

Developing Better Prompts for Copilot for Security

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About Me...

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- Husband
- Dad
- Grandfather (G-pop)
- Running freak
- KQL nut
- 6MDM

My blog: https://aka.ms/RodsBlog

Microsoft Sentinel this Week (newsletter):

http://aka.ms/MicrosoftSentinelNewsletter

Microsoft Defender (newsletter)

http://aka.ms/MicrosoftDefenderNewsletter

Azure Open AI Weekly Community Copilot (newsletter)

https://aka.ms/AzOpenAINews





Quick Poll: Help me help you

- 1. How familiar are you with Generative AI?
- 2. How familiar are you with Prompt Engineering?
- 3. How familiar are you with Copilot for Security?



https://etc.ch/aFxc

Agenda



What is generative AI and how does it work?

Prompt Engineering

Introduction to Copilot for Security

How Copilot for Security Processes Requests

Prompting for Copilot for Security

Brief: What is Generative Al?



Generative AI

A type of machine learning that uses algorithms and models to generate new and original content. LLMs are one form, but generative AI can be multi-modal.

Defender that can identify patterns, speak and understand different languages, so they can automatically communicate with other defenders around the world to stop attackers

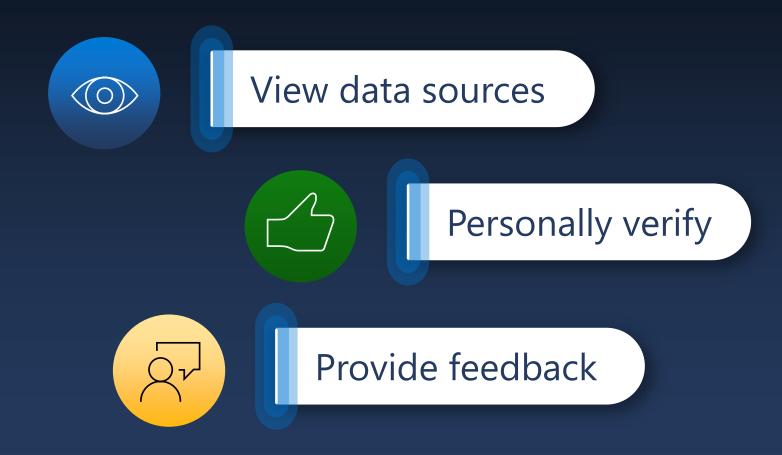
What characterizes generative AI?

Uses natural (human) language

Generates new content from a variety of user inputs

Allows for greater personalization

How to use generative Al accurately







Generated content that appears plausible but isn't contained in the provided content and may be incorrect. It happens when the response appears correct, but omits important key points from the source, which creates a false narrative

Incomplete response that generates the wrong summary



Responsible Al

Crucial element that guides people as they design systems that are safe and fair at every level. Understanding the data that was used to train the systems and finding ways to mitigate any shortcomings to help better reflect society at large, not just certain groups of people

Foundational practices in place when developing models to create safe and fair AI

Microsoft's responsible AI framework

Privacy and security

Accountability

Reliability and Safety

Microsoft's responsible AI principles

Inclusiveness

Transparency

Fairness

In the Generative AI world, what are Fabrications?

- A. Generated content that appears plausible but isn't contained in the provided content and may be incorrect.
- B. Crucial element that guides people as they design systems that are safe and fair at every level.
- C. A type of machine learning that uses algorithms and models to generate new and original content.

Question 1

Why could a poorly created prompt cause a Fabrication?

A. It's not worded correctly to drive an efficient compute.

B. It uses words or phrases that get skipped due to Responsible Al.

C. Incomplete responses will generate the wrong summary.

Question 2

Prompt Engineering

What is Prompt Engineering

- Prompt engineering is the art and science of designing effective inputs and outputs for AI systems, such as natural language models.
- A prompt is a set of instructions, examples, or queries that elicit a desired response from an AI system.

For example, a prompt can be a question that asks an AI system to summarize a text, or a template that instructs an AI system to generate a poem.

Brief: Prompt Engineering

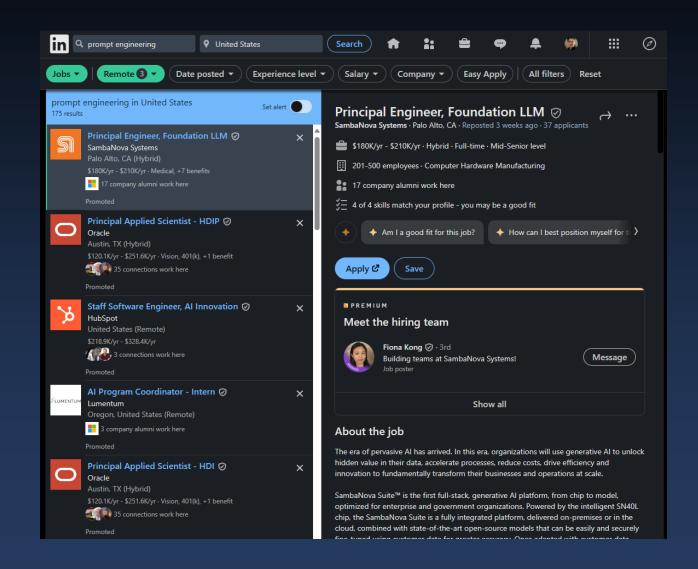
- Process of writing, refining, and optimizing inputs for AI systems
 - · Helps AI models organize better responses to a wide range of queries
- · Allows for programming AI models in natural language
 - · No coding experience or deep knowledge of datasets required
- · Prompt engineers play a pivotal role in crafting queries
 - · Helps AI models learn language, nuance, and intent behind the query
- · Important for producing accurate and relevant outputs
 - · More precise and comprehensive prompts lead to better responses from AI models

