# Venafi Zero Touch PKI (ZTPKI) API 1.12.0 OAS 3.0



Venafi provides customers the ability to manage the lifecycle of PKI certificates via the web based ZTPKI REST API service. This document outlines the methods to control the generation, retrieval and revocation of certificates.

ZTPKI groups methods into 3 categories when dealing with the certificate lifecycle:

- Policies
- Certificate Requests
- Certificates

#### **Policies**

Describes the required, optional and default value for data elements that make up a certificate request. Includes:

- Subject DN components CN, OU, O, C, etc.
- SAN elements DNSName, IPAddress, RFC822Name, UPN, URI, etc.
- Custom Extensions X509v3 extensions included in the certificate, i.e. Microsoft Application Policies, Template
- Custom Fields descriptive non-certificate attributes used by the customer for reporting/identification, i.e. Department, Charge code, etc.

ACTION	URI	DESCRIPTION	
GET	/api/v2/policies	Retrieves all policies available to user	
GET	/api/v2/policies/{policyId}	Retrieves a given policy	

### **Certificate Requests**

Describes all requests to generate certificates. After issued, links to a certificateId for operations on the actual certificate.

ACTION	URI	DESCRIPTION
POST	/api/v2/csr	Creates a new request, returning certRequestId
GET	/api/v2/csr/{certRequestId}	Retrieves a given certRequest, including all details
GET	/api/v2/csr/{certRequestId}/status	Retrieves issuance status of certRequest, including certificateId if issued

#### **Certificates**

Describes all certificates issued by the user or others the user has access to.

ACTION URI		DESCRIPTION	
POST	/api/v2/certificates	Retrieves all certificates available to user	
GET	/api/v2/certificates/{certificateId}	Retrieves a given certificate, including status & PEM format cert	
GET	/api/v2/certificates/{certificateId}/der	Retrieves a binary DER format certificate	
GET	/api/v2/certificates/{certificateId}/pem	Retrieves a PEM format certificate	
PATCH	/api/v2/certificates/{certificateId}	Revokes a given certificate, given a certificateId	

ACTION	URI	DESCRIPTION
PATCH	/api/v2/certificates/{serialNumber}	Revokes a given certificate, given a serialNumber and issuerDN
GET	/api/v2/certificates/{certificateId}/status	Retrieves current revocation status

### **Authentication**

All REST methods are require authentication via the "HTTP Holder-Of-Key Authentication Scheme", known as "Hawk Authentication" (see <a href="https://github.com/mozilla/hawk/blob/main/API.md">https://github.com/mozilla/hawk/blob/main/API.md</a>). Hawk is an HTTP authentication scheme providing mechanisms for making authenticated HTTP requests with partial cryptographic verification of the request and response, covering the HTTP method, request URI, host, and optionally the request payload.

With Hawk Auth, each user will be issued a two randomly generated strings by Venafi - an ID that will appear in the request, as well as a key that will be used to sign the request. Each REST method requires an Authorization header formatted as below:

```
Authorization: Hawk id="<hawk id>", ts="<timestamp in seconds>", nonce="<random string>", mac=" <Base64 HMAC>", hash="<SHA256 Hash>"
```

Also, please note that any REST actions that require a payload (POST/PATCH, etc.) will require the "hash" element for payload validation - see <u>Payload Validation</u> for more information. Responses may contain a <u>Server-Authorization</u> header with a hash of the response payload - see <u>Response Payload Validation</u>.

See the Hawk Authentication page on GitHub for links to implementations in NodeJS, .Net, Ruby, Java, etc.

ZTPKI provides REST API methods to manage Hawk credentials for a user. Each user account is allowed up to 5 sets of Hawk credentials to access the REST API. It is recommended that users "roll" their credentials from the initial values set by Venafi and on as as needed basis for security. Optional comments can be added to credentials for descriptive purposes. The following actions are available:

ACTION	URI	DESCRIPTION
POST	/api/v2/hawk Creates a new request, returning certRequestId	
GET	/api/v2/hawk	Retrieves all credentials associated with the current user
GET	/api/v2/hawk/{hawkId}	Retrieves a specific Hawk credential
PUT	/api/v2/hawk/{hawkId}	Rolls a credential by establishing a new secret key
DELETE	/api/v2/hawk/{hawkId}	Disables and removes a credential

## **Certificate Request Pseudocode**

Requesting a certificate will normally flow like this:

```
Generate CSR

Submit Request via POST /api/v2/csr, returning certRequestId

While CertRequest issuanceStatus == APPROVAL_REQUIRED | IN_PROCESS | PENDING
    Get CertRequest Status via GET /api/v2/csr/{certRequestId}/status

If issuanceStatus == ISSUED
    Download PEM certificate via GET /api/v2/certificates/{certificateId}
```

Please contact Venafi for sample code in various languages.

https://ztpki-staging.venafi.com/api/v2 - Staging server, used for customer integration testing 

Authorize

# **Certificates** /certificates/ Get Certificates **POST Parameters** No parameters Request body application/json Filter certificates Example Value | Schema "common\_name": "string", "serial": "string", "not\_before": "string", "not\_before . String , "not\_after": "string", "expired": true, "renewed": true, "created\_since": "string", "updated\_since": "string", "status": "VALID", "owner": "string", "account": "string", "organization": "string", "policy": "string", "fingerprint": "string", "limit": 0, "offset": 0, "sort\_type": "string", "sort\_direction": "asc", "pem": true, "span": 0, "imported": true, "discovered": true, "selfSigned": true Responses Code Description Links No links 200 A list of Certificates

Media type

application/json
Controls Accept header.

Code **Description** Links Example Value | Schema "count": 0, "items": [ "id": "string",
"commonName": "string", "serial": "string", "notBefore": "string", "notAfter": "string",
"revocationStatus": "VALID", "SANs": [
"string" ], "policy": { "name": "string" }, "imported": true, "discovered": true, "selfSigned": true 1 422 No links InvalidRequestError Media type application/json Example Value | Schema "message": "string" No links 500 WrappedError Media type application/json Example Value | Schema "message": "string" /certificates/{id} **PATCH** Revoke a certificate given a certificate id or serial\_number and issuerDN **Parameters** Name **Description** id \* required Certificate id or serial number string id (path) Request body required application/json

