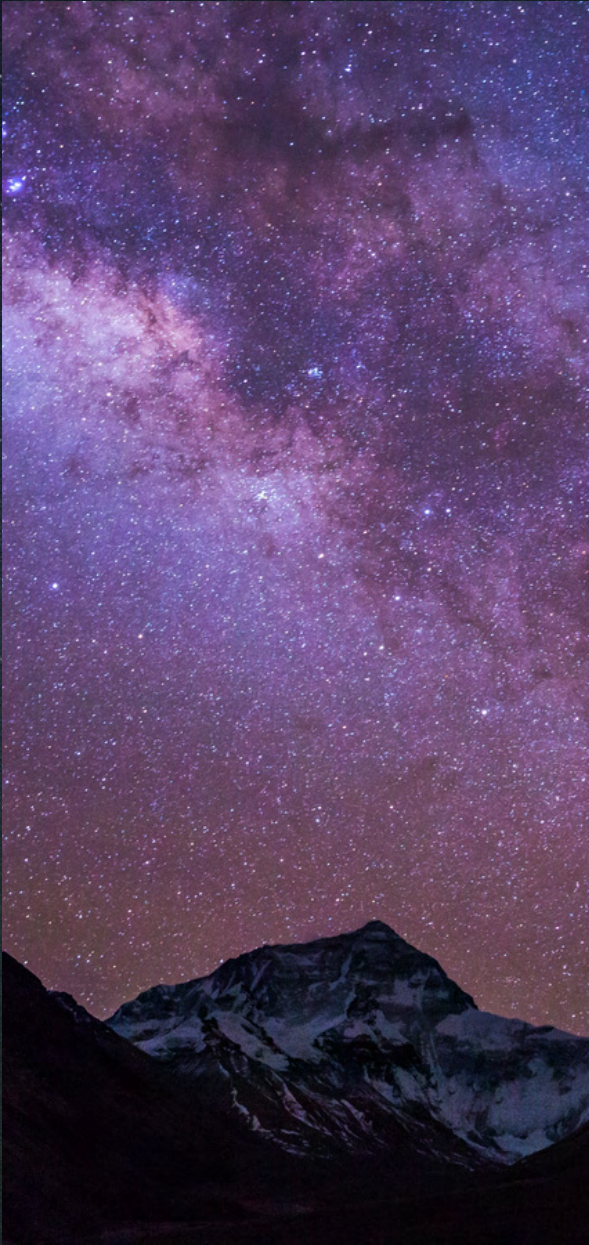


# *Developing Lighting Ordinances that serve and protect*

**Challenges and promises to ensure night-friendly lighting**



## ***A Disappearing Resource***

The dark night sky is disappearing at rates up to 2.2% per year, faster than the global human population growth, due to a collective demand for electric lighting often in amounts beyond what is needed for visibility or safety. Considering the intrinsic value of naturally dark skies to human and ecological health, astronomical inquiry, and cultural connections, combined with the economic benefits from reduced energy use and personal enjoyment, this is a resource that deserves attention.

Effects from **light pollution** are a growing concern wherever unwanted, inappropriate, or excessive artificial lighting is used. Fortunately, unlike other forms of air and water pollution, the causes of light pollution are often reversible.

## ***Champions of the Night***

The following is a series of accounts from dark sky community champions who have shared their lessons, challenges, strategies, and surprises with the development of municipal outdoor lighting ordinances. These individuals represent large metropolitan to gateway towns across the West. Many of these towns have been certified as International Dark-Sky Association (IDA) Communities. Their stories are intended to inform and support other communities interested in developing outdoor lighting ordinances that provide human safety and visibility while ensuring the benefits and protection of star-filled nights both in town and nearby public lands or natural areas.

