



# Mail Flow Tracking Using Exchange Server

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## ABSTRACT

Email management is a fundamental aspect of organizational communication in today's digital era. Within the Microsoft 365 and Office 365 ecosystem, efficient mail flow is essential for ensuring seamless communication while adhering to regulatory requirements and business needs. Central to this infrastructure is message tracking, which provides detailed insights into email activities as they traverse through servers.

Utilizing the Exchange Management Shell's Set-Transport Service cmdlet, this project explores configuring message tracking in Microsoft 365 or Office 365 settings. The objectives include enabling or disabling message tracking, defining parameters such as log file location, size limits, maximum age, and subject logging. These configurations enable organizations to conduct message forensics, analyze mail flow, generate reports, and troubleshoot issues effectively.

Understanding the nuances of mail flow within Microsoft 365 or Office 365 is crucial for successful implementation. While many organizations delegate email management entirely to these platforms, some may require tailored setups to meet specific compliance or operational needs.

By following a structured plan of action, administrators can navigate through the configuration process, optimizing email infrastructure for efficiency and compliance. This project equips administrators with practical knowledge of configuring message tracking, ensuring smooth email operations and adherence to organizational requirements.

**Keywords** : Email Management, Mail Flow Message, Tracking Set-Transport, Service Exchange Management Shell, Message Forensics, Reporting Troubleshooting, Configuration, Optimization, Compliance, Regulatory Requirements Business Needs

## I. INTRODUCTION

Message tracking records the message activity on Mailbox servers and Edge Transport servers as they move through the mail transport pipeline. Message tracking logs are useful for reporting, troubleshooting, mail flow analysis, and message forensics. Exchange Management can be used to track any messages. Shell's Set-Transport Service command on Edge Transport and Mailbox servers for the configuration task in this project. Turn on or off message tracking. It is on by default. Give the log files' location—which are used to trace messages—a name. Establish a maximum file size for each message monitoring log file. By default, 10 MB are utilized. For the directory containing the message monitoring log files, set the maximum permissions. Size: By default, 1000 MB is used.

Assign a maximum age to the message tracking log files. By default, thirty days is used. Change the message tracking logs to enable or disable message subject logging. That's enabled by default.

## II. LITERATURE REVIEW

### **Examining the Literature on mail flow tracking using exchange server**

Provide an overview of mail flow tracking, its significance in organizational communication, and its role in ensuring efficient email management.

Define key terms and concepts related to mail flow tracking, such as message tracking, transport pipeline, and Exchange Server.

Explore the evolution of mail flow tracking technology, tracing its development from early email systems to modern platforms like Microsoft Exchange Server and Office 365.

Identify seminal works and milestones in the field of mail flow tracking, highlighting key advancements and innovations.

### **A high-level overview of Azure**

With Azure, Microsoft's cloud computing platform, a wide range of services are available to help developers and companies to create, implement, and oversee applications and services.

With Azure, users gain access to a diverse range of capabilities including virtual machines for flexible computing, app services for web application development and deployment, and storage solutions for scalable data management.

## III. METHODOLOGY

### **Approach**

The methodology approach for mail flow tracking using Exchange Server involves a systematic and structured process aimed at effectively monitoring, analysing, and managing email traffic within an organization's infrastructure. This approach encompasses several key steps designed to ensure comprehensive coverage of mail flow activities while leveraging the capabilities of Exchange Server to their fullest extent.

### **Implementation**

implementation for mail flow tracking using Exchange Server involves a systematic approach to configuring and monitoring email traffic within the organization's infrastructure. The process typically begins with an assessment of the organization's email management needs and objectives, followed by the implementation of appropriate tools and techniques for tracking mail flow.

Firstly, administrators need to analyze the organization's requirements for mail flow tracking,

including compliance obligations, security concerns, and operational needs. This assessment helps determine the scope and objectives of the tracking system and guides subsequent configuration steps.

### **Characteristics**

Characteristics that are essential for efficient email management and communication within organizations. Firstly, real-time monitoring capabilities enable administrators to track the movement of emails through the transport pipeline instantaneously. This allows for timely identification and resolution of any issues or bottlenecks in the mail flow process, ensuring uninterrupted communication and minimal downtime.

