



EVE-NG Documentation

EVE-NG Users authentication with Active Directory and Radius Use case guide

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EVE-NG Pro, 2024*

Content

Content	2
I. Lab nodes, image versions	3
II. Install Active Directory Server, ESXi external VM	3
III. Configure DNS Server	4
IV. Configure AD EVE users	5
V. Create EVE User Group	5
VI. ISE pre-stage	6
VII. Active Directory joining to the ISE	6
VIII. EVE-NG Server joining to the ISE	9
IX. Create EVE Users authorization Profiles	12
X. Create Source Identity sequence	13
XI. Create Radius User Identity group	14
XII. Create Internal Radius User	15
XIII. Create Policy Set	15
XIV. EVE-NG Professional/Corporate settings	21
XV. EVE-NG users for Active Directory	22
XVI. Radius and Active Directory users' verification	23

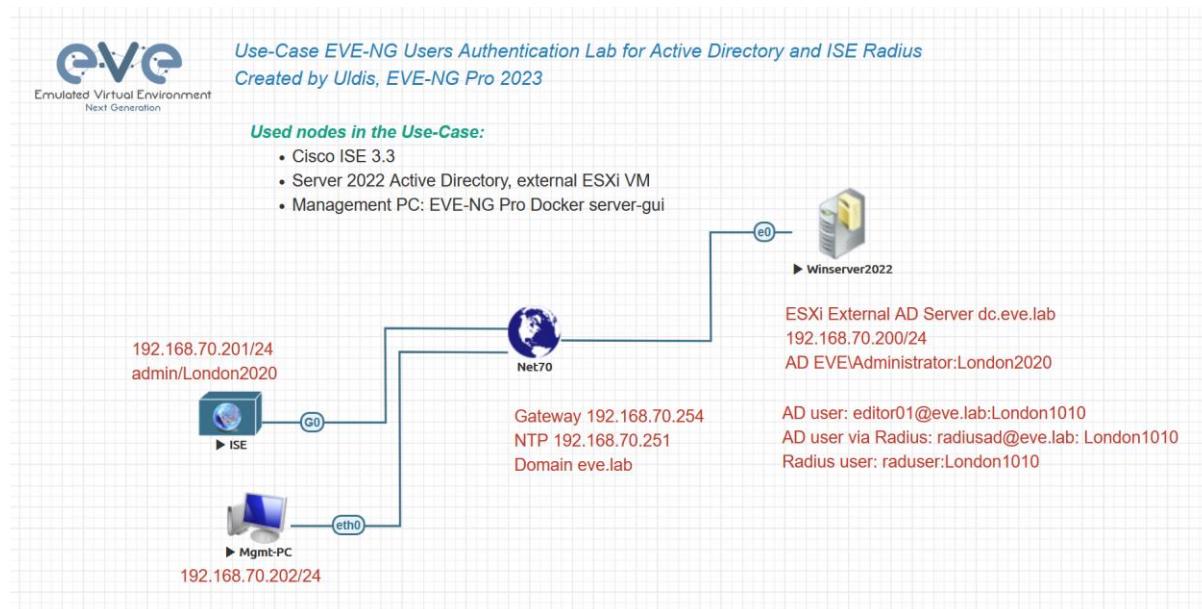
Lab concept:

Practical Use-case how to configure EVE-NG Pro for user authentication to Active Directory or ISE Radius. Note: Windows Server 2022 is installed as external ESXi VM on lab server and connected to the cloud0 network 192.168.70.0/24. EVE-NG VM also is installed on same lab ESXi server and connected to cloud0 IP 192.168.70.252.

Internet and DNS resolving is required for all lab nodes (cloud0 network 192.168.70.0/24).

Lab General Tasks:

1. Configure Windows Server 2022 as Active directory and NTP server
2. Configure Cisco ISE as Radius server for EVE Users and join Server 2022 AD for Active Directory users



I. Lab nodes, image versions

- Cisco ISE 3.3, EVE-Lab node
- DNS/CA/NTP, Windows 2022 x64 Server, External ESXi VM
- EVE-NG Pro VM, External ESXi VM
- Management Host: Docker server-gui

II. Install Active Directory Server, ESXi external VM

Objective: Configure Windows 2022 network interfaces with following:

1. Set static IP address for Windows 2022 interface **Ethernet**:
 - ✓ IP Address: 192.168.70.200
 - ✓ Mask: 255.255.255.0
 - ✓ Gateway: 192.168.70.254
 - ✓ DNS Server: 8.8.8.8, 8.8.4.4

Objective: Configure Windows 2022 server name with following:

- ✓ Open Server manager
- ✓ Click Local Server
- ✓ Click Computer Name
- ✓ Click Change
- ✓ Enter Name: **dc**
- ✓ Click OK
- ✓ Click Close and restart Server

Objective: Configure Windows 2022 server Active Directory:

1. Install Active Directory Server role
 - ✓ Open Server manager
 - ✓ Click Add roles and features
 - ✓ Click 3 times Next
 - ✓ Select Active Directory Domain Services, and click Add features
 - ✓ Click 3 times Next, and Install
 - ✓ After installation is completed, Click close
2. Navigate to Server manager, Notifications (Yellow triangle)
 - ✓ Click on *Promote this server to a domain controller*
 - ✓ Select “Add new forest”
 - ✓ Put domain name “**eve.lab**”
 - ✓ Click Next
 - ✓ Type 2 times DSRM password (example: Test123)
 - ✓ Click Next 5 times
 - ✓ Click Install
 - ✓ After server is rebooted and if required, change administrator password (example: ADserver123)

III. Configure DNS Server

Objective: Configure Windows 2022 as DNS server with following:

1. Navigate to Server manager, Tools/DNS
 - ✓ Expand AD Server one the right
2. Create 4 new Reverse Lookup Zones
 - ✓ Right click on Reverse lookup Zones/New Zone, Next
 - ✓ Leave Primary Zone and click Next
 - ✓ Leave To all DNS servers running in domain controllers in this domain: eve.lab, click Next
 - ✓ IPv4 Reverse Lookup Zone, Next
 - ✓ Network ID: **192.168.70**, Next, Next
 - ✓ Allow both non-secure and secure dynamic updates, Next
 - ✓ Finish
 - ✓ New Zone, Next
 - ✓ Leave Primary Zone and click Next
 - ✓ Leave To all DNS servers running in domain controllers in this domain: eve.lab, click Next
 - ✓ IPv4 Reverse Lookup Zone, Next
 - ✓ Network ID: **192.168.70**, Next, Next

- ✓ Allow both non-secure and secure dynamic updates, Next
 - ✓ Finish
3. Create new A record for ISE
- ✓ Navigate to forward lookup zone **eve.lab**
 - ✓ Create New host (A or AAAA)
 - ✓ Name: **ise**
 - ✓ IP Address: 192.168.70.201
 - ✓ Enable checkbox Create associated pointer (PTR) record
 - ✓ Add Host

IV. Configure AD EVE users

Objective: Configure Active Directory Corporate Users:

1. Navigate to Server manager, Tools/Active Directory Users and Computers
 - ✓ Right click on Users directory/New/user
 - ✓ First Name: Jenny
 - ✓ Last name: Doe
 - ✓ Username: **jennydoe**
 - ✓ Click Next
 - ✓ Password (2 times): **Silver2023**
 - ✓ Uncheck User must change password at next login
 - ✓ Check: User cannot change password and Password never expires
 - ✓ Click Next and Finish
2. Navigate to Server manager, Tools/Active Directory Users and Computers
 - ✓ Right click on Users directory/New/user
 - ✓ First Name: John
 - ✓ Last name: Doe
 - ✓ Username: **johndoe**
 - ✓ Click Next
 - ✓ Password (2 times): **Gold2023**
 - ✓ Uncheck User must change password at next login
 - ✓ Check: User cannot change password and Password never expires
 - ✓ Click Next and Finish

