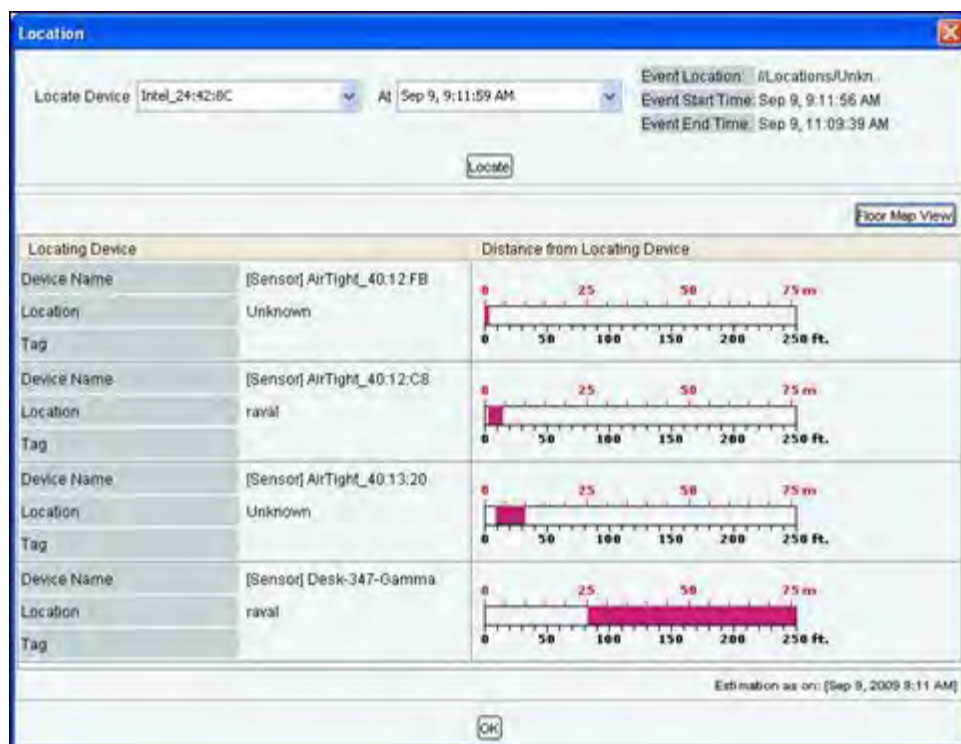


**Location dialog**

Note: The first row in the Client based threat displays the Event Time, while rest of the rows displays the Start/End Time of Association. This is valid for all Client based threats, *except Ad hoc*.

Client Based Threat – Prevention Tab

Prevention Tab shows the details of the Quarantine status of the association in the Association tab.

Forensic Details

Bridging Client uses bridging or Internet Connection Sharing (ICS) between its wireless interface and other interface(s). It can provide outsiders wireless access to the monitored enterprise network.

All Devices

ID	Location	Event Details	Categ...	Event Star...	Event ...
523166	Location 1/N...	Client [Intel_ID:AD:19] is in ...	Misbe...	Feb 9, 8:...	Feb 9...
523094	Location 1/Nod...	Client [unknown] is in Bridging/I...	Misbe...	Feb 9, 6:3...	Feb 9...
523021	Location 1/Nod...	Client [unknown] is in Bridging/I...	Misbe...	Feb 9, 4:5...	Feb 9...
522555	Location 1/Nod...	Client [unknown] is in Bridging/I...	Misbe...	Feb 9, 4:0...	Feb 9...
522119	Location 1/Nod...	Client [Intel_00:4E:3C] is in Bri...	Misbe...	Feb 8, 9:0...	Feb 8...
521995	Location 1/Nod...	Client [Intel_00:4E:3C] is in Bri...	Misbe...	Feb 8, 5:5...	Feb 8...
521877	Location 1/Nod...	Client [Intel_00:4E:3C] is in Bri...	Misbe...	Feb 8, 4:3...	Feb 8...
521438	Location 1/Nod...	Client [unknown] is in Bridging/I...	Misbe...	Feb 7, 10:...	Feb 7...

Event Start Time: Feb 9, 8:08:36 PM Event End Time: Feb 9, 8:19:02 PM

Association Prevention Admin

Client	AP	Association Start T...	Association End Time	Quarantine
Intel_ID:AD:20n	--	--	--	Not Quarantined
Intel_ID:AD:20n	Meru_D8:C4:B3	Feb 9, 8:08:36 PM	Feb 9, 8:14:43 PM	Not Quarantined
Intel_ID:AD:20n	Meru_D8:C4:B3	Feb 9, 8:15:10 PM	Feb 9, 8:18:39 PM	Not Quarantined

OK

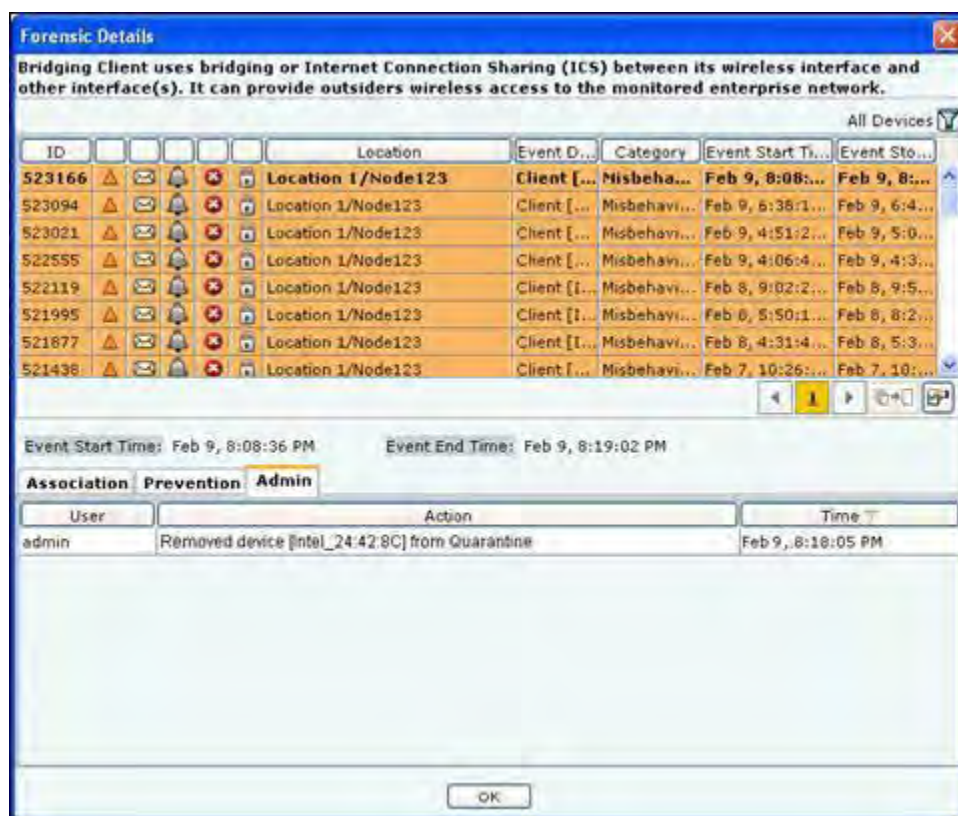
Client Based Threat Details – Prevention Tab

The fields in **Prevention Tab** are as follows:

- **Client**
- **AP**
- **Association Start Time**
- **Association End Time**
- **Quarantine:** Specifies the action taken on both the devices in the association. Even if one of device is quarantined, the association is Quarantined, else it is Not Quarantined. Click **Quarantined**, the Quarantine Details dialog opens. Click **Not Quarantined**, the **Not Quarantined Reason** dialog opens.

Client Based Threat – Admin Tab

Admin Tab shows all the administrator actions taken on the Client during the Event Start Time and Event End Time.



Client Based Threat Details – Admin Tab

The fields in **Admin Tab** are as follows:

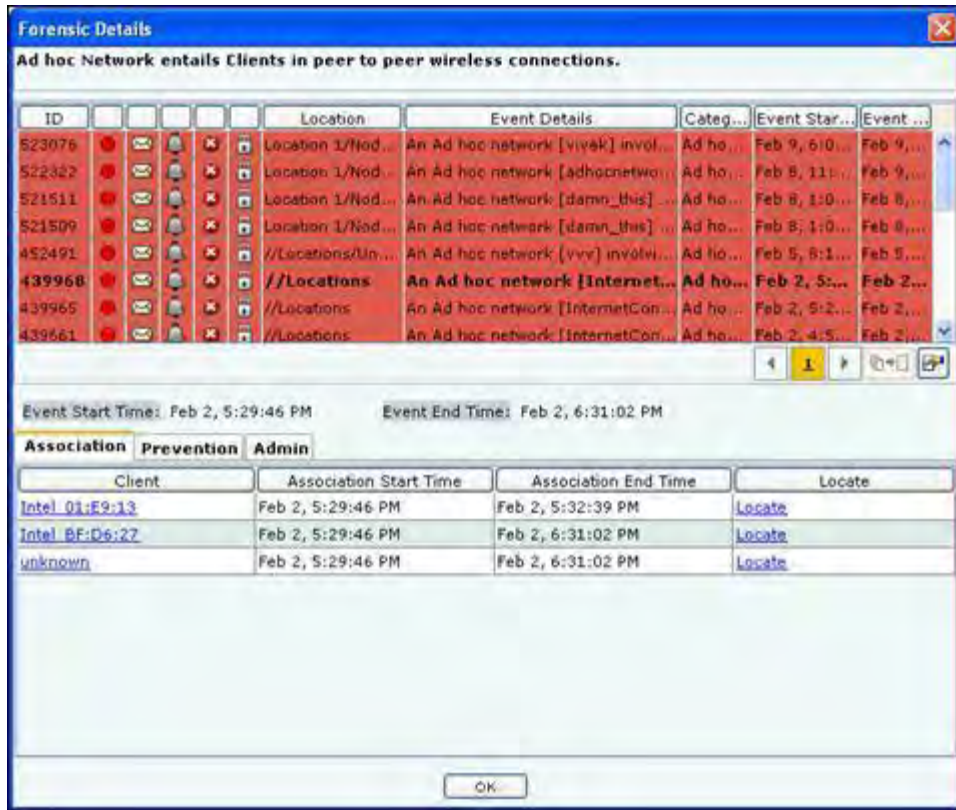
- **User:** Specifies the name of the user who took action on the threat.
- **Action:** Specifies the action taken by the user for the Client based threat, such as Client added to quarantine, Client name changed.
- **Time:** Specifies the time when the user action was taken

Note: Client Based Threat – Misassociation, Unauthorized Association, Bridging Client, and Banned Client have the same fields for the tabs Association, Prevention, and Admin. However Client Based Threat – Ad hoc has some different fields as discussed in the section below.

Client Based Threat – Ad hoc

Client – Ad hoc Threat displays only all the Clients participating in the Ad hoc connection.

To open the **Client – Ad hoc Threat Details** dialog, select the **Client – Ad hoc threat** row on the **Forensics** screen, and click **Details**. The **Client – Ad hoc Threat Details** dialog opens.



Client – Ad hoc Threat Details dialog

Note: The Client – Ad hoc Threat Details dialog does not have All Device Filter icon

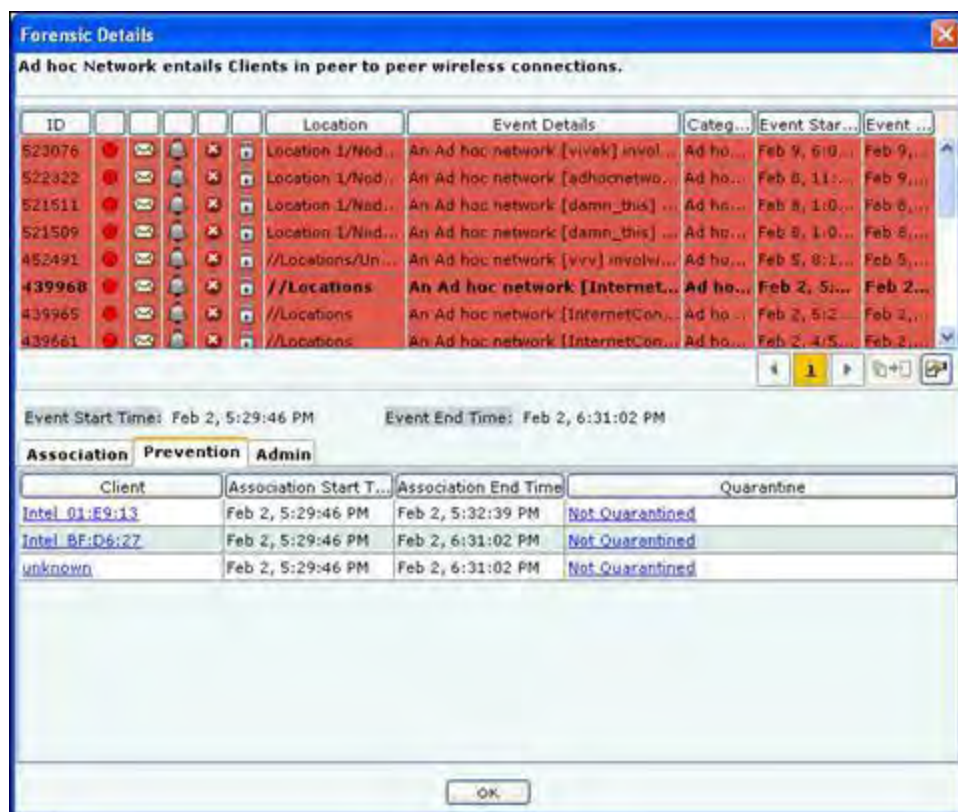
Client Ad hoc Threat – Association tab

The fields in **Association Tab** are as follows:

- **Client**
- **Association Start Time**
- **Association End Time**
- **Locate:** Click **Locate**, the **Location** dialog opens. In this case only the Client name appears in the **Locate Device** drop down list. Select **Start Time of Ad hoc Connection** and **End Time of Ad hoc Connection** from **At** drop down list. Click **Locate** the location of the selected device at the selected time is displayed.

Client Ad hoc Threat – Prevention tab

Click on **Prevention Tab** in the Client – Ad hoc Threat Details dialog.



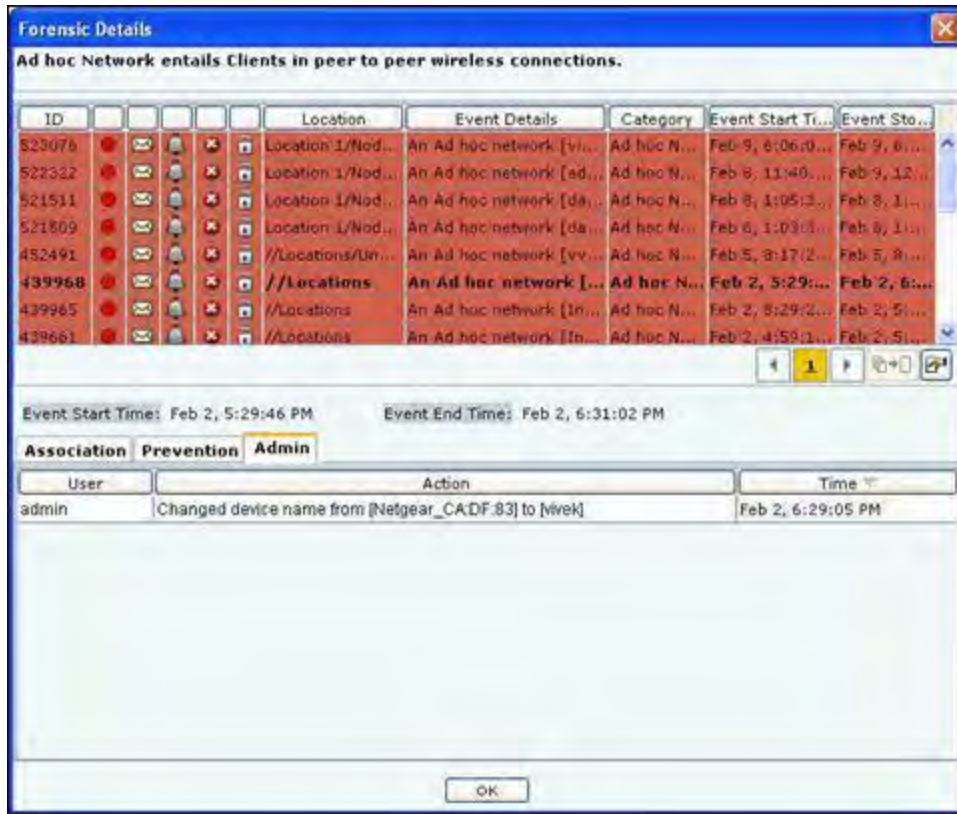
Client – Ad hoc Threat Details – Prevention tab

The fields in **Prevention** tab are as follows:

- **Client**
- **Association Start Time**
- **Association End Time**
- **Quarantine:** Specifies quarantine action taken on the devices during the Ad hoc connection. Click **Quarantined**, the **Quarantine Details** dialog opens. Click **Not Quarantined**, the **Not Quarantined Reason** dialog opens.

Client Ad hoc Threat – Admin Tab

Click on **Admin Tab** in the Client – Ad hoc Threat Details dialog.



Client – Ad hoc Threat Details – Admin tab

The fields in **Admin** tab are as follows:

- **User**
- **Action:** Displays all the actions taken on *all the Clients* participating in the Ad hoc connection
- **Time**

Forensics Tab – User Saved Settings

The following User choices made during browsing of Forensics Tab are saved by the system.

- Time Filter

These settings are saved on log out as well as movement to other tabs on the Console.

Administration Tab

Introduction

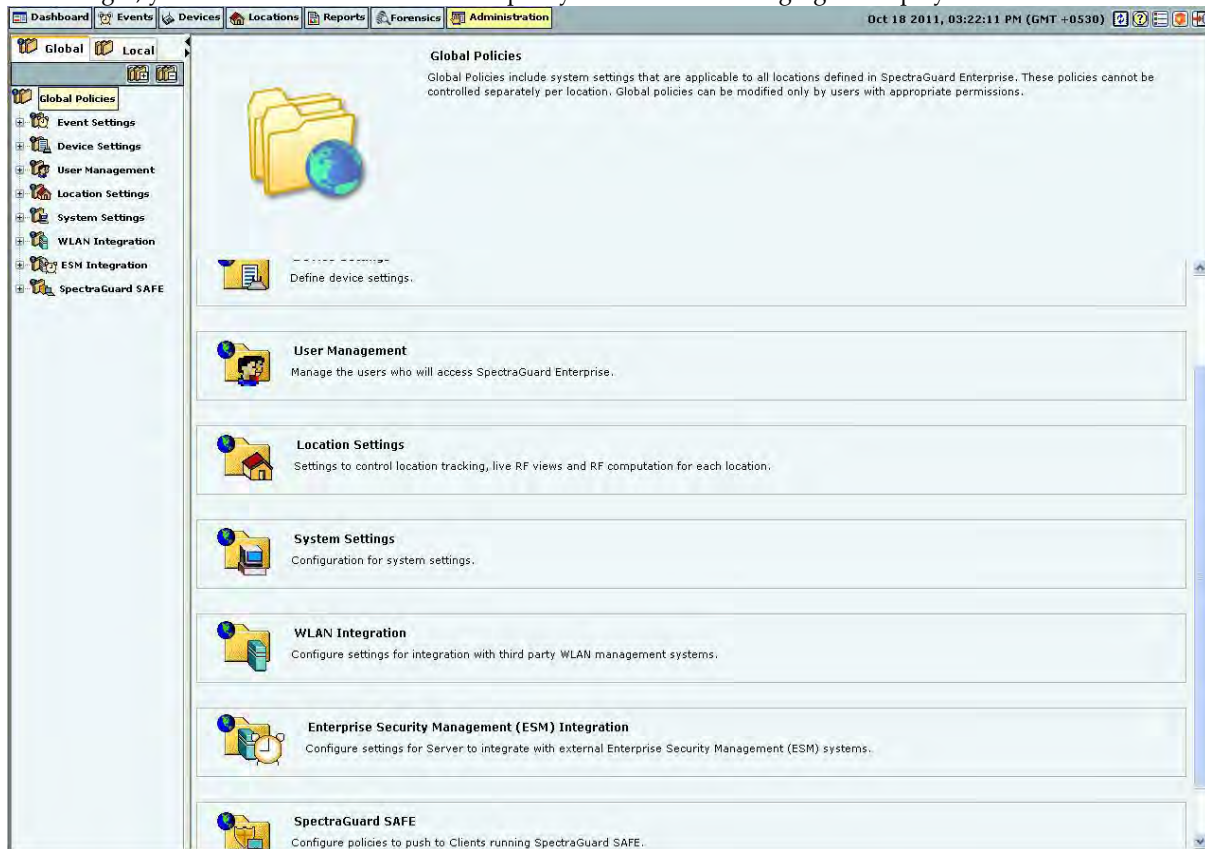
The system is highly customizable and can be configured to suit the needs of your enterprise. The Administration screen allows you to perform various administrative activities such as event, device, and user management, configure the system and location settings, and enable integration with SAFE and third party applications.

