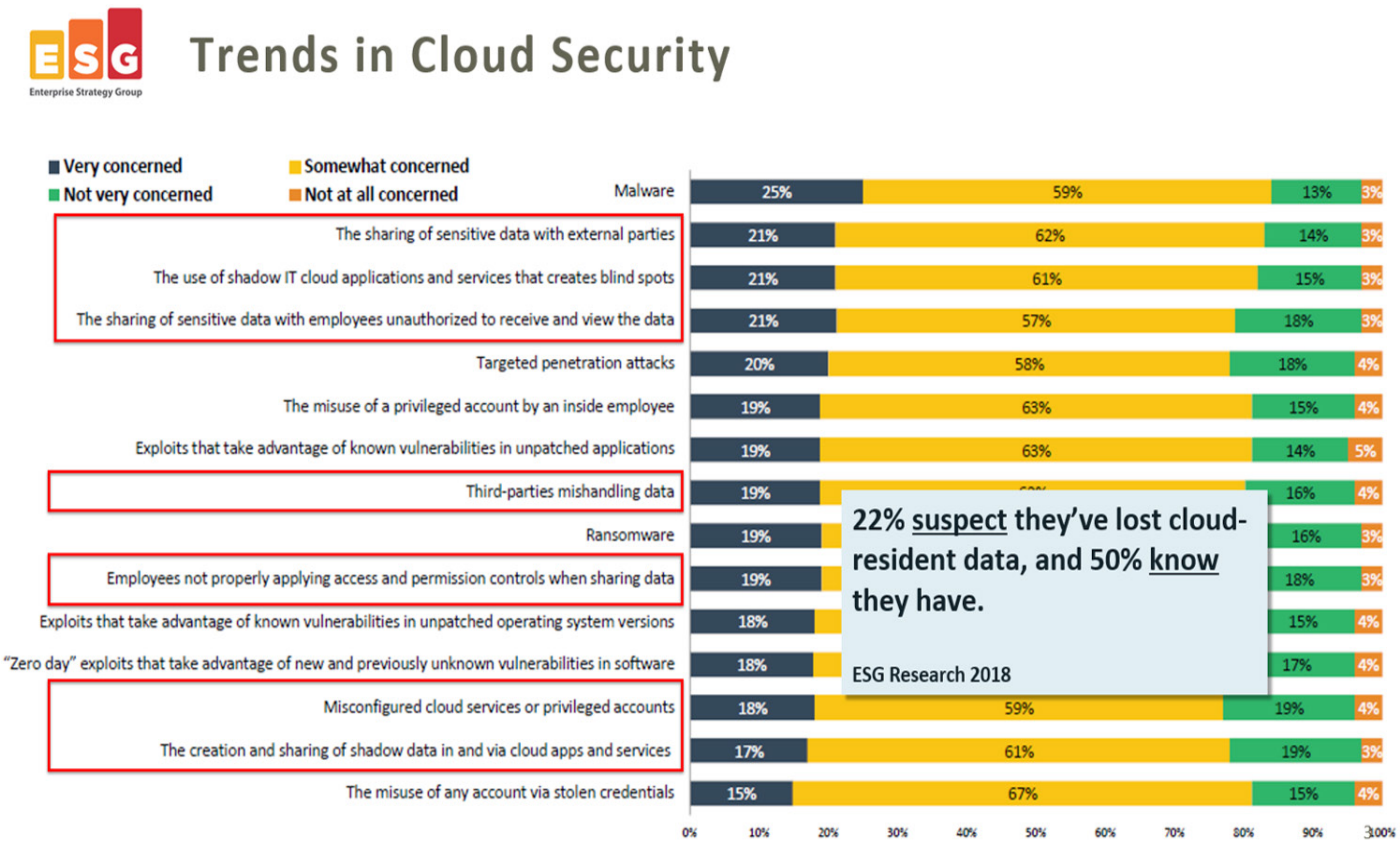
ALLURE SECURITY

CLOUD DOCUMENT RISK INDICATOR GUIDE

The inevitable move by enterprises to cloud storage comes with a trade-off: reduced control and visibility in exchange for broader access, useability and productivity.

This guide will help you reduce cloud data loss using unique document activity indicators to detect common, persistent risks associated with the stealing or mishandling of sensitive and confidential files.