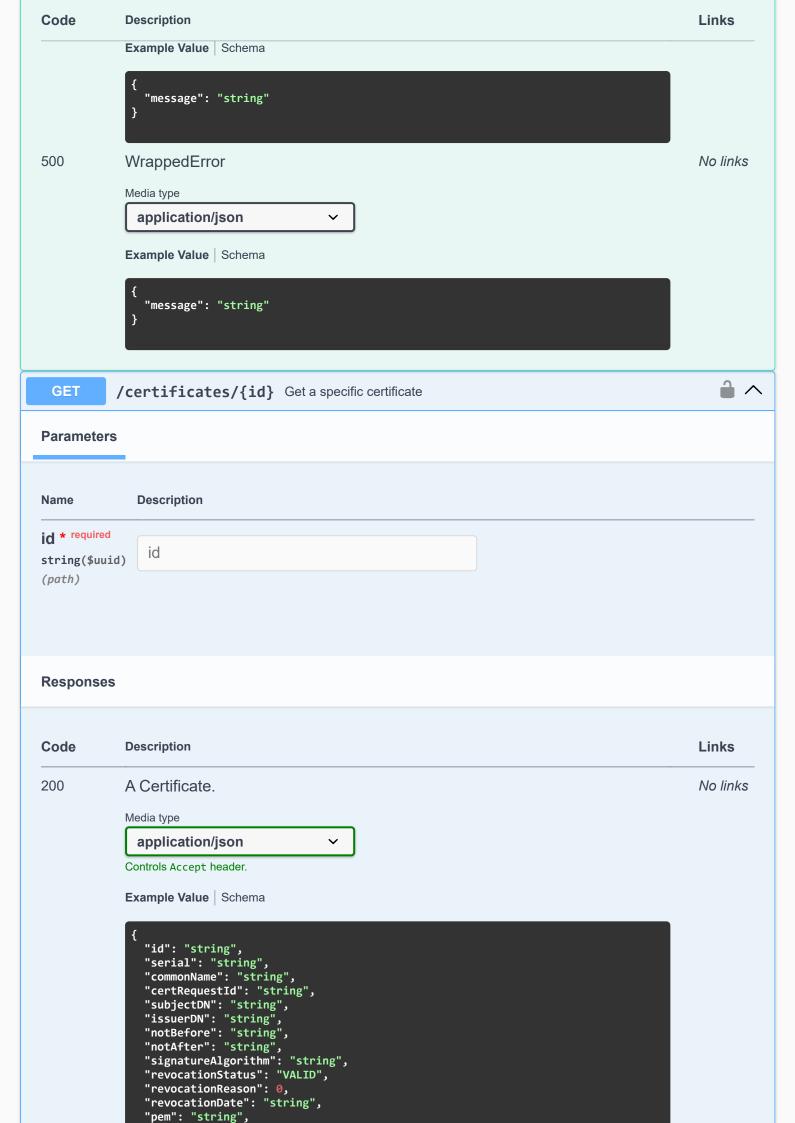
Revocation reason and optional issuer DN

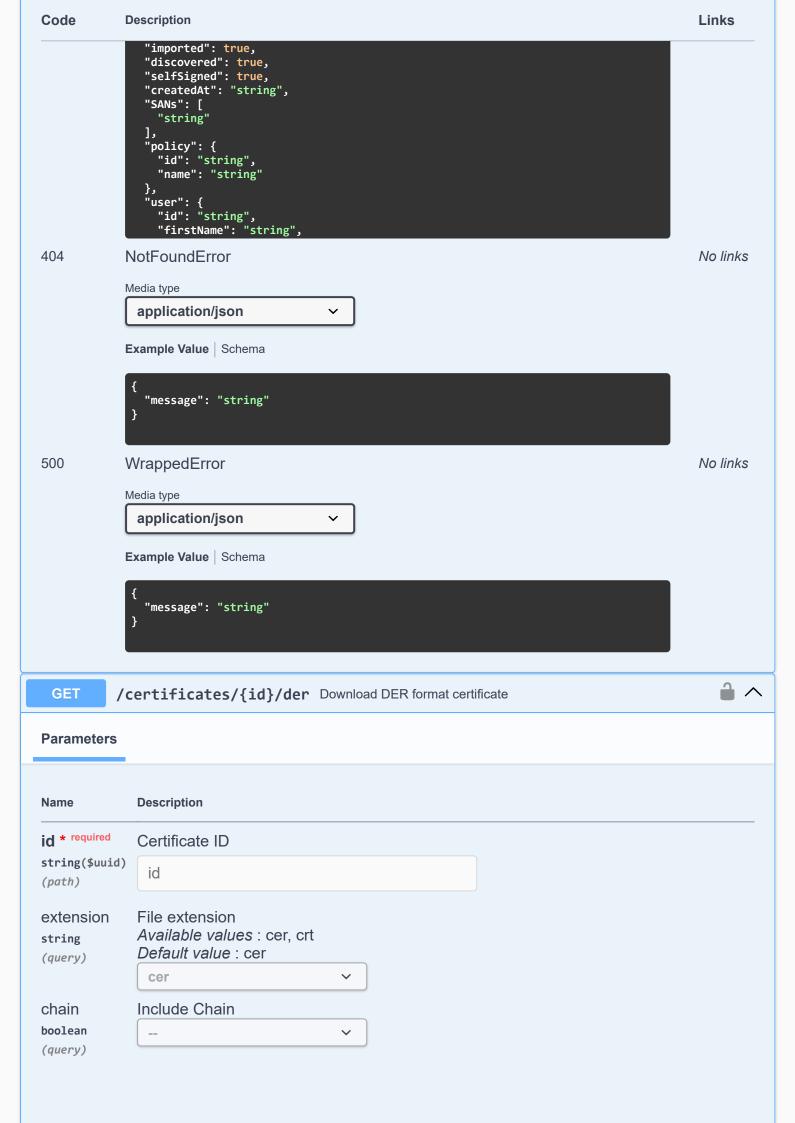
Example Value | Schema

```
{
  "reason": 0,
  "revocationDate": "string",
  "issuerDN": "string"
}
```

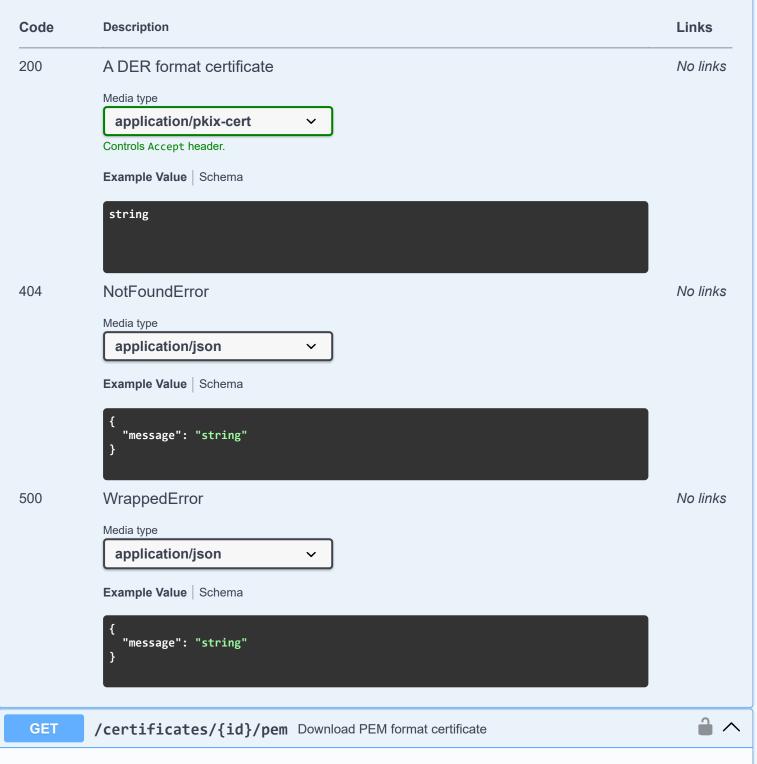
#### Responses

```
Description
                                                                                                            Links
Code
                                                                                                            No links
200
             A Certificate revocation request status
             Media type
               application/json
             Controls Accept header.
             Example Value | Schema
                 "id": "string",
                 "revocationStatus": "VALID",
                 "revocationReason": 0,
"revocationDate": "string"
             NotAllowedError
                                                                                                            No links
403
             Media type
                application/json
             Example Value | Schema
                 "message": "string"
             NotFoundError
                                                                                                            No links
404
             Media type
               application/json
             Example Value | Schema
                 "message": "string"
                                                                                                            No links
422
             InvalidRequestError
             Media type
               application/json
```



