Installation Guide on Cloud Platform

Appeon® for PowerBuilder® 2015 FOR WINDOWS

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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 <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*.

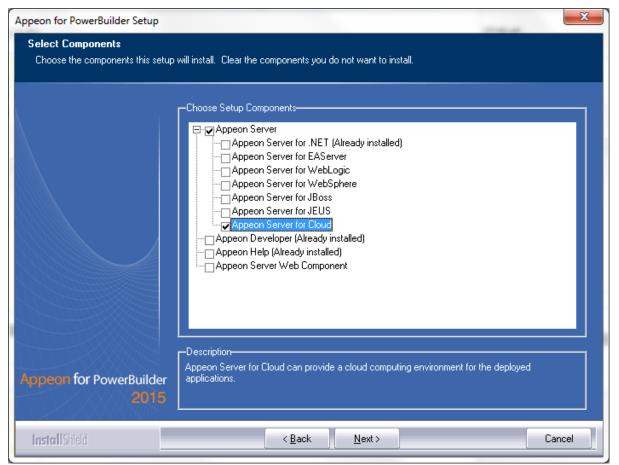
2.2 Cloud system requirements

The cloud platform that will host the Appeon Server must meet the system requirements for Appeon Server. For detailed information, please refer to 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.

Irganize 🔻 🔚 Open 🛛 Include in li	brary 🔻 Share with 💌 New folder		
🔒 dell	^ Name	Date modified	Туре
Drivers	EAServer	3/18/13 2:37 PM	File fo
> 🕌 inetpub	IIS IIS	3/18/13 2:38 PM	File fol
> 🕌 Intel		3/18/13 2:37 PM	File fol
Morpheon Corporation	JBoss5	3/18/13 2:38 PM	File fol
PerfLogs	JBoss7	3/18/13 2:37 PM	File fo
Program Files	JEUS	3/18/13 2:37 PM	File fol
> 🎍 Adobe	JEUS64	3/18/13 2:37 PM	File fo
Appeon	📙 license	3/18/13 2:38 PM	File fol
AppeonServer4Cloud2013 EAServer	🕒 WebLogic	3/18/13 2:37 PM	File fol
> 📕 EAServer 4 🎴 IIS	📔 WebSphere	3/18/13 2:37 PM	File fol
	product.ini	3/15/13 1:38 AM	Config
AppeonServer setup	setup.skin	3/6/03 10:12 AM	SKIN F
퉬 Windows Azure Demo			
> 퉲 IIS64	III		

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.

<u>E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp						
rganize 👻 Include in library 👻 Shar	e with 🔻 New folder				8== •	(
WebComponent2013 Apache13Support Apache20Support Apache22Support Apache22Support Appeon Cluster plugin APBCluster Appeon Cluster plugin Appeon Cloud conf modules Modules Modules Apple Software Update Beyond Compare 3 Bonjour	Name APBCluster Appeon AppeonCloud AppeonCluster AppeonCluster.exe AppeonCluster.exe Interop.ActiveDs Interop.ActiveDs Interop.IISOle Interop.IISOle Interop.IWshRuntimeLibrary log4net Iog4net Sregiis Silentinstall	Date modified 4/25/2013 11:22 AM 4/25/2013 11:22 AM 4/25/2013 11:22 AM 4/23/2013 11:01 AM 4/23/2013 10:56 AM 4/25/2013 11:27 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 1 KB 94 KB 10 KB 37 KB 244 KB 1,258 KB 1 KB 3 KB		
Common Files DVD Maker Google						

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

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

•	🗊 Appeon Cluster Plug-in Installation Wizard	x
Γ	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	
	Existing Web Site Sites Default Web Site[TCP Port=80;Home Directory=C:\inetpub\wwwroot] Test[TCP Port=80;Home Directory=C:\Program Files\Inetpub\wwwroot] (Back Next> Cancel	

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

Figure 3.4: Select run mode

a	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.					
	<back next=""> Cano</back>					

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
I Igui e eter			abor manne ana	passion

appeon Cluster Plug-in Installation	n Wizard	×				
Specify the Windows administrator 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 bassword of the Windows operating system login account.	ent. It must be				
8						
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.
1	Created the Appeon Cluster Plug-in on the Web site AppeonCluster successfully.
	< <u>B</u> ack <u>N</u> ext> <u>Finish</u>

