TECHNICAL NOTE

CLEARPASS ONGUARD

CONFIGURATION GUIDE

aruba NETWORKS an HP company

REVISION HISTORY

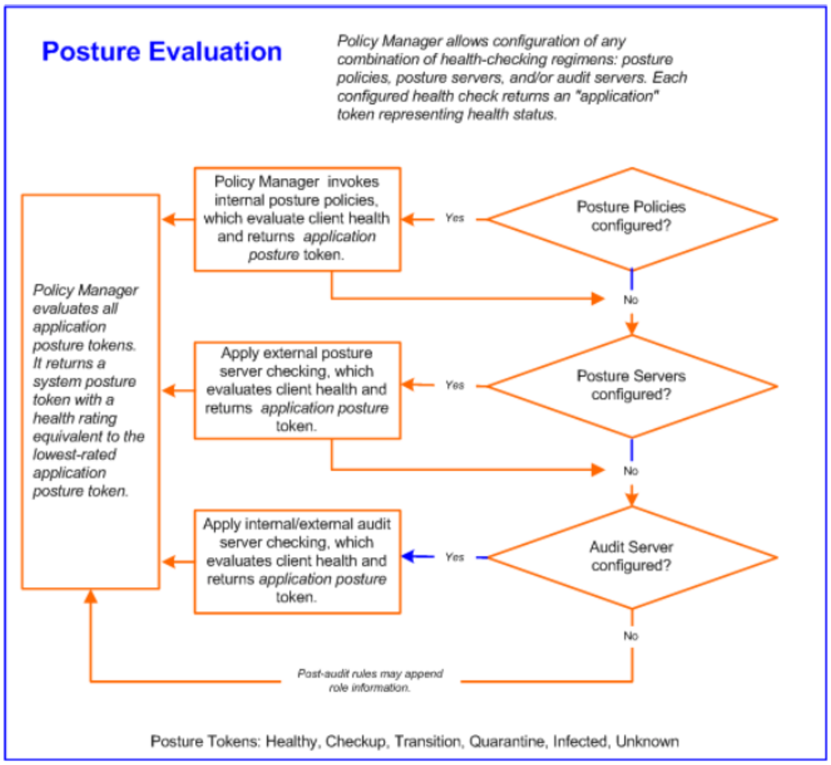
Revised By	Date	Changes
Dennis Boas	July 2015	Version 1 – initial release

TABLE OF CONTENTS

Introduction

This technical note is intended to help field engineers, customers, and partners configure and deploy a basic OnGuard solution. ClearPass OnGuard agents perform advanced endpoint posture assessments to ensure that endpoints meet enterprise security requirements before they are allowed access to the network.

Policy Manager provides several methods for assessing the health posture of clients requesting access; OnGuard Agents, NAP Agents and NESSUS or NMAP Scans. All of these methods return Posture Tokens (E.g., Healthy, Quarantine) that Policy Manager uses for input into Enforcement Policies. One or more of these posture methods can be associated with a Service.


Posture Evaluation
Policy Manager allows configuration of any combination of health-checking regimens: posture policies, posture servers, and/or audit servers. Each configured health check returns an "application" token representing health status.
Posture Policies configured?
Yes
Policy Manager invokes internal posture policies, which evaluate client health and returns application posture token.
No
Posture Servers configured?
Yes
Apply external posture server checking, which evaluates client health and returns application posture token.
No
Audit Server configured?
Yes
Apply internal/external audit server checking, which evaluates client health and returns application posture token.
No
Policy Manager evaluates all application posture tokens. It returns a system posture token with a health rating equivalent to the lowest-rated application posture token.
Post-audit rules may append role information.
Posture Tokens: Healthy, Checkup, Transition, Quarantine, Infected, Unknown

Note: This Tech Note will only cover the OnGuard and NAP Agents.

Configuration Workflow

There are six steps required to configure OnGuard

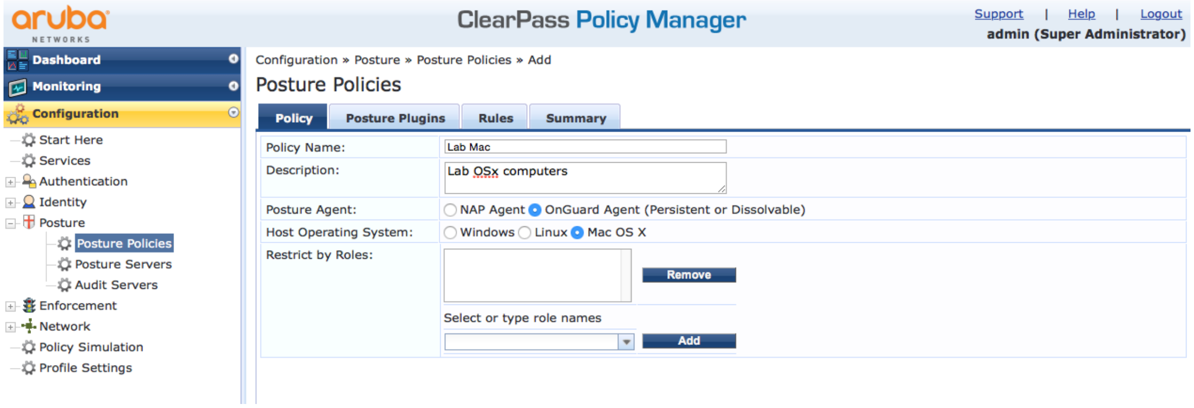
- Configure Posture Policies
- Configure OnGuard Agent Customization
- Configure Global Agent Settings
- Configure OnGuard Policy Manger Zone mapping
- Configure Policy Manager Service
- Configure ClearPass Web Authorization Page

The first step is to decide which end systems the OnGuard agents will be installed on, what tests will be run and what results will be required to return a Healthy Token.

Configure Posture Policies

Posture policies can be associated with ClearPass services to verify the security posture of end systems prior to granting network access. The policy defines the end system operating system and the type of agent to deploy. It also tells the agent which tests to run and defines the rules that determine what is required to return a Healthy Token to the ClearPass service. For Windows end systems the Microsoft NAP agent and the OnGuard agent are both available. For Linux and Mac OS X only the OnGuard agent is available.

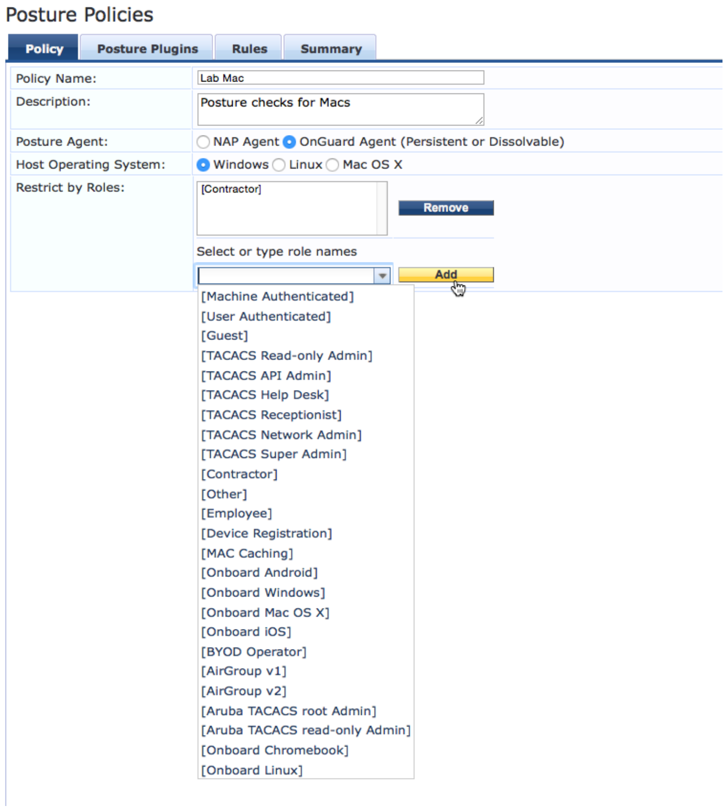
To configure a new policy navigate to the **Policy** tab on the **Configuration > Posture > Posture Policies > Add** page



Policy Name:	Lab Mac
Description:	Lab OSx computers
Posture Agent:	○ NAP Agent ● OnGuard Agent (Persistent or Dissolvable)
Host Operating System:	○ Windows ○ Linux ● Mac OS X
Restrict by Roles:	Select or type role names

Restricting Policies

The Restrict by Roles section allows the administrator to apply the posture policy only to end systems that authenticate with selected roles. Typically users with access to sensitive information would authenticate with roles associated with more restrictive posture policies. For example users with access to research data might have a posture policy that does not permit the mounting of USB Storage devices. Or users with access to employee or customer personal or health data might have a policy that requires full disk encryption.



Posture Policies

Policy Name: Lab Mac

Description: Posture checks for Macs

Posture Agent: ○ NAP Agent ● OnGuard Agent (Persistent or Dissolvable)

Host Operating System: ● Windows ○ Linux ○ Mac OS X

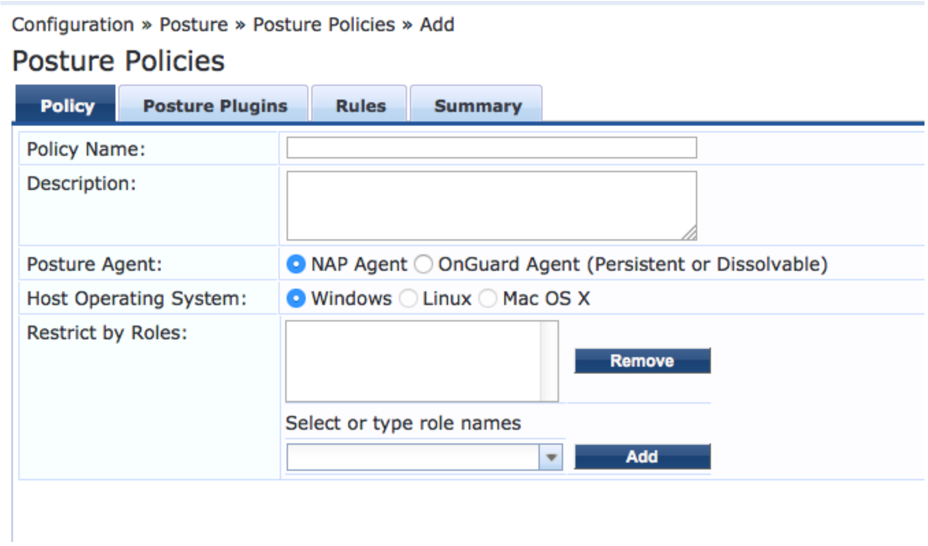
Restrict by Roles: [Contractor]

Select or type role names

Windows OS

The Posture agents supported for Windows operating systems are the Microsoft NAP Agent and the ClearPass OnGuard agent.

NAP AGENT



Configuration » Posture » Posture Policies » Add

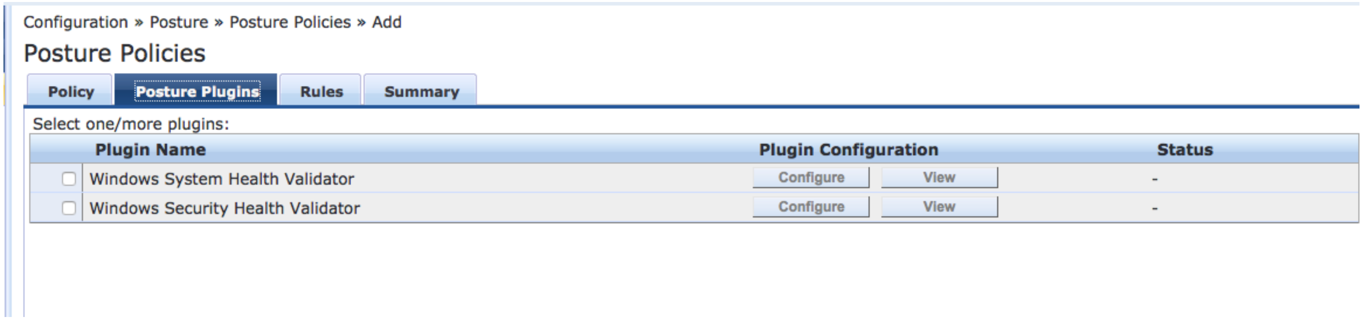
Posture Policies

Policy Name:	
Description:	
Posture Agent:	● NAP Agent ○ OnGuard Agent (Persistent or Dissolvable)
Host Operating System:	● Windows ○ Linux ○ Mac OS X
Restrict by Roles:	Select or type role names

The Windows NAP agent includes the System Health Validator and Security Health Validator. Both have limited predefined checklists to enable the tests. The NAP agents send the health information to ClearPass along with the 802.1X authentication information.

Note: Use of the NAP agent is discouraged. NAP was marked deprecated in Server 2012 R2, and NAP is not supported in the Technology Preview of Windows 10 and Windows Server 2016.

To configure the NAP agent Select the Posture Plugin Tab.



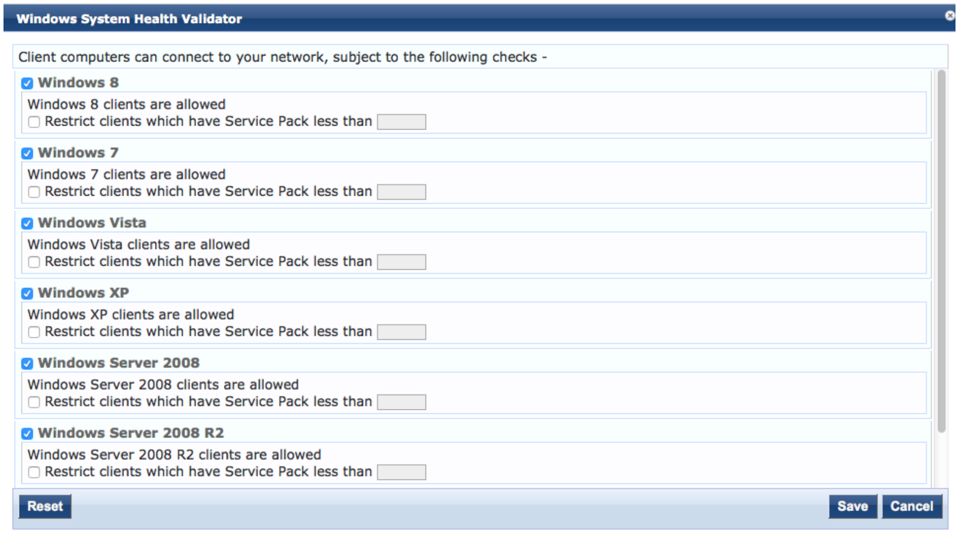
Configuration » Posture » Posture Policies » Add

Posture Policies

Select one/more plugins:

	Plugin Name	Plugin Configuration		Status
□	Windows System Health Validator	Configure	View	-
□	Windows Security Health Validator	Configure	View	-

The Windows System Health Validator Plugin allows you to restrict access based on the Windows OS version and Service Pack level of the end system.



Windows System Health Validator

Client computers can connect to your network, subject to the following checks -

☑ **Windows 8**
Windows 8 clients are allowed
□ Restrict clients which have Service Pack less than

☑ **Windows 7**
Windows 7 clients are allowed
□ Restrict clients which have Service Pack less than

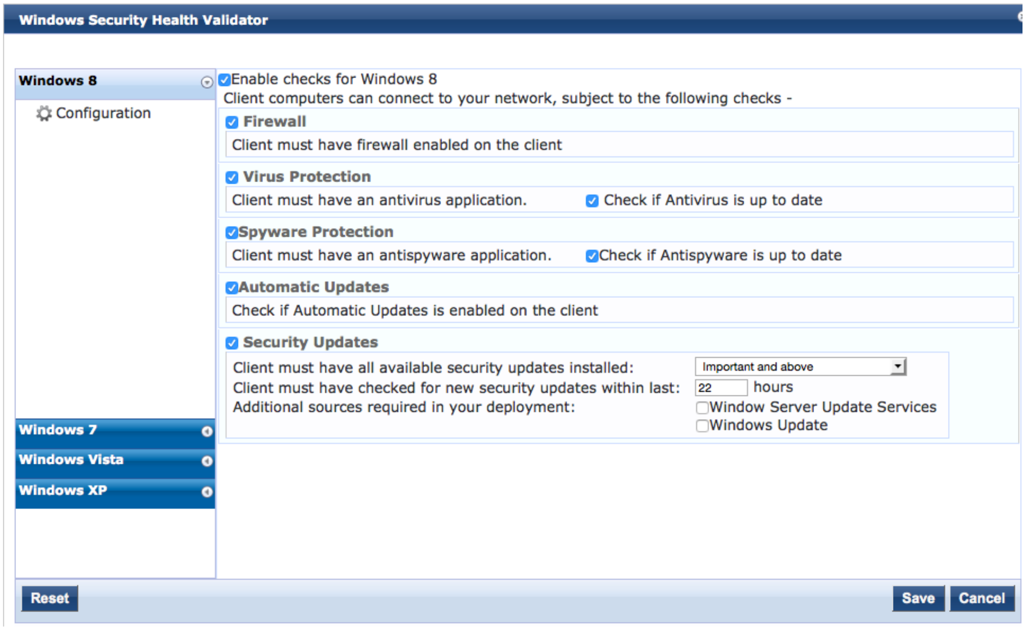
☑ **Windows Vista**
Windows Vista clients are allowed
□ Restrict clients which have Service Pack less than

☑ **Windows XP**
Windows XP clients are allowed
□ Restrict clients which have Service Pack less than

☑ **Windows Server 2008**
Windows Server 2008 clients are allowed
□ Restrict clients which have Service Pack less than

☑ **Windows Server 2008 R2**
Windows Server 2008 R2 clients are allowed
□ Restrict clients which have Service Pack less than

The Windows Security Health Validator Plugin verifies that a firewall is enabled, security applications are installed and security updates are current. Unlike the OnGuard Agent the NAP agent does not allow you to restrict access based on specific Firewall, Virus protection and Spyware protection products.



