

# ASA Version 9.2.1 VPN Posture with ISE Configuration Example



Document ID: 117693

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Jun 30, 2014

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## Introduction

This document describes how to configure the Cisco Adaptive Security Appliance (ASA) Version 9.2.1 in order to posture VPN users against the Cisco Identity Services Engine (ISE) without the need for an Inline Posture Node (IPN).

## Prerequisites

### Requirements

Cisco recommends that you have knowledge of these topics:

- Basic knowledge of ASA CLI configuration and Secure Socket Layer (SSL) VPN configuration
- Basic knowledge of remote access VPN configuration on the ASA
- Basic knowledge of ISE and posture services

### Components Used

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

- Cisco ASA software Versions 9.2.1 and later
- Microsoft Windows Version 7 with Cisco AnyConnect Secure Mobility Client Version 3.1
- Cisco ISE Version 1.2 with Patch 5 or later

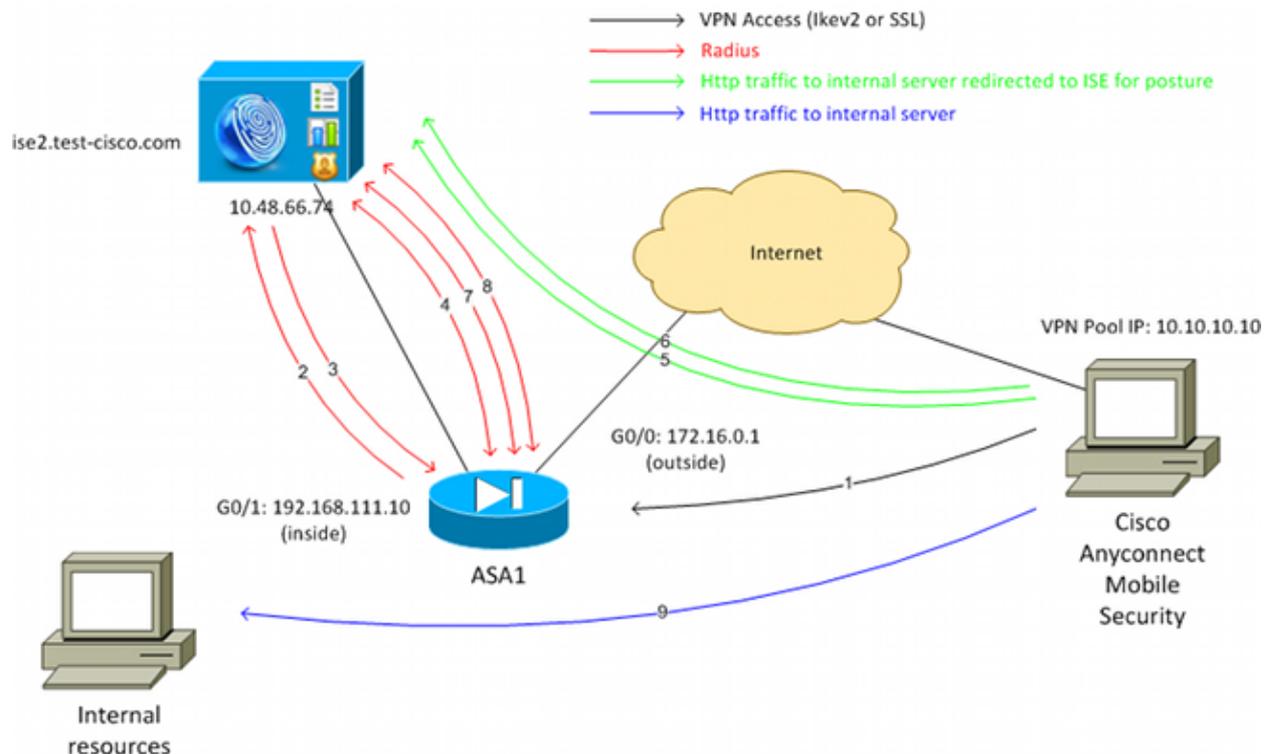
## Background Information

The Cisco ASA Version 9.2.1 supports RADIUS Change of Authorization (CoA) (RFC 5176). This allows for posturing of VPN users against the Cisco ISE without the need for an IPN. After a VPN user logs in, the ASA redirects web traffic to the ISE, where the user is provisioned with a Network Admission Control (NAC) Agent or Web Agent. The agent performs specific checks on the user machine in order to determine its compliance against a configured set of posture rules, such as Operating System (OS), patches, AntiVirus, Service, Application, or Registry rules.

The results of the posture validation are then sent to the ISE. If the machine is deemed complaint, then the ISE can send a RADIUS CoA to the ASA with the new set of authorization policies. After successful posture validation and CoA, the user is allowed access to the internal resources.

## Configure

### Network Diagram and Traffic Flow



Here is the traffic flow, as illustrated in the network diagram:

1. The remote user uses Cisco Anyconnect for VPN access to the ASA.
2. The ASA sends a RADIUS Access-Request for that user to the ISE.

3. That request hits the policy named **ASA92-posture** on the ISE. As a result, the **ASA92-posture** authorization profile is returned. The ISE sends a RADIUS Access-Accept with two Cisco Attribute-Value pairs:
  - ◆ **url-redirect-acl=redirect** - this is the Access Control List (ACL) name that is defined locally on the ASA, which decides the traffic that should be redirected.

- ◆ **url-redirect=https://ise2.test-cisco.com:8443/guestportal/gateway?sessionId=xx&action=cpp**  
- this is the URL to which the remote user should be redirected.

**Tip:** The Domain Name System (DNS) servers that are assigned to the VPN clients must be able to resolve the Fully Qualified Domain Name (FQDN) that is returned in the redirect URL. If the VPN filters are configured in order to restrict access at the tunnel-group level, ensure that the client pool is able to access the ISE server on the configured port (**TCP 8443** in this example).

4. The ASA sends a RADIUS Accounting-Request start packet and receives a response. This is needed in order to send all of the details in regards to the session to the ISE. These details include the session\_id, external IP address of the VPN client, and the IP address of the ASA. The ISE uses the session\_id in order to identify that session. The ASA also sends periodic interim account information, where the most important attribute is the Framed-IP-Address with the IP that is assigned to the client by the ASA (**10.10.10.10** in this example).
  5. When the traffic from the VPN user matches the locally-defined ACL (redirect), it is redirected to **https://ise2.test-cisco.com:8443**. Dependent upon the configuration, the ISE provisions the NAC Agent or the Web Agent.
  6. After the agent is installed on the client machine, it automatically performs specific checks. In this example, it searches for the **c:\test.txt** file. It also sends a posture report to the ISE, which can include multiple exchanges with the use of SWISS protocol and ports TCP/UDP 8905 in order to access the ISE.
  7. When the ISE receives the posture report from the agent, it processes the authorization rules once again. This time, the posture result is known and another rule is hit. It sends a RADIUS CoA packet:
    - ◆ If the user is compliant, then a Downloadable ACL (DACL) name that permits full access is sent (AuthZ rule ASA92-compliant).
    - ◆ If the user is non-compliant, then a DACL name that permits limited access is sent (AuthZ rule ASA92-noncompliant).
- Note:** The RADIUS CoA is always confirmed; that is, the ASA sends a response to the ISE in order to confirm.
8. The ASA removes the redirection. If it does not have the DACLs cached, it must send an Access-Request in order to download them from the ISE. The specific DACL is attached to the VPN session.
  9. The next time that the VPN user tries to access the web page, it can access all of the resources that are permitted by the DACL that is installed on the ASA.  
If the user is not compliant, only limited access is granted.

**Note:** This flow model differs from most scenarios that use RADIUS CoA. For wired/wireless 802.1x authentications, RADIUS CoA does not include any attributes. It only triggers the second authentication in which all attributes, such as DACL, are attached. For the ASA VPN posture, there is no second authentication. All of the the attributes are returned in the RADIUS CoA. The VPN session is active and it is not possible to change most of the VPN user settings.

# Configurations

Use this section in order to configure the ASA and the ISE.