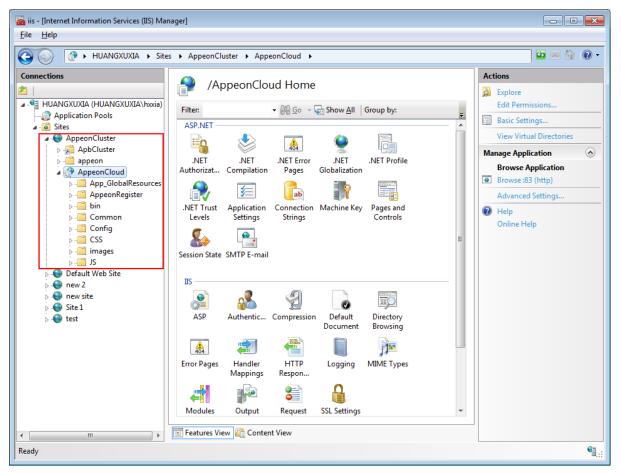
3.2 Configuring Cluster

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 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

A	ppeon Cluster Manager > Loca	al Cluste	r Setting			
Ξ	Local Cluster Setting					
	Sets cluster type that is used to	store cl	uster information.			
	Host:					
	Port:		80			
						Save
	Actions	Host			Port	
	Delete	localhos	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

Appeon Cluster Manager > Azure Cluster Setting					
Azure Cluster Type Setting					
Sets the Cluster Type which used	d to save cluster information.				
		Save			
Azure Cluster Setting	Azure Cluster Setting				
Sets information of role instance	es used to Appeon Server Cluster in the Wind	ows 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 save	e cluster information.				
	O Role 💿 Azure Table Storage					
		Save				
⊟						
	Azure Cluster Setting					
	Sets information of role instances used	to Appeon Server Cluster in the Windows Azure environment.				
	AccountName:					
	AccountKey:					
	Host:					
	Port:	80				
		Save				

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

-ppc	ion claster manage	r > AWS Cluster Setting
	Cluster Type Setting luster type that is used t	to store cluster information.
ΘD	Default C SimpleDB	
	Cluster Server Setting	-
		g on that is used for Appeon Cluster.
Sets se		-
Sets se Acce	erver instance informati	on that is used for Appeon Cluster.
Sets se Acce Secr	erver instance informati essKey:	on that is used for Appeon Cluster. AKIAJ4LIMRQOPNAOLK3Q

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

Cluster Information Setting		
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	

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	19.51				
View Download Clear	Appeon Cluster Manager Log	1.17			

□ Log Setting Configures the Appeon Cluster Manager log mode.

Strandard Mode

<u>Save</u>

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 <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 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)

File Edit View Debug Team Data Tools Test Windo	w. Help	
Start Page ×	Ť	Solution Explorer 🔷 🖣 🗙
		B
Microsoft*		
Visual Studio [®] 2010 Professi	onal	
		1
Connect To Team Foundation Server	Get Started Guidance and Resources Latest News	
	Development Process MSDN Resources Additional Tools	
New Project		
Den Project	Overview of Development Processes Great software development starts with a solid understanding of the development process. This	
	overview provides you with information to help adopt the right process.	
Recent Projects	Learn About Various Development Processes Visit the Microsoft Patterns and Practices Developer Center	
👺 WindowsAzureProject1	I sava a sava	
AppeonClusterManager		
CloudService1		
AP67.0_Cloud	Managing Your Source Code in Visual Studio	
@ AEM_Cloud32		
ServerLibrary_Cloud32_ForASA11		
	Unit Testing in Visual Studio	
	A + 4.4 C more than a second s	
	To Discuss Water	
	Use Visual Studio for Test Driven Development	
Close page after project load Show page on startup		
1. men bage on som cab		Real 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						? ×
Recent Templates		.NET Framework 4	Sort by: Default		Search Installed Templates	٩
Installed Templates					Type: Visual C#	
 ♥ Visual Basic ♥ Visual C# ♥ Windows ₩ Office Cloud Reporting ♥ SharePoint Silverlight Test ₩CF ₩orkflow ♥ Visual C++ ♥ Other Project Types ♥ Database ♥ Test Projects 		Windows Azu	re Project	Visual C#	A project for creating a scalar runs on Windows Azure.	ole service that
<u>N</u> ame:	WindowsAzureDen					
Location:		locuments\visual studio 20	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: Nev	v Windows Azure	project
-----------------	-----------------	---------

