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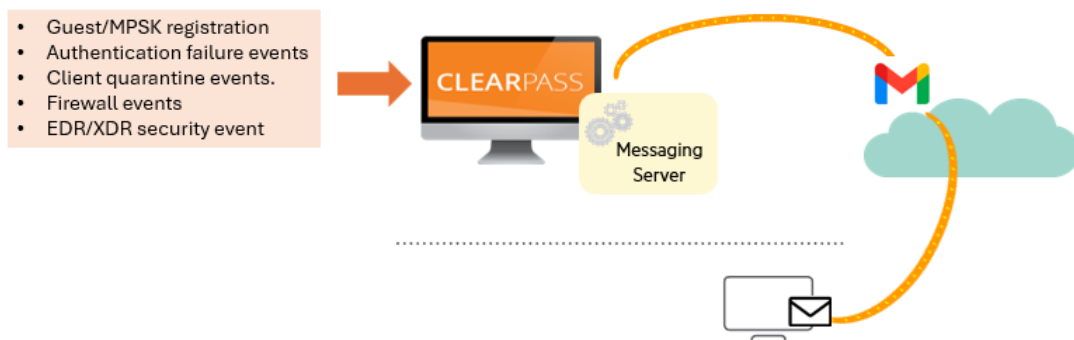
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1.1 Revision History

DATE	VERSION	EDITOR	CHANGES
29 Aug 2025	0.1	Ariya Parsamanesh	Initial creation

2 ClearPass using Gmail as Messaging Server

In this technote, I'll walk through using Gmail as a messaging server in ClearPass, particularly useful in lab environments where you're testing solutions that require email integration.



Here are some solutions that require email integrations.

- Trigger email delivery of credentials after MPSK registration.
- Guest access with sponsor approval
- Schedule automated delivery of Insight reports via email
- Authentication failure notification via email
- Use post-authentication enforcement profiles to trigger email notifications based on defined policy conditions.
- Email notifications for client quarantine events.
- Send email notifications when ClearPass detects a security event through its integration with an EDR/XDR platform (e.g., CrowdStrike).

2.1 Things you need

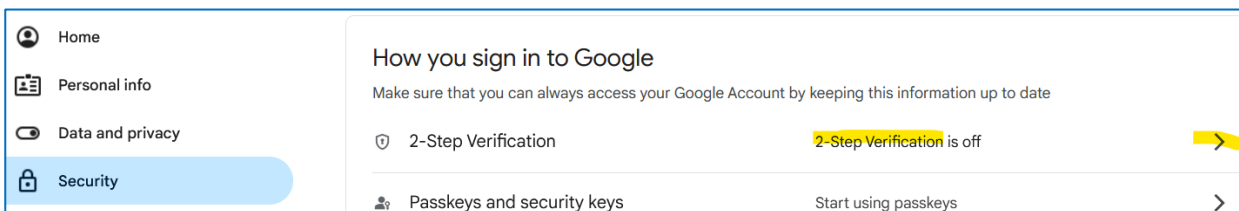
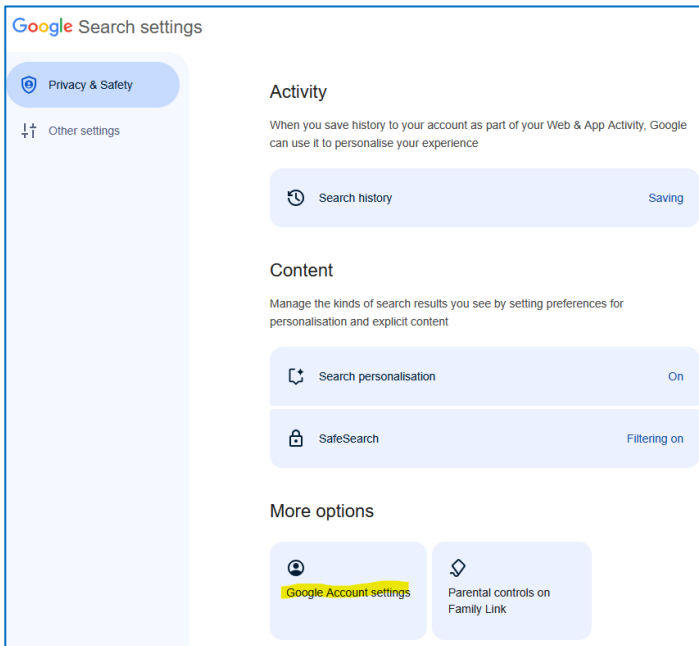
We need the following.