## ASA

Here is the basic ASA configuration for Cisco AnyConnect access:

```
ip local pool POOL 10.10.10.10-10.10.10.100 mask 255.255.255.0

interface GigabitEthernet0/0
 nameif outside
 security-level 0
 ip address xxxx 255.255.255.0
!
interface GigabitEthernet0/1
 nameif inside
 security-level 100
 ip address 192.168.111.10 255.255.255.0

aaa-server ISE protocol radius
aaa-server ISE (inside) host 10.48.66.74
 key cisco

webvpn
 enable outside
 anyconnect-essentials
 anyconnect image disk0:/anyconnect-win-3.1.02040-k9.pkg 1
 anyconnect enable
 tunnel-group-list enable

group-policy GP-SSL internal
group-policy GP-SSL attributes
 vpn-tunnel-protocol ikev1 ikev2 ssl-client ssl-clientless

tunnel-group RA type remote-access
tunnel-group RA general-attributes
 address-pool POOL
 authentication-server-group ISE
 default-group-policy GP-SSL
tunnel-group RA webvpn-attributes
 group-alias RA enable
```

For ASA integration with the ISE posture, ensure that you:

- Configure the Authentication, Authorization, and Accounting (AAA) server for dynamic authorization in order to accept CoA.
- Configure the accounting as a tunnel-group in order to send VPN session details towards the ISE.
- Configure the interim accounting which will send IP address assigned to the user and periodically update the session status on ISE
- Configure the redirect ACL, which decides if the DNS and the ISE traffic are allowed. All other HTTP traffic is redirected to the ISE for posture.

Here is the configuration example:

```
access-list redirect extended deny udp any any eq domain
access-list redirect extended deny ip any host 10.48.66.74
access-list redirect extended deny icmp any any
```

```
access-list redirect extended permit tcp any any eq www
```

```
aaa-server ISE protocol radius  
authorize-only  
interim-accounting-update periodic 1  
dynamic-authorization  
aaa-server ISE (inside) host 10.48.66.74  
key cisco
```

```
tunnel-group RA general-attributes  
address-pool POOL  
authentication-server-group ISE  
accounting-server-group ISE  
default-group-policy GP-SSL
```

## ISE

Complete these steps in order to configure the ISE:

1. Navigate to **Administration > Network Resources > Network Devices** and add the ASA as a network device:

The screenshot displays the Cisco Identity Services Engine (ISE) Administration interface. The top navigation bar includes 'Home', 'Operations', 'Policy', and 'Administration'. The 'Administration' menu is expanded, showing 'Network Resources' as the active section. Below this, the 'Network Devices' tab is selected. The main content area is titled 'Network Devices List > New Network Device'. The left sidebar shows a tree view with 'Network Devices' selected. The main content area contains the following fields:

- Name: ASA
- Description: (empty)
- IP Address: 192.168.111.10 / 32
- Model Name: (empty)
- Software Version: (empty)
- Network Device Group: Location: All Locations, Device Type: All Device Types
- Authentication Settings: Protocol: RADIUS, Shared Secret: (masked)

2. Navigate to **Policy > Results > Authorization > Downloadable ACL** and configure the DACL so that it permits full access. The default ACL configuration permits all IP traffic on the ISE:

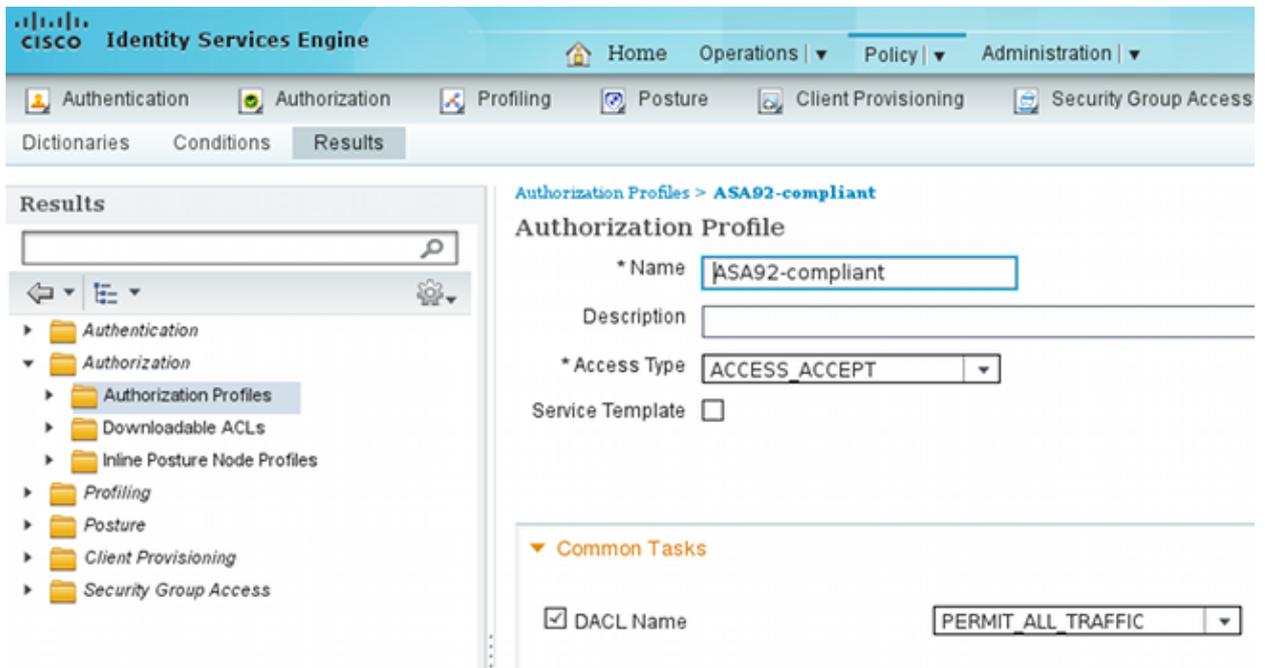
The screenshot shows the Cisco Identity Services Engine (ISE) interface. The top navigation bar includes 'Home', 'Operations', 'Policy', and 'Administration'. Below this, there are tabs for 'Authentication', 'Authorization', 'Profiling', 'Posture', 'Client Provisioning', and 'Security Group Access'. The 'Results' tab is active, showing a tree view on the left with 'Downloadable ACLs' selected. The main content area displays the configuration for a 'Downloadable ACL' named 'PERMIT\_ALL\_TRAFFIC'. The description is 'Allow all Traffic'. The DACL content is a list with 10 rows, where the first row contains '1 permit ip any any'. A 'Check DACL Syntax' button is visible at the bottom.

3. Configure a similar ACL that provides limited access (for non compliant users).

4. Navigate to **Policy > Results > Authorization > Authorization Profiles** and configure the Authorization Profile named **ASA92-posture**, which redirects users for posture. Check the **Web Redirection** check box, select **Client Provisioning** from the drop-down list, and ensure that **redirect** appears in the ACL field (that ACL is defined locally on the ASA):

The screenshot shows the Cisco Identity Services Engine (ISE) interface. The top navigation bar includes 'Home', 'Operations', 'Policy', and 'Administration'. Below this, there are tabs for 'Authentication', 'Authorization', 'Profiling', 'Posture', 'Client Provisioning', and 'Security Group Access'. The 'Results' tab is active, showing a tree view on the left with 'Authorization Profiles' selected. The main content area displays the configuration for an 'Authorization Profile' named 'ASA92-posture'. The description is empty. The access type is 'ACCESS\_ACCEPT'. The 'Service Template' checkbox is unchecked. Under 'Common Tasks', the 'Web Redirection (CWA, DRW, MDM, NSP, CPP)' checkbox is checked. The 'Client Provisioning (Posture)' dropdown is selected, and the 'ACL' field contains the value 'redirect'. The 'Static IP/Host name' checkbox is unchecked.

- Configure the Authorization Profile named **ASA92-compliant**, which should only return the DACL named **PERMIT\_ALL\_TRAFFIC** that provides full access for the compliant users:



- Configure a similar Authorization Profile named **ASA92-noncompliant**, which should return the DACL with limited access (for non compliant users).

- Navigate to **Policy > Authorization** and configure the Authorization Rules:

- ◆ Create a rule that allows full access if the posture results are compliant. The result is the authorization policy **ASA92-compliant**.
- ◆ Create a rule that allows limited access if the posture results are non-compliant. The result is the authorization policy **ASA92-noncompliant**.
- ◆ Ensure that if neither of the previous two rules are hit, then the default rule returns the **ASA92-posture**, which forces a redirection on the ASA.

✓	ASA92 compliant	if Session:PostureStatus EQUALS Compliant	then ASA92-compliant
✓	ASA92 non compliant	if Session:PostureStatus EQUALS NonCompliant	then ASA92-noncompliant
✓	ASA92 redirect	if Radius:NAS-IP-Address EQUALS 192.168.111.10	then ASA92-posture

- The default authentication rules check the user name in the internal identity store. If this must be changed (checked in the Active Directory (AD), for example), then navigate to **Policy > Authentication** and make the change:

**Authentication Policy**

Define the Authentication Policy by selecting the protocols that ISE should use to communicate with the network devices, and the identity sources that it should use.

