Installation Guide on Cloud Platform

Appeon for PowerBuilder 2013 FOR WINDOWS

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# Contents

	. 1
1.1 Audience	. 1
1.2 How to use this book	. 1
1.3 Related documents	. 1
1.4 If you need help	. 2
2 Installing Appeon Server and application	. 3
2.1 Supported cloud platform	. 3
2.2 Cloud system requirements	. 3
2.3 Preparing the Appeon Server setup package	. 3
2.4 Preparing the Appeon application package	. 5
2.5 Uploading files to cloud server	. 5
2.6 Configuring & running the silent installation	. 5
3 Configuring Cluster for Cloud Server	. 0
3.1 Installing Appeon Cluster Plug-in	. 0 8
3.2 Configuring Cluster	. 0
3.2.1 Creating a cluster	13
3.2.2 Managing Logs	17
Δ Δ Simple Guide to Windows Δzure	18
A 1 Introduction	10
A. 2 Creating Virtual Machine Instance	10
A.2 1 Overview	10
A.2.1 Overview	10
A.2.2 Using Appeon windows Azure Demo	10
	10
A Z 3 L Environment requirements	
	10
A.2.3.2 Developing a .NET cloud computing Worker role	10
A.2.3.2 Developing a .NET cloud computing Worker role application	19
A.2.3.2 Developing a .NET cloud computing Worker role application A.2.4 Deploying .NET cloud computing application	19 23
A.2.3.2 Developing a .NET cloud computing Worker role application A.2.4 Deploying .NET cloud computing application A.2.4.1 Uploading certificate	19 23 23
A.2.3.2 Developing a .NET cloud computing Worker role application A.2.4 Deploying .NET cloud computing application A.2.4.1 Uploading certificate A.2.4.2 Deploying application	19 23 23 23
A.2.3.2 Developing a .NET cloud computing Worker role application A.2.4 Deploying .NET cloud computing application A.2.4.1 Uploading certificate A.2.4.2 Deploying application B A Simple Guide to AWS EC2 and S3	19 23 23 23 25
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li></ul>	19 23 23 23 25 25
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li></ul>	19 23 23 23 25 25 25 26
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li> <li>A.2.4.2 Deploying application</li> <li>B A Simple Guide to AWS EC2 and S3</li> <li>B.1 Introduction</li> <li>B.2 Logging in to AWS Management Console</li> <li>B.3 Launching an Amazon EC2 Instance</li> </ul>	19 23 23 23 25 25 26 27
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li></ul>	19 23 23 25 25 25 26 27 27
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li></ul>	19 23 23 25 25 26 27 27 28
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li></ul>	19 23 23 25 25 25 26 27 27 28 29
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li></ul>	19 23 23 25 25 25 26 27 27 28 29 32
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li></ul>	19 23 23 25 25 26 27 27 28 29 32 33
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li> <li>A.2.4.2 Deploying application</li> <li>B A Simple Guide to AWS EC2 and S3</li> <li>B.1 Introduction</li> <li>B.2 Logging in to AWS Management Console</li> <li>B.3 Launching an Amazon EC2 Instance</li> <li>B.3.1 Get started</li> <li>B.3.2 Choose an AMI</li> <li>B.3.3 Specify instance details</li> <li>B.3.4 Create Key Pair</li> <li>B.3.5 Configure Firewalls</li> <li>B.3.6 Review and launch</li> </ul>	19 23 23 25 25 26 27 27 28 29 32 33 34
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li></ul>	19 23 23 25 25 26 27 28 29 32 33 34 36
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li></ul>	19 23 23 25 25 26 27 27 28 29 32 33 34 36 36
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li> <li>A.2.4.2 Deploying application</li> <li>B A Simple Guide to AWS EC2 and S3</li> <li>B.1 Introduction</li> <li>B.2 Logging in to AWS Management Console</li> <li>B.3 Launching an Amazon EC2 Instance</li> <li>B.3.1 Get started</li> <li>B.3.2 Choose an AMI</li> <li>B.3.3 Specify instance details</li> <li>B.3.4 Create Key Pair</li> <li>B.3.5 Configure Firewalls</li> <li>B.3.6 Review and launch</li> <li>B.4 Connecting to an Amazon EC2 instance</li> <li>B.4.1 Retrieve an initial administrator password</li> <li>B.4.2 Connect using remote desktop connection</li> </ul>	19 23 23 25 25 26 27 28 29 32 33 34 36 38
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li> <li>A.2.4.2 Deploying application</li> <li>B A Simple Guide to AWS EC2 and S3</li> <li>B.1 Introduction</li> <li>B.2 Logging in to AWS Management Console</li> <li>B.3 Launching an Amazon EC2 Instance</li> <li>B.3.1 Get started</li> <li>B.3.2 Choose an AMI</li> <li>B.3.3 Specify instance details</li> <li>B.3.4 Create Key Pair</li> <li>B.3.5 Configure Firewalls</li> <li>B.3.6 Review and launch</li> <li>B.4 Connecting to an Amazon EC2 instance</li> <li>B.4.1 Retrieve an initial administrator password</li> <li>B.4.2 Connect using remote desktop connection</li> <li>B.5 Uploading File Packages to Amazon S3</li> </ul>	19 23 23 25 25 26 27 28 29 32 34 36 36 38 39
A.2.3.2 Developing a .NET cloud computing Worker role application A.2.4 Deploying .NET cloud computing application A.2.4.1 Uploading certificate A.2.4.2 Deploying application B A Simple Guide to AWS EC2 and S3 B.1 Introduction B.2 Logging in to AWS Management Console B.3 Launching an Amazon EC2 Instance B.3.1 Get started B.3.2 Choose an AMI B.3.3 Specify instance details B.3.4 Create Key Pair B.3.5 Configure Firewalls B.3.6 Review and launch B.4.1 Retrieve an initial administrator password B.4.1 Retrieve an initial administrator password B.4.2 Connect using remote desktop connection B.5.1 Create Bucket	19 23 23 25 25 26 27 28 29 32 33 34 36 38 39 39
<ul> <li>A.2.3.2 Developing a .NET cloud computing Worker role application</li> <li>A.2.4 Deploying .NET cloud computing application</li> <li>A.2.4.1 Uploading certificate</li> <li>A.2.4.2 Deploying application</li> <li>B A Simple Guide to AWS EC2 and S3</li> <li>B.1 Introduction</li> <li>B.2 Logging in to AWS Management Console</li> <li>B.3 Launching an Amazon EC2 Instance</li> <li>B.3.1 Get started</li> <li>B.3.2 Choose an AMI</li> <li>B.3.3 Specify instance details</li> <li>B.3.4 Create Key Pair</li> <li>B.3.5 Configure Firewalls</li> <li>B.3.6 Review and launch</li> <li>B.4 Connecting to an Amazon EC2 instance</li> <li>B.4.1 Retrieve an initial administrator password</li> <li>B.4.2 Connect using remote desktop connection</li> <li>B.5 Uploading File Packages to Amazon S3</li> <li>B.5.1 Create Bucket</li> <li>B.5.2 Upload file packages</li> </ul>	19 23 23 25 25 26 27 28 29 32 34 36 36 39 39 40

