HTTPS: Create a TLS Certificate

We will walk you through the process of creating a TLS certificate in this lesson.

We'll cover the following

Objective

- Migrate our endpoint from HTTP to HTTPS.

Steps

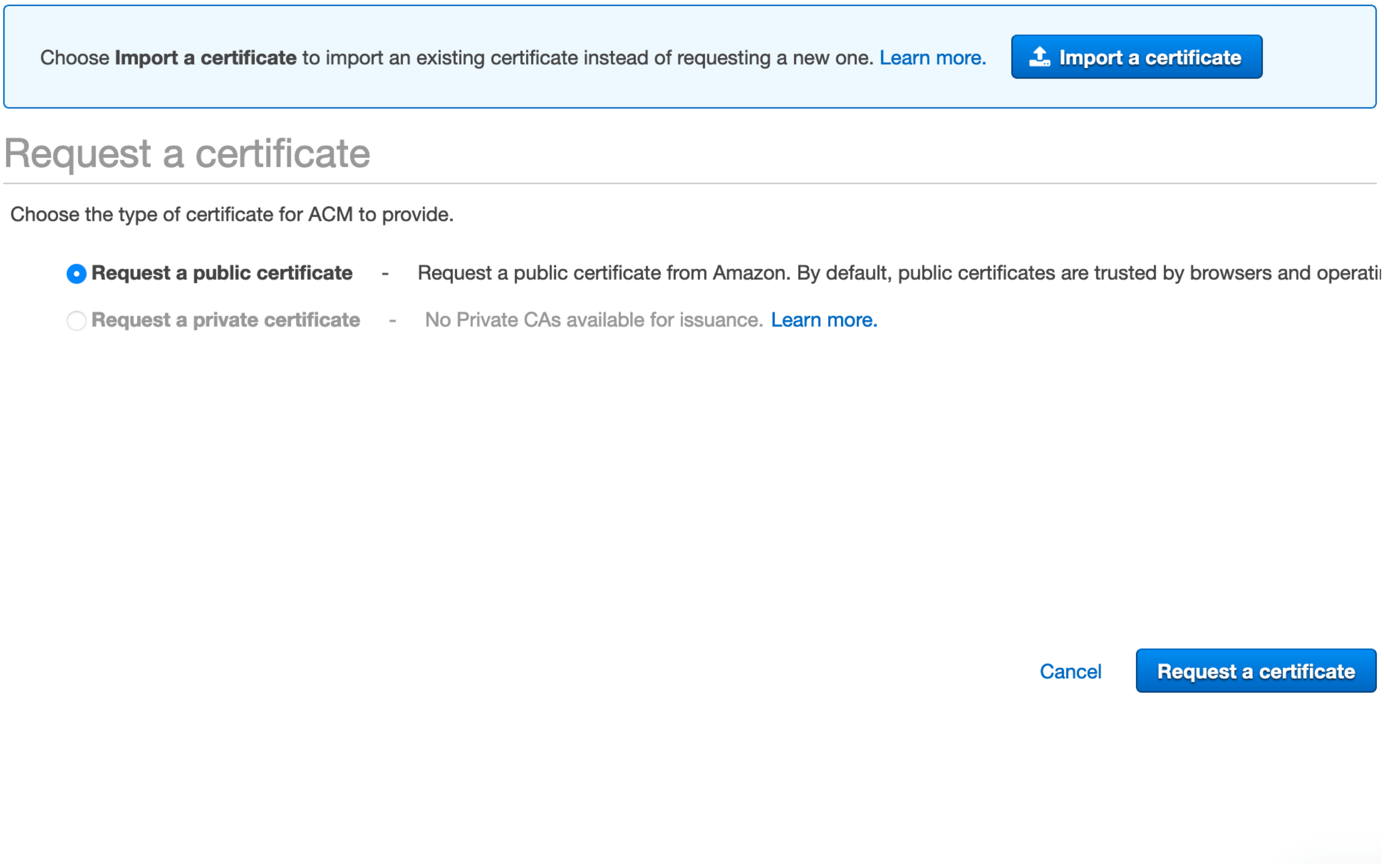
- Manually create a TLS certificate.

