EDUCATION & TRAINING GUIDELINES

This document provides guidance to ShakeAlert® Technical Partners for the development of an Education & Training Plan, which is a requirement for a Pilot Agreement to License to Operate (LtO) conversion.

To maximize the impact of ShakeAlert-powered products and services, Licensed Operators are required to educate end-users on topics such as how the ShakeAlert System works, what protective actions to take, and what they can expect from an LtO's product or service. All ShakeAlert Technical Partners must have a USGS-approved Education & Training (E&T) Plan in place before Pilot-to-LtO conversion. Provided in the form of a written report, the E&T Plan will be one of two supporting documents submitted to the USGS (the other will be the Technical Performance Report) before the Pilot-to-LtO Performance Review with USGS representatives.

This Education & Training Guidelines document describes the components of an E&T Plan. Per the terms of the License Agreement, the proposed E&T Plan must be implemented within six months after LtO conversion (i.e., full execution of the Pilot License Agreement [PLA] to LtO amendment). If the licensee needs to change any aspect of the E&T Plan after LtO conversion, the USGS must be consulted, as changes could require an LtO amendment. Failure to implement the E&T Plan on schedule could result in license suspension until the E&T Plan is implemented.

Education and training will always be a work in progress. The ShakeAlert Communication, Education, Outreach, and Technical Engagement (CEO&TE) team is ready to help. Contact a Technical Engagement Regional Coordinator (see p. 4) to assist you as you develop your E&T Plan.

Definitions

TECHNICAL PARTNERS

ShakeAlert Technical Partners execute a **Pilot License Agreement (PLA)** with the USGS to research, develop, and internally test innovative ways to use ShakeAlert Messages for the delivery of ShakeAlert-powered products and services to the public and automated systems. The goal of the PLA is conversion to a **License to Operate (LtO)** status through successful completion of a ShakeAlert Performance Review with the USGS.

License to Operate (LtO) Partners have met the terms of the Statement of Work (SOW) of a well-defined use case in their ShakeAlert License Agreement via a USGS administered Performance Review. Ultimately, LtO Partners are approved by the USGS to distribute or sell their ShakeAlert-powered product or service.

END-USERS

End-users receive ShakeAlert-powered products or services from LtO Partners. End-users include people who receive these products or services directly (e.g., to their cell phones), as well as organizations that work with an LtO Partner to implement automated "machine-to-machine" actions (e.g., slowing or stopping a train or issuing a public address alert that shaking is expected).

COMPONENTS OF AN EDUCATION & TRAINING PLAN

Use this checklist to ensure your Education & Training (E&T) Plan includes these components. This checklist can also serve as the structure/outline for your E&T Plan.

I. Background on your company and your ShakeAlert-powered product(s) and/or service(s)

- ❑ Briefly describe your company or organization.
- ❑ Describe what ShakeAlert-powered product(s) and/or service(s) you will offer to end-users and how they will be delivered. *(Examples: VOIP, sirens, message boards, voice-activated fire alarm box)*
  As applicable, describe any automated machine-to-machine actions. *(Examples: close/open valves, start generator, slow machinery).*

II. Education & Training Audiences

- ❑ Define your audiences. Who needs to know about your ShakeAlert-powered product(s) and/or service(s)? *(Examples: in-house technical staff, faculty and students, train operators and passengers, hospital administrators and patients, customers of retail products)*
- ❑ For each audience listed, briefly summarize their needs for information. *(Examples: technical details, protective actions)*

III. Description of Education & Training Materials

The following components should be included in your E&T materials.

E&T Materials Overview

- ❑ For each audience, provide a description and/or examples of the E&T materials you intend to deliver to end-users. *(Examples: technical training materials, end-user education, packaging, instructional materials, marketing materials, etc.)*
- ❑ Identify key messages you will use with your audiences for each ShakeAlert-powered product or service. *(Available resources include Attachment to this document, ShakeAlert Messaging Toolkit FAQs)*

Recommended Responses to ShakeAlert-powered Alerts

- ❑ As applicable, describe the protective actions you recommend for end-users who will receive alerts. *(Available resources include Drop-Cover-Hold On graphic, ShakeAlert Protective Actions Guidelines)*
- ❑ As applicable, describe the recommended responses/actions to any automated actions initiated for each ShakeAlert-powered product or service.

