

# Dell Networking W-ClearPass Policy Manager



Getting Started Guide

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## Overview

This *Getting Started Guide* for the Dell Networking W-W-ClearPass Policy Manager System (Policy Manager) describes the steps for installing the appliance using the *Command Line Interface (CLI)* and using the *User Interface (UI)* to ensure that the required services are running.

## Server Port Overview

The W-ClearPass Policy Manager server requires initial port configuration. The backplane of the Policy Manager contains three ports.

**Figure 1: Policy Manager Backplane**



The ports illustrated in the figure above are described in the following table:

**Table 1: Device Ports**

Key	Port	Description
A	Serial	Configures the W-ClearPass Policy Manager appliance initially using hardwired terminal.
B - eth0	Management (gigabit Ethernet)	Provides access for cluster administration and appliance maintenance using Web access, CLI, or internal cluster communication. This configuration is mandatory.
C - eth1	Data (gigabit Ethernet)	Provides point of contact for RADIUS, TACACS+, web authentication, and other data-plane requests. This configuration is optional. If this port is not configured, requests are redirected to the management port.

## Server Port Configuration

Before starting the installation, collect the following information that you need, write it in the table below, and keep it for your records:

**Table 2: Required Information**

Requirement	Value for Your Installation
Hostname (Policy Manager server)	
Management Port IP Address	
Management Port Subnet Mask	
Management Port Gateway	
Data Port IP Address (optional)	<b>NOTE:</b> The Data Port IP Address must not be in the same subnet as the Management Port IP Address.
Data Port Gateway (optional)	
Data Port Subnet Mask (optional)	
Primary DNS	
Secondary DNS	
NTP Server (optional)	

Perform the following steps to set up the Policy Manager appliance:

**1. Connect and power on**

Connect the serial port on the appliance to a terminal using the null modem cable provided and power on. The appliance is now available for configuration.

Use the following parameters for the serial port connection:

- Bit Rate: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

**2. Login**

You can create a unique appliance/cluster administration password later. For now, use the following preconfigured credentials:

login: **appadmin**

password: **eTIPS123**

This initiates the Policy Manager Configuration Wizard.

**3. Configure the Appliance**

Replace the **bolded** placeholder entries in the following illustration with your local information:

Enter hostname: **verne.xyzcompany.com**

Enter Management Port IP Address: **192.168.5.10**

```
Enter Management Port Subnet Mask: 255.255.255.0
Enter Management Port Gateway: 192.168.5.1
Enter Data Port IP Address: 192.168.7.55
Enter Data Port Subnet Mask: 255.255.255.0
Enter Data Port Gateway: 192.168.7.1
Enter Primary DNS: 198.168.5.3
Enter Secondary DNS: 192.168.5.1
```

#### 4. Change your password

Use any string with a minimum of six characters:

```
New Password:*****
Confirm Password: *****
```

From now, you must use this new password for cluster administration and management of the appliance.

#### 5. Change the system date/time

```
Do you want to configure system date time information [y|n]: y
Please select the date time configuration options.
1) Set date time manually
2) Set date time by configuring NTP servers
Enter the option or press any key to quit: 2
Enter Primary NTP Server: pool.ntp.org
Enter Secondary NTP Server: time.nist.gov
Do you want to configure the timezone? [y|n]: y
```

#### 6. Commit or restart the configuration

Follow the prompts:

```
Proceed with the configuration [y[Y]/n[N]/q[Q]
y[Y] to continue
n[N] to start over again
q[Q] to quit
Enter the choice:Y
Successfully configured Policy Manager appliance
*****
* Initial configuration is complete.
* Use the new login password to login to the CLI.
* Exiting the CLI session in 2 minutes. Press any key to exit now.
```

When the Policy Manager system is up and running, navigate to the **Administration > Agents and Software Updates > Software Updates** page to view and download any available software updates. Refer to in the *User Guide* for more information.

## Powering Off the System

Perform the following steps to power off the system gracefully without logging in:

Connect to the CLI from the serial console using the front serial port and enter the following:

```
login: poweroff
password: poweroff
```

This procedure gracefully shuts down the appliance.

## Resetting the Passwords to Factory Default

To reset the administrator password in Policy Manager to factory defaults, you can login to the CLI as the *apprecovery* user. The password to log in as the *apprecovery* user is dynamically generated.

Perform the following steps to generate the recovery password:

1. Connect to the Policy Manager appliance using the front serial port (using any terminal program). See "[Server Port Configuration](#)" on page 5 for details.

2. Reboot the system using the `restart` command.

3. After the system reboots, the following prompt is displayed for ten seconds:

```
Generate support keys? [y/n]:
```

Enter **y** at the prompt. The system prompts you with the following choices:

```
Please select a support key generation option.
```

```
1) Generate password recovery key
```

```
2) Generate a support key
```

```
3) Generate password recovery and support keys
```

Enter the option or press any key to quit.

4. To generate a password recovery key, select option 1.

5. After the password recovery key is generated, email the key to Dell technical support. A unique password will be generated from the recovery key and emailed back to you.

6. Enter the following command at the command prompt:

```
[apprecovery] app reset-passwd
```

```
*****
```

```
* WARNING: This command will reset the system account *
```

```
* passwords to factory default values *
```

```
*****
```

```
Are you sure you want to continue? [y/n]: y
```

```
INFO - Password changed on local node
```

```
INFO - System account passwords have been reset to factory default values
```

7. Now you can login with the new administrator password emailed to you by Dell technical support.

## Generating a Support Key for Technical Support

To troubleshoot certain critical system level errors, Dell technical support might need to log into a *support shell*.

Perform the following steps to generate a dynamic support password:

1. Log into the CLI and enter the following command:

```
system gen-support-key
```

2. Connect to the Policy Manager appliance using the front serial port (using any terminal program). See "[Server Port Configuration](#)" on page 5 for details.

3. Reboot the system using the `restart` command.

4. When the system restarts, the following prompt appears for 10 seconds:

```
Generate support keys? [y/n]:
```

Enter **y** at the prompt. The system prompts with the following choices:

```
Please select a support key generation option.
```



- 1) Generate password recovery key
- 2) Generate a support key
- 3) Generate password recovery and support keys

Enter the option or press any key to quit.

5. To generate the support key, select option 2. If you want to generate a support key and a password recovery key, select option 3.
6. After the password recovery key is generated, email the key to Dell technical support. A unique password can now be generated by Dell technical support to log into the support shell.

## A Subset of Useful CLI Commands

The CLI provides a way to manage and configure Policy Manager information. Refer to *Appendix A: Command Line Interface* in the User Guide for more detailed information on the CLI.

The CLI can be accessed from the console using a serial port interface or remotely using SSH:

```
*****
* Dell W-ClearPass Policy Manager *
* Software Version : 6.4.0.62080 *
*****
Logged in as group Local Administrator
[appadmin@company.com] #
```

The following subset of CLI commands may be useful at this point:

- To view the Policy Manager data and management port IP address, and DNS configuration:  
[appadmin]# **show ip**
- To reconfigure DNS or add a new DNS:  
[appadmin]# **configure dns <primary> [secondary] [tertiary]**
- To reconfigure or add management and data ports:  
[appadmin]# **configure ip <mgmt | data > <ipadd> netmask <netmask address> gateway <gateway address>**  
where:

Flag/Parameter	Description
ip <mgmt data> <ip address>	<ul style="list-style-type: none"> <li>• Network interface type: <i>mgmt</i> or <i>data</i></li> <li>• Server ip address.</li> </ul>
netmask <netmask address>	Netmask address.
gateway <gateway address>	Gateway address.

- To configure the date (time and time zone optional):  
[appadmin]# **configure date -d <date> [-t <time>] [-z <timezone>]**
- To configure the hostname to the node:  
**configure hostname <hostname>**
- If you are using Active Directory to authenticate users, be sure to join the Policy Manager appliance to that domain as well.  
ad netjoin <domain-controller.domain-name> [domain NETBIOS name]  
where:

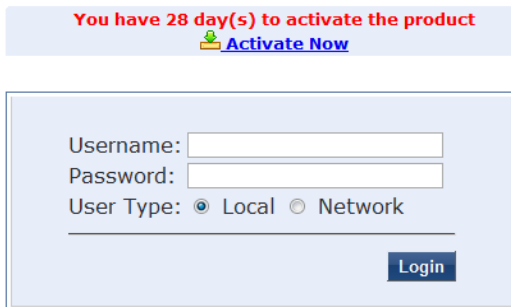
Flag/Parameter	Description
<domain-controller. domain-name>	Required. Host to be joined to the domain.
[domain NETBIOS name]	Optional.

