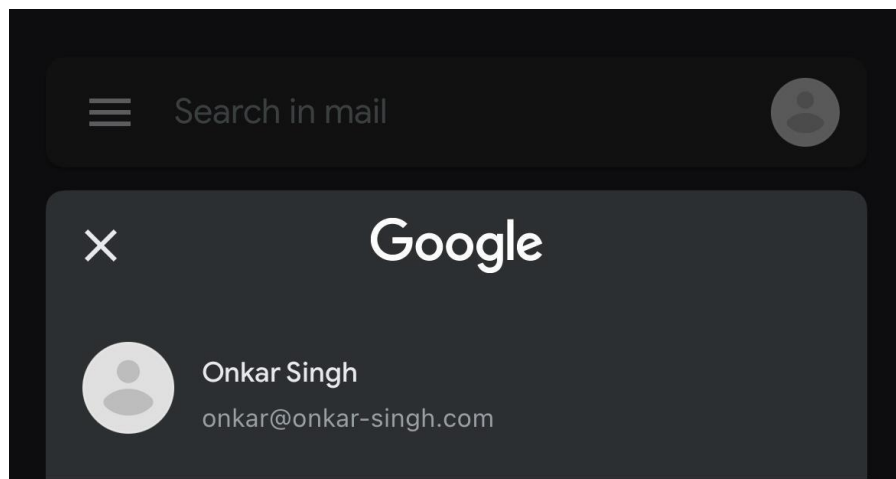
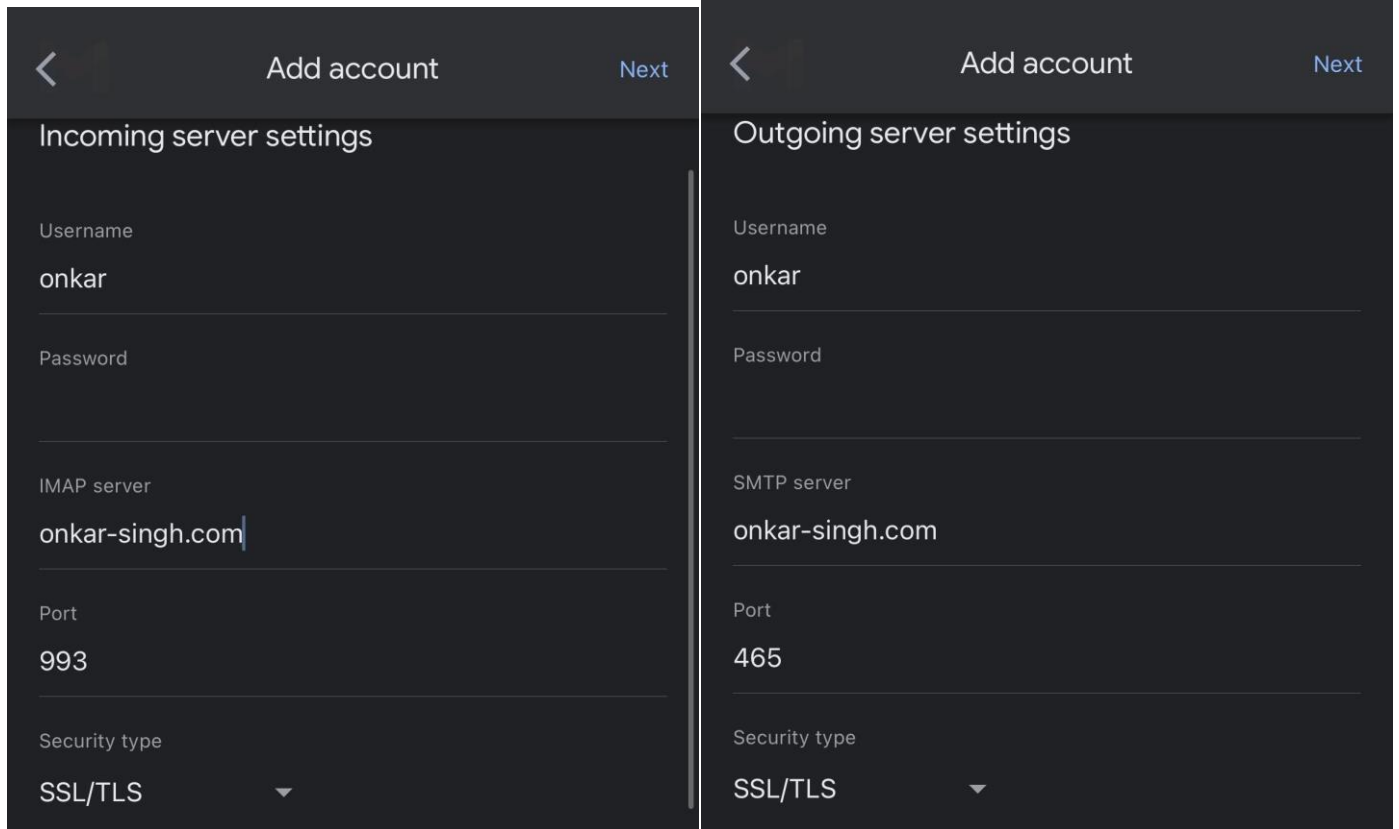


