

Use OpenAPI to Retrieve ISE Deployment Information on ISE 3.3

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Introduction

This document describes the procedure for utilizing openAPI to manage Cisco Identity Services Engine (ISE) deployment.

Background

In modern enterprise networks, security and management have become increasingly complex and critical. To address these challenges, From Cisco ISE 3.1 onwards, newer APIs are available in the OpenAPI format, which offers robust network access control and policy management capabilities. The admin is now able to check ISE deployment more efficiently through OpenAPI, and take action proactively rather than waiting for problem reports from endusers.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Identity Services Engine (ISE)
- REST API
- Python

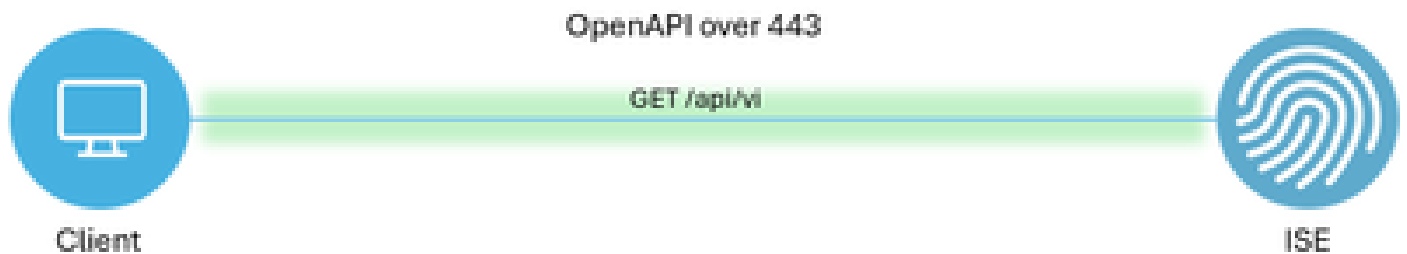
Components Used

- ISE 3.3
- Python 3.10.0

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Configure

Network Diagram

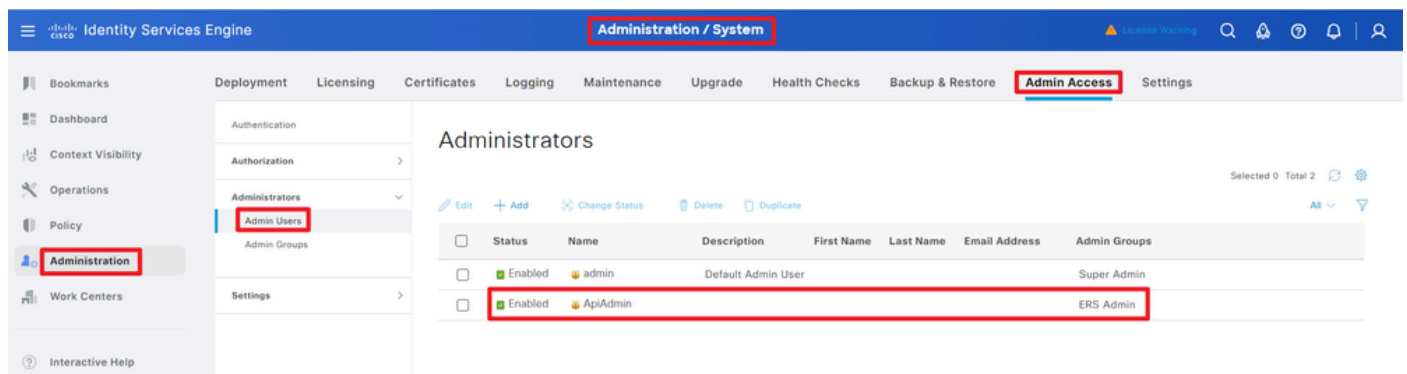


Topology

Configuration on ISE

Step 1: Add an Open API admin account

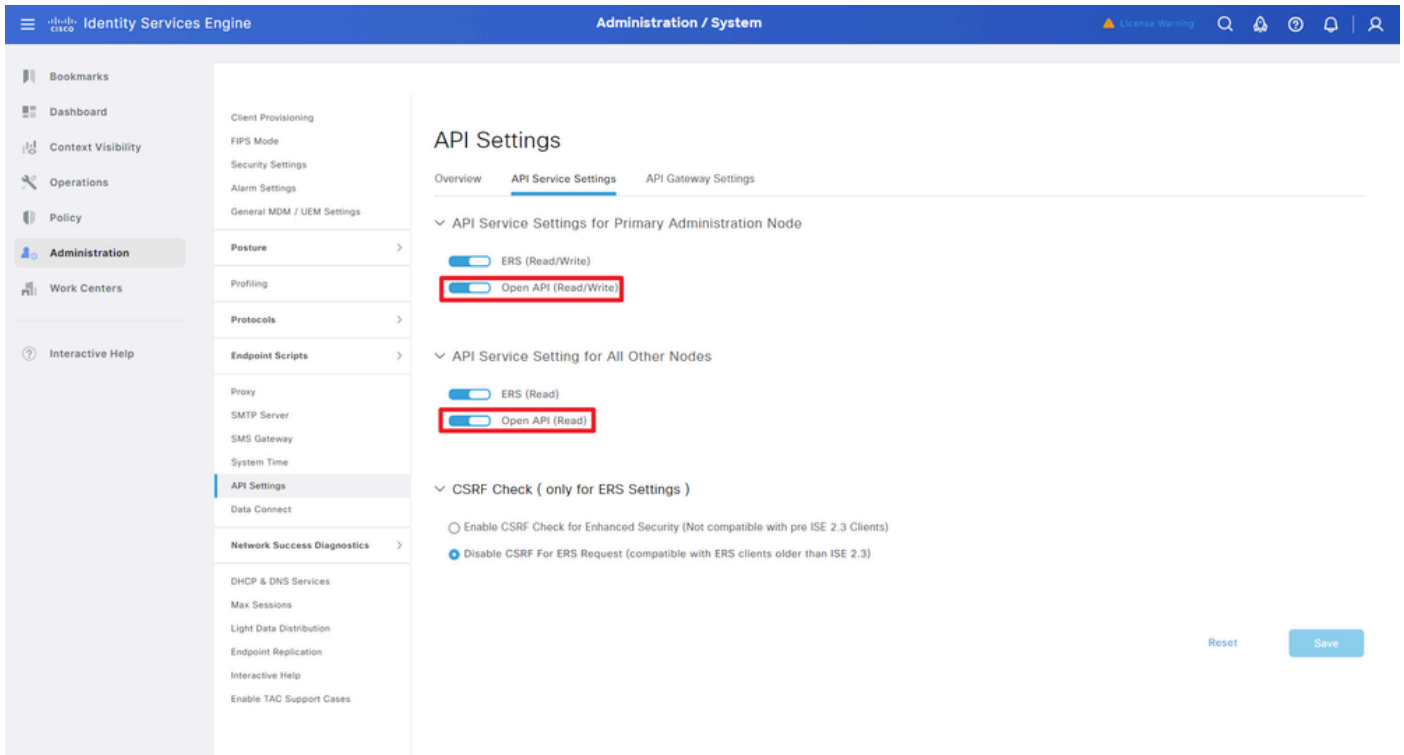
To add an API admin, navigate to **Administration > System > Admin Access > Administrators > Admin Users > Add**.