Administration Screen

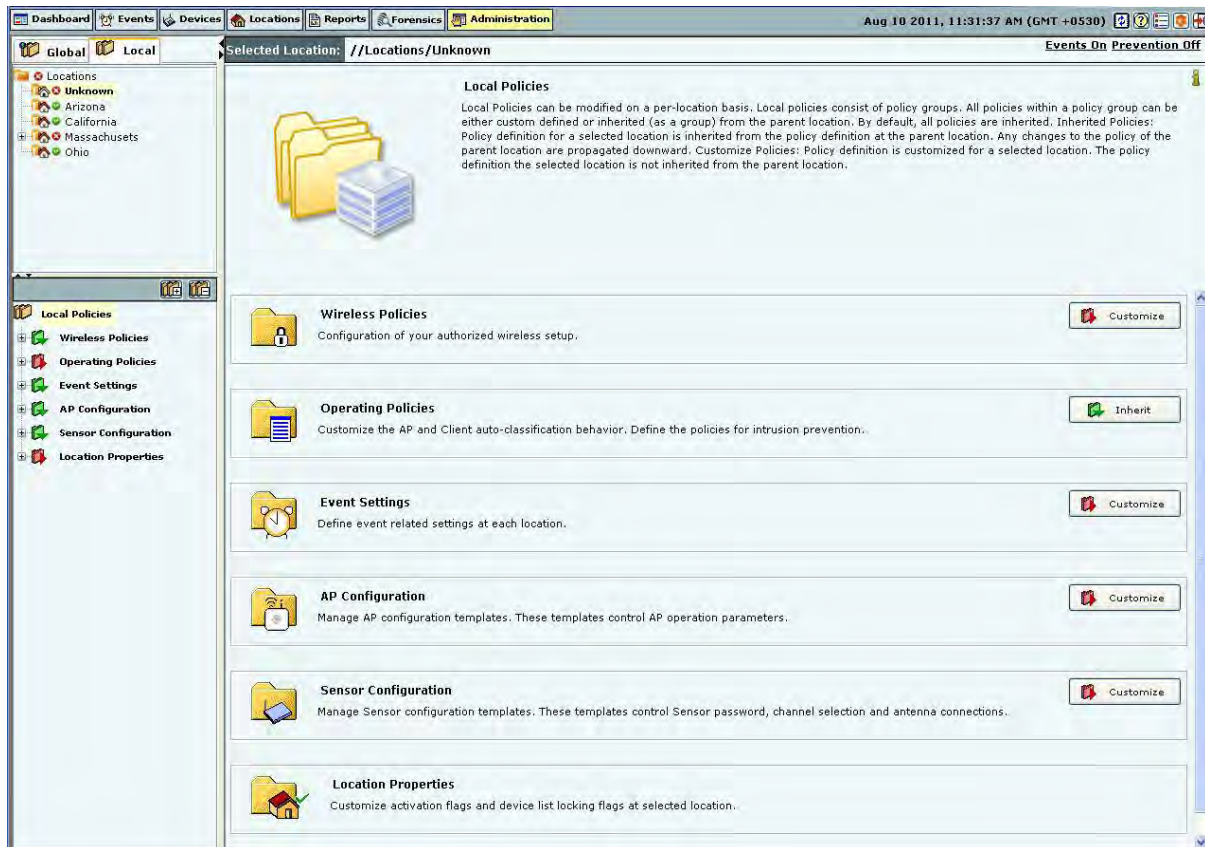
The **Administration** screen includes two panes.

On the left, you see **policy groups** categorized into **global policies** and **local policies**; Global policies are grouped under the **Global** tab while Local policies are grouped under the **Local** tab.

On the right, you see the details of the selected policy node. The following figure displays the **Administration** tab.



Global tab



Local Tab

Global Policies

Global policies are the policies that are applicable to the entire system. A superuser or an administrator with rights to the root location can modify the global policies.

Click the **Global** tab on the Administration screen to view the policies groups under this tab.

Event Settings

The **Event Settings** option enabled you to configure the following event settings in the system.

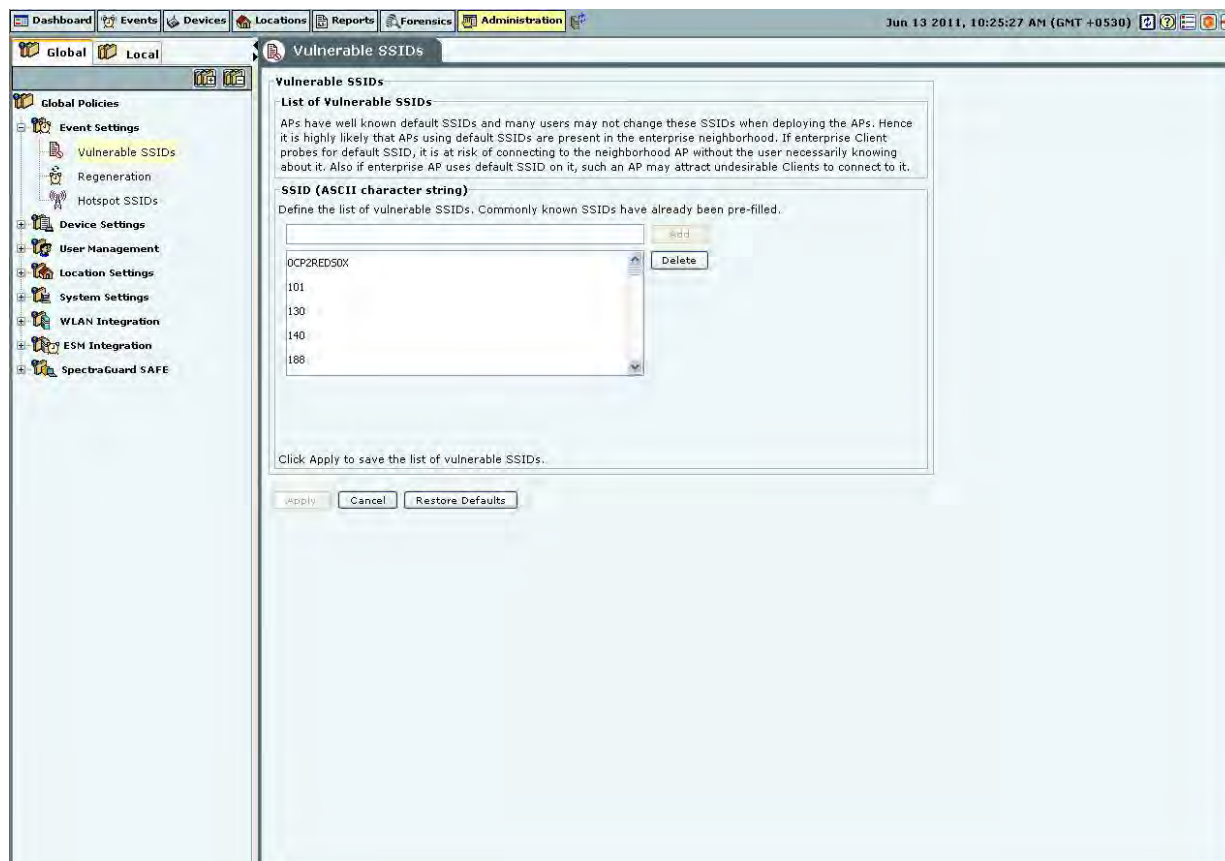
- Hotspot SSID's
- Event Regeneration
- Vulnerable SSID's

Vulnerable SSID

APs have well known default SSIDs and many users may not change these SSIDs when deploying the APs. Therefore it is highly likely that APs using default SSIDs are present in the enterprise neighborhood. If an enterprise Client probes for a default SSID, it is at risk of connecting to the neighborhood AP without the user necessarily knowing about it. Also if an enterprise AP uses a default SSID, such an AP may attract undesirable Clients to connect to it. If you consider an SSID to be vulnerable to hackers, you can open the **Vulnerable SSIDs** screen and enter the SSID under **SSID (ASCII character string)**. Click **Add** and then **Apply** to place the SSID in your database. If an AP point with a vulnerable SSID is detected, the system generates an event.

Note: Commonly known SSIDs are listed by default. To enter a blank SSID: no string, click <Add> without entering any text. The list shows the SSID as NULL.

Remove SSIDs from this list by selecting the SSIDs and clicking Delete. To remove the SSIDs from the database, click Apply.



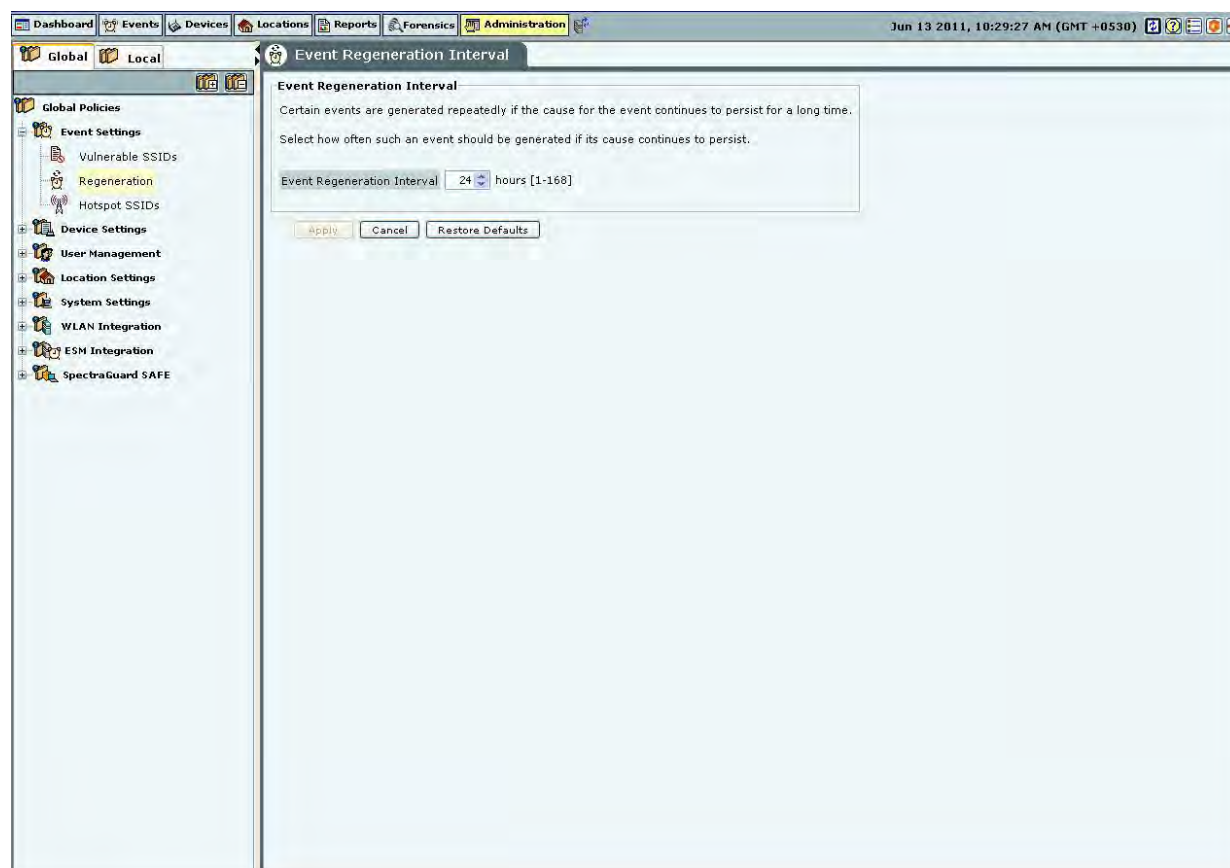
Vulnerable SSIDs

Regeneration

Some events are generated repeatedly when the cause persists; for example, Denial of Service (DoS) (**Security**) and traffic events (**Monitoring**).

The **Regeneration** screen enables you to specify how often an event is repeated if the cause persists under the **Event Regeneration Interval**.

(Minimum: 1 hour; Maximum: 168 hours; Default: 24 hours)



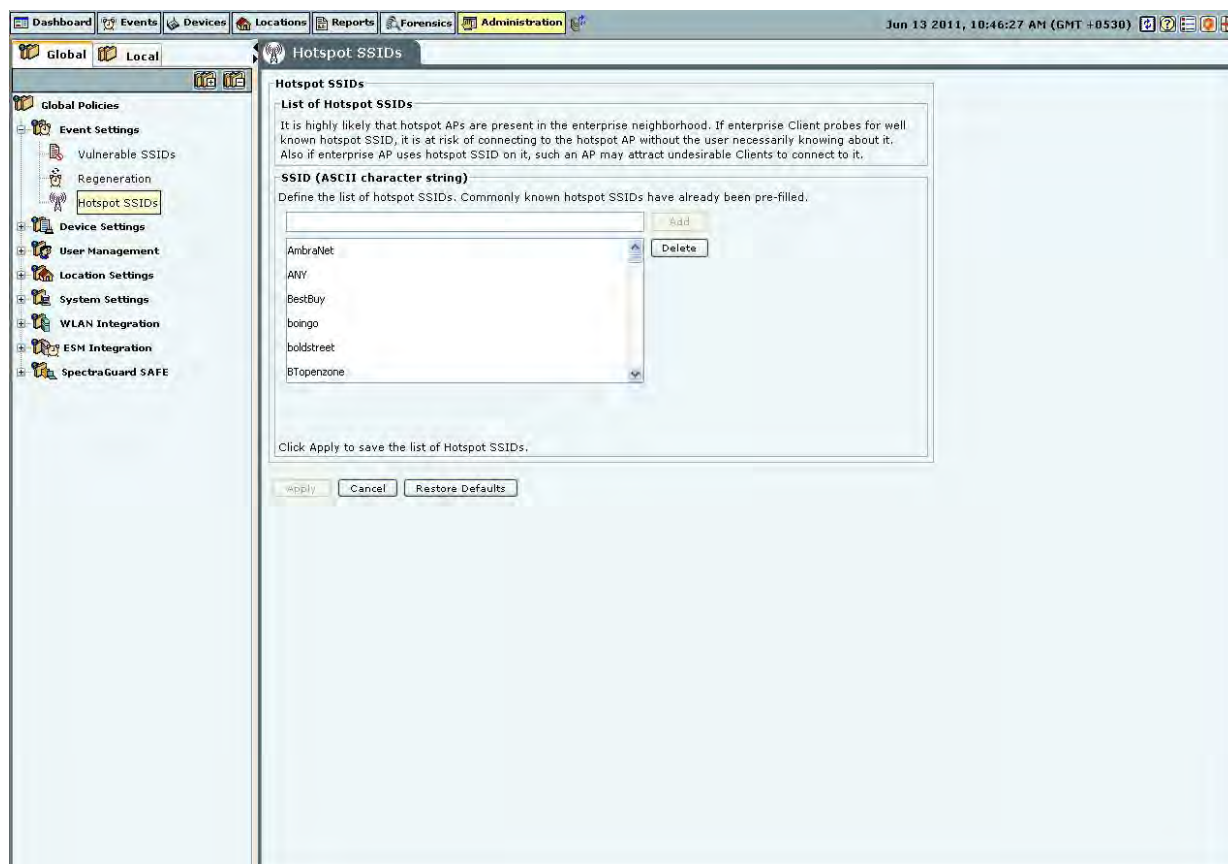
Event Regeneration Interval

Hotspot SSIDs

It is highly likely that hotspot APs are present in the enterprise neighborhood. If enterprise Client probes for well known hotspot SSID, it is at risk of connecting to the hotspot AP without the user necessarily knowing about it. Also if enterprise AP uses hotspot SSID on it, such an AP may attract undesirable Clients to connect to it.

If you consider an SSID to be vulnerable to hackers, you can open the **Hotspot SSIDs** screen and enter the SSID under **SSID (ASCII character string)**. Click **Add** and then **Apply** to place the SSID in your database. If an AP with a vulnerable SSID is detected, the system generates an event.

Note: The system lists commonly known SSIDs by default. To enter a blank SSID: that is, with no string, click <Add> without entering any text. The list shows the SSID as NULL.



Hotspot SSIDs

Remove SSIDs from this list by selecting the SSIDs and clicking **Delete**. To remove the SSIDs from the database, click **Apply**.

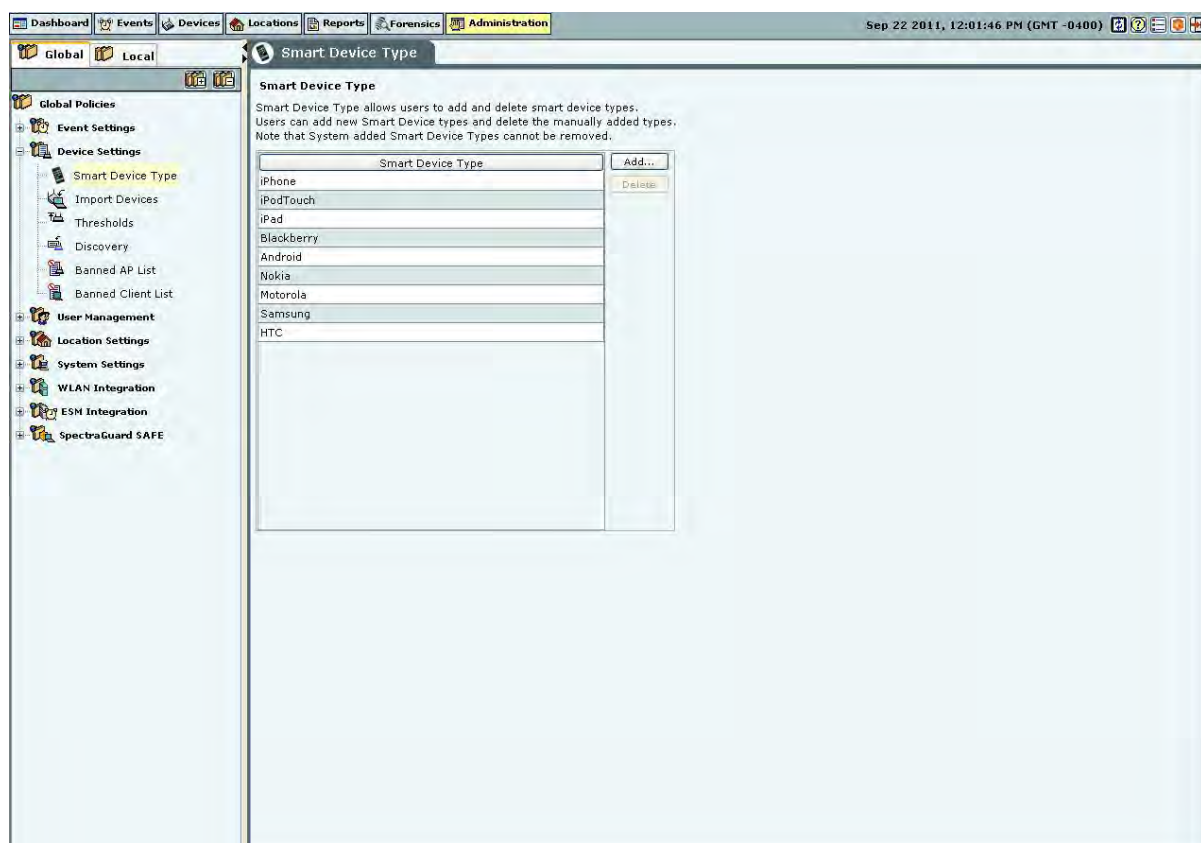
Device Settings

Smart Device Type

You can view, add, and delete the smart device types using the **Smart Device Type** dialog. Go to **Administration->Global->Device Settings->Smart Device Type** to view the **Smart Device Type** dialog.

The dialog shows the system-defined smart device types, and the user-defined smart device types, if any.

The following figure shows the **Smart Device Type** dialog.



Smart Device Type

Adding a smart device type

To add a new smart device type, click **Add**. Enter the **Smart Device Type** in the **Add Smart Device Type** dialog shown below, and click **OK** to add the smart device type to the existing list of smart device types.



Add Smart Device Type

Deleting a smart device type

You can delete only the smart device types that have been manually added using **Devices->Clients->Categorized->Authorized->Smart Device->Change Device Type** or through the **Add Smart Device Type** dialog. You cannot delete the system-defined smart device types.