# 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:

Guides you through all the documents included in Appeon for PowerBuilder.

• New Features Guide:

Introduces new features and changes in Appeon for PowerBuilder.

• Appeon Mobile Tutorials:

Gives instructions on deploying, running, and debugging Appeon applications, distributing native mobile apps, and configuring Appeon server clusters.

• Appeon Installation Guide:

Provides instructions on how to install Appeon for PowerBuilder successfully.

• Development Guidelines for Appeon Mobile:

Introduces general guidelines on developing apps with Appeon Mobile.

• 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 the user through the entire process of deploying a small PowerBuilder application to the Web.

• Features Help for Appeon:

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 issues, such as unsupported features, etc., encountered when using Appeon for PowerBuilder.

• Appeon Workspace User Guide:

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

• 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 Appeon deployed applications.

• Web Server Configuration Guide:

Describes configuration instructions for Web Servers to work with a single Appeon Server or an Appeon Server cluster.

• Troubleshooting:

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 <u>http://www.appeon.com/support</u>.

# **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 the installation guide 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 any installation guide 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 for PowerBuilder Setup		×
Select Components Choose the components this setup	will install. Clear the components you do not want to install.	
	Choose Setup Components ☐ ☑ Appeon Server ☐ ☐ Appeon Server for .NET (Already installed)	٦
	Appeon Server for EAServer     Appeon Server for WebLogic     Appeon Server for WebSphere     Appeon Server for JBoss     Appeon Server for JEUS     Appeon Server for Cloud     Appeon Developer (Already installed)     Appeon Help (Already installed)     Appeon Server Web Component (Already installed)	
Appeon for PowerBuilder 2013	Description Appeon Server for Cloud can provide a cloud computing environment for the deployed applications.	
InstallShield	< <u>B</u> ack <u>N</u> ext > Ca	ancel

After installing **Appeon Server for Cloud**, you can find the following folders in %appeon% \AppeonServer4Cloud2013. 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:

G S C: Frogram Files Apped	n 🖡 Appeonserver4Cloud2013 🖡 👻 🍫	arch AppeonServer4Cloud2U	13 <b>D</b>
Organize 👻 🛜 Open 🛛 Include in library 💌	Share with 🔻 New folder		
i dell	Name	Date modified	Туре
Drivers	EAServer	3/18/13 2:37 PM	File folder
▷ 🎍 inetpub		3/18/13 2:38 PM	File folder
D Intel	TIS64	3/18/13 2:37 PM	File folder
Morpheon Corporation	JBoss5	3/18/13 2:38 PM	File folder
PerfLogs	JBoss7	3/18/13 2:37 PM	File folder
Program Files	🍌 JEUS	3/18/13 2:37 PM	File folder
Adobe	JEUS64	3/18/13 2:37 PM	File folder
Appeon	🍌 license	3/18/13 2:38 PM	File folder
EASenver	퉬 WebLogic	3/18/13 2:37 PM	File folder
		3/18/13 2:37 PM	File folder
AppeonServer	product.ini	3/15/13 1:38 AM	Configurat
setup	setup.skin	3/6/03 10:12 AM	SKIN File
Windows Azure Demo			
▷ 퉲 IIS64			-
EAServer Date modified: 3/18/13 2:37 PI File folder	Λ		

# 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 the *Packaging an Appeon application* section in the *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%\AppeonServer4Cloud2013\ %servertype%\ directory.
- Appeon Server file package: the **AppeonServer** folder under the %appeon% \AppeonServer4Cloud2013\%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.
- **AWSStorage**: indicates that the file is stored in Amazon Simple Storage Service (Amazon S3).
- 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.

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 a 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 a 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 **WebComponent2013**\**appeon**\**IISSupport**\ directory, and this folder is the Appeon cluster plug-in installation package, as shown in the following figure.

e <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp							
)rganize 🔻 Include in library 🔻	Share	with 🔻 New folder					(
<ul> <li>WebComponent2013</li> <li>appeon</li> <li>Apache13Support</li> <li>Apache20Support</li> <li>Apache22Support</li> <li>ISSupport</li> <li>ISSupport</li> <li>APBCluster</li> <li>appeon</li> <li>AppeonCloud</li> <li>conf</li> <li>modules</li> <li>weblibrary_ax</li> <li>Apple Software Update</li> <li>Beyond Compare 3</li> <li>Bonjour</li> </ul>	• III	Name APBCluster Appeon AppeonCloud AppeonCluster AppeonCluster AppeonCluster.exe AppeonCluster.exe Interop.ActiveDs Interop.IISOle Interop.IISOle Interop.IWshRuntimeLibrary log4net Iog4net Sregis Silentinstall	Date modified 4/25/2013 11:22 AM 4/25/2013 11:22 AM 4/25/2013 11:22 AM 4/23/2013 10:56 AM 4/23/2013 10:56 AM 4/25/2013 11:27 AM 4/23/2013 10:56 AM 4/23/2013 10:56 AM 4/23/2013 10:56 AM 4/23/2013 10:56 AM 4/23/2013 10:56 AM	Type File folder File folder Application XML Configuratio Text Document XML Configuratio DLL File DLL File DLL File DLL File XML File Windows Batch File Configuration sett	Size 262 KB 1 KB 1 KB 94 KB 10 KB 37 KB 244 KB 1,258 KB 1 KB 3 KB		
Common Files     DVD Maker     Gagala							

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**.

