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/ Configure ISE Licensing Using Open API

Configure ISE Licensing Using Open API



12 Kudos

Started 10-02-2023 by



ecruzlop

Modified 10-10-2023 by



eliwalte

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ecruzlop

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Introduction

This document describes how to configure Cisco Identity Service Engine 3.3 Licensing using Open API.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco ISE 3.3
- REST API
- Smart Software Licensing

Components Used

The information in this document is based on these software and hardware versions:

- Cisco ISE 3.3
- Insomnia REST API client.

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.

Background Information

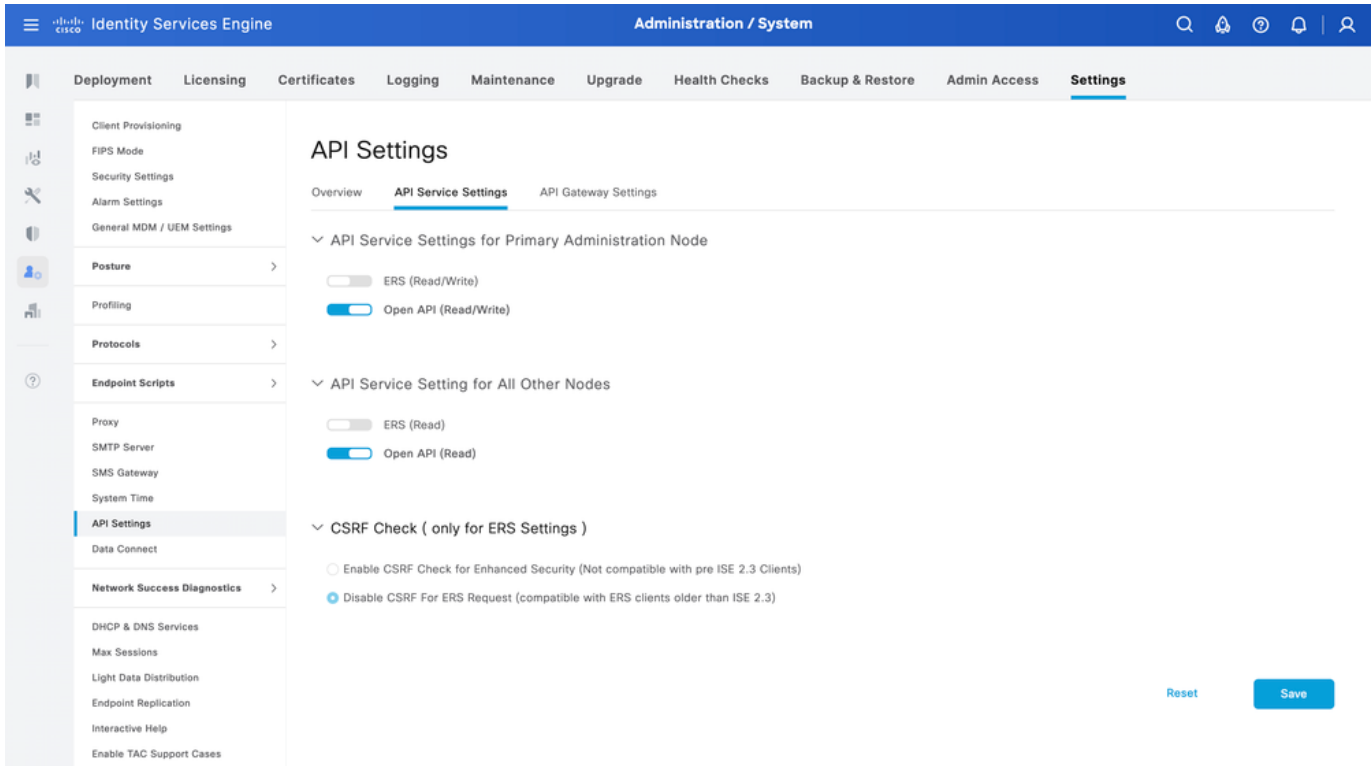
Cisco ISE licensing provides the ability to manage the application features and access, such as the number of concurrent active endpoints that can use Cisco ISE network resources at any time. Licensing in Cisco ISE is supplied as feature-based packages wherein different features are supported by each license type.