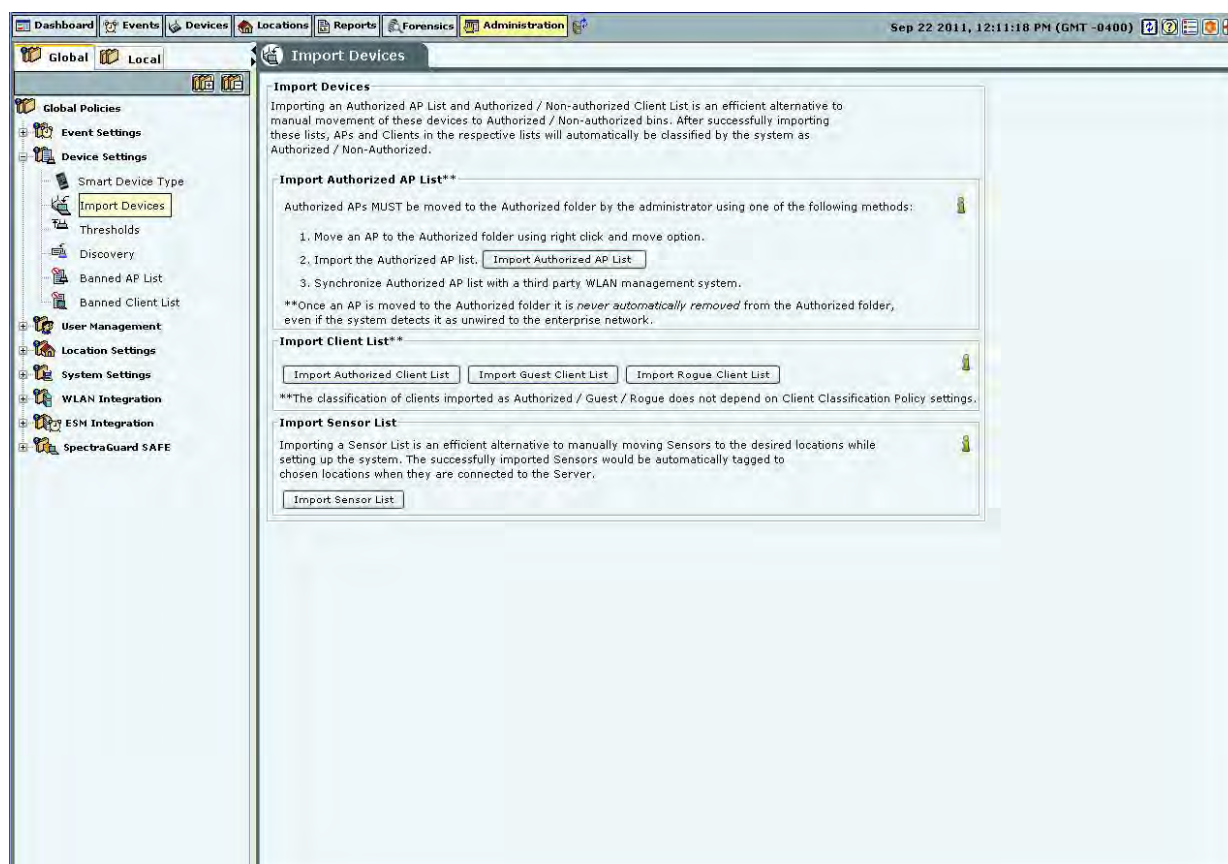
To delete a user-defined smart device type, select the smart device type and click **Delete**. Click **Yes** to confirm the deletion.



Delete Smart Device Type

Import Devices

Importing an Authorized AP List and an Authorized or Non-authorized Clients List is an efficient alternative to manual movement of these devices into the Authorized/Non-authorized bins. After successfully importing these lists, the system automatically classifies the APs and Clients in the respective lists as Authorized/Non-authorized.



Import Devices

You can move Authorized APs to the Authorized folder using one of the following methods:

- Move an AP to the Authorized folder using right click and Move option
- Import the Authorized AP list
- Synchronize with an AP Management server

Note: Once you move an AP to the **Authorized** folder, the system **never** automatically removes it from the **Authorized** folder, even if it later detects that the AP is **unwired** from the enterprise network.

Under **Import AP List**, click **Import Authorized AP List** to open Import Authorized AP List dialog.

Import Authorized AP List

In the **Import Authorized AP List** dialog:

Under **Tag Devices**, select one of the following:

- **Auto Tag Devices:** To automatically tag the AP to the corresponding location.
- **Manually Tag Devices to:** Click **Change** to manually tag the AP to the desired location.

Under **Enter AP details**

- To add an AP's details, type the AP's MAC address, IP Address, and Name and click **Add to List**.
- To add an AP's details from a file, click **Browse**. On the **Select Authorized AP_Device_List_File** dialog, select the .txt file from the desired location and click **Open**. Then click **Add to List>>>**

Under **Authorized AP Import List**

- To delete an AP's details, select the corresponding row and click **Delete**.
- To import Authorized APs from the **Authorized AP Import List**, click **OK**

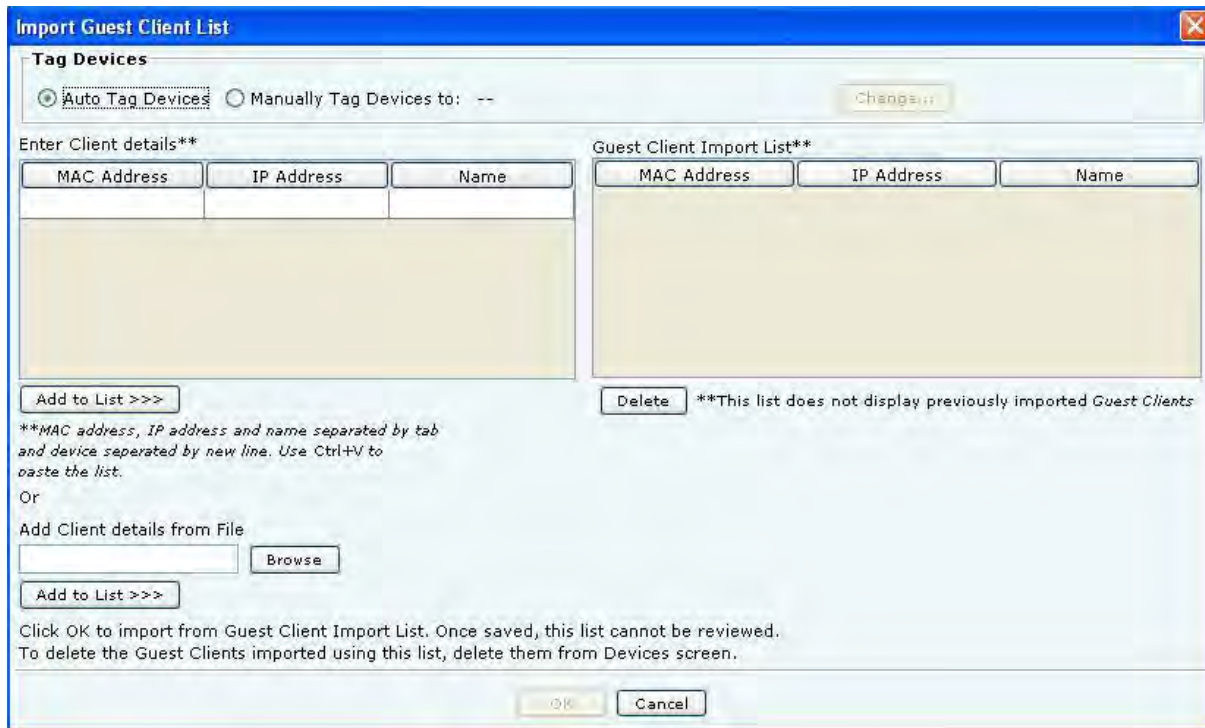
Note: When you import APs from a list, policy settings in the Setup Wizard do not affect these APs.

In the **Import Devices** dialog, under **Import Client List**, click **Import Authorized Client List** to open **Import Authorized Client List** dialog, click **Import Guest Client List** to open **Import Guest Client List** dialog, click **Import Rogue Client List** to open **Import Rogue Client List** dialog.

In the **Import Authorized/Guest/Rogue Client List** dialog:

Under **Tag Devices**, select one of the following:

- **Auto Tag Devices:** To automatically tag the Client to the corresponding location.
- **Manually Tag Devices to::** Click **Change** to manually tag the Client to the desired location.



Import Guest Client List

Under Enter Client details

- To add a Client's details, type the Client's MAC Address, IP Address, and Name and click **Add to List>>>**
- To add a Client's details from a file, click **Browse**. On the **Select Authorized/Guest/Rogue Client_Device_List_File** dialog, select the .txt file from the desired location and click **Open**. Then click **Add to List**.

Note: When you import sensors from a list, you can delete these sensors only from the *Devices* screen.

Under Authorized/Guest/Rogue Client Import List

- To delete a Client's details, select the corresponding row and click **Delete**.
- To import Authorized/Guest/Rogue Clients from the **Authorized/Guest/Rogue Client Import List**, click **OK**.

Note: When you import Clients from a list, policy settings in the Setup Wizard do not affect these Clients.

In the **Import Devices** dialog, under **Import Sensor List**, click **Import Sensor List** to open the **Import Sensor List** dialog:

In the **Import Sensor List** dialog:

Under **Tag Devices**, select one of the following:

- Auto Tag Devices:** To automatically tag the sensor to the corresponding location.
- Manually Tag Devices to:** Click **Change** to manually tag the sensor to the desired location.

Under **Enter Sensor details**

- To add a sensor's details, type the sensor's MAC address and Name and click **Add to List>>>**.
- To add a sensor's details from a file, click **Browse**. On the **Select Sensor_Device_List_File** dialog, select the .txt file from the desired location and click **Open**. Then click **Add to List>>>**.

Under **Authorized Sensor Import List**

- To delete a sensor's details, select the corresponding row and click **Delete**.
- To import sensors from the **Sensor Import List**, click **OK**.

*Note: When you import sensors from a list, you can delete these sensors only from the **Devices** screen.*

Thresholds

Threshold settings determine the status of devices in terms of up-down association and connectivity. The **Thresholds** screen enables you to set parameters for APs, clients, and sensors.



Device Thresholds

Device Threshold Parameters contains the following settings:

- **AP Timeout**
 - **Activity Timeout:** If the system senses no activity of the AP for the period specified here, it declares the AP inactive.

(Minimum: 60 seconds; Maximum: 600 seconds; Default: 300 seconds)

- **Client Timeouts**
 - **Activity Timeout:** If the system senses no activity from a Client for the period specified here, it declares the Client inactive.

(Minimum: 120 seconds; Maximum: 1200 seconds; Default: 600 seconds)

- **Association Timeout:** If the system sees no communication between an associated AP and Client pair for the period specified here, it declares the association as timed out.

(Minimum: 120 seconds; Maximum: 1200 seconds; Default: 600)

- **Sensor Parameters**
 - **Maximum Number of Sensors Allowed:** Maximum number of sensors allowed to connect to the system at a given time.

(Maximum value is governed by the license applied and is a Read-Only field.)

- **Sensor Timeout:** The sensor sends keep alive information to the server at a regular time interval specified here, to tell the server that it is alive. If the system does not receive this keep alive information for a time span specified here, it declares the sensor inactive.

Note: *Sensor timeout is not user configurable for this release and has been fixed as 600 seconds.*

- **RF Signal Computation Constants**

- **Moving Average Constant:** A constant used to find the weighted average of signal strength as seen by a sensor for a transmitter. Higher value gives more weight to more recently seen signal strength values.

(Minimum: 0; Maximum: 1; Default: 0.05)

sensor observes signal strengths as RSSI reported by the driver. The system converts this information to dBm values for further use. The conversion formula for this is different for 2.4 GHz and 5 GHz frequency spectrum. The formula is $\text{dBm} = \text{RSSI} + \text{dBm Conversion Constant}$.

- **RSSI <-> dBm Conversion Constant for 802.11a:** This value used for 5 GHz band is set to -98.
- **RSSI <-> dBm Conversion Constant for 802.11b/g:** This value used for 2.4 GHz band is set to -90.

- **Sensor Server Communication**

- **Frequency of Device Updates:** The system is informed immediately when device attributes change or when a device is first detected. If no such changes take place, the system should still be informed about the device updates. Here you can set that time after which the system is notified of the updates.

(Minimum: 1 day; Maximum: 365 days; Default: 36 days)

- **Frequency of Signal Strength Updates:** The system should be periodically informed about the signal strength updates. Here you can set that time after which the system is notified.

(Minimum: 1 minute; Maximum: 5 minutes; Default: 2 minutes)

- **Records Constants (per Sensor):** A sensor maintains records for APs, Clients, and associations. The constants below define the maximum number of APs, Clients, and associations for which to maintain records with the sensor(s).

- **Maximum Number of AP records to keep:** Specifies the maximum number of APs for which to maintain records with the sensor(s).

(Minimum: 100; Maximum: 500; Default: 128)

- **Maximum Number of Client records to keep:** Specifies the maximum number of Clients for which to maintain records are with the sensor(s).

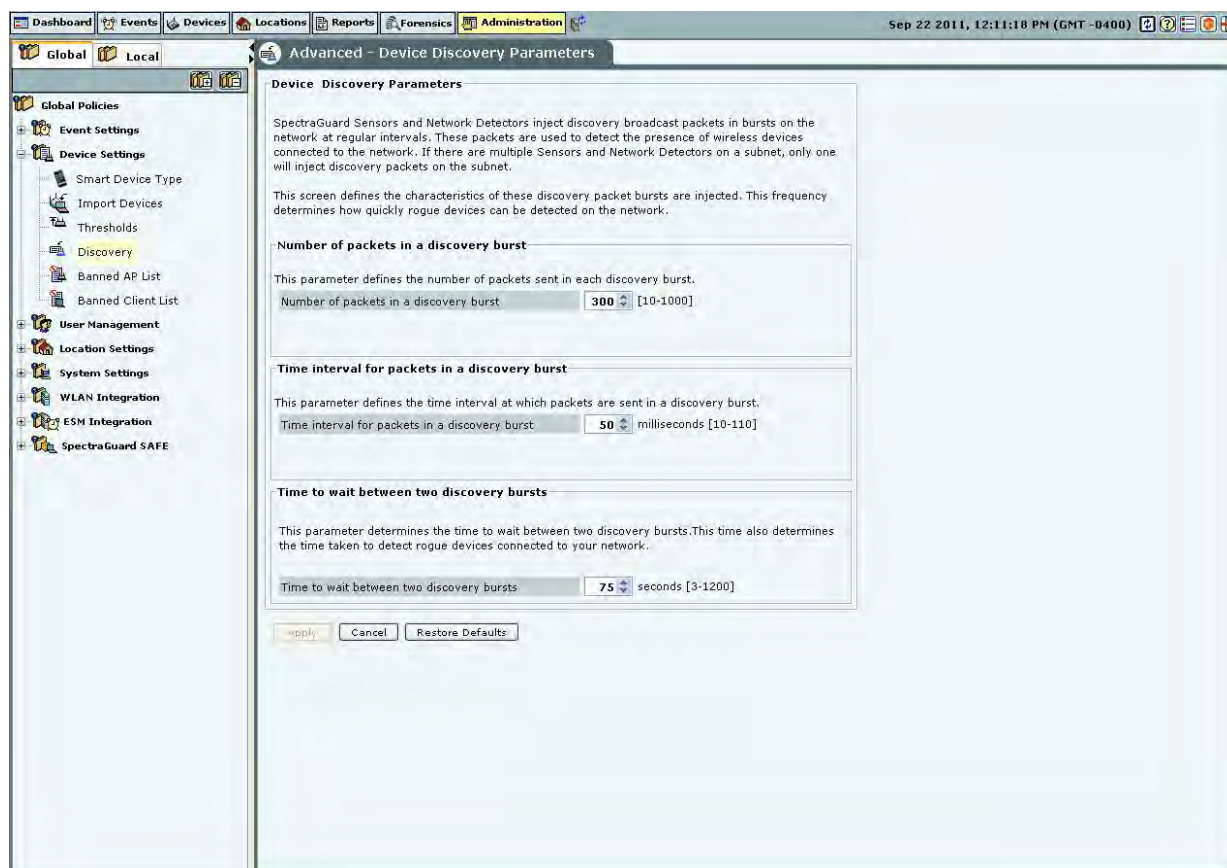
(Minimum: 100; Maximum: 500; Default: 256)

- **Maximum Number of Association records to keep:** Specifies the maximum number of associations for which to maintain records with the sensor(s).

(Minimum: 100; Maximum: 500; Default: 128)

Discovery

Sensors and NDs inject discovery (ARP) broadcast packets in bursts on the network at regular intervals. These packets detect the presence of wireless devices connected to the network. If there are multiple sensors and NDs on a subnet, only one injects discovery packets on the subnet.



Device Discovery

The following options are available:

- **Number of packets in a discovery burst:** Specifies the number of packets that the system sends in each discovery burst.

(Minimum: 10; Maximum: 1000; Default: 300)

- **Time interval for packets in a discovery burst:** Specifies the time interval between two consecutive packets sent in a discovery burst.

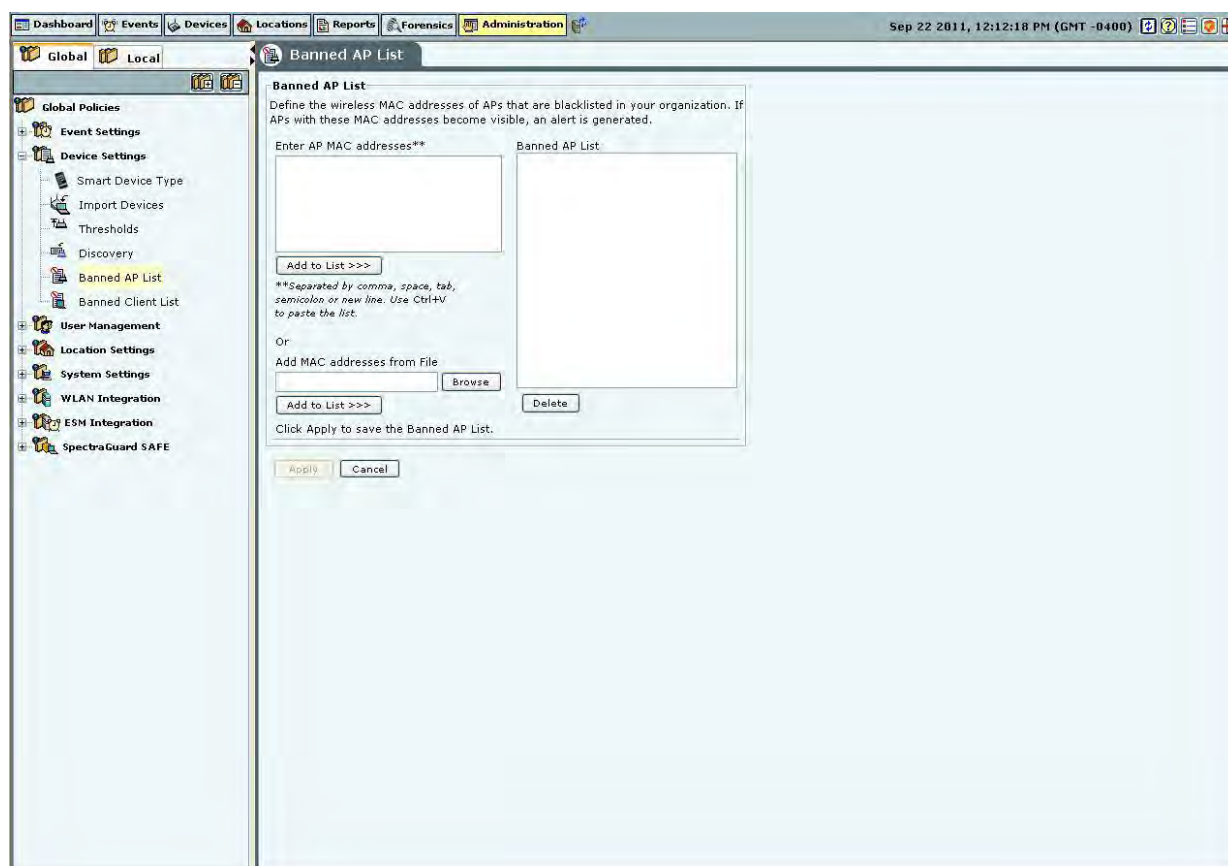
(Minimum: 10 milliseconds; Maximum: 110 milliseconds; Default: 50 milliseconds)

- **Time to wait between two discovery bursts:** Specifies the time interval between two consecutive discovery bursts. This time also determines the time taken to detect rogue devices connected to your network. More the time to wait between two discovery bursts means more time is required to detect the connectivity of the wireless devices.

(Minimum: 3 seconds; Maximum: 1200 seconds; Default: 75 seconds)

Banned AP List

The **Banned AP List** dialog enables you to import a list of banned APs to the database. You define the wireless MAC addresses of APs that are blacklisted in your organization. If APs with these MAC addresses become visible, the system generates an alert.



