

# Next-Gen IR: Swisscom's Framework for Microsoft 365

October 28, 2025, Angelo Violetti



# Who am I – Angelo Violetti



## Experience

5+ of experience in Digital Forensics and Incident Response



## Degree

BSc in Computer Engineering and MSc in Cyber Security



## Job

Senior DFIR Analyst  
@Swisscom CSIRT



## Certifications

AWS & Azure Incident Response Certifications, Certified Forensic Analyst (GCFA) and Red Team Operator (CRTO)



## Contribution

Threat Intelligence Analyst and Contributor @ The DFIR Report



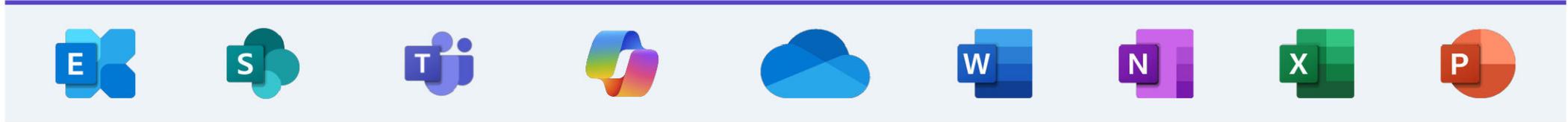
## Speaker

Speaker at Defcon 32 Blue Team Village, SANS Ransomware Summit 2025, etc.