# Figure 3.2: Create plugin on a Web site

ſ	🕢 Appeon Cluster Plug-in Installation Wizard
	Welcome to Appeon Cluster Plug-in Installation Wizard Select an option to continue.
	Create an Appeon Cluster Plug-in on an existing Web site Select this option to create an Appeon Cluster Plug-in on an existing Web site.
	Create an Appeon Cluster Plug-in on a new Web site Select this option to create a new Web site and an Appeon Cluster Plug-in.
	Remove an Appeon Cluster Plug-in
	Select this option to remove the Appeon Cluster Plug-in from an existing Web site.
	< <u>B</u> ack <u>N</u> ext> <u>C</u> ancel

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

0	Appeon Cluster Plug-in Installation Wizard	x
	Create an Appeon Cluster Plug-in on a new Web site	
	Enter the information below to create the new Web site and the new Appeon Cluster Plug-in.	
	New Web Site	
	Description:	
1	TCP Port:	
	Home Directory: Browse	
1	Existing Web Site	
	Default Web Site[TCP Port=80;Home Directory=C: \inetpub \wwwroot] Test[TCP Port=80;Home Directory=C: \Program Files \Inetpub \wwwroot]	
-		
	< <u>B</u> ack <u>N</u> ext> <u>C</u> ancel	

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

Figure 3.4: Select run mode

ſ	The Appeon Cluster Plug-in Installation Wizard	X
	Create an Appeon Cluster Plug-in on a new Web site	
	Select Appeon Cluster Plug-in run mode.	
	Oreate a new Appeon Cluster Plug-in (32-bit)	
	The Appeon Cluster Plug-in will run as a 32-bit program.	
	Create a new Appeon Cluster Plug-in (64-bit)	
	The Appeon Cluster Plug-in will run as a 64-bit program.	
		_
	< <u>B</u> ack <u>N</u> ext> <u>C</u> ancel	
L		

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 Internet Explorer.

	**** *	<b></b>		
Figure 3.5:	Windows	administrator	username and	password
I Igui e eter			abor manne ana	passion

appeon Cluster Plug-in Installation	n Wizard	×
Specify the Windows administrat	or user name and password	
Enter the username and password	of an administrator group member for the IIS application pool.	
The user name and password is r an administrator user name and p	required by Appeon Cluster Plug-in to support the cluster environm assword of the Windows operating system login account.	nent. It must be
Usemame:		
Password:		
Confirm Password:		
	< <u>B</u> ack <u>N</u> ext>	<u>C</u> ancel

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

ſ	appeon Cluster Plug-in Installation Wizard
	Create an Appeon Server on a new Web site Create the Web site "AppeonCluster" and Appeon Cluster Plug-in.
	Created the Appeon Cluster Plug-in on the Web site AppeonCluster successfully.
	< <u>B</u> ack <u>N</u> ext> <u>Finish</u>

# **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 the *Cluster* section in the *Server Configuration Guide*.

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

A	Appeon Cluster Manager > Local Cluster Setting				
Local Cluster Setting					
	Sets cluster type that is used to	store c	uster information.		
	Host:				
	Port:		80		
				Save	
	Actions	Host		Port	
	Delete	localho	t	80	
	Delete	192.0.2	.113	80	

#### 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

A	Appeon Cluster Manager > Azure Cluster Setting				
	Azure Cluster Type Setting				
	Sets the Cluster Type which used to	save cluster information.			
	● Role ○ Azure Table Storage				
		Save			
⊟					
	Azure Cluster Setting				
	Sets information of role instances u	sed to Appeon Server Cluster in the Windows Azure environment.			
	Role Name:				
	Port:	80			
		Save Delete			

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

A	Appeon Cluster Manager > Azure Cluster Setting					
Ξ						
	Azure Cluster Type Setting					
	Sets the Cluster Type which used to sav	e cluster information.				
	O Role 💿 Azure Table Storage					
		Savi	e			
⊡						
	Azure Cluster Setting					
	Sets information of role instances used	to Appeon Server Cluster in the Windows Azure environment.				
	AccountName:					
	AccountKey:					
	Host:					
	Port:	80				
		Savi	e			

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

	Appeon Cluster Manager > AWS Cluster Setting					
	AWS Cluster Type Setting Sets cluster type that is used to store cluster information.					
	● Default <sup>C</sup> SimpleDB					
Ξ	AWS Cluster Server Setting Sets server instance information t	that is used for Appeon Cluster.				
	AccessKey:	AKIAJ4LIMRQOPNAOLK3Q				
	SecretKey:	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				
	Instance Id:	i-e6a7e39e				
	Port:	80				

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. <b>Random</b> indicates that the plug-in distributes requests across Appeon Servers in random order, regardless of the status of Appeon Server; <b>Sequence</b> 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

Cluster Information Setting					
Configures information (such as load	Configures information (such as load balance, timeout, etc.) that is used for Appeon Cluster.				
Load Balancing Setting:	Random      Sequence				
Timeout Setting:	120				
Interval Setting:	5				
	Save				

<u>Save</u>

# 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

#### 🗆 Log Viewer

Views the Appeon Cluster Manager log and Appeon Cluster log.				
Actions	Log	Size(KB)		
View Download	Appeon Cluster Log	19.51		
View Download Clear	Appeon Cluster Manager Log	1.17		

#### □ Log Setting Configures the Appeon Cluster Manager log mode.

Strandard Mode

# 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%\AppeonServer4Cloud2013\IIS\Windows Azure Demo folder and then deploy them by following instructions in <u>Section A.2.4</u>, "<u>Deploying .NET cloud computing application</u>". **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 <u>Section A.2.3</u>, "<u>Developing .NET cloud computing</u> <u>application</u>".