☑ Enable checks for Windows 8

Client computers can connect to your network, subject to the following checks -

☑ **Firewall**

Client must have firewall enabled on the client

☑ **Virus Protection**

Client must have an antivirus application. ☑ Check if Antivirus is up to date

☑ **Spyware Protection**

Client must have an antispyware application. ☑ Check if Antispyware is up to date

☑ **Automatic Updates**

Check if Automatic Updates is enabled on the client

☑ **Security Updates**

Client must have all available security updates installed: Important and above

Client must have checked for new security updates within last: 22 hours

Additional sources required in your deployment: ☐ Window Server Update Services ☐ Windows Update

OnGuard Agent

The OnGuard Agent enables more extensive health checks then those available in the NAP Agent. Both persistent and dissolvable agents are available for Windows, Mac OS X and Linux operating systems. The persistent agent is installed on the end system and runs in the background. It requires network connectivity and regularly reports health information to a ClearPass Webauth posture check service. The dissolvable agent does not permanently install anything on the end system. The user is redirected to the ClearPass agent page and the agent is run on demand in the Web Browser. Both the persistent and dissolvable agents cache the health results in the Endpoint Database and the latest health posture token can be used by ClearPass services. The persistent and dissolvable agents perform the same tests but auto remediation is only available with the persistent agent.

Posture Policy Checks

Services – specify services to be explicitly running or stopped.

Processes - specify processes to be explicitly present or absent on the system.

Registry Keys - specify registry keys to be explicitly present or absent. **(Windows only)**

Antivirus - specify that an Antivirus application must be on and allows drill-down to choose a specific Antivirus application.

AntiSpyware - specify that an AntiSpyware application must be on and allows drill-down to choose a specific AntiSpyware application.

Firewall - specify that a Firewall application must be on and allows drill-down to choose a specific Firewall application.

Peer To Peer - specify specific peer-to-peer applications or networks to be explicitly stopped. When you select a peer-to-peer network, all applications that make use of that network are stopped.

Patch Management - specify that a patch management application must be on and allows drill-down to specify information about the patch management application.

Windows Hotfixes - check if specific Windows hotfixes are installed on the endpoint. **(Windows only)**

USB Devices - provides configuration to control USB devices attached to an endpoint.

Virtual Machines - provides configuration to control Virtual Machines installed on the end system.

Network Connections - provides configuration to control network connections based on connection type.

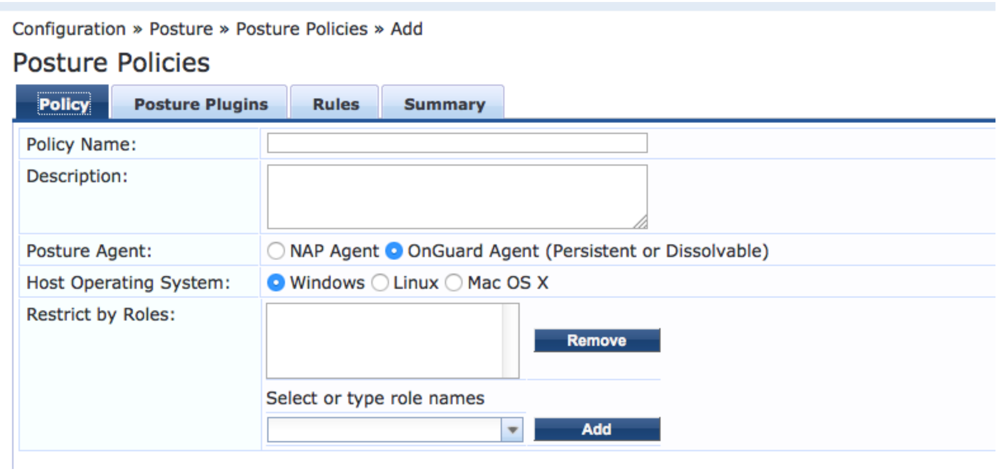
Disk Encryption - tests for any encryption product or a specific encryption product. Root Drive, all drives or a specific location can be specified.

Installed Application - specifies allowed mandatory, allowed optional, and not allowed applications. Can be set for monitor mode.

File Check - tests for the presence or absence of specific file groups. Success can be set to all files present or any file present.

Note: *The Linux Universal System Health Validator only supports Services and AntiVirus checks*

To configure the OnGuard Agent select **Configuration** » **Posture** » **Posture Policies** » **Add**



Configuration » Posture » Posture Policies » Add

Posture Policies

Policy Name:

Description:

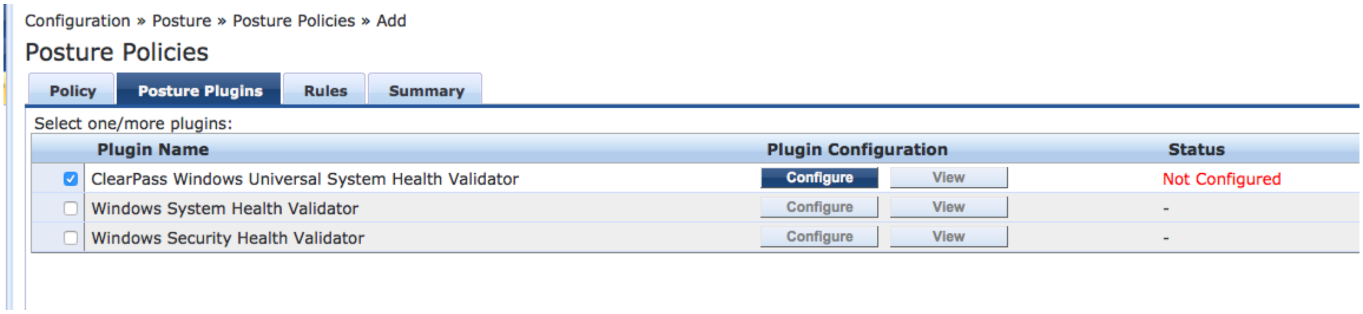
Posture Agent: ○ NAP Agent ● OnGuard Agent (Persistent or Dissolvable)

Host Operating System: ● Windows ○ Linux ○ Mac OS X

Restrict by Roles:

The ClearPass Windows Universal System Health Validator leverages the Microsoft NAP Agent and Microsoft's API and performs more advanced health checks than the Microsoft-provided NAP Agent

To configure the ClearPass Windows Universal System Health Validator Select **Configure** under the Plugin Configuration heading

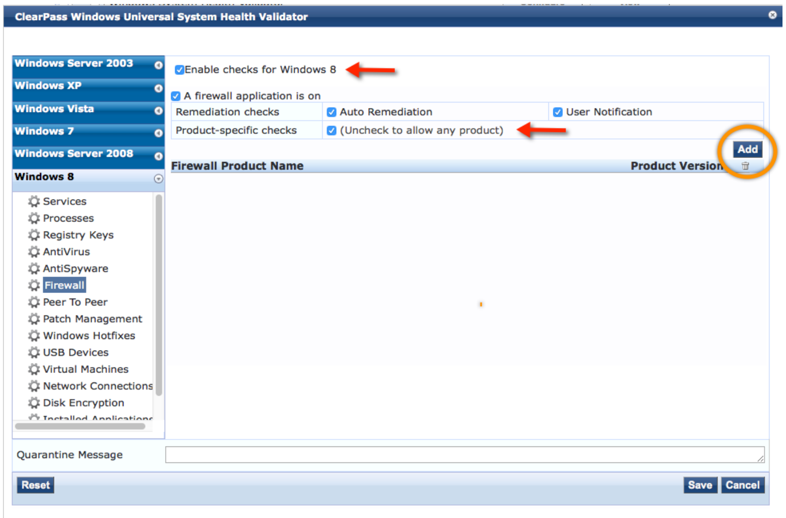

Configuration » Posture » Posture Policies » Add

Posture Policies

Select one/more plugins:

	Plugin Name	Plugin Configuration		Status
☑	ClearPass Windows Universal System Health Validator	Configure	View	Not Configured
□	Windows System Health Validator	Configure	View	-
□	Windows Security Health Validator	Configure	View	-

Then choose the Windows operating system you want to enable checks for. In this example; Select Widows 8 then check the Enable checks for Windows 8 checkbox. Next select Firewall on the left hand window. If the desired behavior is to simply test to see if any firewall is running then uncheck the (Uncheck to allow any product) checkbox. To specify the required firewall check the (Uncheck to allow any product) checkbox and click the add button


ClearPass Windows Universal System Health Validator

☑ Enable checks for Windows 8

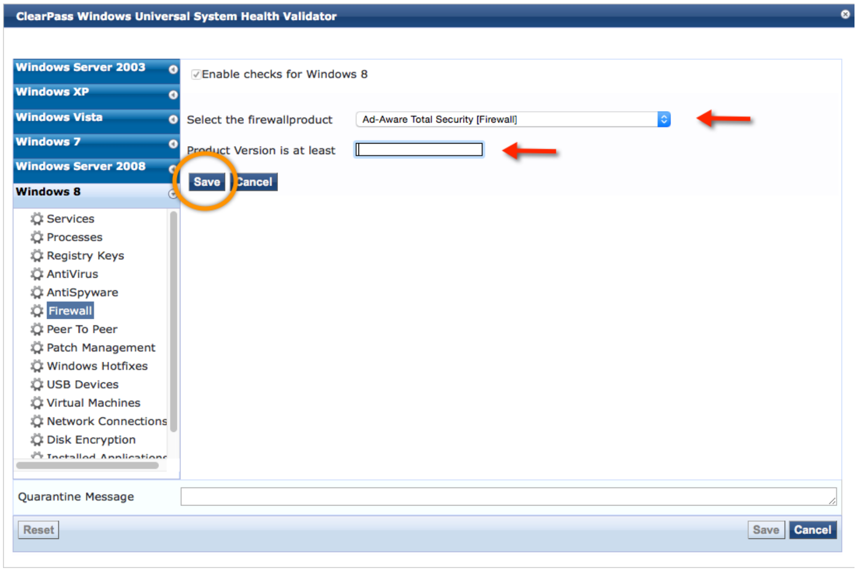
☑ A firewall application is on

Remediation checks	☑ Auto Remediation	☑ User Notification
Product-specific checks	☑ (Uncheck to allow any product)	

Firewall Product Name	Product Version

Quarantine Message

Next select the firewall product from the pull-down window and optionally specify the minimum version



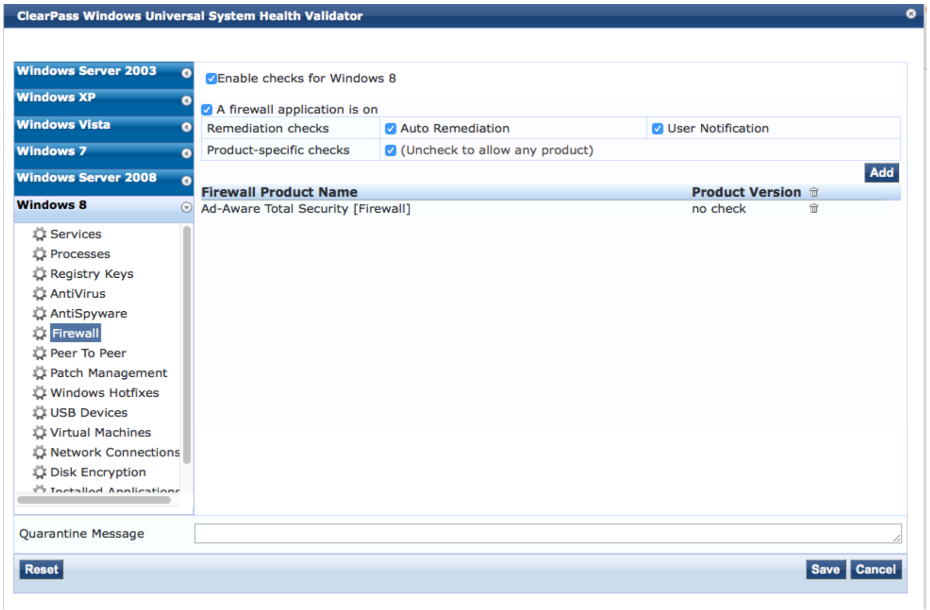
☑ Enable checks for Windows 8

Select the firewallproduct: Ad-Aware Total Security [Firewall]

Product Version is at least:

Quarantine Message:

After selecting the Firewall product from the pull down menu set the remediation behavior, Auto Remediation will turn on the firewall if it is not running, User notification will notify the user to turn it on. After the configuration is complete click **Save**.



☑ Enable checks for Windows 8

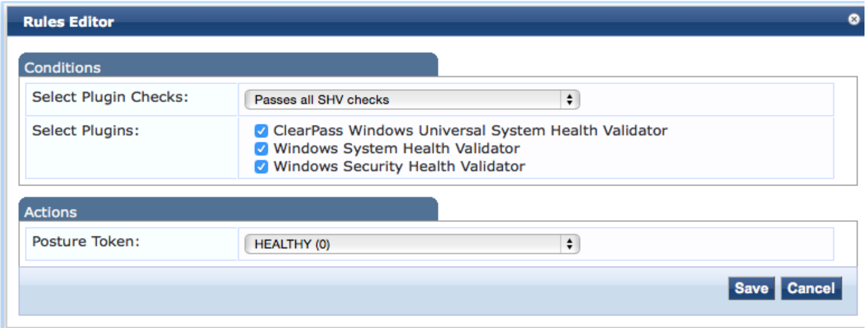
☑ A firewall application is on

Remediation checks	☑ Auto Remediation	☑ User Notification
Product-specific checks	☑ (Uncheck to allow any product)	

Firewall Product Name	Product Version
Ad-Aware Total Security [Firewall]	no check

Quarantine Message:

After all of the Posture Plugins have been configured click on the Rules tab and add the rules that define which Posture Token will be sent to ClearPass. Rules can apply to all configured Plugins or be specific to one Plugin



Conditions

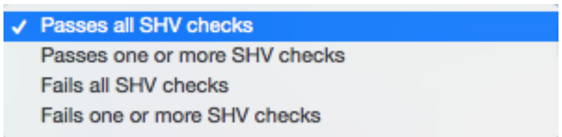
Select Plugin Checks:	Passes all SHV checks
Select Plugins:	☑ ClearPass Windows Universal System Health Validator ☑ Windows System Health Validator ☑ Windows Security Health Validator

Actions

Posture Token:	HEALTHY (0)

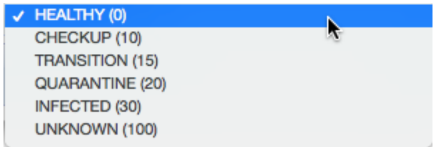
.

Plugin rules can be



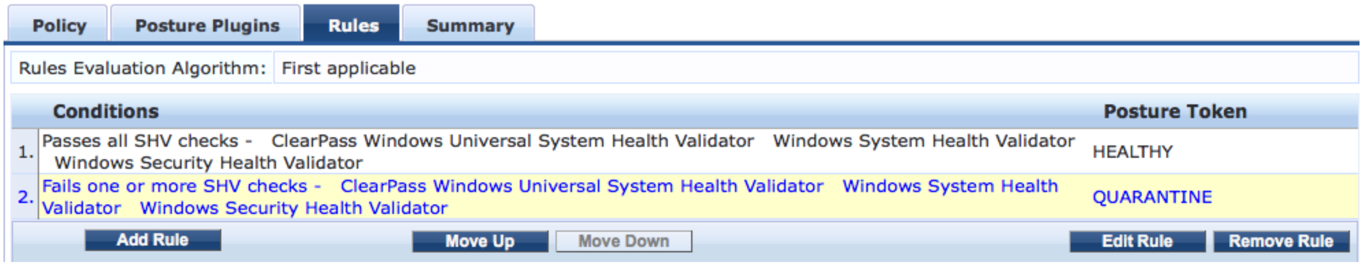
- ✓ Passes all SHV checks
- Passes one or more SHV checks
- Fails all SHV checks
- Fails one or more SHV checks

And Tokens can be



- ✓ HEALTHY (0)
- CHECKUP (10)
- TRANSITION (15)
- QUARANTINE (20)
- INFECTED (30)
- UNKNOWN (100)

In this example all checks from all plugins must pass before a Healthy Token is sent to ClearPass; if any check fails a Quarantine Token will be sent to ClearPass.