Product Details Included in E&T Materials

- ❑ As applicable, provide an example or detailed description of the content information delivered to end-users. *(Examples: audio alert tones, voice- or text-based messaging [e.g., "Earthquake! Earthquake! Expect shaking. Drop, Cover, Hold On. Protect yourself now."])*
- ❑ Provide information about any limitations of each product or service. Communicating expectations to end-users is indispensable and a matter of safety. *(Examples: geographical areas of availability, allowable automated actions, limitations of earthquake early warning in general)*
- ❑ Identify magnitude and intensity threshold criteria for delivering alerts or initiating automated actions. *(Examples: alerting users for earthquakes of M 4+ where shaking is MMI 3+, starting backup generators if M 5.5+ and MMI 4.5+)*

- ❑ Describe how you plan to deliver Post-ShakeAlert Message Follow-up Messages to end-users. If you do not plan to deliver Follow-up Messages, explain why not.

  (Available resources include: FAQ: ShakeAlert Warning Times [see p. 5], Follow-up Message Guidance [available only to licensed Technical Partners with a Gitlab account].)

Accessibility

- ❑ List all languages in which your E&T materials are available. *(Available resources include: ShakeAlert Multilingual Content)*
- ❑ Describe any accommodations for providing E&T to people with access and functional needs.
- ❑ Describe any access and functional needs considerations for your product/service and your E&T.
  (Examples: alternative communication modes for end-users who are Deaf, Blind, or Deaf/Blind.)
  (Available resources include: Inclusive and Culturally Competent Messaging: A Best Practices Guide for ShakeAlert Partners & Earthquake Educators [including its appendix for Alt Text for Document and Digital Accessibility])

E&T Material Requirements

- ❑ Describe how your ShakeAlert E&T will be delivered to end-users. Include your plans for E&T for each audience identified in Section 2.
  (Examples: website, video, slides, packaging, fact sheets, train-the-trainer content)
- ❑ If applicable, include instructions on how to operate the product/service or refer to an instruction manual.
- ❑ If applicable, describe who will be responsible for E&T of end-users. The ShakeAlert CEO&TE team will not be responsible for your training of end-users but may offer resources and assistance.

IV. Delivering Education & Training

- ❑ Describe how your ShakeAlert E&T will be delivered to end-users. Include your plans for E&T for each audience identified in Section 2.
  (Examples: website, video, slides, packaging, fact sheets, train-the-trainer content)
- ❑ If applicable, include instructions on how to operate the product/service or refer to an instruction manual.
- ❑ If applicable, describe who will be responsible for E&T of end-users. The ShakeAlert CEO&TE team will not be responsible for your training of end-users but may offer resources and assistance.

V. Continuing Engagement

- ❑ As the technical capabilities of the ShakeAlert System evolve, so too must E&T materials and resources. Describe how you will provide and update E&T materials and resources on your website, social media, packaging, etc. *(Available resources include: ShakeAlert Messaging Toolkits and other content available on ShakeAlert.org)*
- ❑ Please list the social media channels you use and provide your handle(s).
- ❑ **(Optional)** Encourage end-users to follow @USGS_ShakeAlert on Twitter and visit usgs.gov/ShakeAlert.
  (Available resources include: ShakeAlert Messaging Toolkits and other content available on ShakeAlert.org)
- ❑ If applicable, describe your plans to notify end-users if your product/service becomes unavailable (e.g., service interruption or failure, etc.) or becomes unsupported at some point in the future.