Data is being migrated to the cloud faster than it can be secured



Although cloud storage providers log voluminous amounts of user and file activities log analysis, file tracking and automated identification of misuse and malicious activity is limited or nonexistent. Additionally, the greatest risk associated with any confidential document is after it is downloaded, copied or shared with a third party, at which time the cloud storage provider loses visibility and is no longer able to log any of the document's activity. Cloud-share provided log viewers lack intuitive interfaces and geolocation insights, are not continuously analyzed for risk, and provide no visibility into activity after a document has left a cloud share.

+80%

of a company's sensitive data is contained in documents.

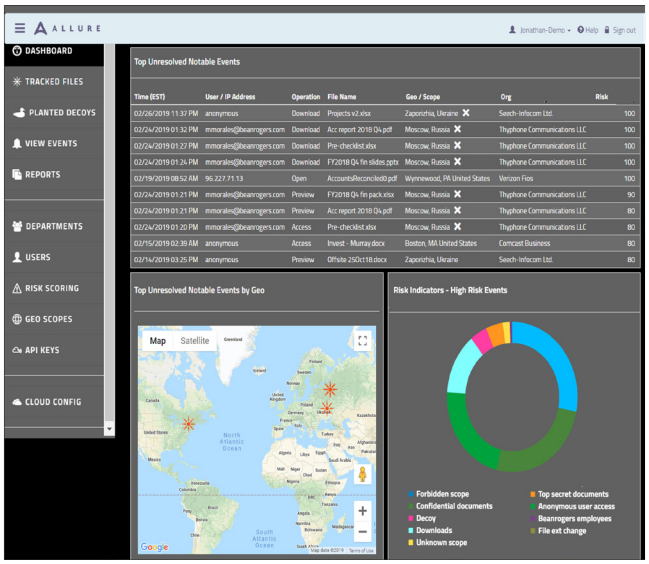
28%

of spending within key enterprise IT markets will be cloud-based by 2022, up from 19% in 2018.

A New Approach

Allure Security helps organizations understand Office 365 use across organizations, and detect and respond to data loss resulting from stolen credentials, insider threats, malicious third parties, ransomware and human error. The Allure data loss detection and response platform taps into the information captured in cloud-share logs, and watches and analyzes comprehensive cloud document flows over time. Further, Allure's patented technology enriches logs with geolocation insights, and continues to monitor activity even after a document has left the control of the organization. These findings better inform and focus incident responses, detect activities that violate security policies and support training initiatives to significantly reduce data loss risks and consequences.

Allure Security's approach includes three main components: Watch, Extend & Detect

