Configure SMTP Server to Use AWS SES

Contents

Introduction

This document describes how to configure your **Secure Network Analytics Manager** (SNA) to use **Amazon Web Services Simple Email Service** (AWS SES).

Prerequisites

Requirements

Cisco recommends knowledge of these topics:

- AWS SES

Components Used

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

- **Stealthwatch Management Console v7.3.2**
- AWS SES Services as they exist on 25MAY2022 with **Easy DKIM**

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, ensure that you understand the potential impact of any command.

Configure

Review AWS SES configuration

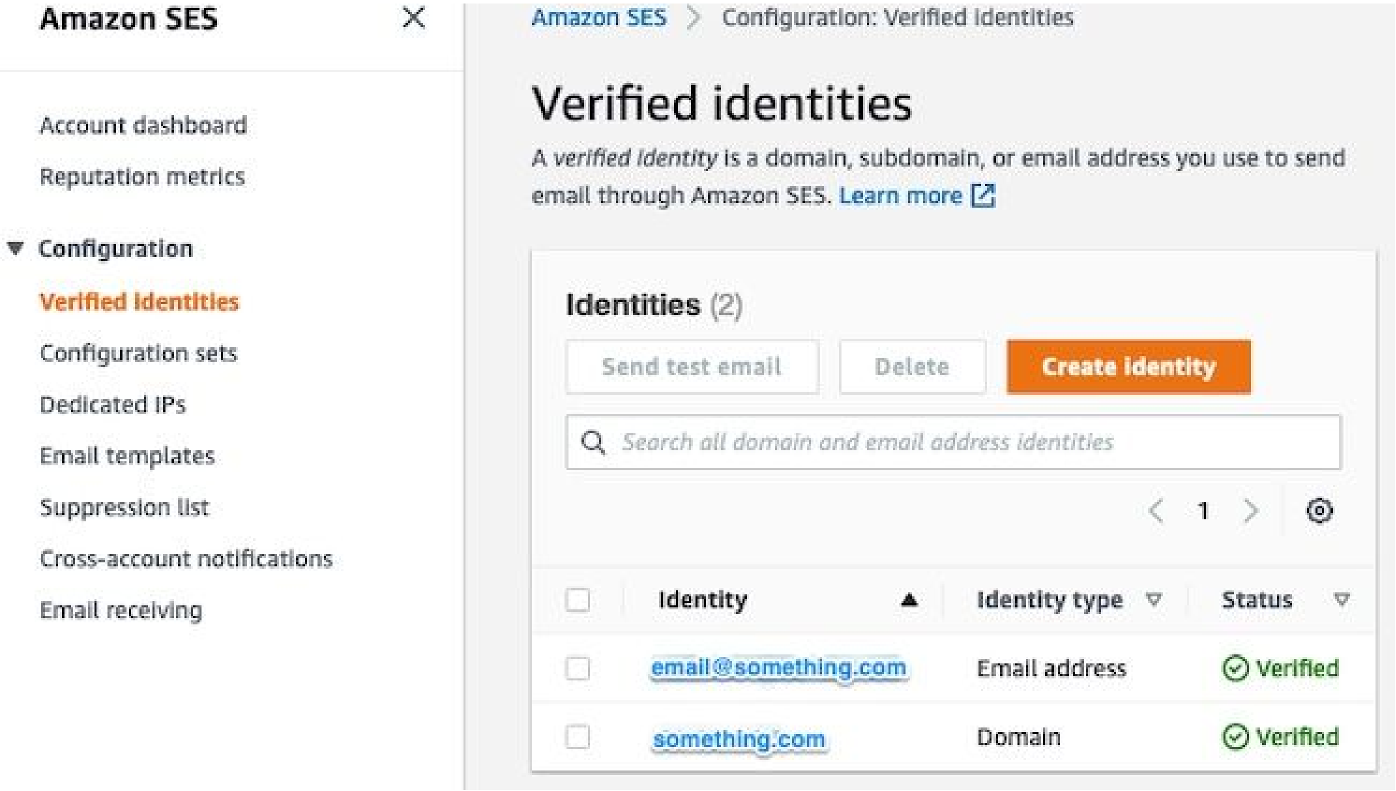
Three bits of information are required from AWS:

1. AWS SES location
2. SMTP Username
3. SMTP Password

> **Note**: AWS SES located in the sandbox is acceptable but be aware of the limitations for sandbox environments: https://docs.aws.amazon.com/ses/latest/dg/request-production-access.html

In the AWS console, navigate to **Amazon SES**, then select **Configuration** and click **Verified Identities.**