V. Create EVE User Group

Objective: Add User Groups to the Active directory:

1. Navigate to Server manager, Tools/Active Directory Users and Computers
 - ✓ Right click on Users directory/New/Group
 - ✓ Name: **EVE Users**
 - ✓ Click OK

Objective: Add users into created AD groups

1. Right Click on user **John Doe** and select: Add to group
 - ✓ Enter the object names to select: **EVE Users**
 - ✓ Click Check name
 - ✓ Click OK

2. Right Click on user **Jenny Doe** and select: Add to group
 - ✓ Enter the object names to select: **EVE Users**
 - ✓ Click Check name
 - ✓ Click OK

VI. ISE pre-stage

Objective: Pre-stage ISE

1. Setup ISE settings
 - ✓ Type: setup

```
*****
Please type 'setup' to configure the appliance
*****
localhost login: setup_
```

- ✓ Hostname: ise
- ✓ IP address: 192.168.70.201
- ✓ Netmask: 255.255.255.0
- ✓ Default gateway: 192.168.70.254
- ✓ Default domain: eve.lab
- ✓ Primary name server: 192.168.70.200
- ✓ NTP Server: pool.ntp.org
- ✓ User: admin
- ✓ Password: Test1234

```
Press 'Ctrl-C' to abort setup
Enter hostname[]: ise
Enter IP address[]: 192.168.70.201
Enter IP netmask[]: 255.255.255.0
Enter IP default gateway[]: 192.168.70.254
Do you want to configure IPv6 address? Y/N [N]:
Enter default DNS domain[]: eve.lab
Enter primary nameserver[]: 192.168.70.200
Add secondary nameserver? Y/N [N]:
Enter NTP server[time.nist.gov]: pool.ntp.org
Add another NTP server? Y/N [N]:
Enter system timezone[UTC]:
Enable SSH service? Y/N [N]: Y
Enter username[admin]:
Enter password:
Enter password again:
```

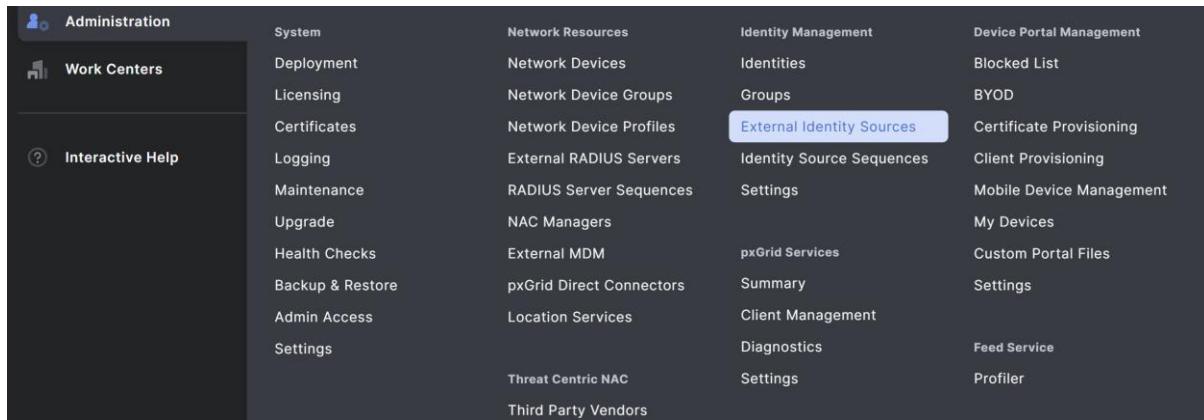
- ✓ Wait till ise installs and brings up, Services must be in **running state**

ISE PROCESS NAME	STATE	PROCESS ID
Database Listener	running	18865
Database Server	running	70 PROCESSES
Application Server	running	3321
Profiler Database	running	38063
ISE Indexing Engine	running	8128
AD Connector	running	11190
MRT Session Database	running	29971
MRT Log Processor	running	3792
Certificate Authority Service	running	11858
EST Service	running	6234
SXP Engine Service	disabled	
Docker Daemon	running	21583
TC-MNC Service	disabled	
pxgrid Infrastructure Service	disabled	
pxgrid Publisher Subscriber Service	disabled	
pxgrid Connection Manager	disabled	
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	22928
ISE API Gateway Database Service	running	28969
ISE API Gateway Service	running	32131
Segmentation Policy Service	disabled	
REST Auth Service	disabled	
SSE Connector	disabled	

VII. Active Directory joining to the ISE

Objective: Join Active Directory as External Identity Source to the ISE

1. Open Mgmt host and navigate to Applications/Internet/Chromium Web Browser
 - ✓ Log into the ISE by browsing to <https://ise.eve.lab> using a username: **admin** and a password: **Test1234**
 - ✓ Click on side Administration/Identity Management/External Identity Sources



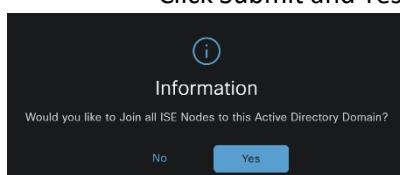
- ✓ Click Active Directory and “+ Add”

The screenshot shows the Cisco ISE Administration / Identity Management interface. The 'External Identity Sources' tab is selected. On the left sidebar, the 'Administration' option is highlighted with a red arrow. In the main panel, the 'Active Directory' entry under 'External Identity Sources' is selected, indicated by a red arrow. A red arrow also points to the '+ Add' button at the top of the list.

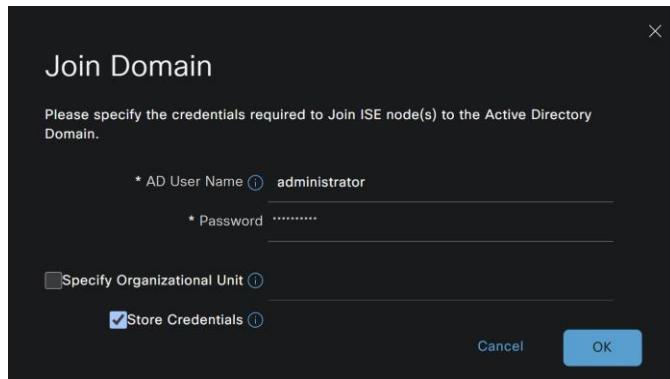
- ✓ Joint point name: **dc.eve.lab**
- ✓ Active Directory domain name: **eve.lab**

The screenshot shows the 'External Identity Sources' configuration page. The 'Connection' section is active. It shows the 'Join Point Name' set to 'dc.eve.lab' and the 'Active Directory Domain' set to 'eve.lab'.

