Marshall Street

Literature Review

NAVIGATING DATA FOR MULTI-TIERED SYSTEMS OF SUPPORT

A collection of research-to-impact practices developed with the Networked Improvement Community for Students with Disabilities

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Literature Review

ABSTRACT

Multi-Tiered System of Support (MTSS) is a framework for schools and districts to address barriers to learning for students. This literature review synthesizes the existing research base on MTSS; namely what MTSS is, why it is important, the benefits and challenges of the framework, an overview of common implementation strategies, and what is currently known about the efficacy of MTSS. This review is designed for school district administrators considering adopting or improving MTSS practices at their district.

Introduction

This literature review was written for an audience of educators, schools, and districts seeking to improve outcomes for secondary students with a focus on Black and Latinx students with disabilities living in poverty. In this literature review, we share a concise overview of MTSS, an adaptive organizing framework for data-informed academic and behavioral instruction and support that meets student needs in a timely manner. The purpose of this review is to equip district- and school-level staff who are considering adopting or improving MTSS practices with a summary of the research on MTSS so that staff can make informed, thoughtful implementation decisions for their districts. The literature review was conducted by Marshall Street, a coalition of educators working to systematically improve opportunities for students across the United States.

This literature review is part of a larger collection of improvement tools for districts. The Networked Improvement Community for Students with Disabilities (NIC), a group of 10 public charter school networks serving more than 75,000 students nationwide, launched in 2019 to make dramatic gains in the learning experiences, environments, and outcomes for Black and Latinx students with disabilities experiencing poverty. Led by Marshall Street at Summit Public Schools in partnership with technical assistance providers NIRN, RTI International, SRI International, and SWIFT Education Center, NIC participants used continuous improvement methods, supported by this literature review of leading

research and a corresponding toolkit of best practices, to improve implementation in these areas with the potential to increase academic outcomes for students with disabilities: Collaboration, Literacy, Multi-tiered Systems of Support, Transitions, and Emotional and Behavioral Supports.

This literature review provides a brief overview of the research regarding the following questions:

- **WHAT IS MTSS?**
- **WHY IS MTSS IMPORTANT?**
- **WHAT ARE THE BENEFITS OF MTSS?**
- **WHAT ARE THE LIMITATIONS OF MTSS?**
- **WHAT IS THE MOST COMMON FRAMEWORK(S) OF MTSS?**
- **HOW EFFECTIVE IS MTSS AND FOR WHOM?**
- **WHAT ARE THE NECESSARY CONDITIONS FOR SUCCESSFUL IMPLEMENTATION?**

What is MTSS?

A Multi-Tiered System of Support is a framework for educators for organizing, aligning, and implementing a system of academic, behavioral, social-emotional learning, and mental health support for all students (California Department of Education, n.d.; Choi, McCart, and Sailor, “Achievement of Students With IEPs,” 2020; Colorado Department of Education 2017; Drury et al. 2021; Horner and Halle 2020; McCart and Miller 2020; McIntosh and Goodman 2016; Thurlow et al. 2020). MTSS not only integrates the service delivery of two existing support models — response-to-intervention (RTI) for academics and schoolwide positive behavioral intervention and support (PBIS) for behavior — but it also incorporates social-emotional learning and mental health support service delivery in order to increase the efficiency and efficacy of support (California Department of Education, n.d.; McCart and Miller 2020; McIntosh and Goodman 2016). The hallmarks of MTSS include multiple tiers of student support, high-quality instruction utilizing evidence-based practices, universal screening, decision guidelines, progress monitoring, collaborative teacher teams, and the use data for continuous improvement practices to improve implementation (McCart and Miller 2020; McIntosh and Goodman 2016; ESSA, Sec 8101(33) in Thurlow et al. 2020; McMaster and Wagner 2007 in Drury et al. 2021). MTSS is a prevention-based framework for systematically addressing barriers to learning in pursuit of improved academic and social outcomes for all learners (Averill and Rinaldi, n.d.; Drury et al. 2021; Horner and Halle 2020; Leonard, Coyne, Oldham, Burns, and Gillis 2019).

