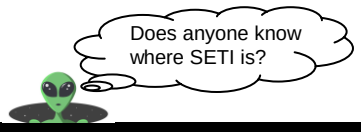

ECA News letter

Volume 25, Issue 5 September 2024

Introduction

Well, it's winter again – don't you just love it? In the next issue, you will see the Simulated Emergency Test (SET) report for the exercise we had on October 5th. The planning for this exercise led to some interesting discoveries that seemed to defy propagation predictions and resulted in excellent conditions although the prediction indicated really bad conditions. See more in the report next quarter.

Due to the more festive nature of the season we are entering, who knows, you may find a story of some sort – perhaps Christmassy or something of that nature in this newsletter issue. Believe me, the formatting on this one was a trick with all of the holiday greetings and such. As this is being written, I have no idea who the President of the United States will be or what it will bring for the future but the holidays should be a peaceful and hopeful time and I trust that regardless of the elections, or maybe in spite of them, you can have a joyful holiday season. In any case, I certainly intend to. Buy yourself a new radio – it always makes me feel better.

Remember to be safe on the highways this winter and make sure your winter go-kit is well stocked. If there are heavy snow or ice days, remember that we host the Traveler's Assistance Net on the 145.490 (-) CTCSS 141.3 repeater when there is a winter storm warning. Scheduled times to work the net are usually sent out via email with a link to the Google Sheets spreadsheets. Remember - stay safe out there!

Remember that our nets are according to the following schedule:

Regional Emergency Management Net – every Monday night at 1900 hrs on DEM-VHF-1 repeater.

ARES® Net – 2000 hrs on the 145.490(-) CTCSS 141.3 Hz repeater

ARES Traveler's Assistance Net – As required in the event of a winter storm warning issued by the National Weather Service.

SkyWarn Nets – As required in the event of a severe weather warning for the St. Charles County area.

Our meetings are on the second Thursday of the month at 1900 hrs at the County EOC at 1400 TR Hughes Blvd near Tom Ginnever behind the County Police building. All are welcome to attend our meetings and all radio amateurs are welcome to check in to our ARES® nets.

EMCOMM and You

"**Radio Protocol**

During a disaster, time and radio resources may both be in short supply. People will be occupied with caring for their own families or performing their assigned team tasks. It benefits everyone to keep transmissions short and to minimize confusion over who is calling whom. Amateur Radio operators are familiar with good radio protocol and can teach it to their neighbors to promote efficient use of whatever radios are in use. Here are some basic practices to consider:

• Fire, police, and military radio operators make use of tactical call signs, usually associated with a specific function or location, and civilian groups can do the same. First names may be fine for only a few users but can lead to confusion with many users on the same channel. Descriptive tactical call signs such as "Utility One," "Farmington Command," or "Elm St. Fire" can reduce confusion in case another team is using the same channel nearby. Your group's communications plan should include any tactical call signs you decide to use. *Tactical call signs also come in handy if the event may be more than one shift in duration – the tactical call sign will not change regardless of who mans the location – just make sure you use your FCC issued call sign as part of the identification.*

• It is good practice to start each transmission by stating the party you're trying to reach followed by your own call ("Supply, this is Triage"). Wait for an acknowledgement ("Triage, Supply, go ahead") before sending your message. **Keep messages short** ("Supply, Triage, we need six blankets at Elm and 1st right away"), and sign off when the exchange is finished ("Triage clear" plus any required call sign) so the other party knows you're finished and can get back to other responsibilities. Any identification requirement *(using the tactical call sign followed by your FCC issued station call sign)* is easily met using this method.

• It is also good practice to use the pro-word "over" at the end of each transmission to another station. Since most FRS and GMRS is simplex *(and many amateur emergency nets could also be simplex)*, doubles could occur resulting in lost message content when it's unclear whose turn it is to transmit.