# **OUTDOOR LIGHTING ORDINANCES**

COLORADO PLATEAU DARK SKY COOPERATIVE SPOTLIGHT





## TUCSON and PIMA COUNTY, ARIZONA



John Barentine

Tucson is one of the first large cities in the U.S. to have a lighting ordinance (1972). Recognized for its world class astronomical research and observatories, contributing over \$250K to Arizona's economy, the motivation to keep the skies dark is clear. By design, Tucson and surrounding Pima County have identical lighting codes. John led research into the results of Tucson's major street lighting modernization effort (2016-2017) and a large streetlight dimming experiment (2019), and he continues to work with the City to maintain quality dark skies. As an IDA policy expert, John worked with many of the communities highlighted below. He now consults on dark skies projects, with a focus on outdoor lighting policy.

Dark Sky Consulting, LLC, Owner

### Types of Light Pollution

- **Glare:** excessive brightness that causes visual discomfort
- **Skyglow:** brightening of the night sky over urban areas
- **Light trespass:** light falling where it is not intended or needed
- **Clutter:** bright, confusing, and excessive groupings of light sources



## WESTCLIFFE and SILVER CLIFF, COLORADO



Ed Stewart

Colorado's 1st IDA Dark-Sky Community (2015)

It took 15 years using education as a soft approach to create an atmosphere of trust and ultimately gain community support and cooperation to protect the rural night sky heritage. Cost savings, better illumination, and financial support from the Dark Skies group were key motivators. When the International Dark-Sky Association's Places certification came into play, the idea that this could increase tourism, plus the public's desire for dark sky preservation, resulted in both town councils unanimously agreeing to the proposed lighting ordinances.

Dark Skies, Inc. of the Wet Mountain Valley, Member Emeritus

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## NORWOOD, COLORADO

Colorado's 2nd IDA Dark-Sky Community (2019)

The process to secure a dark sky friendly ordinance may involve learning about lighting engineering. If you are seeking an IDA Dark-Sky certification, stay in touch with the IDA application manager. Engage the Town Board and educate them on what you are considering. Ask permission to work with the Planning and Zoning Committee to work out the details based on the IDA Model Lighting Ordinance (MLO). Bob is now working towards a larger Dark Sky Reserve designation to include all of San Miguel County based on similar land use codes used in the Norwood lighting ordinance.



Bob Grossman

Western Slope Dark Sky Coalition, President

## RIDGWAY, COLORADO

Colorado's 3rd IDA Dark-Sky Community (2020)

The resistance by town staff to impose lighting restrictions on town-owned lighting and hesitancy to adopt new lighting technology was surprising. Conducting a community assessment up front can help determine the difficulty of getting an IDA approved lighting ordinance. How familiar is the governance with the technology and terminology? What fraction of current municipal lighting needs upgrading? Can the town and its residents afford the upgrade costs over the amortization period (5-10 years)? Does the will exist among leadership and staff?

IDA Colorado Chapter, Top of the Pines, Ridgway Ouray Community Council  
Board Member

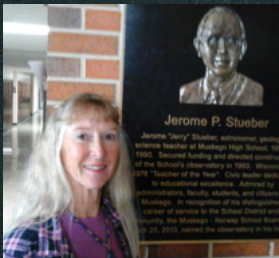


Val Szwarc

## NUCLA and NATURITA, COLORADO

A Colorado IDA Dark-Sky Community (2021)

Many skills are involved in becoming a Dark-Sky Community: science, business, salesmanship, marketing, teaching, public speaking, writing, computer skills, and perseverance. Cost and enforcement were the biggest concerns. Street lighting is expensive, especially with other priorities of schools, plumbing, infrastructure, etc. These towns run on grants. Nucla received a downtown improvement grant with lighting included, now just 3 years away from completion. San Miguel County's power company, which was already pro-IDA, has helped the town save money by guiding the towns to good LED lighting.