# Microsoft 365 Cyber Threats



## Emerging and Main Cyber Threats



**Adversary in The Middle**



**Financial Frauds**



**M365 Copilot Vulnerabilities**



**Internal and External Spear phishing**

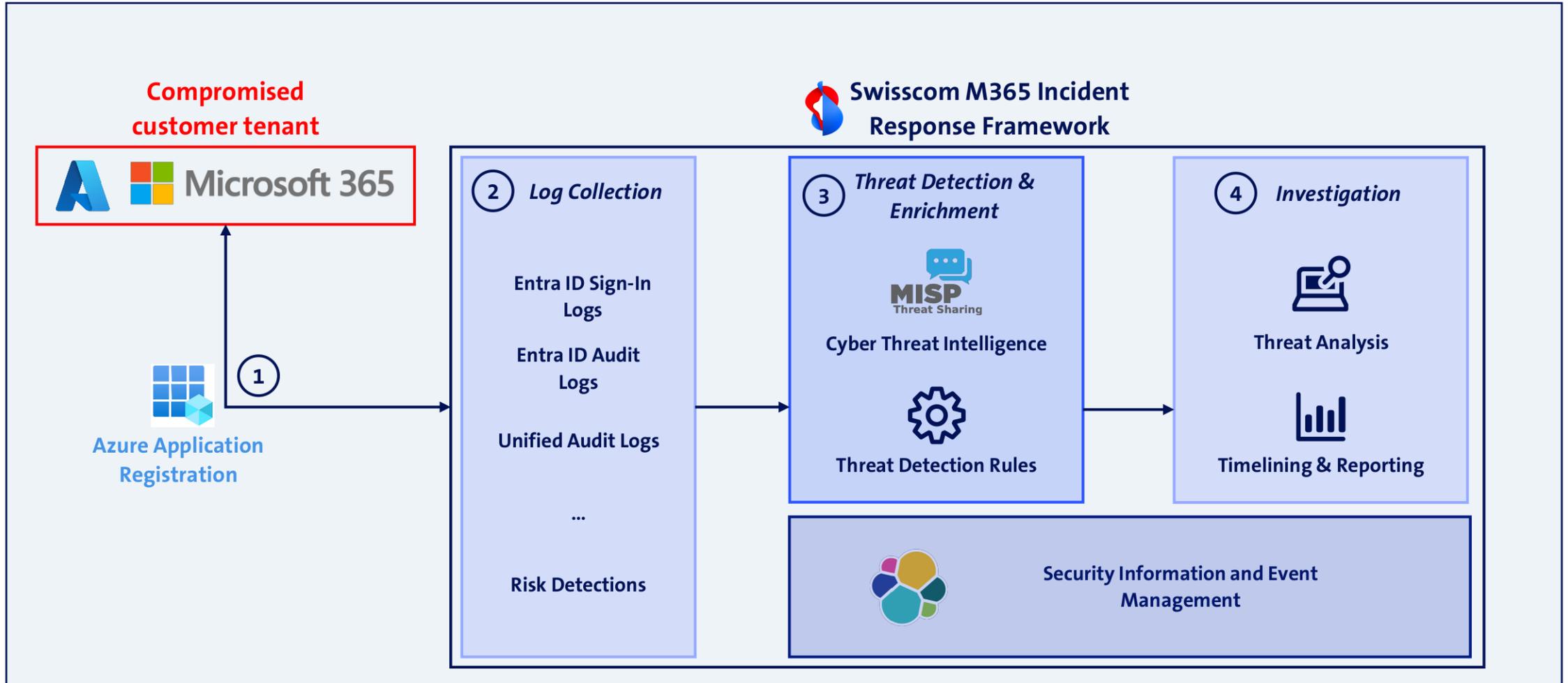


**Data Exfiltration**



# Swisscom IR Framework for Azure & Microsoft 365

## M365 Incident Response Workflow





# Cloud Investigator – Features Overview

The main interface of Cloud Investigator is shown with four numbered callouts: 1 points to the Job Configuration sidebar, 2 points to the E-mail Client tab, 3 points to the Files tab, and 4 points to the Shell tab.

## 2 E-Mail Client

The E-mail Client interface displays a list of emails with columns for From, Subject, Received, and Actions. The list includes various security-related messages from Microsoft Security and Microsoft Entra.

## 3 OneDrive Files Navigation

The OneDrive Files interface shows a file list with columns for Name, Size, Sharing, Modified, Created, and Actions. The files listed include 'nested\_folder', 'mimikatz.exe', and 'msedge.exe'.

## 1 Log Collection

The Log Collection interface shows job results with columns for Name, Start Time, and Status. It lists 'Entra sign-in log ingestion' as a running job.

## 4 Cloud Shell

The Cloud Shell interface shows an active terminal session with a black background and white text. It displays authentication messages and a prompt to enter a command.

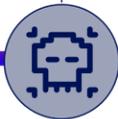


# Real-World Microsoft 365 Incident Response Scenario

Angelo Violetti, October 28, 2025, Next-Gen IR: Swisscom's Framework for Microsoft 365, C1 Public

## Adversary in The Middle

M365 account hijacking through stolen cookies to bypass MFA security



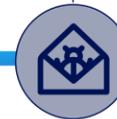
## E-Mail Automatic Forwarding

Set automatic forwarding of incoming emails in the compromised account



## Phishing Campaign

Execution of a phishing campaign towards other companies from the compromised account



## Malicious MFA Registration

Addition of a new MFA device to achieve persistence in the compromised account



## OneDrive File Exfiltration

Bulk files download to obtain access to sensitive and confidential data





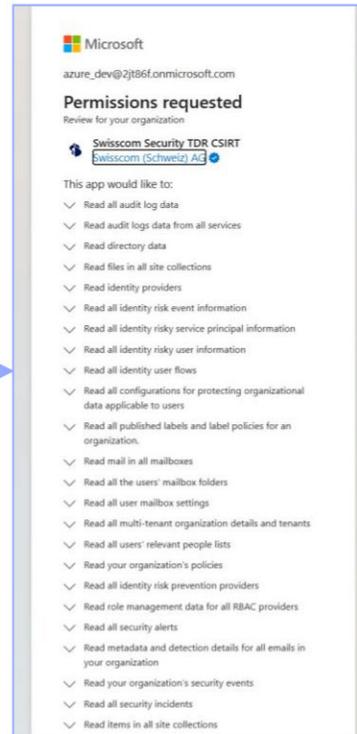
# Azure Application Registration



## Swisscom TDR CSIRT Application Registration

  
**Azure Application  
Registration**

*Global Admin clicks on a URL  
provided by CSIRT*



Microsoft  
azure\_dev@2jt86f.onmicrosoft.com

### Permissions requested

Review your organization

 Swisscom Security TDR CSIRT  
Swisscom (Schweiz) AG

This app would like to:

- Read all audit log data
- Read audit logs data from all services
- Read directory data
- Read files in all site collections
- Read identity providers
- Read all identity risk event information
- Read all identity risky service principal information
- Read all identity risky user information
- Read all identity user flows
- Read all configurations for protecting organizational data applicable to users
- Read all published labels and label policies for an organization.
- Read mail in all mailboxes
- Read all the users' mailbox folders
- Read all user mailbox settings
- Read all multi-tenant organization details and tenants
- Read all users' relevant people lists
- Read your organization's policies
- Read all identity risk prevention providers
- Read role management data for all RBAC providers
- Read all security alerts
- Read metadata and detection details for all emails in your organization
- Read your organization's security events
- Read all security incidents
- Read items in all site collections

*Global Admin registers the  
CSIRT application*



 **Microsoft Entra ID Admin Consent** 

Processing your organization's consent request

---

**Consent Processed Successfully**

Your Microsoft Entra ID admin consent has been processed and forwarded to the appropriate systems.

**Tenant ID:** `88888888-8888-8888-8888-888888888888`

**Status:** Forwarded

**Timestamp:** 9/15/2025, 2:33:00 PM



**AiTM (Adversary-in-the-Middle) is a cyberattack that takes place when a threat actor acts as a proxy between a user and a service (like Microsoft 365) to bypass multi-factor authentication and steal session cookies.**

**Adversary in The Middle**



# M365 Incident Response – Adversary in The Middle (1/2)

High

Oct 1, 2025 @ 15:55:50.814

### SCS CSIRT O365 Impossible Travel: Multiple Country Logins for Single User Within 1 Hour

Status: Open | Risk score: 90 | Assignees: + | Notes: + Add note

Overview | Table | JSON

**About**

**Rule description** [Show rule summary](#)

This detection identifies cases where a single user account successfully logs into Microsoft 365 from multiple distinct countries within 3 hours window. Such behavior is typically not possible through legitimate user travel and may indicate session hijacking, credential compromise, or the use of anonymization...

**Alert reason** [Show full reason](#)

event created high alert SCS CSIRT O365 Impossible Travel: Multiple Country Logins for Single User Within 1 Hour.

**Investigation**

[Investigation guide](#)

There's no investigation guide for this rule.

**Highlighted fields**

Field	Value
time_window	2025-09-12T09:00:00.000Z
country_count	6
ip_count	7
user.name	MiriamG
countries_names	GermanySwedenPolandFranceThe NetherlandsSwitzerland
host.name	2jt86f.onmicrosoft.com
@timestamp	2025-10-01T13:55:50.814Z
kibana.alert.rule.type	esql

@timestamp	client.address	data_stream.dataset	event.action	o365.audit.UserId	source.geo.city_name	source.geo.country_iso_code
Sep 12, 2025 @ 12:57:59.000	212.104.214.103	o365.audit	UserLoggedIn	Miriam092jt86f.onmicrosoft.com	Zurich	CH
Sep 12, 2025 @ 12:57:59.000	212.104.214.103	o365.audit	UserLoggedIn	Miriam092jt86f.onmicrosoft.com	Zurich	CH
Sep 12, 2025 @ 13:04:01.000	192.42.115.200	o365.audit	UserLoggedIn	Miriam092jt86f.onmicrosoft.com	-	NL
Sep 12, 2025 @ 13:04:04.000	192.42.115.200	o365.audit	UserLoggedIn	Miriam092jt86f.onmicrosoft.com	-	NL
Sep 12, 2025 @ 13:04:05.000	192.42.115.200	o365.audit	UserLoggedIn	Miriam092jt86f.onmicrosoft.com	-	NL

8 / 95 Community Score

8/95 security vendors flagged this IP address as malicious

192.42.116.200 [192.42.116.0/22]  
AS 1101 | SURF B.V.  
tor

NL Last Analysis Date: 11 hours ago

DETECTION | DETAILS | RELATIONS | COMMUNITY 5

Join our Community and enjoy additional community insights and crowdsourced detections, plus an API key to automate checks.

Security vendors' analysis

Vendor	Analysis	Vendor	Analysis
alphaMountain.a	Malicious	BitDefender	Phishing
CriminalIP	Malicious	CyRadar	Malicious
Fortinet	Malware	G-Data	Phishing
Ionic	Malicious	SOCRadar	Malware
AlphaSOC	Suspicious	ArcSight Threat Intelligence	Suspicious



# M365 Incident Response – Adversary in The Middle (2/2)

High

Sep 23, 2025 @ 18:14:08.590

**SCS CSIRT O365 MISP Source IP-Addresses**

Status: Open | Risk score: 73 | Assignees: + | Notes: + Add note

Overview | Table | JSON

**About**

**Rule description** [Show rule summary](#)

Checks if Source IP Addresses are in MISP Feed

**Alert reason** [Show full reason](#)

web, authentication event with source 171.244.185.15 by [redacted] created high alert SCS CSIRT O365 MISP Source IP-Addresses.