- ClearPass version 6.11.x or better
- Access to a SMTP server, here I am using Gmail.

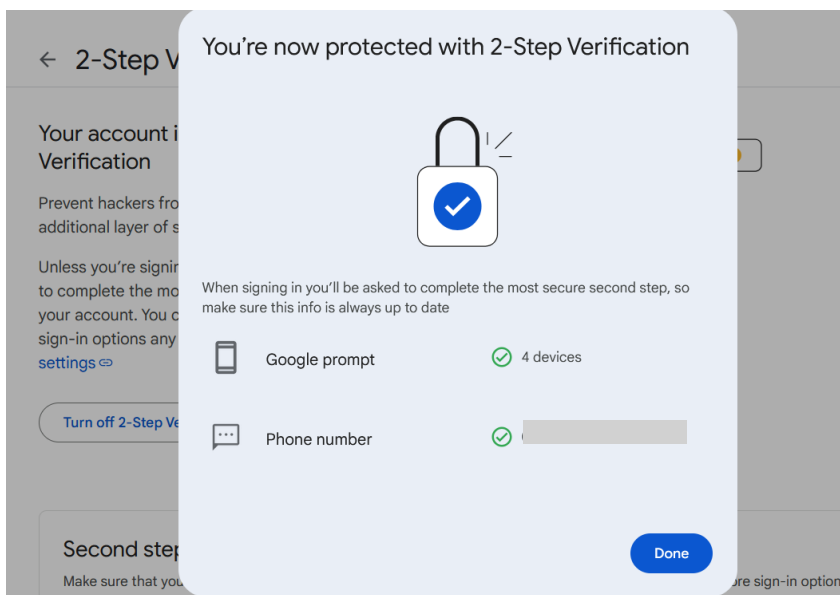
2.2 Gmail Configuration

In the past, it was possible to use a Gmail account with legacy authentication methods, but this has since been disabled by default. Now, all Gmail account owners require modern authentication. In this setup, I've used an app password, which requires enabling 2-Step Verification.

To do this, first log in to your Google account, then navigate to Account Settings → Privacy & Security.



Here you can add the second factor for the authentication by adding a phone number.



Once you have enabled the two-factor authentication you need to sign out and back sign in again. And back to the security setting. Then you need to go to this URL to add your first App password.

<https://myaccount.google.com/apppasswords>

Google Account

← App passwords

App passwords help you sign in to your Google Account on older apps and services that don't support modern security standards.

App passwords are less secure than using up-to-date apps and services that use modern security standards. Before you create an app password, you should check to see if your app needs this in order to sign in. [Learn more](#)

You don't have any app passwords.

To create a new app-specific password, type a name for it below...

App name
ClearPassLab

Create

The password will be displayed only once, make sure you copy it as we'll need it for ClearPass configuration.

2.3 ClearPass Configuration

Here is our task list

1. Retrieve Gmail SMTP certificates
2. Add google SMTP certificate chain to certificate trust list of ClearPass
3. Ensure the google SMTP certificates have the SMTP usage specified in ClearPass
4. Configure the messaging server

We'll start by using OpenSSL to retrieve the Gmail SMTP certificates used in TLS mode. TLS uses well known port of 587 and gmail's well known SMTP FQDN is smtp.gmail.com

Using the following command will list all the whole certificate chain.

```
$ OpenSSL s_client -starttls smtp -connect smtp.gmail.com:587 -showcerts
CONNECTED(00000003)
depth=2 C = US, O = Google Trust Services LLC, CN = GTS Root R1
verify return:1
depth=1 C = US, O = Google Trust Services, CN = WR2
verify return:1
depth=0 CN = smtp.gmail.com
verify return:1
---
Certificate chain
 0 s:CN = smtp.gmail.com
  i:C = US, O = Google Trust Services, CN = WR2
-----BEGIN CERTIFICATE-----
MIIEWDCCA0CgAwIBAgIRAKCdiixpEEwQENwyy81diLUwDQYJKoZIhvcNAQELBQAw
OzELMAkGA1UEBhMCVVMxHjAcBgNVBAoTFUdvdv2dsZSBUCnVzdCBTZXXJ2aWNlc2EM
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```