By crafting well-designed prompts, humans can:

- Improve the quality and accuracy of Al outputs. A good prompt can help an Al system understand the task and the context better and avoid errors or biases.
 - For example, a prompt can provide relevant information, clarify the expectations, or specify the constraints for an Al system.
- Expand the capabilities and applications of Al systems. A good prompt can help an Al system perform tasks that are not explicitly programmed or trained for, by using its general knowledge and reasoning abilities.
 - For example, a prompt can ask an AI system to generate content, solve problems, or answer questions that are beyond its pre-defined scope.
- Enhance the interaction and collaboration between humans and Al systems. A good prompt can help an Al system communicate with humans in a natural and engaging way and provide feedback or suggestions.
 - For example, a prompt can use conversational language, humor, or emotions to make an Al system more human-like and relatable.

Prompt Engineering Career

- Vast Opportunity (for now)
- Not only a skill for AI experts or developers – for anyone who wants to use AI systems for their personal or professional goals.
- A skill that can be learned and improved over time
- Average starting range: \$180k/yr
- Average max: \$335k/yr
- How long?



Bad Googlers will be bad Prompters

Also: Good Googlers can be bad Prompters

Example 1

Poor Prompt: Write something.

What's wrong with it: The prompt is too vague and does not provide any context or specific instructions for the AI.

Improved Prompt: Write a short story about a space explorer discovering a new planet.

Why it's better: The prompt is specific, provides a clear context, and guides the AI towards a particular task.

Example 2

Poor Prompt: Summarize this.

What's wrong with it: The prompt lacks detail on what needs to be summarized and the desired length or style of the summary.

Improved Prompt: Provide a one-paragraph summary of the key points from the article titled 'The Impact of Climate Change on Coastal Cities'.

Why it's better: The prompt specifies the document to summarize, the focus on key points, and the expected length.

Example 3

Poor Prompt: Translate.

What's wrong with it: The prompt does not specify the source language, target language, or the text to be translated.

Improved Prompt: Translate the following sentence from English to Spanish: 'Artificial intelligence is changing the future of technology.'

Why it's better: The prompt clearly defines the source and target languages and provides the exact text for translation.

Prompt Engineering for Security

Security professionals can benefit from prompt engineering for AI in the future in various ways, such as:

- Researching and understanding new technologies and threats. Security professionals can use prompt
 engineering to leverage AI tools to gather and analyze information, generate insights, and stay updated on
 the latest developments and risks in the field.
- Understanding and detecting malicious code. Security professionals can use prompt engineering to interact with AI tools that can scan, parse, and interpret code, identify vulnerabilities, and flag potential malware or exploits.
- Generating countermeasures and solutions. Security professionals can use prompt engineering to instruct AI tools to create and test defensive strategies, such as patches, firewalls, encryption, or authentication.
- Summarizing and communicating findings and results. Security professionals can use prompt
 engineering to request AI tools to produce concise and clear reports, presentations, or recommendations
 based on their data and analysis.

Prompt Engineering for Security

Prompt engineering for AI can also pose some challenges and risks for security professionals, such as:

- Handling potentially malicious or harmful prompts. Security professionals need to be aware of the
 possibility of attackers using prompts to compromise or manipulate AI systems and implement input
 validation and response plans for security incidents.
- Dealing with ethical and regulatory issues. Security professionals need to consider the ethical and legal
 implications of using AI tools, such as privacy, consent, accountability, and compliance, and ensure that
 their prompts are aligned with these principles.
- Adapting to the evolving and dynamic nature of AI. Security professionals need to keep up with the rapid changes and innovations in AI and update their prompts and skills accordingly.

Tools consolidation and Generative Al can transform security

Tools consolidation

Coordinated defense across all threat vectors to deliver end-to-end visibility and coverage

Al

Exponential gains in human expertise and efficiency to defend at machine speed and scale





Which is the best description of Prompt Engineering?

A. Prompt engineering is the process for identifying the proper words and phrases with which to produce desired results.

- B. Prompt engineering is the art and science of designing effective inputs and outputs for Al systems, such as natural language models
- C. Prompt Engineering is the act of developing responsible questions to pose to a Generative AI model.