**Investigation**

[Show investigation guide](#)

**Highlighted fields**

Field	Value
source.ip	171.244.185.15
host.name	[redacted]
user.name	[redacted]
kibana.alert.rule.type	threat_match
kibana.alert.rule.parameters.threat_index	logs-ti_*
kibana.alert.rule.parameters.threat_query	threat.indicator.ip: *

**Wyrmix** 3 months ago

Brute-force SSH activity detected

- Source IP: 171.244.185.15
- First Seen: 2025-06-12T07:56:08.988839Z
- Last Seen: 2025-06-12T07:56:14.468867Z
- SSH Attempts: 5
- Username Tried: ubnt
- Passwords Tried: ubnt2008

[Show more](#)

**Hallogalaxy** 4 months ago

Brute-force

- 171.244.185.15 made unauthorized SSH login attempts to a honeypot hosted in a Microsoft datacenter (Sweden).
- Logged on 2025-05-07.
- Username attempted: httpd.
- Uploaded file hashes: N/A.
- SSH client version(s): SSH-2.0-OpenSSH\_7.4.
- Commands executed:
- > Honeypot maintained by @mrm0 (LinkedIn)

[Show less](#)

**hispassign** 5 months ago

We have classified this IP 171.244.185.15 as malicious.

Reason: Performing aggressive SSH login attempts on 2025-04-05T17:15:14+00:00.



**Threat actors exploit a stolen session to register a new MFA device they control by creating a persistent backdoor. This allows them to bypass the user's legitimate MFA, gaining long-term access to the account.**

**MFA Registration**



# M365 Incident Response – MFA Registration

● Medium

Sep 30, 2025 @ 16:06:52.998

⚠ **SCS CSIRT O365 New MFA Method Registered** [↗](#)

**Status**

Open ▼

**Risk score**

70

**Assignees**

+ +

**Notes**

+ + Add note

Overview
Table
JSON

▼ **About**

**Rule description** [Show rule summary](#) ↗

The detection rule "Custom\_CSIRT O365 New MFA Method Registered" identifies when a new Multi-Factor Authentication (MFA) method is added to a user's Office 365 account. It leverages Azure AD audit logs to identify changes in MFA configurations. Such activity may indicate an attacker's attempt to establish...

**Alert reason** [Show full reason](#) ↗

event created medium alert SCS CSIRT O365 New MFA Method Registered.

▼ **Investigation**

📖 Show investigation guide

**Highlighted fields**

Field	Value
event.action	Update user
azure.auditlogs.category	AuditLogs
azure.auditlogs.identity	Azure MFA StrongAuthenticationService
azure.auditlogs.properties.initiated_by.app.displayName	Azure MFA StrongAuthenticationService
azure.auditlogs.properties.target_resources.0.modified_properties.0.display_name	StrongAuthenticationPhoneAppDetail

