Installation Guide on Cloud Platform

Appeon® for PowerBuilder® 2015

FOR WINDOWS

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Contents

1 About This Book

1.1 Audience

This book is for users who want to quickly install and configure Appeon Server on the cloud platform including Windows Azure and Amazon Web Services.

1.2 How to use this book

There are five chapters in this book.

Chapter 1: About This Book

A general description of this book.

Chapter 2: Installing Appeon Server and Application

Instructions for installing Appeon Server and Appeon application on the cloud platform.

Chapter 3: Configuring Cluster for Cloud Server

Instructions for configuring Appeon Server Cluster on the cloud platform.

Chapter 4: A Simple Guide to Windows Azure

Instructions for creating an Windows Azure virtual machine instance.

Chapter 5: A Simple Guide to AWS EC2 and S3

Instructions for creating an Amazon EC2 instance and uploading file packages to Amazon S3 via AWS Management Console.

1.3 Related documents

Appeon provides the following user documents to assist you in understanding Appeon for PowerBuilder and its capabilities:

- Introduction to Appeon:

  Gives general introduction to Appeon for PowerBuilder and its editions.

- Getting Started (for Appeon Mobile):

  Guides you though installing PowerBuilder and Appeon for PowerBuilder, and developing and deploying a mobile application.

- New Features Guide:

  Introduces new features and changes in Appeon for PowerBuilder.

- Appeon Mobile Tutorials:

  Gives instructions on deploying, running, and debugging the mobile application, distributing native mobile apps, and configuring the Appeon Server cluster.

- Appeon Mobile (Offline) Tutorials:

  Gives instructions on setting up the Appeon Mobile (Offline) environment, and configuring, deploying, running, updating, and debugging the offline application.

- Appeon Installation Guide:

  Provides instructions on how to install Appeon for PowerBuilder successfully.

- Installation Guide on Cloud Platform:

  Provides instructions on how to install Appeon for PowerBuilder on the cloud-based platform such as Windows Azure and AWS EC2 and S3.

- Mobile UI Design & Development Guide:

  Introduces general guidelines on designing and developing the mobile app and UI.

- Migration Guidelines for Appeon Web:

  A process-oriented guide that illustrates the complete diagram of the Appeon Web migration procedure and various topics related to steps in the procedure, and includes a tutorial that walks you through the entire process of deploying a small PowerBuilder application to the Web.

- Supported PB Features:

  Provides a detailed list of supported PowerBuilder features which can be converted to the Web/Mobile with Appeon as well as which features are unsupported.

- Appeon Developer User Guide:

  Provides instructions on how to use the Appeon Developer toolbar in Appeon for PowerBuilder.

- Workarounds & API Guide:

  Provides resolutions for unsupported features and various APIs to facilitate you to implement the features (including Web and mobile) that are not easy or impossible to implement in the PowerBuilder IDE.

- Appeon Workspace User Guide:

  Gives a general introduction on Appeon Workspace and provides detailed instructions on how to use it.

- Appeon Server Configuration Guide:

  Provides instructions on how to configure Appeon Server Monitor, establish connections between Appeon Servers and database servers, and configure AEM for maintaining Appeon Server and the deployed applications.

- Web Server Configuration Guide:

  Describes configuration instructions for different types of Web servers to work with the Appeon Server.

- Troubleshooting Guide:

  Provides information on troubleshooting issues; covering topics, such as product installation, application deployment, AEM, and Appeon application runtime issues.

- Appeon Performance Tuning Guide:

  Provides instructions on how to modify a PowerBuilder application to achieve better performance from its corresponding Web/mobile application.

- Testing Appeon Web Applications with QTP:

  Provides instructions on how to test Appeon Web applications with QTP.

1.4 If you need help

If you have any questions about this product or need assistance during the installation process, access the Technical Support Web site at http://www.appeon.com/support.

2 Installing Appeon Server and application

2.1 Supported cloud platform

Appeon Server can run on any of the following cloud platforms to provide a cloud computing environment for the deployed applications:

- Windows Azure
- Amazon Web Services
- RackSpace Cloud

This help also provides simple guidance to quickly get started with the Windows Azure and Amazon Web Services cloud platforms. If you are interested, you can find the instructions in Appendix A, *A Simple Guide to Windows Azure* and Appendix B, *A Simple Guide to AWS EC2 and S3*.

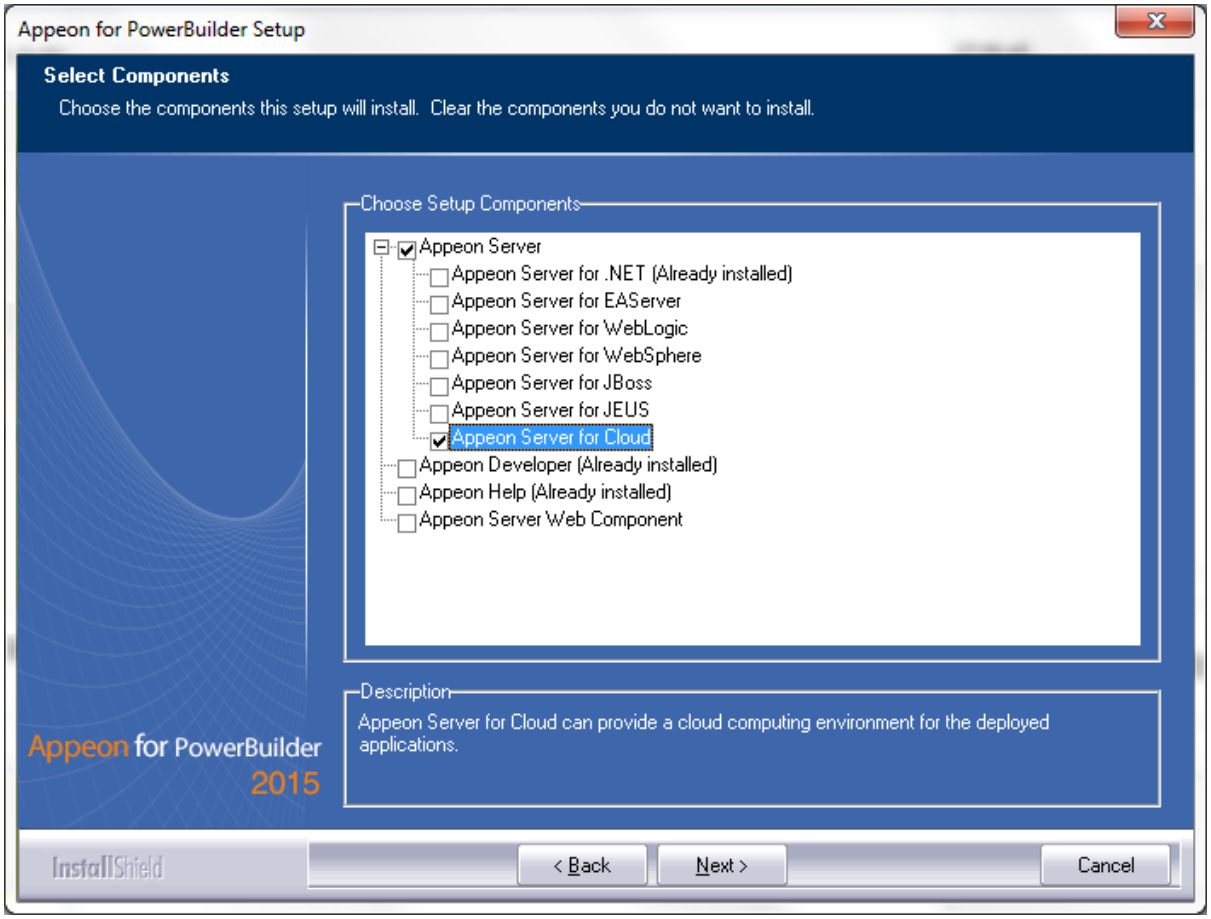
2.2 Cloud system requirements

The cloud platform that will host the Appeon Server must meet the system requirements for Appeon Server. For detailed information, please refer to Installation Guide for .NET for the corresponding application server type.

2.3 Preparing the Appeon Server setup package

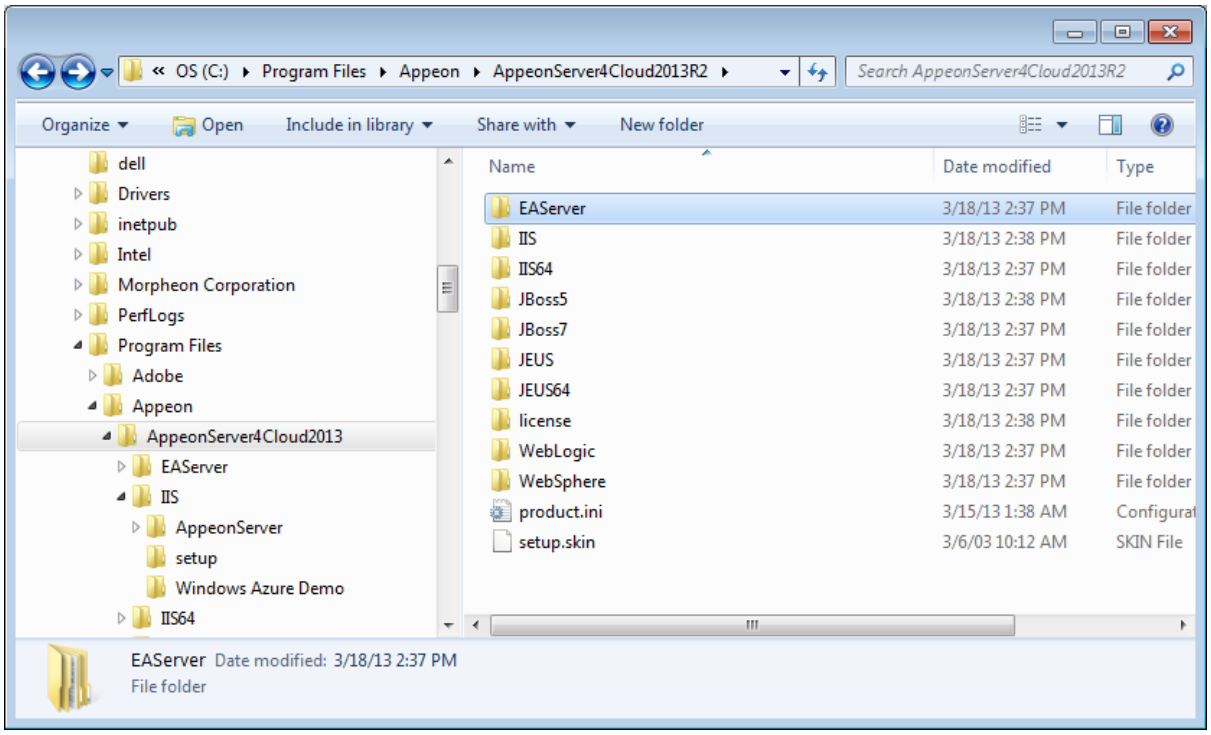
Appeon provides a silent setup package for the cloud platform. You will need to run the **Appeon for PowerBuilder Setup** program to obtain this silent setup package first. Follow the instructions in Installation Guide for .NET to get to the following screen. Under the **Appeon Server** component, select **Appeon Server for Cloud**, as shown in the following figure.

Figure 2.1: Appeon Server for Cloud



After installing **Appeon Server for Cloud**, you can find the following folders in %appeon% \AppeonServer4Cloud2015. Each folder contains the silent setup package (**setup** sub-folder) and the Appeon Server file package (**AppeonServer** sub-folder). You will need to upload these file packages to the cloud server later.

Figure 2.2: Appeon Server for Cloud folder



2.4 Preparing the Appeon application package

The silent setup package can not only install the Appeon Server on the cloud platform but also install the Appeon application. Therefore, you can prepare an Appeon application package by using the **Appeon Application Package Wizard** from the **Appeon Developer Toolbar**. For detailed instructions, refer to Chapter 11, *Packaging Applications* in *Appeon Developer User Guide*.

After the application is successfully packaged, an **%appname% install** folder is created. Compress the folder into a zip file, for example, **pet_world install.zip**. **Note:** The package must be a compressed file with .zip extension. You will need to upload it to the cloud server later.

2.5 Uploading files to cloud server

You will need to upload the following file packages to the cloud server:

- Silent setup package: the **setup** folder under the *%appeon%\AppeonServer4Cloud2015\ %servertype%* directory.
- Appeon Server file package: the **AppeonServer** folder under the *%appeon% \AppeonServer4Cloud2015\%servertype%* directory.
- Application package: the package created via **Appeon Application Package Wizard** from the **Appeon Developer Toolbar** and compressed in the ZIP file extension.

2.6 Configuring & running the silent installation

You will need to configure the silent setup package according to the specific cloud platform.

In the **setup** folder, open **AppConfig.xml** and modify relevant contents according to the actual needs. **AppConfig.xml** is the configuration file of the silent setup package. It is mainly used to configure the installation of Appeon Server and the Appeon application.

Configuration for Appeon Server installation:

- (For .NET IIS) Specify the Web site where Appeon Server will be installed to:

  You can specify an existing Web site, or create a new one. To install Appeon Server to an existing Web site, you only need to specify the port number. For example, to install to the default Web site with port number 80, the script is similar to below:

  ```
  <Website port="80"></Website>
  ```

  To create a Web site and install Appeon Server to this new Web site, you will need to specify the name, port and path for the new Web site, as shown below. Appeon Server will be installed to the Web site after it is created.

  ```
  <Website name="site_1" port="81" path="c:\inetpub\wwwroot"></Website>
  ```

- (For J2EE server) Specify the server instance where Appeon Server will be installed to:

  You will need to specify the server type, the server home path, the server instance path, the server startup command, the firewall port, and AEM URL. The server type can be any number from 1 to 8: 1 for EAServer 5.x, 2 for EAServer 6.2, 3 for EAServer 6.3, 4 for JBoss 5, 5 for JBoss 7, 6 for JEUS, 7 for WebLogic, and 8 for WebSphere.

- Specify the storage type and the location of the Appeon Server file package:

  To install Appeon Server, you will need to specify the storage type and where the Appeon Server file package (the **AppeonServer.zip** file under the **AppeonServer** folder) is stored. There are three storage types on the cloud platform:

  - **LocalStorage**: indicates that the file is stored in the local directory of the Cloud virtual machine instance.

    LocalStorage supports all these three cloud platforms: AWS, Windows Azure and Rackspace cloud.

  - **AWSStorage**: indicates that the file is stored in Amazon Simple Storage Service (Amazon S3).

    AWSStorage only supports AWS cloud platform.

  - **AzureStorage**: indicates that the file is stored in a Blob container of Windows Azure. The advantage of storing files in a Blob container over the local storage is that you only need to upload the file once, and then access it from any other Windows Azure virtual machines.

    AzureStorage only supports Windows Azure cloud platform.

  You must ensure that the Appeon Server file package has been uploaded to the corresponding location, and then set the storage type to the following value: 0, 1, or 2, which represents the local storage, Amazon S3, and Windows Azure Blob respectively. After you set the storage type, you will need to specify more details about the storage. For

example, if the Appeon Server file package is stored in the local directory, the script is similar to below:

```
<AppeonServerFileLocation storageType="0">
<LocalStorage path="C:\Appeon\AppeonServer\AppeonServer.zip"></LocalStorage>
</AppeonServerFileLocation>
```

Configuration for Appeon application installation:

- Specify the storage type and the location of the Appeon application package:

  To install the Appeon application, you will need to specify the storage type and where the Appeon application package is stored. You can follow the instructions for specifying the storage type and the location of the Appeon Server file package.

- Specify the name of the Appeon application deployment which can be any text.

- Specify the deployment state which can be either of following values:

  - **deploy**: Deploys the Appeon application no matter it is deployed or not.

  - **deployed**: Indicates that the Appeon application has been deployed successfully, therefore, the setup program will not install this Appeon application again.

  Following is the sample configuration to deploy an Appeon application:

```
<ApplicationDeployment name="pet_world" storageType="0" deploymentState="deploy">
<LocalStorage path="C:\Appeon\pet_world_install.zip"></LocalStorage>
</ApplicationDeployment>
```

- Configure the deployment type depending on whether Web server and Appeon Server are on the same machine or not.

  - **WebServerOnly**: Deploys the application files to the Web server only. Set the deployment type to **WebServerOnly** if you deploy to the machine installed with Web Server only, for example, in an Appeon cluster environment.

  - **AppeonServerOnly**: Deploys the application data to the Appeon Server only. Set the deployment type to **AppeonServerOnly** if you deploy to the machine installed with Appeon Server only, for example, in an Appeon cluster environment.

  - **Both**: Deploys the application files to the Web server and the application data to the Appeon Server. Set the deployment type to **Both** if you deploy to the machine installed with both Appeon Server and Web server, for example, in a non-cluster environment.

  For example, to set the deployment type to **WebServerOnly**:

```
<DeploymentParameters>
<DeploymentParameter name="deploymentType" value="WebServerOnly"/>
</DeploymentParameters>
```

After configuring the **AppConfig.xml** file, execute the **setup.exe** program under the same folder. Appeon Server and the Appeon application will be installed in the silent mode according to the configuration in the **AppConfig.xml** file.

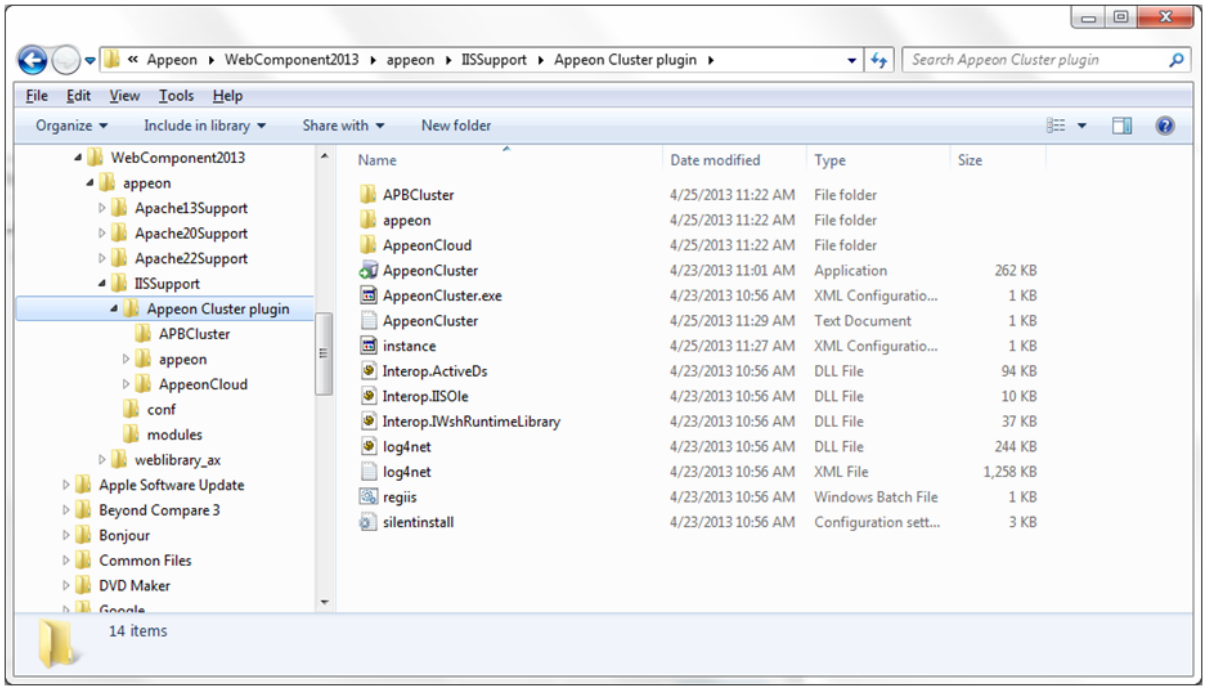
3 Configuring Cluster for Cloud Server

3.1 Installing Appeon Cluster Plug-in

Step 1: Get the Appeon cluster plug-in installation package.