Policy Type  Simple  Rule-Based

<input checked="" type="checkbox"/>	MAB	: If Wired_MAB OR Wireless_MAB	Allow Protocols : Default Network Access
<input checked="" type="checkbox"/>	Default	: use Internal Endpoints	
<input checked="" type="checkbox"/>	Dot1X	: If Wired_802.1X OR Wireless_802.1X	Allow Protocols : Default Network Access
<input checked="" type="checkbox"/>	Default	: use Internal Users	
<input checked="" type="checkbox"/>	Default Rule (if no match)	: Allow Protocols : Default Network Access and use : Internal Users	

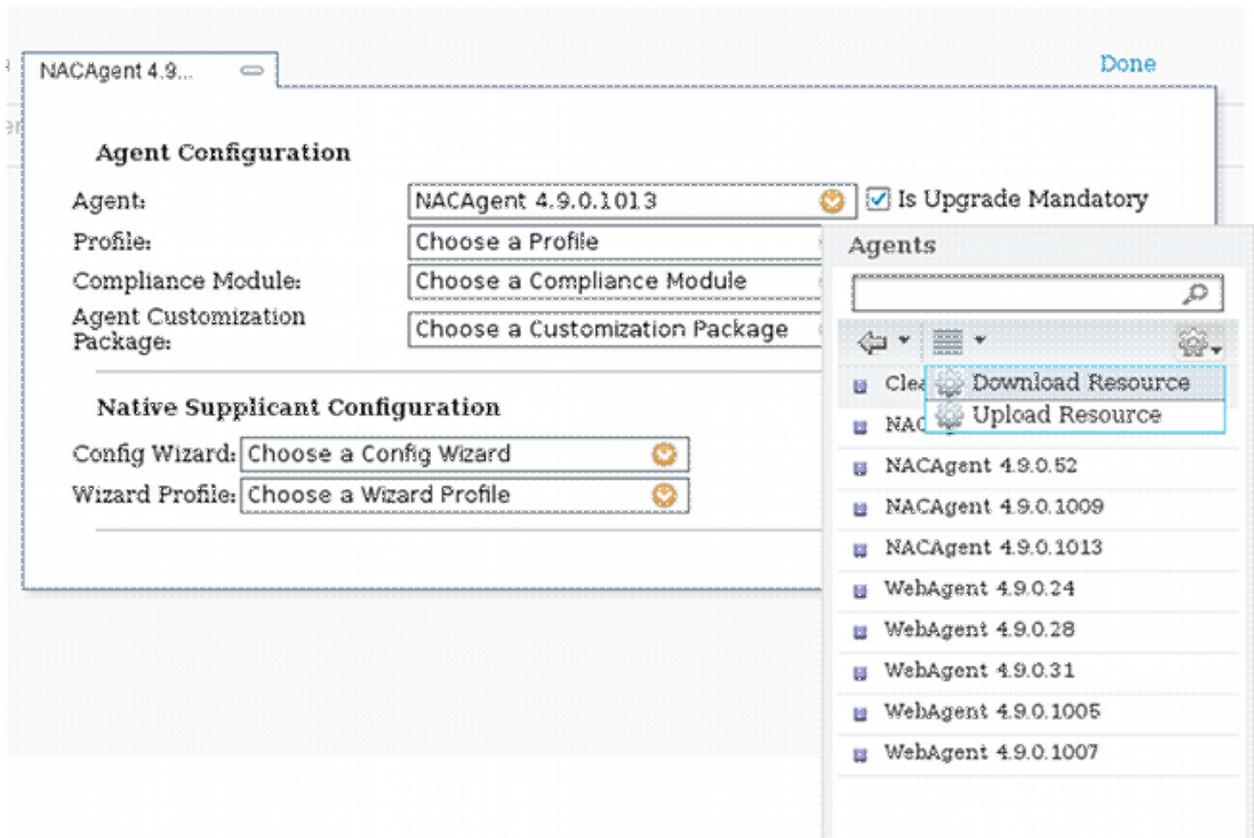
9. Navigate to **Policy > Client Provisioning** and configure the provisioning rules. These are the rules that decide the type of Agent that should be provisioned. In this example, only one simple rule exists, and the ISE selects the NAC Agent for all Microsoft Windows systems:

**Client Provisioning Policy**

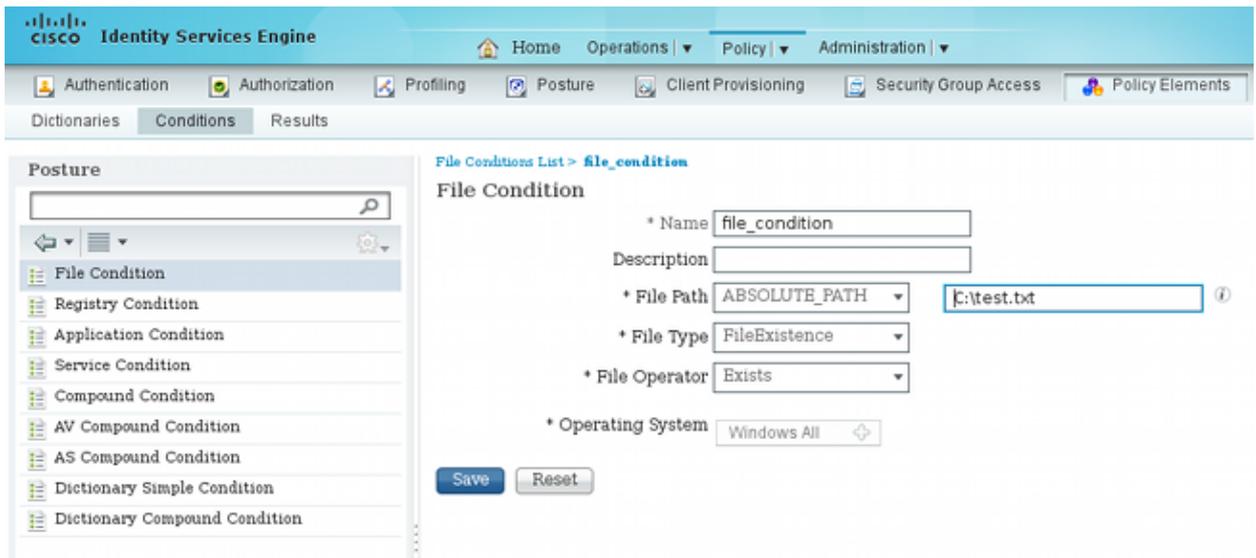
Define the Client Provisioning Policy to determine what users will receive upon login and user session initiation:  
 For Agent Configuration: version of agent, agent profile, agent compliance module, and/or agent customization package.  
 For Native Supplicant Configuration: wizard profile and/or wizard. Drag and drop rules to change the order.

Rule Name	Identity Groups	Operating Systems	Other Conditions	Results
<input checked="" type="checkbox"/> ASA92-posture	if Any	and Windows All	and Condition(s)	then NACAgent 4.9.0.1013

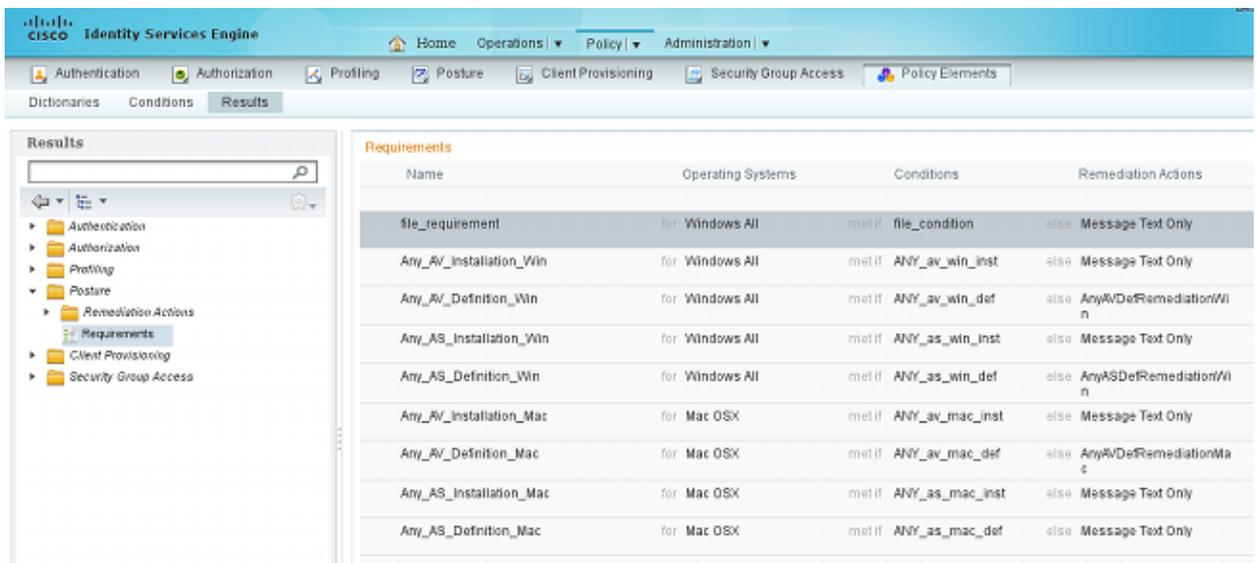
When the Agents are not on the ISE, it is possible to download them:



10. If necessary, you can navigate to **Administration > System > Settings > Proxy** and configure the proxy for the ISE (to access the Internet).
11. Configure the posture rules, which verify the client configuration. You can configure rules that check:
  - ◆ **files** - existence, version, date
  - ◆ **registry** - key, value, existence
  - ◆ **application** - process name, running, not running
  - ◆ **service** - service name, running, not running
  - ◆ **antivirus** - more than 100 vendors supported, version, when definitions are updated
  - ◆ **antispyware** - more than 100 vendors supported, version, when definitions are updated
  - ◆ **compound condition** - mixture of all
  - ◆ **custom dictionary conditions** - usage of most of the ISE dictionaries
12. In this example, only a simple file existence check is performed. If the **c:\test.txt** file is present on the client machine, it is compliant and allowed full access. Navigate to **Policy > Conditions > File Conditions** and configure the file condition:

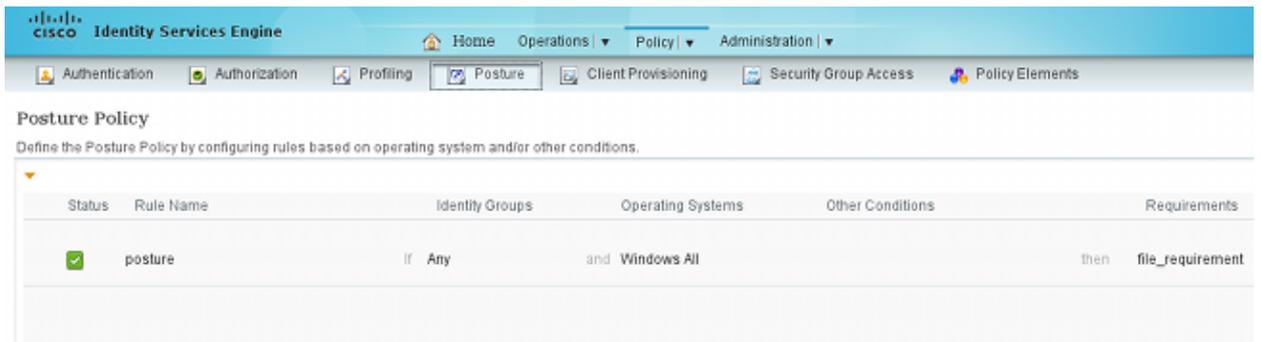


13. Navigate to **Policy > Results > Posture > Requirements** and create a requirement. This requirement should be met when the previous condition is satisfied. If it is not, then remediation action is executed. There might be many types of remediation actions available, but in this example, the simplest one is used: a specific message is displayed.



**Note:** In a normal scenario, the File Remediation action can be used (the ISE provides the downloadable file).

14. Navigate to **Policy > Posture** and use the requirement that you created in the previous step (named **file\_requirement**) in the posture rules. The only posture rule requires that all Microsoft Windows systems meet the **file\_requirement**. If this requirement is met, then the station is compliant; if it is not met, then the station is non-compliant.

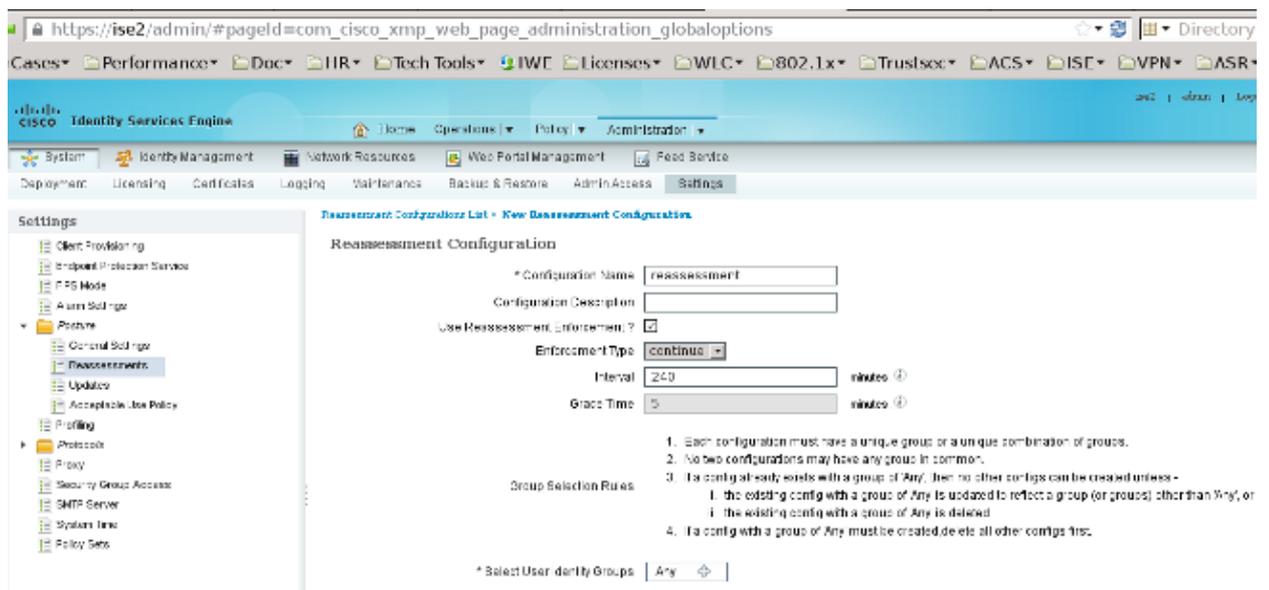


## Periodic Reassessment

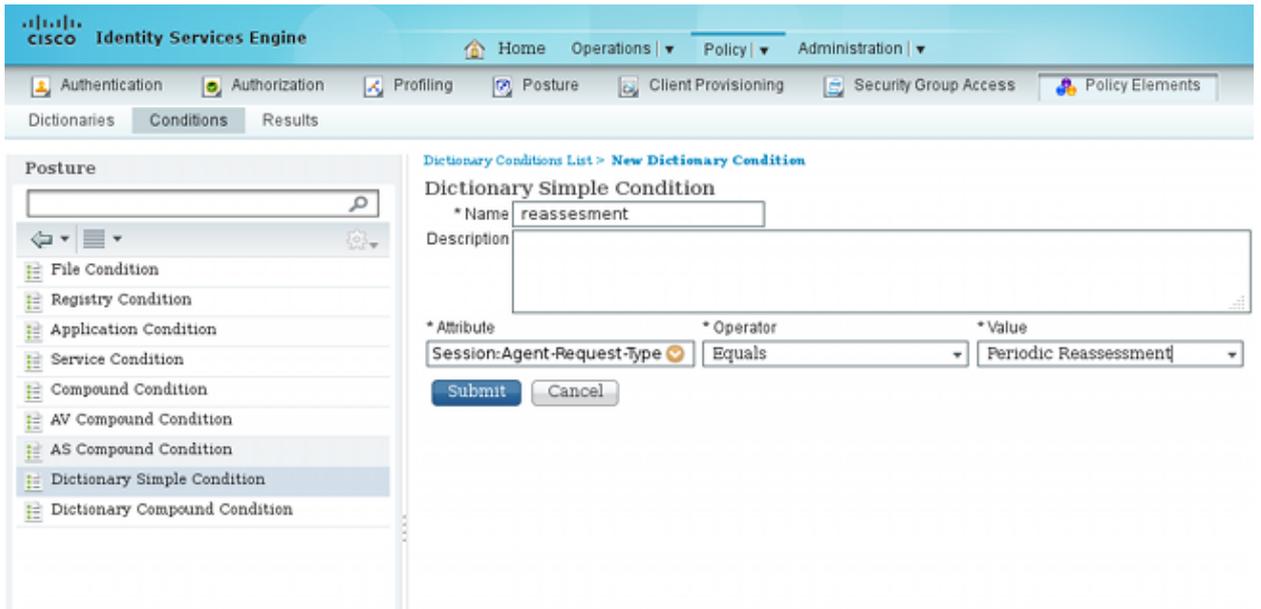
By default, posture is a one-time event. However, there is sometimes a need to periodically check the user compliance and adjust the access to the resources based on the results. This information is pushed via SWISS protocol (NAC Agent) or encoded within the application (Web Agent).