• Speak — don't yell — somewhat more slowly *(No faster than you can reliably write it down or type the message out)* and distinctly than you would in face-to-face conversation. Yelling into an FM transceiver usually produces distortion rather than increasing volume — the very opposite of what the user is trying to achieve. Speaking across rather than into the microphone will help reduce the popping of "P"s and the hissing of "S"s, producing clearer speech on the receiving end. Have your group practice with their radios and encourage honest "signal reports" so each user can make the most effective use of his or her radio. *In some conditions, you may want to use your other hand to shield the microphone from wind.*

• Avoid noisy locations when possible. Background noise makes it harder for you to hear and harder for you to be heard. *Also remember that topography can make more difference that power – location is everything.*"

These words come from the EC-001 manual copyright dated 2019 Topic 4b – Working Directly with the Public. The blue italicized words and bolding are the editor's comments.

- **DE N0PNP**

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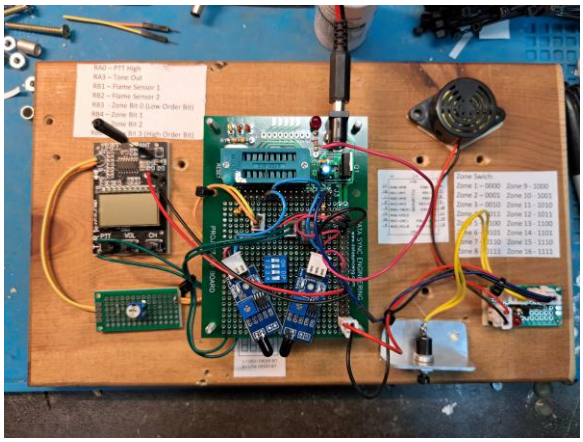
Technical Articles

Pine Board Prototyping

Ugly but Accessible

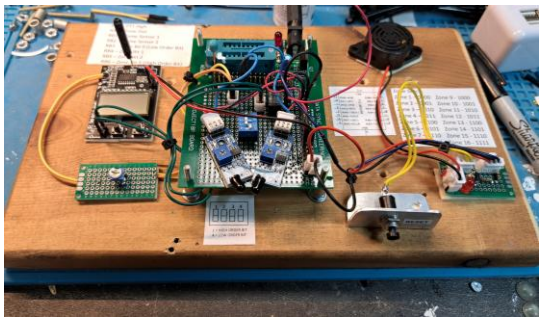
I bet you can't wait to see what this article is all about. Well, you've all probably seen some of my pine board prototypes in various newsletters. I wanted to tell you the hows

and whys of pine board prototypes. I'll start by using one of my latest "just see if I can" projects. You all saw my alerting system but this is another addition to the larger security project. I decided to design a flame sensor to alert security personnel if there is a fire in an unused room of a building where a smoke detector is not working or not tied into a system-wide alerting network. When you (or more accurately, when I) go through a design process, there is a stage of contemplating what configuration will work best in any specific scenario. When looking for flames, you want a wide field-of-regard for the sensing unit(s). Wide horizontally and wide vertically are preferable but wide horizontally is a necessity. I found some cheap near infra-red (NIR) sensor boards for obstacle avoidance for robots.



These sensors work in the roughly 780 nm range of wavelengths which is just on the long edge of the visual range for wavelengths. The visual range of wavelengths is roughly 480 – 760 nm. I figured this was perfect for a visible flame. Does not work at all for an alcohol flame or propane torch flame but most fires start from electrical issues or waste can trash and have a visible flame. Mid IR (MIR) or Far IR (FIR) sensors are a quite a bit more expensive and not really necessary to test my design. So, what does any of this have to do with pine boards? Well, nothing at all. I'm just giving some background. Anyway, this application will require some software development and addition of stuff like transmitter boards, sonalert and LED boards, zone switching, etc. I like the PIC prototyping boards from Data Sync Engineering to do my development work since they are designed for either an 8 pin or 18 pin DIP package microcontroller. They have a 6-position mounting scheme and they have a nice large area for interfacing circuits, etc. I use a pine board to mount the prototype board to because there is easy access to all of the components (in replaceable sockets) and all of the wiring (by the way, I always use stranded wires for prototyping since they get jostled around quite a bit). Typically I use Zero Insertion Force (ZIF) Dual Inline Package (DIP) sockets for the more critical components that require frequent removal for programming or for reprogramming as the software changes, etc. The open nature of a pine board layout makes troubleshooting easy since you can access component pins with oscilloscope and Digital Volt Meter (DVM) probes. It makes testing individual parts of the project easier as well. Another nice factor is that if you allow a little extra room on the pine board, you can add things like walky-talky boards, isolation transformers, amplifiers and so forth. It also allows you to add pine boards for additional functionality such as displays, power supplies, etc. It is easy to attach components and prototype boards to the pine board by using Velcro or double-sided tape. Mounting switches is as simple as a bent piece of metal double-sided taped to the pine board. Pine boards are cheap and they offer a nice accessible platform for prototyping, especially if you need to get to components for any purpose (I recommend 1"x6" or 1"x8" in size). I used pine boards to prototype my design for the alerting system as shown in the photo to the lower right – note the ZIF socket for easy removal of the microcontroller. Also the flame sensor below is prototyped on a pine board – again for the same reasons.