You must have a verified domain. A verified email address is not required. Refer to AWS documentation https://docs.aws.amazon.com/ses/latest/dg/creating-identities.html#verify-domain-procedure



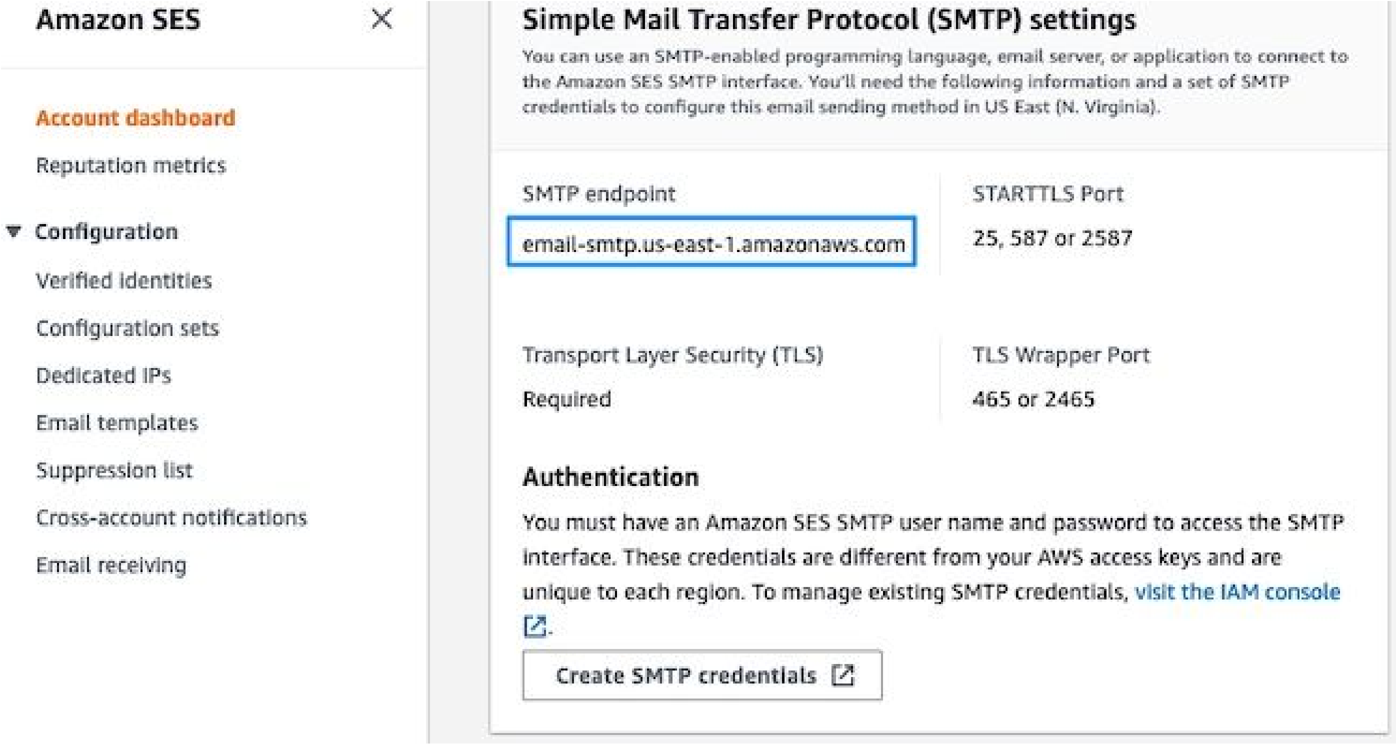
Verified identities

A *verified identity* is a domain, subdomain, or email address you use to send email through Amazon SES. Learn more

Identities (2)

□	Identity ▲	Identity type ▽	Status ▽
□	email@something.com	Email address	✓ Verified
□	something.com	Domain	✓ Verified

Note the location of your SMTP endpoint. This value is needed later.



Simple Mail Transfer Protocol (SMTP) settings

You can use an SMTP-enabled programming language, email server, or application to connect to the Amazon SES SMTP interface. You'll need the following information and a set of SMTP credentials to configure this email sending method in US East (N. Virginia).

SMTP endpoint: email-smtp.us-east-1.amazonaws.com

STARTTLS Port: 25, 587 or 2587

Transport Layer Security (TLS): Required

TLS Wrapper Port: 465 or 2465

Authentication

You must have an Amazon SES SMTP user name and password to access the SMTP interface. These credentials are different from your AWS access keys and are unique to each region. To manage existing SMTP credentials, visit the IAM console.