New Windows Azure Project				? ×
.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

	u Percrosor risuar science (Aunimistrator) ist Build Debug Team Data Tools Test Window Help	
	🥼 🔏 🕾 🕫 - 🔍 - 💭 - 🖳 - 島 ト Debug - Any CPU - 🎯 Please input Host - 🔍 🕾 🗟 😒 🌿 🛍 🖳 - 🚽	
1.		
WorkerRole1 [Role] ×		Solution Explorer 🔹 म 🗙
		B
Configuration	Service Configuration: All Configurations	Solution 'WindowsAzureDemo' (2 projects)
Settings	serve configurees. In configurees,	S WindowsAzureDemo P
Endpoints	.NET trust level	WorkerRole1
Local Storage	full trist	K ServiceConfiguration.Local.cscfg
Certificates	© Windows Azure partial trust	ServiceDefinition.csdef
		Image: Properties
Virtual Network	Instances	References app.config
	Instance count: 1	WorkerRole.cs
	VM size: Small 🔹 🕕	
	Diagnostics	
	₩ Enable Diagnostics	
	Yor tradue Usigniosids Specify the storage account credentials for the Diagnostics results:	
	UseDevelopmentStorage=true	
	🔽 Use publish storage account as connection string when you publish to Windows Azure	
		Nolution Explorer
		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

	ct Build Debug Team Data Tools Test Window Help				<u>- 6 A</u>
🛅 • 🗃 - 💕 🚽	🗿 🎽 🛅 🖄 🔊 - 🔍 - 💭 - 🖳 🕨 Debug 🔹 Any CPU 🔹 🔯 Please input Host 🔹 🔩	<u> </u>	🖟 🖄 🏷 🛃 💁 🗉 🗸		
1.					
WorkerRole1 [Role] ×			- Solution Ex	xplorer	* ₽ ×
			B		
Configuration	Service Configuration: All Configurations		Solu	tion 'Windows WindowsAz	AzureDemo' (2 projects)
Settings			Build	Ĩ	
Endpoints	.NET trust level		Rebuild		erRole1 onfiguration.Cloud.cscfg
Local Storage	Full trust		Clean		nfiguration.Local.cscfg finition.csdef
Certificates	C Windows Azure partial trust		Package Publish	ſ	annoon.csder
Virtual Network	Instances		Manage Configurations	e: C	5
	Instance count:		Configure Remote Desktop	fi	
	VM size: Smal V (i)		Project Dependencies	ic	ie.cs
	Smail 🔟 🚺		Project Build Order		
	Diagnostics		New Web Role Project		
	✓ Enable Diagnostics		New Worker Role Project		
	Specify the storage account credentials for the Diagnostics results:		Set as StartUp Project Debug		
	UseDevelopmentStorage=true	2	Add Solution to Source Control	-	
	V Lise publish storage account as connection string when you publish to Windows Azure	*		rl+X	
		×	Remove De		
			Rename		
			Unload Project		
		Ľ	Open Folder in Windows Explorer		
			Browse To Portal		
			Properties Alt	t+Enter	
			Soluti	ion Explorer	📷 Team Explorer

🥂 Start 👙 🛛 🏈 强 🖉 🕼 🖇 😳 🗘 🔹 🔌 😥 Inbox - Micro.... 🥻 Z Internet ... 🔹 🕵 192.168.168... 👔 D1技术文档... 👔 (1192.0.0.16...) 👔 C1UBers/app...) 🖻 Appeon Serv... | 🚾 WindowsAzur... | CH 🚔 🕷 🖳 😪 👘 (10:03)

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**.

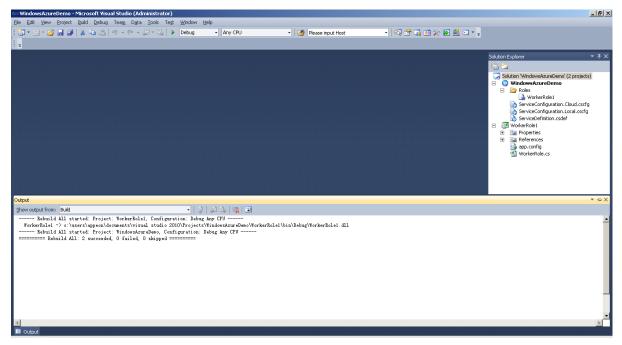
Remember the login credentials, as you will use them to log into the virtual machine once the virtual machine instance is created. And the certificate which contains the encrypted login credentials will need to be uploaded later by following instructions in <u>Section A.2.4</u>, "Deploying .NET cloud 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 Az Portal.	
<automatic> View</automatic>	h
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	ancel