Deb Stueber

West End Dark Sky Alliance, President

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## TORREY, UTAH

Utah's 1st IDA Dark-Sky Community (2018)



Mary Bedingfieldsmith

In 2015, when neighboring Capitol Reef National Park received IDA designation, this sparked the motivation to pursue an IDA Community certification. As a gateway community of less than 300 residents, and nearly 1 million visitors annually, protecting Torrey's dark skies through lighting codes would preserve both the town's rural character, and protect the park from potential future skyglow. Twenty-two streetlights were retrofitted saving the town \$900 per year in energy costs. However, without an amortization clause in the IDA application, staying compliant as technology advances remains a challenge.

Torrey Dark Skies, Founder & President; Community Organizer

## SPRINGDALE, UTAH

Springdale's initial outdoor lighting ordinance was enacted in 2009 when such regulation was still novel. Dark sky experts from the National Park Service, the IDA, local universities, and as many lighting experts as possible provided input. Since 2009, outdoor lighting technology, particularly with LEDs, and tools to regulate lighting have evolved significantly. Springdale's earlier codes failed to regulate some characteristics of newer LED outdoor lighting, (e.g. light color temperature). Amendments have been made to address emerging trends in lighting technology and to implement best practices as they develop in other communities' outdoor lighting ordinances.

Springdale, Director of Community Development



Tom Dansie

## KANAB, UTAH



Rich Csenge

Respect and patience are effective in addressing misconceptions and aversion to the regulation of outdoor light. This required going beyond the facts with persistence and creativity. Surveying residents and business owners to assess their appreciation for the heritage value of a starry sky resulted in a better understanding for everyone. Kanab's non-profit Stellar Vista Observatory brings important ongoing educational value to the community. They recently received a \$50k commitment from the County Office of Tourism to meet grant match requirements for future education and dark sky projects.

