Technical Guide

Mail (SMTP)

Feature Overview and Configuration Guide

Introduction

This guide describes how to configure and use the mail feature. The mail feature utilizes Simple Mail Transfer Protocol (SMTP) to transfer mail from an internal email client operating within the AlliedWare Plus device. This feature is typically used to email event notifications to an external email server from the AlliedWare Plus device.

What is SMTP?

SMTP is a TCP/IP protocol used to send mail. SMTP is limited in its ability to queue messages at the receiving end, so protocols POP3 or IMAP can be used to let the client (user) save messages to an email server. This allows a client to save messages in a server mailbox and download them periodically from the server. Typically a client uses a program that uses SMTP for sending an email and either POP3 or IMAP for receiving email.

SMTP sessions consist of commands originating from a sender (SMTP client). Each SMTP session has transactions that contain the email recipient, subject, and message body. The following default ports are used to send mail:

- SMTP clients use port 587
- SMTP servers use TCP port 25
- SMPT servers configured with TLS use:

  - port 465 with SMTPS

  - port 587 with STARTTLS

AlliedWare Plus devices are capable of acting as an SMTP client. To send mail, the receiving SMTP server must be configured. Once configured you can send mail either from the command line, or from a script, typically based on event notifications. The mail command is often used from a script which is connected to a trigger. For example, you can send an email if a connection to a particular device is down.

For more information about using log type triggers and email logging commands, see the Logging Feature Overview and Configuration Guide.

Contents

Products and software version that apply to this guide

This guide applies to all AlliedWare Plus™ products, running version **5.4.4** or later.

For more information, see the following documents:

- The product's Datasheet
- The product's Command Reference

These documents are available from the above links on our website at alliedtelesis.com.

Most features described in this document are supported from AlliedWare Plus 5.4.4 or later. These features are available in later releases:

- Version 5.4.8-1 and later support new features to configure optional authentication and port parameters for your SMTP server.
- Version 5.5.3-0.1 and later support TLS authentication in the mail client.
- Version 5.5.5-2.2 and later support OAuth 2.0 for Microsoft and Google email addresses.

How to configure mail

The following steps must be carried out in order to send emails from your device:

- **Set up your SMTP server**
- **Set up authentication**
- **Secure TLS**
- **Set up your email address as the sender**
- **Send your email**
- **Monitor your mail**
- **Delete mail from the queue**
- **Debug mail**
- **Email log**

Set up your SMTP server

First specify the <***IP address***> or domain <***name***> of your SMTP email server that your device sends email to. From Global Configuration mode, use the **mail smtpserver** command as follows:

```
awplus(config)#mail smtpserver {<ip-address>|<name>}
```

If you specify this server by its domain <***name***>, you must also ensure that the DNS client on your device is enabled. It is enabled by default, but if it has been disabled, you can re-enable it by using the **ip domain-lookup** command.

Example To configure your SMTP server with the name “smtp.example.com”, use the command:

```
awplus(config)#mail smtpserver smtp.example.com
```

To remove the configured SMTP server, use the **no mail smtpserver** command.

Set up authentication

If you are configuring your SMTP server for a device from release 5.4.8-1 or later, you can configure authentication, which may be required if the external email needs to perform authentication before accepting incoming emails from the email client.

There are three supported options for authentication:

- "Username and password" on page 5
- "Secure TLS" on page 6
- "OAuth 2.0" on page 6

Username and password

To configure your SMTP server with authentication options, use the **mail smtpserver authentication** command from Global Configuration mode:

```
awplus(config)#mail smtpserver authentication {crammd5|login|plain}
username <username> password [8] <password>
```

Authentication parameter options are:

Table 1: Authentication options

PARAMETER NAME	DESCRIPTION
crammd5	This is a Challenge Request Authentication Mechanism (CRAM-MD5) and is the most secure.
login	This is a base64 encryption mechanism.
plain	This is a base64 encryption mechanism.
<***username***>	Registered username.
8	The registered user password is presented in an already encrypted format. This is how the running configuration stores the plain text password. Do not enter this parameter into the CLI yourself.
<***password***>	Registered user password.

Each of these parameters requires a <***username***> and <***password***> that is registered on your SMTP server.

Example To configure an authentication login username ‘person’ and password ‘uniquePassword’, use the command:

```
awplus(config)#mail smtpserver authentication login username person
password uniquePassword
```

To remove the configured SMTP server authentication mechanism, use the **no mail smtpserver authentication** command.

Note: You cannot change the IP address or Domain Name of your SMTP server if authentication is configured. If you attempt to change it when authentication is configured, the following warning message is displayed:

```
% Error: authentication configuration still exists
```

Secure TLS

If you are configuring your SMTP server for a device from release 5.5.3-0.1 or later, you can send emails to SMTP servers over a TLS connection. This makes sending email from AlliedWare Plus devices more secure. It also allows people to use other SMTP servers that do not accept emails over clear-text connection.

A secure TCP connection is created after negotiation with the server, which involves choosing the encryption algorithm to use, STARTTLS or SMTPS.

STARTTLS

The connection starts as clear-text SMTP first and then the client establishes a TLS connection using the STARTTLS method. After that point, the SMTP authentication and email message are sent through the encrypted TLS connection.

To configure a TLS connection with STARTTLS, use the following commands:

```
awplus(config)#mail smtpserver smtp.example.com
awplus(config)#mail from example@example.com
awplus(config)#mail smtpserver tls starttls
awplus(config)#mail smtpserver authentication login username example
               password uniquePassword
```

SMTPS

A secure connection is established at the beginning, and the whole SMTP communication is through the encrypted TLS connection.

To configure a TLS connection with SMTPS, use the following commands:

```
awplus(config)#mail smtpserver smtp.example.com
awplus(config)#mail from example@example.com
awplus(config)#mail smtpserver tls smtps
awplus(config)#mail smtpserver authentication login username example
               password uniquePassword
```

Default SMTP server ports

If the SMTP server port is not configured, or reset by the command **no mail smtpserver port**, the default ports are:

- 25 if TLS is not configured
- 587 if TLS is configured for STARTTLS
- 465 if TLS is configured for SMTPS.

For full configuration examples, see "How to send an interactive email secured with TLS using STARTTLS" on page 14, and "How to send an interactive email secured with TLS using SMTPS" on page 15.

OAuth 2.0

From version 5.5.5-2.2 onwards, AlliedWare Plus supports OAuth 2.0 for authentication with Microsoft and Google email addresses.

OAuth allows AlliedWare Plus to securely request permission to send emails on your behalf without storing your password.

Support for SMTP OAuth is supported with the following email providers:

- Google
- Microsoft

To set up OAuth, you need to configure Azure or Google Cloud as well as the AlliedWare Plus device. See "How to configure OAuth with a Microsoft email address" on page 18 and "How to configure OAuth with a Google email address" on page 22 for instructions.

Change the SMTP server port (if needed)

To configure your SMTP server port, use the **mail smtpserver port** command from Global Configuration mode:

```
awplus(config)#mail smtpserver port <port>
```

Specify the SMTP client/server communication port from the range 1 to 65535.

Example To configure your mail client to perform server communication over port 587, use the command:

```
awplus(config)#mail smtpserver port 587
```

To set your SMTP client/server port back to the default port 25 (if TLS is not configured), use the **no mail smtpserver port** command.

