

# 使用ERS API刪除ISE網路裝置

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## 簡介

本文檔介紹使用PostMan作為REST客戶端透過ERS API刪除ISE上的網路訪問裝置(NAD)的過程。

## 必要條件

### 需求

思科建議您瞭解以下主題：

- ISE (身份服務引擎)
- ERS (外部RESTful服務)
- REST客戶包括Postman、REST、Insomnia等。

### 採用元件

本檔案中的資訊是根據以下軟體版本：

- Cisco ISE (身份服務引擎) 3.1修補6
- Postman REST客戶端v10.16



注意：此過程對於其他ISE版本和REST客戶端相似或相同。除非另有說明，否則您可以在所有2.x和3.x ISE軟體版本上使用這些步驟。

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本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

## 設定

### 啟用ERS（埠9060）

ERS API是僅適用於HTTPS的REST API，透過埠443和埠9060運行。埠9060預設關閉，因此需要首先打開。如果嘗試存取此連線埠的從屬端未先啟用ERS，就會出現伺服器逾時。因此，第一個要求是從思科ISE管理UI啟用ERS。

導航到管理>設定> API設定並啟用ERS（讀/寫）切換按鈕。

- Client Provisioning
  - FIPS Mode
  - Security Settings
  - Alarm Settings
- Feature >
- Profiling
- Protocols >
- Endpoint Scripts >
  - Proxy
  - SMTP Server
  - SMS Gateway
  - System Time
- API Settings**
- Network Success Diagnostics >
  - DHCP & DNS Services
  - Max Sessions
  - Light Data Distribution
  - Interactive Help
  - Enable TAC Support Cases

## API Settings

Overview **API Service Settings** API Gateway Settings

### API Service Settings for Administration Node

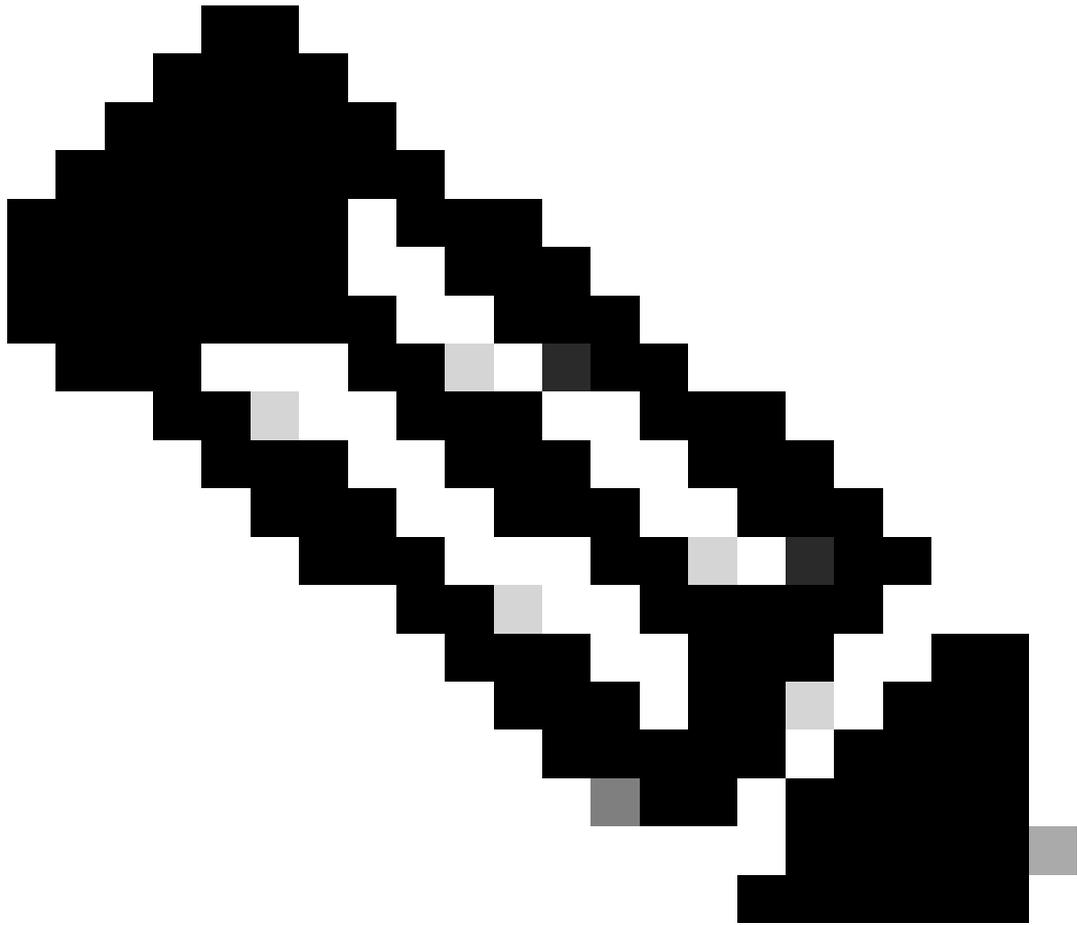
- ERS (Read/Write)** ←
- Open API (Read/Write)

### CSRF Check ( only for ERS Settings )

- Enable CSRF Check for Enhanced Security (Not compatible with pre ISE 2.3 Clients)
- Disable CSRF For ERS Request (compatible with ERS clients older than ISE 2.3)**

