

Steps to deploy BIMcloud on AWS

(Includes the creation of a domain and securing this with a valid https certificate)

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Author: Ed Brown

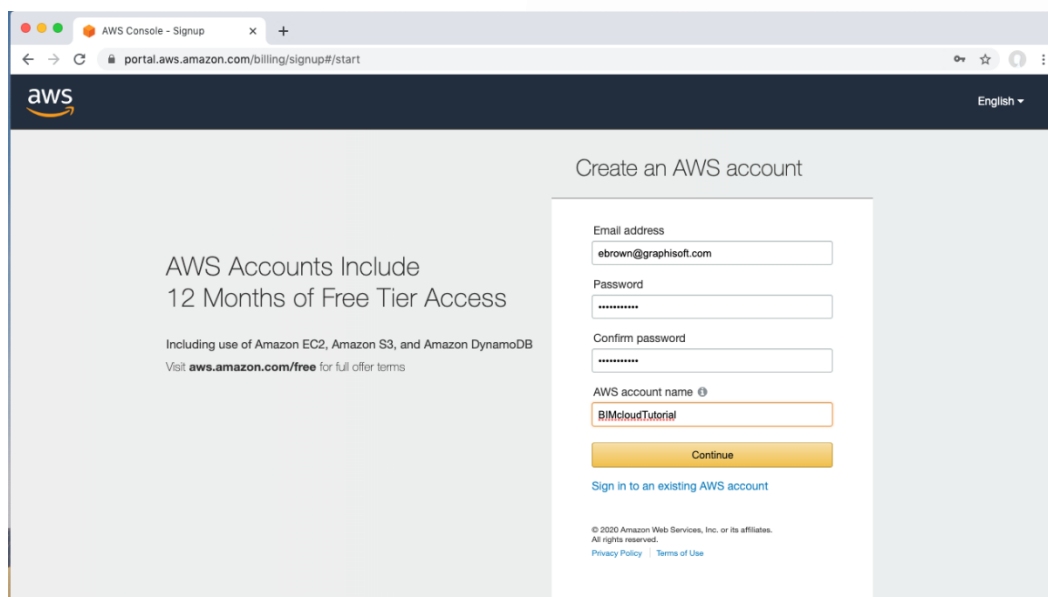
Summary

1. Obtain an AWS (Amazon Web Services) account. Explore the console.
2. Register a domain.
3. Launch an EC2 instance.
4. Request a public SSL/TLS certificate.
5. Log into the EC2 instance and install BIMcloud Basic.
6. Finalize the network setup.
7. Setup ARCHICAD to connect to the BIMcloud and share the first project.

This tutorial documents how a BIMcloud was setup on Amazon Web Services to use a newly created domain (learningbim.org). It is over 60 pages long, but mainly it is just pictures of the settings and methods necessary for a working cloud-based host. You are expected to take note of the settings made on each page. Clearly, “learningbim.org” has been used so you will have to choose a different domain and there are other changes you will need to make in an appropriate way. Your region may present some of the dialogs differently than what is shown in this tutorial.

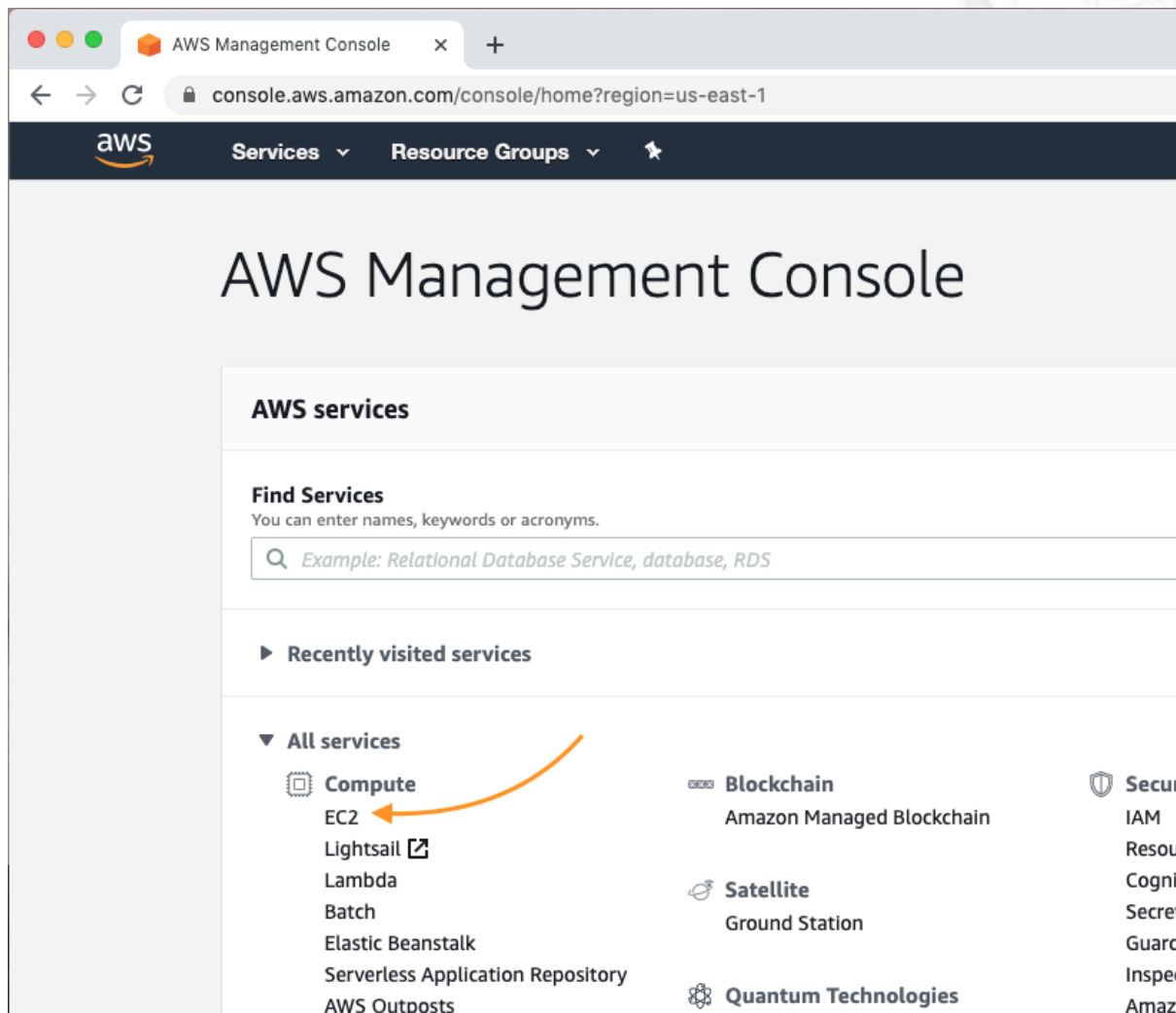
1. Obtain an AWS account

<https://aws.amazon.com/console/>

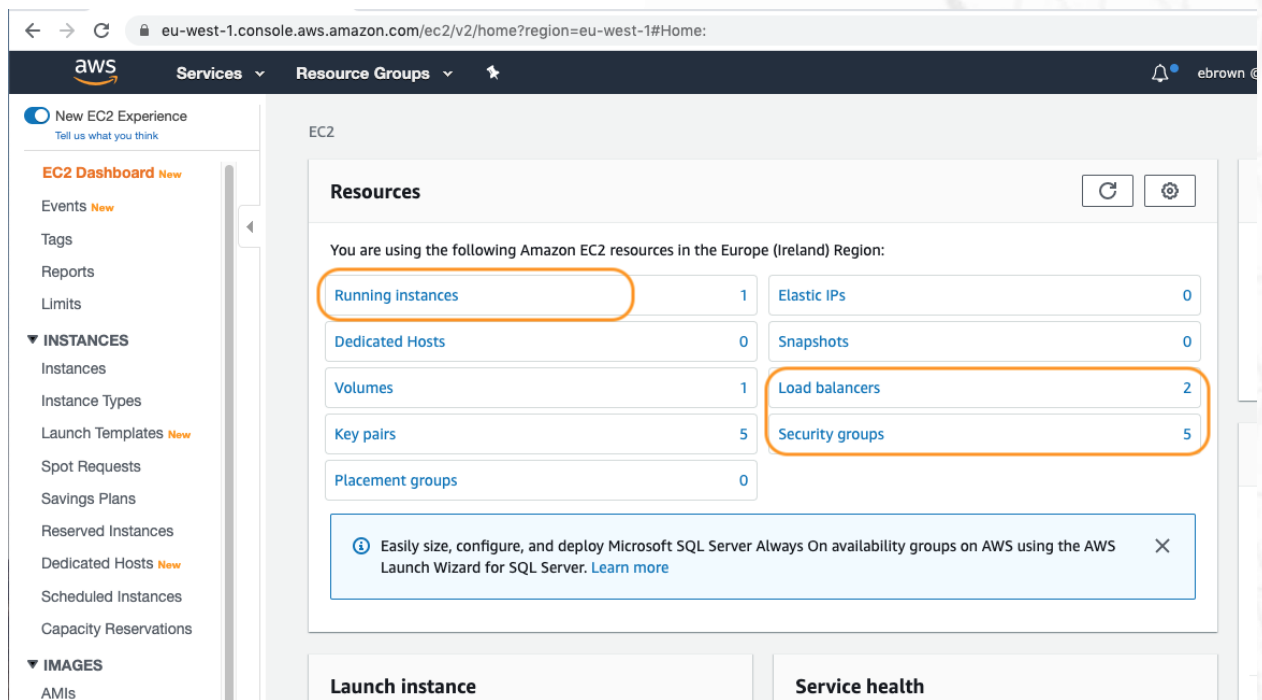


The screenshot shows the AWS Console - Signup page. The browser address bar displays 'portal.aws.amazon.com/billing/signup#/start'. The page features the AWS logo and a language selector set to 'English'. The main heading is 'Create an AWS account'. On the left, a promotional message states 'AWS Accounts Include 12 Months of Free Tier Access' and mentions the inclusion of Amazon EC2, Amazon S3, and Amazon DynamoDB. The right side contains a form with the following fields: 'Email address' (filled with 'ebrown@graphisoft.com'), 'Password' (masked with dots), 'Confirm password' (masked with dots), and 'AWS account name' (filled with 'BIMcloudTutorial'). A yellow 'Continue' button is positioned below the form. Below the button is a link to 'Sign in to an existing AWS account'. At the bottom, there is a copyright notice for 2020 Amazon Web Services, Inc. and links to 'Privacy Policy' and 'Terms of Use'.

The first screen will be the console. For most of the tutorial the EC2 area will be explored.



If the EC2 service is clicked a screen similar to the below screenshot will appear. The circled links will be navigated to as part of this tutorial.

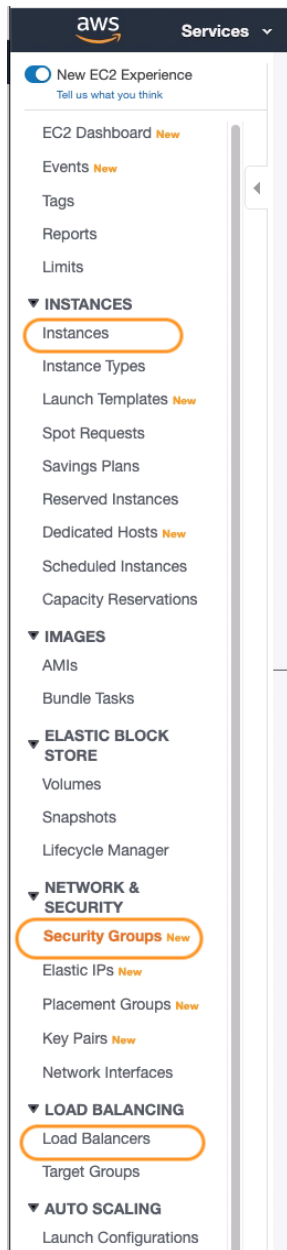


The screenshot displays the AWS Management Console for the EC2 service in the eu-west-1 region. The left sidebar contains navigation links for various EC2 services, including the EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES, and IMAGES. The main content area, titled 'EC2 Resources', shows a table of resources in the Europe (Ireland) Region. The table lists the following resources:

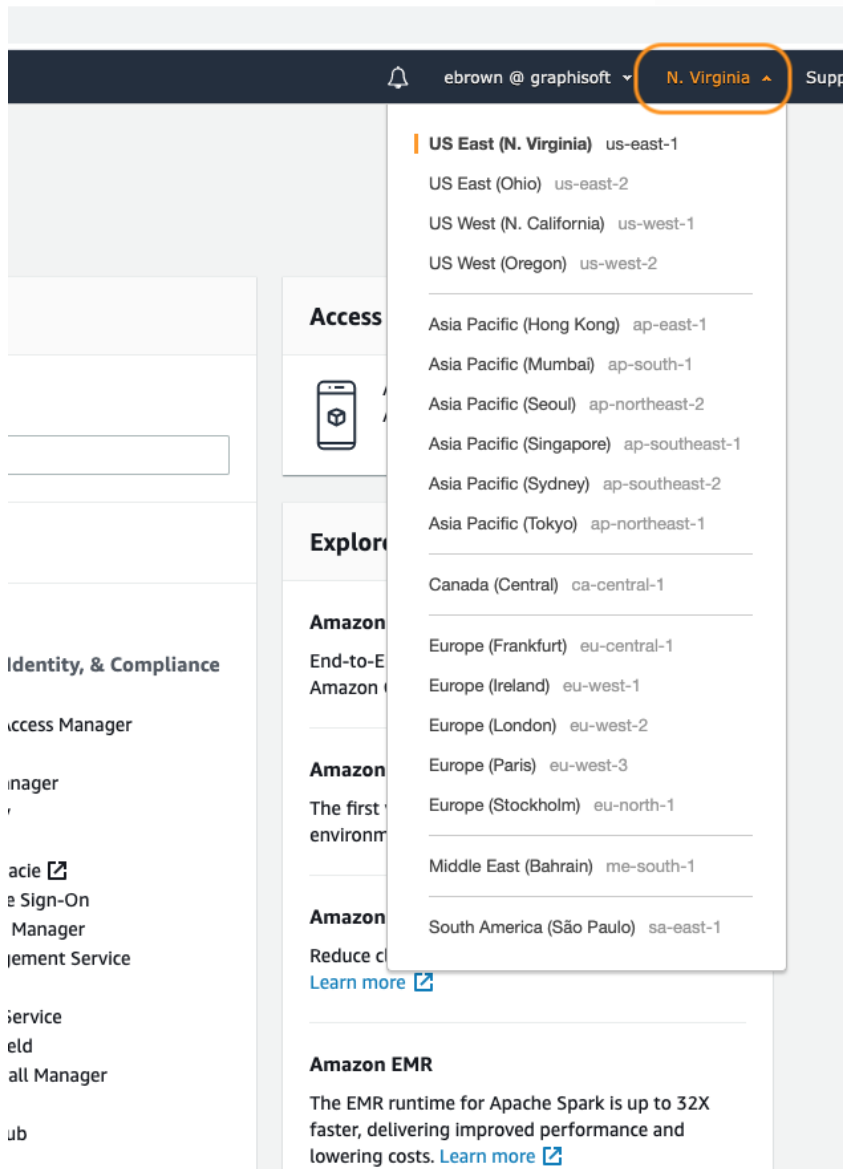
Resource	Count
Running Instances	1
Dedicated Hosts	0
Volumes	1
Key pairs	5
Placement groups	0
Elastic IPs	0
Snapshots	0
Load balancers	2
Security groups	5

The 'Running Instances' link is circled in orange. The 'Load balancers' and 'Security groups' links are also circled in orange. Below the table, there is a notification banner about Microsoft SQL Server Always On availability groups. At the bottom of the page, there are two tabs: 'Launch instance' and 'Service health'.

The side bar is a quick way to navigate to common features of AWS and is available when the instance page is open. The tutorial will use the highlighted links.

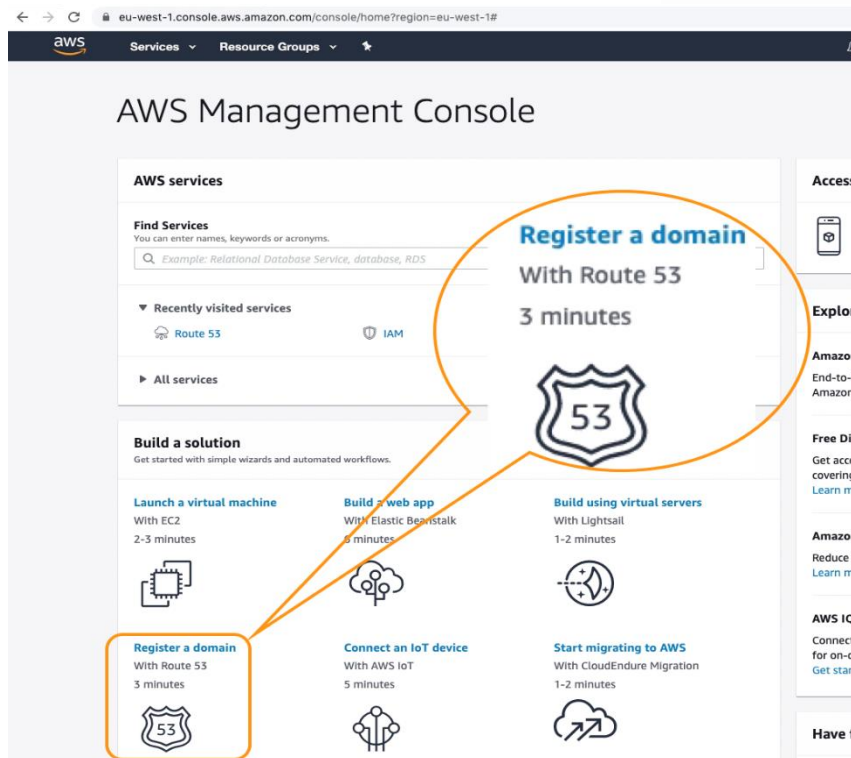


Before continuing identify a region where your instance will reside. Setting up an instance on the other side of the world will have performance ramifications for your BIMcloud. In this tutorial the Ireland region was used. Your region may present some of the dialogs differently than what is shown in this tutorial.



