Configure Cisco ISE 3.0 Admin Portal and CLI with IPv6

Contents

Introduction

This document describes the procedure to configure Cisco Identity Services Engine (ISE) with IPv6 for Admin Portal and CLI.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Identity Services Engine (ISE)
- IPv6

Components Used

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

- ISE version 3.0 Patch 4.

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

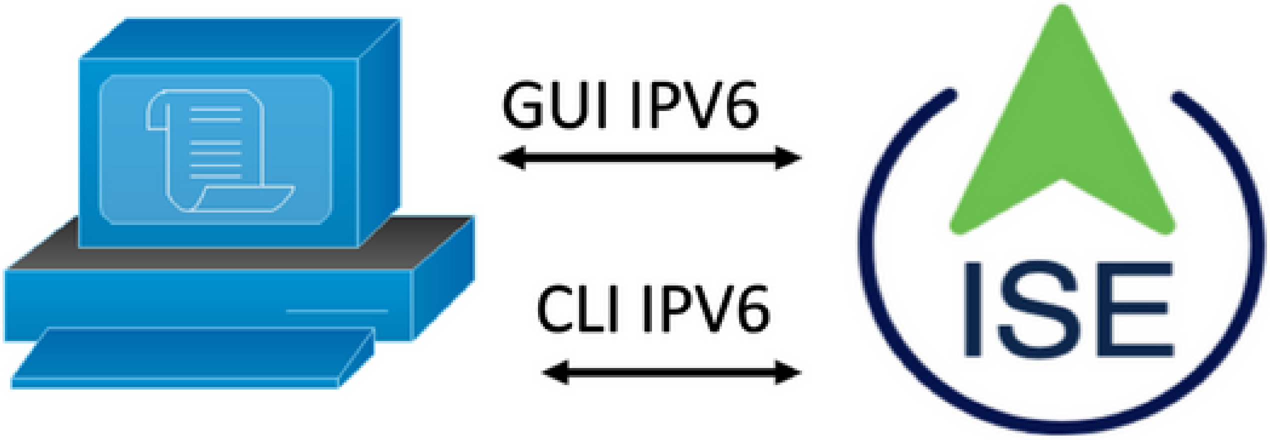
In most cases, Cisco Identity Services Engine can be configured with an Ipv4 address to manage ISE through User interface (GUI) and CLI log in into Admin Portal, however, from ISE version 2.6 and above Cisco ISE can be managed over an IPv6 address, and configure an IPv6 address to Eth0 (Interface) when setup wizard as well as through CLI. When configured IPv6 address, it is recommended to have an IPv4 address configured (in addition to IPv6 address) for the Cisco ISE node communication. Hence, dual stack (combination of both IPv4 and IPv6) is required.

It is possible to configure Secure Socket Shell (SSH) with IPv6 addresses. Cisco ISE supports multiple IPv6 addresses on any interface and these IPv6 addresses can be configured and managed using CLI.

Configure

Network Diagram

The image provides an example of a network diagram



ISE Configuration

Note: By default, ipv6 address option is enable in all ISE interfaces. It is a best practice to disable this option if it is not planned to be used issue the **no ipv6 address autoconfig** and/or **no ipv6 enable** where applicable. Use the **show run** command to validate which interfaces have ipv6 enabled.

Note: The configuration considers cisco ISE is already configured with IPv4 addressing.

```
ems-ise-mnt001/admin# Configure terminal

ems-ise-mnt001/admin(config)# int GigabitEthernet 0

ems-ise-mnt001/admin(config-GigabitEthernet)# ipv6 address 2001:420:404a:133::66

% Changing the IP address might cause ise services to restart

Continue with IP address change?  Y/N [N]:Y
```

Note: Adding or changing IP addressing on an interface causes the services to restart

