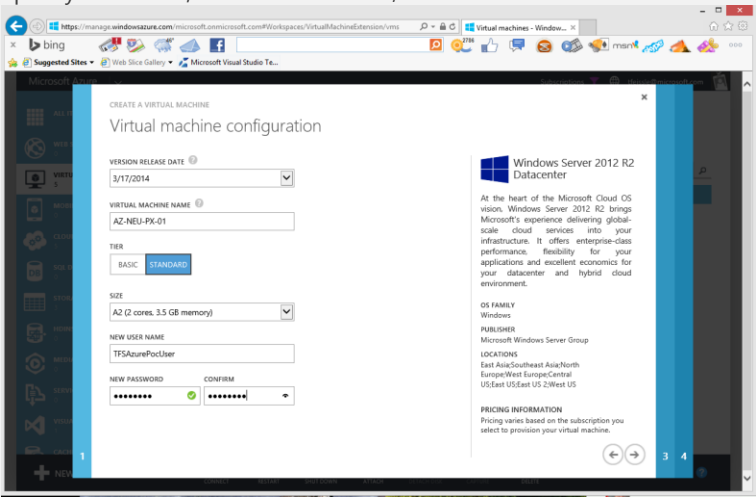
- On the on-premises Routing and Remote Access server, launch **Routing and Remote Access**.
- Right click on the network interface you have just created and select properties. Navigate to the **Security** tab.
- Select **Use a preshared key for authentication**. Paste the shared key value you copied to the clipboard.

## TFS on Azure IaaS Supplement – Walkthrough

Step	Instructions
	<ul style="list-style-type: none"> <li>Click <b>OK</b>.</li> </ul> 
<p>4</p> <p>Connect VPN Tunnel</p>	<ul style="list-style-type: none"> <li>To connect the VPN tunnel, start on the virtual network dashboard and select <b>Connect</b>.</li> <li>You will see a message indicating the gateway was successfully connected, along with the red box indicating disconnected state of the RRAS interface.</li> <li>This is normal! What this is telling you is that your virtual network has successfully connected to the Gateway, but the Gateway has not yet been connected.</li> </ul> 
<p>5</p> <p>Confirm network health</p> <p>☐ - Done</p>	<ul style="list-style-type: none"> <li>Return to Routing and Remote Access on the on-prem server, right-click on the new interface and select <b>Connect</b>.</li> </ul> <div style="background-color: #f4a460; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b> RRAS will probably have attempted connection for you, so you may have to clear a <b>Not Connected</b> dialog. Wait for a short period. You should see the connected state indicator switch to Connected.</p> </div>

**Table 1 – Update the network for the TFS Proxy Server**

# Deploy the TFS Proxy Server

Step	Instructions
1 Overview ☐ - Done	<ul style="list-style-type: none"> <li>Refer to <a href="http://msdn.microsoft.com/en-us/library/ee248710.aspx">How to: Install Team Foundation Proxy and set up a remote site</a><sup>2</sup> before you install and configure the TFS Proxy Server.</li> <li>Make a note of the TFSAzurePocUser credentials and the n-premises domain, i.e. TfsHolPoc.local</li> </ul>
2 Create VM ☐ - Done	<ul style="list-style-type: none"> <li>Select new <b>Virtual Machine, From Gallery</b>.   </li> <li>Choose an image, for example <b>Windows Server 2012 R2 Datacenter</b>.   </li> <li>Specify the <b>name</b>, i.e. AZ-NEU-PX-01, and TfsAzurePocUser credentials.   </li> </ul>
	<div style="background-color: red; color: white; padding: 5px; display: inline-block; font-weight: bold;">WARNING</div> <p>Setting the Region/Proxy to TFS-Proxy is critical!        If you are not in the right network, you will not be able to see the domain server and you will not be able to use the proxy server</p>

<sup>2</sup> <http://msdn.microsoft.com/en-us/library/ee248710.aspx>

## TFS on Azure IaaS Supplement – Walkthrough

### Step

### Instructions

- Refer to section **Update the Network**, page 6, and note the region/affinity group/virtual network setting.
- Select the correct region!

CREATE A VIRTUAL MACHINE

### Virtual machine configuration

**CLOUD SERVICE** ?  
Create a new cloud service

**CLOUD SERVICE DNS NAME**  
AZ-NEU-PX-01 .cloudapp.net

**REGION/AFFINITY GROUP/VIRTUAL NETWORK** ?  
TFS-Proxy

**VIRTUAL NETWORK SUBNETS**  
Subnet-1(172.16.0.0/29)

**STORAGE ACCOUNT**  
Use an automatically generated storage account

**AVAILABILITY SET** ?  
(None)

**ENDPOINTS** ?

NAME	PROTOCOL	PUBLIC PORT	PRIVATE PORT
Remote Desktop	TCP	AUTO	3389
PowerShell	TCP	5986	5986

**Windows Server 2012 R2 Datacenter**

At the heart of the Microsoft Cloud OS vision, Windows Server 2012 R2 brings Microsoft's experience delivering global-scale cloud services into your infrastructure. It offers enterprise-class performance, flexibility for your applications and excellent economics for your datacenter and hybrid cloud environment.

