

API ربيع فذحل - ةءاهشلل ءاشنل - APIC-EM 1.3

تايوتحمل

ةمدقملا

ةيساسأ تامولعم

ةيللحلل زاهلل ةلالل ءه ام فرعتس فيك

تمهف دق APIC-em تنالك اذا وأ ةءاهشلل سفن اضيأ اءي دل APIC-em تنالك اذا دكأتت فيك
ال ما ةءاهشلل سفن

زاهلل نم ةءاهشلل فذح متي فيك

APIC - EM نم ةءاهشلل قيبت متي فيك

مكنكمي فيك. اءيلع يوتحي ال زاهلل نكلو ةءاهشلل لعل APIC-em يوتحي نايحلل ضعبي في
اهل؟

ةمدقملا

ةينبلل ةسايس قيبتب ةصاخلل مكحتلل ةءو ماءختسإ ةيفيكي دنننل اءه حضوي
- ءاشنل قءلملل ةكرب ةصاخلل (API) تاقيبطلل ةءرب ءهءو - Cisco نم (APIC) ةيساسل
ءه ءي ءنيوكت متي، (IWAN) قاطنلل ءساوللا ءبش ماءختساب. ةءاهشلل فذح
ءاءرئس الل قءءت يألل ءظللل ءه في WAN ةكبش يوتحت ال، كذءو. ايئائل ءزيملل
ةيءالصلل ءهءنم ةءاهشلل نم ايئائل زاهلل.

لكل ءتمائلل كئل، نكل RestAPI شء نم ءتمائلل في قءءلل نم ءون ءو ءه ءءلل ءزلل
قءءء ءراء ءووملل RestAPI قءءء مءءتسي. زاهلل لعل تامولعملل ضعبي لئل ءءءو زاهل
زاهلل ةءاهشلل ءتمائلل ام ءيلل IWAN.

ةيساسأ تامولعم

ءاءعملل ليمءلل طءم.

[مكحت ءءو] APIC_EM — HUB — TALK

ءالءلل ءالءلل ءه ءه:

- ةءاهشلل ءيءالصلل ءهءنا.
- اءءءءء متي ال ةءاهشلل.
- قلاللل لعل ءرفوتم ريل ءءاهشلل.

ةيللحلل زاهلل ةلالل ءه ام فرعتس فيك

switch# sh cry pki cert. رملل ليلءشءب مق

```

HUB2#sh cry pki cert
Certificate
Status: Available
Certificate Serial Number (hex): 3C276CE6B6ABFA8D
Certificate Usage: General Purpose
Issuer:
  cn=sdn-network-infra-subca
Subject:
  Name: HUB2
  cn=ASR1001_SSI161908CX_sdn-network-infra-iwan
  hostname=HUB2
Validity Date:
  start date: 06:42:03 UTC Mar 28 2017
  end date: 07:42:03 UTC Mar 28 2017
Associated Trustpoints: sdn-network-infra-iwan

CA Certificate
Status: Available
Certificate Serial Number (hex): 04
Certificate Usage: General Purpose
Issuer:
  cn=ca
Subject:
  cn=sdn-network-infra-subca
Validity Date:
  start date: 06:42:03 UTC Mar 28 2017
  end date: 07:42:03 UTC Mar 28 2017
Associated Trustpoints: sdn-network-infra-iwan

```

. ةنرتق م ال TrustPoint نم ققحت ال ال جاتحت انهو ني تدهاش كانه ، ىرت تنك اذا

ءدب ال خيرات نم ربكأ نوكي نأ بجيو ةدحاو ةنس ةدمل ةداع ءاهت ن ال خيرات نوكي

CA ةدهاش كلذكو فرعم كي دل نأ APIC-EM نم ينعى اذهف SDN-network-infra-wan ناك اذا ةلجسم

