# Functional Requirement

1.1 Email Creation Function   
 Function ID: FR-01   
 Description: The system allows the Administrator to create a new Email using an Email Template and send it via a selected Email Account to a Distribution Group.   
 Input: Distribution Group, Email Template, customized email content, selected Email Account.   
 Output: A new Email with associated Email Account and Distribution Group, a Compliance Audit Record of the creation, and a success message to the Administrator.  
  
1.2 Email Sending Function   
 Function ID: FR-02   
 Description: The system allows the Administrator to send an Email that has been created and is associated with a valid Email Account and Distribution Group.   
 Input: Selected Email, associated Distribution Group, Email Account, Compliance Audit Record.   
 Output: The Email is sent to all recipients in the Distribution Group, archived, and the Compliance Audit Record is updated with the sending details.  
  
1.3 Email Receiving Function   
 Function ID: FR-03   
 Description: The system can detect, validate, and store incoming Emails via configured Email Accounts. It also archives the Email and updates the Compliance Audit Record.   
 Input: Incoming Email, Email Account.   
 Output: A new Email stored in the system, archived in the Email Archive, and a Compliance Audit Record updated with the receipt details. A notification is sent to the Administrator.  
  
1.4 Email Reading Function   
 Function ID: FR-04   
 Description: The system allows the Administrator to view the content of an Email stored in the Email Archive, along with its Compliance Audit Record.   
 Input: Selected Email from the Email Archive.   
 Output: Displayed Email content and Compliance Audit Record details. The system logs the view action.  
  
1.5 Email Deletion Function   
 Function ID: FR-05   
 Description: The system allows the Administrator to delete an Email from the Email Archive and update the Compliance Audit Record accordingly.   
 Input: Selected Email from the Email Archive, confirmation for deletion.   
 Output: The Email is removed from the system, and the Compliance Audit Record is updated with the deletion details. A confirmation message is displayed.  
  
1.6 Email Archiving Function   
 Function ID: FR-06   
 Description: The system allows the Administrator to manually archive an Email to the Email Archive and update the Compliance Audit Record with the archiving details.   
 Input: Selected Email, confirmation for archiving.   
 Output: The Email is moved to the Email Archive, and the Compliance Audit Record is updated with the archiving timestamp and details.  
  
1.7 Email Recovery Function   
 Function ID: FR-07   
 Description: The system allows the Administrator to recover an Email from the Email Archive and restore it to active email storage.   
 Input: Selected Email from the Email Archive, confirmation for recovery.   
 Output: The Email is restored to active storage, and the Compliance Audit Record is updated with the recovery details.  
  
1.8 Contact Creation Function   
 Function ID: FR-08   
 Description: The system allows the Administrator to create a new Contact and associate it with a Distribution Group.   
 Input: Contact name, email address, phone number, address, and associated Distribution Group.   
 Output: A new Contact stored in the system, associated with the correct Distribution Group, and a Compliance Audit Record updated with the creation details.  
  
1.9 Contact Update Function   
 Function ID: FR-09   
 Description: The system allows the Administrator to modify an existing Contact’s information and update its associated Distribution Group.   
 Input: Selected Contact, updated details (e.g., name, email, phone number), and updated Distribution Group.   
 Output: The Contact is updated in the system, associated with the correct Distribution Group, and the Compliance Audit Record is updated with the modification details.  
  
1.10 Contact Deletion Function   
 Function ID: FR-10   
 Description: The system allows the Administrator to delete an existing Contact and update the Compliance Audit Record accordingly.   
 Input: Selected Contact, confirmation for deletion.   
 Output: The Contact is removed from the system, the Compliance Audit Record is updated with the deletion details, and a confirmation message is displayed.  
  
1.11 Contact Viewing Function   
 Function ID: FR-11   
 Description: The system allows the Administrator to view the details of an existing Contact, including its associated Distribution Group and Compliance Audit Record.   
 Input: Selected Contact.   
 Output: Displayed Contact information, associated Distribution Group details, and Compliance Audit Record (if available). The view action is logged.  
  
1.12 Distribution Group Creation Function   
 Function ID: FR-12   
 Description: The system allows the Administrator to create a new Distribution Group and add one or more Contacts to it.   
 Input: Group name, description, and list of Contacts to include.   
 Output: A new Distribution Group stored in the system, with associated Contacts and a Compliance Audit Record updated with the creation details.  
  