Use *Firefox 3.0* (or higher) or *Internet Explorer 7.0.5* (or higher) to perform the following steps:

1. Open the administrative interface.

Navigate to `https://<hostname>/tips`, where `<hostname>` is the hostname you configured during the initial configuration.

2. Enter License Key.
3. Click the **Activate Now** link.

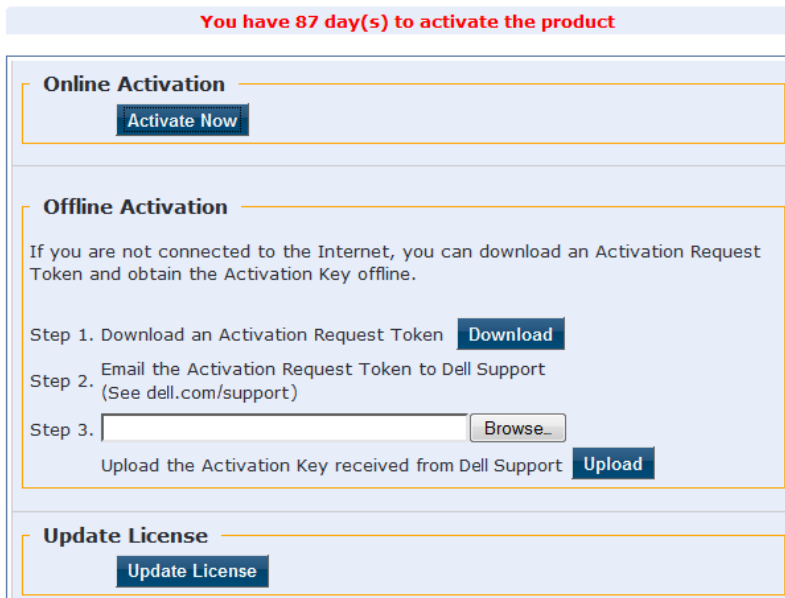


The screenshot shows a notification bar at the top with the text "You have 28 day(s) to activate the product" in red, followed by a green icon and a blue "Activate Now" link. Below this is a light blue login box containing the following fields: "Username:" with a text input field, "Password:" with a text input field, and "User Type:" with two radio buttons labeled "Local" (selected) and "Network". A blue "Login" button is positioned at the bottom right of the login box.

4. Activate the product.

If the appliance is connected to the Internet, click on the **Activate Now** button. If not, click on the **Download** button to download the Activation Request Token. Contact Dell Support and provide your technician with the downloaded token in an email attachment. Once you receive the Activation Key from Dell Support, save it to a known location on your computer. Come back to this screen and click on the **Browse** button to select the Activation Key. Upload the key by clicking on the **Upload** button.

The product is now activated.



The screenshot shows a notification bar at the top with the text "You have 87 day(s) to activate the product" in red. Below this is a light blue box with three sections: "Online Activation" with a blue "Activate Now" button; "Offline Activation" with a paragraph of text, three steps (Step 1: "Download an Activation Request Token" with a blue "Download" button; Step 2: "Email the Activation Request Token to Dell Support (See dell.com/support)"; Step 3: a text input field with a "Browse..." button), and a blue "Upload" button; and "Update License" with a blue "Update License" button.

5. Login. Username: admin, Password: eTIPS123

Username:

Password:

[ClearPass Insight](#) | [ClearPass Guest](#) | [ClearPass Onboard](#)

- Change the password.  
 Navigate to **Administration > Admin Users**, then use the **Edit Admin User** popup to change the administration password.

Admin Users

Filter:  contains   [Show All](#)

#	<input type="checkbox"/>	User ID ▲	Name	Privilege Level
1.	<input type="checkbox"/>	admin	Super Admin	Super Administrator

Showing 1-1 of 1

**Edit Admin User**

User ID:

Name:

Password:

Verify Password:

Privilege Level:

## Accessing Help

The Policy Manager User Guide (in PDF format) is built within the help system here:

```
https://<hostname>/tipshelp/html/en/
```

(where <hostname> is the hostname you configured during the initial configuration.)

All Policy Manager user interface screens have context-sensitive help. To access context-sensitive help, click on the **Help** link at the top right hand corner of any screen.

To check the status of service, navigate to **Administration > Server Manager > Server Configuration**, then click on a row to select a server:

- The **System** tab displays server identity and connection parameters.
- The **Service Control** tab displays all services and their current status. If a service is stopped, you can use its **Start/Stop** button (toggle) to restart it.

System	Services Control	Service Parameters	System Monitoring	Network	FIPS
Service Name	Status	Action			
1. AirGroup notification service	Running	Stop			
2. Async DB write service	Running	Stop			
3. Async network services	Running	Stop			
4. DB change notification server	Running	Stop			
5. DB replication service	Running	Stop			
6. Micros Fidelio FIAS	Running	Stop			
7. Multi-master cache	Running	Stop			
8. Policy server	Running	Stop			
9. Radius server	Running	Stop			
10. System auxiliary services	Running	Stop			
11. System monitor service	Running	Stop			
12. Tacacs server	Running	Stop			
13. Virtual IP service	Stopped	Start			
14. AMG-AD Domain service	Running	Stop			

[Back to Server Configuration](#)

You can also start an individual service from the command line,

```
service start <service-name>
```

or all services from the command line,

```
service start all
```

- The **Service Parameters** tab allows you to change system parameters for all services.
- The **System Monitoring** tab allows you to configure SNMP parameters, ensuring that external MIB browsers can browse the system-level MIB objects exposed by the Policy Manager appliance.
- The **Network** tab allows you to view and create GRE tunnels and VLANs.
- The **FIPS** tab is used to enable W-ClearPass in Federal Information Processing Standard mode. For most users, this tab should be ignored. Changing the mode to FIPS mode causes the database to be reset.



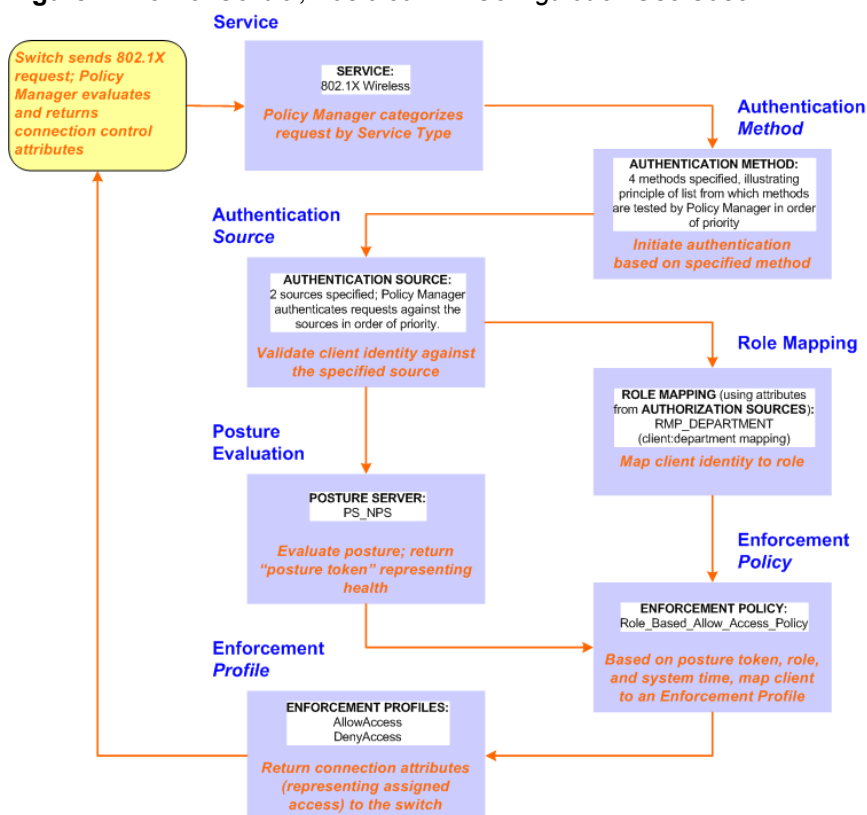
This appendix contains several specific W-ClearPass Policy Manager use cases. Each one explains what it is typically used for, and then describes how to configure Policy Manager for that use case.