2. Register a domain

From the AWS Management Console use Route 53 to create a domain. To get to the AWS Management Console you can always click on the AWS link in the upper left corner of the window on the Amazon menu bar.



The steps for section 2 are:

1. Search for an available domain
2. Provide contact details
3. Buy the domain ~\$12

2.1 Search for an available domain

After deciding on a name, check to see if it is available. Learningbim.org is used in this tutorial and cannot be used. After choosing [check] a few suggestions will be offered.

Be aware that some TLDs (https://en.wikipedia.org/wiki/List_of_Internet_top-level_domains) are significantly more expensive than the \$12 choice made here.

Choose a domain name

Availability for 'learningbim.com'

Domain Name	Status	Price /1 Year	Action
learningbim.com	✗ Unavailable		

Related domain suggestions

Domain Name	Status	Price /1 Year	Action
innovationbim.com	✓ Available	\$12.00	<button>Add to cart</button>
innovationbim.net	✓ Available	\$11.00	<button>Add to cart</button>
learningbim.info	✓ Available	\$12.00	<button>Add to cart</button>
learningbim.me	✓ Available	\$17.00	<button>Add to cart</button>
learningbim.mobi	✓ Available	\$12.00	<button>Add to cart</button>
learningbim.net	✓ Available	\$11.00	<button>Add to cart</button>
learningbim.org	✓ Available	\$12.00	<button>Add to cart</button>

2.2 Provide contact details for your domain.

Pay attention to the email, it is where validation requests will go.

Contact Details for Your 1 Domain

Enter the details for your Registrant, Administrative and Technical contacts below. All fields are required unless specified otherwise. [Learn more.](#)

My Registrant, Administrative and Technical Contacts are all the same: ☒ Yes ☐ No

Registrant Contact

Contact Type ⓘ	Company
First Name	Ed
Last Name	Brown
Organization ⓘ	Graphisoft
Email	ebrown@_.
Phone	+ 36 . Enter country calling code and phone number
Address 1	Zahony u. 7 Street address, P.O. box
Address 2	G ep. Apt, suite, unit, building, floor, etc.
Country	Hungary
State	State not required
City	Budapest
Postal/Zip Code	1031
Privacy Protection ⓘ	When the contact type is Company: Privacy protection hides some contact details for .org domains. ☒ Enable ☐ Disable

[Cancel](#)

[Back](#)

[Continue](#)

After you have checked your contact details, you will need to verify your email. An email verification will be sent to the address you provided.

Check your contact details

Confirm that the following contact information is correct. When you complete your purchase, we'll use this information for all of the domains in your shopping cart.

Registrant Contact

Ed Brown
Graphisoft
ebrown@g
+36.
Zahony u. 7 G ép.
Budapest
1031
HU
Privacy protected

Administrative Contact

Ed Brown
Graphisoft
ebrown@
+36.
Zahony u. 7 G ép.
Budapest
1031
HU
Privacy protected

Technical Contact

Ed Brown
Graphisoft
ebrown@graphisoft.com
+36.
Zahony u. 7 G ép.
Budapest
1031
HU
Privacy protected

Managing DNS for Your New Domain

To make it easier for you to use Route 53 as the DNS service for your new domain, we'll automatically create a hosted zone. That's where you store information about how to route traffic for your domain, for example, to an Amazon EC2 instance. If you won't use your domain right now, you can delete the hosted zone. If you will use your domain, Route 53 charges for the hosted zone and for the DNS queries that we receive for your domain. For more information, see [Amazon Route 53 Pricing](#).

Do you want to automatically renew your domain?

When you register a domain name, you own it for a year. If you don't renew your domain name registration, it expires and someone else can register the domain name. To ensure that you can keep your domain name, you can choose to renew it automatically every year. The cost of renewing your domain name is billed to your AWS account. You can enable or disable automatic renewal at any time using the Route 53 console. For more information, see [Renewing Registration for a Domain](#).

☒ Enable ☐ Disable

Terms and Conditions

Amazon Route 53 enables you to register and transfer domain names using your AWS account. However, AWS is not a domain name registrar, so we use registrar associates to perform registration and transfer services. When you purchase domain names through AWS, you are registering your domain with one of our registrar associates. The registrar for your domain will periodically contact the registrant contact that you specified to verify the contact details and renew registration.

☐ I have read and agree to the [AWS Domain Name Registration Agreement](#)

Verify the Email Address for the Registrant Contact

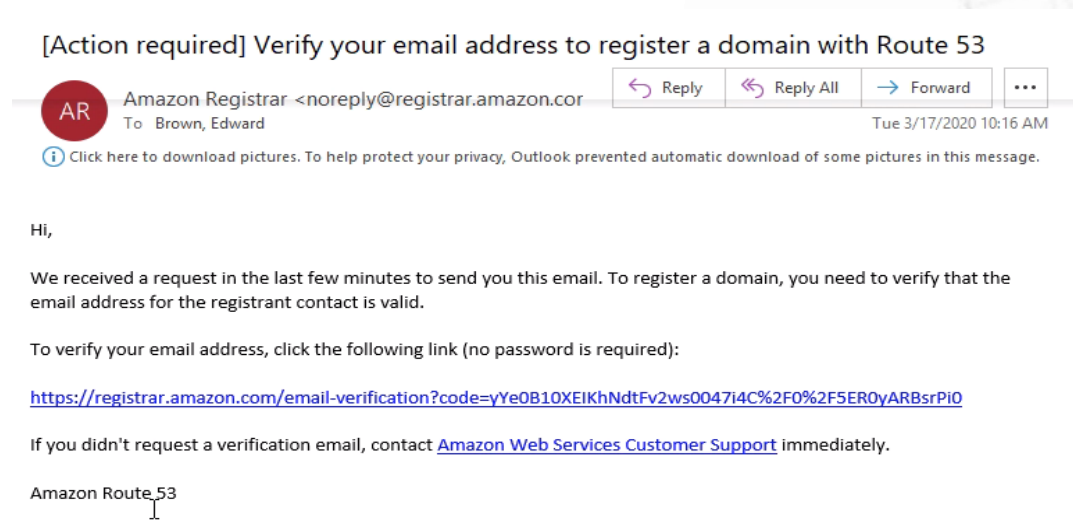
We just sent an email to ebrown@graphisoft.com. Click the link in the email to verify that we were able to reach you. The email will come from noreply@registrar.amazon.com. After you click the link, return to this page to complete the purchase. If the verification email is going to someone else, you can [skip verification for now](#).

Important

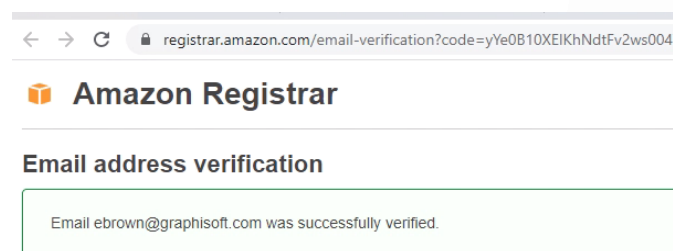
If you don't click the link, we're required to suspend the domains that require email verification. Suspended domains aren't available on the internet.

If ebrown@graphisoft.com is the wrong address, choose **Back** and correct the address.

The email will look something like the below. You only need to click on the link and your email will be verified.



Amazon Registrar should confirm the verification was successful.



After you complete the order it will take some time for the domain to be registered. My domain registration took about 2 hours.

Pending requests

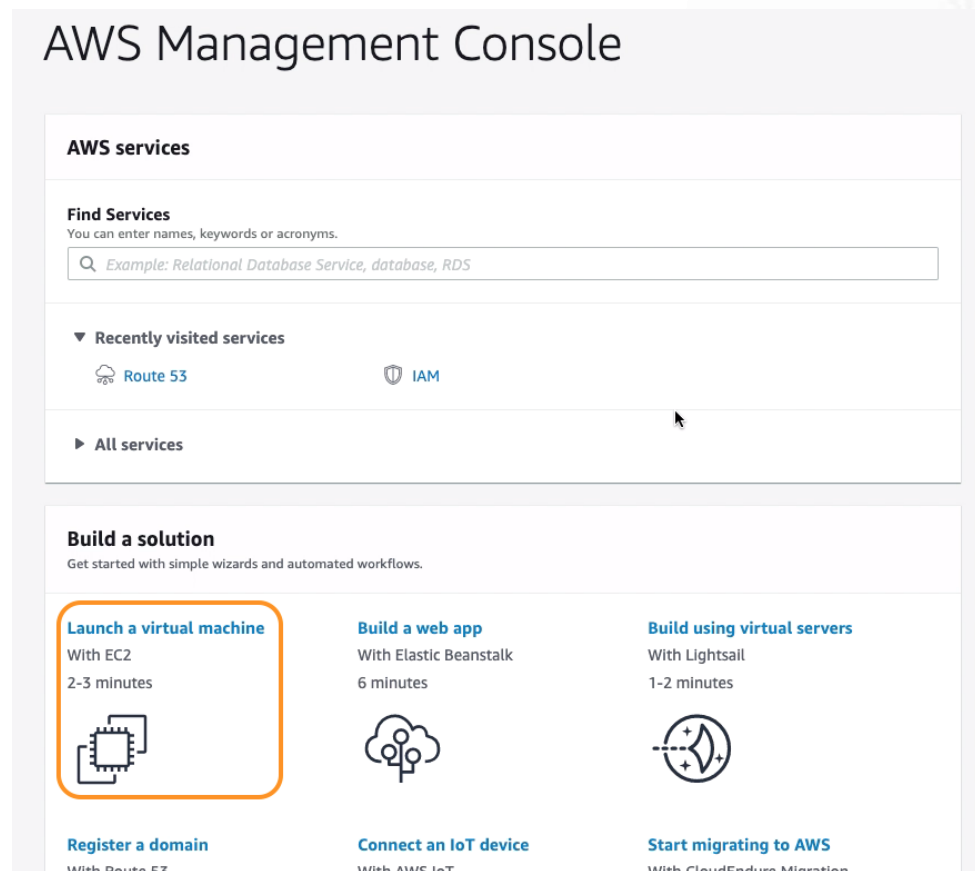
Domain Name	Status
learningbim.org	Domain registration in progress

Once your domain is ready to use it should be visible in the Registered domains page. At this point click on the AWS link on far upper left corner of the window on the Amazon menu bar in preparation for launching an EC2 instance.

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', and 'Resource Groups'. The left sidebar contains a list of services, with 'Registered domains' highlighted. The main content area is titled 'Registered domains' and features three buttons: 'Register Domain', 'Transfer Domain', and 'Domain Billing Report'. Below these buttons is a search bar labeled 'Search domains by prefix'. A table lists the registered domains with columns for 'Domain Name', 'Privacy Protection', and 'Expiration Date'.

Domain Name	Privacy Protection	Expiration Date
	All contacts	October 04, 2020
learningbim.org	All contacts	March 17, 2021

3. Launch an EC2 instance

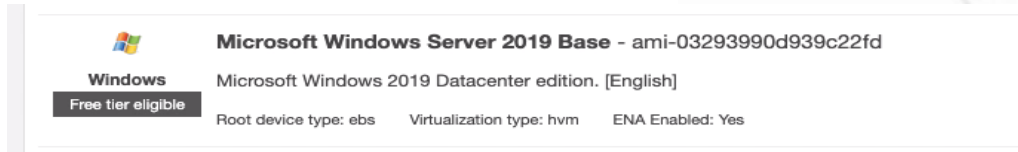


The steps for section 3 are:

1. Choose an AMI (Amazon Machine Image).
2. Allocate to this image a package that includes CPU, RAM base data storage and network bandwidth — an instance type.
3. Configure the instance.
4. Add data storage
5. Label the instance.
6. Accept initial RDP security group. More will be later configured after the instance is created.
7. Review settings; launch the instance and obtain the key pair needed for obtaining the Administrator password of the instance.
8. Verify the instance is ready for use.

3.1 Choose an AMI.

The below AMI is recommended for BIMcloud.



3.2 Choose an instance type.

The choice of instance type will strongly affect the cost of the instance and its performance. Both memory and data store bandwidth are important.

☐	Memory optimized	x1e.xlarge	10	400	1 x 400 (SSD)	Yes	Up to 10 Gigabit	Yes
☐	Memory optimized	x1e.8xlarge	32	976	1 x 960 (SSD)	Yes	Up to 10 Gigabit	Yes
☐	Memory optimized	Memory optimized instances have the lowest cost per GB of RAM among Amazon EC2 instance types. We recommend memory optimized instances for many database applications, for memcached and other distributed caches, and larger deployments of enterprise applications like SAP and Microsoft SharePoint.				Yes	10 Gigabit	Yes
☐	Memory optimized					Yes	25 Gigabit	Yes
☐	Memory optimized					Yes	Up to 10 Gigabit	Yes
☒	Memory optimized	z1d.xlarge	4	32	1 x 150 (SSD)	Yes	Up to 10 Gigabit	Yes
☐	Memory optimized	z1d.2xlarge	8	64	1 x 300 (SSD)	Yes	Up to 10 Gigabit	Yes

3.3 Configure the instance.

In the following panel I took the default settings with the exception of the accidental termination setting -- it is a safety precaution worth checking. Some regions may have different options. Click on [add storage] to proceed to the next configuration page.

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the low

Number of Instances [Launch into Auto Scaling Group](#)

Purchasing option ☐ Request Spot Instances

Network [Create new VPC](#)

Subnet [Create new subnet](#)
251 IP Addresses available

Auto-assign Public IP

Placement group ☐ Add instance to placement group

Capacity Reservation [Create new Capacity Reservation](#)

Domain join directory [Create new directory](#)

IAM role [Create new IAM role](#)

CPU options ☐ Specify CPU options

Shutdown behavior

Enable termination protection ☒ Protect against accidental termination

Monitoring ☐ Enable CloudWatch detailed monitoring
[Additional charges apply.](#)

EBS-optimized Instance ☒ Launch as EBS-optimized instance

Tenancy [Additional charges will apply for dedicated tenancy.](#)

Elastic Graphics ☐ Add Graphics Acceleration
[Additional charges apply.](#)

3.4. Add Storage

In the instance type chosen for this tutorial 150GB was already added, and this size is acceptable for the small BIMcloud Basic that is being setup. Later, within the instance it will be necessary to configure this extra storage 150GB volume. In the tutorial it will be assigned to the “D:” drive. This extra data store is not available within the instance by default, only the “C:” drive is available from the start.

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type ⓘ	Device ⓘ	Snapshot ⓘ	Size (GiB) ⓘ	Volume Type ⓘ	IOPS ⓘ	Throughput (MB/s) ⓘ	Delete on Termination ⓘ	Encryption ⓘ
Root	/dev/sda1	snap-04376d6db22656016	30	General Purpose SSD (gp2)	100 / 3000	N/A	☒	Not Encrypted
ephemeral0	/dev/nvme0n1	N/A	150	NVMe SSD	N/A	N/A	N/A	Hardware Encrypted

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

3.5 Label the instance

“Name” is not a default value you will need to enter it as well as the value. Then click [next:configure security group] at the bottom of the page to proceed to the next configuration panel.

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances ⓘ	Volumes ⓘ
Name	BIMcloud	☒	☒
Add another tag (Up to 50 tags maximum)			

3.6 Accept the RDP default security group.

Remote desktop will be necessary to access the BIMcloud instance. Change the Security group name to: “rdp-ec2”, and the description to “internet facing rdp only open.” Those changes better document this security group

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group
☐ Select an existing security group

Security group name: launch-wizard-1

Description: launch-wizard-1 created 2020-03-17T14:22:00.784+01:00

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	Description ⓘ
RDP	TCP	3389	Anywhere 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop

[Add Rule](#)

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

3.7. Review the settings made so far and launch the instance

Make sure everything looks correct then click on [Launch] to continue.

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security. Your security group, launch-wizard-1, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

Your instance configuration is not eligible for the free usage tier

To launch an instance that's eligible for the free usage tier, check your AMI selection, instance type, configuration options, or storage devices. Learn more about [free usage tier](#) eligibility and usage restrictions.