**اذا و ا ةدهاش ال س فن اضيأ اهيدل APIC-em تناك اذا دكأتت فيك
ال ما ةدهاش ال س فن تمهف دق APIC-em تناك**

ي لس لس ال مقرر ال عي مجتو زاهج ال نم رادص ال راهظ ا:

If you require further assistance please contact us by sending email to export@cisco.com.

```

License Type: RightToUse
License Level: adventerprise
Next reload license Level: adventerprise

```

```

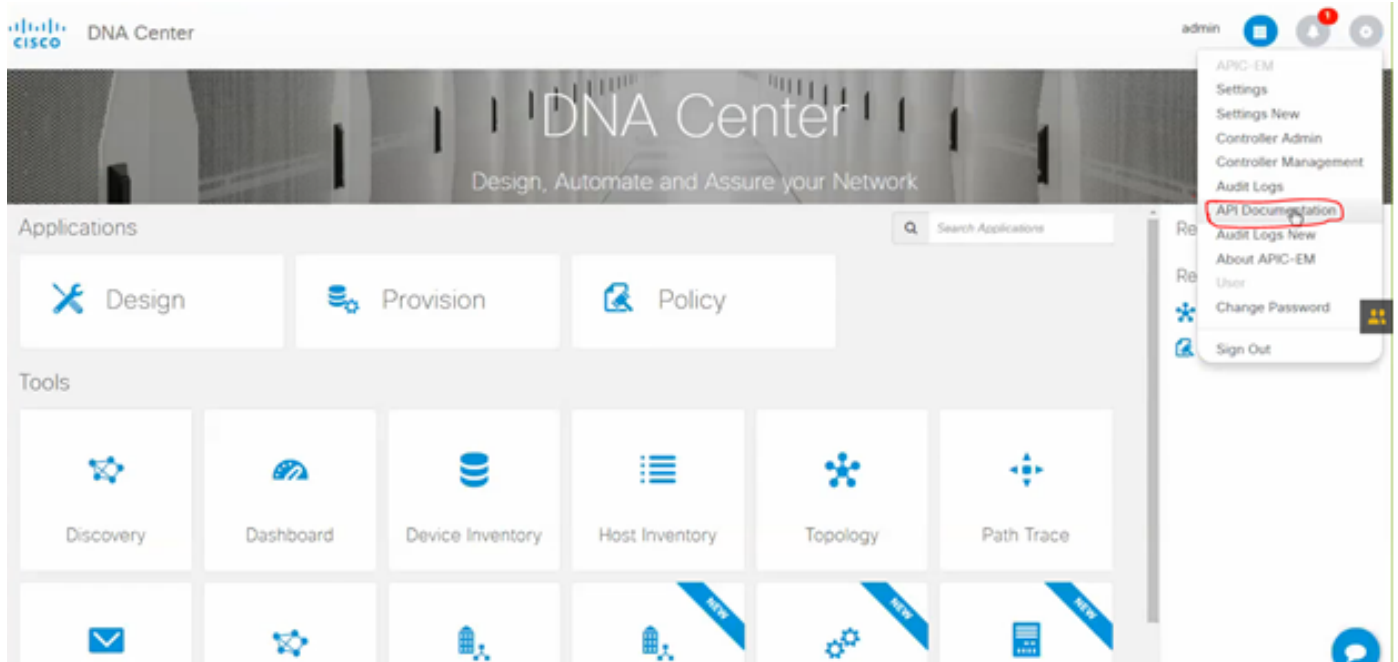
cisco ASR1001 (1RU) processor (revision 1RU) with 1062861K/6147K bytes of memory.
Processor board ID SSI161908CX
4 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
7741439K bytes of eUSB flash at bootflash:.