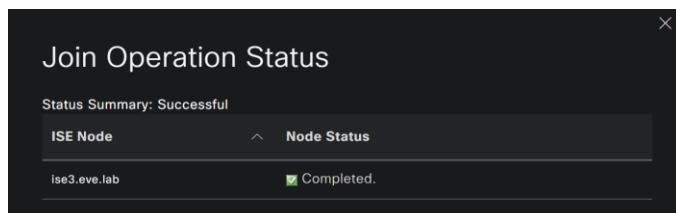
- ✓ Click Submit and Yes for Join



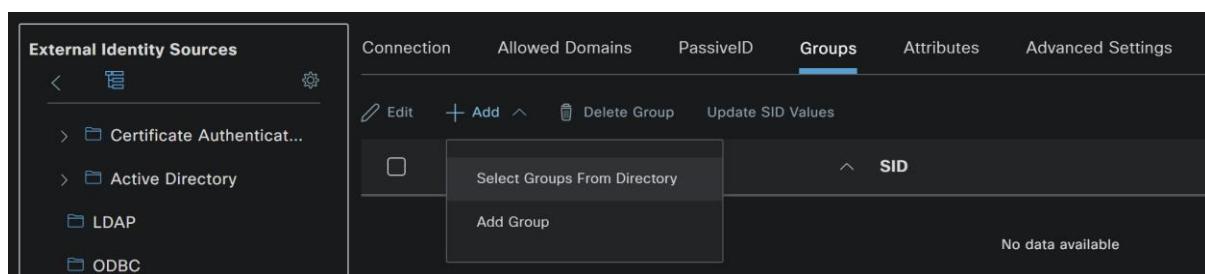
- ✓ Fill credentials AD User name: **administrator**, Password: **Test1234** (AD Server administrator password)



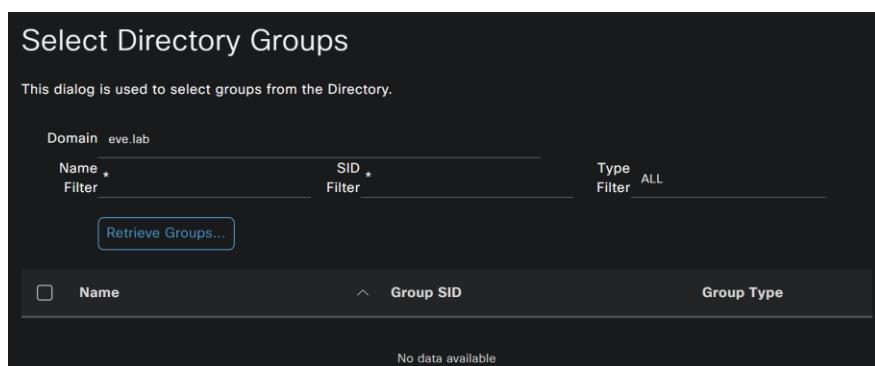
- ✓ Click OK, Status must be completed (green)



- ✓ Click Tab Groups>Select Groups From Directory



- ✓ Click Retrieve Groups



- ✓ Select EVE Users, Click OK

Select Directory Groups

This dialog is used to select groups from the Directory.

Domain	Name	Filter	SID	Filter	Type	Filter	ALL																
eve.lab																							
				49 Groups Retrieved.																			
<table border="1"> <thead> <tr> <th><input type="checkbox"/></th> <th>Name</th> <th>Group SID</th> <th>Group Type</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td>eve.lab/Users/EVE Users</td> <td>S-1-5-21-2938363656-877365028-324317459...</td> <td>GLOBAL</td> </tr> <tr> <td><input type="checkbox"/></td> <td>eve.lab/Users/Enterprise Admins</td> <td>S-1-5-21-2938363656-877365028-324317459...</td> <td>UNIVERSAL</td> </tr> <tr> <td><input type="checkbox"/></td> <td>eve.lab/Users/Enterprise Key Admins</td> <td>S-1-5-21-2938363656-877365028-324317459...</td> <td>UNIVERSAL</td> </tr> </tbody> </table>								<input type="checkbox"/>	Name	Group SID	Group Type	<input checked="" type="checkbox"/>	eve.lab/Users/EVE Users	S-1-5-21-2938363656-877365028-324317459...	GLOBAL	<input type="checkbox"/>	eve.lab/Users/Enterprise Admins	S-1-5-21-2938363656-877365028-324317459...	UNIVERSAL	<input type="checkbox"/>	eve.lab/Users/Enterprise Key Admins	S-1-5-21-2938363656-877365028-324317459...	UNIVERSAL
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- ✓ To complete configuration at the bottom of screen click **Save**

VIII. EVE-NG Server joining to the ISE

1. Objective: Create Device Type Group

- ✓ Navigate to Administration/Network Device Groups



The screenshot shows the ISE Administration interface. The 'Work Centers' tab is selected. Under 'Network Resources', the 'Network Device Groups' tab is highlighted. Other tabs include System, Deployment, Licensing, Certificates, Network Devices, Identities, Groups, Network Device Profiles, External Identity Sources, and Device Portal Management.

- ✓ Click to tab “Network Device Groups”
- ✓ Click “+ Add”

Network Device Groups

All Groups Choose group ▾

Add Duplicate Edit Trash Show group members Import Export Flat Table Expand All Collapse All

<input type="checkbox"/>	Name	Description	No. of Network Devices
<input type="checkbox"/>	All Device Types	All Device Types	--

- ✓ Name: **Servers**
- ✓ Parent Group: **All Device Types**
- ✓ Click **Save**

Add Group

Name*
Servers

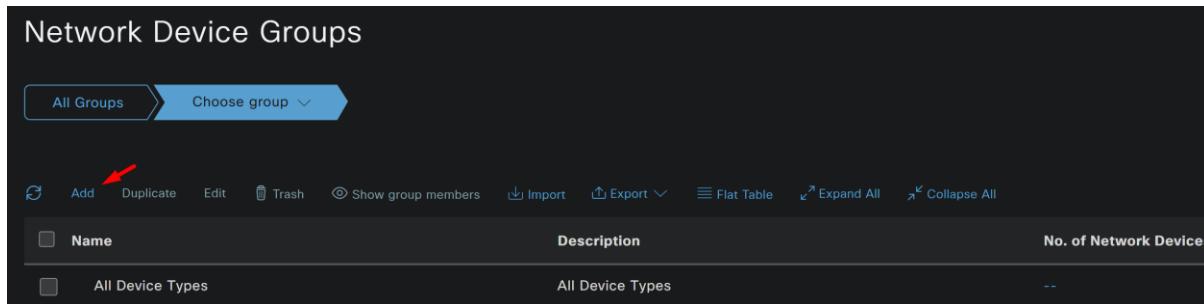
Description

Parent Group*
All Device Types

Cancel Save

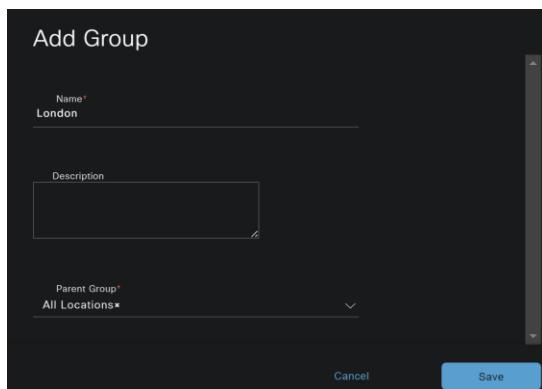
2. Objective: Create Location Group

- ✓ Click “+ Add”



The screenshot shows the 'Network Device Groups' page. At the top, there are two buttons: 'All Groups' and 'Choose group'. Below the buttons is a toolbar with icons for Refresh, Add (highlighted with a red arrow), Duplicate, Edit, Trash, Show group members, Import, Export, Flat Table, Expand All, and Collapse All. The main area is a table with columns: Name, Description, and No. of Network Devices. A single row is visible, showing 'All Device Types' under 'Name' and 'All Device Types' under 'Description'. The 'No. of Network Devices' column shows '--'.

- ✓ Name: **London**
- ✓ Parent Group: **All Locations**
- ✓ Click Save



The screenshot shows the 'Add Group' dialog box. It has three fields: 'Name' (filled with 'London'), 'Description' (empty), and 'Parent Group' (set to 'All Locations'). At the bottom are 'Cancel' and 'Save' buttons, with 'Save' being highlighted.

3. Objective: Create Network Device Profile

- ✓ Navigate to Administration/Network Device Profiles
- ✓ Click “+ Add”



The screenshot shows the 'Administration' menu. It includes sections for Work Centers and Interactive Help. Under 'System', there are links for Deployment, Licensing, Certificates, and Logging. Under 'Network Resources', there are links for Network Devices, Network Device Groups, and External RADIUS Servers. Under 'Identity Management', there are links for Identities, Groups, External Identity Sources, and Identity Source Sequences. Under 'Device Portal Management', there are links for Blocked List, BYOD, Certificate Provisioning, and Client Provisioning. The 'Network Device Profiles' link is highlighted with a blue box.

