

Configure FDM Active Authentication (Captive Portal)

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[Background Information](#)

[Network Diagram](#)

[Configure](#)

[Verify](#)

[Troubleshoot](#)

Introduction

This document describes a configuration example for Firepower Device Manager (FDM) with Active Authentication (Captive-Portal) integration. This configuration uses Active Directory (AD) as the source and self-signed certificates.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Firepower Threat Defense (FTD)
- Active Directory (AD)
- Self-signed Certificates.
- Secure Socket Layer (SSL)

Components Used

The information in this document is based on the following software version:

- Firepower Threat Defense 6.6.4
- Active Directory
- PC test

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.

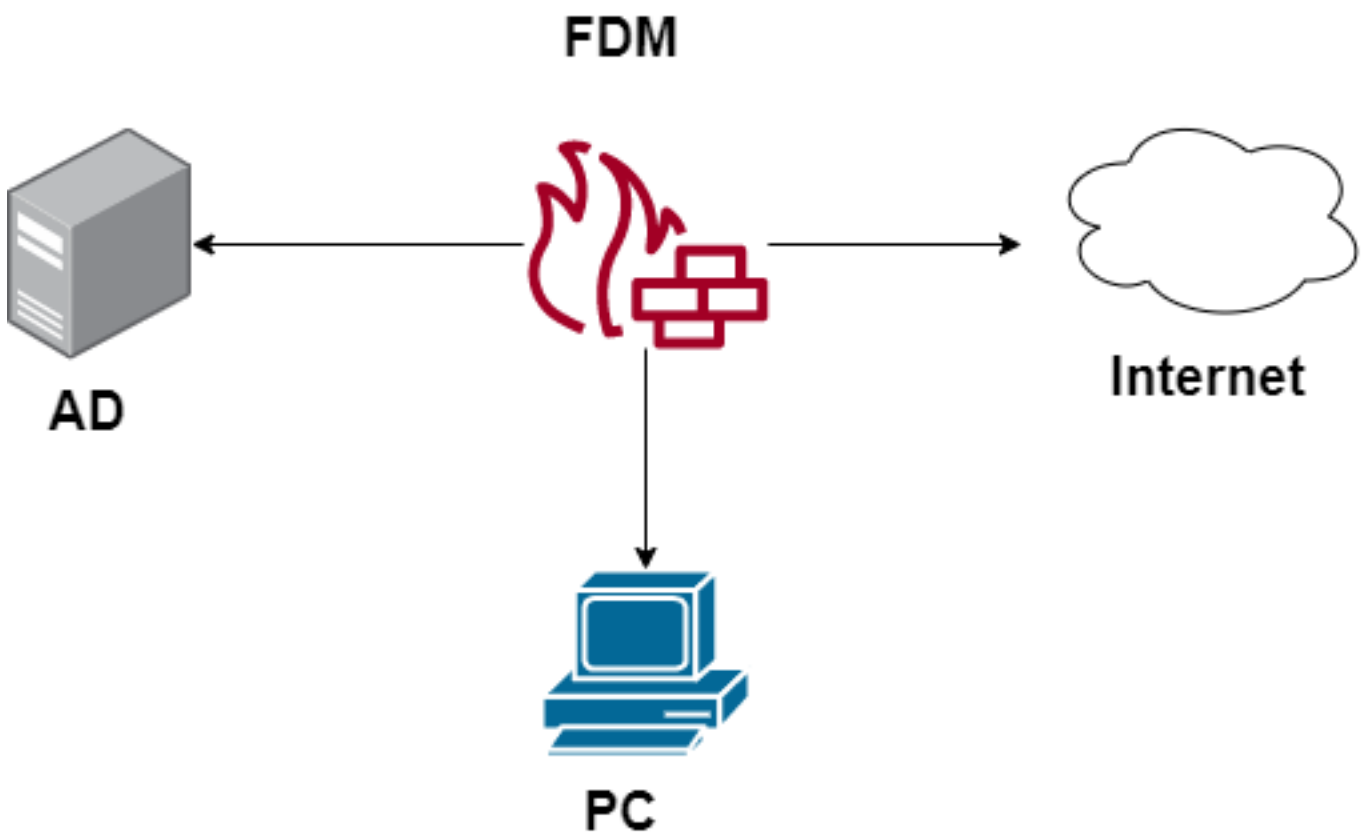
Background Information

Establish User Identity through Active Authentication

Authentication is the act of confirms the identity of a user. With active authentication, when an HTTP traffic flow comes from an IP address for which the system has no user-identity mapping, you can decide whether to authenticate the user who