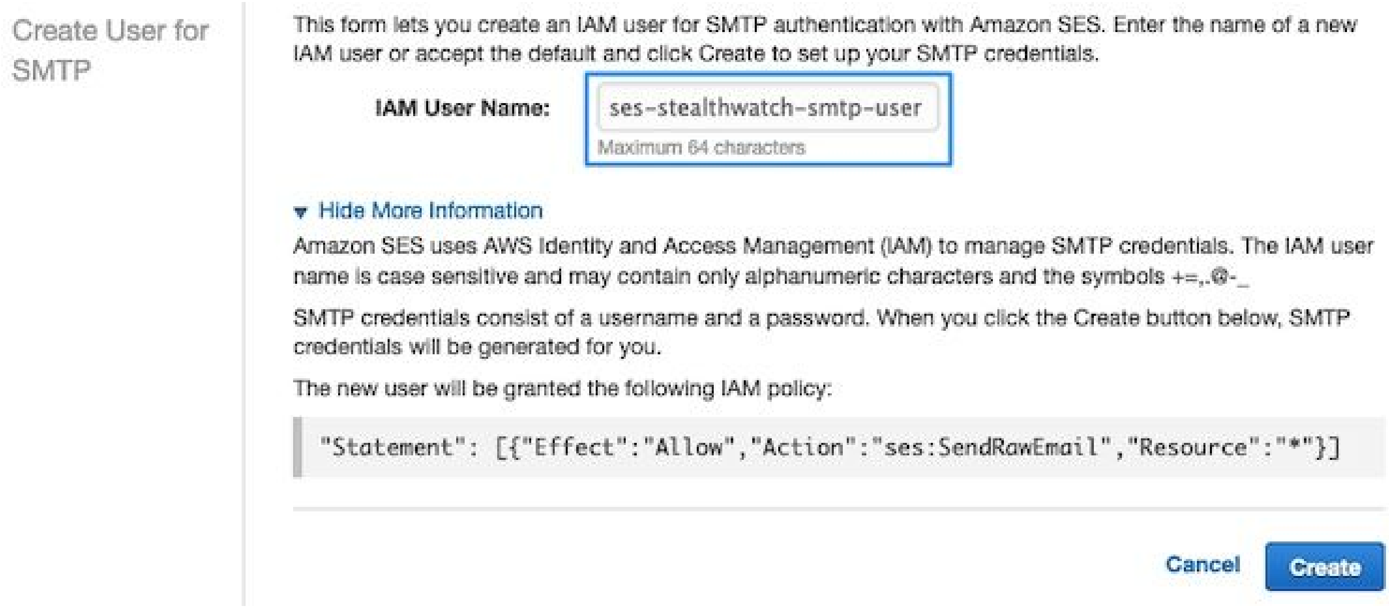
Create AWS SES SMTP Credentials

In the AWS console, navigate to **Amazon SES**, then click **Account Dashboard**.

Scroll down to the " **Simple Mail Transfer Protocol (SMTP) settings**" and click **Create SMTP Credentials** when you are ready to complete this configuration.

Older, unused credentials (approximately 45 days) do not seem to error as invalid credentials.

In this new window, update the username to any value and click **Create**.



This form lets you create an IAM user for SMTP authentication with Amazon SES. Enter the name of a new IAM user or accept the default and click Create to set up your SMTP credentials.

