

Configure ISE Version 1.4 Email and SMS Notifications



Document ID: 119213

Contributed by Michal Garcarz and Artem Tkachov, Cisco TAC Engineers.

Aug 03, 2015

Contents

Introduction

Prerequisites

Requirements

Components Used

Configure

SMTP Settings

SMS Settings

SMS Gateway Via SMTP

SMS Gateway Via HTTP

Guest Notification with Credentials Via Email

Guest Notification with Credentials Via SMS

Guest Users (Self-Registered)

Guest Approval Via Email

Guest Account Expiration Via Email/SMS

Alarms Delivered Via Email

Send SMS Via REST API

Verify

Troubleshoot

Related Information

Introduction

The document describes how to configure the Cisco Identity Services Engine (ISE) Version 1.4 in order to support email and Short Message Service (SMS) notifications for multiple services.

Prerequisites

Requirements

Cisco recommends that you have a basic knowledge of the Cisco ISE and guest services.

Components Used

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

- Microsoft Windows Version 7 with Cisco AnyConnect Secure Mobility Client, Version 3.1
- Cisco Catalyst 3750X Series switch that runs software Versions 15.0.2 and later

- Cisco ISE Versions 1.3 and later

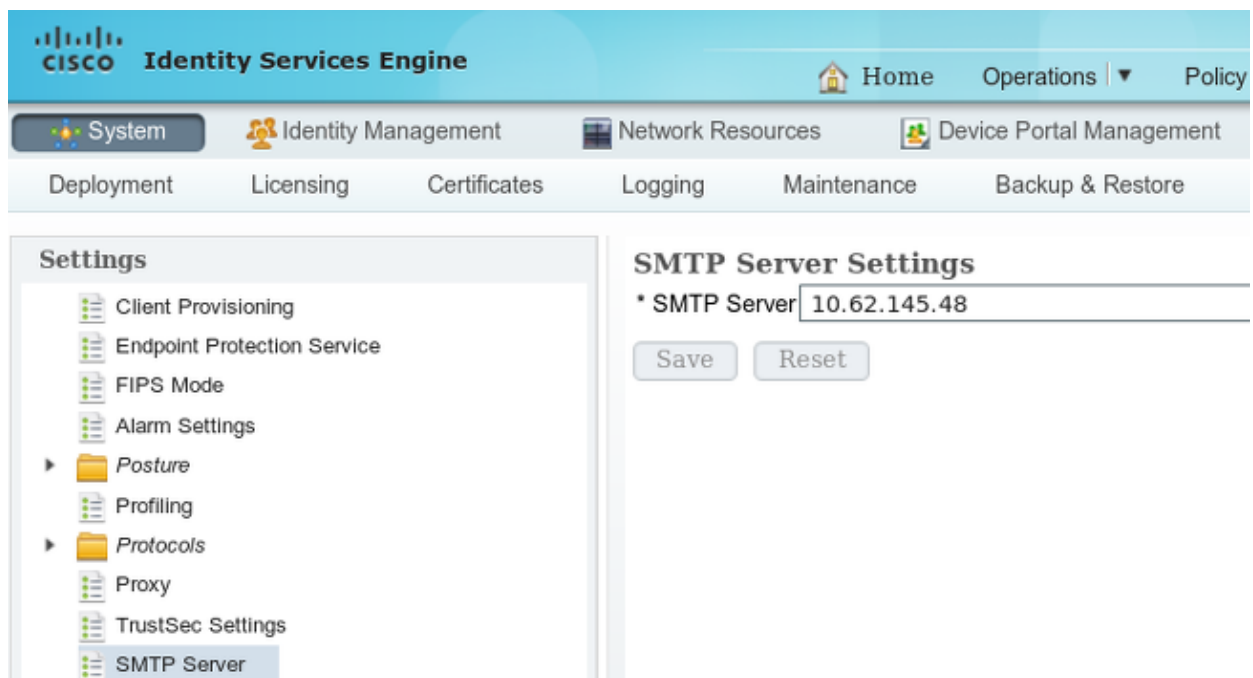
The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

This section describes how to configure the ISE in order to support email and SMS notifications for various services.