Set up your email address as the sender

Before sending an email, first you must specify your email address as the sender with the ***<from>*** parameter. From Global Configuration mode use the **mail from** command as follows:

```
awplus(config)#mail from <from>
```

Example To configure your email address as the sender “person@example.com”, use the command:

```
awplus(config)#mail from person@example.com
```

To remove the sending email address, use the **no mail from** command.

Send your email

After you have configured your SMTP server and set your email address as the sender, you can then send your email. You can send your emails interactively via screen prompts for each parameter. This allows you to type your message body directly on your screen. Otherwise, you can send your email so that all parameters are specified in one line and the optional file parameter stores the message body.

Interactive message

This method allows you to send messages interactively via the CLI by being prompted for the parameters from the console. If you enter the **mail** command with no parameters specified, the email client interactively prompts you for a <***to***> address, a <***subject***> and message body. Press enter to end the message body, then press **ctrl-d**, to send your email.

From Privileged Exec mode, use the **mail** command as follows:

```
awplus#mail [to <to>] [subject <subject>] [file <filename>]
```

Non-interactive message

This method allows you to send a message in one line with all the parameters specified, including <***to***> address, a <***subject***> and <***filename***> (the file stores the message body).

From Privileged Exec mode, use the **mail** command as follows:

```
awplus#mail to <to> subject <subject> file <filename>
```

Parameter substitution

When you use the **mail** command you can use parameter substitutions in the subject field. The following table lists the parameters that can be substituted and their descriptions:

Table 2: Parameter substitution

PARAMETER NAME	DESCRIPTION
%N	When this parameter is specified, the %N is replaced by the hostname of your device.
%S	When this parameter is specified, the %S is replaced by the serial number of your device.
%T, %D, %L	When you use either of these parameters %T, %D, %L they will be replaced by the current date and time (local time) on your device.
%U	When you use this parameter, the %U is replaced by the current date and time (UTC time) on your device.

Any combination of %D, %T, %L, %U, %S, %N is substituted in the subject text. This includes multiple substitutions of the same parameter type.

Note: If no local time is configured, it uses UTC.

Example To send an email using parameter substitutions for the hostname, serial number and date, use the command:

```
awplus#mail to example@gmail.com subject "Sending email from Hostname:%N
Serial Number:%S Date:%T"
```

The recipient mail server will receive an email containing:

```
Received: by gmail.com (nbSMTP-1.00) for uid 0 example@gmail.com; Tue, 10 Apr
2018 03:45:02 +0000 (UTC)
To: <example@tb212.st.atlnz.lc>
From: <example@gmail.com>
Subject: "Sending email from Hostname:top Serial Number:A05049G154200043
Date:2018-04-10T03:45:01+0000"
```

Monitor your mail

From Privileged Exec mode, use the **show mail** command to display emails in the queue as follows:

```
awplus#show mail
```

From User Exec or Privileged Exec modes, use the **show counter mail** command to display the email counters as follows:

```
awplus#show counter mail
```

This command shows you the number of emails sent successfully since the last device restart, and the number of emails your device failed to send since the last device restart.

Delete mail from the queue

From Privileged Exec mode, use the **delete mail** command to delete emails in the queue as follows:.

```
awplus#delete mail [mail-id <mail-id>|all]
```

You need the <***mail-id***> from the **show mail** command output to delete specific emails, or use the <***all***> parameter to clear all messages in the queue completely.

Example To delete the mail-id “20180501183635.16737″ from the queue, use the command:

```
awplus#delete mail 20180501183635.1637
```

Debug mail

From Privileged Exec mode, to turn on debugging for sending emails, use the **debug mail** command as follows:

```
awplus#debug mail
```

From Privileged Exec mode, to turn off debugging for sending emails, you can use either the **no debug mail** command, or the **undebug mail** command as follows:

```
awplus#no debug mail
```

or

```
awplus#undebug mail
```

Email log

The following commands are available to use in conjunction with the mail feature, and are used to ensure logged events result in automatic email notifications. These commands are in the Logging Commands chapter in the Setup and Troubleshooting section in the Command Reference manual:

- default log email
- log email
- log email (filter)
- log email exclude
- log email time
- show log config

You can configure your device to send log messages to an email address. By default no filters are defined for email log targets. Filters must be defined before messages will be sent.

From Global Configuration mode, use the command:

```
awplus(conf)#log email <email-address> [level <level>] [program <program-
name>] [facility <facility>] [msgtext <text-string>]
```

Examples To create a filter to send all messages containing the text “Pool exhausted”, to the email address admin@example.com, use the following commands:

```
awplus#configure terminal
awplus(conf)#log email admin@example.com msgtext “Pool exhausted”
```

To create a filter to send messages with a severity level of “informational” and above to the email address “admin@example.com”, use the following commands:

```
awplus#configure terminal
awplus(conf)#log email admin@example.com level informational
```

To stop the device emailing log messages emailed to the email address admin@example.com, use the following commands:

```
awplus#configure terminal
awplus(conf)#no log email admin@example.com
```

To remove a filter that sends messages with a severity level of “informational” and above to the email address “admin@example.com”, use the following commands:

```
awplus#configure terminal
awplus(conf)#no log email admin@example.com level informational
```

Some example output from the **show log config** command follows:

```
Facility: default

PKI trustpoints: example_trustpoint

Buffered log:
 Status ......... enabled
  Maximum size ... 100kb
  Filters:
 *1 Level ........ notices
    Program ...... any
    Facility ..... any
    Message text . any
  2 Level ........ informational
    Program ...... auth
    Facility ..... daemon
    Message text . any
  Statistics ..... 1327 messages received, 821 accepted by filter (2016 Oct 11 10:36:16)
Permanent log:
  Status ......... enabled
  Maximum size ... 60kb
  Filters:
  1 Level ........ error
    Program ...... any
    Facility ..... any
    Message text . any
 *2 Level ........ warnings
    Program ...... dhcp
    Facility ..... any
    Message text . "pool exhausted"
  Statistics ..... 1327 messages received, 12 accepted by filter (2016 Oct 11 10:36:16)
Host 10.32.16.21:
  Time offset .... +2:00
  Offset type .... UTC
  Source ......... -
  Secured ........ enabled
  Filters:
  1 Level ........ critical
    Program ...... any
    Facility ..... any
    Message text . any
  Statistics ..... 1327 messages received, 1 accepted by filter (2016 Oct 11 10:36:16)
Email admin@example.com:
  Time offset .... +0:00
  Offset type .... Local
  Filters:
  1 Level ........ emergencies
    Program ...... any
    Facility ..... any
    Message text . any
  Statistics ..... 1327 messages received, 0 accepted by filter (2016 Oct 11 10:36:16)
...
```

For more information about logging email, see your product's Command Reference.

Configuration examples

How to send an interactive email

This example shows an interactive message configuration, where the email client prompts you for each parameter. In this example below, the mail message body is manually typed via the command shell interactively. This interactive capability can be useful as a user aid when configuring and testing the mail feature for the first time.

```
awplus>en
awplus#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
awplus(config)#mail smtpserver smtp.example.com
awplus(config)#mail from example@example.com
awplus(config)#exit
awplus#mail
To: example1@example1.com
Subject:
The LAN interface is down

Type the message below and finish with a CTRL-d
The LAN interface is down
Sending 20250501183635.16737...
```

How to send a non-interactive email

This example shows all parameters specified in the configuration, including the message body. In this example below, the mail message body is that is stored in a file named message.txt.

```
awplus#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
awplus(config)#mail smtpserver 192.0.2.1
awplus(config)#mail from example@example.com
awplus(config)#exit
awplus#mail to example2@example2.com subject "The LAN interface is down" file
message.txt
Sending 20250501201513.22840...
```

Note: The named text file must already exist in the root directory of flash.

