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# Special Operations Cognitive Agility Training (SOCAT) for Special Operations Forces and spouses

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**ABSTRACT**

Increasingly complex and unpredictable personnel and operational demands require Special Operations Forces (SOF) members and their families to remain flexible, adaptive, and resilient within ever-changing circumstances. To mitigate the impact of these stressors on psychological health and fitness, researchers and educators at the Uniformed Services University of the Health Sciences (USUHS) developed Special Operations Cognitive Agility Training (SOCAT), a cognitive performance optimization program supported by the United States Special Operations Command (USSOCOM) Preservation of the Force and Family (POTFF). The goal of SOCAT is to enhance cognitive agility, defined as the ability to deliberately adapt cognitive processing strategies in accordance with dynamic shifts in situational and environmental demands, in order to facilitate decision making and adapt to change. Overall, SOCAT emphasizes optimal cognitive performance across different contexts – as well as across various stages of the military lifecycle – to serve as a buffer against biopsychosocial vulnerabilities, environmental and social stressors, military operational demands, and behavioral health problems, including suicide. This paper reviews foundational research behind SOCAT, mechanisms through which SOCAT is anticipated to build psychological resilience, and describes the process of developing and tailoring SOCAT for active duty SOF members and spouses. Limitations and future directions, including an ongoing, randomized controlled program evaluation, are discussed.

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Cognitive agility; cognitive flexibility; resilience; special operations forces; military spouses

**What is the public significance of this article?—** This article describes the background, development, content, and program evaluation methodology of Special Operations Cognitive Agility Training (SOCAT), a strengths-based approach to enhance the ability of Special Operations Forces (SOF) to adapt to operational and personal challenges. Contributions from subject-matter experts and members of the SOF community have aided the development and tailoring of SOCAT to both SOF Service members and spouses.

## Introduction

United States (U.S.) Special Operations Forces (SOF) are highly trained military personnel, comprising only 3% of the U.S. military. Members include specialized units in the Army (e.g., Green Berets), Air Force (e.g., Pararescuemen), Navy (e.g., SEALs), and Marine Corps (e.g., Raiders). U.S. Special Operations Command (USSOCOM) organizes, trains, and equips the approximately 70,000 active duty, Reserve, and National Guard members within the enterprise, as well as civilian personnel (Feickert, 2020). SOF have historically high personnel and operational tempos due to ongoing global counterterrorism operations and demanding training environments. Thus, SOF members often experience frequent, unpredictable, and sensitive deployments, and the dwell time between deployments is generally spent on intensive training to prepare for the next mission. As a result, family reintegration is often difficult (Rocklein Kemplin, Paun, Godbee, & Brandon, 2019).

Physical, mental, and interpersonal occupational demands within SOF contribute to chronically elevated allostatic load, the consequences of which include a range of medical and behavioral health symptoms (e.g., sleep disturbance, chronic pain, substance abuse,

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anger, family dysfunction, hypervigilance, depression, suicide ideation; Frueh et al., 2020). While the majority of SOF members report distress below clinical thresholds (Ogle & Young, 2016; United States Special Operations Command [USSOCOM], 2018), a notable proportion report experiencing moderate to high post-traumatic stress (19.5%), depression (8.4%), inadequate sleep (31.0%), and potentially problematic alcohol use (13.1%), and severity of symptomatology is associated with number of years in SOF (USSOCOM, 2018). As former USSOCOM commander Admiral William McRaven (2014) described, "*My soldiers have been fighting now for 12, 13 years in hard combat. Hard combat. And anybody that has spent any time in this war has been changed by it. . . . At the end of the day, we'll find the right weapon. . . . But I'll tell you, if we don't have a force that's resilient, that is healthy, that can do the job, none of that equipment is going to matter.*" Recent USSOCOM commanders have reiterated these challenges (Clarke, 2021; Thomas, 2017; Votel, 2016).