```

Configuration register is 0x0

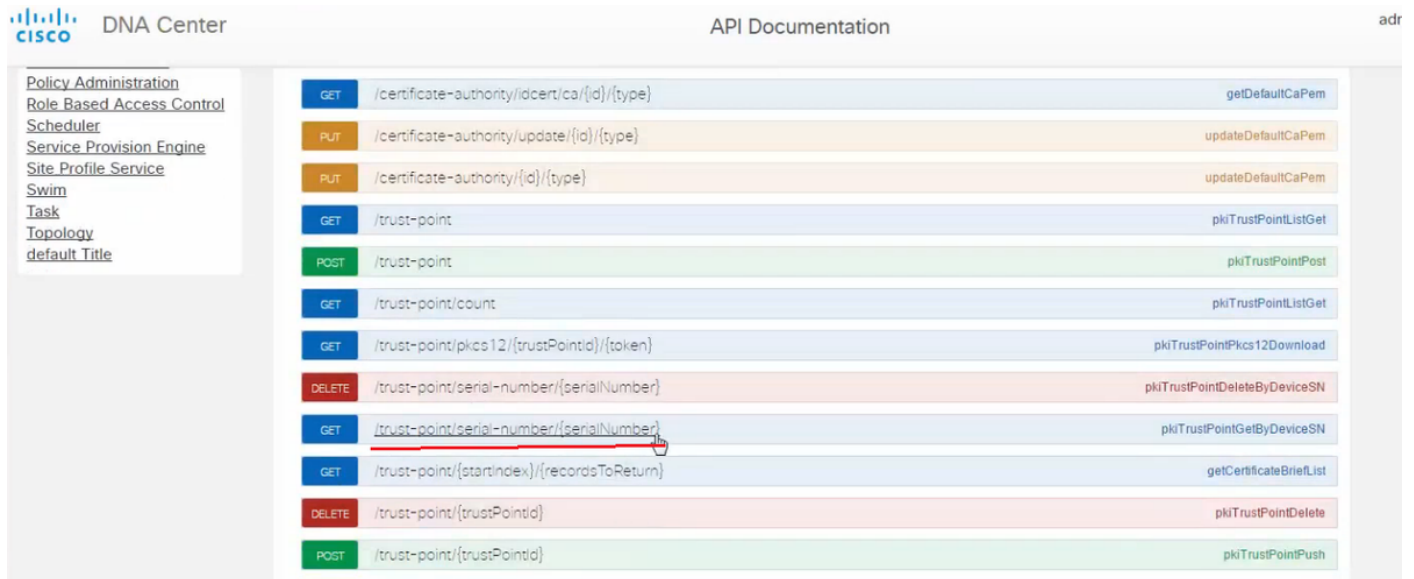
هيف ركفي ام ةفرعمل APIC-EM مالعسا ذيفنت كنكمي يلسلسلتا مقرلا اذه ةدعاسمب زاهل اذه لوح APIC-EM.

تاقببطلتال ةجرمب ةهجاو قئاثل اول لقتنا ب.



(PKI) ماعلا حاتفم لل ةيساسال ةينبلا طيسو لعل رقتنا ج.

بناج نم ةلاجال ةفرعم لعل اندعاسيس امم لاولا (API) تاقبببطلتال ةجرمب ةهجاو قوف رقتنا د. (API) تاقبببطلتال ةجرمب ةهجاو



GET لعل رقتنا.