Don't show me this again

AMI Details

Free tier eligible

Microsoft Windows Server 2019 Base - ami-03293990d939c22fd

Microsoft Windows 2019 Datacenter edition, [English]

Root Device Type: ebsVirtualization type: hvm

If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the [License Mobility Form](#). [Don't show me this again](#)

Edit AMI

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
z1d.xlarge	28	4	32	1 x 150	Yes	Up to 10 Gigabit

Edit instance type

Security Groups

Security group name

launch-wizard-1

Description

launch-wizard-1 created 2020-03-17T14:22:00.784+01:00

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	Description ⓘ
RDP	TCP	3389	0.0.0.0/0	
RDP	TCP	3389	:::0	

Edit security groups

Instance Details

Edit instance details

Storage

Edit storage

Tags

Edit tags

Cancel

Previous

Launch

Feedback

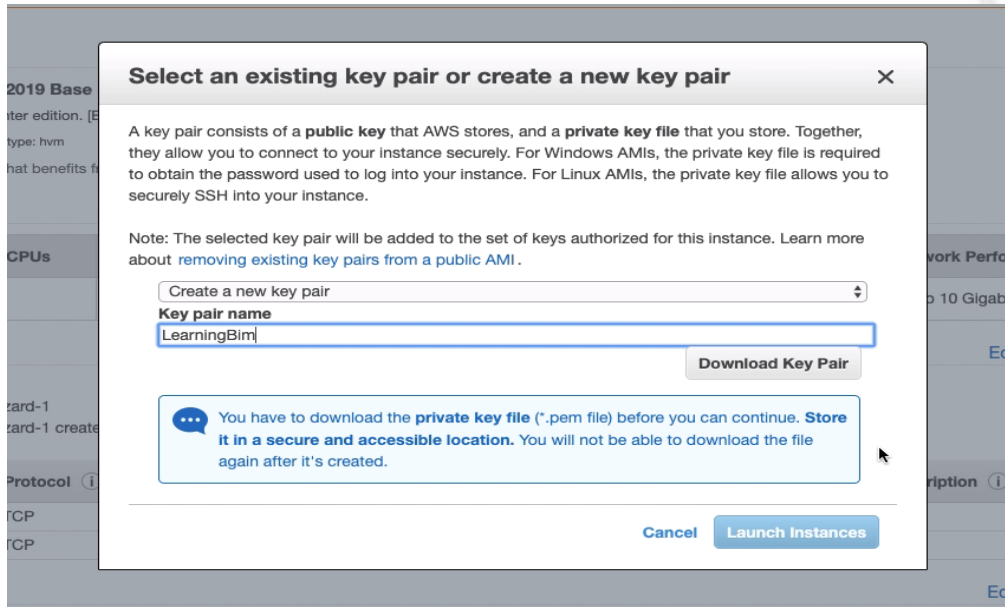
English (US)

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3.7.1. Obtain the key pair

The key pair is needed to access the Administrator password for the instance. Place this in a safe folder after downloading it. This will be needed in step 5.1.



3.8. After initializing the instance, it will be available:

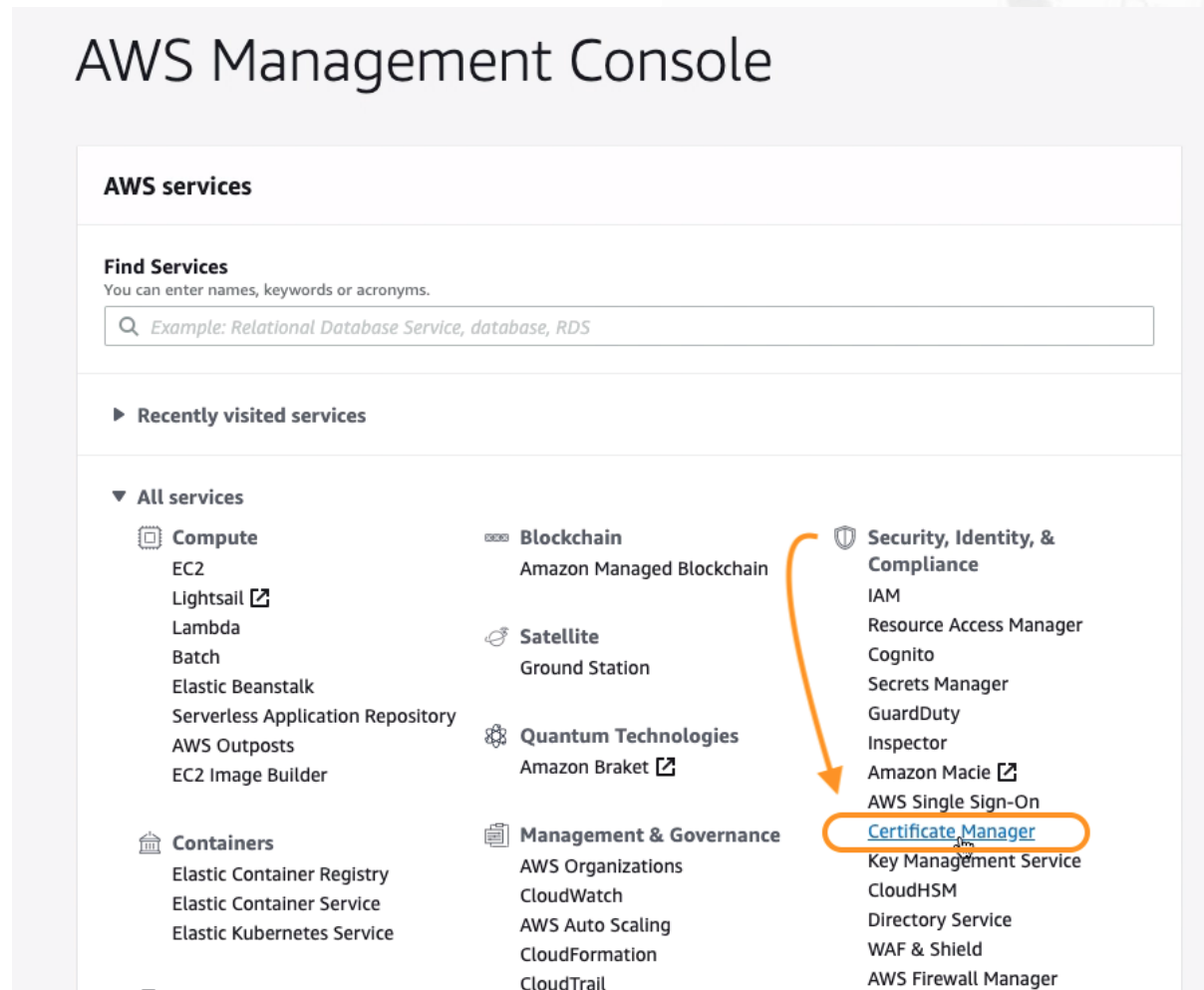
Once you have confirmed the instance is running you will again need to return to the AWS Management Console for the next section. To navigate to the Management Console click on the AWS in the top left-hand corner of the window on the Amazon menu bar.

The screenshot displays the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The left sidebar shows the navigation menu with categories like EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, NETWORK & SECURITY, LOAD BALANCING, and AUTO SCALING. The main content area shows a table of EC2 instances. One instance, named 'BIMcloud', is highlighted. Below the table, the details for this instance are shown, including its ID, state, type, and various network and security settings.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
BIMcloud	i-0fa541b16546c444d	z1d.xlarge	eu-west-1a	running	2/2 checks ...	None	ec2-34-255-194-204.eu...	34.255.194.204

Instance: i-0fa541b16546c444d (BIMcloud)		Public DNS: ec2-34-255-194-204.eu-west-1.compute.amazonaws.com	
Description	Status Checks	Monitoring	Tags
Instance ID	i-0fa541b16546c444d	Public DNS (IPv4)	ec2-34-255-194-204.eu-west-1.compute.amazonaws.com
Instance state	running	IPv4 Public IP	34.255.194.204
Instance type	z1d.xlarge	IPv6 IPs	-
Finding	None. Recommendations unsupported	Elastic IPs	-
Private DNS	ip-172-16-1-162.eu-west-1.compute.internal	Availability zone	eu-west-1a
Private IPs	172.16.1.162	Security groups	launch-wizard-1, view inbound rules, view outbound rules
Secondary private IPs	-	Scheduled events	No scheduled events
VPC ID	vpc-e9ac9b8d	AMI ID	Windows_Server-2019-English-Full-Base-2020.03.11/amis-0329c39901d339c22fd1

4. Request a public SSL/TLS certificate.



The steps for section 4 are:

1. Request a public certificate.
2. Add the domain name and related hosts.
3. Verify via the administrator's email.
4. Label the public certificate.
5. Confirm and request the certificate.
6. Confirm the emails that were sent to the owner/administrator/tech.
7. Confirm validation status is successful.

4.1 Request a public certificate

First start the process by clicking on [Request a certificate].



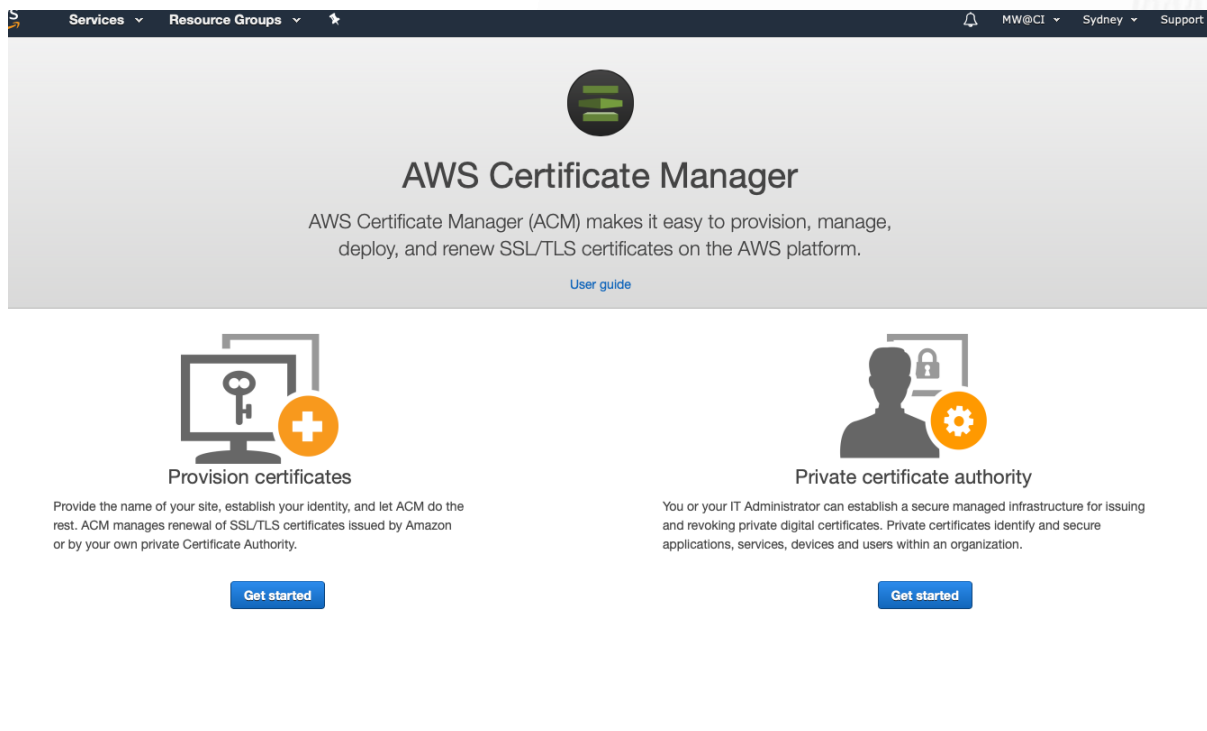
On the next page make sure to choose **“Request a public certificate.”**

Request a certificate

Choose the type of certificate for ACM to provide.

- ☒ **Request a public certificate** - Request a public certificate from Amazon. By default, public certificates are trusted by browsers and operating systems. [Learn more.](#)
- ☐ Request a private certificate - No Private CAs available for issuance. [Learn more.](#)

In some regions the above panels may not appear. If the bottom screen is shown choose **“Provision certificates.”**



4.2 Add the domain name and related hosts

The domain that was set up in section 2 is needed now for the certificate creation. Additionally, we need a certificate that is good for several hosts. In this tutorial the BIMcloud Manager will be addressed through a load balancer we set up in steps 6.2. Its address will be mgr.learningbim.org. The BIMcloud Server will be hosted on srv.learningbim.org. As you can see there are already several hosts. Instead of specifying:

- learningbim.org
- srv.learningbim.org
- mgr.learningbim.org
- anything.learningbim.org

We will after we specify our main domain learningbim.org we will use *.learningbim.org with the wildcard "*" to mean any additional host that ends with learningbim.org should also be covered with this certificate. See the illustration below:

Request a certificate

- Step 1: Add domain names
- Step 2: Select validation method
- Step 3: Add Tags
- Step 4: Review
- Step 5: Validation

AWS Certificate Manager logs domain names from your certificates into public certificate transparency (CT) logs when renewing certificates. You can opt out of CT logging. [Learn more](#)

You can use AWS Certificate Manager certificates with other [AWS Services](#).

Add domain names

Type the fully qualified domain name of the site you want to secure with an SSL/TLS certificate (for example, www.example.com). Use an asterisk (*) to request a wildcard certificate to protect several sites in the same domain. For example: *.example.com protects www.example.com, site.example.com and images.example.com.

Domain name*	Remove
learningbim.org	
*.learningbim.org	

[Add another name to this certificate](#)

You can add additional names to this certificate. For example, if you're requesting a certificate for "www.example.com", you might want to add the name "example.com" so that customers can reach your site by either name. [Learn more](#).

*At least one domain name is required

[Cancel](#) [Next](#)

Used to add the second "wildcard" hosts

4.3 Verify via the administrator's email

Request a certificate

- Step 1: Add domain names
- Step 2: Select validation method
- Step 3: Add Tags
- Step 4: Review
- Step 5: Validation

Select validation method

Choose how AWS Certificate Manager (ACM) validates your certificate request. Before we issue your certificate, we need to validate that you own or control the domains for which you are requesting the certificate. ACM can validate ownership by using DNS or by sending email to the contact addresses of the domain owner.

☐ DNS validation

Choose this option if you have or can obtain permission to modify the DNS configuration for the domains in your certificate request. [Learn more](#).

☒ Email validation

Choose this option if you do not have permission or cannot obtain permission to modify the DNS configuration for the domains in your certificate request. [Learn more](#).

4.4 Label the public certificate

Request a certificate

- [Step 1: Add domain names](#)
- [Step 2: Select validation method](#)
- Step 3: Add Tags**
- [Step 4: Review](#)
- [Step 5: Validation](#)

Add Tags

To help you manage your certificates you can optionally assign your own metadata to each resource in the form of tags. [Learn more.](#)

Tag Name	Value
https_cert	learningbim.org
Add Tag	

4.5 Confirm and request the certificate

Request a certificate

- [Step 1: Add domain names](#)
- [Step 2: Select validation method](#)
- [Step 3: Add Tags](#)
- Step 4: Review**
- [Step 5: Validation](#)

Review

Domain name

The names you want to secure with an SSL/TLS certificate.

Domain name	learningbim.org
Additional name	*.learningbim.org

Validation method

The method AWS uses to validate your certificate request.

Validation method	Email
-------------------	-------

Tags

The label you want to assign to the certificate.

Tag name	Value
https_cert	learningbim.org

[Cancel](#) [Previous](#) [Confirm and request](#)

The following page will show the request is in progress.

Request in progress

A certificate request with a status of Pending validation has been created. Further action is needed to complete the validation and approval of the certificate.

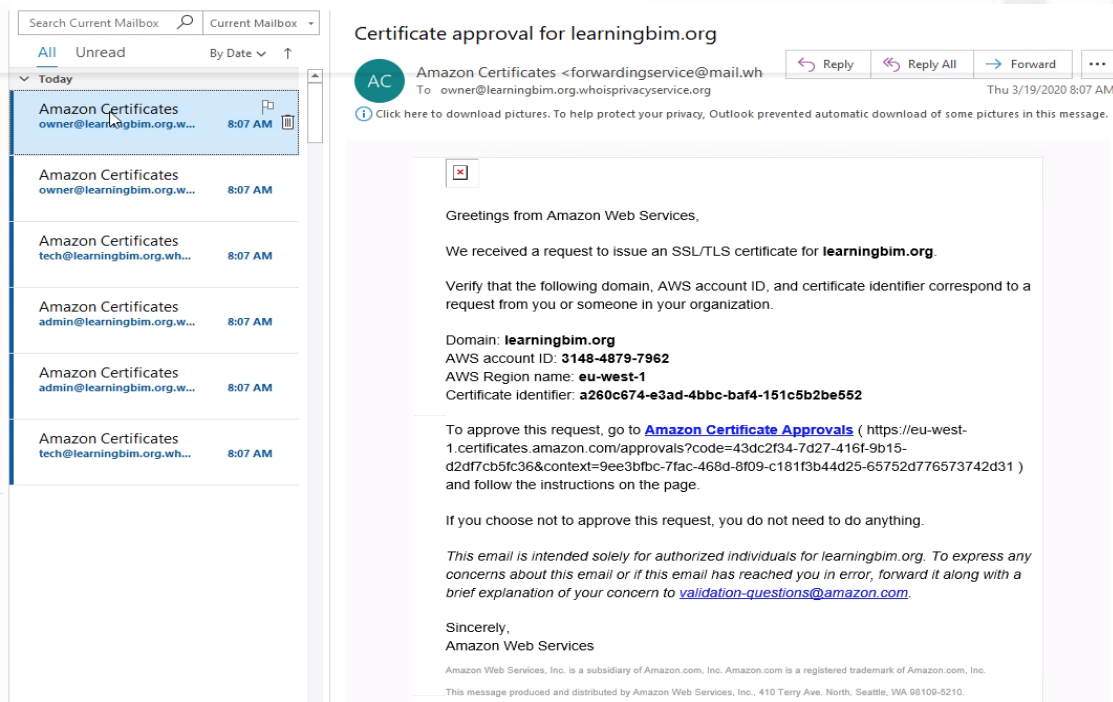
Validation

We will send email to the registered owner of each domain listed below. To validate control of the domain, the owner of the domain or an authorized representative must go to the Amazon certificate approval website and approve the request. Further instructions are provided in the body of the email.