API Admin

Step 2: Enable Open API on ISE

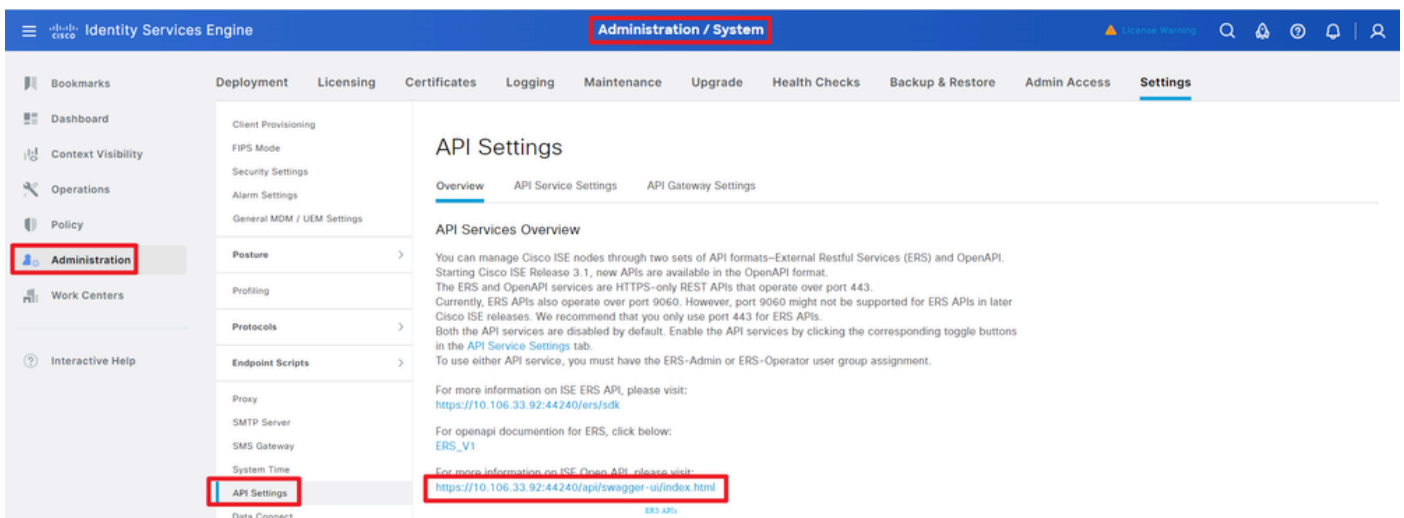
Open API is disabled by default on ISE. To enable it, navigate to **Administration > System > Settings > API Settings > API Service Settings**. Toggle the Open API options. Click **Save**.



Enable OpenAPI

Step 3: Explore ISE open API

Navigate to **Administration > System > Settings > API Settings > Overview**. Click open API visit link.



Visit OpenAPI

Python Examples

Retrieve The List Of All The Nodes That Are Deployed In The Cluster

The API lists all the nodes that are deployed in the cluster.

Step 1: Required information for an API call.

Method	GET
URL	<a href="https://<ISE-PAN-IP>/api/v1/deployment/node">https://<ISE-PAN-IP>/api/v1/deployment/node

Credentials	Use Open API account credentials
Headers	Accept : application/json Content-Type : application/json

Step 2: Locate the URL that is utilized to retrieve deployment information.

The screenshot shows the Swagger UI interface for the Cisco ISE API - Deployment. The 'Node Deployment' endpoint is highlighted with a red box, showing the GET method and the URL /api/v1/deployment/node. The description for this endpoint is 'Retrieve the list of all the nodes that are deployed in the cluster.'

API URI

Step 3: Here is the example of Python Code. Copy and paste the content. Replace the ISE IP, username, password. Save as a python file to execute.

Ensure the good connectivity between ISE and the device running the python code example.

<#root>

```

from requests.auth import HTTPBasicAuth
import requests

requests.packages.urllib3.disable_warnings()

if __name__ == "__main__":

    url = "
https://10.106.33.92/api/v1/deployment/node
"
    headers = {
"Accept": "application/json", "Content-Type": "application/json"
}
    basicAuth = HTTPBasicAuth(
"ApiAdmin", "Admin123"
)

    response = requests.get(url=url, auth=basicAuth, headers=headers, verify=False)
    print("Return Code:")
    print(response.status_code)
    print("Expected Outputs:")

```

```
print(response.json())
```

Here is the example of expected outputs.

Return Code:

200

Expected Outputs:

```
{'response': [{'hostname': 'ISE-BGL-CFME01-PAN', 'fqdn': 'ISE-BGL-CFME01-PAN.cisco.com', 'ipAddress': '192.168.20.240', 'roles': ['PrimaryAdmin']}]}
```

Retrieve Details Of A Deployed Node

This API retrieves detailed information of the specific ISE node.

Step 1: Required information for an API call.

Method	GET
URL	https://<ISE-PAN-IP>/api/v1/deployment/node/<ISE-Node-Hostname>
Credentials	Use Open API account credentials
Headers	Accept : application/json Content-Type : application/json

Step 2: Locate the URL that is utilized to retrieve the specific ISE node information.

The screenshot shows the Swagger UI interface for the Cisco ISE API - Deployment. The 'Node Deployment' section is expanded, and the GET endpoint for retrieving details of a deployed node is highlighted with a red box. The endpoint path is `/api/v1/deployment/node/{hostname}`. The description for this endpoint is 'Retrieve details of a deployed node.' Below the endpoint list, there is a note: 'This API retrieves detailed information of the deployed node.'

