Virtual Exercise Best Practices

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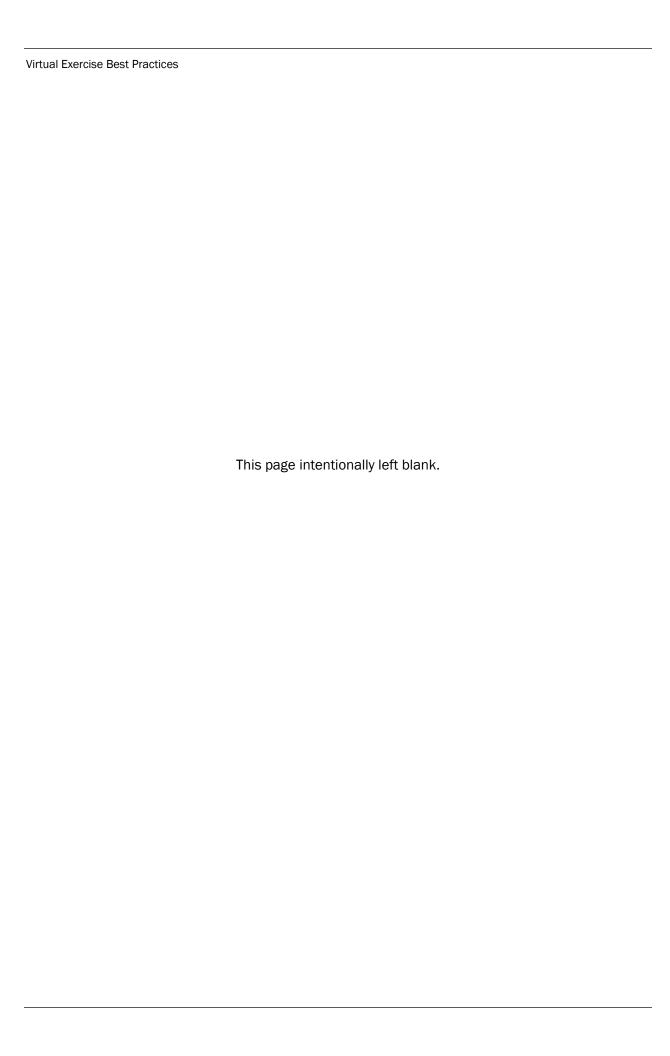
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1.   Purpose

When the COVID-19 pandemic restricted travel and in-person meetings, many federal and state, local, tribal, and territorial (SLTT) organizations continued their preparedness efforts through virtual exercises. Since some level of restriction is likely to continue into the near future, the Federal Emergency Management Agency (FEMA) National Exercise Division (NED) developed this collection of virtual exercise best practices from across all levels of stakeholders. These approaches help organizations effectively use virtual exercises to validate capabilities and drive continuous improvement.

This guide provides:

- Benefits and challenges to conducting a virtual exercise;

- Considerations for platform testing and pre-conduct logistics; and

- Actions to take before, during and after a virtual exercise.

These lists are not exhaustive. Modify this information as appropriate for your organization or jurisdiction.

NOTE: Because virtual platforms are constantly evolving, this guide does not explore the features of specific platforms – it is a tool to enhance exercise planning, design, and logistics in a virtual environment. Not all considerations discussed in this guide will apply to all platforms.

2.   Benefits and Challenges of Virtual Exercises

Virtual exercises offer benefits as well as present challenges. Table 1 summarizes observations to help organizations successfully design and conduct future virtual exercises.

Table 1: Benefits and Challenges of Virtual Exercises

Factors	Benefits	Challenges
Participation	**Personal safety** – People can participate safely in virtual exercises when safety is a determining factor as to whether an exercise can be held or not. **Potential for expanded participation** – Those who have previously been unable to attend, including additional organizations and key support partners, can participate without the cost constraints or schedule conflicts of travel.	**Not all exercises are suited to virtual delivery** – Some exercises require simulating real-world response conditions and face-to-face working relationships. **Dealing with the platform controls can distract participants** – If participants are unfamiliar with the platform, working the controls can distract them from exercise conduct. **Building trust** – This can be more difficult in a virtual environment with