Secondly, comprehensive logging and reporting features provide detailed insights into email activities, including message delivery, routing, and processing. By maintaining comprehensive logs of email transactions, organizations can conduct thorough message forensics, analyse mail flow patterns, and generate reports for compliance auditing and performance monitoring purposes.

Moreover, configurability and customization options allow administrators to tailor mail flow tracking settings to meet specific organizational requirements and compliance mandates. This includes defining parameters such as log file locations, size limits, retention policies, and subject logging preferences. This flexibility ensures that organizations can adapt their mail flow tracking configurations to evolving business needs and regulatory standards.

Furthermore, integration capabilities with other Microsoft 365 and Office 365 services enable seamless collaboration and information sharing across different platforms. Exchange Server's integration with tools such as SharePoint, Teams, and OneDrive allows for streamlined

communication and collaboration workflows, with mail flow tracking data seamlessly accessible from within these applications.

### **Data pre-processing**

Data preprocessing plays a crucial role in the context of mail flow tracking using Exchange Server, as it involves preparing and refining raw data to ensure its accuracy, completeness, and usability for analysis and monitoring purposes. In the context of mail flow tracking, the preprocessing of data typically involves several key steps.

Firstly, raw data from Exchange Server logs, which capture information about email activities as messages traverse through the transport pipeline, needs to be collected and extracted. This data may include details such as sender and recipient addresses, timestamps, message IDs, delivery statuses, and routing information.

### **Pre-processing Data**

Once collected, the raw data undergoes cleaning and filtering processes to remove any inconsistencies, duplicates, or irrelevant information. This may involve tasks such as removing spam or non-business-related emails, standardizing formats, and correcting errors in data entry.

Following cleaning, the preprocessed data is transformed and enriched to enhance its analytical value. This may involve extracting additional features or metadata from the raw data, such as message sizes, attachment types, delivery routes, and sender reputation scores. Furthermore, data normalization techniques may be applied to standardize numerical values and ensure consistency across different data sources.

In addition to transformation, data preprocessing also involves handling missing or incomplete data through techniques such as imputation or deletion.

Missing values in key fields such as sender or recipient addresses, timestamps, or delivery statuses may be filled in based on historical patterns or inferred from related data points.

Finally, the preprocessed data is formatted and structured for analysis and visualization. This may involve organizing the data into tables or datasets, defining appropriate data types and formats, and preparing summary statistics or aggregates for further analysis.

#### IV. EXPERIMENTAL SETUP

The way the message tracking log files are organized. The following information is represented by the remaining blanks in the log file names. The instance number for every log is nnnn, and it starts at 1. Varies daily. Up until the file reaches its maximum size, data is written to the log file. Next, a fresh log file with an elevated instance number is established; the initial log file had an instance number of -1, the second is -2, and so on. If either of the following scenarios applies to a service, circular logging removes the oldest log files:

A log file ages to the maximum.

The message tracking log folder has reached its maximum size.

**Notes:** The total size of all log files with the same name prefix determines the maximum size of the message tracking log folder. The estimate of the folder's overall size does not include other files that do not adhere to the name prefix convention. The message tracking log folder may grow larger than its allotted space if previous log files are renamed or additional files are copied inside. The message tracking log folder on Mailbox servers can have a maximum size of three times the given value. Despite the fact that the message tracking log

files have four distinct name prefixes and are produced by four distinct services, the amount and frequency of information sent to the MSGTRKMA (moderated transport log) are insignificant in comparison to the other contents

The following data is contained in the header of every message tracking log file:

**#Software:** Software that is valuable is Microsoft Exchange Server.

**#Version:** Exchange server's version number is #Version, which was utilized to create the log file for message tracking. The file is saved in the format 15.01.nnn.nnn.