IAM User Name: ses-stealthwatch-smtp-user

Maximum 64 characters

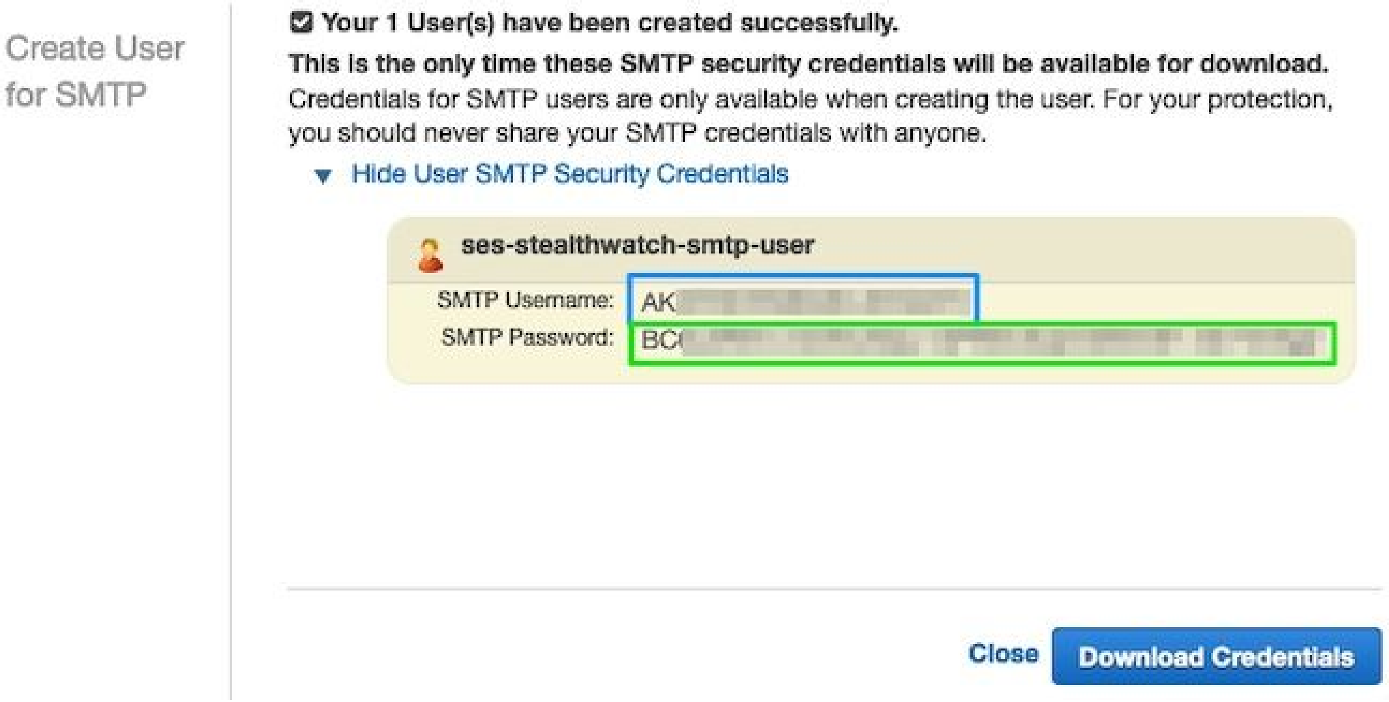
Amazon SES uses AWS Identity and Access Management (IAM) to manage SMTP credentials. The IAM user name is case sensitive and may contain only alphanumeric characters and the symbols +=,.@-_

SMTP credentials consist of a username and a password. When you click the Create button below, SMTP credentials will be generated for you.

The new user will be granted the following IAM policy:

```
"Statement": [{"Effect":"Allow","Action":"ses:SendRawEmail","Resource":"*"}]
```

When the page presents the credentials, save them. Keep this browser tab open.



Create User for SMTP

☑ **Your 1 User(s) have been created successfully.**

This is the only time these SMTP security credentials will be available for download.

Credentials for SMTP users are only available when creating the user. For your protection, you should never share your SMTP credentials with anyone.