As things stand, our application is responding to unencrypted HTTP traffic. In the real world, we want to protect any data as it traverses the network. To do that, we must encrypt our traffic and serve it over HTTPS.

We'll also take this as an opportunity to practice the two-phase change process discussed in Multi-phase deployments to give the chance to anyone using our HTTP endpoint to migrate to HTTPS before we turn off HTTP.

Creating the certificate

Requesting a certificate is an infrequent operation that requires human intervention for validation (or more automation than makes sense, for a process that happens only once). Therefore, we're going to create our certificate manually. To start, let's visit the AWS Certificate Manager (ACM) console and hit *Request a certificate*. Then, let's select the public certificate option.



Choose **Import a certificate** to import an existing certificate instead of requesting a new one. Learn more.

Request a certificate

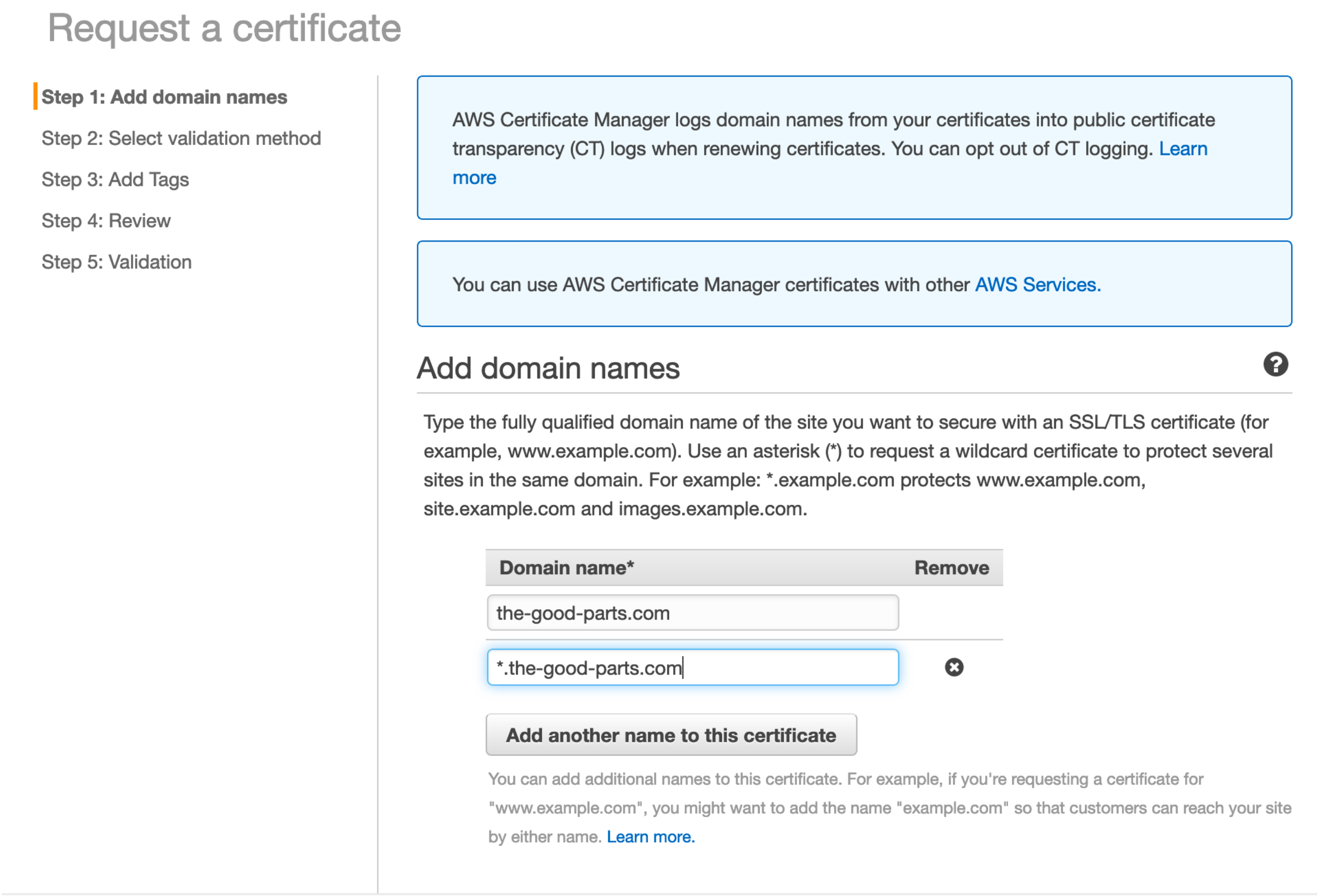
Choose the type of certificate for ACM to provide.