# 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 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)

File Edit View Debug Team Data Tools Test Windo	ow Help	
	🖳 🕨 🔹 🖓 🖓 Please input Host 🔹 💌 🖓 🖓 😥 🛍 🖭 * 🖕	
1.		
Start Page ×	•	Solution Explorer 🔷 👎 🗙
		<b>B</b>
Visual Studio: 2010 Professi	ional	
VISUAI SCUCIO 2010 PIOLESSI	Unda	
	Cot Started Cuidenee and Resources Latert Naur	1
Connect To Team Foundation Server	Cet Started Buldance and Resources Latest News	
New Project	Development Process MSDN Resources Additional Tools	
Concep Broject	Overview of Development Processes	
	Great software development starts with a solid understanding of the development process. This overview provider you with information to help adort the light process.	
Recent Projects	Learn About Various Development Processes	
	Visit the Microsoft Patterns and Practices Developer Center	
Impace Chater Manager		
CloudService1	Kamininini - 1.30 (	
AP87.0_Cloud	Managing Your Source Code in Visual Studio	
G AEM_Cloud32		
GerverLibrary_Cloud32_ForASA11		
	Unit Testing in Visual Studio	
	Use Visual Studio for Test Driven Development	
Close page after project load		
re prov page on startup		Solution Explorer Team Explorer

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** 

New Project						<u>? ×</u>
Recent Templates		.NET Framework 4	Sort by: Default		Search Installed Templates	٩
Installed Templates					Tupe: Vicual C#	
<ul> <li>♥ Visual Basic</li> <li>♥ Visual C#</li> <li>♥ Windows</li> <li>₩ Office</li> <li>Cloud</li> <li>Reporting</li> <li>♥ SharePoint</li> <li>Silverlight</li> <li>Test</li> <li>₩CF</li> <li>₩Orkflow</li> <li>♥ Visual C++</li> <li>♥ Other Project Types</li> <li>♥ Database</li> <li>♥ Test Projects</li> </ul>		Windows Azu	re Project	Visual C#	A project for creating a scala runs on Windows Azure.	ble service that
Name:	WindowsAzureDen	no				
Location:	c:\users\appeon\d	locuments\visual studio 21	010\Projects	•	Browse	
Solution name:	WindowsAzureDen	no			Create directory for solution	
					ОК	Cancel

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 Wi	indows Azure	project
--------------------	--------------	---------

New Windows Azure Project			<u>? ×</u>	
.NET Framework 4 roles:		<u>W</u> indows	s Azure solution:	
✓ Visual Basic		c# ]	WorkerRole1	
Visual C#			Worker Role	
ASP.NET Web Role Service with a web user interface				
ASP.NET MVC 3 Web Role Service with a web user interface usi	Σ			
ASP.NET MVC 2 Web Role Service with a web user interface usi	<			
WCF Service Web Role Web role for WCF services				
Worker Role Background processing service				
1				
			ОК	Cancel

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

Figure A.4: Windows Azure demo

Sila Edit View Desi	0 - Prictosor Pisona Ream (Auminista aco) 	
	Naka na rata a kana kana kana kana kana kana kana	
i =		
WorkerRole1 [Role] ×	•	Solution Explorer 🔹 👎 🗙
Configuration	Service Configuration: All Configurations	Solution 'WindowsAzureDemo' (2 projects)
Settings		E Poles
Endpoints	.NET trust jevel	WorkerRole1
Local Storage	© Full must	ServiceConfiguration.Local.cscfg
Certificates	C Windows Azure partial trust	ServiceJerinition.csder
Units of Mathematic	raam.	Properties     Peferences
VIRGal Network	linguines	App.config
	Instance count: 1	WorkerRole.cs
	VM size: Small 💽 ()	
	Nametics	
	✓ Enable Diagnostics Specify the storage account credentials for the Diagnostics results:	
	Jose / Honore and the contract of the particular and the contract of the contr	
	V Use publish storage account as connection string when you publish to Windows Azure	
		Real Solution Explorer

• 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

Sile Sile View Desir	0 - PHLFUSURE #ISUAR SCURP (AURININSTRATOR)			
i i i i i i i i i i i i i i i i i i i	n bulu bebug realin bata roos rest window nep			
	ar a la la vice (a la) r boog v wij cro			
WorkerRole1 [Role] $\times$			Solution Explorer	≁ Ĥ ×
Configuration	Service Configuration: All Configurations		Solution 'Win	dowsAzureDemo' (2 projects)
Settings			Build	
Endpoints	.NET trust level		Rebuild	kerRole1 Ionfiguration.Cloud.cscfg
Local Storage	6 Eullback	-	Clean	onfiguration.Local.cscfg
Castification	C Windows Azure partial trust		Package	Perinition.csdef
Ceruncates		2	Publish	əs
Virtual Network	Instances		Configure Remote Decktop	fig
	Instance count: 1		Design Remote Deskup	tole.cs
	VM size: Small 👤 ()		Project Dependencies	
			New Web Role Project	
	Diagnostics		New Worker Role Project	
	Enable Diagnostics		Set as Startl In Project	
	Specify the storage account credentials for the Diagnostics results:		Debug	
	Use providence and the second state when use a which to USe down Arms	1	Add Solution to Source Control	
	Ose publish storage account as connection string when you publish to whitebox wzere	×	Cut Ctrl+X	
		×	Remove Del	
			Rename	
			Unload Project	
		ß	Open Folder in Windows Explorer	
		-	Browse To Portal	
		a	Properties Alt+Enter	
		_		-
			Solution Explo	er 📑 Team Explorer

灯 Stært 😫 | 🏈 詞 🔗 🤢 💿 🤹 👋 🔀 😳 Inbox - Micro... ) 🎉 Internet ... 🔹 🕵 192.168.168... । 🏂 D:l技术文档... । 🏂 L'|L192.0.0.16... । 🗽 C:|L1981s|app... | 🗹 Appeon Serv... | OH 🚔 🔍 🖳 🖏 (192.168.168)...