1.13 Distribution Group Update Function   
 Function ID: FR-13   
 Description: The system allows the Administrator to update the name, description, and membership of an existing Distribution Group.   
 Input: Selected Distribution Group, updated name and description, modified list of Contacts.   
 Output: The updated Distribution Group is saved in the system, Compliance Audit Record is updated with the modification details.  
  
1.14 Distribution Group Deletion Function   
 Function ID: FR-14   
 Description: The system allows the Administrator to delete a Distribution Group and disassociate its Contacts.   
 Input: Selected Distribution Group, confirmation for deletion.   
 Output: The Distribution Group is removed from the system, associated Contacts are disassociated, and the Compliance Audit Record is updated with the deletion details.  
  
1.15 Distribution Group Viewing Function   
 Function ID: FR-15   
 Description: The system allows the Administrator to view the details of an existing Distribution Group, including its members and Compliance Audit Record.   
 Input: Selected Distribution Group.   
 Output: Displayed group name, description, associated Contacts, and Compliance Audit Record (if available). The view action is logged.  
  
1.16 Email Account Registration Function   
 Function ID: FR-16   
 Description: The system allows the Administrator to register a new Email Account, including email address, password, and server configuration.   
 Input: Email address, password, server configuration details.   
 Output: A new Email Account registered in the system, with a Compliance Audit Record updated with the registration details.  
  
1.17 Email Account Modification Function   
 Function ID: FR-17   
 Description: The system allows the Administrator to modify the details of an existing Email Account, such as password or server configuration.   
 Input: Selected Email Account, updated details (e.g., password, server configuration).   
 Output: The Email Account is updated in the system, and the Compliance Audit Record is updated with the modification details.  
  
1.18 Email Account Deletion Function   
 Function ID: FR-18   
 Description: The system allows the Administrator to delete an existing Email Account and update the Compliance Audit Record accordingly.   
 Input: Selected Email Account, confirmation for deletion.   
 Output: The Email Account is removed from the system, and the Compliance Audit Record is updated with the deletion details.  
  
1.19 Email Account Viewing Function   
 Function ID: FR-19   
 Description: The system allows the Administrator to view the details of an Email Account, including its server configuration and status.   
 Input: Selected Email Account.   
 Output: Displayed Email Account information, and Compliance Audit Record (if available). The view action is logged.  
  
1.20 Email Template Management Function   
 Function ID: FR-20   
 Description: The system allows the Administrator to create, update, or delete an Email Template.   
 Input: Selected action (create, update, delete), template name, subject, body content, and metadata (for create/update).   
 Output: The Email Template is created, updated, or deleted, and the Compliance Audit Record is updated accordingly.  
  
1.21 Email Template Creation Function   
 Function ID: FR-21   
 Description: The system allows the Administrator to create a new Email Template, including name, subject, body, and metadata.   
 Input: Template name, subject, body content, and metadata.   
 Output: A new Email Template stored in the system, with a Compliance Audit Record updated with the creation details.  
  
1.22 Email Template Update Function   
 Function ID: FR-22   
 Description: The system allows the Administrator to update an existing Email Template’s content or metadata.   
 Input: Selected Email Template, updated fields (e.g., name, subject, body content).   
 Output: The Email Template is updated in the system, and the Compliance Audit Record is updated with the modification details.  
  
1.23 Email Template Deletion Function   
 Function ID: FR-23   
 Description: The system allows the Administrator to delete an existing Email Template and update the Compliance Audit Record accordingly.   
 Input: Selected Email Template, confirmation for deletion.   
 Output: The Email Template is removed from the system, and the Compliance Audit Record is updated with the deletion details.  
  
1.24 Email Status Logging Function   
 Function ID: FR-24   
 Description: The system logs status changes of Emails (e.g., sent, received, read, deleted) in the Email Status Log.   
 Input: Email status change (e.g., "Sent", "Failed"), associated Email, timestamp, and description.   
 Output: A new or updated Email Status Log entry stored in the system, and the Compliance Audit Record updated with the action details.  
  
1.25 Email Status Log Management Function   
 Function ID: FR-25   
 Description: The system allows the Administrator to create, update, or delete an Email Status Log entry.   
 Input: Selected action (create, update, delete), Email, status, timestamp, and notes.   
 Output: The Email Status Log is created, updated, or deleted, and the Compliance Audit Record is updated accordingly.  
  