**OS FAMILY**  
Windows

**PUBLISHER**  
Microsoft Windows Server Group

**LOCATIONS**  
East Asia/Southeast Asia/North Europe/West Europe/Central US/East US/East US 2/West US

**PRICING INFORMATION**  
Pricing varies based on the subscription you select to provision your virtual machine.

- Build the VM.

CREATE A VIRTUAL MACHINE

### Virtual machine configuration

**VM AGENT** ?  
☒ Install the VM Agent

**OPTIONAL EXTENSIONS** ?

☐ Puppet Enterprise Agent  
Published by Puppet Labs | [Learn more](#) | [Legal terms](#)

☐ Chef  
Published by Chef Software, Inc. | [Learn more](#) | [Legal terms](#)

**LEGAL TERMS**  
If any third-party extensions have been selected for installation, I acknowledge that I am getting such software from the third-party publishers identified above and that such publishers' legal terms and privacy statements apply to it.

**Windows Server 2012 R2 Datacenter**

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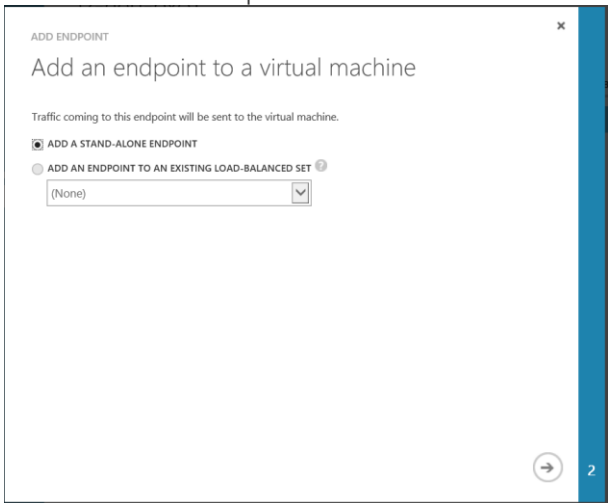
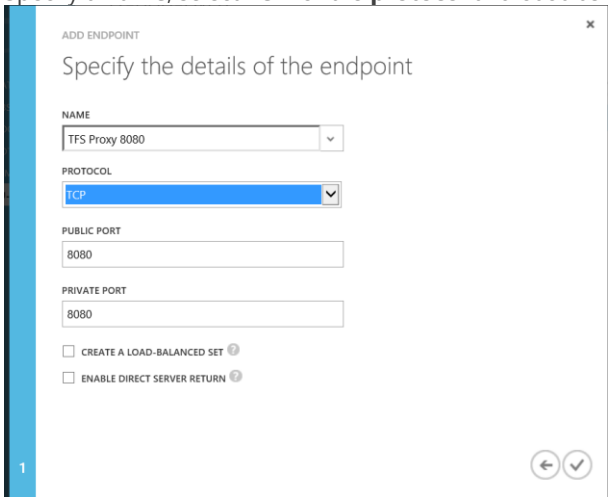
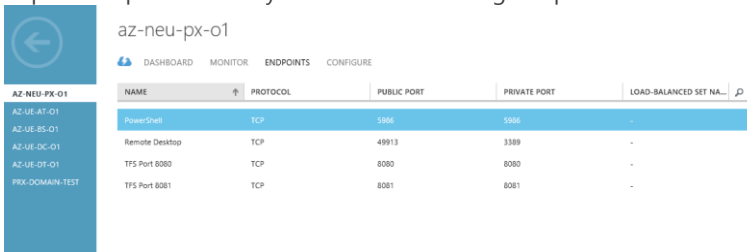
**PRICING INFORMATION**  
Pricing varies based on the subscription you select to provision your virtual machine.