Complete these steps in order to check the user compliance:

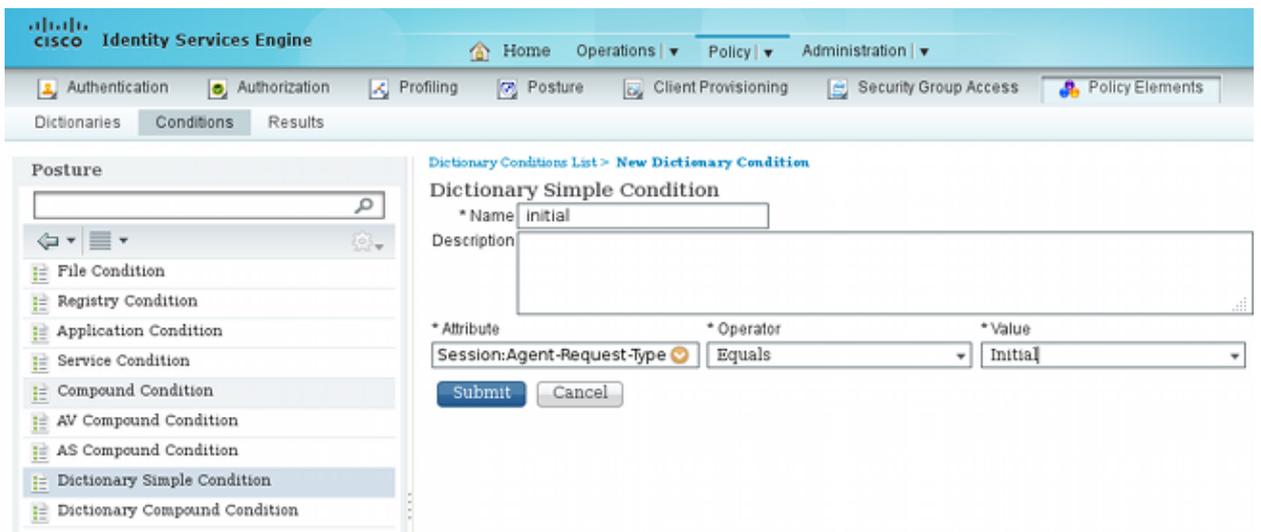
1. Navigate to **Administration > Settings > Posture > Reassessments** and enable reassessment globally (per identity group configuration):



2. Create a posture condition that matches all reassessments:



3. Create a similar condition that matches only the initial assessments:



Both of these conditions can be used in the posture rules. The first rule matches only the initial assessments and the second one matches all of the subsequent assessments:

Posture Policy

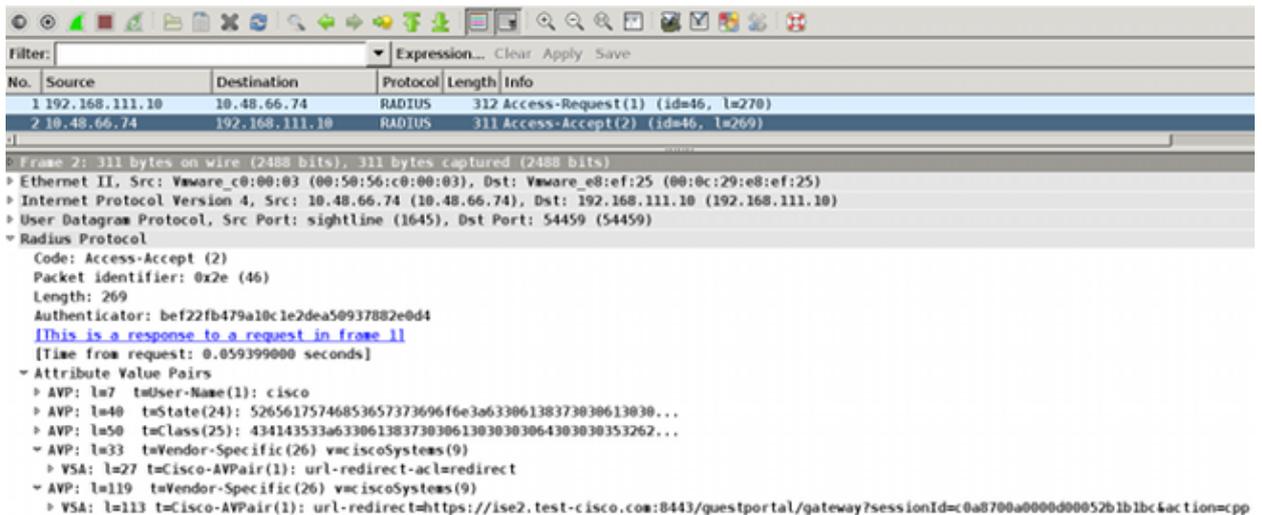
Define the Posture Policy by configuring rules based on operating system and/or other conditions.

Status	Rule Name	Identity Groups	Operating Systems	Other Conditions	Requirements
✓	posture_initial	if Any	and Windows All	initial	then file_requirement
✓	posture_reassessment	if Any	and Windows All	reassessment	then file_requirement

# Verify

In order to confirm that your configuration works correctly, ensure that these steps are completed as described:

1. The VPN user connects to the ASA.
2. The ASA sends a RADIUS-Request and receives a response with the **url-redirect** and the **url-redirect-acl** attributes:



3. The ISE logs indicate that the authorization matches the posture profile (the first log entry):

✓	🔒	#ACSACL#-IP-F	ASA9-2	Compliant	ise2
✓	🔒	192.168.10.67	ASA9-2	ASA92-compliant	Compliant ise2
🔵	🔒	0 cisco	192.168.10.67	Compliant	ise2
✓	🔒	cisco	192.168.10.67	ASA92-posture	User Identity Gro... Pending ise2

4. The ASA adds a redirect to the VPN session:

```
aaa_url_redirect: Added url redirect:https://ise2.test-cisco.com:8443/guestportal/gateway?sessionId=c0a8700a0000900052b1b1bc&action=cpp  
acl:redirect for 10.10.10.10
```

5. The status of the VPN session on the ASA shows that the posture is required and redirects the HTTP traffic:

```
ASA# show vpn-sessiondb detail anyconnect
```

```
Session Type: AnyConnect Detailed
```

```
Username      : cisco                               Index       : 9  
Assigned IP   : 10.10.10.10                          Public IP    : 10.147.24.61  
Protocol      : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel  
License       : AnyConnect Essentials  
Encryption    : AnyConnect-Parent: (1)none SSL-Tunnel: (1)RC4 DTLS-Tunnel: (1)AES128  
Hashing       : AnyConnect-Parent: (1)none SSL-Tunnel: (1)SHA1 DTLS-Tunnel: (1)SHA1  
Bytes Tx      : 16077                               Bytes Rx     : 19497  
Pkts Tx       : 43                               Pkts Rx     : 225  
Pkts Tx Drop  : 0                               Pkts Rx Drop : 0  
Group Policy  : GP-SSL                               Tunnel Group : RA  
Login Time    : 14:55:50 CET Mon Dec 23 2013
```

Duration : 0h:01m:34s  
Inactivity : 0h:00m:00s  
VLAN Mapping : N/A VLAN : none  
Audt Sess ID : c0a8700a0000900052b840e6  
Security Grp : 0

AnyConnect-Parent Tunnels: 1  
SSL-Tunnel Tunnels: 1  
DTLS-Tunnel Tunnels: 1

AnyConnect-Parent:

Tunnel ID : 9.1  
Public IP : **10.147.24.61**  
Encryption : none Hashing : none  
TCP Src Port : 50025 TCP Dst Port : 443  
Auth Mode : userPassword  
Idle Time Out: 30 Minutes Idle TO Left : 28 Minutes  
Client OS : win  
Client Type : AnyConnect  
Client Ver : Cisco AnyConnect VPN Agent for Windows 3.1.02040  
Bytes Tx : 5204 Bytes Rx : 779  
Pkts Tx : 4 Pkts Rx : 1  
Pkts Tx Drop : 0 Pkts Rx Drop : 0

SSL-Tunnel:

Tunnel ID : 9.2  
Assigned IP : **10.10.10.10** Public IP : **10.147.24.61**  
Encryption : RC4 Hashing : SHA1  
Encapsulation: TLSv1.0 TCP Src Port : 50044  
TCP Dst Port : 443 Auth Mode : userPassword  
Idle Time Out: 30 Minutes Idle TO Left : 28 Minutes  
Client OS : Windows  
Client Type : SSL VPN Client  
Client Ver : Cisco AnyConnect VPN Agent for Windows 3.1.02040  
Bytes Tx : 5204 Bytes Rx : 172  
Pkts Tx : 4 Pkts Rx : 2  
Pkts Tx Drop : 0 Pkts Rx Drop : 0