How to send a non-interactive email with authentication and port parameters

This example shows authentication and port parameters configured:

```
awplus#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
awplus(config)#mail smtpserver 192.0.2.1
awplus(config)#mail smtpserver authentication plain username example3 password
uniquePassword
awplus(config)#mail smtpserver port 587
awplus(config)#mail from example@example.com
awplus(config)#exit
awplus#mail to example3@example3.com subject "testing" file message.txt
Sending 20250501191513.23930...
```

Example **show running-config**:

```
mail smtpserver 192.0.2.1
mail smtpserver authentication plain username example3 password 8
xKnq11C1OgquJxt91cz04tCVBChLjkTPze+nk25MaxM=
mail smtpserver port 587
mail from example@example.com
```

How to send an interactive email with parameter substitutions

This example shows parameter substitution in the mail subject text:

```
awplus#
awplus#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
awplus(config)#mail smtpserver smtp.example.com
awplus(config)#mail from example@example.com
awplus(config)#exit

awplus#mail to example4.net subject "Sending email from Hostname:%N Serial
Number:%S Date:%T"

Type the message below and finish with a CTRL-d
The WAN is down
Sending 20250411033215.26950... ok.
```

This example shows what the recipient will receive:

```
To: <smtp.example.net>
From: <example@example.com>
Subject: "Sending email from Hostname:CON Serial Number:V9128981EB6B9E38
Date:2025-04-11T03:32:07+0000"

The WAN is down
```

How to send a non-interactive email using a trigger script with parameter substitutions

This example shows a trigger script that uses parameter substitutions for the hostname, serial number and date in the mail subject text:

```
awplus#show file sendmail.scp
enable
mail to examplename@tb212.st.atlnz.lc subject "Sending email from Hostname:%N
Serial Number:%S Date:%T"

activate sendmail.scp
AlliedWare Plus (TM) 0.0.0 04/10/25 03:21:34

enable
mail to examplename@tb212.com subject "Sending email from Hostname:%N Serial
Number:%S Date:%T"

Type the message below and finish with a CTRL-d
Sending 20250410035746.2510...
exit
```

This example shows what the recipient will receive:

```
Received: by gmail.com (nbSMTP-1.00) for uid 0 examplename@gmail.com; Tue, 10
Apr 2025 03:45:02 +0000 (UTC)
To: <examplename@tb212.com>
From: <examplename@gmail.com>
Subject: "Sending email from Hostname:top Serial Number:A05049G154200043
Date:2025-04-10T03:45:01+0000"
```

How to send an interactive email secured with TLS using STARTTLS

```
awplus(config)# mail smtpserver smtp.example.com
awplus(config)# mail from example@example.com
awplus(config)# mail smtpserver tls starttls
awplus(config)# mail smtpserver authentication login username example password
uniquePassword

awplus# show run | grep mail
mail smtpserver smtp.example.com
mail smtpserver authentication login username example password 8
+512Zartc7fV2r9cPTy1eJVREvdi+H66C6zFVBPJR+Q=
mail smtpserver tls starttls
mail from example@example.com

awplus# mail to example1@example.com subject mail1

Type the message below and finish with a CTRL-d
This is a message.
^D

awplus# show mail
Mail Settings
-------------------------------------------------------------
State                              : Alive
SMTP Server                        : smtp.example.com
Host Name                          : example@example.com
Authentication                     : login
Username                           : example
Port                               : 587
Use TLS                            : STARTTLS
Debug                              : Disabled

Messages
-------------------------------------------------------------
To                                 : example1@example.com
Subject                            : mail1
Message-ID                         : 20251205123648.18627
```

How to send an interactive email secured with TLS using SMTPS

```
awplus(config)# mail smtpserver smtp.example.com
awplus(config)# mail from example@example.com
awplus(config)# mail smtpserver tls smtps
awplus(config)# mail smtpserver authentication login username example password
uniquePassword

awplus# show run | grep mail
mail smtpserver smtp.example.com
mail smtpserver authentication login username example password 8
+512Zartc7fV2r9cPTy1eJVREvdi+H66C6zFVBPJR+Q=
mail smtpserver tls smtps
mail from example@example.com

awplus# mail to example2@example.com subject mail2

Type the message below and finish with a CTRL-d
This is a message.
^D

awplus# show mail
Mail Settings
-------------------------------------------------------------
State                                : Alive
SMTP Server                          : smtp.example.com
Host Name                            : example@example.com
Authentication                       : login
Username                             : example
Port                                 : 465
Use TLS                              : SMTPS
Debug                                : Disabled

Messages
-------------------------------------------------------------
To                                   : example2@example.com
Subject                              : mail2
Message-ID                           : 20251205125307.10845
```

How to use a trigger to email when memory usage exceeds 90%

This example shows how to automatically send a mail notification when memory usage exceeds 90 percent. In the example below, when memory usage exceeds the trigger threshold, a script is activated. This generates an automatic email notification of the event.

```
awplus>enable
awplus#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
awplus(config)#mail smtpserver example@example.com
awplus(config)#mail smtpserver authentication crammd5 username fred password uniquePassword
awplus(config)#mail from fred@example.com
awplus(config)#trigger 1
awplus(config-trigger)#type memory ?
  <1-100>  The percentage of memory usage at which to trigger

awplus(config-trigger)#type memory 90 ?
  any   Activate when memory usage passes the specified level in either
        direction
  down  Activate when memory usage drops below the specified level
  up    Activate when memory usage exceeds the specified level
  <cr>

awplus(config-trigger)#type memory 90 up
awplus(config-trigger)#active
awplus(config-trigger)#script ?
  <1-5>  The list position of the script

awplus(config-trigger)#script 1 ?
  FILE  The file containing the script

awplus(config-trigger)#script 1 mem.scp
awplus(config-trigger)#active
awplus(config-trigger)#end
awplus#debug mail
awplus#term mon
03:11:51 awplus TRIGGER[3569]: Trigger 1 activated
03:11:51 awplus TRIGGER[3572]: Executing /flash/mem.scp
03:11:51 awplus IMISH[3576]: [SCRIPT]
03:11:51 awplus IMISH[391]: Last message '[SCRIPT]' repeated 5 times, suppressed by syslA
03:11:51 awplus IMISH[3576]: [SCRIPT]enable
03:11:51 awplus IMISH[3576]: [SCRIPT]mail to example@example.com subject "Host:awplus with
Serial: 012345678 memory utilization high at 2018-07-11T15:09:31+0000"
03:11:52 awplus nbSMTP[3593]: Creating connection to host (example@example.com:25)
03:11:53 awplus nbSMTP[3593]: Authentication succeded [fred]
03:11:54 awplus nbSMTP[3593]: Recipient accepted [example@example.com]
03:11:55 awplus nbSMTP[3593]: Mail sent for example@example.com. Closing connection
03:11:55 awplus IMISH[3576]: [SCRIPT]exit
```

```
awplus#sh trigger
TR# Type & Details     Description          Ac Te Tr Repeat     #Scr Days/Date
-------------------------------------------------------------------------------
001 Memory (90% up)                         Y  N  Y  Continuous  1   smtwtfs
-------------------------------------------------------------------------------
awplus#show trigger count
Trigger Module Counters
-------------------------------------------------------
Trigger activations                                1
Last trigger activated                             1
Time triggers activated today                      0
Periodic triggers activated today                  0
Interface triggers activated today                 0
CPU triggers activated today                       0
Memory triggers activated today                    1
Reboot triggers activated today                    0
Ping-poll triggers activated today                 0
USB event triggers activated today                 0
Stack master fail triggers activated today         0
Stack member triggers activated today              0
Stack link triggers activated today                0
ATMF node triggers activated today                 0
Log triggers activated today                       0
-------------------------------------------------------
```