- "802.1X Wireless Use Case" on page 15
- "Web Based Authentication Use Case" on page 22
- "MAC Authentication Use Case" on page 29
- "TACACS+ Use Case" on page 32
- "Single Port Use Case" on page 34

## 802.1X Wireless Use Case

The basic Policy Manager Use Case configures a Policy Manager Service to identify and evaluate an 802.1X request from a user logging into a Wireless Access Device. The following image illustrates the flow of control for this Service.

**Figure 2: Flow of Control, Basic 802.1X Configuration Use Case**



### Configuring the Service

Follow the steps below to configure this basic 802.1X service:




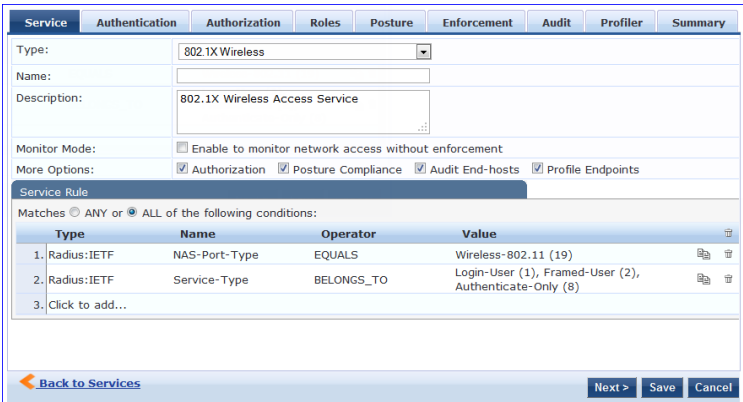
1. Create the Service.

The following table provides the model for information presented in Use Cases, which assume the reader's ability to extrapolate from a sequence of navigational instructions (left column) and settings (in summary form in the right

column) at each step. Below the table, we call attention to any fields or functions that may not have an immediately obvious meaning.

Policy Manager ships with fourteen preconfigured Services. In this Use Case, you select a Service that supports 802.1X wireless requests.

**Table 3: 802.1X - Create Service Navigation and Settings**

Navigation	Settings
<p>Create a new Service:</p> <ul style="list-style-type: none"> <li>• <b>Services &gt;</b></li> <li>• <b>Add Service</b> (link)</li> </ul>	<p>Configuration » Services Services</p> <p style="text-align: right;">  Add   Import   Export All         </p>
<p>Name the Service and select a pre-configured Service Type:</p> <ul style="list-style-type: none"> <li>• <b>Service</b> (tab) &gt;</li> <li>• <b>Type</b> (selector): <b>802.1X Wireless</b> &gt;</li> <li>• <b>Name/Description</b> (freeform) &gt;</li> <li>• Upon completion, click <b>Next</b> (to Authentication)</li> </ul>	 <p>The screenshot shows the 'Service' configuration page with the following details:</p> <ul style="list-style-type: none"> <li><b>Type:</b> 802.1X Wireless</li> <li><b>Name:</b> (empty field)</li> <li><b>Description:</b> 802.1X Wireless Access Service</li> <li><b>Monitor Mode:</b> <input type="checkbox"/> Enable to monitor network access without enforcement</li> <li><b>More Options:</b> <input checked="" type="checkbox"/> Authorization, <input checked="" type="checkbox"/> Posture Compliance, <input checked="" type="checkbox"/> Audit End-hosts, <input checked="" type="checkbox"/> Profile Endpoints</li> <li><b>Service Rule:</b> <ul style="list-style-type: none"> <li>Matches: <input type="radio"/> ANY or <input checked="" type="radio"/> ALL of the following conditions:</li> <li>Table with columns: Type, Name, Operator, Value</li> <li>Row 1: Type: Radius:IETF, Name: NAS-Port-Type, Operator: EQUALS, Value: Wireless-802.11 (19)</li> <li>Row 2: Type: Radius:IETF, Name: Service-Type, Operator: BELONGS_TO, Value: Login-User (1), Framed-User (2), Authenticate-Only (8)</li> <li>Row 3: Click to add...</li> </ul> </li> </ul>

The following fields deserve special mention:

- **Monitor Mode:** Optionally, check here to allow handshakes to occur (for monitoring purposes), but without enforcement.
- **Service Categorization Rule:** For purposes of this Use Case, accept the preconfigured Service Categorization Rules for this Type.

2. Configure Authentication.

Follow the instructions to select **[EAP FAST]**, one of the pre-configured Policy Manager Authentication Methods, and **Active Directory Authentication Source (AD)**, an external Authentication Source within your existing enterprise.



Policy Manager fetches attributes used for role mapping from the Authorization Sources (that are associated with the authentication source). In this example, the authentication and authorization source are one and the same.



**Table 4: Configure Authentication Navigation and Settings**

Navigation	Settings
<p>Select an Authentication Method and an Active Directory server (that you have already configured in Policy Manager):</p> <ul style="list-style-type: none"> <li>● <b>Authentication</b> (tab) &gt;</li> <li>● <b>Methods</b> (Select a method from the drop-down list)</li> <li>● <b>Add</b> &gt;</li> <li>● <b>Sources</b> (Select drop-down list):</li> </ul> <p>[Local User Repository] [Local SQL DB]            [Guest User Repository] [Local SQL DB]            [Guest Device Repository] [Local SQL DB]            [Endpoints Repository] [Local SQL DB]            [Onboard Devices Repository] [Local SQL DB] &gt;            [Admin User Repository] [Local SQL DB] &gt;            AmigoPod AD [Active Directory] &gt;</p> <ul style="list-style-type: none"> <li>● <b>Add</b> &gt;</li> <li>● Upon completion, <b>Next</b> (to configure Authorization)</li> </ul>	

The following field deserves special mention:

- **Strip Username Rules:** Optionally, check here to pre-process the user name (to remove prefixes and suffixes) before sending it to the authentication source.



To view detailed setting information for any preconfigured policy component, select the item and click **View Details**.

3. Configure Authorization.

Policy Manager fetches attributes for role mapping policy evaluation from the Authorization Sources. In this use case, the Authentication Source and Authorization Source are one and the same.

**Table 5: 02.1X - Configure Authorization Navigation and Settings**


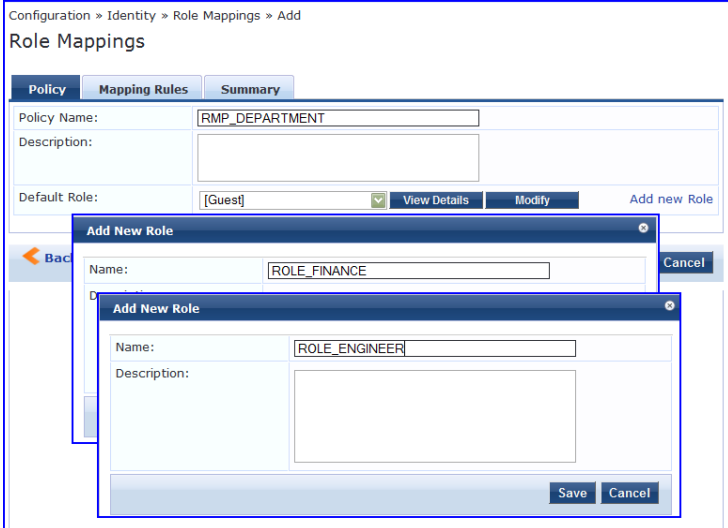
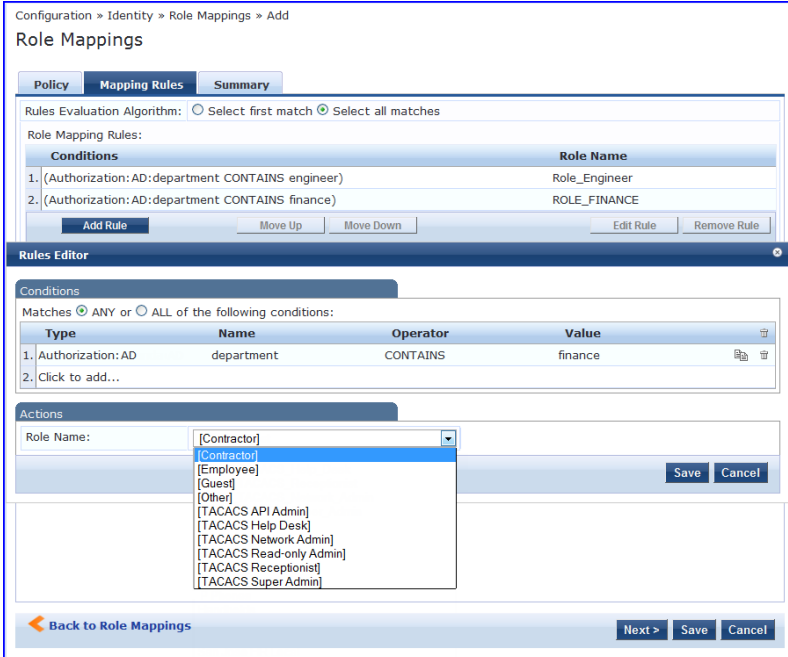
Navigation	Settings
<ul style="list-style-type: none"> <li>Configure Service level authorization source. In this use case there is nothing to configure. Click the <b>Next</b> button.</li> <li>Upon completion, click <b>Next</b> (to Role Mapping).</li> </ul>	

4. Apply a Role Mapping Policy.

Policy Manager tests client identity against role-mapping rules, appending any match (multiple roles acceptable) to the request for use by the Enforcement Policy. In the event of role-mapping failure, Policy Manager assigns a default role.