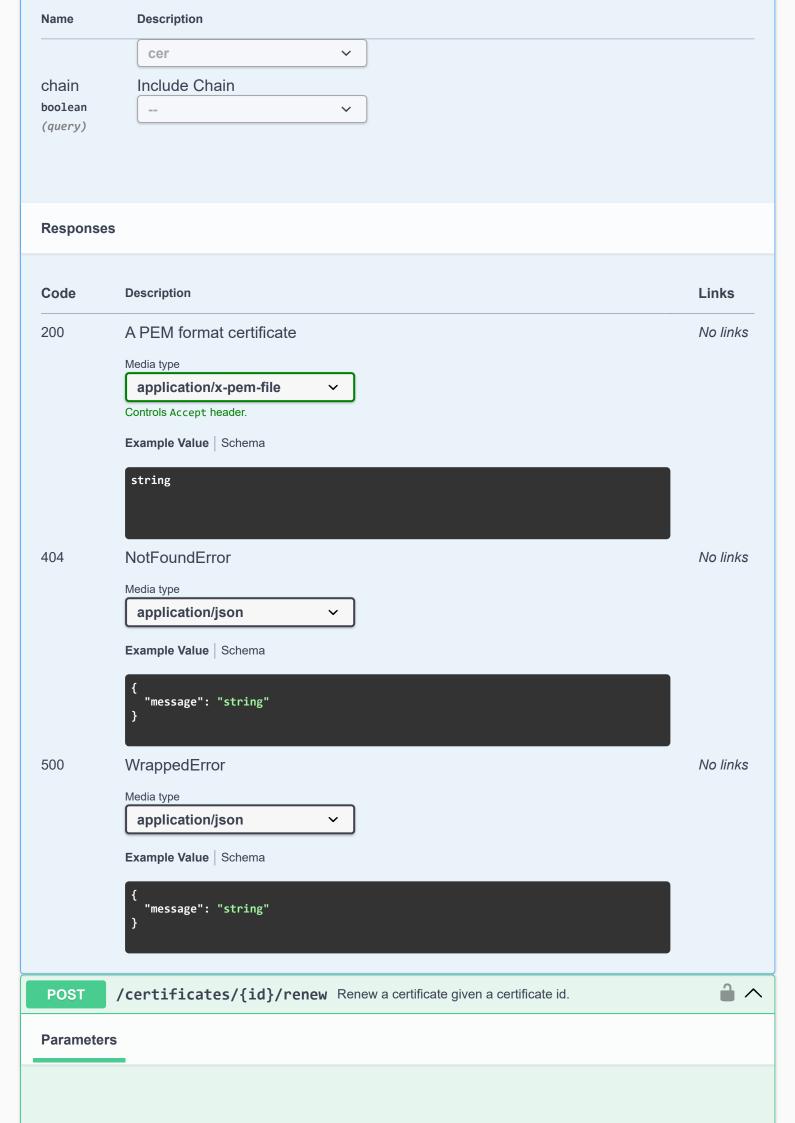


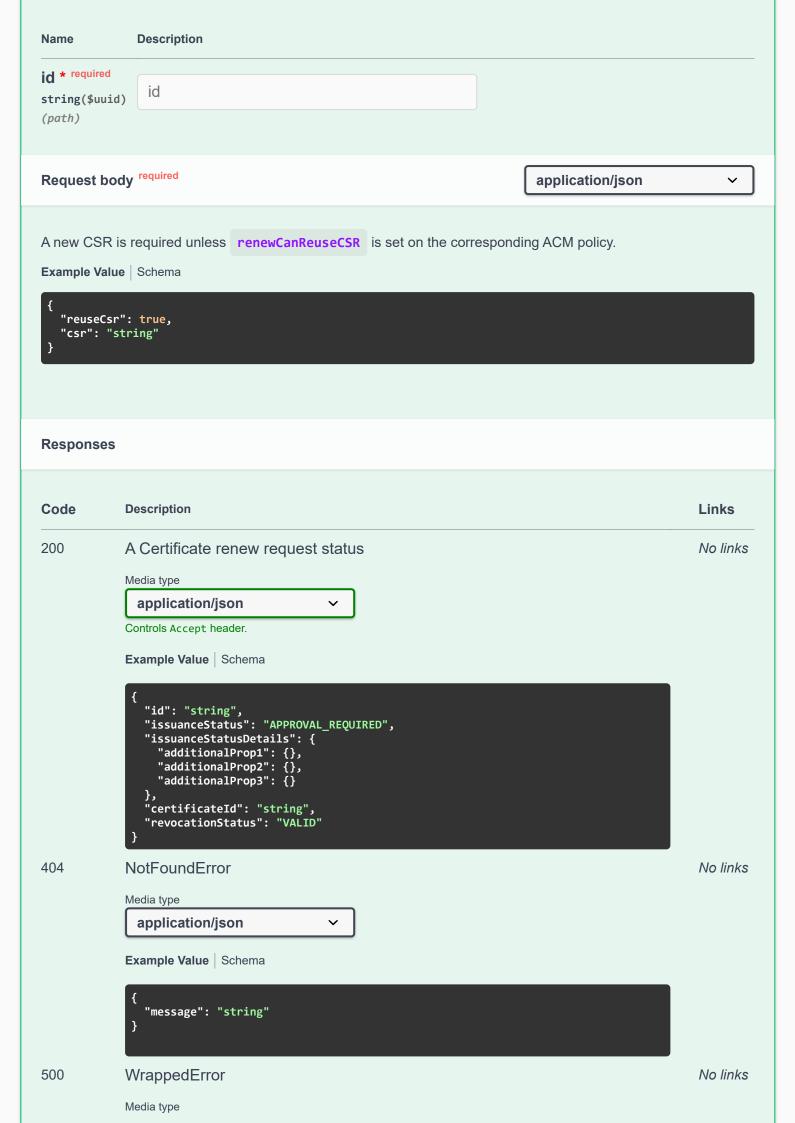
#### Responses

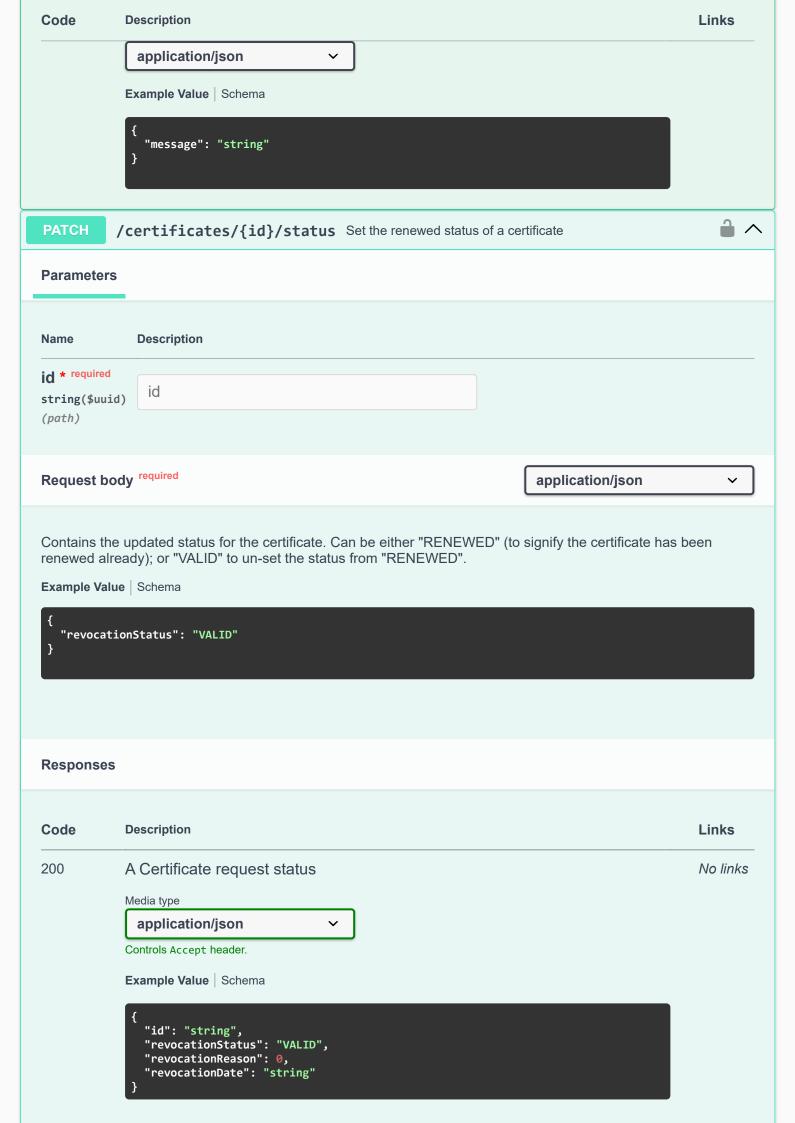


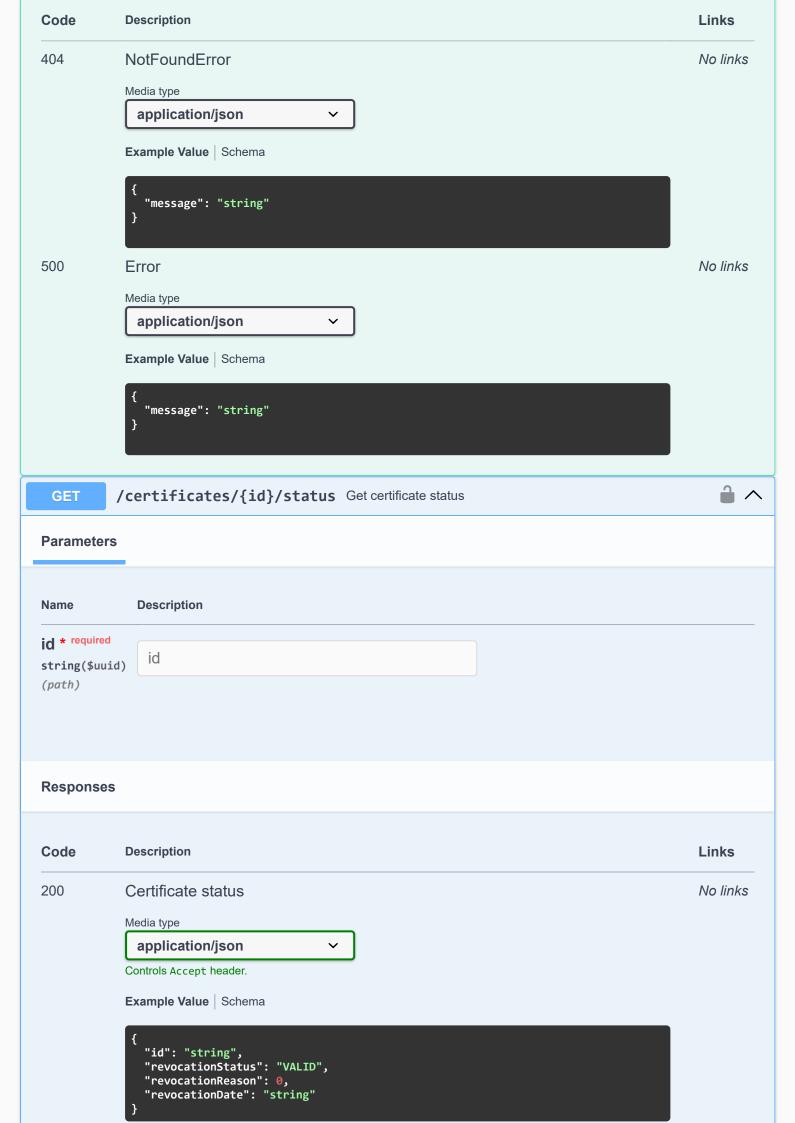
#### **Parameters**

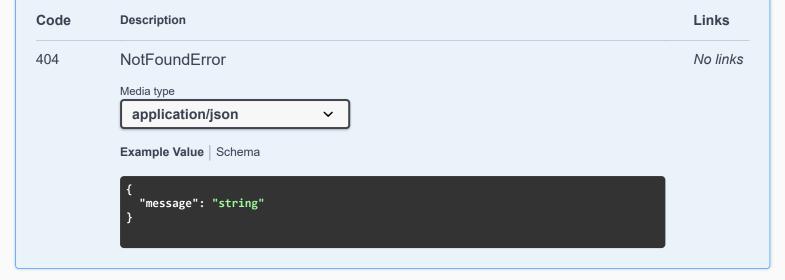
Name	Description
id * required	Certificate ID
string(\$uuid) (path)	id
extension string (query)	File extension  Available values: cer, crt  Default value: cer