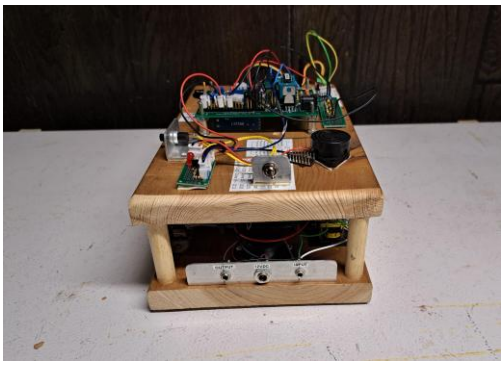
Send newsletter articles to william.a.grimsbo@gmail.com in Word or Word compatible files.

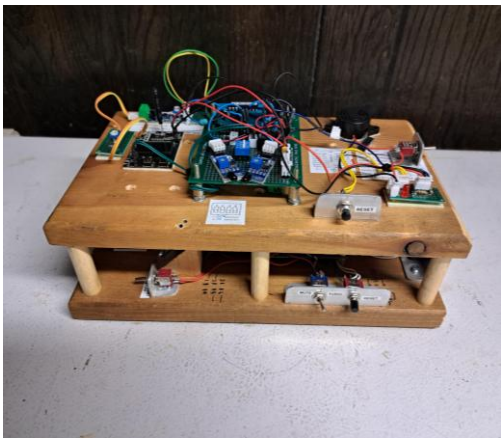


Doing a system-level prototype may require several pine boards. The only bad thing about pine board prototyping is that they don't stack well. So, how do we fix that problem? Stackability (is that a real word?) is a matter of component clearance. How do you get clearance when the board sits a ½ inch above the pine board and the ZIF socket adds another ½ to ¾ inch of height? Hmmmm - a bit of a problem, yes? Well, no actually. Some strategic planning of the placement of the components on the pine board allows use of some wood dowels. I picked up several at a garage sale last summer. Why did I need dowel rods? I didn't but you never know when something like that could come in handy. I measured the flame sensor pine board and added some dowel standoffs to the alerting system pine board so now I can stack them in my shelf unit.

By the way, there will be more on the flame sensor in a later article so stay tuned.

Ho Ho Ho…Merry Christmas and Happy Holidays to all!





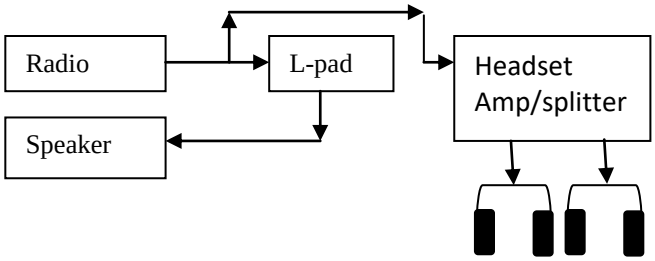
Once everything is working properly on the prototype, you can transition to a final design in an enclosure. Be careful of wire routing and signal types when transitioning to ensure you don't get signal crosstalk. In the final design it is always good to make sure you have bypass capacitors to reduce switching noise – especially in digital projects with high clock rates.