After you install **Appeon Server Web Component**, you can find the **Appeon Cluster plugin** folder under the **WebComponent2015\appeon\IISSupport** directory, and this folder is the Appeon cluster plug-in installation package, as shown in the following figure.

Figure 3.1: Appeon Cluster plugin



Step 2: Copy the **Appeon Cluster plugin** folder to the Web server in the cluster, and then double-click **AppeonCluster.exe** under this folder.

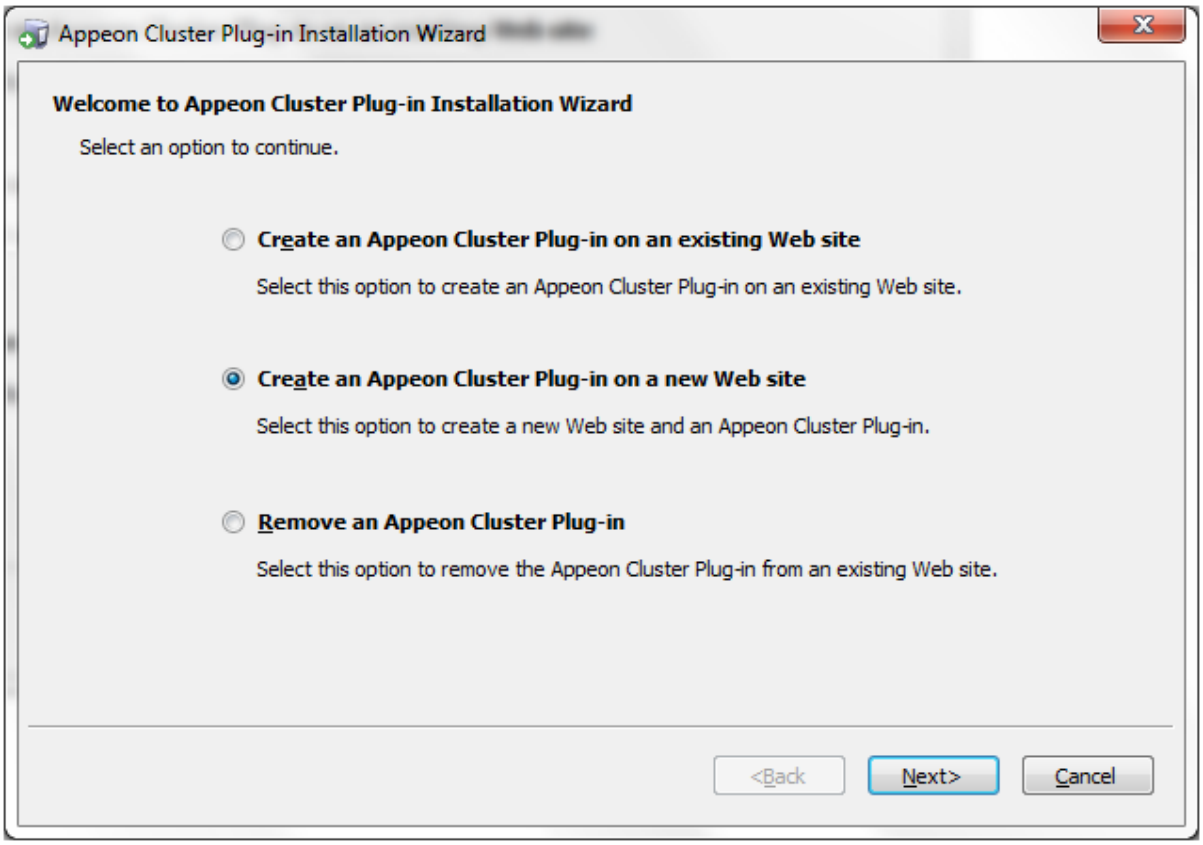
The **Appeon Cluster Plug-in Installation Wizard** is displayed.

Step 3: Select **Create an Appeon Cluster Plug-in on a new Web site**, and click **Next**.

If you want to install to an existing Web site, select **Create an Appeon Cluster Plug-in on an existing Web site**, and click **Next**.

Note: When selecting **Create an Appeon Cluster Plug-in on an existing Web site**, the site list will automatically filter the Web site where an Appeon Server and a configured cluster already exist.

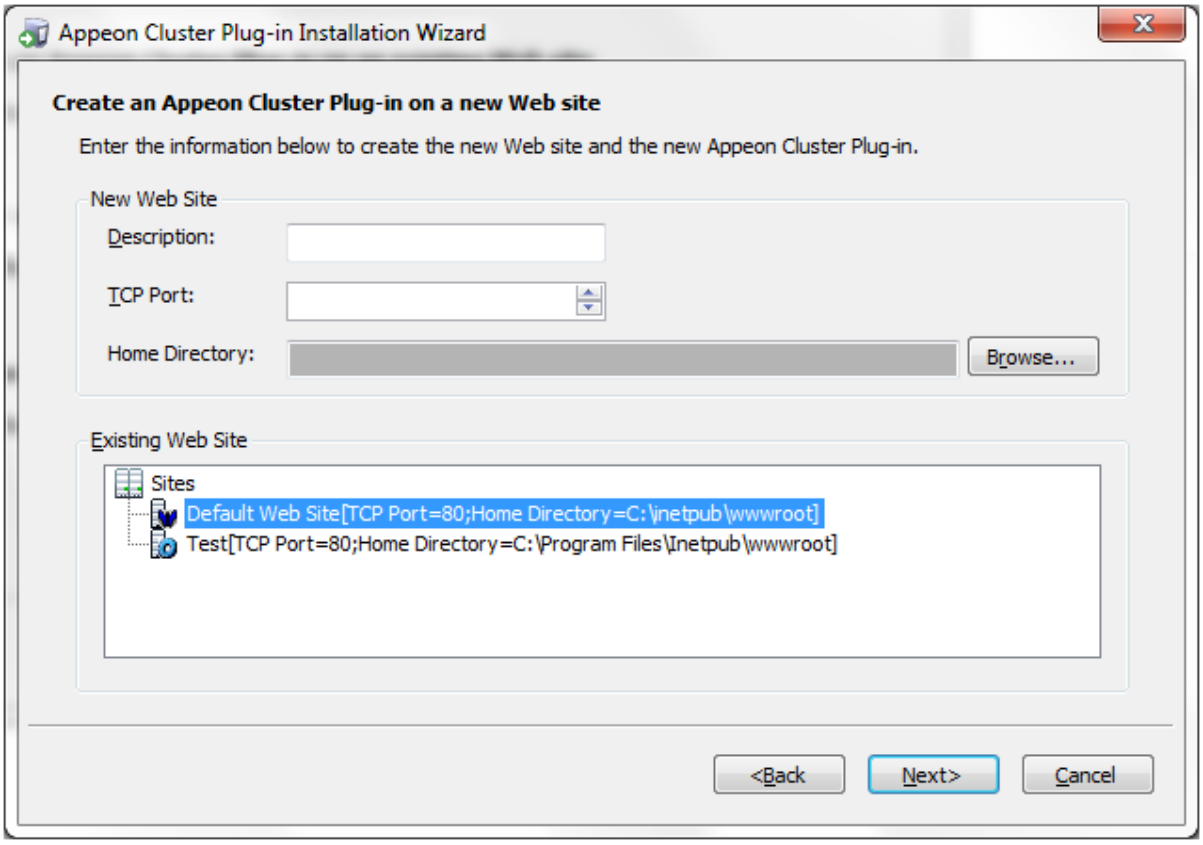
Figure 3.2: Create plugin on a Web site



Step 4: To create the Appeon cluster plug-in on a new Web site, configure **Description**, **Port** and **Home Directory**, then click **Next**.

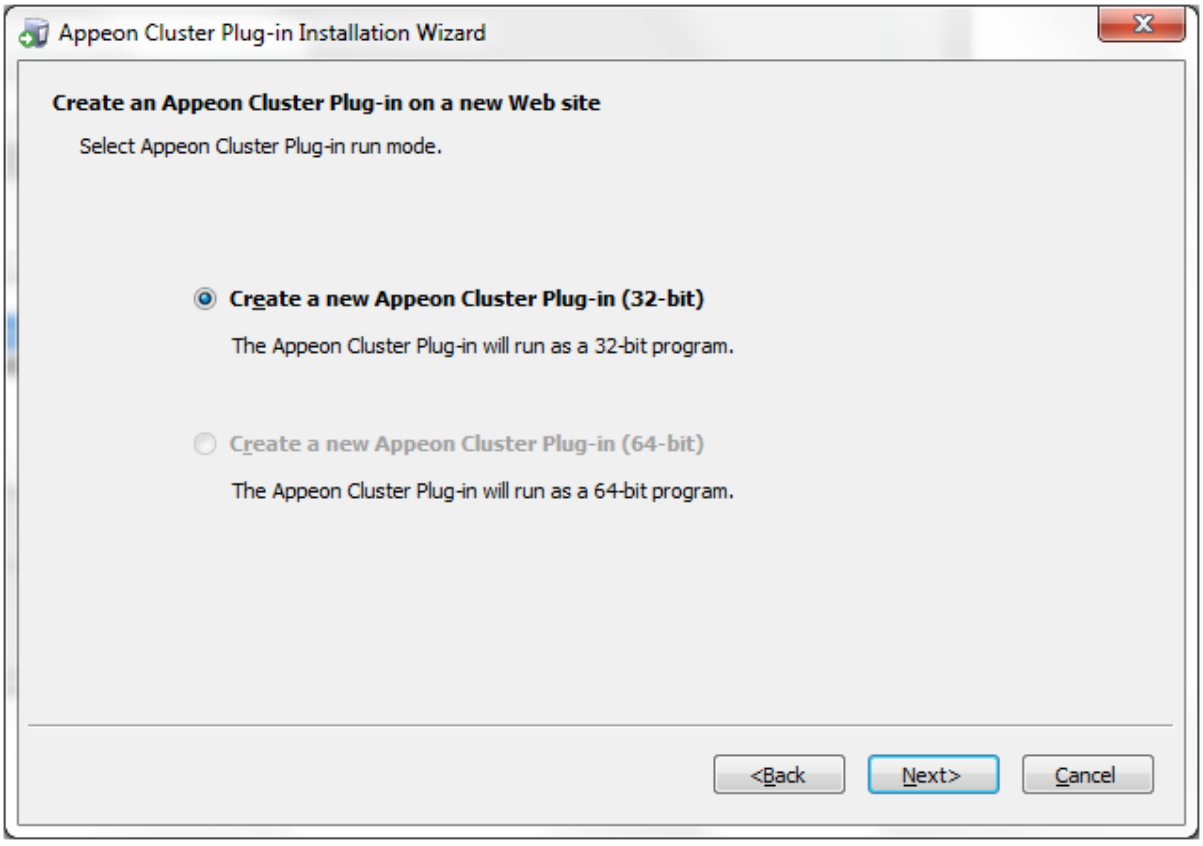
The new Web site will be created.

Figure 3.3: Configure the Web site



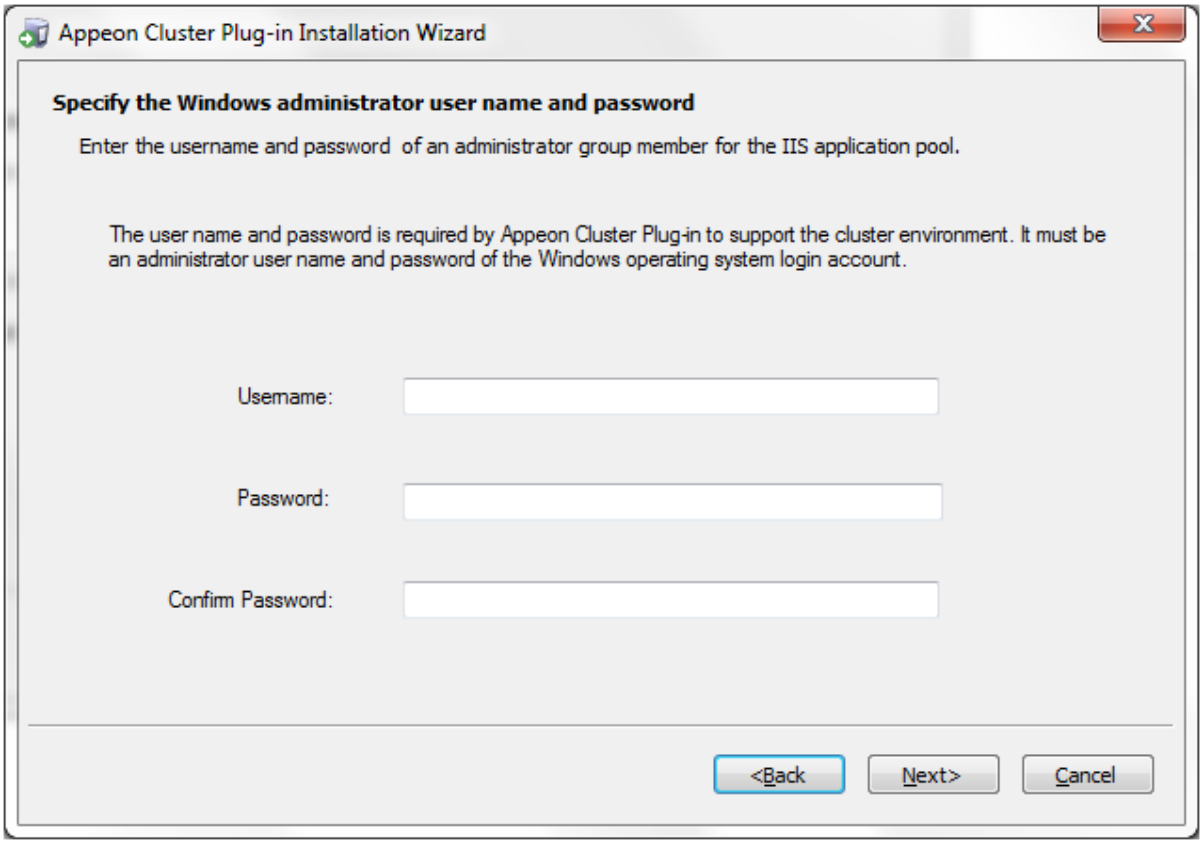
Step 5: Select the Appeon cluster plug-in run mode (32 bit or 64 bit), and click **Next**.

Figure 3.4: Select run mode



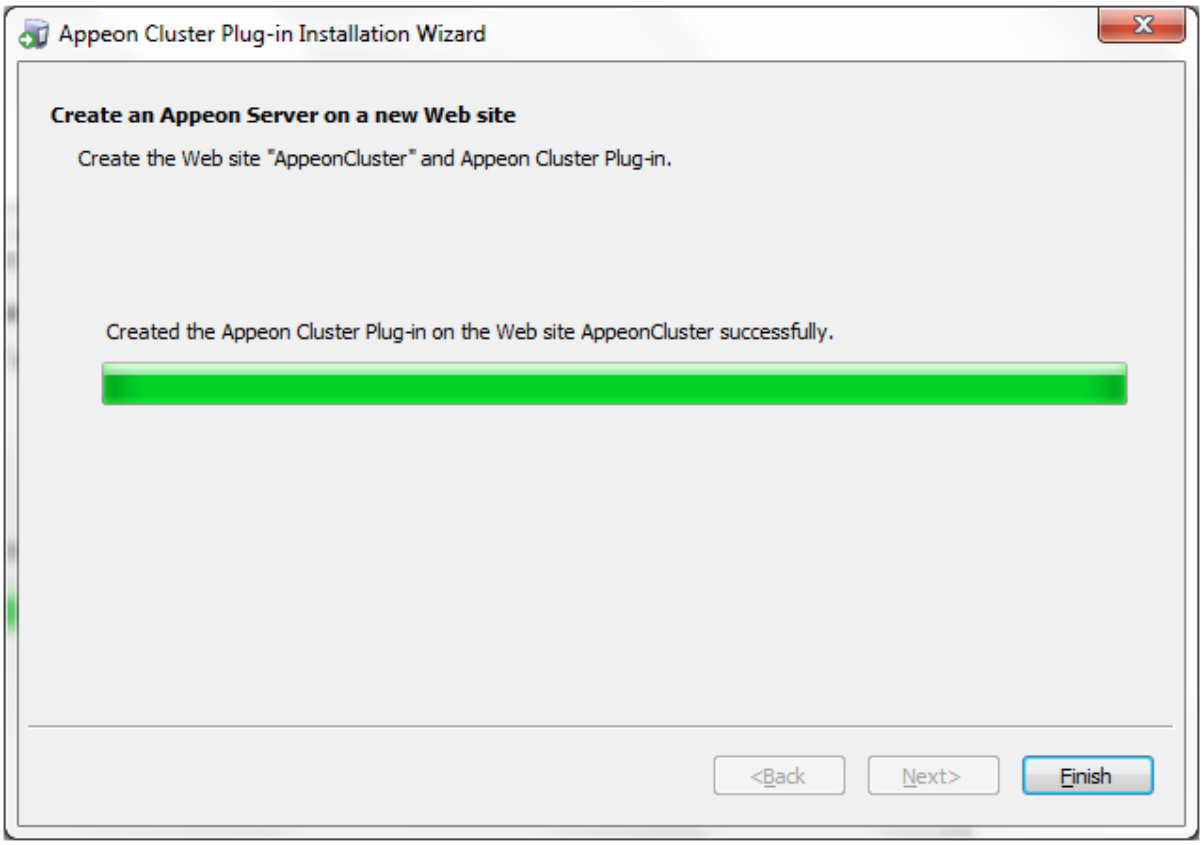
Step 6: Specify the Windows administrator user name and password, and click **Next**. Make sure to input the correct user name and password, otherwise you may not be able to access the Appeon Cluster Manager in the Web browser.

Figure 3.5: Windows administrator username and password



Step 7: When the plug-in is created successfully, click **Finish** to exit the **Appeon Cluster Plug-in Installation Wizard**.