Mail and trigger configuration is as follows:

```
!
trigger 1
 type memory 90 up
 script 1 mem.scp
!
mail smtpserver example@example.com
mail smtpserver authentication crammd5 username fred password 8
gkXRH5Dac4ERvttVu054mSCHvghVccV20c16OG6t97Q=
mail from fred@example.com
!
```

```
awplus#dir
         4096 drwx Jun 28 2018 20:58:16  log/
         1352 -rw- May 30 2018 02:10:51  default.cfg
          103 -rw- May 09 2018 06:33:45  mem.scp
     43371435 -rw- Oct 26 2017 23:05:50  AR3050S-tb247.rel
```

```
awplus#show file mem.scp
enable
mail to fred@example.com subject "Host: %N with Serial: %S memory utilization high at %L"
```

How to configure OAuth with a Microsoft email address

You will need the following prior to setup:

- an Azure subscription,
- a Microsoft Entra Subscription,
- and an Outlook Online subscription with at least 1 user set up. AlliedWare Plus will send emails from this account.

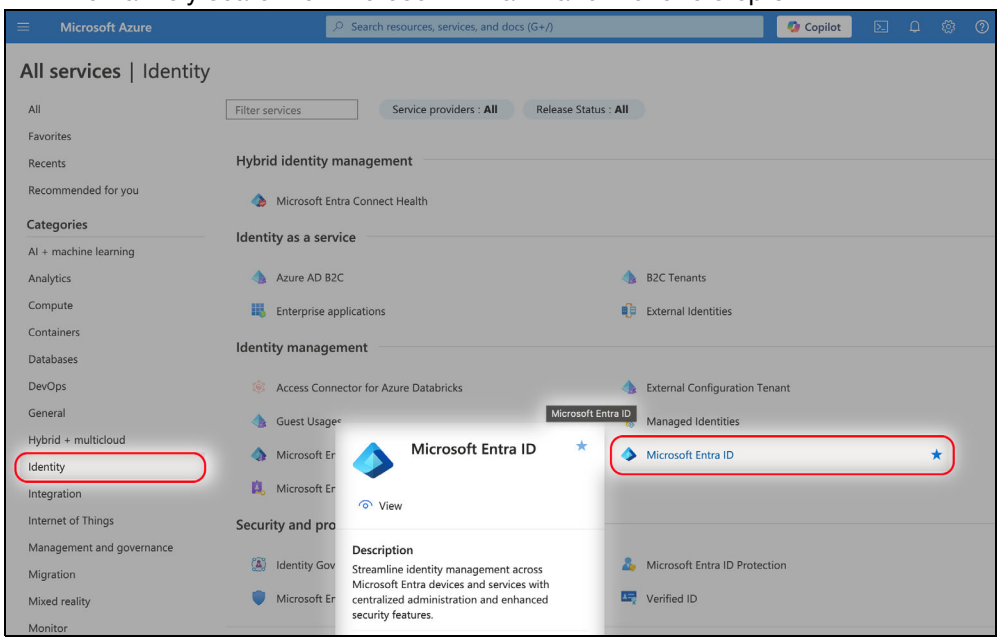
1. **Access the Azure Portal**

   Access the Azure Portal from https://portal.azure.com/#home and log in using your Microsoft Azure credentials.

2. Navigate to Microsoft Entra ID

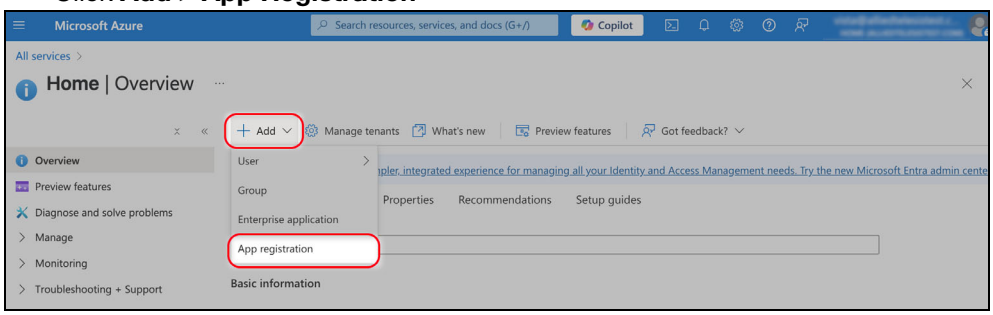
   Go to **All Services** > **Identity** > **Microsoft Entra ID**.

   Alternatively search for Microsoft Entra ID and move to step 3.



3. Register a New Application

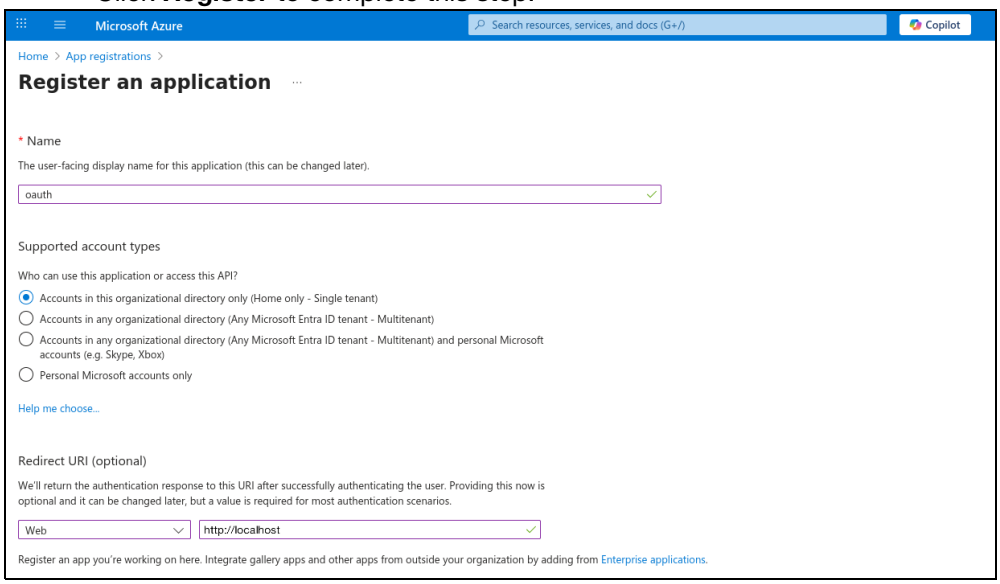
   Click **Add** > **App Registration**



4. **Register an Application in Azure**

Fill out the Application registration form with the required details:

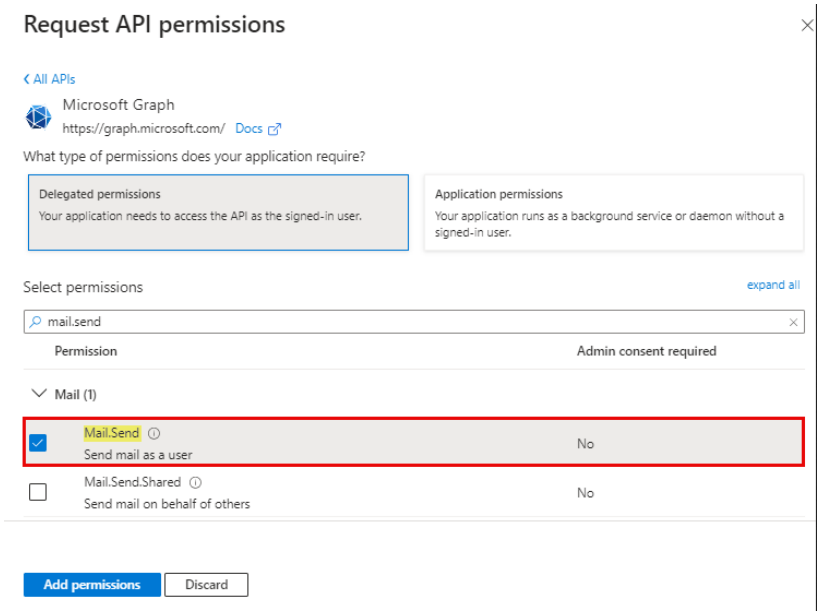
- For Web Application Type select **Single Tenant**
- For redirect URI, select the one used by the device, http://localhost by default.
- Click **Register** to complete this step.



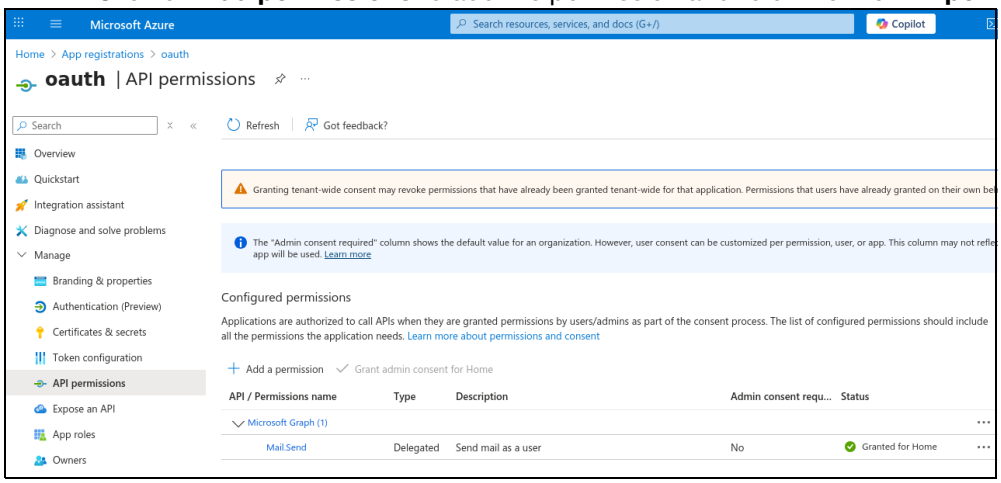
5. Give Microsoft Azure email capability to the device

Go to the API Permissions page (Manage > API Permissions). Click **Add a permission** to add a new permission for Microsoft Graph:

- Type - **Delegated**
- Permission - **Mail.Send**



- Click on **Add permissions** to add the permission and return to the **API permissions** page:



6. Complete Registration and Collect IDs from the Application Overview page

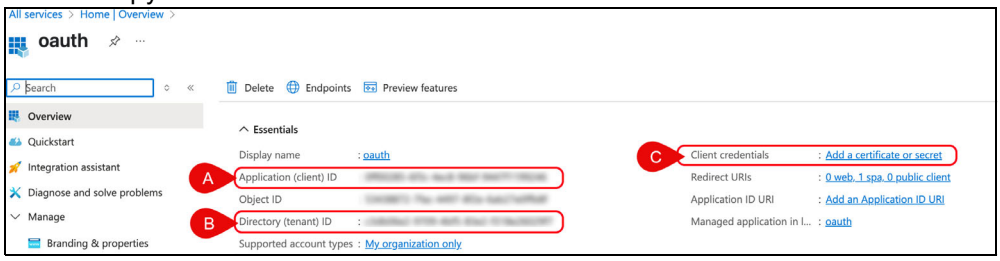
- Once you have added the permission, select **Overview** in the lefthand menu
- The Overview page will open, where you can find the Tenant ID and Client ID

a. Copy the Client ID

b. Copy the Tenant ID

c. Click the 'Client Credentials' link and create a new Client Secret

- Copy the Client Secret



7. Set up OAuth in AlliedWare Plus

First, set the mail SMTP server to the Outlook SMTP server, and set up your **from** address to the account you want to send email from. Use the commands:

```
awplus# configure terminal
awplus(config)# mail smtpserver smtp-mail.outlook.com
awplus(config)# mail from example@outlook.com
```

Then enable TLS. Use the command:

```
awplus(config)# mail smtpserver tls starttls
```

Then enter the copied Client ID, Tenant ID and Client Secret into the AlliedWare Plus device. Use the following commands:

```
awplus# configure terminal
awplus(config)# mail smtpserver authentication oauth2
```

```
awplus(config-smtp-oauth)# username <username> provider microsoft client-
id <clientid> tenant-id <tenantid> client-secret <client-secret>
```

8. Display a URL you can use to authenticate.

Use the following command:

```
awplus# show mail oauth2 url
```

This displays a URL like the following output:

```
awplus#show mail oauth2 url
Vist:
https://login.microsoftonline.com/<tenantid>/oauth2/v2.0/authorize?client_id=
<clientid>&redirect_uri=http://localhost&response_type=code&scope=https://out
look.office.com/User.Read%20offline_access
```

This URL lets you log in with your Microsoft account to authenticate and allow the OAuth application to use your account. You will be redirected to your redirect URL, which will be localhost unless you changed it from the default.

9. Copy the authentication code to the device

At the end of the previous step, you will be redirected to localhost with the authorization code present in the browser:

Copy this code (the sequence after “code=” and before “&session_state”) and enter it into the device so it can obtain a refresh token. To do this, use the following command:

```
awplus# mail oauth2 code
```

This command prompts you with "Enter the OAuth code:". Once you enter the code, the device obtains a refresh token from Microsoft. This refresh token will be stored on the device and will persist across reboots. This completes OAuth 2.0 setup and authorizes the device. You should not need to re-run this command unless the refresh token expires or your Client ID expires.

How to configure OAuth with a Google email address

You will need the following prior to setup:

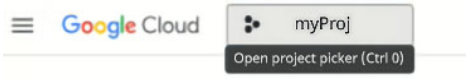
- a Google Workspace account
- access to the Google Cloud Platform

1. Access the Google Cloud platform

   Navigate to https://console.cloud.google.com/ and log in using your Google account credentials.