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

	Demo - Microsoft Visual Studio (Administrator)		×
	Project Build Debug Team Data Tools Test Window Help		
i 🛅 • 🗃 • 📂 🖌	🚽 😥 👗 🚵 🖄 🔊 - (* - 💭 - 🖳 🕨 Debug 🛛 -	Any CPU 🔹 🙆 Please input Host 🔹 💀 🖓 📸 🖄 🖄 🖘 🔹	-
			r
	_		
WindowsAzureDemo	× WorkerRole.cs		✓ Solution Explorer
Application			Solution 'WindowsAzureDemo' (2 projects)
Build Events	Configuration: N/A Platform: N/A	<u>×</u>	S WindowsAzureDemo Roles
Build Events			WorkerRole1
Development	Publish Prompt before deleting an existing deployment	True	ServiceConfiguration.Cloud.cscfg
	Run/Debug	True	ServiceConfiguration.Local.cscfg
	Display the Windows Azure debugging environment dialog	True	ServiceDefinition.csdef
	Service configuration	Local	Properties
	Start Windows Azure storage emulator		References
	Validation	Package Windows Azure Application	app.config
	Treat warnings as errors	F Service configuration: Cloud	WorkerRole.cs
		Service configuration: Cloud	
		Build configuration: Release	
		Enable Remote Desktop for all roles Settings	
		Enable Remote Desktop for all roles Settings	
		Package Cancel	
	Service configuration		
	The service configuration used on the local machine to build, run or debu	g your Windows Azure project.	
			Solution Explorer 🔤 Team Explorer
📕 Output			
🎝 Start 🔚 🛛	🌈 📊 🧭 🌆 📀 👙 💦 👋 🕞 Inbox - Microsoft 🛛 🌈 PB网站	- Windo 🛛 🌈 TSMS - Windows 🛛 🔦 192.168.168.252 🔂 5 Windows Expl 🗸 👰 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 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 <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.

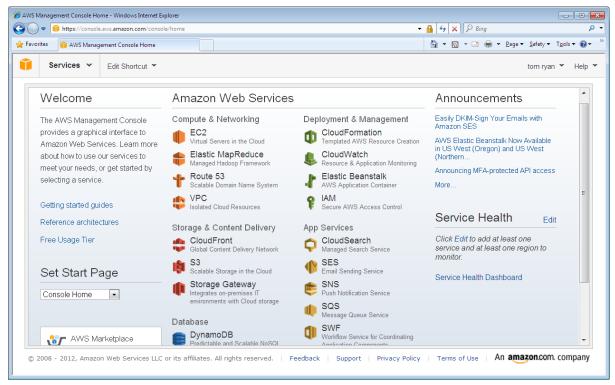
Verify that you have signed up. If not, follow the steps below to sign up:

- 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	nsole.aws.amazon.com/ec2/home?regio	on=us-east-1#				
Services Y Edit Sh	ortcut 👻					tom rya
avigation	Amazon EC2 Console Dashboard					
egion:			-			
US East (Virginia) 🔻	Getting Started			My Resources		
EC2 Dashboard Events	To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.			You are using the following Amazor East (Virginia) region:) EC2 resources in the US	2 Refr
INSTANCES	Launch Instance D			🍯 0 Running Instances	🍨 0 Elastic IPs	
Spot Requests				10 EBS Volumes	0 EBS Snapshots	
Reserved Instances				🐕 3 Key Pairs	alancers	
MAGES AMIS					- 1×	
Bundle Tasks	Service Health		-	👔 0 Placement Groups	7 Security Groups	;
ELASTIC BLOCK STORE	Service Status			Events		
Volumes Snapshots	Current Status	Details		🐼 US East (Virginia): No event	e	ND -6
NETWORK & SECURITY	Amazon EC2 (US East - N. Virgi	nia) Service is operating normally		Seast (Virginia). No events		2 Refr
Security Groups		View complete service health detail	ls	Related Links		
Elastic IPs	Availability Zone Status			Setting Started Guide		
Placement Groups	Current Status	Details				
Load Balancers Key Pairs	📀 us-east-1a	Availability zone is operating		> Documentation		
key Pairs Network Interfaces		normally		 All EC2 Resources 		
	🤣 us-east-1b	Availability zone is operating normally		 Forums 		
				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	Request Instances Wizard Canad S	
is launched.	CHOOSE AM AMM RESAUCT DETAILS CHEATE REFYAR COMPOSITE FREWALL REFYEM Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by cicking its Select button. Quick Start My AMIs Community AMIs Basic 32-bit Amazon Imax AMI 2011.02.1 Bets (AMI Id: smi-Bcifecc5) Amazon Imax AMI Base 2011.02.1 Bets bots 32-bit architecture with Amazon	
Quick Launch Wizard Launch an On-Demand instance using an editable, default configuration so that you can get	CC2 AMI TOOL: EC2 AMI TOOL: Root Device Size: 8 G0 Basic 64-bit Anazon Linux AMI 2011.02.1 Beta (AMI Id: mil-BatTec47) Anazon Linux AMI Bese 2011.02.1, EBS basit, 64-bit architecture with Amazon EC2 AMI Tools: EC3 AMI Tools: EC3 AMI Tools: EC3 AMI Tools:	
started in the cloud as quickly as possible.	Red Hat Enterprise Linux 6.1 32 bit (AMI (d: ami-dobb/265)) Beted Linux 6.1 32 bit (AMI (d: ami-dobb/265)) Red Hat Enterprise Linux 4.5 Linux 6.1 4.5 bit (AMI (d: ami-dobb/265)) Beted Linux 6.1 and the territory of the territory for the territory of territory of the territory of territ	
	SUSE Linux Enterprise Server 11 64-bit (AMI Id: ami-e4a3578d) SUSE Linux Enterprise Server 11 Service Pack 1 basic nstall, EBS boot, 64-bit architecture with Anazon EC2 AMI Tools preinstalled; Apache 2.3, MySQL 5.0, PMP 5.3, Ruby 1.1,7, and Bala 2.3. Root Device Server 15 G0	
	Free tier eligible if used with a micro instance. See AVVS free tier for complete details and terms.	
		· []
Submit Feedback Getting Started Guide	Cont	inue 🔽

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

equest In	stances Wizard		Cancel	
	INSTANCE DETAILS CREATE KEY PAIR CONFI	GURE FIREWALL REVIEW		
OUSE AN AMI	INSTANCE DETAILS CREATE KEY PAIR CONFI	GURE FIREWALL REVIEW		
hoose an A	Amazon Machine Image (AMI) from one of the tabbe	ed lists below by clicking its Select button.		
uick Star	t My AMIs Community AMIs			
ind and bu	y software from well known sellers. Search AMI	s on 🖑awsmarketplace		
	ROOT DEVICE SIZE: 8 GB	••• • • • • • • • • • • • • • • • • •		
	Microsoft Windows Server 2008 Base			
💓 Windows	Microsoft Windows 2008 R1 SP2 Datacenter ed	lition. 🤘	Select 🔽	
	Root Device Size: 30 GB	🖲 64 bit 🔘 32 bit 📕		
	Microsoft Windows Server 2008 R2 Base			
💓 Windows	Microsoft Windows 2008 R2 SP1 Datacenter ed		Select 🔽	
	Root Device Size: 30 GB	🖲 64 bit 🔘 32 bit 📕		
	Microsoft Windows Server 2008 R2 with SQ		=	
	Microsoft Windows Server 2008 R2 SP1 Datacenter edition, 64-bit architecture,			
📝 Windows	Microsoft SQLServer 2008 Express, Internet Information Services 7, ASP.NET			
	3.5. Root Device Size: 30 GB	64 bit 32 bit		
	ROOT DEVICE SIZE. SU GB	C4 DIL C 32 DIL		
	Microsoft Windows Server 2008 R2 with SQL Server Web			
Windows	Microsoft Windows Server 2008 R2 SP1 Datacenter, 64-bit architecture,			
	Microsoft SQL Server 2008 R2 Web Edition. Root Device Size: 35 GB	64 bit 32 bit		
	ROOL DEVICE SIZE: 35 GB	64 DIL 6 32 DIL		
	Cluster Instances HVM SUSE Linux Enterpri			
SLISE Linux	SUSE Linux Enterprise Server 11 Service Pack 2			
SUSE Linux Enterprise	based virtualization for use with Amazon EC2 C	Cluster Compute and Cluster GPU	Select 🔽 🤻	