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 <u>Section A.2.4</u>, "Deploying .NET cloud computing application".

#### Figure A.6: Remote Desktop configuration

Remote Desktop Configuration	? ×
Enable connections for all roles	
Create or select a certificate to encrypt the user credentials. The certificate will be uploaded when you publish, or you can upload the certificate to the hosted service for your role using the Windows Azu Portal.	re
<automatic> View.</automatic>	
Specify the user credentials that will be used to connect remotely. User name:	
administrator	
Password:	
•••••	0
Confirm password:	
•••••	
Account expiration date:	
2014-03-06	
▲ More Options	ncel

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 <u>Section A.2.4</u>, "Deploying .NET cloud computing application".

#### Figure A.8: Windows Azure demo

😋 WindowsAzureDemo - Microsoft Visual Studio (Administrator)		
File Edit View Project Build Debug Team Data Tools Test Window Help		
🗄 🛅 🕶 🗃 🚰 🛃 🎒 👗 🚵 🖄 🤊 – 🔍 – 💭 – 🖏 🕨 Debug 👥 🔸 Any Cl	PU 👻 Please input Host 🔹 🔍	2 🖀 🞲 🖄 🔆 🛃 🖳 T 🖕
÷		
WindowsAsureDemo       WorkerRole cs         WindowsAsureDemo       WorkerRole cs         Application       Publish         Prompt before deleting an existing deployment       Bit deleting an existing deployment         Publish       Prompt before deleting an existing deployment       Bit deleting an existing deployment         Publish       Treat warnings as errors       Service configuration         Start Windows Asure down as the deployment of t	Plase input Hot     R   True True True True True True True True	Solution Explorer  Solution WindowsAcureDemo' (2 projects) Solution MindowsAcureDemo'
		Solution Explorer
💦 Start 🔚 🌈 📶 🧭 🗰 🖸 🚑 👋 🔽 Nicrosoft 🌈 PB व्यिप्रेत - Windo	o 🛛 🌈 TSMS - Windows 🛛 🐅 192.168.168.252 🛛 🎍 5 Windows E	xpl 📲 🚧 Appeon Server († 🛛 🗫 WindowsAzureDe 🛛 CH 🛛 🚝 < 🕞 📢 🚯 10:16

# 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 <u>www.windowsazure.com</u> 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 <u>Section A.2.3</u>, "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 <u>Section A.2.3</u>, "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-touse 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"
- <u>Section B.5, "Uploading File Packages to Amazon S3"</u>

# **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

C 🕈 🖀 https://co	onsole.aws.amazon.com/ec2/home?re	gion=us-east-1#			
Services 🗸 Edit Sh	iortcut 👻				tom ryan
avigation	Amazon EC2 Console Dashboard				
egion:					
US East (Virginia) 🔻	Getting Started	=	My Resources		l
EC2 Dashboard Events	To start using Amazon EC2 you known as an Amazon EC2 instar	will want to launch a virtual server, nce.	You are using the following Amazo East (Virginia) region:	n EC2 resources in the US	2 Refres
INSTANCES			🧧 0 Running Instances 🛛 👰 0		lastic IPs
Spot Requests	Laun		10 EBS Volumes	0 EBS Snapshots	
Reserved Instances	Note: Your instances will la	Note: Your instances will launch in the US East (Virginia) region.		🚽 0 Load Balancers	
IMAGES			·····		
Bundle Tasks	Service Health	=	1 0 Placement Groups	Ø 7 Security Groups	•
ELASTIC BLOCK STORE	Service Status		Events		
Volumes	Current Status	Details			
Snapsnots	Amazon EC2 (US East - N. V	irginia) Service is operating normally	US East (Virginia): No event	15	2 Refres
Security Groups		View complete service health details	Related Links		
Elastic IPs	Availability Zone Status				
Placement Groups	Current Status	Details	Getting Started Guide		
Load Balancers	🥝 us-east-1a	Availability zone is operating	<ul> <li>Documentation</li> </ul>		
Network Interfaces		normally	All EC2 Resources		
	🤣 us-east-1b	Availability zone is operating	> Forums		
		normally	Feedback		
	📀 us-east-1c	Availability zone is operating normally	Report an Issue		

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

Create a New Instance		Cancel 🗵
Select an option below:	Launch with the Classic Wizard	
Classic Wizard Launch an On-Demand or Spot instance using the classic wizard with fine-grained control over how it is launched.	Request Instances Wizard	
Quick Launch Wizard Launch an On-Demand instance using an editable, default configuration so that you can get started in the cloud as quickly as	CHOOST ANAM     BLANCE STANA     CALLE STANA     CANCER TRANAL     BLANCE       Choose and mazzon Machine Image (AMI) from one of the tabbed lists below by clicking its Select button.     Outlet Katan     My AMIS       Basic 22-bit Amazon Imure AMI 2011.02.1 Beta (AMI Id: ami-Bclfece5)     Basic 22-bit Amazon Imure AMI 2011.02.1 Beta (AMI Id: ami-Bclfece7)     Imure AMI Toola.       Root Device Size: 8 G8     Basics 64-bit Amazon Imure AMI 2011.02.1 Beta (AMI Id: ami-Bclfece7)     Imure AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon     Imure Beta (AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon       Root Device Size: 8 G8     Basics 64-bit Amazon Imure AMI 2011.02.1 Beta (AMI Id: ami-Bclfece7)     Imure Beta (AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon       Root Device Size: 8 G8     Basics Bit Imure AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon     Imure Beta (AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon       Root Device Size: 8 G8     Basics Imure AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon     Imure Beta (AMI Toola.       Root Device Size: 8 G8     Basics Imure AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon     Imure Beta (AMI Toola.       Root Device Size: 8 G8     Basics Imure AMI Basics 2011.02.1, EB5 boot, 64-bit architecture with Amazon     Imure Beta (AMI Toola.	
possible.	Root Device Size: 7 G3     Root Jevice Size: 6 G3     Root Jevice Size: 6 G3     Root Device Size: 6 G3     Root Device Size: 6 G3     Size: 6 G3     Size: 6 G3     Root Device Size: 6 G3     Size: 6 G3     Root Device Size: 6 G3     Size: 6	
	ree tier eligible if used with a micro instance. See AWS free tier for complete details and terms.	tinua <b>N</b>
Submit Feedback Getting Started Guide	Con	