Question 3

Choose the best prompt:

A. Write a short story about how my dog ate my homework.

Question 4

B. Summarize the text.

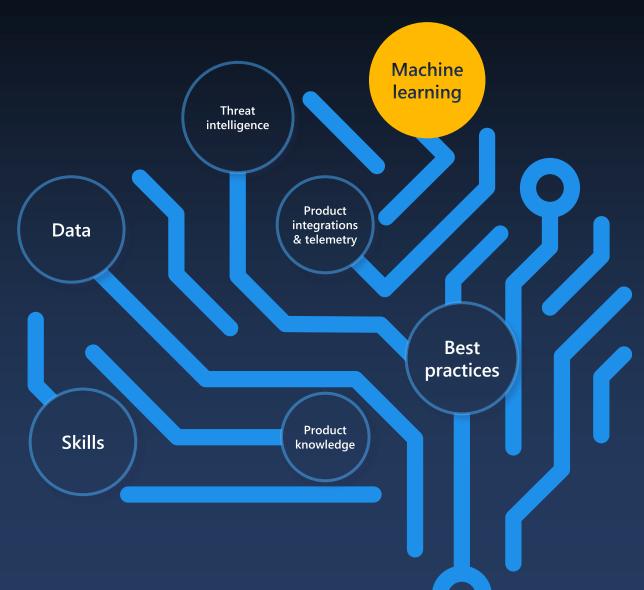
C. Translate the phrase.

Introduction to Copilot for Security

Microsoft Copilot for Security

The first generative AI security product that empowers security and IT teams to protect at the speed and scale of AI





"Microsoft Copilot for Security acts as a sort of intense and ultra-fast security consultant, able to read through complex hash files and scripts to divine their true intent, and quickly recognize both known threats and things that act like existing threats. Microsoft claims that using such a service could help address the security personnel talent shortage."

From: Copilot for Security is not an oxymoron – it's a potential game-changer for security-starved businesses

Story by: Lance Ulanoff - TechRadar



Why does it exist?

The odds are **against** today's **security analysts**



Password attacks per second



Median time for an attacker to access your private data if you fall victim to a phishing email



Global shortage of skilled cybersecurity professionals

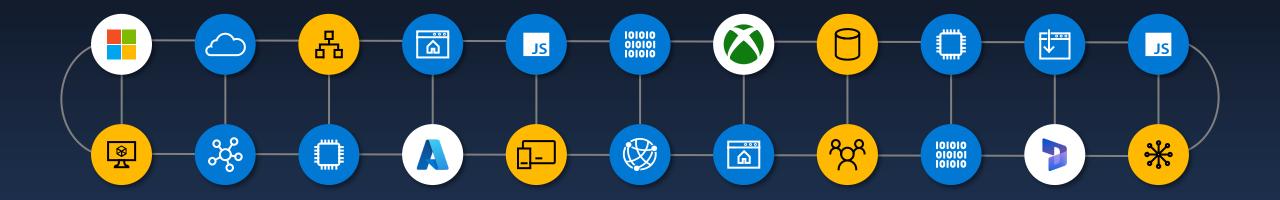
Get acquainted with Microsoft Copilot for Security

The top security challenges organizations face include:

- An **increase** in the number and sophistication of attacks.
- A talent shortage that is driving the need for automation, integration, and consolidation of security tools.
- Limited visibility into security, privacy, compliance, and governance.
- Security posture management. Copilot delivers information on anything that might expose an
 organization to a known threat. It then gives the analyst prescriptive guidance on how to protect against
 those potential vulnerabilities.
- Incident response. Copilot can quickly surface an incident. For a surfaced incident, Copilot can enrich it
 with context from other data sources, assess its scale and impact, and provide information on what the
 source might be. Copilot can then guide the analyst through the response and remediation steps with
 guided recommendations. Copilot provides a single pane of glass visibility by pulling in data from other
 sources like Defender XDR and Sentinel and then correlating and analyzing that data all together.
- Security reporting. Copilot can deliver customizable reports that are ready to share and easy to consume, allowing analysts to focus more on high value tasks pertinent for securing the organization.

Microsoft Threat Intelligence

The industry's largest vector coverage powered by 65T daily signals



One of the world's largest clouds

+

Signal from 1.4B endpoints¹ across the planet

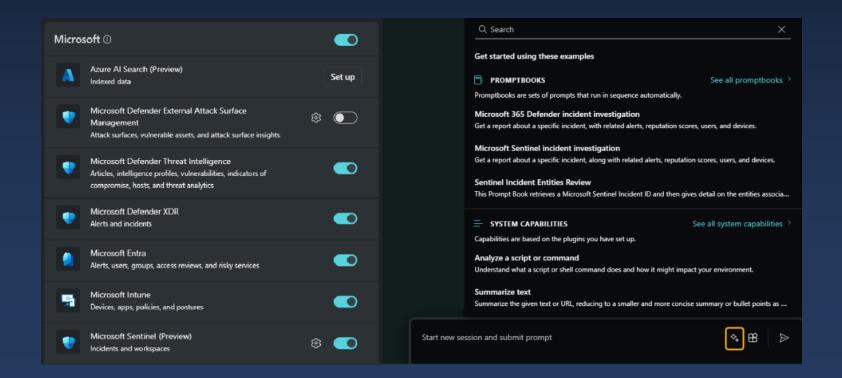


Graphing global internet infrastructure

^{1. &}quot;Microsoft by the Numbers". Microsoft Story Labs

Security Framework

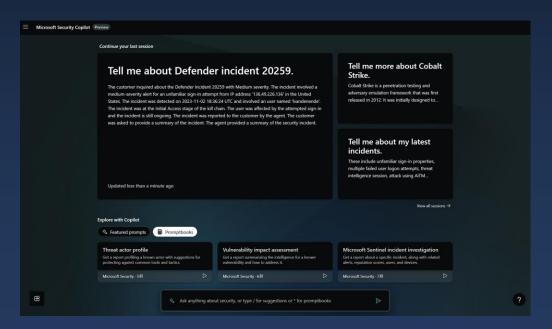
Microsoft Copilot for Security integrates with various sources, including Microsoft's own security products, non-Microsoft vendors, open-source intelligence feeds, and websites to generate guidance that's specific to your organization.