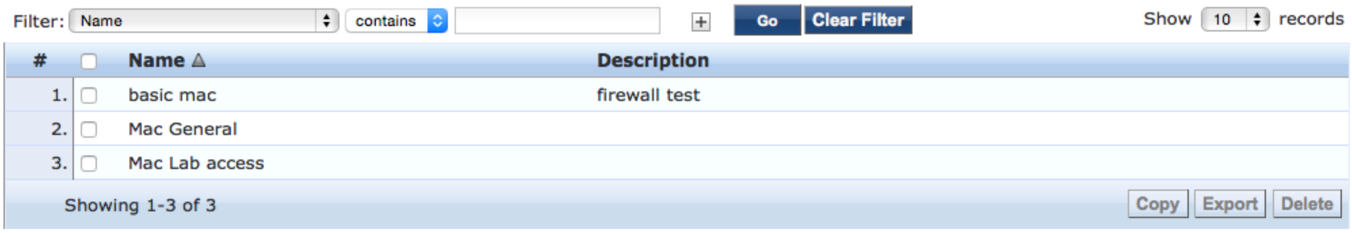


Rules Evaluation Algorithm: First applicable

	Conditions	Posture Token
1.	Passes all SHV checks - ClearPass Windows Universal System Health Validator Windows System Health Validator Windows Security Health Validator	HEALTHY
2.	Fails one or more SHV checks - ClearPass Windows Universal System Health Validator Windows System Health Validator Windows Security Health Validator	QUARANTINE

Mac OS X

In the following example we have configured three Policies for Mac OS X.



Filter: Name contains

Show 10 records

#	□	Name ▲	Description
1.	□	basic mac	firewall test
2.	□	Mac General	
3.	□	Mac Lab access	

Showing 1-3 of 3

The basic mac policy only tests for supported firewall and applies to all roles

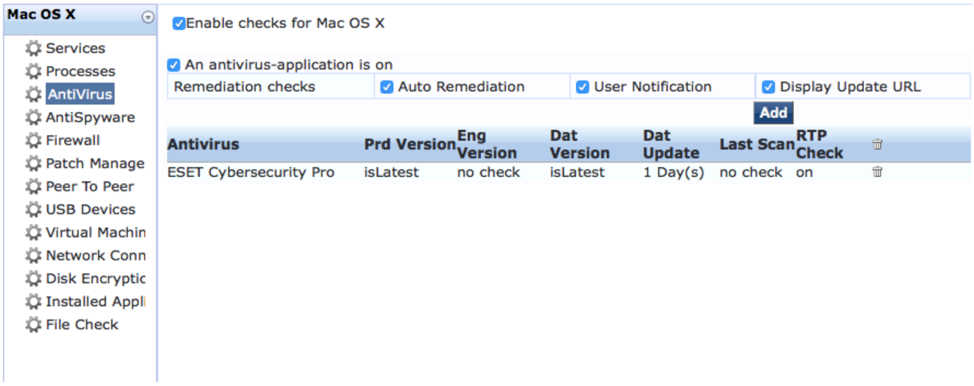
The Mac General policy applies to users authenticating with the Employee Role and requires a supported Antivirus application, a supported AntiSpyware application and a supported Firewall application.

The Mac Lab access applies to users with access to sensitive research information. It is much more restrictive then the other policies

Mac Lab Access Policy

This Posture policy applies only to end systems that authenticate with the Lab Access role. End systems that pass all SHV tests receive a Healthy Posture Token, if they fail a single test they receive a Quarantine Posture Token

This policy will require the latest version of ESET Cybersecurity Pro Antivirus software. Since Auto Remediaton is checked if the applciacation is stopped the agent will restart it.



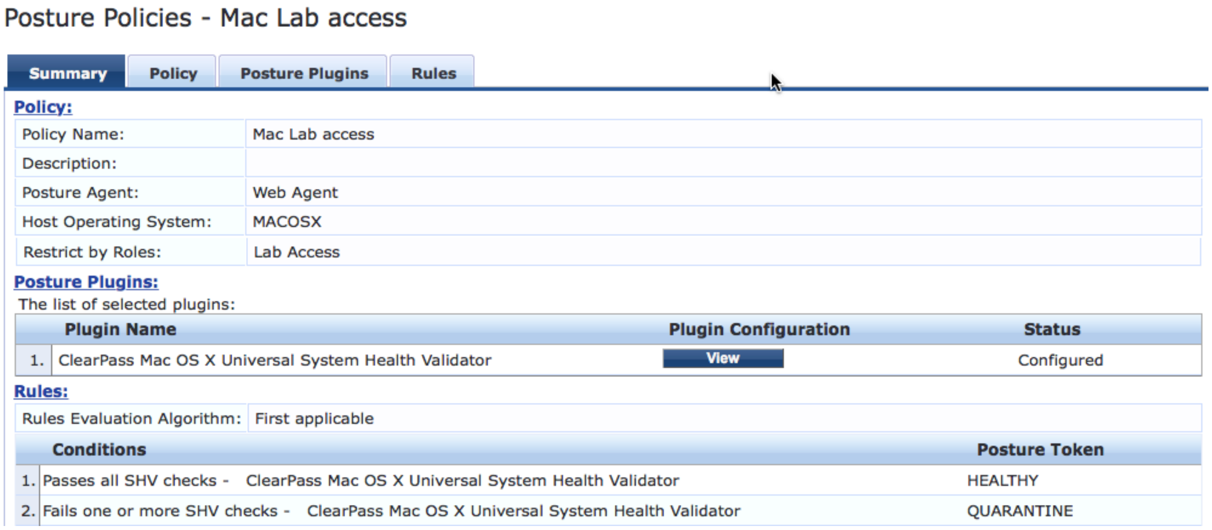
☑ Enable checks for Mac OS X

☑ An antivirus-application is on

Remediation checks	☑ Auto Remediation	☑ User Notification	☑ Display Update URL

Antivirus	Prd Version	Eng Version	Dat Version	Dat Update	Last Scan	RTP Check	🗑
ESET Cybersecurity Pro	isLatest	no check	isLatest	1 Day(s)	no check	on	🗑

The policy will also specify auto remediation for MacKeeper Antispyware and ESET Cybersecurity Firewall.



Posture Policies - Mac Lab access

Policy:

Policy Name:	Mac Lab access
Description:	
Posture Agent:	Web Agent
Host Operating System:	MACOSX
Restrict by Roles:	Lab Access

Posture Plugins:

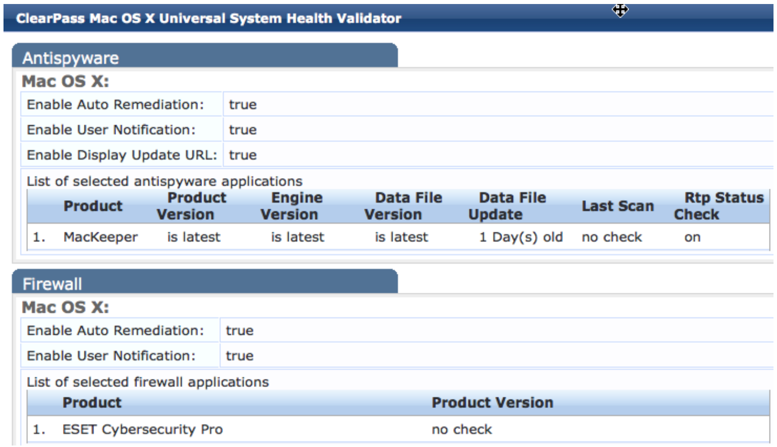
The list of selected plugins:

	Plugin Name	Plugin Configuration	Status
1.	ClearPass Mac OS X Universal System Health Validator	View	Configured

Rules:

Rules Evaluation Algorithm:	First applicable

	Conditions	Posture Token
1.	Passes all SHV checks - ClearPass Mac OS X Universal System Health Validator	HEALTHY
2.	Fails one or more SHV checks - ClearPass Mac OS X Universal System Health Validator	QUARANTINE



ClearPass Mac OS X Universal System Health Validator

Antispyware

Mac OS X:

Enable Auto Remediation:	true
Enable User Notification:	true
Enable Display Update URL:	true

List of selected antispyware applications

	Product	Product Version	Engine Version	Data File Version	Data File Update	Last Scan	Rtp Status Check
1.	MacKeeper	is latest	is latest	is latest	1 Day(s) old	no check	on

Firewall

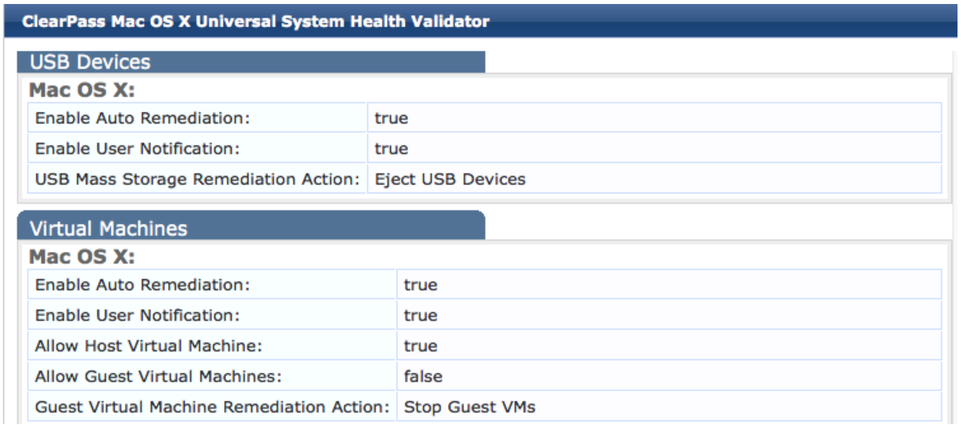
Mac OS X:

Enable Auto Remediation:	true
Enable User Notification:	true

List of selected firewall applications

	Product	Product Version
1.	ESET Cybersecurity Pro	no check

Since this policy applies to uses with access to critical information it will also enforce checks on mounting USB devices and hosting virtual machines. Auto Remediation will eject any mounted USB devices and stop any virtual machines running on the host.



ClearPass Mac OS X Universal System Health Validator

USB Devices

Mac OS X:

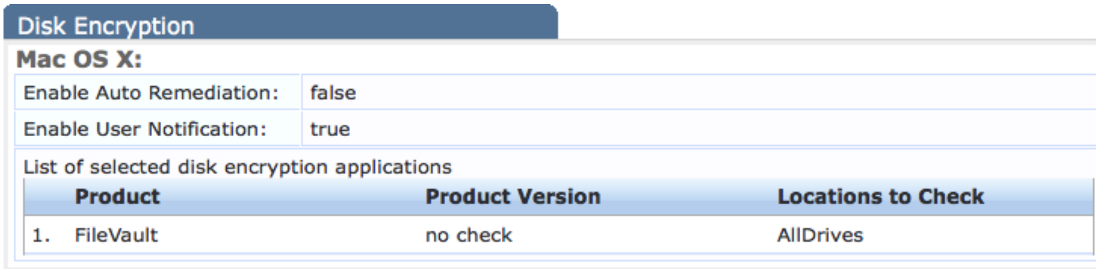
Enable Auto Remediation:	true
Enable User Notification:	true
USB Mass Storage Remediation Action:	Eject USB Devices

Virtual Machines

Mac OS X:

Enable Auto Remediation:	true
Enable User Notification:	true
Allow Host Virtual Machine:	true
Allow Guest Virtual Machines:	false
Guest Virtual Machine Remediation Action:	Stop Guest VMs

Information on this machine is considered classified so then policy will require full disk encryption. Auto remediation is not available for Encryption checks



Disk Encryption

Mac OS X:

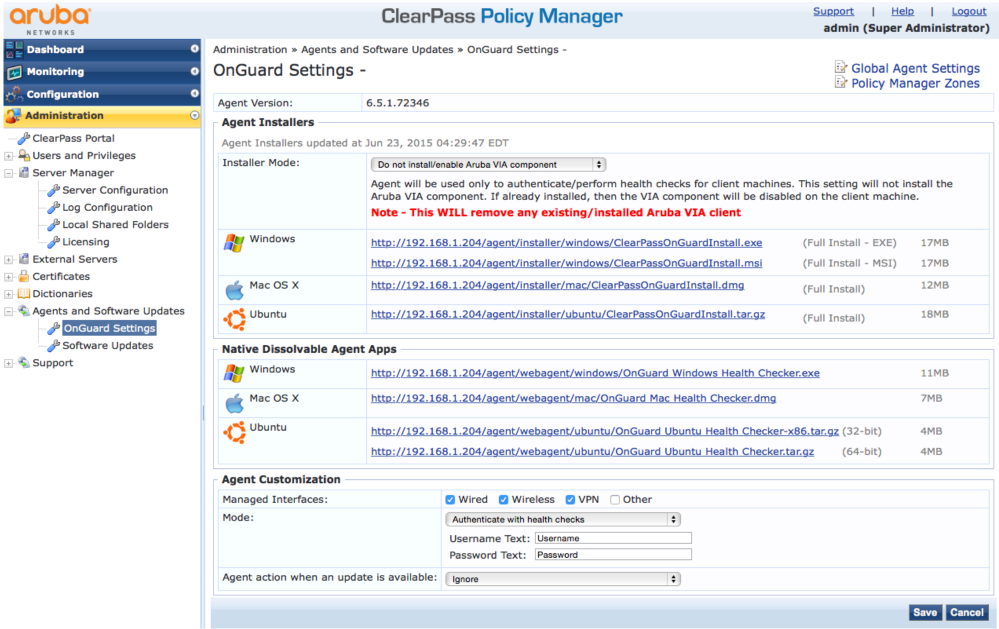
Enable Auto Remediation:	false
Enable User Notification:	true

List of selected disk encryption applications

	Product	Product Version	Locations to Check
1.	FileVault	no check	AllDrives

Customize Agent

The OnGuard settings page provides links to the Persistent and Dissolvable agent files, installer mode selection, and the agent customization parameters.



Administration » Agents and Software Updates » OnGuard Settings -

OnGuard Settings -

Agent Version: 6.5.1.72346

Agent Installers

Agent Installers updated at Jun 23, 2015 04:29:47 EDT

Installer Mode: Do not install/enable Aruba VIA component

Agent will be used only to authenticate/perform health checks for client machines. This setting will not install the Aruba VIA component. If already installed, then the VIA component will be disabled on the client machine.

Note - This WILL remove any existing/installed Aruba VIA client

Windows	http://192.168.1.204/agent/installer/windows/ClearPassOnGuardInstall.exe	(Full Install - EXE)	17MB
	http://192.168.1.204/agent/installer/windows/ClearPassOnGuardInstall.msi	(Full Install - MSI)	17MB
Mac OS X	http://192.168.1.204/agent/installer/mac/ClearPassOnGuardInstall.dmg	(Full Install)	12MB
Ubuntu	http://192.168.1.204/agent/installer/ubuntu/ClearPassOnGuardInstall.tar.gz	(Full Install)	18MB

Native Dissolvable Agent Apps

Windows	http://192.168.1.204/agent/webagent/windows/OnGuard Windows Health Checker.exe		11MB
Mac OS X	http://192.168.1.204/agent/webagent/mac/OnGuard Mac Health Checker.dmg		7MB
Ubuntu	http://192.168.1.204/agent/webagent/ubuntu/OnGuard Ubuntu Health Checker-x86.tar.gz	(32-bit)	4MB
	http://192.168.1.204/agent/webagent/ubuntu/OnGuard Ubuntu Health Checker.tar.gz	(64-bit)	4MB

Agent Customization

Managed Interfaces: ☑ Wired ☑ Wireless ☑ VPN □ Other

Mode: Authenticate with health checks

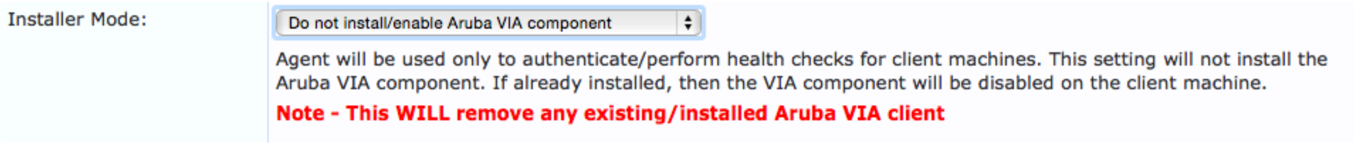
Username Text: Username

Password Text: Password

Agent action when an update is available: Ignore

Installer Mode

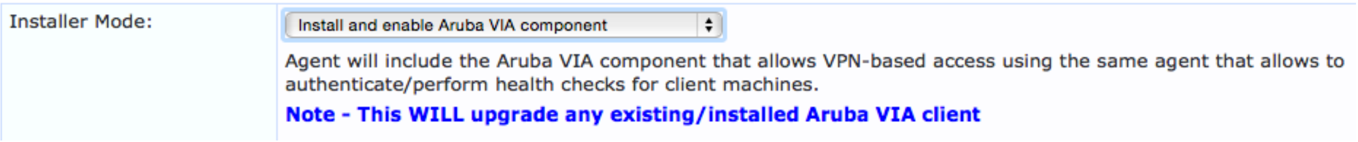
Installer Mode specifies the action to be taken when the Aruba VIA component is used to provide VPN-based access.



