Validate the Cisco Intersight Webhooks: Logic-Based Guide

Contents

Introduction

This document describes how to valide a webhook in intersight.

Prerequisites

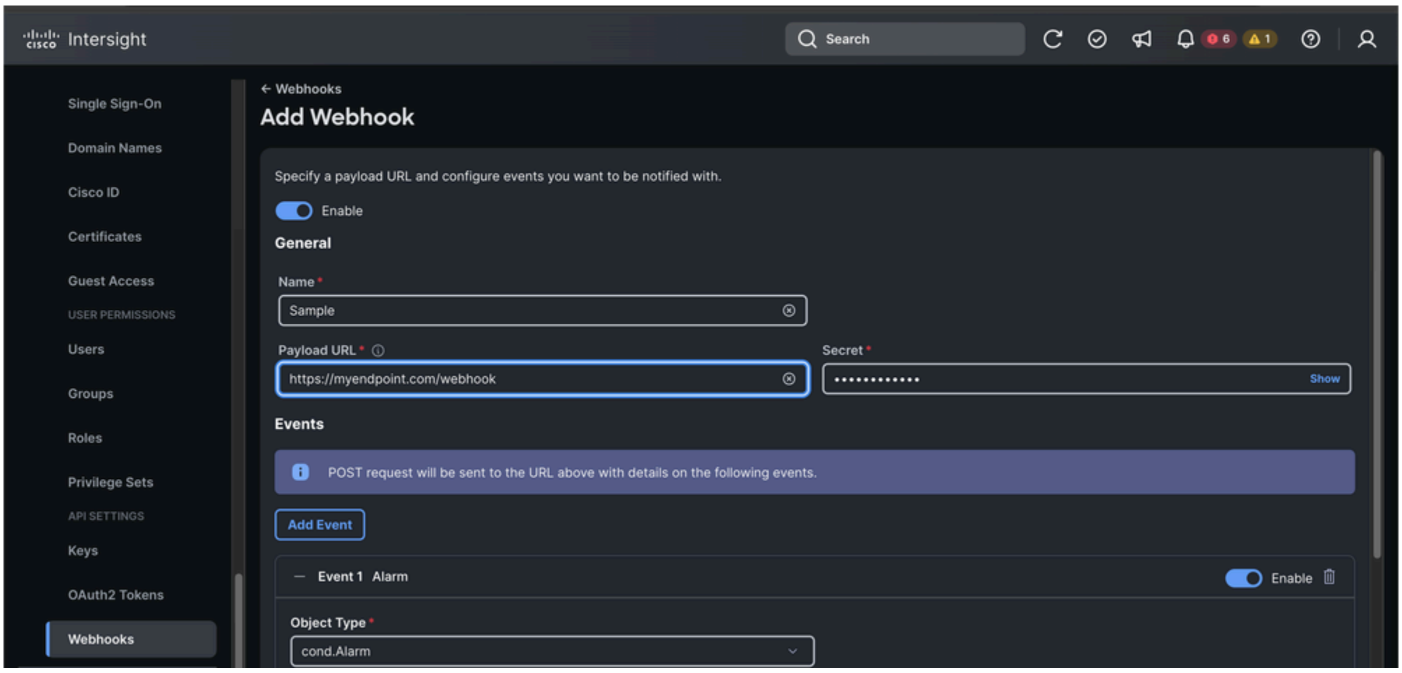
When Cisco Intersight sends a webhook to your application, it’s essentially sending an event (like a server alarm). But how do you know that the message actually came from Cisco and was not sent by someone else trying to trigger a fake action in your system?

To solve this, Intersight uses a Webhook Secret. Think of it like a seal on an envelope: if the seal is broken or looks different than expected, you do not trust the letter.

Setting the Secret

The first step is to configure the Webhook in Intersight and establish a **Shared Secret**.

1. Log into**Cisco Intersight**.
2. Navigate to**Settings** > **Webhooks**.
3. When you create or edit a Webhook, you can see a field labeled**Secret**.
4. Define this string yourself (for examplesecret). Once saved, Intersight uses this to sign every message it sends.
5. **Important:**Save this secret in a secure manner and do not share it publicly.



Add Webhook

Specify a payload URL and configure events you want to be notified with.