Banned AP List

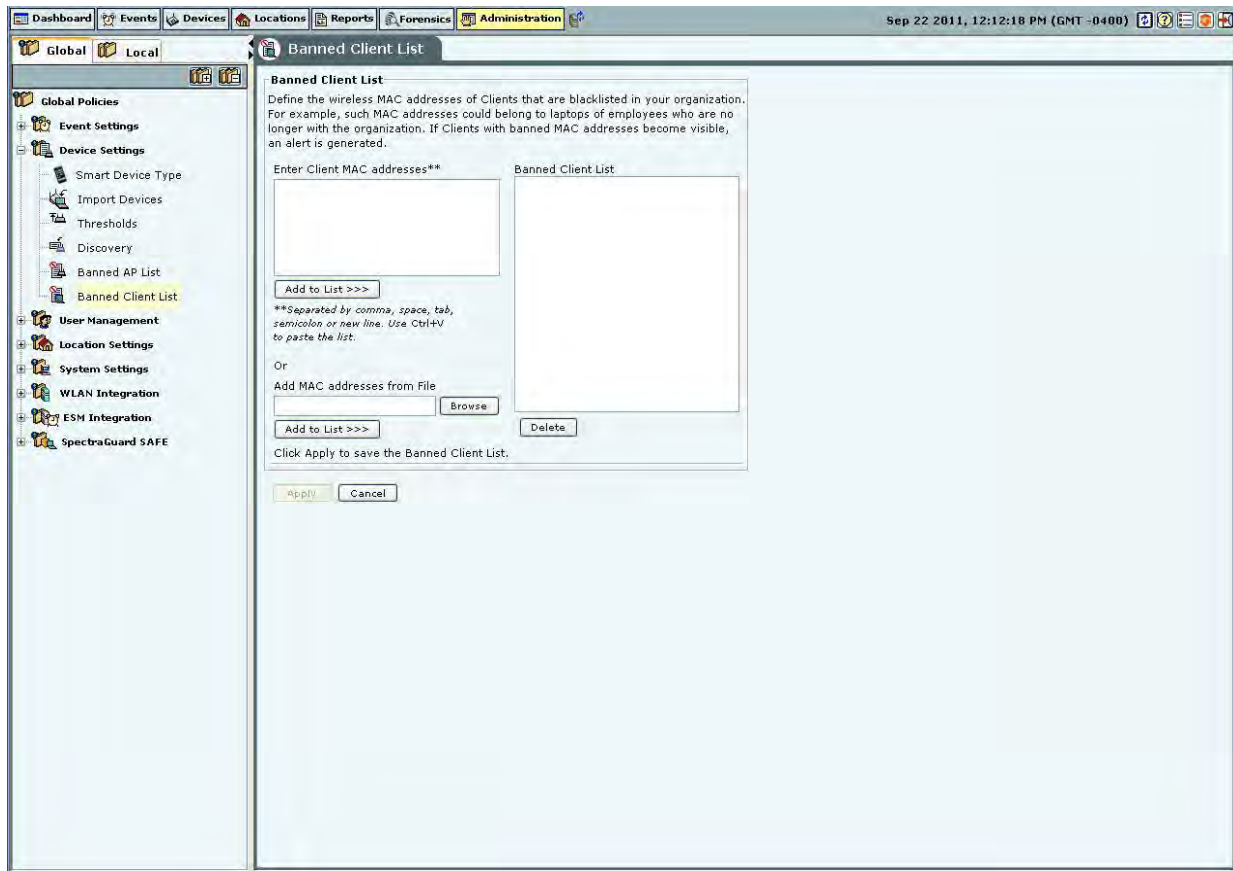
In the Banned AP List under Enter AP MAC addresses, enter the MAC address of a prohibited AP and click **Add to List>>>**. The MAC address is added to the Banned AP List. You can also

- Use Ctrl + V to paste a list
- Add the MAC addresses from a file by clicking **Browse** and then selecting the file

Note: Separate MAC addresses by a comma, space, tab, semicolon, or new line.

Banned Client List

The **Banned Client List** dialog enables you to import a list of banned Clients to the database. You define the wireless MAC addresses of Clients that are blacklisted in your organization. For example, such MAC addresses could belong to laptops of employees who are no longer with the organization. If Clients with these MAC addresses become visible, the system generates an alert.



Banned Client List

In the Banned Client List under Enter Client MAC addresses, enter the MAC address of a prohibited Client and click <Add to List>>>. The MAC address is added to the Banned Client List. You can also

- Use Ctrl + V to paste a list
- Add the MAC addresses from a file by clicking Browse and then selecting the file

Note: Separate MAC addresses by a comma, space, tab, semicolon, or new line.

User Management

Select the **User Management** option to set various user settings. You can manage different types of users, set the password and account locking policies.

The system allows you to configure and manage local users. The system also allows you to configure users, authenticated using LDAP and RADIUS. You can also set the user preferences for local users.

Users

The Users screen enables you to add, edit, and delete user accounts.

Manage SpectraGuard Enterprise Users

Manage SpectraGuard Enterprise users. Double click to update user details. [Total: 17]

	Login ID	First Name	Last Name	Access Rights	Session Timeout	Disabled?	Suspended?
	mbozeman	Mark	Bozeman	//ADT	Never Expires	No	No
	mkelly	Michael	Kelly	//ADT	Never Expires	No	No
	jeckert	John	Eckert	//ADT	Never Expires	No	No
	nhadad	Nicholas	Hadad	//ADT	Never Expires	No	No
	dmazza	David	Mazza	//ADT	Never Expires	No	No
	shelsby	Steve	Helsby	//ADT	Never Expires	No	No
	aozimek	Adam	Ozimek	//ADT	Never Expires	No	No
	dfields	Dan	Fields	//ADT	Never Expires	No	No
	agreen	Andrew	Green	//ADT	Never Expires	No	No
	chayes	Chris	Hayes	//ADT	Never Expires	No	No
	admin	System	Superuser	//ADT	Never Expires	No	No
	tmanning	Taber	Manning	//ADT	Never Expires	No	No
	rnorth	Ray	North	//ADT	Never Expires	No	No
	seellis	Adam	Ellis	//ADT	Never Expires	No	No
	kgispanski	Karen	Gispanski	//ADT	Never Expires	No	No
	twilcox	Todd	Wilcox	//ADT	Never Expires	No	No
	mferrand	Michael	Ferrand	//ADT	Never Expires	No	No

Add Edit Delete

Manage Users

Adding a User

Click Add to open the Add User Details dialog.

Add User Details

User Details

Add user account details. Select User Type: Local User

Login ID: User Role: Viewer

First Name: Last Name:

Locations: //Locations: Chan...

User Properties **Password Settings**

Password: Confirm Password:

Email Address:

Session Timeout: ☒ Session Never Expires
☐ Session Timeout: 10 mins [10 - 120]

Language preference: English Only

Time Zone: (GMT +05:30) Asia/Calcutta

Add Cancel

Adding User Details: User Properties Tab for Local User

Under **User Details**, select the user type (Local, LDAP, or Radius User). Superuser can create user accounts. For local authentication using password, it is necessary to create the user account using this screen before the user can log in. For a **Local User**, the superuser must specify the following fields:

- **Login ID:** Login ID of the user.
- **User Role:** This field specifies the role to be assigned to the user. The table below shows the user roles and their respective rights.
- **First and Last Name:** First and last name of the user.
- **Locations:** The list of locations where the user has access privilege consistent with the role.
- **Password:** Initial password of the user (which user can later change on his own).
- **Confirm Password:** Reenter the password to help confirm the password before saving.
- **Email Address:** Email address of the user.

For **LDAP and RADIUS Users**, creating user accounts using this screen is optional, because the user account gets automatically created (if not already present) upon the first successful login of the user who is authenticated via LDAP/RADIUS.

As a general rule, at the time of authenticating a user, the system always checks if the user password is locally available in the system. If it is not locally available, the system checks if the configuration is provided to access the LDAP authentication service. If so, the system attempts to verify the user password with the LDAP authentication service. If the user password is not available with the LDAP service, the system checks if the configuration is provided to access the RADIUS authentication service. If so, the system attempts to verify the user password with the RADIUS authentication service. In case of LDAP and RADIUS authentication, the system does not maintain local copy of the user password.

Add User Details

Add user account details. Select User Type: **LDAP User**

Login ID: User Role: **Viewer**

First Name: Last Name:

Locations: **Chan...**

User Properties **Password Settings**

Password: Confirm Password:

Email Address:

Session Timeout: ☒ Session Never Expires
☐ Session Timeout: mins [10 - 120]

Language preference: **English Only**

Time Zone: **(GMT +05:30) Asia/Calcutta**

Add **Cancel**

Adding User Details: User Properties Tab for LDAP User

For **LDAP User**, the superuser may create user accounts using this screen, prior to the first successful login of the user. For this, the following fields can be specified:

- **Login ID:** Login ID of the user.
- **User Role:** This field specifies the role to be assigned to the user. The table below shows the user roles and their respective rights.
- **Locations:** The list of locations where the user has access privilege consistent with the role.

Notes:

1. The User Role and Locations as specified above in the User Details screen are effective only if the corresponding attributes are not provided by the LDAP server at the time of authentication. When the LDAP server provides any of the above attributes, the LDAP provided values override the manually specified values in this screen.
2. To enable the LDAP authentication, configuration details to access the LDAP server must be provided in the LDAP configuration screen (described later). That screen also facilitates providing default User Role and Locations for all LDAP authenticated users, if the LDAP server does not provide those attributes. The User Role and Locations fields in the User Details screen facilitates providing specific default values for the corresponding attributes for the specific users, if the LDAP server does not provide them.

Add User Details

Add user account details. Select User Type: **RADIUS User**

Login ID: User Role: **Viewer**

First Name: Last Name:

Locations: **Chan...**

User Properties **Password Settings**

Password: Confirm Password:

Email Address:

Session Timeout: ☒ Session Never Expires
☐ Session Timeout: mins [10 - 120]

Language preference: **English Only**

Time Zone: **(GMT +05:30) Asia/Calcutta**

Add **Cancel**

Adding User Details: User Properties Tab for RADIUS User

For a **RADIUS User**, the superuser may create user accounts using this screen, prior to the first successful login of the user. For this, the following fields can be specified::

- **Login ID:** Login ID of the user.
- **User Role:** This field specifies the role to be assigned to the user. The table below shows the user roles and their respective rights.
- **First and Last Name:** First and last name of the user.
- **Locations:** This field specifies the locations where the user has access privilege consistent with the role.
- **Email Address:** This field specifies the email address of the user.

Notes:

1. The User Role and Locations as specified above in User Details screen are effective only if the corresponding attributes are not provided by the RADIUS server at the time of authentication. When the RADIUS server provides any of the above attributes, the RADIUS provided values override the manually specified values in this screen. The RADIUS server never provides First/Last Name and Email Address attributes.
2. To enable the RADIUS authentication, configuration details to access the RADIUS server must be provided in the RADIUS configuration screen (described later). That screen also facilitates providing default User Role and Location values for all RADIUS authenticated users, if the RADIUS server does not provide those attributes. The User Role and Locations fields in the User Details screen facilitates providing specific default values for the corresponding attributes for the specific users, if the RADIUS server does not provide them.

The Session Timeout, Language and Time Zone settings are applicable to all types of users.

- **Session Timeout:** Specify the time after which the user will be logged out automatically if the system does not detect any activity.
- **Session Never Expires:** Select this check box if you do not want the session to expire in response to inactivity.

- **Session Timeout:** Specify the number of minutes after which the system automatically logs out the currently logged in user when there is no activity on the Console for the **Session Timeout** period (Minimum: 10 minutes; Maximum: 120 minutes)

- **Language Preference:** Select English or Multilingual support from the drop-down list.

- **Time Zone:** Select the appropriate time zone for the user

The following table summarizes the rights for various user roles.

Table 5 User Roles and User Rights

Operations	User Roles			
	Superuser	Administrator	Operator	Viewer
User account management				
Set or modify identification and authentication option (Password only, Certificate only, Certificate and Password, Certificate or Password)	Yes	No	No	No
Add and delete users	Yes	No	No	No
View and modify properties of any user (User Management screens)	Yes	No	No	No
Define password strength, account locking policy, maximum concurrent sessions for all users	Yes	No	No	No
View and modify User Preferences (email, password, session timeout)	Yes (self only)	Yes (self only)	Yes (self only)	Yes (self only)
User actions audit				
Download user actions audit log	Yes	No	No	No
Modify user actions audit lifetime	Yes	No	No	No
System settings and operating policies				
Modify system settings and operating policies (all settings under Administration tab other than User Management, Logs, Login configuration)	Yes	Yes	No	No
Events, devices and locations				
View generated events	Yes	Yes	Yes	Yes
Modify and delete generated events	Yes	Yes	Yes	No
View devices	Yes	Yes	Yes	Yes
Add, delete, and modify devices (APs, Clients, Sensors)	Yes	Yes	Yes	No
View locations	Yes	Yes	Yes	Yes
Add, delete, and modify locations	Yes	Yes	Yes	No
Calibrate location tracking	Yes	Yes	Yes	No
Reports				
Add, delete, modify Shared Report	Yes (all)	Yes (only self created)	Yes (only self created)	No
Generate Shared Report	Yes	Yes	Yes	Yes
Schedule Shared Report	Yes	Yes	Yes	No
Add, delete, modify, generate, schedule My Report	Yes (only self created)	Yes (only self created)	Yes (only self created)	No

Note:

1. There can be as many Superusers as required. Superuser always has rights to root of the location tree.
2. The role is unique for any user.

The **Password Settings** tab applies to only locally authenticated users. It does not apply to LDAP or RADIUS authenticated users. The Password Settings menu has the following fields:

Adding User Details: Password Settings Tab

- **Password never expires:** If selected, the password does not expire over time. If this option is selected, the fields, **Password Expiry Duration**, **Password Expiry Warning**, and **Expiry Date** are disabled.
- **Password Expiry Details:** If selected, specify the following parameters:
 - **Password Expiry Duration:** Enables you to specify the duration for which the specified password is valid. If the **Password Expiry Duration** is less than 15 days, the system raises a **Password Expiry Warning** message every time the user logs into the Console

(Minimum: 1 day; Maximum: 365 days)

- **Expiry Date:** Shows the password expiry date and time
- **Password Expiry Warning:** Enables you to specify the number of days before the password expiry date that a password expiry warning should appear. The warning appears every day until you change the password. Once you change the password, the system updates the **Expiry Date** depending on the value specified in the **Password Expiry Duration** field

(Minimum: 1 day; Maximum: 60 days)

Note: For the **LDAP** and **RADIUS** users, the **Password Settings** tab is inactivated.

Click Add to add the details for a new local user.

Editing a User

To edit the details of an existing user, double-click a row or select a row and click Edit to open the Edit User Details dialog.

Editing User Details

The **Edit User Details** dialog is similar to the **Add User Details** dialog.

Any field value, other than Login ID, that has been specified manually while adding user details, can be modified at the time of editing the user details.

Under **User Account Accessibility**, the superuser can do the following for other users.

- **Account suspended:** Enable a user account that has been temporarily suspended due to failed login attempts. **If the user account has been disabled due to failed login attempts then the Account suspended check box is enabled. The administrator can enable the user account by un-checking the Account suspended check box.**
- Enable/disable a user account permanently.

Click **Save** to save all the changes.

***Note:** A dark highlight for an entry in the user list indicates that the user account is disabled or suspended permanently.*

Deleting a User

Select a row and click **Delete** to delete specific user account from the system.

For LDAP and RADIUS authenticated users, it is necessary to delete user account from the system in addition to deleting it from the LDAP/RADIUS server. Else, email notifications will continue to be sent to the user even after the account is deleted from LDAP/RADIUS server.

LDAP Server Configuration

The system can use an LDAP server for user authentication. The LDAP Configuration screen facilitates configuration of the LDAP server access parameters.

The screenshot displays the 'Advanced - LDAP Configuration' window. The left sidebar shows a tree view with 'Global Policies' expanded, containing 'Event Settings', 'Device Settings', 'User Management' (with sub-items 'Users', 'LDAP', 'RADIUS', 'Certificate based Authentication', 'Password Policy', 'Account Suspension', 'User Preferences'), 'Location Settings', 'System Settings', 'WLAN Integration', 'ESM Integration', and 'SpectraGuard SAFE'. The main content area is titled 'LDAP Configuration' and includes the following sections:

- Enable LDAP:** A checkbox that is checked.
- LDAP Integration Details:**
 - Connection Details:** Fields for 'Primary Server IP Address/Hostname', 'Primary Server Port' (389), 'Backup Server IP Address/Hostname', and 'Backup Server Port'. Checkboxes for 'Enforce Use of SSL/TLS' and 'Verify LDAP Server's Certificate' (with a 'CA Certificate Management...' button).
 - LDAP Configuration Details:** Fields for 'Base Distinguished Name (DN)', 'User ID Attribute' (cn), 'User Role Attribute', 'User Location Attribute', and 'Filter String'.
- Default Privileges for LDAP Users:** A 'User Role' dropdown set to 'Viewer', a 'Locations' field with '//ADT', and a 'Change...' button.
- LDAP Authentication Details:** A checkbox for 'Authentication required to search LDAP' (unchecked), 'Admin User DN' and 'Password' fields, and an 'Append Base DN' checkbox (checked).
- Test Settings:** 'User Name' and 'Password' fields with a 'Test' button.

At the bottom, a note states: 'It may take upto five minutes to test these settings.'

LDAP Configuration

Check **Enable LDAP** to enable user authentication using an LDAP compliant directory.

LDAP Integration Details: Provide configuration parameters for the system to be able to access the LDAP compliant directory. Following details can be provided using this screen.

- **Connection Details:** Provide details for the system to be able to establish connection with the LDAP server.
 - **Primary Server IP Address/Hostname:** Specifies the primary server IP address/Hostname of the LDAP server.
 - **Primary Server Port:** Specifies the primary server port number of the LDAP server.(Default: 389)
 - **Backup Server IP Address/Hostname:** Specifies the backup server IP address/Hostname of the LDAP server.
 - **Backup Server Port:** Specifies the backup server port number of the LDAP server.
 - **Enforce Use of SSL/TLS:** When this option is checked, only the SSL/TLS connection to the LDAP server is allowed. When it is not checked, either of the Open or SSL/TLS connection to the LDAP server is allowed.
 - **Verify LDAP Server's Certificate:** When this option is checked, the connection to the LDAP server is not allowed unless the certificate check passes. Click **Certificate Management** to add trusted root CA Certificate(s) for the LDAP server. When this option is not checked, the connection to the LDAP server is allowed without checking the LDAP server certificate.
 - **LDAP Configuration Details:** Provide details for the system to be able to search records in the LDAP server.

- **Base Distinguished Name:** Specifies the base distinguished name of the directory to which you want to connect, for example, o=democorp, c=au.

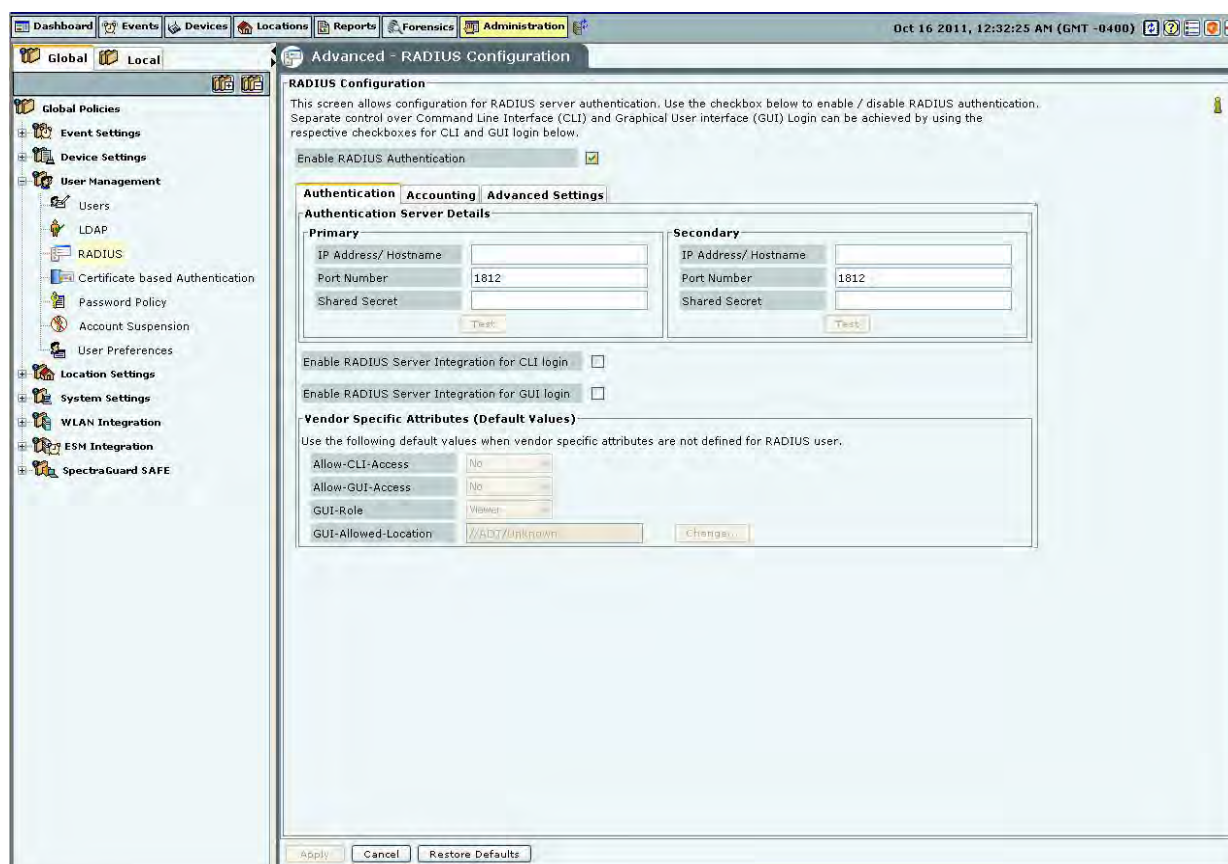
Note: *Distinguished Name* is a unique identifier of an entry in the Directory Information Tree (DIT). The name is the concatenation of Relative Distinguished Names (RDNs) from the top of the DIT down to the entry in question.