SMTP Settings

Before it can use any email services, the ISE must have a Simple Message Transfer Protocol (SMTP) relay server configured. In order to configure the server, navigate to **Administration > System > Settings > SMTP Server**:



This server should have the ability to accept any emails from the ISE without authentication or encryption.

Note: For the SMTP relay server configuration, Cisco recommends that you add the ISE IP address to the exceptions list (*no* or *anonymous* authentication) and require authentication from all other hosts.

SMS Settings

In order for the SMS services to work with the ISE, you must configure a specific SMS gateway. The ISE supports *Smtplib2SMS* and *Http2SMS* gateways. By default, there are nine gateways that are preconfigured for well known providers (you might need to tune these). In order to configure these, navigate to **Administration > System > Settings > SMS gateway**:

The screenshot shows the Cisco Identity Services Engine (ISE) Administration console. The top navigation bar includes Home, Operations, Policy, Guest Access, and Administration. Below this, there are tabs for System, Identity Management, Network Resources, Device Portal Management, pxGrid Services, and Feed Service. The main content area is titled 'SMS Gateway Providers' and contains a table of providers with checkboxes, provider names, and URLs.

<input type="checkbox"/>	SMS Gateway Provide...	SMS Gateway Provide...	SMS Gateway Provider URL
<input type="checkbox"/>	ATT	mms.att.net	
<input type="checkbox"/>	ClickatellViaSMTP		
<input type="checkbox"/>	Global Default		http://api.clickatell.com/http/sendr
<input type="checkbox"/>	Immobile		http://mm.immobile.dk/Api/V2/Get/
<input type="checkbox"/>	Orange	orange.net	
<input type="checkbox"/>	Sprint	messaging.sprintpcs.c...	
<input type="checkbox"/>	T-Mobile	tmomail.net	
<input type="checkbox"/>	TheRingRingCompany		http://publicgateway.ringring.be/M
<input type="checkbox"/>	Verizon	vzwpix.com	

SMS Gateway Via SMTP



When you configure the SMTP SMS gateway, the only required field is the *Provider Domain* field, as per the SMS Gateway Settings for SMS Email Gateway section of the *Cisco Identity Services Engine Administrator Guide, Release 1.4*.

With the default settings (empty), the value of the *SMTP API body template* field is equal to the *\$message\$* value.

The default message value depends on the service that is used. For notification services (when you create a guest account), it is configurable from the sponsor portal customization page (Notify Guest/SMS Notification). This is the default value:

Page Customizations

Message text:

Hello \$ui_first_name\$, Your account details: Username: \$ui_user_name\$ Password: \$ui_password\$

The *SMTP API body template* field value can also be customized. The supported dynamic substitutions for the default value are *\$mobilenumber\$* and *\$message\$*. For example, when you configure the *test template* *\$message\$* value, this data is sent in the SMTP payload:

```
172.16.31.202 10.62.145.48 IMF from: <from@example.com>, subject: Your Guest Account Credentials, (text/plain)
┆ Frame 15: 426 bytes on wire (3408 bits), 426 bytes captured (3408 bits)
┆ Ethernet II, Src: Vmware_58:cb:ad (00:0c:29:58:cb:ad), Dst: Vmware_c0:00:01 (00:50:56:c0:00:01)
┆ Internet Protocol Version 4, Src: 172.16.31.202 (172.16.31.202), Dst: 10.62.145.48 (10.62.145.48)
┆ Transmission Control Protocol, Src Port: 13072 (13072), Dst Port: smtp (25), Seq: 75, Ack: 241, Len: 360
┆ Simple Mail Transfer Protocol
┆ Internet Message Format
┆ From: <from@example.com>, 1 item
┆ To: <to@example.com>, 1 item
  Message-ID: <181959579.51432841181618.JavaMail.iseadminportal@ise14>
  Subject: Your Guest Account Credentials
  MIME-Version: 1.0
┆ Content-Type: text/plain; charset=utf-8
  Content-Transfer-Encoding: 7bit\r\n
┆ Line-based text data: text/plain
  test template Hello ,\r\n
  text:Your account details:\r\n
  text:Username: zuwtbhrn\r\n
  text>Password: M02jAF&K\r\n
```