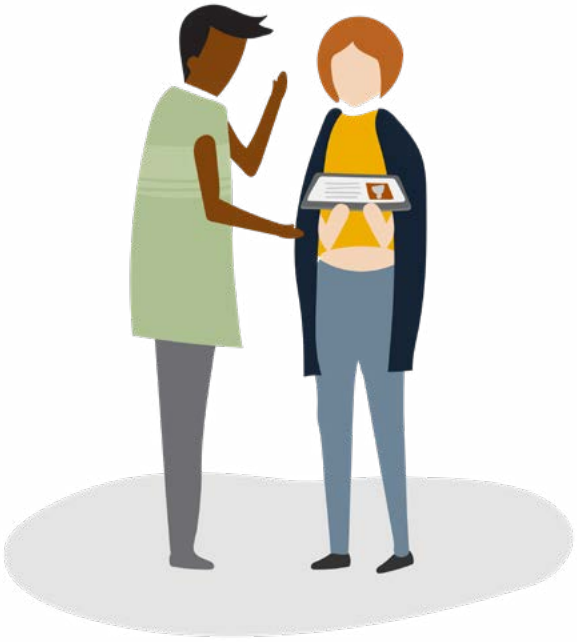
The multiple tiers offer differentiated and increasingly intensive support for academic, behavioral, and social learning (IRIS Center, n.d.). As McCart and Miller (2020, 4) state "MTSS is a comprehensive set of academic, behavioral, and social supports that rely on data to mobilize and coordinate diverse resources for students."

Why is MTSS Important?

For decades, the public education system in the United States has struggled to effectively serve students with a diverse set of needs, particularly students with disabilities. Inclusive classrooms — that is, classrooms in which both students with and without disabilities are served together — are both an educational requirement and a best practice for serving students with disabilities due to governmental mandates such as No Child Left Behind (NCLB), the Individuals with Disabilities Education Act (IDEA), and the Every Student Succeeds Act (ESSA), as well as evidence-based research showing academic gains from such classrooms (Alnasser 2020; Brendle, Lock, and Piazza 2017; Cole et al., n.d.; Cramer et al. 2010; Weiss, Glaser, and Lloyd 2020). Yet, many schools struggle with the school-wide cultural shift that is required to actualize inclusive education (Sailor 2015).

MTSS is a leading strategy for advancing the school-wide cultural shift to inclusion through efficiently and equitably allocating resources to meet the needs of all students, including students with disabilities and traditionally marginalized students. Schools across the United States have embraced MTSS due to multiple factors:

- **The potential for all students to receive timely support for their unique student needs, including academic, behavioral, and social-emotional needs** (Gage et al. 2015; Nelson et al. 2004 in Scott et al. 2019; McIntosh and Goodman 2016; McCart and Miller 2020; Sailor 2015), **particularly those students who typically are not served well by the existing education system, including students with disabilities and students "who live in poverty, who experience high mobility, who benefit from an accelerated curriculum, or who struggle to learn for other reasons"** (Choi, McCart, and Sailor, "Reshaping Educational Systems," 2020, 8).
- **The potential to increase the efficiency of teachers by reducing the time it takes to regularly identify student needs and prepare individualized support for those needs** (Lane, Oakes, and Menzies 2019 in Choi, McCart, and Sailor, "Reshaping Educational Systems," 2020; McIntosh and Goodman 2016; McCart and Miller 2020; Sailor 2015).
- **The ability to use federal and local funds to implement MTSS activities via the Individuals with Disabilities Act and the Every Student Succeeds Act** (ESSA, Sec 2103(b)(3)(F) in Thurlow et al. 2020; IDEA 2004 in Drury et al. 2021; Sugai and Simonsen 2012).



Today, all 50 states have adopted some form of MTSS (Zhang et al. 2023).

Benefits of MTSS

The literature surveyed cited the efficacy of MTSS on behavioral and academic outcomes (see Efficacy of MTSS and for Whom) and noted a number of additional benefits, which are outlined in the table below:

