

EDC™ Rotary™ Flashlight
Advanced User's Guide

HDS SYSTEMS®

EDC Rotary Flashlight Advanced User's Guide

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Congratulations for purchasing a superior flashlight. The HDS Systems EDC (everyday carry) series flashlights are best-of-class flashlights, providing regulated output at your desired brightness for extended periods. The single button turn your flashlight on and off while the rotary control provides a convenient way to select any brightness level – even before you turn on your flashlight. You can customize your flashlight's operation for added utility. Lithium-ion rechargeable batteries are fully supported and recommended for lower operating cost. Finally, your flashlight is built tough and water resistant to provide a lifetime of dependable service – all in a conveniently small, rugged and easy to carry package.

Introduction

You can maximize battery life by selecting the optimum amount of light for your task. Too much light wastes battery life while too little light makes it difficult to accomplish your task. By using the appropriate brightness level, you receive the benefits of long runtimes and sufficient light.

The rotary control allows you to vary the brightness from the lowest level to the maximum level with a simple twist of the control. You can select the desired brightness level before turning on your flashlight.

Burst output takes advantage of the logarithmic nature of your eyes to provide maximum visual acuity while preserving long battery life on the maximum output setting.

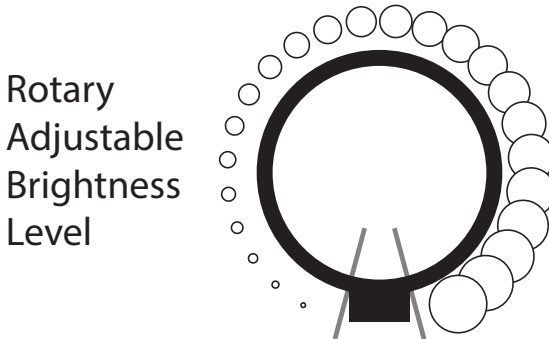
Your flashlight may be customized to perform special tasks more efficiently. These customization features allow you to build a specialized flashlight optimized for your tasks. This single flashlight can efficiently replace several special purpose flashlights and is small enough to carry with you at all times. There is now no excuse for you to be without light.

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1. Basic Operation

Click (quickly press and release) the rubber button on the tail of your flashlight to turn on your flashlight. You can use the rotary control to adjust the brightness level.



Press-and-hold the button while your flashlight is on to momentarily select maximum output. Release the button to return to the previous output.

Click the button while your flashlight is on to turn off your flashlight.

2. Advanced Operation

You communicate with your flashlight through a sequence of clicks and/or a press-and-hold or a press-hold-release. These sequences are called **commands** and are simple and easy to learn. It will take a few minutes of practice to become proficient with them.

The rotary control allows you to rotate the rotary control to change the brightness level. Rotate the rotary control clock-wise to increase the brightness level.

The term “**click**” indicates a quick press and release of the button. Think of it like a mouse click on your computer or a tap on a touch screen. The button must be released in less than 1/3 of a second to be recognized as a click. The term **double-click** indicates two clicks in rapid succession, the term **triple-click** indicates three clicks in rapid succession and so forth.

The term “**press-and-hold**” indicates that you should continue to hold the button down until you are told to release it.

The term “**press-hold-release**” indicates that the button should be held down for an extended period – longer than 1/3 of a second – to allow your flashlight to tell the difference between a click and a press-hold-release.

A double-press-and-hold and a double-press-hold-release represents a click followed by a press in rapid succession. There is no pause or delay between the click and the following press. Think of a double-click with the button held down for an extended period on the second press of the button. The same applies to triple-press-hold-release and quad-press-hold-release.

Your flashlight has 4 brightness presets – preset A, B, C and D – and many optional features. The Rotary models have the following factory presets:

Rotary:

- Preset A: Maximum
- Preset B: brightness level selected by rotary control
- Preset C: brightness level selected by rotary control
- Preset D: brightness level selected by rotary control
- Optional features: Burst

From Off: the following commands are available when your flashlight is turned off:

- Click – turns on your flashlight to preset B.
- Press-and-hold – turns on your flashlight to preset B. If the Pseudo Momentary optional feature is enabled, turns off when button is released.
- Double-press-and-hold – turns on your flashlight to preset A. If the Pseudo Momentary optional feature is enabled, turns off when button is released.
- Triple-click – toggles the Button Lockout on and off when the Button Lockout optional feature is enabled.
- Quad-click – toggles the Locator Flash on and off when the Locator Flash optional feature is enabled.
- Hex-click – starts True Momentary mode when the True Momentary optional feature is enabled.