Figure 3.6: Create the plug-in



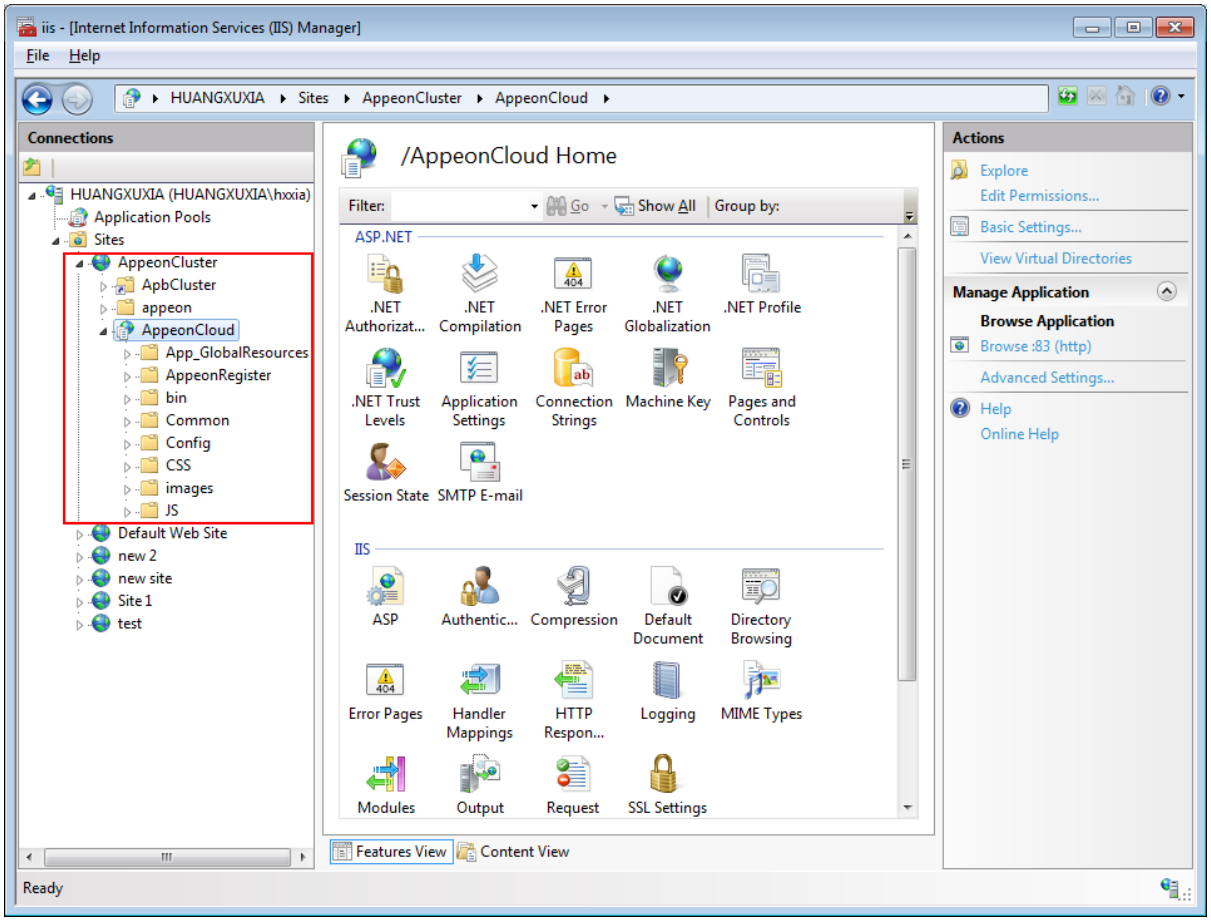
3.2 Configuring Cluster

After successfully installing the Appeon cluster plug-in, you can find **AppeonCloud** Web application under the specified IIS Web site, as shown in the figure below. You can add Appeon Servers to the cluster and configure the **load balancing** functionality via this Web application. Detailed instructions are provided below.

Another important functionality of an Appeon cluster is **failover**. To enable the **failover** functionality, you will need to go to Appeon Server AEM, add Appeon Servers to the cluster and configure the failover settings there. For details, refer to Section 5.3.3.1, “Cluster” in *Appeon Server Configuration Guide for .NET* or Appeon Server Configuration Guide for J2EE.

The Appeon cluster currently supports three kinds of platforms including **Local** (non-cloud platform), **Amazon Web Services** and **Windows Azure**. The **AppeonCloud** application will display different settings according to the specific platform.

Figure 3.7: IIS Manager



3.2.1 Creating a cluster

Step 1: Run the **AppeonCloud** application (browse the application in the right **Actions** pane in the IIS manager). The **Appeon Cluster Manager** displays.

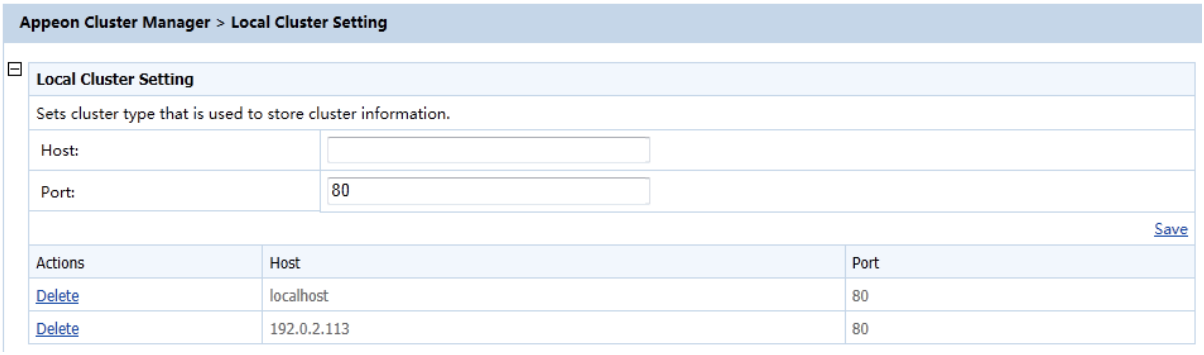
Step 2: Input the username and password (both "admin") to log into the **Appeon Cluster Manager**.

Step 3: Click **Cluster Settings**. Different configuration settings will be displayed according to the **Local**, **Amazon Web Services** and **Windows Azure** platform.

For Local (non-cloud platform):

- Specify the host name (or IP address) and port number of the server instance.
- Click **Save**. The server instance will be added to the cluster.

Figure 3.8: Local cluster settings

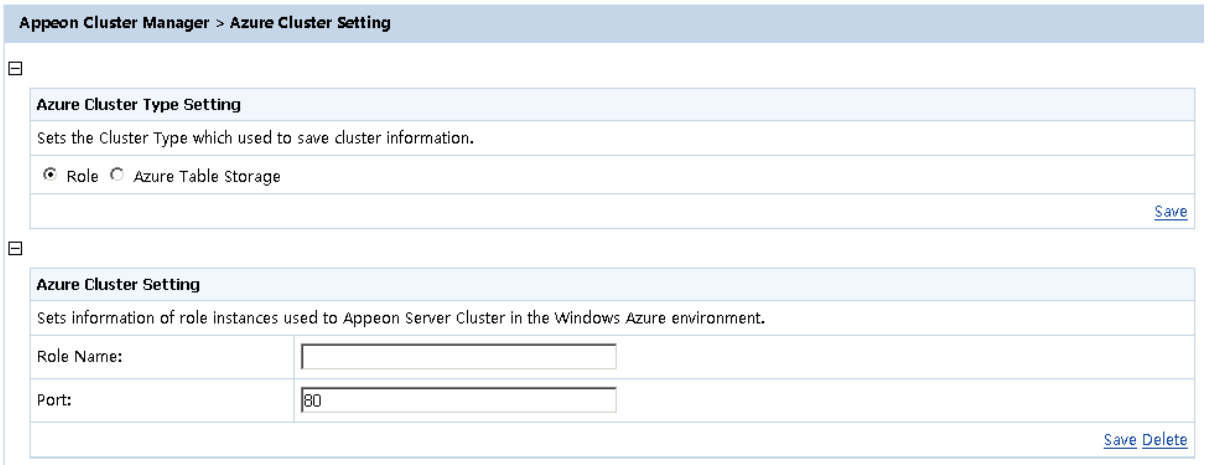


For Windows Azure cloud platform:

- Select the Azure cluster type. The cluster type determines the way to get and save the Appeon Server information on Windows Azure. There are currently two ways supported:
  - **Role**: Gets the Appeon Server information according to the role name of the instance where Appeon Server is installed; it requires that Appeon Cluster and Appeon Server are on the same host service.
  - **Azure Table Storage**: Has no such limit as **Role**.
- Create the Appeon Server cluster by adding the server instance one by one.

  For the **Role** type, specify the Role Name and Port of the server instance.
  - **Role Name**: Role name of the instance where Appeon Server is installed.
  - **Port**: Port used by Appeon Server.

Figure 3.9: Azure cluster settings for Role type

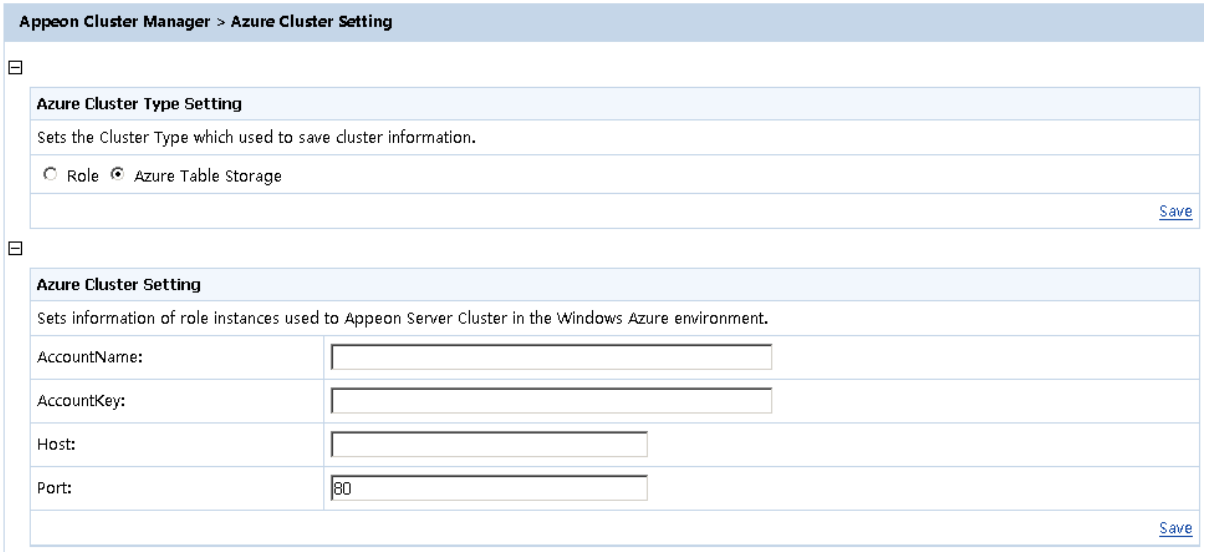


For the **Azure Table Storage** type, specify the Account Name, Account Key, Host, and Port of the server instance.

- **AccountName**: Account name of Windows Azure Table storage mode.

- **AccountKey**: Account key of Windows Azure Table storage mode.
- **Host**: DIP of the instance where Appeon Server is installed.
- **Port**: Port used by Appeon Server.

Figure 3.10: Azure cluster settings for Azure Table Storage



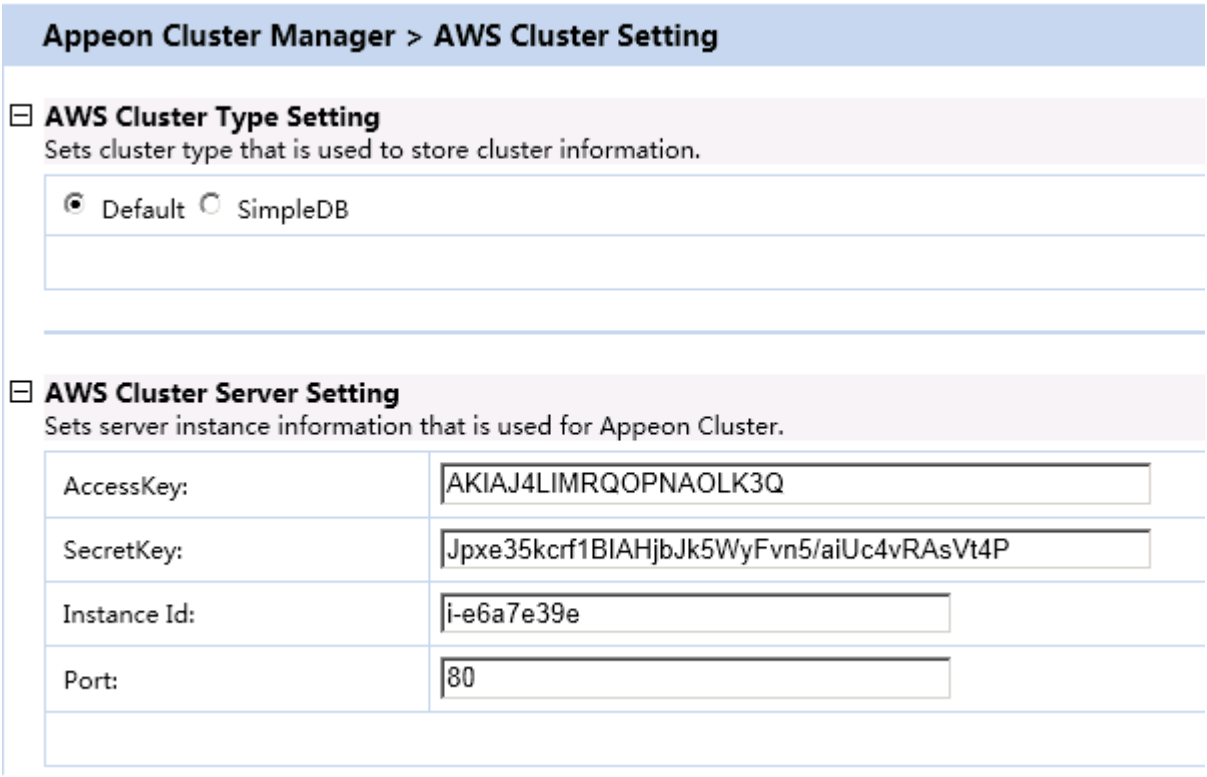
Click **Save**. The server instance will be added to the cluster.

For Amazon Web Services cloud platform:

- Select the AWS cluster type. The cluster type determines the way to the Appeon Server list and the cluster information. There are two ways supported:
  - **Default**: indicates that the information is stored in the default local XML file.
  - **SimpleDB**: indicates that the information is stored in the Amazon SimpleDB service.
- Create the Appeon Server cluster by adding the server instance one by one.
  - **AccessKey** & **SecretKey**: The system will automatically create an access key for you when creating the AWS account and you can log into AWS and enter the **Security Credentials** page to obtain the Access Key ID and Secret Access Key.
  - **Instance ID**: ID of the instance where Appeon Server is installed.
  - **Port**: port number of Appeon Server, and the default number is 80.

  Click **Save**. The server instance will be added to the cluster.

Figure 3.11: AWS cluster settings

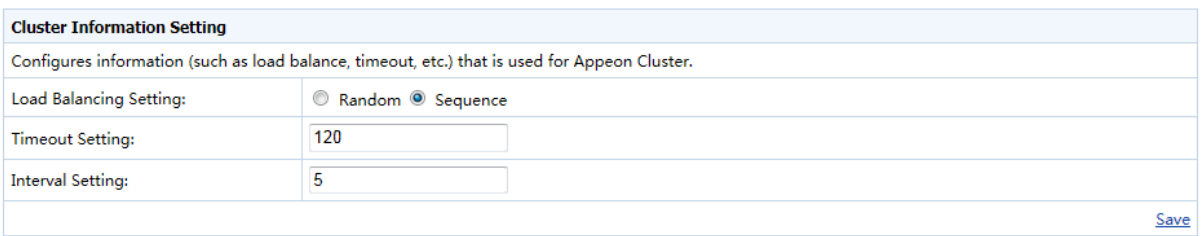


Step 4: Configure the other settings of the cluster, such as load balancing algorithm, timeout, and interval.

Table 3.1: More cluster settings

Settings	Description
Load Balancing	Specify the load balancing algorithm which determined how requests will be distributed among the servers in the cluster. **Random** indicates that the plug-in distributes requests across Appeon Servers in random order, regardless of the status of Appeon Server; **Sequence** indicates that the plug-in distributes requests to Appeon Server in an allocated order.
Timeout	Specify the timeout for distributing a request, and the default value is 30 seconds.
Interval	Specify the interval (in seconds) for the plug-in to refresh the Appeon Server list.

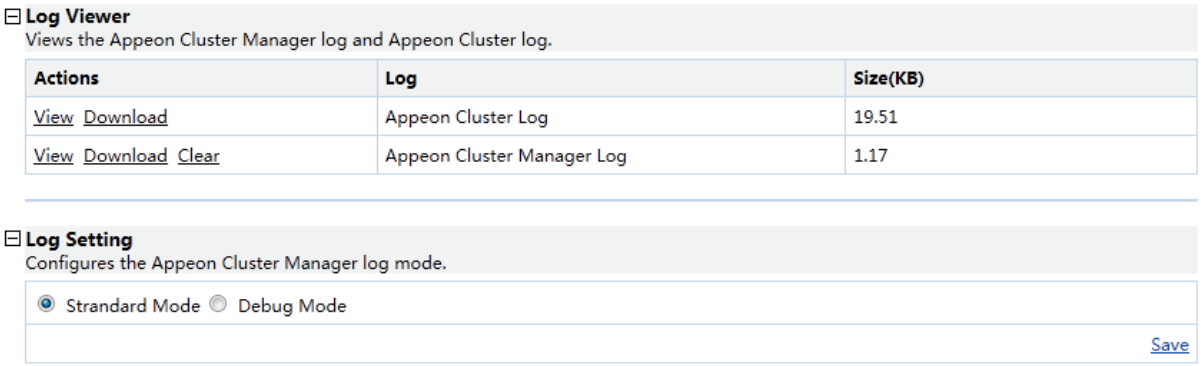
Figure 3.12: Cluster settings



3.2.2 Managing Logs

Appeon Cluster Manager also provides tools to manage the log of Appeon Cluster and Appeon Cluster Manager, such as view, download, and clear the log file, and set the log mode.

Figure 3.13: Log settings



Appendix A. A Simple Guide to Windows Azure

A.1 Introduction

After purchasing Windows Azure services, you need to create a virtual machine for installing Appeon Server. To create the virtual machine, you should first write a cloud computing application for Windows Azure.

This chapter will describe how to create a virtual machine instance.

A.2 Creating Virtual Machine Instance

A.2.1 Overview

In Windows Azure, you first need to write a .NET cloud computing application to create a virtual machine instance before installing Appeon Server. After you have created a suitable cloud computing application, you can deploy this application via **Windows Azure Management Portal** to create a virtual machine instance.