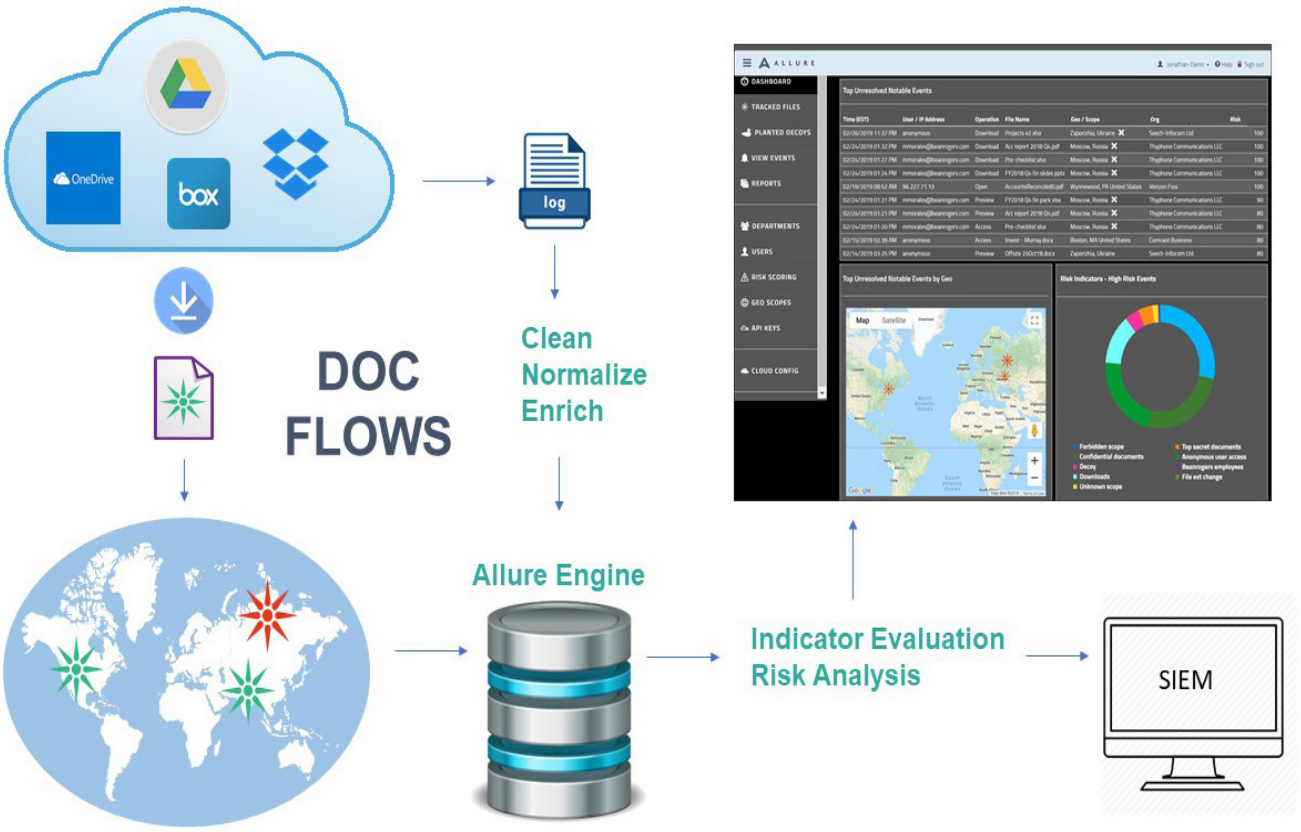


Watch Office 365 file activity closely: See who interacts with which files, when and from where. Security teams can know in real time if unusual or bulk downloads occur, if confidential or sensitive files are accessed anonymously, and if documents are opened in risky locations or via unauthorized domains.

Extend visibility beyond the cloud share: Agentlessly log activity even after documents are downloaded, copied or shared with third parties.

Detect leaks and breaches: Know if insiders, malicious third parties, bots or hackers are snooping around confidential and sensitive files, and whether any data is lost as a result. Also, security professionals can set up optional alerts to be informed when risky activity is in progress to inform response and limit data loss.