▼ Hide User SMTP Security Credentials

ses-stealthwatch-smtp-user

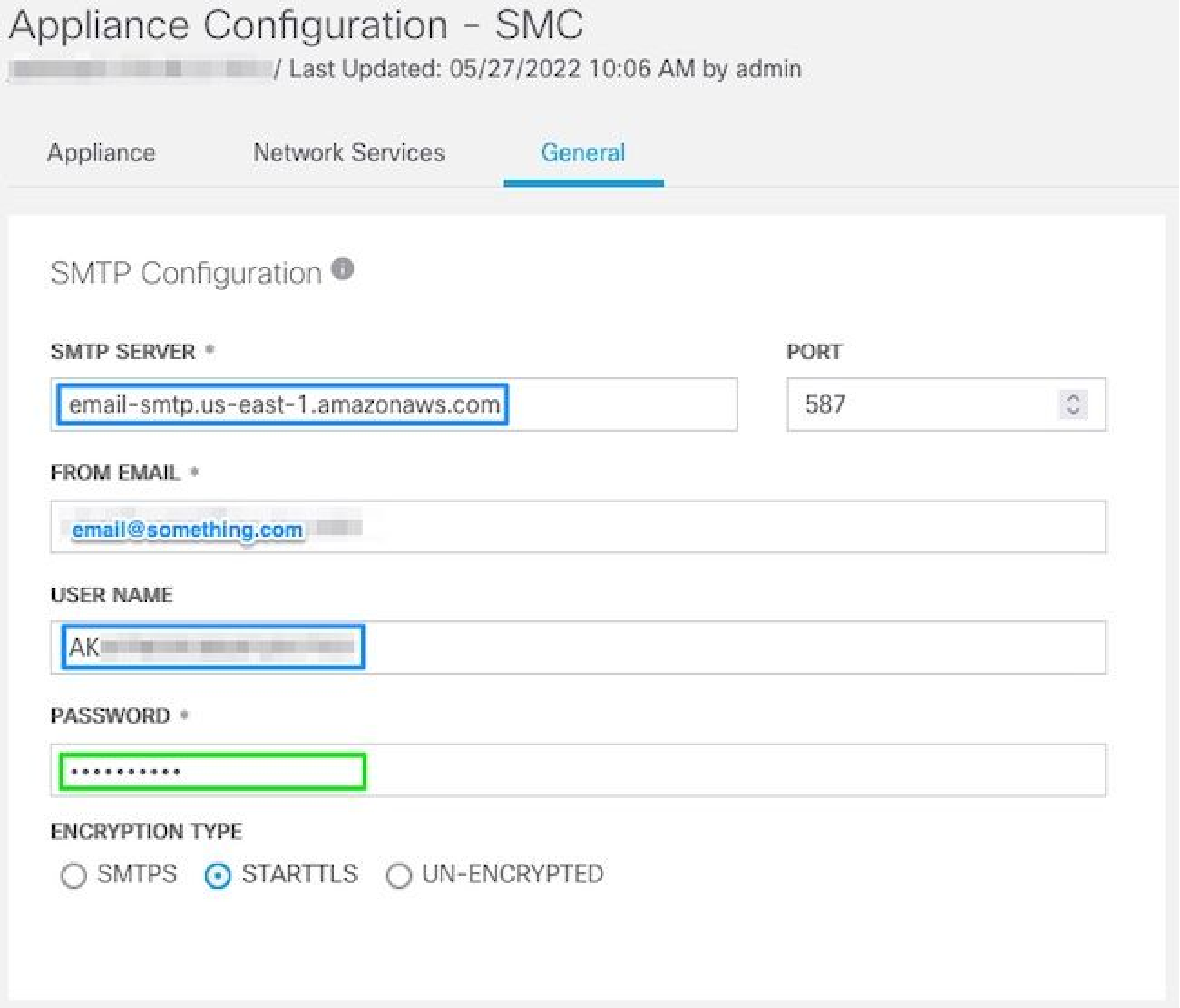
SMTP Username: AK[redacted]

SMTP Password: BC[redacted]

Configure SNA Manager SMTP Configuration

Login to the **SNA Manager**, and open **SMTP Notifications** section

1. Open **Central Management > Appliance Manager**.
2. Click the **Actions** menu for the appliance.
3. Select **Edit Appliance Configuration**.
4. Select the **General** tab.
5. Scroll down to **SMTP Configuration**
6. Enter the values gathered from AWS **SMTP Server**: This is the SMTP Endpoint location gathered from the **SMTP Settings** from the **AWS SES Account Dashboard** page**Port**: Enter 25, 587, or 2587**From Email**: This can be set to any email address that contains the **AWS Verified DomainUser Name**: This is the SMTP user name that was presented on the last step in the **Review AWS SES Configuration** section**Password**: This is the SMTP password that was presented on the last step in the **Review AWS SES Configuration** section**Encryption Type**: Select STARTTLS (If you select SMTPS, edit the port to 465, or 2465)
7. Apply the settings and wait for the **SNA Manager** to return to an **UP** state in **Central Management**



Appliance Configuration - SMC

[redacted] / Last Updated: 05/27/2022 10:06 AM by admin

SMTP Configuration

SMTP SERVER *: email-smtp.us-east-1.amazonaws.com

PORT: 587

FROM EMAIL *: email@something.com [redacted]

USER NAME: AK[redacted]

PASSWORD *: **********

ENCRYPTION TYPE: ○ SMTPS ● STARTTLS ○ UN-ENCRYPTED

Gather AWS Certificates

Establish an SSH session to the **SNA Manager**, and login as the root user.

Review these three items

- Change the SMTP endpoint location (for example email-smtp.us-east-1.amazonaws.com)
- Change the port used (for example default of 587 for STARTTLS)
- The commands have no STDOUT, the prompt is returned upon completion

For STARTTLS (default port of 587):

```
openssl s_client -starttls smtp -showcerts -connect email-smtp.us-east-1.amazonaws.com:587 <<<
"Q" 2>/dev/null > mycertfile.crt awk 'split_after == 1 {n++;split_after=0} /-----END
CERTIFICATE-----/ {split_after=1} {print > "cacert" n ".pem"}' < mycertfile.crt for i in `ls -t1
*.pem`; do cp $i $(awk -F "CN=" '/s:/ {gsub(/ /,x ); print $NF}' $i).pem ; done ; rm -f cacert*
mycertfile.crt
```