Experiences to meet you where and how you work

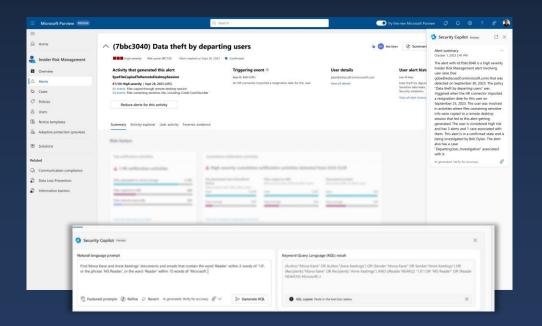
Standalone

Helps teams gain a **broader context** to troubleshoot and remediate incidents faster within Copilot for Security itself, with **all use cases in one place**, enabling **enriched cross-product guidance**.



Embedded

Offers the **intuitive experience** of getting Copilot for Security guidance **natively** within the products that your team members already work from and are familiar with.



Copilot for Security – What it is not

- · Does not replace analysts
- · Is not a replacement for existing tools
- · Is not the only tool you need



Primary use cases



Incident summarization



Impact analysis



Reverse engineering of scripts



Guided response

Copilot for Security: Who is it for?

Threat Hunters

- Enables organizations to add/keep threat hunting
- Empowers security teams to perform proactive threat hunting
- Assists in building hunting theories

Security Experts

- Improves the speed and efficiency for security teams (analysts)
- Enhances the quality of responses
- Reduces resistance or skepticism
- Offers considerable time savings
- Alleviates tedious tasks
- Empowers senior staff to focus on strategic priorities
- Unbiased viewpoint

Security Novices

- Strengthens expertise of junior staff
- Through step-by-step guidance
- Quickly upskill on otherwise technically involved processes such as building KQL queries.
- Skills gap

Partners/Services

Example: Defender Experts

Copilot makes security simple

Uses natural language

Augments existing workflows

Provides rapid intelligent recommendations

How many signals are collected and collated for use with Copilot for Security?

A. 23 million per day

B. 200 million per week

C. 65 trillion per day and growing

What is the biggest value for using the Standalone experience for Copilot for Security?

A. Its easier on the eyes because it supports dark mode.

B. It allows organizations to connect and consolidate non-Microsoft applications and services.

C. It integrates directly with the Azure portal.

What suggested roles are a good fit for using Copilot for Security?

A. Threat Hunters, Security Experts, Security Novices, Partners/Services.

B. Threat Hunters, Security Experts, Partners/Services.

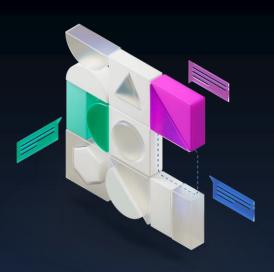
C. CTO, CISO, Analysts.

Prompting in Copilot for Security

Prompt Engineering in Copilot for Security

Companies using Microsoft Copilot for Security can benefit from prompt engineering for AI in various ways, such as:

- Improving the efficiency and capabilities of security professionals.
 - Prompt engineering can help security professionals leverage the power of Copilot for Security, an AI-powered security solution that provides tailored insights and guidance to defend at machine speed and scale.
- Enhancing the interaction and collaboration between security professionals and Copilot for Security.
 - Prompt engineering can help security professionals communicate with Copilot for Security in natural language, ask questions, receive actionable responses, and provide feedback or suggestions.
- Expanding the functionalities and applications of Copilot for Security.
 - Prompt engineering can help security professionals customize and optimize Copilot for Security for their specific needs and preferences and unleash their creativity and innovation.



Prompts

A natural language set of instructions that serves as an input for a generative AI tool

Show me the intel profile for <THREAT ACTOR> and create a bulleted list of associated indicators for this actor"



Analyze the following script <INSERT SCRIPT>



Summarize Sentinel incident <SENTINEL_INCIDENT_ID>



Why was <USERNAME> prompted for MFA?



Show me the top 5 DLP alerts I should prioritize today



Tell me about Defender incident 20259



Describe the impact of this policy on users and highlight setting conflicts with existing policy



Generate and run a KQL query within Microsoft Sentinel to hunt for break-glass account usage



How can I improve my security posture?



Are any of my machines affected?



Summarize this incident in bullets.