● **Request a public certificate** - Request a public certificate from Amazon. By default, public certificates are trusted by browsers and operati

○ **Request a private certificate** - No Private CAs available for issuance. Learn more.

Request a Certificate

Next, let's enter our bare domain (e.g., `the-good-parts.com`) as well as a wildcard version of the domain (e.g., `*.the-good-parts.com`). The wildcard will cover our prod and staging subdomains.



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

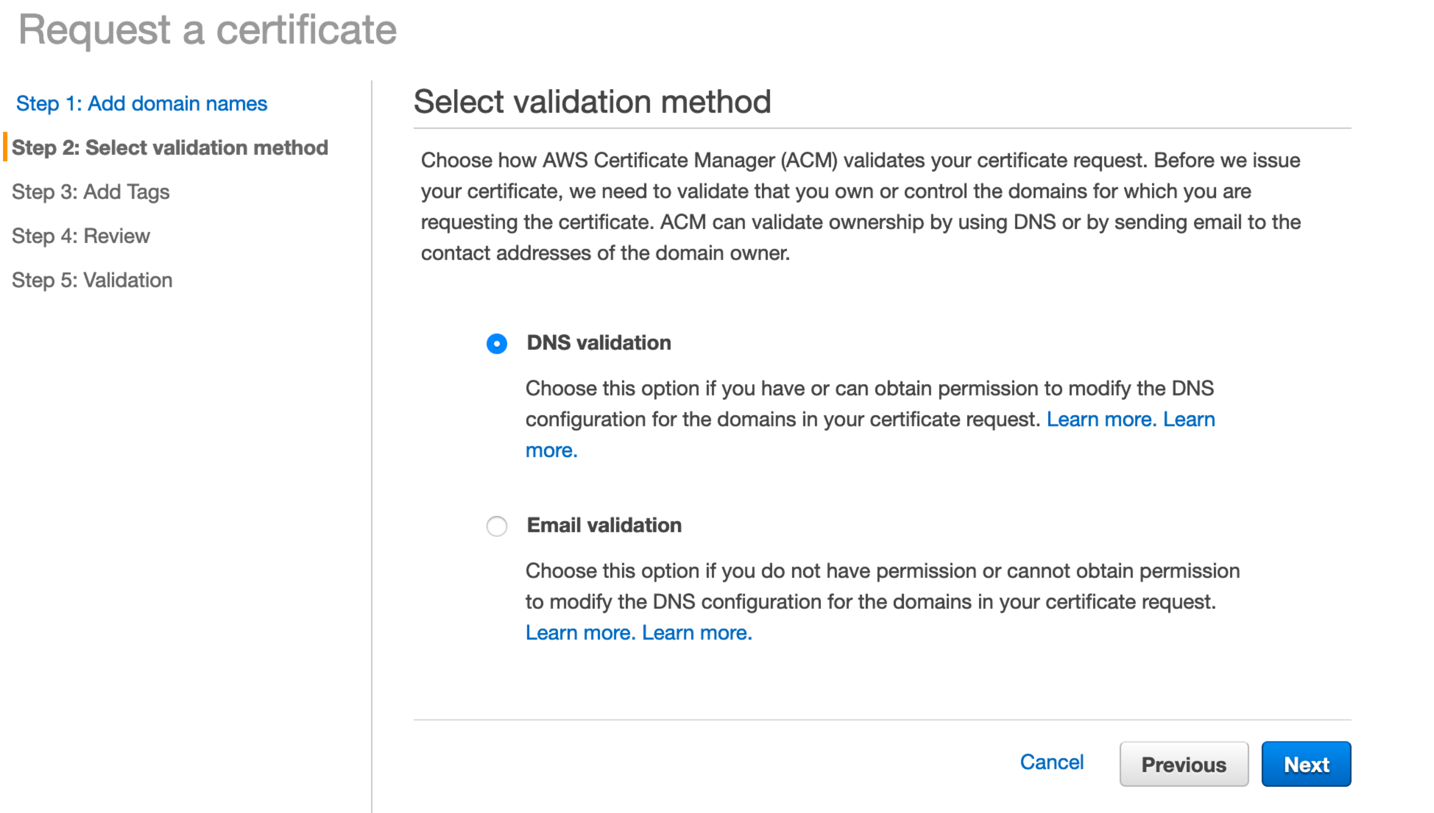
Type the fully qualified domain name of the site you want to secure with an SSL/TLS certificate (for example, www.example.com). Use an asterisk (*) to request a wildcard certificate to protect several sites in the same domain. For example: *.example.com protects www.example.com, site.example.com and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