Installer Mode: Do not install/enable Aruba VIA component

Agent will be used only to authenticate/perform health checks for client machines. This setting will not install the Aruba VIA component. If already installed, then the VIA component will be disabled on the client machine.

Note - This WILL remove any existing/installed Aruba VIA client



Installer Mode: Install and enable Aruba VIA component

Agent will include the Aruba VIA component that allows VPN-based access using the same agent that allows to authenticate/perform health checks for client machines.

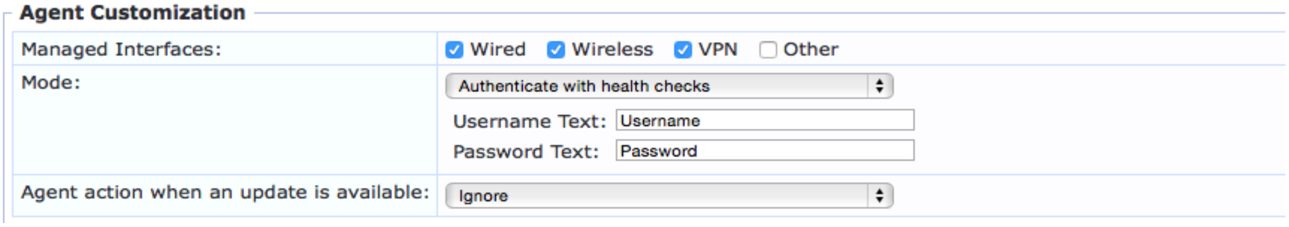
Note - This WILL upgrade any existing/installed Aruba VIA client

Agent Customization

Managed Interfaces

Select the end system network interfaces that the agent will be applied to

Note: Virtual Interfaces are categorized as “Other”



Agent Customization

Managed Interfaces:	☑ Wired ☑ Wireless ☑ VPN □ Other
Mode:	Authenticate with health checks Username Text: Username Password Text: Password
Agent action when an update is available:	Ignore

Agent Mode options

- Authentication-no health checks: OnGuard will only authenticate users without performing any type of Health checks.
- Check health-no authentication: OnGuard agent will only perform Health checks for clients PCs, no Authentication will be performed.
- Authentication with health checks: OnGuard agent will be used for both health checks and Authenticating users.

Username/Password Text:

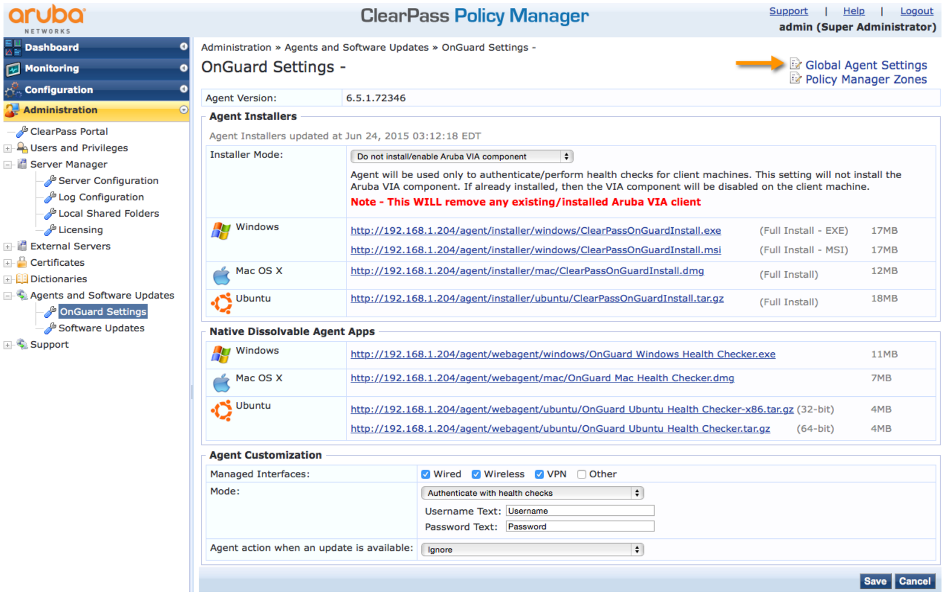
This is the label for the username/password fields presented to the user by the OnGuard agent if the mode requires Authentication.

Agent action when an update is available:

- Ignore
- Notify User
- Download and Install

OnGuard Global Agent Settings

The Global Agents Settings page is used to configure settings that apply to all agents.



Administration » Agents and Software Updates » OnGuard Settings -

OnGuard Settings -

Agent Version: 6.5.1.72346

Agent Installers

Agent Installers updated at Jun 24, 2015 03:12:18 EDT

Installer Mode: Do not install/enable Aruba VIA component

Agent will be used only to authenticate/perform health checks for client machines. This setting will not install the Aruba VIA component. If already installed, then the VIA component will be disabled on the client machine.

Note - This WILL remove any existing/installed Aruba VIA client

Windows	http://192.168.1.204/agent/installer/windows/ClearPassOnGuardInstall.exe	(Full Install - EXE)	17MB
	http://192.168.1.204/agent/installer/windows/ClearPassOnGuardInstall.msi	(Full Install - MSI)	17MB
Mac OS X	http://192.168.1.204/agent/installer/mac/ClearPassOnGuardInstall.dmg	(Full Install)	12MB
Ubuntu	http://192.168.1.204/agent/installer/ubuntu/ClearPassOnGuardInstall.tar.gz	(Full Install)	18MB

Native Dissolvable Agent Apps

Windows	http://192.168.1.204/agent/webagent/windows/OnGuard Windows Health Checker.exe		11MB
Mac OS X	http://192.168.1.204/agent/webagent/mac/OnGuard Mac Health Checker.dmg		7MB
Ubuntu	http://192.168.1.204/agent/webagent/ubuntu/OnGuard Ubuntu Health Checker-x86.tar.gz	(32-bit)	4MB
	http://192.168.1.204/agent/webagent/ubuntu/OnGuard Ubuntu Health Checker.tar.gz	(64-bit)	4MB

Agent Customization

Managed Interfaces: ☑ Wired ☑ Wireless ☑ VPN ☐ Other

Mode: Authenticate with health checks

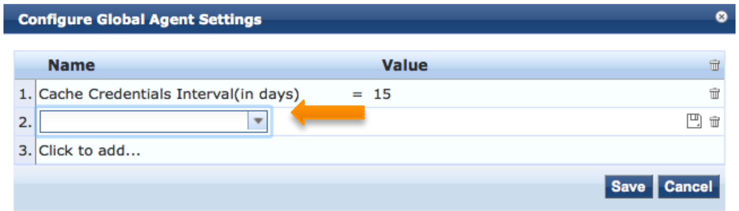
Username Text: Username

Password Text: Password

Agent action when an update is available: Ignore

Global Agent Settings

Configure the amount of time to cache OnGuard credentials.



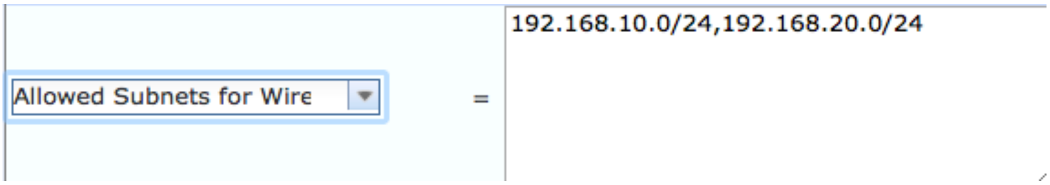
Configure Global Agent Settings

	Name		Value
1.	Cache Credentials Interval(in days)	=	15
2.			
3.	Click to add...		

Additional Global Agents setting include:

Allowed Subnets for Wired access: Add comma-separated list of IP or subnet addresses

Allowed Subnets for Wireless access: Add comma-separated list of IP or subnet addresses.



Allowed Subnets for Wire = 192.168.10.0/24,192.168.20.0/24

Cache Credentials Interval (in days): Select the number of days the user credentials should be cached on OnGuard agents.

Delay to bounce after Logout (in minutes): Specify the number of minutes that should elapse before OnGuard bounces the interface if OnGuard remains disconnected.

Enable OnGuard requests load-balancing: Enable this option to load balance OnGuard authentication requests across ClearPass Policy Manager servers in a cluster.

Enable access over Remote Desktop Session: Enable this option to allow OnGuard access through a Remote Desktop session.

Enable to hide Logout button: Enable this option to hide the Logout button on OnGuard agent.

Install VPN component: Enable this option to install the OnGuard VPN component. This will be automatically set based on what was selected for Installer Mode.

Enable to use Windows Single-Sign On: Enable this option to allow use of a user's Windows credentials for authentication.

Keep-alive Interval (in seconds): Add a keep-alive interval for OnGuard agents. After the connection is established agents periodically send keep alive messages to the ClearPass server. The server uses these messages to show the online status of client in "Monitoring->OnGuard Activity"

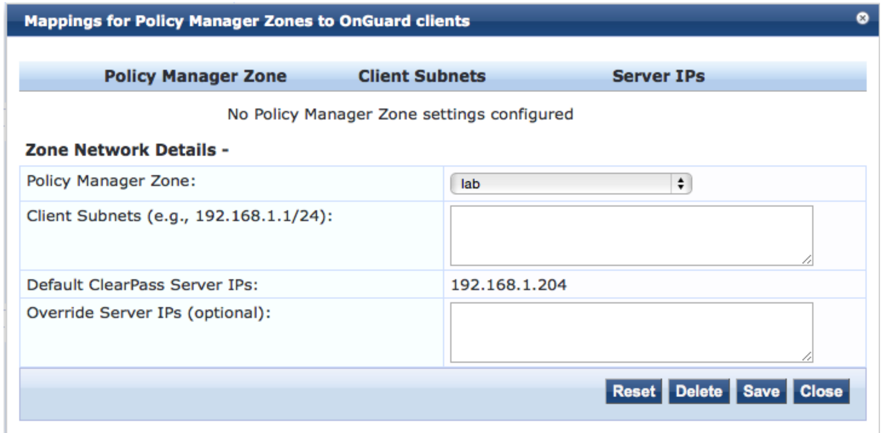
OnGuard Health Check Interval (in hours): Specify the number of hours that OnGuard will skip health checks for healthy clients.

NOTE: Note the following information when you set the OnGuard Health Check Interval parameter:

- You can set this parameter if OnGuard mode is set to health only.
- This parameter is valid only for wired and wireless interface types.
- This parameter is not applicable for the OnGuard Dissolvable Agent, VPN, and other interface types.

Support Team Email Address: Enter an email address that automatically populates the To field in the user's email client when they send logs.

Configure Policy Manager Zones:



Mappings for Policy Manager Zones to OnGuard clients

Policy Manager Zone	Client Subnets	Server IPs

No Policy Manager Zone settings configured

Zone Network Details -

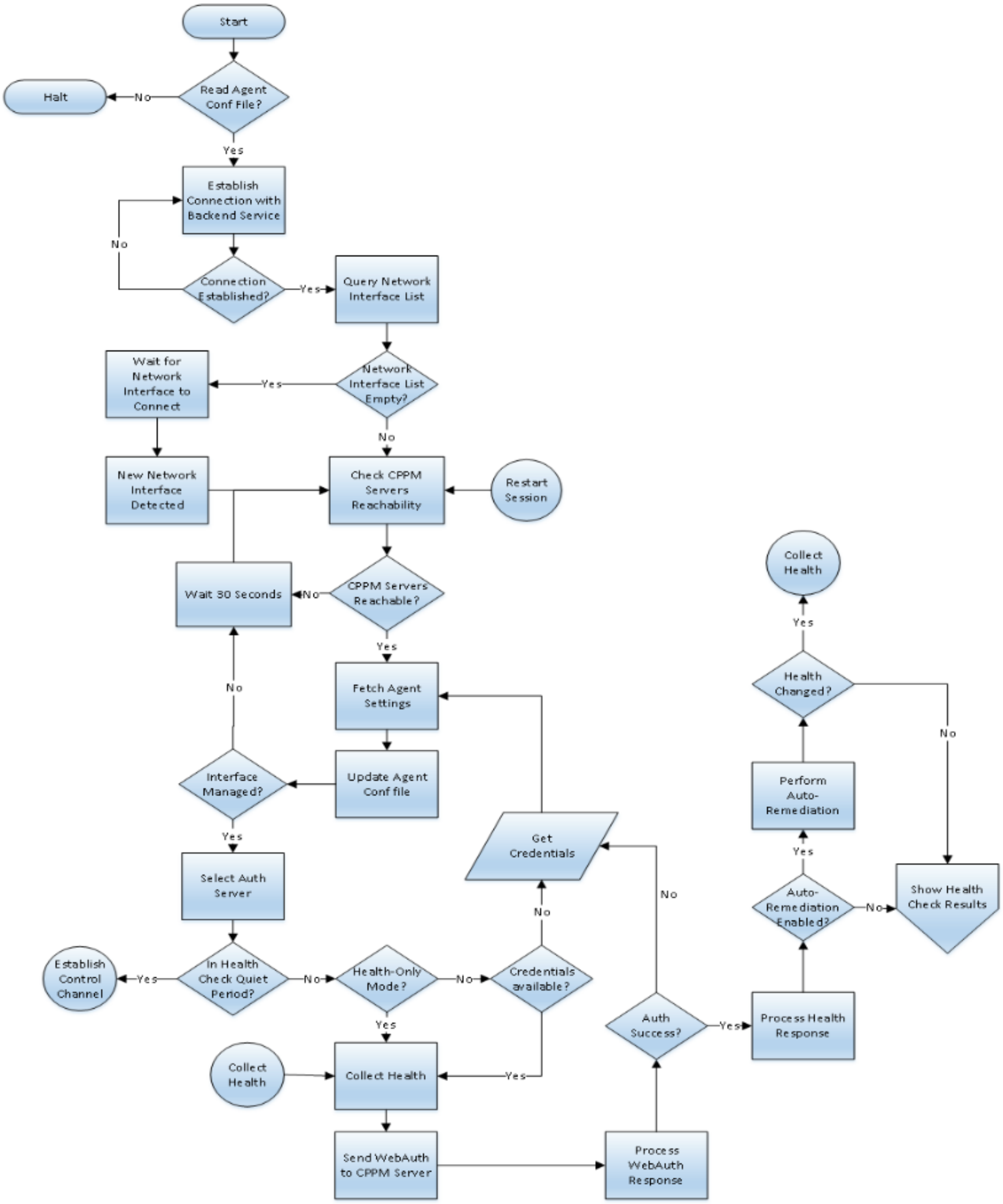
Policy Manager Zone:	lab
Client Subnets (e.g., 192.168.1.1/24):	
Default ClearPass Server IPs:	192.168.1.204
Override Server IPs (optional):	

Optionally override the default IP address used by the Agent to communicate with ClearPass. If the Data Port is configured the agent will use it for communication by default.