```
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Pb6sKvsBXWrxBRfKLuemx/cQNxkY65QzinC7QEQQe6OX26M82zj1Fjgs5w6wpzfb
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He2ylQh/onoVdXpM
-----END CERTIFICATE-----
1 s:C = US, O = Google Trust Services, CN = WR2
i:C = US, O = Google Trust Services LLC, CN = GTS Root R1
-----BEGIN CERTIFICATE-----
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-----END CERTIFICATE-----
2 s:C = US, O = Google Trust Services LLC, CN = GTS Root R1
i:C = BE, O = GlobalSign nv-sa, OU = Root CA, CN = GlobalSign Root CA
-----BEGIN CERTIFICATE-----
MIIFYjCCBEggAwIBAgIQd70NbNs2+RrQIQ/E8FjTDTANBgkqhkiG9w0BAQsFADBX
MQswCQYDVQQGEWJCRTEZMBcGA1UEChMQR29vZ2xlbnBiBudi1zYTEQMA4GA1UE
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```

```

NR3t5P+T4Vxfq7vqfM/b5A3Ri1fyJm9bvhdGaJQ3b2t6yMAYN/olUazsaL+yyEn9
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+qduBmpvvYuR7hZL6Dupszfnw0Skfths18dG9ZKb59UhvmaSGZRVbNQpsg3BZlvi
d0lIKO2d1xozclOzgJXPYovJJIultzkMu34qQb9Sz/yilrbCgj8=
-----END CERTIFICATE-----
---
Server certificate
subject=CN = smtp.gmail.com

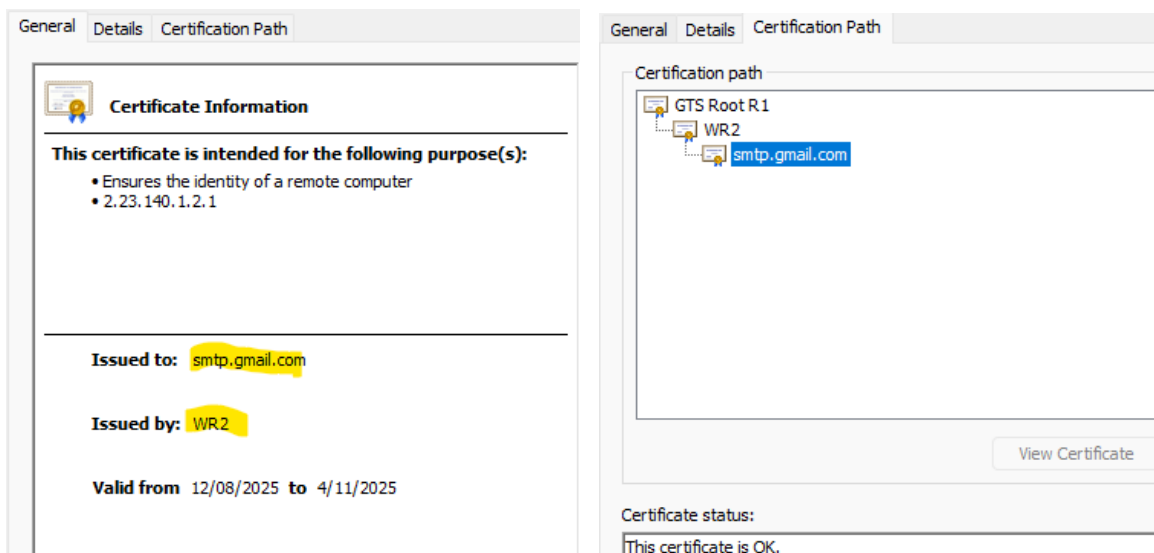
issuer=C = US, O = Google Trust Services, CN = WR2

---
No client certificate CA names sent
Peer signing digest: SHA256
Peer signature type: ECDSA
Server Temp Key: X25519, 253 bits
---
SSL handshake has read 4383 bytes and written 419 bytes
Verification: OK
---
New, TLSv1.3, Cipher is TLS_AES_256_GCM_SHA384
Server public key is 256 bit
Secure Renegotiation IS NOT supported
Compression: NONE
Expansion: NONE
No ALPN negotiated
Early data was not sent
Verify return code: 0 (ok)
---
250 SMTPUTF8
^C
$

```

Type in control-C to terminate the session. As shown above we have 3x certificates in PEM format. I'll copy them separately into a text file and then rename it with the extension of DER, so I can view them.

Here are the three certificates in der format which you can double click to see.



