

USDL Examples

Amazon EC2 use case

SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS




SAP Research
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Amazon Elastic Compute Cloud (Amazon EC2)

Service Name
(Core)

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.

Sign Up For Amazon EC2 

Long Description
(Core/Foundation)

Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers the tools to build failure resilient applications and isolate themselves from common failure scenarios.

Core Service Description



▼ Service Description

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Service

+

+

+

Short Description:

Amazon Elastic Compute Cloud

Long Description:

A web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computi

▲

▼

Guid:

Namespace:

Name:

Amazon EC2

Synonyms:

×

Version:

Publication Time:

select

Keywords:

×

Languages:

×

Type:

Other

▼

Release Stage:

Proposed

▼

Granularity:

Other

▼

Provider:

▼

Business Owner:

▼

Detailed Description

Using Amazon EC2 to Run Instances

Amazon EC2 allows you to set up and configure everything about your instances from your operating system up to your applications. An Amazon Machine Image (AMI) is simply a packaged-up environment that includes all the necessary bits to set up and boot your instance. Your AMIs are your unit of deployment. You might have just one AMI or you might compose your system out of several building block AMIs (e.g., webserver, appserver, and databases). Amazon EC2 provides a number of command line tools to make creating an AMI easy. Once you create a custom AMI, you will need to upload it to Amazon S3. Amazon EC2 uses Amazon S3 to provide reliable, scalable storage of your AMIs so that we can boot them when you ask us to do so.



You can also choose from a library of globally available AMIs that provide useful instances. For example, if you just want a simple Linux server, you can choose one of the standard Linux distribution AMIs. Once you have set up your account and uploaded your AMIs, you are ready to boot your instance. You can start your AMI on any number and any type of instance by calling the *RunInstances* API.


If you wish to run more than 20 instances, create more than 20 EBS volumes, need more than 5 Elastic IP addresses, or need to send large quantities of email from your EC2 account, please complete the [Amazon EC2 instance request form](#), [Amazon EBS volume request form](#), [Elastic IP request form](#), or the [Email request form](#) respectively and your request will be considered.



Dependency to
Amazon S3
(Core)

Core Service Description Dependencies




▼ Dependencies  

Dependency 

Dependency  

Name:

Synonyms: 

Short Description:

Long Description:

Dependency Type:

Target:

Core Service Description Options 1



Software

Amazon EC2 enables our partners and customers to build and customize Amazon Machine Images (AMIs) with software based on your needs. We have hundreds of free and paid AMIs available for you to use. A small sampling of the software available for use today within Amazon EC2 includes:

<u>Databases</u>	<u>Batch Processing</u>	<u>Web Hosting</u>
IBM DB2	Hadoop	Apache HTTP
IBM Informix Dynamic Server	Condor	IIS/Asp.Net
Microsoft SQL Server Standard 2005	Open MPI	IBM Lotus Web Content Management
MySQL Enterprise		IBM WebSphere Portal Server
Oracle Database 11g		

Options
(Core, experimental)

Core Service Description

Options 1



▼ Options

Option

Option

Name: IBM DB2

Synonyms:

Short Description: Database Option

Long Description:

Option

Name: IBM Informix Dynamic Server

Synonyms:

Short Description: Database Option

Long Description:

Option

Name: Microsoft SQL Server Standard 2005

Synonyms:

Short Description: Database Option

Long Description:

Core Service Description

Options 2



Instance Types

Standard Instances

Instances of this family are well suited for most applications.

- Small Instance (Default) 1.7 GB of memory, 1 EC2 Compute Unit (1 virtual core with 1 EC2 Compute Unit), 160 GB of instance storage, 32-bit platform
- Large Instance 7.5 GB of memory, 4 EC2 Compute Units (2 virtual cores with 2 EC2 Compute Units each), 850 GB of instance storage, 64-bit platform
- Extra Large Instance 15 GB of memory, 8 EC2 Compute Units (4 virtual cores with 2 EC2 Compute Units each), 1690 GB of instance storage, 64-bit platform

High-Memory Instances

Instances of this family offer large memory sizes for high throughput applications, including database and memory caching applications.