## Resilience and cognitive performance

In 2011, USSOCOM launched the Preservation of the Force and Families (POTFF) Task Force to identify problems, symptoms, and best practices to support SOF members and their families (Zimmerman, 2012). The mission of POTFF is "to optimize and sustain SOF mission readiness, longevity, and performance through integrated and holistic human performance programs designed to strengthen the Force and Family" (POTFF Staff, 2021). POTFF programming is designed to enhance resilience – the ability to withstand, recover, grow, and adapt under changing circumstances (Bates et al., 2010) – in order to improve operational readiness within five domains: physical, spiritual, social and family, cognitive, and psychological performance (POTFF Staff, 2021). Increasingly complex and unpredictable personnel and operational demands require SOF members and their families to remain flexible, adaptive, and resilient within ever-changing circumstances. In response to the challenges described above, researchers and educators at the Uniformed Services University of the Health Sciences (USUHS) collaborated with POTFF to develop Special Operations Cognitive Agility Training (SOCAT), a cognitive performance optimization program funded by USSOCOM. The goal of SOCAT is to enhance *cognitive agility*, the ability to deliberately adapt cognitive processing strategies in accordance with dynamic shifts in situational and environmental demands (Good & Yeganeh, 2012), in order to facilitate dynamic decision making and improve adaptation to change.

### Cognitive agility and dynamic decision making

SOF members are skilled in dynamic decision making due to rigorous assessment and selection processes as well as intensive, routine operational training. *Dynamic decision making* requires not only that decisions be made correctly, but that they be made in the correct order, and at the correct time (Brehmer, 1992; Hotaling, Fakhari, & Busemeyer, 2015). To optimize dynamic decision making in complex and evolving environments, it is important to seek out new information, selectively attend to relevant information, integrate information, choose the best option, and act (Boyd, 1995; Gonzalez, Fakhari, & Busemeyer, 2017). Thus, one must improve awareness (Bates, 2010) as well as focus (Nideffer & Sagal, 2006), and practice shifting between analysis and synthesis (Boyd, 1976; Good, 2014). Inherent in this process is agility, the ability to move quickly. Being cognitively agile means intentionally using a broad range of cognitive assets contingent on one's present context and goals. Cognitive agility consists of three components: (1) openness, the capacity to scan for information, either internally (i.e., within oneself) or externally (i.e., within one's environment, including other people); (2) focus, the capacity to avoid distractions while directing attention on a specific internal or external stimulus; and (3) flexibility, the capacity to switch between openness and focus, to "zoom in" and "zoom out" in order to maximize the amount of relevant information collected and integrated in order to make the most adaptive decision (Good & Yeganeh, 2012). Overall, SOCAT emphasizes a strengths-based approach to optimize cognitive agility by teaching SOF members how they can apply existing skillsets to other aspects of their lives. A commitment to practice and self-mastery is crucial for development of cognitive agility within the domains of self, others, and the environment.

### Cognitive rigidity

The opposite of cognitive flexibility, *cognitive rigidity*, can impair problem-solving and decision making and contribute to poor psychological health, including hopelessness and suicide (Fazakas-DeHoog, Rnic, & Dozois, 2017; LaCroix, Walsh, Baggett, Carter, & Ghahramanlou-Holloway, 2021; Linehan, Camper, Chiles, Strosahl, & Shearin, 1987; Miranda, Valderrama, Tsypes, Gadol, & Gallagher, 2013; Morris & Mansell, 2018; Patsiokas, Clum, & Luscomb, 1979; Schotte & Clum, 1987). Cognitive rigidity can be conceptualized as the inability to adapt cognitive processes in accordance with contextual demands. For example, one might get stuck in openness, experience "paralysis

**Table 1.** SOCAT learning objectives and strategies.

| Module | Learning objectives | Domain-specific strategies |
|---|---|---|
| Introduction | (1) Gain Perspective on Change as a Constant | Be Open to Learn |
| | (2) Define Cognitive Agility | Build New Habits |
| | (3) Understand the Benefits of Cognitive Agility | Practice Effectively |
| Focus | (1) Identify Personal Barriers to Focus | Self: Conduct a Body Scan |
| | (2) Learn One Strategy to Enhance Focus in Each Domain | Others: Practice Targeted Listening |
| | (3) Generate a Strategic Plan on Focus | Environment: Aim for Focused Attention |
| Openness | (1) Identify Personal Barriers to Openness | Self: Self-Monitor Thoughts |
| | (2) Learn One Strategy to Enhance Openness in Each Domain | Others: Expand and Engage Socially |
| | (3) Generate a Strategic Plan on Openness | Environment: Raise Situational Awareness |
| Flexibility | (1) Identify Personal Barriers to Flexibility | Self: Avoid Thinking Traps Using STEER |
| | (2) Learn One Strategy to Enhance Flexibility in Each Domain | Others: Build Emotional Intelligence |
| | (3) Generate a Strategic Plan on Flexibility | Environment: Make the Unfamiliar Familiar |