initiated the traffic flow against the directory configured for the system. If the user successfully authenticates, the IP address is considered to have the identity of the authenticated user.

Failure to authenticate does not prevent network access for the user. Your access rules ultimately decide what access to provide these users.

Network Diagram



Configure

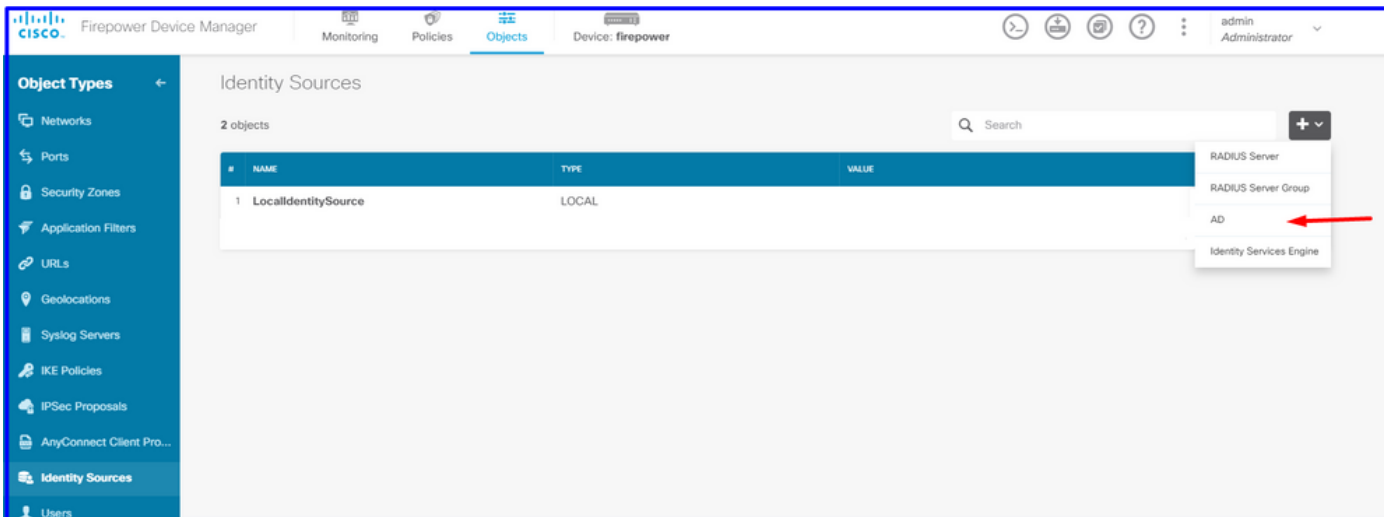
Implement the Identity Policy

To enable user identity acquisition, so that the user associated with an IP address is known, you need to configure several items

Step 1. Configure the AD identity realm

Whether you collect user identity actively (by prompt for user authentication) or passively, you need to configure the Active Directory (AD) server that has the user identity information.

Navigate to **Objects > Identity Services** and select the option **AD** to add the Active Directory.



Add the Active Directory configuration:

Identity Realm is used for Identity Policies and Remote Access VPN. Any changes impact all features that use this realm.

Name
Active_Directory

Type
Active Directory (AD)

Directory Username
sfua
e.g. user@example.com

Directory Password
.....