In this Use Case, create the role mapping policy RMP\_DEPARTMENT that distinguishes clients by department and the corresponding roles ROLE\_ENGINEERING and ROLE\_FINANCE, to which it maps:

**Table 6: Role Mapping Navigation and Settings**

Navigation	Settings
<p>Create the new Role Mapping Policy:</p> <ul style="list-style-type: none"> <li>• Roles (tab) &gt;</li> <li>• Add New Role Mapping Policy (link)</li> </ul>	
<p>Add new Roles (names only):</p> <ul style="list-style-type: none"> <li>• Policy (tab) &gt;</li> <li>• Policy Name (freeform): ROLE_ENGINEER &gt;</li> <li>• Save (button) &gt;</li> <li>• Repeat for ROLE_FINANCE &gt;</li> <li>• When you are finished working in the Policy tab, click the Next button (in the Rules Editor)</li> </ul>	
<p>Create rules to map client identity to a Role:</p> <ul style="list-style-type: none"> <li>• Mapping Rules (tab) &gt;</li> <li>• Rules Evaluation Algorithm (radio button): Select all matches &gt;</li> <li>• Add Rule (button opens popup) &gt;</li> <li>• Add Rule (button) &gt;</li> <li>• Rules Editor (popup) &gt;</li> <li>• Conditions/ Actions: match Conditions to Actions (drop-down list) &gt;</li> <li>• Upon completion of each rule, click the Save button (in the Rules Editor) &gt;</li> <li>• When you are finished working in the Mapping Rules tab, click the Save button (in the Mapping Rules tab)</li> </ul>	

**Table 6: Role Mapping Navigation and Settings (Continued)**

Navigation	Settings
<p>Add the new Role Mapping Policy to the Service:</p> <ul style="list-style-type: none"> <li>● Back in <b>Roles</b> (tab) &gt;</li> <li>● <b>Role Mapping Policy</b> (selector): <i>RMP_DEPARTMENT</i> &gt;</li> <li>● Upon completion, click <b>Next</b> (to Posture)</li> </ul>	

5. Configure a Posture Server.



For purposes of posture evaluation, you can configure a Posture Policy (internal to Policy Manager), a Posture Server (external), or an Audit Server (internal or external). Each of the first three use cases demonstrates one of these options; here, the Posture Server.

Policy Manager can be configured for a third-party posture server, to evaluate client health based on vendor-specific credentials, typically credentials that cannot be evaluated internally by Policy Manager (that is, not in the form of internal posture policies). Currently, Policy Manager supports the following posture server interface: **Microsoft NPS (RADIUS)**.

Refer to the following table to add the external posture server of type **Microsoft NPS** to the 802.1X service:

**Table 7: Posture Navigation and Settings**

Navigation	Setting
<p>Add a new Posture Server:</p> <ul style="list-style-type: none"> <li>● <b>Posture</b> (tab) &gt;</li> <li>● <b>Add new Posture Server</b> (button) &gt;</li> </ul>	
<p>Configure Posture settings:</p> <ul style="list-style-type: none"> <li>● <b>Posture Server</b> (tab) &gt;</li> <li>● <b>Name</b> (freeform): <b>PS_NPS</b></li> <li>● <b>Server Type</b> (radio button): <b>Microsoft NPS</b></li> <li>● <b>Default Posture Token</b> (selector): <b>UNKOWN</b></li> <li>● <b>Next</b> (to Primary Server)</li> </ul>	
<p>Configure connection settings:</p> <ul style="list-style-type: none"> <li>● <b>Primary/ Backup Server</b> (tabs): Enter connection information for the RADIUS posture server.</li> <li>● <b>Next</b> (button): from Primary Server to Backup Server.</li> <li>● To complete your work in these tabs, click the <b>Save</b> button.</li> </ul>	
<p>Add the new Posture Server to the Service:</p> <ul style="list-style-type: none"> <li>● Back in the <b>Posture</b> (tab) &gt;</li> <li>● <b>Posture Servers</b> (selector): <b>PS_NPS</b>, then click the <b>Add</b> button.</li> <li>● Click the <b>Next</b> button.</li> </ul>	

6. Assign an Enforcement Policy.

Enforcement Policies contain dictionary-based rules for evaluation of Role, Posture Tokens, and System Time to Evaluation Profiles. Policy Manager applies all matching Enforcement Profiles to the Request. In the case of no match, Policy Manager assigns a default Enforcement Profile.

**Table 8: Enforcement Policy Navigation and Settings**

Navigation	Setting
<p>Configure the Enforcement Policy:</p> <ul style="list-style-type: none"> <li>● <b>Enforcement</b> (tab) &gt;</li> <li>● <b>Enforcement Policy</b> (selector): <b>Role_Based_Allow_Access_Policy</b></li> </ul>	

For instructions about how to build such an Enforcement Policy, refer to "Configuring Enforcement Policies" in the *W-ClearPass Policy Manager User Guide*.

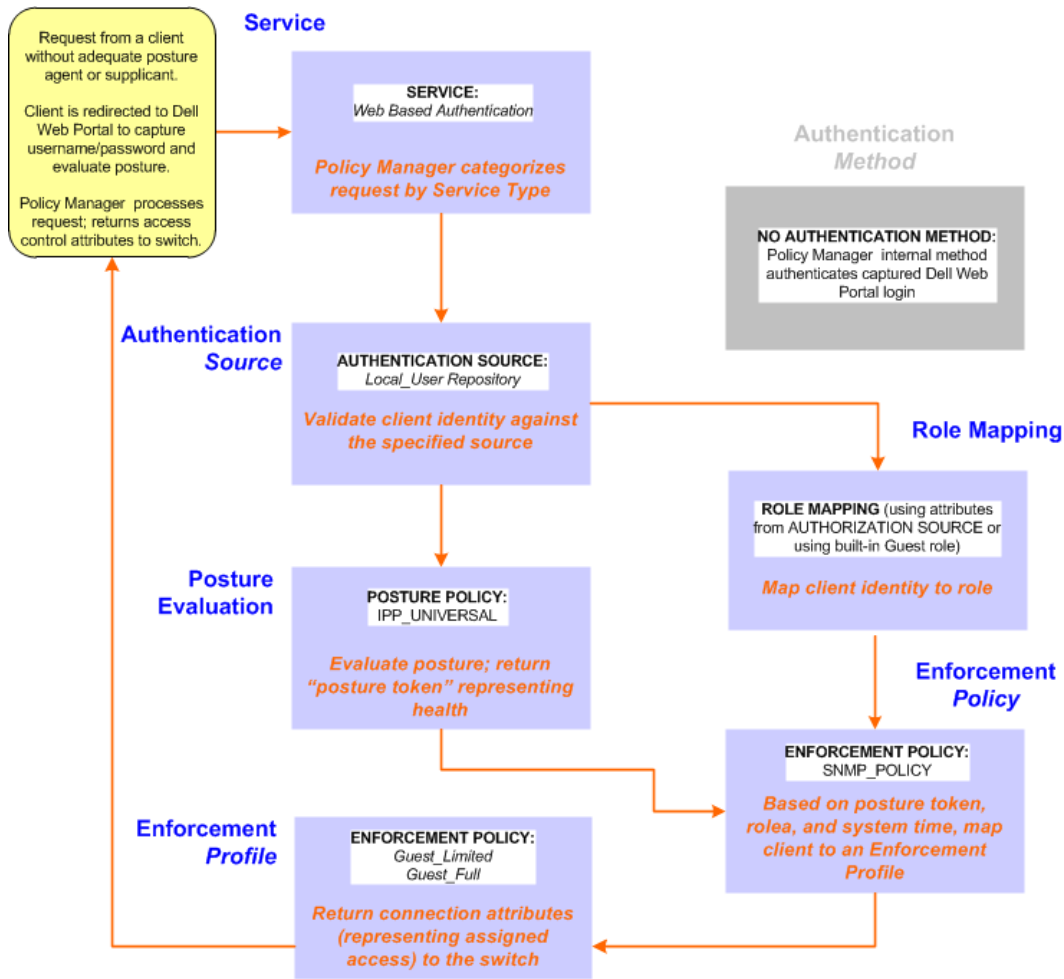
7. Save the Service.