Reset

Save

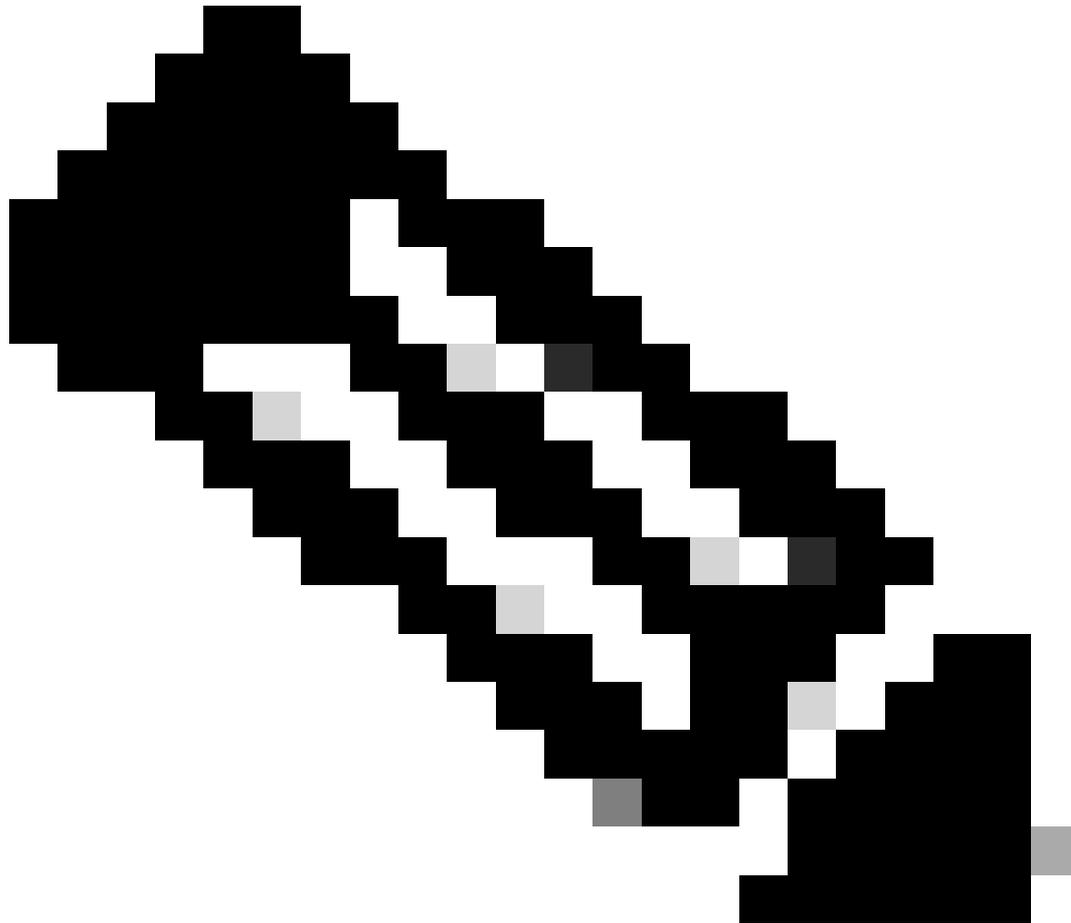


---

註：ERS API支援TLS 1.1和TLS 1.2。ERS API不支援TLS 1.0，無論在思科ISE GUI的「安全設定」(Security Settings)窗口(管理(Administration) >系統(System) >設定(Settings) >安全設定(Security Settings))中啟用TLS 1.0。在「保全性設定」視窗中啟用TLS 1.0僅與EAP通訊協定有關，且不會影響ERS API。

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注意：ISE不支援批次刪除操作。必須一次執行一個需求刪除。

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## 建立ERS管理員

建立思科ISE管理員，分配密碼，然後將使用者作為ERS管理員增加到管理員組。您可以將配置的其餘部分留空。

Admin User

\* Name **ERS-USER** ←

Status **Enabled** ▾

Email   Include system alerts in emails

Expires

Hard Date

Inactive account never created

---

Password

\* Password  ⓘ ←

\* Re-Enter Password  ⓘ

[Generate Password](#)