Base DN
CN=Users,DC=ren,DC=lab
e.g. ou=user, dc=example, dc=com

AD Primary Domain
ren.lab
e.g. example.com

Directory Server Configuration
172.17.4.32:389 [Test](#)

[Add another configuration](#)

CANCEL **OK**

Step 2. Create Self-signed certificates

In order to create a Captive Portal configuration, you need two certificates one for the captive portal and one for SSL decryption.

You can create a self-signed certificate like in this example.

Navigate to **Objects > Certificates**

The screenshot shows the Cisco Firepower Device Manager interface. The top navigation bar includes 'Monitoring', 'Policies', and 'Objects'. The 'Objects' tab is active, showing a list of certificates. A search bar and a dropdown menu are visible. The dropdown menu is open, showing options: 'Add Internal CA', 'Add Internal Certificate' (highlighted with a red arrow), and 'Add Trusted CA Certificate'. The table below shows the following certificates:

#	NAME	TYPE
1	NGFW-Default-InternalCA	Internal CA
2	ssl_captive_portal	Internal CA
3	DefaultInternalCertificate	Internal Certificate
4	DefaultWebserverCertificate	Internal Certificate

Captive portal Self Signed Certificate:

The 'Add Internal Certificate' form contains the following fields and values:

- Name:** captive_portal
- Country:** Mexico (MX)
- State or Province:** Mexico
- Locality or City:** Mexico
- Organization:** MexSecTAC
- Organizational Unit (Department):** MexSecTAC
- Common Name:** fdmcaptive

A note at the bottom of the form states: "You must specify a Common Name to use the certificate with remote access VPN." At the bottom right, there are 'CANCEL' and 'SAVE' buttons.

SSL Self Signed certificate:

Add Internal CA ? ×

Name

ssl_captive_portal

Country

Mexico (MX) ▼

State or Province

Mexico

Locality or City

Mexico

Organization

MexSecTAC

Organizational Unit (Department)

MexSecTAC

Common Name

ss_fdmcaptive

You must specify a Common Name to use the certificate with remote access VPN.