Until next time – 73 DE N0PNP

Headset Amplifier with Speaker Control

This is a quick one for those that may be interested. During Field Day 2024, we had a situation in the radio room at the Emergency Operations Center where the speaker had to be quite loud to hear over the general conversation and so forth ging on in the room. If we hooked up a headset, no-one else could hear the audio including the logger. I got to thinking (and that's always trouble) that a headset splitter or some sort of amplifier

where you could have two headsets hooked up and still be able to hear the speaker might be a nice innovation and could come in handy in an emergency as well. I found a four output headset amplifier and I had an old L-pad for a speaker. I combined the two and now we can run four headsets and still hear the speaker. I picked up the headset amp/splitter (MicroMix AMP-I4II) from AliExpress (Chinese made but works). The amp runs off power from a phone charger (USB-C). The system takes the speaker output from the radio into the L-pad and outputs to the speaker to allow local volume control for the speaker and bypasses the L-pad to the high input impedance headset splitter/amplifier – see the figure below:



The headset amplifier/splitter has a high impedance input so there is no loading on the speaker output of the radio from it. The L-pad is a 8 ohm potentiometer so there is loading from that. The effective load on the radio speaker output would be 4 ohms which most radios can take without an issue.
Volume for each headset is independently controlled on the amplifier/splitter box. I built another unit exactly the same for my grab and go kit. For this system, I used double-shielded audio microphone cable for the interconnections. It's a bit expensive but well worth the cost.

- 73, N0PNP

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ECA OFFICERS (2024-2025):

Following is the officers as of the July 2024 meeting:

- Bill Moss, KE0RXS as President
- Mark Hall, AE0ME as Vice President
- Jeff Young, KB3HF as Secretary/Treasurer
- Ken Humbertson, W0KAH as Director
- Wayne Garrison, KB0BZR as Director
- Wayne Ault, WD6EZQ as Past President Director

Return to TOC

Check out our website at www.w0eca.org. There are downloads, newsletters and links to explore.

Skills Training

Some of us have been asked what radio equipment to advise a served agency to buy. That question is impossible to answer without knowing the mission and the locations of the served agency. Some questions to ask might be "Who will you be talking to and where are they located?", "Are they mobile within 10 miles?", "Are they mobile within 50 miles?, "Are they a base over 150 miles away?", etc. The reason to ask these questions is to understand if a point-to-point simplex system can be used, if a repeater is necessary or if HF with NVIS capability is a requirement.
It is rarely a good idea to specify brands of equipment since that is typically a preference, not a requirement to complete the mission. One person may prefer ICOM,

another Kenwood or even Yaesu – it's all a matter of preference. It is good to research the brands however to understand what is available. A good example of this is Kenwood which now has no VHF/UHF radios available due to chip shortages/availability but they have an excellent selection of HF equipment. Alinco has a decent selection of VHF/UHF radios as does Yaesu and Icom. Yaesu radios have nested menus which can be difficult to sort through but many people like Yaesu radios in spite of that. Many of the competing companies have good options for HF transceivers – again it is a matter of preference. Most will operate in similar manner once the operator becomes accustomed to the menu structures and functions of the transceiver. The bottom line is that if you recommend a specific brand and the agency has any difficulty with it, they are likely to blame you for recommending that particular brand. You will definitely want to stay away from the Baofeng or B-Tech radios or any of the really cheap Chinese made equipment unless it is thoroughly tested and verified to be free of spurious emissions and reliable. Most amateurs do not have the capability to perform the thorough testing required so it is generally a good idea to avoid those transceivers.

The first thing to do is to understand the mission:

- What will the equipment be used for?
- Will the operation be a dispatch-to-mobile application?
- What separation distances between units or between units and dispatch?
- Is it for commercial use? If so, the amateur service cannot be used. Or is it as an emergency backup for general health and safety traffic? (Review 97.113 for what purposes the amateur service may be used – see link: https://www.ecfr.gov/current/title-47/chapter-I/subchapter-D/part-97/subpart-B/section-97.113)
- Is the need local, statewide or national?