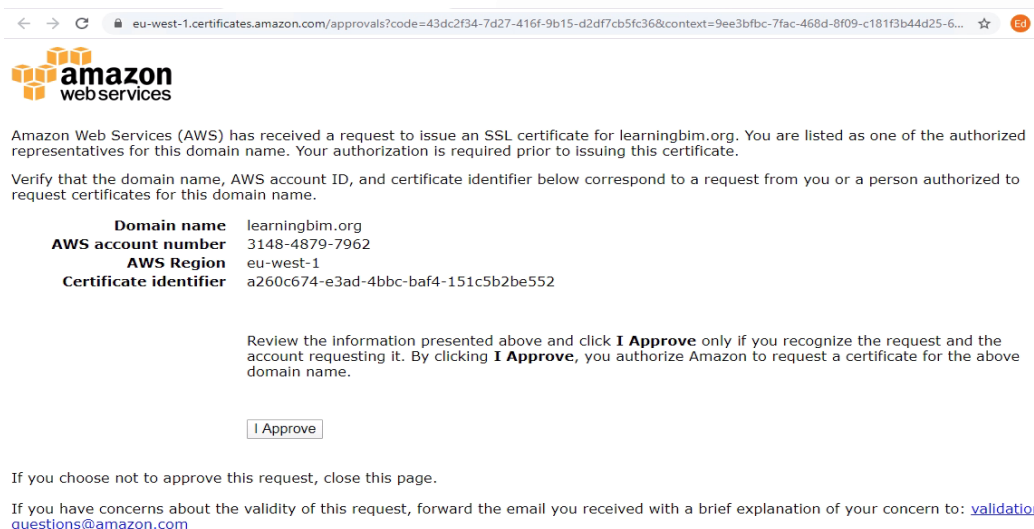
If you or an authorized representative did not receive the email we sent, or if you want to learn more, click the help icon (?) above.

4.6 Confirm the emails sent to the owner/administrator/tech

Check your email. If you do not receive emails also check your junk mail folder.



After you click on the link in the email, you will be presented with a web page where you must approve the request. You may need to press approve from many of the email links you received.



4.7 Confirm validation status is successful

Certificates

Private certificate authority

Private CAs

Certificates

AWS Certificate Manager logs domain names from your certificates into public certificate transparency (CT) logs when renewing certificates. You can opt out of CT logging. [Learn more](#)

[Request a certificate](#) [Import a certificate](#) Actions

« < Viewing certificates 1 to 2 > »

	Name	Domain name	Additional names	Status	Type	In use?	Renewal eligibility
☐	-	learningbim.org	*.learningbim.org	Pending validation	Amazon Issued	No	Ineligible

Status

Validation not complete
The status of this certificate request is "Pending validation". Further action is needed to validate and approve the certificate. [Learn more](#).

Domain	Validation status
▶ learningbim.org	Success
▶ *.learningbim.org	Pending validation

Details

Type	Amazon Issued	Requested at	2020-03-19T07:06:34UTC
In use?	No	Public key info	RSA 2048-bit
Domain name	learningbim.org	Signature algorithm	SHA256WITHRSA
Number of additional names	1	ARN	arn:aws:acm:eu-west-1:314848797962:certificate/a260c674-e3ad-4bbc-baf4-151c5b2be552
Additional names	*.learningbim.org	Validation state	Pending
Identifier	a260c674-e3ad-4bbc-baf4-151c5b2be552		
Serial number	N/A		

Make sure all hosts in the domain have a successful validation status.

Status

Status Issued

Detailed status The certificate was issued at 2020-03-19T07:10:06UTC

Domain	Validation status
▶ learningbim.org	Success
▶ *.learningbim.org	Success

Details

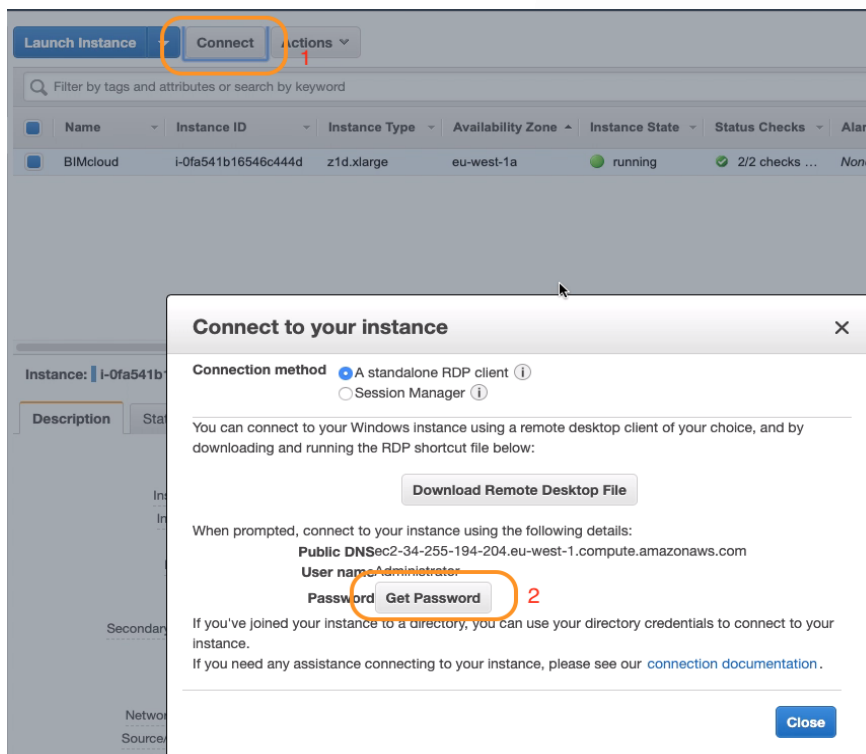
5. Log into the EC2 instance and install BIMcloud basic

Steps for section 5 are:

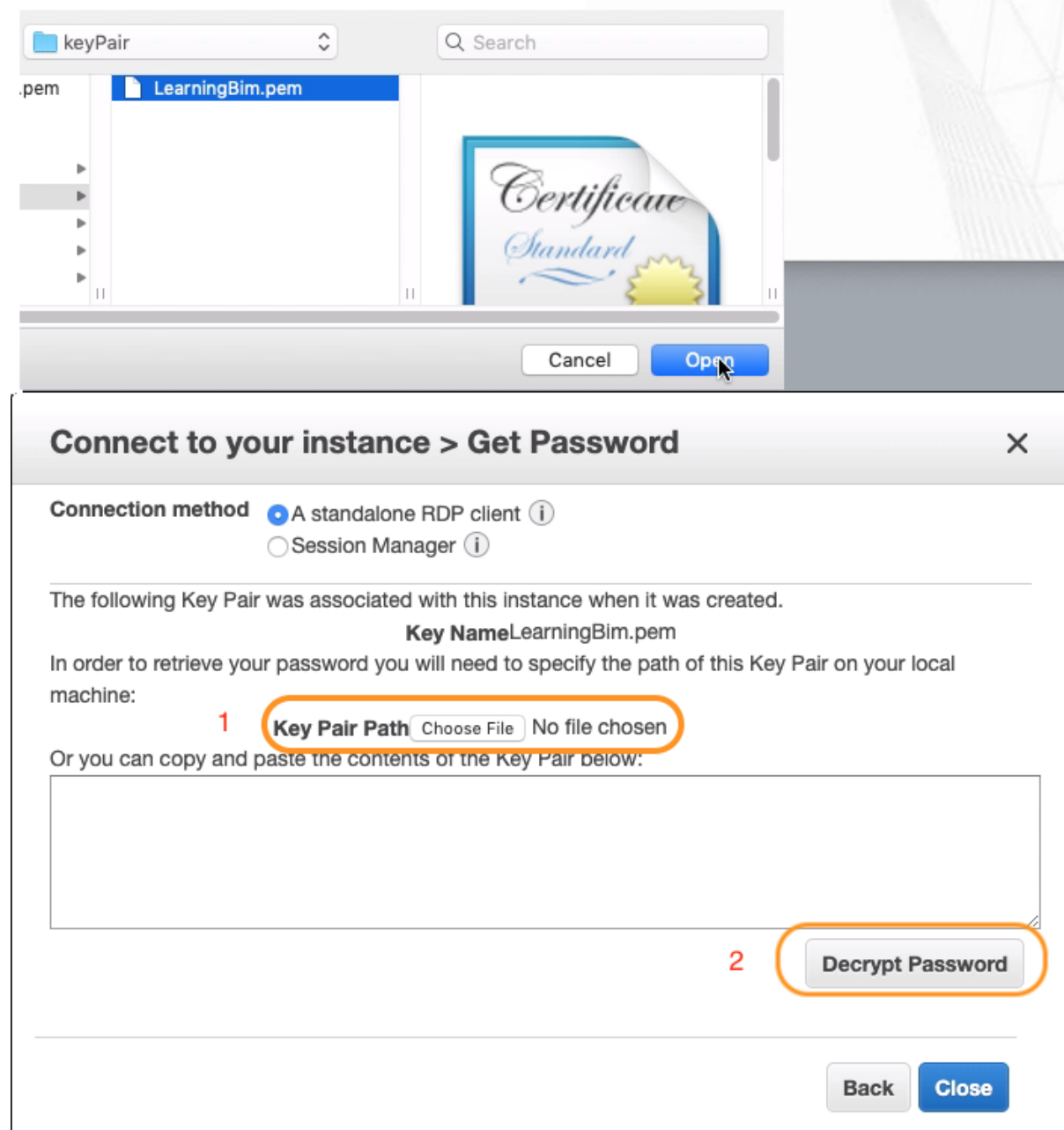
1. Obtain the Administrator password
2. Download Remote Desktop file used to dial into the instance.
3. Add remote desktop file to your Microsoft Remote Desktop client.
4. Double click on the newly added client entry.
5. Enter the Administrator password obtained in step 1.
6. Disable enhanced security for Internet Explorer
7. Download BIMcloud Basic from GRAPHISOFT.
8. Initialize the “D:” drive
9. Install BIMcloud Basic
 1. Pay attention to which drives you direct project/manager data
 2. Pay attention to passwords!
 3. Address of BIMcloud Basic will change to FQDNs soon. The local ip addresses are temporary until the network traffic routing using https certificates is finalized.

5.1. Obtain the Administrator password

From the instance page, choose [Connect] then from the pop-up dialog choose [Get Password]



Open the key pair that was saved in step 3.7, then [Decrypt Password].



Once you have decrypted the password. Store it somewhere safe, if lost or forgotten you will need to recreate the instance.

Connect to your instance

Connection method

☒ A standalone RDP client ☐ Session Manager

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

Download Remote Desktop File

When prompted, connect to your instance using the following details:

Public DNS

sec2-34-255-194-204.eu-west-1.compute.amazonaws.com

User name

Administrator

Password

5inXXXXXXXXXXXXX

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

5.2. Download Remote Desktop file used to dial into the instance

Connect to your instance

Connection method

☒ A standalone RDP client ☐ Session Manager

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

Download Remote Desktop File

When prompted, connect to your instance using the following details:

Public DNS

sec2-34-255-194-204.eu-west-1.compute.amazonaws.com

User name

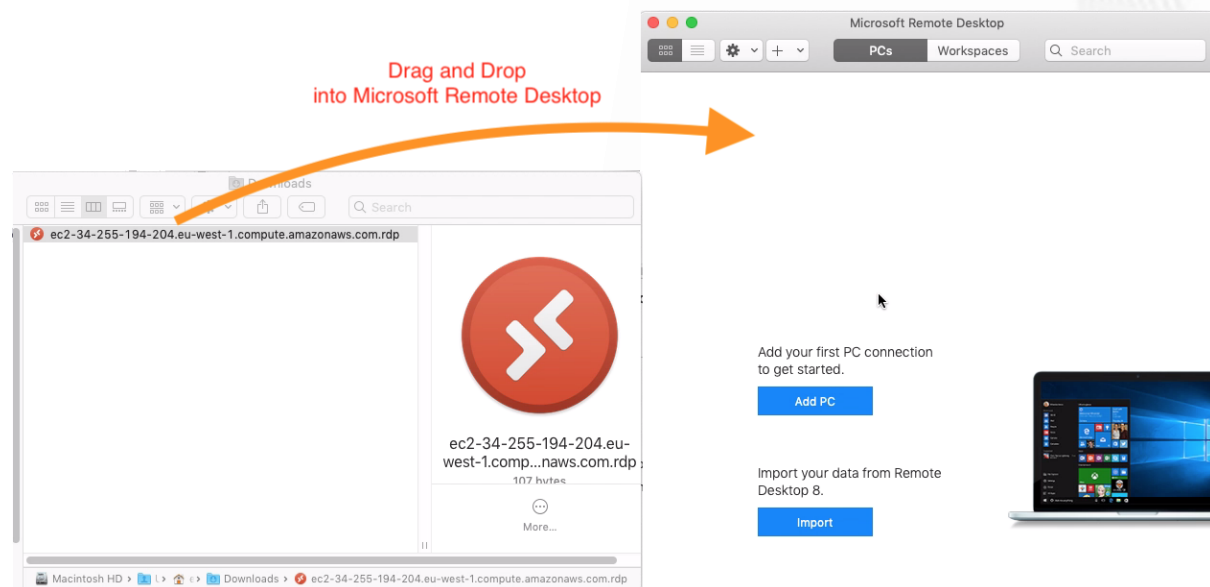
Administrator

5.3. Add remote desktop file to your Microsoft Remote Desktop client.

If you have not used Remote Desktop before, or you need to find the right installation check out the below link:

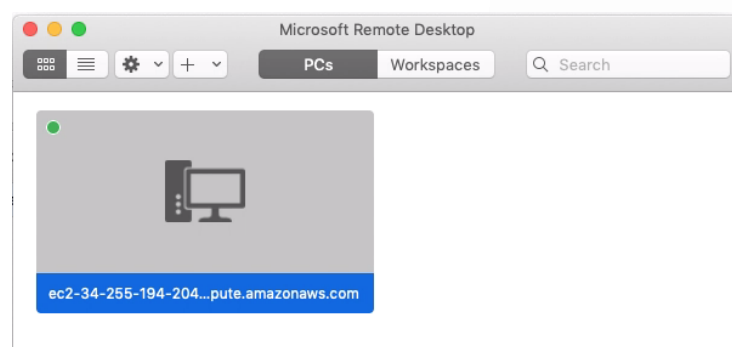
<https://docs.microsoft.com/en-us/windows-server/remote/remote-desktop-services/clients/remote-desktop-clients>

On a mac you drag and drop the rdp file that was downloaded in step 5.2 into the Remote Desktop window.

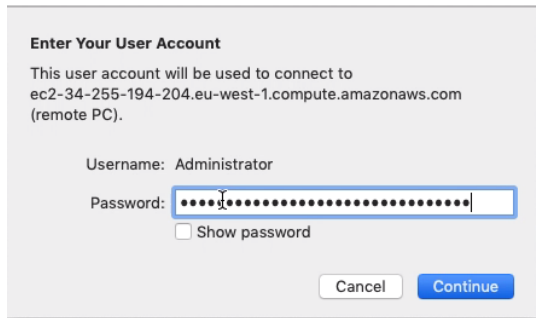


5.4. Double click on the newly added client entry

Chose the appropriate way to launch Remote Desktop for the operating system you are using.



5.5. Enter the Administrator password obtained in step 5.1



Enter Your User Account

This user account will be used to connect to
ec2-34-255-194-204.eu-west-1.compute.amazonaws.com
(remote PC).