From On: the following commands are available when your flashlight is turned on:

- Click – turns off your flashlight.
- Double-click – toggles between preset B and preset C or returns you to the last preset B or C used.
- Triple-click – selects preset D.
- Double-press-hold-release – selects preset A.
- Press-and-hold – momentarily selects preset A. Returns to the previous preset when the button is released.

See *Customizing Your Flashlight* (section 9) for detailed instructions on customizing your flashlight.

Note: your flashlight uses Burst whenever you select the Maximum brightness setting. The output is reduced by one brightness level 40 seconds after the button is released to maximize battery runtimes with minimal visual impact. See Burst in *Customizing Optional Features* (section 14) for details.

3. Low Battery Indication

Your flashlight will turn off momentarily and then back on one level below the previous brightness level when the battery is unable to supply enough power to run the current brightness level. This process is repeated as needed as the battery's power is depleted.

Your flashlight will double-blink once every two minutes to remind you that the battery needs to be changed when the battery is no longer capable of maintaining a 50 lumen output level and you are asking for an output level higher than the battery can maintain.

Your flashlight restricts the output to the highest brightness level the battery can maintain. However, if you turn off your flashlight and turn it back on again to a higher level, your flashlight will slowly step up through the brightness levels testing the battery again.

Your flashlight will blink slowly once a second on the lowest brightness level when the battery is no longer capable of powering any of the steady brightness levels.

Caution: your flashlight will eventually turn itself off to preserve what little battery power remains if you continue to use your flashlight after your flashlight begins blinking once a second on the lowest brightness level. You may turn on your flashlight again when needed for a short period. This behavior maintains your options in an emergency.

4. Installing a New Battery

Unscrew the battery compartment from the head and remove the old battery from the battery compartment. Insert the new battery into the battery compartment with the positive terminal out. Align the head and battery compartment, press them together to overcome the spring pressure and screw the battery compartment and head back together.

As you screw the battery compartment and head back together and if the battery compartment has been removed for an extended period, your flashlight comes on dimly for 7 seconds following a battery change to indicate that a reset has taken place and that your flashlight is functioning correctly. If you change the battery quickly enough, your flashlight will not reset and no reset indication will be displayed. A reset does not change any of your flashlight's settings.

No special actions are needed to use rechargeable Lithium-ion batteries. Your flashlight detects them automatically.

However, if you have been using rechargeable Lithium-ion batteries and want to return to using regular (non-rechargeable) batteries, you must perform a reset. The simplest way to perform a reset is to turn on your flashlight (with the button released) and open the battery compartment until your flashlight turns off and then replace the battery compartment. If you fail to perform a reset when returning to using non-rechargeable batteries, your flashlight will act as if the new non-rechargeable battery needs replacing – just do a reset to restore normal operation.

In general, primary (non-rechargeable) batteries provide longer runtimes. However, rechargeable batteries provide a lower cost of operation and allow you to always leave home with a full battery.

Voltage: 2.0 to 4.5V.

5. Thermal Limits

Your flashlight monitors the LED temperature and the external flashlight temperature to protect the LED and to prevent the exterior from becoming too hot to safely handle. If either temperature nears the safety limits, your flashlight will automatically step down to a lower power setting to control the temperature. This is typically only necessary on the maximum continuous level when Burst is disabled.

Your flashlight will automatically reset the thermal limit when it is turned off and back on again.

6. Button Lockout

There are two methods for disabling the button. This is useful when you are transporting your flashlight and to not want the button to be accidentally activated.

The first method is to enable and use the Button Lockout feature. See Button Lockout in *Customizing Optional Features* (section 14) for details.

The second method is to unscrew the battery compartment from the head by one half turn. This will leave the O-ring completely covered. You restore operation of the button by screwing the battery compartment completely into the head.

7. Cleaning and Maintenance

Periodically clean the open end of the battery compartment, threads and O-ring with a clean lint-free cloth lightly moistened with isopropyl alcohol. Apply a coat of non-conductive silicon or petroleum grease to these surfaces.