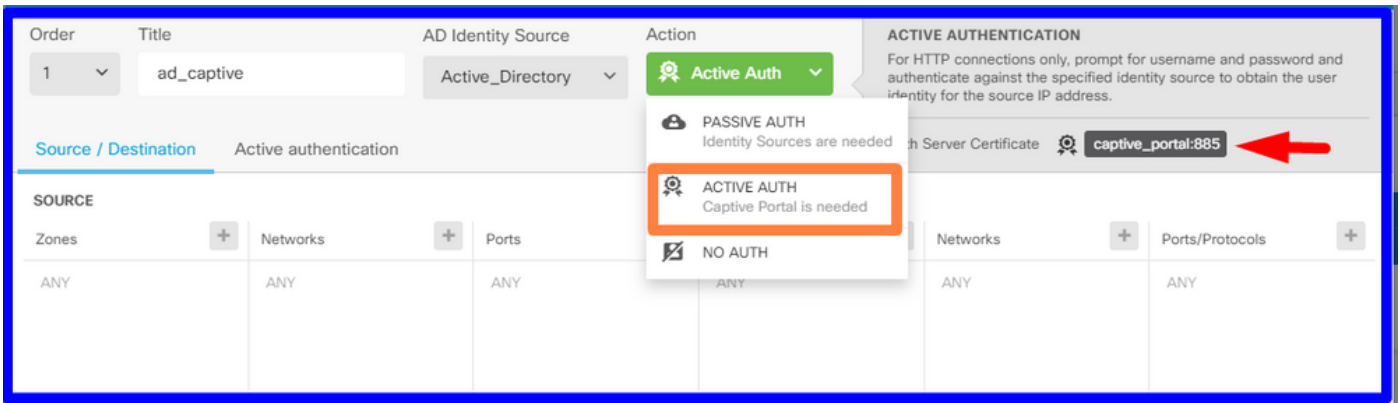
CANCEL SAVE

Step 3. Create Identity rule

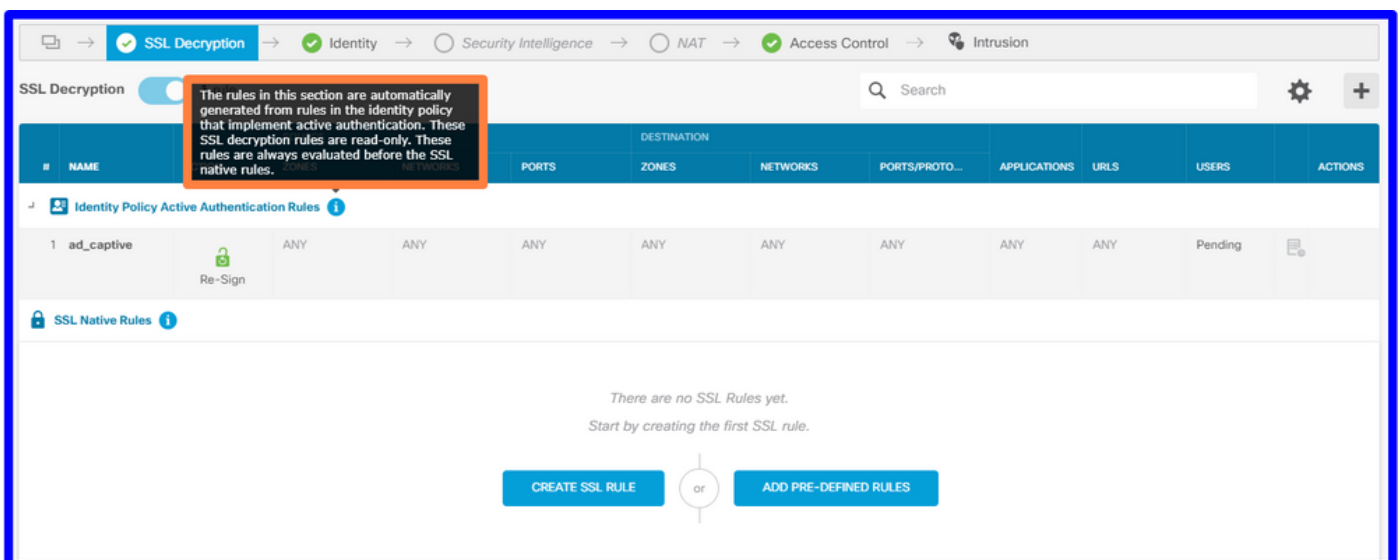
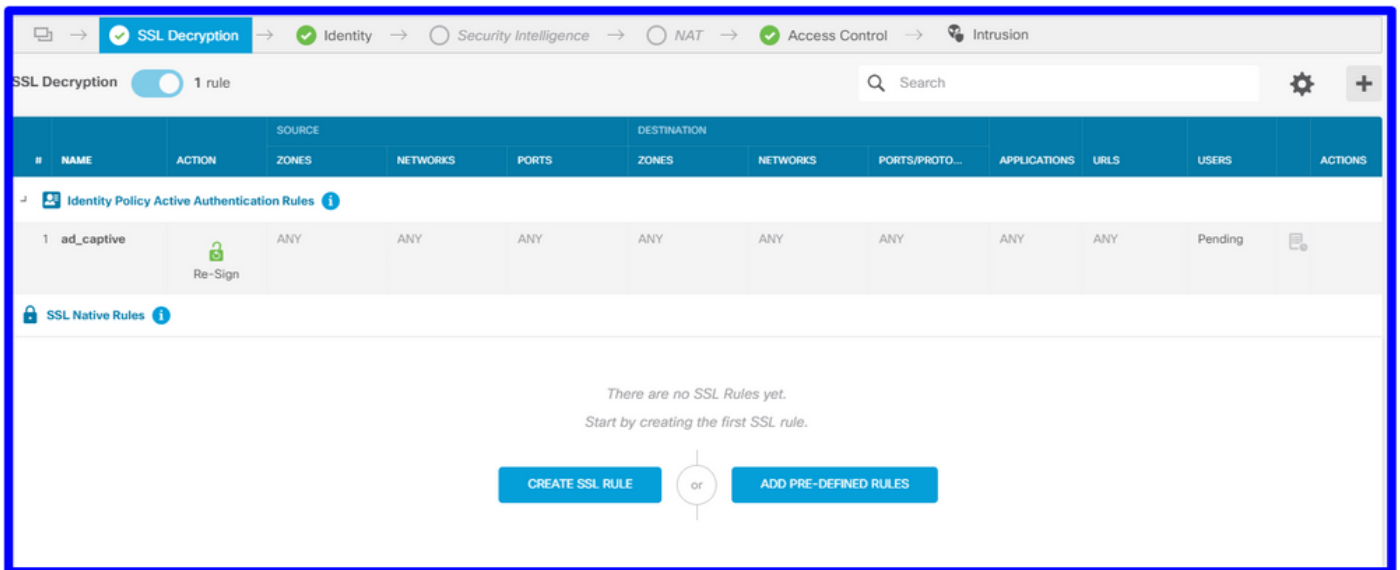
Navigate to **Policies > Identity >** select **[+]** button to add a new Identity rule.