Username: Administrator

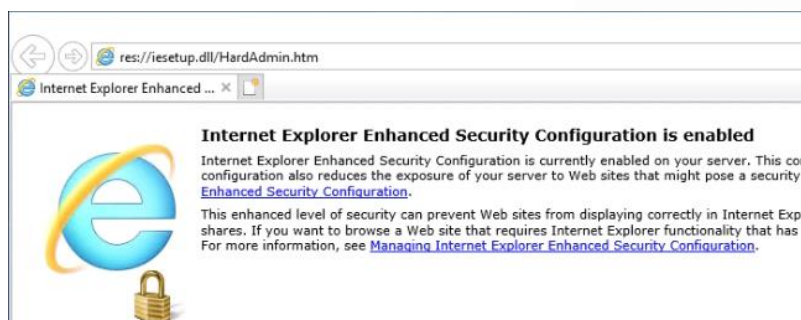
Password: [password field with dots]

☐ Show password

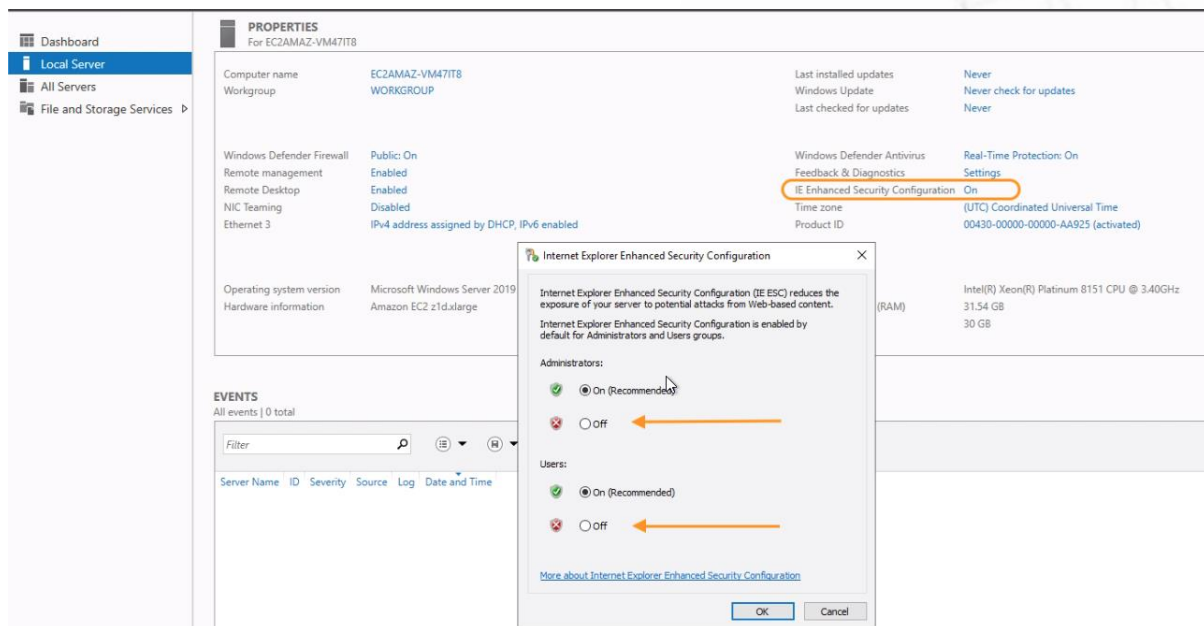
Cancel Continue

5.6. Disable enhanced security for Internet Explorer

Internet Explorer default settings are not helpful when using the browser for downloading BIMcloud to the instance or navigating in the BIMcloud Manager. These enhanced security policies will also get in the way of BIMcloud licenses.



Launch the Server Manager from the Windows start screen or the Windows task bar. Make sure the setting is off for both Administrators and Users.



5.7. Download BIMcloud Basic from GRAPHISOFT.

Choose the latest version of BIMcloud that is available:

<https://www.graphisoft.com/downloads/bimcloud/>

Download and Install BIMcloud

This Installer can be used by both BIMcloud and BIMcloud Basic users.

1 Make sure your computer meets the system requirements

BIMcloud is a 64-bit application that requires:

- Windows Server 2019, Windows Server 2016, Windows 10 or
- macOS 10.15 Catalina, macOS 10.14 Mojave, macOS 10.13 High Sierra
- Check our detailed [system requirements](#) and our [hardware recommendations](#)

2 Download and Install BIMcloud

Latest version, available for language versions: AUS, AUT, BRA, CHI, CZE, FIN, FRA, GER, GRE, HUN, INT, ITA, JPN, KOR, NED, NOR, NZE, POL, POR, RUS, SPA, SWE, TAI, TUR, UKI, USA

Last modified: February 24, 2020

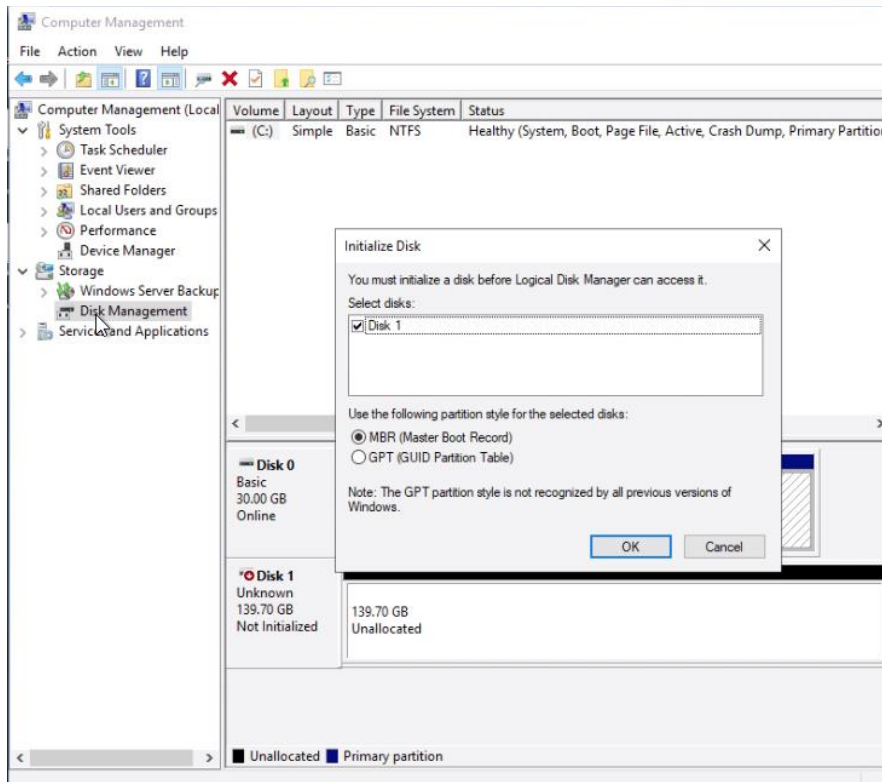
Download BIMcloud (~800 MB) and follow the on-screen prompts:

BIMcloud 2020.1 for Windows

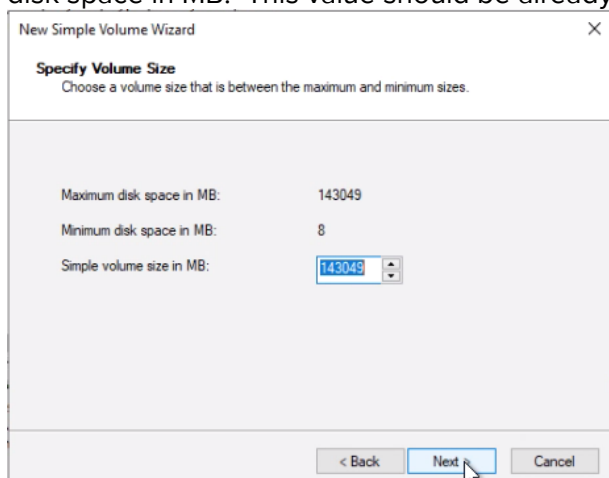
BIMcloud 2020.1 for macOS

5.8. Initialize the “D:” drive

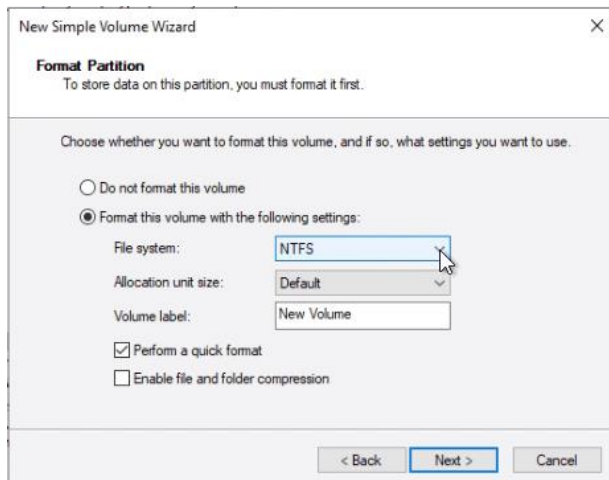
From the start menu choose “Computer Management.” You will need to select the disk that is “Unknown” and initialize it.



After launching the Simple Volume Wizard, Set the Simple volume size in MB to the Maximum disk space in MB. This value should be already entered as a default value.



In the following dialog keep the default settings (NTFS file system, Allocation size Default)

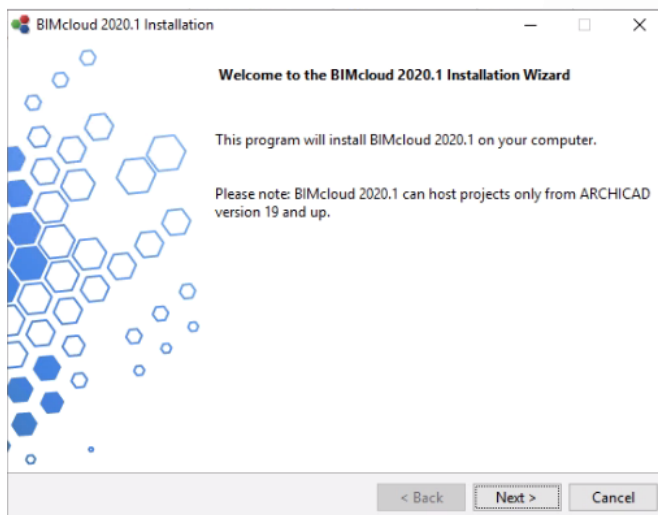


Choose [Next] then [Finish]. At this point BIMcloud installation downloaded in step 5.7 can be run.

5.9. Install BIMcloud Basic

Below are a few things to pay attention to while installing BIMcloud Basic. If you are unfamiliar with the steps to install BIMcloud Basic please also consult the following link.

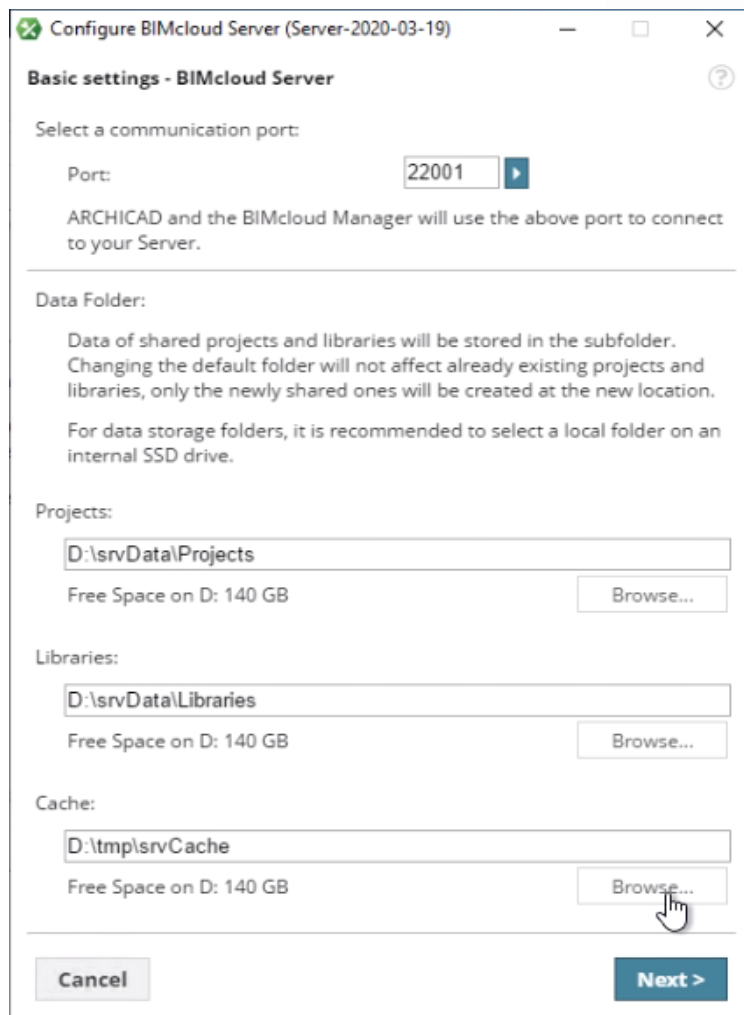
<https://helpcenter.graphisoft.com/category/working-in-teamwork/install-and-setup-bimcloud/>



5.9.1 Pay attention to which drives you direct project/manager data

The configuration will rely on the default port 22001 for the BIMcloud Server being used. Point the project and library folders to the newly initialized drive placing them in folders that are sensibly named.

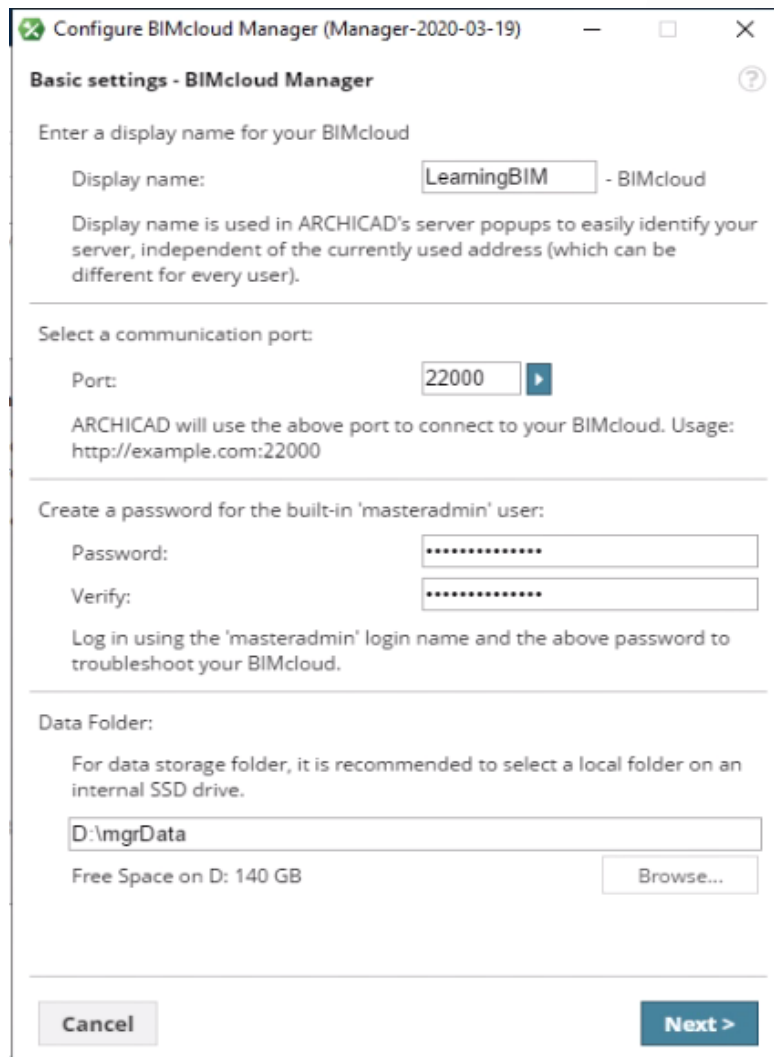
Warning: In the tutorial an ephemeral drive is used. If the instance is stopped by you or another administrator you have authorized, the data on this drive will be lost. If you plan on stopping/starting the instance you should consider more expensive permanent data storage options.



The screenshot shows a Windows-style dialog box titled "Configure BIMcloud Server (Server-2020-03-19)". The window has standard minimize, maximize, and close buttons in the top right corner. The main heading is "Basic settings - BIMcloud Server" with a help icon (question mark) to its right. The first section is "Select a communication port:", featuring a text input field with "22001" and a blue arrow button to its right. Below this, a note states: "ARCHICAD and the BIMcloud Manager will use the above port to connect to your Server." The next section is "Data Folder:", which includes explanatory text about shared projects and libraries and a recommendation to use a local SSD drive. Following this are three folder configuration sections: "Projects:" with a text field containing "D:\srvData\Projects", "Free Space on D: 140 GB", and a "Browse..." button; "Libraries:" with a text field containing "D:\srvData\Libraries", "Free Space on D: 140 GB", and a "Browse..." button; and "Cache:" with a text field containing "D:\tmp\srvCache", "Free Space on D: 140 GB", and a "Browse..." button. A mouse cursor is hovering over the "Browse..." button for the Cache section. At the bottom of the window are two buttons: "Cancel" on the left and "Next >" on the right.

5.9.2 Pay attention to passwords!

This BIMcloud is open to the Internet and for that reason the masteradmin password should be a secure password (In general it should be!). Like the BIMcloud server setup, direct the manager data to a sensibly named folder on the D: drive.