# **Certificate Requests**

```
Post /csr/ Create a certificate request

Parameters

No parameters

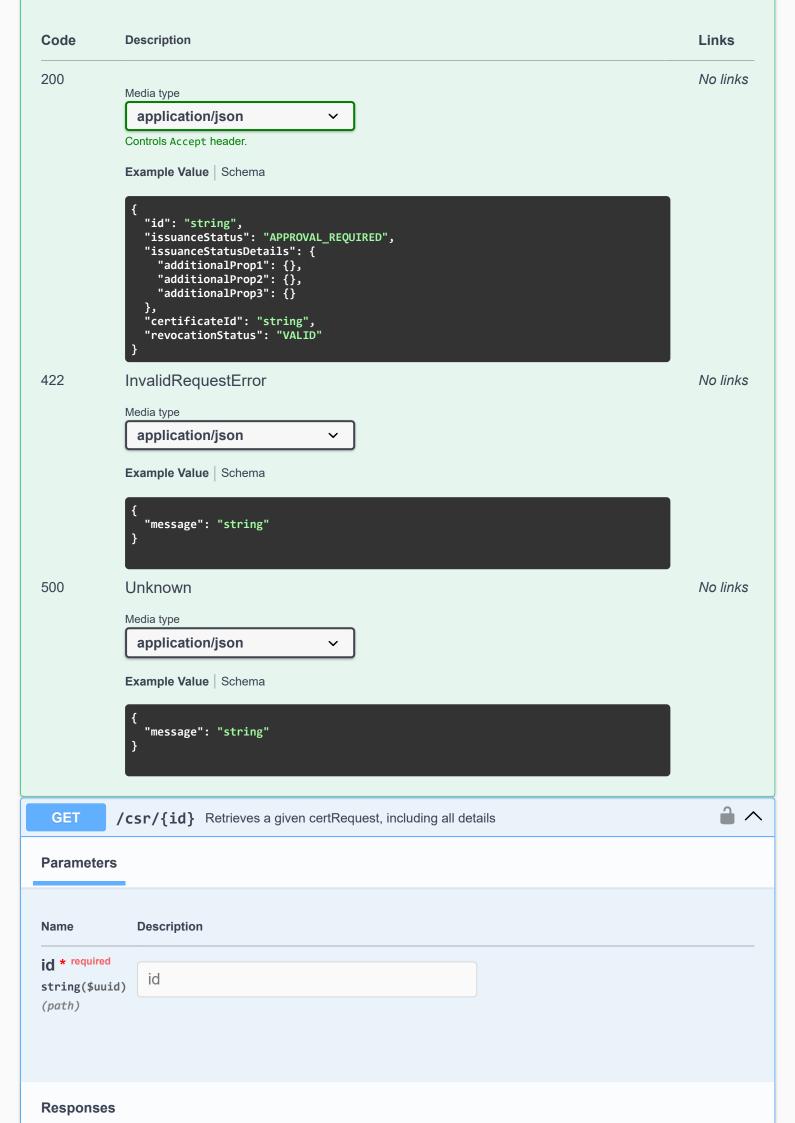
Request body required

application/json
```

#### Example Value | Schema

```
"policy": "string",
"csr": "string",
"validity": {
   "years": 0,
   "months": 0,
   "days": 0,
"notAfter": "string"
},
"dnComponents": {
    "string",
   "CN": "string",
   "OU": [
      "string"
  ],
"O": "string",
"L": "string",
"ST": "string",
"C": "string",
   "DC": [
      "string"
   ],
"EMAIL": "string",
"AEID": "string"
},
"subjectAltNames": {
   "DNSNAME": [
      "string"
```

#### Responses

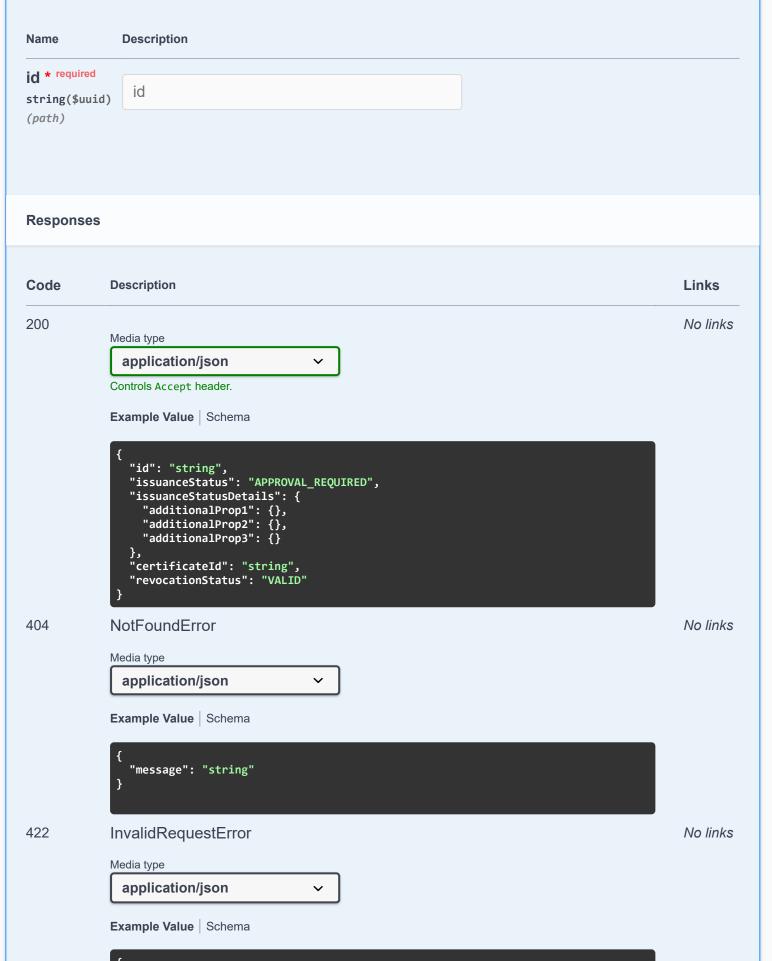


GET

/csr/{id}/status Retrieves issuance status of certRequest, including certificateId if issued