Domain name*	Remove
the-good-parts.com	
*.the-good-parts.com	⊗

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.

Add Domain Names

Now, we must validate that we control the domain.



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

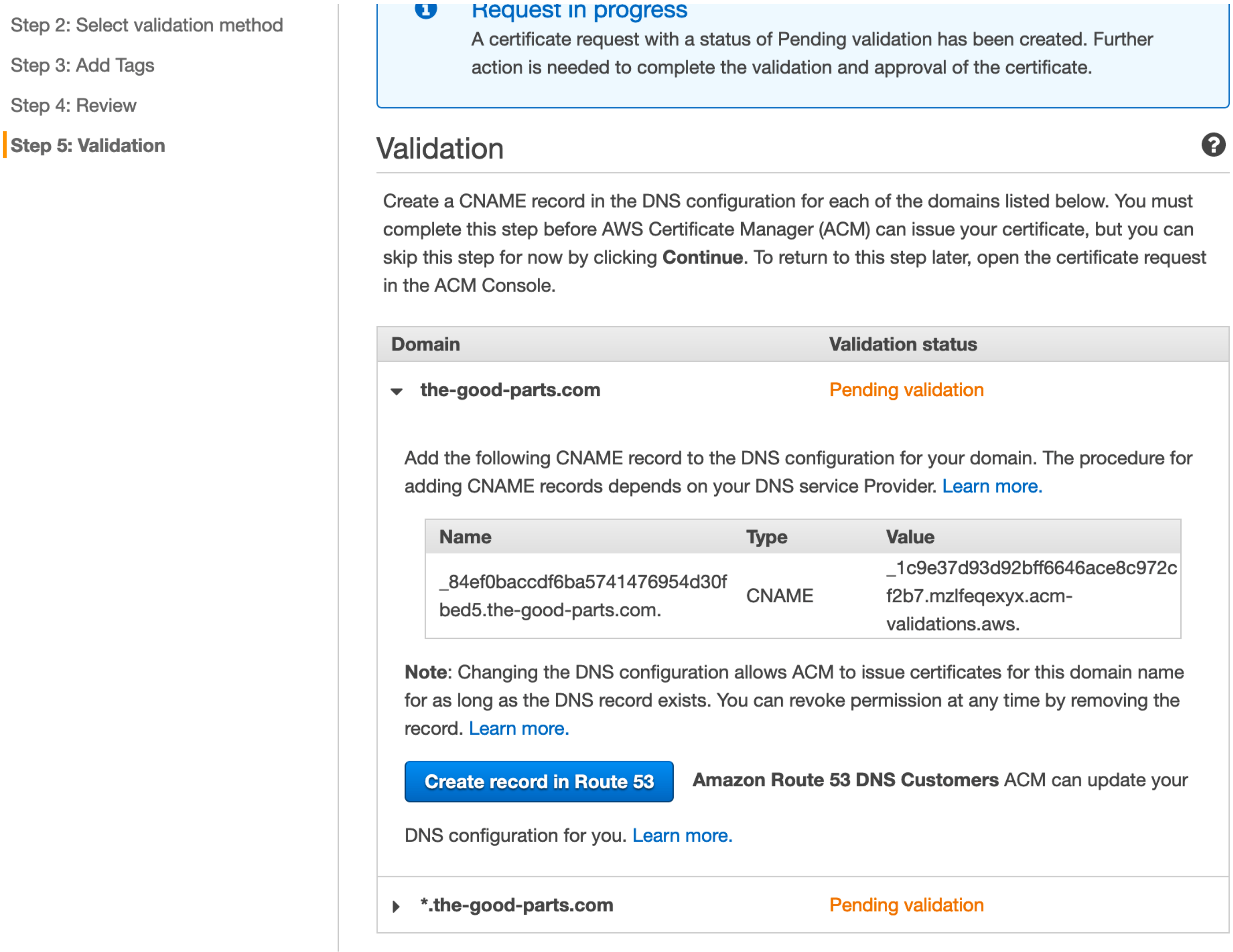
Choose this option if you have or can obtain permission to modify the DNS configuration for the domains in your certificate request. Learn more. Learn more.