Factors	Benefits	Challenges
	Ease of including observers – Removal of travel barriers expands the ability to include observers in the exercise. **Reduced in-person "intimidation" factor** – Staff and participants who might not normally verbalize or document their questions, concerns, or ideas may feel more comfortable doing so through the platform or chat.	limited access to in-person cues or body language.
Technology	**Enhanced collaboration** – Planning team members can leverage collaboration tools and interactive features to produce improved discussions. **Increasingly comparable experience** – As platforms improve their tools (e.g., breakout rooms, polling, video integration), virtual exercises are becoming more engaging and informative.	**Different platforms have different functionality** – Selecting a platform requires researching and testing functionality against the needs of the exercise and users. **Disability and other access and functional needs considerations** – Virtual exercises still require considering participants with access and functional needs and their accommodations may be less familiar to all parties. **Quality of experience partially depends on individual equipment** – Internet connectivity or hardware concerns can impact exercise conduct for participants. **Platforms are constantly updated** – Facilitators and user guidance must be kept current. **Involvement or knowledge of IT is needed** – IT and software policies evolve and require exercise planners to understand implications on desired platforms.
Logistics	**Cost-effective** – Savings in travels costs can be used for additional exercise materials or other organizational needs. **No need for venue coordination** – Virtual exercises do not require an exercise conduct venue.	**Level of coordination may be underestimated** – Virtual exercises may increase the planning and coordination. **Presenters must leverage the platform effectively** – They must manage participant engagement and correctly use other mechanisms (e.g. chat, polling) to capture key findings.

2.1.   Planning, Logistics, and Coordination

Virtual exercise planning considerations and key planning milestones should be consistent with the Homeland Security Exercise and Evaluation Program (HSEEP) doctrine and apply pre-conduct, conduct, and post-conduct planning factors. Appendix A provides a Platform Comparison spreadsheet with considerations for platform choice and a Virtual Master Task List of tasks to be conducted before the exercise.

3.   Pre-Conduct Considerations

This table highlights essential considerations when planning a virtual exercise:

Table 2: Virtual Exercise Planning Considerations

Area	Consideration
Who and What	▪ Develop a realistic scope and objectives. Understanding the objectives helps determine the format, complexity and targeted discussion areas early in the planning process. ▪ Determine the format to best achieve the objectives (e.g., single exercise, multiple smaller exercises, pre- "working group," academic sessions). ▪ Identify the expected scale. Mass participation may not accomplish the objectives and may produce technical issues or distractions. ▪ Consider limiting participation. Identify primary agencies and organizations participating and allow other invitees to observe to gather ideas for their own organizations/jurisdictions. ▪ Provide an appropriate number and length of breaks.
Where and When	▪ Research platforms to find the best match for exercise requirements, objectives and accommodations. ▪ Plan requests for accommodations such as real time captioning, interpretation services, and other commonly offered accommodations in your community. All materials should be 508 compliant and available in alternate formats. ▪ Develop contingency plans (e.g., another platform, teleconference options) in case of technical issues during exercise conduct. ▪ Identify clear decision points for leaders and instructions for participants.
How	▪ Provide test sessions or a short welcome video on the platform to participants. These introduce the platform; build competence and confidence; encourage positive virtual etiquette; and identify issues prior to conduct. ▪ Research communication preferences of panelists, critical participants, and senior leaders. ▪ Make a user checklist so that participants can connect, join the audio, troubleshoot common issues, and participate effectively. ▪ Arrange for technical support to be available.

3.1.   Virtual Exercise Platform Features

Determine which platform features meet the exercise objectives and whether supplementary staffing Features to consider include:

- **Suitability of existing organization platforms** – State and local stakeholders have found that using the platform they use for real-world operations leverages existing access and familiarity.

  - Organizational/jurisdictional restrictions may limit the ability of external participants to connect through the platform. Consider different platforms for internally focused exercises versus those with external participants.

  - Consider the impacts Virtual Private Networks (VPNs) or other applications may have (e.g., limiting bandwidth, blocking platforms).

  - If no other platform is available, consider creating guest accounts for external participants.

- **Application vs. web browser differences** – Many platforms offer both application and web browser versions. The application version should be the default choice for exercises, but some participants' connections may require them to use the web browser version. Determine if the web browser version has any reduced functionality and communicate that to participants prior to the exercise.

- **Controlled Unclassified Information (CUI)[1] compliance** – Confirm that the selected platform can host discussions at the appropriate security level and communicate the correct controls to exercise participants to avoid information spills.

- **Chat function** – Chat is an option for participants to sign in and communicate with each other during the exercise, and for the exercise staff to convey information. Pull key findings from the chat function into the live discussion and incorporate them into the After-Action Report.

- **Audiovisual features** – Platforms with high-quality audio and video capabilities can incorporate simulated videos, such as news reports, for a more realistic exercise.

- **Recording capabilities** – Some platforms have built-in recording capabilities. This feature may not apply to breakout rooms. Consider the positive and negative consequences of recording the exercise, such as AAR development, future audits, or inspection use, and providing the recording to stakeholders who were unable to attend the live event.