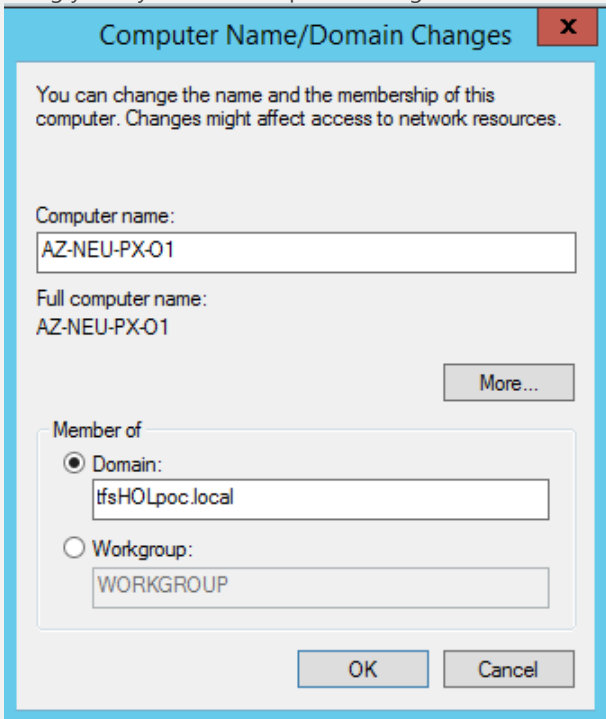
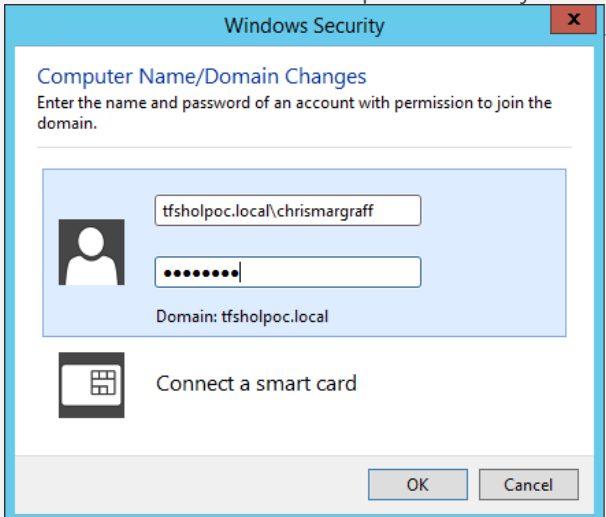
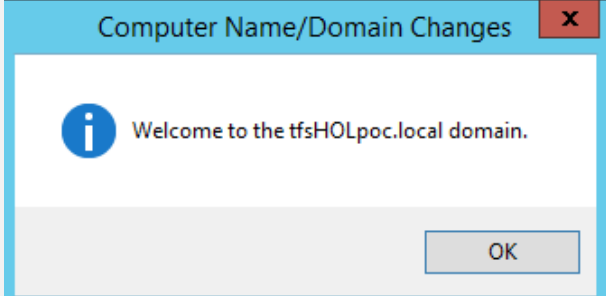
- Check your virtual network: (this is correct)

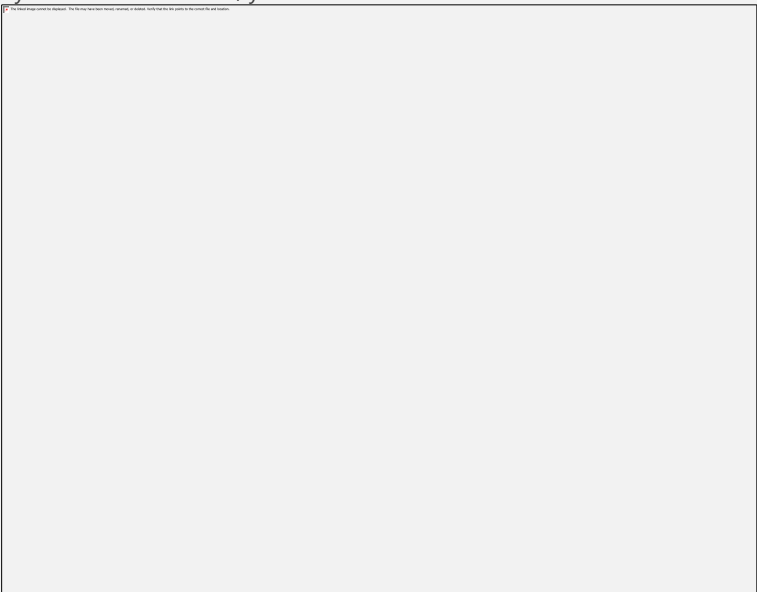
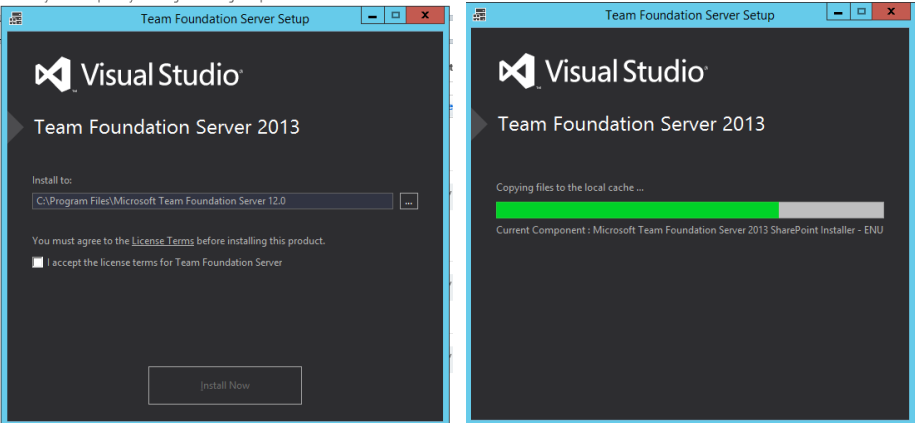
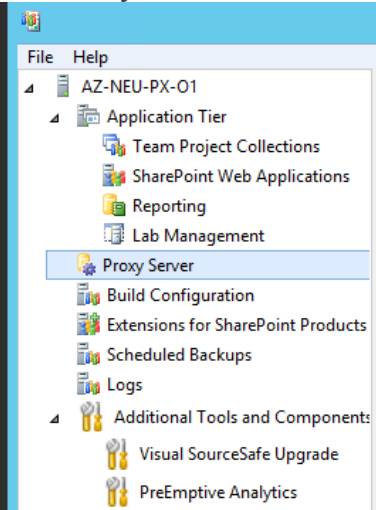
virtual network ?