STEER = See, Test, Explore, Express, Reframe.

by analysis," be too distracted, or have difficulty focusing on the mission or an interpersonal interaction. In contrast, one might get stuck in focus, experience tunnel vision or "target lock," miss crucial information, or see only limited solutions to a problem. Consequences of cognitive rigidity include cognitive distortions, erroneous cognitive content and processes that impair interpretation and integration of information (Alford & Beck, 1997). Cognitive distortions are associated with a range of negative psychological symptoms, including depression, anxiety, negative affect, and stress (Covin, Dozois, Ogniewicz, & Seeds, 2011). However, greater meta-cognition – awareness and intentional regulation of cognitive processes (Bates et al., 2010) – is associated with lower rigidity and psychiatric symptomatology (Rickelman & Houfek, 1995; Rouault, Seow, Gillan, & Fleming, 2018). Thus, improving cognitive agility is likely to have benefits for decision making, adaptation to change, and overall behavioral health (Bryan & Rozek, 2018; LePine, Colquitt, & Erez, 2000; Morris & Mansell, 2018).

## Development and overview of SOCAT

A multidisciplinary team of clinical, social, sports, operational, and organizational psychologists and SOF consultants developed SOCAT based on research on cognitive agility (e.g., Good & Yeganeh, 2012), cognitive flexibility (e.g., Dennis & Vander Wal, 2010), sports psychology (e.g., Nideffer & Sagal, 2006), and dynamic decision making (e.g., Brehmer, 1992; Hotaling et al., 2015), while also taking into account the strengths and limitations of prior military cognitive optimization interventions (e.g., Adler et al., 2011; Adler, Castro, & McGurk, 2007; Jarrett, 2013; Mattie, Jaenen, & Collins, 2017). SOCAT was designed as an interactive, culturally relevant, and evidence-informed curriculum to help SOF members and spouses build an awareness, understanding, and common language of cognitive agility, as well as gain a set of strategies they can practice to strengthen openness, focus, and flexibility with regard to multiple domains: the self, other people, and the environment. Strategies are rooted in evidence-based, transdiagnostic therapeutic practices (e.g., cognitive behavioral therapy and rational emotive behavior therapy). Table 1 provides an overview of SOCAT learning objectives and strategies.

Three versions of SOCAT have been developed for specific subpopulations within USSOCOM: (1) SOF Service members, (2) SOF spouses, and (3) POTFF providers. The Service member course consists of four, 45–60 minute modules consisting of PowerPoint slides, videos, group discussion topics, and handouts. The course may be delivered in a single four-hour block, or may be spread across several days depending on personnel and operational needs. SOCAT for SOF members is designed to be co-facilitated by a POTFF provider (e.g., military or civilian behavioral health-care provider or sports psychologist) who presents the psychoeducation components, and a SOF noncommissioned officer (i.e., a peer) who illustrates concepts using relevant operational and personal examples. The *SOCAT Guide for Trainers* includes an introduction to cognitive agility, a brief literature review, background readings, key concepts to touch upon for each slide, discussion prompts, and tips for group facilitation. Ideal delivery is via face-to-face, classroom-based, small group discussion to facilitate social connectedness, as recommended by the most recent POTFF needs assessment (USSOCOM, 2018). A similar face-to-face SOCAT course was tailored for delivery to SOF spouses. Notably, the SOCAT for spouse course was *not* developed to help the spouse improve the Service member's cognitive agility. Rather, the course focuses on the spouses' personal cognitive agility, in response to findings from the original POTFF Task Force, i.e., "I want resiliency training for me. I don't want to be a cog in his wheel; I want my very own wheel"

(Zimmerman, 2012). Enhancing cognitive agility in both members of a couple can generate a common language and skill-set, reinforcing practice. Finally, a third version of SOCAT was developed for POTFF providers to enhance situational awareness of the SOF member and spouse courses.