azure.auditlogs.operation_name	Update user
azure.auditlogs.properties.activity_datetime	Sep 12, 2025 @ 13:21:36.721
azure.auditlogs.properties.activity_display_name	Update user
azure.auditlogs.properties.additional_details.key	UserType
azure.auditlogs.properties.additional_details.value	Member
azure.auditlogs.properties.category	UserManagement
azure.auditlogs.properties.correlation_id	a1b5a9cd-510b-48a9-ae0e-ef53a8e321a2
azure.auditlogs.properties.id	Directory_a1b5a9cd-510b-48a9-ae0e-ef53a8e321a2_XJV39_190945933
azure.auditlogs.properties.initiated_by.app.displayName	Azure MFA StrongAuthenticationService
azure.auditlogs.properties.initiated_by.app.servicePrincipalId	42acd4ef-7648-4640-b505-e62cfb5ca177
azure.auditlogs.properties.logged_by.service	Core Directory
azure.auditlogs.properties.operation_type	Update
azure.auditlogs.properties.result_reason	(empty)
azure.auditlogs.properties.target_resources.0.id	5eeb0ae9-8f79-4711-8565-5e27d998a17a
azure.auditlogs.properties.target_resources.0.modified_properties.0.display_name	StrongAuthenticationPhoneAppDetail
azure.auditlogs.properties.target_resources.0.modified_properties.0.new_value	[{"DeviceName":"iPhone 14","DeviceToken":"apns2-2d8f6c251ad8c3f5a3c15e2f96b12d32475bb3edb56b429bcbd529cf1f214ee1","DeviceTag":"SoftwareTokenActivated","PhoneAppVersion":"6.8.30","OathTokenTimeDrift":0,"DeviceId":"00000000-0000-0000-0000-000000000000","Id":"ef69d9cb-116c-4292-9223-855bd6d6632f","TimeInterval":0,"AuthenticationType":3,"NotificationType":2,"LastAuthenticatedTimestamp":"2025-09-12T09:06:10.5583883Z","AuthenticatorFlavor":"Authenticator","HashFunction":null,"TenantDeviceId":null,"SecuredPartitionId":20174,"SecuredKeyId":7},"DeviceName":"iPhone 16 Pro Max","DeviceToken":"apns2-28effd1a28ee744a4a9f7dba9a9f09125d5cbd13fa4836067b6161590d364a1","DeviceTag":"SoftwareTokenActivated","PhoneAppVersion":"6.8.30","OathTokenTimeDrift":0,"DeviceId":"00000000-0000-0000-0000-000000000000","Id":"2a110d8f-cad3-487e-a933-93db3d0bb273","TimeInterval":0,"AuthenticationType":3,"NotificationType":2,"LastAuthenticatedTimestamp":"2025-09-12T11:21:36.458622Z","AuthenticatorFlavor":"Authenticator","HashFunction":null,"TenantDeviceId":null,"SecuredPartitionId":20174,"SecuredKeyId":7}]
azure.auditlogs.properties.target_resources.0.modified_properties.0.old_value	[{"DeviceName":"iPhone 14","DeviceToken":"apns2-2d8f6c251ad8c3f5a3c15e2f96b12d32475bb3edb56b429bcbd529cf1f214ee1","DeviceTag":"SoftwareTokenActivated","PhoneAppVersion":"6.8.30","OathTokenTimeDrift":0,"DeviceId":"00000000-0000-0000-0000-000000000000","Id":"ef69d9cb-116c-4292-9223-855bd6d6632f","TimeInterval":0,"AuthenticationType":3,"NotificationType":2,"LastAuthenticatedTimestamp":"2025-09-12T09:06:10.5583883Z","AuthenticatorFlavor":"Authenticator","HashFunction":null,"TenantDeviceId":null,"SecuredPartitionId":20174,"SecuredKeyId":7}]
azure.auditlogs.properties.target_resources.0.modified_properties.1.display_name	Included Updated Properties



**Threat actors can set automatic forwarding of e-mails to exfiltrate them from a compromised user account. This behavior is aimed at collecting sensitive data into an external email address.**

**Email Automatic Forwarding**



# M365 Incident Response – Email Automatic Forwarding

High

Sep 23, 2025 @ 18:16:31.055

### SCS CSIRT O365 Suspicious Mailbox Forwarding via Set-Mailbox in Microsoft 365

**Status**  
Open

**Risk score**  
85

**Assignees**  
+

**Notes**  
+ Add note

**Overview** | Table | JSON

**About**

**Rule description** [Show rule summary](#)

Detects suspicious mailbox forwarding configurations in Microsoft 365 using the `Set-Mailbox` command. Adversaries may abuse this command to exfiltrate data by configuring auto-forwarding to external addresses. This behavior is associated with data collection and can be used in post-compromise stages ...

**Alert reason** [Show full reason](#)

web event with source 178.197.177.146:20345, by MiriamG on 2jt86f.onmicrosoft.com created high alert SCS CSIRT O365 Suspicious Mailbox Forwarding via Set-Mailbox in Microsoft 365.