Step 2. Once services have been restarted issue the show application status ise command to validate the services are running:

```
ems-ise-mnt001/admin# show application status ise
```

```
ISE PROCESS NAME                       STATE            PROCESS ID

--------------------------------------------------------------------

Database Listener                    running         1252

Database Server                      running         74 PROCESSES

Application Server                   running         11134

Profiler Database                    running         6897

ISE Indexing Engine                  running         14121

AD Connector                         running         17184

M&T Session Database                 running         6681

M&T Log Processor                    running         11337

Certificate Authority Service        running         17044

EST Service                          running         10559

SXP Engine Service                   disabled

Docker Daemon                        running         3579

TC-NAC Service                       disabled

pxGrid Infrastructure Service        running         9712

pxGrid Publisher Subscriber Service    running          9791

pxGrid Connection Manager            running         9761

pxGrid Controller                    running         9821

PassiveID WMI Service                disabled

PassiveID Syslog Service             disabled

PassiveID API Service                disabled

PassiveID Agent Service              disabled

PassiveID Endpoint Service           disabled

PassiveID SPAN Service               disabled

DHCP Server (dhcpd)                  disabled

DNS Server (named)                   disabled
```

```
ISE Messaging Service                 running          4260

ISE API Gateway Database Service      running          5805

ISE API Gateway Service               running          8973

Segmentation Policy Service           disabled

REST Auth Service                     disabled

SSE Connector                         disabled
```

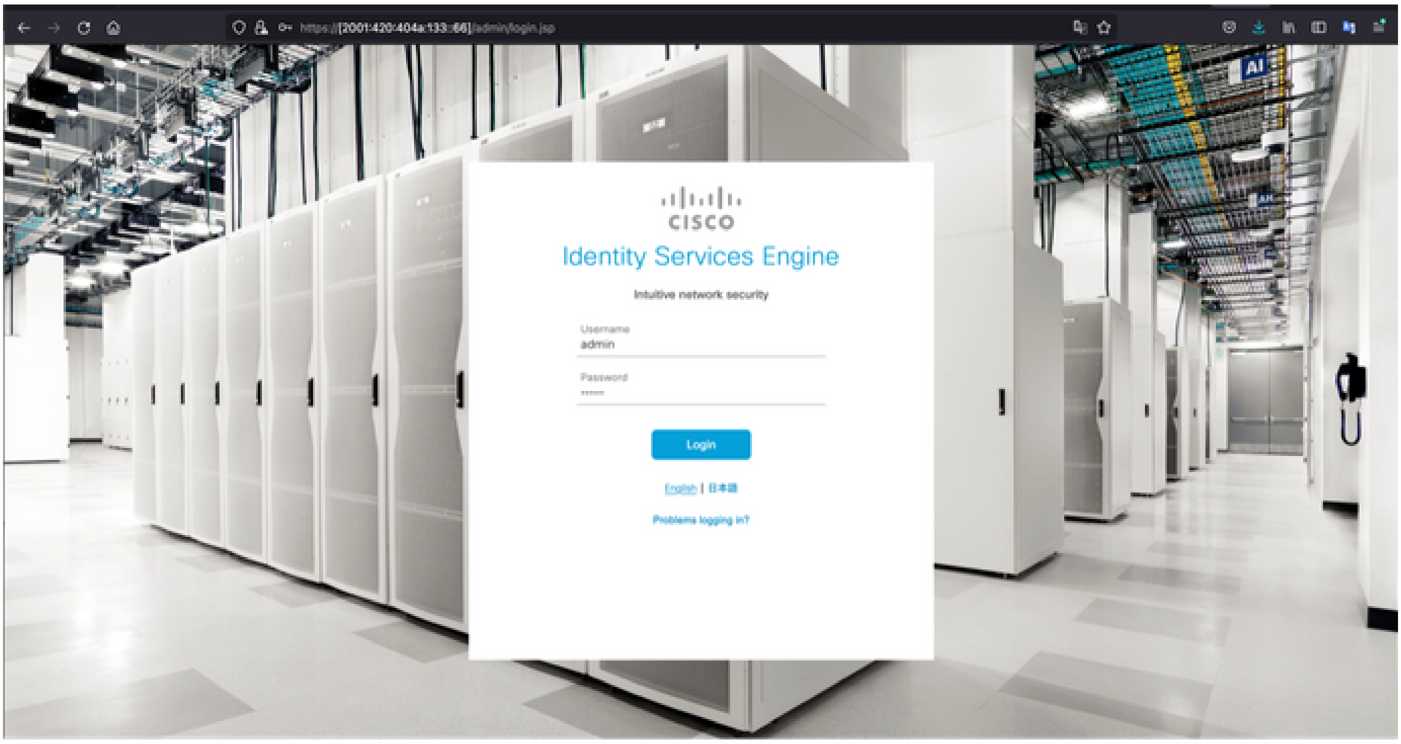
Step 3. Issue the **show run** command to validate IPv6 has been configured on Eth0 (Interface):

```
ems-ise-mnt001/admin# show run

Generating configuration...

!

hostname ems-ise-mnt001

!

ip domain-name ise.com

!

ipv6 enable

!

interface GigabitEthernet 0

  ip address 10.52.13.175 255.255.255.0

  ipv6 address 2001:420:404a:133::66/64

  ipv6 address autoconfig

  ipv6 enable

!
```