### *Tailoring SOCAT content and delivery to SOF members and spouses*

Members of the SOF community were engaged throughout the SOCAT development process through one-on-one and group conversations with current or former SOF members from every Service, SOF spouses, and POTFF leadership and providers (e.g., chaplains and religious support team members, medical and behavioral health-care providers). This approach is critical for creating and adapting programs for military populations (DeVoe, Ross, & Paris, 2012) and aligns with best practices emphasizing integration of community members into program development and delivery in order to tailor content and procedures to community needs (Lyon & Koerner, 2016). Early in the program development process, members of the USUHS team, with the assistance and support of POTFF leadership, visited multiple installations and engaged in conversations with POTFF providers, SOF members, and spouses to learn how to best tailor SOCAT content and delivery for the SOF community (see Figure 1 for program development timeline). SOF members recommended that SOCAT aim to enhance skills associated with the following: (1) slowing down, avoiding distractions, and thinking about the big picture; (2) avoiding immediate negative cognitive responses to situations; (3) thinking before acting and considering consequences of actions to be taken; (4) thinking about one's own thought processes (i.e., meta-cognition); (5) not getting stuck with worry and rumination; and (6) practicing perspective taking. Early presentations of SOCAT concepts were shared with SOF spouses who helped identify common challenges within the SOF community that were ultimately included as discussion prompts or illustrative vignettes, including deployment, reintegration, injury, children, family life, and spouses' own careers. Finally, Dr. Ghahramanlou-Holloway and Dr. LaCroix attended the Special Operations Mental Agility training program, a mental skills training developed for members of Canadian Special Operations Forces, to learn how the course had been tailored for SOF personnel (Mattie et al., 2017). For example, one element of the Canadian program adapted for SOCAT is the co-facilitation model, described above.

SOCAT materials were reviewed by POTFF providers, active duty SOF members, and spouses who provided targeted feedback on how to enhance generalizability across the Army, Air Force, Navy, and Marine Corps, while simultaneously tailoring content to specific SOF audiences. SOF community members provided feedback on how to effectively integrate photos, videos, discussion prompts, and talking points for