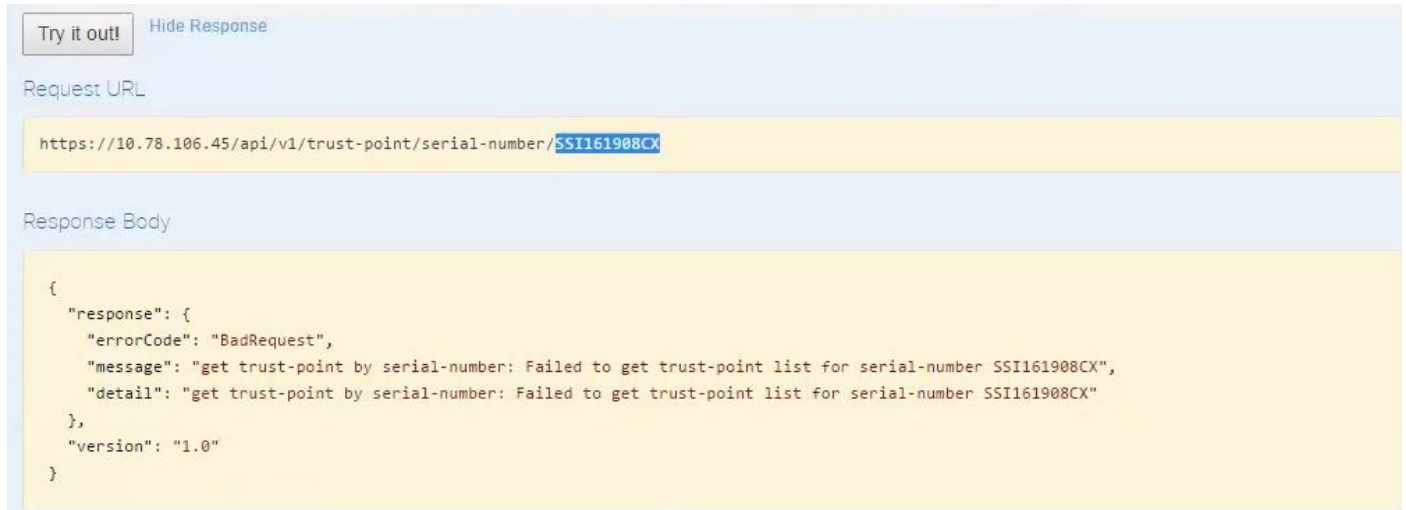
show version جارخا نم هعيمجت مت يذال يلسلسلتا مقرلا قوف رقتنا، ةدجاو رايئاخا ةناخ ي زاهل.

!ةبرجت قوف رقتنا.

زاهل CRP PKI ةداهش جارخا عم جارخال ةمي ق ةنراقم.

زاهجلا نم ةداهشلا فذح متي فيك

اذهلو. ةدوجوم تسي ل APIC-EM يفو ةدوجوم زاهجلا ىلع ةداهشلا نأ نايجألا ضعب ي ف ثدحي
أطخ ةلاس رىلع GET تاقىبطت ةجمرب ةهجاو ليغشت دنع لصحت ، بسبب لا



```
Try it out! Hide Response
Request URL
https://10.78.106.45/api/v1/trust-point/serial-number/SSI161908CX
Response Body
{
  "response": {
    "errorCode": "BadRequest",
    "message": "get trust-point by serial-number: Failed to get trust-point list for serial-number SSI161908CX",
    "detail": "get trust-point by serial-number: Failed to get trust-point list for serial-number SSI161908CX"
  },
  "version": "1.0"
}
```

زاهجلا نم ةداهشلا فذح وه صالحو دحاو لجال:

TrustPoint نم | | لوجملا مقر ضرع ليغشت أ.

```
HUB2#sh run | i trustpoint
crypto pki trustpoint zxz
crypto pki trustpoint sdn-network-infra-iwan
HUB2#
```

switch# no crypto pki trustPoint <trustPoint name>.

```
HUB2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
HUB2(config)#no crypto pki trustpoint sdn-network-infra-iwan
% Removing an enrolled trustpoint will destroy all certificates
received from the related Certificate Authority.

Are you sure you want to do this? [yes/no]: yes
% Be sure to ask the CA administrator to revoke your certificates.

HUB2(config)#
```

ةدوجوملا TrustPoint ب طبترملا زاهجلا ىلع ةدوجوملا تاداهشلا ةفاك فذح برمألا اذه موقى.

ةداهشلا فذح نم ققحتلا ةداعا.

Switch# sh cry. ةداهش : برمألا مدختسأ

هفذح متي يذلا SDN trustPoint ضرعى الأ بجى.

حاجات فملا فذح ب.