For SMTPS (default port of 465):

```
openssl s_client -showcerts -connect email-smtp.us-east-1.amazonaws.com:465 <<< "Q" 2>/dev/null
```

```
> mycertfile.crt awk 'split_after == 1 {n++;split_after=0} /-----END CERTIFICATE-----/
{split_after=1} {print > "cacert" n ".pem"}' < mycertfile.crt for i in `ls -t1 *.pem`; do cp $i
$(awk -F "CN=" '/s:/ {gsub(/ /,x ); print $NF}' $i).pem ; done ; rm -f cacert* mycertfile.crt
```

The certificate files with the pem extension is created created in the current working directory, take not of this directory (output from pwd command / last line)

```
sna_manager:~# openssl s_client -starttls smtp -showcerts -connect email-smtp.us-east-
1.amazonaws.com:587 <<< "Q" 2>/dev/null > mycertfile.crt
sna_manager:~# awk 'split_after == 1 {n++;split_after=0} /-----END CERTIFICATE-----/
{split_after=1} {print > "cacert" n ".pem"}' < mycertfile.crt
sna_manager:~# for i in `ls -t1 *.pem`; do cp $i $(awk -F "CN=" '/s:/ {gsub(/ /,x ); print $NF}'
$i).pem ; done ; rm -f cacert* mycertfile.crt
sna_manager:~# ll
total 16
-rw-r--r-- 1 root root 1648 May 27 14:54 Amazon.pem
-rw-r--r-- 1 root root 1829 May 27 14:54 AmazonRootCA1.pem
-rw-r--r-- 1 root root 2387 May 27 14:54 email-smtp.us-east-1.amazonaws.com.pem
-rw-r--r-- 1 root root 1837 May 27 14:54 StarfieldServicesRootCertificateAuthority-G2.pem
sna_manager:~# pwd
/root
```

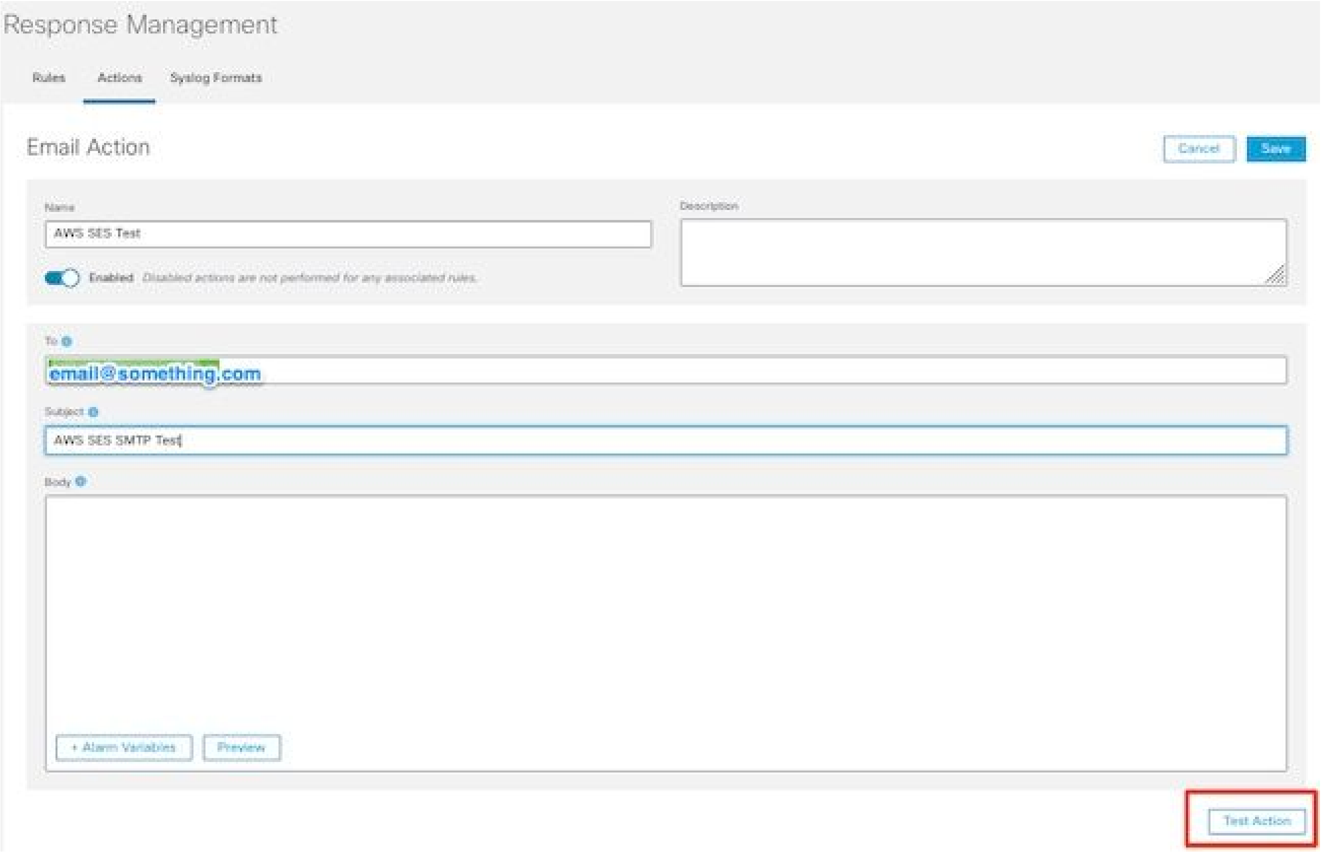
Download the files created on the **SNA Manager** to your local machine with the file transfer program of your choice (Filezilla, winscp, etc), and add these certificates to the **SNA Manager trust store** in **Central Management.**