Verify

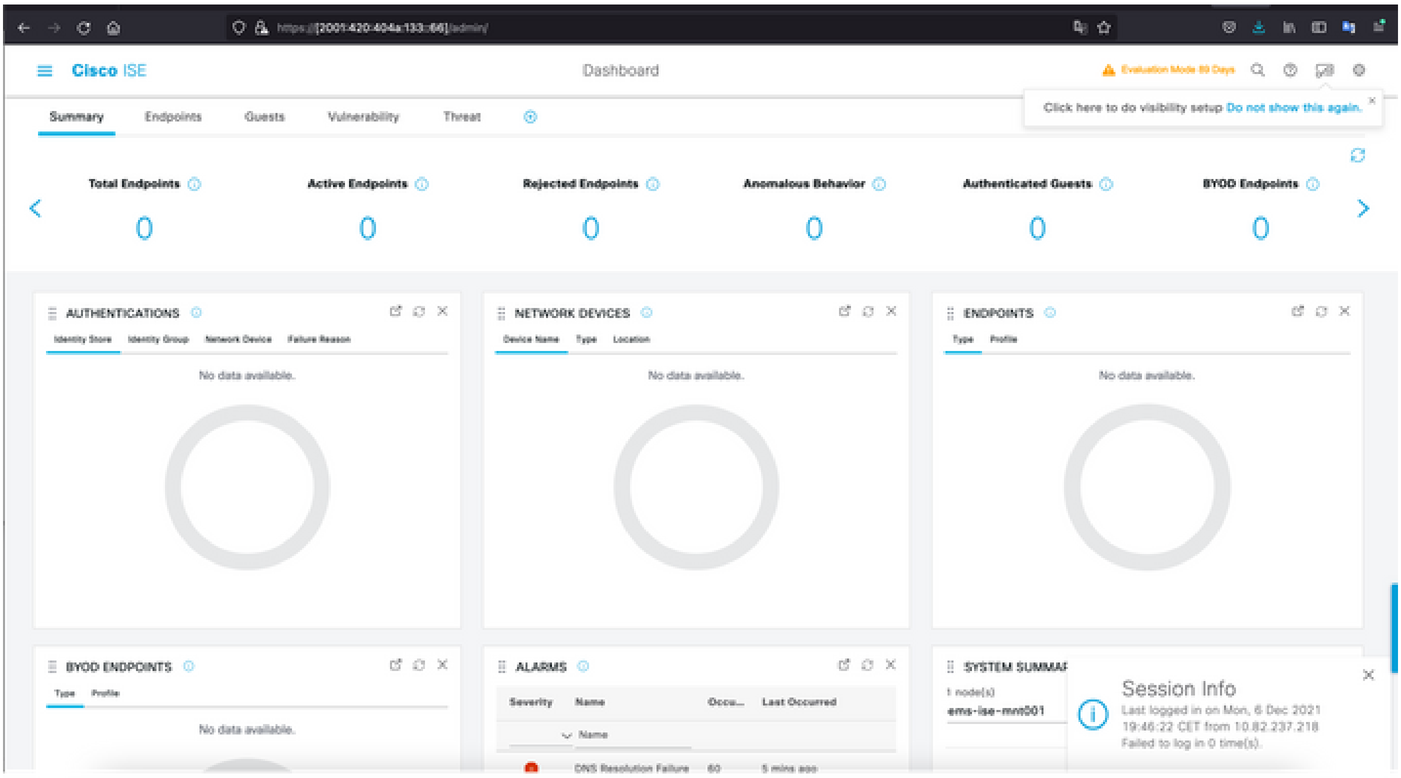
Cisco ISE UI

Step 1. Open a new window browser and type https://[2001:420:404a:133::66]. Please note the IPv6 address must be in brackets.


https://[2001:420:404a:133::66]/admin/login.jsp

Username: admin

Password: ******


https://[2001:420:404a:133::66]/admin/

Total Endpoints 0 | Active Endpoints 0 | Rejected Endpoints 0 | Anomalous Behavior 0 | Authenticated Guests 0 | BYOD Endpoints 0

Click here to do visibility setup Do not show this again.