**VIRTUAL NETWORK**  
TFS-Proxy

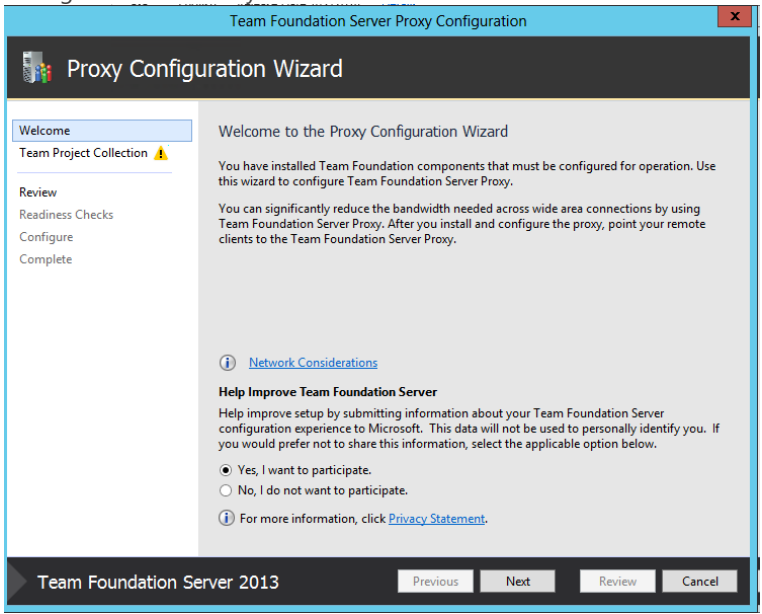
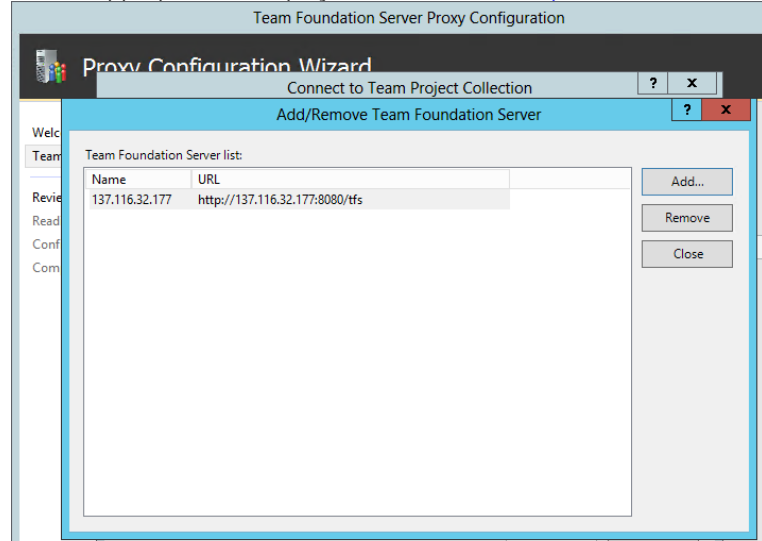
**SUBNET**  
Subnet-1(172.16.0.0/29)