VI. Measuring Success (optional)

- ❑ As the technical capabilities of the ShakeAlert System evolve, so too must E&T materials and resources. Describe how you will provide and update E&T materials and resources on your website, social media, packaging, etc. *(Available resources include: ShakeAlert Messaging Toolkits and other content available on ShakeAlert.org)*

VII. Marketing Materials (optional)

- ❑ If applicable, provide examples of marketing materials that relate to each ShakeAlert-powered product and/or service.

SUBMIT YOUR E&T PLAN

- ❑ Send your E&T Plan to your Technical Engagement Regional Coordinator for review. If needed, schedule a meeting with your Technical Engagement Regional Coordinator to discuss feedback. Revise your E&T Plan based on feedback from them.
- ❑ Prior to your LtO Performance Review, submit your E&T Plan to the USGS for review. You may submit the Technical Performance Report as well, but these two documents are not required to be submitted at the same time.
- ❑ The USGS might provide further feedback and request revisions to your E&T Plan. If needed, meet with the USGS to discuss revisions; otherwise, submit the revised E&T Plan to the USGS.
- ❑ If the Technical Performance Report has already been approved by the USGS, schedule an LtO Performance Review.

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APPROVED CORE ShakeAlert® MESSAGING FOR TECHNICAL PARTNERS

EDUCATION & TRAINING FOR ShakeAlert TECHNICAL PARTNERS AND END-USERS

This Education & Training Guidelines document contains considerable core information and talking points about the ShakeAlert System. Technical Partners are encouraged to draw from this document when developing an Education & Training Plan and when communicating publicly about ShakeAlert. Focus areas identified below contain links to additional information; however, this is not an exhaustive list and many of the points require further explanation, which can be found in other supporting documents available on ShakeAlert.org. Your Technical Engagement Regional Coordinator will work with you to develop your Education & Training Plan.

Note: ShakeAlert core messaging may be updated periodically. Always refer to the ShakeAlert Talking Points document for current messaging about the ShakeAlert System.

1. WHAT is the ShakeAlert® Earthquake Early Warning System?

a) The ShakeAlert Earthquake Early Warning (EEW) System detects significant earthquakes so quickly that alerts can reach many people before shaking arrives.

b) ShakeAlert is NOT earthquake prediction. Rather, a ShakeAlert Message indicates that an earthquake has begun, and shaking is imminent.

c) ShakeAlert can save lives and reduce injuries by giving people time to take protective action, such as DROP-COVER-HOLD ON (DCHO) or a modified protective action for those who are unable to drop to the floor, or by moving away from hazardous areas.

d) ShakeAlert can protect people and infrastructure by triggering automatic actions, such as slowing or stopping trains to prevent derailments and avoid injuries, opening firehouse doors so they don't jam shut, and closing valves to protect water systems.

e) ShakeAlert is operational in Washington, Oregon, and California.

See *FAQ: ShakeAlert Basics*.

2. WHY should people care about ShakeAlert?

a) Earthquakes are a national problem that exposes millions of people to potentially damaging shaking in the United States. Among the West Coast states of California, Oregon, and Washington, about 55 million people are at risk from earthquake-related hazards.

b) Major earthquakes on the Cascadia Subduction Zone or the San Andreas Fault can cause thousands of deaths and cost billions of dollars in damage. Most earthquake injuries in the US come from falling objects or being knocked over.

See *FAQ: ShakeAlert Basics*.

3. HOW can ShakeAlert be used to warn people and initiate automated action to avoid/reduce harm?

a) Alerts to people encourage them to take self-protective action when they feel shaking or get an alert.

b) Machine-to-machine alerts trigger automated operations that can protect critical systems and vital infrastructure.

See *FAQ: How to Become a Technical Partner*.

4. HOW can people get ShakeAlert-powered alerts?

a) The USGS issues XML-formatted ShakeAlert Messages to Technical Partners who distribute them to end-users.

b) Earthquake early warning alert delivery may come through various means, such as Wireless Emergency Alerts (WEA) delivered to cell phones via FEMA's Integrated Public Alert and Warning System (IPAWS), or downloadable apps.