Use cases include

- VIP setup: Customer wants OnGuard agents to contact VIP IP for redundancy
- External load balancer: Customer wants OnGuard connections to go through an external load balancer like F5
- Customer wants OnGuard to use management port, instead of data port, because of their network setup
- Customer wants explicit control over the order in which servers should be contacted on failover

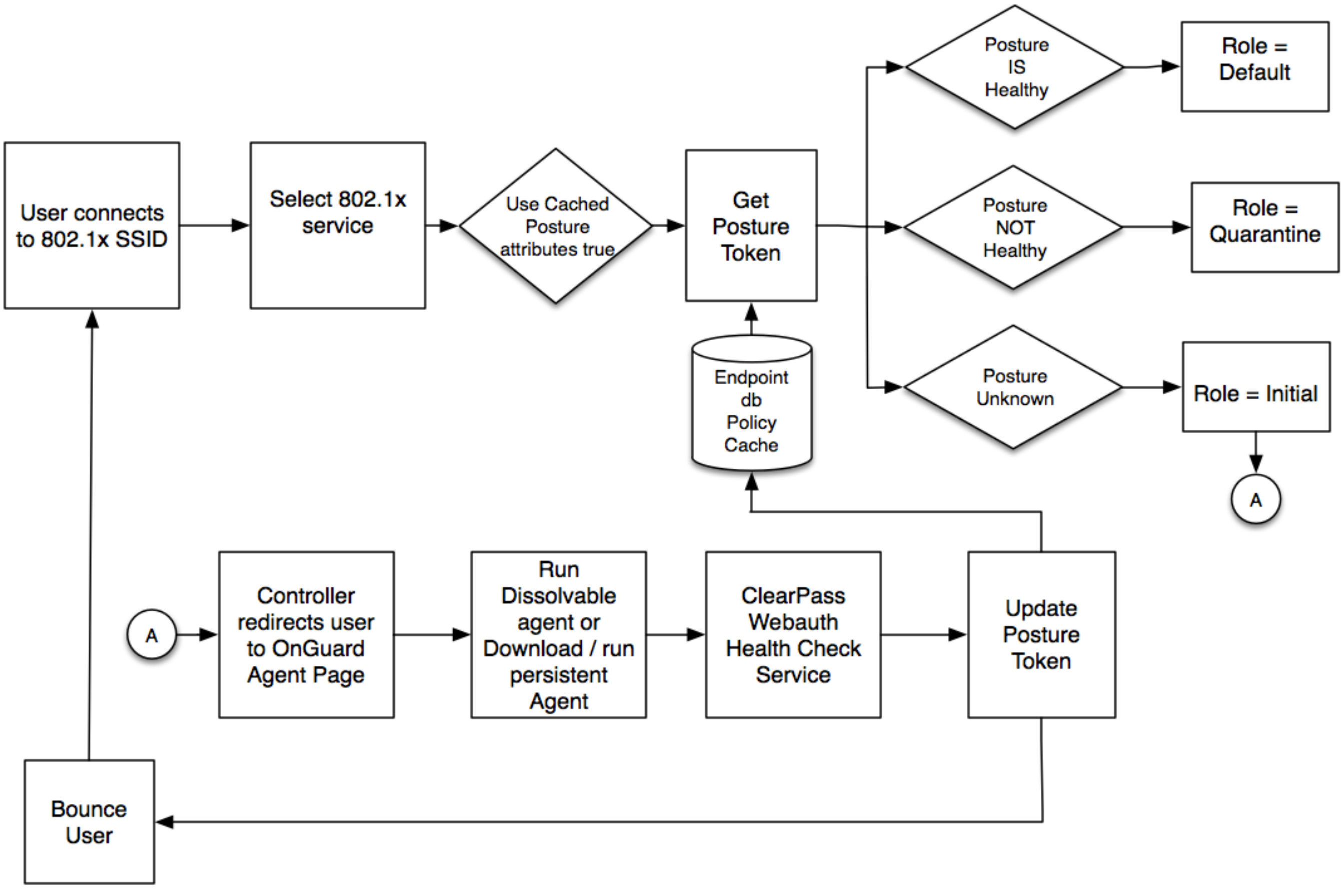
Agent Flow Chart



Configure ClearPass Services for OnGuard

There are two ClearPass services used by OnGuard.

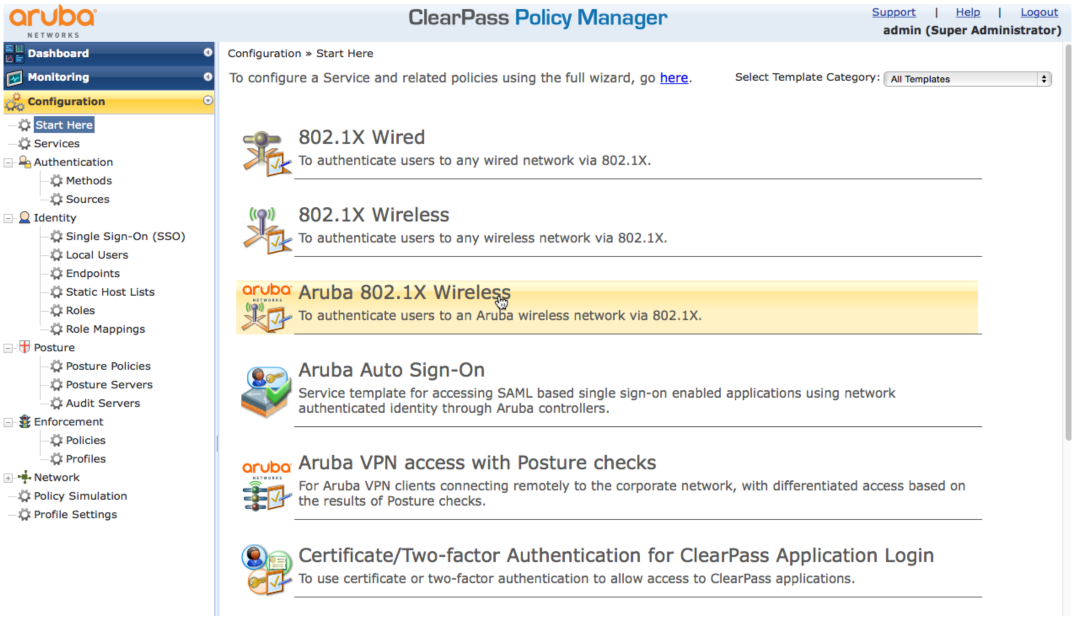
- The first is a Webauth service that communicates with the OnGuard agents. This service collects end system health tokens and updates the Endpoint policy cache.
- The second is an 802.1X service that has posture checks enabled. This service tests the cached health tokens and applies the correct enforcement profiles.


User connects to 802.1x SSID
Select 802.1x service
Use Cached Posture attributes true
Get Posture Token
Posture IS Healthy
Role = Default
Posture NOT Healthy
Role = Quarantine
Posture Unknown
Role = Initial
A
Endpoint db Policy Cache
A
Controller redirects user to OnGuard Agent Page
Run Dissolvable agent or Download / run persistent Agent
ClearPass Webauth Health Check Service
Update Posture Token
Bounce User

When the user connects to the 802.1x SSID for the first time the Posture token will be Unknown, the initial role will be returned to the controller and the user will be redirected to OnGuard Agent page. The user will download and run the dissolvable or persistent agent and the agent will send the health results to the Webauth Health Check service, which will update the posture token in the Endpoint database and send a Bounce User request to the controller. That will cause the user to re-authenticate and this time the posture token will be known.

Service Configuration

The simplest way to deploy OnGuard is to first deploy a basic configuration to verify that the services and workflows are correct. After verifying the basic configuration go back and add the required level of complexity to the configuration.



Configuration » Start Here

To configure a Service and related policies using the full wizard, go here.

Select Template Category: All Templates

802.1X Wired
To authenticate users to any wired network via 802.1X.

802.1X Wireless
To authenticate users to any wireless network via 802.1X.

Aruba 802.1X Wireless
To authenticate users to an Aruba wireless network via 802.1X.

Aruba Auto Sign-On
Service template for accessing SAML based single sign-on enabled applications using network authenticated identity through Aruba controllers.

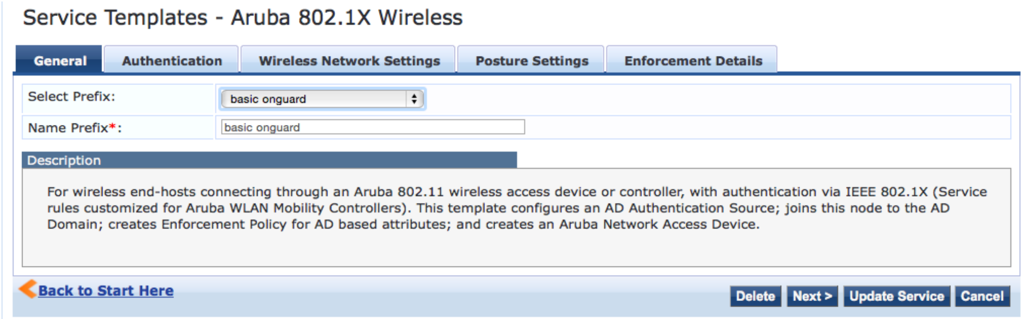
Aruba VPN access with Posture checks
For Aruba VPN clients connecting remotely to the corporate network, with differentiated access based on the results of Posture checks.

Certificate/Two-factor Authentication for ClearPass Application Login
To use certificate or two-factor authentication to allow access to ClearPass applications.

Use the Aruba 802.1X wizard for your basic configuration. Selecting posture checks will cause the wizard to configure two services, an 802.1X service with posture checks enabled and a Webauth health check service.

Service Wizard

In the example below, “basic onguard” is used as the prefix for the service names. All services, enforcement profiles, enforcement policies and posture policies created by the wizard will be prefixed with “basic onguard”.



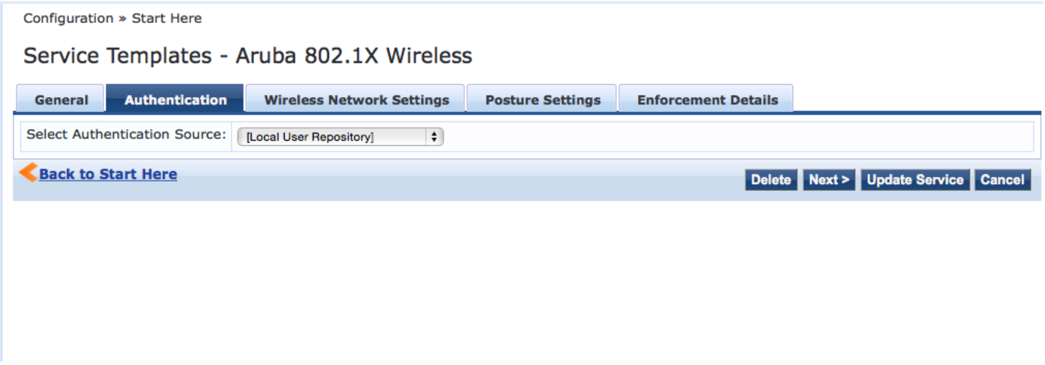
Select Prefix: basic onguard

Name Prefix*: basic onguard

Description

For wireless end-hosts connecting through an Aruba 802.11 wireless access device or controller, with authentication via IEEE 802.1X (Service rules customized for Aruba WLAN Mobility Controllers). This template configures an AD Authentication Source; joins this node to the AD Domain; creates Enforcement Policy for AD based attributes; and creates an Aruba Network Access Device.

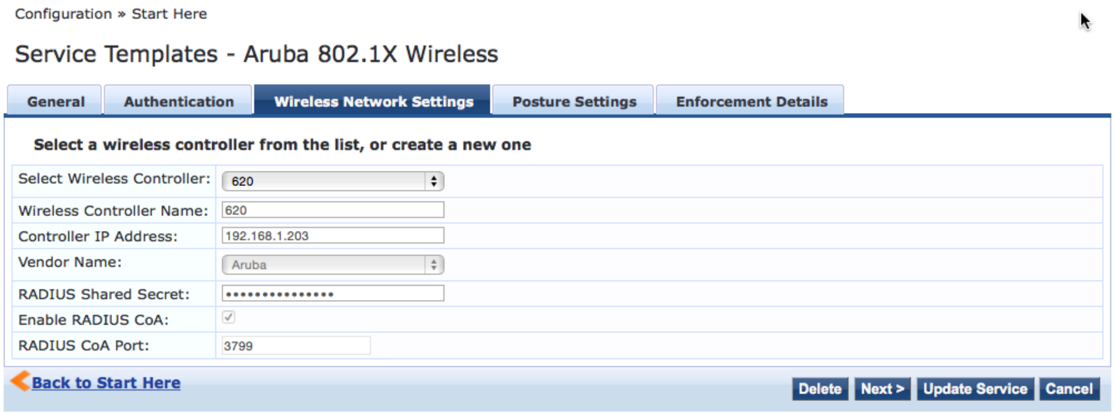
Authentication tab: For simplicity, this example uses the Local User Repository as an authentication source. In a typical enterprise environment the authentication source would most likely be Active Directory.



Service Templates - Aruba 802.1X Wireless

Select Authentication Source: [Local User Repository]

Wireless Network Settings tab: Select the wireless controller

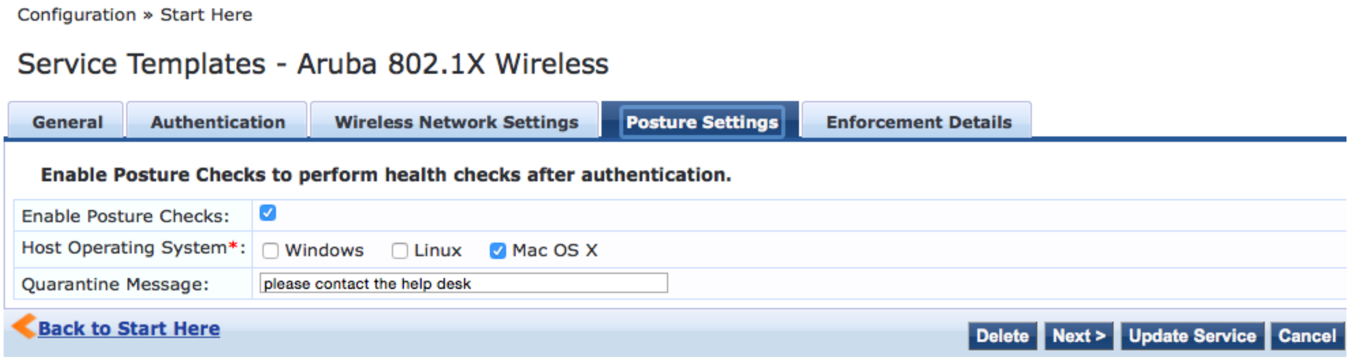


Service Templates - Aruba 802.1X Wireless

Select a wireless controller from the list, or create a new one

Select Wireless Controller:	620
Wireless Controller Name:	620
Controller IP Address:	192.168.1.203
Vendor Name:	Aruba
RADIUS Shared Secret:	•••••••••••••••
Enable RADIUS CoA:	☑
RADIUS CoA Port:	3799

Under the Posture Settings tab: Enable Posture Checks, select the host operating systems to be tested and define the message to be sent to the user if the end system is quarantined.



Service Templates - Aruba 802.1X Wireless

Enable Posture Checks to perform health checks after authentication.

Enable Posture Checks:	☑
Host Operating System*:	□ Windows □ Linux ☑ Mac OS X
Quarantine Message:	please contact the help desk

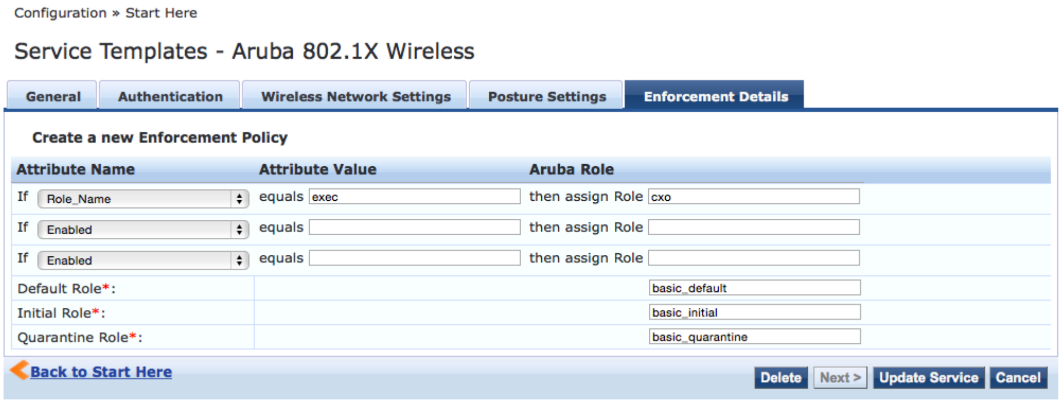
Enforcement Details tab:

The enforcement details will be used by the wizard to create the enforcement policies and profiles that will be attached to the services. At least one attribute to role mapping rule must be specified. In this example, if Role Name equals exec then we will assign the cxo role. This can be edited later.

The Default role is the 802.1X service default role for a HEALTHY posture token

The Initial Role is the role returned to the controller when the Radius:Tips posture equals UNKNOWN

The Quarantine Role is the role that will be sent to the controller if the posture token is not equal to HEALTHY



Configuration » Start Here

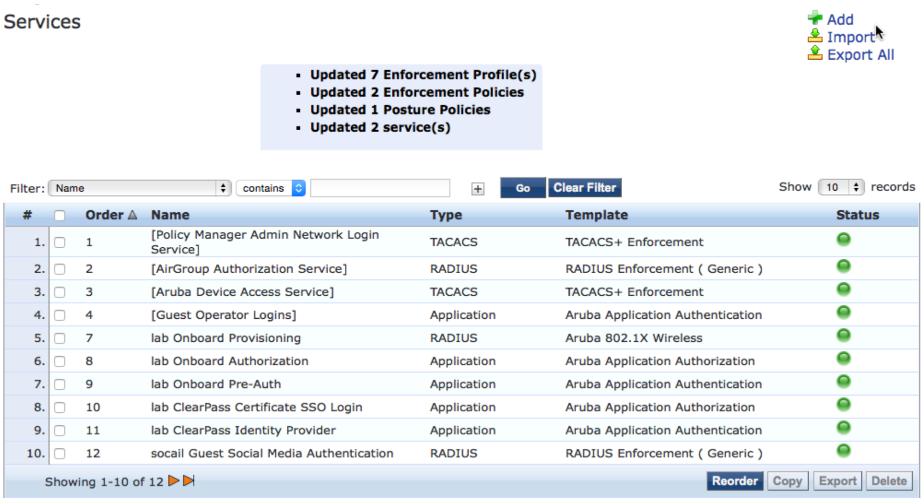
Service Templates - Aruba 802.1X Wireless

Create a new Enforcement Policy

Attribute Name	Attribute Value	Aruba Role
If Role_Name	equals exec	then assign Role cxo
If Enabled	equals	then assign Role
If Enabled	equals	then assign Role
Default Role*:		basic_default
Initial Role*:		basic_initial
Quarantine Role*:		basic_quarantine

Template Created Services, Policies and Profiles

The Wizard creates two services, seven enforcement profiles, two enforcement policies, and one posture policy.