Stellar Vista Observatory, Founder and President

# OUTDOOR LIGHTING ORDINANCES

COLORADO PLATEAU DARK SKY COOPERATIVE SPOTLIGHT





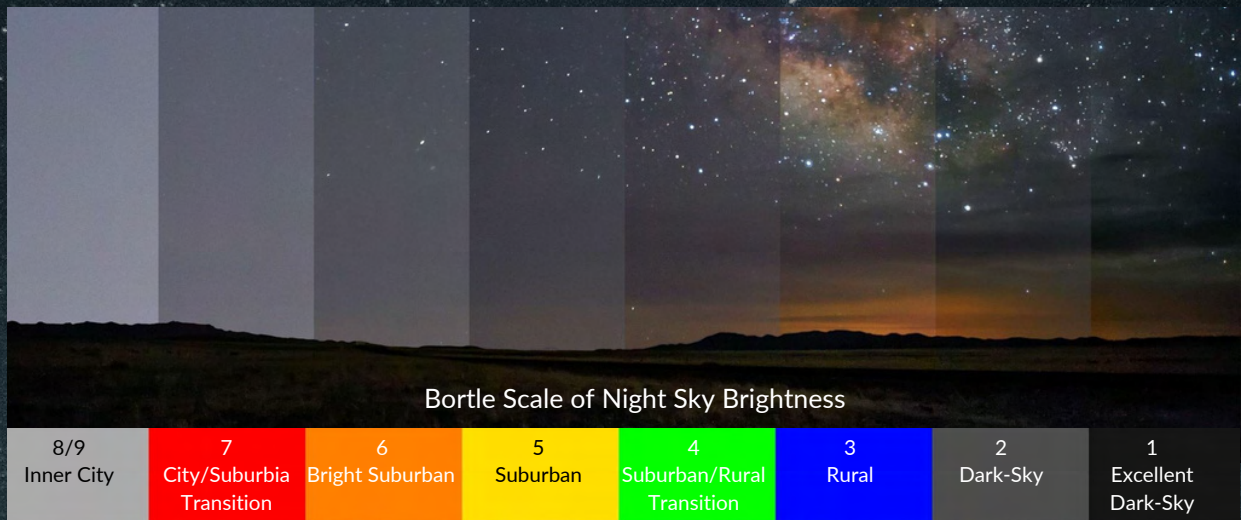
## JACKSON and TETON COUNTY, WYOMING



Samuel Singer

New lighting ordinances were recently submitted to the town of Jackson and Teton County. Despite a general desire to approve, the hurdles for Jackson were: 1) *amortization*, presenting unknown costs with renovating city lights over a 10-year period, and 2) the *warranting* clause, requiring the installation of new lights solely on the basis of public safety. The city plans to conduct a lighting audit in the summer of 2023 to inform a financial plan and a justification of required lighting. In Wyoming, counties are precluded from amortization. The county ordinance was approved because the warranting language was simple and flexible to apply.

Wyoming Stargazing, Founder & Executive Director



## PAONIA, COLORADO



Aaron Watson

Paonia recently passed a new outdoor lighting ordinance to preserve the town's rural quality, and with the streetlight upgrade, the town is saving over \$1000 per month to be put towards other needs. Prior to approval, the community struggled over concerns about property values increasing with tourism, public safety, property rights, and lighting improvement costs. The next steps in Paonia include organizing a lighting inventory, a plan to replace non-compliant lighting, a checklist for building codes, a supply of IDA-compliant lighting at local hardware stores, and funds to support a professional lighting designer.

Dark Skies Paonia, Founder; IDA - Colorado Chapter, Chair

# OUTDOOR LIGHTING ORDINANCES

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# STRATEGIES & CHALLENGES BEHIND GETTING ORDINANCES IN PLACE & GATHERING COMMUNITY SUPPORT



STRATEGIES	CHALLENGES
<ul style="list-style-type: none"> <li>• Build your support network early.</li> <li>• Know what laws exist that may impact your objectives.</li> <li>• Become acquainted with municipal staffers. Offer solutions, not a list of complaints.</li> <li>• Know your audience. Avoid jargon and buzzwords. Find a common language.</li> <li>• Education is key. Plan for regular informational meetings.</li> <li>• Define terms such as “dark skies” and “light pollution.”</li> <li>• Be patient &amp; respectful. Stay positive &amp; practical.</li> <li>• Avoid negative labeling of current fixtures.</li> <li>• Have a good logo - it becomes your identity.</li> <li>• Have dedicated personnel to build relationships and write the ordinance.</li> <li>• Write ordinances that are easy to comply with and understand.</li> <li>• Concerns are addressed through compromise.</li> <li>• Dark-skies groups can educate municipal staff on the technical aspects in the lighting code.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs associated with lighting retrofits.</li> <li>• Balance with other community priorities.</li> <li>• Concerns over restrictions to property rights.</li> <li>• The misunderstanding of terms such as “light trespass” and “dark skies.”</li> <li>• Staying current with advances in lighting technology.</li> <li>• <i>Amortization</i> clause which specifies a date when a percentage of lights must be compliant.</li> <li>• <i>Warranting</i> clauses requiring installation of new lights solely on the basis of public safety, (i.e. not for aesthetic reasons, etc).</li> <li>• <i>Enforcement</i> is 2-pronged: 1) end-users' concerns over individual property rights &amp; compliance, and 2) well informed staff to ensure the permitting process is adequate &amp; appropriate for new construction.</li> <li>• Many municipalities have few or no code enforcement officers. Where those staffers exist, they may not have the training to properly identify infractions and rarely work at night.</li> </ul>

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# DARK SKY PLANNING RESOURCES

## Lighting Ordinances - Not One-size Fits All

Every community is unique in population size, lighting zones, and uses of light. IDA suggests reviewing & adapting lighting ordinances of similarly-sized towns and following a Values-Centered Approach and the Five Lighting Principles.