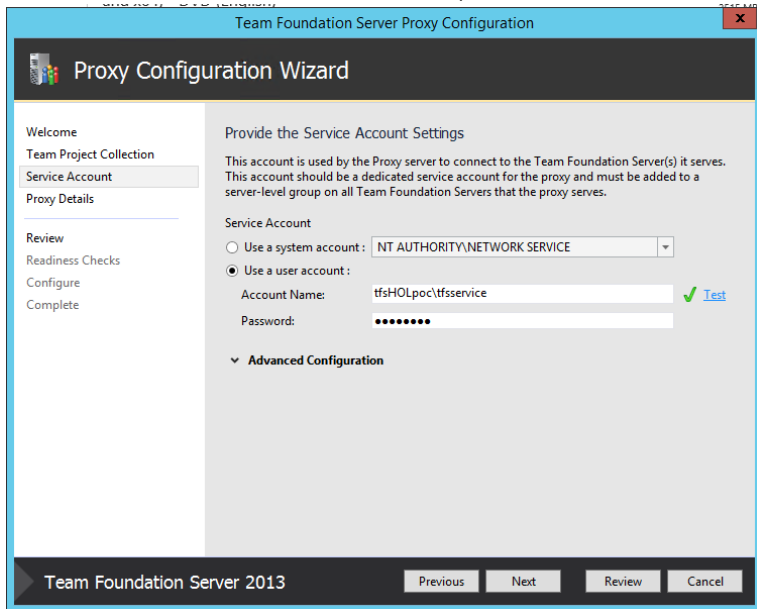
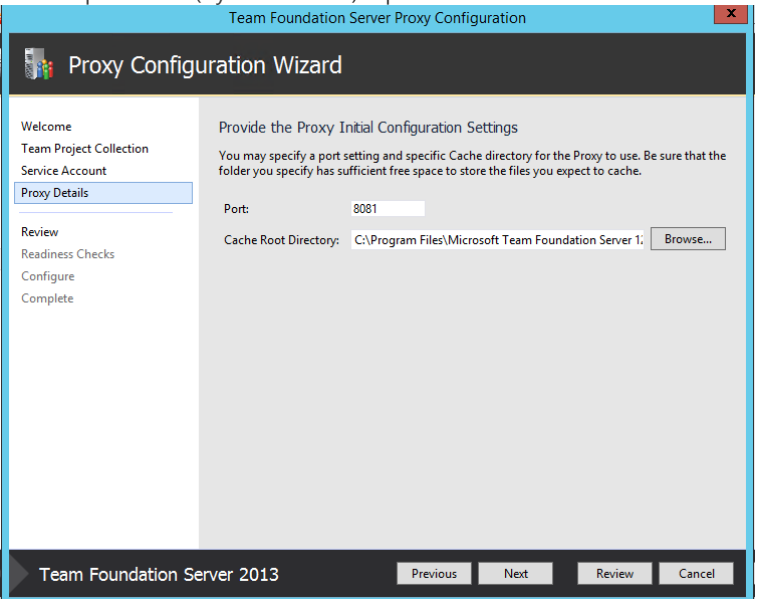
Step	Instructions
3 Add Endpoint ☐ - Done	<ul style="list-style-type: none"> <li>Add a stand-alone endpoint.  </li> <li>Specify a <b>name</b>, select TCP for the <b>protocol</b> and 8080 as the <b>port</b>.  </li> <li>Repeat the process until you have the following endpoints:  </li> </ul>

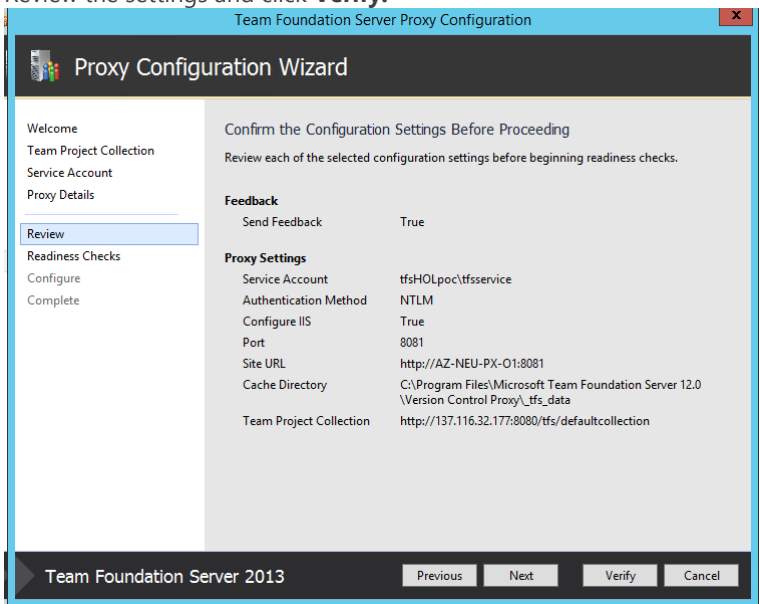
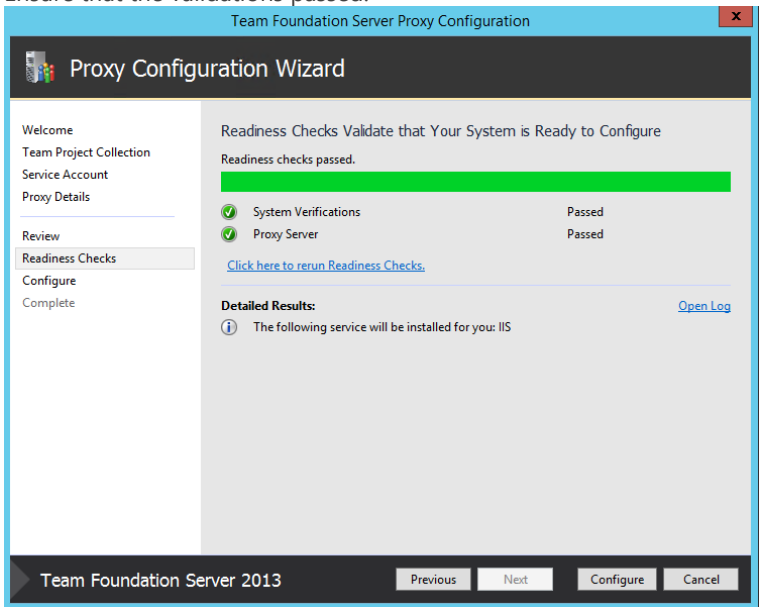
Step	Instructions
4 Join domain ☐ - Done	<ul style="list-style-type: none"><li>Using your System control panel, change the <b>Domain</b> to TfsHolPoc.local.</li></ul>  <ul style="list-style-type: none"><li>Confirm credentials that have the permissions to join the domain.</li></ul>  