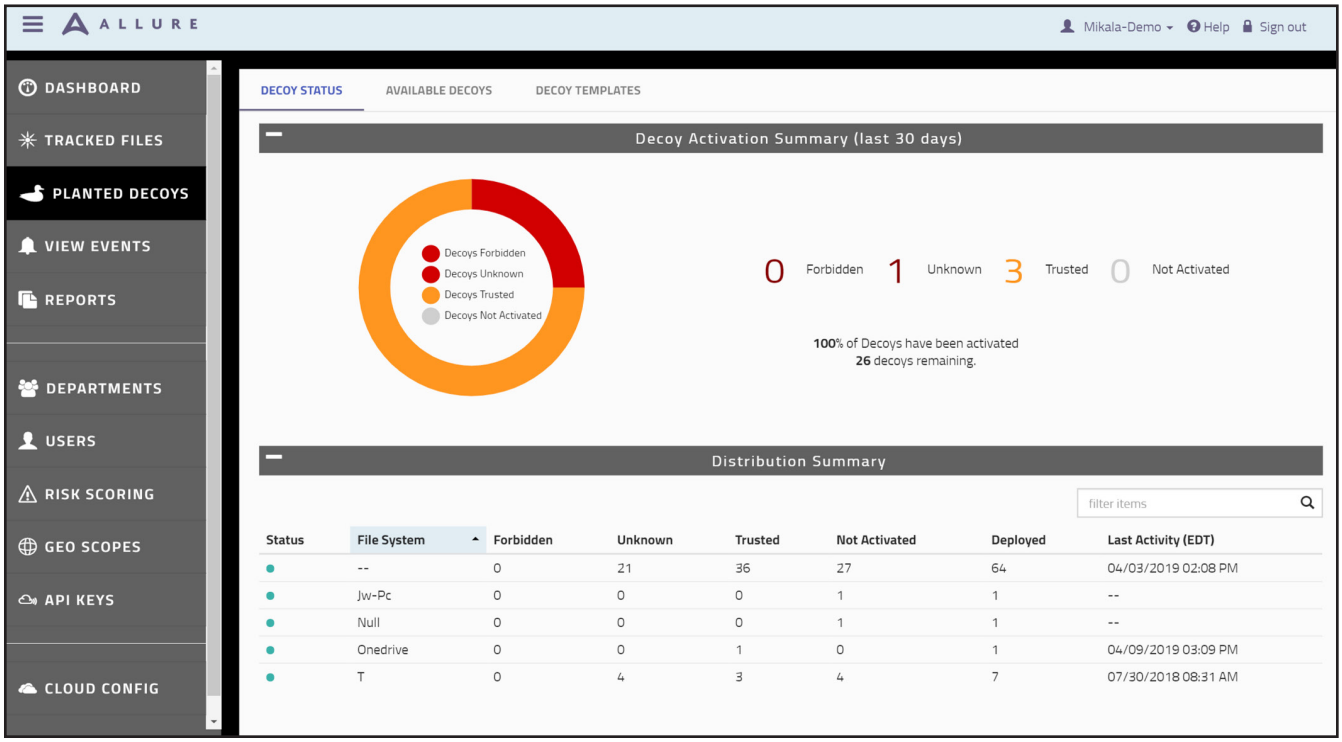
Users rely on Allure to provide critical visibility into cloud-share risk, take proactive measures to prevent data loss and gather data loss forensics. Allure's intuitive dashboard captures and visualizes risks so users can easily see notable events with granular details and geolocation information, identify key indicators used to calculate and prioritize risks, and monitor most active users, domains, locations and operations. Additionally, users can drill down into specific document and user activity to collect forensics during active investigations.



CRITICAL INDICATORS FOR CLOUD DATA LOSS RISK

The most critical step in addressing data loss risk is to detect the risk itself. Protection and prevention methods are effective, to a point. But data leaks, ransomware attacks and breaches still occur daily. Do you want to know if cloud files are at risk, how, where and by whom? Allure relies on its unique document indicators to provide organizations with this insight.

ALLURE INDICATORS	DETECTED RISKS	INFORMED ACTIONS
Activity by risky geography	Threat actor with stolen credentials	Targeted investigations
Unusual user activities	Insider malfeasance	Incident response
Activity by type (downloads, link sharing, anonymous access)	3rd party negligence	Account suspension
Access via anonymous VPN	Shared link mistakes	User training
Unusual device types	Attempted intrusions	Permission updates
Downloading of bulk files	Permission setting mistakes	Revoking shared links
Threatening uploads (e.g. .exe)	Unauthorized access	Periodic assessment reports
File extension changes	Compliance failures	Employee accountability
Access failures		
Decoy file activities		



Stolen Credentials & Brute-Force Logins

RISK FACTORS

Credentials can be stolen or guessed via the consequence of spear phishing from relentless attackers, mistaken sharing of credentials by legitimate users, or poorly chosen passwords. Remote attackers typically perform information gathering actions when they first penetrate defenses.

DETECTION INDICATORS

Users exhibit patterns that are learnable: unusual access, abnormal user events, downloading documents to atypical or impermissible geolocations, changes in device types, renaming of files, or unusual quantities and time of day activities are good indicators. Legitimate users whose credentials have been stolen by masqueraders may also upload executable files. Such uploads are also very good indicators of credential theft and are clearly risky events. Decoy file actions are particularly useful indicators that should be of immediate concern.

RESPONSE

Investigate the user directly to learn if they indeed performed the notable events, and suspend user accounts until the issue is resolved. If indexed by Google or other crawlers, ask to delete the index and any cached copies. Users who have not legitimately uploaded executable files are certainly likely to have lost their credentials. The user accounts must be suspended and new credentials issued. Any uploads by that user account should be quarantined for investigation. Any downloads by those user account are likely examples of specific data loss. Gather all of the information, including download locations, to investigate the extent of the loss.

Insider Threat

RISK FACTORS

Insiders with authorized access may act against the security policies of the organization, willfully for personal gain or retribution, or accidentally by misconfiguring access or inadvertently sharing links to sensitive documents.

