



ShakeAlert® Joint Committee for Communication, Education, and Outreach (JCCEO)
"Supporting the ShakeAlert® System through coordination, collaboration, and community building."

California – Oregon – Washington

Technical Engagement Program

Guide for Developing Education and Training Plan(s) for Pilot Conversion to License to Operate

The goal for the ShakeAlert pilot phase is for technical partners to be converted to License to Operate (LtO) status for a given product, process, application, etc. as described in **Appendix A** of a Pilot License Agreement (PLA). Before an LtO can be granted by the USGS, all candidates must develop a written plan that addresses (1) technical [see ShakeAlert Technical Performance Review Criteria for LtO Conversion] and (2) education and training elements and present this plan to the USGS.

This guide focuses on recommendations for the development of an Education and Training Plan only. Every system (i.e. proposed use of ShakeAlert Messages) is unique and additional elements may be needed if the product, service, etc. has special education and training needs not addressed in this outline. All ShakeAlert technical partners are provided with equal-access to ShakeAlert education and training resources and consultation by representatives of the ShakeAlert Joint Committee for Communication, Education, and Outreach (JCCEO) program.

Initially, it is acceptable for a prospective Pilot Partner to submit to the USGS a generalized outline of their education and training plan within the Pilot Agreement Statement of Work (Appendix A) for approval. However, upon completion of the Pilot Project and prior to conversion to a LtO, the partner must submit to the USGS a detailed finalized education and training plan and materials before advancing.

All proposed education and training plans must be reviewed by your ShakeAlert Regional Coordinator before being submitted to the USGS for final review and approval.

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The Technical Partner must submit a draft Education and Training Plan to the USGS as a prerequisite for Licence to Operate approval. The Education and Training Plan must be implemented in its entirety within six (6) months of the date the conversion was signed by the technical partner and the USGS. See PLA [July 2021]: Section 1.2i License Restrictions (page 4).

1. Requirements for the PLA Statement of Work [Appendix A]

- a. Provide a description, architecture, and goals of your education and training plan in Appendix A. Consider providing this in narrative form rather than a bulleted list or outline.
- b. Provide a description and/or example of the education and training materials that you intend to deliver to your end users.
- c. Describe how you will be available to your clients, staff, and or end-users for questions or other inquiries related to education and training of end-users. LtOs are encouraged to provide resources on their website, utilize social media, packaging, etc. LtOs are invited to make use of the [ShakeAlert Messaging Toolkits](#). Many of these resources were produced with feedback from technical partners like you.

End-users receive ShakeAlert-powered alerts from LtO Partners. End-users include people who receive these alerts directly (e.g., to their cell phones), as well as organizations that work with an LtO P to implement automated “machine-to-machine” actions. See: *FAQ How to Become a ShakeAlert® Technical Partner* from the ShakeAlert Messaging Toolkits.

2. Education and Training Plan Components - Recommendations

- a. Topics to be included in your education and training plan.
 - i. i.e., company and product overview, branding, disclaimers, education plan elements: thresholds, tone and message, product limitations, usage instructions
 - ii. See Core Messages (Attachment 1) for recommended topics
- b. Describe the available technical alert delivery mechanisms submitted for USGS approval. Different delivery mechanisms may require different education and training materials.
 - i. Appendix A should detail each kind of education and training for different uses, if required (i.e., signage message vs. audible message)
 - ii. Mention any special features in your education materials