- **User ID Attribute:** Specifies the user ID attribute string that the system uses to identify the user, as defined in your LDAP schema.
(Default: cn)
- **User Role Attribute:** Specifies the user role attribute string that the system uses to identify the user's role, as defined in your LDAP schema.
- **User Location Attribute:** Specifies the user location attribute string that the system uses to identify the locations where the user is allowed access, as defined in your LDAP schema.
- **Filter String:** Specifies certain attributes: existing or new: that you can use for different users, based on which the server filters the users, for example, (IsUser=A). This feature can help restrict the use of the system to a certain set of users.
- **Default Privileges for LDAP Users:** This section specifies the default role and the default locations assigned when new LDAP users log in, for the case where the role and locations attributes are not provided by the LDAP server. Note that the default values here apply to all users authenticated via LDAP. Specific default values can also be provided for the specific LDAP users using **Edit User** dialog. If the LDAP server provides user role and locations attribute at the time of authentication, the attributes provided by the LDAP server will override the default role and locations attributes.
 - **User Role:** Enables you to specify the default role for the new LDAP users. You can select one of the following four options. The default user role is *Viewer*.
 1. Superuser
 2. Administrator
 3. Operator
 4. Viewer
- - **Locations:** Displays the list of locations to which a new LDAP user has access rights.
 - Click **Change...** to open the **Assign Locations** dialog. Here, you can view the complete list of locations and select the locations to which the LDAP user can have access rights. Click **OK** to assign the selected location(s) to the user.
- **LDAP Authentication Details:** Specify user credentials required to search the LDAP compliant directory. This is required only in case the directory does not allow anonymous search.
 - Select **Authentication Required to search LDAP?** if the LDAP server requires administrator login to search the LDAP compliant directory. Specify the **Admin User DN** and **Password** to log in.
 - If you select **Append Base DN**, the **Base Distinguished Name** specified in **LDAP Configuration Details** is appended to the **Admin User DN**.
- **Test Settings:** Enables you to test whether the specified settings are correct. To verify the settings, enter the **User Name** and **Password** for a specific user and click <Test>.

Note: *Test* is not available unless you change the settings. *Apply* is unavailable until you use *Test*.

RADIUS Server Configuration

The system can use a RADIUS server to facilitate user authentication. The RADIUS Configuration screen facilitates configuration of the RADIUS server access parameters.



RADIUS Configuration

Check **Enable RADIUS Integration for CLI login** to enable CLI user authentication using RADIUS and check **Enable RADIUS Integration for GUI login** to enable GUI user authentication using RADIUS.

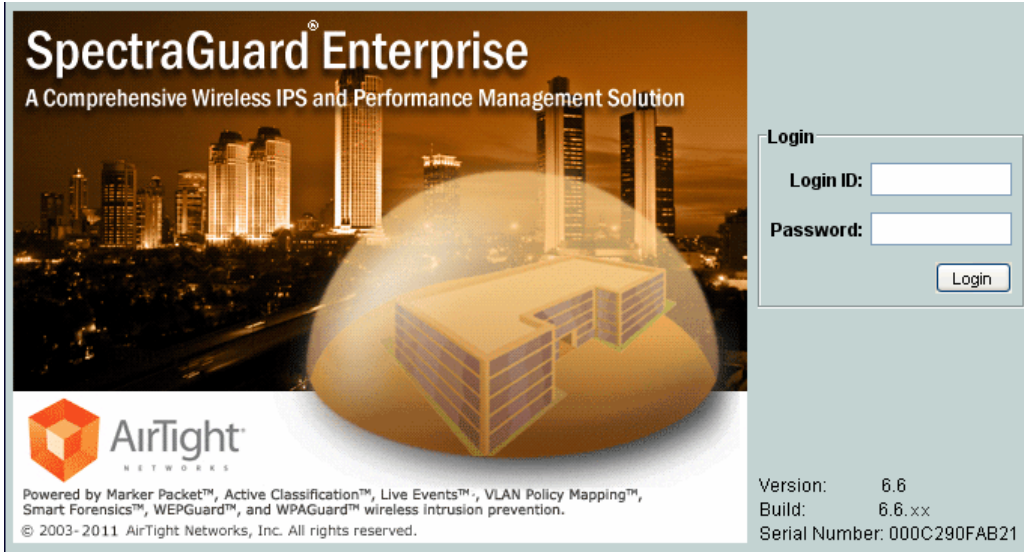
The RADIUS Configuration screen has **Authentication**, **Accounting**, and **Advanced Settings** tabs.

- The **Authentication** tab is used to specify configuration to access the RADIUS Authentication server
- The **Accounting** tab is used to specify configuration to access the RADIUS Accounting server
- The **Advanced Settings** tab is used to specify the realm (domain) for the CLI and the GUI users. You can also specify in this tab how the real name is to be appended to the username (prefix notation or postfix notation).

User Authentication

The system supports four authentication options. The superuser has to set any one authentication option, and it then applies to all users. The four authentication options supported by the system are as follows:

1. **Password only:** In this option, the user authentication is performed using the password. The user has to enter the username and the password at the login prompt. The password may be locally verified by the system or may be verified using the external LDAP or RADIUS authentication service, as appropriate. When this authentication option is set, the login screen appears as follows:



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Login

Login ID:

Password:

Login

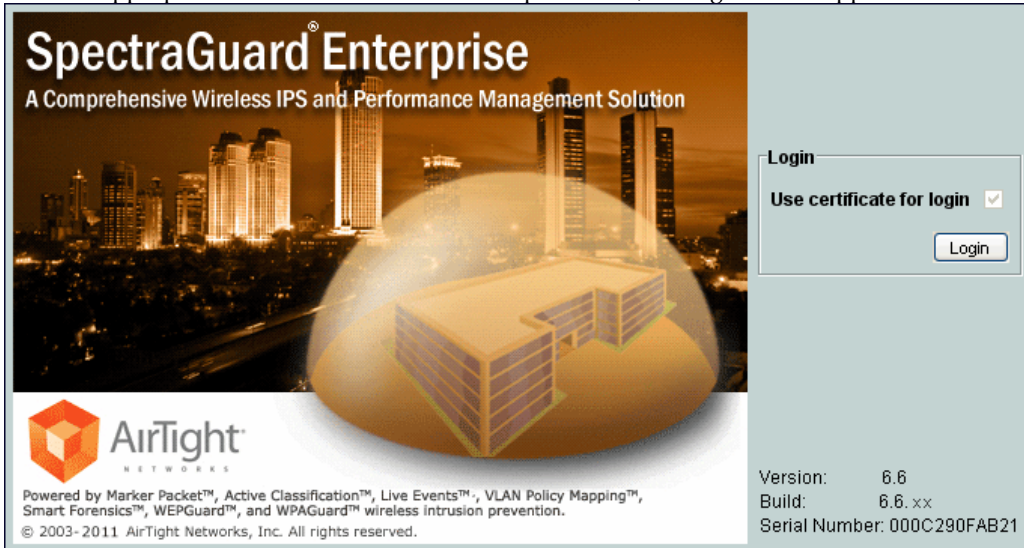
Version: 6.6
Build: 6.6.xx
Serial Number: 000C290FAB21

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Login Screen – Password only authentication

2. **Certificate only:** In this option, the user authentication is performed using the client certificate (such as smart card). The user has to insert a smart card containing the client certificate in a reader attached to the computer from where the console is accessed and then press the **Login** button. The system then verifies the client certificate and obtains user identity (username) from the certificate. Other attributes for the user are retrieved either locally or from the external authentication services such as LDAP or RADIUS, as appropriate. When this authentication option is set, the login screen appears as follows:



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Login

Use certificate for login ☒

Login

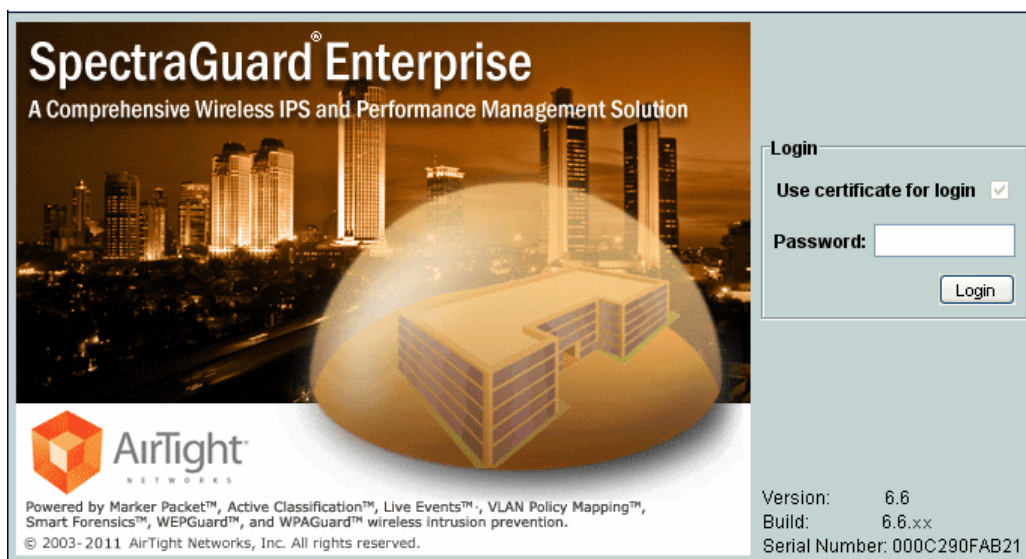
Version: 6.6
Build: 6.6.xx
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Login Screen – Certificate only authentication

3. **Certificate and Password:** In this option, both the client certificate and the password are required for the user authentication. The user has to insert a smart card containing the client certificate in a reader attached to the computer from where the console is accessed, as well as enter the password at the login prompt. The system verifies the password locally or using the external LDAP or RADIUS authentication service, as appropriate. When this authentication option is set, the login screen appears as follows:



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Login

Use certificate for login ☒

Password:

Login

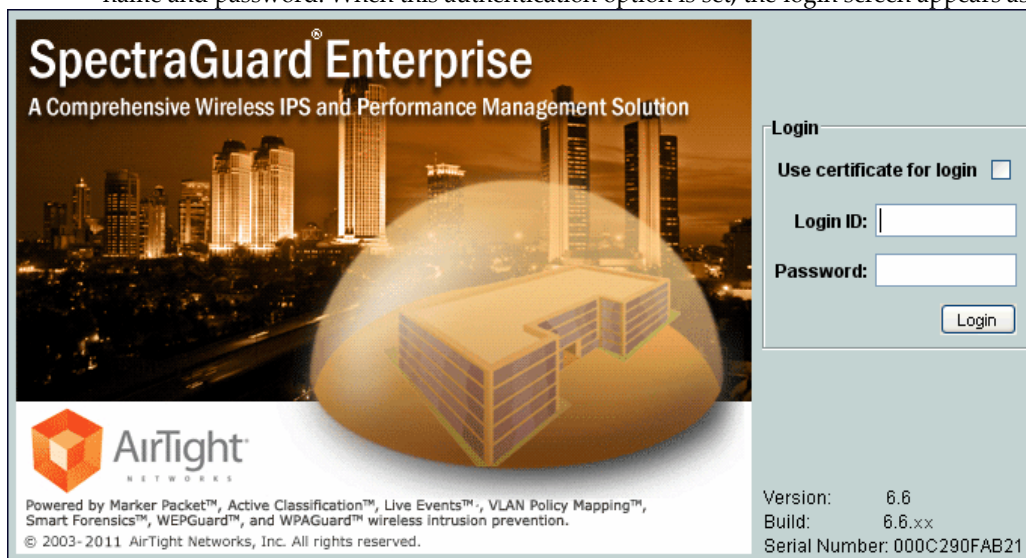
Version: 6.6
Build: 6.6.xx
Serial Number: 000C290FAB21

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Login Screen – *Certificate and Password* authentication

4. **Certificate or Password:** In this option, the user authentication is permitted either using the password or using the client certificate. This option is appropriate for organizations which have only partially migrated to using smart cards for authentication. At login prompt, the user can select certificate authentication by checking the **Use certificate for login** box or continue with password authentication by entering login name and password. When this authentication option is set, the login screen appears as follows:



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Login

Use certificate for login ☐

Login ID:

Password:

Login

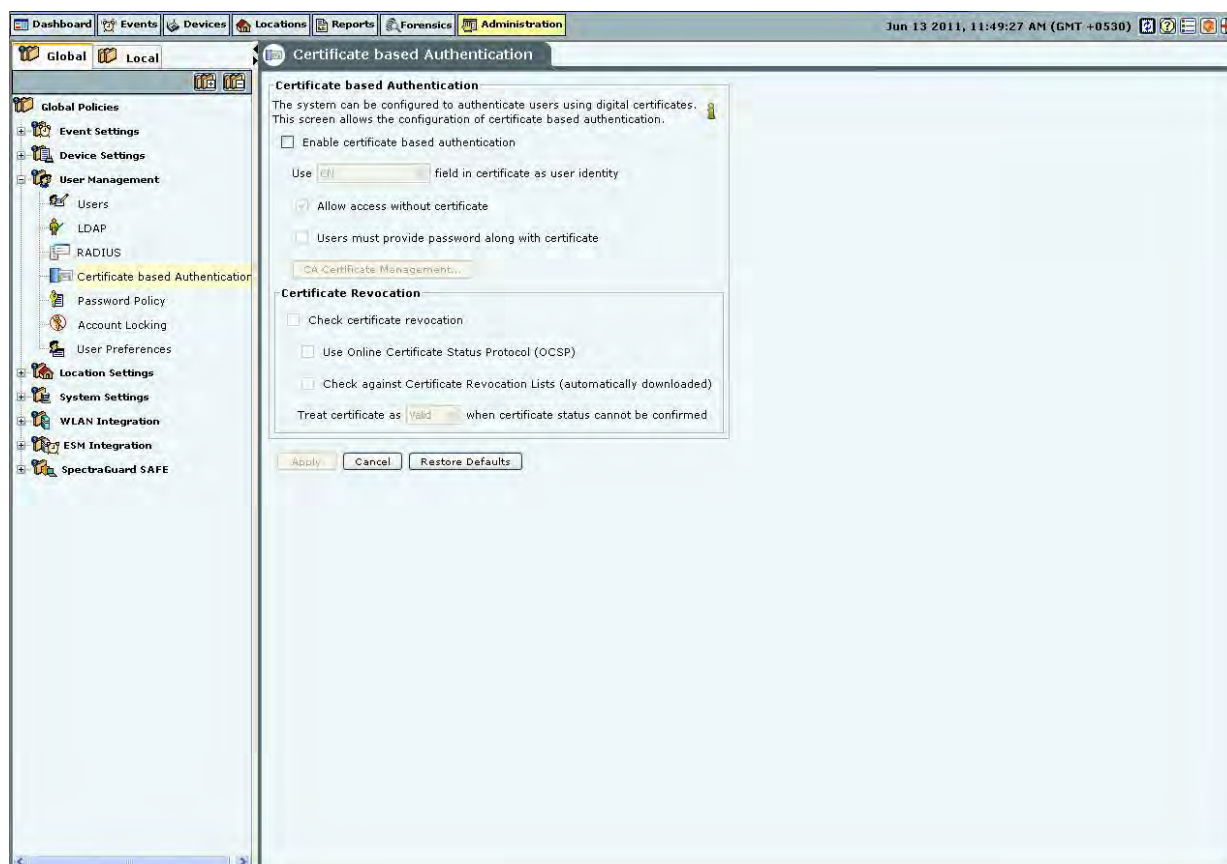
Version: 6.6
Build: 6.6.xx
Serial Number: 000C290FAB21

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Login Screen – *Certificate or Password* authentication

The superuser can use following screen to set one of the above four authentication options namely *Password only*, *Certificate only*, *Certificate and password* or *Certificate or password*.



Certificate Authentication

The required authentication option can be activated based on the various combinations of the **Enable certificate based authentication** box, **Allow access without certificate** box, and **Users must provide password along with certificate** box.

The following table describes the activation of the authentication options based on the check boxes selected by the user.

Authentication option to activate	Check box to be selected		
	<i>Enable certificate based authentication</i>	<i>Allow access without certificate</i>	<i>Users must provide password along with certificate</i>
Password only	No	-	-
Certificate only	Yes	No	No
Certificate and password	Yes	No	Yes
Certificate or password	Yes	Yes	No

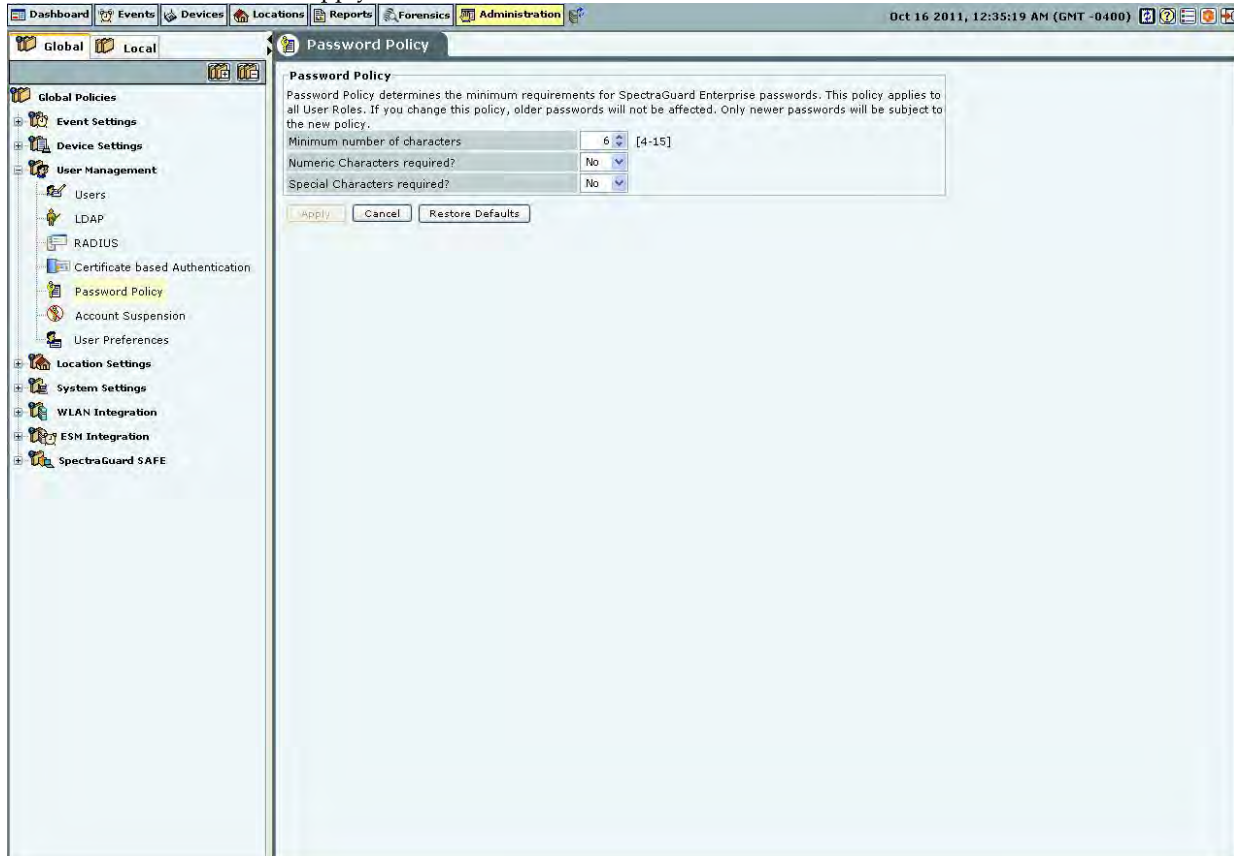
Note: In order to use certificate based authentication, it is necessary that the GUI host is able to access the server at TCP port 4433. If there is a firewall between the GUI host and the server, port 4433 must be opened from the host to the server, in order to be able to use certificate based authentication.