Click **Save**. The Service now appears at the bottom of the **Services** list.

## Web Based Authentication Use Case

This Service supports known Guests with inadequate 802.1X supplicants or posture agents. The following figure illustrates the overall flow of control for this Policy Manager Service.

**Figure 3: Flow-of-Control of Web-Based Authentication for Guests**


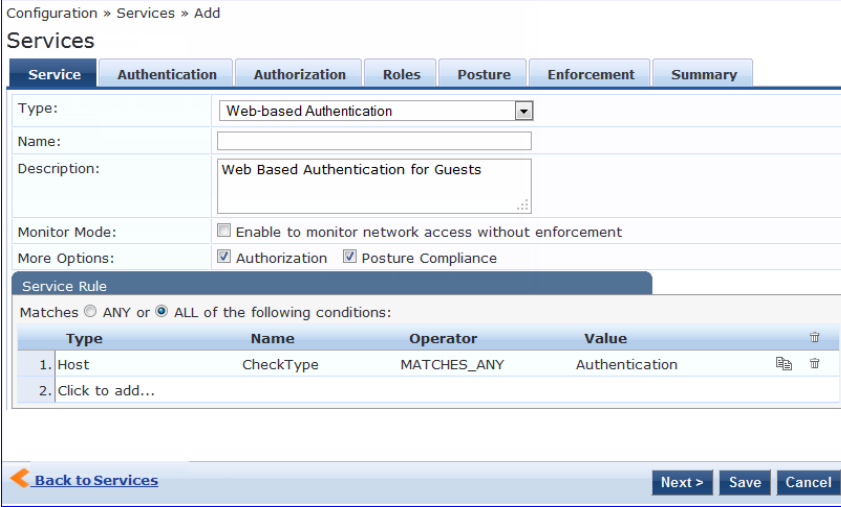


## Configuring the Service

Perform the following steps to configure Policy Manager for WebAuth-based Guest access.

1. Prepare the switch to pre-process WebAuth requests for the Policy Manager *Dell WebAuth* service.  
Refer to your Network Access Device documentation to configure the switch such that it redirects HTTP requests to the *Dell Guest Portal*, which captures username and password and optionally launches an agent that returns posture data.
2. Create a WebAuth-based Service.

**Table 9: Service Navigation and Settings**

Navigation	Settings
<p>Create a new Service:</p> <ul style="list-style-type: none"> <li>• <b>Services</b> &gt;</li> <li>• <b>Add Service</b> &gt;</li> </ul>	
<p>Name the Service and select a pre-configured Service Type:</p> <ul style="list-style-type: none"> <li>• <b>Service</b> (tab) &gt;</li> <li>• <b>Type</b> (selector): Dell Web-Based Authentication &gt;</li> <li>• <b>Name/Description</b> (freeform) &gt;</li> <li>• Upon completion, click <b>Next</b>.</li> </ul>	

3. Set up the Authentication.
  - a. Method: The Policy Manager WebAuth service authenticates WebAuth clients internally.
  - b. Source: Administrators typically configure Guest Users in the local Policy Manager database.
4. Configure a Posture Policy.



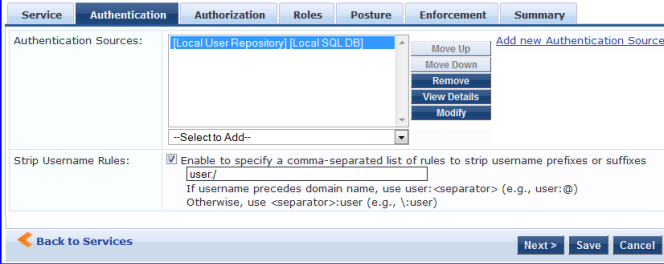
For purposes of posture evaluation, you can configure a Posture Policy (internal to Policy Manager), a Posture Server (external), or an Audit Server (internal or external). Each of the first three use cases demonstrates one of these options. This use case demonstrates the Posture Policy.

As of the current version, Policy Manager ships with five pre-configured posture plugins that evaluate the health of the client and return a corresponding posture token.

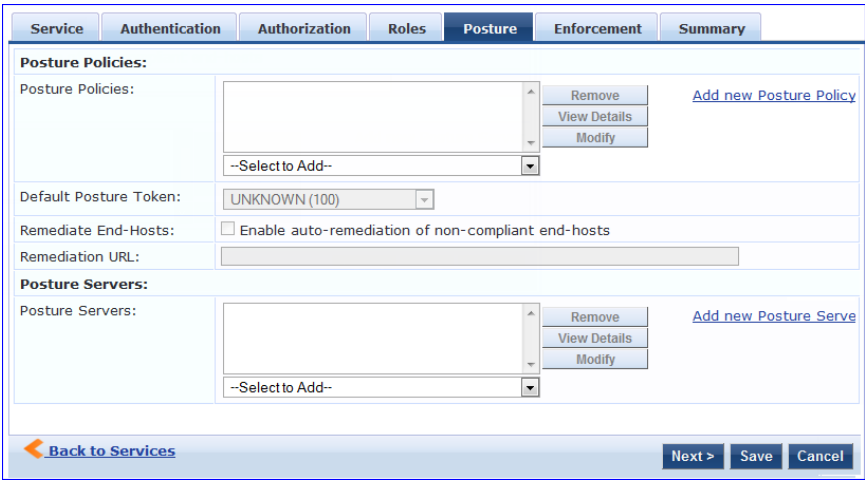
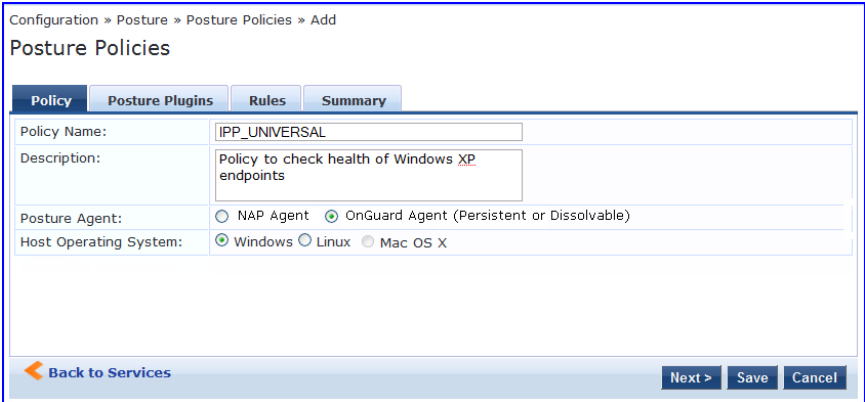
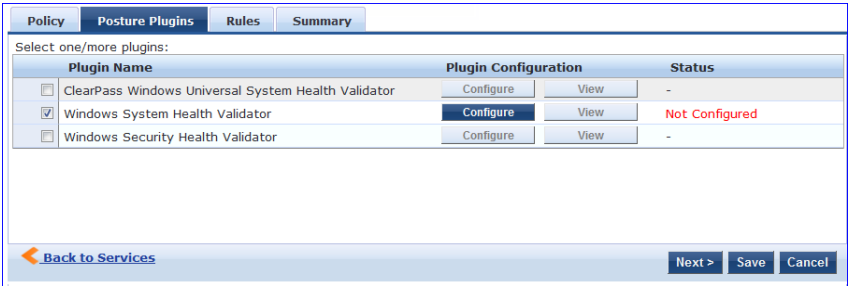
To add the internal posture policy *IPP\_UNIVERSAL\_XP*, which (as you will configure it in this Use Case, checks any Windows<sup>®</sup> XP clients to verify the most current Service Pack).