Replace the battery compartment O-ring if it becomes worn or damaged. O-ring: 1.5mm x 20.5mm, 70 durometer Nitrile (Buna-N).

The recessed electrical contacts and interior threads in the head can be cleaned using a lint-free swab lightly moistened with isopropyl alcohol. Recessed contacts and threads should be cleaned in a counter-clockwise direction to prevent snagging the swab in the threads. Be sure to remove any particles or fibers that may be left behind. Apply a coat of non-conductive silicon or petroleum grease to the interior threads and contacts.

The exterior can be cleaned with a mild soap and water. Rinse well and dry with a soft cotton cloth.

Note: the anti-reflective coating on the lens can be abraded by excessive rubbing or cleaning. Never use paper tissues or paper towels to clean or dry the lens as the fibers are abrasive.

8. Additional Notices and Cautions

Notice: your flashlight protects rechargeable batteries from over-discharge under most conditions when used as directed. IMR lithium-ion batteries can be used safely without protection circuits – and are normally supplied without protection circuits. However, ICR lithium-ion batteries should always have built-in protection circuits for your safety.

Notice: only install fully charged rechargeable batteries. Using a partially charged battery may result in the battery not being properly

recognized as a rechargeable lithium-ion battery. This can lead to the rechargeable battery being damaged due to over-discharged or sudden darkness when the battery's protection circuit activates.

Caution: some individuals may be sensitive to the effects of flashing lights. Be ready to render assistance if an individual should become disoriented or have a seizure induced by your flashing light.

Caution: your flashlight is very bright on the higher brightness levels. You should avoid looking directly into the reflector as the light can be intense enough to injure your eyes.

Caution: a sudden total failure is unlikely but is still possible. We recommend you always carry a second flashlight during critical situations (e.g., caving). We also recommend you carry enough spare batteries to cover your lighting requirements plus a reasonable safety margin. It is not necessary to start each trip with a new battery in your flashlight as long as you have spare batteries along.

Caution: do not attempt to recharge a rechargeable battery if you think it has been over-discharged or otherwise damaged. Dispose of the damaged battery immediately. An over-discharged or otherwise damaged battery can vent or explode when the battery is recharged or when the battery is subsequently used.

Caution: water – especially salt water – in the battery compartment will cause electrolysis, giving off hydrogen and oxygen – an explosive gas mixture. Electrolysis will also cause corrosion. If water gets inside of the battery compartment, immediately open the battery compartment, rinse the battery compartment and battery with fresh water and allow your flashlight and the battery to completely dry before reassembling your flashlight.

9. Customizing Your Flashlight

You may customize your flashlight so you can perform common tasks more efficiently. You can customize the brightness presets through the Brightness Menu and you can customize the optional features through the Option Menu. Together these features allow you to build a specialized flashlight optimized for the tasks you perform on a regular basis – and even tasks you rarely perform. See *Enabling Customization* (section 11) to begin the customization process.

10. Restoring Factory Settings

Please feel free to experiment. You can always restore the original factory settings by following these steps:

- Reset your flashlight - i.e., remove the battery for 60 seconds and reinstall. Alternatively, you can turn on your flashlight (with the button released), remove the battery compartment (your flashlight will turn off) and then reinstall the battery compartment without waiting. Your flashlight will light dimly for 7 seconds to indicate that a reset has taken place. You must begin the next step before the light turns off.
- Press-and-hold the button before the dim reset indication turns off. Your flashlight will become brighter for 10 seconds and then turn off. Release the button when your flashlight turns off.
- **Note:** your flashlight will display 5 rapid flashes and no settings are changed if you release the button before your flashlight turns off.
- **Note:** your flashlight will display 10 very rapid flashes if there is insufficient power to memorize the original factory settings.

Note: anytime the battery is removed for an extended period (>60 seconds) your flashlight will reset. A reset by itself will not change any settings and thus there is little reason to force a reset in normal use.