- ✓ Profile name: **Linux_Server**
- ✓ Description: EVE-NG VM Ware Linux Server
- ✓ Vendor: Other
- ✓ Supported Protocols: Radius
- ✓ Submit

The screenshot shows the 'Network Device Profile List' in the EVE-NG interface. A new profile is being created with the name 'Linux_Server'. The description is set to 'EVE-NG VM Ware Linux Server'. There is an 'Icon' section with a file icon and buttons for 'Change icon...' and 'Set To Default'. The vendor is listed as 'Other'. Under 'Supported Protocols', 'RADIUS' is checked, while 'TACACS+' and 'TrustSec' are not. At the top right are 'Submit' and 'Cancel' buttons.

4. Objective: Join EVE-NG Server switch to the ISE radius

- ✓ Navigate to Administration/Network Devices
- ✓ Click “+ Add”

The screenshot shows the Cisco ISE Administration menu. The 'Work Centers' tab is selected. The 'Network Resources' tab is highlighted. Other tabs include System, Identity Management, and Device Portal Management. Sub-options under Network Resources include Deployment, Licensing, Certificates, Logging, Network Device Groups, Network Device Profiles, External Identity Sources, Identity Source Sequences, Blocked List, BYOD, Certificate Provisioning, and Client Provisioning.

- ✓ Name: EVE-NG-Server
- ✓ Description: Linux VM Ware EVE-NG Server
- ✓ IP Address: **192.168.70.252**
- ✓ Device Profile: Linux_Server
- ✓ Model Name: VM_Ware_Machine
- ✓ Version: 5.0.1-106
- ✓ Location: London
- ✓ Device Type: Servers
- ✓ Select Radius checkbox
- ✓ Shared Secret: **eve2023**
- ✓ Submit

Network Devices **Network Device Groups** **Network Device Profiles** **External RADIUS Servers** **RADIUS Server Sequences**

Network Devices

Name: **EVE-NG-Server**

Description: **Linux VM Ware EVE-NG Server**

IP Address: * IP : **192.168.70.252** / **32**

Device Profile: **Linux_Server**

Model Name: **VM Ware Machine**

Software Version: **5.0.1-106**

Network Device Group

Location: **London** Set To Default

IPSEC: **No** Set To Default

Device Type: **Servers** Set To Default

RADIUS Authentication Settings

RADIUS UDP Settings

Protocol: **RADIUS**

Shared Secret: **eve2023** Hide

Network Devices

<input type="checkbox"/>	Name	IP/Mask	Profile Name	Location	Type	Description
<input type="checkbox"/>	EVE-NG-Se...	192.168.7...	Linux_Server	London	Servers	Linux VM Ware EVE-NG Server

IX. Create EVE Users authorization Profiles

Objective: Create two (2) Authorization Profiles

- ✓ Navigate to Policy/Results

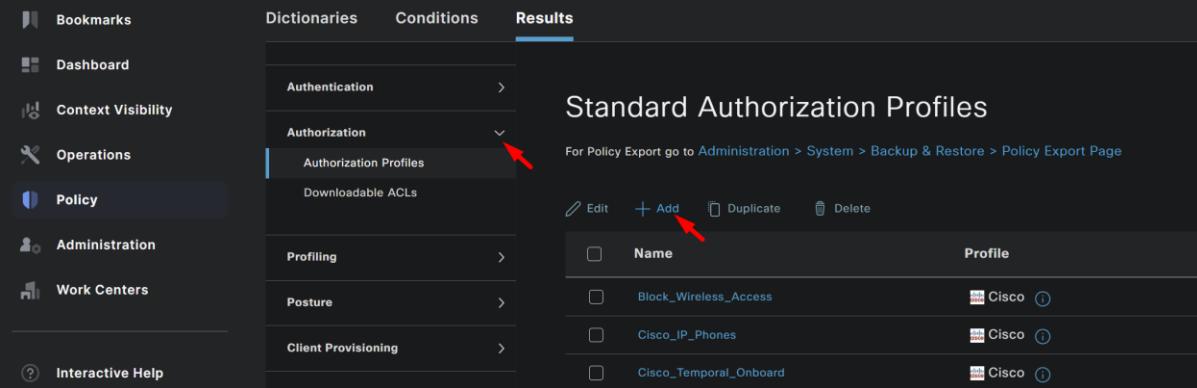
Policy

Administration

Work Centers

Policy Sets	Policy Elements
Profiling	Dictionaries
Posture	Conditions
Client Provisioning	Results

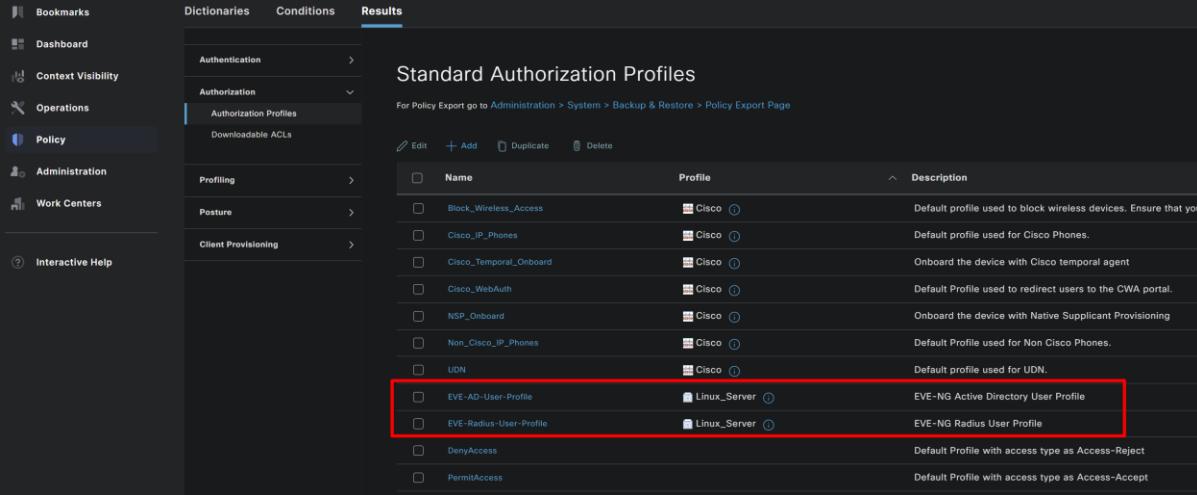
- ✓ Expand Authorization/Authorization Profiles



The screenshot shows the EVE-NG interface with the 'Policy' tab selected. In the sidebar, under 'Authorization', the 'Authorization Profiles' option is expanded, indicated by a red arrow. On the main panel, the title 'Standard Authorization Profiles' is displayed, along with a note for policy export. Below this is a table with columns for 'Name', 'Profile', and 'Description'. Three profiles are listed: 'Block_Wireless_Access', 'Cisco_IP_Phones', and 'Cisco_Temporal_Onboard', all associated with the 'Cisco' profile.

Name	Profile	Description
Block_Wireless_Access	Cisco	Default profile used to block wireless devices. Ensure that you...
Cisco_IP_Phones	Cisco	Default profile used for Cisco Phones.
Cisco_Temporal_Onboard	Cisco	Onboard the device with Cisco temporal agent

- ✓ Click “+ Add”
- ✓ Name: **EVE-AD-User-Profile**
- ✓ Description: EVE-NG Active Directory User Profile
- ✓ Network Device Profile: Linux_Server
- ✓ Submit
- ✓ Click “+ Add”
- ✓ Name: **EVE-Radius-User-Profile**
- ✓ Description: EVE-NG Radius User Profile
- ✓ Network Device Profile: Linux_Server
- ✓ Submit



This screenshot shows the same interface after the new profiles have been added. The 'EVE-AD-User-Profile' and 'EVE-Radius-User-Profile' entries are now visible in the list, both highlighted with a red box. The 'Description' column provides details for each profile, such as 'EVE-NG Active Directory User Profile' and 'EVE-NG Radius User Profile'.