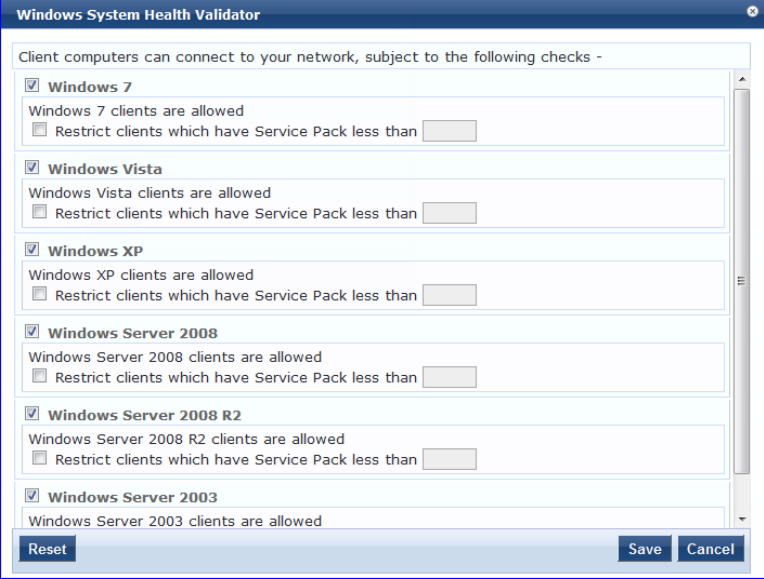
**Table 10: Local Policy Manager Database Navigation and Settings**

Navigation	Settings
<p>Select the local Policy Manager database:</p> <ul style="list-style-type: none"> <li>● <b>Authentication</b> (tab) &gt;</li> <li>● <b>Sources</b> (Select drop-down list): <b>[Local User Repository]</b> &gt;</li> <li>● <b>Add</b> &gt;</li> <li>● <b>Strip Username Rules</b> (check box) &gt;</li> <li>● Enter an example of preceding or following separators (if any), with the phrase “user” representing the username to be returned. For authentication, Policy Manager strips the specified separators and any paths or domains beyond them.</li> <li>● Upon completion, click <b>Next</b> (until you reach Enforcement Policy).</li> </ul>	


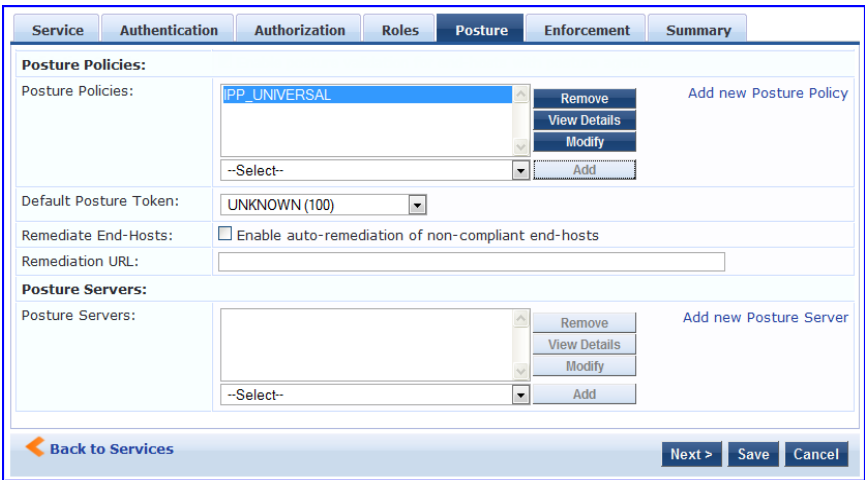
**Table 11: Posture Policy Navigation and Settings**

Navigation	Setting												
<p>Create a Posture Policy:</p> <ul style="list-style-type: none"> <li>● <b>Posture</b> (tab) &gt;</li> <li>● Enable <b>Validation Check</b> (checkbox) &gt;</li> <li>● <b>Add new Internal Policy</b> (link) &gt;</li> </ul>													
<p>Name the Posture Policy and specify a general class of operating system:</p> <ul style="list-style-type: none"> <li>● <b>Policy</b> (tab) &gt;</li> <li>● <b>Policy Name</b> (freeform): <i>IPP_UNIVERSAL</i> &gt;</li> <li>● <b>Host Operating System</b> (radio buttons): <b>Windows</b> &gt;</li> <li>● When finished working in the <b>Policy</b> tab, click <b>Next</b> to open the Posture Plugins tab</li> </ul>													
<p>Select a Validator:</p> <ul style="list-style-type: none"> <li>● <b>Posture Plugins</b> (tab) &gt;</li> <li>● Enable <b>Windows Health System Validator</b> &gt;</li> <li>● <b>Configure</b> (button) &gt;</li> </ul>	 <table border="1" data-bbox="519 1459 1347 1564"> <thead> <tr> <th>Plugin Name</th> <th>Plugin Configuration</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> ClearPass Windows Universal System Health Validator</td> <td><a href="#">Configure</a></td> <td>-</td> </tr> <tr> <td><input checked="" type="checkbox"/> Windows System Health Validator</td> <td><a href="#">Configure</a></td> <td>Not Configured</td> </tr> <tr> <td><input type="checkbox"/> Windows Security Health Validator</td> <td><a href="#">Configure</a></td> <td>-</td> </tr> </tbody> </table>	Plugin Name	Plugin Configuration	Status	<input type="checkbox"/> ClearPass Windows Universal System Health Validator	<a href="#">Configure</a>	-	<input checked="" type="checkbox"/> Windows System Health Validator	<a href="#">Configure</a>	Not Configured	<input type="checkbox"/> Windows Security Health Validator	<a href="#">Configure</a>	-
Plugin Name	Plugin Configuration	Status											
<input type="checkbox"/> ClearPass Windows Universal System Health Validator	<a href="#">Configure</a>	-											
<input checked="" type="checkbox"/> Windows System Health Validator	<a href="#">Configure</a>	Not Configured											
<input type="checkbox"/> Windows Security Health Validator	<a href="#">Configure</a>	-											

**Table 11: Posture Policy Navigation and Settings (Continued)**

Navigation	Setting
<p>Configure the Validator:</p> <ul style="list-style-type: none"> <li>• <b>Windows System Health Validator</b> (popup) &gt;</li> <li>• <b>Enable all Windows operating systems</b> (check box) &gt;</li> <li>• Enable Service Pack levels for Windows 7, Windows Vista®, Windows XP, Windows Server® 2008, Windows Server 2008 R2, and Windows Server 2003 (check boxes) &gt;</li> <li>• <b>Save</b> (button) &gt;</li> <li>• When finished working in the <b>Posture Plugin</b> tab click <b>Next</b> to move to the Rules tab)</li> </ul>	 <p>The screenshot shows the 'Windows System Health Validator' dialog box. It contains a list of operating systems with the following settings:</p> <ul style="list-style-type: none"> <li><b>Windows 7:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> <li><b>Windows Vista:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> <li><b>Windows XP:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> <li><b>Windows Server 2008:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> <li><b>Windows Server 2008 R2:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> <li><b>Windows Server 2003:</b> Allowed (checked), Restrict clients which have Service Pack less than (unchecked, empty field)</li> </ul> <p>Buttons at the bottom: Reset, Save, Cancel.</p>

**Table 11: Posture Policy Navigation and Settings (Continued)**

Navigation	Setting
<p>Set rules to correlate validation results with posture tokens:</p> <ul style="list-style-type: none"> <li>● <b>Rules (tab)</b> &gt;</li> <li>● <b>Add Rule</b> (button opens popup) &gt;</li> <li>● <b>Rules Editor</b> (popup) &gt;</li> <li>● <b>Conditions/ Actions:</b> match Conditions (Select Plugin/ Select Plugin checks) to Actions (Posture Token)&gt;</li> <li>● In the <b>Rules Editor</b>, upon completion of each rule, click the <b>Save</b> button &gt;</li> <li>● When finished working in the <b>Rules</b> tab, click the <b>Next</b> button.</li> </ul>	
<p>Add the new Posture Policy to the Service: Back in <b>Posture</b> (tab) &gt;</p> <p><b>Internal Policies</b> (selector): <b>IPP_UNIVERSAL_XP</b>, then click the <b>Add</b> button</p>	

The following fields deserve special mention:

- **Default Posture Token.** Value of the posture token to use if health status is not available.
- **Remediate End-Hosts.** When a client does not pass posture evaluation, redirect to the indicated server for remediation.
- **Remediation URL.** URL of remediation server.

5. Create an Enforcement Policy.

Because this Use Case assumes the *Guest* role, and the *Dell Web Portal* agent has returned a posture token, it does not require configuration of Role Mapping or Posture Evaluation.



The SNMP\_POLICY selected in this step provides full guest access to a Role of [Guest] with a Posture of Healthy, and limited guest access.