Services

- Updated 7 Enforcement Profile(s)
- Updated 2 Enforcement Policies
- Updated 1 Posture Policies
- Updated 2 service(s)

Filter: Name contains

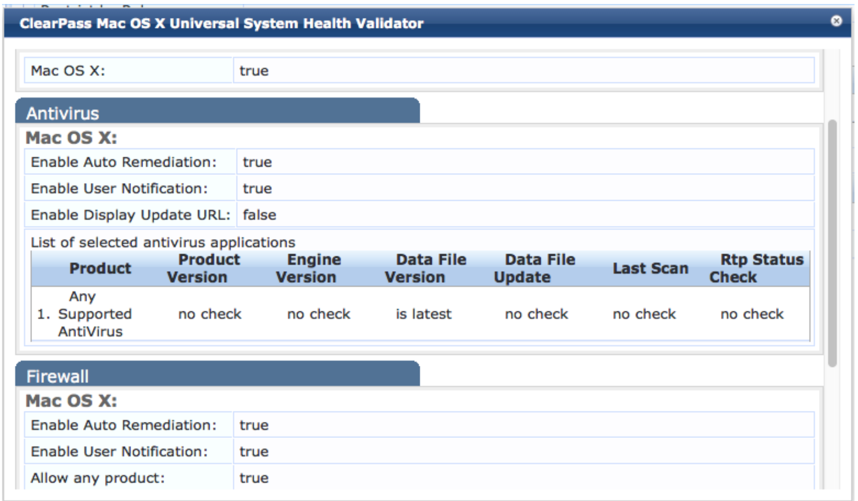
Show 10 records

#	□	Order ▲	Name	Type	Template	Status
1.	□	1	[Policy Manager Admin Network Login Service]	TACACS	TACACS+ Enforcement	●
2.	□	2	[AirGroup Authorization Service]	RADIUS	RADIUS Enforcement (Generic)	●
3.	□	3	[Aruba Device Access Service]	TACACS	TACACS+ Enforcement	●
4.	□	4	[Guest Operator Logins]	Application	Aruba Application Authentication	●
5.	□	7	lab Onboard Provisioning	RADIUS	Aruba 802.1X Wireless	●
6.	□	8	lab Onboard Authorization	Application	Aruba Application Authorization	●
7.	□	9	lab Onboard Pre-Auth	Application	Aruba Application Authentication	●
8.	□	10	lab ClearPass Certificate SSO Login	Application	Aruba Application Authorization	●
9.	□	11	lab ClearPass Identity Provider	Application	Aruba Application Authentication	●
10.	□	12	socail Guest Social Media Authentication	RADIUS	RADIUS Enforcement (Generic)	●

Showing 1-10 of 12

Posture Policy

The default posture policy created by the wizard for Mac OS X tests for any supported Antivirus application and any Firewall application.



ClearPass Mac OS X Universal System Health Validator

Mac OS X:	true

Antivirus

Mac OS X:

Enable Auto Remediation:	true
Enable User Notification:	true
Enable Display Update URL:	false

List of selected antivirus applications

	Product	Product Version	Engine Version	Data File Version	Data File Update	Last Scan	Rtp Status Check
1.	Any Supported AntiVirus	no check	no check	is latest	no check	no check	no check

Firewall

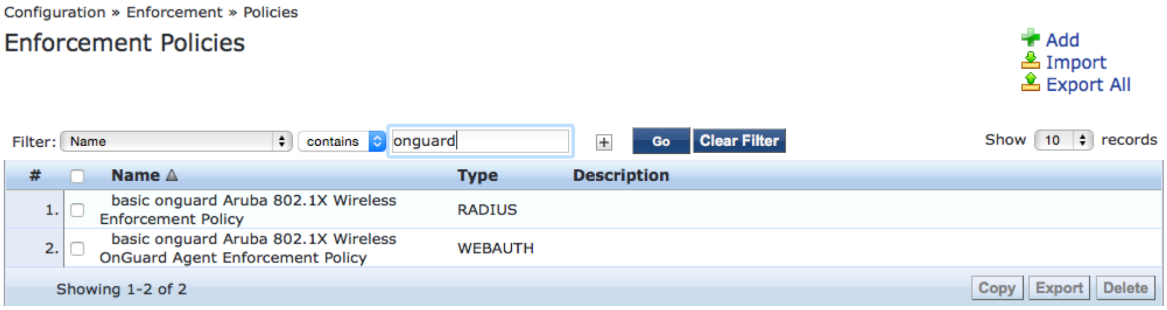
Mac OS X:

Enable Auto Remediation:	true
Enable User Notification:	true
Allow any product:	true

Enforcement policies

The wizard creates one Radius enforcement policy and one Webauth enforcement policy.

Radius Enforcement Policy



Configuration » Enforcement » Policies

Enforcement Policies

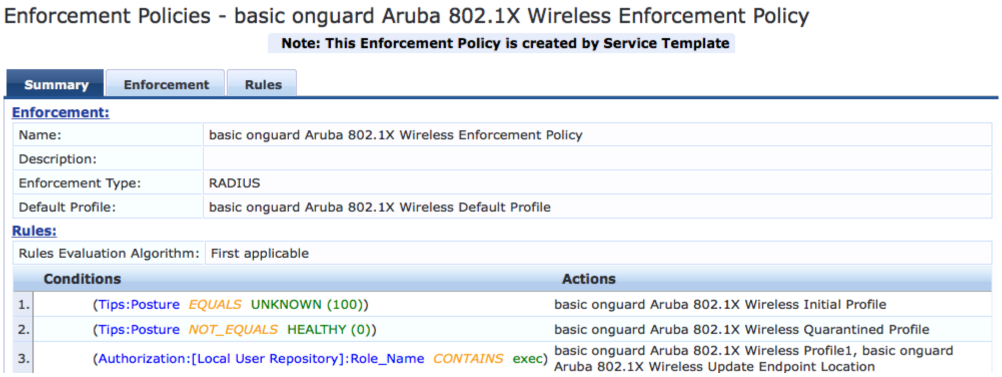
Filter: Name contains onguard

Show 10 records

#	☐	Name △	Type	Description
1.	☐	basic onguard Aruba 802.1X Wireless Enforcement Policy	RADIUS	
2.	☐	basic onguard Aruba 802.1X Wireless OnGuard Agent Enforcement Policy	WEBAUTH	

Showing 1-2 of 2

The Radius enforcement policy applies the Initial enforcement Profile if the posture token is UNKNOWN. This is the initial condition for end systems using the Dissolvable agent or for end systems before the Persistent Agent has been downloaded. If the cached posture token is not HEALTHY, the Quarantine enforcement profile is applied. If the cached posture token is HEALTHY and the authorization role matches the one specified in the enforcement details tab of the wizard, in our example exec, the basic onguard wireless default profile and update endpoint location profiles are applied.



Enforcement Policies - basic onguard Aruba 802.1X Wireless Enforcement Policy

Note: This Enforcement Policy is created by Service Template

Enforcement:

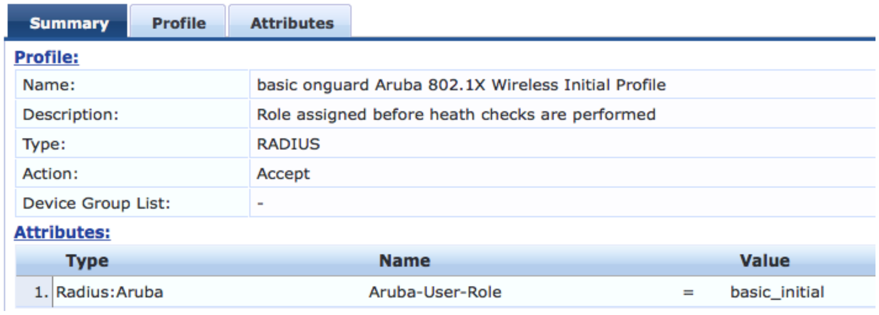
Name:	basic onguard Aruba 802.1X Wireless Enforcement Policy
Description:	
Enforcement Type:	RADIUS
Default Profile:	basic onguard Aruba 802.1X Wireless Default Profile

Rules:

Rules Evaluation Algorithm:	First applicable

	Conditions	Actions
1.	(Tips:Posture *EQUALS* UNKNOWN (100))	basic onguard Aruba 802.1X Wireless Initial Profile
2.	(Tips:Posture *NOT_EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Quarantined Profile
3.	(Authorization:[Local User Repository]:Role_Name *CONTAINS* exec)	basic onguard Aruba 802.1X Wireless Profile1, basic onguard Aruba 802.1X Wireless Update Endpoint Location

Enforcement Profiles

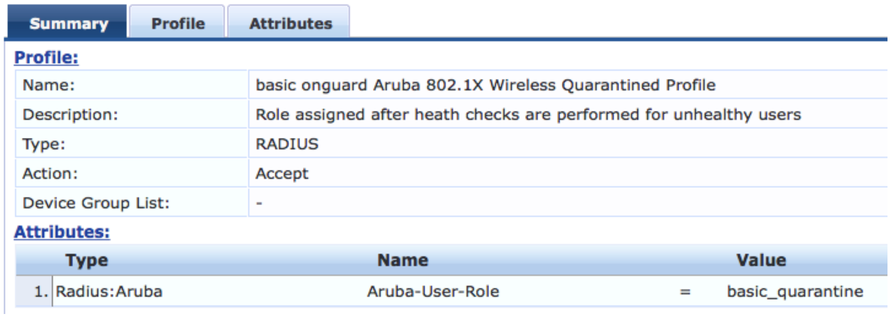


Profile:

Name:	basic onguard Aruba 802.1X Wireless Initial Profile
Description:	Role assigned before heath checks are performed
Type:	RADIUS
Action:	Accept
Device Group List:	-

Attributes:

	Type	Name		Value
1.	Radius:Aruba	Aruba-User-Role	=	basic_initial

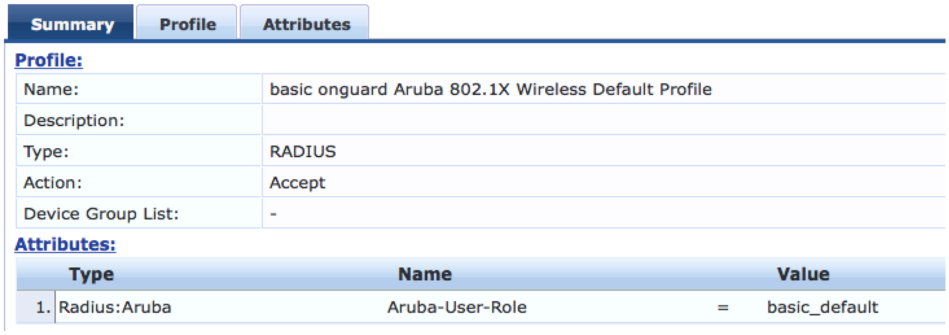


Profile:

Name:	basic onguard Aruba 802.1X Wireless Quarantined Profile
Description:	Role assigned after heath checks are performed for unhealthy users
Type:	RADIUS
Action:	Accept
Device Group List:	-

Attributes:

	Type	Name		Value
1.	Radius:Aruba	Aruba-User-Role	=	basic_quarantine

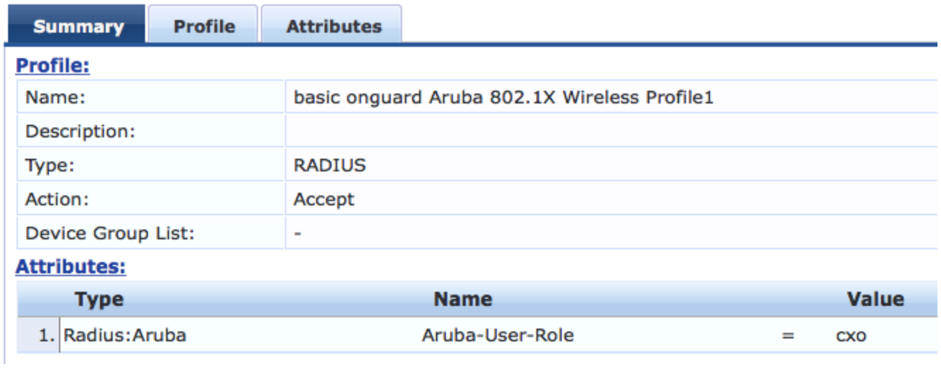


Profile:

Name:	basic onguard Aruba 802.1X Wireless Default Profile
Description:	
Type:	RADIUS
Action:	Accept
Device Group List:	-

Attributes:

	Type	Name		Value
1.	Radius:Aruba	Aruba-User-Role	=	basic_default



Profile:

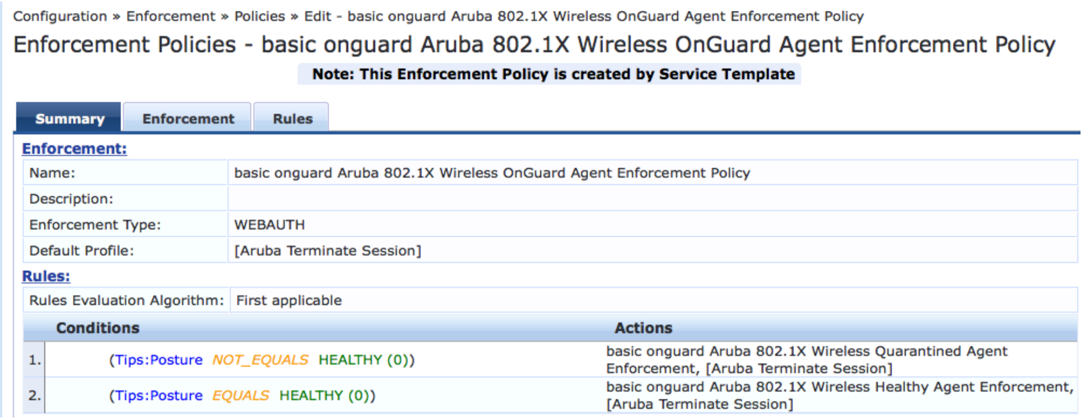
Name:	basic onguard Aruba 802.1X Wireless Profile1
Description:	
Type:	RADIUS
Action:	Accept
Device Group List:	-

Attributes:

	Type	Name		Value
1.	Radius:Aruba	Aruba-User-Role	=	cxo

OnGuard Agent Enforcement Policy

The OnGuard Agent enforcement policy retrieves the posture token. If the token is HEALTHY it returns a healthy message to the agent and bounces the session. If the token is UNHEALTHY it returns an unhealthy message to the agent and bounces the session.


Configuration » Enforcement » Policies » Edit - basic onguard Aruba 802.1X Wireless OnGuard Agent Enforcement Policy

Enforcement Policies - basic onguard Aruba 802.1X Wireless OnGuard Agent Enforcement Policy

Note: This Enforcement Policy is created by Service Template

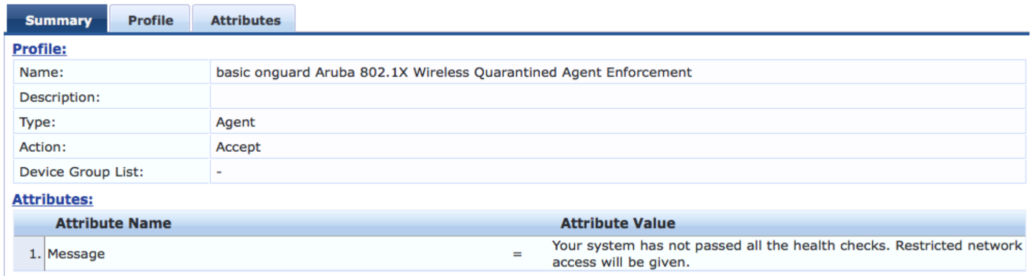
Enforcement:

Name:	basic onguard Aruba 802.1X Wireless OnGuard Agent Enforcement Policy
Description:	
Enforcement Type:	WEBAUTH
Default Profile:	[Aruba Terminate Session]

Rules:

Rules Evaluation Algorithm:	First applicable

	Conditions	Actions
1.	(Tips:Posture *NOT_EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Quarantined Agent Enforcement, [Aruba Terminate Session]
2.	(Tips:Posture *EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Healthy Agent Enforcement, [Aruba Terminate Session]

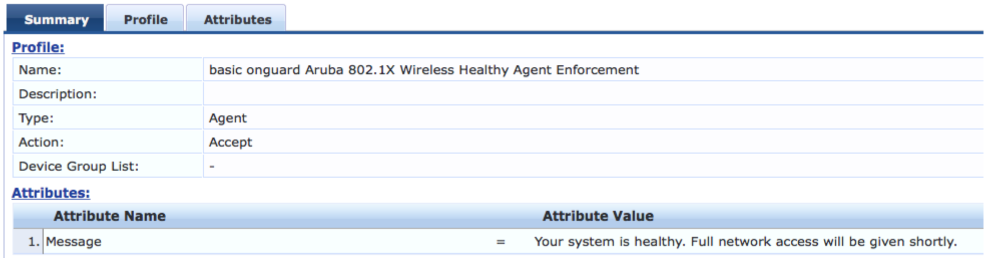


Profile:

Name:	basic onguard Aruba 802.1X Wireless Quarantined Agent Enforcement
Description:	
Type:	Agent
Action:	Accept
Device Group List:	-

Attributes:

	Attribute Name		Attribute Value
1.	Message	=	Your system has not passed all the health checks. Restricted network access will be given.