After the *test template* string, the value of the *\$message\$* will be substituted (in this example, for SMS notification service).

Another example of the *SMTP API body template* field value is *test template2 \$mobilenumber\$*. This is the payload that is sent when this value is used:

```
┆ Internet Message Format
┆ From: <from@example.com>, 1 item
┆ To: <to@example.com>, 1 item
  Message-ID: <1598789688.71432843368072.JavaMail.iseadminportal@ise14>
  Subject: Your Guest Account Credentials
  MIME-Version: 1.0
┆ Content-Type: text/plain; charset=utf-8
  Content-Transfer-Encoding: 7bit\r\n
┆ Line-based text data: text/plain
  test+template2+666666666\r\n
```

It is important to notice a slight difference between the *\$mobilenumber\$* and *\$message\$* variables. Normally, all of the whitespace characters (spaces) are escaped and replaced by the + character. When the *\$message\$* variable is used, those whitespace characters are kept.

There is one example of an SMTP SMS gateway (ClickatellViaSMTP) that is configured with multiple values in the *SMTP API body template* field. All of these values are static (except the *\$message\$* and *\$mobilenumber\$* values). The values are provided in order to show that it is possible to adjust that payload and provide additional data, which might be required by the SMTP provider. The values that are displayed in capital letters should be replaced with the correct values, which are provided by the provider (and they will be the same for all of the emails that are sent via this provider).

Here is an example:

▽ Line-based text data: text/plain

```
api_id:[API+ID]\r\nuser:[USERNAME]\r\npassword:[PASSWORD]\r\nto:777777777\r\nmo:1\r\nfrom:[FROM+NUMBER]\r\ntext:Hello ttt,\r\ntext:Your account details:\r\ntext:Username: t0000007\r\ntext>Password: Z:u*DKQ.
```

SMS Gateway Via HTTP

For the HTTP2SMS gateway, enter **SMS HTTP API** in order to use an HTTP *Get request* method:

The screenshot shows the Cisco ICM configuration interface for an SMS Gateway Provider. The left sidebar contains a 'Settings' menu with options like Client Provisioning, Adaptive Network Control, FIPS Mode, Alarm Settings, Posture, Profiling, Protocols, Proxy, TrustSec Settings, SMTP Server, SMS Gateway (selected), System Time, Policy Sets, and ERS Settings. The main content area is titled 'SMS Gateway Provider List > New SMS Gateway Provider' and 'SMS Gateway Provider'. It includes a text field for 'SMS Gateway Provider Name', a radio button selection for 'Select Provider Interface Type' (with 'SMS HTTP API' selected), a 'URL' field, a 'Data (Uri encoded portion):' field, a checkbox for 'Use HTTP POST method for data portion', and fields for 'HTTP POST data content type', 'HTTPS Username', 'HTTPS Password', 'HTTPS Host', and 'HTTPS Port'. 'Submit' and 'Cancel' buttons are at the bottom.

Usually, the SMS provider should indicate the attributes that are mandatory to send and those that are optional, as well as the kind of string that should be sent and the port number (if it is other than 80).

Here is an example that is based on the *AwalJawaly* SMS service provider, and this is the URL structure that is used: **http://awaljawaly.awalservices.com.sa:8001/Send.aspx**.