The screenshot shows a Windows-style dialog box titled "Configure BIMcloud Manager (Manager-2020-03-19)". The dialog has a "Basic settings - BIMcloud Manager" section with a help icon. It contains four main sections: 1. "Enter a display name for your BIMcloud" with a text field containing "LearningBIM" and a "- BIMcloud" suffix, with a note explaining its use in ARCHICAD's server popups. 2. "Select a communication port:" with a text field containing "22000" and a "Next" button, with a note about ARCHICAD's connection and an example URL. 3. "Create a password for the built-in 'masteradmin' user:" with two password fields labeled "Password:" and "Verify:", both containing masked characters, and a note about using this password for troubleshooting. 4. "Data Folder:" with a text field containing "D:\mgrData", a note about recommending a local folder on an internal SSD drive, and a "Browse..." button. At the bottom, there are "Cancel" and "Next >" buttons.

Configure BIMcloud Manager (Manager-2020-03-19)

Basic settings - BIMcloud Manager

Enter a display name for your BIMcloud

Display name: - BIMcloud

Display name is used in ARCHICAD's server popups to easily identify your server, independent of the currently used address (which can be different for every user).

Select a communication port:

Port:

ARCHICAD will use the above port to connect to your BIMcloud. Usage:
http://example.com:22000

Create a password for the built-in 'masteradmin' user:

Password:

Verify:

Log in using the 'masteradmin' login name and the above password to troubleshoot your BIMcloud.

Data Folder:

For data storage folder, it is recommended to select a local folder on an internal SSD drive.

Free Space on D: 140 GB

5.9.3 The address of BIMcloud Basic will change to FQDNs soon.

The local IP addresses are temporary until the network traffic routing using a https certificate is finalized late in section 6. In early section 7 we will change these settings to reflect the new accessibility. To set up routing the BIMcloud Basic must have been activated and work. The listeners in the next section will fail their health check if the BIMcloud Basic installation is not working. *At this point you can ONLY access the BIMcloud manager from the Amazon instance through a remote desktop connection.*

The screenshot displays the BIMcloud Basic Manager interface for a server named 'Server-2020-03-19'. The interface is divided into several sections:

- Servers:** A list of servers, with 'Server-2020-03-19' selected.
- Server-2020-03-19 Details:**
 - Status: Running
 - Version: 23.0.2504.1109
 - Projects: 0
 - Libraries: 0
 - Free project space: 139.5 GB
 - Free library space: 139.5 GB
 - Active users: 0
 - Active projects: 0
- Settings:** A tabbed interface with 'Settings' selected.
 - Status:** Shows the server is running, version 23.0.2504.1109, supported project version v23, host computer EC2AMAZ-VM47IT8, and installation folder C:\Program Files\GRAPHISOFT\BIMcloud\Server-2020-03-19.
 - General settings:** Shows the name 'Server-2020-03-19'.
 - Connection settings:** Shows the primary address as 'Automatic [http://172.16.1.162:22001]' and the alternative address as 'Automatic [http://172.16.1.162:22001] (Primary Address)'. A red arrow points to the IP address '172.16.1.162' in the primary address.

A red annotation is overlaid on the screenshot, pointing to the IP address in the connection settings:

The IP addresses for the Manager and the Server are temporary! They will be changed to FQDNs.

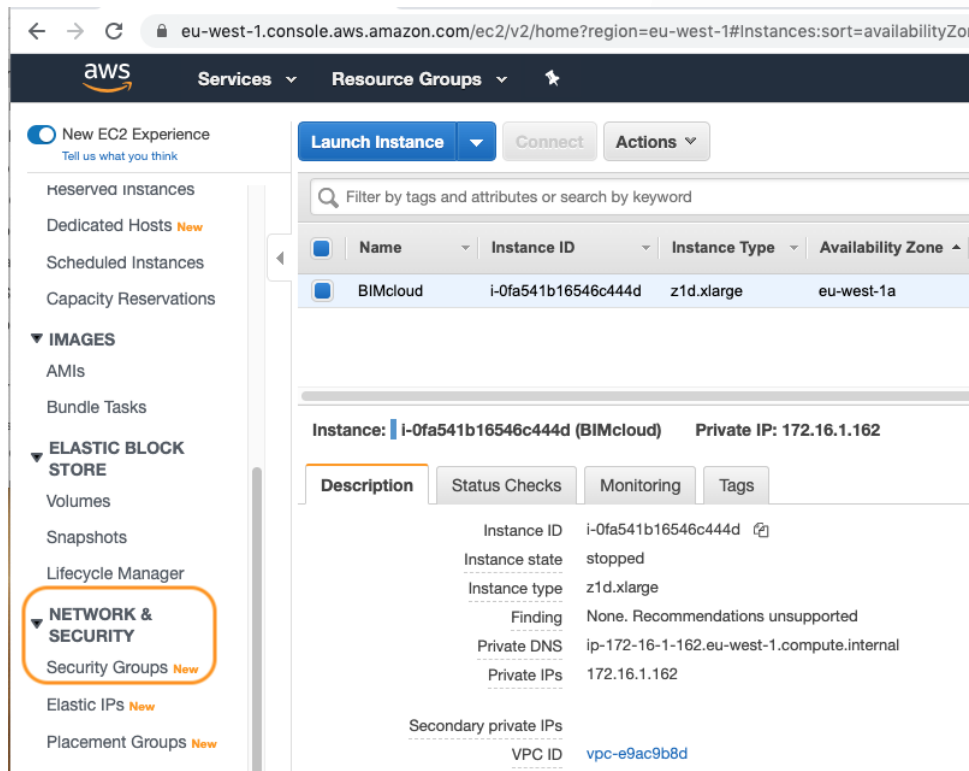
6. Finalize the network setup

Steps for section 6:

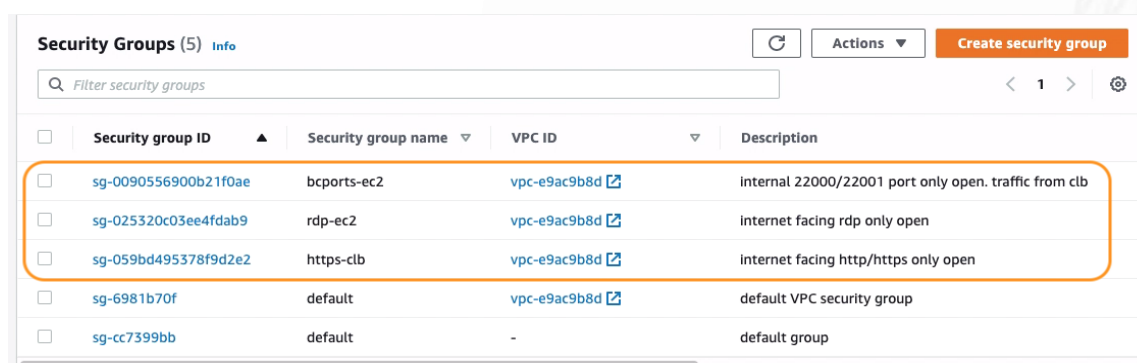
1. Create security groups for classic load balancers and EC2 instance
 1. Create https-clb security group
 2. Create bcports-ec2 security group
 3. Summary of security groups (reference)
2. Create a classic load balancer for the BIMcloud Manager
 1. Define load balancer
 2. Assign security group to the BIMcloud Manager load balancer
 3. Assign https certificate to load balancer.
 4. Configure health check
 5. Associate EC2 instance to load balancer
 6. Label load balancer
 7. Review load balancer settings and create
3. Create a classic load balancer for the BIMcloud Server
 1. Define load balancer
 2. Assign security group to the BIMcloud Server load balancer
 3. Assign https certificate to load balancer.
 4. Configure health check
 5. Associate EC2 instance with load balancer
 6. Label Load balancer
 7. Review load balancer settings and create
4. Change Idle timeout of BIMcloud Server's load manager (BCserver-clb)
 1. Select load manager for BIMcloud Server (BCserver-clb)
 2. Choose Description Tab and scroll down to Attributes: Idle timeout
 3. Edit idle timeout from 60 seconds to 600 seconds.
5. Add security group to instance
6. Update DNS table
 1. Navigate to Route 64; then to Hosted Zones; then to created domain.
 2. Create a Record Set for the BCmanager-clb, and BCserver-clb

6.1. Create security groups for classic load balancers and EC2 instance

If your instances panel is still open, you can navigate to the Security Groups panel with the side bar link. To get to your instances page choose AWS in the upper left-hand corner, then “EC2” link then choose your instances. These screens are shown in section 1 if you are still a bit rusty on how to navigate around Amazon.



The below security groups are necessary for the BIMcloud. The rdp-ec2 was created as part of step 3.6 and if you didn't change the name at that time could be called something like “launch-wizard-1.” To be more descriptive I created a new security group with exactly the same port settings but a better description and security group name. As time goes by you may forget what “launch-wizard-1” secures.



6.1.1 Create https-clb security group

Click on the [Create security group] button and use the below entries as a guide to fill in the values. The identifier for your VPC will be different but the other choices should be the same. The security group bcports-ec2 created in the next step will take its traffic from this security group. You will need to click on [Add rule] to create the HTTP and HTTPS inbound rules shown below.

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the field

Basic details

Security group name [Info](#)

https-clb

Name cannot be edited after creation.

Description [Info](#)

Internet facing http/https only open

Scope [Info](#)

☒ VPC ☐ EC2-Classic

VPC [Info](#)

vpc-e9ac9b8d

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description
HTTP	TCP	80	Anywh... 0.0.0.0/0 ::/0	
HTTPS	TCP	443	Anywh... 0.0.0.0/0 ::/0	

Add rule

Outbound rules [Info](#)

6.1.2 Create bcports-ec2 security group

The bcports-ec2 security group will be used to open the BIMcloud ports on the instance. The source of the traffic for this security group is the https-clb security group created in the earlier step.

EC2 > Security Groups > Create security group

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a security group, you must specify the following information:

Basic details

Security group name [Info](#)
bcports-ec2
Name cannot be edited after creation.

Description [Info](#)
internal 22000/22001 port only open. traffic from https-clb

Scope [Info](#)
☒ VPC ☐ EC2-Classical

VPC [Info](#)
vpc-e9ac9b8d

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
Custom TCP	TCP	22000 - 22001	Custom	

[Add rule](#)

Outbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Destination Info	Description - optional Info
All traffic	All	All	Custom	

[Add rule](#)

CIDR blocks

- 0.0.0.0/0
- 0.0.0.0/8
- 0.0.0.0/16
- 0.0.0.0/24
- 0.0.0.0/32
- ::/0
- ::/16
- ::/32
- ::/48
- ::/64

Security Groups

- bcports-ec2 | sg-0090556900b21f0ae
- rdp-ec2 | sg-025320c03ee4fdab9
- https-clb | sg-02f65ce6aab4d324a
- default | sg-6981b70f

6.1.3 Summary of security groups (reference)

The identification following “sg-“ of security groups shown below will differ from the ones you create, but the protocol, ports and logic for the source of traffic you set up should imitate what is shown below.

sg-0090556900b21f0ae - bcports-ec2

Details **Inbound rules** Outbound rules Tags

Inbound rules [Edit inbound rules](#)

Type	Protocol	Port range	Source	Description - optional
Custom TCP	TCP	22000 - 22001	sg-059bd495378f9d2e2 (https-clb)	-

sg-059bd495378f9d2e2 - https-clb

Details **Inbound rules** Outbound rules Tags

Inbound rules [Edit inbound rules](#)

Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	0.0.0.0/0	-
HTTP	TCP	80	::/0	-
HTTPS	TCP	443	0.0.0.0/0	-
HTTPS	TCP	443	::/0	-

sg-025320c03ee4fdab9 - rdp-ec2

Details **Inbound rules** **Outbound rules** Tags

Inbound rules [Edit inbound rules](#)

Type	Protocol	Port range	Source	Description - optional
RDP	TCP	3389	0.0.0.0/0	-
RDP	TCP	3389	::/0	-

The outbound rules for all security groups are the same.

Details Inbound rules **Outbound rules** Tags

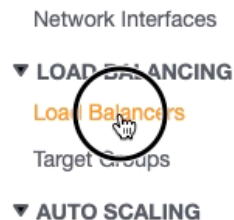
Outbound rules [Edit outbound rules](#)

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	0.0.0.0/0	-

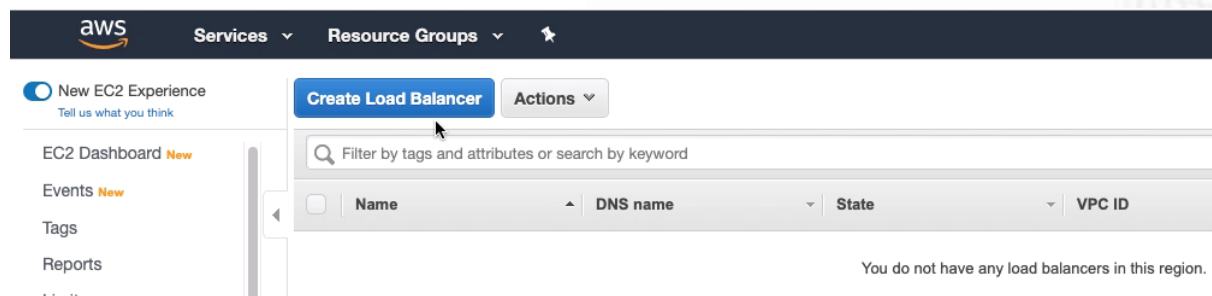
6.2. Create a classic load balancer for the BIMcloud Manager

The two load balancers that will be set up in this tutorial are key to encrypting communication and making your site an https site.

From the Amazon EC2 instance panel click on the Load Balancer link in the side panel.



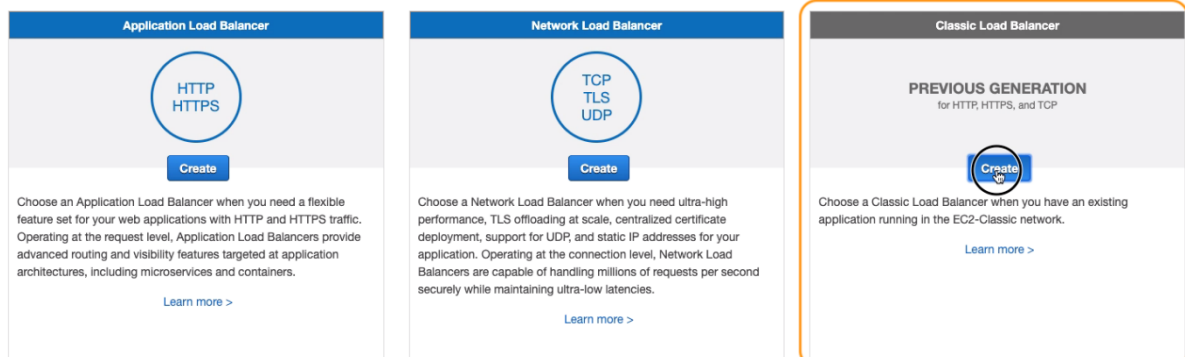
Create a new load balancer by clicking on the [Create Load Balancer] button.



Create a Classic Load Balancer.

Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers. Choose the load balancer type that meets your needs. [Learn more about which load balancer is right for you](#)



6.2.1. Define a load balancer for the BIMcloud Manager

Use the below settings as an example. Some regions do not allow you to select subnets on this page, For the Ireland region I was required to choose 2 subnets. Be sure to fill out the name of the load balancer, the protocols and port before going to the next page.

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB Inside:

Create an internal load balancer: ☐ (what's this?)

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port	
HTTP	80	HTTP	80	✕
HTTPS (Secure HTTP)	443	HTTP	22000	✕

Add

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-e9ac9b8d (172.16.0.0/16)

Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
+	eu-west-1b	subnet-3bb1894d	172.16.2.0/24	etcd-subnet-b

Selected subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
-	eu-west-1a	subnet-e9dfda8d	172.16.1.0/24	etcd-subnet-a
-	eu-west-1c	subnet-c51f5e9d	172.16.3.0/24	etcd-subnet-c

6.2.2. Assign security group to the BIMcloud Manager load balancer

Chose the security group set up in step 6.1.1.

Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

Assign a security group: ☐ Create a new security group
☒ Select an existing security group

Filter VPC security groups

Security Group ID	Name	Description	Actions
☐ sg-0090556900b21f0ae	bcports-ec2	internet 22000/22001 port only open. traffic from clb	Copy to new
☐ sg-6981b70f	default	default VPC security group	Copy to new
☒ sg-059bd495378f9d2e2	https-clb	internet facing http/https only open	Copy to new
☐ sg-025320c03ee4fdab9	rdp-ec2	internet facing rdp only open	Copy to new

6.2.3. Assign https certificate to load balancer.

The load balancers main job in this setup is to terminate SSL. (add the “s” to http – https). To complete that task, it will need the certificate created in section 4.

Step 3: Configure Security Settings

Select Certificate

AWS Certificate Manager (ACM) is the preferred tool to provision and store server certificates. If you previously stored a server certificate using IAM, you can deploy it to your load balancer. [Learn more](#) about HTTPS/SSL listeners and certificate management.

Certificate type: ☒ Choose a certificate from ACM (recommended)
☐ Choose a certificate from IAM
☐ Upload a certificate to IAM

[Request a new certificate from ACM](#)

AWS Certificate Manager makes it easy to provision, manage, deploy, and renew SSL Certificates on the AWS platform. ACM manages certificate renewals for you. [Learn more](#)

Certificate: learningbim.org (a260c674-e3ad-4bbc-baf4-151c5b2be552) ▾

Select a Cipher

Configure SSL negotiation settings for the HTTPS/SSL listeners of your load balancer. You may select one of the Security Policies listed below, or customize your own settings. [Learn more](#) about the Security Policies and configuring SSL negotiation settings.