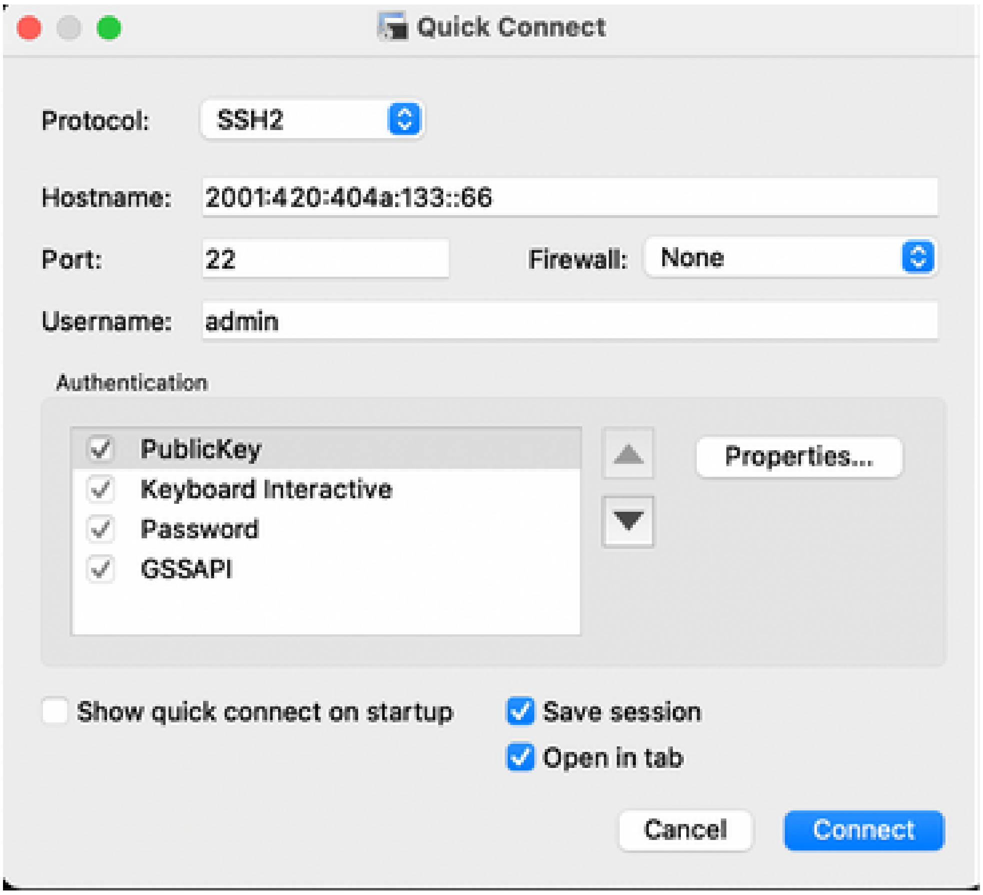
No data available.

Session Info
Last logged in on Mon, 6 Dec 2021 19:46:22 CET from 10.82.237.218
Failed to log in 0 time(s).

Cisco ISE SSH

Note: Secure CRT is used in this example.

Step 1. Open a new SSH session and type the IPv6 Address followed by Admin username and password**.**