1.26 Compliance Audit Record Viewing Function   
 Function ID: FR-26   
 Description: The system allows the Administrator to view the details of a Compliance Audit Record, including the associated Email, Contact, or Distribution Group.   
 Input: Selected Compliance Audit Record.   
 Output: Displayed audit record details, including action type, timestamp, and related entities. The view action is logged.  
  
1.27 Compliance Audit Report Generation Function   
 Function ID: FR-27   
 Description: The system allows the Administrator to generate a Compliance Audit Report based on selected records and associated entities.   
 Input: Time range or specific Compliance Audit Records, selected report format (e.g., PDF, CSV).   
 Output: A generated Compliance Audit Report displayed to the Administrator, and the system logs the report generation action.  
  
1.28 Email Archive Record Management Function   
 Function ID: FR-28   
 Description: The system allows the Administrator to create, update, or delete an Email Archive Record, linking it to the Email and Compliance Audit Record.   
 Input: Selected action (create, update, delete), Email, archive date, recovery date, and status.   
 Output: The Email Archive Record is created, updated, or deleted, and the Compliance Audit Record is updated accordingly.  
  
1.29 Email Folder Management Function   
 Function ID: FR-29   
 Description: The system allows the Administrator to create, update, or delete an Email Folder to organize Emails.   
 Input: Selected action (create, update, delete), folder name, description, and parent folder (if applicable).   
 Output: The Email Folder is created, updated, or deleted, and the Compliance Audit Record is updated accordingly. Emails are reorganized if necessary.  
  
1.30 Email Update Function   
 Function ID: FR-30   
 Description: The system allows the Administrator to update an existing Email’s content, associated Email Account, or Distribution Group.   
 Input: Selected Email, updated content, Email Account, Distribution Group.   
 Output: The Email is updated in the system, and the Compliance Audit Record is updated with the modification details.  
  
1.31 Notification Management Function   
 Function ID: FR-31   
 Description: The system allows the Administrator to create, update, or delete a Notification, linking it to Email Accounts and Compliance Audit Records.   
 Input: Selected action (create, update, delete), notification title, message, target Email Account, and event trigger conditions.   
 Output: The Notification is created, updated, or deleted, and the Compliance Audit Record is updated accordingly.

# External Description

# 2. External Interfaces   
  
This section defines the external interfaces that the system interacts with, including user interfaces, hardware interfaces (if any), software interfaces (including databases and third-party tools), and communication interfaces. These interfaces are identified and described based on the inputs, outputs, and external data sources referenced in the functional requirements.   
  
## 2.1 User Interface Output   
  
The system interacts with the \*\*Administrator\*\* through a \*\*graphical user interface (GUI)\*\*. This interface allows the Administrator to perform various actions such as creating, sending, reading, updating, archiving, and deleting Emails, Contacts, Distribution Groups, Email Accounts, Email Templates, and Notifications. The interface also provides access to Compliance Audit Records and Email Archive Records.   
  
### 2.1.1 Email Management Interface   
- \*\*Description\*\*: A screen where the Administrator can create, update, or delete Emails.   
- \*\*Inputs\*\*:   
 - Distribution Group selection   
 - Email Template selection   
 - Customized email content   
 - Email Account selection   
- \*\*Outputs\*\*:   
 - Display of the created or modified Email   
 - Compliance Audit Record of the action   
 - Success or confirmation messages   
 - Email Status Log updates   
  
### 2.1.2 Contact Management Interface   
- \*\*Description\*\*: A screen for managing Contacts, including creating, updating, deleting, and viewing them.   
- \*\*Inputs\*\*:   
 - Contact name, email, phone, address   
 - Distribution Group association   
- \*\*Outputs\*\*:   
 - Display of Contact details   
 - Compliance Audit Record updates   
 - Confirmation messages   
  
### 2.1.3 Distribution Group Management Interface   
- \*\*Description\*\*: A screen for managing Distribution Groups, including creating, updating, deleting, and viewing groups and their members.   
- \*\*Inputs\*\*:   
 - Group name and description   
 - List of Contacts to add or remove   
- \*\*Outputs\*\*:   
 - Display of group details and members   
 - Compliance Audit Record updates   
  