BENEFIT	CITATION
Builds an organizational structure that provides a continuum of support for students	Averill and Rinaldi, n.d.
Promotes Local Educational Agency (LEA) participation in aligning and coordinating a spectrum of student support	California Department of Education, n.d.
Spurs system-wide shift to educational best practices	California Department of Education, n.d.; Lane, Oakes, and Menzies 2019 in Choi, McCart, and Sailor, "Reshaping Educational Systems," 2020; McCart and Miller 2020; Sailor 2015
MTSS framework can be applied to many domains such as literacy, behavior, math, and resilience	McIntosh and Goodman 2016
Enables integration of extra-academic systems-level evidence-based practices into the framework	**School-family partnerships:** Averill and Rinaldi, n.d.; McCart et al. 2009; Sullivan and Daily 2013 in McIntosh and Goodman 2016 **Wraparound and parenting supports:** Averill and Rinaldi, n.d.; Eber, Hyde, and Suter 2011 in McIntosh and Goodman 2016; Stormshak, Fosco, and Dishion 2010 in McIntosh and Goodman 2016 **Mental health supports:** Barrett, Eber, and Weist 2013 in McIntosh and Goodman 2016 **Drop-out prevention:** Legters and Balfanz 2010 in McIntosh and Goodman 2016
Provides more sustainable, effective, and efficient delivery of services and support	Choi, McCart, and Sailor, "Reshaping Educational Systems," 2020; McIntosh and Goodman 2016
Presents opportunity to reframe focus from the place where instruction occurs to the allocation of staff, supports, and services in an equitable manner	Choi, McCart, and Sailor, "Reshaping Educational Systems," 2020
Provides more seamless support to students through combined academic and behavioral support system, reducing the number of students who "fall through the cracks"	McIntosh and Goodman 2016
Reduces stigmatization of students with disabilities or otherwise marginalized students who receive additional support	Giangreco and Suter 2015

Limitations of MTSS

No limitations to the MTSS framework were raised in the literature surveyed, however, multiple challenges to implementation were mentioned. Those challenges include:

- initiative change fatigue on the part of educators (McIntosh and Goodman 2016);
- lack of MTSS knowledge and training for teachers, administrators, and district staff (Drury et al. 2021);
- difficulties actually using data to inform tiered support (Drury et al. 2021; Leonard et al. 2019);
- lack of access to or funding for tools such as progress monitoring tools and aligned curriculum based on evidence-based practices (Mason et al. 2019; Minnesota Department of Education 2019);
- limited time for implementation of tiered support (Mason et al. 2019);
- difficulties serving students with the most significant cognitive disabilities (Thurlow et al. 2020); and
- lack of systems, structures, and policies (Drury et al. 2021; Leonard et al. 2019).

Because these challenges to implementation can forestall the adoption of MTSS in schools, the **Necessary Conditions for Implementation** section of this literature review examines them more thoroughly.

Common Implementation Frameworks

The MTSS model is based on a public health approach to intervention (Brown-Chidsey and Bickford 2016 in Drury et al. 2021) and combines three, or sometimes more, tiers of student services:

- Universal Support / Tier 1: high-quality instruction and support available to all students,
- Additional Support / Tier 2: different instruction and support for students who need more in addition to Universal Support
- Intensified Support / Tier 3: instruction and support provided with variations in intensity (such as greater frequency and duration) in addition to Universal and Additional Supports

(Averill and Rinaldi, n.d.; Batsche et al. 2005 in Averill and Rinaldi, n.d.; Drury et al. 2021; Horner and Halle 2020; McIntosh and Goodman 2016; McCart and Miller 2020; Thurlow et al. 2020; National Center on Response to Intervention 2010 in Thurlow et al. 2020).

To support the appropriate use of services within the tiers, most MTSS models incorporate the elements of teaming structures, data for decision-making, evidence-based curriculum instruction and support materials, and continuous improvement processes (McCart and Miller 2020, 10). There are many names for the different elements used in the research including universal screening, progress monitoring, and problem-solving models (a term based on RTI practices) (Batsche et al. 2005; Drury et al. 2021; Fuchs and Fuchs 2006, Gresham 2007 in Averill and Rinaldi, n.d.; Horner and Halle 2020; Hughes and Dexter 2011 in Drury et al. 2021; Leonard et al. 2019; Mason et al. 2019; McIntosh and Goodman 2016).

A commonly used visual depiction of the tiers is a triangle, “representing levels of prevention (primary, secondary, or tertiary), types of support for students (universal, targeted, or intensive), curricula (core, strategic, individualized), or tiers of instruction (Tier 1, Tier 2, Tier 3)” (McIntosh and Goodman 2016, 13). Each layer is additive, meaning that all students receive Universal Support / Tier 1 services, some students will then receive Universal Support / Tier 1 and Additional Support / Tier 2 services, and few students

receive Universal Support / Tier 1, Additional Support / Tier 2, and Intensified Support / Tier 3 services (Averill and Rinaldi, n.d.; McCart and Miller 2020; McIntosh and Goodman 2016; Thurlow et al. 2020).