**Investigation**

[Show investigation guide](#)

**Highlighted fields**

Field	Value
@timestamp	2025-09-23T16:16:31.055Z
event.provider	Exchange
event.action	Set-Mailbox
user.email	MiriamG@2jt86f.onmicrosoft.com
source.ip	178.197.177.146
o365.audit.Parameters.ForwardingSmtpAddress	smtp:t3779674@gmail.com
host.name	2jt86f.onmicrosoft.com
user.name	MiriamG
kibana.alert.rule.type	query

Field	Value
o365.audit.Parameters.DeliverToMailboxAndForward	False
o365.audit.Parameters.ForwardingSmtpAddress	smtp:t3779674@gmail.com
o365.audit.Parameters.Identity	EURPR09A002.PROD.OUTLOOK.COM/Microsoft Exchange Hosted Organizations/2jt86f.onmicrosoft.com/5eeb0ae9-8f79-4711-8565-5e27d998a17a
o365.audit.RecordType	1
o365.audit.RequestId	02eb7b0c-1cfe-97b6-0ac4-91a960498f7e
o365.audit.ResultStatus	True
o365.audit.SessionId	008cde99-ffc7-e714-506e-ad09dcadcbff
o365.audit.TokenObjectId	5eeb0ae9-8f79-4711-8565-5e27d998a17a
o365.audit.TokenTenantId	3597f41f-8a3a-4acf-9df6-75c824a596d2
o365.audit.UserId	MiriamG@2jt86f.onmicrosoft.com
o365.audit.UserKey	MiriamG@2jt86f.onmicrosoft.com



**The unauthorized transfer of sensitive files from a user's OneDrive or a SharePoint site to a location controlled by an attacker, often using a compromised session or stolen credentials.**

**OneDrive File Extraction**



# M365 Incident Response – OneDrive File Exfiltration

● High  
Sep 23, 2025 @ 18:43:07.552  
⚠️ **SCS CSIRT O365 Exfiltration via File Download** [🔗](#)

**Status**  
Open ▾

**Risk score**  
85

**Assignees**  
+

**Notes**  
+ Add note

Overview
Table
JSON

▼ **About**

**Rule description** [Show rule summary](#) [🔗](#)

This detection identifies instances where a single user downloads an excessive number of files from SharePoint within a short period (10 minutes). It triggers when more than 20 files are downloaded by a user. Each file download generates an individual event even if files are bundled into ZIP archives by Office...

**Alert reason** [Show full reason](#) [🔗](#)

event created high alert SCS CSIRT O365 Exfiltration via File Download.

▼ **Investigation**

[📖 Show investigation guide](#)

**Highlighted fields**

Field	Value
time_window	2025-09-18T10:20:00.000Z
count_files	90
user.id	miriamg@2jt86f.onmicrosoft.com
hostnames	2jt86f.onmicrosoft.com
source_ips	203.55.81.2
user_agents	OneDriveMpc-Transform_Zip/1.0
file_directories	Documents/Documents
file_extensions	pptxdocxlsx

🔍 action	FileDownloaded
🔍 count_files	90
🔍 event.kind	signal
🔍 file_directories	Documents/Documents
🔍 file_extensions	pptx docx xlsx
🔍 file_names	Product_Launch.pptx Performance_Review_Template.docx Onboarding_Checklist.docx Office_Safety_Guidelines.docx Meeting_Notes_02.docx Meeting_Notes_01.docx Marketing_Strategy.pptx Job_Descriptions.docx IT_Support_Log.xlsx Inventory_Tracking.xlsx Holiday_Schedule.docx Expense_Report.xlsx Employee_Salaries.xlsx Employee_Handbook.docx Customer_Feedback.pptx Company_Policies.docx Client_List.xlsx Budget_2025.xlsx Benefits_Overview.docx Annual_Report.pptx
🔍 hostnames	2jt86f.onmicrosoft.com



**A threat actor uses a hijacked M365 account to send convincing phishing emails to other employees. The emails appear legitimate as they come from a trusted colleague, dramatically increasing the chances of success.**

**Phishing Campaign**



# M365 Incident Response – Phishing Campaign

Low

Sep 23, 2025 @ 18:36:01.175

**SCS CSIRT O365 Mails Sent by eM Client**

Status: Open | Risk score: 21 | Assignees: + | Notes: + Add note

Overview | Table | JSON

**About**

**Rule description** [Show rule summary](#)

This detection rule identifies emails sent via the "eM Client" application within an Office 365 environment by analyzing distinctive patterns in the InternetMessageId field. Threat actors often exploit eM Client's features—such as mass mailing, stealthy email forwarding, and persistent access—to conduct Business...