---

User Information

First Name

Last Name

---

Account Options

Description

Change password on next login

---

Admin Groups

ERS Admin ▾ + ←

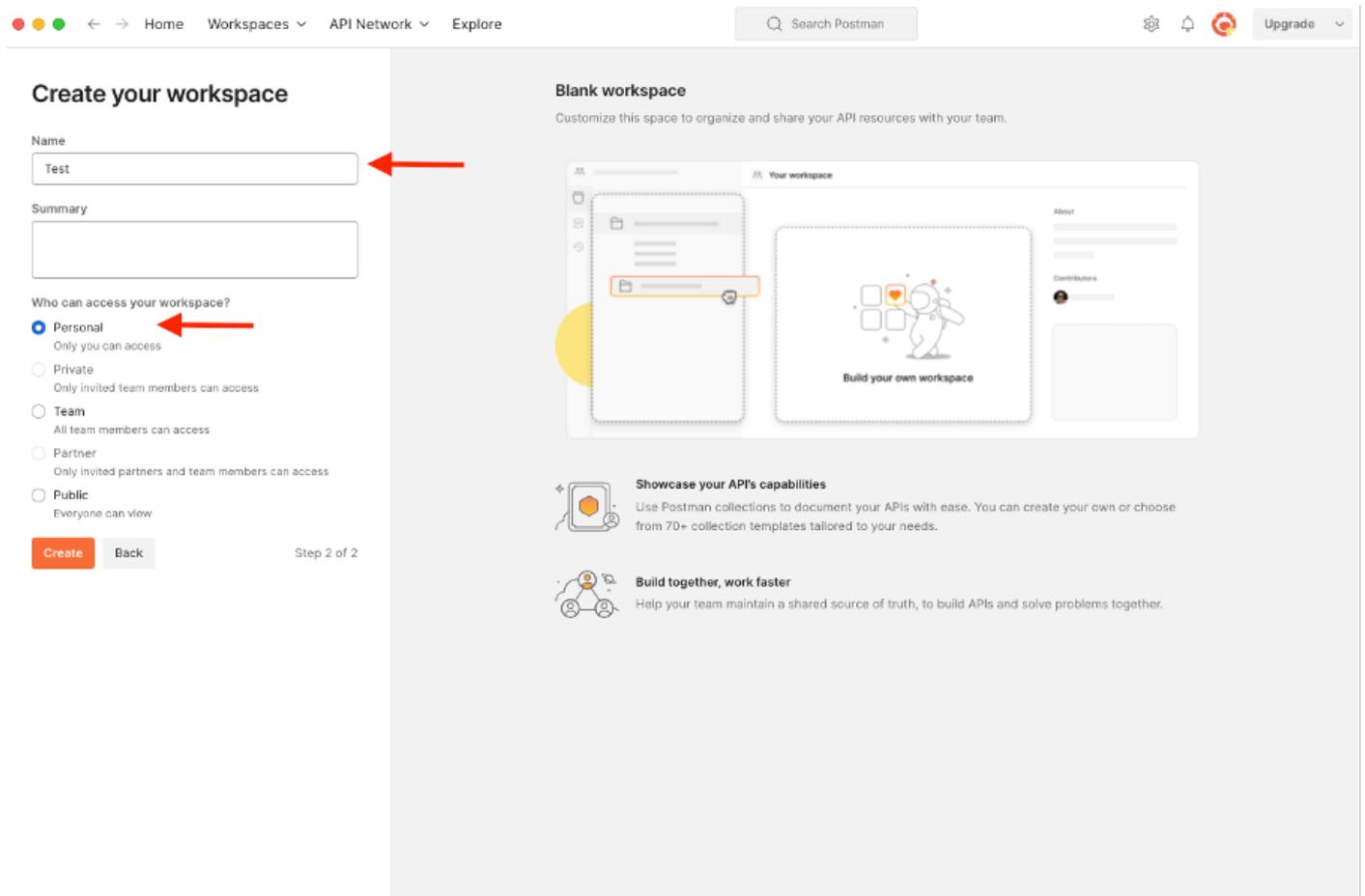
## 設定Postman

下載或使用線上版Postman。

1. 按一下「工作區」標籤底下的「建立工作區」來建立使用者和建立工作區。

The screenshot shows the Postman web interface. At the top, there are navigation links for 'Home', 'Workspaces', 'API Network', and 'Explore'. A search bar and an 'Upgrade' button are also visible. The 'Workspaces' dropdown menu is open, showing options for 'Search workspaces', 'Create Workspace', 'Recently visited', 'Test', and 'More workspaces'. A red arrow points to the 'Create Workspace' button. Below the dropdown, there is a list of workspaces, including 'Pis', 'Checkout API (v70)', 'PI (v3)', and 'PI'. Each workspace entry shows the number of forks, watches, and stars.

2. 選擇空白工作區並為工作區分配名稱。您可以增加描述並將其公之於眾。本示例選擇了 Personal。



建立工作區後，您現在可以配置我們的API呼叫。

## 獲取NAD名稱和ID

在開始刪除NAD之前，您必須先知道NAD的名稱或ID。可以從ISE上的NAD清單輕鬆獲取NAD名稱，但ID只能透過GET API呼叫獲取。同一API呼叫不僅返回NAD ID，還返回名稱和說明（如果在NAD配置過程中增加了NAD ID）。

要配置GET呼叫，請首先訪問ISE ERS SDK（軟體開發工具包）。此工具編譯ISE可以執行的所有API呼叫清單：

1. 導航到<https://{ise-ip}/ers/sdk>
2. 使用您的ISE管理員憑證登入。
3. 現在展開API文檔
4. 向下滾動直至找到Network Device，然後按一下它。
5. 在此選項下，您現在可找到可在ISE上為網路裝置執行的所有可用操作。選擇全部獲取

External RESTful Services (ERS) Online SDK

Quick Reference

API Documentation

- BYOD Portal
- Certificate Template
- CertificateProfile
- Clear Threats and vulnerabilities
- Downloadable ACL
- Egress Matrix Cell
- End Point
- End Point Certificates
- EndPoints Identity Group
- External Radius Server
- Filter Policy
- Guest Location
- Guest Sntp Notification Configur
- Guest Ssid
- Guest Type
- Guest User
- Hotspot Portal
- IP To SGT Mapping
- IP To SGT Mapping Group
- ISE Service Information
- Identity Group
- Identity Sequence
- Internal User
- My Device Portal
- Native Supplicant Profile
- Network Device
- Network Device Group
- Node Details
- PSN Node Details with Radius Ser
- Portal
- Portal Theme
- Profiler Profile
- Pull Deployment Info
- Pxgrid Node
- Pxgrid Settings

Network Device

- Overview
- Resource definition
- Revision History
- Update-By-Name
- Delete-By-Name
- Get-By-Name
- Get-By-Id
- Update
- Get-All
- Delete
- Create
- Get Version
- Bulk Request
- Monitor Bulk Status

Overview

Network Device API allows the client to add, delete, update, and search Network Devices. In this documentation, for each available API you will find the request syntax including the required headers and a response example of a successful flow. Please note that each API description shows whether the API is supported in bulk operation. The Bulk section is showing only 'create' bulk operation however, all other operation which are bulk supported can be used in same way.