Common misperceptions of the tiers include the following:

- The perception that students need to move through all tiers in succession before receiving the level of service that they need (Fuchs et al. 2003 in McIntosh and Goodman 2016). Thurlow et al. (2020, 6) notes that no student should only receive Tier 3 support, as doing so would ignore the other instruction and support in Tiers 1 and 2.
- The perception that the tiers are only applicable to some domains, such as early literacy and behavior. In contrast, the tiers can be applied to nearly any topic in education (McIntosh and Goodman 2016).
- The perception that the tiers are a way to label students. In contrast, the tiers are used to describe supports that a student needs in the moment; the tiers are not a permanent descriptor of a student (McCart and Miller 2020; McIntosh and Goodman 2016).
- The perception that MTSS is only for some students, not all students. In contrast, MTSS is designed to provide services and resources to all students based on their needs (McCart and Miller 2020).
- The perception that Tier 3 is the "special education" tier. In contrast, this tier is for any student who needs intensive interventions in a particular domain (Thurlow et al. 2020).

Efficacy of MTSS and for Whom

When viewed in sum, the literature on the effect of MTSS on academic outcomes shows varied results. Researchers typically attribute the variation in outcomes to the degree of fidelity of implementation (Coyne et al. 2016; Fuchs, Fuchs, and Malone 2017 in Coyne et al. 2018). Generally, researchers have found that MTSS, when implemented with fidelity, can have a positive impact on math performance and mixed results on reading performance (Gersten et al. 2009; Montague and Jitendra 2012 in Choi, McCart, and Sailor "Achievement of Students With IEPs," 2020; Choi et al. 2016; Choi, McCart, and Sailor, "Achievement of Students With IEPs," 2020; Scott et al. 2019). One study hypothesized that because the schools in their study had so many existing supports for reading, MTSS's ability to impact reading was limited as compared to math (Choi, McCart, and Sailor, "Achievement of Students With IEPs," 2020).

Recently, researchers have been able to more precisely measure the fidelity of MTSS implementation to draw more definitive conclusions on the efficacy of MTSS on academic performance. Scott et al. (2019) obtained fidelity measurements from 29 elementary, middle, and high schools in the United States over four years. They found that schools with higher MTSS fidelity in the reading domain were positively associated with more students at or above proficient in language mechanics and mathematics, but not in reading. Conversely, higher MTSS fidelity in the math domain was associated with more students at or above proficient in language mechanics, but not mathematics nor reading. Additionally, higher MTSS implementation fidelity in the behavioral domain resulted in significantly fewer suspension events, as compared to matched comparison schools (Scott et al. 2019, 308). As relates to the Networked Improvement Community's target population, schools with higher MTSS fidelity in this study had student demographics of 14% Black, 7% Latinx, and 63% free/reduced lunch status, though the study did not report on specific outcomes by sub-groups. The study also did not report the percentage of students with disabilities in the sample (310).

Choi, McCart, and Sailor ("Achievement of Students With IEPs," 2020) were also able to more precisely measure MTSS implementation in order to draw conclusions on academic performance. Their study examined impacts on academic performance specifically for students with disabilities (as measured by students with Individualized Education Plans (IEPs)) at 14 schools in the same large, urban school district serving students in Pre-K–5th grade and Pre-K–8th grade (3). Similar to Scott et al. (2019), this study found that students with disabilities in high-fidelity implementation schools showed increased math state assessment scores, as compared to comparison schools; however, reading score growth was equivalent to comparison schools (1, 6). The study did not report on race/ethnicity or socioeconomic demographics, nor on combined race/ethnicity, socioeconomic, and disability status.

Importantly, researchers in both of these studies noted the intensive support the sample schools received, including coaching and targeted technical assistance, in order to achieve high fidelity of implementation. Coyne et al. (2018, 15) observed that "there are many difficulties and challenges associated with implementing MTSS in schools under real-world conditions (Arden et al. 2017; Coyne et al. 2016)" and though sample schools may demonstrate consistent implementation as recommended by research, "that level of implementation may not mirror current practice in the field (Balu et al. 2015)," which can result in uneven academic performance.