A.2.2 Using Appeon Windows Azure Demo

In order to simplify the process of creating the virtual machine instance, Appeon provides a .NET cloud computing application demo which users can directly deploy via **Windows Azure Management Portal**. This demo can create one virtual machine instance and one Worker Role. It comprises three files: one certificate file (**AppeonCloud_Demo.cer**) and two package files (**AppeonWindowsAzureDemo.cspkg** & **ServiceConfiguration.Cloud.cscfg**). You can find these files under the %appeon%\AppeonServer4Cloud2015\IIS\Windows Azure Demo folder and then deploy them by following instructions in Section A.2.4, “Deploying .NET cloud computing application”. **Note:** The user name of the remote desktop connection is **administrator**, and the password is **app_123**.

However, if you want to create a new .NET cloud computing application instead of using the demo Appeon provides, you can follow Section A.2.3, “Developing .NET cloud computing application”.

A.2.3 Developing .NET cloud computing application

A.2.3.1 Environment requirements

To develop a .NET cloud computing application, the following softwares need to be installed:

- Microsoft Visual Studio 2010
- Windows Azure SDK
- Windows Azure Tool
- Windows Azure Emulator

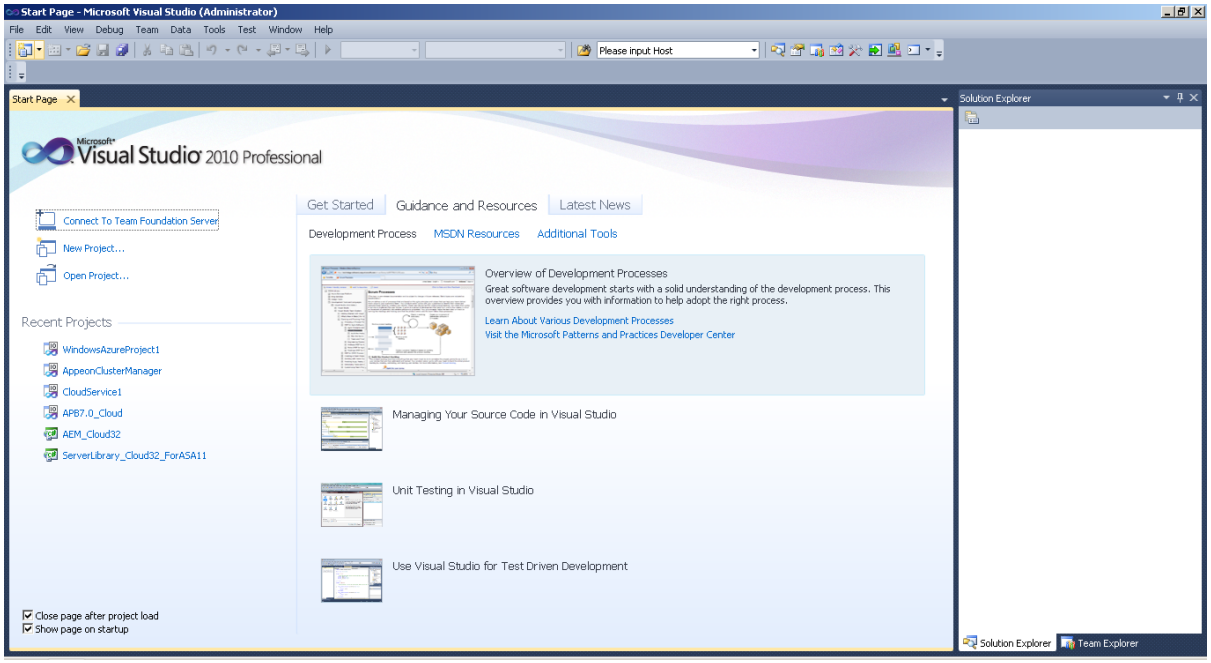
You can download all these softwares from http://www.microsoft.com.

A.2.3.2 Developing a .NET cloud computing Worker role application

The following takes Windows Azure SDK 1.6 as example to describe how to develop a cloud computing Worker role application.

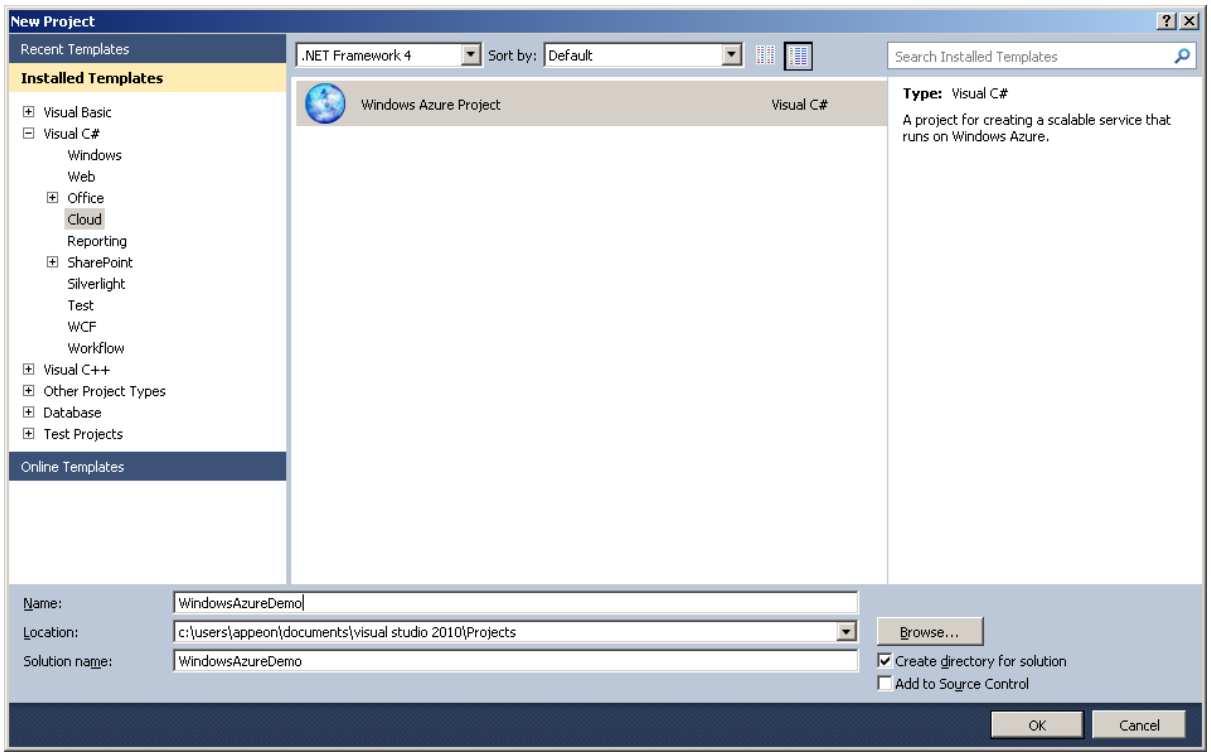
Step 1: Open Microsoft Visual Studio 2010, and select **New** ->**Project**, as shown below:

Figure A.1: Microsoft Visual Studio (Administrator)



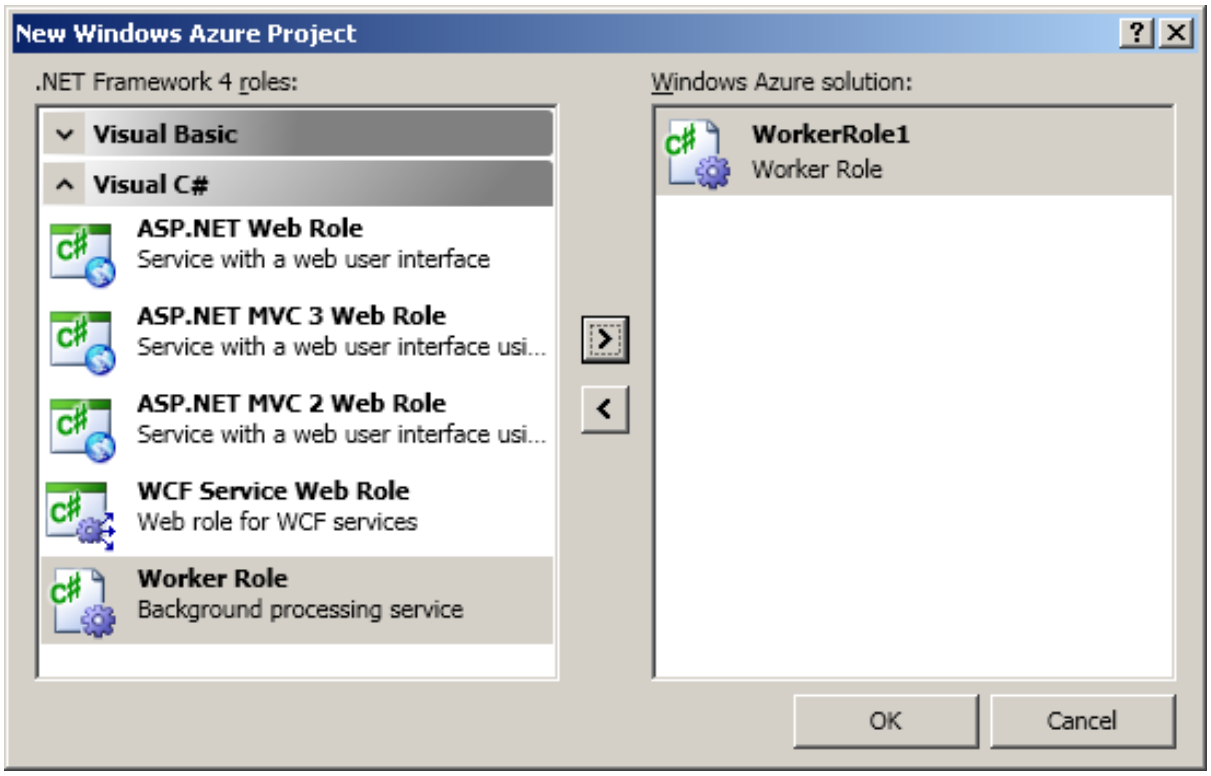
Step 2: The following screen appears. Select **Visual C#** -> **Cloud** on the left-side navigation pane, and input the project name (in this example, **WindowsAzureDemo**) and then click **OK**.

Figure A.2: New project



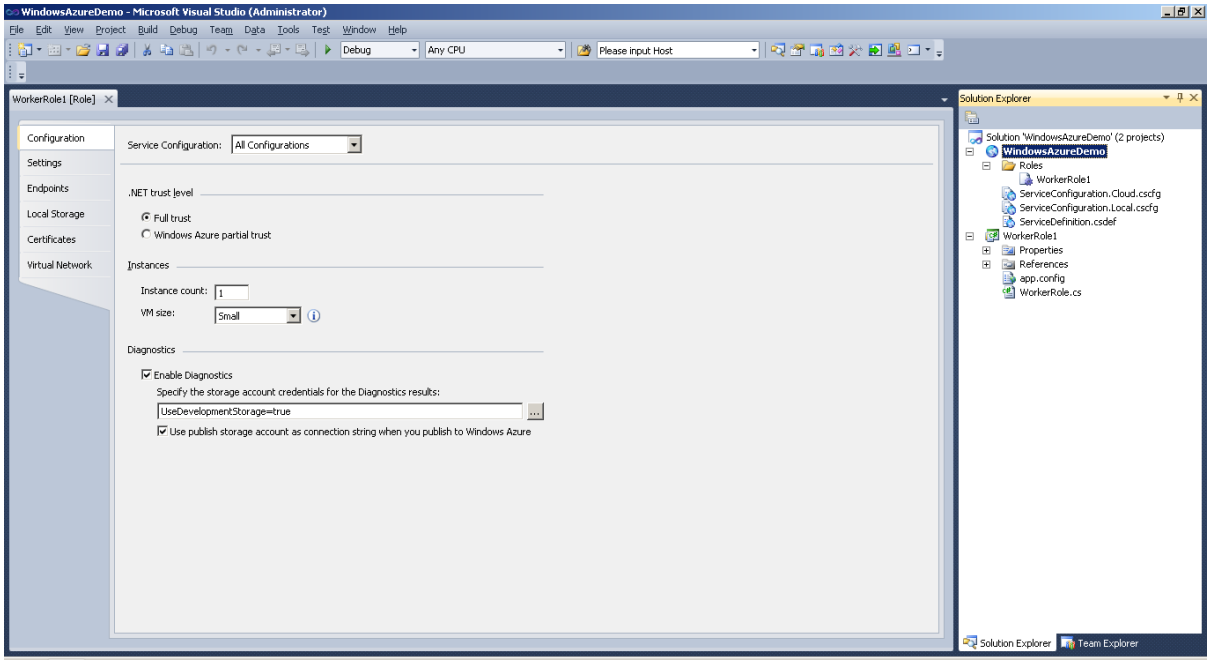
Step 3: In the following screen, select **Work Role**, click ">" to add it into **Windows Azure solution** on the right-side, and then click **OK**.

Figure A.3: New Windows Azure project



Step 4: In the right-side **Solution Explorer**, manipulate the files as below:

Figure A.4: Windows Azure demo



- Create the file **startup.cmd** under the **WorkerRole1** project, and add the following content to the file:

```
start /w %windir%/system32/pkgmgr /iu:IIS-WebServerManagementTools;
IIS-ManagementScriptingTools;IIS-ManagementService
sc config w3svc start= auto
net start w3svc
%windir%\System32\inetsrv\appcmd set config /section:isapiCgiRestriction
/[path='D:\Windows\Microsoft.NET\Framework\v4.0.30319\aspnet_isapi.dll']
.allowed:True%windir%\System32\inetsrv\appcmd set config
/section:isapiCgiRestriction /[path='D:\Windows\Microsoft.NET\
Framework64\v4.0.30319\aspnet_isapi.dll'].allowed:True
iisreset /restart
```

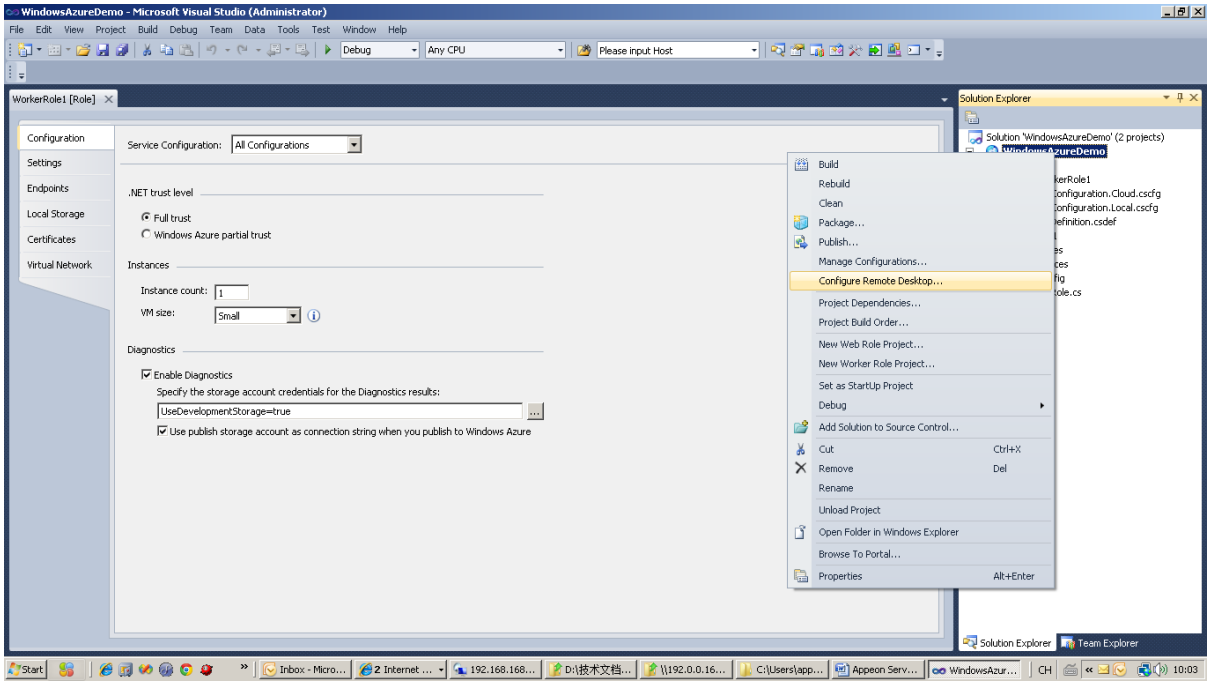
- Open the file **ServiceDefinition.csdef**, and add the following content under the **Imports** node:

```
<Startup>
    <Task commandLine="startup.cmd" executionContext="elevated"
      taskType="simple">
    </Task>
</Startup>
```

  This is used to automatically configure IIS when the application starts.

Step 5: In **Solution Explorer**, right-click the **WindowsAzureDemo** project, and then select **Configure Remote Desktop**

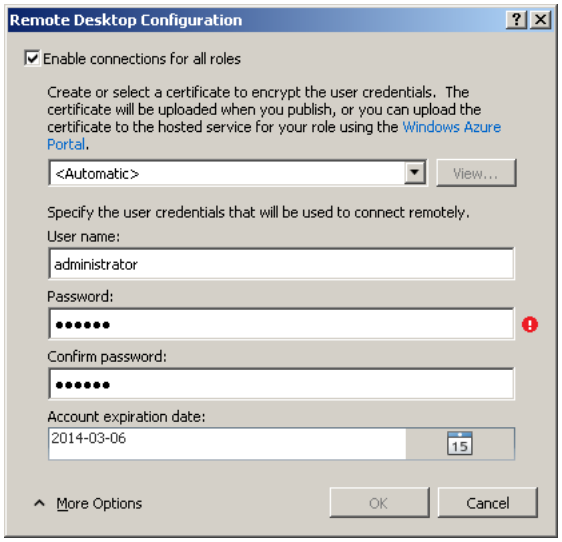
Figure A.5: Windows Azure demo



Step 6: In the **Remote Desktop Configuration** window, select the **Enable connection for all roles** checkbox, create or select a certificate, specify the login credentials, and then click **OK**.