Enable

General

Name * Sample

Payload URL * https://myendpoint.com/webhook

Secret * ••••••••••••

Events

POST request will be sent to the URL above with details on the following events.

Event 1 Alarm — Enable

Object Type * cond.Alarm

The Validation Logic

Step 1: Verify the Seal (The Body Digest)

The first thing to check is if the message body was changed during its journey. We do this using a **Hash** (specifically **SHA-256**).

What is a Hash?

It is like a fingerprint. Even if you change one comma in a 10-page document, the fingerprint changes completely.

The Logic:

1. Take the**Raw Request Body**(the JSON text exactly as it arrived).
2. Run it through a**SHA-256**hashing function.
3. Convert that binary fingerprint into a readable string using**Base64 Encoding**.
4. Compare your result to the**Digest**header sent by Intersight.
5. It must be like this:**SHA-256=your_calculated_string**.

Step 2: Prepare the Request Target

Intersight includes the destination of the message in its signature to prevent **replay attacks** (where someone steals a valid message and sends it to a different endpoint).

The Logic: Create a string that combines the HTTP method and the path.

Format:(request-target): **post /your/endpoint/path**

Step 3: Create the Signing String

Must be followed in strict order.

This is where most developers run into trouble. Intersight is extremely strict about the **order, case-**

sensitivity, and **formatting** of the headers used for the signature. You must build a single block of text where each line is **header-name: value**.

The exact order required:

1. (request-target) (From Step 2)
2. host
3. date
4. digest (The full value of the Digest header from Step 1)
5. content-type
6. content-length

```
(request-target): post /api/webhook
host: myapp.example.com
date: Mon, 09 Mar 2026 12:50:29 GMT
digest: SHA-256=L6Y...
content-type: application/json
content-length: 542
```

Step 4: Generate the Signature (The HMAC)

Now you use the **Secret Key** (from the Intersight UI) to sign the string we just built. We use a method called **HMAC-SHA256**.

What is HMAC?

It is a way to sign a message using a secret key. Only someone with the same secret key can produce the same signature.

The Logic:

1. **Input:**The **Signing String** from Step 3.
2. **Key:**Your **Webhook Secret**.
3. **Process:**Run the HMAC-SHA256 algorithm.
4. **Output:**Take the resulting binary data and**Base64 Encode**it.

Step 5: The Final Comparison

Intersight sends an **Authorization** header. You need to reconstruct what you expect that header to look like using the signature you just generated.

If your calculated string matches the **Authorization** header provided in the request, the message is authentic.