You need to create the Identity policy in order to configure active authentication, the policy must have the below elements:

- AD Identity Source: The same you add in the step number 1
- Action: ACTIVE AUTH
- Server Certificate: The same Self-signed Certificate you created Before [In this scenario captive_portal]
- Type: HTTP Basic (in this example scenario)

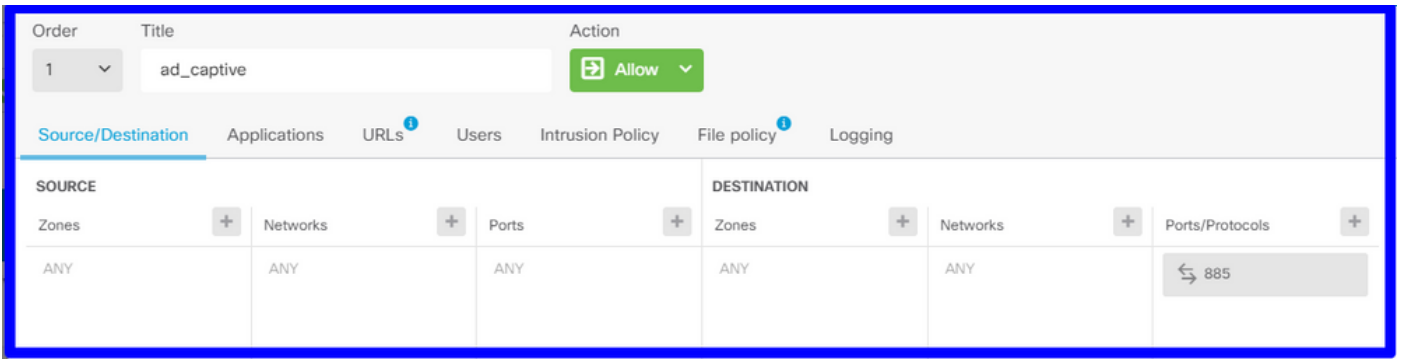


Once the Identity policy is created as active authentication, automatically creates an SSL rule, by default this rule is set up as any any with **Decrypt-Re-sign**, which means that there are no SSL modifications into this rule.