Perhaps the most important question to ask is "Am I qualified to make recommendations for this agency or should I consult with someone that has more expertise?" It may require several people getting together to decide on what types of equipment is needed for the specific mission(s) involved. Most likely you will not think of everything that you will need to ask so don't think of it as a challenge to your capabilities, sometimes the best conceived systems come from minds working together to devise a capable, error tolerant system. Remember that no system is perfect except on paper. The important thing to remind the agency of is that as a radio amateur, you already have the capability to accomplish the desired task without the need for them to spend money.

- N0PNP

Return to TOC

Items For Sale

We have a few items for sale including the following:

Various meters and test equipment including frequency counters, capacitance and inductance meter, see below:

- 50 MHz B&K Model 1801 Freq Meter for $20
- Heathkit 2240 LC Bridge for $20
- RF Applications Model D-144 VHF Deviation Monitor with manual for $20
- Antennas, power supplies, etc. for various prices depending on the unit
- Small stereo amplifiers (10 to 15 Watts) for around $20 - negotiable
- VHF Amplifiers, etc.

If you have interest in any of these things, send an e-mail to william.a.grimsbo@gmail.com and I will get back to you. If you have any items you would like to advertise for sale send in an e-mail and we will try to get them in the next newsletter.

Please keep these things to radio or emergency-related items in keeping with the intent of the newsletter. Thanks.

Return to TOC

Afterword:

Starting in January, the net control responsibilities will change. We have several people that would like to get experience as net control operators. That is a good thing and we will attempt to accommodate as many as possible.

If you have interest in serving as net control, please send me an e-mail before December 1st so that I can get you into the spreadsheet and figure out how many folks we have that are interested. The number of times each person will be required to serve as NCO may be only once every two months or once every quarter depending on interest.

With regard to the newsletter, I am always looking for articles of interest to the amateur radio community so please send any articles you may have to **william.a.grimsbo@gmail.com** and I will endeavor to get them into the next newsletter. Please format them in a Microsoft Word format with photos in line with the text if possible. If done in Google Docs, please save as a Microsoft Word compatible file. If you just have text capability, Notepad files are fine as well. Photos can be sent separately with an indication of where in the document you wish to have the photos inserted (note it in the TXT file). For announcements to include in the newsletter, please send via email with an urgent flag or put the subject in caps so that I recognize it is important (also, it makes it easier to find in my email backlog). By the way, the little alien dude is just for fun. SET is close to SETI so I thought I'd add him just for giggles. He seems to be lost, can you help him find what he's looking for? As an alien, he's totally legal/documented and he prefers steak over cat or dog so have no fear for your pets. Who can blame him after all?

"The Night Before Christmas", Ham Radio-style

'Twas the night before
Christmas, when all through
the town,
The snowstorm was raging,
the phone lines were down;

The wind it did howl, the tree
limbs did crack,
I hope that St. Nick isn't forced
to turn back.

The wife making cookies, the
kids making noise,
While away in the shack, by
my rig I was poised.

The finals were glowing, the
mike gain was set,
I was chasing DX to see what
I could get.

The bands were all empty, the
frequencies clear,
Except one lone station that
sounded quite near.

He was calling CQ and my
interest did pique,
When he ended transmission
with the words,
"Old St. Nick".

I answered back quickly, I
used great dispatch,
If this were St. Nicholas, good
God, what a catch!

We exchanged information, it
was really quite graphic,
Then he came back and said,
"I've emergency traffic!"

His reindeer were tired, his
elves in a grump,
If he didn't land soon, then his
sleigh he would dump.

I thought very carefully, I
thought very hard,

Then I gave him directions to
my snow covered yard.

As he flew past my window,
his hair like a mane,
He reined in his chargers and
called them by name:

"Whoa, Anode! Whoa,
Cathode! Whoa, Zener!
Whoa, Diode!
Stop, Heater! Stop, Grid leak!
Stop, Bias! Stop, Triode!

You're flying too low! you're
flying too fast!
Look out, you dumb reindeer,
his antenna mast!"

So into the backyard the
reindeer did drop,
St. Nick, the elves, and the
sleigh went kerplop!

Then at the back door, I heard
this loud knocking,
"Open up in there, or I won't fill
your stocking!"

As I turned off the light and
was leaving the shack,
Into the house Saint Nicholas
came from the back—

His two-meter rig held to his
hip with a strap,
"Hams do it in the shack" on
the front of his cap.