**Table 12: Enforcement Policy Navigation and Settings**

Navigation	Setting
<p>Add a new Enforcement Policy:</p> <ul style="list-style-type: none"> <li>● <b>Enforcement</b> (tab) &gt;</li> <li>● Enforcement Policy (selector): <b>SNMP_POLICY</b></li> <li>● Upon completion, click <b>Save</b>.</li> </ul>	

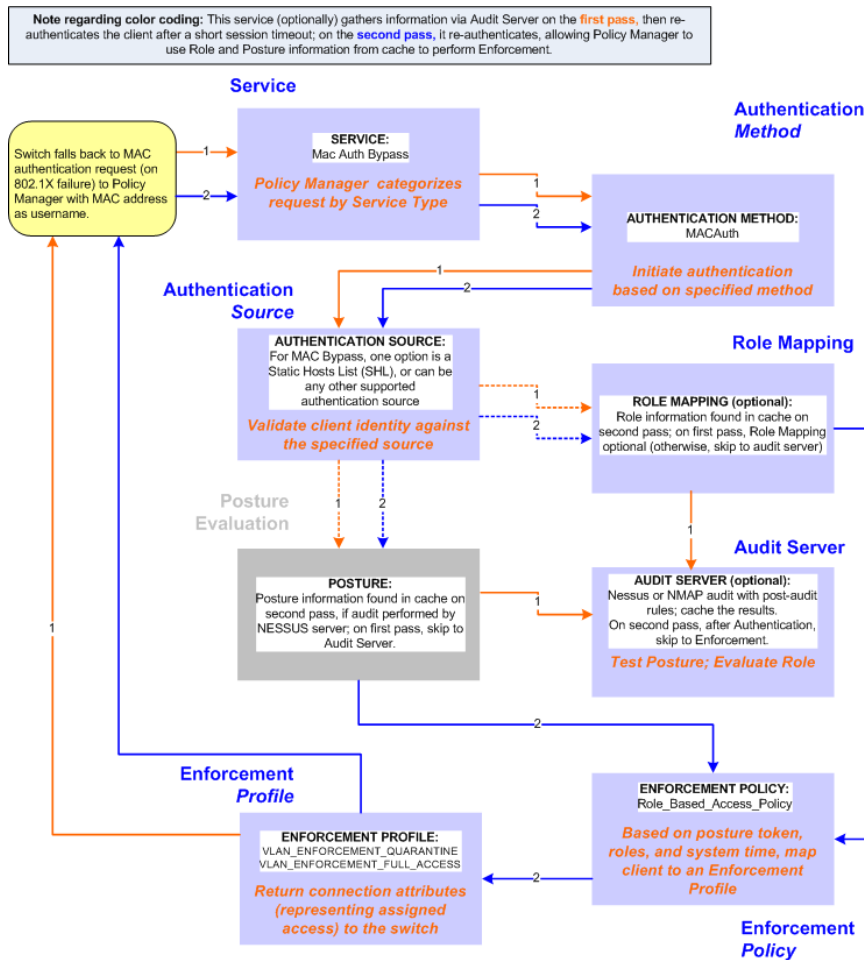
6. Save the Service.

Click **Save**. The Service now appears at the bottom of the **Services** list.

## MAC Authentication Use Case

This Service supports *Network Devices*, such as printers or handhelds. The following image illustrates the overall flow of control for this Policy Manager Service. In this service, an audit is initiated on receiving the first MAC Authentication request. A subsequent MAC Authentication request (forcefully triggered after the audit, or triggered after a short session timeout) uses the cached results from the audit to determine posture and role(s) for the device.

**Figure 4: Flow-of-Control of MAC Authentication for Network Devices**


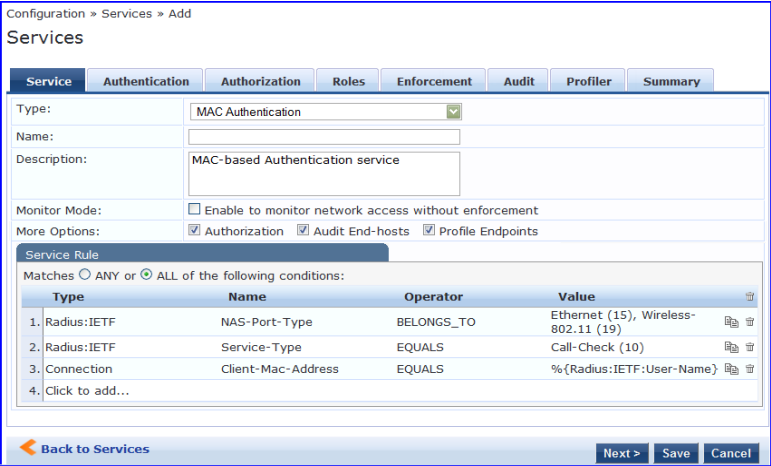


## Configuring the Service

Follow these steps to configure Policy Manager for MAC-based Network Device access.

1. Create a MAC Authentication Service.

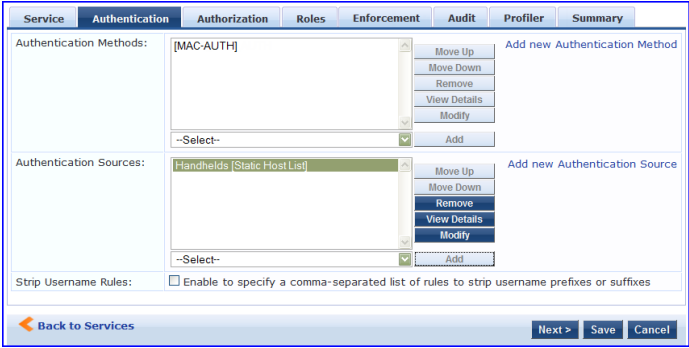
**Table 13: MAC Authentication Service Navigation and Settings**

Navigation	Settings
<p>Create a new Service:</p> <ul style="list-style-type: none"> <li>● <b>Services</b> &gt;</li> <li>● <b>Add Service</b> (link) &gt;</li> </ul>	<p>Configuration » Services Services</p> <p style="text-align: right;">  </p>
<p>Name the Service and select a pre-configured Service Type:</p> <ul style="list-style-type: none"> <li>● <b>Service</b> (tab) &gt;</li> <li>● <b>Type</b> (selector): <b>MAC Authentication</b> &gt;</li> <li>● <b>Name/Description</b> (freeform) &gt;</li> <li>● Upon completion, click <b>Next</b> to configure Authentication</li> </ul>	

2. Set up Authentication.

You can select any type of authentication/authorization source for a MAC Authentication service. Only a Static Host list of type MAC Address List or MAC Address Regular Expression shows up in the list of authentication sources (of type Static Host List). Refer to "Adding and Modifying Static Host Lists" in the *ClearPass Policy Manager User Guide* for more information. You can also select any other supported type of authentication source.

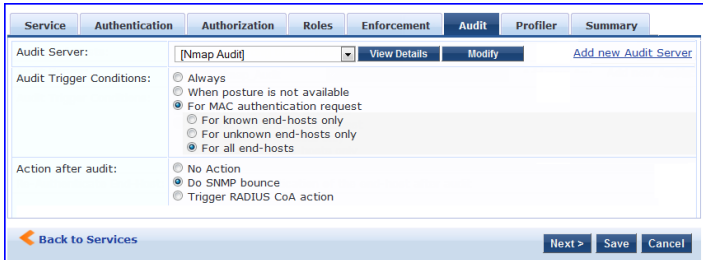
**Table 14: Authentication Method Navigation and Settings**

Navigation	Settings
<p>Select an Authentication Method and two authentication sources - one of type Static Host List and the other of type Generic LDAP server (that you have already configured in Policy Manager):</p> <ul style="list-style-type: none"> <li>● <b>Authentication</b> (tab) &gt;</li> <li>● <b>Methods</b> (This method is automatically selected for this type of service): <b>[MAC AUTH]</b> &gt;</li> <li>● <b>Add</b> &gt;</li> <li>● <b>Sources</b> (<b>Select</b> drop-down list): <b>Handhelds [Static Host List]</b> and Policy Manager Clients White List [Generic LDAP] &gt;</li> <li>● <b>Add</b> &gt;</li> <li>● Upon completion, <b>Next</b> (to Audit)</li> </ul>	

3. Configure an Audit Server.

This step is optional if no Role Mapping Policy is provided, or if you want to establish health or roles using an audit. An audit server determines health by performing a detailed system and health vulnerability analysis (NESSUS). You can also configure the audit server (NMAP or NESSUS) with post-audit rules that enable Policy Manager to determine client identity.