These are the *mandatory* parameters:

- Request type (SMSSubmitReq)
- Username
- Password
- Mobile number

- Message

These are the *optional* parameters:

- Origin address
- Type
- Delivery time
- Validity period
- Flashing
- Acknowledgement
- Maximum credits
- Client message ID
- User Data Header (UDH)

This is the URL that is used in this example:

http://awaljawaly.awalservices.com.sa:8001/Send.aspx?REQUESTTYPE=SMSSubmitReq&Username=&Test&

Note: All of the mandatory fields are included in the previous URL. The optional fields might be added to the string if needed.

Here are some notes about the optional fields:

1. The username and password should be included in this link (unfortunately, clear text is used).
2. The mobile number is taken automatically from the *Phone number* field during the guest creation exercise from the Sponsor portal.
3. The *message* field is filled automatically from this location: **Sponsor portal > Portal Page Customization > Notify Guests > SMS notification > Message text.**

After you enable the *Use HTTP POST method for data portion*, the HTTP POST request is used:

Use HTTP POST method for data portion

HTTP POST data content type:

HTTPS Username:

HTTPS Password:

HTTPS Host:

HTTPS Port:

If you use the POST method, specify the content type, such as *plain/text* or *application/xml*. All other information should be shared by the SMS service provider.

The Data field is mostly used with the POST method. Any information that is used in the Data field for the GET method is added at the end of the Uniform Resource Identifier (URI) for the GET HTTP request.

URL: * :ame=&Admin&&Password=123456&MOBILENO=\$mobilenumber\$&MESSAGE=\$message\$
Hello World !

Here is an example of the URI for the GET HTTP request:

MOBILENO=123456789&MESSAGE=Hello+User1%2C%0AYour+account+details%3A%0AUsername%3A+user001%0APassword%3A+15E7%15BmvgHello+World+521+

When the \$message\$ variable is not used in the URL link, but information is input in the Data field, this information is visible near the start (message field) of the URI for the GET HTTP request:

URL: * :Req&Username=&Admin&&Password=123456&MOBILENO=\$mobilenumber\$&MESSAGE=
Hello World !

Here is an example of the URI for the GET HTTP request:

MOBILENO=123456789&MESSAGE=Hello+World+111Hello+User1%2C%0AYour+account+details%3A%0AUsername%3A+user001%0APassword%3A+15E7%15Bmvg

Here are some notes about the encoding:

- **URL field** – This field is not URL-encoded. The guest account mobile number is substituted into the URL. The supported dynamic substitutions are \$mobilenumber\$ and \$message\$.
- **Data field** – This field is URL-encoded by the application/x-www-form-urlencoded system.
- **Space** – There are two types of URL encoding, which differ in the way that they treat spaces. The first (specified by RFC 1738) treats a space as just another illegal character in a URL and encodes it as %20. The second (when the application/x-www-form-urlencoded system is implemented) encodes a space as a + character and is used in order to build the query strings. The second option uses urlencode() and urldecode() functions that differ from their raw counterparts (RFC 1738) only in that they encode the spaces as plus signs (+) instead of as the sequence %20. Because the ISE uses the application/x-www-form-urlencoded system for the Data field encryption, a space is encrypted as a + character.

Note: If the \$message\$ variable is used in a URL link directly or the \$message\$ variable is used in the Data field only, the information is taken from the Message text under the SMS notification (**Portal Customization Page > SMS notification**). All of the data in the Message text field is URL-encoded.

Here are two examples:

URL: * :ame=&Admin&&Password=123456&MOBILENO=\$mobilenumber\$&MESSAGE=\$message\$
URL: * :Req&Username=&Admin&&Password=123456&MOBILENO=\$mobilenumber\$&MESSAGE=
\$message\$

Here is an example of the URI for the GET HTTP request:

[:MESSAGE=Hello+User1%2C%0AYour+account+details%3A%0AUsername%3A+uuser001%0APassword%3A+%5E7j%5Bmvrq\]](#)

Note: The GET method does not support HTTPS (it is only by the POST method).