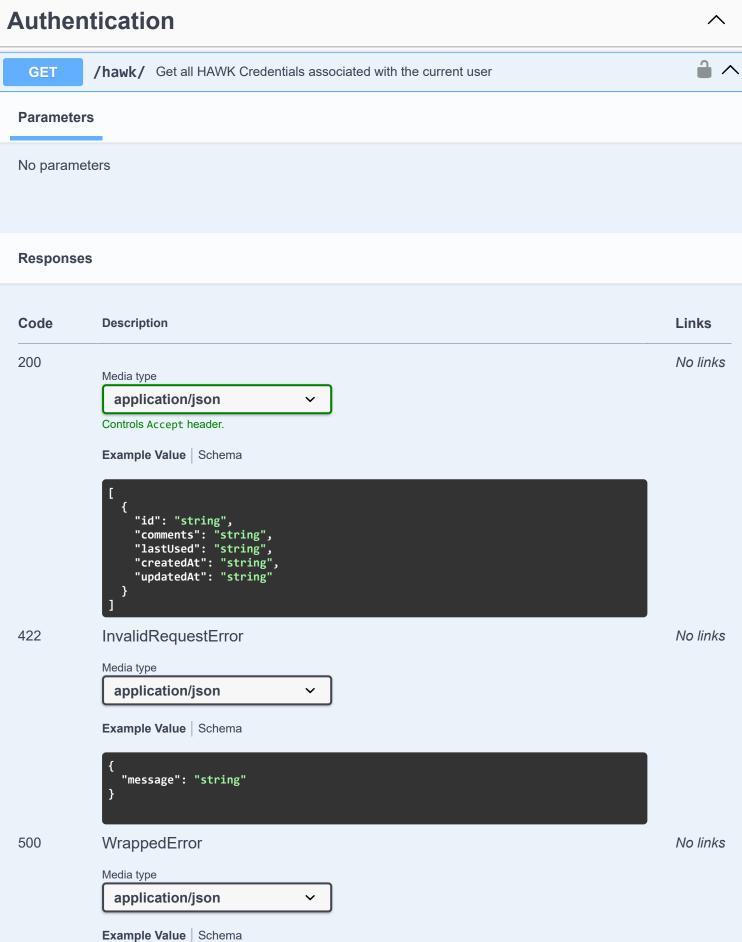




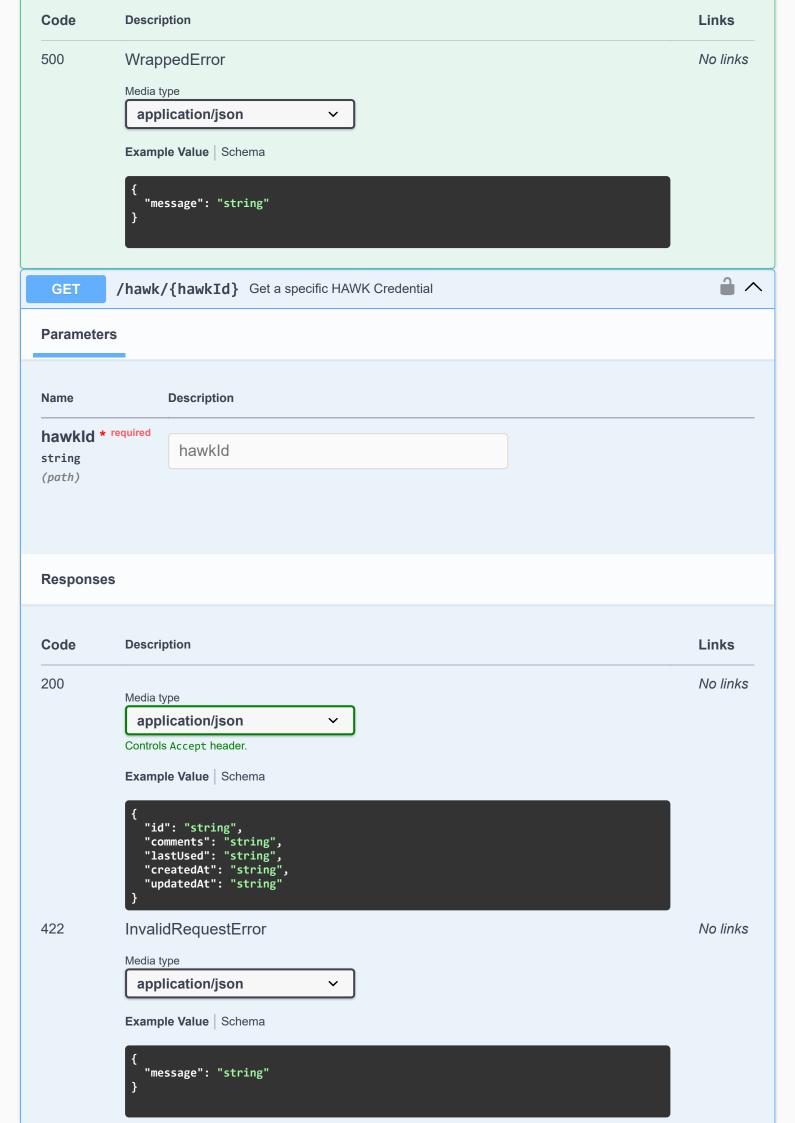
```
Code Description

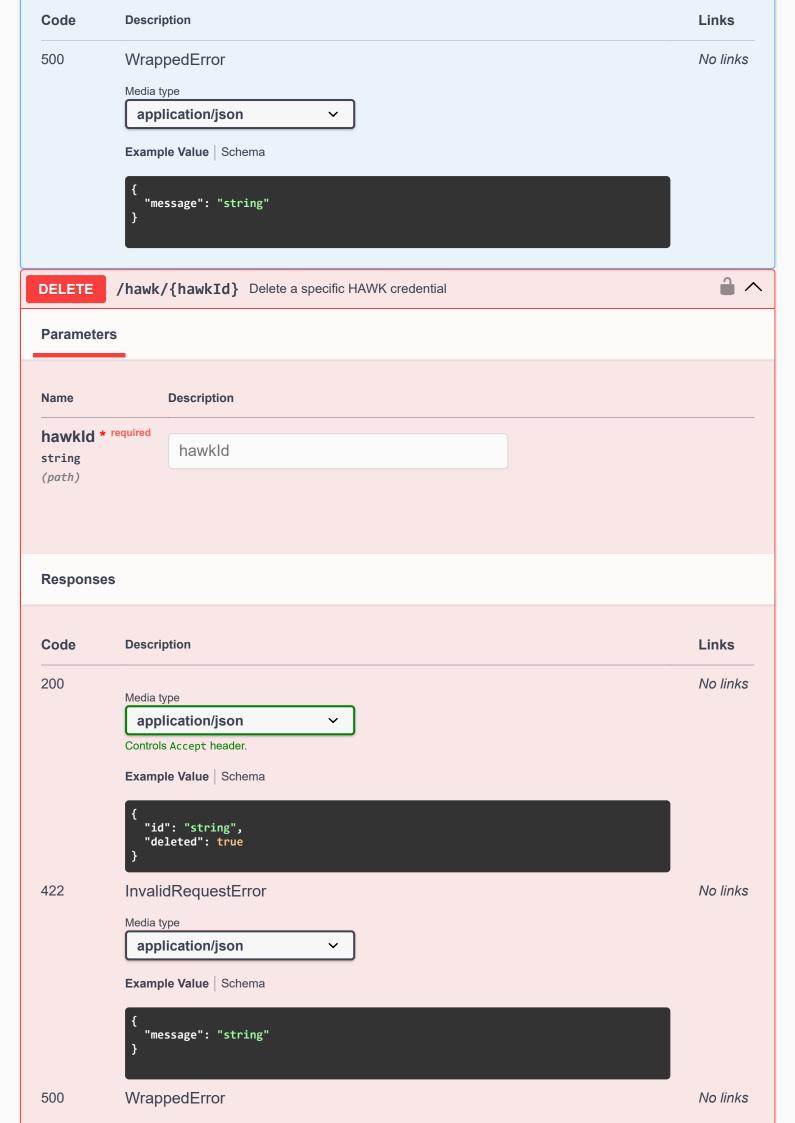
Example Value | Schema

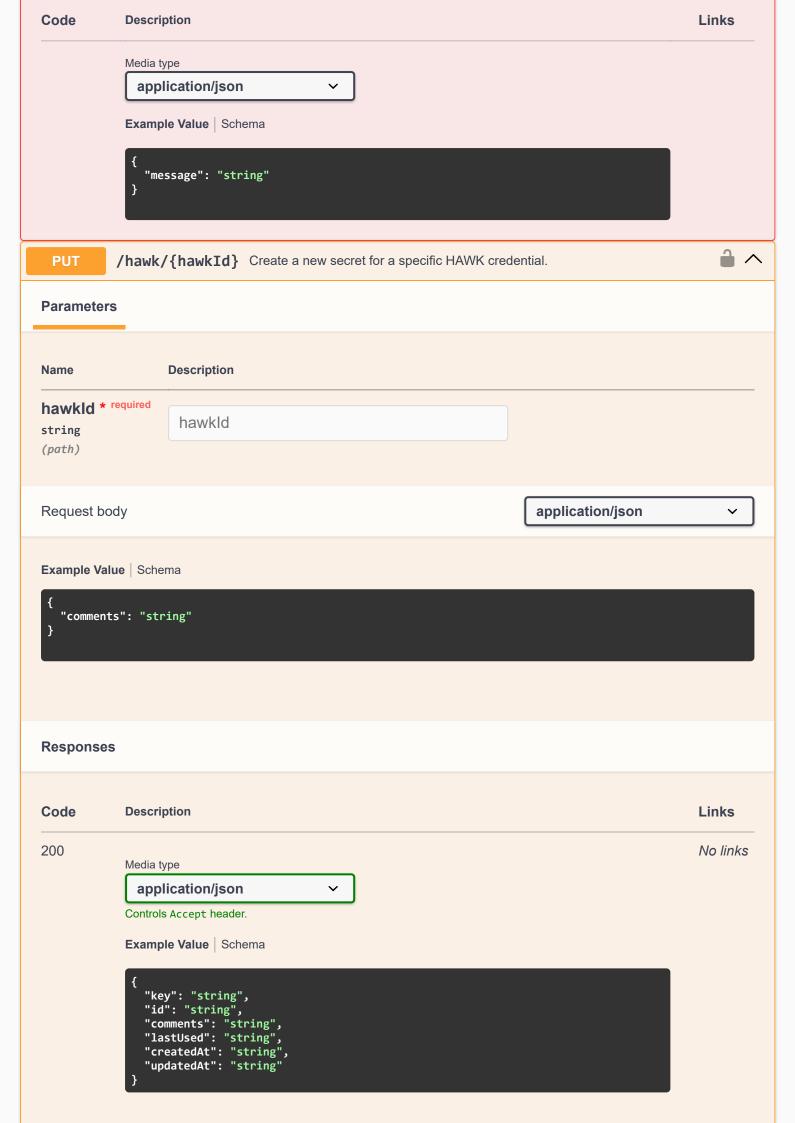
{ "message": "string" }
```