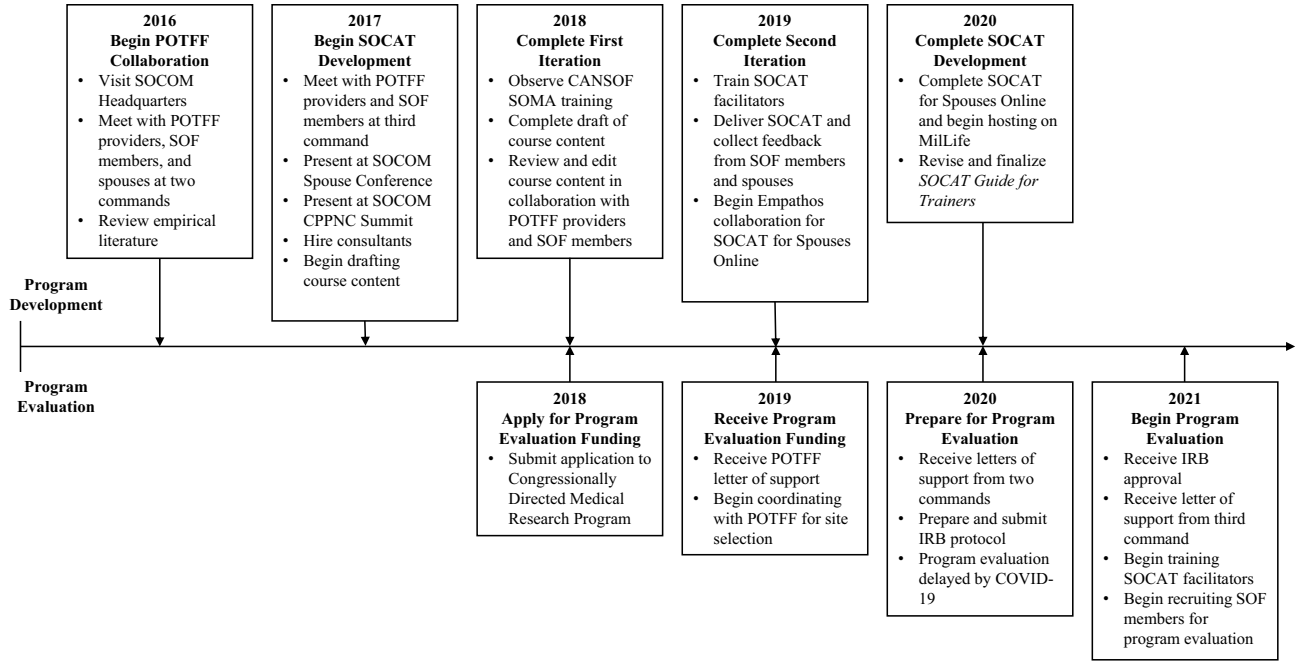


**Figure 1.** SOCAT program development and evaluation timeline.

facilitators. Through collaboration with SOF members, images, colors, and design were refined to enhance visual appeal and reduce text and "death by PowerPoint." Language was tailored to fit within a strengths-based approach, and to fit with the community. For example, rather than include explicit psychoeducation on cognitive distortions, SOCAT introduces "thinking traps" using SOF-relevant examples of "should" statements, catastrophizing, personalization, all-or-nothing-thinking, and emotional reasoning. Learners are taught how to "STEER" their way out of thinking traps by Seeing, Testing, Exploring, Expressing, and/or Reframing their thoughts (additional details provided below). To encourage practice, learners generate a strategic plan on cognitive agility, including identification of personal barriers to focus, openness, and flexibility and consideration of when and where they might practice SOCAT strategies.

As part of the development process, Dr. Ghahramanlou-Holloway and Dr. LaCroix trained four facilitators to deliver SOCAT during a week-long, face-to-face workshop held at Marine Corps Forces Special Operations Command West at Camp Pendleton, CA. One POTFF provider and one senior enlisted SOF member were trained to co-facilitate SOCAT for Service members, and two POTFF providers were trained to facilitate SOCAT for spouses. SOCAT was subsequently delivered to a small group of Marine Raiders and a small group of spouses. Facilitators and learners provided feedback and suggestions for revision. Overall, SOF members and spouses who completed SOCAT saw it as value-added and relevant to SOF members and spouses. Learners highlighted the importance of describing cognitive agility using lay language, incorporating group discussion and videos, and using the co-facilitation model of a POTFF provider and a uniformed SOF "insider" to effectively translate psychoeducation components into real-world examples.

Based on feedback provided at Camp Pendleton, the USUHS team made several revisions to the SOCAT courses including: (1) providing additional notes for facilitators, (2) modifying content, and (3) developing an online SOCAT course to reach more spouses. First, SOCAT facilitators helped develop key concept notes to embed within the PowerPoint slides to ensure fidelity to core content. Second, content was simplified such that "cognitive distortions" were described as "thinking traps" and the number of strategies to enhance flexibility was decreased from seven to five, in order to create the STEER acronym. STEER provides the following strategies for enhancing cognitive agility: (1) See: practice "seeing" that a thought is happening, and recognize that thoughts are not automatically facts; (2) Test: examine evidence that confirms as well as disconfirms the thought; (3) Explore: consider the second- and third-order effects of the thought, how it impacts emotions, physical sensations, and actions; (4) Express: talk to someone about the thought and get an outside perspective; and (5) Reframe: restructure the thought to provide a little more flexibility to avoid getting "stuck." Additional content was also added to the SOCAT courses in the form of illustrative video vignettes, featuring professional actors playing SOF members and spouses, in order to encourage discussion about reintegration challenges and opportunities for practicing cognitive agility. These videos were developed as part of the SOCAT for Spouses Online course and subsequently added to the SOF member SOCAT course as well.