API URI

Step 3. Here is the example of Python Code. Copy and paste the content. Replace the ISE IP, username, password. Save as a python file to execute.

Ensure the good connectivity between ISE and the device running the python code example.

```
<#root>
```

```
from requests.auth import HTTPBasicAuth
import requests

requests.packages.urllib3.disable_warnings()

if __name__ == "__main__":

    url = "
https://10.106.33.92/api/v1/deployment/node/ISE-DLC-CFME02-PSN
"
    headers = {
"Accept": "application/json", "Content-Type": "application/json"
}
    basicAuth = HTTPBasicAuth(
"ApiAdmin", "Admin123"
)

    response = requests.get(url=url, auth=basicAuth, headers=headers, verify=False)
    print("Return Code:")
    print(response.status_code)
    print("Expected Outputs:")
    print(response.json())
```

Here is the example of expected outputs.

Return Code:

200

Expected Outputs:

```
{'response': {'hostname': 'ISE-DLC-CFME02-PSN', 'fqdn': 'ISE-DLC-CFME02-PSN.cisco.com', 'ipAddress': '192.168.41.240', 'roles': [], 'services': ['Session']}}
```

Troubleshoot

To troubleshoot issues that are related to the Open APIs, set the **Log Level** for the **apiservice** component to **DEBUG** in the **Debug Log Configuration** window.

To enable debug, Navigate to **Operations > Troubleshoot > Debug Wizard > Debug Log Configuration > ISE Node > apiservice**.

Identity Services Engine Operations / Troubleshoot

Diagnostic Tools Download Logs Debug Wizard

Debug Profile Configuration
Debug Log Configuration

Node List > ISE-BGL-CFME01-PAN.shield.com

Debug Level Configuration

[Edit](#) [Reset to Default](#) [Log Filter Enable](#) [Log Filter Disable](#)

Component Name	Log Level	Description	Log File Name	Log Filter
<input type="radio"/> accessfilter	INFO	RBAC resource access filter	ise-psc.log	Disabled
<input type="radio"/> Active Directory	WARN	Active Directory client internal messages	ad_agent.log	
<input type="radio"/> admin-ca	INFO	CA Service admin messages	ise-psc.log	Disabled
<input type="radio"/> admin-infra	INFO	infrastructure action messages	ise-psc.log	Disabled
<input type="radio"/> admin-license	INFO	License admin messages	ise-psc.log	Disabled
<input type="radio"/> ai-analytics	INFO	AI Analytics	ai-analytics.log	Disabled
<input type="radio"/> anc	INFO	Adaptive Network Control (ANC) debug...	ise-psc.log	Disabled
<input type="radio"/> api-gateway	INFO	API Gateway native objects logs	api-gateway.log	Disabled
<input checked="" type="radio"/> apiservice	DEBUG	ISE API Service logs	api-service.log	Disabled
<input type="radio"/> bootstrap-wizard	INFO	Bootstrap wizard messages	ise-psc.log	Disabled
<input type="radio"/> ca-service	INFO	CA Service messages	caservice.log	Disabled

API Service Debug

To download debug logs, Navigate to **Operations > Troubleshoot > Download Logs > ISE PAN Node > Debug Logs**.

Identity Services Engine Operations / Troubleshoot

Diagnostic Tools Download Logs Debug Wizard

ISE-BGL-CFME01-PAN
ISE-BGL-CFME02-MNT
ISE-DLC-CFME01-PSN
ISE-DLC-CFME02-PSN
ISE-RTP-CFME01-PAN
ISE-RTP-CFME02-MNT

Debug Log Type Log File Description Size

Application Logs

- ad_agent (1) (100 KB)
- ai-analytics (11) (52 KB)
- api-gateway (16) (124 KB)
- api-service (13) (208 KB)

<input type="checkbox"/>	api-service (all logs)	API Service debug messages	208 KB
<input type="checkbox"/>	api-service.log		12 KB
<input type="checkbox"/>	api-service.log.2024-03-24-1		4.0 KB
<input type="checkbox"/>	api-service.log.2024-04-07-1		4.0 KB

Download Debug Logs