- c. Identify your education and training audience types (e.g. staff, clients, end-users (alert recipients), etc.) (whichever applicable).
 - i. Break out each kind of education and training plans for different types of end-users, if applicable (i.e. IT or in-house technical staff might be more technically detailed than training for general recipients)
 - ii. Mention how your product will be marketed (e.g. over the counter, website, etc.)
 - 1. this will help USGS better understand what kinds of messaging needs to be included and where (i.e audience and product packaging)
- d. Describe all education and training materials you are using in the development of your Plan and how you plan to make them available to in-house technical users or end-users.
 - i. Samples of any education and training materials should be provided as part of Appendix A of the Statement of Work as an attachment.
 - 1. Additional materials can be added to the Statement of Work within 6 months after LtO approval without an amendment.
 - ii. Pilots can utilize ShakeAlert available materials such as those found in the [ShakeAlert Messaging Toolkits](#) or develop their own.
 - iii. If you forgo using the ShakeAlert Education and Training resources available to you and want to create your own education and training materials, your materials must adhere to ShakeAlert-approved messaging, protective actions, and ShakeAlert Trademark Guidelines detailed in Attachment 1 and 2 of this document.
 - iv. ShakeAlert System descriptions need to properly cite responsibility (i.e., detection and processing earthquake data (USGS); delivery of alert (your company))
- e. Describe how the education and training will be disseminated.
 - i. List the available format(s) you will use to deliver your education and training plan (i.e. video, slide deck, train-the trainer, fact sheets, product packaging, etc.).
- f. Provide a brief description of who will be responsible for delivering your education and training plan and how your end user will receive the plan and materials (e.g. staff, client and/or end user).
 - i. In cases where the client will be responsible for their own education and training of end users, include a description of how the materials will be disseminated or made available to clients and what kind of upfront explanation/training you might provide.

- ii. If you will not be directly training the end users of the ShakeAlert information, it is suggested that you impress upon the consumer of your product the importance of the alert recipient needing to be properly trained as to what is ShakeAlert, what is the message they will receive, and the proper protective action to take when they feel shaking or receive an alert, ensuring successful use of ShakeAlert.
 - iii. If your delivery mechanism does not require a customer relationship (over the counter or on-line products), the education and training, protective actions, disclaimers, etc. need to be included in packaging of the product.
- g. Describe your alert tone and message and how both are included in education and training materials.
 - i. Alert tone... (repeat at least 2 times)
 - 1. LtO applicant should provide audio example of their alert tone
 - ii. USGS approved voice message

Earthquake! Earthquake!
Expect shaking
Drop, Cover, Hold On
Protect Yourself now!
- h. Describe your plan to deliver Post-ShakeAlert Message Follow-Up Messages and how this will be included in your education and training materials. Those delivering ShakeAlert-powered alerts to the public will provide their own report. See PLA [July 2021]: Section 1.2| [License Restrictions](#) (page 4). A useful reference is the FAQ *ShakeAlert® Earthquake Early Warning System and Warning Times* from the ShakeAlert Messaging Toolkits.
 - i. Develop messages to quickly describe what happened with an alert (e.g. missed alert). If an alert is cancelled (e.g. false alert), the message should explain what you are doing about it (e.g. investigating) and confirm support for the end user who took protective actions.
 - ii. See Attachment 1 g (Core Messaging) and Post-Alert Messaging Grid in Toolkit
- i. Describe your plan to measure the success of your education and training materials. Feel free to reach out to your ShakeAlert Regional Coordinator on ways to measure the success of your education and training plan.
- j. Describe the mechanism by which clients can contact you with questions regarding your Education and Training Plan
- k. The following disclaimers from the USGS need to be included, as applicable:
 - i. Licensee shall provide the following disclaimer to all Clients that receive and distribute data about earthquakes: *[Legal Name of Licensee] MAKES NO WARRANTY WITH RESPECT TO ANY TECHNOLOGY, GOODS, OR SERVICES USING THE DATA AND HEREBY DISCLAIMS ANY*

WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

- ii. Licensee shall provide the following disclaimer to all clients that receive and utilize ShakeAlert Education and Training Materials:
UNAUTHORIZED OR IMPROPER USE OF ShakeAlert® MATERIALS IS PROHIBITED AND MAY RESULT IN TERMINATION OF THE LICENSE AGREEMENT, BODILY HARM, AND (OR) CRIMINAL PENALTIES. THE U.S. GEOLOGICAL SURVEY (USGS) MAKES NO EXPRESS OR IMPLIED WARRANTY AS TO THE FITNESS OF ShakeAlert® MATERIALS FOR ANY PURPOSE. IN NO CIRCUMSTANCES SHALL THE USGS BE LIABLE FOR ANY LOSS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM PROPER OR IMPROPER USE OF ShakeAlert® MATERIALS, UNLESS AUTHORIZED BY LAW.
- I. Adherence to ShakeAlert approved messaging (see Attachment 1), especially:
 - i. The USGS recommended protective actions
 - ii. USGS approved core messages
 - iii. The magnitude and threshold criteria for delivering alerts.
- m. Appropriate use of the USGS Trademarks: (see [ShakeAlert Trademark Guidelines](#))
 - i. Use the trademark symbol (“™”) when using the ShakeAlert logo (aka hybrid mark)
 - ii. Use the registered symbol (“®”) when using the word ShakeAlert written in camel case (i.e. ShakeAlert®)
- n. The statement “Powered by ShakeAlert®” must be included along with the name of your product in messaging, print materials, website, videos, packaging, etc. Feel free to use [“Powered by ShakeAlert®”](#) graphics which have been translated into several languages including Spanish, Tagalog, Chinese, and Vietnamese.
- o. Inclusion of Disability, Access, and Functional Needs (DAFN) population considerations (see Warning Message White Paper Section II: Assumptions and Considerations in Toolkit)
 - i. Sound
 - ii. Messaging
 - iii. Frequencies
 - iv. Vibration
 - v. Sound sensitivities
 - vi. Text colors

- p. If your product, service, etc. has the ability to facilitate drills or demos, include a description on how a client would utilize this feature.
- q. Consider what steps will need to be taken if, at some point in the future, you discontinue a particular product, service, or other offering to end-users? What if you end your relationship with the USGS which would mean that your access to the ShakeAlert data stream ends. This will vary by the type of implementation, and could include informing users, recommending alternatives, or removing public signage. It is the responsibility of the ShakeAlert partner to notify users if their system no longer provides ShakeAlert-powered alerts.

3. Resources available for use in your Education and Training Plan:

- a. ShakeAlert Materials - ShakeAlert Pilot Partners are permitted to utilize the ShakeAlert Materials as part of their education and training plan. The USGS must be given appropriate credit for the use of any ShakeAlert Materials. While utilizing ShakeAlert branded education and training materials or other ShakeAlert resources PLA and LtO partners must never directly state, imply, give the appearance of, etc. that the USGS endorses your product.
- b. ShakeAlert partner resources - ShakeAlert has established partnerships with many other organizations (e.g., [Earthquake Country Alliance](#), [The Incorporated Research Institutions for Seismology \(IRIS\)](#), [UNAVCO](#)) and share many resources in common (e.g. [Staying Safe Where the Earth Shakes](#)). Appropriate credit for the resource should always be provided.
- c. Partner-developed resources - ShakeAlert PLA or LtO partners are welcome to develop their own education and training materials that address a specific need. They can include the ShakeAlert trademark (i.e. ShakeAlert®) or hybrid mark (as shown at the top of this document) if: [1] partner requests trademark use in writing to the ShakeAlert CEO coordinator, [2] USGS is permitted to review the resource to ensure that the content aligns with the ShakeAlert talking points, and [3] any protective actions recommended must align with USGS recommended protective actions.

Attachment 1 - ShakeAlert Approved Messaging – Core Messaging

Recommendations for Developing ShakeAlert® Technical Education and Training Plans for PLA to LtO Conversion