### 2.1.4 Email Account Management Interface   
- \*\*Description\*\*: A screen for registering, modifying, or deleting Email Accounts.   
- \*\*Inputs\*\*:   
 - Email address, password, and server configuration   
- \*\*Outputs\*\*:   
 - Display of account details and server status   
 - Compliance Audit Record updates   
  
### 2.1.5 Email Template Management Interface   
- \*\*Description\*\*: A screen for creating, updating, or deleting Email Templates.   
- \*\*Inputs\*\*:   
 - Template name, subject, body, and metadata   
- \*\*Outputs\*\*:   
 - Display of updated or created templates   
 - Compliance Audit Record updates   
  
### 2.1.6 Compliance Audit Interface   
- \*\*Description\*\*: A screen for viewing Compliance Audit Records and generating Compliance Audit Reports.   
- \*\*Inputs\*\*:   
 - Selection of audit records or time range   
 - Report format (e.g., PDF, CSV)   
- \*\*Outputs\*\*:   
 - Display of audit details (action type, timestamp, related entities)   
 - Generated Compliance Audit Reports   
 - Logging of view actions   
  
### 2.1.7 Email Archive Management Interface   
- \*\*Description\*\*: A screen for viewing and managing archived Emails, including recovery and deletion of archive records.   
- \*\*Inputs\*\*:   
 - Selected Email for archiving or recovery   
 - Archive date, recovery date, and status   
- \*\*Outputs\*\*:   
 - Display of Email Archive Records   
 - Confirmation of archiving or recovery   
 - Compliance Audit Record updates   
  
### 2.1.8 Email Folder Management Interface   
- \*\*Description\*\*: A screen for managing Email Folders, including creating, updating, and deleting folders and reorganizing Emails.   
- \*\*Inputs\*\*:   
 - Folder name, description, and parent folder   
- \*\*Outputs\*\*:   
 - Updated folder structure   
 - Compliance Audit Record updates   
  
### 2.1.9 Notification Management Interface   
- \*\*Description\*\*: A screen for managing Notifications, including creating, updating, and deleting notification settings.   
- \*\*Inputs\*\*:   
 - Notification title, message, target Email Account   
 - Event trigger conditions   
- \*\*Outputs\*\*:   
 - Display of notification settings   
 - Compliance Audit Record updates   
  
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## 2.2 Hardware Interface Output   
  
No hardware interfaces are required for the system as described in the provided functional requirements. The system is expected to operate on standard server and desktop hardware without direct interaction with physical hardware devices.   
  
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## 2.3 Software Interface Output   
  
The system interacts with several \*\*software components\*\*, including \*\*databases\*\*, \*\*third-party tools\*\*, and \*\*internal modules\*\*. These are essential for data storage, retrieval, and processing.   
  
### 2.3.1 Email Archive Database   
- \*\*Description\*\*: A database that stores archived Email records, including metadata such as archive date, recovery date, and status.   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When an Email is archived manually or after sending/receiving, the system inserts a new record into the Email Archive Database.   
 - \*\*Read\*\*: When an Email is viewed or recovered, the system retrieves the relevant archive record.   
 - \*\*Update\*\*: When an Email is recovered or marked as deleted, the system updates the archive record.   
 - \*\*Delete\*\*: When an Email Archive Record is deleted, the system removes it from the database.   
- \*\*Data Format\*\*: Structured data with fields such as `EmailID`, `ArchiveDate`, `RecoveryDate`, `Status`, and `ComplianceAuditID`.   
  
### 2.3.2 Compliance Audit Database   
- \*\*Description\*\*: A database that logs all system actions related to Emails, Contacts, Distribution Groups, Email Accounts, Templates, and Notifications.   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When a new Email, Contact, Distribution Group, Email Account, Template, or Notification is created, the system inserts a new audit record.   
 - \*\*Update\*\*: When any entity is modified, the system updates the audit record with the modification details.   
 - \*\*Delete\*\*: When an entity is deleted, the system updates the audit record with the deletion details.   
- \*\*Data Format\*\*: Structured data with fields such as `ActionType`, `Timestamp`, `EntityID`, `EntityName`, and `Description`.   
  
### 2.3.3 Email Status Log Database   
- \*\*Description\*\*: A database that logs the status of Emails (e.g., sent, received, read, failed, deleted).   
- \*\*Interaction Method\*\*:   
 - \*\*Create/Update\*\*: When an Email status changes, the system inserts or updates a record in the Email Status Log Database.   
- \*\*Data Format\*\*: Structured data with fields such as `EmailID`, `Status`, `Timestamp`, and `Notes`.   
  