Cisco ISE is a subscription-based solution. Cisco ISE subscription licenses are nested, which means that the higher tier licenses include all the lower-tier features. For example, the ISE Premier license includes all the features that are mapped to the ISE Advantage and ISE Essentials licenses. Similarly, the ISE Advantage license includes all the features that are mapped to the ISE Essentials license. With this model, you can directly purchase Premier or Advantage licenses without the need for an Essentials license.

Initial Steps

Enable Open API on ISE

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



Open API settings

Swagger UI

To access all Open API definitions on ISE, navigate to **Administration > System > Settings > API Settings**. Click the link For more information on ISE Open API, please visit:

The URLs for the definition use on this document is: <https://<ISE-PAN-IP>/api/swagger-ui/index.html?urls.primaryName=License>

Configure Licensing using Open API

GET License Tier-State

In order to configure the license, the compliance attribute needs to be known using the tier-state as no License had been configure the compliance attribute can be set to Evaluation.

Method	GET
URL	https://<ISE-PAN-IP>:443/api/v1/license/system/tier-state
Authentication Type	Basic
Credentials	Use Open API account credentials
Headers	Accept:application/json Content-Type:application/json

Authentication

GET https://10.31.126.197:443/api/v1/license/system/tier-state Send

Body Basic Query Headers 1 Docs

ENABLED

☒

USERNAME

admin

PASSWORD

.....

Tier-state Authentication

Headers

GET https://10.31.126.197:443/api/v1/license/system/tier-state Send

Body Basic Query Headers 2 Docs

Add

Delete All

Toggle Description

Content-Type

application/json

☒

Accept

application/json

☒

Tier-state Headers

Expected Output

200 OK

1.48 s

686 B

6 Minutes Ago ▾

Preview ▾

Headers 20

Cookies 3

Timeline

```

1 [
2   {
3     "name": "ESSENTIAL",
4     "status": "ENABLED",
5     "compliance": "EVALUATION",
6     "consumptionCounter": 0,
7     "daysOutOfCompliance": "-",
8     "lastAuthorization": "-"
9   },
10  {
11    "name": "ADVANTAGE",
12    "status": "ENABLED",
13    "compliance": "EVALUATION",
14    "consumptionCounter": 0,
15    "daysOutOfCompliance": "-",
16    "lastAuthorization": "-"
17  },
18  {
19    "name": "PREMIER",
20    "status": "ENABLED",
21    "compliance": "EVALUATION",
22    "consumptionCounter": 0,
23    "daysOutOfCompliance": "-",
24    "lastAuthorization": "-"
25  },
26  {
27    "name": "DEVICEADMIN",
28    "status": "ENABLED",
29    "compliance": "EVALUATION",
30    "consumptionCounter": 0,
31    "daysOutOfCompliance": "-",
32    "lastAuthorization": "-"
33  }
34 ]

```

Tier-state Expected Output

GET Days Remaining for Evaluation License

In order to know the remaining days for evaluation license use this API call.

Method	GET
URL	<a href="https://<ISE-PAN-IP>:443/api/v1/license/system/eval-license">https://<ISE-PAN-IP>:443/api/v1/license/system/eval-license
Authentication Type	Basic
Credentials	Use Open API account credentials

Headers

Accept:application/json
Content-Type:application/json

Authentication

GET https://10.31.126.197:443/api/v1/license/system/eval-license Send

Body Basic Query Headers ² Docs

ENABLED ☒

USERNAME admin

PASSWORD

Evaluation License Authentication

Headers

GET https://10.31.126.197:443/api/v1/license/system/eval-license Send

Body Basic Query Headers ² Docs

Add Delete All Toggle Description

Content-Type	application/json	☒
Accept	application/json	☒

Evaluation License Headers

Expected Output

200 OK 167 ms 26 B 16 Hours Ago

Preview Headers ¹⁷ Cookies Timeline

```
1 {  
2   "daysRemaining": 89  
3 }
```

Evaluation License Expected Output

Register License



Note: Smart Licensing token creation is out of the scope of this document.