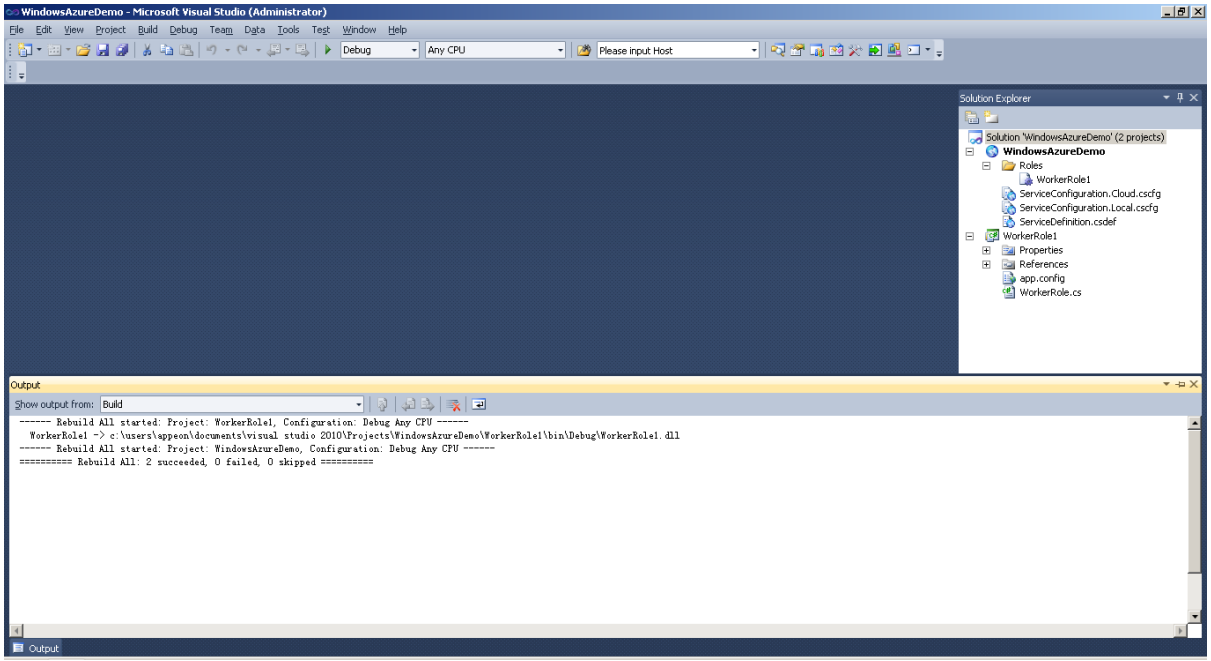
Remember the login credentials, as you will use them to log into the virtual machine once the virtual machine instance is created. And the certificate which contains the encrypted login credentials will need to be uploaded later by following instructions in Section A.2.4, “Deploying .NET cloud computing application”.

Figure A.6: Remote Desktop configuration



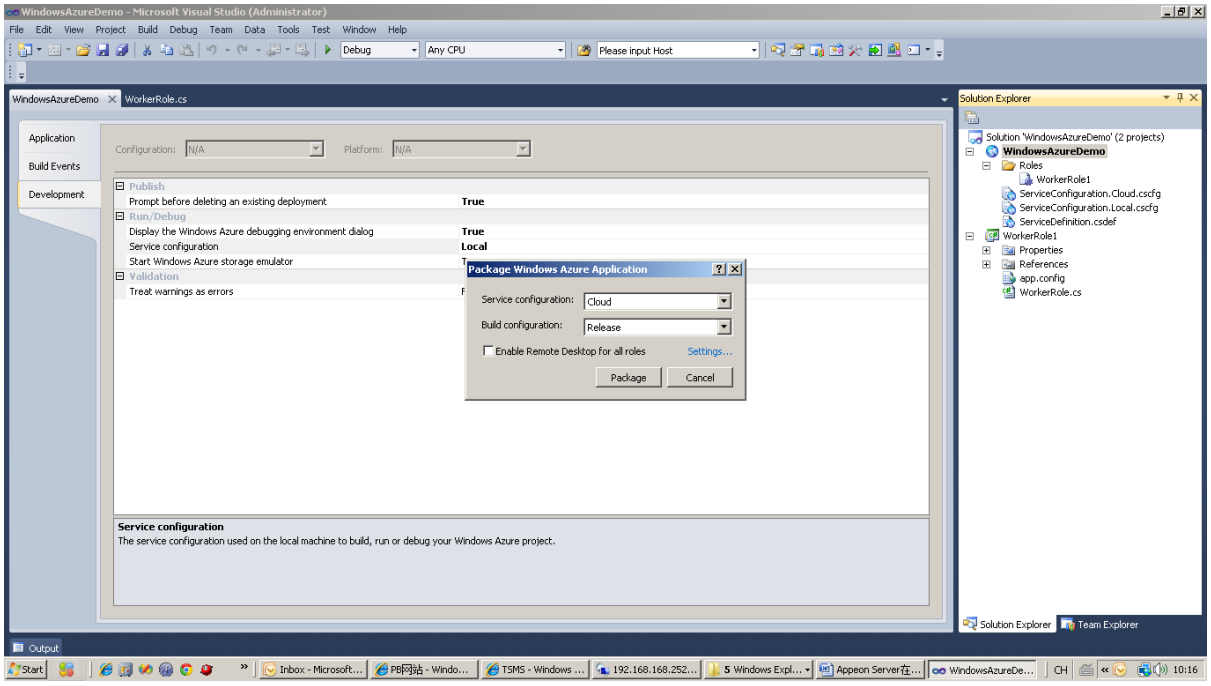
Step 7: In **Solution Explorer**, right-click **WindowsAzureDemo** and then select **Build Solution**.

Figure A.7: Windows Azure demo



Step 8: After building is finished successfully, right-click the **WindowsAzureDemo** project, and then select **Package**. In the **Package Windows Azure Application** dialog box that appears, use the default settings and click **Package**. In this example, two files will be generated automatically: one is **ServiceConfiguration.Cloud.cscfg** and the other is **WindowsAzureDemo.cspkg**. These two files will need to be deployed to the virtual machine later by following instructions in Section A.2.4, “Deploying .NET cloud computing application”.

Figure A.8: Windows Azure demo



A.2.4 Deploying .NET cloud computing application

To deploy the .NET cloud computing application, you need to log into the **Windows Azure Management Portal**, with steps as follows:

- Open http://www.windowsazure.com in your browser, and click **PORTAL** on the top right corner.
- After jumping to the logon page, input the correct account and password to enter the **Windows Azure Management Portal**.
- After successful logon, upload the certificate first and then deploy the application.

A.2.4.1 Uploading certificate

In Section A.2.3, “Developing .NET cloud computing application”, you have created or selected a certificate in Step 6, for encrypting the login credentials for the remote desktop connection. Now you will need to upload this certificate.

In the **Windows Azure Management Portal**, select **Management Certificates** on the left menu bar, and then upload the certificate file.

A.2.4.2 Deploying application

In Section A.2.3, “Developing .NET cloud computing application”, you have packaged the application into two files in Step 8. Now you will need to deploy these two files.

In the **Windows Azure Management Portal**, click **Hosted Services** on the left menu bar, and then follow the wizard to deploy the files.

After the deployment, the virtual machine instance is automatically created. Then you will need to enable the remote access to the virtual machine instance in the **Windows Azure**

Management Portal. After that, you can log into the Windows Azure virtual machine via the remote desktop connection, just like how to log into an ordinary PC.

Appendix B. A Simple Guide to AWS EC2 and S3

B.1 Introduction

- **Purpose**

  This guide introduces how to create an Amazon EC2 instance and how to upload file packages to Amazon S3 using the Amazon Web Services Management Console.

- **Terms and acronyms**

  AWS

  Amazon Web services (AWS) provides a flexible, cost-effective, scalable, and easy-to-use cloud computing platform that is suitable for research, educational use, individual use, and organizations of all sizes. It's easy to access AWS cloud services via the Internet. Because the AWS cloud computing model allows you to pay for services on-demand and to use as much or as little at any given time as you need, you can replace up-front capital infrastructure expenses with low variable costs that scale as your needs change.

  AWS EC2

  Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable computing capacity—literally, server instances in Amazon's data centers—that you use to build and host your software systems. You can get access to the infrastructure resources that EC2 provides by using APIs, or web tools and utilities.

  With EC2, you use and pay for only the capacity that you need. This eliminates the need to make large and expensive hardware purchases, reduces the need to forecast traffic, and enables you to automatically scale your IT resources to deal with changes in requirements or spikes in popularity related to your application or service.

  AWS S3

  Amazon Simple Storage Service (Amazon S3) is storage for the Internet. It is designed to make web-scale computing easier for developers.

  Amazon S3 has a simple web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web. It gives any developer access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites. The service aims to maximize benefits of scale and to pass those benefits to developers.

- **Reference Documents**

  1. Getting Started with Amazon EC2

     http://docs.amazonwebservices.com/AWSEC2/latest/GettingStartedGuide/Welcome.html

  2. Introduction to Amazon EC2

http://docs.amazonwebservices.com/AWSEC2/latest/UserGuide/concepts.html

3. Get Started With Amazon Simple Storage Service

   http://docs.amazonwebservices.com/AmazonS3/latest/gsg/GetStartedWithS3.html

4. Introduction to Amazon S3

   http://docs.amazonwebservices.com/AmazonS3/latest/dev/Introduction.html

B.2 Logging in to AWS Management Console

Step 1: Open the Amazon Web Service at http://aws.amazon.com.

Step 2: Select **AWS Management Console** from the **My Account/Console** dropdown list box.

Step 3: Enter the email address you specified when signing up for AWS Management Console.

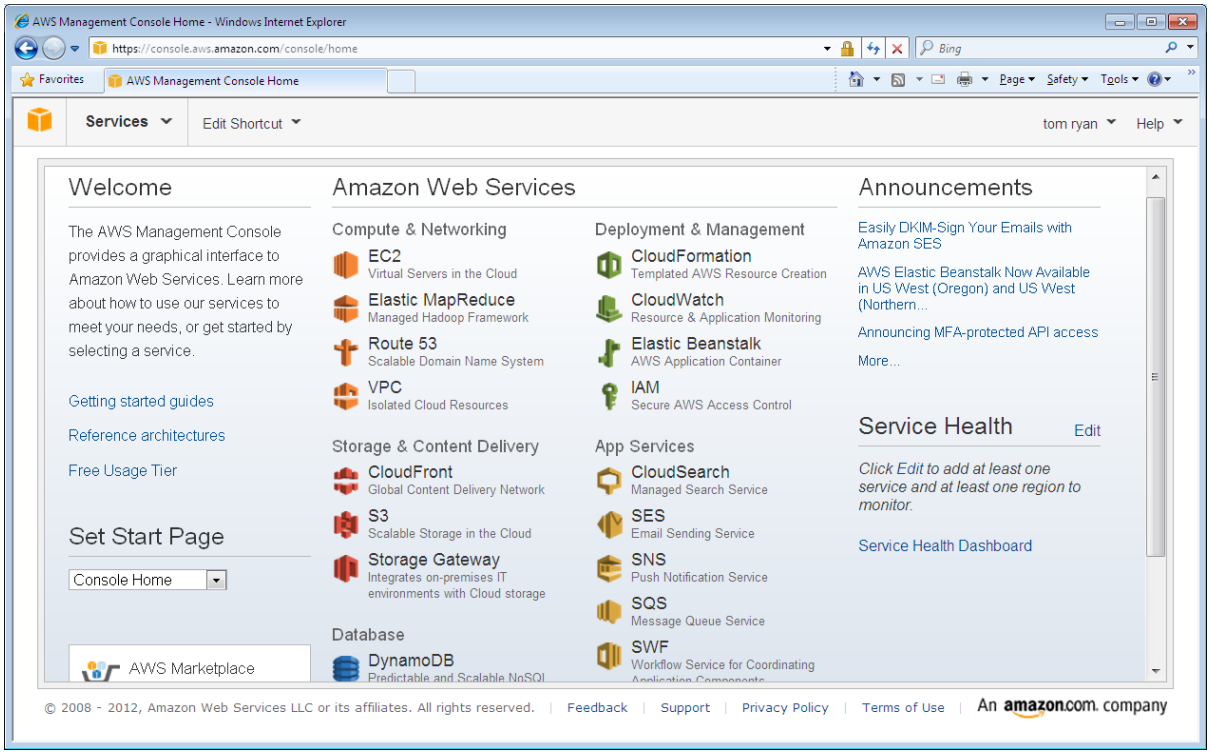
Verify that you have signed up. If not, follow the steps below to sign up:

- Go to http://aws.amazon.com, and click **Sign up Now** .
- Follow the on-screen instructions to finish signing up.

Step 4: Select the **I am a returning user and my password is** radio button and enter your password.

Step 5: Click **Sign in** using our secure server to proceed. The **AWS Management Console** home page appears.

Figure B.1: AWS Management Console home page



In the **AWS Management Console** home page, you can click **EC2** under **Compute & Networking** to create and launch an Amazon EC2 instance, and then click **S3** under **Storage & Content Delivery** to upload the file packages. For detailed instructions, please refer to:

- Section B.3, “Launching an Amazon EC2 Instance”
- Section B.5, “Uploading File Packages to Amazon S3”

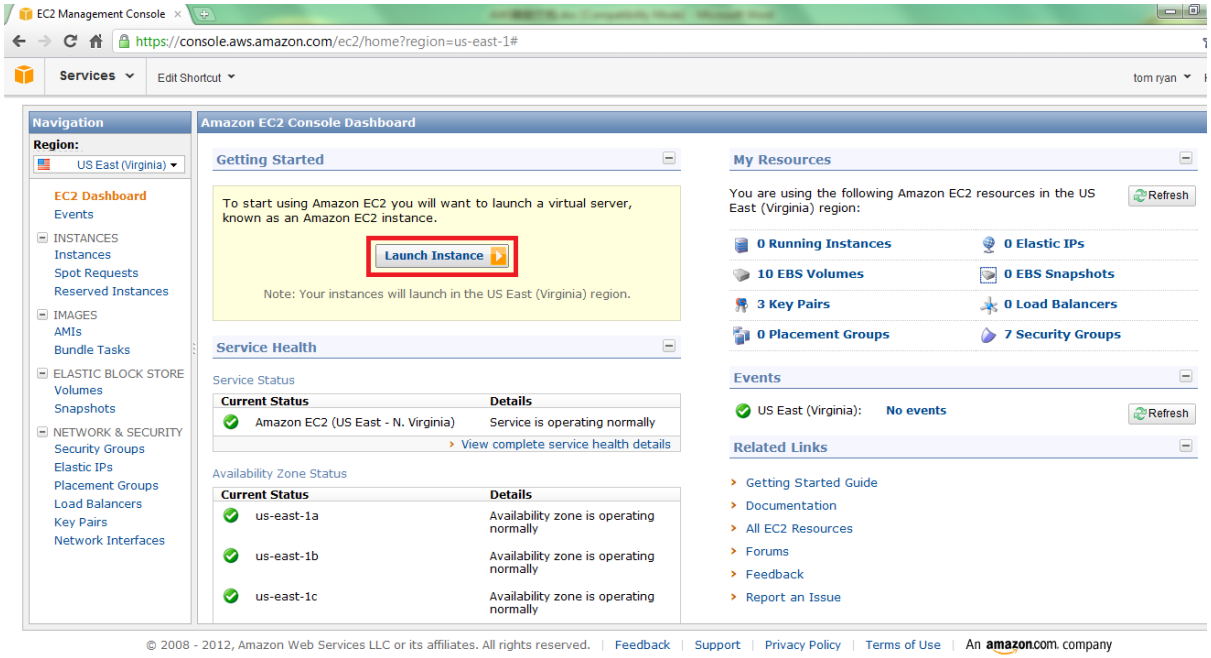
B.3 Launching an Amazon EC2 Instance

B.3.1 Get started

Step 1: On the **AWS Management Console** home page, click **EC2** under the **Computing & Networking** category. The **EC2 Management Console** appears.

Step 2: Click **EC2 Dashboard** under the **Navigation** pane. On the **Amazon EC2 Console Dashboard** page, click **Launch Instance** as shown below.

Figure B.2: Amazon EC2

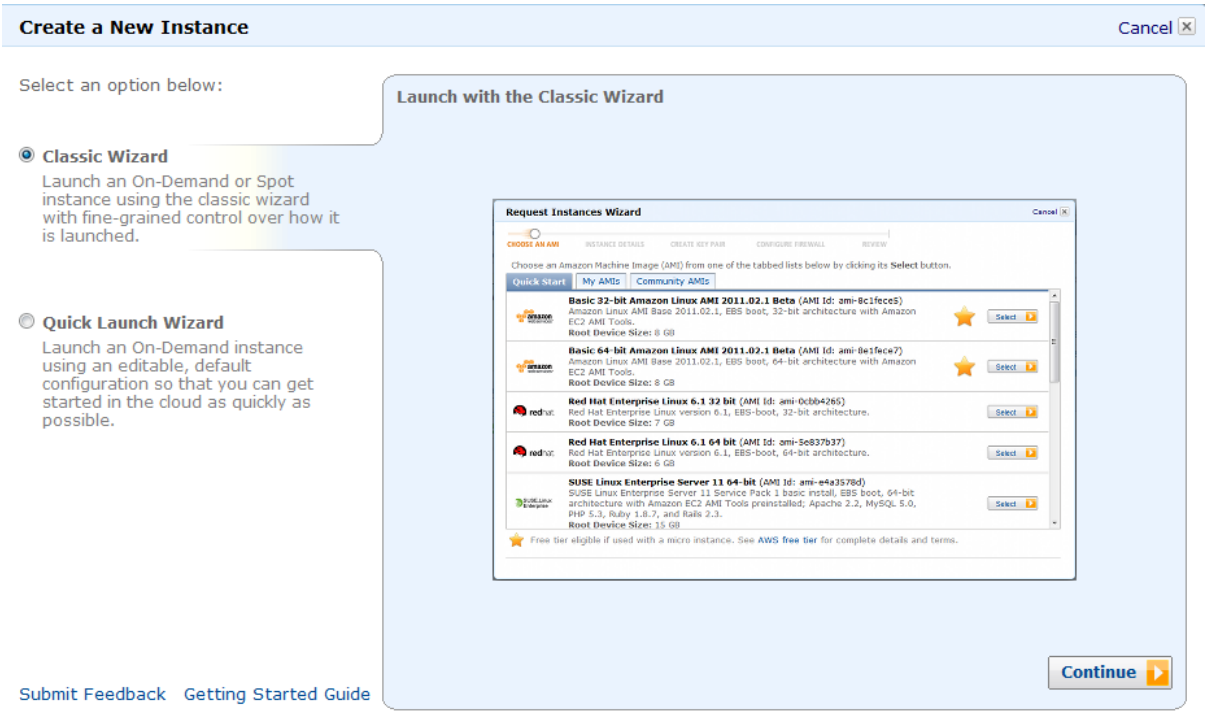


The **Create a New Instance** page appears, as shown below. The **Create a New Instance** page provides two ways to launch an instance: the **Classic Wizard** and the **Quick Launch Wizard**. This user guide guides you through the **Classic Wizard**.

Step 3: On the **Create a New Instance** page, select **Classic Wizard.**

Step 4: Click **Continue** to proceed.