When either *Certificate only*, *Certificate and Password*, or *Certificate or Password* option is activated, the additional details should be provided as follows:

- The field in the client certificate from which user identity can be retrieved by the system.
- Root CA certificates to facilitate the verification of the client certificate.
- Preferred method to check for certificate revocation.

Password Policy

The Password Policy determines the minimum requirements for system passwords. This policy applies to all User Roles: superuser,, administrator, operator, and viewer. If you change this policy, older passwords are not affected. Only passwords created after a policy change are subject to the new policy. This setting applies only to local authentication and does not apply to LDAP and RADIUS authentication.



Password Policy

Under **Password Policy**, you can specify the following:

- **Minimum number of characters:** Enables you to specify the minimum number of characters to be used for constructing passwords.

(Minimum: 4; Maximum: 15; Default: 6)

- **Numeric Characters required?:** Enables you to enforce the use of numeric characters for constructing passwords.

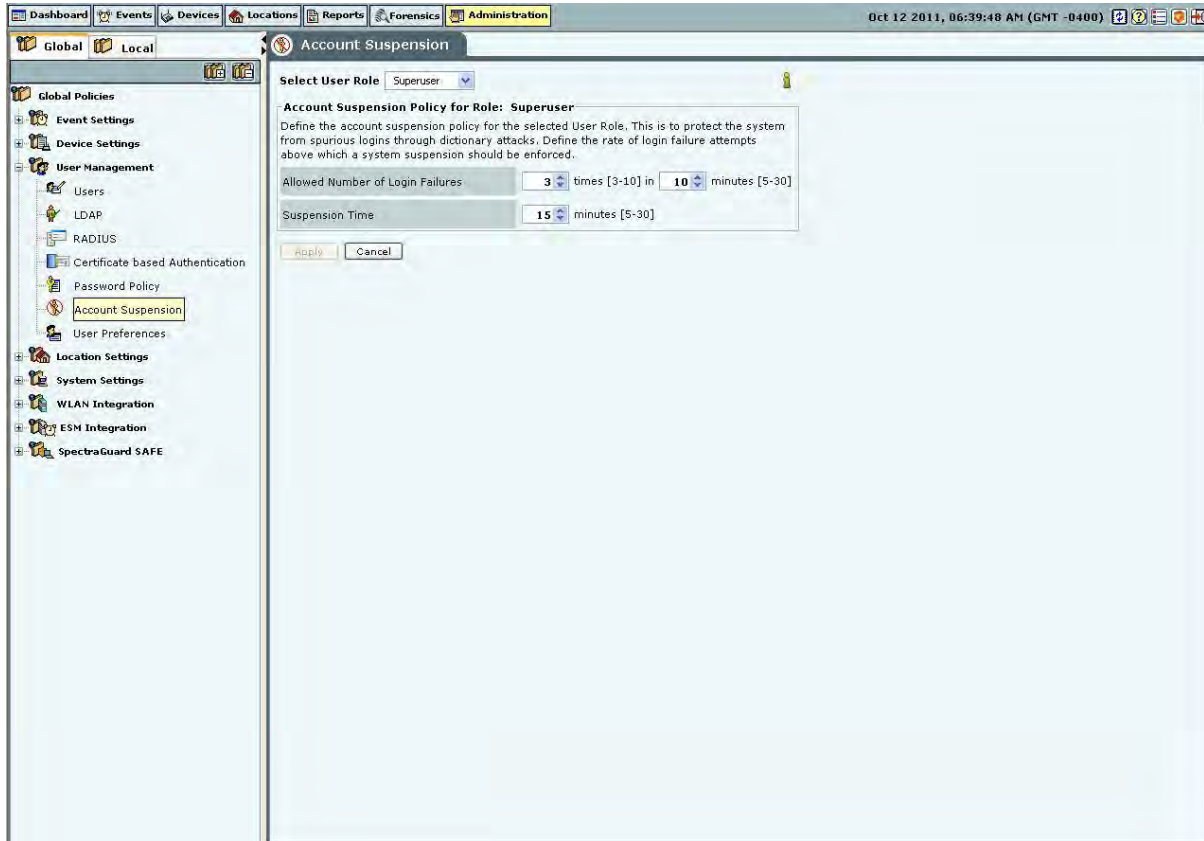
(Default: No)

- **Special Characters required?:** Enables you to enforce the use of special characters for constructing passwords.

(Default: No)

Account locking

Account locking allows the superuser to specify the account locking policy for the selected user type – Superuser, administrator, operator, or viewer. Account locking protects the system from spurious logins through dictionary attacks. This setting applies only to those authentication options which use password as at least one of the authentication mechanisms.



Account Suspension

Under **Account Suspension**, you can select the **User Type** and then specify the following:

- **Allowed Number of Login Failures:** Enables the superuser to configure the number of failed login attempts after which the account is suspended.

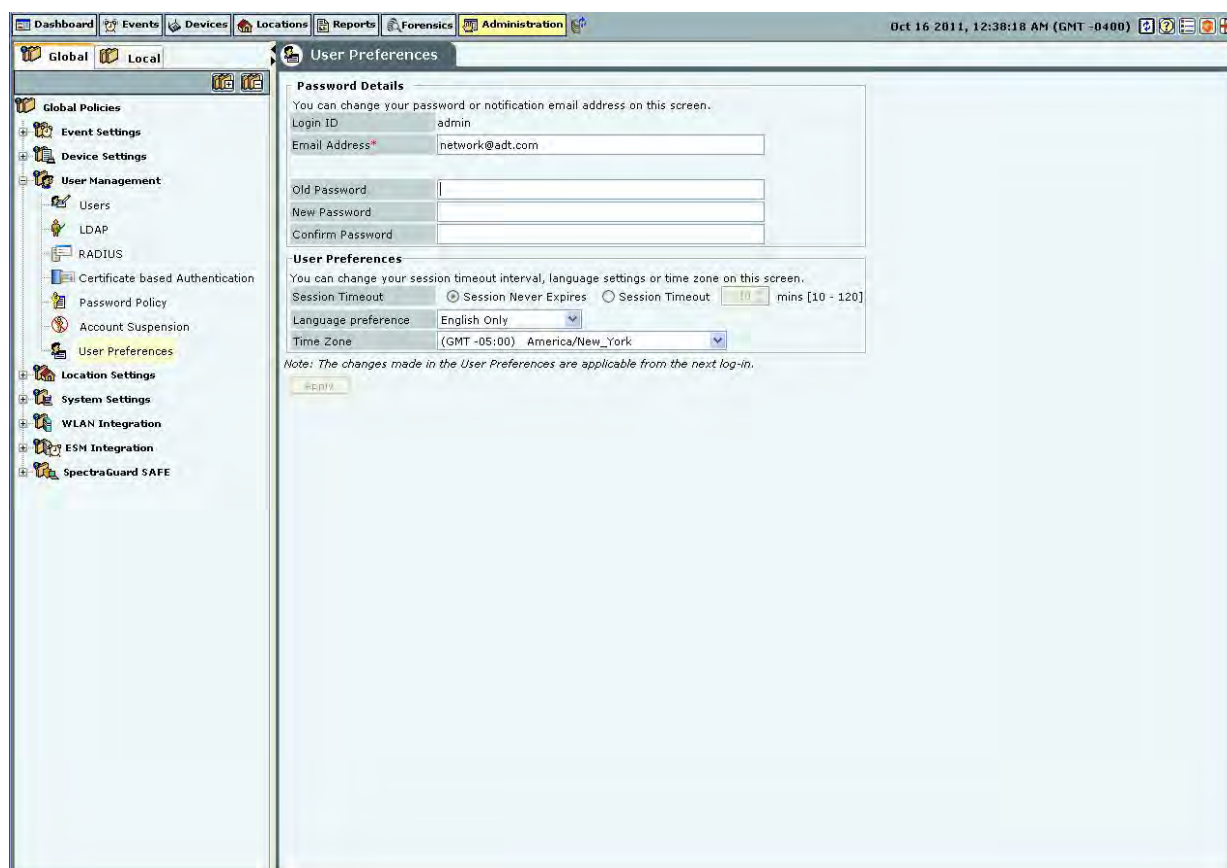
(Minimum: 3 times in 5 minutes; Maximum: 10 times in 30 minutes; Default: 3 times in 10 minutes)

- **Suspension Time:** Enables the superuser to define the amount of time for which the selected user is prevented from accessing the system.

(Minimum: 5 minutes; Maximum: 30 minutes; Default: 15 minutes)

User Preferences

The User Preferences screen enables a user to change his/her own login password and other preferences.



User Preferences

Under **Password Details**, user can specify/modify his email address and password. Password change from this screen is not applicable for the users using LDAP/RADIUS authentication, or for users for whom password based authentication has been disabled. Also, changing the email address from this screen is not applicable for LDAP authenticated user.

Under **User Preferences**, the user can change his/her own Session Timeout, Language Preference, or Time Zone. Click **Apply** to save to the new settings.

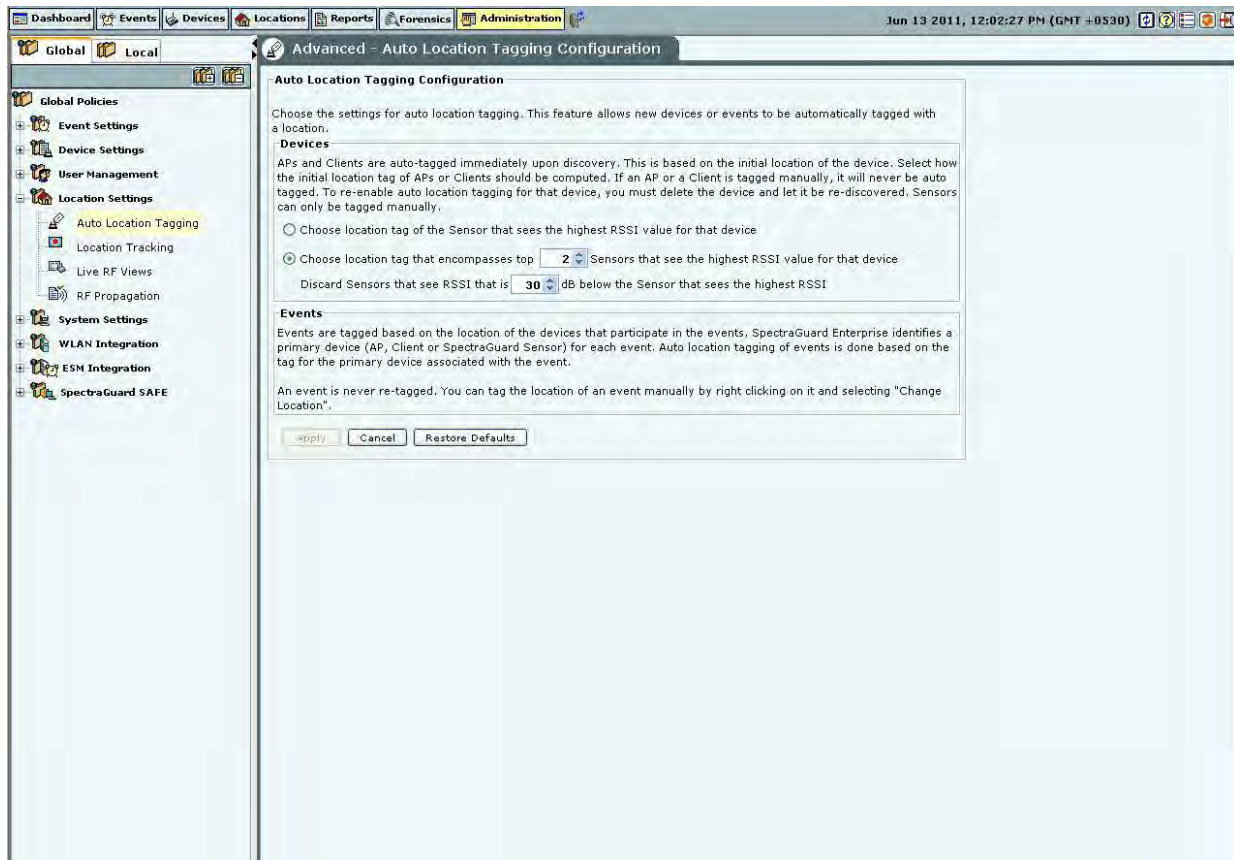
Location Settings

The Location Settings dialog sets the following location settings in the system.

Auto Location Tagging

A location tag that is attached to a device or an event helps identify the location of that event or device. The system has an Auto Location Tagging feature, which refers to the capability of the system to automatically 'tag' the devices and events to the locations where they have been detected.

The **Auto Location Tagging** screen enables you to configure the settings for automatic tagging of devices discovered by the system and events generated by the system.



Auto Location Tagging

Auto Location Tagging Configuration contains the following options:

- **Devices:** Based on the initial location of the device, the APs and Clients are auto-tagged immediately upon discovery. You can select how the system should compute the initial location tag of the APs or Clients. The system never auto-tags an AP or Client, if it is tagged manually. To re-enable auto location-tagging for a device, you must delete the device and let the system re-discover it. You must manually tag sensors. You can do one of the following:
 - Choose the location tag of the sensor that sees the highest RSSI value for that device.
 - Choose the location tag of the selected number of sensors that see the highest RSSI values for that device.

(Minimum: 2; Maximum: 10; Default: 2)

You can also discard the sensors that see a lower RSSI after comparing the value with a sensor that reports a higher RSSI.

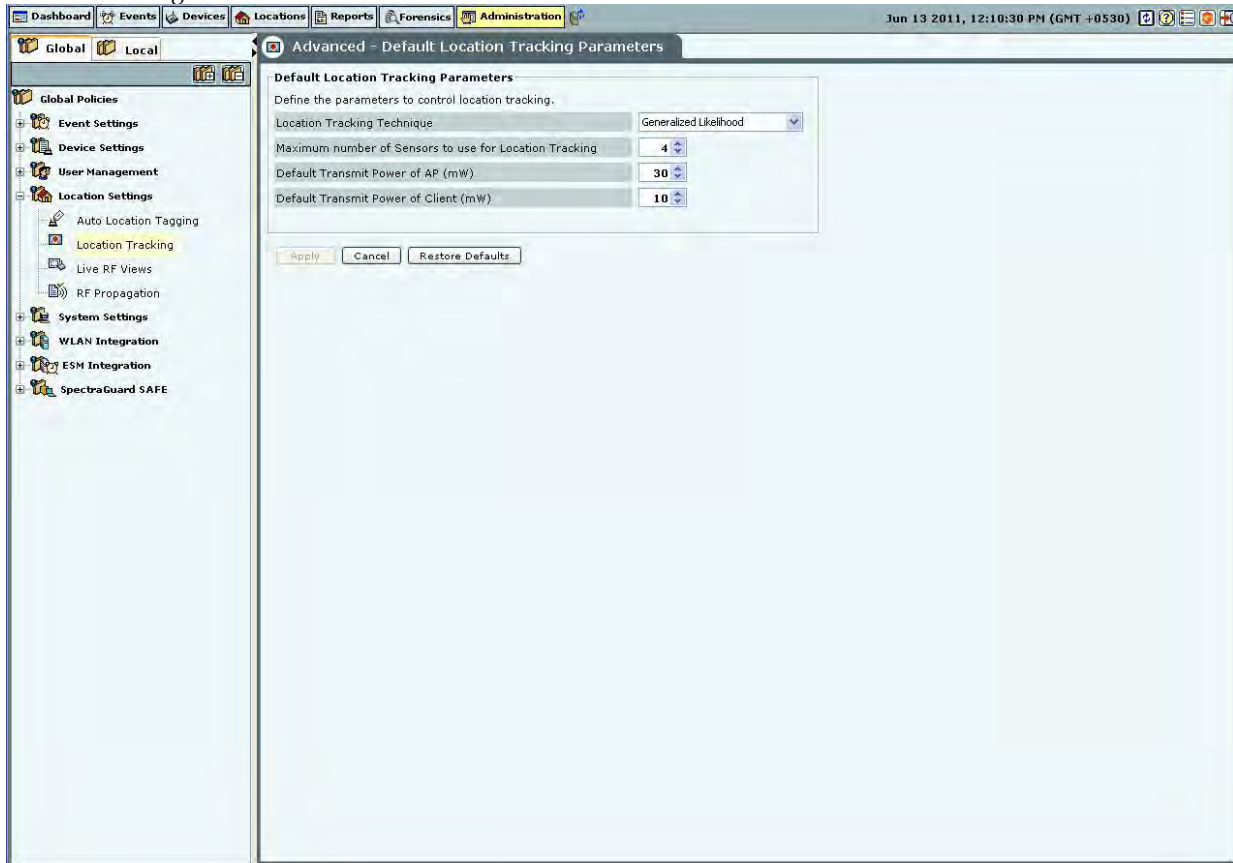
(Minimum: 20 dB; Maximum: 40 dB; Default: 30 dB)

- **Events:** The system tags events based on the location of the devices that participate in the events. The system initially identifies a primary device — AP, Client, or Sensor for each event. The system automatically tags the location of events based on the tag for the primary device associated with the event.

Note: The system never retags an event. You can tag the location of an event manually on the **Events** screen by right-clicking the event and from the resulting menu by selecting **Change Location**.

Location Tracking

The location of a particular device can be tracked using the location tracking feature. The system needs at least three sensors to perform location tracking. The **Location Tracking** screen enables you to define the parameters that control location tracking.



Location Tracking

Default Location Tracking Parameters contains the following options:

- **Location Tracking Technique:** Select the technique used for location tracking. The technique available is *Generalized Likelihood*.
- **Maximum number of Sensors to use for Location Tracking:** Select the maximum number of sensors used for location tracking. Sensors track down the location of a device and the system uses sensors that see the maximum values. A higher value is likely to give better results.

(Minimum: 3; Maximum: 10; Default: 4)

- **Default Transmit Power of AP (mW):** Location tracking needs as input the transmit power of the AP being located. When transmit power is unknown, the default value set here is used.

(Minimum: 1 mW/0 dBm; Maximum: 100 mW/20 dBm; Default: 30 mW/15 dBm)

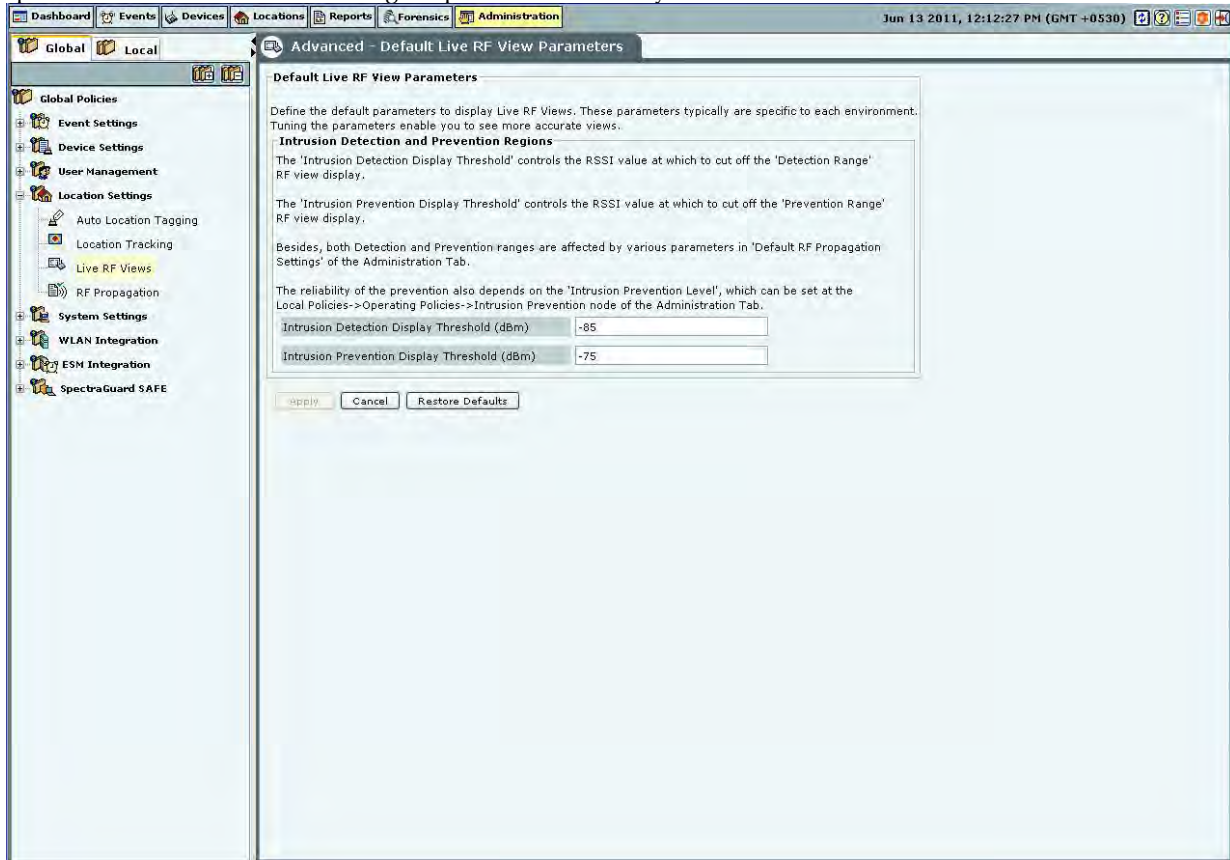
- **Default Transmit Power of Client (mW):** Location tracking needs as input the transmit power of the Client being located. When transmit power is unknown, the default value set here is used.