Basic Education and Training for ShakeAlert Clients and End-Users

- a. WHAT is ShakeAlert Earthquake Early Warning?
 - i. A ShakeAlert Message is an early warning from a network system that detects significant earthquakes quickly enough to alert people and automated systems potentially seconds before shaking arrives
 - ii. ShakeAlert can save lives and reduce injuries by giving people time to take protective action like Drop, Cover and Hold On (DCHO), or moving away from hazardous areas.
 - iii. ShakeAlert is not earthquake prediction, rather a ShakeAlert Message issued by the USGS indicates that an earthquake has begun and shaking is imminent.
- b. WHY should people care? (hazards)
 - i. Earthquakes are a national problem with 143 million people exposed to potentially damaging shaking the United States. Fifty-five million of those people are on the West Coast of the United States in California, Oregon and Washington.
 - ii. Major earthquakes on the Cascadia Subduction Zone or the San Andreas fault can cost billions of dollars in damage and cause thousands of deaths.
- c. HOW can ShakeAlert be used to warn people and initiate automated action to avoid/reduce harm?
 - i. Public use - to get people into a safe place
 1. ShakeAlert is operational in Washington, Oregon, and California. Until further notice alert delivery to mobile devices is in testing mode.
 - ii. Automated operations - ShakeAlert can protect infrastructure by triggering automated actions.
 1. Such as slowing down trains to prevent derailment, opening firehouse doors so they don't jam shut, and closing valves to protect water systems
- d. HOW can people get alerts?
 - i. *Provide information on the type of delivery mechanism(s) (e.g. PA System, signage, etc.) you provide and is being used by your client or end-users*
 - ii. The USGS issues XML formatted ShakeAlert® Messages, but earthquake early warning alert delivery will come by other public and private means (internet, radio, television, cellular), including WEA alerts delivered by FEMA's Integrated Public Alert and Warning System (IPAWS).
 - iii. *State that your product is "Powered by ShakeAlert®". Feel free to make use of the available ["Powered by ShakeAlert®" graphics](#).*
- e. WHEN will I receive an alert?
 - i. Once an earthquake is detected, the initial ground-shaking severity across a region is estimated, and alerts are delivered by ShakeAlert partners to local populations.
 - ii. Alert messages will be issued for all earthquakes over a set magnitude and ground motion thresholds (depending on the user) to warn people and trigger automatic systems in case that earthquake grows to become damaging.

- iii. An earthquake will have one magnitude but can have many shaking intensities depending on your location to the rupturing fault.
 - 1. This is an important concept for users to understand see toolkit for
- iv. Public alerts will be delivered over WEA to an area that is estimated to experience potentially damaging shaking (MMI 4 or greater) for earthquakes of magnitude 5.0 or larger.
- v. Public alerts can also be delivered via apps and operating systems to areas that are estimated to experience shaking at a level (MMI 3 or greater) for earthquakes of magnitude 4.5 or larger.
- vi. Automated action alerts can be delivered to critical infrastructure that is estimated to experience shaking (MMI 3 or greater) for earthquakes of magnitude 4.0 or larger.
- f. HOW much warning time will I get?
 - i. All earthquakes start small and could grow as time passes. Thus, it is not possible to determine immediately after an earthquake starts how large it could eventually become.
 - ii. Alerts can reach many people seconds to tens of seconds before shaking arrives.
 - iii. You may receive a ShakeAlert-powered alert before, during or after shaking arrives depending on your distance from the quake and mechanism used to receive the alert
- g. WHAT are the limitations of ShakeAlert?
 - i. The speed and reach of alert delivery is dependent on the capability of the alert delivery partner. USGS does not deliver alerts and is not responsible for the alert delivery mechanism. USGS generates an XML formatted ShakeAlert Messages but alert delivery comes from different public and private means (internet, radio, cellular) including WEA alert delivered by FEMA's Integrated Public Alert and Warning System (IPAWS).
 - ii. False or missed alerts: False or missed alerts can happen in rare circumstances but will decline in frequency as more seismic sensors are installed and the ShakeAlert system is improved.
 - iii. Late-Alert Zone: There will be a region near the epicenter where shaking arrives before the alert, termed the late-alert zone. ShakeAlert users should take protective actions as soon as they feel shaking whether they have received an alert yet or not.
 - iv. ShakeAlert XML messages are delivered to a variety of different mechanisms for public earthquake early warning alerts and automated operations. For effectiveness and redundancy, it is recommended that you utilize multiple mechanisms to ensure you receive alerts.
- h. WHAT is the ShakeAlert alert content people will get?
 - i. Alert tone... (repeat at least 2 times)
 - ii. Voice message

Earthquake! Earthquake!
Expect shaking
Drop, Cover, Hold On
Protect Yourself now!

