exabeam

Solution Brief

Abnormal Authentication

Using out-of-the-ordinary authentication actions to identify a malicious insider

This use case identifies users that are performing authentication or access activities outside of their typical behavior patterns.

Every employee now and then will log in to their corporate account at an unusual time. Whether it is an employee logging in late in the evening to finish up an important assignment or someone logging in from their vacation home, there are legitimate reasons an employee may access the corporate environment at odd hours from unusual locations. However, there are scenarios where an abnormal authentication, coupled with other actions, can indicate the presence of a malicious insider.

Considering the volume of authentications that occur daily it is simply impossible for any human to identify when abnormal equals malicious. Further, traditional security controls that exclusively use fixed rules to detect threats will never be able to discover when an employee's abnormal authentication is a warning sign of an active threat. Considering there are users in every company with significant privileges, such as admins, when abnormal authentication occurs the ramifications for the company can be huge.

> While the average employee may have 10 to 15 different systems with different log-on credentials, that number skyrockets for admin employees."
>
> **CSO Online**

Exabeam & abnormal authentication

Exabeam helps security and insider threat teams outsmart users engaging in abnormal authentication and access with the support of automation and use case content across the full analyst workflow, from detection to response. Exabeam automatically assembles all alerts, activity, and contextual data and analyzes it from the point of view of the user to create a comprehensive, reliable record of user activity, even if the underlying logs have been altered or deleted. Our behavior analytics develops a baseline of normal activity for every user and device and flags anomalous behavior indicating malicious behavior in a user's risk score. Timeline events parsed into plain, clear language allow security and insider threat teams to easily investigate activity details with minimal technical expertise and without repeatedly querying multiple systems. A guided investigation checklist and automated response playbooks enable analysts to quickly and effectively remediate incidents and reduce mean time to respond (MTTR).

Key capabilities

Challenge 1: Collection and detection

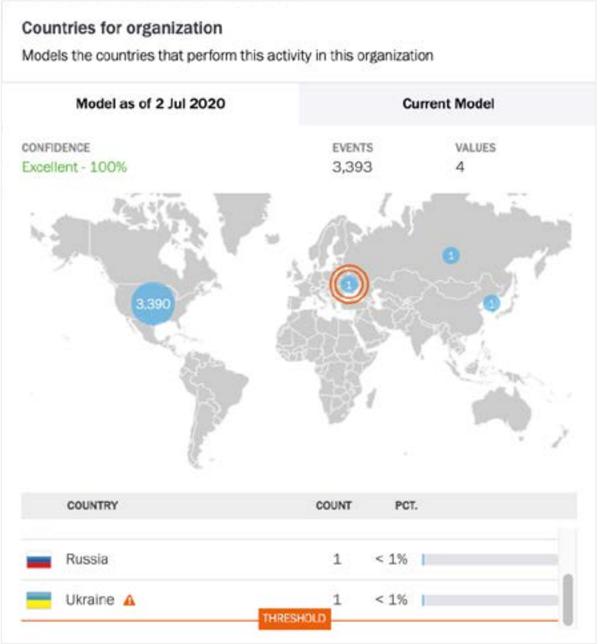
Traditional security solutions are unable to detect when a user that is authenticating in an abnormal way is actually a malicious insider.

Solution

Exabeam ingests and analyzes key data sources to detect unusual activity such as attempting to logon from a different country for the first time. Exabeam behavioral models put anomalous activity such as login location, time, and means into historic behavior for an individual or their peers. With user labels such as “Suspected Leavers,” Exabeam allows analysts to quickly identify when an insider is behaving maliciously before an incident occurs.

Benefit

Strengthen security posture against malicious insiders by using behavior analytics to identify abnormal user authentication and access.



Countries for organization

Models the countries that perform this activity in this organization

Model as of 2 Jul 2020 | Current Model

CONFIDENCE: Excellent - 100%

EVENTS: 3,393

VALUES: 4

COUNTRY	COUNT	PCT.
Russia	1	< 1%
Ukraine ⚠	1	< 1%

THRESHOLD

Figure 1: This data insight model shows two suspicious login records from Russia and Ukraine, not typical for this user.