See *FAQ: The ShakeAlert Seismic Network and Its Collaborators* and *How do I Sign Up for ShakeAlert?*

5. WHEN will I receive an alert?

a) Once an earthquake is detected, the initial ground-shaking intensity across a region is estimated, and alerts are delivered to local populations by ShakeAlert Technical Partners.

b) ShakeAlert Messages will be issued for all earthquakes that surpass specific *magnitude* and ground shaking *intensity* thresholds. An earthquake has a single value for magnitude but creates shaking of various intensities, depending on one's distance to the rupturing fault.

See *FAQ: ShakeAlert Basics*, *FAQ: ShakeAlert Earthquake Early Warning System and Times*, and *FAQ: Magnitude, Intensity, and ShakeAlert*.

6. HOW much warning time will I get?

a) All earthquakes start small and grow as time passes. Thus, it is not possible to determine immediately after an earthquake starts how large it will eventually become.

b) Alerts can reach many people seconds before shaking arrives.

c) You may receive a ShakeAlert-powered alert before, during, or after shaking arrives, depending on your distance from the quake and how you receive the alert.

See *FAQ: ShakeAlert Earthquake Early Warning System and Warning Times*.

7. WHAT are the limitations of ShakeAlert?

a) The speed and reach of alert delivery depends on the capability of the alert delivery partner. USGS does not deliver alerts to end-users and is not responsible for the alert delivery mechanism. USGS generates ShakeAlert Messages, but alert delivery is performed by Technical Partners.

b) 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.

c) There is a region near the epicenter where shaking arrives before or concurrently with the alert; this is termed the late-alert zone.

d) It is recommended that multiple alerting mechanisms/apps be used to increase the likelihood of end-users receiving alerts.

See *FAQ: ShakeAlert Earthquake Early Warning System and Warning Times*.

8. WHAT is a Post-ShakeAlert Message Follow-up Message?

a) ShakeAlert Messages are reviewed by a USGS Duty Staff Review Team several minutes after they are issued. Results of the evaluation are sent in the form of a short text message, called a Follow-up Message.

b) There are four categories of a Follow-up Message:
Successful: A ShakeAlert Message was issued with a reasonable estimate of location, magnitude, and ground shaking intensity.

Inaccurate: A real earthquake occurred, causing the ShakeAlert Message to be issued, but the system miscalculated the location and/or magnitude, such that the alert area poorly represented the shaken area.
Canceled: A ShakeAlert Message was issued by the USGS with no earthquake recorded.
Missed: A ShakeAlert Message was not issued by the USGS, even though there was a recorded earthquake that met minimum threshold requirements.

See *FAQ: ShakeAlert Earthquake Early Warning System and Warning Times*.

9. WHAT self-protective actions should people take when they get an alert or feel shaking?

a) If you are indoors, stay there and **DROP-COVER-HOLD ON**. If you are near a sturdy table or desk, crawl underneath it, cover your head with one arm/hand, and hold onto a table/desk leg with the other hand until shaking stops.
b) If you are unable to drop to the floor, bend over to protect your vital organs. Cover your head and neck with your arms and hands. Cover your head with a book or pillow if one is nearby. Stay there until shaking stops.
c) If you are in a bed, turn onto your stomach. Cover your head with your pillow or covers. Stay there until shaking stops.
d) If you are on the coast, wait for shaking to stop. Then, go to high ground or inland immediately. The shaking is your warning that a tsunami may be on the way. Stay there until local officials tell you it's safe to return. Be aware that tsunami waves may arrive for hours.
e) Stay in a safe place until the shaking stops. The USGS does not recommend responding to a ShakeAlert-powered alert by running outside. The best action to take depends on the situation you are in when you receive the alert. For more information on appropriate protective actions under various circumstances, see *ShakeAlert: Frequently Asked Questions*, *infographics that describe and depict self-protective actions,* and a series of *ShakeAlert short videos* that describe the variety of protective actions.