- i. Post alert messaging

- i. What is a post alert message?
 - 1. Messages developed to quickly describe what happened with an alert (e.g. missed alert). If an alert is cancelled (e.g. false alert, technical glitch), what we are doing about it (e.g. investigating) and confirm support for the user who took protective actions.
- j. *Provide information on your post-alert messaging content and how delivered (See Post-Alert Messaging Grid for message content).* A useful reference is the FAQ *ShakeAlert® Earthquake Early Warning System and Warning Times* from the ShakeAlert Messaging Toolkits.
 - i. False Alert: A ShakeAlert Message was issued by the USGS with no earthquake recorded.
 - ii. Qualified/Inaccurate Alert: (incorrect location, magnitude, etc) A ShakeAlert Message was issued by the USGS and requires further investigation.
 - iii. Missed alerts: A ShakeAlert Message was not issued by the USGS even though there was a recorded earthquake that met minimum threshold requirements.
- k. WHAT self-protective actions should people take when they get an alert or feel shaking?
 - i. The best action depends on where you are at the time you receive the alert
 - 1. Act quickly, do not wait to feel shaking
 - 2. Drop, Cover, and Hold On under a table or desk
 - 3. If you are in a hallway – down to the ground, next to interior wall, away from glass, roll into a ball covering your head and neck with your arms
 - 4. If you are in a wheelchair or need to remain in a chair – lock the wheelchair or remain seated in the chair, bend over to protect your inner organs, placing your arms over your head and neck
 - 5. Stay in safe place until shaking stops
 - 6. Do not run outside
 - 7. Do not use elevators or stairs
 - 8. Stay away from windows and items that might fall on top of you
 - 9. Be aware of aftershocks A useful reference is the FAQ *ShakeAlert®*

Attachment 2 - ShakeAlert Resource Content

Recommendations for Developing ShakeAlert® Technical Education and Training PLA to LtO Conversion

These resources will assist your understanding of the ShakeAlert system and your ability to communicate aspects of the system and messaging to your staff, clients, and/or end-users. Digital copies of these resources can be found on ShakeAlert.org. The resources you utilize in your plan should be referenced accordingly.

1. Basic Education and Training powerpoint modules for partner staff, clients, and or end-users (*under development*)
 - a. Earthquake Basics
 - b. Earthquake Hazards (regional)
 - c. What is ShakeAlert and how is it used?
 - d. What you do when you receive an alert.
 - e. Magnitude vs intensity
 - f. When will you receive an alert and recommended alert message
 - g. Approved protective actions
 - h. Post alert messaging
 - i. General preparedness – optional
2. Technical Education and Training powerpoint modules for staff and clients (*under development*)
 - a. Same info as above with additional slides
 - i. ShakeAlert architecture and network
 - ii. Benefits of ShakeAlert
 - iii. Uses of ShakeAlert for automated operations
 - iv. 3 ShakeAlert XML messages
 - v. approved thresholds
 - vi. latency criteria
 - vii. limitations
3. [ShakeAlert Messaging Toolkits](#)
 - a. FAQs
4. [ShakeAlert Talking Points](#)
5. [ShakeAlert Protective Actions Guidelines](#)
6. [ShakeAlert PLA to LtO performance criteria](#)
7. [ShakeAlert Technical User Quick Start Guide](#)
8. Post-ShakeAlert Message Follow-Up Messaging Grid
9. ShakeAlert Uses and Benefits (*under development*)
10. [Warning Message Guidelines](#)
11. McBride et. al. ShakeAlert Post Messaging White Paper
12. [Trademark guidelines](#)
13. Logos, Graphics ([ShakeAlert](#), [DCHO](#))
14. Definitions (*under development*)
15. Collaborative Educational Resources
 - a. [IRIS videos and educational resources](#)
 - b. [Rocket Rules Earthquake Resources \(Hero In You Foundation\)](#)