Figure B.3: Create a New Instance

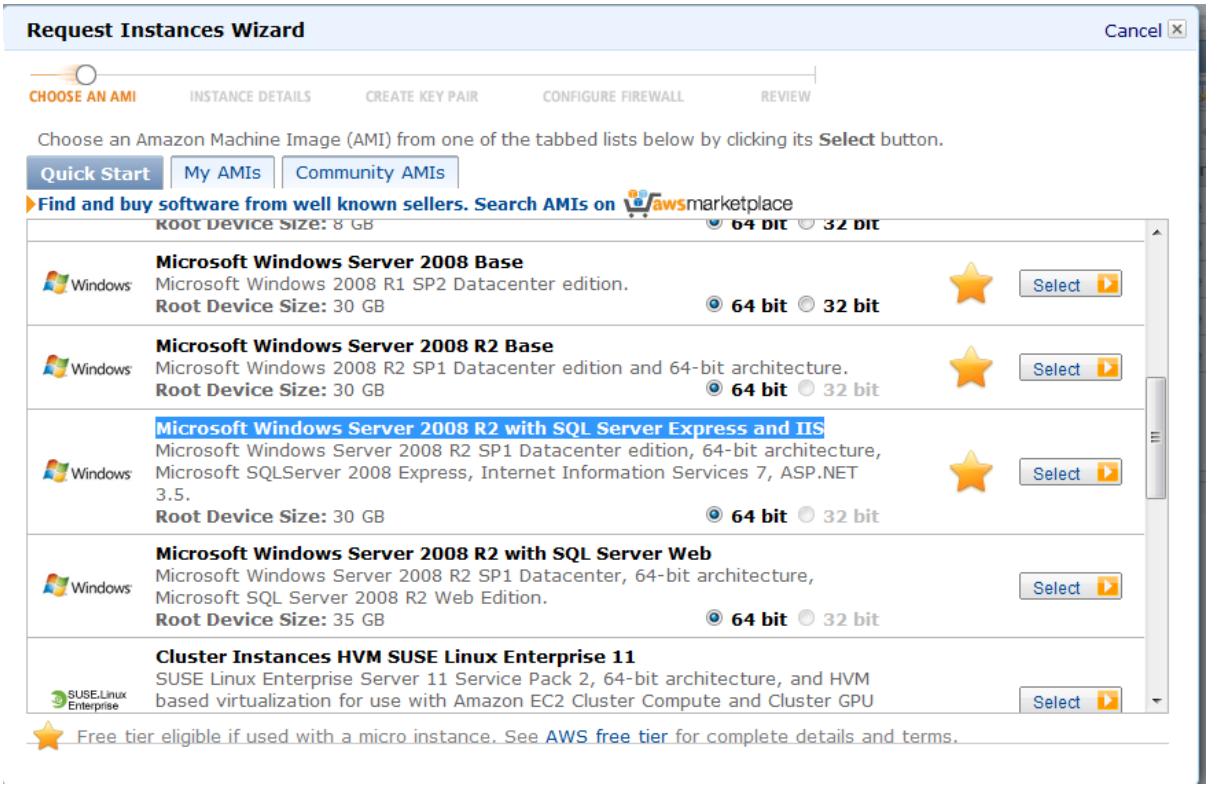


The **Choose an AMI** page appears. Follow instructions in Section B.3.2, “Choose an AMI” to continue with the remaining steps.

B.3.2 Choose an AMI

Choose an Amazon Machine Image (AMI) from one of the tabbed lists by clicking its **Select** button. In this guide, **Microsoft Windows Server 2008 R2 with SQL Server Express and IIS** under the **Quick Start** tab is selected.

Figure B.4: Choose an AMI: Quick Start



The **Instance Details** page appears after you choose an AMI. Follow instructions in Section B.3.3, “Specify instance details” to continue with the remaining steps.

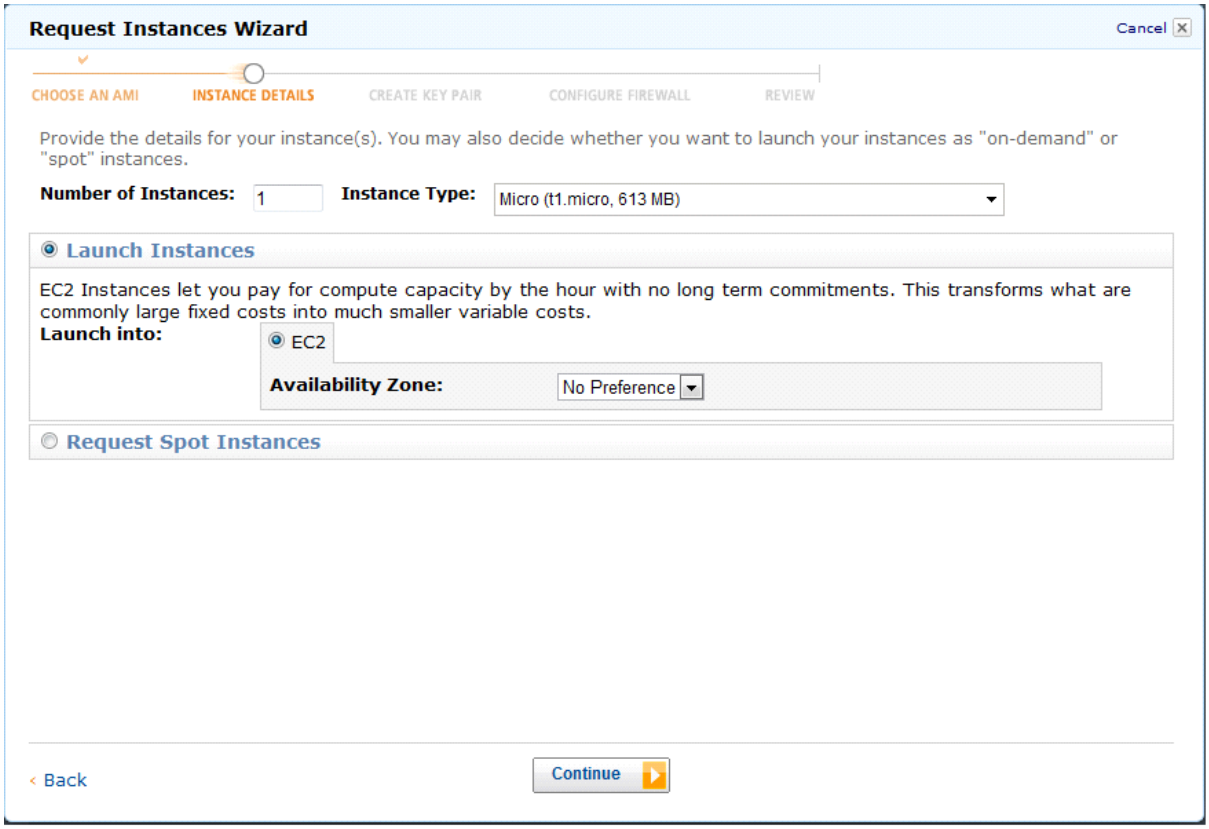
B.3.3 Specify instance details

The **Instance Details** page appears as soon as you choose an AMI.

Step 1: Enter a number in **Number of Instance** and choose an instance type from the **Instance Type** dropdown list box.

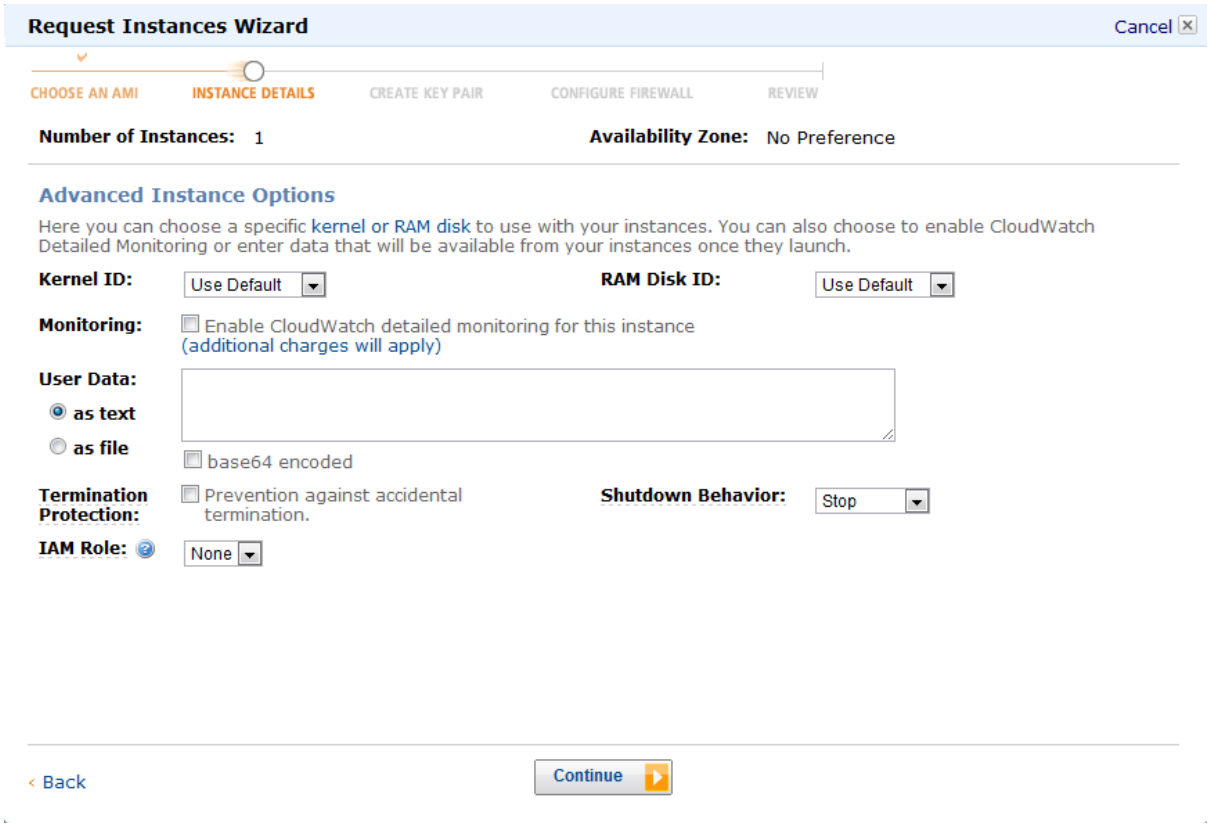
Step 2: Select the **Launch Instances** option and click **Continue**.

Figure B.5: Instance Details



Step 3: Leave the information as default and Click **Continue**.

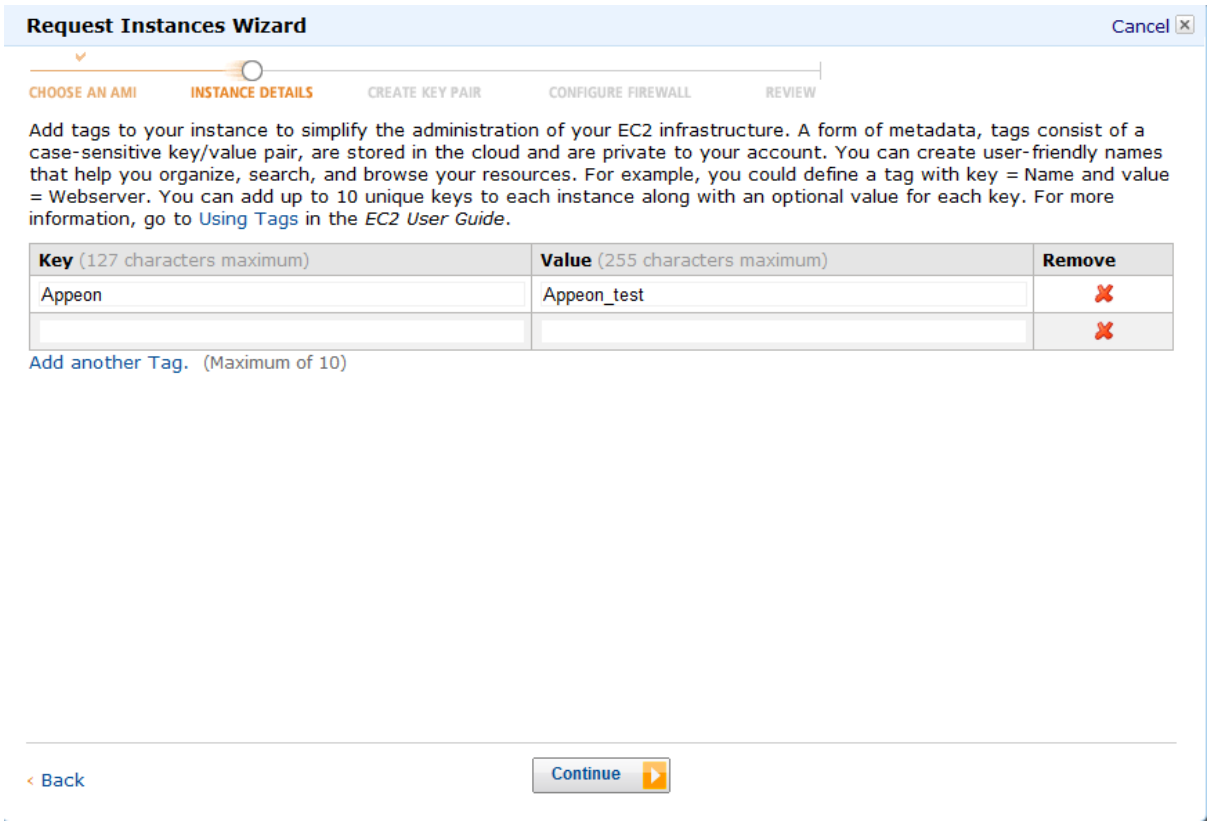
Figure B.6: Instance Details: Advanced Instance Options



Step 4: Enter a key in the **Key** column and enter a value in the **Value** column. You can add tags up to 10.

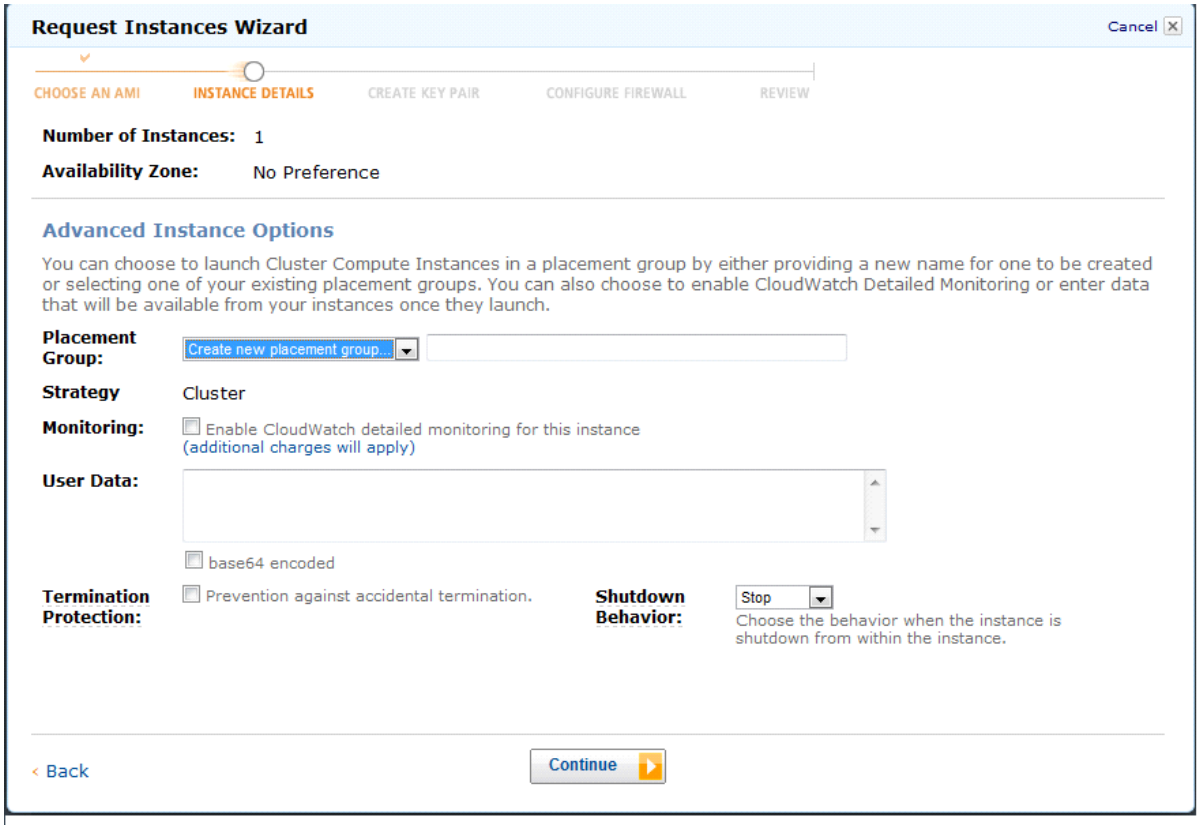
Step 5: Click **Continue** to proceed.

Figure B.7: Instance Details: Key and Value



Step 6: Configure the information as needed or leave them as default, and then click **Continue**.

Figure B.8: Instance Details: Advanced Instance Options 2



The **Create Key Pair** page appears. Follow instructions in Section B.3.4, “Create Key Pair” to continue with the remaining steps.

B.3.4 Create Key Pair

Step 1: On the **Create Key Pair** page, choose the **Create a New Key Pair** option.

Step 2: Enter a name for the key pair and then click **Create & Download your Key Pair**. A .pem Key Pair file is generated.

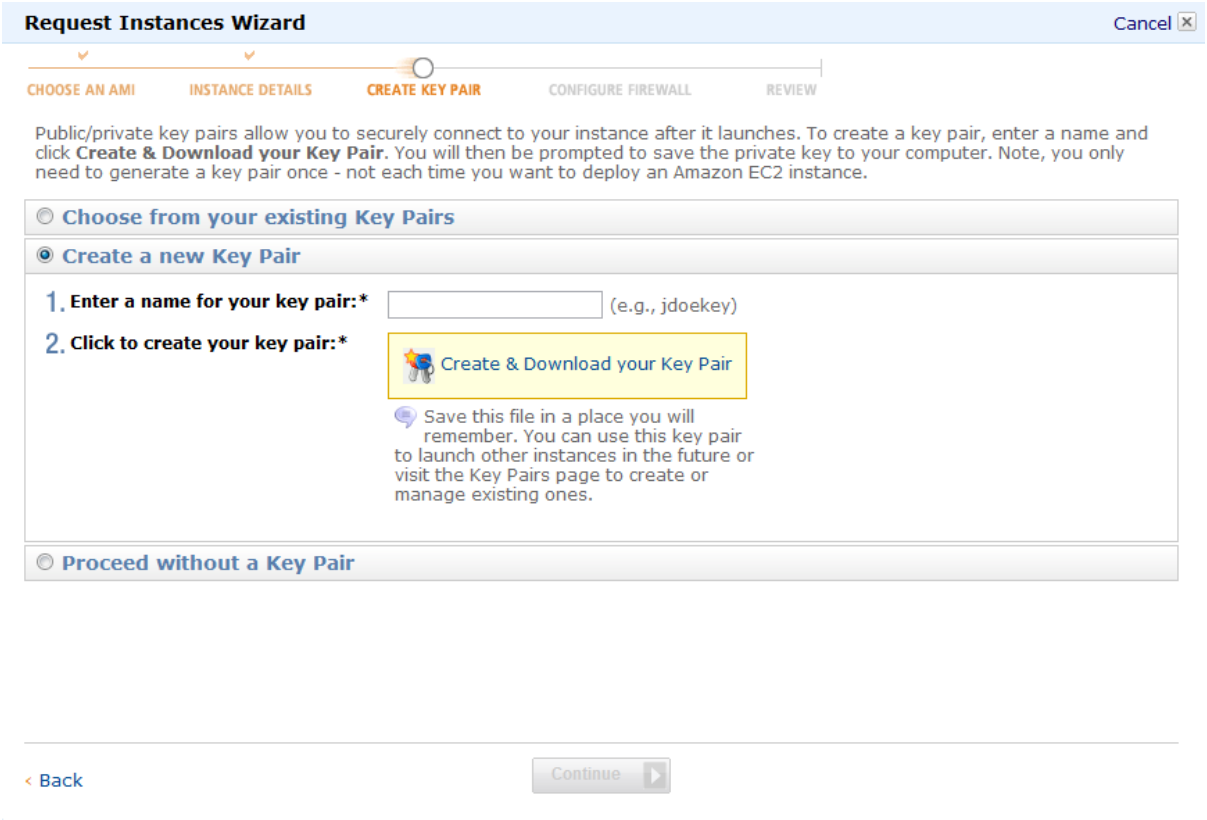
Step 3: Click **Save** to save the private key pair to your computer.