Guest Notification with Credentials Via Email

The user that creates guest accounts via the Sponsor portal has the option to send email notifications with credentials to that specific user:

The screenshot displays the Cisco Sponsor Portal interface. At the top, there is a navigation bar with the Cisco logo and 'Sponsor Portal' text, and a 'Welcome cisco' message. Below the navigation bar are four buttons: 'Create Accounts', 'Manage Accounts (6)', 'Pending Accounts (0)', and 'Notices (0)'. The main content area is titled 'Account Information' and contains a list of fields for account details. A modal dialog box titled 'Notify' is open in the foreground, allowing the user to choose how to deliver a notification. The 'Email' option is selected with a checked checkbox. There is also a 'Copy me' checkbox and a text input field for the 'Sponsor's Email address*' with the value 'sponsor@example.com'. At the bottom of the dialog are 'Cancel' and 'Ok' buttons. Below the dialog, there are 'Notify' and 'Done' buttons.

This email is sent to the guest email address through the previously configured SMTP relay. The sponsor can provide any email that is used as *From*. If the sponsor does not provide the guest email address during account creation, the ISE returns this Graphic User Interface (GUI) error:

Unable to send email.

The SMTP server policies decide whether to accept or drop such an email. For example, the server can be configured in order to accept emails only from the domain *example.com*.

Guest Notification with Credentials Via SMS

In order for this option to work, the sponsor must be in the sponsor group that has enabled the privilege:

Send SMS notifications with guests' credentials

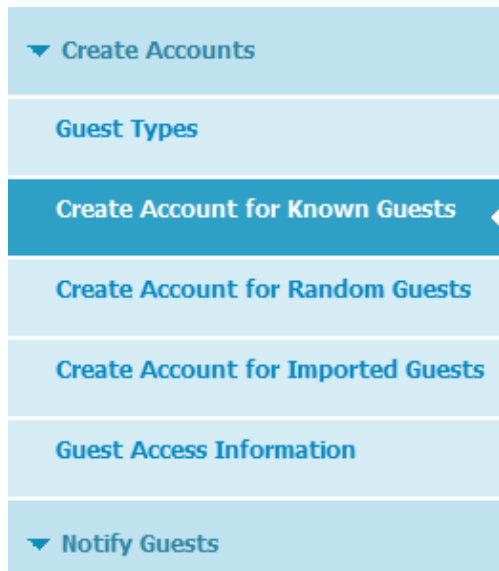
The default sponsor group (*ALL_ACCOUNTS*) does not have that privilege disabled. In order to change this, navigate to **Guest Access > Configure > Sponsor Groups > ALL_ACCOUNTS**:

Sponsor Can

- View guests' passwords
 - Reset guests' account passwords
- Extend guest accounts
- Send SMS notifications with guests' credentials
- Delete guests' accounts
- Suspend guests' accounts
 - Require sponsor to provide a reason
- Reinstate suspended guests' accounts
- Approve requests from self-registering guests
- Access Cisco ISE guest accounts using the programmatic interface (Guest REST API)

When you choose a notification via SMS, by default there is no option to choose a specific SMS provider, so a default one is used. In order to change this, you can customize the Sponsor portal.

In order to customize the Sponsor portal, navigate to **Guest Access > Configure > Sponsor Portals > Sponsor Portal**. You can then choose the **Portal Page Customization** option and scroll down to *Create Account for Known Guests*:



Within the right pane, change the value from **Previous** to **Settings** and select the desired (multiple) SMS provider for that page:

▼ **Settings specific to known guests**

<u>Fields to include</u>	<u>Required</u>
<input checked="" type="checkbox"/> First name	<input type="checkbox"/>
<input checked="" type="checkbox"/> Last name	<input type="checkbox"/>
<input checked="" type="checkbox"/> Email address	<input type="checkbox"/>
<input checked="" type="checkbox"/> Phone number	<input type="checkbox"/>
<input checked="" type="checkbox"/> Company	<input type="checkbox"/>
<input checked="" type="checkbox"/> SMS Service	<input type="checkbox"/>