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16. [ShakeAlert System Alerting Thresholds](#)
17. Preparedness key messages
 - a. [Earthquake Country Alliance](#)
 - b. [FEMA – Ready.gov](#)
 - c. [Washington Emergency Management Division](#) (WA EMD) and [Washington Alert & Warning Notifications](#)
 - d. [Oregon Office of Emergency Management](#) and [ShakeAlert in Oregon](#)
 - e. [California Governor’s Office of Emergency Services](#) and [Earthquake Warning California](#)
 - f. Local preparedness resources (e.g. Region, County, City, or smaller municipality).
18. Additional resources
 - a. [USGS Earthquake Hazards](#)
 - b. [Southern California Seismic Network](#)
 - c. [Northern California Seismic Network](#)
 - d. [California Integrated Seismic Network](#)
 - e. [Pacific Northwest Seismic Network](#)

Attachment 3 - Education & Training Plan Checklist

A. Description and architecture of your education and training plan

- Include topics included in your education and training plan (i.e. company and product overview, branding, disclaimers, education plan elements: thresholds, tone and message, product limitations, usage instructions)
- Include a description of the available technical alert delivery mechanisms your education and training plan applies to (see Section 2 *Education and Training Plan Component - Recommendations, 2b*)

B. Provide a description and/or example of the education and training materials that you intend to deliver to your end users (technical training materials, end-user education, packaging, instructional materials, marketing materials, etc).

- Refer to Section 2 *Education and Training Plan Component - Recommendations* when deciding what to include in your Education and Training Plan
- Utilize Attachment 1 *ShakeAlert Approved Messaging – Core Messaging* and Attachment 2 *ShakeAlert Resource Content*
 - If ShakeAlert Education and Training resources are not utilized state that ShakeAlert messaging is adhered to in accordance with recommended guidelines
- Cite ShakeAlert System descriptions properly (i.e., Detection and process of earthquake data (USGS); Delivery of alert (your company))
- Use “Powered by ShakeAlert™” with product messaging, print materials, website, videos, etc.
- Identify education and training audience types (e.g. staff, clients, end-users, etc.)
 - If applicable, describe training plans for each type of audience
- If applicable, mention any marketing plans and include marketing materials in your educational plans
- List all languages your materials are available in and any DAFN considerations
- Include protective actions (Attachment 2, #5)
- Utilize correct ShakeAlert Trademark Guidelines (Attachment 2, #12)
- Include magnitude and threshold criteria for delivering alerts

- Include any limitations to the product (areas of availability, etc.)
 - If necessary, include instructions on how to operate the product in your education materials or reference to an instructions manual
- C. Provide a description of how the education and training will be disseminated and made available to clients and recipients of the ShakeAlert message (website, video, power point, packaging, fact sheet, train-the-trainer)
- Describe whether you, the client, or customer will be responsible for the education and training to the end-user of the ShakeAlert message
 - If you do not conduct the training ensure the training provider has the approved talking points that include the ShakeAlert Message, alert tone, protective actions, magnitude and intensity thresholds, and how/when alerts will be received
- D. Describe how you will be available to your clients, staff, and or end-users for questions or other inquiries related to education and training of end-users. LtOs are encouraged to provide resources on their website, utilize social media, packaging, etc. LtOs are invited to make use of the ShakeAlert Messaging Toolkits. Many of these resources were produced with feedback from technical partners like you. (see Attachment 2, #3)
- E. Include a description of your plan to deliver Post-ShakeAlert Message Follow-up Messages and how these are included in your education and training plan (see Section 2 *Education and Training Plan Component - Recommendations, 2h* and Attachment 2, #8)
- F. Include a method for how you will measure the success of your education and training plan and materials
- G. When ready to submit your Education and Training Plan to the USGS...
- Request that your *Regional Coordinator* review your plan (*see contact info listed above*)
 - When your Regional Coordinator approves your plan for USGS review, the plan would be added to your Statement of Work and submitted to USGS, Robert de Groot, rdegroot@usgs.gov for final approval