General Details Certification Path

Certificate Information

This certificate is intended for the following purpose(s):

- Proves your identity to a remote computer
- Ensures the identity of a remote computer
- 2.23.140.1.2.1

Issued to: WR2

Issued by: GTS Root R1

Valid from: 13/12/2023 to 21/02/2029

General Details Certification Path

Certification path

- GTS Root R1
 - WR2

[View Certificate](#)

Certificate status:

This certificate is OK.

General Details Certification Path

Certificate Information

This certificate is intended for the following purpose(s):

- Proves your identity to a remote computer
- Ensures software came from software publisher
- Protects software from alteration after publication
- Allows data on disk to be encrypted
- Protects e-mail messages
- Allows secure communication on the Internet

Issued to: GTS Root R1

Issued by: GlobalSign Root CA

Valid from: 19/06/2020 to 28/01/2028

General Details Certification Path

Certification path

- GlobalSign Root CA - R1
 - GTS Root R1

Next, you need to import them to certificate trust list in ClearPass by navigating to [Administration » Certificates » Trust List](#) and then adding the certificate. Here you need to ensure that the usage is for SMTP.

Certificate Trust List

[Add](#)

This page displays a list of trusted Certificate Authorities (CA). You can add, view, or delete a certificate.

Filter: contains [Go](#) [Clear Filter](#) Show records

#	<input type="checkbox"/> Subject	Usage	Validity	Enabled
1.	<input type="checkbox"/> CN=smtg.gmail.com	SMTP, Others	Valid	Enabled

Certificate Trust List

[Add](#)

This page displays a list of trusted Certificate Authorities (CA). You can add, view, or delete a certificate.

Filter: contains [Go](#) [Clear Filter](#) Show records

#	<input type="checkbox"/> Subject	Usage	Validity	Enabled
1.	<input type="checkbox"/> CN=WR2,O=Google Trust Services,C=US	SMTP, Others	Valid	Enabled

Certificate Trust List

[+ Add](#)

This page displays a list of trusted Certificate Authorities (CA). You can add, view, or delete a certificate.

Filter: contains [Go](#) [Clear Filter](#) Show records

#	Subject	Usage	Validity	Enabled
1.	<input type="checkbox"/> CN=GTS Root R1,O=Google Trust Services LLC,C=US	SMTP, Others	Valid	Enabled

And finally, I'll configure the messaging server.

Administration » External Servers » Messaging Setup

Messaging

[+ Configure SMS Gateway](#)

Messaging Setup configuration saved successfully

ClearPass Messaging Setup guides you through configuration of the SMTP server for email and SMS notifications.

SMTP Server

SMTP Settings

Server Name: Connection Security:

Username: Port:

Password: Connection Timeout: seconds

Verify Password:

Default From Address:

[Send Test Email](#) [Send Test SMS](#) [Reset](#) [Save](#)

Note that the username should be the Gmail email address and the password should be the App password that we created after we enabled the two-factor authentication for the Gmail account. Lastly, the default from address, is the from email address and in my case it is fictitious email address.

2.4 Testing

You can send a quick test email directly from the messaging setup.

Administration » External Servers » Messaging Setup

Messaging

[+ Configure SMS Gateway](#)

ClearPass Messaging Setup guides you through configuration of the SMTP server for email and SMS notifications.

SMTP Server

SMTP Settings

Server Name: Connection Security:

Username: Port:

Password: Connection Timeout: seconds

Verify Password:

Default From Address:

[Send Test Email](#) [Send Test SMS](#) [Reset](#) [Save](#)

Send Test Email

Recipient Email Address:

Message:

[Send Email](#) [Close](#)

This is what I get after I click the "Send Email" button.

Messaging

[+ Configure SMS Gateway](#)

Successfully sent test email to: ariyap@hpe.com

ClearPass Messaging Setup guides you through configuration of the SMTP server for email and SMS notifications.

SMTP Server

SMTP Settings

Server Name: Connection Security:

You can then go to [Monitoring » Event Viewer](#) and have a look at the logs.

Event Viewer

The Event Viewer provides reports about system-level events. All attempted upgrade, patch, and hotfix installations are logged here.

Select Server: CP1-611 (192.168.1.101) ▼

Filter: Source ▼ contains ▼ + Go Clear Filter Show 50 ▼ records

#	Source	Level	Category	Action	Timestamp ▼
1.	Admin UI	INFO	Email Successful	None	Aug 29, 2025 19:43:29 AEST

Event Viewer

The Event Viewer provides reports about system-level events. All attempted upgrade, patch, and hotfix installations are logged here.