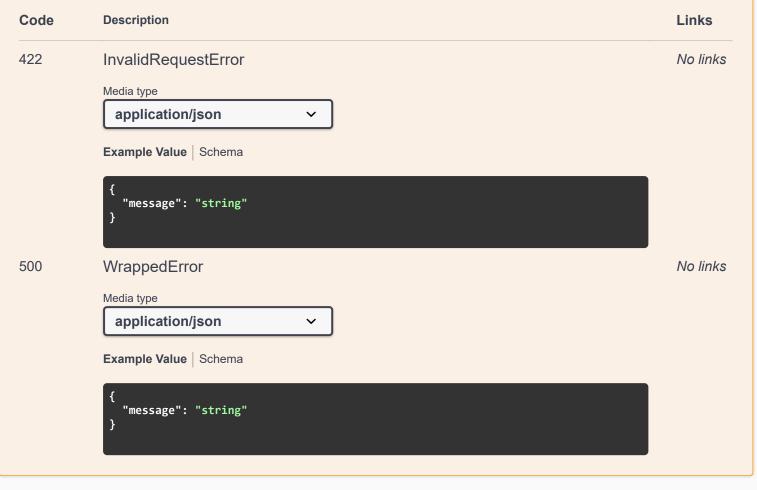


```
Code
               Description
                                                                                                                     Links
                   "message": "string"
 POST
             /hawk/ Create a new HAWK Credential for the current user
Parameters
No parameters
Request body required
                                                                                        application/json
Example Value | Schema
   "comments": "string"
Responses
Code
               Description
                                                                                                                     Links
                                                                                                                     No links
200
               Media type
                 application/json
               Controls Accept header.
               Example Value | Schema
                  "key": "string",
                  "id": "string",
                  "comments": "string",
"lastUsed": "string",
"createdAt": "string",
"updatedAt": "string"
422
               InvalidRequestError
                                                                                                                     No links
               Media type
                 application/json
               Example Value | Schema
                  "message": "string"
```









# **Policies**



#### Responses

Code	Description	Links
200	A list of policies.	No links
	Media type	
	application/json ~	
	Controls Accept header.	
	Example Value   Schema	

Code **Description** Links "id": "string", "name": "string",
"apiId": 0, "details": { "validity": { "years": "string",
"months": "string", "days": "string", "required": true, "modifiable": true, "allowDatePicker": true, "blackoutDates": [ "description": "string", "start": { "month": 0, "day": 0,

"year": 0,

"date": "string", "timeZone": "string" "month": 0, "day": 0,
"year": 0,
"date": "string", /policies/{id} Get a specific policy **GET Parameters** Description Name id \* required id string(\$uuid) (path) Responses Code **Description** Links No links 200 A Policy. Media type application/json Controls Accept header. Example Value | Schema "id": "string", "name": "string",
"apiId": 0, "details": { "validity": {
 "years": "string",

```
Code
                 Description
                                                                                                                                       Links
                           "months": "string",
                          "days": "string",
                          "required": true,
"modifiable": true,
"allowDatePicker": true,
"blackoutDates": [
                                "description": "string",
                                "start": {
                                   "month": 0,
                                  "day": 0,
"year": 0,
"date": "string",
"timeZone": "string"
                               },
"end": {
                                   "month": 0,
                                   "day": 0,
                                  "year": 0,
"date": "string",
"timeZono": "stri
404
                 NotFoundError
                                                                                                                                       No links
                 Media type
                   application/json
                 Example Value | Schema
                     "message": "string"
                 WrappedError
                                                                                                                                       No links
500
                 Media type
                   application/json
                 Example Value | Schema
                     "message": "string"
```

```
AccountConfigurationDigicert  

description:

Do not modify this file directly. It is automatically generated from the model definition.

accountId*
organizationId*

> [...]
}
```