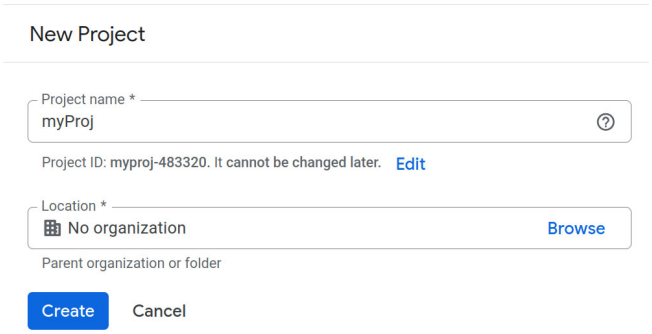
2. Create a new OAuth project

   - Click on the Project button in the top navigation bar



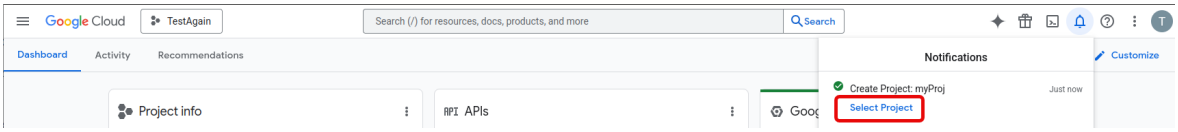
   - Select New Project

   - Enter a name (such as myProj) for your project and click **Create**.



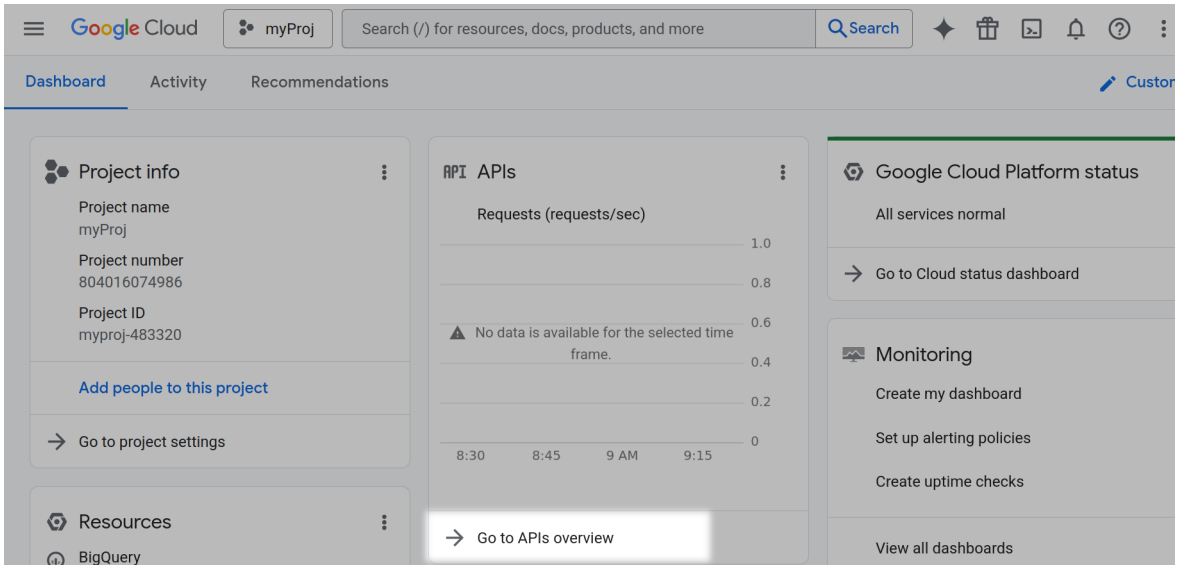
3. Select the project

A notification will pop up. Click on the Select Project link.

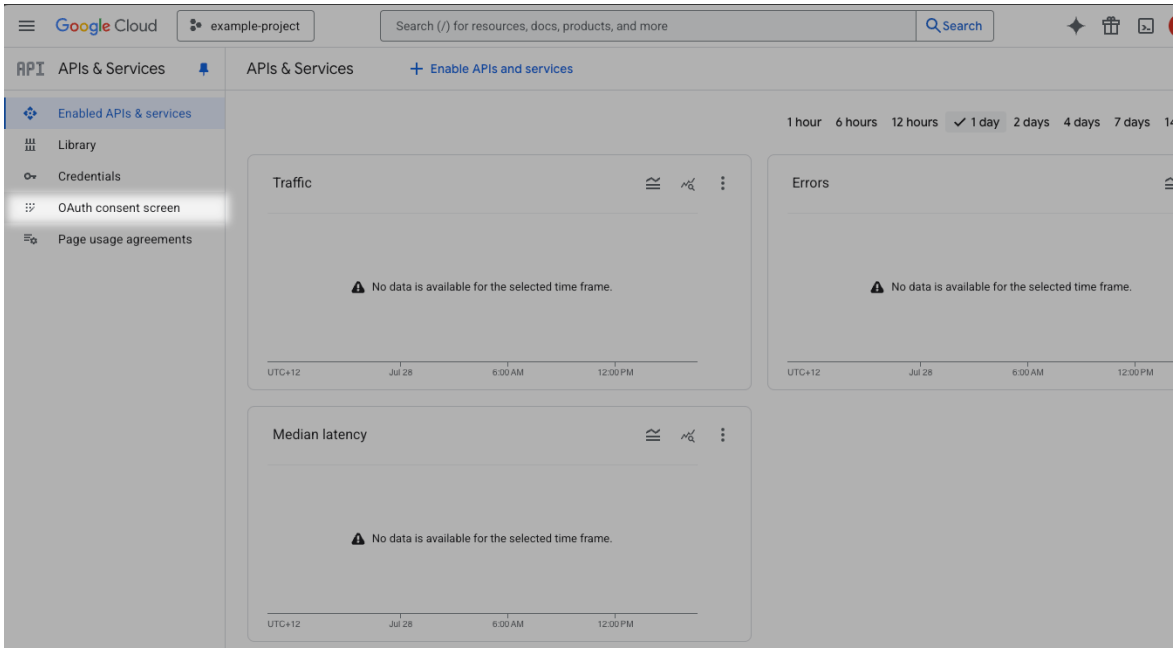


4. Configure the OAuth Consent Screen

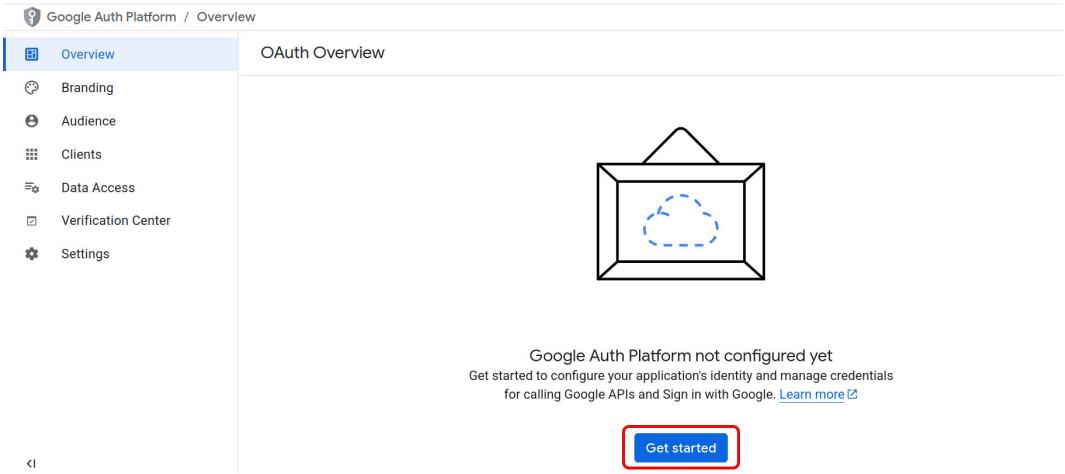
Navigate to the overview on your new Project.