Email Server Setup with Postfix, Dovecot, and SendGrid on GCP



Overview

This document outlines the configuration of an email server on Google Cloud Platform (GCP) using Postfix, Dovecot, and SendGrid, secured with SMTPS and IMAPS. The custom email address, <mailto:onkar@onkar-singh.com>, is configured for secure communication and can be used to reach me. Suggestions for improvements are welcome.

Components and Protocols Used

1. **Postfix**: Acts as the Mail Transfer Agent (MTA) responsible for sending and receiving email.
 2. **Dovecot**: Serves as the Mail Delivery Agent (MDA) and IMAP server, managing email storage and retrieval.
 3. **SendGrid**: Functions as the outbound SMTP relay, improving email deliverability and handling complex email requirements.
 4. **SMTPS (Secure SMTP)**: Secures outgoing email communications with TLS encryption.
 5. **IMAPS (Secure IMAP)**: Ensures secure email retrieval over TLS.
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Skills and Key Concepts Learned

- **MTA and MDA Configuration**: Set up Postfix and Dovecot as core email infrastructure components.
 - **Domain and DNS Management**: Configured DNS records for email routing and authentication.
 - **SSL/TLS Security**: Implemented SMTPS and IMAPS to encrypt email traffic.
 - **Relay Services**: Integrated SendGrid for reliable email delivery.
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Process Overview

1. **Postfix Configuration (SMTP Server)**:
 - Installed Postfix to handle SMTP communications:

```
bash
Copy code
sudo apt update
sudo apt install postfix -y
```

- Configured Postfix to relay outgoing emails through SendGrid for improved deliverability:

```
bash
Copy code
sudo nano /etc/postfix/main.cf
```

Key settings included:

- **Relayhost:** Pointed to SendGrid's SMTP server (e.g., `smtp.sendgrid.net:587`).
 - **SMTP Authentication:** Added SendGrid credentials for authentication.
 - **TLS Encryption:** Enabled TLS for SMTPS by setting `smtp_tls_security_level = encrypt`.
- Reloaded Postfix to apply changes:

```
bash
Copy code
sudo systemctl restart postfix
```

2. Dovecot Configuration (IMAP Server):

- Installed Dovecot to handle IMAP and local email storage:

```
bash
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sudo apt install dovecot-core dovecot-imapd -y
```

- Configured Dovecot for secure IMAP (IMAPS):

```
bash
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sudo nano /etc/dovecot/dovecot.conf
```

Key settings included:

- **SSL Configuration:** Enabled SSL with paths to certificate and key files.
- **IMAPS Protocol:** Set `protocols = imap` and enabled `ssl = required` to force secure connections.

- Configured user authentication using Dovecot's local authentication, allowing for secure storage and retrieval of emails.
- Reloaded Dovecot to activate configurations:

```
bash
Copy code
sudo systemctl restart dovecot
```

3. DNS Configuration:

- Configured DNS records for `onkar-singh.com` to support email functions:
 - **MX Record:** Set to point to the email server's IP address, allowing mail delivery to the domain.

4. Testing and Validation:

- Sent test emails to verify the outbound mail flow through SendGrid.
- Verified IMAP connection by connecting to `onkar@onkar-singh.com` using an email client with IMAPS.