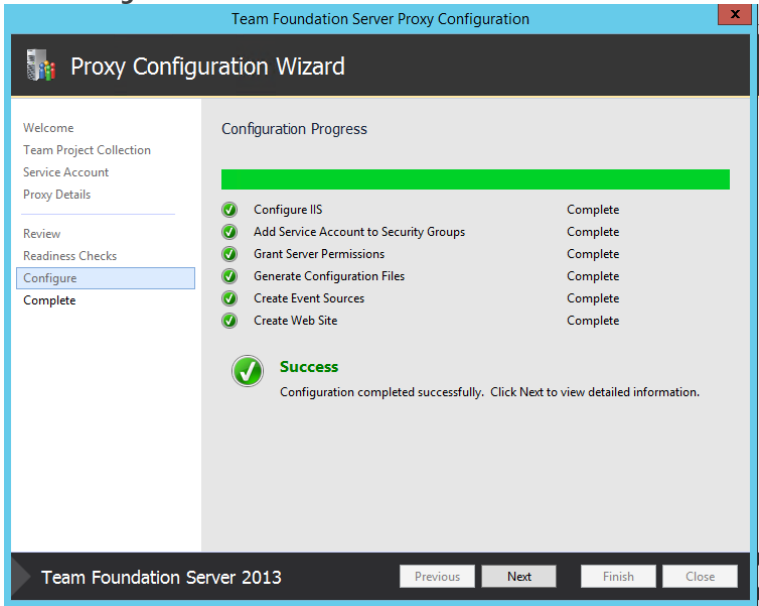
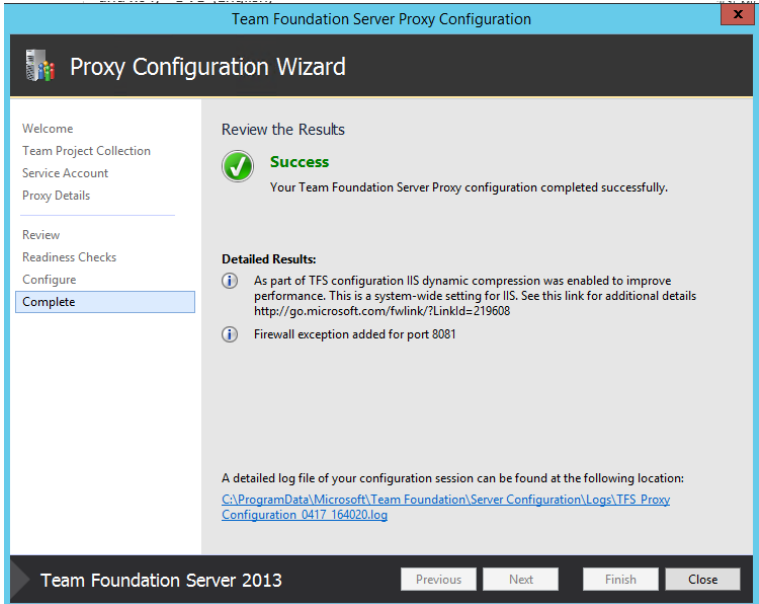
Step	Instructions
	<ul style="list-style-type: none"> <li>If you receive this error, you selected the WRONG network.</li> </ul> 
<p>5</p> <p>Setup TFS</p> <p>☐ - Done</p>	<ul style="list-style-type: none"> <li>Download the TFS 2013 install from MSDN and run the setup.                     <div>  </div> </li> <li>Select <b>Proxy Server</b> in the TFS Administration program.                     <div>  </div> </li> </ul>