Name	Profile	Description
Block_Wireless_Access	Cisco	Default profile used to block wireless devices. Ensure that you...
Cisco_IP_Phones	Cisco	Default profile used for Cisco Phones.
Cisco_Temporal_Onboard	Cisco	Onboard the device with Cisco temporal agent
Cisco_WebAuth	Cisco	Default Profile used to redirect users to the CWA portal.
NSP_Onboard	Cisco	Onboard the device with Native Suplicant Provisioning
Non_Cisco_IP_Phones	Cisco	Default Profile used for Non Cisco Phones.
UDN	Cisco	Default profile used for UDN.
EVE-AD-User-Profile	Linux_Server	EVE-NG Active Directory User Profile
EVE-Radius-User-Profile	Linux_Server	EVE-NG Radius User Profile
DenyAccess		Default Profile with access type as Access-Reject
PermitAccess		Default Profile with access type as Access-Accept

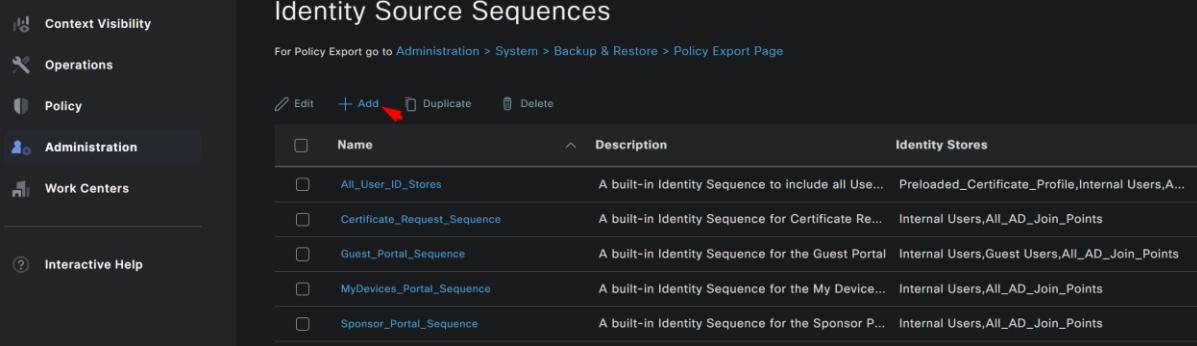
X. Create Source Identity sequence

Objective: Create Source identity sequence

- ✓ Navigate to Administration/Identity Source Sequences

Administration		System	Network Resources	Identity Management	Device Portal Management
Work Centers		Deployment	Network Devices	Identities	Blocked List
Interactive Help		Licensing	Network Device Groups	Groups	BYOD
		Certificates	Network Device Profiles	External Identity Sources	Certificate Provisioning
Logging			External RADIUS Servers	Identity Source Sequences	Client Provisioning
Maintenance			RADIUS Server Sequences	Settings	Mobile Device Management
Upgrade			NAC Managers		My Devices

- ✓ Click “+ Add”

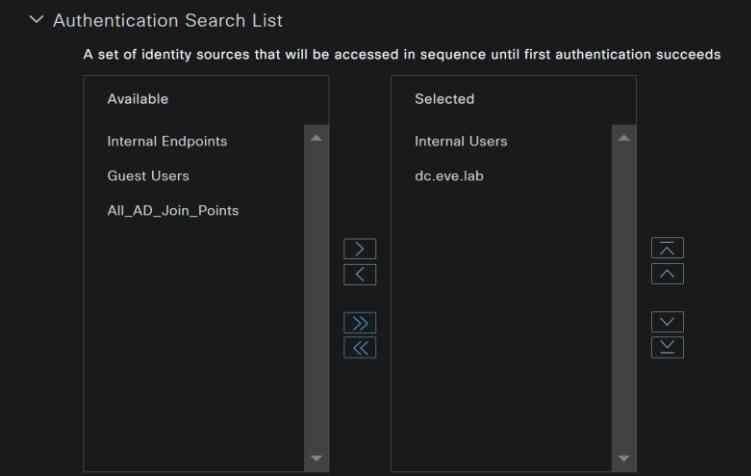


Identity Source Sequences

For Policy Export go to Administration > System > Backup & Restore > Policy Export Page

Name	Description	Identity Stores
All_User_ID_Stores	A built-in Identity Sequence to include all User...	Preloaded_Certificate_Profile, Internal Users, A...
Certificate_Request_Sequence	A built-in Identity Sequence for Certificate Re...	Internal Users, All_AD_Join_Points
Guest_Portal_Sequence	A built-in Identity Sequence for the Guest Portal	Internal Users, Guest Users, All_AD_Join_Points
MyDevices_Portal_Sequence	A built-in Identity Sequence for the My Device...	Internal Users, All_AD_Join_Points
Sponsor_Portal_Sequence	A built-in Identity Sequence for the Sponsor P...	Internal Users, All_AD_Join_Points

- ✓ Name: **EVE_Identity_Sequence**
- ✓ Select Identity sources: **dc.eve.lab** and **Internal Users**



Authentication Search List

A set of identity sources that will be accessed in sequence until first authentication succeeds

Available	Selected
Internal Endpoints	Internal Users
Guest Users	dc.eve.lab
All_AD_Join_Points	

- ✓ Click: **Submit**

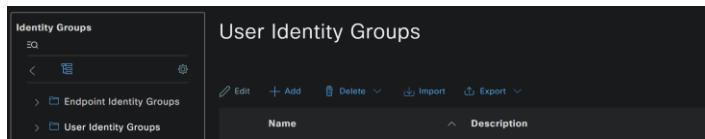
XI. Create Radius User Identity group

Objective: Create User Identity Group

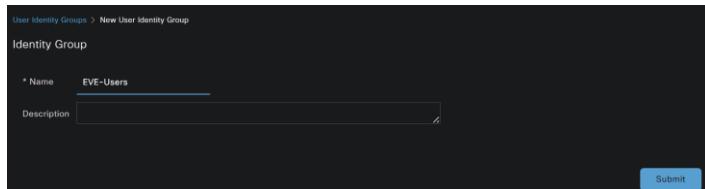
- ✓ Navigate to ISE Management/Work Centers/TrustSec/Components

Administration		System	Network Resources	Identity Management	Device Portal Management
Work Centers		Deployment	Network Devices	Identities	Blocked List
Certificates		Licensing	Network Device Groups	Groups	BYOD
			Network Device Profiles	External Identity Sources	Certificate Provisioning