○ 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. Learn more.

Select Validation Method

If you chose *DNS validation*, you will reach a *Validation* step that asks you to add a CNAME record to your DNS hosted zone. If you registered your domain through Route 53, you can simply click the *Create record in Route 53* button to complete the validation process. Otherwise, you have to add the requested record to your DNS hosting service.



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

Create a CNAME record in the DNS configuration for each of the domains listed below. You must complete this step before AWS Certificate Manager (ACM) can issue your certificate, but you can skip this step for now by clicking **Continue**. To return to this step later, open the certificate request in the ACM Console.

Domain	Validation status
the-good-parts.com	Pending validation

Add the following CNAME record to the DNS configuration for your domain. The procedure for adding CNAME records depends on your DNS service Provider. Learn more.

Name	Type	Value
_84ef0baccdf6ba5741476954d30fbed5.the-good-parts.com.	CNAME	_1c9e37d93d92bff6646ace8c972cf2b7.mzlfeqexyx.acm-validations.aws.

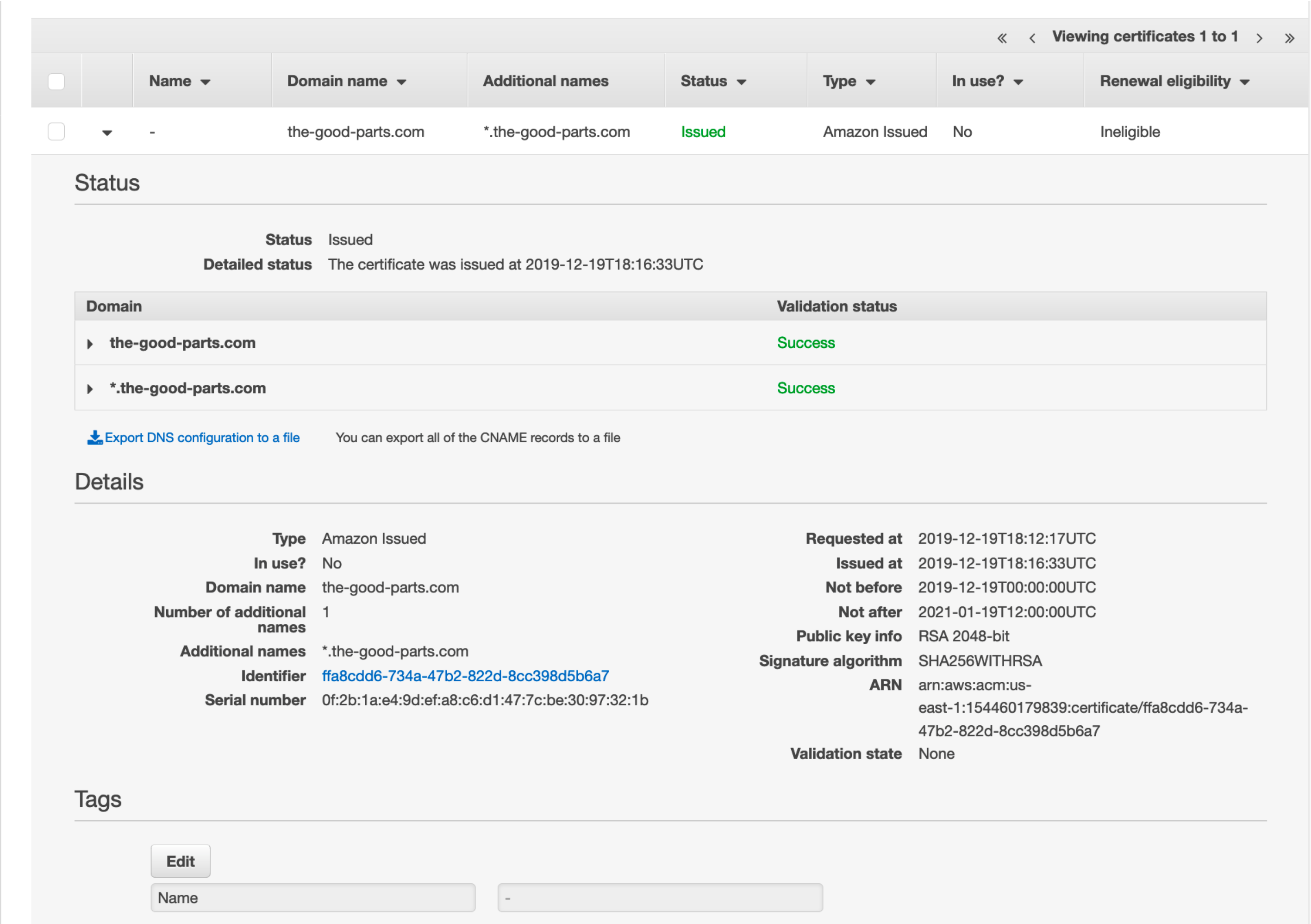