In order to register the license you need to enter the **connectionType**, **registrationType** and the **tier**.

Connection Types:

- HTTP_DIRECT

- PROXY
- SSM_ONPREM_SERVER If this attribute is selected you must declare the **ssmOnPremServer** key and the value.
- TRANSPORT_GATEWAY

Registration Types:

- DEREGISTER
- REGISTER
- RENEW
- UPDATE

Tier:

- ADVANTAGE
- DEVICEADMIN
- ESSENTIAL
- PREMIER
- VM

Method	POST
URL	https://<ISE-PAN-IP>:443/api/v1/license/system/register
Authentication Type	Basic
Credentials	Use Open api account credentials
Headers	Accept:application/json Content-Type:application/json
Body	<pre>{ "connectionType": "PROXY", "registrationType": "REGISTER", "ssmOnPremServer": "CSSM28.demo.local", "tier": ["ADVANTAGE", "DEVICEADMIN", "ESSENTIAL", "PREMIER", "VM"], "token": "NzFjNjQyYWYtMjkyYS00OGJiLTkzNzYtNWY5Nzg5OTU4ZjhkLTE2MzE2MTM" }</pre>

Body

POST ▾ <https://10.31.126.197:443/api/v1/license/system/register> Send ▾

JSON ▾ Basic ▾ Query Headers ² Docs

```
1 {  
2   "connectionType": "PROXY",  
3   "registrationType": "REGISTER",  
4   "tier": [  
5     "ADVANTAGE", "DEVICEADMIN", "ESSENTIAL", "PREMIER", "VM"  
6   ],  
7   "token": "N2MwOTVhODAtNzczYi00YzFhLTg3NjMtM2FkODM0GZhZDk1LTE2OTY1MzEz%0ANDU1NDZ8  
8     TjVqdTlBMmQ3WmpUMUFYZlNtYlRJS0lMWDlxSGFhY2lycWtGUVRK%0AN2tPcz0%3D%0A"  
9 }
```

POST - Register License Body

Authentication

POST ▾ <https://10.31.126.197:443/api/v1/license/system/register> Send ▾

JSON ▾ Basic ▾ Query Headers ² Docs

ENABLED	☒
USERNAME	admin
PASSWORD	 

POST - Register License Authentication

Headers

POST

https://10.31.126.197:443/api/v1/license/system/register

Send

JSON

Basic

Query

Headers2

Docs

Add

Delete All

Toggle Description

Content-Type

application/json

☒

Accept

application/json

☒

POST - Register License Headers

Expected Output

201 Created

1.03 m

41 B

4 Minutes Ago

Preview

Headers20

Cookies3

Timeline

1

"Smart Licensing registered successfully"

POST - Register License Expected Output

Verify

GET Register License Information

In order to know the key-value pairs used to configure the registration use this API call.

Method	GET
URL	https://<ISE-PAN-IP>:443/api/v1/license/system/register
Authentication Type	Basic
Credentials	Use Open API account credentials
Headers	Accept:application/json Content-Type:application/json

Authentication

GET ▾ https://10.31.126.197:443/api/v1/license/system/register Send ▾

JSON ▾ Basic ▾ Query Headers ² Docs

ENABLED ☒

USERNAME admin

PASSWORD 

GET - Register License Authentication

Headers

GET ▾ https://10.31.126.197:443/api/v1/license/system/register Send ▾

JSON ▾ Basic ▾ Query Headers ² Docs

Add Delete All Toggle Description

Content-Type	application/json	☒	
Accept	application/json	☒	

GET - Register License Headers

Expected Output

200 OK 162 ms 217 B 36 Minutes Ago ▾

Preview ▾ Headers ¹⁷ Cookies Timeline

```
1 {
2   "response": {
3     "tier": [
4       "ESSENTIAL",
5       "ADVANTAGE",
6       "PREMIER",
7       "DEVICEADMIN"
8     ],
9     "connectionType": "PROXY",
10    "registrationState": "REGISTERED",
11    "ssmOnPremServer": null
12  },
13  "version": "1.0.0"
14 }
```

GET - Register License Expected Output

GET Smart License Information

In order to know the state for the connection with Smart Licensig use this API call.