The **Choose an AMI** page appears. Follow instructions in <u>Section B.3.2</u>, "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

Request In	stances Wizard		Cancel 🗵
CHOOSE AN AMI	INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL	REVIEW	
Choose an A Quick Star	mazon Machine Image (AMI) from one of the tabbed lists below My AMIs Community AMIs	by clicking its <b>Select</b> button.	
Find and Du	KOOT DEVICE SIZE: 8 GB	SZ DIT	*
💐 Windows	Microsoft Windows Server 2008 Base Microsoft Windows 2008 R1 SP2 Datacenter edition. Root Device Size: 30 GB	I 64 bit 🔘 32 bit	🚖 Select 🔼
💐 Windows	Microsoft Windows Server 2008 R2 Base Microsoft Windows 2008 R2 SP1 Datacenter edition and 64 Root Device Size: 30 GB	-bit architecture.	🚖 Select 🔼
Strate Windows	Microsoft Windows Server 2008 R2 with SQL Server Ex Microsoft Windows Server 2008 R2 SP1 Datacenter edition, Microsoft SQLServer 2008 Express, Internet Information Se 3.5. Root Device Size: 30 GB	press and IIS 64-bit architecture, rvices 7, ASP.NET @ 64 bit © 32 bit	Select D
Nindows:	Microsoft Windows Server 2008 R2 with SQL Server We Microsoft Windows Server 2008 R2 SP1 Datacenter, 64-bit Microsoft SQL Server 2008 R2 Web Edition. Root Device Size: 35 GB	eb architecture, 64 bit      32 bit	Select 📘
3 SUSE.Linux Enterprise	Cluster Instances HVM SUSE Linux Enterprise 11 SUSE Linux Enterprise Server 11 Service Pack 2, 64-bit arc based virtualization for use with Amazon EC2 Cluster Comp	hitecture, and HVM ute and Cluster GPU	Select 🚺 👻
🍸 Free tie	r eligible if used with a micro instance. See AWS free tier for	r complete details and term	S

The **Instance Details** page appears after you choose an AMI. Follow instructions in <u>Section B.3.3</u>, "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**

Request Instances Wizard Cancel X
CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW
Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.
Number of Instances:         Instance Type:         Micro (t1.micro, 613 MB)
Launch Instances
EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs. Launch into: <ul> <li>EC2</li> </ul>
Availability Zone: No Preference 💌
© Request Spot Instances
< Back Continue

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

# Figure B.6: Instance Details: Advanced Instance Options

Request Inst	ances Wizard	Cancel 🗵
¥	0	
CHOOSE AN AMI	INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW	
Number of Ins	tances: 1 Availability Zone: No Preference	
Advanced Ir	nstance Options	
Here you can d Detailed Monito	hoose a specific <b>kernel or RAM disk</b> to use with your instances. You can also choose to enable CloudWatch oring or enter data that will be available from your instances once they launch.	
Kernel ID:	Use Default 💌 RAM Disk ID: Use Default 💌	
Monitoring:	Enable CloudWatch detailed monitoring for this instance (additional charges will apply)	
User Data:		
as text		
🔘 as file	base64 encoded	
Termination Protection:	Prevention against accidental     Shutdown Behavior: Stop	
IAM Role: 🍘	None 💌	
< Pack	Continue	
DOUK		

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

Request Instances Wizard		Cancel 🗵
O		
CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR	CONFIGURE FIREWALL REVIEW	
Add tags to your instance to simplify the administratio case-sensitive key/value pair, are stored in the cloud that help you organize, search, and browse your resou = Webserver. You can add up to 10 unique keys to ea information, go to Using Tags in the <i>EC2 User Guide</i> .	on of your EC2 infrastructure. A form of metadata, tage and are private to your account. You can create user- urces. For example, you could define a tag with key = I ich instance along with an optional value for each key.	consist of a friendly names Name and value For more
Key (127 characters maximum)	Value (255 characters maximum)	Remove
Appeon	Appeon_test	×
		×
Back	Continue	

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

Request Inst	ances Wizard	Cancel 🗙
CHOOSE AN AMI	INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW	
Number of In	stances: 1	
Availability Zo	No Preference	
Advanced I	nstance Options	
You can choos or selecting or that will be av	e to launch Cluster Compute Instances in a placement group by either providing a new name for one to be c ne of your existing placement groups. You can also choose to enable CloudWatch Detailed Monitoring or ente ailable from your instances once they launch.	reated r data
Placement Group:	Create new placement group.	
Strategy	Cluster	
Monitoring:	Enable CloudWatch detailed monitoring for this instance (additional charges will apply)	
User Data:		
	base64 encoded	
Termination Protection:	Prevention against accidental termination.       Shutdown     Stop       Behavior:     Choose the behavior when the instance is shutdown from within the instance.	
< Back	Continue	

The **Create Key Pair** page appears. Follow instructions in <u>Section B.3.4, "Create Key Pair"</u> 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

Request Inst	ances Wizard				Cancel 🗵
¥	¥	0		1	
CHOOSE AN AMI	INSTANCE DETAILS	CREATE KEY PAIR	CONFIGURE FIREWALL	REVIEW	

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

© Choose from your existing Key Pairs			
Create a new Key Pair			
1. Enter a name for your key pair:*	(e.g., jdoekey)		
2. Click to create your key pair:*	Reate & Download your Key Pair		
	Save this file in a place you will remember. You can use this key pair to launch other instances in the future or visit the Key Pairs page to create or manage existing ones.		
© Proceed without a Key Pair			