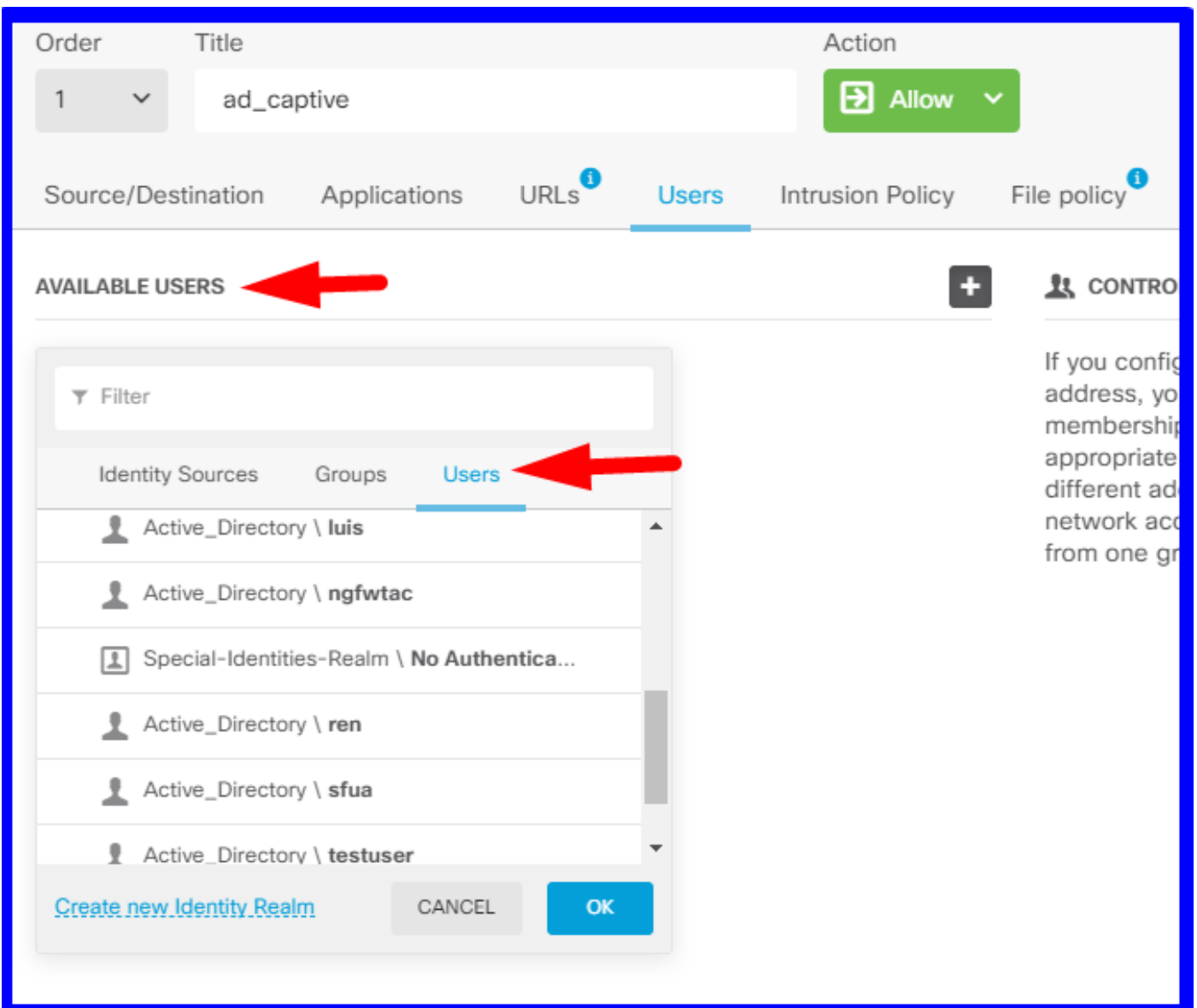


Step 4. Create Access rule into Access Control Policy

You need to allow **pot 885/tcp** which redirects the traffic to the captive portal authentication. Navigate to **Policies > Access Control** and add the access rule.



If you need to check if the users were downloaded from AD, you can edit the access rule and navigate to the **Users** section, then on **AVAILABLE USERS**, you can verify how many users does the FDM already has.