(Minimum: 1 mW/0 dBm; Maximum: 100 mW/20 dBm; Default: 10 mW/ dBm)

- **Signal Strength Monitoring Devices:** Location tracking is based on the signal strength of the monitoring devices. This value can deviate from the actual values because of subtle variations in the RF environment. You can specify **APs only**, **Sensors only**, and **Sensors and/or APs** to be used to control location tracking. Using the system's Application Programming Interface (API), APs can be reported as a source of signal strength. Information from these APs can be used for location tracking.

Live RF Views

The **Live RF Views** screen enables you to define the parameters that are used in live RF views. These parameters are specific to each environment. Tuning the parameters enables you to see more accurate views.



Live RF Views

Default Live RF Views Parameters contains the following options:

- **Intrusion Detection and Prevention Regions:** Specify the dBm values for which the system shows the intrusion detection and prevention regions in the sensor coverage views.
- **Intrusion Detection Display Threshold (dBm):** Detection Range is the area over which sensors can reliably detect wireless activity. **Intrusion Detection Display Threshold** determines the threshold for this range. (Default: -85 dBm).
- **Intrusion Prevention Display Threshold (dBm):** Prevention Range is the area over which sensors can prevent unauthorized wireless activity. **Intrusion Prevention Display Threshold** determines the threshold for this range. (Default: -75 dBm)

Both the Detection and Prevention ranges are affected by parameters in the RF Propagation section.

***Note:** The reliability of the prevention also depends on the Intrusion Prevention Level selected on Administration → Local tab → Operating Policies → Intrusion Prevention → Intrusion Prevention Level tab.*

RF Propagation

The RF Propagation screen enables you to define default AP, Client, and Sensor antenna gain values.

Default RF Propagation Settings

Define default SpectraGuard Sensor, AP and Client antenna gain values. If better antennas are used, the gain should be increased.

Sensor Antenna Gain (dB)	2.3
AP Antenna Gain (dB)	2.3
Client Antenna Gain (dB)	0

Transmitter Losses

Choose transmitter signal loss value in your environment. When a device transmits, some loss in power occurs due to antenna connectors, electromagnetic and environmental factors. This loss might be different in different frequency bands. You can specify the approximate transmitter loss in each band.

Loss at Source for 802.11a Transmitter (dB)	10
Loss at Source for 802.11b/g Transmitter (dB)	10

Signal Decay Values

Choose signal decay values that define the attenuation of the signal in your environment. These values are dependent on the density of our environment.

For Nodes imported with SpectraGuard Planner

Minimum Signal Decay Constant	2
Maximum Signal Decay Constant	2
Signal Decay Slope (Beta)	0.08
Signal Decay Inflection (Alpha)	-4

For Nodes with GIF, JPEG or blank layout

Minimum Signal Decay Constant	2
Maximum Signal Decay Constant	2.5
Signal Decay Slope (Beta)	0.08
Signal Decay Inflection (Alpha)	-4

Buttons: Apply, Cancel, Restore Defaults

RF Propagation

Default RF Propagation Settings contains the following options:

- **Default Antenna Gain Values:** Specify the default sensor, AP, and Client antenna gain values. Antenna gain is a characteristic of an antenna used for transmitting or receiving signal, defined as gain in power when signal is received (or transmitted) using the antenna.
 - **Sensor Antenna Gain (dB):** Specifies the gain of antenna attached to the sensor. (Default: 2.3 dB)
 - **AP Antenna Gain (dB):** Specifies the gain of antenna attached to the AP. (Default: 2.3 dB)
 - **Client Antenna Gain (dB):** Specifies the gain of antenna attached to the Client. (Default: 0 dBm)

Note: *If better antennas are used, you should increase the gain.*

- **Transmitter Losses:** Select the transmitter signal loss value suited to your environment.
 - If your environment has metal or concrete walls, select a higher signal value.
 - If your environment has large spaces where the signal can propagate without much obstruction, select a lower signal loss value

When a device transmits, some loss in power occurs due to antenna connectors, electromagnetic, and environmental factors. This loss might be different in different frequency bands. You can also specify the approximate loss in each band.

- **Loss at Source for 802.11a Transmitter (dB):** (Default: 10 dB)
 - **Loss at Source for 802.11b/g Transmitter (dB):** (Default: 10 dB)
- **Signal Decay Values:** Signal propagation depends heavily on environment. The obstacles present in environment might impede signal propagation, limiting its range. It is very difficult to accurately model signal propagation in all kinds of environment, but by fine-tuning the following four constants, you can more or less characterize your environment for signal propagation.

Note: The system uses the first set of parameters when the Planner file is imported; the second set for blank, gif, or jpeg files.

Minimum and **Maximum Signal Decay Constants** specify the range for the decay exponent, that is, the exponent at which signal decays with distance. **Signal Decay Slope (Beta)** and **Signal Decay Inflection (Alpha)** control how the decay exponent changes from its minimum value to maximum value.

- **For Nodes with imported SpectraGuard Planner file:**
 - **Minimum Signal Decay Constant:** (Default: 2.0 dBm)
 - **Maximum Signal Decay Constant:** (Default: 2.0 dBm)
 - **Signal Decay Slope (Beta):** (Default: 0.08 dBm)
 - **Signal Decay Inflection (Alpha):** (Default: -4 dBm)
- **For Nodes with GIF, JPEG or Blank layout:**

Minimum Signal Decay Constant: (Default: 2.0 dBm)

- ❖ **Maximum Signal Decay Constant:** (Default: 2.5 dBm)
- ❖ **Signal Decay Slope (Beta):** (Default: 0.08 dBm)
- ❖ **Signal Decay Inflection (Alpha):** (Default: -4 dBm)

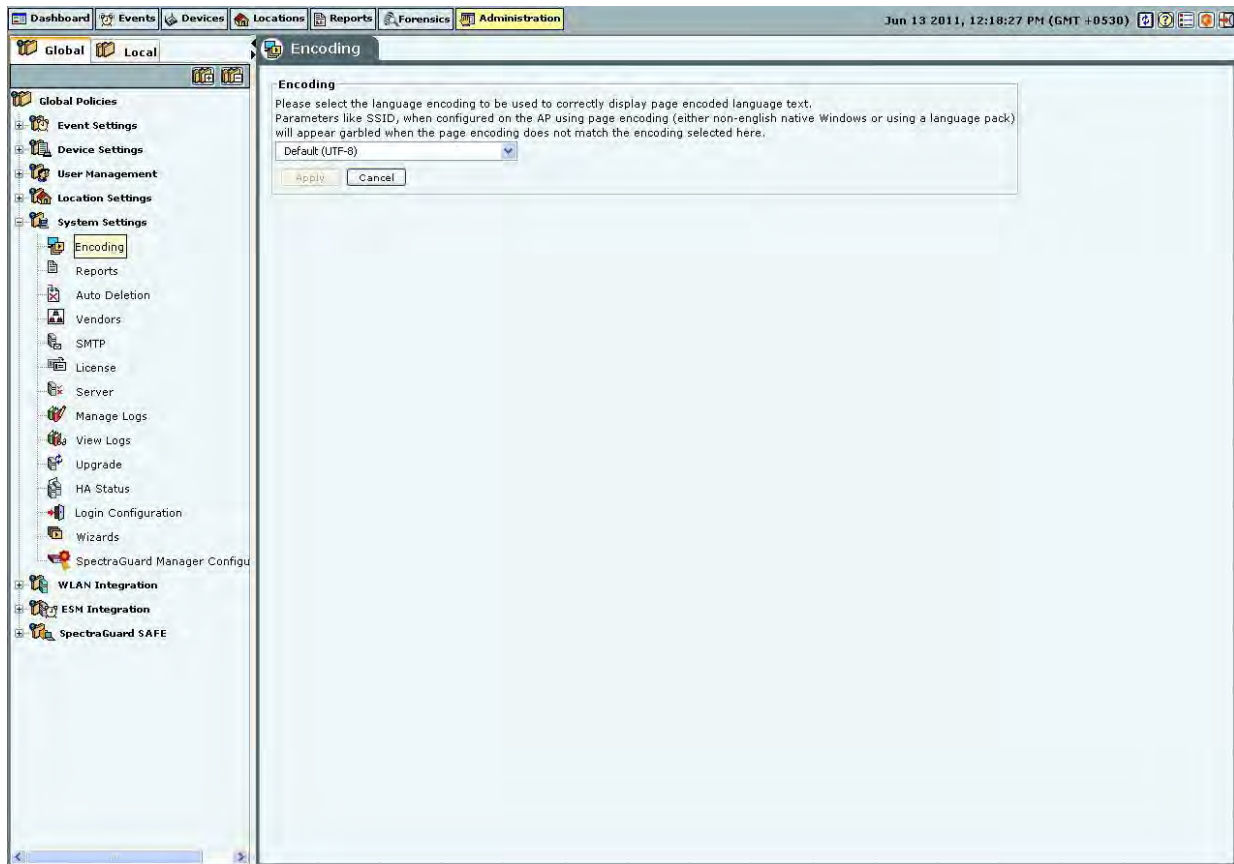
Note: Planner models most significant objects; therefore **Maximum Signal Decay Constant** should be close to 2.0.

System Settings

Encoding

Select the language encoding (language setting) to be used to correctly display page encoded language text from the drop down list on the Encoding screen. Default is UTF-8. Parameters like SSID, when configured on the AP using page encoding (either non-english native window or using a language pack) will appear garbled when the page encoding does not match the encoding selected here.

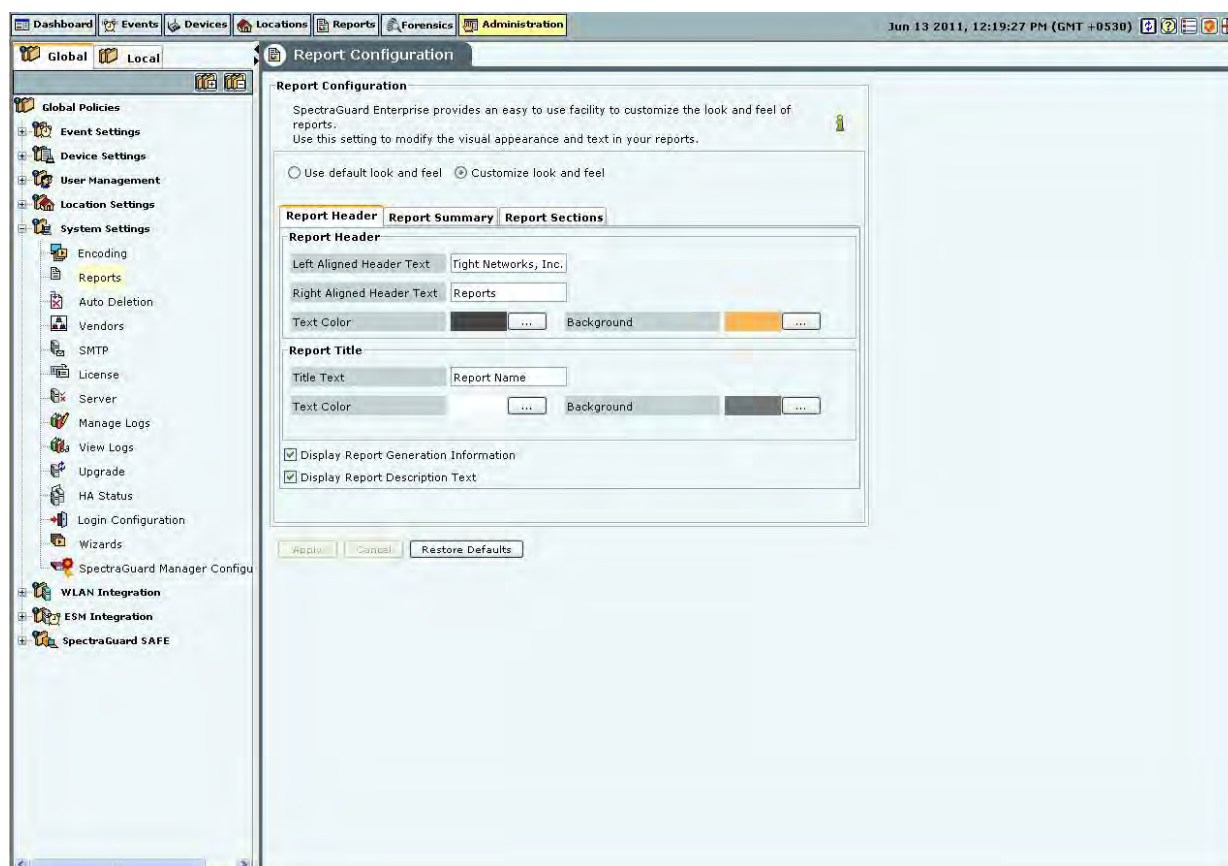
Note: For the language encoding to be effective, it is mandatory to select **Multilingual** in the **Language Preference** field in **Administration → Global → Global Policies → User Management → User Preferences** screen along with selection of language encoding from the drop-down list on the Encoding screen.



Encoding

Reports

The system can display a rich set of reports. The Reports screen enables you to modify the appearance and text in the generated reports. Refer to 'Adding a Report' in the Reports Tab section for more details.

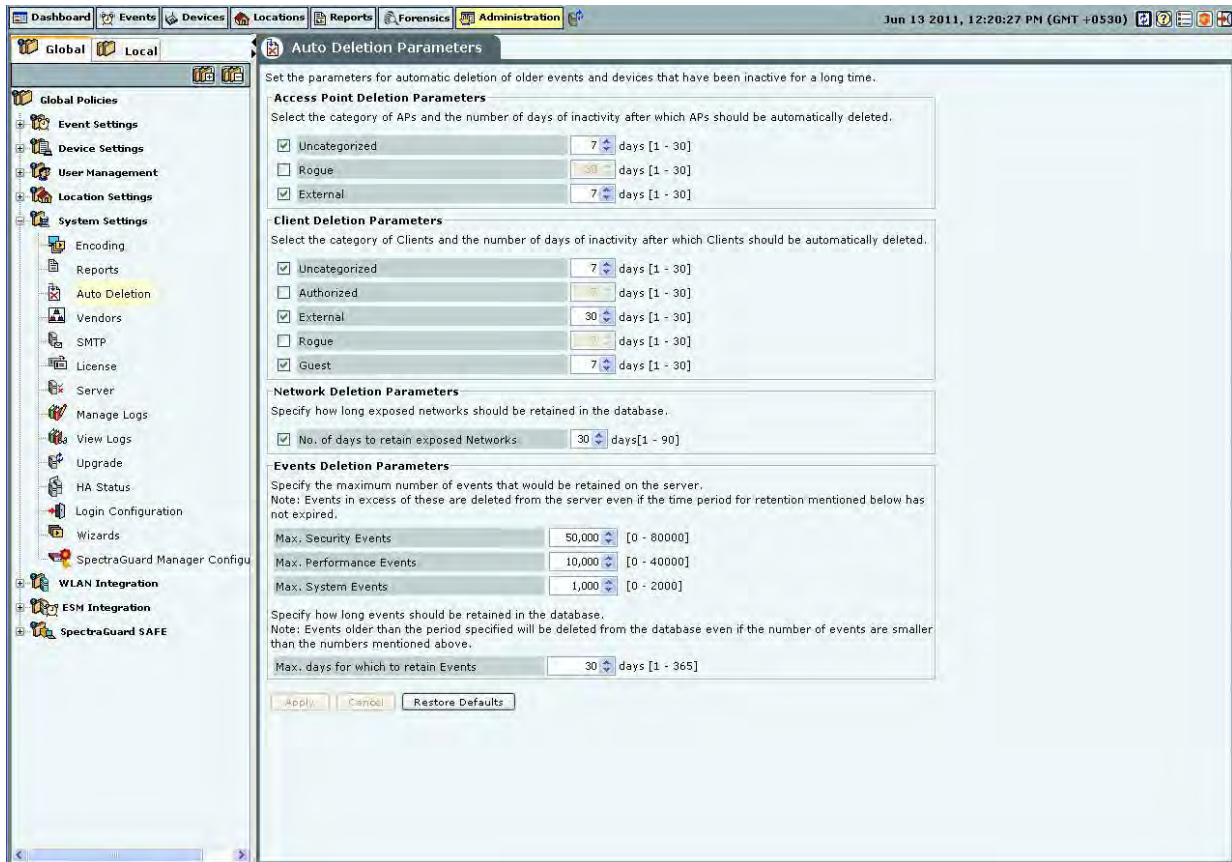


Reports Configuration

Auto-deletion

The system is designed to store information about devices seen and older events over a period of time. The rate of growth of this information is dependent on the volatility of the wireless environment at the deployed location. This information also becomes obsolete after a certain time. It is necessary to delete this information periodically. Based on the event related configuration done by you, the system also raises and stores a number of events. If the configuration is such that there are significant number of events generated and stored, the stored event data size grows significantly faster. This event data also requires regular cleanup.

Auto Deletion allows you to specify values of various auto deletion parameters to control the frequency of deletion of information. The system generates an event for tracking the action of auto deletion. This event gives information only about device deletion. There is no event separately generated that indicates event deletion. Event deletion is also referred to as *Event Purging*.



Auto Deletion

The **Auto Deletion Parameters** window contains the following options:

- **Access Point Deletion Parameters:** Select the checkboxes to choose the category of APs that you would like the system to delete automatically. Specify the number of days of inactivity after which the AP records are automatically deleted.

(Minimum: 1 day; Maximum: 30 days)

- **Uncategorized**
- **Rogue**
- **External**

Note: Authorized APs are not auto deleted from the system. If you want to delete inactive authorized Access Points, you have to delete them manually.

- **Client Deletion Parameters:** Select the check boxes to choose the category of wireless Client devices that you would like the system to automatically delete. Specify the number of days of inactivity after which the wireless Client records are deleted automatically.

(Minimum: 1 day; Maximum: 30 days)

- **Uncategorized**
- **Authorized**
- **External**
- **Rogue**
- **Guest**

- **Network Deletion Parameters:** Select the **No. of days to retain exposed Networks** check box and specify the duration, in days, for which the exposed networks are to be retained on the server.

(Minimum: 1 day; Maximum: 90 days; Default: 30 days)

- **Events Deletion Parameters:** Specify the maximum number of events that would be retained on the server.

- **Maximum Security Events**

(Minimum: 20000; Maximum: 80000; Default: 50000)

Note: Maximum number of security events that can be retained for SA-350 appliance, is 0.7 million.

- **Maximum Performance Events**

(Minimum: 5000; Maximum: 40000; Default: 10000)

Note: Maximum number of performance events that can be retained for SA-350 appliance, is 0.25 million.

- **Maximum System Events**

(Minimum: 500; Maximum: 2000; Default: 1000)

Note: Maximum number of system events that can be retained for SA-350 appliance, is 0.05 million.

Specify how long events should be retained in the database.