Switch# sh cry key mypubkey all. زاهجلا ىلع رمألا ليغش تب مق

SDN-network-fra. ب أدبي حاجات فملا مسا نأ ىرتس انه

حاجات فملا فذحل رمأ

```
HUB2(config)#cry key zeroize rsa sdn-network-infra-iwan
% Keys to be removed are named 'sdn-network-infra-iwan'.
% All router certs issued using these keys will also be removed.
Do you really want to remove these keys? [yes/no]: yes
HUB2(config)#
```

رقنلل قلاباق زاهجلاب ةلصت ملام APIC-EM ةهجاو نوكت نأ بجي هنا نم دكأت 2.

نأ نم دكأت، ةلاحلا هذه يف. ةصاخ ىرخألاو ةماع ةدحاو اهنم نيتهجاو اهيدل APIC-EM نأ ثدحي دق. ضعبلا اهضعب لاصتا رابتخاب موقت زاهجلاب لصتت يتلا APIC-EM ةهجاو.

```
HUB2#ping 10.10.10.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.10.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
HUB2#
```

APIC - EM؟ نم ةداهشلا قي بطات متي فيك

احاتم رايجلا اذه نوكي، PKI طيسو ديدحتو API قئاتو رقن متي ام دنع، APIC-EM تحت

[\(POST\)/trust-point](#) ليغش تلال عدبل يتاذلا رابتخال

• APIC - EM. نمضتت قدهاش ءاشن! ىلا لئلا يديويس

The screenshot shows the APIC-EM REST API interface. On the left, there is a navigation menu with items like 'PKI Broker Service', 'Policy Administration', 'Role Based Access Control', 'Scheduler', 'Service Provision Engine', 'Site Profile Service', 'Swim', 'Task', 'Topology', and 'default Title'. The main area displays a list of API endpoints. The endpoint '/trust-point' is highlighted with a red circle, and its method is 'POST'. Below the endpoint list, there is a section for 'Implementation Notes' which states 'This method is used to create a trust-point'. There is also a 'Response Class' section showing the 'TaskIdResult' and 'TaskIdResponse' classes. The 'Response Content Type' is 'application/json'.

زاهجلا ءبجرت قوف رقن او زاهجلا لوح تامول عم ىلا جاتحت مٲ

Response Class

Model | Model Schema

```
TaskIdResult {
  version (string, optional),
  response (TaskIdResponse, optional)
}
TaskIdResponse {
  taskId (TaskId, optional),
  url (string, optional)
}
TaskId {
}
```

Response Content Type: application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
pkitrustpointinput	<pre>{ "platformId": "ASR1001", "serialNumber": "SS1161908CX", "trustProfileName": "sdn-network-infra-iwan", "entityType": "router", "entityName": "HUB2" }</pre>	pkitrustpointinput	body	Model Model Schema Pkitrustpoint { serialNumber (string): Devices serial-number, entityName (string): Devices hostname, id (string, optional): Trust-point identification. Automatically generated, platformId (string): Platform identification. Eg. ASR1000, trustProfileName (string): Name of trust-profile (must already exist). Default: sdn-network-infra-iwan, entityType (string, optional): Available options: router.

Parameter content type: application/json

لاشم:

```
{
  "platformId": "ASR1001",
  "serialNumber": "SS1161908CX",
  "trustProfileName": "sdn-network-infra-iwan",
  "entityType": "router",
  "entityName": "HUB2"
}
```

- يكيم اني دكل ذلك نم يقابل او يكيتاتس! نكاس ءزربملا تامول عملا
- زاهجلل فيضملا مسا وه نايكل مسا
- زاهجلا نم ضرعلا رانص! نم هيلع تلصح يذلا يلسلسنلا مقررلا
- زاهجلا عون ىلا اءانسا مرييغت كنكمي يذلا نايكل عون
- يلسلسنلا مقررلا APIC-EM مهفي انو. ءاالال لكشي نأ APIC-EM ربخي نأ جاتحي ليكشت اءه

!!ءبجرتل ءجيتن:

Response Body

```
{
  "response": {
    "taskId": "1a395ed1-1730-43fa-9527-327ed3e6e12b",
    "url": "/api/v1/task/1a395ed1-1730-43fa-9527-327ed3e6e12b"
  },
  "version": "1.0"
}
```

Response Code

202

Response Headers

```
{
  "Pragma": "no-cache, no-cache",
  "Content-Security-Policy": "style-src 'self' 'unsafe-inline'; script-src 'self' 'unsafe-eval' 'unsafe-inline' 'nonce-2dcc163f-98f3-45e2-bd5b-",
  "X-Frame-Options": "SAMEORIGIN, SAMEORIGIN",
  "Date": "Tue, 28 Mar 2017 10:10:06 GMT",
  "Strict-Transport-Security": "max-age=31536000; includeSubDomains, max-age=31536000; includeSubDomains",
  "Content-Type": "application/json;charset=UTF-8",
  "Access-Control-Allow-Origin": "https://10.78.106.45",
  "Cache-Control": "no-cache, no-store, no-cache, no-store",
  "Transfer-Encoding": "chunked",
  "Access-Control-Allow-Credentials": "false"
}
```

زاهجلا ىلع رشنلل زهاج نألا وهو APIC-EM قطس اوب ايلخاد مؤاشن! مت فلما نأ ينعي جرخلما اذه هجرمب هجاو اء ادتس! لال خ نم كلفذب مايقلا نكمي. قثلا طقن فرعم ىلع لصحت نأ بجي، طغضلل. مزحل اىلا زاهجلا اذه عفدي هه لئلا اذى طوخلا GET تاقىبب طت.

مالعتسا - [Get/Trust-Point/serial-number/{serialNumber}](#)

GET /trust-point/serial-number/{serialNumber} pkITrustPointGetByDeviceSN

Implementation Notes
This method is used to return a specific trust-point by its device serial-number

Response Class
Model | Model Schema

PkiTrustPointResult {
version (string, optional),
response (PkiTrustPoint, optional)
}

PkiTrustPoint {
serialNumber (string): Devices serial-number,
entityName (string): Devices hostname,
id (string, optional): Trust-point identification. Automatically generated,
platformId (string): Platform identification. Eg. ASR1006,
trustProfileName (string): Name of trust-profile (must already exist). Default: sdn-network-infra-iwan,
entityType (string, optional): Available options: router, switch. Currently not used,
networkDeviceId (string, optional): Device identification. Currently not used,
certificateAuthorityId (string, optional): CA identification. Automatically populated,
controllerIpAddress (string, optional): IP address device uses to connect to APIC-EM. Eg. Proxy server IP address. Automatically populated if not set,
attributeInfo (object, optional)
}

Response Content Type: application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
serialNumber	551161908CX	Device serial-number	path	string

Error Status Codes

زاهجلا ىلع طغضلا اذىب قءاش هيدل APIC-em نأ ينعي اذه. جتال اذى كى طعىس.

Response Body

```

{
  "response": {
    "platformId": "ASR1001",
    "serialNumber": "SSI161908CX",
    "trustProfileName": "sdn-network-infra-iwan",
    "entityName": "HUB2",
    "entityType": "router",
    "certificateAuthorityId": "f0bd5040-3f04-4e44-94d8-de97b8829e8d",
    "attributeInfo": {},
    "id": "2b832bf6-9061-44bd-a773-fb5256e544fb"
  },
  "version": "1.0"
}

```

Response Code

200

زاهجلا ىلا ءءاشلا عفء

مقرلاب صاخلا GET مالعءسا نم trustPointId // [POST/TrustPoint/{trustPointId}](#) خسن مزلي
يلس لسءلا

{ "platformId": "ASR1001", "serialNumber": "SSI161908CX", "trustProfileName": "sdn-network-infra-iwan", "entityName": "HUB2", "entityType": "router", "certificateAuthorityId": "f0bd5040-3f04-4e44-94d8-de97b8829e8d", "attributeInfo": {}, "id": "c4c7d612-9752-4be5-88e5-e2b6f137ea13" }, "version": "1.0" }