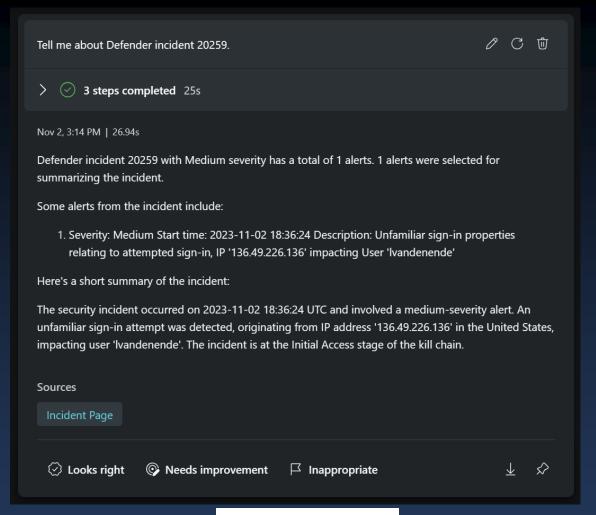
Which alerts are being triggered the most?



What is log4shell?



Tell me about Defender incident 20259.



Prompt Library

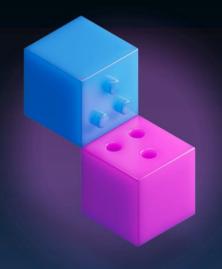






A predefined function Copilot uses to solve part of a problem

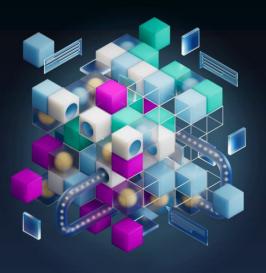
Leverage the expertise of security analysts in areas such as threat hunting, incident response and vulnerability management



Plugin

A collection of skills for a particular resource that provide AI capabilities and intelligent insights into existing apps or platforms

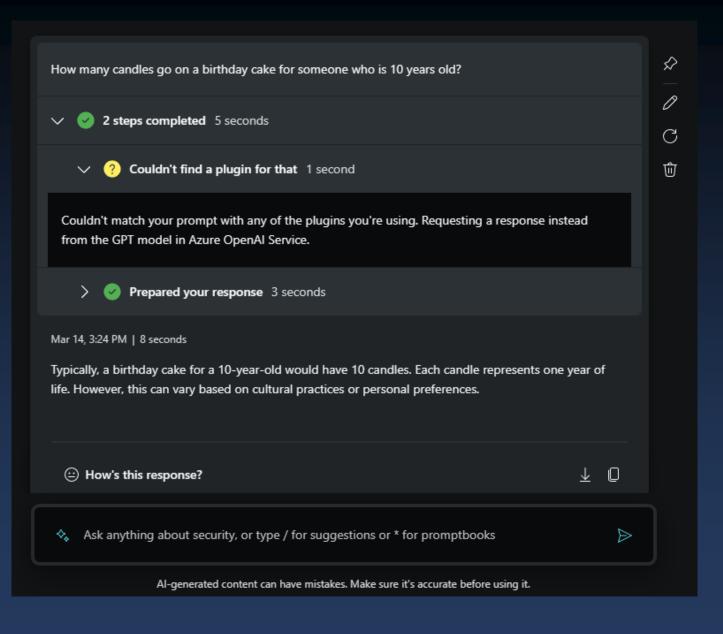
ServiceNow plugin available to automate initial triage efforts



Orchestrator

An Al architecture that evaluates a prompt, determines relevant plugins, retrieves data, ranks it for relevance, and adds grounding data to the prompt with guardrails to stay below token limits before presenting to the LLM to generate an informed response

The 'engine' that develops a plan, gathers context and determines which skills to use to give to the LLM to generate a response



What's the best camping gear to take on a 3-day weekend where the forecast calls for rain?
✓ ② 2 steps completed 12 seconds
> ? Couldn't find a plugin for that 1 second
> Prepared your response 11 seconds
Mar 14, 3:39 PM 13 seconds
While I'm primarily a security assistant and my expertise lies in providing security-related advice, I can share some general tips based on common knowledge. For a 3-day camping trip where rain is expected, you might want to consider the following gear:
1. Waterproof Tent: A tent with a rainfly is essential to keep you dry. Make sure it's rated for the
conditions you expect to encounter.
2. Sleeping Bag: A synthetic sleeping bag is a good choice as it provides insulation even when wet,
unlike down bags.
3. Waterproof Clothing: Pack a waterproof jacket and pants. Layering your clothes can help you
adjust to changing temperatures.
4. Waterproof Boots: Wet feet can quickly ruin a camping trip. Waterproof boots are a must.
5. Cooking Gear: A camping stove is a good idea as it can be difficult to start a fire in the rain.
6. Food and Water: Pack enough for your trip plus a little extra in case you get stuck longer than
expected.
7. First Aid Kit: Always a good idea, rain or shine.
8. Waterproof Bag or Container: To keep your gear dry.
9. Headlamp or Flashlight : Preferably waterproof.
Remember, this is just a general guide. You should adjust your gear based on the specific conditions and your personal needs. Always prioritize safety when camping.
⊕ How's this response? □ □