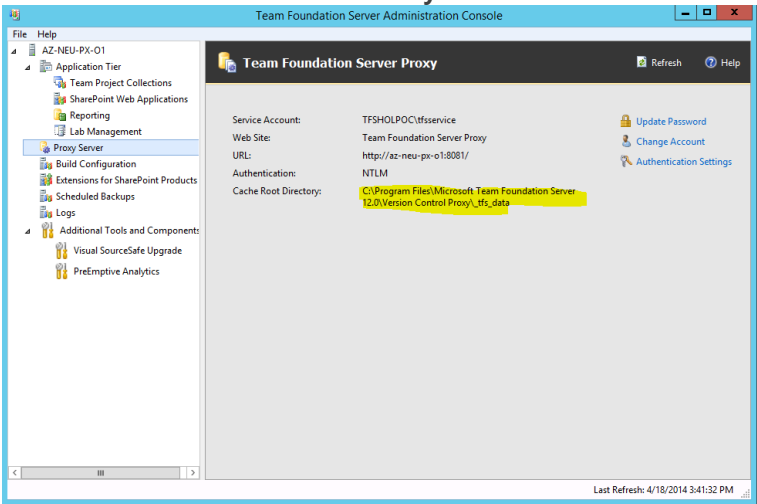
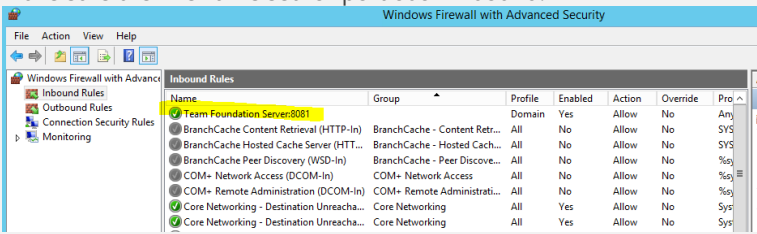
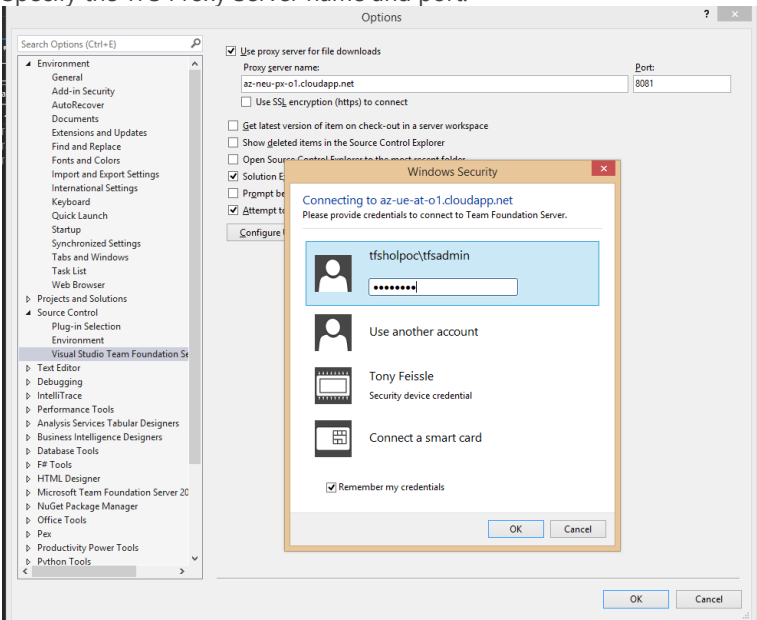
Step	Instructions
	<ul style="list-style-type: none"><li>Configure the TFS Proxy.</li><li>Add the appropriate team project collection, i.e.: <a href="http://az-ue-at-o1:8080/tfs/DefaultCollection">http://az-ue-at-o1:8080/tfs/DefaultCollection</a></li></ul>

Step	Instructions
	<ul style="list-style-type: none"><li>Use the service domain account: TfsHolPoc\TFSService.</li></ul>  <ul style="list-style-type: none"><li>Click the <b>Test</b> link and ensure you get a green check mark.</li><li>Choose port 8081 (by convention) – plus it <b>MUST</b> match the Azure end-point.</li></ul> 

Step	Instructions
	<ul style="list-style-type: none"><li>Review the settings and click <b>Verify</b>.</li></ul>  <ul style="list-style-type: none"><li>Ensure that the validations passed.</li></ul> 