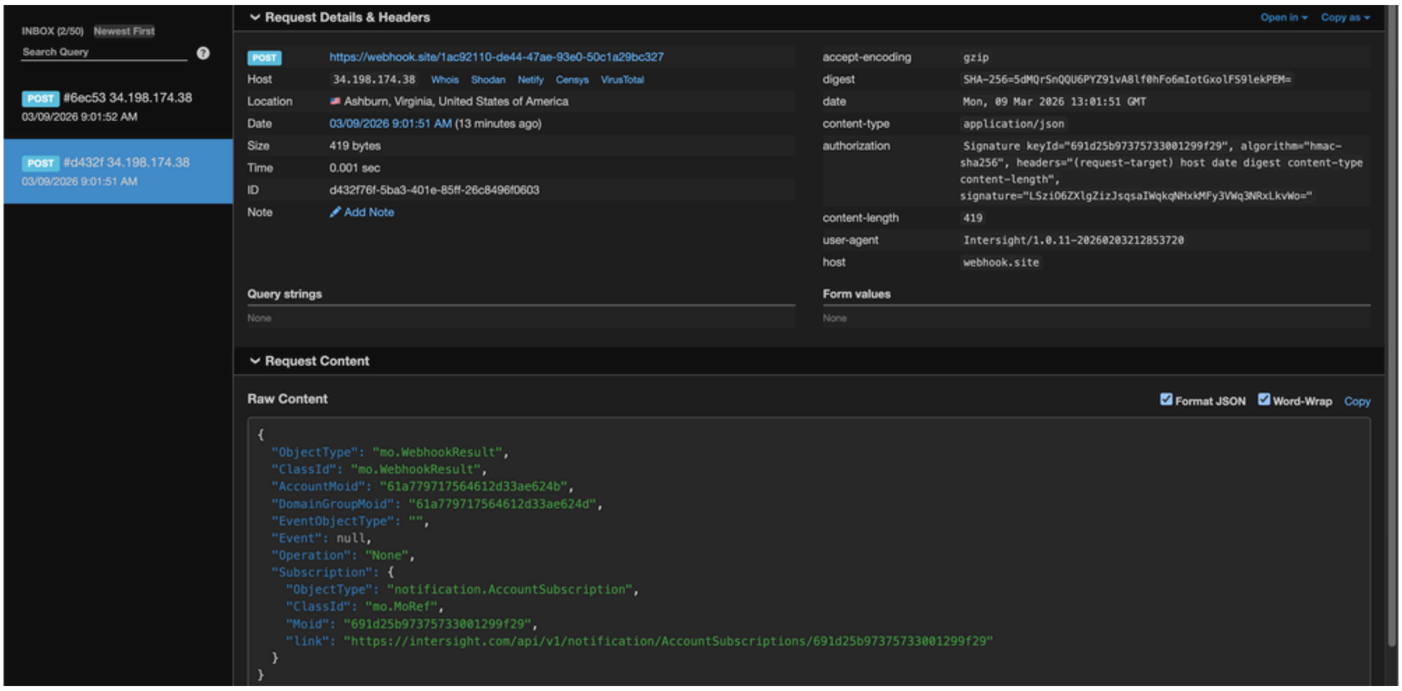
Important Considerations

1. **Clock Skew**: Always check the **date**header. If the request is more than 5 minutes old compared to your server time, reject it to prevent replay attacks.
2. **Raw Body**: Do not parse the JSON and then re-stringify it before validating the digest. Different libraries add different spacing, which will break the hash.
3. **Header Order**: Intersight validates the signature based on the order defined in

the**headers="..."**section of the**Authorization** header. Ensure your **String to Sign** matches that order exactly.

Verifiable Examples

To help you test your code, here is an example based on a real webhook payload sent from Intersight.



POST	https://webhook.site/1ac92110-de44-47ae-93e0-50c1a29bc327
Host	34.198.174.38
Location	Ashburn, Virginia, United States of America
Date	03/09/2026 9:01:51 AM (13 minutes ago)
Size	419 bytes
Time	0.001 sec
ID	d432f76f-5ba3-401e-85ff-26c8496f0603
Note	Add Note

accept-encoding	gzip
digest	SHA-256=5dMQrSnQQU6PYZ91vA8lf0hFo6mIotGxolFS9lekPEM=
date	Mon, 09 Mar 2026 13:01:51 GMT
content-type	application/json
authorization	Signature keyId="691d25b97375733001299f29", algorithm="hmac-sha256", headers="(request-target) host date digest content-type content-length", signature="LSziO6ZXlgZizJsqsaIWqkqNHxkMFy3VWq3NRxLkvWo="
content-length	419
user-agent	Intersight/1.0.11-20260203212853720
host	webhook.site

Query strings

None

Form values

None

```
{
  "ObjectType": "mo.WebhookResult",
  "ClassId": "mo.WebhookResult",
  "AccountMoid": "61a779717564612d33ae624b",
  "DomainGroupMoid": "61a779717564612d33ae624d",
  "EventObjectType": "",
  "Event": null,
  "Operation": "None",
  "Subscription": {
    "ObjectType": "notification.AccountSubscription",
    "ClassId": "mo.MoRef",
    "Moid": "691d25b97375733001299f29",
    "link": "https://intersight.com/api/v1/notification/AccountSubscriptions/691d25b97375733001299f29"
  }
}
```

Test Parameters

<#root>

`Secret`

`:secret`

`Host`

`:webhook.site`

`Path:`

`/1ac92110-de44-47ae-93e0-50c1a29bc327`

`Date`

`:Mon, 09 Mar 2026 13:01:51 GMT`

`Content-Length`

`:419`

`Payload`

`:{"ObjectType":"mo.WebhookResult","ClassId":"mo.WebhookResult","AccountMoid":"61a779717564612d33ae624b"`