Click on **Go to API's overview**. This opens the **APIs and Services** page. In the left menu, select **OAuth consent screen**:



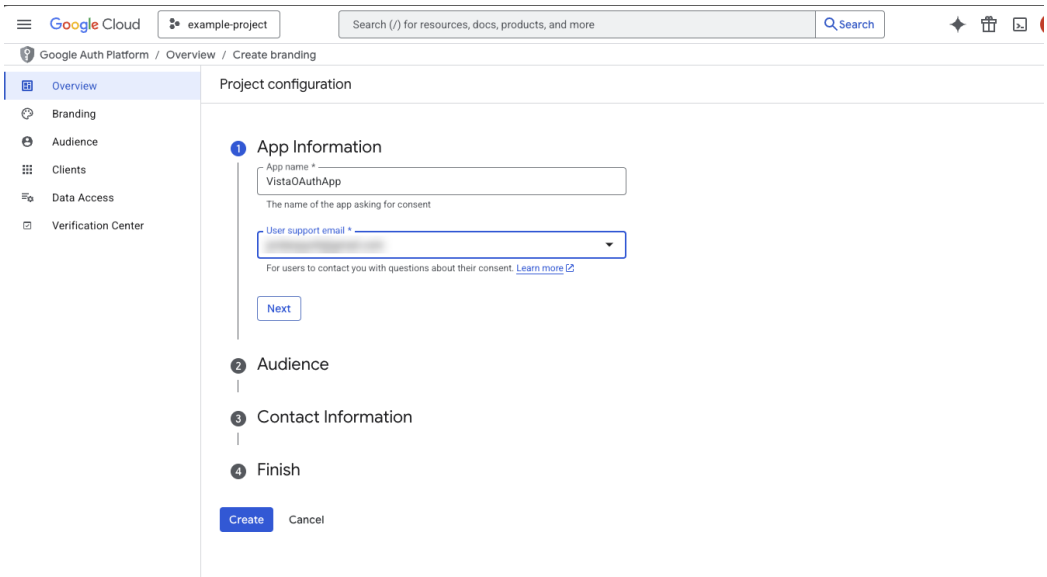
The OAuth Overview page opens. Click the **Get started** button:



Configure your application. Choose **Internal**. Note that this requires a Google Workspace account.

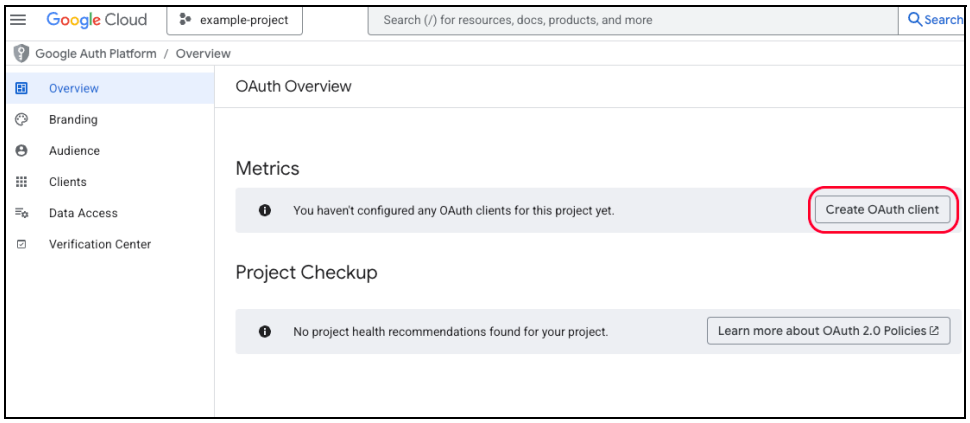
We do not recommend choosing External because with an unpublished External app, refresh tokens expire after 7 days. This means you have to intervene manually to authenticate the device every 7 days, which is not recommended for autonomous email alerts.

Fill in the required fields (App name, User support email, and Developer contact information). Then click Create, to return to the Overview page.



5. Create an OAuth Client

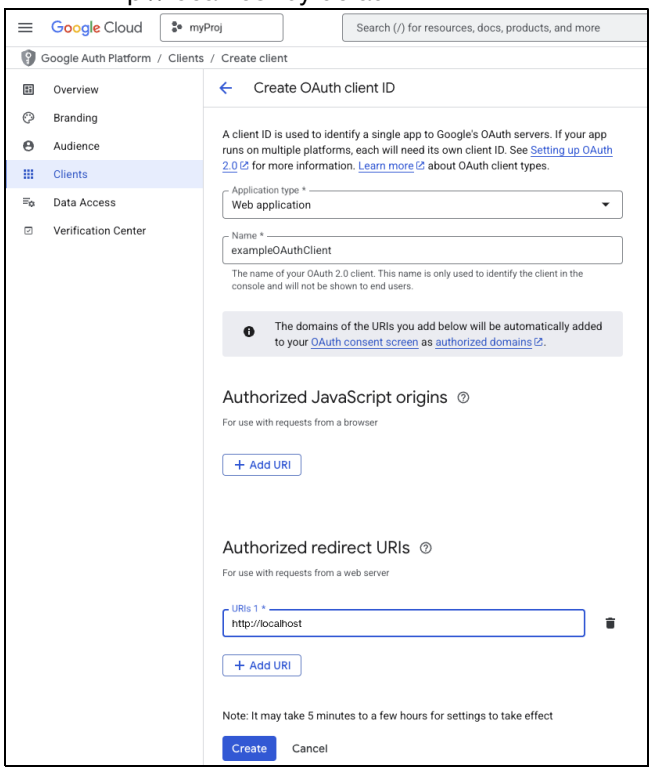
   - From the OAuth Overview page, click **Create OAuth Client**



This opens the **Create OAuth Client ID** page

6. Create OAuth Client ID Credentials

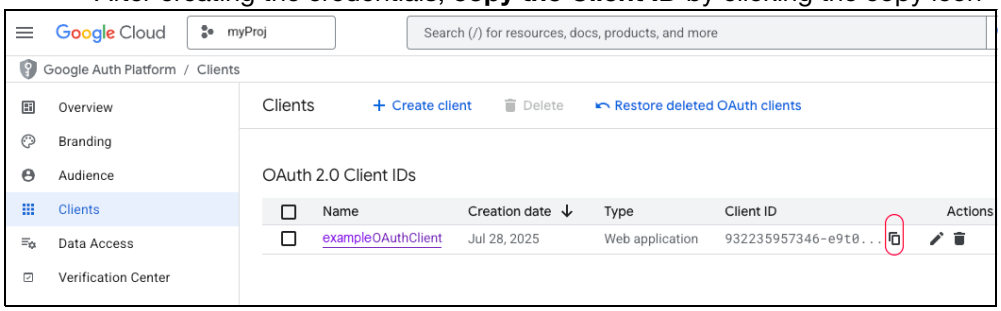
   - Choose **Web application** as the application type.
   - In the **Authorized redirect URIs** section, add the redirect URI used by the device. This is http://localhost by default.