DTLS-Tunnel:

Tunnel ID : 9.3  
Assigned IP : **10.10.10.10** Public IP : **10.147.24.61**  
Encryption : AES128 Hashing : SHA1  
Encapsulation: DTLSv1.0 UDP Src Port : 63296  
UDP Dst Port : 443 Auth Mode : userPassword  
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes  
Client OS : Windows  
Client Type : DTLS VPN Client  
Client Ver : Cisco AnyConnect VPN Agent for Windows 3.1.02040  
Bytes Tx : 5669 Bytes Rx : 18546  
Pkts Tx : 35 Pkts Rx : 222  
Pkts Tx Drop : 0 Pkts Rx Drop : 0

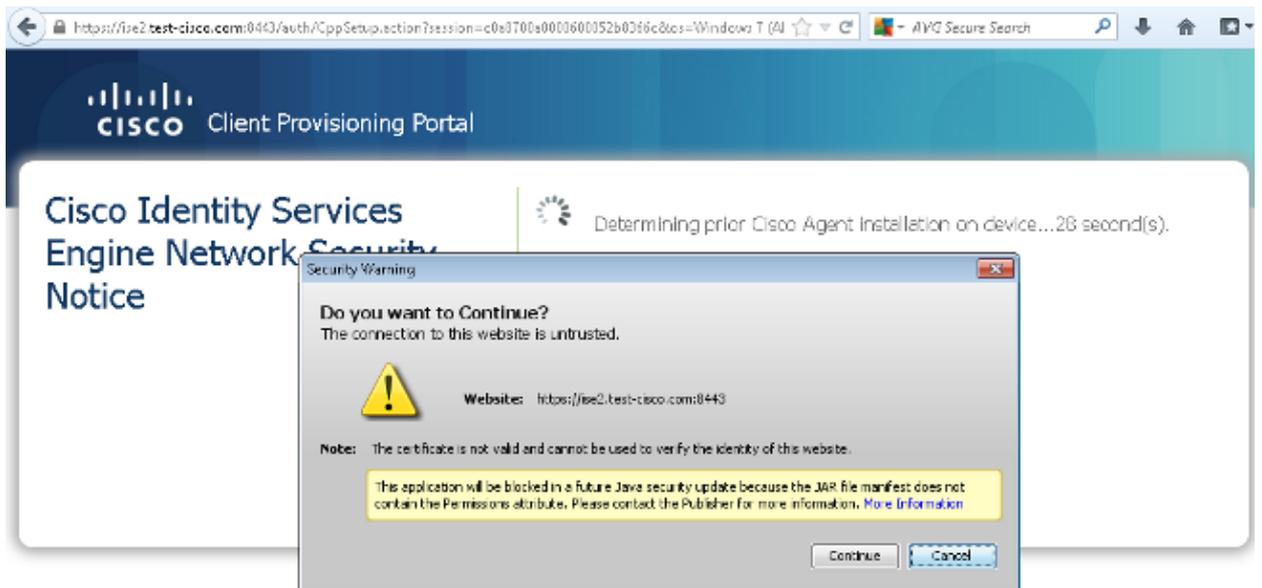
ISE Posture:

Redirect URL : <https://ise2.test-cisco.com:8443/guestportal/gateway?sessionId=c0a8700a0000900052b840e6&action=cpp>  
Redirect ACL : redirect

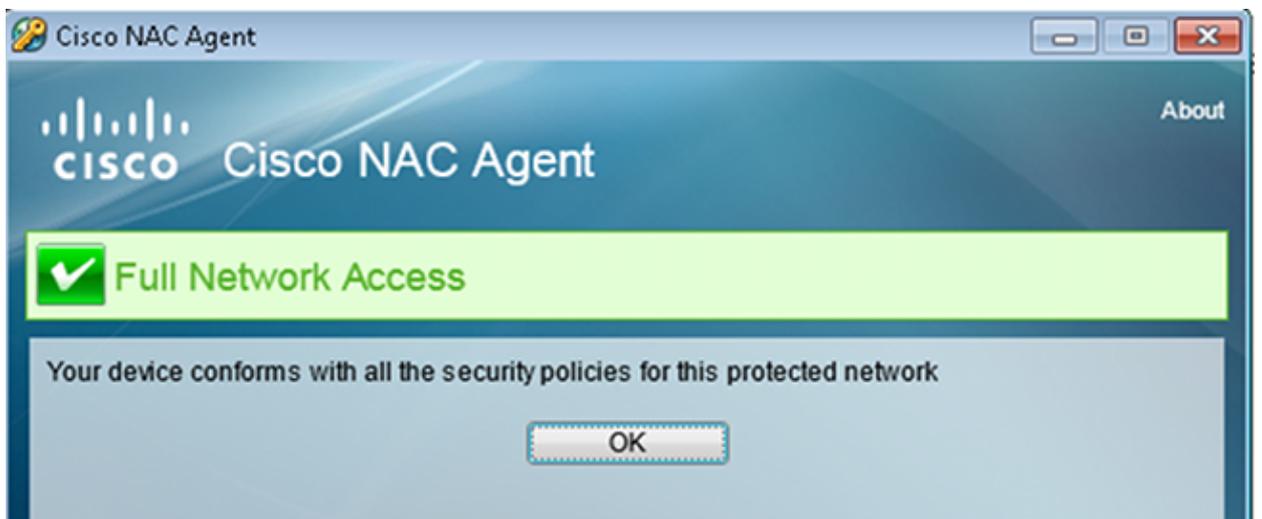
6. The client that initiates the HTTP traffic that matches the redirect ACL is redirected to the ISE:

aaa\_url\_redirect: Created proxy for 10.10.10.10  
aaa\_url\_redirect: **Sending url redirect**:<https://ise2.test-cisco.com:8443/guestportal/gateway?sessionId=c0a8700a0000900052b840e6&action=cpp>  
for **10.10.10.10**

7. The client is redirected to the ISE for posture:



8. The NAC Agent is installed. After the NAC Agent is installed, it downloads the posture rules via SWISS protocol and performs checks in order to determine compliance. The posture report is then sent to the ISE.



9. The ISE receives the posture report, reevaluates the authorization rules, and (if needed) changes the authorization status and sends a CoA. This can be verified in the **ise-psc.log**:

```
cisco.cpm.posture.runtime.PostureHandlerImpl -:cisco:c0a8700a0000900052b840e6
:::- Decrypting report
cisco.cpm.posture.runtime.PostureManager -:cisco:c0a8700a0000900052b840e6
:::- User cisco belongs to groups NAC Group:NAC:IdentityGroups:User Identity
Groups:Employee,NAC Group:NAC:IdentityGroups:An
cisco.cpm.posture.runtime.PostureManager -:cisco:c0a8700a0000900052b840e6
:::- Posture report token for endpoint mac 08-00-27-CD-E8-A2 is Healthy
cisco.cpm.posture.runtime.PostureManager -:cisco:c0a8700a0000900052b840e6
:::- Posture state is compliant for endpoint with mac 08-00-27-CD-E8-A2
cisco.cpm.posture.runtime.PostureCoA -:cisco:c0a8700a0000900052b840e6
:::- Posture CoA is triggered for endpoint [null] with session
[c0a8700a0000900052b840e6]
```

10. The ISE sends a RADIUS CoA that includes the **session\_id** and the DACL name that permits full

access:

No.	Source	Destination	Protocol	Length	Info
7	10.48.66.74	192.168.111.10	RADIUS	231	CoA-Request(43) (id=11, l=189)
8	192.168.111.10	10.48.66.74	RADIUS	62	CoA-ACK(44) (id=11, l=20)

Frame 7: 231 bytes on wire (1848 bits), 231 bytes captured (1848 bits)

Ethernet II, Src: Vmware\_c0:00:03 (00:50:56:c0:00:03), Dst: Vmware\_e8:ef:25 (00:0c:29:e8:ef:25)

Internet Protocol Version 4, Src: 10.48.66.74 (10.48.66.74), Dst: 192.168.111.10 (192.168.111.10)

User Datagram Protocol, Src Port: 44354 (44354), Dst Port: mps-raft (1700)

Radius Protocol

- Code: CoA-Request (43)
- Packet identifier: 0xb (11)
- Length: 189
- Authenticator: d20817c6ca828ce7db4ee54f15177b8d
- [\[The response to this request is in frame 8\]](#)
- Attribute Value Pairs
  - AVP: l=6 t=NAS-IP-Address(4): 10.147.24.61
  - AVP: l=15 t=Calling-Station-Id(31): 192.168.10.67
  - AVP: l=6 t=Event-Timestamp(55): Dec 18, 2013 15:32:10.000000000 CET
  - AVP: l=18 t=Message-Authenticator(80): 1ee29f1d83e5f3aa4934d60aa617ebeb
  - AVP: l=75 t=Vendor-Specific(26) v=ciscoSystems(9)
    - VSA: l=69 t=Cisco-AVPair(1): ACS:CiscoSecure-Defined-ACL=#ACSACL#-IP-PERMIT\_ALL\_TRAFFIC-51ef7db1
  - AVP: l=49 t=Vendor-Specific(26) v=ciscoSystems(9)
    - VSA: l=43 t=Cisco-AVPair(1): audit-session-id=c0a8700a0000d00052b1b1bc

This is reflected in the ISE logs:

- ◆ The first log entry is for the initial authentication that returns the posture profile (with redirection).
- ◆ The second log entry is populated after the compliant SWISS report is received.
- ◆ The third log entry is populated when the CoA is sent, along with the confirmation (described as Dynamic Authorization Succeeded).
- ◆ The final log entry is created when the ASA downloads the DACL.