*Please note that these examples are not meant to be used as is because they have references to DB data. You should treat it as a basic template and edit it before sending to server.*

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Resource definition

6. 現在您可以看到在任何Rest客戶端上執行API呼叫所需的配置以及預期的響應示例。

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Network Device

Get-All

Request:

|   |  |
|---|--|
| Method:   | GET  |
| URI:  | https://10.201.230.99/ers/config/networkdevice |
| HTTP 'Content-Type' Header:                                     | application/xml   application/json             |
| HTTP 'Accept' Header:   | application/xml   application/json             |
| HTTP 'ERS-Media-Type' Header (Not Mandatory):                   | network.networkdevice.1.1                      |
| HTTP 'X-CSRF-TOKEN' Header (Required Only if Enabled from GUI): | fetch  |

Request Content:  
N/A

Response: (SearchResult)

HTTP Status: 200 (OK)

Content:

```

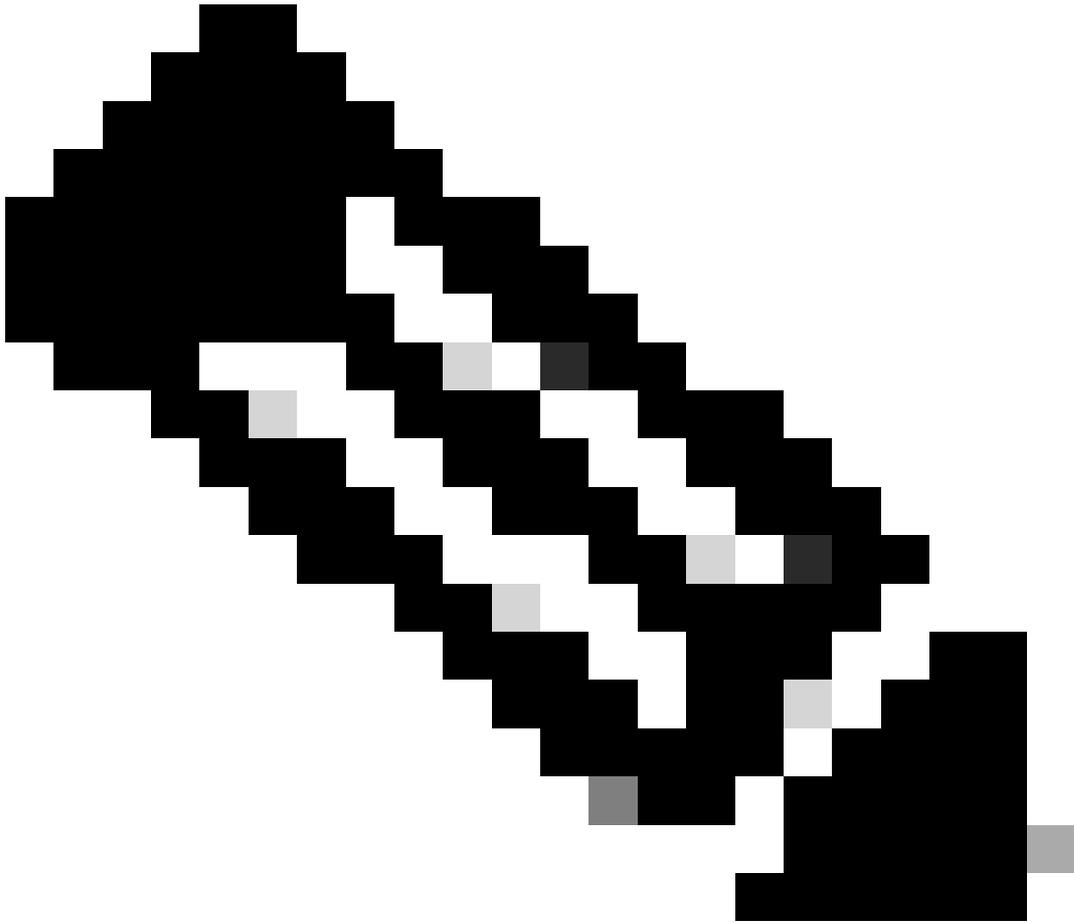
XML
<?xml version="1.0" encoding="UTF-8"?>
<rs0:searchResult xmlns:rs0="v2-ers.ise.cisco.com" xmlns:ns1="ers.ise.cisco.com" xmlns:ersv2="ers-v2" total="2">
  <rs0:currentPage rel="next" href="link-to-next-page" type="application/xml"/>
  <rs0:previousPage rel="previous" href="link-to-previous-page" type="application/xml"/>
  <rs0:resources>
    <ns1:resource description="description1" id="id1" name="name1">
      <link rel="self" href="{url to resource name1}" type="application/xml"/>
    </ns1:resource>
    <ns1:resource description="description2" id="id2" name="name2">
      <link rel="self" href="{url to resource name2}" type="application/xml"/>
    </ns1:resource>
  </rs0:resources>
</rs0:searchResult>