ححص لاصءا ءوجو ءطيرش - زاهجلا ىلا ءءاشلا عفء ىلا ءءلء يءوي

POST	/trust-point/{trustPointId}	pkiTrustPointPush
GET	/trust-point/{trustPointId}	pkiTrustPointGet
GET	/trust-point/{trustPointId}/config	pkiTrustPointConfigGet
GET	/trust-point/{trustPointId}/downloaded	checkPKCS12Downloaded

[BASE URL: https://10.78.106.45/api/v1/api-docs/pki-broker-service . API VERSION: 1.0]

Parameters

Parameter	Value	Description	Parameter Type	Data Type
trustPointId	2b832bf6-9061-44bd-a773-fb5256e544fb	Trust-point ID	path	string

Error Status Codes

HTTP Status Code	Reason
200	The request was successful. The result is contained in the response body.
201	The POST/PUT request was fulfilled and a new resource has been created. Information about the resource is in the response body.
202	The request was accepted for processing, but the processing has not been completed.
204	The request was successful, however no content was returned.
206	The GET request included a Range Header, and the server responded with the partial content matching the range.
400	The client made a request that the server could not understand (for example, the request syntax is incorrect).
401	The client's authentication credentials included with the request are missing or invalid.
403	The server recognizes the authentication credentials, but the client is not authorized to perform this request.
404	The client made a request for a resource that does not exist.
500	The server could not fulfill the request.
501	The server has not implemented the functionality required to fulfill the request.
503	The server is (temporarily) unavailable.
504	The server did not respond inside time restrictions and timed-out.
409	The target resource is in a conflicted state (for example, an edit conflict where a resource is being edited by multiple users). Retrying the request later might succeed.
415	The client sent a request body in a format that the server does not support (for example, XML to a server that only accepts JSON).

Try it out!

تجارت سالها حاجن قلاسر:

Try it out! Hide Response

Request URL

https://10.78.106.45/api/v1/trust-point/2b832bf6-9061-44bd-a773-fb5256e544fb

Response Body

```
{
  "response": {
    "taskId": "f10022bd-8f45-4597-8160-bcc07fd55898",
    "url": "/api/v1/task/f10022bd-8f45-4597-8160-bcc07fd55898"
  },
  "version": "1.0"
}
```

Response Code

202

Response Headers

زاهچلا نم ققحتلا قداع:

نالا نيتقصرلم نيتداهشلا الك نأ یرت تنأ:

```
HUB2#sh cry pki cert
Certificate
  Status: Available
  Certificate Serial Number (hex): 2AD39646370CACC7
  Certificate Usage: General Purpose
  Issuer:
    cn=sdn-network-infra-ca
  Subject:
    Name: HUB2
    cn=ASR1001_SSI161908CX_sdn-network-infra-iwan
    hostname=HUB2
  Validity Date:
    start date: 10:00:07 UTC Mar 28 2017
    end date: 10:00:07 UTC Mar 28 2018
    renew date: 10:00:06 UTC Jan 14 2018
  Associated Trustpoints: sdn-network-infra-iwan
```

```
CA Certificate
  Status: Available
  Certificate Serial Number (hex): 5676260082D447A3
  Certificate Usage: Signature
  Issuer:
    cn=sdn-network-infra-ca
  Subject:
    cn=sdn-network-infra-ca
  Validity Date:
    start date: 09:20:26 UTC Mar 28 2017
    end date: 09:20:26 UTC Mar 27 2022
  Associated Trustpoints: sdn-network-infra-iwan
```

```
HUB2#
```

زاهجلا نكلو ةداهشلا ىلع APIC-em يوتحي نايحالا ضعب يف اهلح مكنكمي فيك .اهلح يوتحي ال

طبق APIC-EM نم ةداهشلا فذح اهلح نم كنكمي يتلا ةيفلخلا مام ضعب كانه
تدوجوم لازت ال امناف ، APIC-EM يف نكلو زاهجلا نم ةداهشلا فذحب أطخلاق يربط نع ليمعلا موقى ، نايحالا ضعب يف
فذح ىلع رقنا .