✓	🔍	#ACSACL#-IP-F	ASA9-2	Compliant	ise2
✓	🔍	192.168.10.67	ASA9-2	ASA92-compliant	Compliant ise2
🔍	🔍	0 cisco 192.168.10.67		Compliant	ise2
✓	🔍	cisco 192.168.10.67	ASA9-2	ASA92-posture	User Identity Gro... Pending ise2

11. Debugs on the ASA show that the CoA is received and the redirect is removed. The ASA downloads the DACLs if needed:

```
ASA# Received RAD_COA_REQUEST
```

```
RADIUS packet decode (CoA-Request)
```

```
Radius: Value (String) =
41 43 53 3a 43 69 73 63 6f 53 65 63 75 72 65 2d | ACS:CiscoSecure-
44 65 66 69 6e 65 64 2d 41 43 4c 3d 23 41 43 53 | Defined-ACL=#ACS
41 43 4c 23 2d 49 50 2d 50 45 52 4d 49 54 5f 41 | ACL#-IP-PERMIT_A
4c 4c 5f 54 52 41 46 46 49 43 2d 35 31 65 66 37 | LL_TRAFFIC-51ef7
64 62 31 | db1
```

```
Got AV-Pair with value audit-session-id=c0a8700a0000900052b840e6
```

```
Got AV-Pair with value ACS:CiscoSecure-Defined-ACL=
```

```
#ACSACL#-IP-PERMIT_ALL_TRAFFIC-51ef7db1
```

aaa\_url\_redirect: Deleted url redirect for 10.10.10.10

## 12. After the VPN session, Cisco has the DACL applied (full access) for the user:

ASA# show vpn-sessiondb detail anyconnect

Session Type: AnyConnect Detailed

```
Username      : cisco                      Index      : 9
Assigned IP   : 10.10.10.10                Public IP  : 10.147.24.61
Protocol      : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License       : AnyConnect Essentials
Encryption    : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)RC4  DTLS-Tunnel: (1)AES128
Hashing       : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)SHA1 DTLS-Tunnel: (1)SHA1
Bytes Tx      : 94042                      Bytes Rx   : 37079
Pkts Tx       : 169                       Pkts Rx   : 382
Pkts Tx Drop  : 0                         Pkts Rx Drop : 0
Group Policy  : GP-SSL                     Tunnel Group : RA
Login Time    : 14:55:50 CET Mon Dec 23 2013
Duration      : 0h:05m:30s
Inactivity    : 0h:00m:00s
VLAN Mapping  : N/A                       VLAN       : none
Audt Sess ID  : c0a8700a0000900052b840e6
Security Grp  : 0
```

AnyConnect-Parent Tunnels: 1

SSL-Tunnel Tunnels: 1

DTLS-Tunnel Tunnels: 1

AnyConnect-Parent:

```
Tunnel ID     : 9.1
Public IP     : 10.147.24.61
Encryption    : none                      Hashing      : none
TCP Src Port  : 50025                      TCP Dst Port : 443
Auth Mode     : userPassword
Idle Time Out: 30 Minutes                  Idle TO Left : 24 Minutes
Client OS     : win
Client Type   : AnyConnect
Client Ver    : Cisco AnyConnect VPN Agent for Windows 3.1.02040
Bytes Tx      : 5204                      Bytes Rx     : 779
Pkts Tx       : 4                         Pkts Rx     : 1
Pkts Tx Drop  : 0                         Pkts Rx Drop : 0
```

SSL-Tunnel:

```
Tunnel ID     : 9.2
Assigned IP   : 10.10.10.10                Public IP    : 10.147.24.61
Encryption    : RC4                      Hashing     : SHA1
Encapsulation: TLSv1.0                   TCP Src Port : 50044
TCP Dst Port  : 443                      Auth Mode   : userPassword
Idle Time Out: 30 Minutes                  Idle TO Left : 24 Minutes
Client OS     : Windows
Client Type   : SSL VPN Client
Client Ver    : Cisco AnyConnect VPN Agent for Windows 3.1.02040
Bytes Tx      : 5204                      Bytes Rx     : 172
Pkts Tx       : 4                         Pkts Rx     : 2
Pkts Tx Drop  : 0                         Pkts Rx Drop : 0
Filter Name   : #ACSACL#-IP-PERMIT_ALL_TRAFFIC-51ef7db1
```

DTLS-Tunnel:

```
Tunnel ID     : 9.3
Assigned IP   : 10.10.10.10                Public IP    : 10.147.24.61
Encryption    : AES128                   Hashing     : SHA1
Encapsulation: DTLSv1.0                 UDP Src Port : 63296
UDP Dst Port  : 443                      Auth Mode   : userPassword
Idle Time Out: 30 Minutes                  Idle TO Left : 29 Minutes
Client OS     : Windows
```

```

Client Type   : DTLS VPN Client
Client Ver    : Cisco AnyConnect VPN Agent for Windows 3.1.02040
Bytes Tx      : 83634                      Bytes Rx     : 36128
Pkts Tx       : 161                       Pkts Rx     : 379
Pkts Tx Drop  : 0                         Pkts Rx Drop : 0
Filter Name   : #ACSACL#-IP-PERMIT_ALL_TRAFFIC-51ef7db1

```

**Note:** The ASA always removes the redirect rules, even when the CoA does not have any DACL attached.

## Troubleshoot

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

## Debugs on the ISE

Navigate to **Administration > Logging > Debug Log Configuration** in order to enable debugs. Cisco recommends that you enable temporary debugs for:

- SWISS
- Nonstop Forwarding (NSF)
- NSF-Session
- Provision
- Posture

Enter this command in the CLI in order to view the debugs:

```
ise2/admin# show logging application ise-psc.log tail count 100
```

Navigate to **Operations > Reports > ISE Reports > Endpoints and Users > Posture Details Assessment** in order to view the posture reports:

Logged At	Status	Detail	PSA	Identity	Endpoint ID	IP Address	Endpoint OS	Agent	Message
2013-12-23 15:21:34.9	continue		continue	cisco	08:08:27:CD:8A	10.147.24.92	Windows 7 Enterprise 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 15:08:58.3	continue		continue	cisco	08:08:27:CD:8A	10.147.24.92	Windows 7 Enterprise 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 14:59:34.3	continue		continue	cisco	08:08:27:CD:8A	10.147.24.92	Windows 7 Enterprise 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 14:55:28.6	N/A		N/A	cisco	08:08:27:CD:8A	10.147.24.92	Windows 7 Enterprise 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 14:44:45.0	N/A		N/A	cisco	08:08:27:CD:8A	10.147.24.92	Windows 7 Enterprise 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 13:34:38.3	N/A		N/A	cisco	08:08:27:7F:5F:6v	10.147.24.92	Windows 7 Ultimate 64-bit	Cisco NAC A...	Received a posture report from an endpoint
2013-12-23 13:27:10.3	N/A		N/A	cisco	08:08:27:7F:5F:6v	10.147.24.92	Windows 7 Ultimate 64-bit	Cisco NAC A...	Received a posture report from an endpoint

On the Posture More Detail Assessment page, there is policy name with a requirement name that is displayed, along with the results:

## Posture More Detail Assessment

Time Range: From 12/23/2013 12:00:00 AM to 12/23/2013 03:57:31 PM  
Generated At: 2013-12-23 15:57:31.248