This .pem file will be used to retrieve the initial administrator password for remote desktop connection later. And you only need to generate a key pair once – not each time you want to deploy an Amazon EC2 instance.

If you have a key pair already, you can select **Choose from your existing Key Pairs**.

Step 4: Click **Continue** to proceed.

Figure B.9: Key Pair



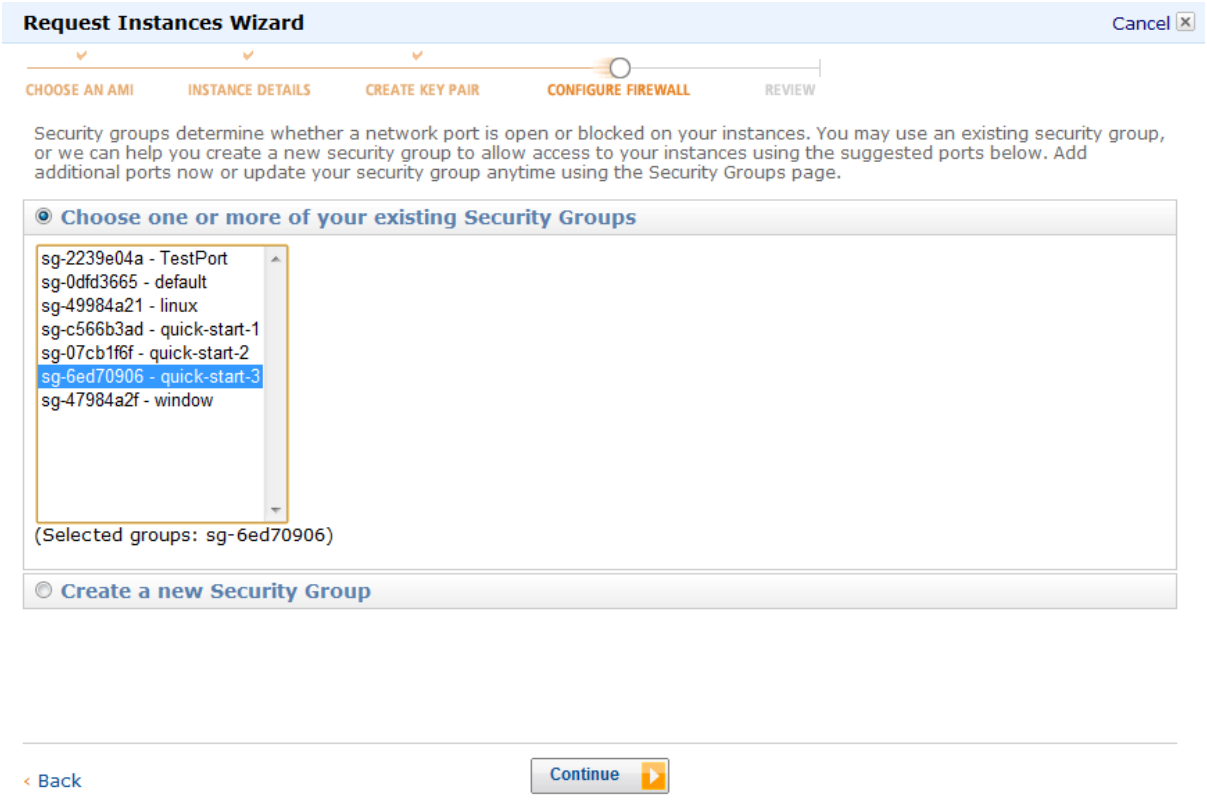
The **Configure Firewall** page appears. Follow instructions in Section B.3.5, “Configure Firewalls” to continue with the remaining steps.

B.3.5 Configure Firewalls

A security group defines firewall rules for your instances.

You may create a new security group or use an existing security group to allow access to your instances. If you need to connect an instance through remote desktop connection, make sure that **port 3389** is open in the security group you choose.

Figure B.10: Choose one or more of your existing Security Groups



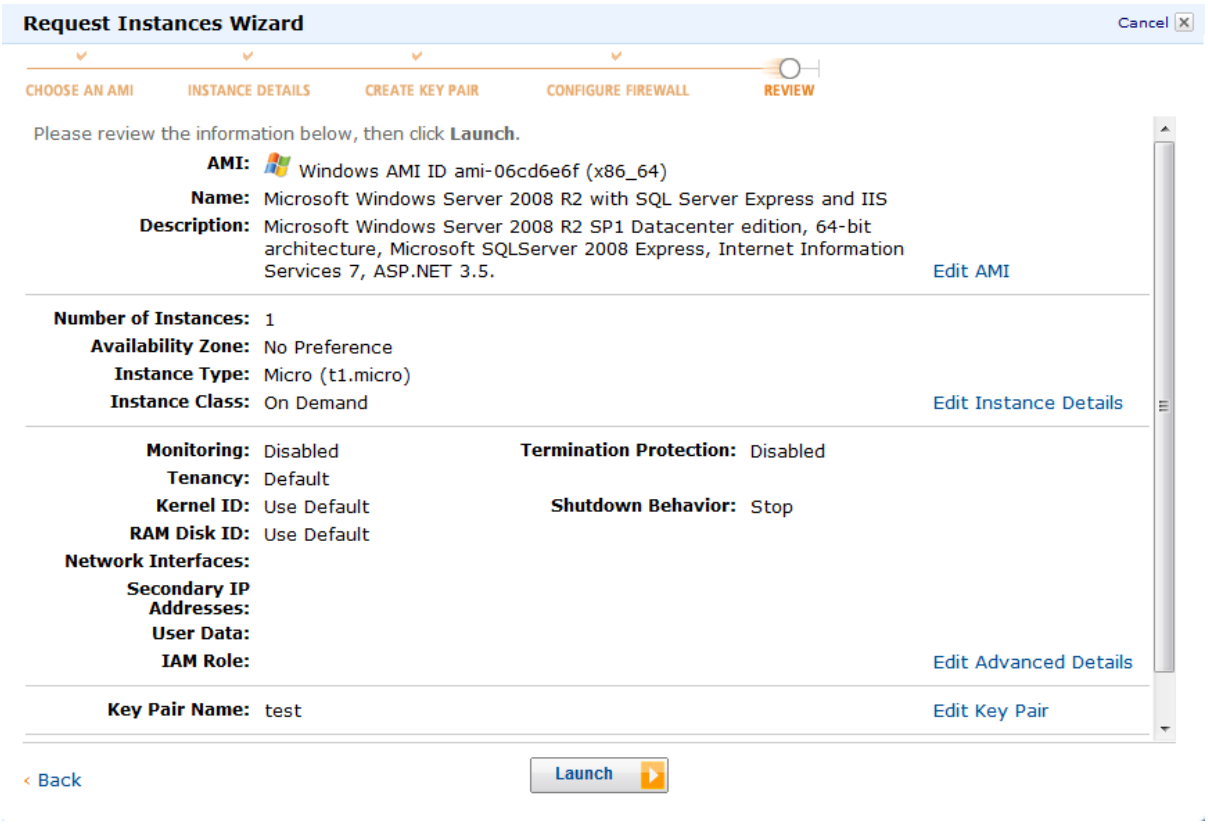
Click **Continue**. You can review or change the instance settings, and then launch the instance. See Section B.3.6, “Review and launch” for details.

B.3.6 Review and launch

Step 1: On the **Review** page, review or change the instance settings.

Step 2: Click **Launch** to launch the instance.

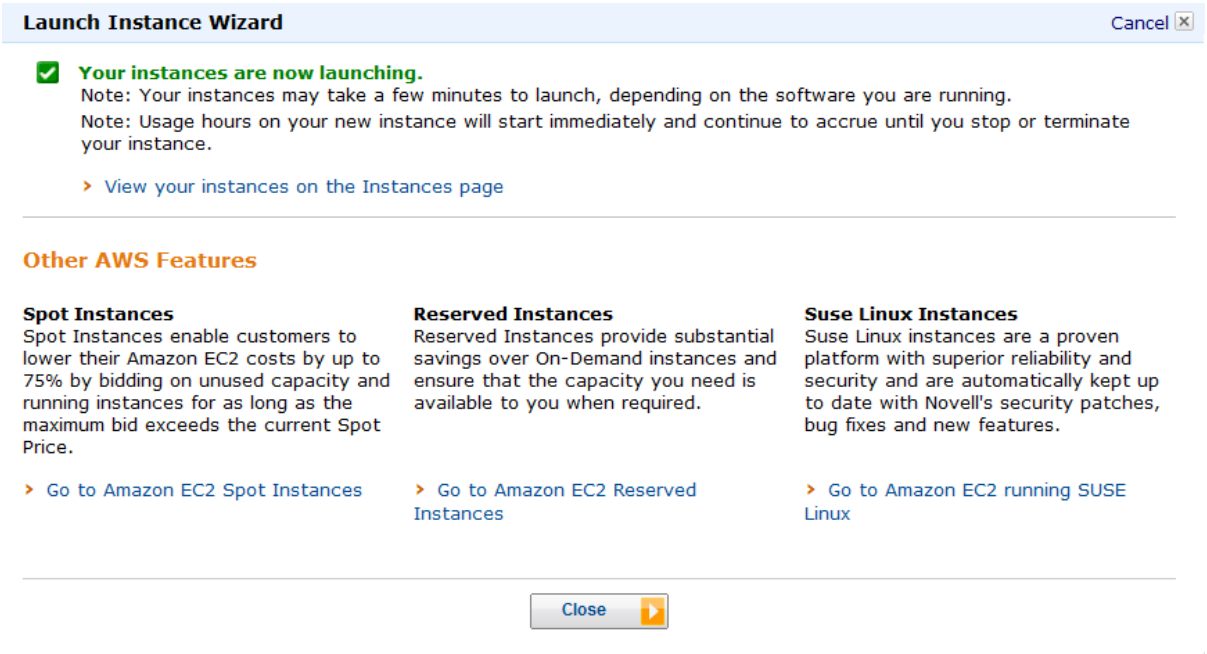
Figure B.11: Review



A confirmation page appears and shows that your instance is now launching.

Step 3: Click **Close** to complete the launching.

Figure B.12: Confirmation page

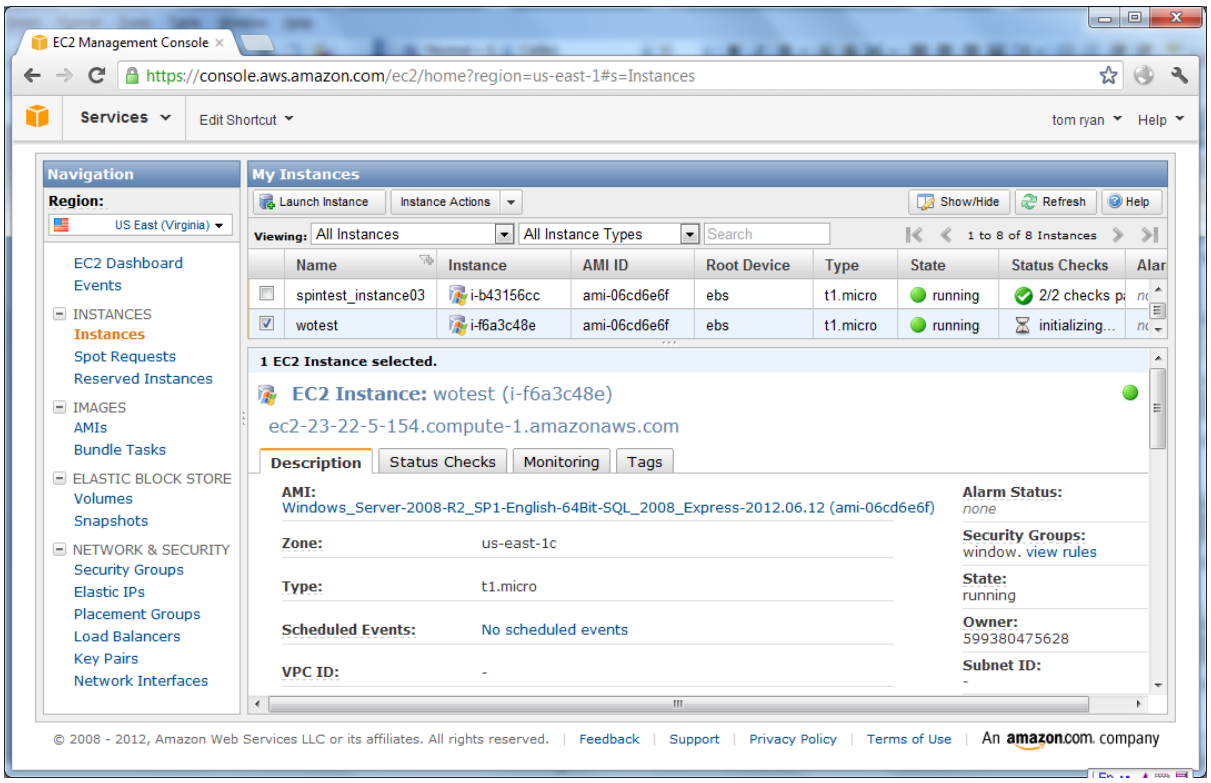


Step 4: In the **Navigation** pane, click **Instances** to view the status of your instances.

It takes a while for an instance to launch. The status of an instance will be "**pending**" if it is still launching.

The detailed information, such as Description, Status Checks, Monitoring etc., will be displayed below the instance list if an instance is selected.

Figure B.13: Instance List



For more information about AWS EC2 user guide, see http://docs.amazonwebservices.com/AWSEC2/latest/GettingStartedGuide/Welcome.html.

B.4 Connecting to an Amazon EC2 instance

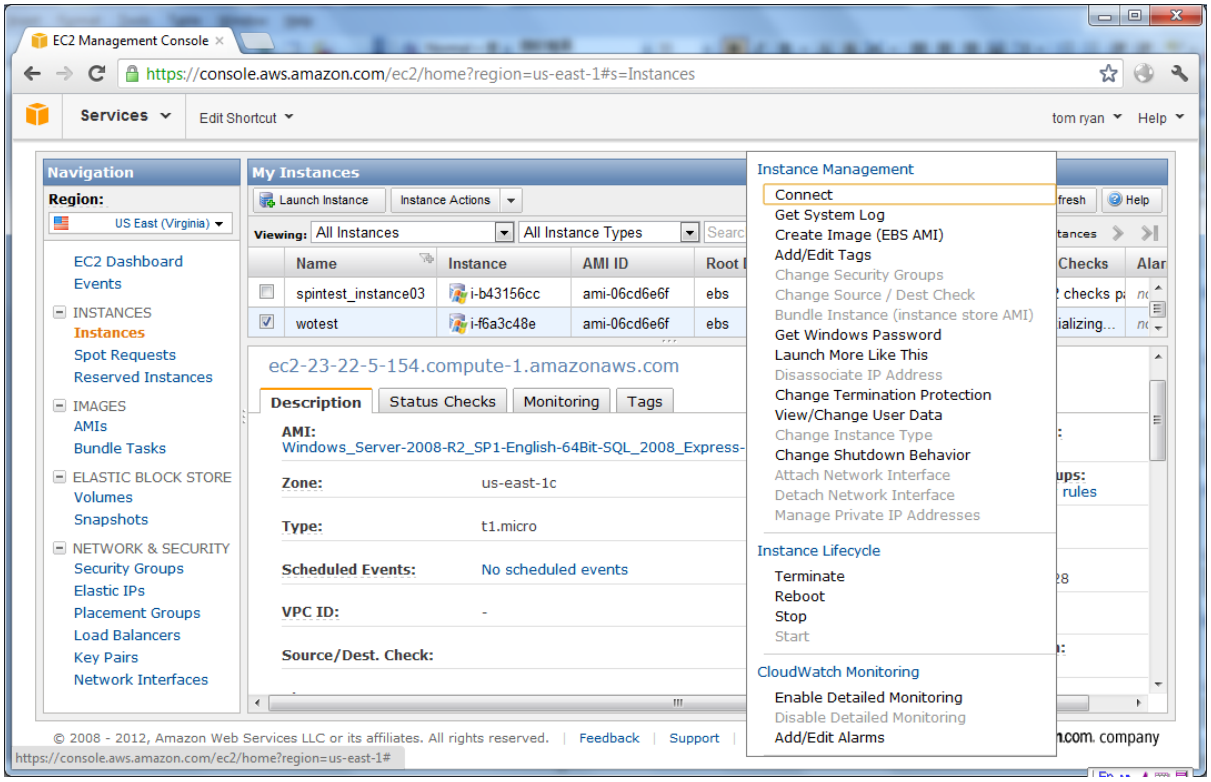
B.4.1 Retrieve an initial administrator password

To connect to an instance using remote desktop connection, you must first retrieve an initial administrator password. You will need the .pem file that you created when you launched the instance (e.g., Appeontest.pem).

Step 1: On the **EC2 Management Console** page, click **Instance** under the **Navigation** pane.

Step 2: In the **My Instances** pane, right-click the instance you created, and an action list pops up. You can also display the action list by clicking the **Instance Actions** dropdown list box.

Figure B.14: Instance Actions



Step 3: Click **Get Windows Password** from the popup action list to get an initial administrator password.