Challenge 2: Visibility and investigation

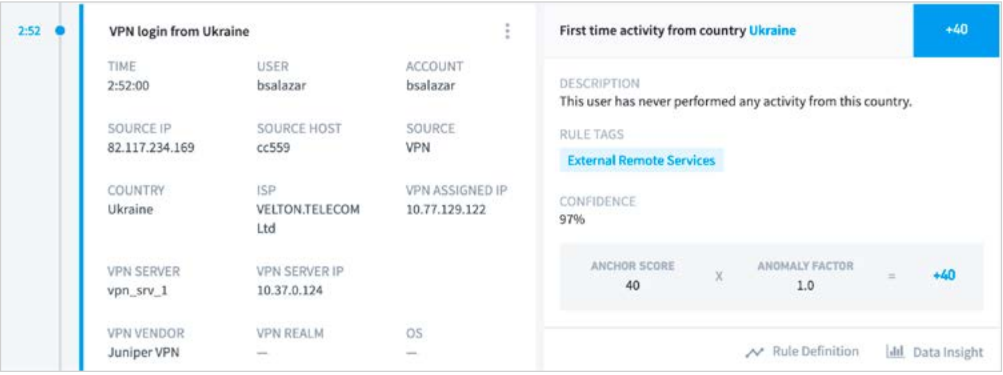
Abnormal authentication and access largely go unnoticed by security teams due to the sheer volume of data associated with user authentications.

Solution

Our Smart Timelines automatically capture and assemble all activity data, including logon to a critical system and excessive distance traveled between logins, to name a few. Patented host-IP-user mapping attributes this activity back to a user, presented as clear, readable events, all without an analyst needing to write a single query. Analysts can investigate further with Exabeam Threat Hunter to find all abnormal authentication, or drill down further in the timeline events to review the raw logs. Each step of the way, analysts can reference our abnormal authentication checklist to ensure their investigation is thorough and complete.

Benefit

Exabeam enables comprehensive and streamlined abnormal authentication investigations. With Exabeam, even non-technical analysts can answer key questions like “How many times did the user fail to login to the app?”



2:52 ● **VPN login from Ukraine**

TIME 2:52:00	USER bsalazar	ACCOUNT bsalazar
SOURCE IP 82.117.234.169	SOURCE HOST cc559	SOURCE VPN
COUNTRY Ukraine	ISP VELTON.TELECOM Ltd	VPN ASSIGNED IP 10.77.129.122
VPN SERVER vpn_srv_1	VPN SERVER IP 10.37.0.124	
VPN VENDOR Juniper VPN	VPN REALM —	OS —

First time activity from country Ukraine +40

DESCRIPTION
This user has never performed any activity from this country.

RULE TAGS
External Remote Services

CONFIDENCE
97%

ANCHOR SCORE 40 x ANOMALY FACTOR 1.0 = +40

Rule Definition | Data Insight

Figure 2: This Smart Timeline event shows malicious insider Barbara Salazar performing an anomalous access attempt for the first time from Ukraine, indicating suspicious behavior.

Challenge 3: Response

Security and insider threat teams responding to abnormal authentication incidents spend a significant amount of time coordinating responses across multiple security tools.

Solution

Exabeam playbooks orchestrate the response to abnormal authentication and access incidents across your security stack. Pre-built integrations and customizable actions enable analysts to automate playbooks to respond to abnormal authentication, such as suspending a user or requiring two-factor authentication.

Benefit

Enhance analyst productivity and decrease MTTR with security orchestration automation and response (SOAR) powered playbooks.