11. Enabling Customization

Your flashlight is shipped with Customization disabled. Follow these steps to enable Customization:

- Reset your flashlight - i.e., remove the battery for 60 seconds and reinstall. Alternatively, you can turn on your flashlight (with the button released), remove the battery compartment (your flashlight will turn off) and then reinstall the battery compartment without waiting. Your flashlight will light dimly for 7 seconds and turn off to indicate a reset has completed. You have 15 seconds following the reset indication to begin the next step. After 15 seconds, you will need to start over.
- Perform a 20-press-and-hold from Off. You don't have to count the clicks because after the 20th click your flashlight stops turning off

and on with every other click. Remember: do not pause between clicks or between the last click and the press-and-hold.

- Hold the button down until your flashlight turns off. Your flashlight will display a dim-to-bright sequence to indicate it is enabling Customization and then turn off. Release the button after your flashlight turns off. Customization is now enabled.
- **Note:** your flashlight will display 5 rapid flashes and Customization is not enabled if you release the button before your flashlight turns off.
- **Note:** your flashlight will display 10 very rapid flashes if there is insufficient power to memorize the setting.

We recommend you disable Customization after you finish customizing your flashlight. This allows you to hand your flashlight to anyone without fear that someone will accidentally modify your settings. See Menus in *Customizing Optional Features* (section 14) to disable Customization.

12. Internal Brightness Levels

Your flashlight includes 24 internal brightness levels. These brightness levels are visually spaced so that the difference between any adjacent brightness levels will appear to be a small equal change. This visual spacing takes advantage of the logarithmic nature of your eyes to see a huge dynamic range – from very bright midday summer scenes to dim moonlit scenes. Your flashlight can produce a range of brightness levels that spans over 15,000:1, depending on the maximum output of your flashlight. Each brightness level is separated by a ratio of roughly 1.5:1 – enough to provide a small but noticeable difference between brightness levels.

The amount of power your flashlight consumes is related to the amount of light being generated. The more light generated, the more power consumed. You can dramatically reduce the power consumption and dramatically increase the runtimes by reducing the light output by a single level at the higher output settings. And because your eyes perceive light logarithmically, you will notice only a slight difference between the two brightness levels.

Your flashlight contains a unique feature called Burst to help extend battery life at the maximum brightness level. When you select the

maximum brightness level, you receive maximum output for an additional 40 seconds after releasing the button and then your flashlight drops one level. If you are not paying attention, you may not notice the drop but your batteries will last much longer as a result. See Burst in *Customizing Optional Features* (section 14) for details.

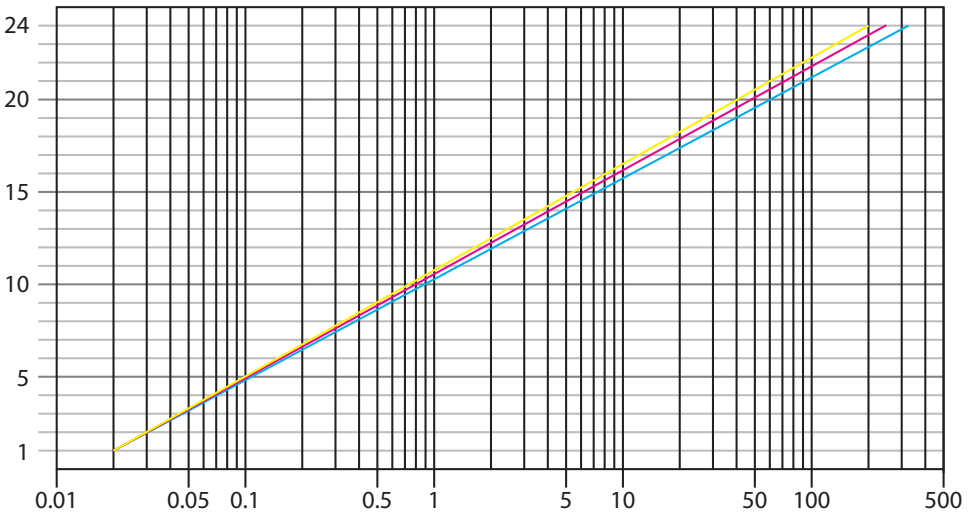
Note: The Burst feature is disabled during momentary Maximum operation. You will continue to receive the maximum output for as long as you hold down the button.

In addition to the 24 regular steady brightness levels, there are additional pseudo brightness levels: Fast Strobe, Slow Strobe, Pulsating Strobe, Beacon Strobe and SOS (46CFR161.013-7 compliant).