< Back	Continue

The **Configure Firewall** page appears. Follow instructions in <u>Section B.3.5</u>, "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

Request Inst	tances Wizard				Cancel 🗵
¥	¥	¥	0		
CHOOSE AN AMI	INSTANCE DETAILS	CREATE KEY PAIR	CONFIGURE FIREWALL	REVIEW	
Security group or we can help additional port	os determine whethe o you create a new s ts now or update you	r a network port is o ecurity group to allo ur security group an	ppen or blocked on your w access to your instand ytime using the Security	instances. You may us ses using the suggeste Groups page.	e an existing security group, ed ports below. Add
Choose o	one or more of yo	our existing Secu	irity Groups		
sg-2239e04a - sg-0dfd3665 - c sg-49984a21 - sg-c566b3ad - sg-07cb1f6f - q sg-6ed70906 - sg-47984a2f - v (Selected gro	TestPort default linux quick-start-1 uick-start-2 quick-start-3 window				
© Create a	new Security Gro	oup			
< Back			Continue ▶		

Click **Continue**. You can review or change the instance settings, and then launch the instance. See <u>Section B.3.6</u>, "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

Request Insta	nces Wi	zard				Ca	ncel 🗙
¥	¥		¥	Υ	0		
CHOOSE AN AMI	INSTANCE	DETAILS	CREATE KEY PAIR	CONFIGURE FIREWALL	REVIEW		
Please review t	he informa	tion below,	then click <b>Launch</b>	I.			*
	AMI:	Nindow	s AMI ID ami-06	ocd6e6f (x86_64)			
	Name:	Microsoft V	Vindows Server 2	2008 R2 with SQL Ser	ver Express and IIS	1	
Des	cription:	Microsoft V architectur Services 7,	Vindows Server 2 e, Microsoft SQL ASP.NET 3.5.	2008 R2 SP1 Datacen .Server 2008 Express	ter edition, 64-bit , Internet Informatio	on Edit AMI	
Number of In	stances:	1					
Availabil	ity Zone:	No Prefere	nce				
Instan	ce Type:	Micro (t1.n	nicro)				
Instan	ce Class:	On Demand	1			Edit Instance Details	=
Mo	nitoring:	Disabled		Termination Protecti	ion: Disabled		
1	Tenancy:	Default					
K	ernel ID:	Use Defaul	t	Shutdown Behav	ior: Stop		
RAM	Disk ID:	Use Defaul	t				
Network In	terfaces:						
Seco	ndary IP						
Us	ser Data:						
I	AM Role:					Edit Advanced Details	
Key Pa	ir Name:	test				Edit Key Pair	+
< Back				Launch ▶			

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

Step 2: Click **Close** to complete the launching.

#### **Figure B.12: Confirmation page**

Launch Instance Wizard		Cancel 🗵
<ul> <li>Your instances are now launchin Note: Your instances may take a fe Note: Usage hours on your new ins your instance.</li> <li>View your instances on the Inst</li> </ul>	Ig. ew minutes to launch, depending on the so stance will start immediately and continue	oftware you are running. to accrue until you stop or terminate
Other AWS Features		
<b>Spot Instances</b> Spot Instances enable customers to lower their Amazon EC2 costs by up to 75% by bidding on unused capacity and running instances for as long as the maximum bid exceeds the current Spot Price.	<b>Reserved Instances</b> Reserved Instances provide substantial savings over On-Demand instances and ensure that the capacity you need is available to you when required.	Suse Linux Instances Suse Linux instances are a proven platform with superior reliability and security and are automatically kept up to date with Novell's security patches, bug fixes and new features.
<ul> <li>Go to Amazon EC2 Spot Instances</li> </ul>	<ul> <li>Go to Amazon EC2 Reserved Instances</li> </ul>	> Go to Amazon EC2 running SUSE Linux
	Close	

Step 3: 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

Services Y Edit Sh	nortcut 1	*							tom ryan 👻	He	
Navigation	My I	instances									
Region:		aunch Instance	Instanc	e Actions 👻				🎲 Show/Hid	le 🛛 🐊 Refresh 🛛 🥥	Help	
US East (Virginia) -	Viewi	ing: All Instanc	es	- All	Instance Types	<ul> <li>Search</li> </ul>		≪ ≪ 1 to	8 of 8 Instances	ances > >	
EC2 Dashboard		Name	24	Instance	AMIID	Root Device	Туре	State	Status Checks	Ala	
Events		spintest_insta	nce03	👰 i-b43156cc	ami-06cd6e6f	ebs	t1.micro	running	2/2 checks p	n	
INSTANCES Instances		wotest		👰 i-f6a3c48e	ami-06cd6e6f	ebs	t1.micro	running	📓 initializing	n	
IMAGES     AMIs     Bundle Tasks     FLASTIC PLOCK STOPE	ec	EC2 Insta	nce: \ 154.co Status	wotest (i-f6a ompute-1.ar Checks Mo	a3c48e) mazonaws.com nitoring Tags						
Volumes	AMI: Windows_Server-2008-R2_SP1-English-64Bit-SQL_2008_Express-2012.06.12 (ami-06cd6e6f) none										
<ul> <li>NETWORK &amp; SECURITY</li> </ul>	Zone: us-east-1c					Sec	Security Groups: window. view rules				
Security Groups Elastic IPs	Type: t1.micro State						e: ning				
Placement Groups Load Balancers	Scheduled Events: No scheduled events Owner: 599380475628						ner: 380475628				
Key Pairs	VPC ID: -					Sub	Subnet ID:				
Network Interfaces											

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

# **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

Console Connect - Remote Desktop Connection	Cancel 🗵
Instance: Appeon Public DNS: ec2-50-16-83-221.compute-1.amazonaws.c	om
<u>         Log in with your credentials         </u>	
Log in to your instance with your credentials:	
Public DNS: ec2-50-16-83-221.compute-1.amazonaws.com	
Password: !cNLXw9b=W.	
Note: If you are having problems with your decrypted password, try typing it instead of using copy and paste.	
You can download an RDP file for this instance which will launch Remote Desktop Connection and connect to your instance. You will need to note down your password because the Remote Desktop Connection software will open in a new window.	
🖉 Download shortcut file	
If you need help configuring your remote desktop software, click here.	
Retrieve Windows Administrator password	
▶ Need help configuring your remote access software?	
Close	