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 V	Wizard Can	cel 🗙					
CHOOSE AN AMI INSTAN	O ICE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW						
Provide the details for y "spot" instances.	your instance(s). You may also decide whether you want to launch your instances as "on-demand" or						
Number of Instances:	1 Instance Type: Micro (t1.micro, 613 MB)						
Launch Instance	25						
	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:						
	Availability Zone: No Preference 💌						
© Request Spot In	stances						
< 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	
	hoose a specific kernel or RAM disk 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 💌	
< Back	Continue	
DOCK		

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			
CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR	CONFIGURE FIREWALL REVIEW		
case-sensitive key/value pair, are stored in the cloud that help you organize, search, and browse your reso	on of your EC2 infrastructure. A form of metadata, tags and are private to your account. You can create user- urces. For example, you could define a tag with key = I ach instance along with an optional value for each key.	friendly names Name and value	
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	
or selecting or	e to launch Cluster Compute Instances in a placement group by either providing a new name for one to be one of your existing placement groups. You can also choose to enable CloudWatch Detailed Monitoring or enterailable from your instances once they launch.	
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 Behavior: Stop 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 🗵
Υ.	¥	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	ances Wizard				Cancel 🗵
¥	¥	¥	0		
CHOOSE AN AMI	INSTANCE DETAILS	CREATE KEY PAIR	CONFIGURE FIREWALL	REVIEW	
or we can help	you create a new s	ecurity group to allo	ppen or blocked on your i w access to your instand ytime using the Security	es using the suggested	an existing security group, 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 <u>sg-6ed70906 -</u> sg-47984a2f - v (Selected gro	default linux quick-start-1 uick-start-2 quick-start-3				
© 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

¥	¥		¥	¥		\cap		
HOOSE AN AMI	INSTANCE	DETAILS	CREATE KEY PAIR	CONFIGURE FIREWAL	L	REVIEW		
Please review	the informa	ation belov	w, then click Laun	ch.				
	AMI:	Nind	ows AMI ID ami-(06cd6e6f (x86_64)				
				2008 R2 with SQL 9	Server	Express and IIS		
De		Microsof architect	t Windows Server ture, Microsoft S	r 2008 R2 SP1 Datac QLServer 2008 Expre	enter	edition, 64-bit		
		Services	7, ASP.NET 3.5.				Edit AMI	
Number of I	Instances:	1						
Availab	ility Zone:	No Prefe	rence					
Insta	nce Type:	Micro (t1	L.micro)					
Insta	nce Class:	On Dema	and				Edit Instance Details	Ξ
м	onitoring:	Disabled		Termination Prote	ction:	Disabled		-
	Tenancy:	Default						
	Kernel ID:	Use Defa	ault	Shutdown Beh	avior:	Stop		
RA	M Disk ID:	Use Defa	ault					
Network I	nterfaces:							
	ondary IP ddresses:							
ι	Jser Data:							
	IAM Role:						Edit Advanced Details	
Key P	air Name:	test					Edit Key Pair	
Back				Launch				

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

Launch Instance Wizard Cancel								
 Your instances are now launching. Note: Your instances may take a few minutes to launch, depending on the software you are running. Note: Usage hours on your new instance will start immediately and continue to accrue until you stop or terminate your instance. View your instances on the Instances page 								
Other AWS Features								
Spot Instances 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.	Reserved Instances 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.						
 Go to Amazon EC2 Spot Instances 	 Go to Amazon EC2 Reserved Instances 	> Go to Amazon EC2 running SUSE Linux						
	Close							

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

C C https://console.aws.amazon.com/ec2/home?region=us-east-1#s=Instances								
Services 🕶 Edit Sh	Edit Shortcut 👻 tom ryan 👻							✓ Hel
Navigation	My Instances							
Region:	aunch Instance Inst	ance Actions 👻				🎲 Show/Hide	Refresh	3 Help
US East (Virginia) 🕶	Viewing: All Instances	✓ All In:	stance Types 💽	Search		≪ ≪ 1 to 8	8 of 8 Instances	> >
EC2 Dashboard	Name	histance	AMI ID	Root Device	Туре	State	Status Checks	Ala
Events	spintest_instance03	3 🙀 i-b43156cc	ami-06cd6e6f	ebs	t1.micro	running	2/2 checks	
INSTANCES Instances	✓ wotest	👰 i-f6a3c48e	ami-06cd6e6f	ebs	t1.micro	running	📓 initializing	. n
Spot Requests	1 EC2 Instance selecte	d.						-
 IMAGES AMIs Bundle Tasks 	ec2-23-22-5-154	.compute-1.am	-					•
ELASTIC BLOCK STORE	AMI: Windows_Server-20	08-R2_SP1-English	-64Bit-SQL_2008_E	xpress-2012.06	.12 (ami-06cc		n Status:	
Snapshots NETWORK & SECURITY 	Zone:	us-east-1c					rity Groups: ow. view rules	
Security Groups Elastic IPs	Type: t1.micro					State		
Placement Groups Load Balancers	Scheduled Events: No scheduled events 09938047					er: 80475628		
Key Pairs Network Interfaces	VPC ID:	-				Subn	et ID:	
	•							P.