Insiders may take measures to hide their access via VPN or anonymous links, or changing of file type extensions to hide the true content of the files in question. Bulk exfiltration is easily accomplished by zipping a number of files together and downloading, especially to forbidden geolocations or via VPN access.

Uploads of active content, executable files, for example, is a high risk. Masqueraders who have gained legitimate credentials may upload executables to gain a foothold into the organization bypassing internal controls, such as firewalls, email and proxy-based content analyses.

Former employees who left the company recently may still have active user accounts and hence access to company storage. This special case of "insider" is not uncommon.

DETECTION INDICATORS

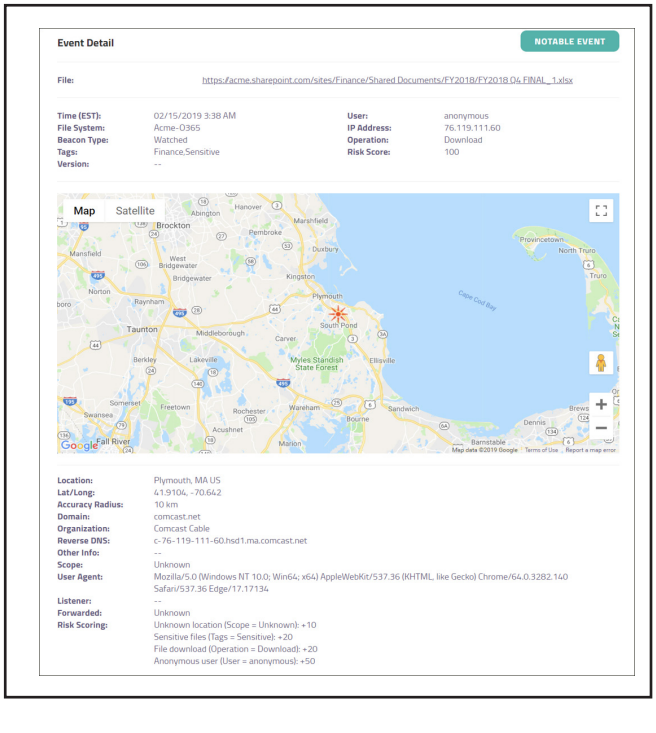
Sensitive beaconized documents that are accessed anonymously, or that are downloaded and opened at a competitor's location, or any other unauthorized location is a good indicator. VPN access creates increased suspicion and risk. File operations that change the file extension are particularly good indicators of malfeasance.

Zipped file downloads are also a particularly good risk indicator that needs attention. A bulk exfiltration may have occurred. Uploads of any executable content is of immediate concern and very high risk. And of course, any decoy file actions are high value indicators of malfeasance.

Any file download at a geolocation owned by a competitor is of immediate concern. Inspect the history of the file to determine those users who have accessed the file, and if any are determined to be no longer employees, immediately check whether the account is still active.

RESPONSE

Immediately suspend the user's account and thoroughly investigate by contacting the user to understand what documents were accessed and for what purposes. If VPN access was noted, identify the reasons if VPN accesses are not authorized. Any uploaded executable should be quarantined immediately and investigated.



Most Active Users

User	Events	High Risk	Medium Risk
brussell@acme.com	120	0	0
jdavis@acme.com	107	0	0
lreed@acme.com	105	0	0
agarcia@acme.com	99	0	0
jmorgan@acme.com	99	0	0
bart@acme.com	96	5	10
dcook@acme.com	82	0	0
cbennett@beanrogers.com	68	0	0
kmyers@beanrogers.com	66	0	0

Most Active User Domains

User Domain	Events	High Risk	Medium Risk
acme.com	8610	21	12
beanrogers.com	812	2	1
auditlp.com	297	0	0
Comcast Business	101	6	4
Comcast Cable	41	4	2
Seech-Infocom Ltd.	38	4	30
comcast.net	32	2	2
comcastbusiness.net	22	4	3
Earth Network Technology (HongKong) Co., Limited	17	0	0
	13	1	4

Most Active Locations

Location	Events	High Risk	Medium Risk
US, MA	8358	13	10
United Kingdom	826	0	0
US, FL	329	4	1
US, NC	297	0	0
US, CT	95	0	0
Ukraine	59	17	36
Hong Kong	19	0	0
Indonesia	15	5	10
Czech Republic	8	7	1
US, CA	5	0	0