Note: Changing the DNS configuration allows ACM to issue certificates for this domain name for as long as the DNS record exists. You can revoke permission at any time by removing the record. Learn more.

Amazon Route 53 DNS Customers ACM can update your DNS configuration for you. Learn more.

Domain	Validation status
*.the-good-parts.com	Pending validation

Create CNAME Records

It usually takes a few minutes for the certificate to be validated. Once it is validated, you should see your issued certificate in the ACM console.



« ‹ Viewing certificates 1 to 1 › »

□		Name	Domain name	Additional names	Status	Type	In use?	Renewal eligibility
□	▾	-	the-good-parts.com	*.the-good-parts.com	Issued	Amazon Issued	No	Ineligible

Status

Status: Issued
Detailed status: The certificate was issued at 2019-12-19T18:16:33UTC

Domain	Validation status
▸ the-good-parts.com	Success
▸ *.the-good-parts.com	Success

Export DNS configuration to a file — You can export all of the CNAME records to a file

Details

Type: Amazon Issued
In use?: No
Domain name: the-good-parts.com
Number of additional names: 1
Additional names: *.the-good-parts.com
Identifier: ffa8cdd6-734a-47b2-822d-8cc398d5b6a7
Serial number: 0f:2b:1a:e4:9d:ef:a8:c6:d1:47:7c:be:30:97:32:1b