   - Click **Create**

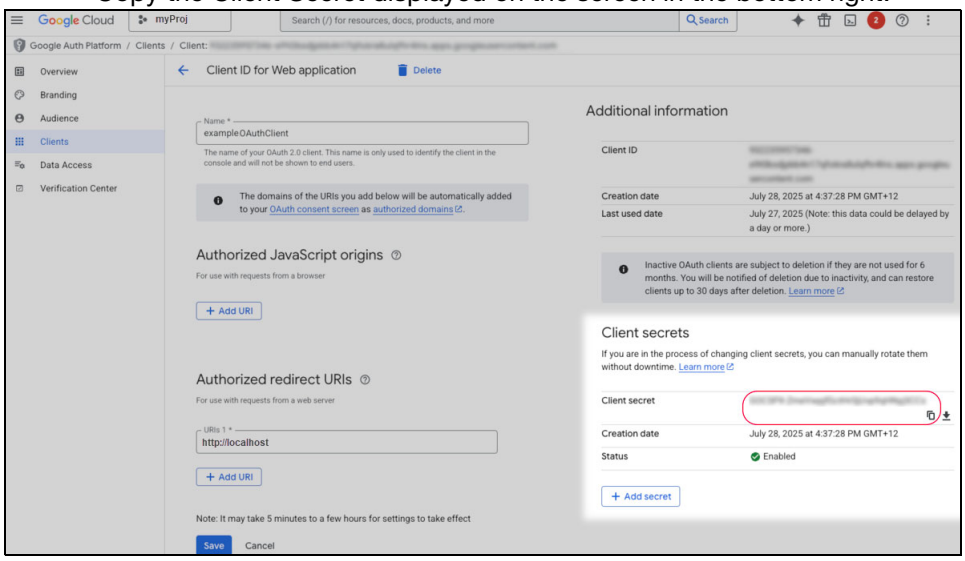
7. Obtain the Client ID and Client Secret

   - After creating the credentials, **copy the Client ID** by clicking the copy icon



   - Click on the **name of the new Client ID** to go to the Client ID for Web application page.

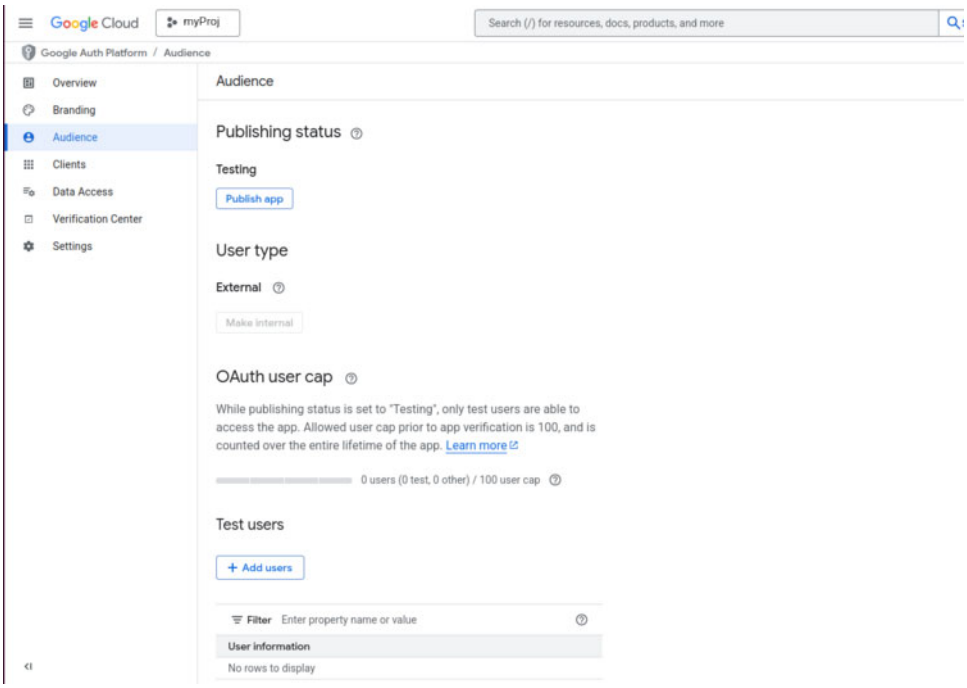
   - Copy the Client Secret displayed on the screen in the bottom right.



8. If the application was set to External, add the email account to “test users”

For unpublished external applications, the email account must be added to 'test users'. To do this, click on **Audience** on the left panel.

Under **Test users**, click **Add users** and add the email address you want the device to access:



9. Set up OAuth in AlliedWare Plus

First, set the mail SMTP server to the Gmail SMTP server, and set up your from address to the account you want to send email from. Use the commands:

```
awplus# configure terminal
awplus(config)# mail smtpserver smtp.gmail.com
awplus(config)# mail from example@gmail.com
```

Then enable TLS. Use the command:

```
awplus(config)# mail smtpserver tls starttls
```

Then enter the copied Client ID and Client Secret into the AlliedWare Plus device. Use the following commands:

```
awplus(config)# mail smtpserver authentication oauth2
awplus(config-smtp-oauth)# username <username> provider google client-id
<clientid> client-secret <client-secret>
```

10. Display a URL you can use to authenticate

Use the following command:

```
awplus# show mail oauth2 url
```

This displays a URL like the following output:

```
awplus#show mail oauth2 url
Vist:
https://accounts.google.com/o/oauth2/v2/
auth?client_id=<clientid>&redirect_uri=http://localhost&response_type=code
&scope=https://mail.google.com/&prompt=consent&access_type=offline
```

This lets you log in with your Google account to authenticate and allow the OAuth application to use your account. You will be redirected to your redirect URL, which will be localhost unless you changed it from the default.

11. Copy the authentication code to the device

At the end of the previous step, you will be redirected to localhost with the authorization code present in the browser:

Copy this code (the sequence after “code=” and before an “&” or the end of the URL) and enter it into the device so it can obtain a refresh token. To do this, use the following command:

```
awplus# mail oauth2 code
```

This command prompts you with **Enter the OAuth code:**. Once you enter the code, the device tries to obtain a refresh token from Google. This refresh token will be stored on the device and will persist across reboots. This completes OAuth 2.0 setup and authorizes the device. You should not need to re-run this command unless the refresh token expires or your Client ID expires.

Show commands

The **show mail** command displays emails in the SMTP server queue:

```
awplus#show mail
Mail Settings
-------------------------------------------------------------
State                              : Alive
SMTP Server                        : example@example.com
Host Name                          : fred@example.com
Authentication                     : login
Username                           : fred
Port                               : 587
Use TLS                            : STARTTLS
Debug                              : Disabled

Messages
-------------------------------------------------------------
To : fred@example.com
Subject : "Host:awplus with Serial: 012345678 memory utilization
high at 2018-07-11T15:09:31+0000"
Message-ID : 20180711150931.12139
```

This example shows the result after deleting message-ID “20180711150931.12139” from the queue. Use the **show mail** command to check it has been deleted:

```
awplus#delete mail mail-id 20180711150931.12139
awplus#show mail
Mail Settings
-------------------------------------------------------------
State                                : Alive
SMTP Server                          : smtp.example.com
Host Name                            : example@example.com
Debug                                : Disabled

Messages
-------------------------------------------------------------
```

This example shows the output from the **show counter mail** command so you can check that your messages have been sent successfully:

```
awplus#show counter mail

Mail Client (SMTP) counters
Mails Sent               ....... 2
Mails Sent Fails         ....... 0
```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