- High-Memory Double Extra Large Instance 34.2 GB of memory, 13 EC2 Compute Units (4 virtual cores with 3.25 EC2 Compute Units each), 850 GB of instance storage, 64-bit platform
- High-Memory Quadruple Extra Large Instance 68.4 GB of memory, 26 EC2 Compute Units (8 virtual cores with 3.25 EC2 Compute Units each), 1690 GB of instance storage, 64-bit platform

High-CPU Instances

Instances of this family have proportionally more CPU resources than memory (RAM) and are well suited for compute-intensive applications.

- High-CPU Medium Instance 1.7 GB of memory, 5 EC2 Compute Units (2 virtual cores with 2.5 EC2 Compute Units each), 350 GB of instance storage, 32-bit platform
- High-CPU Extra Large Instance 7 GB of memory, 20 EC2 Compute Units (8 virtual cores with 2.5 EC2 Compute Units each), 1690 GB of instance storage, 64-bit platform

Options
(Core, experimental)

Core Service Description

Options 2



Option		+		X
Name:	Standard Instances			
Synonyms:		X		
Short Description:	Instance Option			
Long Description:	Instances of this family are well suited for most : * Small Instance (Default) 1.7 GB of memory, 1			
Option		+		X
Name:	High-Memory Instances			
Synonyms:		X		
Short Description:	Instance Option			
Long Description:	Instances of this family offer large memory sizes * High-Memory Double Extra Large Instance 3			
Option		+		X
Name:	High-CPU Instances			
Synonyms:		X		
Short Description:	Instance Option			
Long Description:	Instances of this family have proportionally mor * High-CPU Medium Instance 1.7 GB of mem			

Amazon EC2 Functionality

Amazon EC2 presents a true virtual computing environment, allowing you to use web service interfaces to launch instances with a variety of operating systems, load them with your custom application environment, manage your network's access permissions, and run your image using as many or few systems as you desire.



To use Amazon EC2, you simply:



- Create an Amazon Machine Image (AMI) containing your applications, libraries, data and associated configuration settings. Or use pre-configured, templated images to get up and running immediately.
- Upload the AMI into Amazon S3. Amazon EC2 provides tools that make storing the AMI simple. Amazon S3 provides a safe, reliable and fast repository to store your images.
- Use Amazon EC2 web service to configure security and network access.
- Choose which instance type(s) and operating system you want, then start, terminate, and monitor as many instances of your AMI as needed, using the web service APIs or the variety of management tools provided.
- Determine whether you want to run in multiple locations, utilize static IP endpoints, or attach persistent block storage to your instances.
- Pay only for the resources that you actually consume, like instance-hours or data transfer.



Actions
(Functional)

Functional Perspective Actions



▼ Actions  

Action  



Action  

Name:

Synonyms:

Short Description:

Long Description:

Action  

Name:

Synonyms:

Short Description:

Long Description:

Technical Interface



```
- <portType name="AmazonEC2PortType">
  - <operation name="RegisterImage">
    <input message="tns:RegisterImageRequestMsg"/>
    <output message="tns:RegisterImageResponseMsg"/>
  </operation>
  - <operation name="DeregisterImage">
    <input message="tns:DeregisterImageRequestMsg"/>
    <output message="tns:DeregisterImageResponseMsg"/>
  </operation>
  - <operation name="RunInstances">
    <input message="tns:RunInstancesRequestMsg"/>
    <output message="tns:RunInstancesResponseMsg"/>
  </operation>
```

Technical Interface
(Functional)

Operation
(Functional)

Technical Interface



▼ Technical Interfaces ?

Technical Interface

TechnicalInterface

Name: AmazonEC2PortType

Synonyms:

Short Description:

Long Description:

Type: WSDL PortType

Realized Capabilities:

select

▼ Implementation Artifact ?

Artifact

Artifact

Name: WSDL file

Synonyms:

Short Description:

Long Description: A reference to the WSI

Type: TechnicalMetadata

Mime Type:

Source:

Uri: C:\Users\d053224\worksp

Copyright:

Browse...

```
- <types>
- <xs:schema targetNamespace="http://ec2.amazonaws.com/doc/2009-04-04/" elementFormDefault="qualified">
-   <xs:annotation>
-     <xs:documentation xml:lang="en"> </xs:documentation>
-   </xs:annotation>
-   <!-- RegisterImage request definitions -->
-   <xs:element name="RegisterImage" type="tns:RegisterImageType"/>
-   <xs:complexType name="RegisterImageType">
-     <xs:sequence>
-       <xs:element name="imageLocation" type="xs:string"/>
-     </xs:sequence>
-   </xs:complexType>
-   <!-- RegisterImage response definitions -->
-   <xs:element name="RegisterImageResponse" type="tns:RegisterImageResponseType"/>
-   <xs:complexType name="RegisterImageResponseType">
-     <xs:sequence>
-       <xs:element name="requestId" type="xs:string"/>
-       <xs:element name="imageId" type="xs:string"/>
-     </xs:sequence>
-   </xs:complexType>
```

```
<!-- DescribeKeyPairs Request definitions -->
<xs:element name="DescribeKeyPairs" type="tns:DescribeKeyPairsType"/>
- <xs:complexType name="DescribeKeyPairsType">
  - <xs:sequence>
    <xs:element name="keySet" type="tns:DescribeKeyPairsInfoType"/>
  </xs:sequence>
</xs:complexType>
- <xs:complexType name="DescribeKeyPairsInfoType">
  - <xs:sequence>
    <xs:element name="item" type="tns:DescribeKeyPairsItemType" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
- <xs:complexType name="DescribeKeyPairsItemType">
  - <xs:sequence>
    <xs:element name="keyName" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

Occurrence
(Functional)

Operation Params