Beyond academic scores, other academic- and behavior-related gains have been observed in schools implementing MTSS at varying levels of fidelity, including the results described in the table below.

RESULTS	FOR WHOM	CITATION
Reduced gap between actual reading performance and grade-level standards for children at risk (e.g., the gap between kindergarten performance and 3rd grade standards)	For students in sample with disabilities, including students at risk	Simmons et al. 2008 in Choi, McCart, and Sailor, "Achievement of Students With IEPs," 2020
Reduced identification rate of students with reading disabilities and increased passing rate on assessments	For students in sample with disabilities, including students at risk	Harn, Chard, and Kame'enui 2011 in Choi, McCart, and Sailor, "Achievement of Students With IEPs," 2020
Increased time on tasks and academic outcomes through an integrated academic and behavioral MTSS framework	For students in sample with disabilities, including students at risk	Algozzine, et al. 2016; McIntosh et al. 2008 in Choi, McCart, and Sailor, "Achievement of Students With IEPs," 2020
Significant improvement on ELA and Math scores	Students of color in elementary and middle schools in sample	Choi et al. 2022
Improvement of academic performance and of educational equity (i.e., reduced impact of race, socioeconomic status, and gender), in schools implementing equity-based MTSS with high fidelity	Students in elementary and middle schools in sample	Choi et al. 2022
Fewer suspension events	For all students in sample	Scott et al. 2019

Necessary Conditions for Implementation

As MTSS is a schoolwide system of support and services for students, much of the research suggested addressing the implementation challenges and preparing for successful adoption by focusing on system-wide levers. As a brief review, the implementation challenges raised in the literature include the following:

- initiative change fatigue on the part of educators leading to a loss of enthusiasm and willingness to try new educational approaches (McIntosh and Goodman 2016);
- lack of MTSS knowledge and training for teachers, administrators, and district staff, particularly around data-driven problem-solving (Drury et al. 2021);
- lack of systems, structures, and policies that support MTSS implementation and remove barriers to implementation (Drury et al. 2021, Leonard et al. 2019);
- difficulties actually using the data that is collected to inform tiered support in a dynamic fashion (Drury et al. 2021, Leonard et al. 2019);
- lack of access to/funding for tools such as progress monitoring tools, and aligned curriculum and intervention programs based on evidence-based practices (Mason et al. 2019; Minnesota Department of Education 2019);
- limited time for implementation of tiered support, particularly Additional Support / Tier 2 and Intensified Support / Tier 3 (Mason et al. 2019); and
- difficulties serving students with the most significant cognitive disabilities (Thurlow et al. 2020).

Networks in the NIC that focused on improving MTSS implementation found that they needed to first find ways to create accessible data systems that would allow educators to understand and respond to the needs of all learners. Once that infrastructure was built, they could focus on training network and school leaders as well as educators in the new data tools.



The SWIFT Education Center (2024) identifies the system-wide levers as the MTSS framework, administrative leadership, integrated educational framework, family and community engagement, and inclusive policy structure and practice. A synthesized list of system-wide levers found in the literature are listed on the following page as necessary conditions.