- ✓ Select user Identity Groups
- ✓ + Add



- ✓ Name: **EVE-users**
- ✓ Submit



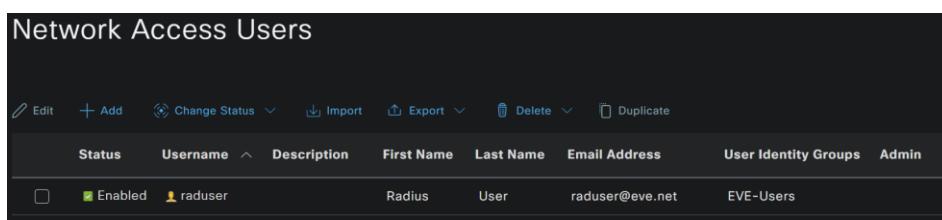
XII. Create Internal Radius User

Objective: Create Internal Radius User for EVE-NG test

- ✓ Navigate to Administration/Identities

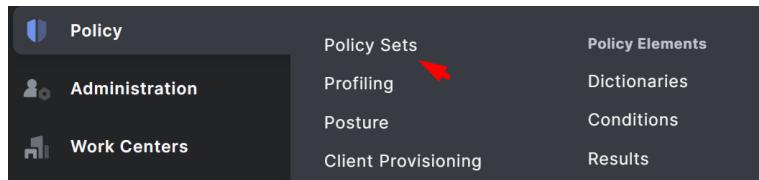


- ✓ Click + Add
- ✓ Username: raduser
- ✓ Status: Enabled
- ✓ Email: raduser@eve.net
- ✓ 2x times type user password: Test1234
- ✓ User Information first name: Radius
- ✓ User Information last name: User
- ✓ User Group: EVE-Users
- ✓ Submit



XIII. Create Policy Set

1. **Objective: Create Policy EVE User authentication**
- ✓ Navigate to Administration/Policy/Policy Sets



✓ Click "+" for new Policy

This screenshot shows the "Policy Sets" list. It includes columns for Status, Policy Set Name, Description, and Conditions. A search bar is at the top. At the bottom, there's a table with one row labeled "Default". A red arrow points to the "+" button at the bottom right of the table.

Status	Policy Set Name	Description	Conditions
Green checkmark	Default	Default policy set	

- ✓ Name: **EVE-POLICY**
- ✓ Click "+" for New Conditions

This screenshot shows the "Conditions" studio editor. It has tabs for Status, Policy Set Name, Description, and Conditions. A search bar is at the top. Below it, a table lists "EVE-POLICY" as the selected policy set. A red arrow points to the "EVE-POLICY" entry in the table.

Status	Policy Set Name	Description	Conditions
Green checkmark	EVE-POLICY		

✓ In Conditions Studio Editor "Click to add an attribute"

This screenshot shows the "Conditions Studio" editor. It has a "Library" section on the left with icons for location, device, user, and network. The "Editor" section shows a condition being built: "Click to add an attribute". Below it, there's a dropdown for "Dictionary" set to "All Dictionaries" and a field for "Attribute" set to "DEVICE". A red arrow points to the "DEVICE" selection.

- ✓ In Editor "Click Tab Location"
- ✓ Select Attribute **Location/device**

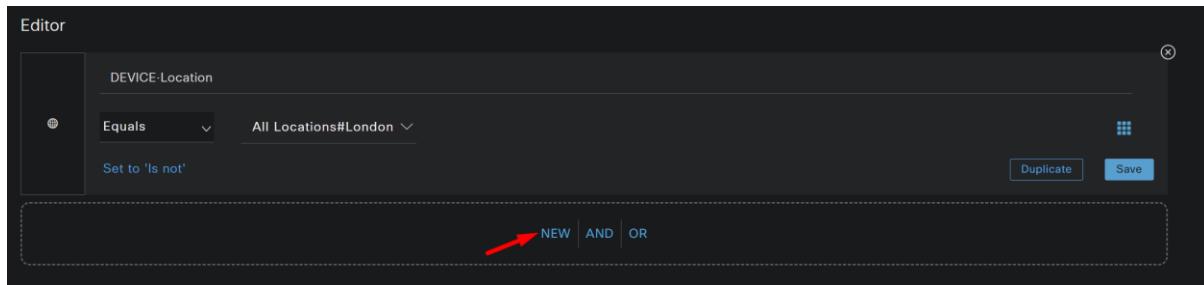
This screenshot shows the "Select attribute for condition" dialog. It has a toolbar with icons for location, device, user, and network. Below is a table with columns: Dictionary, Attribute, ID, and Info. The dictionary is set to "All Dictionaries" and the attribute is set to "DEVICE". A red arrow points to the "DEVICE" selection.

Dictionary	Attribute	ID	Info
All Dictionaries	Attribute	ID	
DEVICE	Location		

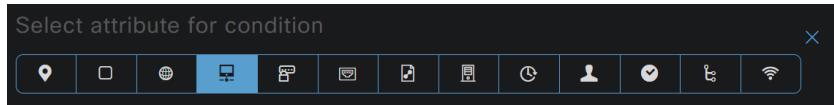
✓ Select equals from list: **All Locations/London**

This screenshot shows the "Editor" window. It displays a condition: "DEVICE-Location" with "Equals" selected and "All Locations#London" as the value. There are buttons for "Duplicate" and "Save". A red arrow points to the "DEVICE-Location" entry.

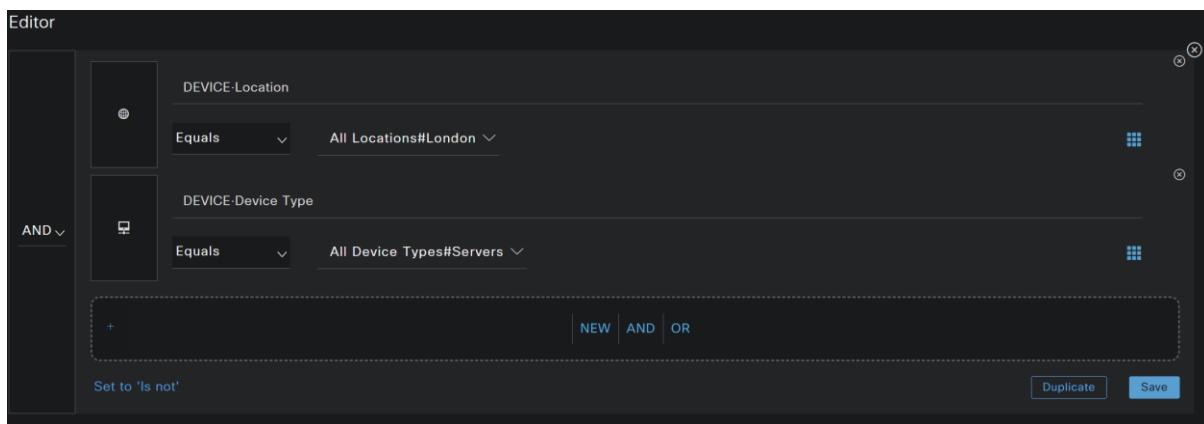
✓ Click **New** to add another attribute



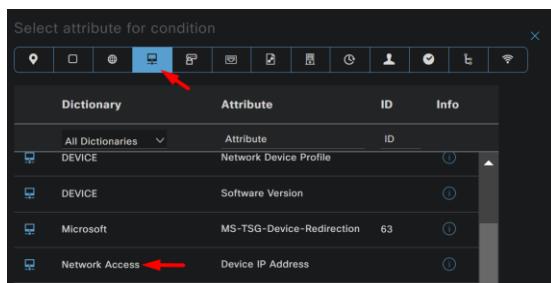
- ✓ In Editor “Click Tab Network Device”



- ✓ Select Attribute **DEVICE: Device Type**
- ✓ Select equals from list: **All Device Types/Servers**



- ✓ Click **New** to add another attribute
- ✓ In Editor “Network Access”
- ✓ Under Dictionary select: **Network Access/Device IP Address**
- ✓ In the Equals type EVE Server IP: 192.168.70.252



The screenshot shows the EVE-NG Policy Editor interface. It displays a policy condition under the heading 'Editor'. The condition is set to 'AND' and includes three criteria:

- DEVICE-Location Equals All Locations#London
- DEVICE-Device Type Equals All Device Types#Servers
- Network Access-Device IP Address Equals 192.168.70.252

At the bottom of the editor, there are buttons for 'NEW', 'AND', 'OR', 'Duplicate', and 'Save'.