```

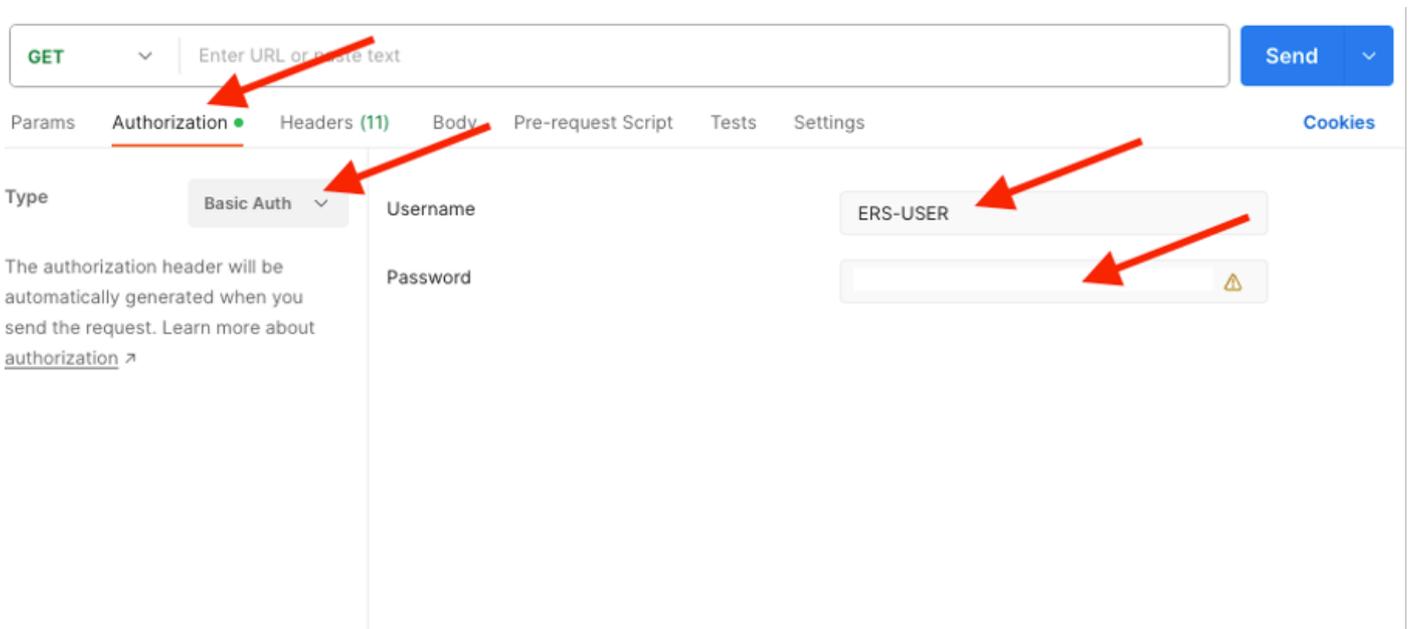
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Developer Resources

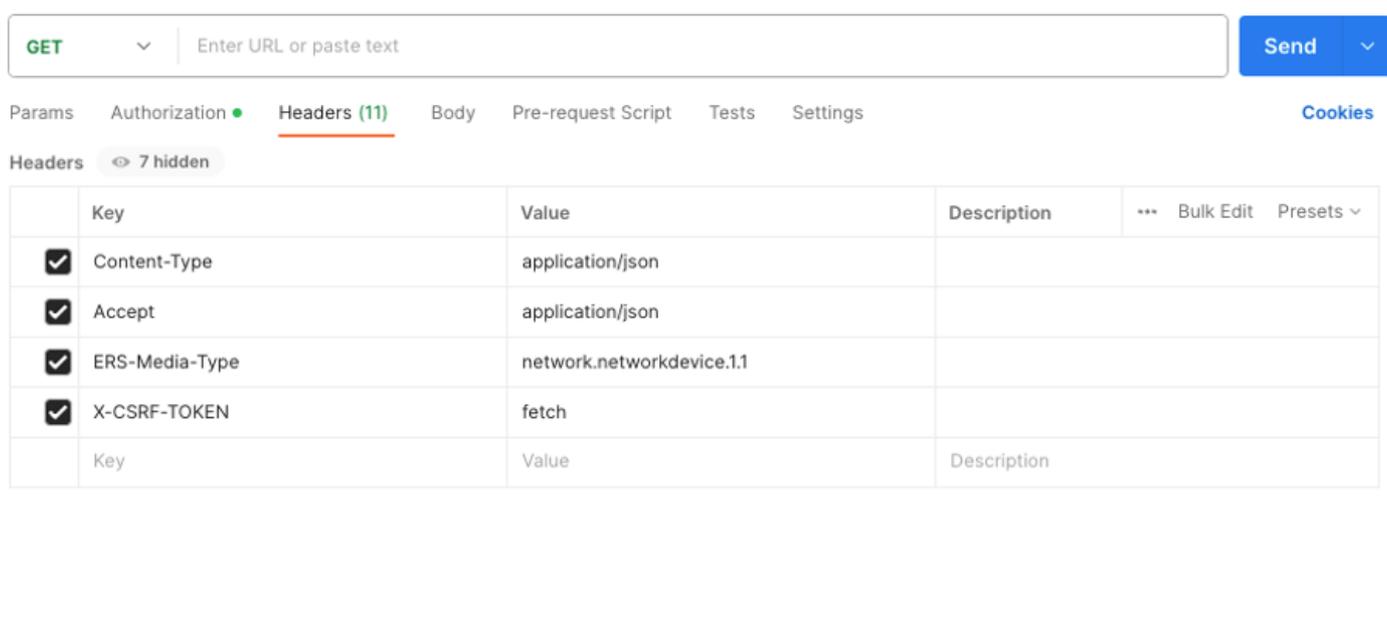
7. 返回Postman，配置基本身份驗證到ISE。在授權頁籤下，選擇基本身份驗證作為身份驗證型別，並增加以前在ISE上建立的ISE ERS使用者憑證。



注意：除非在Postman上配置了變數，否則口令顯示為明文



8. 移至標頭頁籤，並為API呼叫配置所需的標頭，如SDK中所示。本例使用JSON，但也可使用xml。對於此示例，報頭配置必須如下所示：



GET    Enter URL or paste text    Send

Params   Authorization   **Headers (11)**   Body   Pre-request Script   Tests   Settings   Cookies