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

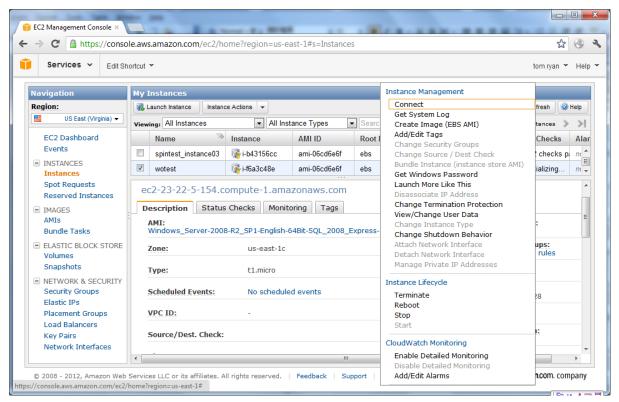
B.4.1 Retrieve an initial administrator password

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.co	om
$\overline{}$ Log in with your credentials	
Log in to your instance with your credentials:	
Public DNS: ec2-50-16-83-221.compute-1.amazonaws.com	
Username: Administrator 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.	
C 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.

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>.

	ws.amazon.com/s3/home	\$						
Edit Shortcut Y Edit Shortcut Y tom ryan Y Help Y								
Buckets	Objects and Folders							
Create Bucket Actions -	Objects and Folders ♦ Upload G Create Folder Actions ▼	🥏 Refresh 🚺 Properties 🛛 🔞 Transfers 🛛 🥹 Help						
Appeon	AppeonStorage							
🖥 AppeonStorage	Name	Size Last Modified						
🗑 spinbucket	🍅 appeon.zip	52.5 MB Mon Mar 26 11:02:03 GMT+800 201						
	X.							

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 B	ucket Name and Region	Cancel 🗙
A bucket is a container for objects bucket, you can choose a Region address regulatory requirements. naming conventions, please visit t	to optimize for latency, minimize . For more information regarding	e costs, or
Bucket Name:		
Region: US Standard	•	
	Sat Lin Logging > Ora	ate Cancel
	Set Up Logging > Cre	cancer

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

		3/home	<u>द्र</u>
Services 🗸	Edit Shortcut 👻		tom ryan 👻
Upload - Sel	ect Files		Cancel 🔀
Upload to: 🍵	AppeonStorage		
(BETA), which	can take up to 2 minutes as i	S3, click Add Files. To upload whole folders to t downloads a Java™ Applet (requires <u>Java SE</u>	Amazon S3, click Enable Enhanced Uploader <u>6 Update 10 or later</u>). To remove files already
selected, click	the X to the far right of the file	e name.	
No files added	l		
🕄 Add Files	Remove Selected Files	Enable Enhanced Uploader (BETA)	Number of files: 0 Total upload size: 0
			Set Details > Start Upload Cancel

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

	Edit Shortcut	•		tom ryan 👻 He			
Buckets		Objects and Folders					
Greate Bucket	Actions 🔻	🕜 Upload 🛛 🙀 Create Folder 🛛 Actio	ons 🔻	🍣 Refresh 🕕 🕕	Properties 💿 Transfers	 Help 	
Papeon 🗑		appeonStorage					
🖥 AppeonStorage		Name		Size Last Modified			
🗑 spinbucket		🍅 appeon.zip		52.5 MB	Mon Mar 26 11:02:03 G	MT+800 201	
		📁 new folder					
				Automatica	lly clear finished transfers	. 8	
Transfers					KB (3 KB/sec)	44.63%	
S Transfers	pading Admin 2()10 Second Edition.pdf to AppeonStorag	je ((5 (5 (5) 500)	1100 /	

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>.

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