Most Active Operations

Operation	Events	High Risk	Medium Risk
Access	1771	12	7
Preview	1170	9	12
Download	915	10	22
Modify	785	3	2
Upload	650	1	0
Copy	644	1	0
Delete	635	0	0
AnonymousLinkCreated	469	0	0
Move	452	1	0
SharingSet	444	0	0

Third-party Breach

RISK FACTORS

Third-party breaches result from sloppy security procedures by the third party, willful disregard for the organization's security policies or malicious intent by someone who has legitimate access to confidential materials. Even with periodic vetting and contractual agreements in place, data loss risks persist without visibility into what happens to specific documents once they are in the control of the third-party.

DETECTION INDICATORS

Any beacon openings beyond the third party network is a clear indicator that the organization's documents leaked from the third party. Anonymous access to beacons and remote openings beyond the third party network is a clear indicator of a likely data loss.

RESPONSE

Restrict third party access to any sources in cloud shares, modify Allure's rule sets to alert whenever a third party access occurs to monitor what documents may be subject to loss.

61%

of surveyed respondents in a 2018 Ponemon Institute study confirmed that their organizations had experienced a data breach caused by a third party, which is up 5% from last year and 12% from 2016.

Link Sharing

RISK FACTORS

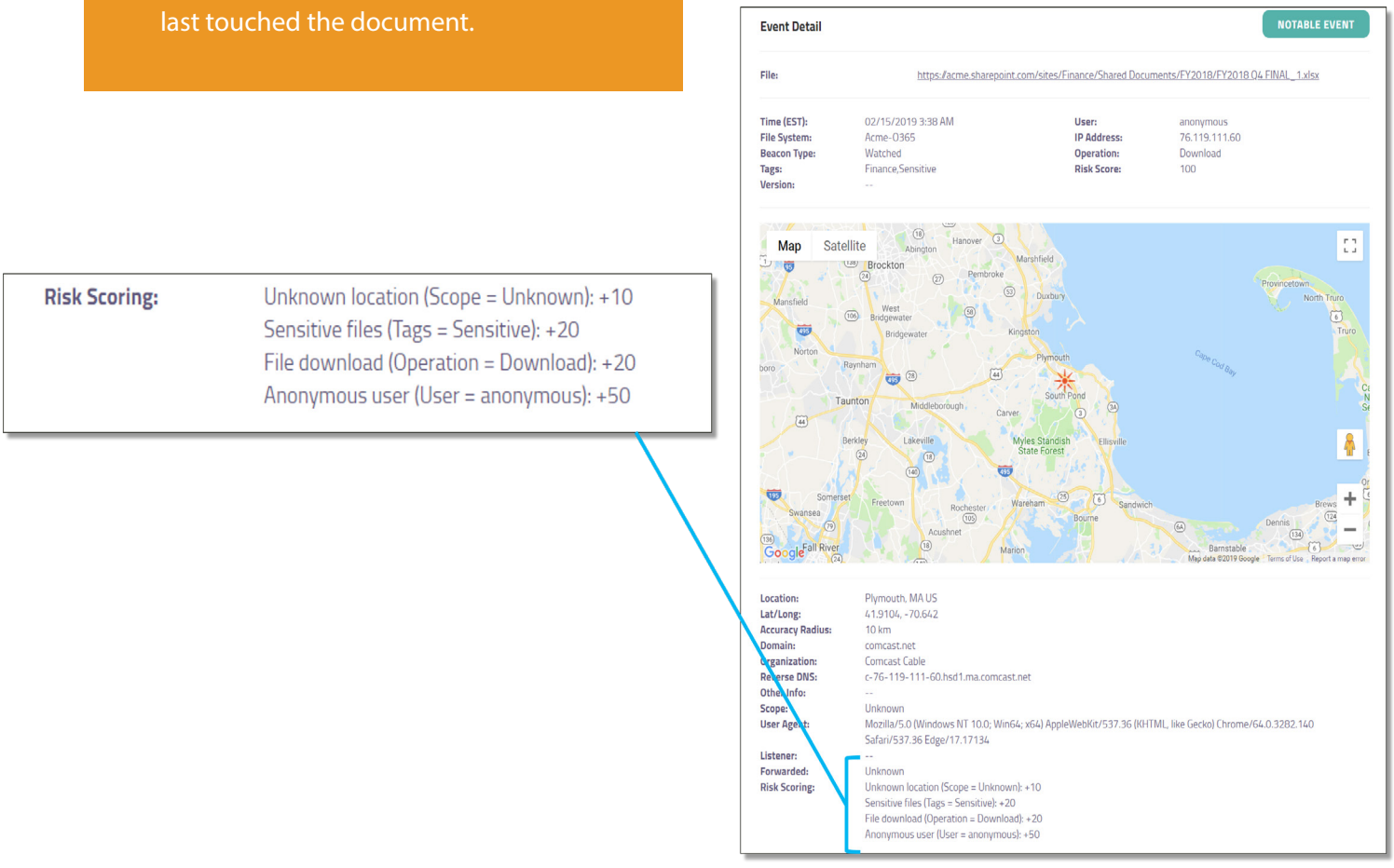
It is very convenient for a user to right click and copy a link they email or text to an external party, whether for convenience or laziness. This grants access to a remote party directly to the cloud storage where access may occur anonymously. Any anonymous access is suspicious. Link sharing may be determined by inspecting the history of the file that was accessed to see who last touched the document.