- ✓ Click **Use**
- ✓ Select Default Network Access for allowed Protocols

The screenshot shows the 'Policy Sets' page in the EVE-NG interface. It lists a single policy set named 'EVE-POLICY'. The conditions for this policy are:

- DEVICE-Location EQUALS All Locations#London
- DEVICE-Device Type EQUALS All Device Types#Servers
- Network Access-Device IP Address EQUALS 192.168.70.252

To the right of the conditions, the 'Default Network Access' protocol is selected, indicated by a red arrow. There are also buttons for 'Reset', 'Reset Policyset Hitcounts', and 'Hits'.

- ✓ Click **Save**

2. Objective: Authentication Policy

- ✓ Click to View Policy “>”

The screenshot shows the 'Authentication Policy' page. It displays a single rule named 'Default'. The 'Use' field for this rule is set to 'EVE_Identity_Sequence', which is highlighted with a red arrow. There are also buttons for 'Options' and a gear icon.

- ✓ Expand Authentication Policy
- ✓ For Default rules select Use: **EVE_Identity_Sequence**

The screenshot shows the 'Authorization Policy' page. It displays a single rule named 'Default'. The 'Use' field for this rule is set to 'DenyAccess', which is highlighted with a red arrow. There are also buttons for 'Options' and a gear icon.

3. Objective: Create Active Directory Authorization Policy

- ✓ Navigate to Authorization Policy
- ✓ Expand Authorization Policy
- ✓ Click “+” To add New Rule

The screenshot shows the 'Authorization Policy' page. It displays a single rule named 'Default'. The 'Use' field for this rule is set to 'DenyAccess', which is highlighted with a red arrow. There are also buttons for 'Options' and a gear icon.

- ✓ Name: EVE_AD_Users
- ✓ Click “+” For new Condition

A screenshot of the EVE-NG Authorization Policy list screen. The title bar says 'Authorization Policy(1)'. Below it is a table with columns: Status, Rule Name, Conditions, Profiles, Security Groups, Hits, and Actions. A red arrow points to the 'EVE_AD_Users' row in the 'Rule Name' column. Another red arrow points to the 'Conditions' column header.

- ✓ Select Tab: Identity Group
- ✓ Select: ad.eve.lab/ExternalGroups

A screenshot of the 'Editor' dialog for the 'EVE_AD_Users' rule. The left pane shows the rule configuration with tabs for Status, Rule Name, and Conditions. The Conditions tab is selected. The right pane shows the 'Select attribute for condition' dropdown menu. A red arrow points to the 'Attribute value' dropdown, which has 'Equals' selected. Another red arrow points to the 'dc.eve.lab' entry in the 'ExternalGroups' list.

- ✓ Select Equal: eve.lab/Users/EVE Users
- ✓ Click: Use

A screenshot of the 'Editor' dialog for the 'EVE_AD_Users' rule. The left pane shows the rule configuration with the condition 'dc.eve.lab-ExternalGroups EQUALS eve.lab/Users/EVE Users'. A red arrow points to the 'EQUALS' dropdown. The right pane shows the condition details with 'Set to 'Is not'' and 'Duplicate' and 'Save' buttons.

4. Objective: EVE Radius Internal User Authorization Policy

- ✓ Click “+” To add New Rule

A screenshot of the Authorization Policy list screen. The title bar says 'Authorization Policy(1)'. Below it is a table with columns: Status, Rule Name, Conditions, Profiles, Security Groups, Hits, and Actions. A red arrow points to the 'Status' column header. The table shows two rows: 'EVE_AD_Users' and 'Default'. The 'EVE_AD_Users' row has a condition 'dc.eve.lab-ExternalGroups EQUALS eve.lab/Users/EVE Users'. The 'Default' row has a condition 'DenyAccess'. Each row has a 'Select from list' button followed by a '+' button and a gear icon.

- ✓ Name: EVE-Radius-User
- ✓ Click “+” to add New conditions

The screenshot shows the EVE-NG Authorization Policy interface. It displays three rules:

- EVE_Radius_User:** Conditions: dc.eve.lab:ExternalGroups EQUALS eve.lab/Users/EVE Users. Profile: Select from list.
- EVE_AD_Users:** Conditions: dc.eve.lab:ExternalGroups EQUALS eve.lab/Users/EVE Users. Profile: Select from list.
- Default:** Conditions: DenyAccess. Profile: Select from list.

- ✓ Select Tab: **Identity Group**
- ✓ Attribute: **InternalUser/Identity Group**
- ✓ Equals: **User Identity Groups: EVE-Users**
- ✓ Click Use

The screenshot shows the 'Select attribute for condition' dialog box. The 'Dictionary' dropdown is set to 'All Dictionaries'. The 'Attribute' column lists various attributes. A red arrow points to the 'InternalUser' row, which has 'IdentityGroup' selected.

The screenshot shows the 'InternalUser-IdentityGroup' configuration dialog box. The condition 'User Identity Groups:EVE-Users' is selected. A red arrow points to the 'User Identity Groups' dropdown.

5. Objective: Assign Authorization Policy Profiles

- ✓ Click to each Authorization Policy profiles and choose
- ✓ **EVE_Radius_Users:** EVE-Radius-User-Profile
- ✓ **EVE_AD_Users:** EVE-AD-User-Profile

The screenshot shows the Authorization Policy interface with the following assignments:

- EVE_Radius_User:** Profile: EVE-Radius-User-Prof.
- EVE_AD_Users:** Profile: EVE-AD-User-Profile
- Default:** Profile: DenyAccess

✓ Click Save

XIV. EVE-NG Professional/Corporate settings

1. Objective: Configure EVE-NG Server settings for Radius

- ✓ Log in your EVE-NG WEB-UI
- ✓ Navigate System/System Settings
- ✓ Enter Radius #1 IP: 192.168.70.201
- ✓ Enter Shared Secret: eve2023

System settings

Radius Server #1	IP	Port	Secret
	<input type="text" value="192.168.70.201"/>	<input type="text" value="1812"/>	<input type="text" value="*****"/>

2. Objective: Configure EVE-NG Server settings for Active Directory

- ✓ Navigate System/System Settings
- ✓ Enter Active Directory Server IP: 192.168.70.200
- ✓ Check Enable TLS (For newer Windows Server versions 2019, 2022)
- ✓ Enter Base DN Record: dc=eve,dc=lab
- ✓ Enter EVE-NG Active Directory Group: EVE Users

Active Directory Server	IP	Port	Enable TLS
	<input type="text" value="192.168.70.200"/>	<input type="text" value="389"/>	<input checked="" type="checkbox"/>
Base DN			
dc=eve,dc=lab			
EVE-NG Active Directory Group			
EVE Users			

XV. EVE-NG users for Active Directory

1. Objective: Create EVE-NG Active Directory User

- ✓ Log in your EVE-NG WEB-UI
- ✓ Navigate Management/User Management
- ✓ +Add User



- ✓ Create Active Directory Username: **johndoe@eve.lab**
- ✓ Authentication, select: **Active Directory**
- ✓ Email: **johndoe@eve.lab**
- ✓ Name: John Doe
- ✓ Select role: Editor for example
- ✓ Select console forced to be used for User: example html5
- ✓ Select EVE Cluster server, example Sat01b (user will be forced to use only satellite 1)
- ✓ Optional select time period for account validity
- ✓ Optional select resource quota CPU and RAM for User

Add New User

User Name*
 ...
Use only [A-Za-z0-9_-.@]chars

Authentication **active directory** ...

Password
 ...

Password Confirmation
 ...

Email

Please enter an valid email

Name
 ...

Role **Lab Editor** ...

Console **html5** ...

Satellite **SAT01B** ...