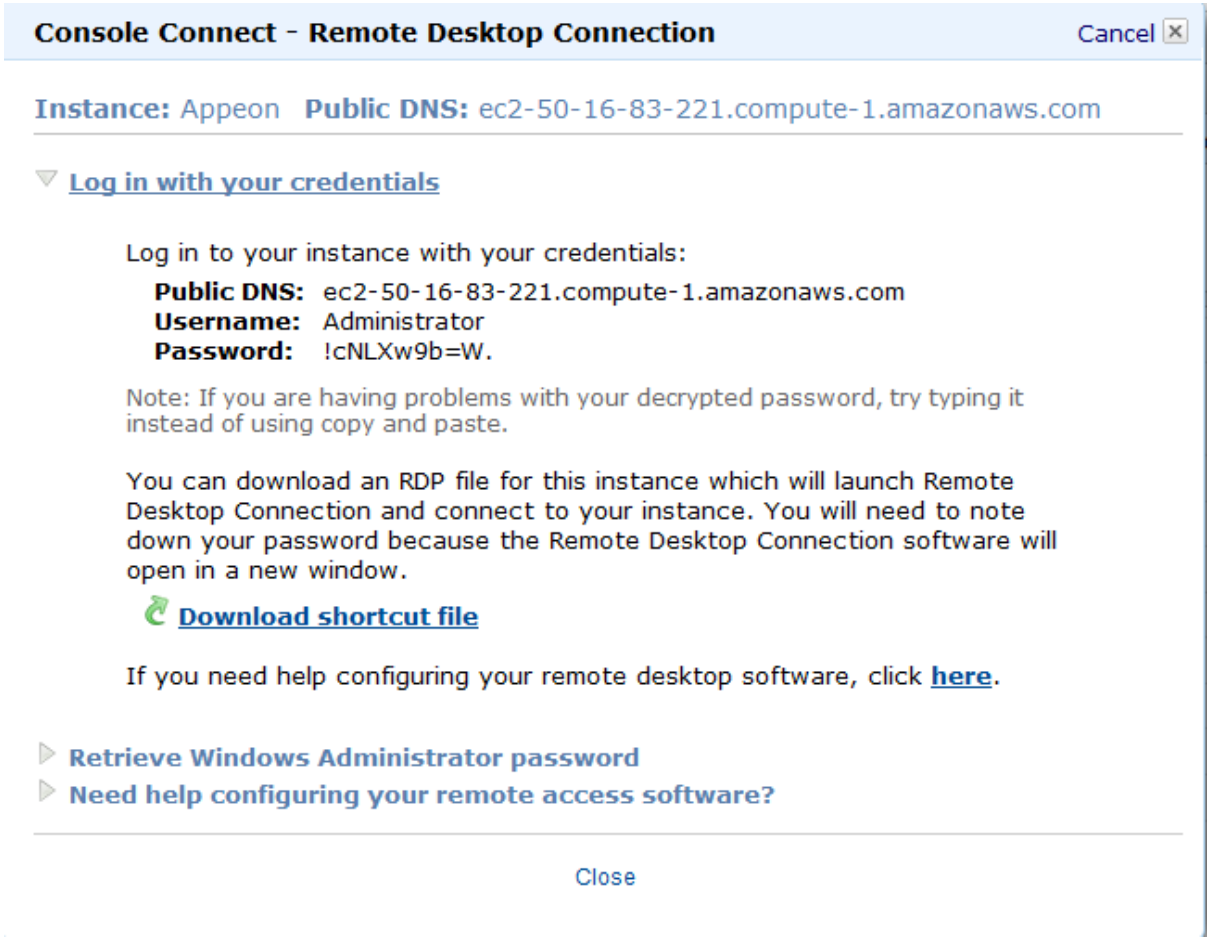
Step 4: Click **Browse** and navigate to the .pem file you saved when you create the instance. And then select the file and click **OK**. The entire contents of the file will be automatically copied into the **Private Key** contents box.

Step 5: Click **Decrypt Password**.

Step 6: Record the default administrator password after the password is successfully generated. You need this password to connect to the instance.

Step 7: Click **Close** to close the dialog.

Figure B.15: Password retrieved successfully



B.4.2 Connect using remote desktop connection

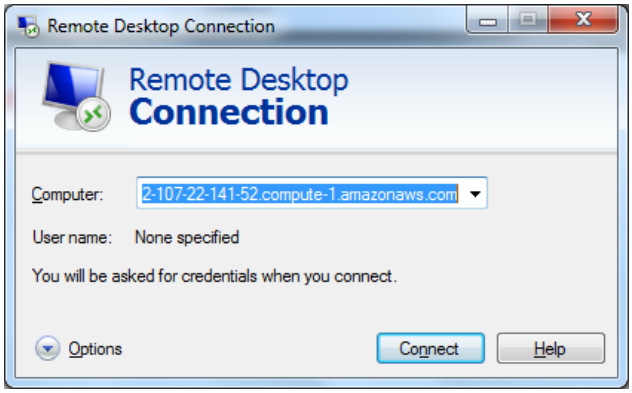
Step 1: Right-click the instance in the **My Instances** pane and select **Connect** from the popup menu.

Step 2: Select **Login with your credential** on the popup page and then click **Download shortcut file**.

A dialog pops up telling you to either open or save the .rdp file. Either option is fine. **Open** is selected in this guide.

Step 3: Select **Open** and click **OK**.

Figure B.16: Remote Desktop Connection



Step 4: Log in to the instance as prompted, using **Administrator** as the user name and **the default administrator password** you just recorded as the password.

B.5 Uploading File Packages to Amazon S3

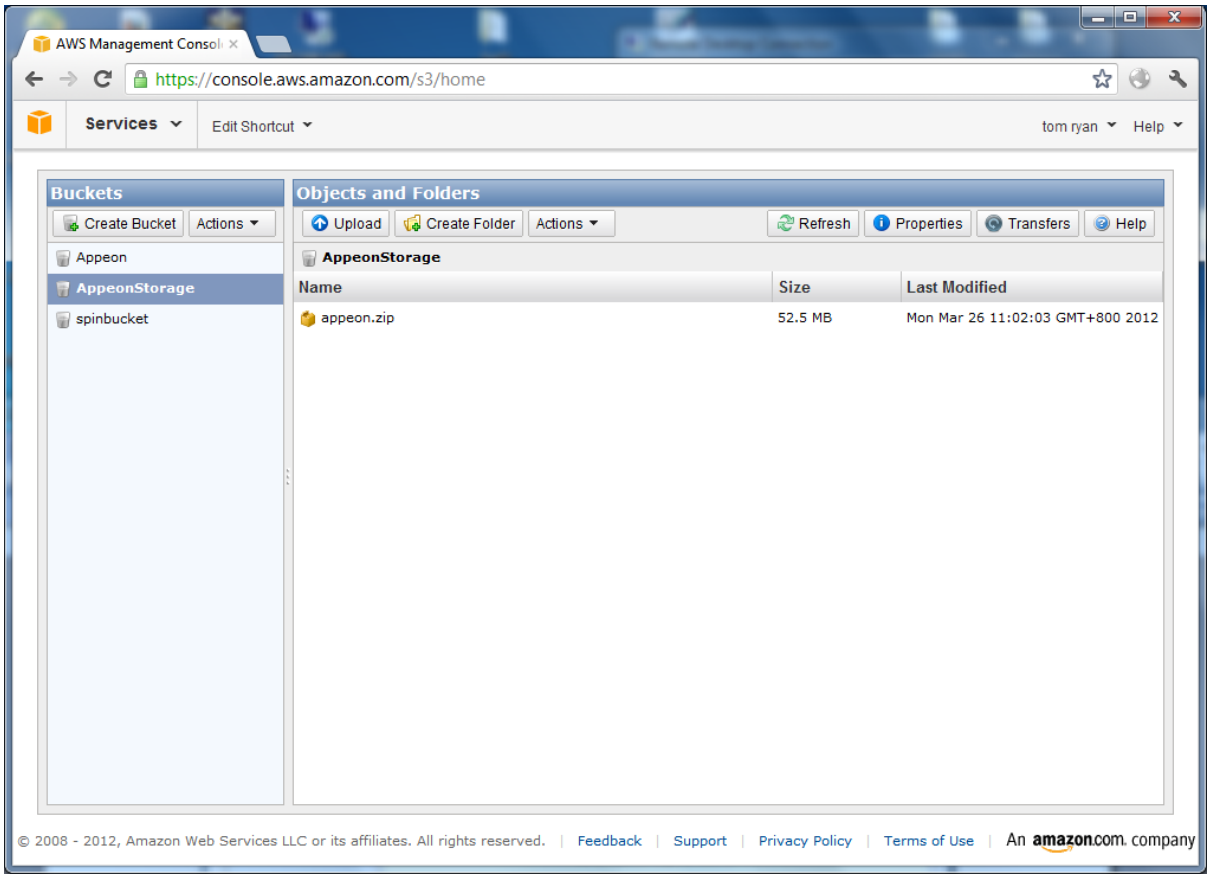
B.5.1 Create Bucket

Step 1: Log in to the **AWS Management Console** at http://aws.amazon.com/. For details, see Section B.2, “Logging in to AWS Management Console”.

Step 2: Click **S3** under the **Storage & Content Delivery** category on the **AWS Management Console** home page. The S3 management page is displayed.

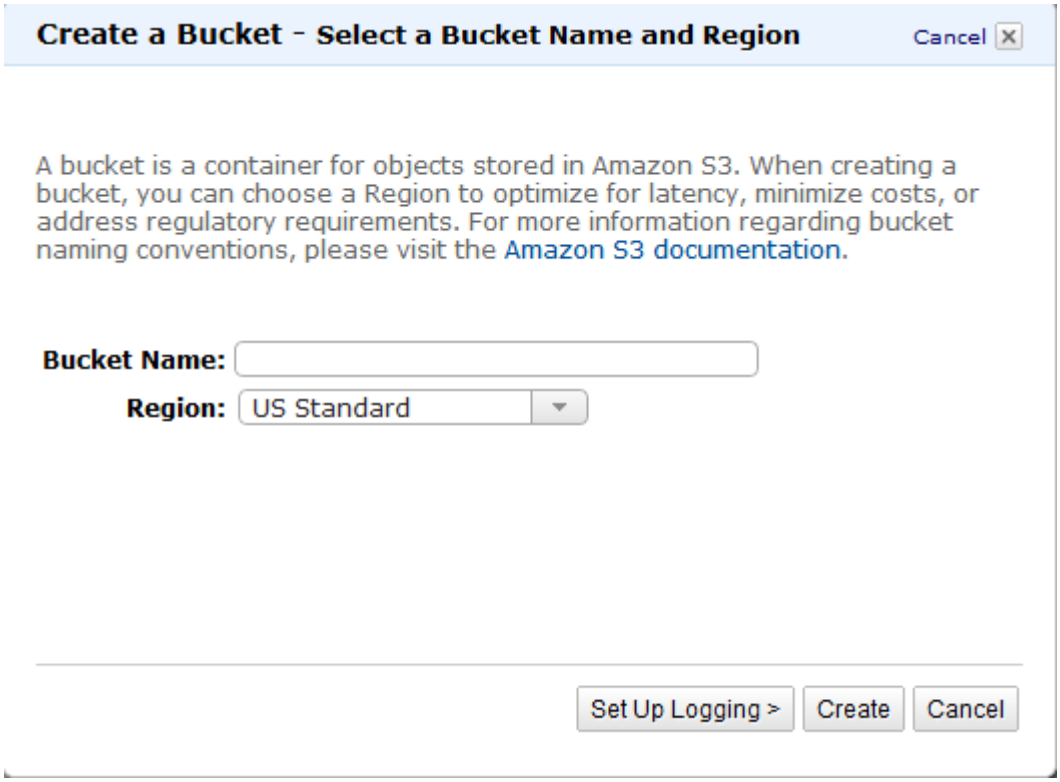
This page contains two panes: the **Buckets** pane and the **Objects and Folders** pane. **Buckets** are the fundamental container in Amazon S3 for data storage. It is similar to a directory in Windows operation systems. And every object is stored in a bucket in Amazon S3. **Objects** are the fundamental entities stored in Amazon S3. An object can be any kind of file: a text file, a photo, a video, and so forth. A folder can contain various objects. For more information on Buckets and Objects and Folders, see http://docs.amazonwebservices.com/AmazonS3/latest/dev/Introduction.html.

Figure B.17: Amazon S3



Step 3: Click **Create Bucket** in the **Buckets** pane. And the **Create a Bucket** dialog box appears.

Figure B.18: Create a Bucket – Select a Bucket Name and Region



Step 4: Enter a bucket name in **Bucket Name**.

Step 5: Select a region from the **Region** dropdown list box.

Step 6: Click **Create**.

An empty bucket is created and is displayed in the **Buckets** pane. You can now upload file packages by following instructions in Section B.5.2, “Upload file packages”.

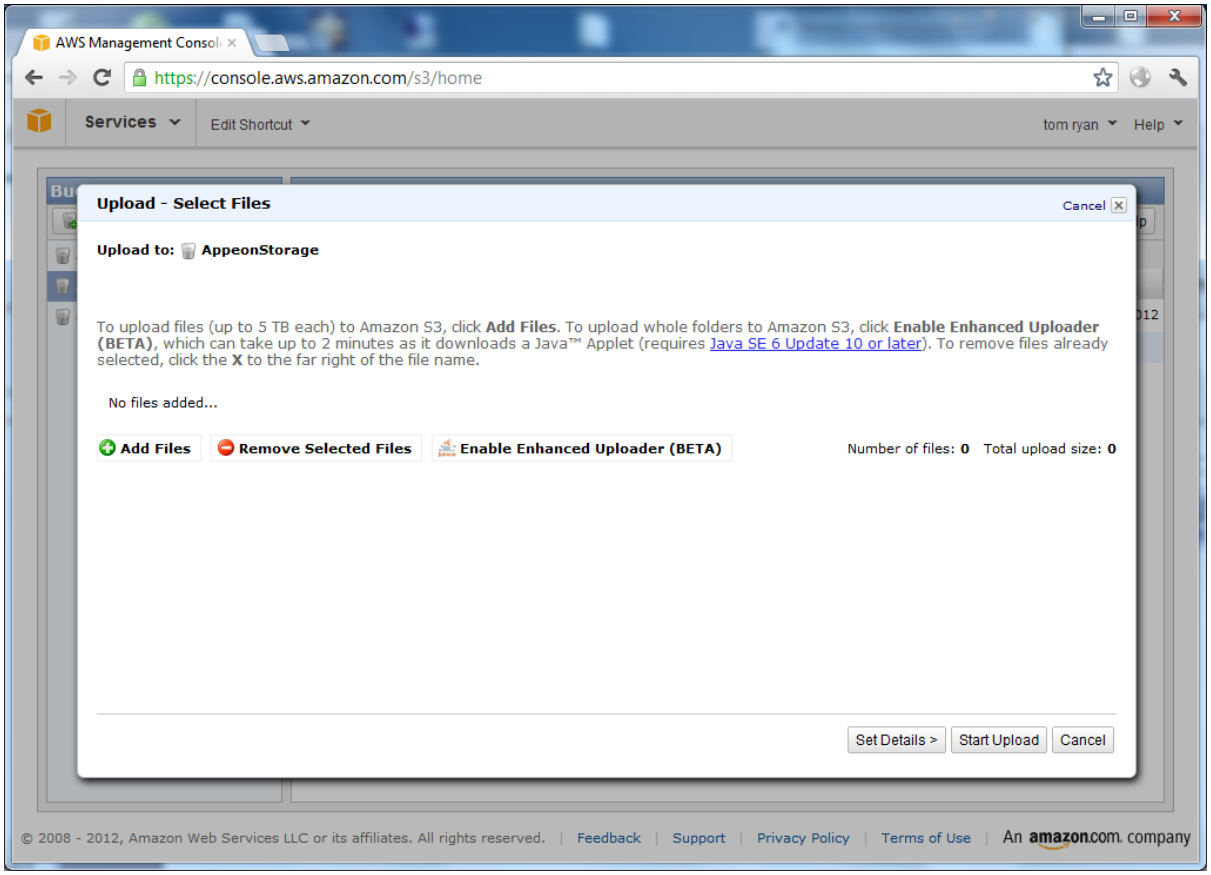
B.5.2 Upload file packages

Step 1: Select the bucket in the **Buckets** pane.

Step 2: Click **Upload** in the **Objects and Folders** pane.

The **Upload - Select Files** wizard appears.

Figure B.19: Upload -- Select Files



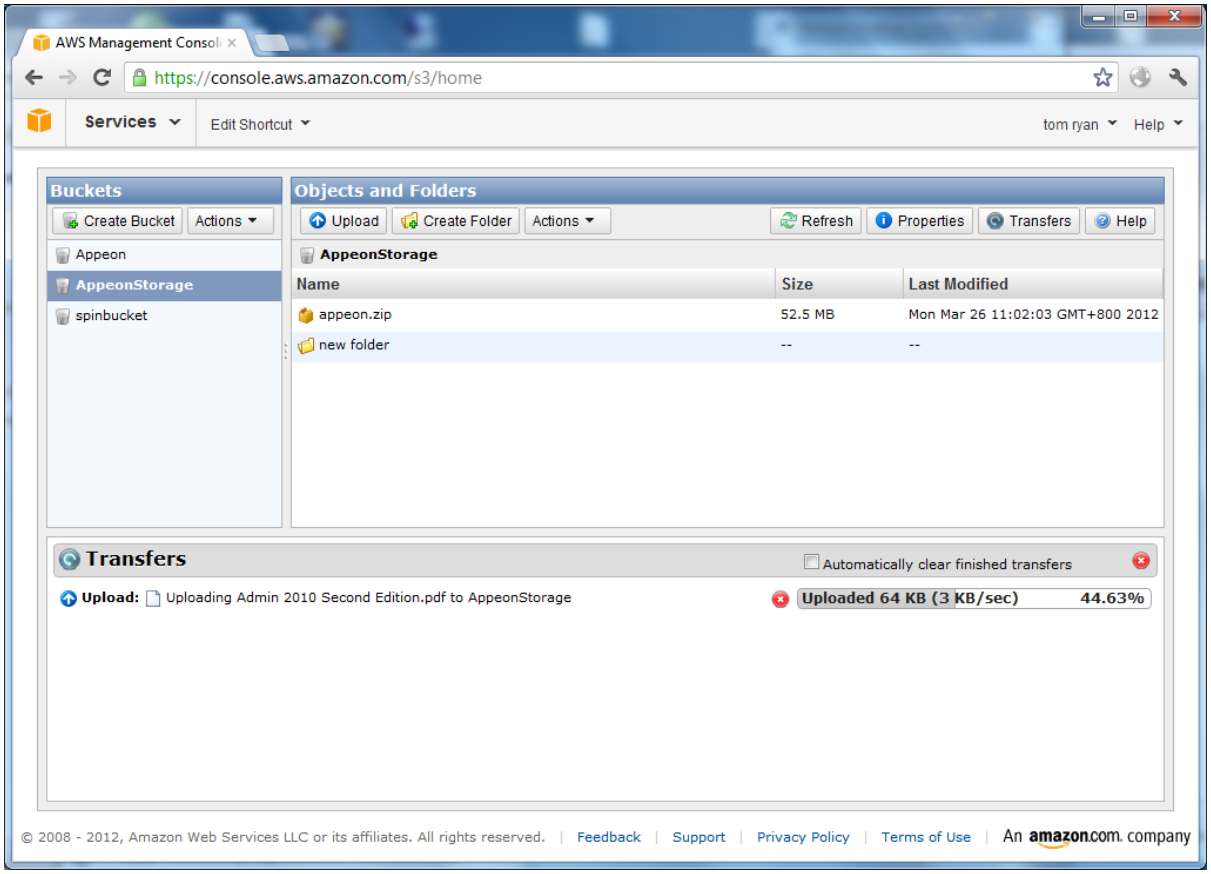
Step 3: Click **Add Files**.

Step 4: Select the file you want to upload and click **Open**.

Step 5: Click **Start Upload**.

You can check the progress of the upload in the **Transfer** pane. The **Transfer** pane appears at the bottom of the screen as soon as you begin the upload.

Figure B.20: Transfers pane



After the file is uploaded successfully to Amazon S3, it appears in the object list in the **Objects and Folders** pane.

For more information about AWS S3 user guidelines, see http://docs.amazonwebservices.com/AmazonS3/latest/dev/Introduction.html.

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