Headers   7 hidden

|                                     | Key            | Value                     | Description | ... | Bulk Edit | Presets |
|-------------------------------------|----------------|---------------------------|-------------|-----|-----------|---------|
| <input checked="" type="checkbox"/> | Content-Type   | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | Accept         | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | ERS-Media-Type | network.networkdevice.1.1 |             |     |           |         |
| <input checked="" type="checkbox"/> | X-CSRF-TOKEN   | fetch                     |             |     |           |         |
|                                     | Key            | Value                     | Description |     |           |         |

9. 執行GET呼叫。選擇GET作為方法。在欄位中貼上https://{ISE-ip}/ers/config/networkdevice，然後按一下傳送。如果已正確配置所有內容，則您必須看到200 Ok消息和結果。

TESTNAD1和TESTNAD2可使用2個不同的delete呼叫進行刪除。

Workspace / <https://10.201.230.99:9060/ers/config/networkdevice/name/Test> Save

GET <https://10.201.230.99/ers/config/networkdevice> Send

Params Authorization Headers (12) Body Pre-request Script Tests Settings Cookies

Query Params

| Key | Value | Description | Bulk Edit |
|-----|-------|-------------|-----------|
|-----|-------|-------------|-----------|

Body Cookies (2) Headers (18) Test Results Status: 200 OK Time: 466 ms Size: 3.38 KB Save as Example

Pretty Raw Preview Visualize JSON

```
43     }
44   },
45   {
46     "id": "7c45e6f0-30af-11ee-a4cc-9a446445bd4f",
47     "name": "TESTNAD1",
48     "description": "",
49     "link": {
50       "rel": "self",
51       "href": "https://10.201.230.99/ers/config/networkdevice/7c45e6f0-30af-11ee-a4cc-9a446445bd4f",
52       "type": "application/json"
53     }
54   },
55   {
56     "id": "85bd74a0-30af-11ee-a4cc-9a446445bd4f",
57     "name": "TESTNAD2",
58     "description": "",
59     "link": {
60       "rel": "self",
61       "href": "https://10.201.230.99/ers/config/networkdevice/85bd74a0-30af-11ee-a4cc-9a446445bd4f",
62       "type": "application/json"
63     }
64   },
65   {
66     "id": "63efbc20-4f5a-11ed-b560-6e7768fe732e",
67     "name": "Wireless-9800",
68     "description": "Wireless Controller C9800",
69     "link": {
70       "rel": "self",
```

## 按ID刪除NAD

使用從GET呼叫收集的ID刪除TESTNAD1。

1. 在SDK上的網路裝置頁籤下選擇刪除。如前所述，這是執行呼叫所需的報頭以及預期的響應

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Developer Resources

Network Device

Delete Back to top

Request:

```

Method: DELETE
URI: https://10.201.230.99/ers/config/networkdevice/{id}
HTTP 'Content-Type' Header: application/xml | application/json
HTTP 'Accept' Header: application/xml | application/json
HTTP 'ERS-Media-Type' Header (Not Mandatory): network.networkdevice.1.1
HTTP 'X-CSRF-TOKEN' Header (Required Only If Enabled from GUI): The Token value from the GET X-CSRF-TOKEN fetch request
Request Content: N/A

```

Response: (N/A)

```

HTTP Status: 204 (No Content)
Content: N/A

```

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Create

Request:

2. 假設報頭與GET 呼叫類似，並且您在同一ISE上執行DELETE呼叫，請重複上一個呼叫並更改所需的變數。最後，報頭配置必須如下所示：

DELETE Enter URL or paste text Send

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies

Headers 7 hidden

|                                     | Key            | Value                     | Description | ... | Bulk Edit | Presets |
|-------------------------------------|----------------|---------------------------|-------------|-----|-----------|---------|
| <input checked="" type="checkbox"/> | Content-Type   | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | Accept         | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | ERS-Media-Type | network.networkdevice.1.1 |             |     |           |         |
|                                     | Key            | Value                     | Description |     |           |         |

3. 現在刪除TESTNAD1。選擇DELETE作為方法。在欄位中貼上https://{ISE-ip}/ers/config/networkdevice/{id}，用GET呼叫中顯示的NAD的實際標識替換{id}，然後按一下傳送。如果已正確配置所有內容，則您必須看到一條204無內容消息，並且結果為空。

DELETE <https://10.201.230.99/ers/config/networkdevice/7c45e6f0-30af-11ee-a4cc-9a446445bd4f> Send

Params Authorization Headers (11) Body Pre-request Script Tests Settings Cookies

Query Params

| Key | Value | Description |
|-----|-------|-------------|
|-----|-------|-------------|

Body Cookies (2) Headers (16) Test Results Status: 204 No Content Time: 222 ms Size: 1.01 KB Save as Example