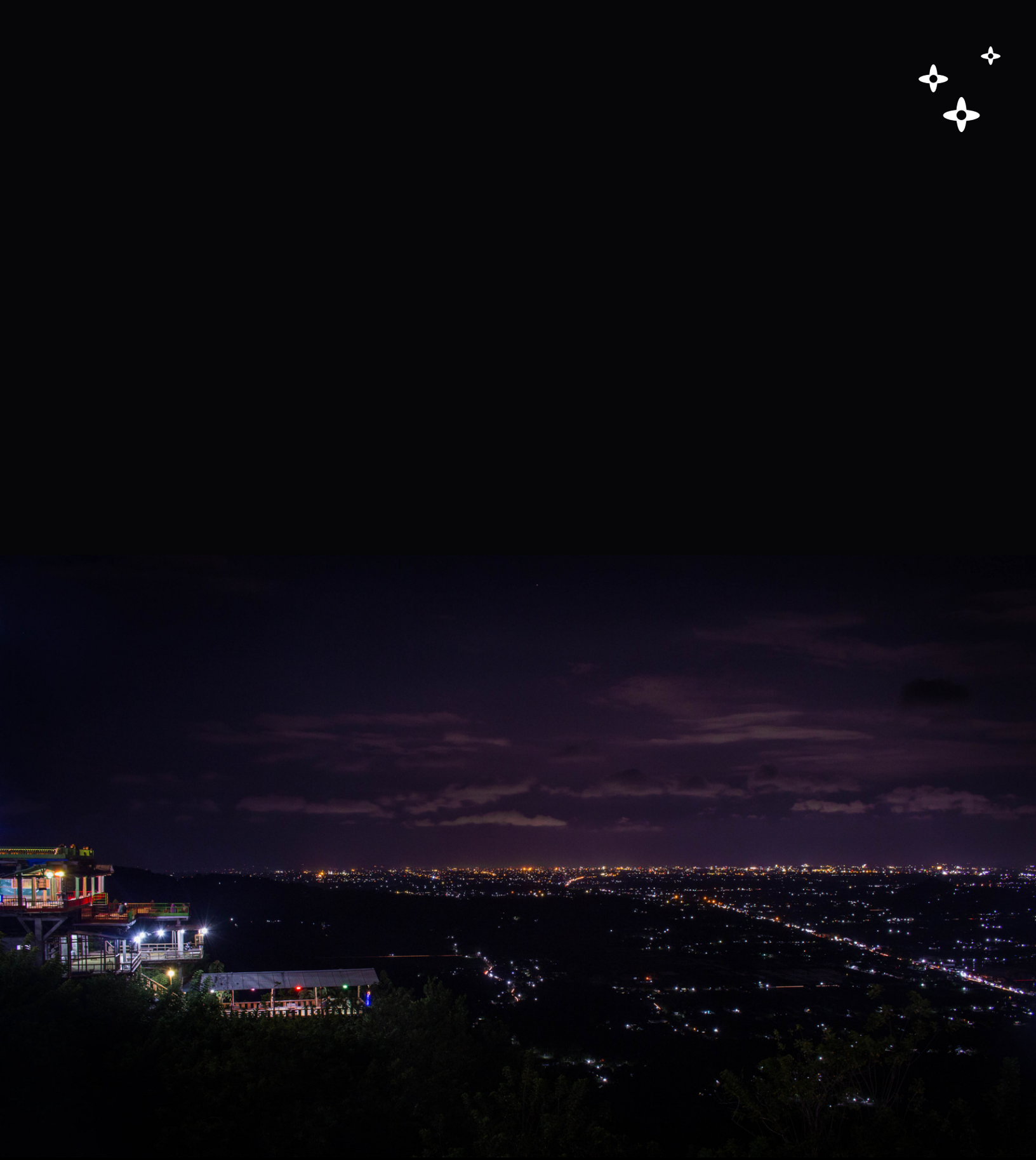
Dark Sky Lighting Ordinance Interactive Walkthrough



IDA Dark Sky Communities Program Guidelines







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