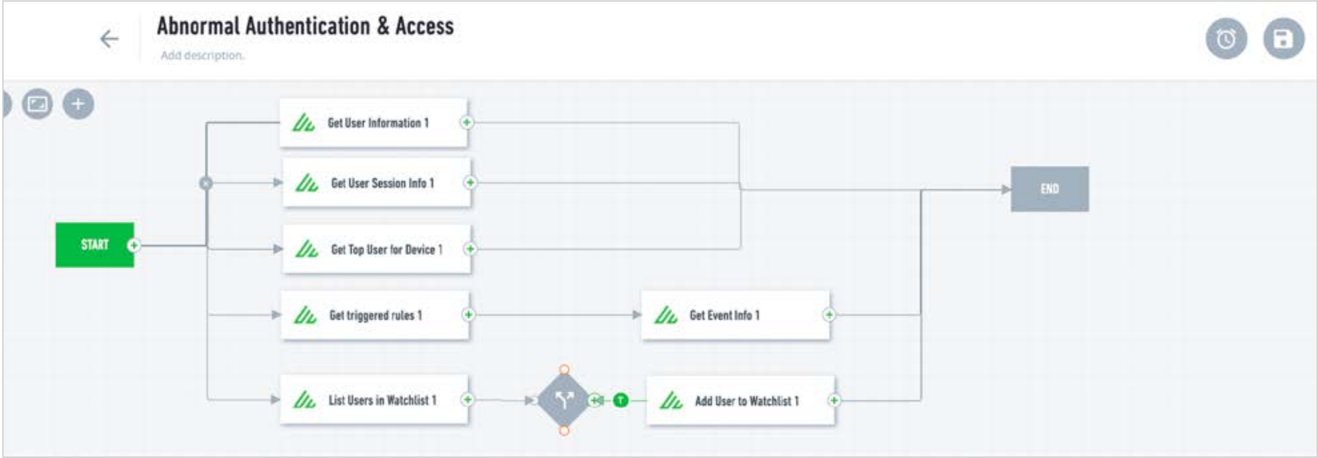


Figure 3: SOAR playbook showing steps for responding to abnormal authentication

Use case content

To provide coverage for abnormal authentication and access, Exabeam identified key data sources and has built content for collection, detection, investigation, and response.

Key data sources

- Operating system logs (e.g. UNIX/LINUX/OSX/ Windows)
- VPN activity
- Physical access logs
- Web activity

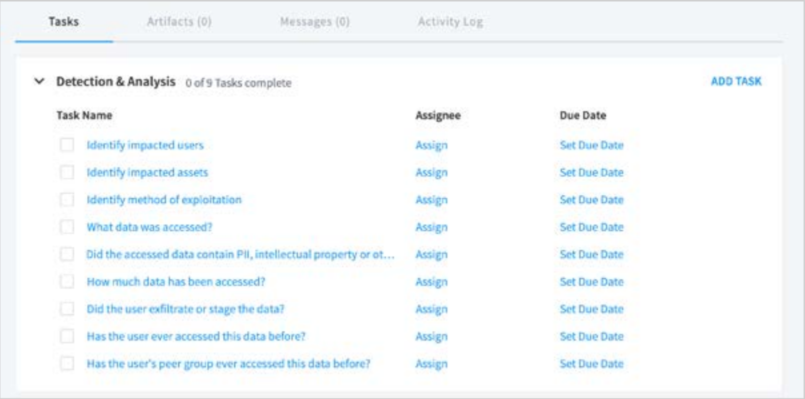
Key detection rule types

- Data access

MITRE Technique Coverage

- T1078 Valid Accounts
- T1133 External Remote Services

Incident checklist



Detection & Analysis 0 of 9 Tasks complete

Task Name	Assignee	Due Date
□ Identify impacted users	Assign	Set Due Date
□ Identify impacted assets	Assign	Set Due Date
□ Identify method of exploitation	Assign	Set Due Date
□ What data was accessed?	Assign	Set Due Date
□ Did the accessed data contain PII, intellectual property or ot...	Assign	Set Due Date
□ How much data has been accessed?	Assign	Set Due Date
□ Did the user exfiltrate or stage the data?	Assign	Set Due Date
□ Has the user ever accessed this data before?	Assign	Set Due Date
□ Has the user's peer group ever accessed this data before?	Assign	Set Due Date

Figure 1: This data insight model shows two suspicious login records from Russia and Ukraine, not typical for this user.

Response actions

- Contact User/Manager/HR Department via email
- Add User to a watchlist
- Rotate account credentials
- Expire password
- Reset password
- Remove user from a group
- Send 2FA push
- Suspend user

About Exabeam

Exabeam is a global cybersecurity leader that adds intelligence to every IT and security stack. We are reinventing the way security teams use analytics and automation to solve threat detection, investigation, and response (TDIR), from common security threats to the most critical that are difficult to identify. The Exabeam Security Operations Platform is a comprehensive cloud-delivered solution that leverages machine learning and automation using a prescriptive, outcomes-based approach to TDIR. It is designed and built to help security teams detect external threats, compromised users and malicious adversaries, minimize false positives, and make security success the norm.

To learn more about how Exabeam can help you visit exabeam.com today.