NECESSARY CONDITION	EXPLANATION
Build administrative leadership and support	The literature noted that administrators need to **build consensus to commit to implementing MTSS** (Batsche et al. 2005 and Castillo et al. 2010 in Averill and Rinaldi, n.d.); **build a shared vision and supportive data-driven problem-solving culture school-wide** (Batsche et al. 2005 and Castillo, et al. 2010 in Averill and Rinaldi, n.d.; Colorado Department of Education 2017); **cultivate their instructional leadership skills in MTSS** (Mellard, Prewett, and Deshler 2012 in Drury et al. 2021); **foster inclusive decision-making** (SWIFT Education Center 2024); and **deliver targeted professional development for staff** (SWIFT Education Center 2024).
Build a school-wide MTSS infrastructure	In collaboration with their districts, schools need to build a school-wide MTSS infrastructure (Batsche et al. 2005 and Castillo, et al. 2010 in Averill and Rinaldi, n.d.) that includes **data collection methods** (McIntosh and Goodman 2016); a variety of **collaborative teaming structures across systems** (general education, special education, administration, and school- and district-level support staff) (Averill and Rinaldi, n.d.; McIntosh and Goodman 2016) to **utilize the data for problem-solving** (Gersten et al. 2008; Sugai and Horner 2009 in McIntosh and Goodman 2016); **aligning and organizing the tiered support, including those for special education services** (SWIFT Education Center 2024; Thurlow et al. 2020); **incorporating aligned curriculum and intervention programs** based on Universal Design for Learning and other evidence-based practices (SWIFT Education Center 2024); and **building knowledge on continuous improvement cycles** (SWIFT Education Center 2021).
Integrate the school's resources and organizational structure	Integrating resources and organizational structures includes actions such as **acquiring assessment and intervention programs** (Mason et al. 2019; Minnesota Department of Education 2019), **redefining roles for paraeducators and specialists** (SWIFT Education Center 2024); **hiring and training MTSS coaches** (Coyne et al. 2018); **ensuring every student has a primary general education classroom placement** (SWIFT Education Center 2024); **scheduling appropriate time** in the school week for data analysis and problem-solving, planning, and implementing tiered support (Mason et al. 2019); ensuring the use of **language and practices that are based on service needs** as opposed to disability labels (SWIFT Education Center 2024) and creating a **positive school culture** where all students have access to extracurricular activities and all staff are contributing to student outcomes (SWIFT Education Center 2024).
Include families and community members as partners	MTSS is a whole school transformation that requires the partnership of families and community members. As part of the MTSS adoption process, schools and districts should **engage authentically with families for input and feedback** (SWIFT Education Center 2024), **provide opportunities for families and community members to participate in school** and the education of the students (Fan and Chen 2001 and Jeynes 2012 in Gross, Choi, and Francis 2018; SWIFT Education Center 2024) and **provide families with information needed to support their students** (Fan and Chen 2001 and Jeynes 2012 in Gross, Choi, and Francis 2018; SWIFT Education Center 2024).

Evaluate and adapt district policies and practices for MTSS	A variety of district changes are needed to support MTSS adoption and implementation. Those changes include **recalibrating district office roles** to cross-functionally support MTSS implementation (Averill and Rinaldi, n.d.), **building knowledge of district staff** (including the superintendent) in MTSS (Drury et al. 2021; SWIFT Education Center 2024), incorporating **opportunities for district staff to attend school-level meetings** (SWIFT Education Center 2024), building a **regular process for reviewing and revising policies** that impact MTSS implementation (SWIFT Education Center 2024), and **removing barriers to implementing MTSS** (SWIFT Education Center 2024).

Schools and districts can use tools such as the Schoolwide Integrated Framework for Transformation Fidelity of Implementation Tool (Pollitt et al. 2019) or the Academic and Behavior Response to Intervention School Assessment (ASA) fidelity tool (Scott et al. 2019) to track their MTSS adoption progress.

Further, the literature noted that the order in which schools and districts implement the above system changes matters for successful MTSS adoption. A study by Choi et al. (2018, 10) found that administrative leadership played a critical role in school transformation and that "meaningful school-wide change might not occur without the mediation of high-quality school leadership." This suggests that schools and districts in early stages of adoption focus on first building administrative leadership in order to propel the other system changes.

Conclusion

In conclusion, MTSS is truly a school-wide approach to meeting students' needs. When implemented with fidelity, MTSS can be an effective approach to meeting all students' needs, not just students with disabilities. For successful implementation, schools and districts must understand they are committing to a whole-school transformation and subsequently invest significant time to continuously align system-wide resources, professional development, policies, structures, and systems.

Schools implementing MTSS with high fidelity have seen strong gains in math and limited gains in reading for all students, in addition to reduced suspensions. For staff, high-fidelity implementation provides organizational clarity on educational practices and policies; accessible data systems; increased whole-school collaboration; and more sustainable, efficient, and effective implementation of student services. In short, MTSS is a framework for meeting student needs that, if implemented with high fidelity, has the potential to improve academic and behavioral outcomes for Black and Latinx students with disabilities experiencing poverty.

Best practices for implementing MTSS are discussed in ***Navigating Data for Multi-Tiered Systems of Support: Equity-based practices for using data at the district, school, and classroom levels***.

Appendix

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