Method	GET
URL	https://<ISE-PAN-IP>:443/api/v1/license/system/register
Authentication Type	Basic
Credentials	Use Open API account credentials
Headers	Accept:application/json Content-Type:application/json

Authentication

GET https://10.31.126.197:443/api/v1/license/system/smart-state Send

Body Basic Query Headers 2 Docs

ENABLED

☒

USERNAME

admin

PASSWORD

.....

Smart Licensing Information Authentication

Headers

GET https://10.31.126.197:443/api/v1/license/system/smart-state Send

Body Basic Query Headers 2 Docs

Add Delete All Toggle Description

Content-Type

application/json

☒

Accept

application/json

☒

Smart Licensing Information Headers

Expected Output

```

200 OK    163 ms    103 B    18 Minutes Ago
Preview  Headers 17 Cookies Timeline
1 {
2   "response": {
3     "connectionType": "PROXY",
4     "state": "ENABLED"
5   },
6   "version": "1.0.0"
7 }

```

Smart Licensing Information Expected Output

ISE GUI License Verification

In order verify the proper installation on the GUI. Navigate to **Administration > System > Licensing > Licenses**.

Identity Services Engine Administration / System

Deployment **Licensing** Certificates Logging Maintenance Upgrade Health Checks Backup

Reservation to enable all Cisco ISE licenses. Enter the required details to enable Cisco ISE licenses. When you click Register, you agree to the terms and conditions detailed in [Smart Licensing Resources](#).

☒ Smart Licensing Registration
☐ Permanent License Reservation
☐ Specific License Reservation

> Registration Details

Licenses

Select relevant licenses and click Enable to acquire the pre-purchased license's entitlements. Select relevant licenses and click Disable to release unused entitlements. Click Refresh to reauthorize the enabled licenses.

☒ Enable ☐ Disable ☒ Refresh

License	Status	Compliance	Consumption	Days Out of Compliance	Last Authorization
Tier					
☐ Essential	Enabled	Released Entitlement	0	-	-
☐ Advantage	Enabled	Released Entitlement	0	-	-
☐ Premier	Enabled	Released Entitlement	0	-	-
☐ Device Admin	Enabled	Released Entitlement	0	-	-
Virtual Appliance					
ISE VM License	Enabled	In Compliance	1	-	Oct 04, 2023 19:42:44 PM

Smart Licensing GUI Verification



Note: Released Entitlement means the licenses have been purchased and released for use, but none have been consumed so far in this Cisco ISE deployment. In such a scenario, the Consumption Count for the license is 0. The licenses can change to Compliance once the Consumption Count change from 0

Troubleshoot

Licensing

From ISE navigate to **Operation > Troubleshoot > Debug Wizard > Debug Log Configuration**. Select your Primary Admin Node (PAN) and click **Edit**.

Filter the **Component Name** by License and admin-license then select the Log Level need it. Click **Save**.

The screenshot shows the Cisco Identity Services Engine (ISE) GUI. The left sidebar contains navigation links: Bookmarks, Dashboard, Context Visibility, Operations (selected), Policy, Administration, and Work Centers. The main content area is titled 'Operations / Troubleshoot' and shows the 'Debug Wizard' tab. Under 'Debug Wizard', there are links for 'Debug Profile Configuration' and 'Debug Log Configuration'. The 'Debug Log Configuration' page displays a table for 'Debug Level Configuration' for the 'license' component. The table has columns: Component Name, Log Level, Description, Log file Name, and Log Filter. The 'Log Level' is set to 'DEBUG' and the 'Log Filter' is 'Disabled'.