Quick Connect

Protocol: SSH2

Hostname: 2001:420:404a:133::66

Port: 22

Firewall: None

Username: admin

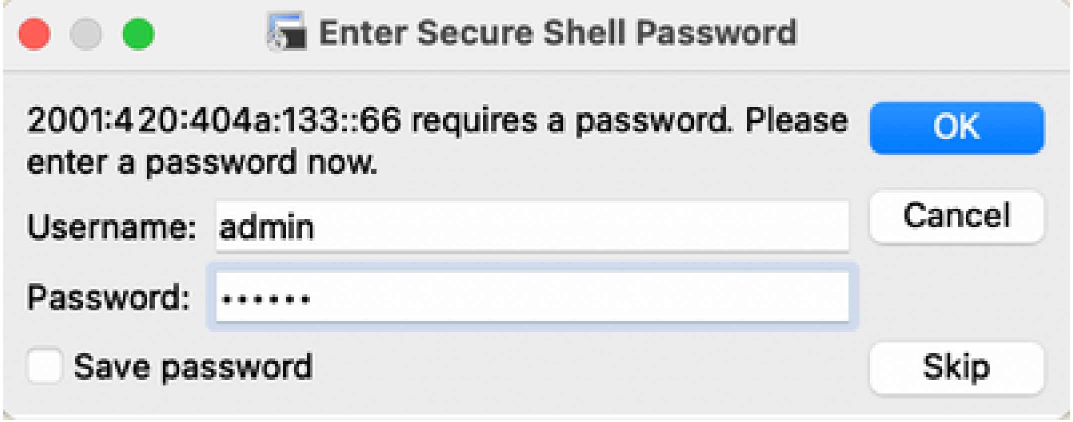
Authentication

☑ PublicKey
☑ Keyboard Interactive
☑ Password
☑ GSSAPI

□ Show quick connect on startup

☑ Save session

☑ Open in tab



Enter Secure Shell Password

2001:420:404a:133::66 requires a password. Please enter a password now.

Username: admin

Password: ••••••

□ Save password

Step 2. Issue the **show interface gigabitEthernet 0** command to validate IPv6 address configured on Eth0 (Interface):

ems-ise-mnt001/admin# show interface gigabitEthernet 0

GigabitEthernet 0

```
    flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500

    inet 10.52.13.175  netmask 255.255.255.0  broadcast 10.52.13.255

    inet6 2001:420:404a:133:117:4cd6:4dfe:811  prefixlen 64  scopeid 0x0<global>

    inet6 2001:420:404a:133::66  prefixlen 64  scopeid 0x0<global>

    ether 00:50:56:89:74:4f  txqueuelen 1000  (Ethernet)
```

```
        RX packets 17683390  bytes 15013193200 (13.9 GiB)

        RX errors 0  dropped 7611  overruns 0  frame 0

        TX packets 16604234  bytes 2712406084 (2.5 GiB)

        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Step 3. Issue the **show users** command to validate the source IPv6 address**.**

```
ems-ise-mnt001/admin# show users

USERNAME         ROLE   HOST                     TTY      LOGIN DATETIME

admin            Admin  10.82.237.218            pts/0    Mon Dec  6 19:47:38 2021

admin            Admin  2001:420:c0c4:1005::589  pts/2    Mon Dec  6 20:09:04 20
```

Troubleshoot

This section provides information you can use to troubleshoot your configuration.

Communication validation with use of ping for IPv6 Address on MacOS

Step 1. Open a terminal and use the **ping6 <IPv6 Address>** command to validate the communication response from ISE

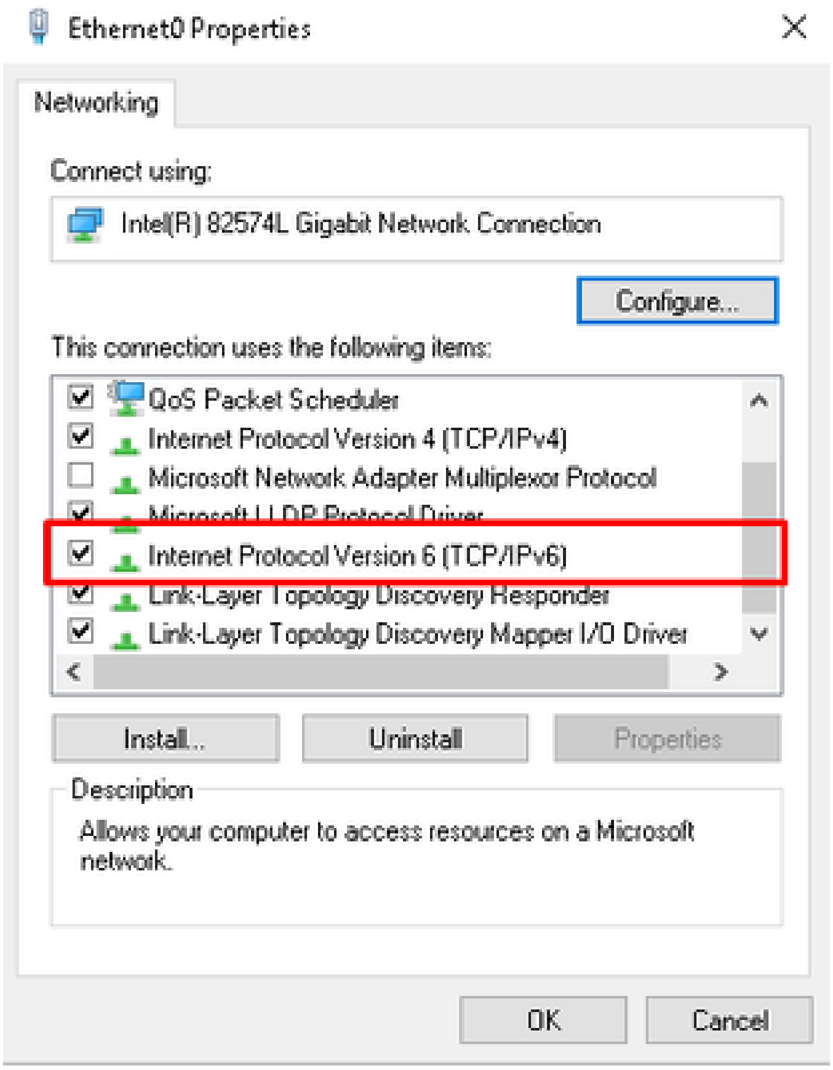
```
M-65PH:~ ecanogut$ ping6 2001:420:404a:133::66