Step	Instructions
	<ul style="list-style-type: none"><li>Click <b>Configure</b>.</li></ul>  <ul style="list-style-type: none"><li>Select <b>Next</b>. All done!</li></ul> 

## TFS on Azure IaaS Supplement – Walkthrough

Step	Instructions
	<ul style="list-style-type: none"> <li>Make a note of the <b>cache root directory</b>.</li> </ul> 
<p>6</p> <p>Setup firewall</p> <p>☐ - Done</p>	<ul style="list-style-type: none"> <li>Make sure the Firewall is set for port 8081 inbound:</li> </ul> 
<p>7</p> <p>Setup client</p> <p>☐ - Done</p>	<ul style="list-style-type: none"> <li>Login to a machine running Visual Studio and optimally located in the region that the TFS Proxy is running in.</li> <li>Start Visual Studio.</li> <li>Select <b>Tools, Options, Source Control, Visual Studio Team Foundation Server</b>.</li> <li>Specify the TFS Proxy Server name and port.</li> </ul> 

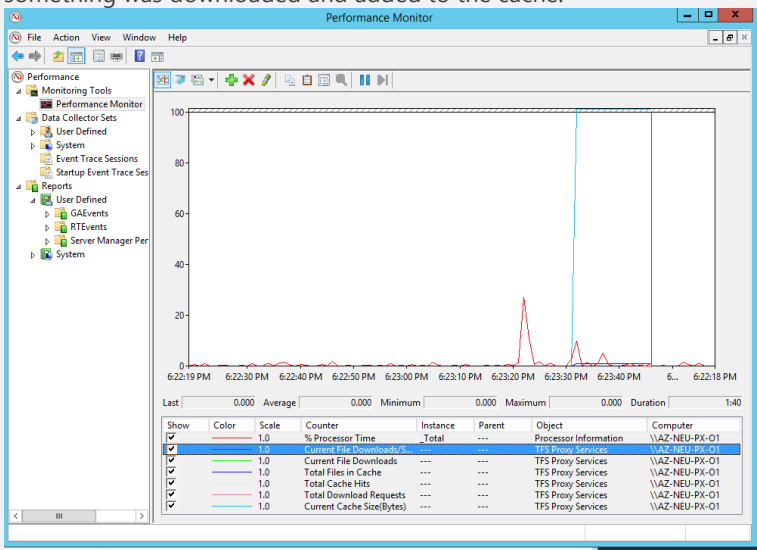
Step	Instructions
8 Monitor proxy directory ☐ - Done	<ul style="list-style-type: none"> <li>Use Performance Monitor to view the TFS Proxy Services object. Note the blue line, which indicates that something was downloaded and added to the cache.</li> </ul>  <ul style="list-style-type: none"> <li>Review the proxy directory, i.e. C:\Program Files\Microsoft Team Foundation Server 12.0\Version Control Proxy\_tfs_data\Proxy.</li> <li>Review the <b>ProxyStatistics.XML</b> file:  <pre>&lt;?xml version="1.0"?&gt; -&lt;ProxyStatistics&gt;   -&lt;Servers&gt;     -&lt;Server&gt;       &lt;Uri&gt;http://137.116.32.177:8080/tfs/defaultcollection/&lt;/Uri&gt;       &lt;ServerId&gt;31e7c21d-fa44-4900-95cf-1a25a0d9b828&lt;/ServerId&gt;       &lt;CurrentCacheSize&gt;16297984&lt;/CurrentCacheSize&gt;       &lt;TotalDownloadRequests&gt;152&lt;/TotalDownloadRequests&gt;       &lt;TotalCacheHits&gt;0&lt;/TotalCacheHits&gt;       &lt;TotalFilesInCache&gt;152&lt;/TotalFilesInCache&gt;     &lt;/Server&gt;   &lt;/Servers&gt; &lt;/ProxyStatistics&gt;</pre> </li> <li>Here it is after some hits:  <pre>&lt;?xml version="1.0"?&gt; -&lt;ProxyStatistics&gt;   -&lt;Servers&gt;     -&lt;Server&gt;       &lt;Uri&gt;http://137.116.32.177:8080/tfs/defaultcollection/&lt;/Uri&gt;       &lt;ServerId&gt;31e7c21d-fa44-4900-95cf-1a25a0d9b828&lt;/ServerId&gt;       &lt;CurrentCacheSize&gt;16355328&lt;/CurrentCacheSize&gt;       &lt;TotalDownloadRequests&gt;484&lt;/TotalDownloadRequests&gt;       &lt;TotalCacheHits&gt;318&lt;/TotalCacheHits&gt;       &lt;TotalFilesInCache&gt;166&lt;/TotalFilesInCache&gt;     &lt;/Server&gt;   &lt;/Servers&gt; &lt;/ProxyStatistics&gt;</pre> </li> </ul>

Table 2 – Deploy the TFS Proxy Server