### Client Details

Username:	cisco
Mac Address:	08:00:27:CD:E8:A2
IP address:	10.147.24.92
Session ID:	c0a8700a0000b00052b846c0
Client Operating System:	Windows 7 Enterprise 64-bit
Client NAC Agent:	Cisco NAC Agent for Windows 4.9.0.1013
PRA Enforcement:	1
CoA:	Received a posture report from an endpoint
PRA Grace Time:	
PRA Interval:	240
PRA Action:	continue
User Agreement Status:	NotEnabled
System Name:	MGARCARZ-WS01
System Domain:	cisco.com
System User:	mgarcarz
User Domain:	CISCO
AV Installed:	McAfee VirusScan Enterprise;8.8.0.975;7227;10/13/2013;McAfeeAV,Cisco Security Agent;6.0.2.130;;;CiscoAV
AS Installed:	Windows Defender;6.1.7600.16385;1.95.191.0;11/19/2010;MicrosoftAS

### Posture Report

Posture Status:	Compliant
Logged At:	2013-12-23 15:21:34.902

### Posture Policy Details

Policy	Name	Enforcement	Statu	Passed	Failed	Skipped Conditions
posture_initial	file_require...	Mandatory		file_condition		

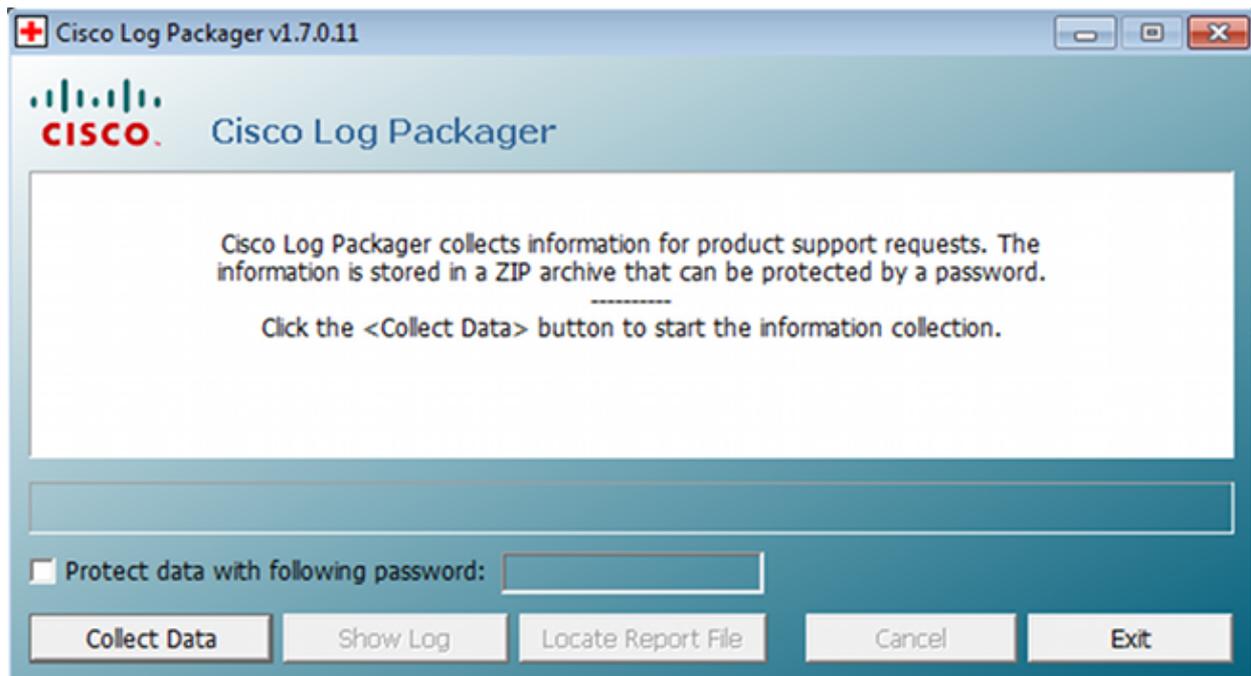
## Debugs on the ASA

You can enable these debugs on the ASA:

- **debug aaa url-redirect**
- **debug aaa authorization**
- **debug radius dynamic-authorization**
- **debug radius decode**
- **debug radius user cisco**

## Debugs for the Agent

For the NAC Agent, it is possible to gather the debugs with the Cisco Log Packager, which is initiated from the GUI or with the CLI: **CCAAgentLogPackager.app**.



**Tip:** You can decode the results with the Technical Assistance Center (TAC) tool.

In order to retrieve the logs for the Web Agent, navigate to these locations:

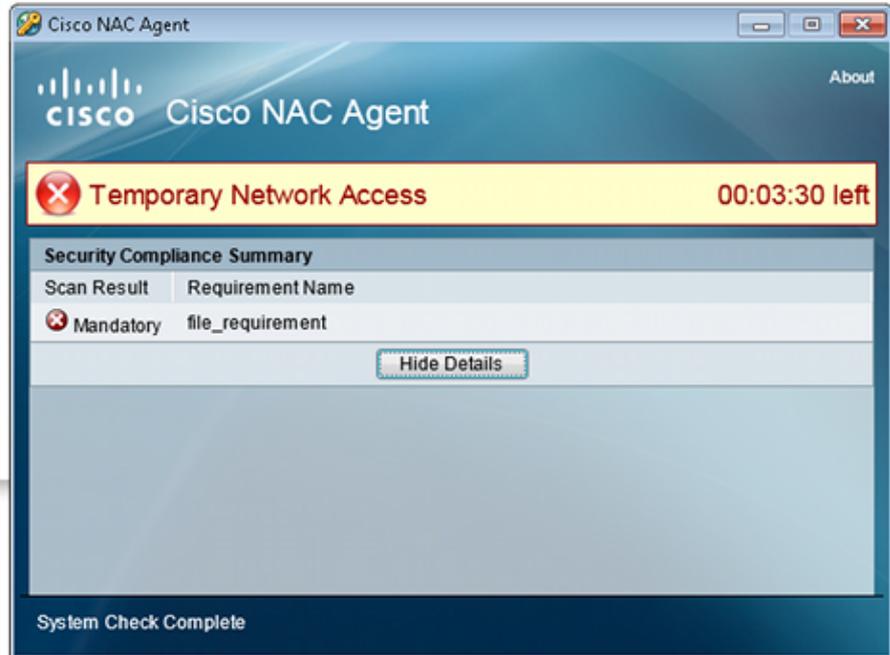
- **C: > Document and Settings > <user> > Local Settings > Temp > webagent.log** (decoded with the TAC tool)
- **C: > Document and Settings > <user> > Local Settings > Temp > webagentsetup.log**

**Note:** If the logs are not in these locations, then verify the **TEMP Environment** variable.

### **NAC Agent Posture failure**

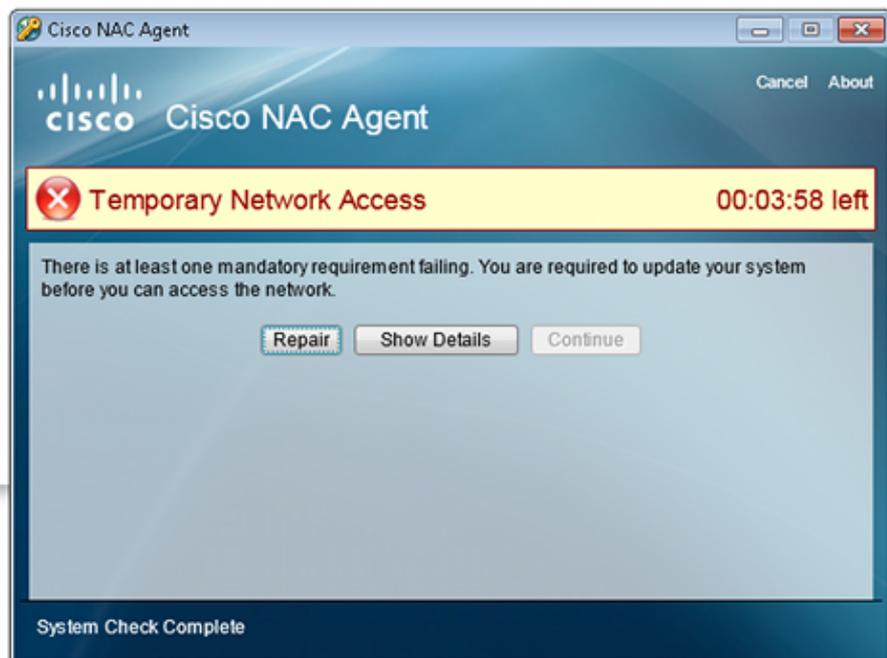
If the posture fails, the user is presented with the reason:

## Information



The user is then allowed remediation actions if they are configured:

## Information



## Related Information

- [Configuring an External Server for Security Appliance User Authorization](#)
- [Cisco ASA Series VPN CLI Configuration Guide, 9.1](#)

- **Cisco Identity Services Engine User Guide, Release 1.2**
- **Technical Support & Documentation - Cisco Systems**

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Updated: Jun 30, 2014

Document ID: 117693

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