### *SOCAT online for SOF spouses*

There are considerable logistic difficulties associated with face-to-face SOCAT delivery for spouses. Spouse feedback at Camp Pendleton indicated the need to further refine SOCAT delivery due to multiple barriers to attendance, including coordinating work schedules, having to take time off, child care needs, and the inconvenience of attending training on a military installation. These barriers also preclude the use of a co-facilitation model, similar to that intended for SOF members. To meet the need for a more accessible version of SOCAT for spouses, the USUHS team collaborated with Empathos Resources, an award winning, technology-based training provider, to develop SOCAT for Spouses Online, a self-paced, interactive course. SOCAT for Spouses Online features illustrative video vignettes of SOF spouses, played by professional actors, using cognitive agility to navigate challenges associated with work, parenting, deployments, reintegration, and their marriages. The online course also features subject matter experts, including real-life SOF spouses, Service members, and POTFF providers, who reinforce concepts and share personal experiences. Offline activities include guided worksheets encouraging reflection, application of concepts, and practice of SOCAT strategies. The course is currently housed within the Military OneSource MilLife Learning platform under "Resilience" and is freely available to all military spouses, regardless of SOF affiliation (https://millifelearning.militaryonesource.mil/). Utilization data are being collected and preliminary course feedback will be used to inform future evaluation and dissemination efforts.

## Limitations and future directions

Potential limitations of SOCAT for SOF members include the short period of time – a maximum of four hours – allocated to complete the classroom-based course (i.e., low dosage, limited opportunity for skills

practice), and the current lack of information on the feasibility and acceptability of the program. One key component of SOCAT is the co-facilitation model, but due to operational demands, a well-respected senior enlisted Service member may not always be available to co-facilitate the course, potentially leaving POTFF providers as the sole facilitators. Enhanced SOF cultural awareness and strong group facilitation skills may improve providers' ability to engage "ad hoc" co-facilitators to share experiences during small group discussions. In contrast, a potential limitation of SOCAT Online for Spouses is the lack of the group cohesion inherent in SOF team rooms. Buy-in from SOF spouses is needed to support dissemination of the online course as well as collection of course feedback. Finally, other researchers are exploring ways in which to incorporate cognitive agility into additional SOF training methodologies, outside of the classroom-based setting (e.g., Ross, Miller, & Deuster, 2018).

Notably, a major limitation of both SOCAT for SOF members and SOCAT for spouses is the lack of information on the impact of the program. Nearly half (45%) of resilience training programs have not been effective when tested among military Service members (Forbes & Fikretoglu, 2018), and a recent review of resilience research within SOF highlighted inconsistencies, limited external validity, and overemphasis on individual responsibility for maintaining peak physical and psychological performance in the face of chronic physiologic and neurologic stress (Rocklein Kemplin et al., 2019). Although SOCAT is not conceptualized as a resilience program per se, the ultimate goal of POTFF programs is to improve resilience and enhance overall readiness within the domains of physical, spiritual, social and family, cognitive, and psychological performance. A robust program evaluation of SOCAT for SOF members is underway, funded by the Congressionally Directed Medical Research Program (see Figure 1). The goal of the program evaluation is to understand the impact of SOCAT for SOF members using a multisite, randomized controlled design. To date, multiple commands within the USSOCOM enterprise have expressed support for the program evaluation, including Naval Postgraduate School, Marine Corps Forces Special Operations Command, and Air Force Special Operations Command. The USUHS Institutional Review Board has approved the SOCAT program evaluation research protocol, and SOF members who agree to participate are asked to complete assessments pre- and post-SOCAT at 1, 3, and 6 months to measure changes in cognitive agility, cognitive flexibility, and social problem solving (primary outcomes) as well as focus, openness, interpersonal efficacy, self-efficacy, maladaptive cognitions, and psychological wellbeing (secondary outcomes). In addition, SOF members will be invited to participate in interviews to explore the extent to which they are applying SOCAT concepts to their personal and professional lives.

## Conclusions

SOCAT has been adopted by USSOCOM to improve cognitive performance and help buffer against biopsychosocial vulnerabilities, environmental and social stressors, military operational demands, and behavioral health problems, including suicide. Understanding the impact of SOCAT on cognitive agility, flexibility, social problem solving, and well-being will help guide POTFF leadership as they disseminate the program across the enterprise, and may inform future cognitive and psychological performance programming.

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## Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

## Disclaimer

The opinions expressed are those of the authors and do not necessarily reflect the views of the Uniformed Services University of the Health Sciences or the Department of Defense.

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