Finally, your flashlight offers a rotary brightness level. The rotary brightness level sets the brightness level according to the position of the rotary control. Rotating the control clockwise makes the light brighter while rotating the control counter clockwise makes the light dimmer. The rotary brightness level is treated the same as a regular steady brightness level.

The brightness levels are arranged in a circular menu to make scrolling through all of the brightness levels easier. The maximum brightness level is followed by the rotary brightness level, the pseudo brightness levels and then the minimum brightness level, and vice versa.

The following graph allows you to determine the brightness of each level. Draw a straight line between level 1 at 0.02 lumens and level 24 at the maximum brightness. Lines have been provided for 200, 250 and 325 lumens for your convenience.



13. Customizing the Brightness Presets

Your flashlight comes with 4 brightness presets. They are referred to as presets A, B, C and D. A is the press-and-hold preset as well as the double-press-hold-release preset, B is the factory turn-on preset, C is the double-click preset and D is the triple-click preset.

Follow these steps to customize a brightness preset:

- See *Enabling Customization* (section 11) to enable customization.
- Turn on your flashlight and select the preset you want to customize.
- Triple-press-hold-release. Your flashlight will display the current brightness level. If the current brightness level is the minimum or maximum level, the displayed level will start with a double-blink.
- Click to move to the next brightness level. Double-click to reverse direction and move to the previous brightness level. The menu is circular – the last item is followed by the first and the first is preceded by the last. When you get to the minimum or maximum level, the displayed level will start with a double-blink.
- Press-and-hold the button to select the current brightness level. Your flashlight will display a dim-to-bright sequence to indicate you are setting the brightness level. Release the button after your

flashlight turns off and your flashlight will return to the selected preset with the newly selected brightness level.

- **Note:** your flashlight will exit the Brightness Menu with 5 rapid flashes without changing the preset if an error is detected. Possible errors include entering an unknown command, not entering a command for 10 seconds and not holding the button down until your flashlight turns off when selecting a brightness level.
- **Note:** your flashlight will exit the Brightness Menu with 10 very rapid flashes if there is insufficient power to memorize the setting.

14. Customizing Optional Features

Your flashlight offers the following optional features through the Option Menu:

- | | |
|-----------------------|---------------------------|
| 1. Turn On Preset | <long flash> |
| 2. Automatic Turn Off | <bright-to-dim ramp> |
| 3. Button Lockout | <triple-flash> |
| 4. Locator Flash | <dim flash> |
| 5. Pseudo Momentary | <long flash, short flash> |
| 6. True Momentary | <double-flash> |
| 7. Burst | <brighter-dimmer> |
| 8. Menus | <dim-to-bright ramp> |

Follow these steps to enable or disable an optional feature from the Option Menu:

- See *Enabling Customization* (section 11) to enable customization.
- Turn on your flashlight.
- Quad-press-hold-release. Your flashlight will display the indication for the first menu item (Turn On Preset: <long flash>).
- Click to move to the next menu item. Double-click to reverse direction and move to the previous menu item. The menu is circular – the last item is followed by the first and the first is preceded by the last.
- Press-and-hold the button to select the current menu item. Your flashlight will display a dim-to-bright sequence to indicate you are

enabling the feature or a bright-to-dim sequence to indicate you are disabling the feature. Release the button after your flashlight turns off and your flashlight will return to the selected preset brightness level.

- **Note:** your flashlight will exit the Option Menu with 5 rapid flashes without changing the setting if an error is detected. Possible errors include entering an unknown command, not entering a command for 10 seconds and not holding the button down until your flashlight turns off when selecting a setting.
- **Note:** your flashlight will exit the Option Menu with 10 very rapid flashes if there is insufficient power to memorize the setting.

Turn On Preset – <long flash>

The Turn On Preset feature allows you to select the preset used when you turn on your flashlight. Disable Turn On Preset to allow your flashlight to remember the last preset used and to use that preset when your flashlight is turned on the next time.

Follow these steps to select one of the four presets to use when your flashlight is turned on:

- Disable Turn On Preset.
- Select the desired preset.
- Enable Turn On Preset.