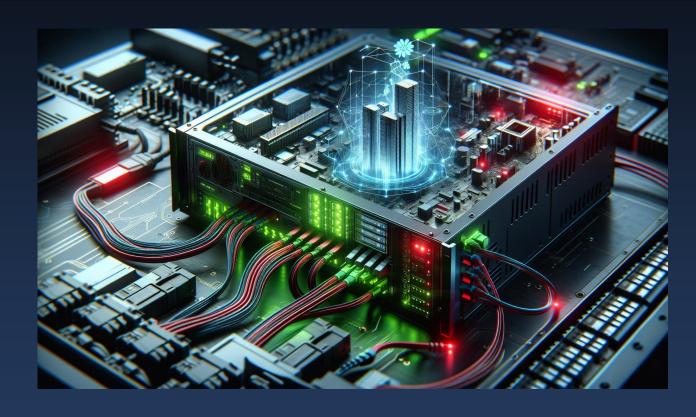
♦ Ask anything about security, or type / for suggestions or * for promptbooks

Al-generated content can have mistakes. Make sure it's accurate before using it.

SCU = Security Compute Unit

Customers will receive a monthly bill for the number of SCUs provisioned hourly to run Copilot for Security workloads (with a minimum of one hour).

The cost of a prompt in terms of SCUs (Security Compute Units) depends on various factors such as the model used, the length of the text, and the time taken for the model to generate the response.



The standard calculation for the monthly bill is:

(SCUs/hour) x (hourly SCU price) x (730hour/month)

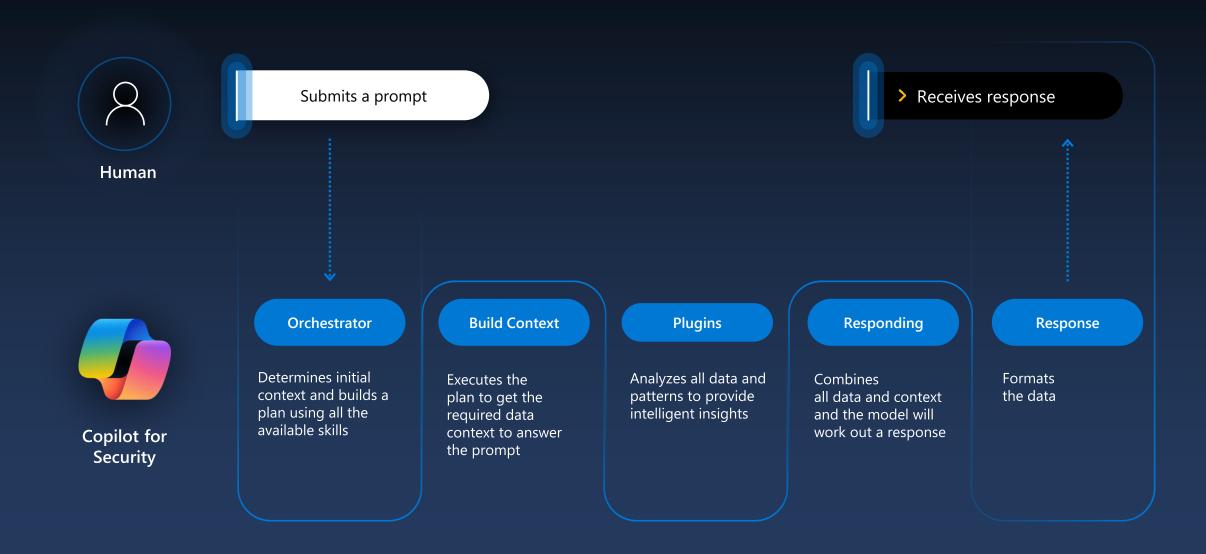
Can Copilot for Security do math calculations?

A. No. It's a Copilot that is hyper-focused on Security.

Question 8

B. Yes. But every session counts against the previsioned SCUs.

Operated with simple natural language queries



- The process starts when a user submits a prompt in the prompt bar. Once the user submits their
 prompt, it's sent to the Copilot backend referred to as the orchestrator. The orchestrator is Copilot's
 system for composing capabilities (skills) together to answer a user's prompt.
- Copilot bundles the user prompt and a full list of Copilot capabilities for the enabled sources (plugins and knowledge bases) and then sends it to Azure OpenAI with the request to make a plan for fulfilling the user's request
- Azure OpenAl, runs advanced LLMs to match the prompt with the available capabilities (skills) and creates a plan (set of steps) for fulfilling the user's request. That plan is sent back to the orchestrator.
 - If no capability is matched, the response to the user's prompt is generated using the general knowledge LLM.
 - The general knowledge LLM is good at general knowledge and problem solving but isn't uniquely focused on security so there's a greater chance that the response provided isn't accurate. For this reason, it's beneficial to enable plugins and connect to knowledge bases to bring a collection of resource specific capabilities to Copilot.

- Copilot's **orchestrator executes the plan** by running the code for the selected plugins/capabilities and calling the appropriate application programming interfaces (API) to gather information and to take action.
- The first- and third-party integration partner apps gather information and execute actions based on the API call and sends the response back to Copilot.
- The orchestrator receives the response from the API calls, but it's still not ready to be sent to the user. **Copilot iterates on the process to ensure the best response**. Before a final response can be sent to the user, the **orchestrator bundles that response with the original prompt**, and sends it back to Azure OpenAI.
- Azure OpenAl uses the power of its advanced LLM to compose a response using language that makes sense to a human being.

