ShakeAlert™

ShakeAlert® Communication, Education, Outreach, and Technical Engagement

"Earthquake Early Warning for All"

California – Oregon – Washington
Technical Engagement

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Education & Training Guidelines

The purpose of this document is to provide guidance to ShakeAlert® Technical Partners for the development of an Education and Training Plan, a requirement for Pilot Agreement to License to Operate (LtO) conversion.

In order 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 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 plan will be one of the two supporting documents submitted to the USGS (the other is the Technical Performance Report) before the Pilot to LtO Performance Review with USGS representatives.

This document describes the components of an E&T plan. Per the terms of the license agreement, the proposed plan must be implemented within six months after LtO conversion (i.e. full execution of the PLA to LtO amendment). If the licensee needs to change any aspect of the 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 plan is implemented.

E&T will always be a work in progress. The ShakeAlert Communication, Education, Outreach, and Technical Engagement (CEO&TE) team is ready to help. Contact information for the Technical Engagement Regional Coordinators is available below. One of their roles is to help you as you develop your E&T plan.

Components of an Education & Training Plan

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

1 E&T Audiences:

- Define your audiences: Who needs to know about your ShakeAlert-powered product(s) or service(s)? *(Examples include: 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 include: technical details, protective actions)*

2 Background on your company and your ShakeAlert-powered product(s)

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

3 Description of E&T 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 your end-users. *(Examples include: 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 your 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 your end-users *(Examples include: 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 your end-users is indispensable and a matter of safety. *(Examples include: 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 include: alerting users for earthquakes of M 4+ where shaking is MMI 3+, starting backup generators if M 5.5+ and MMI 4.5+)*
- Describe your plan to deliver Post-ShakeAlert Message Follow-up Messages to your end-users. If you do not plan to deliver Follow-up Messages, explain why not.

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

Accessibility

- List all languages your materials are available and describe any accommodations for those with Access and Functional Needs.
  (Available resources include: ShakeAlert Multilingual Content)
- Describe any Access and Functional Needs considerations for your product and your E&T.
  (Examples include: alternative communication modes for Deaf or Blind end-users)
  (Available Resources: Alt Text for Document and Digital Accessibility: Best Practices, inclusive and Culturally Competent Messaging: A Best Practices Guide for ShakeAlert Partners & Earthquake Educators)

Keep in mind the following requirements when developing E&T materials:

- Follow ShakeAlert Trademark Guidelines.
  (Available resources include: ShakeAlert logo, ShakeAlert Trademark Guidelines)
- Include USGS-mandated disclaimer language to all end-users who receive ShakeAlert-powered products and/or services.
  (Available resources include: ShakeAlert Pilot License Agreement (Disclaimers; Warranties; Limitation of Liability sections)
- Use “Powered by ShakeAlert” as applicable with product messaging, print materials, website, videos, etc.
  (Available resources include: What does it mean to be Powered by ShakeAlert?, Powered by ShakeAlert graphics/stickers)

4 Delivering E&T

- 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 include: website, video, slides, packaging, fact sheet, train-the-trainer)
- If applicable, include instructions on how to operate the product or refer to an instruction manual.
- If applicable, describe who will be responsible for education and training of end-users. The ShakeAlert CEO&TE team will not be responsible for your training end-users but may offer resources and assistance.

5 Continuing Engagement

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

6 Measuring Success (optional)

- Describe your method(s) for defining and measuring the success of your E&T Plan and materials. *(Examples include: End-users conduct earthquake drills; end-users properly respond to the alert in a real or drill event; quizes or other training modules)*

7. Marketing Materials (optional)

- If applicable, provide examples of marketing materials that relate to each ShakeAlert-powered product and 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 TE Regional Coordinator to discuss feedback. Revise your report 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 they are not required to be submitted at the same time.
- USGS might provide further feedback and request revisions to the E&T plan. If needed, meet with USGS to discuss revisions, otherwise submit the revised E&T plan to USGS.
- If the Technical Performance Report has already been approved by USGS, schedule an LtO Performance Review.

Approved Core ShakeAlert® Messaging for Technical Partners

Basic Education & Training for ShakeAlert® Technical Partners and End-Users

This document contains considerable core information and talking points about the ShakeAlert System. Technical Partners are encouraged to draw from this document as they develop their Education and Training Plan and communicate publicly about ShakeAlert. Each topic contains links to further information. However, this is not an exhaustive list and many of the points require further explanation which can be found in other supporting documents such as the ShakeAlert FAQ, on ShakeAlert.org, and in other locations. Your Technical Engagement Regional Coordinator will work with you to develop your education and training plan.

Note: ShakeAlert core messaging may be periodically updated. 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 by moving away from hazardous areas.

    d) ShakeAlert can protect people and infrastructure by triggering automatic actions like slowing down trains to prevent derailments, 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) People alerts – to encourage people to take self-protective actions when they feel shaking or get an alert.

b) Automated operations – ShakeAlert can protect critical systems and vital infrastructure by triggering automated actions.

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 public and private means (internet, radio, television, cellular), including WEA alerts delivered by FEMA's Integrated Public Alert and Warning System (IPAWS).

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 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 to tens of 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 they 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, termed the late-alert zone.

d) It is recommended that end-users utilize multiple mechanisms to increase the likelihood of 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 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, **Drop, Cover, and Hold On**. If you are near a sturdy table or desk crawl underneath it and hold onto a leg until shaking stops.
b) 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 *Earthquake Country Alliance: Drop, Cover, and Hold On*. See also *ShakeAlert: Frequently Asked Questions*.