1. Open **Central Management > Appliance Manager.**
2. Click the **Actions** menu for the appliance.
3. Select **Edit Appliance Configuration.**
4. Select the **General** tab.
5. Scroll down to **Trust Store**
6. Select **Add New**
7. Upload each of the certificates, recommed to use the filename as the **Friendly Name**

Configure Response Management Email Action

Login to the **SNA Manager**, and open the **Response Management** section

1. Select the **Configure** tab in the main ribbon along the top of the screen
2. Select **Response Management**
3. From the **Response Management** page, select **Actions** tab
4. Select **Add New Action**
5. Select **Email**Provide a name for this Email actionEnter the recipient email address in the "To" field (note this must belong to the domain verified in AWS SES)The subject can be anything.



Name: AWS SES Test

Enabled Disabled actions are not performed for any associated rules.

Description:

To: email@something.com

Subject: AWS SES SMTP Test

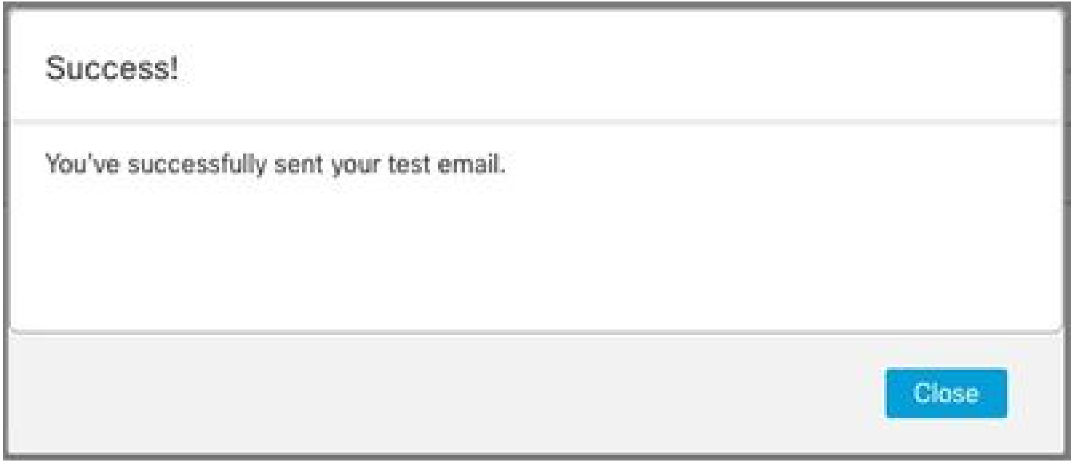
Body:

6. Click **Save**

Verify

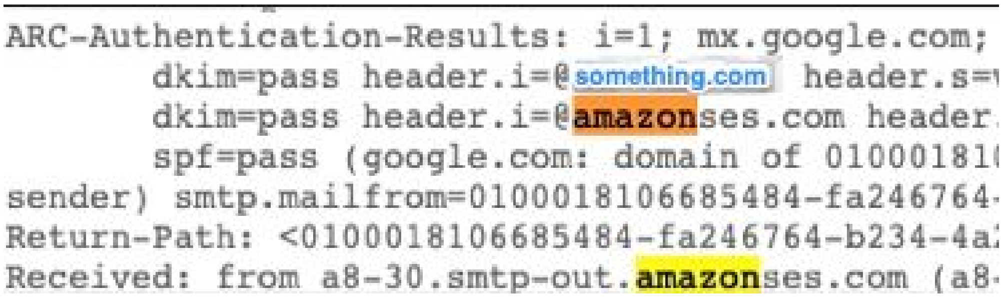
Login to the **SNA Manager**, and open the **Response Management** section:

1. Select the **Configure** tab in the main ribbon along the top of the screen
2. Select **Response Management**
3. From the **Response Management** page, select **Actions** tab
4. Select the ellipsis in the **Actions** column for the row of the email action you configured in the **Configure Response Management Email Action** section, and select **Edit.**
5. Select **Test Action** and if the configuration is valid, a success message is presented, and an email is delivered.
   In the email header amazonses is shown in the " **Received**" field, and amazonses, along with the verified domain in the **ARC-Authentication-Results (AAR) Chain**



Success!

You've successfully sent your test email.



```
ARC-Authentication-Results: i=1; mx.google.com;
       dkim=pass header.i=@something.com  header.s=
       dkim=pass header.i=@amazonses.com header
       spf=pass (google.com: domain of 01000181
sender) smtp.mailfrom=0100018106685484-fa246764-
Return-Path: <0100018106685484-fa246764-b234-4a
Received: from a8-30.smtp-out.amazonses.com (a8-
```

6. If the test was unsuccessful,a banner is presented at the top of the screen - continue to the troubleshoot section

Troubleshoot

The **/lancope/var/logs/containers/sw-reponse-mgmt.log** file contains the error messages for the test actions.
The most common error, and the fix is listed in the table.
Note, that the error messages listed in the table are just a portion of the error log line

Error	Fix
SMTPSendFailedException: 554 Message rejected: Email address is not verified. The identities failed the check in region US-EAST-1: {email_address}	Update the "From Email" in the SNA ManagerSM Configuration to an email that belongs to the AWS SES verified domain
AuthenticationFailedException: 535 Authentication Credentials Invalid	Repeat sections Create AWS SES SMTP Creden and Configure SNA Manager SMTP Configuratio
SunCertPathBuilderException: unable to find valid certification path to requested target	Confirm all AWS presented certificates are in SNA Manager trust store - perform packet capture whe **Test Action** is performed and compare server si presented certificates to trust store contents
SSL routines:tls_process_ske_dhe:dh key too small	See addendum
Any other error	Open TAC case for review

Addendum: DH key too small.

This is an AWS side issue, as they use 1024 bit keys when DHE and EDH ciphers are used (logjam susceptible) and the SNA Manager refuses to continue the SSL session. The command output shows the server temp keys from the openssl connection when DHE/EDH ciphers are used.

```
sna_manager:~# openssl s_client -starttls smtp -connect email-smtp.us-east-2.amazonaws.com:587 -
cipher "EDH" <<< "Q" 2>/dev/null | grep "Server Temp"
Server Temp Key: DH, 1024 bits
sna_manager:~# openssl s_client -starttls smtp -connect email-smtp.us-east-2.amazonaws.com:587 -
cipher "DHE" <<< "Q" 2>/dev/null | grep "Server Temp"
Server Temp Key: DH, 1024 bits
sna_manager:~# openssl s_client -starttls smtp -connect email-smtp.us-east-2.amazonaws.com:587
<<< "Q" 2>/dev/null | grep "Server Temp"
Server Temp Key: ECDH, P-256, 256 bits
```

The only available workaround is to remove all DHE and EDH ciphers with the command as the root user on the SMC, AWS selects a ECDHE cipher suite and the connection succeeds.

```
cp /lancope/services/swos-compliance/security/tls-ciphers /lancope/services/swos-
compliance/security/tls-ciphers.bak ; > /lancope/services/swos-compliance/security/tls-ciphers ;
echo
"TLS_AES_128_GCM_SHA256:TLS_CHACHA20_POLY1305_SHA256:TLS_AES_256_GCM_SHA384:TLS_AES_128_CCM_SHA2
56:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:ECDHE-ECDSA-
AES256-GCM-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-CHACHA20-POLY1305:ECDHE-RSA-CHACHA20-
POLY1305:AES256-GCM-SHA384" > /lancope/services/swos-compliance/security/tls-ciphers ; docker
restart sw-response-mgmt
```

Related Information

- https://docs.aws.amazon.com/ses/latest/dg/setting-up.html
- https://docs.aws.amazon.com/ses/latest/dg/creating-identities.html#verify-domain-procedure
- https://docs.aws.amazon.com/ses/latest/dg/smtp-credentials.html
- https://docs.aws.amazon.com/ses/latest/dg/smtp-connect.html
- Technical Support & Documentation - Cisco Systems