PING6(56=40+8+8 bytes) 2001:420:c0c4:1005::589 --> 2001:420:404a:133::66

16 bytes from 2001:420:404a:133::66, icmp_seq=0 hlim=51 time=229.774 ms

16 bytes from 2001:420:404a:133::66, icmp_seq=1 hlim=51 time=231.262 ms

16 bytes from 2001:420:404a:133::66, icmp_seq=2 hlim=51 time=230.545 ms

16 bytes from 2001:420:404a:133::66, icmp_seq=3 hlim=51 time=320.207 ms

16 bytes from 2001:420:404a:133::66, icmp_seq=4 hlim=51 time=236.246
```

Communication validation with use of ping for IPv6 Address on Windows

In order for the IPv6 ping command to work, Ipv6 needs to be enabled on the network configuration.

Step 1. Select Start > Settings > Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings.

Step 2. Validate Internet Protocol Version 6 (TCP/IPv6) is enabled, click on the checkbox in case this option is disable.



Connect using:

Intel(R) 82574L Gigabit Network Connection

This connection uses the following items:

☑ QoS Packet Scheduler
☑ Internet Protocol Version 4 (TCP/IPv4)
□ Microsoft Network Adapter Multiplexor Protocol
☑ Microsoft LLDP Protocol Driver
☑ Internet Protocol Version 6 (TCP/IPv6)
☑ Link-Layer Topology Discovery Responder
☑ Link-Layer Topology Discovery Mapper I/O Driver

Description

Allows your computer to access resources on a Microsoft network.

Step 3: Open a terminal and use **ping <IPv6 Address> or ping -6 <ise_node_fqdn>** command to validate the communication response from ISE

> ping 2001:420:404a:133::66

Communication validation with use of ping for IPv6 Address on Ping IPv6 In Linux (Ubuntu, Debian, Mint, CentOS, RHEL).

Step 1. Open a terminal and use **ping <IPv6 Address> or ping -6 <ise_node_fqdn>** command to validate the communication response from ISE

$ ping 2001:420:404a:133::66

Communication validation with use of ping for IPv6 Address on Ping IPv6 In Cisco (IOS)

Note: Cisco provides the ping command in exec mode in order to check connectivity to the IPv6 targets. The ping command requires ipv6 parameter and the IPv6 address of the target.

Step 1. Log in into cisco IOS device in exec mode and issue the **ping Ipv6 <IPv6 Address>** command to validate the communication response from ISE

# ping ipv6 2001:420:404a:133::66

Note: In addition, you can also take pcaps from ISE to validate the income IPv6 Traffic

Additional reference: https://community.cisco.com/t5/security-documents/cisco-ise-identity-services-engine-ipv6-support/ta-p/4480704#toc-hId-1800166300