### 2.3.4 Email Account Configuration Module   
- \*\*Description\*\*: A module or database that stores configuration details of Email Accounts, including server settings (SMTP/IMAP), authentication credentials, and status (e.g., active, inactive).   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When a new Email Account is registered, its details are stored in the configuration module.   
 - \*\*Read\*\*: When viewing or sending emails, the system retrieves the account’s configuration.   
 - \*\*Update/Delete\*\*: When an Email Account is modified or deleted, the system updates or removes the configuration accordingly.   
- \*\*Data Format\*\*: Structured data with fields such as `EmailID`, `ServerType`, `ServerAddress`, `Port`, `Username`, `Password`, `Status`.   
  
### 2.3.5 Email Template Storage Module   
- \*\*Description\*\*: A module or database for storing Email Templates, including the name, subject, body content, and metadata.   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When a new Email Template is created, it is stored in this module.   
 - \*\*Read/Update/Delete\*\*: When templates are used, modified, or deleted, the system interacts with this module.   
- \*\*Data Format\*\*: Structured data with fields such as `TemplateName`, `Subject`, `BodyContent`, `Metadata`, `LastModified`.   
  
### 2.3.6 Contact Database   
- \*\*Description\*\*: A database that stores Contact information, including name, email, phone number, address, and association with Distribution Groups.   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When a new Contact is added, its details are stored in the database.   
 - \*\*Read/Update/Delete\*\*: When viewing, modifying, or removing a Contact, the system retrieves or modifies the database.   
- \*\*Data Format\*\*: Structured data with fields such as `ContactID`, `Name`, `Email`, `Phone`, `Address`, `DistributionGroupID`.   
  
### 2.3.7 Distribution Group Database   
- \*\*Description\*\*: A database that stores Distribution Groups, including name, description, and list of associated Contacts.   
- \*\*Interaction Method\*\*:   
 - \*\*Create\*\*: When a new group is created, its details are stored in the database.   
 - \*\*Read/Update/Delete\*\*: When viewing, modifying, or deleting a group, the system interacts with the database.   
- \*\*Data Format\*\*: Structured data with fields such as `GroupID`, `GroupName`, `Description`, `ContactIDs`.   
  
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## 2.4 Communication Interface Output   
  
The system uses \*\*communication interfaces\*\* to interact with external services and to send and receive emails.   
  
### 2.4.1 Email Communication Interface   
- \*\*Description\*\*: The system uses this interface to send and receive emails via configured Email Accounts.   
- \*\*Protocols\*\*:   
 - \*\*SMTP (Simple Mail Transfer Protocol)\*\*: Used for sending emails.   
 - \*\*IMAP (Internet Message Access Protocol)\*\*: Used for receiving and retrieving emails.   
- \*\*Inputs\*\*:   
 - Email content (from Email Templates or customized input)   
 - Email Account credentials and server configuration   
 - Distribution Group of recipients   
- \*\*Outputs\*\*:   
 - Sent Emails to recipients in the Distribution Group   
 - Received Emails stored in the system   
 - Email Status Log updates (e.g., "Sent", "Failed")   
 - Compliance Audit Record updates   
  
### 2.4.2 Email Notification Interface   
- \*\*Description\*\*: The system sends notifications to the Administrator via the configured Email Accounts for events such as email receipt, deletion, or archive.   
- \*\*Inputs\*\*:   
 - Notification content (title, message)   
 - Target Email Account for sending the notification   
- \*\*Outputs\*\*:   
 - Email notification sent to the Administrator   
 - Compliance Audit Record of the notification action   
  
### 2.4.3 Email Archive Communication Interface   
- \*\*Description\*\*: The system communicates with an email archive system or external storage to archive and retrieve Emails.   
- \*\*Inputs\*\*:   
 - Email to be archived   
 - Archive date and status   
- \*\*Outputs\*\*:   
 - Archived Email stored in the system   
 - Archive record updated in the Email Archive Database   
 - Compliance Audit Record updates   
  
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This section has been carefully constructed to align with the functional requirements and ensure that all referenced data sources (e.g., Email Archive, Compliance Audit, Email Status Log, Contact Database, etc.) are clearly defined and categorized under the appropriate interface type. Developers can use this section to understand how the system interacts with external entities and how to structure the necessary integrations.