Provider

Guests can choose from these SMS providers:

<input checked="" type="checkbox"/> Global Default	▲
<input checked="" type="checkbox"/> T-Mobile	☰
<input checked="" type="checkbox"/> ATT	▼
<input type="checkbox"/> Verizon	
<input type="checkbox"/> ClickatellViaSMTP	

Person being visited

Reason for visit

▼ **Settings for known, random and imported guests**

- Allow sponsor to tag accounts as belonging to a group**
- Allow sponsor to choose notification language**
- Include AUP link**
- Require acceptance**

Once the *Guest portal Create Account for Known Guest* page is customized, the sponsor that uses the portal has the option to select an SMS provider during the creation of a guest account. This same provider is used for further SMS notifications:

Create Accounts
Manage Accounts (10)
Pending Accounts (0)
Notices (0)

Guest type:
 Contractor (default) ▼

Maximum devices that can be connected: 5
 Maximum access duration: 365 days

Guest Information

Known
Random
Import

First name:

Last name:

Email address:

Phone number:

Company:

SMS provider: ATT ▼

ATT
 Global Default
 T-Mobile

Access Information

Duration:* Days (Maximum: 365)

From Date (yyyy-mm-dd) * From Time *

To Date (yyyy-mm-dd) * To Time *

Location: San Jose ▼

Create

When the SMS gateway is not reachable or returns an error, the ISE GUI sends a notification:

Unable to send SMS.

Note: An SMS is not sent when the user is created, but when the *Notification* button is clicked after the user creation is complete.

Guest Users (Self-Registered)

Guests accounts can be created automatically via the Self-Registered Guest portal. The guest users are able to create their own accounts:



Create Account

Provide us with some information so we can create an account for you.

Username

First name

Last name

Email address

Phone number

Company

Person being visited(email)

Reason for visit

They are provided (by default) with credentials on the same web page:



Account Created

Use the following information to sign on to the network.

Username: test
Password: o0
First name: test
Email: mgarcarz@cisco.com
Location: San Jose
SMS provider: Global Default

Sign On

These credentials can also be delivered via email or SMS.

Navigate to **Guest Access > Configure > Guest Portals > Self Registered Guest Portal > Self Registration Page Settings** in order to allow multiple SMS gateways for specific self-registered guests:

SMS Service Provider

Guests can choose from these SMS providers:

- Global Default
- T-Mobile
- ATT
- Verizon
- Global Default

Guest see providers list only if multiple are selected

The guests are able to select an SMS provider during account creation. This is used in order to deliver credentials to their mobile phones:



Create Account

Provide us with some information so we can create an account for you.

Username

test

First name

Last name

Email address

Phone number

4866666666

Company

SMS provider

ATT 

- ATT
- Global Default
- T-Mobile

Reason for visit

Register

Cancel

After registration is complete, a password is presented on the next page. If this is not desired, you can disable it from the *Self Registration Success Page* section of the portal. From the same page, you can also allow the guest to manually deliver the notification via email or SMS:

▼ Self-Registration Success Settings

Include this information on the Self-Registration Success page:

- User name
- Password
- First name
- Last name
- Email address
- Phone number
- Company
- Location
- SMS Service Provider
- Person being visited
- Reason for visit

Allow guest to send information to self using:

- Print
- Email
- SMS

In order to automatically deliver the credentials via email or SMS (or both), customize the last section of the *Self Registration Page Settings*:

Send credential notification automatically using:

- Email
- SMS

In this case, an email address and phone number must be input during guest account creation.

This is the only guest flow where notifications can be sent automatically (immediately after the user has registered). When the guest user account is created by a sponsor, this option is not available, and a notification is sent only after the sponsor manually clicks the *Notification* button.