The sack that he carried made
his aged brow furrow,
And he handed me a card that
read,
"QSL Via Bureau".

His clothes were all sooty,
from his shoes to his vest;
I felt like a novice taking his
test.

His fingers were calloused and
from what I could tell,
This came from a straight key
that I'll bet he used well.

I offered him coffee, I offered
him smokes,
I tried easing the tension by
telling ham jokes.

Then he nodded his head and
raised up his thumb,
He smiled like an Elmer, did I
ever feel dumb.

He grabbed up his sack and
went straight for the tree,
And placed in it a large
present for me.

When he finished his work, he
stood up, took a bow,
Then out the back door to his
team he did plow.

But I heard him exclaim as he
flew o'er the land,
"Beware the FCC, friend, we
were both out of band!"

Merry Christmas from my
house to yours!

Return to TOC

Happy Holidays from the officers of ECA and the newsletter editor. We hope that all of our membership and readers have a joyful and happy holiday season and a very healthy and happy new year.

Net Control Roster

Week	NCO	Callsign
1	*Jim Combs/Richard Tadlock	KF0HFB/KF0JEJ
2	Ken Humbertson	W0KAH
3	*Paul Orf/Jeff Young	AD0YL/KB3HF
4	*Zach Bush/Bill Grimsbo	KF0FXJN0PNP
5 (Floater)	*Don Weir/Bill Grimsbo	KZ8E/N0PNP

* First name/callsign is the primary and the second name/callsign is the backup.

The scheduled Net Control Operator is responsible for finding a replacement if he/she is unavailable for their scheduled net or paging. Any EMA volunteer interested in becoming a Net Control Operator on either the EMA Training Net or the ARES® Net should contact Bill Grimsbo (N0PNP) at william.a.grimsbo@gmail.com.

Some things to remember:

NCOs - If someone does not open the net by 5 min after the designated time, one of the other NCOs are requested to open the net, take check-ins and handle any traffic as appropriate.

NCOs - If you are unavailable to run the net, please make arrangements – in advance – to have one of the other NCOs run the net in your place.

Membership - The net is a very important method of keeping involved with what is happening with the Association and ARES® - Please consider it part of your weekly calendar (i.e., check in and let us know you are still out there).

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Calendars

October 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30 EM Net at 1900 ARES Net at 2000	1	2	3	4	5 **SIMULATED EMERGECY TEST - 0830**
6	7 EM Net at 1900 ARES Net at 2000	8	9	10 ECA Meeting 1900 hrs	11	12
13	14 EM Net at 1900 ARES Net at 2000	15	**16**	17	18	19
0	21 EM Net at 1900 ARES Net at 2000	22	23	24	25	26 ***No Halloween Hamfest this year. Sorry***
27	28 EM Net at 1900 ARES Net at 2000	29	30	31 	1	2

Notes:

1 REM Net is on DEM-VHF-1
2 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
3 HAVE A GHOSTLY HALLOWEEN!

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November 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28 EM Net at 1900 ARES Net at 2000	29	30	31	1	2
3	4 EM Net at 1900 ARES Net at 2000	5	6	7	8	9
10	11 EM Net at 1900 ARES Net at 2000	12	13	14 ECA Meeting 1900 hrs	15	16
17	18 EM Net at 1900 ARES Net at 2000	19	20	21	22	23
24	25 EM Net at 1900 ARES Net at 2000	26	27	28 	29	30

Notes:

1 REM Net is on DEM-VHF-1
2 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
3 HAPPY THANKSGIVING!

[Return to TOC]

December 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 EM Net at 1900 ARES Net at 2000	3	4	5	6	7
8	9 EM Net at 1900 ARES Net at 2000	10	11	12 ECA Meeting 1900 hrs	13	14
15	16 EM Net at 1900 ARES Net at 2000	17	18	19	20	21
22	23 EM Net at 1900 ARES Net at 2000	24	25 	26	27	28
29	30 EM Net at 1900 ARES Net at 2000	31	**1** 	2	3	4

Notes:

1 REM Net is on DEM-VHF-1
2 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz
3 MERRY CHRISTMAS & *Happy New Year*!

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