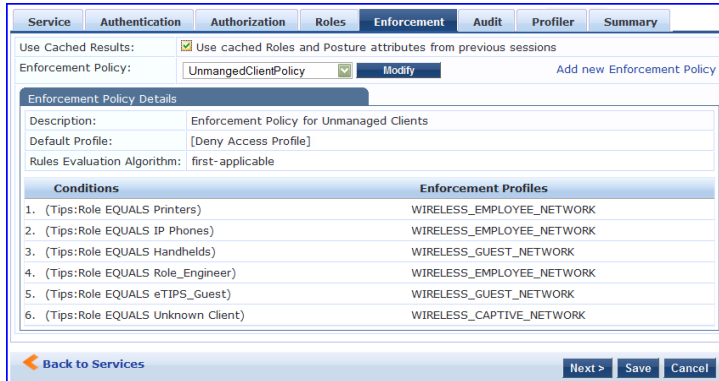
**Table 15: Audit Server Navigation and Settings**

Navigation	Settings
<p>Configure the Audit Server:</p> <ul style="list-style-type: none"> <li>● <b>Audit (tab) &gt;</b></li> <li>● <b>Audit End Hosts (enable) &gt;</b></li> <li>● <b>Audit Server (selector): NMAP</b></li> <li>● <b>Trigger Conditions (radio button): For MAC authentication requests</b></li> <li>● <b>Reauthenticate client (checkbox): Enable</b></li> </ul>	

Upon completion of the audit, Policy Manager caches Role (NMAP and NESSUS) and Posture (NESSUS), then resets the connection (or the switch reauthenticates after a short session timeout), triggering a new request, which follows the same path until it reaches Role Mapping/Posture/Audit; this appends cached information for this client to the request for passing to Enforcement. Select an Enforcement Policy.

4. Select the Enforcement Policy *Sample\_Allow\_Access\_Policy*:

**Table 16: Enforcement Policy Navigation and Settings**

Navigation	Setting
<p>Select the Enforcement Policy:</p> <ul style="list-style-type: none"> <li>● <b>Enforcement (tab) &gt;</b></li> <li>● <b>Use Cached Results (checkbox): Select Use cached Roles and Posture attributes from previous sessions &gt;</b></li> <li>● <b>Enforcement Policy (selector): UnmanagedClientPolicy</b></li> <li>● <b>When you are finished with your work in this tab, click Save.</b></li> </ul>	

Unlike the 802.1X Service, which uses the same Enforcement Policy (but uses an explicit Role Mapping Policy to assess Role), in this use case Policy Manager applies post-audit rules against attributes captured by the Audit Server to infer Role(s).

5. Save the Service.

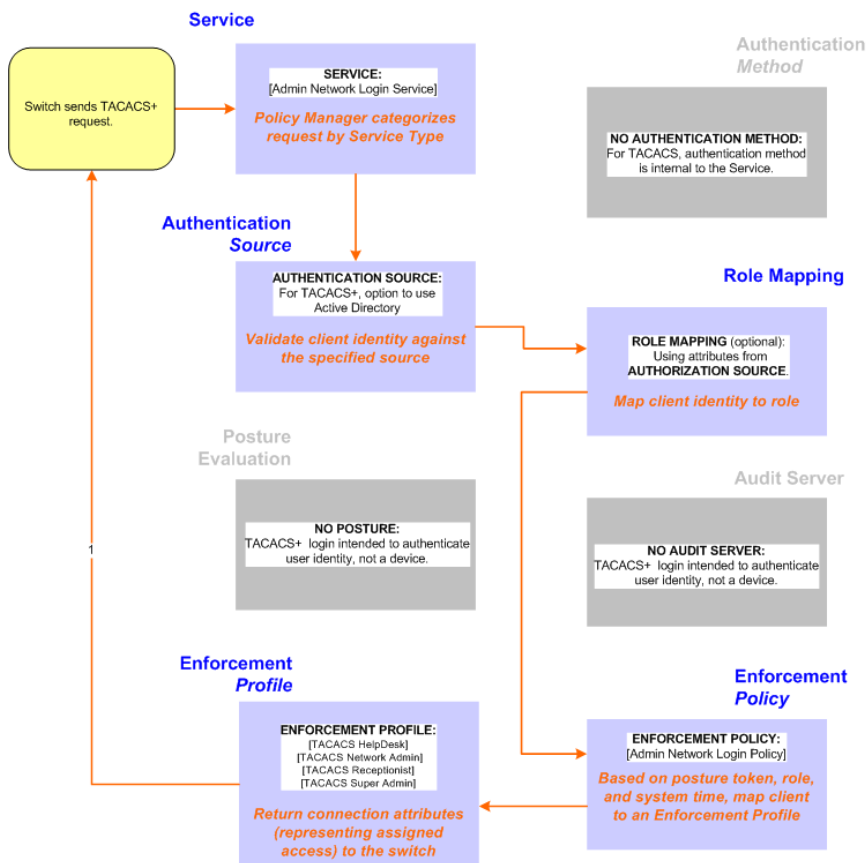
Click **Save**. The Service now appears at the bottom of the **Services** list.

## TACACS+ Use Case

This Service supports Administrator connections to Network Access Devices via TACACS+. The following image illustrates the overall flow of control for this Policy Manager Service.



**Figure 5: Administrator connections to Network Access Devices via TACACS+**







## Configuring the Service

Perform the following steps to configure Policy Manager for TACACS+-based access:

1. Create a TACACS+ Service.

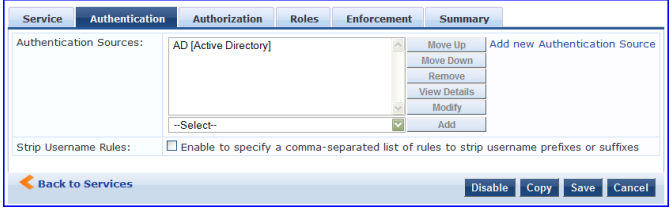
**Table 17: TACACS+ Navigation and Settings**

Navigation	Settings
<p>Create a new Service:</p> <ul style="list-style-type: none"> <li>● <b>Services</b> &gt;</li> <li>● <b>Add Service</b> (link) &gt;</li> </ul>	<p>Configuration &gt; Services Services</p> <p style="text-align: right;">  Add   Import   Export All                 </p>
<p>Name the Service and select a pre-configured Service Type:</p> <ul style="list-style-type: none"> <li>● <b>Service</b> (tab) &gt;</li> <li>● <b>Type</b> (selector): [<b>Policy Manager Admin Network Login Service</b>] &gt;</li> <li>● <b>Name/Description</b> (freeform) &gt;</li> <li>● Upon completion, click <b>Next</b> (to Authentication)</li> </ul>	

2. Set up the Authentication.
  - a. Method: The Policy Manager TACACS+ service authenticates TACACS+ requests internally.

- b. Source: For purposes of this use case, Network Access Devices authentication data will be stored in the Active Directory.


**Table 18: Active Directory Navigation and Settings**

Navigation	Settings
<p>Select an Active Directory server (that you have already configured in Policy Manager):</p> <ul style="list-style-type: none"> <li>● <b>Authentication</b> (tab) &gt;</li> <li>● <b>Add</b> &gt;</li> <li>● <b>Sources</b> (Select drop-down list): AD (Active Directory) &gt;</li> <li>● <b>Add</b> &gt;</li> <li>● Upon completion, click <b>Next</b> (to Enforcement Policy)</li> </ul>	

- 3. Select an Enforcement Policy.

Select the Enforcement Policy [**Admin Network Login Policy**] that distinguishes the two allowed roles (**Net Admin Limited** and **Device SuperAdmin**).

**Table 19: Enforcement Policy Navigation and Settings**

Navigation	Setting
<p>Select the Enforcement Policy:</p> <ul style="list-style-type: none"> <li>● <b>Enforcement</b> (tab) &gt;</li> <li>● <b>Enforcement Policy</b> (selector): <b>Device Command Authorization Policy</b></li> <li>● When you are finished with your work in this tab, click <b>Save</b>.</li> </ul>	

- 4. Save the Service.

Click **Save**. The Service now appears at the bottom of the **Services** list.

## Single Port Use Case

This Service supports all three types of connections on a single port.

The following figure illustrates both the overall flow of control for this hybrid service, in which complementary switch and Policy Manager configurations allow all three types of connections on a single port:

**Figure 6: Flow of the Multiple Protocol Per Port Case**