فذح - [Trust-Point/serial-number/{serialNumber}](#)

GET	/trust-point/count	pkitrustPointListGet
GET	/trust-point/pkcs12/{trustPointId}/{token}	pkitrustPointPkcs12Download
DELETE	/trust-point/serial-number/{serialNumber}	pkitrustPointDeleteByDeviceSN
GET	/trust-point/serial-number/{serialNumber}	pkitrustPointGetByDeviceSN

Implementation Notes

This method is used to return a specific trust-point by its device serial-number

Response Class

Model Model Schema

PkiTrustPointResult {
 version (string, optional),
 response (PkiTrustPoint, optional)
}

!تبرجت قوف رقناو يلسلستلا مقرلا لخدأ

Parameters

Parameter	Value	Description	Parameter Type	Data Type
serialNumber	SSI161908CX	Device serial-number	path	string

Error Status Codes

HTTP Status Code	Reason
200	The request was successful. The result is contained in the response body.
204	The request was successful, however no content was returned.
206	The GET request included a Range Header, and the server responded with the partial content matching the range.
400	The client made a request that the server could not understand (for example, the request syntax is incorrect).
401	The client's authentication credentials included with the request are missing or invalid.
403	The server recognizes the authentication credentials, but the client is not authorized to perform this request.
404	The client made a request for a resource that does not exist.
500	The server could not fulfill the request.
501	The server has not implemented the functionality required to fulfill the request.
503	The server is (temporarily) unavailable.
504	The server did not respond inside time restrictions and timed-out.
409	The target resource is in a conflicted state (for example, an edit conflict where a resource is being edited by multiple users). Retrying the request later might succeed.
415	The client sent a request body in a format that the server does not support (for example, XML to a server that only accepts JSON).

Try it out!

```
{
  "response": {
    "taskId": "33ab0da8-9be1-40b7-86c2-cf2e501ebbb5",
    "url": "/api/v1/task/33ab0da8-9be1-40b7-86c2-cf2e501ebbb5"
  },
  "version": "1.0"
}
```

Response Code

202

Response Headers

```
{
  "Pragma": "no-cache, no-cache",
  "Content-Security-Policy": "style-src 'self' 'unsafe-inline'; script-src 'self' 'unsafe-eval' 'unsafe-inline' 'nonce-f59e75bb-2a28-4fe8-a954-",
  "X-Frame-Options": "SAMEORIGIN, SAMEORIGIN",
  "Date": "Tue, 28 Mar 2017 10:15:23 GMT",
  "Strict-Transport-Security": "max-age=31536000; includeSubDomains, max-age=31536000; includeSubDomains",
  "Content-Type": "application/json;charset=UTF-8",
  "Access-Control-Allow-Origin": "https://10.78.106.45",
  "Cache-Control": "no-cache, no-store, no-cache, no-store",
  "Transfer-Encoding": "chunked",
  "Access-Control-Allow-Credentials": "false"
}
```

ةمچرتل هذه لوج

ةللأل تاي نقتل نمة ومة مادختساب دن تسمل اذة Cisco تمةرت
ملاعلاء انء مء مء نمة دختسمل معد و تمة مء دقتل ةر شبل او
امك ةق قء نوك ت نل ةللأل ةمچرت لصف أن ةظحال مء ءرء. ةصاأل مء تءل ب
Cisco ةللخت. فرتمة مچرت مء دقء ةللأل ةل فارتحال ةمچرتل عم لاعل او
ىل إأمءءاد ءوچرلاب ةصوء و تامةرتل هذه ةقء نء اهءل وئس م Cisco
Systems (رفوتم طبارل) ةل صأل ةل ءل ءن إل دن تسمل