**Schemas** 

```
AccountConfigurationIdentrust  

description:

accountId*
accountType*
apiKey*

Do not modify this file directly. It is automatically generated from the model definition.

> [...]
> [...]
> [...]
```

```
AccountConfigurationLogging • {
                          Do not modify this file directly. It is automatically generated from the
   description:
                         model definition.
   accountId*
                           > [...]
   bucketName*
                           > [...]
   useCompression*
                           > [...]
   accountName
                           > [...]
   regionName
                           > [...]
   pathPrefix
                           > [...]
   awsAccessKeyId
                           > [...]
}
```

```
CertRequest > {
   id*
                         > [...]
   source*
                        CertRequestSource > [...]
   fingerprint*
                         > [...]
   csr*
                         > [...]
   commonName*
                         > [...]
   details*
                         > {...}
   issuanceStatus*
                        IssuanceStatus > [...]
   createdAt*
                         > [...]
   policy*
                        NamedObject > {...}
   user*
                        UserMinimal > {...}
}
```

```
CertRequestBody > {
   policy*
                             > [...]
   csr*
                             > [...]
   validity
                            CertRequestBodyValidity > {...}
   dnComponents*
                            CertRequestBodyDnComponents > {...}
   subjectAltNames
                            CertRequestBodySubjectAltNames > {...}
   customFields
                             > {...}
   customExtensions
                             > {...}
   comment
                             > [...]
   expiryEmails
                             > [...]
   clearRemindersCertificateId
                             > [...]
   CN
                             > [...]
}
```

```
CertRequestBodyDnComponents ∨ {
                          > [...]
   OU
                          > [...]
   0
                          > [...]
   L
                          > [...]
   ST
                         > [...]
   C
                          > [...]
   DC
                         > [...]
   EMAIL
                         > [...]
   AEID
                          > [...]
}
```

```
      CertRequestBodyValidity → {

      years
      > [...]

      months
      > [...]

      days
      > [...]

      notAfter
      > [...]
```

```
Certificate < {
   id*
                          > [...]
   serial*
                          > [...]
   commonName*
                          > [...]
   certRequestId
                          > [...]
   subjectDN*
                          > [...]
   issuerDN*
                          > [...]
   notBefore*
                          > [...]
   notAfter*
                          > [...]
   signatureAlgorithm*
                          > [...]
   revocationStatus*
                         RevocationStatusEnum > [...]
   revocationReason*
                          > [...]
   revocationDate
                          > [...]
   pem*
                          > [...]
   imported*
                          > [...]
   discovered*
                          > [...]
   selfSigned*
                          > [...]
   createdAt*
                          > [...]
   SANs*
                          > [...]
   policy*
                         NamedObject > {...}
   user*
                         UserMinimal > {...}
   account*
                         NamedObject > {...}
   organization*
                         NamedObject > {...}
   expiryNotifications*
                          > [...]
}
```

```
CertificateStatus \( \) {
    id* \( \) > [...]

    revocationStatus* \( \) revocationReason \( \) revocationDate \( \) \( \) [...]

RevocationReasons \( \) [...]

}
```

```
GetCertificatesPayload > {
   common_name
                           > [...]
   serial
                           > [...]
   not before
                           > [...]
   not_after
                           > [...]
   expired
                           > [...]
   renewed
                           > [...]
   created_since
                           > [...]
   updated_since
                           > [...]
   status
                         RevocationStatusEnum > [...]
   owner
                           > [...]
   account
                           > [...]
   organization
                           > [...]
   policy
                           > [...]
   fingerprint
                           > [...]
   limit
                           > [...]
   offset
                           > [...]
   sort_type
                           > [...]
   sort_direction
                         SortDirectionEnum > [...]
   pem
                           > [...]
   span
                           > [...]
   imported
                           > [...]
   discovered
                           > [...]
   selfSigned
                           > [...]
}
```

```
GetCertificatesResponseItem ∨ {
                          > [...]
   commonName
                          > [...]
   serial
                          > [...]
   notBefore
                          > [...]
   notAfter
                          > [...]
   revocationStatus
                        RevocationStatusEnum > [...]
   SANs
                          > [...]
   policy
                        NameObject > {...}
   imported*
                          > [...]
   discovered*
                          > [...]
   selfSigned*
                          > [...]
}
```

```
HawkCredentialComment > {

comments

> [...]
}
```

```
HawkCredentialComments > {
comments
> [...]
}
```

```
HawkCredentialWithKey ∨ {
   key*
                          > [...]
   id*
                          > [...]
   comments
                          > [...]
   lastUsed
                          > [...]
   createdAt*
                          > [...]
   updatedAt*
                          > [...]
}
IssuanceStatus v string
Enum:
 > Array [ 8 ]
MockPolicy ∨ {
   description:
                         Do not modify this file directly. It is automatically generated from the
                         model definition.
   id*
                          > [...]
   certificateType*
                          > [...]
   organizationId*
                          > [...]
}
NameObject ~ {
   name
                          > [...]
}
NamedObject < {
   id*
                          > [...]
   name*
                          > [...]
}
Policy ∨ {
   id*
                           > [...]
   name*
                           > [...]
   apiId*
                           > [...]
   details*
                         PolicyDetails > {...}
   enabled*
```

PolicyEnabled > {...}

MockPolicy > {...}

> [...]

> [...]

organizationId\*

MockPolicy

}

certificateAuthorityId\*

```
PolicyDetails ∨ {
   validity
                          PolicyDetailsValidity > {...}
   dnComponents*
                           > [...]
   subjectAltNames
                           > [...]
   approvalRequired
                           > [...]
   expiryEmails
                          PolicyDetailsExpiryEmails > {...}
   customFields
                           > [...]
   customExtensions
                           > [...]
   validator
                           > [...]
   renewCanReuseCSR
                           > [...]
}
```

```
PolicyDetailsCustomFields > {
   description:
                          Do not modify this file directly. It is automatically generated from the
                          model definition.
   tag
                           > [...]
   label
                           > [...]
   required
                           > [...]
   modifiable
                           > [...]
   defaultValue
                           > [...]
   values
                           > [...]
}
```

```
PolicyDetailsDnComponents ∨ {
   tag
                        PolicyDetailsDnComponentsTag > [...]
   label
                          > [...]
   required
                          > [...]
   modifiable
                         > [...]
   defaultValue
                         > [...]
   copyAsFirstSAN
                         > [...]
   regEx
                         > [...]
}
```

```
PolicyDetailsDnComponentsTag v string

Enum:

Array [ 9 ]

PolicyDetailsExpiryEmails v {

tag

PolicyDetailsExpiryEmailsTag > [...]

label

required

> [...]
```

> [...]

> [...]

> [...]

modifiable

}

defaultValue

```
PolicyDetailsExpiryEmailsTag ∨ string
Enum:
> Array [ 1 ]
```

```
PolicyDetailsSubjectAltNamesTag ∨ string
Enum:
> Array [ 5 ]
```

```
PolicyDetailsValidity > {
   years
                           > [...]
   months
                           > [...]
   days
                           > [...]
   required
                           > [...]
   modifiable
                           > [...]
   allowDatePicker
                          > [...]
   blackoutDates
                           > [...]
   maxValue
                         ValidityPeriod > {...}
   defaultValue
                         ValidityPeriod > {...}
}
```

```
RenewCertificatePayload > {
    reuseCsr > [...]
    csr > [...]
}
```

```
RenewCertificateStatus > {
    revocationStatus
    SetRenewStatusEnum > [...]
}
```

```
ResultError V {

message*

> [...]
}
```

```
Enum:
 > Array [ 5 ]
RevocationStatusEnum v string
Enum:
 > Array [ 7 ]
RevokeCertificateReasonIssuerDN > {
   reason*
                        RevocationReasons > [...]
   revocationDate
                          > [...]
   issuerDN
                          > [...]
}
SetRenewStatusEnum v string
Enum:
 > Array [ 2 ]
SortDirectionEnum ∨ string
Enum:
 > Array [ 2 ]
UserMinimal ∨ {
   description:
                        Do not modify this file directly. It is automatically generated from the
                        model definition.
   id*
                          > [...]
   firstName*
                          > [...]
   lastName*
                          > [...]
   email
                          > [...]
}
ValidityPeriod ∨ {
                        Do not modify this file directly. It is automatically generated from the
   description:
                        model definition.
   years
                          > [...]
   months
                          > [...]
   days
                          > [...]
```

RevocationReasons v number

}