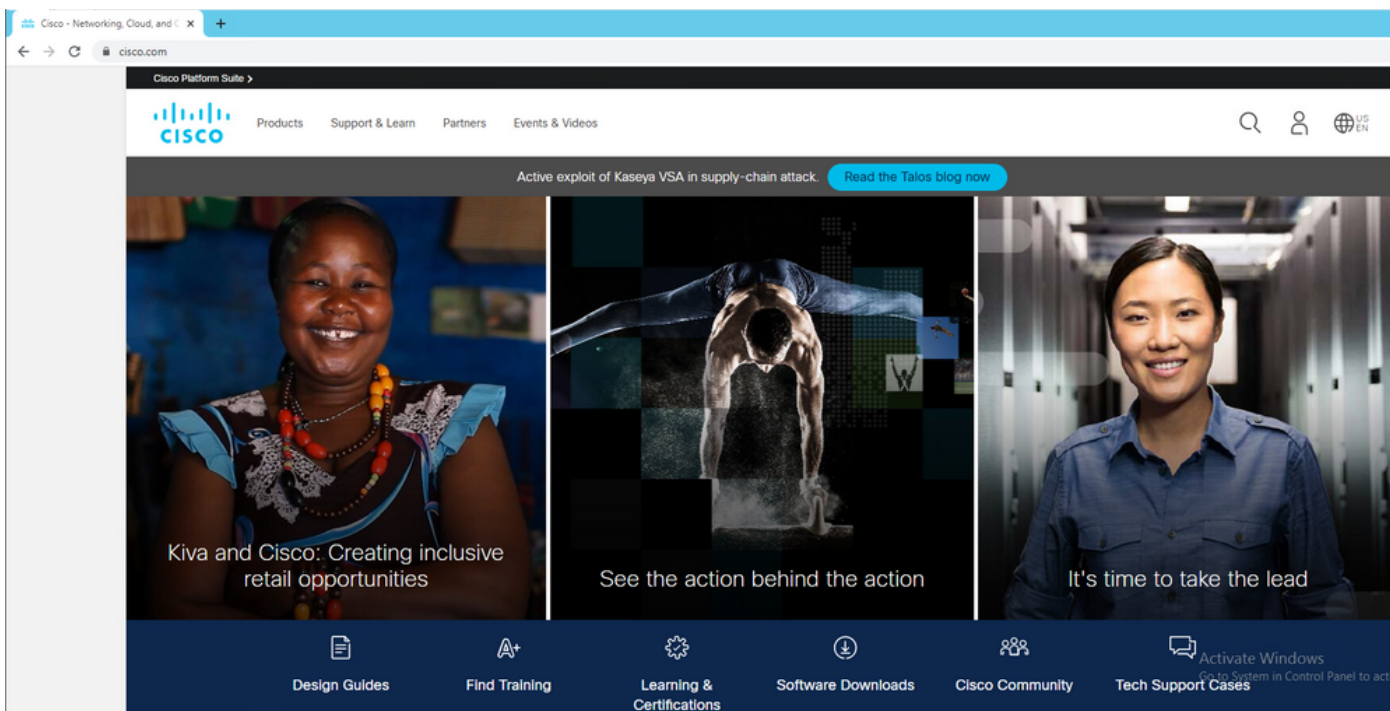
Remember to deploy the configuration changes.

Verify

Verify that the user's device receives the check box when navigates to a HTTPS site.



Enter the user AD credentials.



Troubleshoot

You can use the `user_map_query.pl` script to validate FDM has the user ip mapping

```
user_map_query.pl -u username ----> for users
user_map_query.pl -i x.x.x.x ----> for ip addresses
root@firepower:~# user_map_query.pl -u ngfwtac
```


WARNING: This script was not tested on this major version (6.6.0)! The results may be unexpected.

Current Time: 06/24/2021 20:45:54 UTC

Getting information on username(s)...

User #1: ngfwtac

ID: 8

Last Seen: 06/24/2021 20:44:03 UTC

for_policy: 1

Realm ID: 4

```
=====
|           Database           |
=====
```

##) IP Address [Realm ID]

1) ::ffff:10.115.117.46 [4]

##) Group Name (ID) [realm: Realm Name (ID)]

1) Domain Users (12) [realm: Active_Directory (4)]

On clish mode you can configure:

system support identity-debug to verify if redirection is successful.