Component Name	Log Level	Description	Log file Name	Log Filter
license	DEBUG	Licensing related messages	ise-psc.log	Disabled

Debug Level Configuration Licensing

- On ISE PAN CLI the logs are found at:

```
admin#show logging application ise-psc.log
```

- On ISE GUI navigate to **Operations > Troubleshoot > Download Logs > Select ISE PAN > Debug log > Debug Log Type > Application Logs**. Download the zip files for ise-psc.log.

Open API

From ISE navigate to **Operation > Troubleshoot > Debug Wizard > Debug Log Configuration**. Select your Primary Admin Node (PAN) and click **Edit**.

Filter the **Component Name** by apIService and select the Log Level need it. Click **Save**.

The screenshot shows the Cisco Identity Services Engine (ISE) GUI. The left sidebar contains navigation links: Bookmarks, Dashboard, Context Visibility, Operations (selected), Policy, Administration, and Work Centers. The main content area is titled 'Operations / Troubleshoot' and shows the 'Debug Wizard' tab. Under 'Debug Wizard', there are links for 'Debug Profile Configuration' and 'Debug Log Configuration'. The 'Debug Log Configuration' page displays a table for 'Debug Level Configuration' for the 'apIService' component. The table has columns: Component Name, Log Level, Description, Log file Name, and Log Filter. The 'Log Level' is set to 'DEBUG' and the 'Log Filter' is 'Disabled'.

Component Name	Log Level	Description	Log file Name	Log Filter
apIService	DEBUG	ISE API Service logs	api-service.log	Disabled

Debug Level Configuration Open API

- On ISE PAN CLI the logs are found at:

```
admin#show logging application api-service.log
```

- On ISE GUI navigate to **Operations > Troubleshoot > Download Logs > Select ISE PAN > Debug log > Debug Log Type > Application Logs**. Download the zip files for api-service.log.
- API response codes and their possible meanings:
 - 200 (OK): Indicates the Open API successfully carried out the desired action.
 - 201 (Created): Indicates the resource was created and the request was successful.
 - 400 (Bad Request): Server not able to process the request. Recognize client error due to malformed request syntax, invalid parameters and so on. Read the message details if available.
 - 401 (Unauthorised): This indicates that the action was undertaken with wrong credentials, no credentials or the account is not authorized to perform this action.
 - 403 (Forbidden): This indicates the server is capable to understand the request but is not authorized.
 - 404 (Not Found): This indicates the server is not able to find the requested resource.
 - 500 (Internal Server Error): Indicates an issue on the server side. Logs on ISE can help understand the cause.

Related Information

- [Cisco Technical Support & Downloads](#)

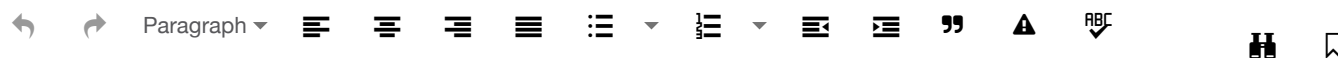


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Instructions

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Publish to Cisco.com

Step 3: External (click here)

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Flag for Improvement

RECOMMENDATIONS



Collect ISE Support Bundle Using ERS API  



Create ISE Network Devices Using ERS API  



Remove ISE Network Devices Using ERS API 



Configure CSSM on Prem and register licenses with ISE  



ISE: Advanced license consumption troubleshooting  

LINK YOUR CASE

[Link](#)

LINK AN AUTOMATION TASK

[Link](#)

CONTRIBUTORS



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eliwalte

CASE LINKS

BDB TASKS

ISE Bundle Parser

This is the ISE Log Bundle Parser task....

ISE GZIP Download

None...

ISE TOOL LocalStoreLogParser

...

ise prrtDebug SessionLicense

...

ise profilerParser

...

TOP TAGS

 Add Tag...

[VIEW ALL](#)

LABELS

Activity:

Configuration

Feature:

REST API API

Product (Cisco):

ISE

TZ Action Requests:

Externalize

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