Expected Signature

:LSziO6ZXlgZizJsqsaIWqkqNHxkMFy3VWq3NRxLkvWo=

Bash & OpenSSL Verification

```
#!/bin/bash

# 1. Setup the inputs
SECRET="secret"
EXPECTED_SIG="LSziO6ZXlgZizJsqsaIWqkqNHxkMFy3VWq3NRxLkvWo="
PAYLOAD='{"ObjectType":"mo.WebhookResult","ClassId":"mo.WebhookResult","AccountMoid":"61a779717564612d3

# 2. Calculate the Body Digest
# We use echo -n to ensure no trailing newline is added to the payload
DIGEST=$(echo -n "$PAYLOAD" | openssl dgst -sha256 -binary | openssl base64)
FULL_DIGEST="SHA-256=$DIGEST"

# 3. Build the Signing String (Strict Order!)
# Note: The format must be exactly: header: value\n
SIGNING_STR="(request-target): post /1ac92110-de44-47ae-93e0-50c1a29bc327
host: webhook.site
date: Mon, 09 Mar 2026 13:01:51 GMT
digest: $FULL_DIGEST
content-type: application/json
content-length: 419"

# 4. Generate the HMAC-SHA256 Signature
CALCULATED_SIG=$(echo -n "$SIGNING_STR" | openssl dgst -sha256 -hmac "$SECRET" -binary | openssl base64

# 5. Output the results for comparison
echo "--- Verification Results ---"
echo "Expected Signature:   $EXPECTED_SIG"
echo "Calculated Signature: $CALCULATED_SIG"

if [ "$EXPECTED_SIG" == "$CALCULATED_SIG" ]; then
    echo "SUCCESS: The signatures match!"
else
    echo "FAILURE: The signatures do not match."
fi
```

PowerShell Verification

```
# 1. Setup the inputs
$Secret = "secret"
$ExpectedDigest = "5dMQrSnQQU6PYZ91vA8lf0hFo6mIotGxolFS9lekPEM="
$ExpectedSig    = "LSziO6ZXlgZizJsqsaIWqkqNHxkMFy3VWq3NRxLkvWo="

$Payload = '{"ObjectType":"mo.WebhookResult","ClassId":"mo.WebhookResult","AccountMoid":"61a77971756461
```

```
# 2. Calculate the Body Digest
$Sha256 = [System.Security.Cryptography.SHA256]::Create()
$PayloadBytes = [System.Text.Encoding]::UTF8.GetBytes($Payload)
$HashBytes = $Sha256.ComputeHash($PayloadBytes)
$CalculatedDigest = [Convert]::ToBase64String($HashBytes)

# 3. Build the Signing String (Strict Order!)
# Note: `n is the PowerShell newline character.
# The string must match the order in the Authorization header exactly.
$SigningStr = "(request-target): post /1ac92110-de44-47ae-93e0-50c1a29bc327`n" +
              "host: webhook.site`n" +
              "date: Mon, 09 Mar 2026 13:01:51 GMT`n" +
              "digest: SHA-256=$CalculatedDigest`n" +
              "content-type: application/json`n" +
              "content-length: 419"

# 4. Generate the HMAC-SHA256 Signature
$Hmac = New-Object System.Security.Cryptography.HMACSHA256
$Hmac.Key = [System.Text.Encoding]::UTF8.GetBytes($Secret)
$SigBytes = $Hmac.ComputeHash([System.Text.Encoding]::UTF8.GetBytes($SigningStr))
$CalculatedSig = [Convert]::ToBase64String($SigBytes)

# 5. Output the results for comparison
Write-Host "--- Verification Results ---" -ForegroundColor Cyan

Write-Host "Digest Match: " -NoNewline
if ($CalculatedDigest -eq $ExpectedDigest) {
    Write-Host "SUCCESS" -ForegroundColor Green
} else {
    Write-Host "FAILED" -ForegroundColor Red
}

Write-Host "Expected Signature:   $ExpectedSig"
Write-Host "Calculated Signature: $CalculatedSig"

if ($CalculatedSig -eq $ExpectedSig) {
    Write-Host "SUCCESS: The signatures match!" -ForegroundColor Green
} else {
    Write-Host "FAILURE: The signatures do not match." -ForegroundColor Red
}
```

Related Information

- Invoke Web API Request
- Cisco Intersight Webhook Configuration
- webhook/Endpoints