Guest Approval Via Email

As described in the previous section, guests can register themselves and have an account automatically registered. However, it is also possible to enable sponsor approval for this process.

In this case, the sponsor receives an email that must be approved (a specific link in the email is clicked). Only then is the guest account activated. In order to configure this feature (by default it is disabled) navigate to **Guest Access > Configure > Guest Portals > Self Registered Guest Portal > Self Registration Page**

Settings and enable the **Require self-registered guests to be approved** option:

Require self-registered guests to be approved

[Guest Access](#) > [Settings](#) > [Guest Email Settings](#)

Email approval request to:

You must also provide the email addresses of the sponsor(s) that are able to approve the guest account.

Here are some additional settings that can be configured from the *Guest Email Settings* page:

▼ **Guest Email Settings** Identify the SMTP server and specify the email address

SMTP server:

Configure SMTP server at:
[Administration](#) > [System](#) > [Settings](#) > [SMTP](#)

Enable email notifications to guests

Default 'From' email address:

Send notifications from sponsor's email address (if sponsored)

Always send notifications from the default email address

These settings apply to all types of guest notifications (not only sponsor-approved).

Guest Account Expiration Via Email/SMS

Guests users can be informed when the account is soon to expire. In order to configure this (per Guest Type), navigate to **Guest Access > Guest Types > Contractor**:

Account Expiration Notification

Send account expiration notification days before account expires

View messages in:

Email

Use customization from:

Messages:

Your account is going to expire in 3 days. Please notify your sponsor to extend your account now to avoid any delays.

Send test email to me at:
 email address

Configure SMTP server at: [Administration > Systems > Settings > SMTP server](#)

SMS

Messages:

Your account is going to expire in 3 days. Please notify your sponsor to extend your account now to avoid any delays.

(160 character limit per message)*Over 160 characters requires multiple messages.

Send test SMS to me at:
 phone number

Configure SMS service provider at: [Administration > Systems > Settings > SMS Gateway](#)

These sponsor groups can create this

Sponsor Groups:

All of the guests that are *contractors* will receive a notification three days prior to the account expiration. This notification can be delivered via SMS and/or email. The SMS-specific provider can be selected and will be used for all of the guests (even if the specific guest is self-registered and is allowed to use a different SMS provider).

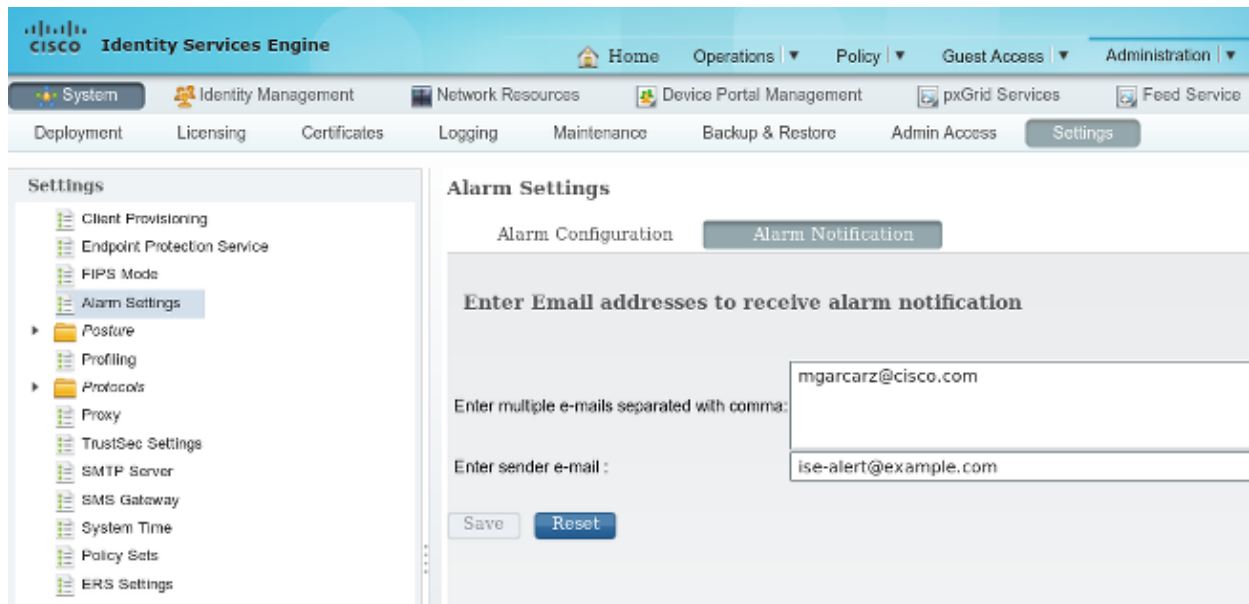
In the same section, there is a *Send test email to me at* option. This makes it possible to test the SMTP server availability and configuration. After you provide an email address, this email message is then delivered:



Your account is going to expire in 3 days. Please notify your sponsor to extend your account now to avoid any delays.

Alarms Delivered Via Email

The ISE is able to send emails for detected system alerts. In order to enable this capability, navigate to **Administration > System > Alarm Settings > Alarm Notification** and provide the *From* and *To* email addresses:



Ensure that a specific alarm is enabled from the *Alarm Configuration* section:

Alarm Settings

Alarm Configuration	Alarm Notification
<p>Alarm Name:</p> <p>Description:</p> <p>Suggested Actions:</p> <p> Status:</p>	<p>CA Server is up</p> <p>CA Server is up</p> <p>A notification to inform the administrator that the CA server is up</p> <p>Enable ▾</p>
<p><input type="button" value="Submit"/> <input type="button" value="Cancel"/></p>	

Once enabled and triggered, an email will be sent when the alarm is triggered. Here is an example of the typical alert that is sent:

ISE Alarm : Warning : No Accounting messages in the last 15 mins

No Accounting Start

Details :

No Accounting messages in the last 15 mins

Description :

No Accounting messages have been received from Network Device(s) in the past 15 minutes for any of the session(s) authorized by ISE Policy Service Nodes

Suggested Actions :

Ensure RADIUS accounting is configured on the Network Device(s), Check Network Device(s) configuration for local Authorization

*** This message is generated by Cisco Identity Services Engine (ISE) ***

Sent By Host : ise13

Send SMS Via REST API

The ISE allows the use of a guest REST API in order to create guest users. Once a guest user is created with the correct SMS provider, it is possible to send an SMS with the guest REST API. Here is an example:

```
PUT https://<ISE-ADMIN-NODE>:9060/ers/config/guestuser/sms/444/portalId/ff2d99e0-2101-11e4-b5cf-005056bf2f0a
Authorization: Basic xxxxxxxxxxxxxxxxxxxxxx
Accept: application/vnd.com.cisco.ise.identity.guestuser.2.0+xml
```

In this example, **444** is the guest user ID and the long string (*ff2d99e0-2101-11e4-b5cf-005056bf2f0a*) is the portal ID (sponsor portal).

Note: Basic HTTP authorization for a correct sponsor user is required. For more details, refer to the API Reference Guide.

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [Cisco Identity Services Engine Administrator Guide, Release 1.3](#)
- [Cisco Identity Services Engine Administrator Guide, Release 1.4 – Configure Guest Access](#)
- [Cisco Identity Services Engine API Reference Guide, Release 1.4 – Send an SMS Text to a Guest User](#)
- [Cisco Identity Services Engine Administrator Guide, Release 1.3 – SMS Gateway Settings](#)
- [Administer Cisco ISE](#)
- [Technical Support & Documentation - Cisco Systems](#)