Account Validity
From To to At

POD*

Quotas
CPU ... RAM ... (GB)

* - Required Fields

Add Cancel

2. Objective: Create EVE-NG Active Directory User for Radius Authentication

- ✓ Log in your EVE-NG WEB-UI
- ✓ Navigate Management/User Management
- ✓ +Add User
- ✓ Create Active Directory Username: **jennydoe@eve.lab**
- ✓ Authentication, select: **Radius**
- ✓ Email: **jennydoe@eve.lab**
- ✓ Name: Jenny Doe
- ✓ Select role: Editor for example
- ✓ Select console forced to be used for User: example html5
- ✓ Select EVE Cluster server, example Sat01b (user will be forced to use only satellite 1)
- ✓ Optional select time period for account validity
- ✓ Optional select resource quota CPU and RAM for User

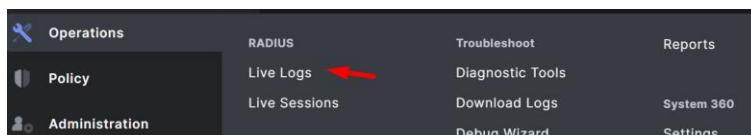
3. Objective: Create EVE-NG Radius User

- ✓ Log in your EVE-NG WEB-UI
- ✓ Navigate Management/User Management
- ✓ +Add User
- ✓ Create Active Directory Username: **raduser@eve.lab**
- ✓ Authentication, select: **Radius**
- ✓ Email: **raduser@eve.lab**
- ✓ Name: User Radius
- ✓ Select role: Editor for example
- ✓ Select console forced to be used for User: example html5
- ✓ Select EVE Cluster server, example Sat01b (user will be forced to use only satellite 1)
- ✓ Optional select time period for account validity
- ✓ Optional select resource quota CPU and RAM for User

XVI. Radius and Active Directory users' verification

1. Objective: Verify direct Radius user authentication

- ✓ Open EVE-NG WEB UI page
- ✓ Username: raduser
- ✓ Password: Test1234
- ✓ Navigate to ISE Operations/radius/Live Logs



The screenshot shows the EVE-NG Operations interface. In the top navigation bar, there are three main categories: Operations (highlighted in blue), Policy, and Administration. Under the Operations category, there is a sub-menu for RADIUS. The RADIUS sub-menu contains four items: Live Logs (with a red arrow pointing to it), Live Sessions, Troubleshoot, and Reports. Below the RADIUS sub-menu, there are several other links: Diagnostic Tools, Download Logs, System 360, Debug Wizard, and Settings.

Time	Status	Details	Repe...	Identity	Endpoint ID	Endpoint...	Authentication Policy	Authorization Policy	Authorization Profiles	IP Address	Network De...	Device Port
Nov 21, 2023 08:03:50.7...				raduser		Endpoint IP	Authentication Policy	Authorization Policy	Authorization Profiles	IP Address	Network Devic...	Device Port
EVE-POLICY >> Default EVE-POLICY >> EVE_Radius_User EVE-Radius-User-Profile EVE-NG-Server												

- ✓ You should observe Success Radius user session from EVE

2. Objective: Verify Active Directory Radius user authentication

- ✓ Open EVE-NG WEB UI page
- ✓ Username: jennydoe@eve.lab
- ✓ Password: Gold2023
- ✓ Navigate to ISE Operations/radius/Live Logs
- ✓ You should observe Success Radius user session from EVE

Time	Status	Details	Repea...	Identity	Endpoint ID	Endpoint...	Authentication Policy	Authorization Policy	Authorization Profiles	IP Address	Network De...	Device I...
Nov 21, 2023 06:09:38.4...	✓ R	jennydoe@eve.lab					EVE-POLICY >> Default	EVE-POLICY >> EVE_AD_Users	EVE-AD-User-Profile		EVE-NG-Server	
Nov 21, 2023 06:03:50.7...	✓ R	radiuser					EVE-POLICY >> Default	EVE-POLICY >> EVE_Radius_User	EVE-Radius-User-Profile		EVE-NG-Server	

Overview

Event	5200 Authentication succeeded
Username	jennydoe@eve.lab
Endpoint Id	
Endpoint Profile	
Authentication Policy	EVE-POLICY >> Default
Authorization Policy	EVE-POLICY >> EVE_AD_Users
Authorization Result	EVE-AD-User-Profile

Authentication Details

Source Timestamp	2023-11-21 18:09:38.499
Received Timestamp	2023-11-21 18:09:38.499
Policy Server	ise3
Event	5200 Authentication succeeded
Username	jennydoe@eve.lab
Authentication Identity Store	dc.eve.lab
Authentication Method	PAP_ASCII
Authentication Protocol	PAP_ASCII
Network Device	EVE-NG-Server
Device Type	All Device Types#Servers
Location	All Locations#London
Authorization Profile	EVE-AD-User-Profile
Response Time	421 milliseconds

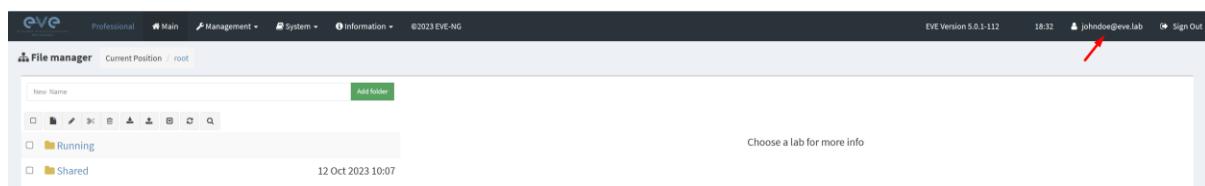
Other Attributes

Steps

Step ID	Description	Latency (ms)
11001	Received RADIUS Access-Request - dc.eve.lab	
11017	RADIUS created a new session - eve.lab	0
11015	An Access-Request MUST contain at least a NAS-IP-Address, NAS-IPv6-Address, or a NAS-Identifier; Continue processing - dc.eve.lab	0
11117	Generated a new session ID	1
15049	Evaluating Policy Group	4
15008	Evaluating Service Selection Policy	1
15048	Queried PIP - DEVICE.Location	4
15048	Queried PIP - Network Access.Device IP Address	1
15048	Evaluating Identity Policy	0
22072	Selected identity source sequence - EVE_Identity_Sequence	8
15013	Selected Identity Source - Internal Users	6
24210	Looking up User in Internal Users IDStore - jennydoe@eve.lab	0
24216	The user is not found in the internal users identity store	1
15013	Selected Identity Source - dc.eve.lab	88
24430	Authenticating user against Active Directory - dc.eve.lab	1
24325	Resolving identity - jennydoe@eve.lab	5
24313	Search for matching accounts at join point - eve.lab	165
24319	Single matching account found in forest - eve.lab	0
24323	Identity resolution detected single matching account	0
24343	RPC Logon request succeeded - jennydoe@eve.lab	0
24402	User authentication against Active Directory succeeded - dc.eve.lab	49
22037	Authentication Passed	2
15036	Evaluating Authorization Policy	0
15048	Queried PIP - Network Access.UserName	0
15048	Queried PIP - InternalUser.IdentityGroup	23
24432	Looking up user in Active Directory - jennydoe@eve.lab	3
24355	LDAP fetch succeeded	51
24416	User's Groups retrieval from Active Directory succeeded	0
15048	Queried PIP - dc.eve.lab.ExternalGroups	Choose a lab for more info
15016	Selected Authorization Profile - EVE-AD-User-Profile	5

3. Objective: Verify Active Directory user authentication

- ✓ Open EVE-NG WEB UI page
- ✓ Username: johndoe@eve.lab
- ✓ Password: Gold2023
- ✓ You should observe Success Radius user session from EVE



The screenshot shows the EVE-NG File Manager interface. The top navigation bar includes links for Professional, Main, Management, System, Information, and a sign-out link. The main area displays a file tree with two entries: 'Running' and 'Shared'. A red arrow points to the top right corner of the interface.