- **Maximum days for which to retain Events**

(Minimum: 1 day; Maximum: 365 days; Default: 30 days)

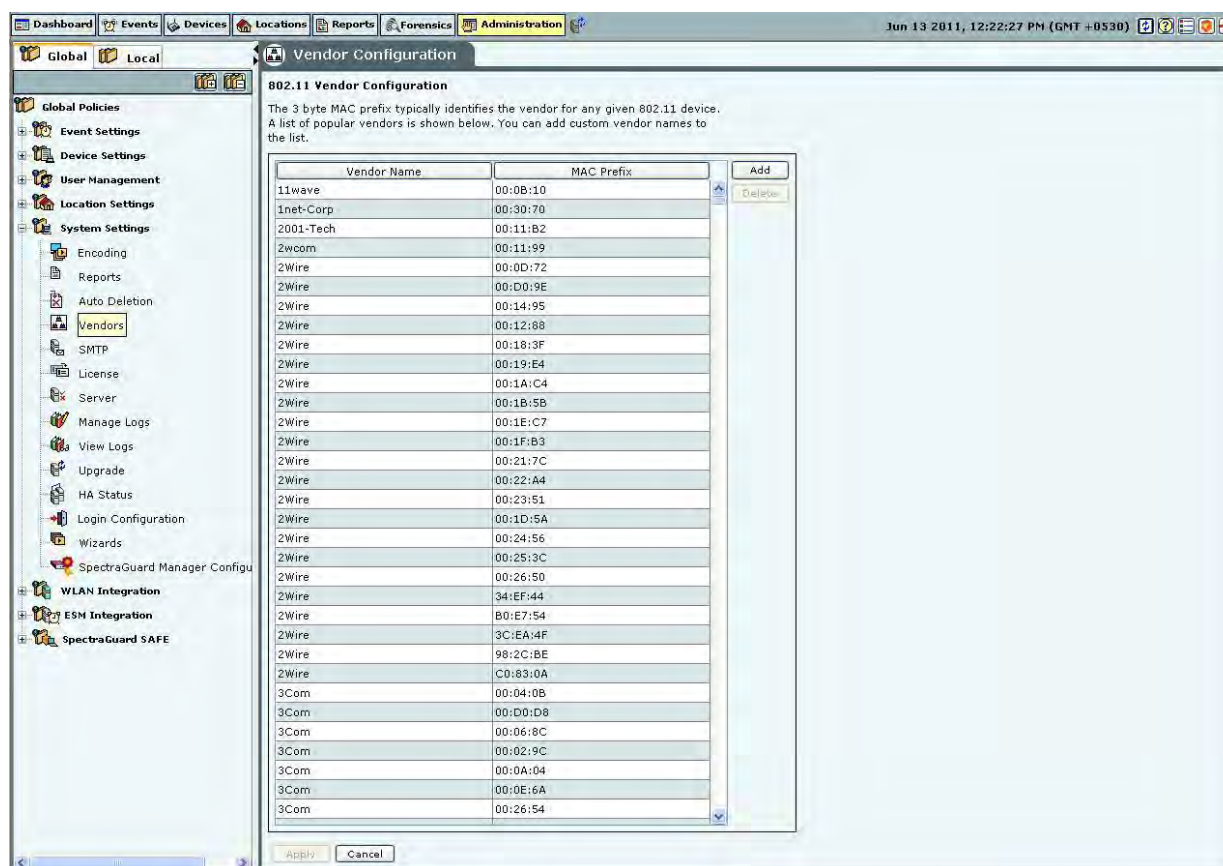
Note: Events older than the period specified will be deleted from the database even if the number of events are smaller than the numbers mentioned above.

Auto Deletion Action

You can track auto deletion of inactive APs, Clients, and events, by monitoring the special event generated by the system. The system generates an event containing the summary of the actions performed during the Auto Deletion operation, if and only if any physical deletion of information actually took place.

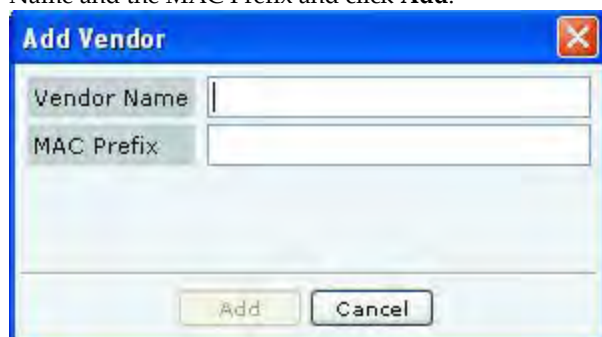
Vendors

The **Vendors** screen enables you to view a list of vendors with their MAC prefixes. The 3-byte MAC prefix typically identifies the vendor for any given 802.11 device.



Vendors

To add a new pair of vendor name and MAC prefix, click **Add**. The Add Vendor dialog opens. Specify the Vendor Name and the MAC Prefix and click **Add**.

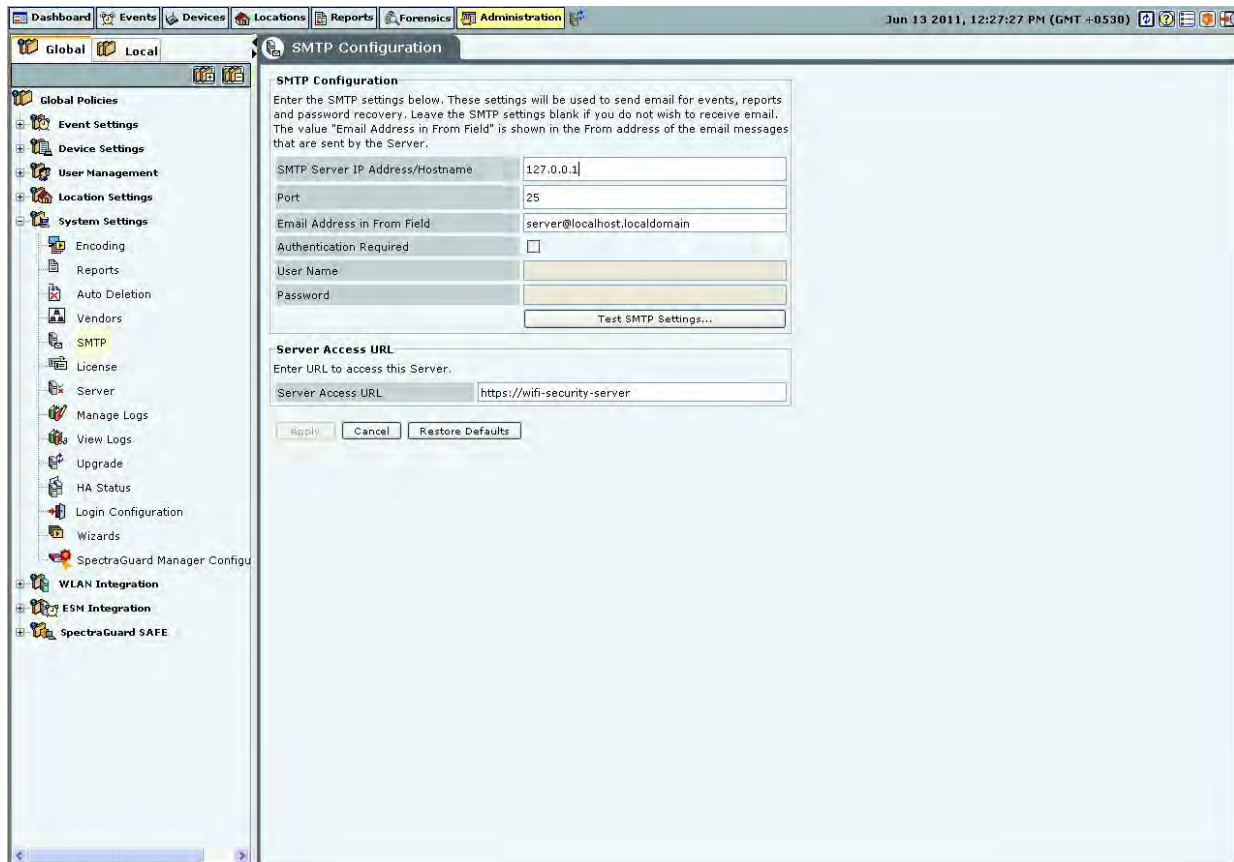


Add Vendor Dialog

To delete any pair from the existing list, select the relevant row and click **Delete**.

SMTP

The SMTP screen enables you to set Simple Mail Transfer Protocol (SMTP) server settings to send emails when events occur. You must have administrator privileges to set these values.



SMTP

Note: If you want the system to notify you by an events email, you need to specify SMTP server details. The system does not email events by default. If you do not want to receive email for the events, select **Restore Defaults** and **Apply**.

SMTP Configuration contains the following options:

- **SMTP Server IP Address/Hostname:** Specifies the IP Address or the Hostname of the SMTP server used by the system for sending email alerts.

(Default: 127.0.0.1:25)

The following are the authentication protocols for SMTP server:

- PLAIN (For sendmail 8.10 and above)
- LOGIN (For sendmail 8.10 and above)
- NTLM (Windows proprietary authentication method)
- **Port:** Specifies the Port number of the SMTP server used by the system for sending email alerts.
- **Email Address in From field:** Specifies the source address from which email alerts are sent.
- **Authentication Required:** If enabled, specifies whether the SMTP server requires authentication.
 - **Username:** Specifies the user name for SMTP server authentication.
 - **Password:** Specifies the password for SMTP server authentication.

To send a test e-mail, click **Test SMTP Settings**. The settings used for this mail are those that you have specified.

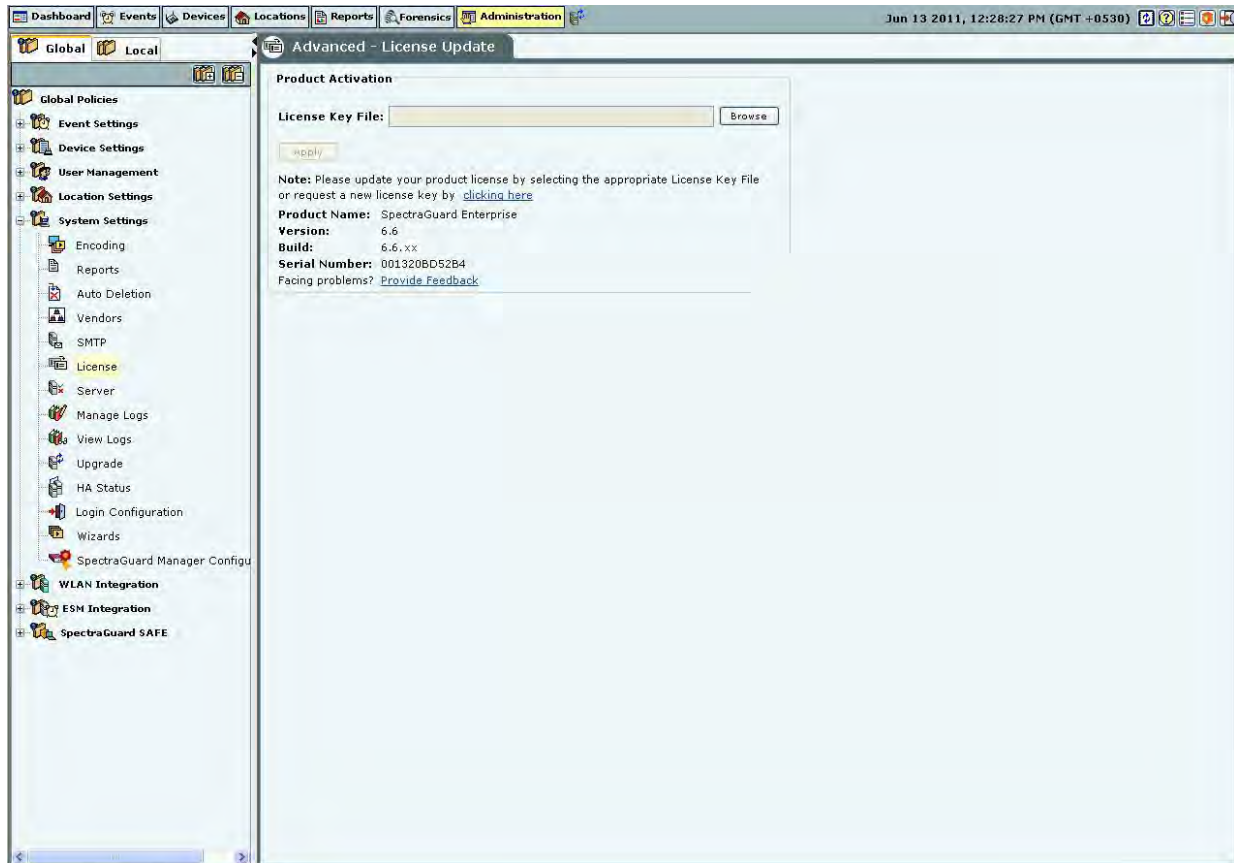
License

You can upgrade your current version to enable or disable features by a new license key.

The **License Update** screen enables you to change the license key.

To update the license, click **Browse** and navigate to the location of the **License Key File**. To finish, click **Apply**.

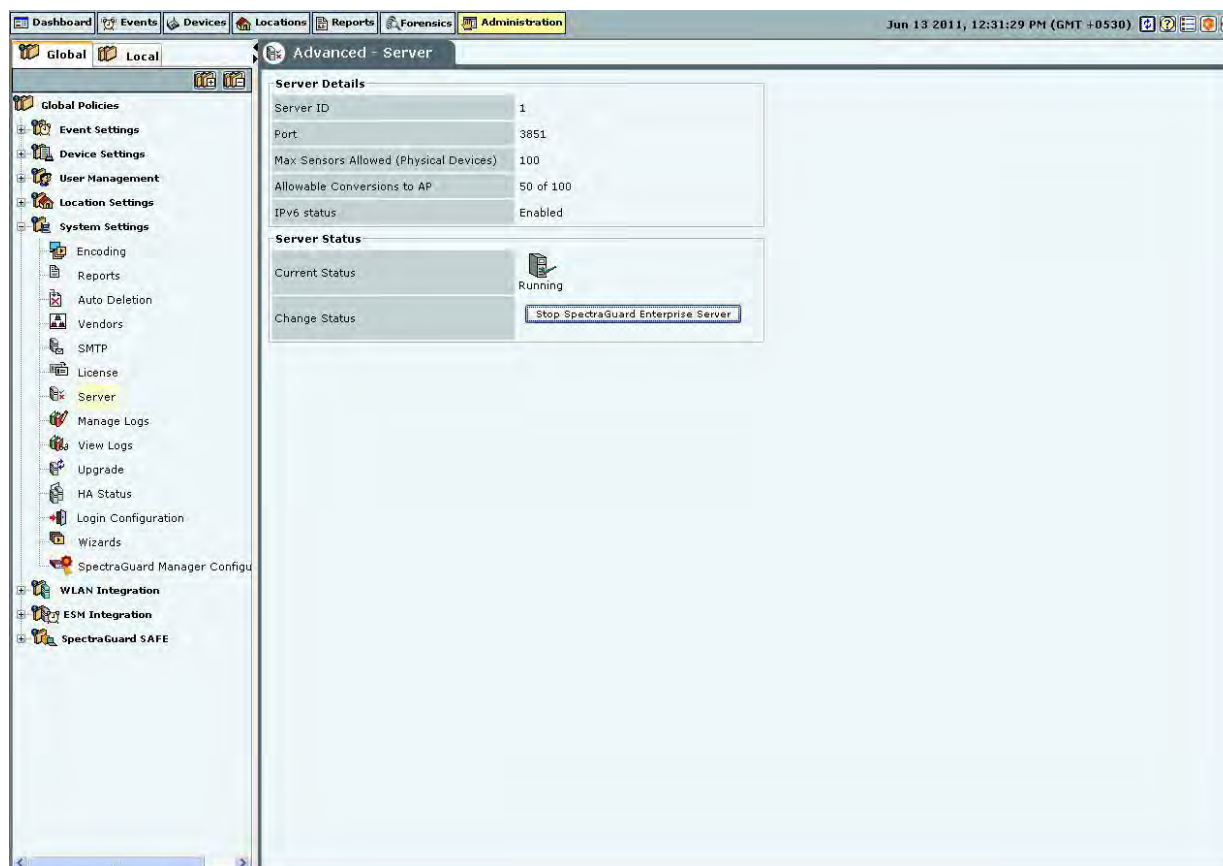
***Note:** To apply the license effectively, logout and re-login to the console.*



License

Server

The Server screen enables you to view server information.

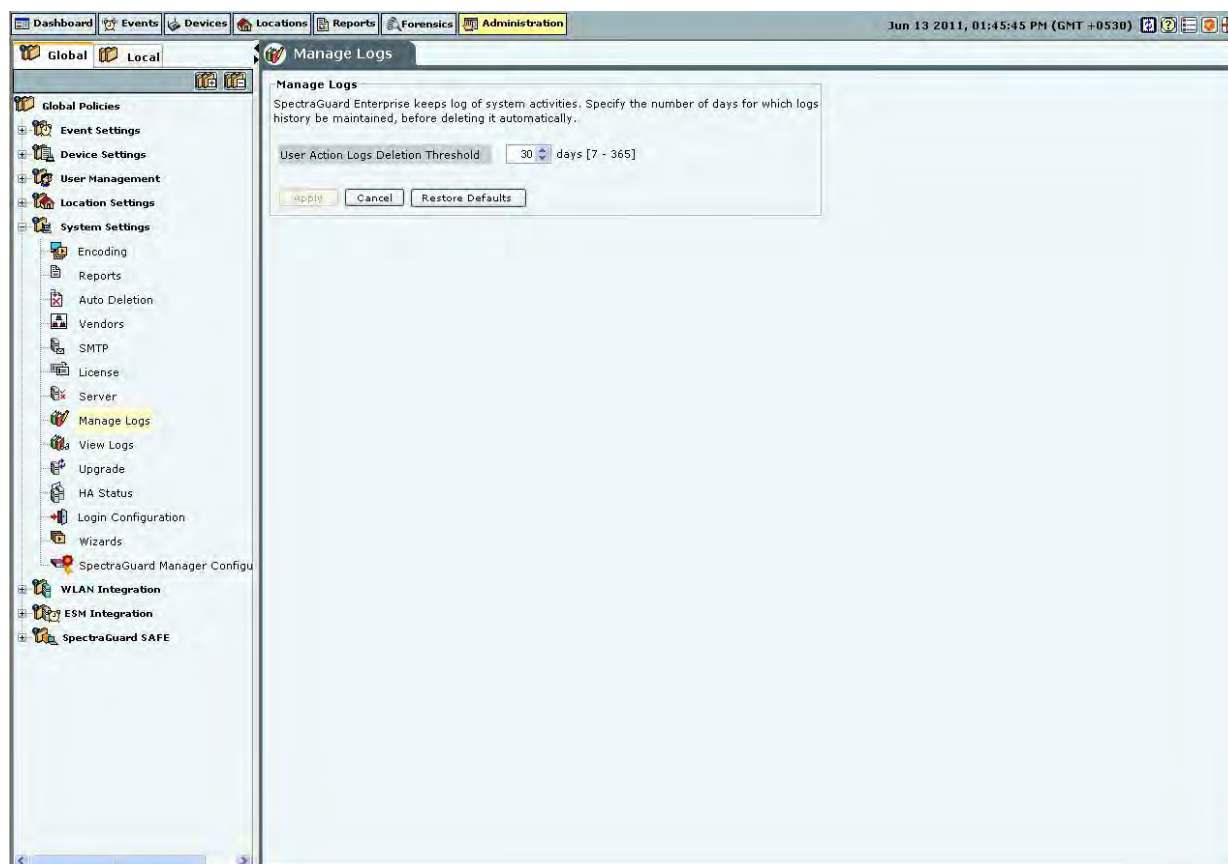


Server Details

- Server Details:** This is a read-only section and displays the following information:
 - **Server ID:** Unique identifier for the server appliance. If you have installed a single server appliance, then retain the default server ID, that is, 1.
 - **Port:** The User Datagram Protocol (UDP) port number used.
 - **Max Sensors:** Maximum number of sensors that can connect to the server.
 - **Max Sensor/AP Combos:** Maximum number of sensors that can be converted to Sensor/AP Combo devices. This is derived from the license. If you do not have a license for Sensor/AP combo device, this field will not be seen.
 - **IPv6 status:** Indicates if IPv6 is enabled on the server.
- Server Status:** Enables you to view the **Current Status** of the server – Running or Stopped. The administrator can **Change Status**, that is, start or stop the server.
- RAID Status:** Enables you to view the **Current Status** of the RAID Array – **Normal**, **Rebuilding**, **Degraded**, or **Failed**.

Manage Logs

The system keeps log of user activities. Under **Manage Logs**, you can specify in the **User Action Logs Deletion Threshold** field, the number of days for which logs history is to be maintained, before deleting it automatically. (Minimum: 7 days; Maximum: 365 days; Default: 30 days)



Manage Logs

View logs

The system enables downloading the user action logs for review. Only the superuser has permission to download logs. Logs can be downloaded as .TSV (tab separated values) or .CSV (comma separated values) format. The .TSV format is also called Unicode format. The downloaded file can be viewed using text editors such as Excel, WordPad etc.

Under **Time Filter**, click the calendar icon  to specify the **Time Period**. Only those records in the logs which fall in the selected time period will then be included in the downloaded log file.

Under **Filter By**, it is possible to select a type of log records which are to be downloaded. When such specific type is selected, log records of only that type will be included in the downloaded log file. By default, records of all types are included.

Under **Sort By**, it is possible to select a specific column on which the records in the downloaded file are to be sorted. By default, the sorting is done on date and time.