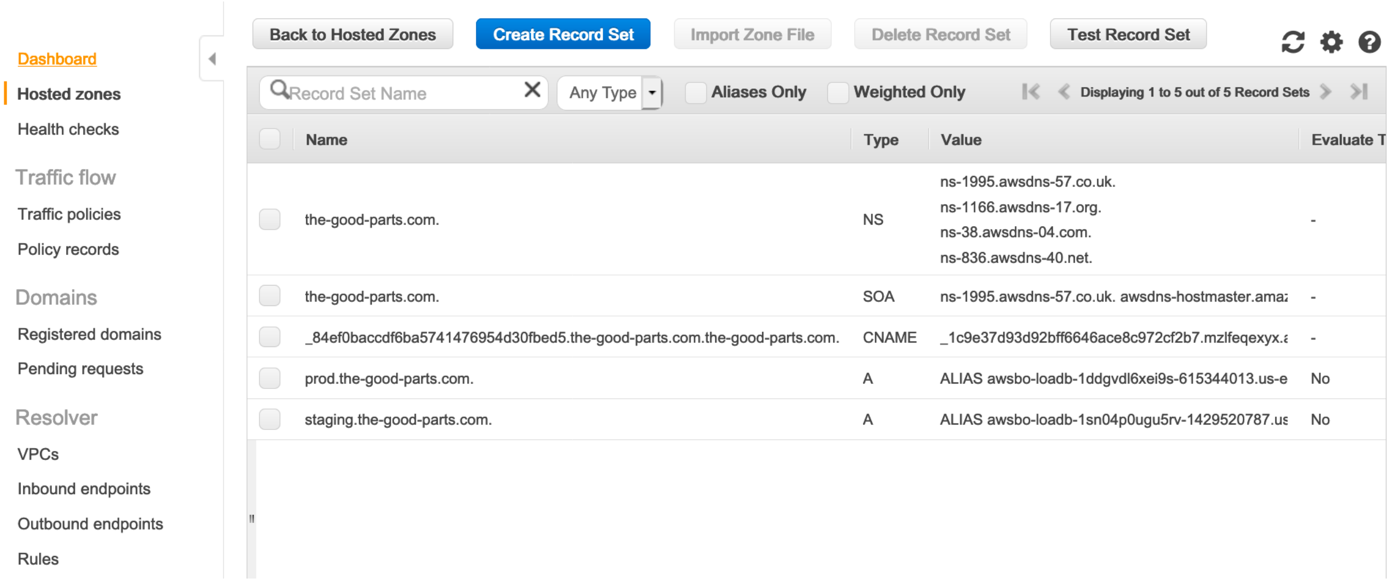
Requested at: 2019-12-19T18:12:17UTC
Issued at: 2019-12-19T18:16:33UTC
Not before: 2019-12-19T00:00:00UTC
Not after: 2021-01-19T12:00:00UTC
Public key info: RSA 2048-bit
Signature algorithm: SHA256WITHRSA
ARN: arn:aws:acm:us-east-1:154460179839:certificate/ffa8cdd6-734a-47b2-822d-8cc398d5b6a7
Validation state: None

Tags

Name: -

Validated Certificate

You can also inspect the CNAME record that was added to your hosted zone in Route 53.



Displaying 1 to 5 out of 5 Record Sets

□	Name	Type	Value	Evaluate T
□	the-good-parts.com.	NS	ns-1995.awsdns-57.co.uk. ns-1166.awsdns-17.org. ns-38.awsdns-04.com. ns-836.awsdns-40.net.	-
□	the-good-parts.com.	SOA	ns-1995.awsdns-57.co.uk. awsdns-hostmaster.amaz	-
□	_84ef0baccdf6ba5741476954d30fbed5.the-good-parts.com.the-good-parts.com.	CNAME	_1c9e37d93d92bff6646ace8c972cf2b7.mzlfeqexyx.a	-
□	prod.the-good-parts.com.	A	ALIAS awsbo-loadb-1ddgvdl6xei9s-615344013.us-e	No
□	staging.the-good-parts.com.	A	ALIAS awsbo-loadb-1sn04p0ugu5rv-1429520787.us	No

Hosted Zone CNAME Record

Now, we will add an HTTPS endpoint to our application in the next lesson.