☒ Predefined Security Policy

ELBSecurityPolicy-2016-08 ▾

☐ Custom Security Policy

SSL Protocols

- ☒ Protocol-TLSv1
- ☐ Protocol-SSLv3
- ☒ Protocol-TLSv1.1
- ☒ Protocol-TLSv1.2

SSL Options

- ☒ Server Order Preference

SSL Ciphers

- ☒ ECDHE-ECDSA-AES128-GCM-SHA256

6.2.4. Configure health check for BIMcloud Manager load balancer (BCmanager-clb)

The load balancer will not direct traffic to the BIMcloud Manager if it is not running. This is why we set up the BIMcloud in section 5 prior to setting up the load balancers. Here we define the health check the load balancer makes before forwarding traffic to the BIMcloud Manager. Please verify that your settings are the same as the ones below.

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only you. Customize the health check to meet your specific needs.

Ping Protocol HTTP ▾
Ping Port 22000
Ping Path /

Advanced Details

Response Timeout ⓘ 5 seconds
Interval ⓘ 30 seconds
Unhealthy threshold ⓘ 2 ▾
Healthy threshold ⓘ 10 ▾

6.2.5. Associate EC2 instance with load balancer

Associate the instance that is running the BIMcloud with the load balancer. Your instance identifier will be different from the one below, but the name and state should correlate.

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances.

VPC vpc-e9ac9b8d (172.16.0.0/16)

☐	Instance	Name	State
☐	i-0fa541b16546c444d	BIMcloud	running

6.2.6. Label load balancer

Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging.

Key	Value
Name	BCmanager-clb

6.2.7. Review load balancer settings and create

Verify health check, protocols and ports. Your identifiers will be different from the ones below.

Step 7: Review

Please review the load balancer details before continuing

▼ Define Load Balancer

Load Balancer name: BCmanager-clb
Scheme: internet-facing
Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)
443 (HTTPS) forwarding to 22000 (HTTP)

▼ Configure Health Check

Ping Target: HTTP:22000/
Timeout: 5 seconds
Interval: 30 seconds
Unhealthy threshold: 2
Healthy threshold: 10

▼ Add EC2 Instances

Cross-Zone Load Balancing: Enabled
Connection Draining: Enabled, 300 seconds
Instances: i-0fa541b16546c444d (BIMcloud)

▼ VPC Information

VPC: vpc-e9ac9b8d
Subnets: subnet-e9dfda8d (etcd-subnet-a), subnet-c51f5e9d (etcd-subnet-c)

▼ Security groups

Security groups: sg-059bd495378f9d2e2

▼ Add Tags

Name: BCmanager-clb

6.3. Create a classic load balancer for the BIMcloud Server

Follow the steps in the beginning of 6.2 to start the definition of a new load balancer. Many of the steps for the BIMcloud Server load balancer will be similar to the ones used to create the BIMcloud Manager load balancer. There are subtle differences so pay attention to the screenshots in the tutorial.

6.3.1. Define load balancer (BCserver-clb)

At the page to define the load balancer use the below values. You may or may not need to select subnets, depending on the region you are creating your BIMcloud in.

Step 1: Define Load Balancer

Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB Inside:

Create an internal load balancer: ☐ [\(what's this?\)](#)

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port	
HTTP	80	HTTP	80	X
HTTPS (Secure HTTP)	443	HTTP	22001	X

Select Subnets

You will need to select a Subnet for each Availability Zone where you wish traffic to be routed by your load balancer. If you have instances in only one Availability Zone, please select at least two Subnets in different Availability Zones to provide higher availability for your load balancer.

VPC vpc-e9ac9b8d (172.16.0.0/16)

Available subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
+	eu-west-1-c	subnet-c51f5e9d	172.16.3.0/24	etcd-subnet-c

Selected subnets

Actions	Availability Zone	Subnet ID	Subnet CIDR	Name
-	eu-west-1-a	subnet-e9dfda8d	172.16.1.0/24	etcd-subnet-a
-	eu-west-1-b	subnet-3bb1894d	172.16.2.0/24	etcd-subnet-b

6.3.2. Assign security group to the BIMcloud Server load balancer

Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security group you want to assign to your load balancer. You can change this selection at any time.

Assign a security group: ☐ Create a new security group
☒ Select an existing security group

	Security Group ID	Name	Description
☐	sg-0090556900b21f0ae	bcports-ec2	internal 22000/22001 port only open. traffic from clb
☐	sg-6981b70f	default	default VPC security group
☒	sg-059bd495378f9d2e2	https-clb	internet facing http/https only open
☐	sg-025320c03ee4fdab9	rdp-ec2	internet facing rdp only open

6.3.3. Assign https certificate to load balancer.

Step 3: Configure Security Settings

Select Certificate

AWS Certificate Manager (ACM) is the preferred tool to provision and store server certificates. If you previously stored a server certificate in your account, you can select it here for use with your load balancer.

Certificate type: ☒ Choose a certificate from ACM (recommended)
☐ Choose a certificate from IAM
☐ Upload a certificate to IAM

[Request a new certificate from ACM](#)

AWS Certificate Manager makes it easy to provision, manage, deploy, and renew SSL Certificates on the AWS platform.

Certificate:

Select a Cipher

Configure SSL negotiation settings for the HTTPS/SSL listeners of your load balancer. You may select one of the Security Policies listed or create a custom policy. You can change these settings at any time.

☒ Predefined Security Policy

☐ Custom Security Policy

SSL Protocols

- ☒ Protocol-TLSv1
- ☐ Protocol-SSLv3
- ☒ Protocol-TLSv1.1

6.3.4. Configure health check

Note the health check for the BIMcloud Server is significantly different from the BIMcloud manager.

Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that are healthy. Customize the health check to meet your specific needs.

Ping Protocol: HTTP
Ping Port: 22001
Ping Path: /get-runtime-id

/application-server-service/get-runtime-id

Advanced Details

Response Timeout	5	seconds
Interval	30	seconds
Unhealthy threshold	2	
Healthy threshold	10	

6.3.5. Associate EC2 instance with load balancer

Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances.

VPC vpc-e9ac9b8d (172.16.0.0/16)

☐	Instance	Name	State
☐	i-0fa541b16546c444d	BIMcloud	running

6.3.6. Label Load balancer

Step 6: Add Tags

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tags.

Key	Value
Name	BCserver-clb

Create Tag

6.3.7. Review load balancer settings and create

The identifying alpha-numeric sequence you see after “i-” or “sg-” or “vpc-” will differ from the example below, but the other names, ports and protocols should be the same.

Step 7: Review

Please review the load balancer details before continuing

▼ Define Load Balancer

Load Balancer name: BCserver-clb
Scheme: internet-facing
Port Configuration: 80 (HTTP) forwarding to 80 (HTTP)
443 (HTTPS) forwarding to 22001 (HTTP)

▼ Configure Health Check

Ping Target: HTTP:22001/application-server-service/get-runtime-id
Timeout: 5 seconds
Interval: 30 seconds
Unhealthy threshold: 2
Healthy threshold: 10

▼ Add EC2 Instances

Cross-Zone Load Balancing: Enabled
Connection Draining: Enabled, 300 seconds
Instances: i-0fa541b16546c444d (BIMcloud)

▼ VPC Information

VPC: vpc-e9ac9b8d
Subnets: subnet-e9dfda8d (etcd-subnet-a), subnet-3bb1894d (etcd-subnet-b)

▼ Security groups

Security groups: sg-059bd495378f9d2e2

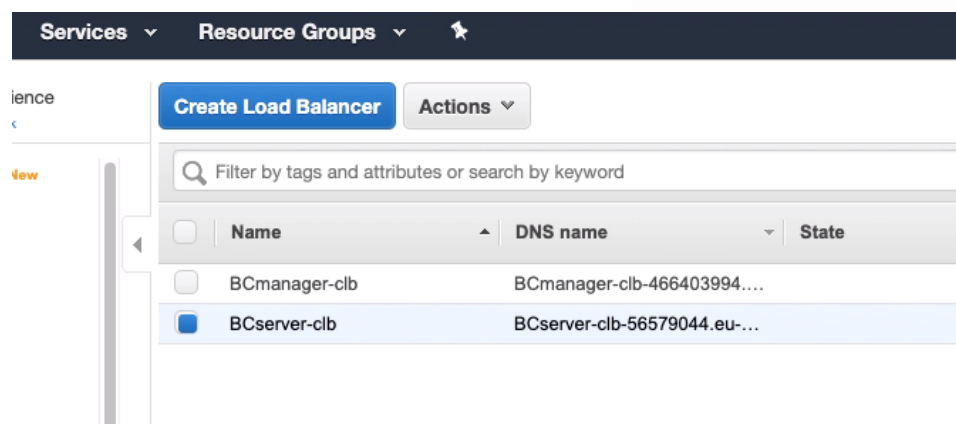
▼ Add Tags

Name: BCserver-clb

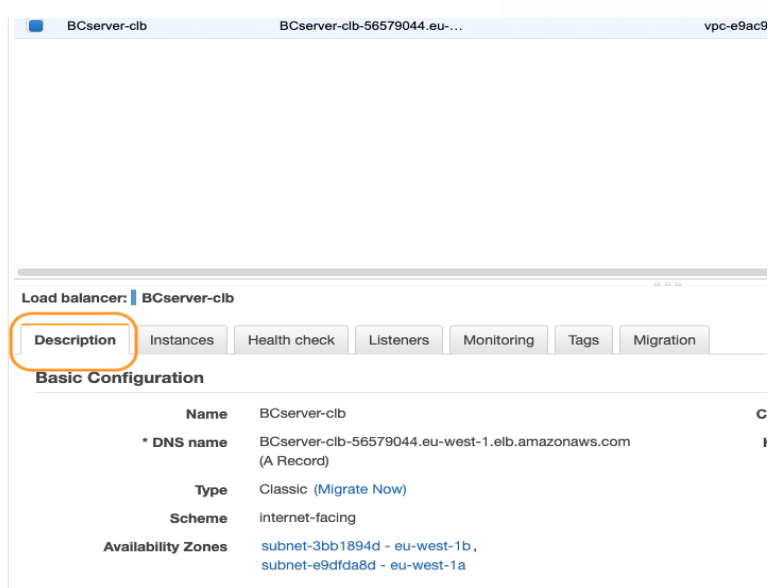
6.4. Change Idle timeout of BIMcloud Server's load balancer (BCserver-clb)

If you find that large projects with hotlinks cannot be joined, but smaller projects can, then probably the idle timeout of the load balance is too short. Here we extend the timeout to prevent such problems.

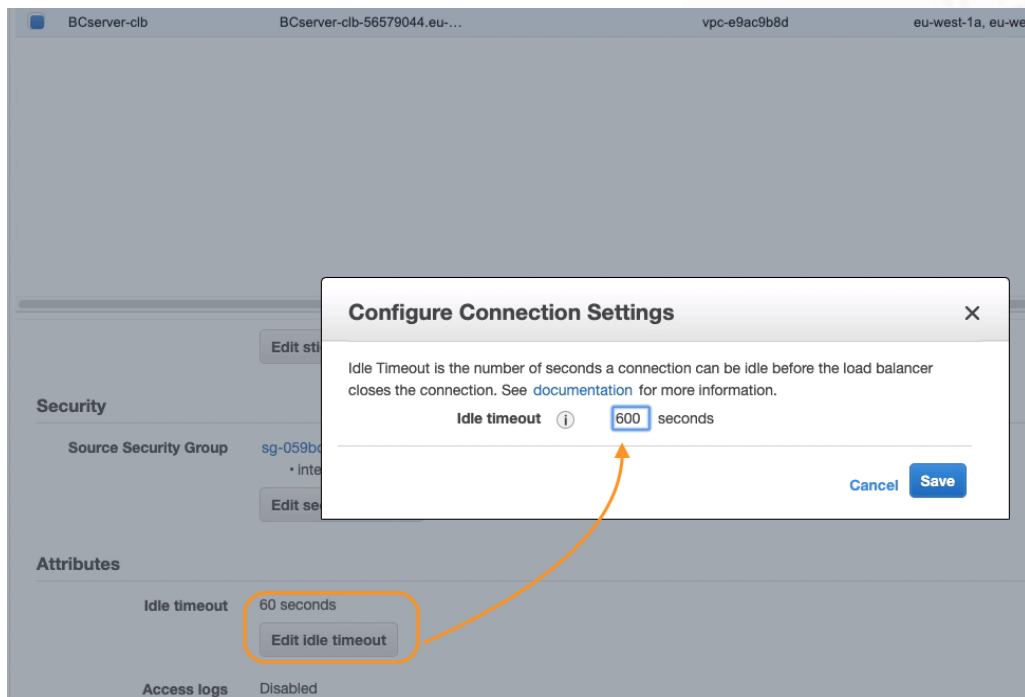
6.4.1. Select load manager for BIMcloud Server (BCserver-clb)



6.4.2. Choose Description tab and scroll down to Attributes: Idle timeout

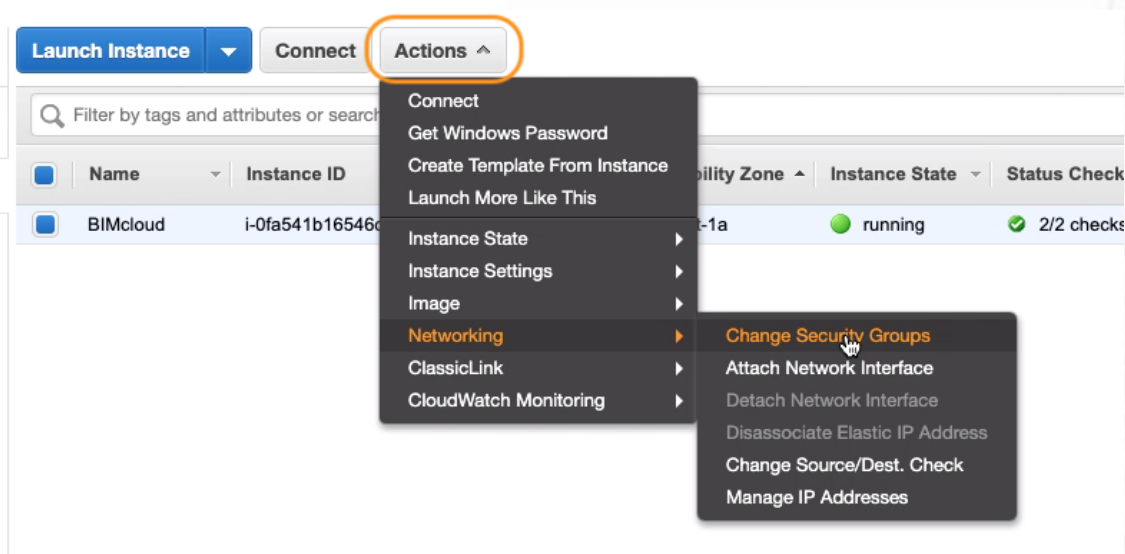


6.4.3. Edit idle timeout from 60 seconds to 600 seconds.



6.5. Add security group to instance

The instance cannot yet communicate with the outside world. Here we will set the security group so that the BIMcloud ports are open and receiving traffic from the load balancers.



As part of the setup of RDP in step 3.6 your rdp security group might be called something like “launch-wizard-1.”

Change Security Groups

Instance ID: i-0fa541b16546c444d

Interface ID: eni-0ab259b69754d71c1

Select Security Group(s) to associate with your instance

	Security Group ID	Security Group Name	Description
☒	sg-0090556900b21f0ae	bcports-ec2	internal 22000/22001 port only open. traffic from clb
☐	sg-6981b70f	default	default VPC security group
☐	sg-059bd495378f9d2e2	https-clb	internet facing http/https only open
☒	sg-025320c03ee4fdab9	rdp-ec2	internet facing rdp only open

Cancel

Assign Security Groups

After you have completed the above you can check that the security groups are correctly configured and that only the necessary ports are open, by examining in the lower portion of the instance page the “view inbound rules” found under the Security group listing.

Elastic IPs

Availability zone eu-west-1a

Security groups bcports-ec2, rdp-ec2 [view inbound rules](#) [view](#)

Security Groups associated with I-0fa541b16546c444d

Ports	Protocol	Source	bcports-ec2	rdp-ec2
22000-22001	tcp	sg-059bd495378f9d2e2	✓	
3389	tcp	0.0.0.0/0, ::/0		✓

Source/dest. check true

2020.03.11

Similarly, check the outbound rules are not blocking anything.

Availability zone eu-west-1a

Security groups [bcports-ec2](#), [rdp-ec2](#). [view inbound rules](#). [view outbound rules](#)

Security Groups associated with I-0fa541b16546c444d

Ports	Protocol	Destination	bcports-ec2	rdp-ec2
All	All	0.0.0.0/0	✓	✓

Source/dest. check True

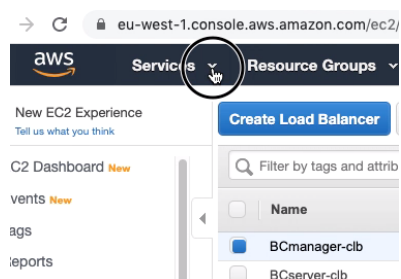
03.11

6.6. Update DNS table

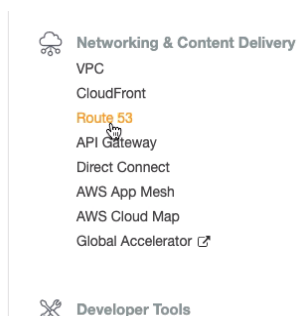
At this point the BIMcloud is accessible, but only via the IP addresses of the load balancers. Now the DNS table of the domain needs to be updated to include them.