> **system support identity-debug**

Enable firewall-engine-debug too? [n]: y

Please specify an IP protocol:

Please specify a client IP address: 10.115.117.46

Please specify a client port:

Please specify a server IP address:

Please specify a server port:

Monitoring identity and firewall debug messages

10.115.117.46-55809 > 72.163.47.11-53 17 AS 1-1 I 1 deleting firewall session flags = 0x10001, fwFlags = 0x100

10.115.117.46-55809 > 72.163.47.11-53 17 AS 1-1 I 1 Logging EOF as part of session delete with rule_id = 1 ruleAction = 2 ruleReason = 0

10.115.117.46-50611 > 142.250.138.94-443 6 AS 1-1 I 0 Got end of flow event from hardware with flags 00010001. Rule Match Data: rule_id 0, rule_action 0 rev_id 0, rule_flags 2

10.115.117.46-50611 > 142.250.138.94-443 6 AS 1-1 I 0 Logging EOF for event from hardware with rule_id = 1 ruleAction = 2 ruleReason = 0

10.115.117.46-50611 > 142.250.138.94-443 6 AS 1-1 I 0 : Received EOF, deleting the snort session.

10.115.117.46-50611 > 142.250.138.94-443 6 AS 1-1 I 0 deleting firewall session flags = 0x10003, fwFlags = 0x114

10.115.117.46-65489 > 72.163.47.11-53 17 AS 1-1 I 1 deleting firewall session flags = 0x10001, fwFlags = 0x100

10.115.117.46-65489 > 72.163.47.11-53 17 AS 1-1 I 1 Logging EOF as part of session delete with rule_id = 1 ruleAction = 2 ruleReason = 0

10.115.117.46-65489 > 173.36.131.10-53 17 AS 1-1 I 1 deleting firewall session flags = 0x10001, fwFlags = 0x100

10.115.117.46-65489 > 173.36.131.10-53 17 AS 1-1 I 1 Logging EOF as part of session delete with rule_id = 1 ruleAction = 2 ruleReason = 0

10.115.117.46-53417 > 72.163.47.11-53 17 AS 1-1 I 0 deleting firewall session flags = 0x10001, fwFlags = 0x100

10.115.117.46-53417 > 72.163.47.11-53 17 AS 1-1 I 0 Logging EOF as part of session delete with rule_id = 1 ruleAction = 2 ruleReason = 0

10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 Starting authentication (sfAuthCheckRules params) with zones 2 -> 3, port 63784 -> 53, geo 16671760 -> 16671778

10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 looked for user_id with realm_id 4 auth_type

```
2, returning realm_id 4 auth_type 2 user_id 8
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 found active binding for user_id 8 in realm
4
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 matched auth rule id = 2023803385 user_id =
8 realm_id = 4
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 new firewall session
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 using HW or preset rule order 4, 'Default
Action', action Allow and prefilter rule 0
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 HitCount data sent for rule id: 1,
10.115.117.46-63784 > 72.163.47.11-53 17 AS 1-1 I 1 allow action
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 Starting authentication (sfAuthCheckRules
params) with zones 2 -> 3, port 50619 -> 443, geo 16671760 -> 16671778
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 looked for user_id with realm_id 4
auth_type 2, returning realm_id 4 auth_type 2 user_id 8
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 found active binding for user_id 8 in
realm 4
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 matched auth rule id = 2023803385 user_id
= 8 realm_id = 4
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 new firewall session
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 using HW or preset rule order 4, 'Default
Action', action Allow and prefilter rule 0
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 HitCount data sent for rule id: 1,
10.115.117.46-50619 > 142.250.138.94-443 6 AS 1-1 I 0 allow action
```

Reference:

https://www.cisco.com/c/en/us/td/docs/security/firepower/660/fdm/fptd-fdm-config-guide-660/fptd-fdm-identity.html#id_71535

https://www.cisco.com/c/en/us/td/docs/security/firepower/660/fdm/fptd-fdm-config-guide-660/fptd-fdm-identity-sources.html#task_83008ECD0DBF4E388B28B6247CB2E64B