```
<!-- message definitions -->
- <message name="RegisterImageRequestMsg">
  <part name="RegisterImageRequestMsgReq" element="tns:RegisterImage"/>
</message>
- <message name="RegisterImageResponseMsg">
  <part name="RegisterImageResponseMsgResp" element="tns:RegisterImageResponse"/>
</message>
- <message name="DeregisterImageRequestMsg">
  <part name="DeregisterImageRequestMsgReq" element="tns:DeregisterImage"/>
</message>
- <message name="DeregisterImageResponseMsg">
  <part name="DeregisterImageResponseMsgResp" element="tns:DeregisterImageResponse"/>
</message>
```

Type
(Functional)

Operation and Inputs/Outputs

▼ Technical Operations

TechnicalOperation

TechnicalOperation

Name:

Synonyms:

Short Description:

Long Description:

Realized Actions:

▼ Inputs

TechnicalParameter

TechnicalParameter

Name:

Synonyms:

Short Description:

Long Description:

Type:

Min Occurs:

Max Occurs:

Realized Parameters:

▼ Resources

?

Resource

G+

Resource

+ | X

Name:

Amazon Machine Image (AMI)

Synonyms:

X

Short Description:

Long Description:

Amazon Machine Image (AMI) is simply
ckaged-up environment that includes
ne necessary bits to set up and boot

▲
▼

Type:

SoftwareResource ▼

Detailed Description

Using Amazon EC2 to Run Instances

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You can also choose from a library of globally available AMIs that provide useful instances. For example, if you just want a simple Linux server, you can choose one of the standard Linux distribution AMIs. Once you have set up your account and uploaded your AMIs, you are ready to boot your instance. You can start your AMI on any number and any type of instance by calling the *RunInstances* API.

Resource
(Foundation)

Pricing Price Plans



Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using [AWS Simple Monthly Calculator](#). The prices listed are based on the Region in which your instance is running.

On-Demand Instances

On-Demand Instances let you pay for compute capacity by the hour with no long-term commitments. This frees you from the costs and complexities of planning, purchasing, and maintaining hardware and transforms what are commonly large fixed costs into much smaller variable costs.

The pricing below includes the cost to run private and public AMIs on the specified operating system. Amazon also provides you with additional instances with other option for [Amazon EC2 running Microsoft](#) and [Amazon EC2 running IBM](#) that are priced differently.

United States		Europe	
Standard On-Demand Instances		Linux/UNIX Usage	Windows Usage
Small (Default)		\$0.085 per hour	\$0.12 per hour
Large		\$0.34 per hour	\$0.48 per hour
Extra Large		\$0.68 per hour	\$0.96 per hour
High-Memory On-Demand Instances		Linux/UNIX Usage	Windows Usage
Double Extra Large		\$1.20 per hour	\$1.44 per hour
Quadruple Extra Large		\$2.40 per hour	\$2.88 per hour
High-CPU On-Demand Instances		Linux/UNIX Usage	Windows Usage
Medium		\$0.17 per hour	\$0.29 per hour
Extra Large		\$0.68 per hour	\$1.16 per hour

Pricing is per instance-hour consumed for each instance type, from the time an instance is launched until it is terminated. Each partial instance-hour consumed will be billed as a full hour.

Alternative Price Plans (Pricing)

United States		Europe	
Linux/UNIX		One-time Fee	
Standard Reserved Instances		1 yr Term	3 yr Term
Small (Default)		\$227.50	\$350
Large		\$910	\$1400
Extra Large		\$1820	\$2800
High-Memory Reserved Instances		1 yr Term	3 yr Term
Double Extra Large		\$3185	\$4900
Quadruple Extra Large		\$6370	\$9800
High-CPU Reserved Instances		1 yr Term	3 yr Term
Medium		\$455	\$700
Extra Large		\$1820	\$2800

Reserved Instances can be purchased for 1 or 3 year terms, and the one-time fee per instance is non-refundable. Usage pricing is per instance-hour consumed. Instance-hours are billed for the time that instances are in a running state; if you do not run the instance in an hour, there is zero usage charge. Partial instance-hours consumed are billed as full hours.

Reserved Instances are currently available for Linux/UNIX operating systems. [Click here](#) to learn more about Reserved Instances.

Price Plan

PricePlan

Name:

On-Demand Instances plan

Synonyms:

Short Description:

Long Description:

Currency:

USD

Plan Cap:

0.0

Plan Floor:

0.0

Effective From:

2009-11-01T02:17:22.000+0100

select

Effective To:

select

Plan Comprises

Plan Penalties

Fence Expression

Plan Fences:

Default Payment Terms:

PricePlan

PricePlan

Name:

Reserved Instances plan

Synonyms:

Short Description:

Long Description:

Currency:

USD

Plan Cap:

0.0

Plan Floor:

0.0

Effective From:

2009-11-01T02:17:34.000+0100

select

Effective To:

select

Price Plans Cap & Floor



Price Floor (null | 0)

Pay only for what you use. **There is no minimum fee.** Estimate your monthly bill using [AWS Simple Monthly Calculator](#). The prices listed are based on the Region in which your instance is running.

Price Plan

PricePlan

Name: On-Demand Instances plan

Synonyms:

Short Description:

Long Description:

Currency: USD

Plan Cap:

Plan Floor:

Effective From: 2009-11-01T02:17:22.000+0100

Effective To:

Price Plans Effectiveness Date



Effective From / Effective To

Upcoming Price Changes

Effective **November 1, 2009**, we will be lowering prices for all On-Demand instances. The tables below show the existing and future On-Demand prices.

Price Plan

PricePlan

Name: On-Demand Instances plan

Synonyms:

Short Description:

Long Description:

Currency: USD

Plan Cap:

Plan Floor:

Effective From: 2009-11-01T02:17:22.000+0100