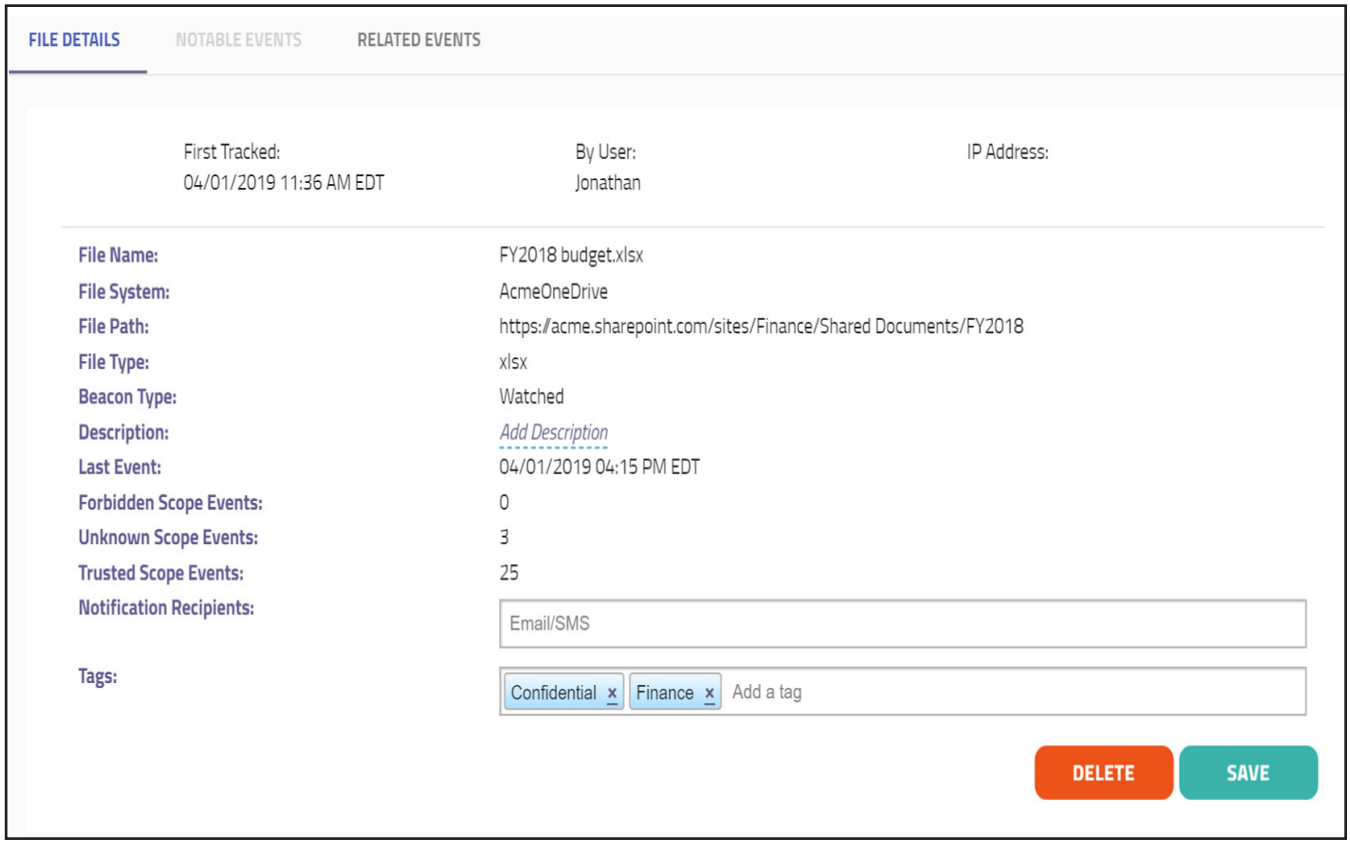
DETECTION INDICATORS

Anonymous accesses are highly indicative of a violation of policy, and the history of file touches may reveal who created and provided a link to the file. Bot accesses are also an indicator that a link was shared and indexing has been initiated by an automated crawler.

RESPONSE

Identify the user who last touched the file in question and investigate whether that person created and shared a link, how it was shared and who it washed with. If the file in question is tagged as sensitive, the user's account may be suspended until the investigation determines the severity of the possible security violation. If the crawler is identified, and the file in question is sensitive, contact the operator of the crawler and ask for all indexes and cached copies of the file be deleted.





Permission Setting Mistake

RISK FACTORS

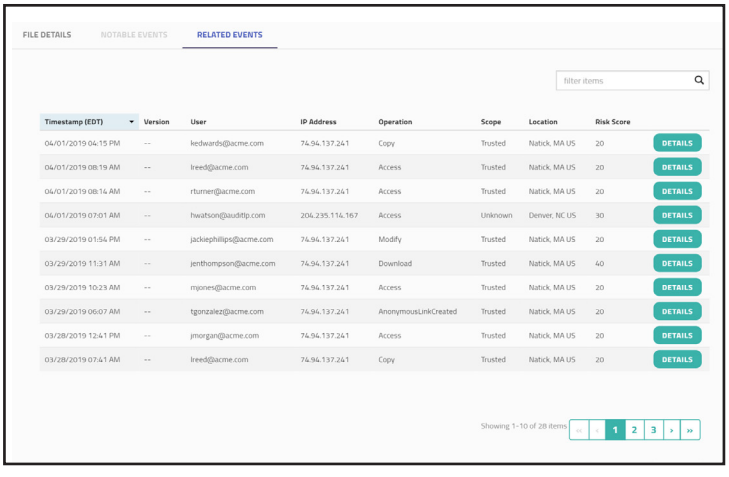
Permission setting mistakes are almost always a result of human error. Users don't often check their settings unless something goes wrong or someone from IT alerts them. The sharing of document links without the proper permissions applied allows unauthorized views and may be visible to automated crawlers that can result in search engine indexing by the bot.

DETECTION INDICATORS

Downloading documents not tagged as sensitive and that are remotely opened at unknown or bad geolocations may indicate a mislabeled document. Also, an unusual number of users accessing a documents tagged as "sensitive" or "confidential" may indicate permission settings are too broadly set.

RESPONSE

Public documents are hard to distinguish from mislabeled sensitive documents without investigation. Check the history of the file accesses to determine who may own the document and contact the user to establish the facts.



ALLURE SECURITY

Allure Security is on a mission to stop data loss that results from theft or mishandling of files. Allure's technology continuously scores risk by analyzing document access and sharing activities inside and outside of an organization's control. Our SaaS application watches log activity in the cloud, enriches logs with geolocation insights, extends visibility beyond the cloud share, and detects leaks and breaches. Allure's actionable insights strengthen data security, detect breaches and leaks early, and inform data loss responses with unique file and user activity-based indicators.

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Request a free risk assessment

https://www.alluresecurity.com/free-trial

"We rely on Allure Security as a force multiplier for our security team. It is amazing how Allure is able to collect and analyze cloud log data and present it in such an insightful and digestible manner to flag risks, inform our responses and help us enforce policies. Allure is able to give us visibility into our global file and user activity and effectively complements Microsoft's Security Center."

--- Antonio Garcia, CISO at GRA