Pretty Raw Preview Visualize JSON

```
1
```

4. 透過再次執行GET呼叫或透過檢查ISE NAD清單確認是否刪除了NAD。請注意，TESTNAD1不再存在。

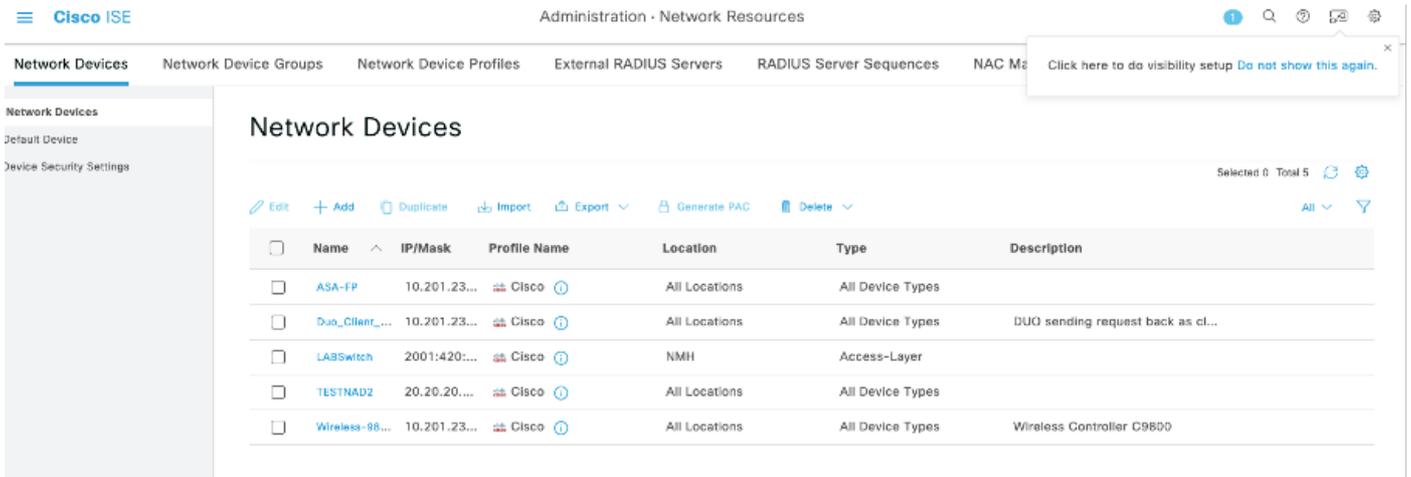
GET <https://10.201.230.99/ers/config/networkdevice> Send

Params Authorization Headers (12) Body Pre-request Script Tests Settings Cookies

Body Cookies (2) Headers (18) Test Results Status: 200 OK Time: 522 ms Size: 3.09 KB Save as Example

Pretty Raw Preview Visualize JSON

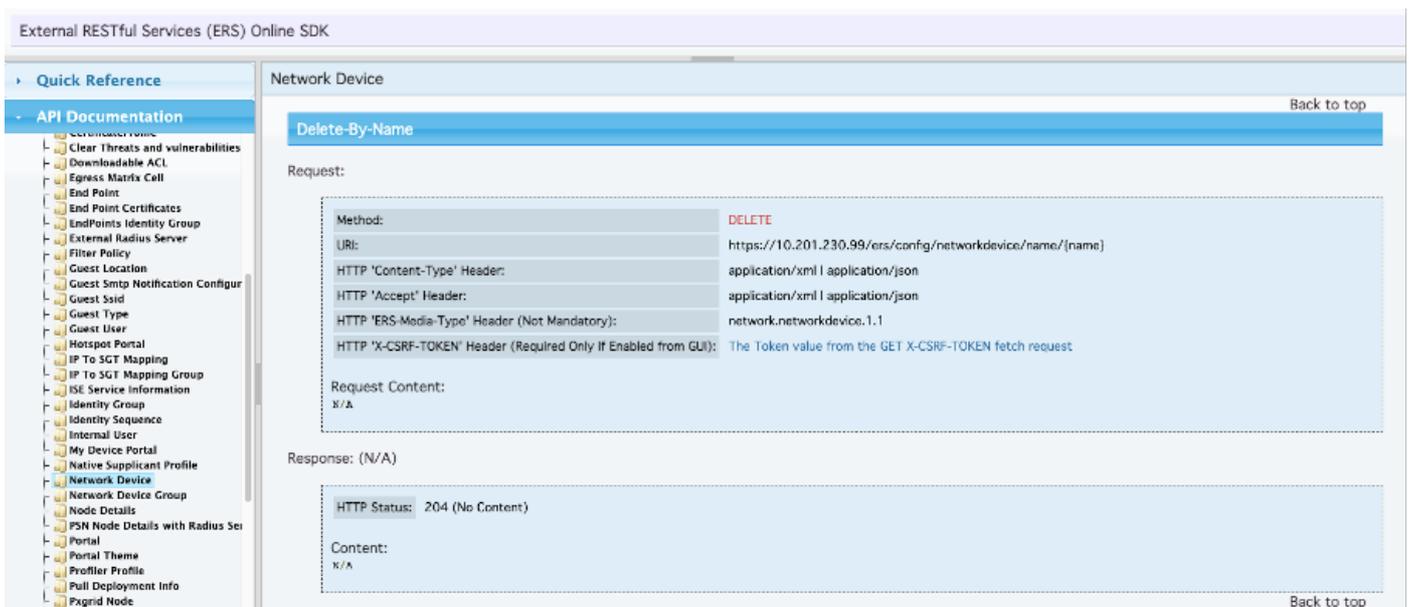
```
34 },
35 {
36   "id": "8901ab50-c999-11ec-997d-66c78d20c31f",
37   "name": "LABSwitch",
38   "description": "",
39   "link": {
40     "rel": "self",
41     "href": "https://10.201.230.99/ers/config/networkdevice/8901ab50-c999-11ec-997d-66c78d20c31f",
42     "type": "application/json"
43   }
44 },
45 {
46   "id": "85bd74a0-30af-11ee-a4cc-9a446445bd4f",
47   "name": "TESTNAD2",
48   "description": "",
49   "link": {
50     "rel": "self",
51     "href": "https://10.201.230.99/ers/config/networkdevice/85bd74a0-30af-11ee-a4cc-9a446445bd4f",
52     "type": "application/json"
53   }
54 },
55 {
56   "id": "63efbc20-4f5a-11ed-b560-6e7768fe732e",
57   "name": "Wireless-9800",
58   "description": "Wireless Controller C9800",
59   "link": {
60     "rel": "self",
61     "href": "https://10.201.230.99/ers/config/networkdevice/63efbc20-4f5a-11ed-b560-6e7768fe732e",
62     "type": "application/json"
63   }
64 }
```