6.6.1 Navigate to Route 64; then to Hosted Zones; then to created domain.

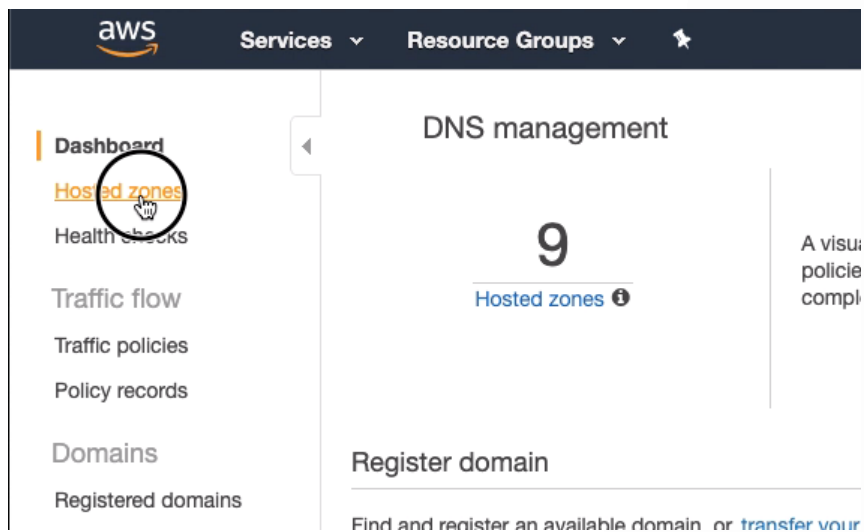
Navigate to the Services panel.



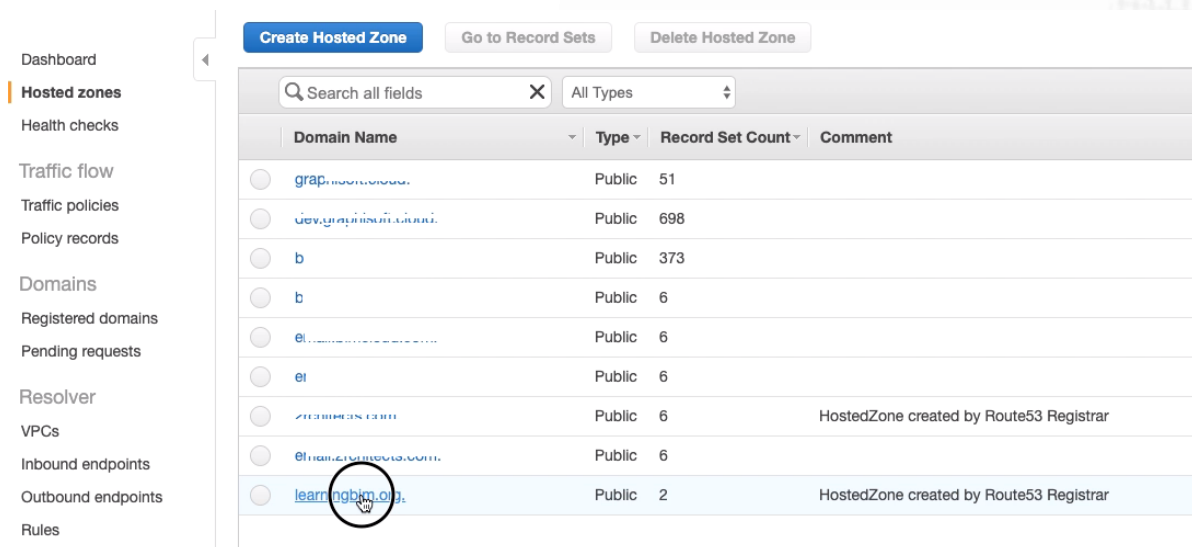
Launch Route 53.



Click on Hosted zones.



Click on the domain that you set up in step in section 2.



6.6.2 Create a Record Set for the BCmanager-clb, and BCserver-clb

The address for the BIMcloud manager in this tutorial will be <https://mgr.learningbim.org>. If in the Name field nothing is entered, then the BIMcloud Manager would have an address of <https://learningbim.org> which might be more desirable. If that is your choice, make sure to make modification accordingly in step 7.1.1 in the manager connection settings. The BIMcloud server must have a different initial name field filled in and it is recommended it be “srv.” In both cases these are “Alias” records that you need make sure point to the load balancers. The Manager needs to be assigned the BCmanager-clb while the BIMcloud Server needs to be assigned to BCserver-clb.

Back to Hosted Zones **Create Record Set** Import Zone File Delete Record Set Test Record Set

Record Set Name: Any Type: Aliases Only: ☐ Weighted Only: ☐

Displaying 1 to 3 out of 3 Record Sets

Name	Type	Value	Evaluate Target Health	Health Check ID
learningbim.org.	NS	ns-1494.awsdns-58.org. ns-1721.awsdns-23.co.uk. ns-189.awsdns-23.com. ns-593.awsdns-10.net.	-	-
learningbim.org.	SOA	ns-1494.awsdns-58.org. awsdns-hostmaster.amazon	-	-
srv.learningbim.org.	A	ALIAS dualstack.bcserver-clb-56579044.eu-west-1.€	No	-

Server Entry was done in similar way.

Create Record Set

Name: Type: A - IPv4 address

Alias: ☒ Yes ☐ No

Alias Target:

You can also type:

- CloudFront distr
- Elastic Beanst
- ELB load balanc
- S3 website endg
- Resource record
- VPC endpoint: e
- API Gateway cu
- 2.amazonaws.com
- Global Acceler

No Targets Available

No Targets Available

BCmanager-clb-466403994.eu-west-1.elb.ar

BCserver-clb-56579044.eu-west-1.elb.amaz

ELB Network load balancers

Routing Policy: Simple

Route 53 responds to queries based only on the values in this record. [Learn More](#)

Evaluate Target Health: ☐ Yes ☒ No

Record Set Name	Any Type	Aliases Only	Weighted Only	Displaying 1 to 4 out of 4 Record Sets		
Name	Type	Value	Evaluate Target Health	Health Check ID		
learningbim.org.	NS	ns-1494.awsdns-58.org. ns-1721.awsdns-23.co.uk. ns-189.awsdns-23.com. ns-593.awsdns-10.net.	-	-		
learningbim.org.	SOA	ns-1494.awsdns-58.org. awsdns-hostmaster.amazo	-	-		
mgr.learningbim.org.	A	ALIAS dualstack.bcmanager-clb-466403994.eu-wes	No	-		
srv.learningbim.org.	A	ALIAS dualstack.bcserver-clb-56579044.eu-west-1.€	No	-		

7. Setup ARCHICAD to connect to the BIMcloud and share the first project

Steps for section 7:

1. Setup connection addresses in BIMcloud Manager.
 1. BIMcloud Manager
 2. BIMcloud Server
2. Log into new BIMcloud. (Teamwork ==> Project ==> Share)
3. Verify network diagnostics are good.
 1. Confirm BIMcloud Manager is accessible.
 2. Confirm BIMcloud Server is accessible.
4. Share project; Test that after leaving the project it can be joined again.
5. Verify project and library are listed in BIMcloud Manager.

7.1. Setup connection addresses in BIMcloud Manager

7.1.1. BIMcloud Manager connection settings

Make sure that only “https” address is listed here!

LearningBIM - BIMcloud Basic for ARCHICAD 23

Home > Servers > BIMcloud Basic Manager > Settings

Servers

BIMcloud Basic Manager

Server-2020-03-19

Version: 23.0.2504.1109

Status: Running

Settings Licenses

Status

Version: 2020.1 (23.0.2504.1109)

Supported project version: v23

Host computer: EC2AMAZ-VM47IT8

Installation folder: C:\Program Files\GRAPHISOFT\BIMcloud\Manager-2020-03-19

General settings

BIMcloud Basic name: LearningBIM

Connection settings

Primary Address: <https://mgr.learningbim.org/>

Alternative addresses and lookup order: <https://mgr.learningbim.org/> (Primary Address)

Test Connections

Email preferences

7.1.2. BIMcloud Server connection settings

LearningBIM - BIMcloud Basic for ARCHICAD 23

Home > Servers > Server-2020-03-19 > Settings

Servers

BIMcloud Basic Manager

Server-2020-03-19

Running

Version: 23.0.2504.1109

Status: Running

Projects: 1

Libraries: 1

Free project space: 138.6 GB

Free library space: 138.6 GB

Active users: 0

Active projects: 0

Settings Projects Libraries Activities

Status

Status: Running

Version: 23.0.2504.1109

Supported project version: v23

Host computer: EC2AMAZ-VM47IT8

Installation folder: C:\Program Files\GRAPHISOFT\BIMcloud\Server-2020-03-19

General settings

Name: Server-2020-03-19

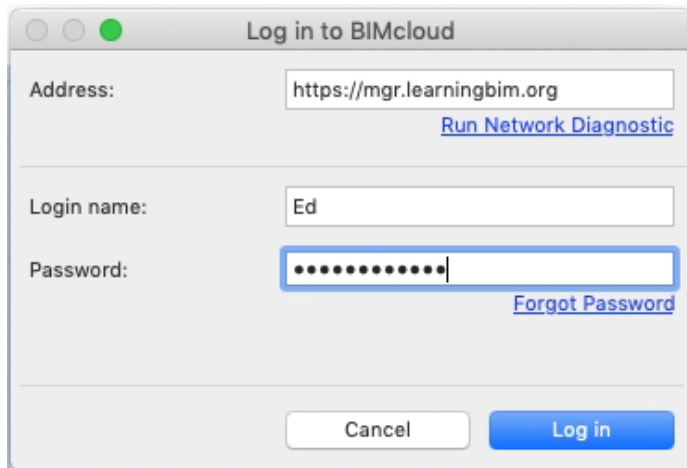
Connection settings

Primary Address: <https://srv.learningbim.org/>

Alternative addresses and lookup order: <https://srv.learningbim.org/> (Primary Address)

Test Connections

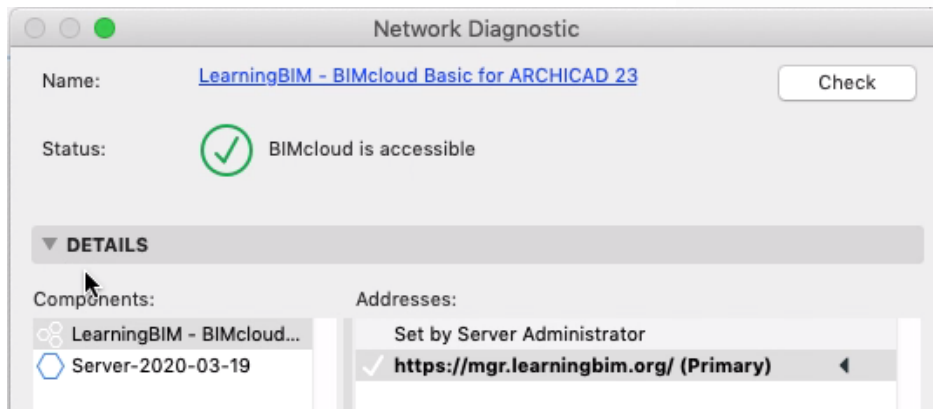
7.2. Log into the new BIMcloud from an ARCHICAD client somewhere in the Internet (Teamwork ==> Project ==> Share)



7.3. Verify network diagnostics are good

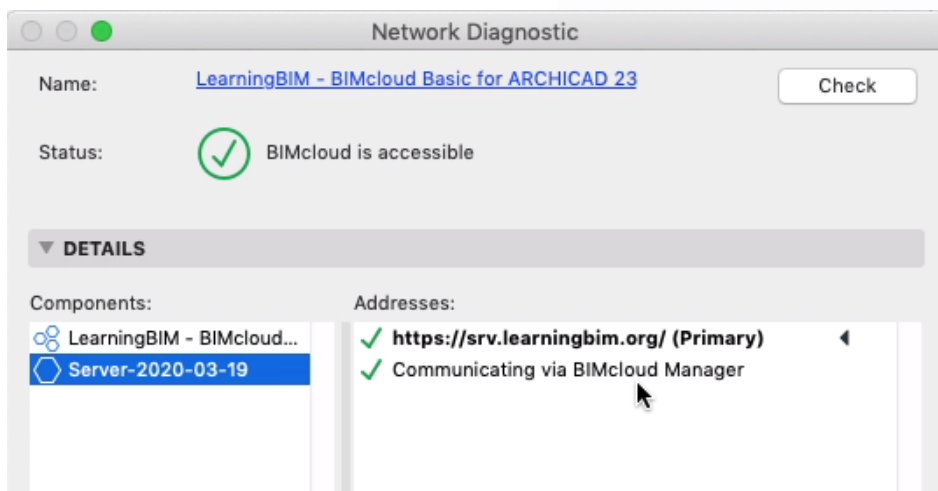


7.3.1. Confirm BIMcloud Manager is accessible

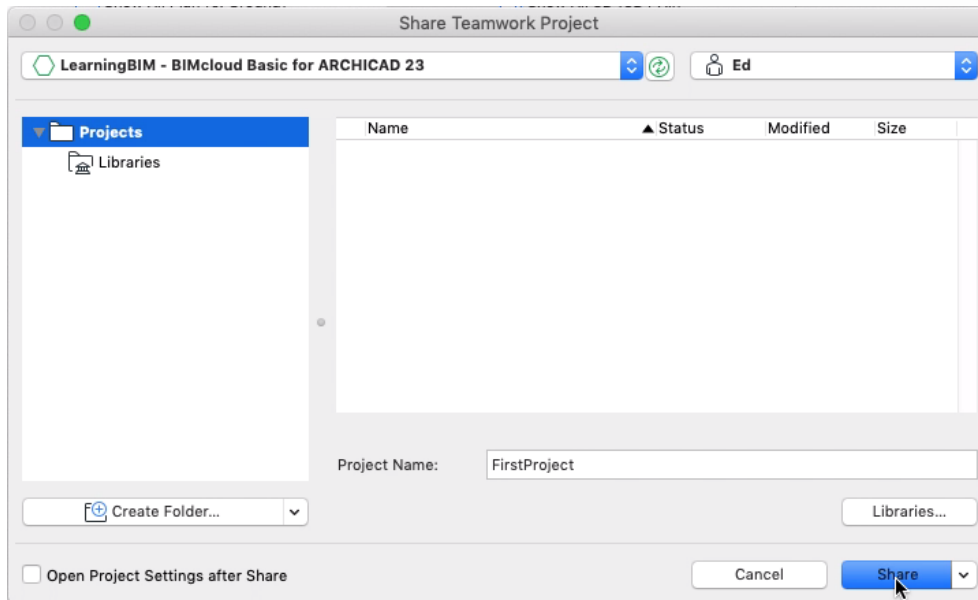


7.3.2. Confirm BIMcloud Server is accessible

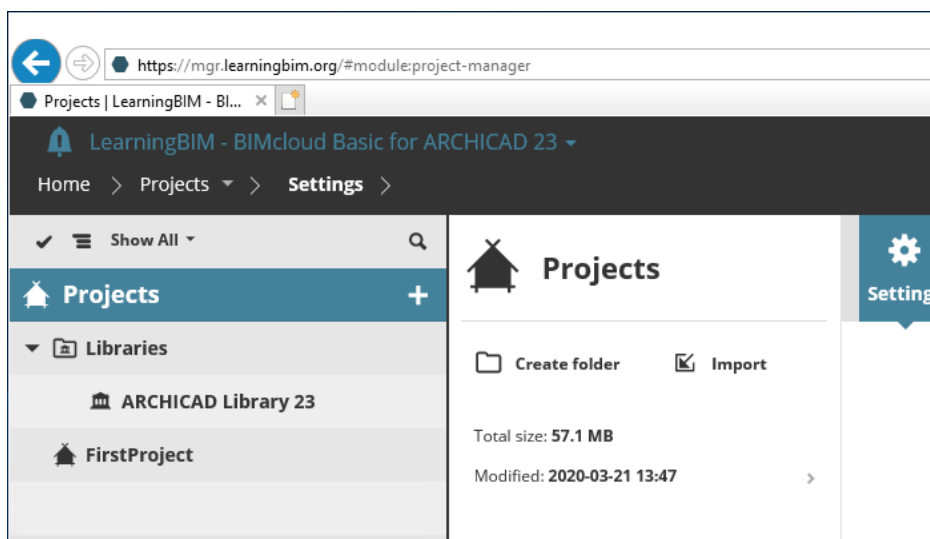
The triangle and bolding should show communication is going direct to the server.



7.4. Share project; Test that after leaving the project it can be joined again.



7.5. Verify project and library are listed in BIMcloud Manager.



Congratulations!