**#Log-Model:** What's valuable is the Message Tracking Log.

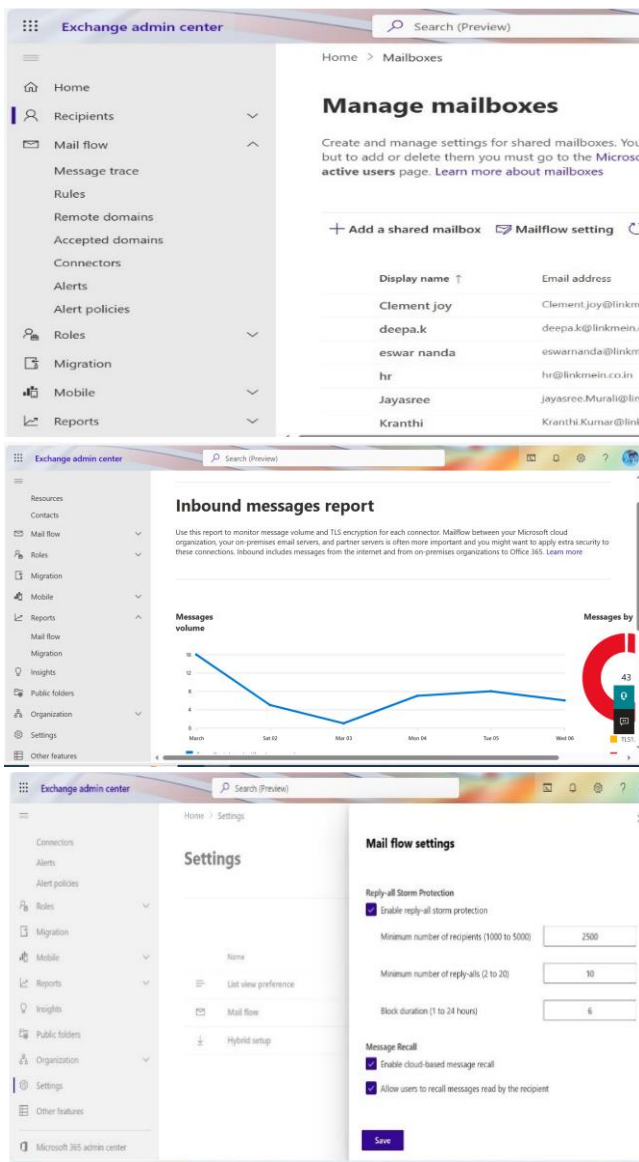
**#Date:** The creation date of the log file and UTC time. The ISO 8601 date-time format can be used to describe UTC date-time as follows: yyyy-mm-ddyyyy. T signifies the beginning of the time component.

**#Fields:** Field names, separated by commas, in the log files used for message tracking. The fields in the log files for message tracking. The message tracking log contains a single line that records each message event. The message event data is organized into fields, and commas are used to separate each field. Generally speaking,

The field name tells you enough about the type of data it contains. Nonetheless, contingent upon the nature of the communication event and the service that captured the event.

Certain fields might have blank values, or a field's content could change. The table that follows generally defines the fields needed to categorize each message monitoring event.

## V. ANALYSIS



### MAIL FLOW TRACKING USING EXCHANGE SERVER

## VI. IMPLICATIONS

Several implications for organizations, affecting various aspects of communication, compliance, and operational efficiency. Firstly, the implementation of robust mail flow tracking mechanisms enables organizations to gain comprehensive insights into

the movement of emails across their infrastructure. By leveraging features such as message tracking logs and transport rules within Exchange Server, organizations can monitor the flow of emails in real-time, identify potential bottlenecks or anomalies, and ensure the timely delivery of critical communications.

### Benefits:

Protect your sensitive data and inform users of internal compliance policies with Data Loss Prevention (DLP) capabilities.

Exchange, SharePoint, and Lync – from a single interface.

Keep all of your important data in one place with Exchange archiving, large mailboxes, and retention policies.

Enable your users to collaborate on projects, get up to speed quickly on teams they join, and share information easily.

Customize Exchange by integrating relevant, web-based Apps for Office into Outlook and Outlook Web App.

### Drawbacks:

**Limited Awareness:** Many organizations may lack awareness of the importance of message tracking or may not fully understand its capabilities in facilitating email management, compliance, and troubleshooting.

**Lack of Standardization:** Inconsistent or ad-hoc approaches to managing message tracking configurations across different environments within the organization can lead to confusion, errors, and difficulty in maintaining compliance.

**Inefficient Troubleshooting:** Without proper configuration and optimization of message tracking, troubleshooting email-related issues becomes more challenging and time-consuming, potentially impacting organizational productivity and service availability.

## VII. CONCLUSION

The development and validation of the Message Tracking Configuration System for Microsoft 365 or Office 365 environments represent a significant milestone in enhancing email management, compliance, and security within organizations. Throughout the project lifecycle, careful consideration was given to designing, implementing, and validating a robust system that meets the diverse needs of stakeholders while adhering to regulatory requirements and industry best practices.

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