Profile:

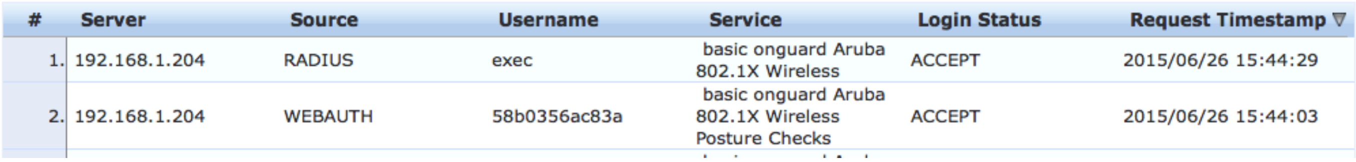
Name:	basic onguard Aruba 802.1X Wireless Healthy Agent Enforcement
Description:	
Type:	Agent
Action:	Accept
Device Group List:	-

Attributes:

	Attribute Name		Attribute Value
1.	Message	=	Your system is healthy. Full network access will be given shortly.

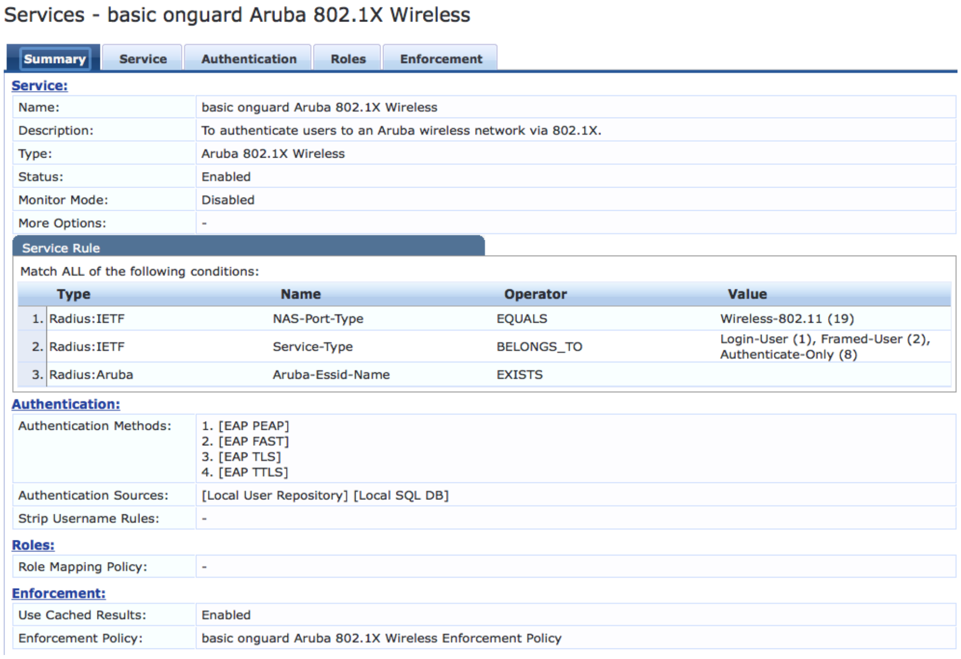
OnGuard Related Services

The service wizard creates a Radius 802.1X service with posture checks enabled and a Webauth health check service



#	Server	Source	Username	Service	Login Status	Request Timestamp ▽
1.	192.168.1.204	RADIUS	exec	basic onguard Aruba 802.1X Wireless	ACCEPT	2015/06/26 15:44:29
2.	192.168.1.204	WEBAUTH	58b0356ac83a	basic onguard Aruba 802.1X Wireless Posture Checks	ACCEPT	2015/06/26 15:44:03

802.1X **service -** This service is usually edited to make it specific to a single SSID. Authentication methods, Authentication source and role mapping may also need to be edited for your environment.



Services - basic onguard Aruba 802.1X Wireless

Service:

Name:	basic onguard Aruba 802.1X Wireless
Description:	To authenticate users to an Aruba wireless network via 802.1X.
Type:	Aruba 802.1X Wireless
Status:	Enabled
Monitor Mode:	Disabled
More Options:	-

Service Rule

Match ALL of the following conditions:

	Type	Name	Operator	Value
1.	Radius:IETF	NAS-Port-Type	EQUALS	Wireless-802.11 (19)
2.	Radius:IETF	Service-Type	BELONGS_TO	Login-User (1), Framed-User (2), Authenticate-Only (8)
3.	Radius:Aruba	Aruba-Essid-Name	EXISTS	

Authentication:

Authentication Methods:	1. [EAP PEAP] 2. [EAP FAST] 3. [EAP TLS] 4. [EAP TTLS]
Authentication Sources:	[Local User Repository] [Local SQL DB]
Strip Username Rules:	-

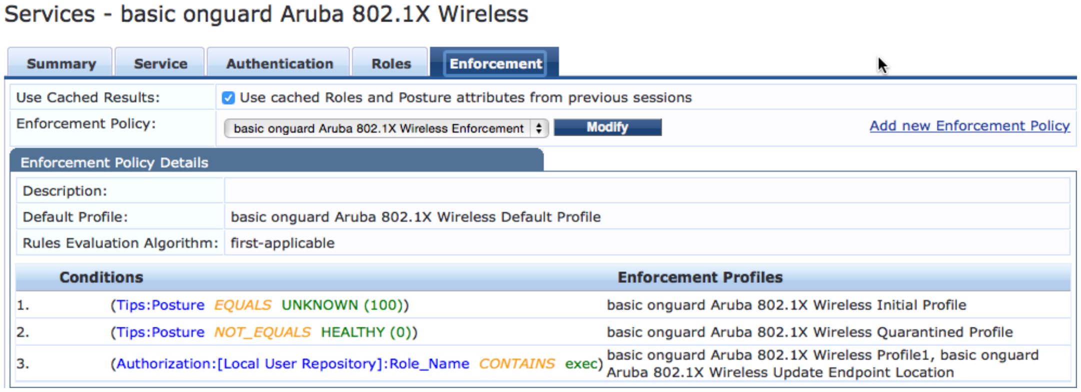
Roles:

Role Mapping Policy:	-

Enforcement:

Use Cached Results:	Enabled
Enforcement Policy:	basic onguard Aruba 802.1X Wireless Enforcement Policy

Note: Make sure the Use cached Roles and Posture attributes check box is enabled.



Services - basic onguard Aruba 802.1X Wireless

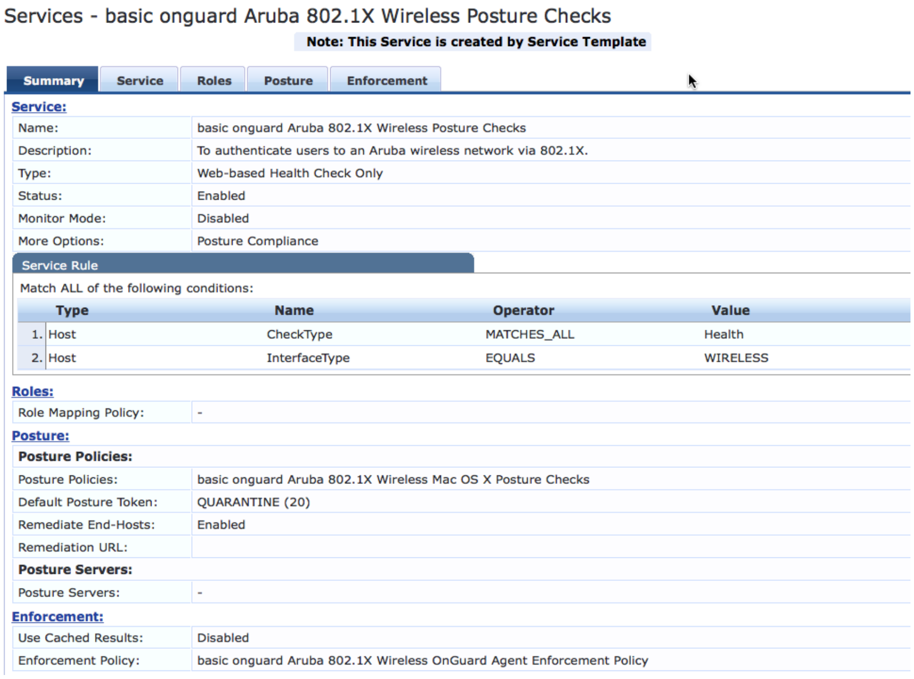
Use Cached Results:	☑ Use cached Roles and Posture attributes from previous sessions
Enforcement Policy:	basic onguard Aruba 802.1X Wireless Enforcement

Enforcement Policy Details

Description:	
Default Profile:	basic onguard Aruba 802.1X Wireless Default Profile
Rules Evaluation Algorithm:	first-applicable

	Conditions	Enforcement Profiles
1.	(Tips:Posture *EQUALS* UNKNOWN (100))	basic onguard Aruba 802.1X Wireless Initial Profile
2.	(Tips:Posture *NOT_EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Quarantined Profile
3.	(Authorization:[Local User Repository]:Role_Name *CONTAINS* exec)	basic onguard Aruba 802.1X Wireless Profile1, basic onguard Aruba 802.1X Wireless Update Endpoint Location

The Webauth health check service applies to all Health Check requests from any Wireless interface. This is based on the Managed Interface type checkboxes on the OnGuard agent configuration page.



Services - basic onguard Aruba 802.1X Wireless Posture Checks

Note: This Service is created by Service Template

Service:

Name:	basic onguard Aruba 802.1X Wireless Posture Checks
Description:	To authenticate users to an Aruba wireless network via 802.1X.
Type:	Web-based Health Check Only
Status:	Enabled
Monitor Mode:	Disabled
More Options:	Posture Compliance

Service Rule

Match ALL of the following conditions:

	Type	Name	Operator	Value
1.	Host	CheckType	MATCHES_ALL	Health
2.	Host	InterfaceType	EQUALS	WIRELESS

Roles:

Role Mapping Policy:	-

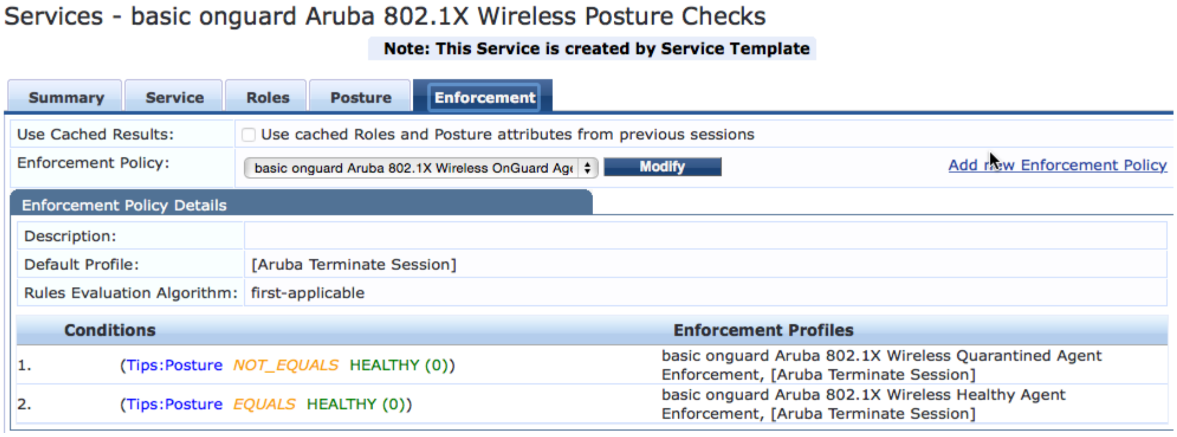
Posture:

Posture Policies:	
Posture Policies:	basic onguard Aruba 802.1X Wireless Mac OS X Posture Checks
Default Posture Token:	QUARANTINE (20)
Remediate End-Hosts:	Enabled
Remediation URL:	
Posture Servers:	
Posture Servers:	-

Enforcement:

Use Cached Results:	Disabled
Enforcement Policy:	basic onguard Aruba 802.1X Wireless OnGuard Agent Enforcement Policy

Enforcement tab



Services - basic onguard Aruba 802.1X Wireless Posture Checks

Note: This Service is created by Service Template

Use Cached Results:	□ Use cached Roles and Posture attributes from previous sessions
Enforcement Policy:	basic onguard Aruba 802.1X Wireless OnGuard Age

Enforcement Policy Details

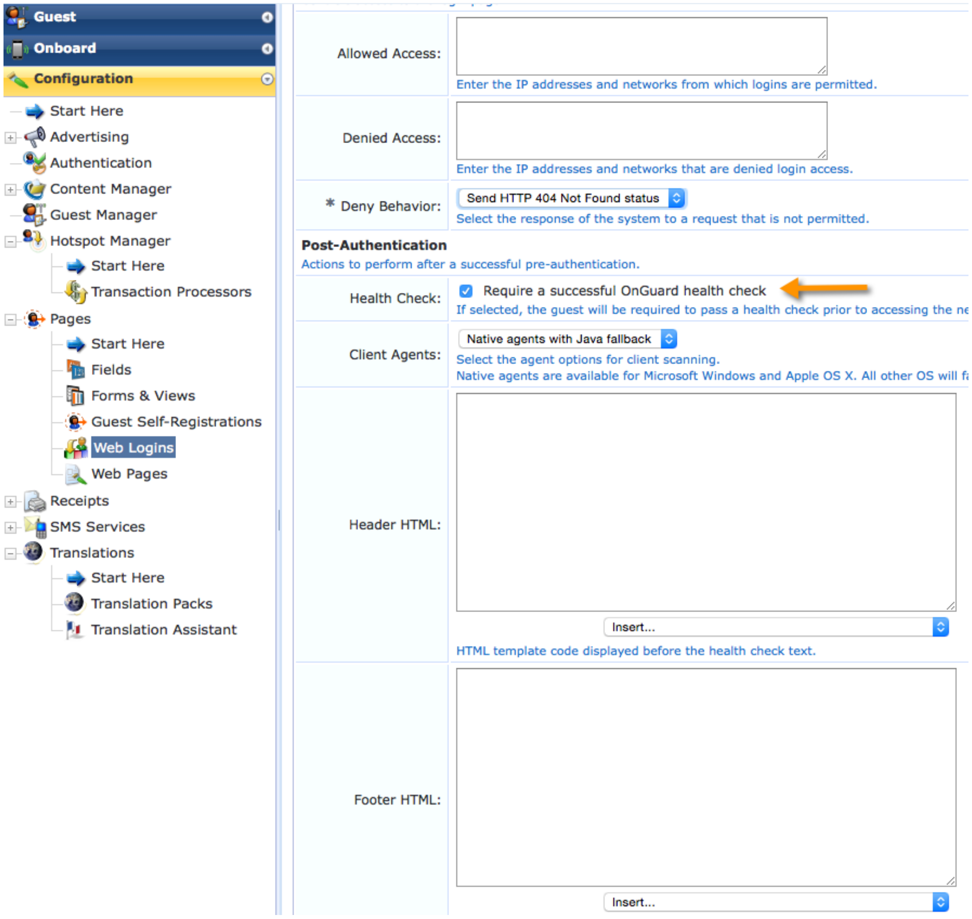
Description:	
Default Profile:	[Aruba Terminate Session]
Rules Evaluation Algorithm:	first-applicable

	Conditions	Enforcement Profiles
1.	(Tips:Posture *NOT_EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Quarantined Agent Enforcement, [Aruba Terminate Session]
2.	(Tips:Posture *EQUALS* HEALTHY (0))	basic onguard Aruba 802.1X Wireless Healthy Agent Enforcement, [Aruba Terminate Session]

Web Login Page

In order to allow users to download the dissolvable and persistent OnGuard agents you need to create a Web Login page. The controller will redirect users to this page if the posture token is UNKNOWN.

On the Web Login page configuration check the “Require a successful OnGuard health check checkbox



Allowed Access:
Enter the IP addresses and networks from which logins are permitted.

Denied Access:
Enter the IP addresses and networks that are denied login access.

* Deny Behavior: Send HTTP 404 Not Found status
Select the response of the system to a request that is not permitted.

Post-Authentication
Actions to perform after a successful pre-authentication.