**Alert reason** [Show full reason](#)

web event with source 164.128.175.92 by MiriamG on 2jt86f.onmicrosoft.com created low alert SCS CSIRT O365 Mails Sent by eM Client.

**Investigation**

[Show investigation guide](#)

**Highlighted fields**

Field	Value
event.action	Send
event.provider	Exchange
o365.audit.item.InternetMessageId	<em13c60e91-ecbc-4158-9133-d6b52040fc4b@ab28398a.com>
event.outcome	success
o365.audit.ClientInfoString	Client=WebServices;eMClient/10.3.2619.0 (ExchangeServicesClient/10.3.2619.0);
o365.audit.item.Subject	You have Received a SharePoint document
related.user	MiriamG
host.name	2jt86f.onmicrosoft.com
user.name	MiriamG
kibana.alert.rule.type	query

network.type	ipv4
o365.audit.ActorInfoString	Client=WebServices;eMClient/10.3.2619.0 (ExchangeServicesClient/10.3.2619.0);
o365.audit.AppAccessContext.AADSessionId	008cde99-5204-eb97-b361-d42a6f5c6802
o365.audit.AppAccessContext.APId	47629505-c2b6-4a80-adb1-9b3a3d233b7b
o365.audit.AppAccessContext.ClientAppld	e9a7fea1-1cc0-4cd9-a31b-9137ca5deedd
o365.audit.AppAccessContext.IssuedAtTime	2025-09-23T12:49:21
o365.audit.AppAccessContext.UniqueTokenId	xuKc1j83wE0FJLxMpxM3AQ
o365.audit.AuthType	Bearer
o365.audit.ClientAppld	e9a7fea1-1cc0-4cd9-a31b-9137ca5deedd
o365.audit.ClientInfoString	Client=WebServices;eMClient/10.3.2619.0 (ExchangeServicesClient/10.3.2619.0);
o365.audit.ClientIP	164.128.175.92
o365.audit.CreationTime	2025-09-23T13:42:49
o365.audit.ExternalAccess	false
o365.audit.InternalLogonType	0
o365.audit.Item.Attachments	d54gpole.png (86135b)
o365.audit.Item.Id	RgAAAAAQAwvavFLRQl3CvszWz37BwDjFtJ5g6hNRaJpd12KqkPYAAAAAEJAADJFtJ5g6hNRaJpd12KqkPYAAFxh9gIAAAJ
o365.audit.Item.ImmutableId	LgAAAAAdhAMRqmYRzZvIAKAL8RaDQDjFtJ5g6hNRaJpd12KqkPYAAFxh+QCAAAJ
o365.audit.Item.InternetMessageId	<em13c60e91-ecbc-4158-9133-d6b52040fc4b@ab28398a.com>
o365.audit.Item.ParentFolder.Id	LgAAAAAQAwvavFLRQl3CvszWz37AQDjFtJ5g6hNRaJpd12KqkPYAAAAAEJAAB
o365.audit.Item.ParentFolder.Path	\Sent Items
o365.audit.Item.SizeInBytes	92,903
o365.audit.Item.Subject	You have Received a SharePoint document
o365.audit.LogonType	0
o365.audit.LogonUserSid	S-1-5-21-1325022448-1227114703-2827371832-43602921
o365.audit.MailboxGuid	4687f77a-e656-44fd-8164-b4e61cb86558



# Main Security Recommendations for Microsoft 365



**Enforce Phishing-Resistant MFA for all administrators** to prevent AiTM attacks by implementing solutions like: FIDO2 security key, Windows Hello for Business or Certificate-based authentication. The enforcement of those superior levels of authentication is accomplished through Conditional Access policies.



**Adopt Continuous Access Evaluation (CAE)** to evaluate a user's session in near-real time when certain conditions change, such as their IP address.



**Implement strict Conditional Access policies to secure the registration of additional MFA devices** for a user, such as requiring MFA for registering security information, blocking any attempts outside of trusted locations (e.g., the corporate network), and ensuring the action is performed from a managed and clean device.



# Main Security Recommendations for Microsoft 365



**Configure outbound spam policies** to restrict the automatic forwarding of email to external recipients or set an external message limit.



**Configure** the **auditing** of Microsoft 365 activities (Unified Audit Logs) and **collect** the Azure and M365 **logs** into a SIEM platform for monitoring the events and automatically generate alerts, also through a **SOC service which runs 24/7**.



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