Automatic Turn Off – <bright-to-dim ramp>

The Automatic Turn Off feature allows your flashlight to save the battery if accidentally turned on. This can be handy if you carry your flashlight in your pocket and it gets accidentally turned on or if you fall asleep with your flashlight turned on. The emphasis of this feature is saving the battery without unduly interfering with normal use.

Automatic Turn Off only affects the steady brightness levels. Signal brightness levels such as strobes and SOS are not affected by the setting of Automatic Turn Off as it is assumed these signaling modes are not likely to be accidentally activated and they may need to operate unattended in an emergency situation.

The dimming process starts 10 minutes after the last button activity. Your flashlight will dim rapidly from higher power settings because that

is where the highest power consumption is. The dimming process progressively slows with lower power levels. The whole dimming process takes roughly 12 hours before your flashlight is finally turned off.

Each time the Automatic Turn Off feature dims your flashlight, you will see a triple-blink.

If you are using a lower power setting, you will not see any change until the dimming process has reached your brightness level. This could be seconds, minutes or hours past the 10 minute start, depending on the starting brightness level.

You can click the button at any time during the dimming sequence to return your flashlight to the original brightness level and reset the Automatic Turn Off timer for another 10 minutes.

Button Lockout – <triple-flash>

The Button Lock feature allows you to lock the button on your flashlight to prevent it from accidentally turning on. When the Button Lock feature is enabled and your flashlight is turned off, a triple-click will toggle the button lock – i.e., unlocking the button if it is locked or locking the button if it is unlocked.

Your flashlight will turn off when you lock the button and will turn on when you unlock the button. When the button is locked and you press the button, your flashlight will flash 3 times to indicate the button is locked and then turn off.

Locator Flash – <dim flash>

The Locator Flash feature allows your flashlight to emit a short flash of dim light every three seconds when turned off. The periodic short flash makes it easier to find your flashlight in the dark.

When the Locator Flash feature is enabled and your flashlight is turned off, a quad-click will toggle the locator flash on and off. Following a reset or after toggling the Locator Flash feature, the locator flash is turned on when the feature is enabled and turned off when the feature is disabled.

Pseudo Momentary – <long flash, short flash>

The Pseudo Momentary feature allows your flashlight to differentiate between a click and a press-and-hold when your flashlight is turned off. A press-and-hold from off will act in a momentary fashion when Pseudo Momentary is enabled – i.e., turning off your flashlight when the button is released. When Pseudo Momentary is disabled, a press-and-hold from off acts like a click – i.e., your flashlight remains on when the button is released.

True Momentary – <double-flash>

The True Momentary feature allows your flashlight to operate in a true momentary mode – when the button is pressed, your flashlight is on maximum, when the button is released, your flashlight is off. When the True Momentary feature is enabled and your flashlight is turned off, a hex-click will start the true momentary operating mode.

The true momentary mode is used for tactical “flash and dash” techniques – a burst of light to illuminate your opponent and the scene followed by you disappearing into the darkness, depriving your opponent of a target. The true momentary mode also ensures that if you should drop your flashlight, it will remain off and not provide your opponent with a ready target.

Your flashlight can be returned to normal operation by opening the battery compartment for 60 seconds to force a reset.

Burst – <brighter-dimmer>

The Burst feature allows you to control the behavior of the maximum level to conserve power and extend runtimes. Your flashlight will drop by one level 40 seconds after the button has been released when Burst is enabled. Maximum always stays at full power for as long as the button is held down.

Note: the runtime on the maximum level will be reduced when Burst is disabled. You will also notice that your flashlight becomes quite warm on the maximum setting and may automatically reduce power due to thermal limiting. This is normal.

Menus – <dim-to-bright-ramp>

The Menus feature allows you to control access to the Brightness Menu and Option Menu commands. This menu item can only be used to disable Customization. See *Enabling Customization* (section 11) to enable customization.

15. Warranty

Your flashlight (Product) is warranted to the original owner to be free from defects in materials and workmanship for the life of Product. This warranty does not include cosmetic blemishes, damage, modifications and normal wear. We will repair Product, replace Product with an equivalent product or refund the original purchase price for the defective Product – at our discretion. You are solely responsible for determining Product's suitability for your application and you take sole responsibility for Product's use. In no case shall HDS Systems, Inc. be liable for more than the original retail price of Product.

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Specifications subject to change without notice.

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