## 按名稱刪除NAD

使用name(從GET呼叫或ISE GUI的NAD清單中收集)刪除TESTNAD2。

1. 在SDK上的Network Device頁籤下，選擇Delete-by-Name。如前所述，這是執行呼叫所需的報頭以及預期的響應。



2. 假設報頭與GET呼叫類似，並且您在同一ISE上執行DELETE呼叫，請重複上一個呼叫並更改所需的變數。最後，報頭配置必須如下所示：

DELETE  Send

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies

Headers  7 hidden

|                                     | Key            | Value                     | Description | ... | Bulk Edit | Presets |
|-------------------------------------|----------------|---------------------------|-------------|-----|-----------|---------|
| <input checked="" type="checkbox"/> | Content-Type   | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | Accept         | application/json          |             |     |           |         |
| <input checked="" type="checkbox"/> | ERS-Media-Type | network.networkdevice.1.1 |             |     |           |         |
|                                     | Key            | Value                     | Description |     |           |         |

Response

3. 刪除TESTNAD2。選擇DELETE作為方法。在欄位中貼上https://{ISE-ip}/ers/config/networkdevice/name/{name}，用GET呼叫或ISE GUI中顯示的NAD的實際名稱替換{name}，然後按一下Send。如果已正確配置所有內容，則您必須看到一條204無內容消息，並且結果為空。

DELETE  Send

Params Authorization Headers (11) Body Pre-request Script Tests Settings Cookies

Query Params

|  | Key | Value | Description | ... | Bulk Edit |
|--|-----|-------|-------------|-----|-----------|
|  | Key | Value | Description |     |           |

Body Cookies (2) Headers (16) Test Results Status: 204 No Content Time: 210 ms Size: 1.01 KB Save as Example ...

Pretty Raw Preview Visualize JSON

4. 透過再次執行GET呼叫或透過檢查ISE NAD清單確認是否刪除了NAD。請注意，TESTNAD2不再存在。

```
GET https://10.201.230.99/ers/config/networkdevice
Status: 200 OK Time: 503 ms Size: 2.79 KB
Body: Cookies (2) Headers (18) Test Results
JSON
[
  {
    "id": "673bcbb0-c988-11ec-997d-66c78d20c31f",
    "name": "Duo_Client_NAD",
    "description": "DUO sending request back as client for 2FA",
    "link": {
      "rel": "self",
      "href": "https://10.201.230.99/ers/config/networkdevice/673bcbb0-c988-11ec-997d-66c78d20c31f",
      "type": "application/json"
    }
  },
  {
    "id": "8901ab50-c999-11ec-997d-66c78d20c31f",
    "name": "LABSwitch",
    "description": "",
    "link": {
      "rel": "self",
      "href": "https://10.201.230.99/ers/config/networkdevice/8901ab50-c999-11ec-997d-66c78d20c31f",
      "type": "application/json"
    }
  },
  {
    "id": "63efbc20-4f5a-11ed-b560-6e7768fe732e",
    "name": "Wireless-9800",
    "description": "Wireless Controller C9800",
    "link": {
      "rel": "self",
      "href": "https://10.201.230.99/ers/config/networkdevice/63efbc20-4f5a-11ed-b560-6e7768fe732e",
      "type": "application/json"
    }
  }
]
```

Cisco ISE Administration - Network Resources

Network Devices

Selected 0 Total 4

| <input type="checkbox"/> | Name           | IP/Mask      | Profile Name | Location      | Type             | Description                       |
|--------------------------|----------------|--------------|--------------|---------------|------------------|-----------------------------------|
| <input type="checkbox"/> | ASA-FP         | 10.201.23... | Cisco        | All Locations | All Device Types |                                   |
| <input type="checkbox"/> | Duo_Client...  | 10.201.23... | Cisco        | All Locations | All Device Types | DUO sending request back as cl... |
| <input type="checkbox"/> | LABSwitch      | 2001:420...  | Cisco        | NMH           | Access-Layer     |                                   |
| <input type="checkbox"/> | Wireless-98... | 10.201.23... | Cisco        | All Locations | All Device Types | Wireless Controller C9800         |

## 驗證

如果能夠訪問API服務GUI頁，例如 `https://{iseip} : {port}/api/swagger-ui/index.html` 或 `https://{iseip} : 9060/ers/sdk`，則表示API服務正在按預期工作。

## 疑難排解

- 所有REST操作都經過稽核，並且日誌記錄在系統日誌中。
- 要排除與打開API相關的問題，請在調試日誌配置窗口中將apiservice元件的日誌級別設定為調試。
- 要排除與ERS API相關的問題，請在調試日誌配置窗口中將ers元件的日誌級別設定為調試。要檢視此窗口，請導航到思科ISE GUI，點選選單圖示並選擇操作>故障排除>調試嚮導>調試日誌配置。
- 您可以從下載日誌窗口下載日誌。要檢視此窗口，請導航到Cisco ISE GUI，點選Menu圖示並選擇Operations > Troubleshoot > Download Logs。
- 您可以選擇從Support Bundle頁籤下載支援捆綁包(透過按一下頁籤下的Download按鈕)，或透過按一下api-service debug log日誌的Log File值從Debug Logs頁籤下載api-service debug logs。

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。