#### **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
```

Remote Desktop Connection
Remote Desktop Connection
<u>C</u> omputer: 2:107-22-141-52.compute-1.amazonaws.com ▼ User name: None specified You will be asked for credentials when you connect.
Options     Connect     Help

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 <u>http://aws.amazon.com/</u>. For details, see <u>Section B.2, "Logging in to AWS Management Console"</u>.

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

AWS Management Console ×		
$\rightarrow$ C $https://console.$	aws.amazon.com/s3/home	☆ 📀
Services ~ Edit Short	cut 👻	tom ryan 🎽 Hel
Buckets	Objects and Folders	
😹 Create Bucket 🛛 Actions 🔻	📀 Upload 🕼 Create Folder 🛛 Actions 🔻	Refresh 🚺 Properties 💿 Transfers 💿 Help
Appeon	PappeonStorage	
AppeonStorage	Name	Size Last Modified
apinbucket	🍅 appeon.zip	52.5 MB Mon Mar 26 11:02:03 GMT+800 2012

# 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

Create a Bucket - Select a Bucket Name and Region Cancel X	
A bucket is a container for objects stored in Amazon S3. When creating a bucket, you can choose a Region to optimize for latency, minimize costs, or address regulatory requirements. For more information regarding bucket naming conventions, please visit the Amazon S3 documentation.	
Bucket Name: Region: US Standard	
Set Up Logging > Create Cancel	

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 <u>Section B.5.2</u>, "<u>Upload file packages</u>".

#### **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

🎁 AWS	Management Cons				-			^
~ ~		console.aws.amazon.com/s3	/nome			ਿ	0	~
Ũ	Services 🗸	Edit Shortcut 👻				tom ryan 👻	Help	*
Bu	Upload - Sele	ect Files				Cancel 🕨		
	Upload to: 竇 A	AppeonStorage					q	
	To upload files (BETA), which selected, click t	(up to 5 TB each) to Amazon S can take up to 2 minutes as it he <b>X</b> to the far right of the file	3, click <b>Add Files</b> . To upload downloads a Java™ Applet name.	l whole folders to Amazo (requires <u>Java SE 6 Upo</u>	on S3, click <b>Enable Enhanced</b> l <mark>ate 10 or later</mark> ). To remove fi	<b>Uploader</b> iles already	012	
	No files added.							
	🕄 Add Files	CREMOVE Selected Files	🚔 Enable Enhanced Uploa	der (BETA)	Number of files: 0 Total u	upload size: 0		
					Set Details > Start Uploa	ad Cancel		
© 2008 -	2012, Amazon We	b Services LLC or its affiliates. Al	rights reserved.   Feedback	k   Support   Privacy	Policy   Terms of Use   An	amazon.com	. comp	any
_								

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

1 AWS Management Consol: ×	
← → C Attps://console.aws.amazon.com/s3/home	☆ 📀 🔧
Services V Edit Shortcut V	tom ryan 👻 Help 👻
Buckets       Objects and Folders	Refresh Properties   Size Last Modified   52.5 MB Mon Mar 26 11:02:03 GMT+800 2012
<b>⊙</b> Transfers	Automatically clear finished transfers
📀 Upload: 🗋 Uploading Admin 2010 Second Edition.pdf to AppeonStorage	(2) Uploaded 64 KB (3 KB/sec) 44.63%
© 2009 - 2012 Amazan Web Society U.C. er it affiliates All rights responded - Eacharle - Superst	Privacy Policy   Terms of Use   An <b>amazon</b> com company

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

# Index

Installing Appeon Server and application,  $\underline{3}$ 

# A

AWS EC2 and S3 User Guide Introduction, <u>25</u> log in, <u>26</u>

# С

Choose an AMI, <u>28</u> cloud system requirements, <u>3</u> Configure Firewalls, <u>33</u> configure silent installation, <u>5</u> Configuring Cluster, <u>8</u> Configuring Windows Azure, <u>13</u> Create Bucket, <u>39</u> Create Bucket, <u>39</u> Create Key Pair, <u>32</u> Creating Virtual Machine Instance Deploying .NET cloud computing application, <u>23</u> Developing .NET cloud computing application, <u>18</u> Overview, <u>18</u>

# D

Deploying .NET cloud computing application, <u>23</u> Deploying application, <u>23</u> Developing .NET cloud computing application, <u>18</u> Developing a .NET cloud computing Worker role application, <u>19</u>

E Environment requirements, <u>18</u>

# G

Getting started, 27

# I

Installing Cluster, <u>8</u> Instance details, <u>29</u> Introduction, <u>18, 25</u>

## L

Launching an Amazon EC2 Instance Choose an AMI, <u>28</u> Configure Firewalls, <u>33</u> Create Key Pair, <u>32</u> Getting started, <u>27</u> Instance details, <u>29</u> Review, <u>34</u> log into AWS Management Console, <u>26</u>

# Μ

Managing Cluster, <u>12</u> Managing Logs, <u>17</u>

# 0

Overview, <u>18</u>

# Р

prepare Appeon application package, 5prepare Appeon Server setup package, 3

# R

Remote Desktop Connection Remote desktop connection procedures, <u>38</u> Retrieve an initial administrator password, <u>36</u>

Remote desktop connection procedures,  $\frac{38}{36}$ Retrieve an initial administrator password,  $\frac{36}{36}$ Review,  $\frac{34}{34}$ 

# S

supported cloud platform, 3

# U

Upload, <u>40</u> upload files to cloud server, <u>5</u> Uploading certificate, <u>23</u> Uploading Objects to Amazon S3 Create Bucket, <u>39</u> Upload, <u>40</u> Using Appeon Windows Azure Demo, <u>18</u>