Effective To:

Pricing

PAYG Price Plan



On-Demand Instances

Price Fences

On-Demand Instances let you pay for compute capacity by the hour with no long-term commitments. This frees you from the costs and complexities of planning, purchasing, and maintaining hardware and transforms what are commonly large fixed costs into much smaller variable costs.

The pricing below includes the cost to run private and public AMIs on the specified operating system. Amazon also provides you with additional instances with other option for [Amazon EC2 running Microsoft](#) and [Amazon EC2 running IBM](#) that are priced differently.

pay-per-use
component

United States		Europe	
Standard On-Demand Instances		Linux/UNIX Usage	Windows Usage
Small (Default)		\$0.085 per hour	\$0.12 per hour
Large		\$0.34 per hour	\$0.48 per hour
Extra Large		\$0.68 per hour	\$0.96 per hour
High-Memory On-Demand Instances		Linux/UNIX Usage	Windows Usage
Double Extra Large		\$1.20 per hour	\$1.44 per hour
Quadruple Extra Large		\$2.40 per hour	\$2.88 per hour
High-CPU On-Demand Instances		Linux/UNIX Usage	Windows Usage
Medium		\$0.17 per hour	\$0.29 per hour
Extra Large		\$0.68 per hour	\$1.16 per hour

Price Levels

Pricing Price Level



United States		Europe
Standard On-Demand Instances		Linux/UNIX Usage
Small (Default)		\$0.085 per hour
Large		\$0.34 per hour
Extra Large		\$0.68 per hour
High-Memory On-Demand Instances		Linux/UNIX Usage
Double Extra Large		\$1.20 per hour
Quadruple Extra Large		\$2.40 per hour
High-CPU On-Demand Instances		Linux/UNIX Usage
Medium		\$0.17 per hour
Extra Large		\$0.68 per hour

▼ Plan Comprises

PriceComponent

PriceComponent

Name: instance use component

Synonyms:

Component Cap: 0.0

Component Floor: 0.0

▼ Component Assumes Level

PriceLevel

PriceLevel

Name:

Synonyms:

Amount: 0.085

Amount Type: absolute

Tax Rate:

► Fence Expression

Level Fences: Linux instance
S instance
US

Is Percentage Of:

Is Charged Per: instance hour

Price Fence definition Instance Type example



On-Demand Instances

On-Demand Instances let you pay for compute capacity you need from the costs and complexities of planning, purchasing, and managing commonly large fixed costs into much smaller variable costs.

The pricing below includes the cost to run private and public instances. It also provides you with additional instances with other options, such as [running IBM](#) that are priced differently.

United States

Europe

Standard On-Demand Instances		Linux/UNIX
Small (Default)		\$0.085 per hour
Large		\$0.34 per hour
Extra Large		\$0.68 per hour
High-Memory On-Demand Instances		Linux/UNIX
Double Extra Large		\$1.20 per hour
Quadruple Extra Large		\$2.40 per hour
High-CPU On-Demand Instances		Linux/UNIX
Medium		\$0.17 per hour
Extra Large		\$0.68 per hour

PriceFence

Name: XL instance

Level: 0

Type: simple

Business Term: instance type

Fence Term Literal

BusinessTermLiteral

BusinessTermLiteral

Time Literal

Location Literals

Custom Literals

CustomLiteral

Name: instance type is

Short Description:

Long Description:

Value: Extra Large

Quantity Literals

Payment Terms Literal:

select

Target Consumer Literals:

select

Pricing Price Metric



Price Metric
(instance-hour)

Pricing is per instance-hour consumed for each instance type, from the time an instance is launched until it is terminated. Each partial instance-hour consumed will be billed as a full hour.

Price Metric Factor (1)

▼ Price Metrics ?

Price Metric G

PriceMetric + | X

Name: instance hour

Synonyms: X

Short Description:

Long Description:

Factor: 1.0

Pricing Term Price Plan



Price Fences

Reserved Instances

Reserved Instances give you the option to make a low, one-time payment for each instance you want to reserve and in turn receive a significant discount on the hourly usage charge for that instance. After the one-time payment for an instance, that instance is reserved for you, and you have no further obligation; you may choose to run that instance for the discounted usage rate for the duration of your term, or when you do not use the instance, you will not pay usage charges on it.

United States Europe		One-time Fee		Usage
Linux/UNIX		1 yr Term	3 yr Term	
Standard Reserved Instances		1 yr Term	3 yr Term	Usage
Small (Default)		\$227.50	\$350	\$0.03 per hour
Large		\$910	\$1400	\$0.12 per hour
Extra Large		\$1820	\$2800	\$0.24 per hour
High-Memory Reserved Instances		1 yr Term	3 yr Term	Usage
Double Extra Large		\$3185	\$4900	\$0.42 per hour
Quadruple Extra Large		\$6370	\$9800	\$0.84 per hour
High-CPU Reserved Instances		1 yr Term	3 yr Term	Usage
Medium		\$455	\$700	\$0.06 per hour
Extra Large		\$1820	\$2800	\$0.24 per hour

Two-part
tariff

Price Component
(per-use fee)



Reserved Instances can be purchased for 1 or 3 year terms, and the one-time fee per instance is non-refundable. Usage pricing is per instance-hour consumed. Instance-hours are billed for the time that instances are in a running state; if you do not run the instance in an hour, there is zero usage charge. Partial instance-hours consumed are billed as full.


Price Component (fixed fee)



Reserved Instances are currently available for Linux/UNIX operating systems. [Click here](#) to learn more about Reserved Instances.

Pricing Two-part Tariff



▼ Plan Comprises  

PriceComponent 

PriceComponent  


Name:


Component Cap:



Component Floor:

▶ Component Assumes Level

▶ Fence Expression

Component Fences: 

Component Payment Terms: 

PriceComponent  

Name:

Component Cap:

Component Floor:

▶ Component Assumes Level



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