- That **response is sent back to Copilot** for review by Microsoft's responsible AI models that look for anything malicious, hate speech, etc.
 - If everything looks good, then the response is sent to the user.
 - If something malicious or inappropriate is detected, then an error message is generated instead of sending the information to the user.
- The user receives the response from the Copilot.

Question 9

How does developing good prompts help Copilot for Security?

A. It saves time when Copilot for Security doesn't have to verify responsible prompts.

B. It shortens the time it takes for the responses to be returned.

C. It ensures the responses are better security related and not generalized.

Prompting in Copilot for Security

Elements of Effective Prompts

- · Goal: Specific, security-related information needed
- · Expectations: Format or target audience for the response

- · Source: Known information, data sources, or plugins to use
- · Context: Why the information is needed and how it will be used

Describe the elements of an effective prompt

Goal

What is the specific security-related information you need?

"Give me information about incident 18718..."



Why do you need it And how will you use the information?

"...for a report that I can submit to my manager."

Expectations

What format or audience do you Want the response tailored to?

"Compile the information in a list, with a short summary."

Source

Is there a plugin, known info, or data source Security Copilot should use?

> "Look in Defender incidents."







Diagram Format:

Components of a prompt

Goal Expectation

Source

Context

Diagram example:

Identify the components in the prompt

Prompt: Look in Defender and tell me about the entities associated with Incident 18718 for a summarized report I can submit to my manager

Tell me about the entities in Incident 18718

Summarization



Look in Defender

Report to send to my manager

Tips

- What is your Goal?- Be specific, clear, and concise as much as you can about what you want to achieve.
- Supply Context Why do you need this information or how will you use it? Provide necessary context to narrow down where Copilot looks for data.
- Set Expectations What format or which target audience do you want the response tailored to? Give positive instructions instead of "what not to do. Copilot is geared toward action, so telling it what you want it to do for exceptions is more productive.
- Provide a Source- Supply any known information, data source(s), or plugins Copilot should be used.
- Directly address Copilot as "You", as in, "You should ..." or "You must as this is more effective than referring to it as a model or assistant.

Featured Prompts

- Analyze a script or command Identifies script language, purpose, risks, and recommended actions
- Summarize a security article Extracts main points, key takeaways, and implications for your organization
- Generate a security query Converts natural language request into query language for specific data sources
- Generate a security report Creates concise and informative report for specific audience using previous prompts and responses



Top 10

- Analyze the following script <INSERT SCRIPT>
- If a user is listed in the incident details, show which devices they recently used and indicate if they are compliant with policies.
- $\bf 3$ Summarize Sentinel incident <SENTINEL_INCIDENT_ID>.
 - Show me the top 5 DLP alerts that I should prioritize today.
 - 5 Show me the intel profile for <THREAT ACTOR> and create a bulleted list of associated indicators for this actor.
 - Can you summarize the IOC's related to this intel profile into a list and give me direct links for Microsoft Defender Threat Intelligence portal?
 - 7 Describe the impact of this policy on users and highlight setting conflicts with existing policy.
 - **8** Why was <USERNAME> prompted for MFA?
 - Generate and run a KQL query within Microsoft Sentinel to hunt for break-glass account usage.
- 10 Append comment To ServiceNow Incident.

What are the four elements of an effective prompt for Copilot for Security in order?

A. Goal, Expectations, Source, Context

Question 10

B. Expectations, Goal, Source, Context

C. Source, Context, Expectations, Goal

Question 11

Choose the best prompt:

A. Show the authentication methods setup for each user involved in that incident. Especially indicate whether they have MFA enabled.

B. Create a report for Incident 2818.

C. Translate Incident 2818 into Chinese.



Choose the best prompt:

A. Write an executive report.

B. Write an executive report summarizing this investigation. It should be suited for a non-technical audience.

C. Write a report in the first person.





Choose the best prompt:

A. What is "service-logins.com"?

B. Get the reputations for hostname "service-logins.com" and put it in a report to show my manager.

C. Get the reputations for hostname "service-logins.com"





Choose the best prompt:

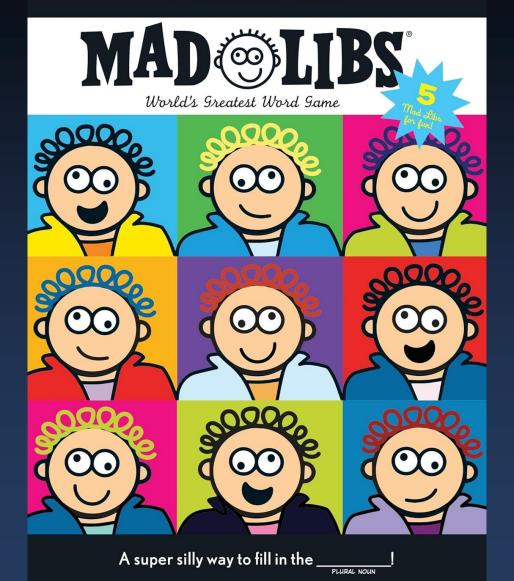
A. Summarize recent threat intelligence.