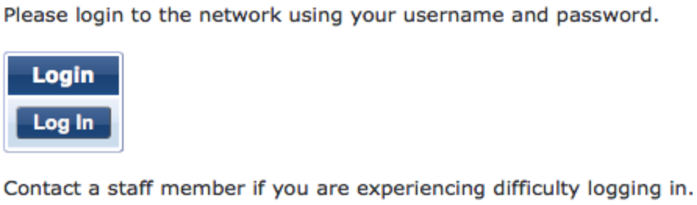
Health Check: ☑ Require a successful OnGuard health check
If selected, the guest will be required to pass a health check prior to accessing the ne

Client Agents: Native agents with Java fallback
Select the agent options for client scanning.
Native agents are available for Microsoft Windows and Apple OS X. All other OS will f

Header HTML:
Insert...
HTML template code displayed before the health check text.

Footer HTML:
Insert...

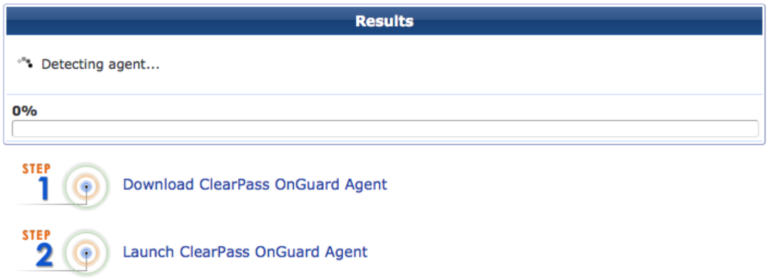
That will link the page to Login Page that will allow the user to download the Dissolvable agent



Please login to the network using your username and password.

Contact a staff member if you are experiencing difficulty logging in.

After clicking Login the user will be redirected to download and run the Dissolvable agent.



Results

Detecting agent...

0%

STEP 1 Download ClearPass OnGuard Agent

STEP 2 Launch ClearPass OnGuard Agent

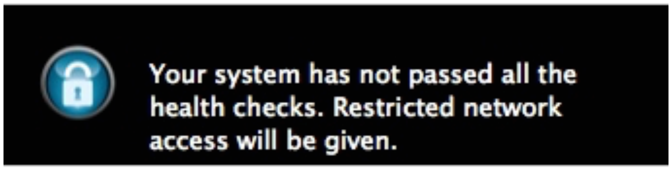
This page can be edited for the desired look and feel. Links can also be added to allow the user to download the persistent agent.

Monitoring OnGuard

For this example we have used a Posture Policy that checks for an Active Firewall and does not permit mounting USB devices

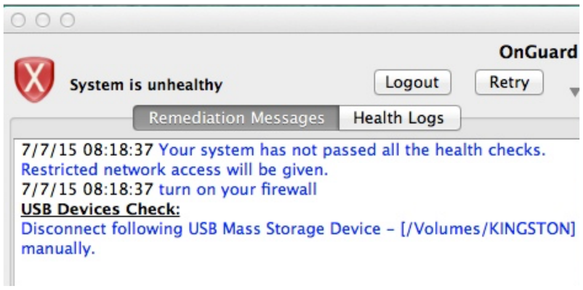
OnGuard Agent

The Onguard Agent on the end system informs the user of the health of the system. The Popup reports if the system in HEALTHY or UNHEALTHY. The message in the pop up is coming from the ClearPass Webauth service’s enforcement profile.



Your system has not passed all the health checks. Restricted network access will be given.

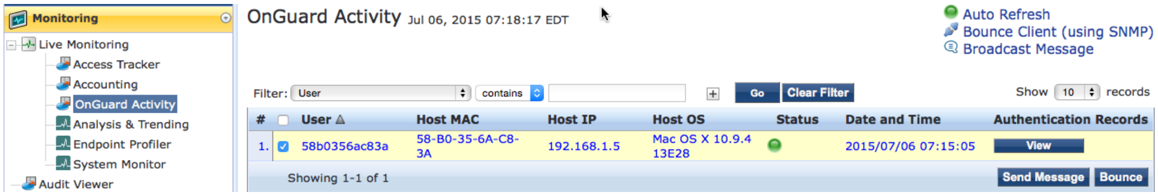
The Agent runs the health tests on the system and reports the results of the tests and any remediation steps required to bring the system into compliance to the user.



7/7/15 08:18:37 Your system has not passed all the health checks. Restricted network access will be given.
7/7/15 08:18:37 turn on your firewall
USB Devices Check:
Disconnect following USB Mass Storage Device - [/Volumes/KINGSTON] manually.

OnGuard Activity

The OnGuard Activity tab provides real time Health status for posture-tested endpoints. The Green status light indicates the online status of the end system based on Agent keep-alive messages. This is NOT the health status of the end system.



OnGuard Activity Jul 06, 2015 07:18:17 EDT

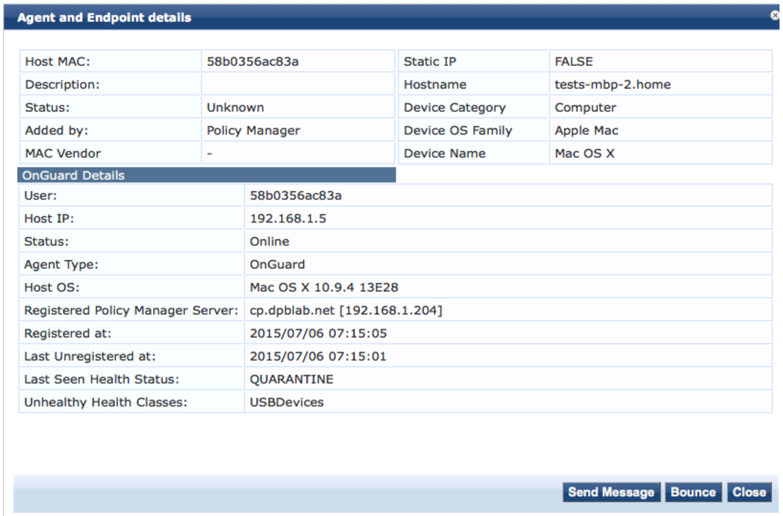
Filter: User contains

Show 10 records

#	□	User △	Host MAC	Host IP	Host OS	Status	Date and Time	Authentication Records
1.	☑	58b0356ac83a	58-B0-35-6A-C8-3A	192.168.1.5	Mac OS X 10.9.4 13E28	●	2015/07/06 07:15:05	View

Showing 1-1 of 1

Clicking on the entry opens the Agent and Endpoint Details page. In this case the health status is QUARANTINE based on an attached USB Device

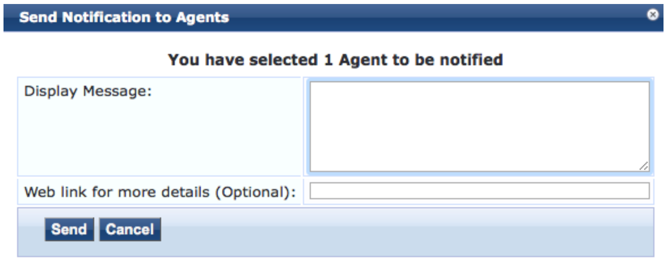


Host MAC:	58b0356ac83a	Static IP	FALSE
Description:		Hostname	tests-mbp-2.home
Status:	Unknown	Device Category	Computer
Added by:	Policy Manager	Device OS Family	Apple Mac
MAC Vendor	-	Device Name	Mac OS X

OnGuard Details

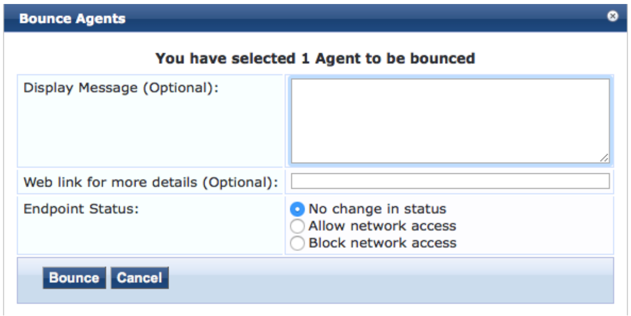
User:	58b0356ac83a
Host IP:	192.168.1.5
Status:	Online
Agent Type:	OnGuard
Host OS:	Mac OS X 10.9.4 13E28
Registered Policy Manager Server:	cp.dpblab.net [192.168.1.204]
Registered at:	2015/07/06 07:15:05
Last Unregistered at:	2015/07/06 07:15:01
Last Seen Health Status:	QUARANTINE
Unhealthy Health Classes:	USBDevices

The details page also allows you to send a popup message to the agent and to bounce the agent to force a new health check. The bounce option also allows the administrator to change the endpoint status to allow or block network access.



You have selected 1 Agent to be notified

Display Message:	
Web link for more details (Optional):	

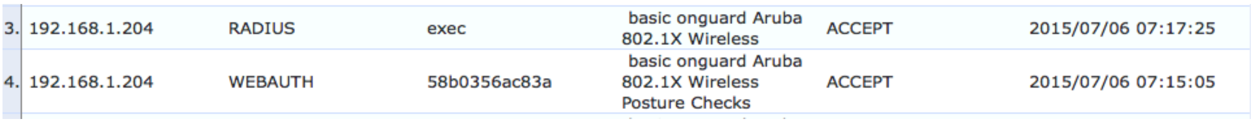


You have selected 1 Agent to be bounced

Display Message (Optional):	
Web link for more details (Optional):	
Endpoint Status:	● No change in status ○ Allow network access ○ Block network access

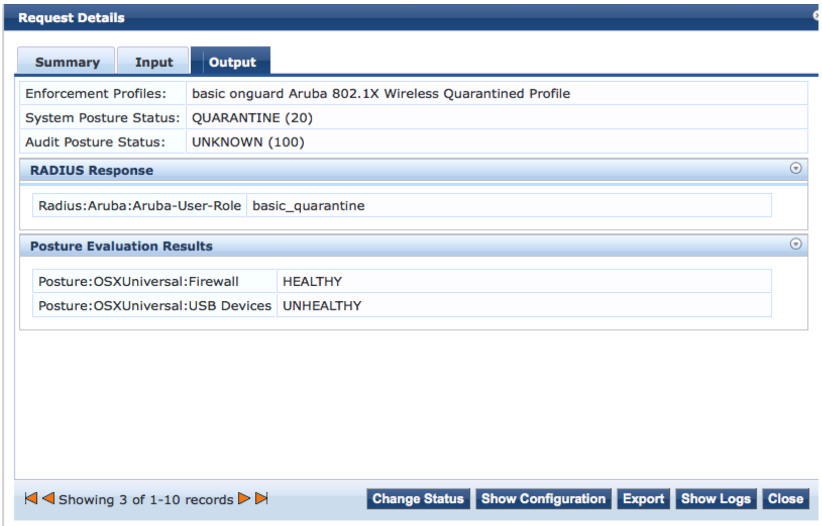
Access Tracker

Access tracker provides a real time look at all authentication requests sent to ClearPass. This example looks at the following Radius and Webauth service requests.



3.	192.168.1.204	RADIUS	exec	basic onguard Aruba 802.1X Wireless	ACCEPT	2015/07/06 07:17:25
4.	192.168.1.204	WEBAUTH	58b0356ac83a	basic onguard Aruba 802.1X Wireless Posture Checks	ACCEPT	2015/07/06 07:15:05

The Output tab from the Radius request shows the Posture status as QUARANTINE. The evaluation results show that the Firewall test returned HEALTHY and the USB test returned UNHEALTHY.



Enforcement Profiles:	basic onguard Aruba 802.1X Wireless Quarantined Profile
System Posture Status:	QUARANTINE (20)
Audit Posture Status:	UNKNOWN (100)

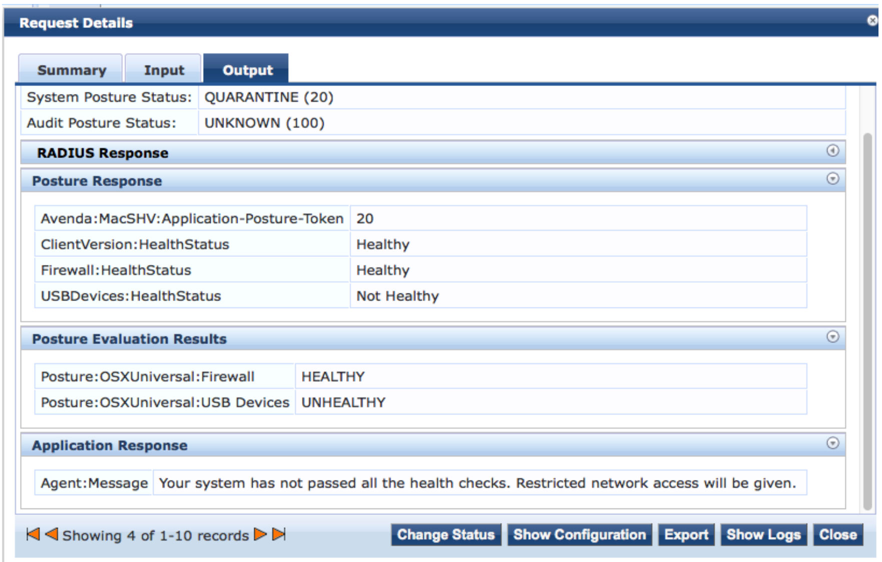
RADIUS Response

Radius:Aruba:Aruba-User-Role	basic_quarantine

Posture Evaluation Results

Posture:OSXUniversal:Firewall	HEALTHY
Posture:OSXUniversal:USB Devices	UNHEALTHY

The Output tab for the Webauth health check service shows the Agent posture response, Posture evaluation results and Application response



System Posture Status:	QUARANTINE (20)
Audit Posture Status:	UNKNOWN (100)

RADIUS Response

Posture Response

Avenda:MacSHV:Application-Posture-Token	20
ClientVersion:HealthStatus	Healthy
Firewall:HealthStatus	Healthy
USBDevices:HealthStatus	Not Healthy

Posture Evaluation Results

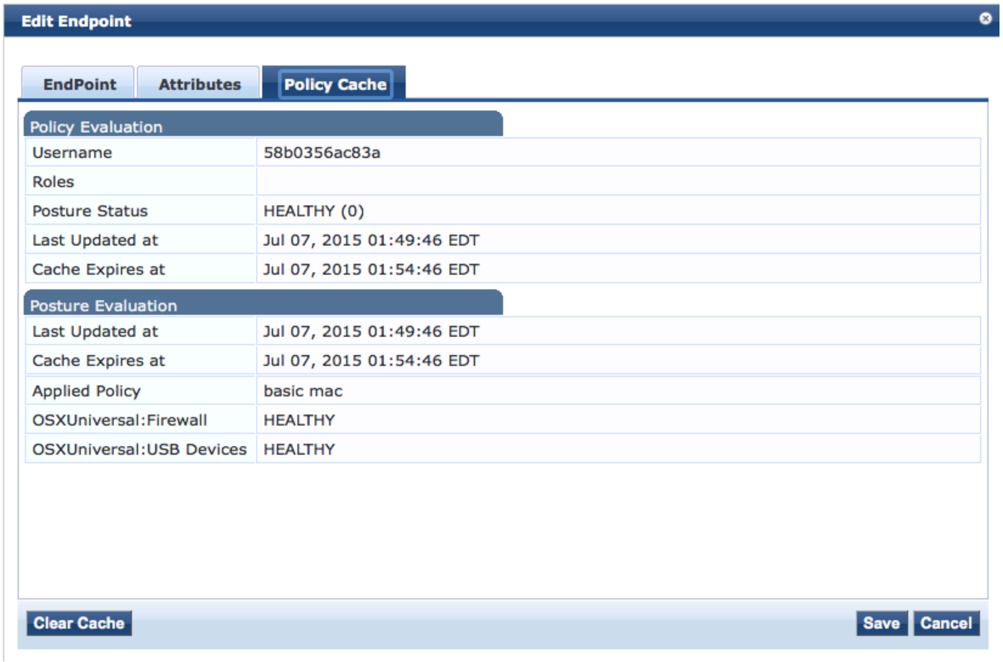
Posture:OSXUniversal:Firewall	HEALTHY
Posture:OSXUniversal:USB Devices	UNHEALTHY

Application Response

Agent:Message	Your system has not passed all the health checks. Restricted network access will be given.

Endpoint Database

Endpoint Posture information is stored in the ClearPass Endpoint Database policy cache.



Policy Evaluation	
Username	58b0356ac83a
Roles	
Posture Status	HEALTHY (0)
Last Updated at	Jul 07, 2015 01:49:46 EDT
Cache Expires at	Jul 07, 2015 01:54:46 EDT

Posture Evaluation	
Last Updated at	Jul 07, 2015 01:49:46 EDT
Cache Expires at	Jul 07, 2015 01:54:46 EDT
Applied Policy	basic mac
OSXUniversal:Firewall	HEALTHY
OSXUniversal:USB Devices	HEALTHY

The Clear Cache button allows the administrator to manually clear the Policy Cache.

Additional Resources

For additional information refer to the following documents available under ClearPass - Policy Manager – Tech Notes on the Aruba Support site:

- ClearPass Users Guide
- OnGuard In a Cluster Tech Note
- ClearPass OnGuard Troubleshooting Tech Note

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