System Event Details

Filter: Source ▼	
#	
1.	Source
2.	Level
3.	Category
4.	Action
5.	Timestamp
6.	Description
7.	

Source	Admin UI
Level	INFO
Category	Email Successful
Action	None
Timestamp	Aug 29, 2025 19:43:29 AEST
Description	From: ariyap@aruba.com To: [REDACTED].com Mail Subject: Test Email

Close

Now to generate email failures, I am going to remove SMTP as the certificate usage of WR2 intermediate certificate.

Certificate Trust List

 Add

This page displays a list of trusted Certificate Authorities (CA). You can add, view, or delete a certificate.

Filter: Subject ▼ contains ▼ wr2 + Go Clear Filter Show 20 ▼ records

#	Subject ▲	Usage	Validity	Enabled
1.	<input type="checkbox"/> CN=WR2,O=Google Trust Services,C=US	Others	Valid	Enabled

Let us go to the messaging setup and send test email. And this time I get a failed message shown below.

System Event Details

Source	Admin UI
Level	ERROR
Category	Email Failed
Action	None
Timestamp	Aug 29, 2025 19:42:33 AEST
Description	From: ariyap@aruba.com To: [REDACTED] Mail Subject: Test Email Send Error: Could not connect to SMTP host: smtp.gmail.com, port: 587

Close

These failed messages could be because of something is blocking the outgoing traffic or have a mismatch with the certificate chain like the certificate usage is not SMTP.

If you are missing a certificate chain that is not in the Trust list of ClearPass then most likely you get the following error that points to certificate that is not trusted.

System Event Details	
Source	Admin UI
Level	ERROR
Category	Email Failed
Action	None
Timestamp	Aug 29, 2025 09:40:55 AEST
Description	From: ariyap@aruba.com Send Error: Could not convert socket to TLS
Close	

2.5 ClearPass Endpoint Context Server Configuration

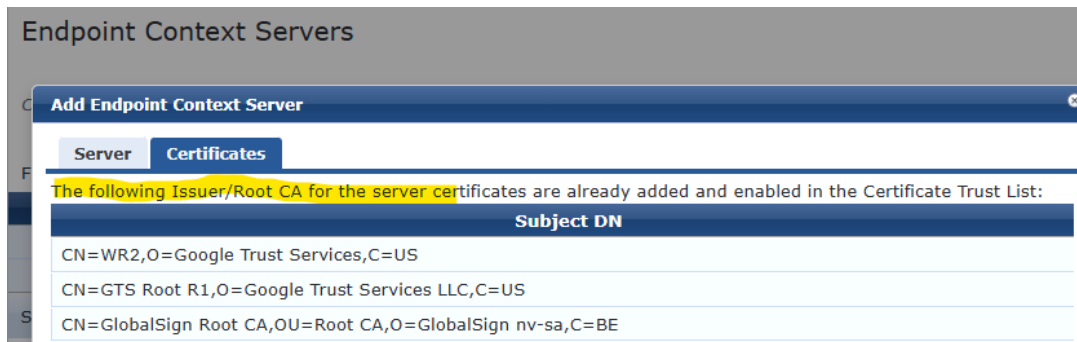
In this section, I'll demonstrate how to add an endpoint context server to enable the use of an SMTP messaging gateway within post-authentication enforcement profiles. While not mandatory, this setup adds significant flexibility to solutions that require email notifications

Navigating to [Administration » External Servers » Endpoint Context Servers](#), I am adding a new context server of type Generic HTTP server.

#	Server Name	Server Type	Status
1.	app-apacsouth.central.arubanetworks.com	Aruba Central	Enabled
2.	localhost	Generic HTTP Context Server	Enabled

Make you enable the “validate server certificate” and that will add a new certificate tab.

Note that when you enable validating the server certificate check box, it will automatically pull the certificate chain to the trust list and enables them.



So, we could have used this method first instead of using OpenSSL. Then all we had to do was to edit the certificates and add SMTP certificate usage to them. However, it is beneficial to be aware and know how to use OpenSSL as it is a primary tool for certificate manipulation and troubleshooting. As shown above you see that it is telling us that the certificates are already in the trust list of ClearPass. Now just save it.

In the next technote I will cover the enforcement profiles that can send email notifications.