B. Generate and run Defender Hunting Queries

C. Describe the impact of this policy on users and highlight setting conflicts with existing policy.



Mad Libs Mania



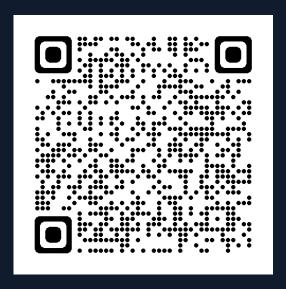
Fill in the blanks

Analyze a recent <u>phishing</u> email trend and suggest <u>mitigation</u> strategies.



phishing Lee Majors cookie

monster Godzilla mitigation



Fill in the blanks

Show me the <u>intel</u> profile for <u>Hazel</u> Sandstorm.



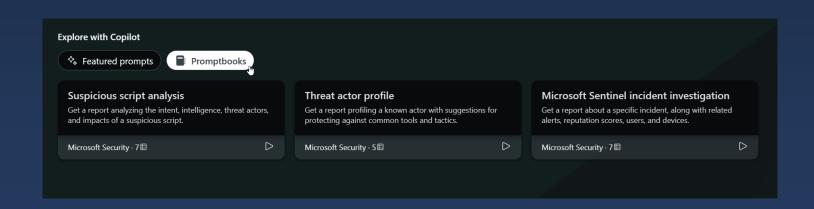
intel Jaime Somers Oscar the Grouch

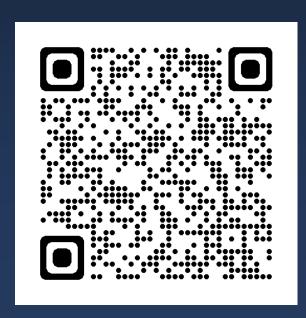
Hazel online



Promptbooks

- Promptbooks: A Collection of Prompts
 - Used for specific security-related tasks
 - Examples: incident investigation, threat actor profile, suspicious script analysis, vulnerability impact assessment
 - Existing prompt books can be used as templates or examples
 - · Can be modified to suit your needs





Using Promptbooks

Incident Investigation

Summarize incident, assess impact, provide remediation steps

Threat Actor Profile

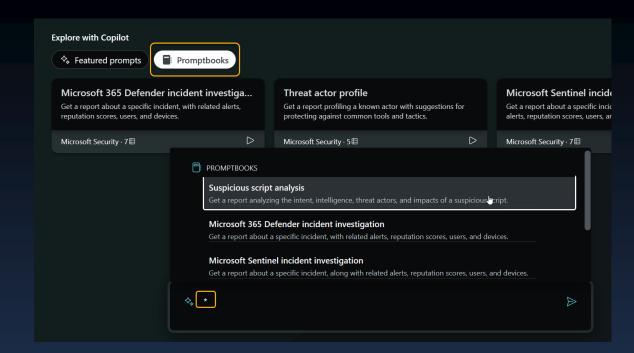
Get executive summary about specific threat actor

Suspicious Script Analysis

· Analyze and interpret command or script

Vulnerability Impact Assessment

Assess impact of publicly disclosed vulnerability

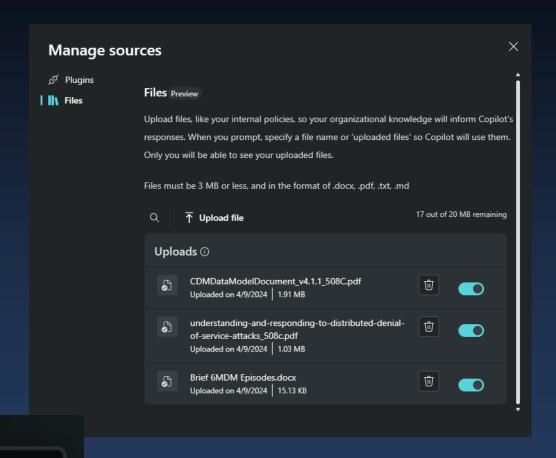


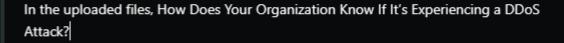


Expanding Knowledge

Knowledge base (KB) connections, a feature of Microsoft Copilot for Security currently in preview, allows you to integrate your organization's knowledge base as another source of information.

- Azure Al Search plugin
- File upload









Question 15

A security analyst is tasked with automating investigation flows to streamline repetitive steps in Copilot. After selecting relevant prompts from an existing session, the analyst wants to create a promptbook. What should the analyst do next to accomplish this task?

A. Select the 'Create promptbook' icon to open the page where they can name, tag, and further customize the promptbook.

B. Select the 'Export prompts' button to download the selected prompts for manual execution.

C. Choose the 'Save session' option to preserve the current state of the session for later use.

Conclusion

- Precise and comprehensive prompts produce accurate, relevant responses
 - · Improves speed and efficiency of generative AI tasks
 - Mitigates biases and reduces output errors
 - · No coding experience or deep knowledge required
- · Prompt engineering best practices can help security

teams utilize the power of generative Al

- · Improves workflow and focus on higher-level tasks
- · Minimizes tedious work
- Learn more about Copilot for Security at https://aka.ms/CopilotforSecurity

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