- **Teleconference integration and audio connection** – Platforms differ in their audio capabilities. Options may include:

  - Audio connection via participants' computer, phone or tablet tied to their platform log-in

  - Log-in on a computer, phone or tablet with an audio connection via phone.

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[1] Formerly For Official Use Only (FOUO).

– In this option, the participant receives a call or a specific number with a passcode, marrying their computer or tablet log-in and their audio connection.

– Ask participants to log into the platform and have their audio input tied to their log-in, not a standalone phone number, as it is difficult to identify participants by phone numbers.

o Direct dial-in via a phone number and passcode that identifies the participant without a platform log-in. This should be the last option chosen, as some platforms limit functionality for users who only call in, such as the ability to join breakout groups.

– Determine whether to allow phone-only participation and identify participants who are limited to phone-only participation prior to conduct.

o If a platform's audio capability is poor, consider using a teleconference line alongside a platform delivering the content, chat and other features. For this option, disable the built-in audio.

- **Multiple hosts** – Assigning multiple or co-hosts enables greater distribution of responsibilities and provides a backup for tasks such as admitting participants into the platform, sharing content and muting participants. Co-hosts are also a backup if the host experiences technical difficulties.

  o Hosting access may differ for external users.

- **Breakout groups** – Platforms have different capabilities, features and restrictions for breakout groups. Choose a platform whose capabilities align with the planned use and needs.

- **Closed captioning** – Platforms should provide live captioning or the ability to incorporate Computer Assisted Real-Time Transcription (CART) services.

- **Chat in multiple languages** – Some platforms can instantly translate a message if English is not a participant's primary language. Consider whether the exercise needs this function.

The Federal Relay Service

FedRelay provides real-time captioning services for federal agencies and tribal governments to conduct official business.

- If requesting the use of FedRelay for conference captioning, request the service no later than 24 hours in advance.

- To order FedRelay services, Designated Agency Representatives (DARs) or agency contracting officers should place a task order directly with the vendor to set up an ordering and billing arrangement.

See the [FedRelay website](#) for more information.

3.2.   Registration

Although virtual exercises allow broader participation, exercise planners should limit access to the participants needed to accomplish the exercise objectives. Much like in-person exercises, exercise planners should decide if formal registration is required, based on the classification and sensitivity of the subject matter and the expected number of participants.

- Establish the registration process early and determine whether to use an online tool or direct email invitations. Early and ongoing registration allows the opportunity to vet registrant requests for access to the platform invitation.

- Consider the operational security posture when promoting the exercise, sending invitations and determining platform access to participants.

  - As appropriate, consider using an email setting on the invitation to prevent recipients from forwarding it.

  - Avoid the assumption that virtual exercises are "open door" events.

- Request participant contact information to provide exercise documentation and key information, as well as gathering details for post-exercise activity.

- Categorize expected participants by role, especially in large or senior-level exercises:

  - Subject matter expert (SME)/Panelist/Speaker

  - Primary/Critical participant (expected to contribute often)

  - General participant (may contribute or be conferred with by a critical participant)

  - Observer (not expected to contribute or interact).

- Establish and be prepared to enforce a standard for participant screen names (e.g., title or rank, name, organization/jurisdiction). Provide it to participants prior to the exercise and reiterate it during the opening participant brief. Include instructions to users on how to edit their screen name.

- In exercise invitations and throughout the registration process, ask participants to notify the exercise planning team if they require reasonable accommodations to participate (e.g. an interpreter, closed captioning, large print).

  - Provide contact information for your organization's/jurisdiction's Office of Equal Rights, or equivalent, to help participants arrange appropriate support.

  - Reasonable accommodation considerations should be accounted for in the exercise budget and provided by the sponsor.

3.3.   Participant Preparation

- Understand where participants are connecting from in advance. Weigh security and safety considerations of allowing participants to co-locate with peers or senior leader(s) and connect to the exercise as a unit.

- Determine the read-ahead material to provide to participants and the timing to provide it. Read-ahead materials could include a platform user guide, a set of general discussion questions, key themes, scenario information, and key exercise information and contacts (e.g. organizers, safety).

  - Platform user guides are a best practice for all virtual exercises, and should include the following:

    – How to connect and basic user troubleshooting

    – Platform features

    – Accessibility accommodations

    – Translation service instructions

    – Contact information for support resolving technical issues

- Ask participants to validate their identity upon log-in, using either their log-in screen name or confirming their name in the chat feature. Asking for their organization/jurisdiction name gives the facilitator a comprehensive list of organizations/jurisdictions to engage during the exercise.

  - Consider how to handle unexpected, unwelcome, or unidentified persons gaining access to the exercise, to preserve operational security.

- When providing the web link to the platform, include dial-in information to any separate teleconference (for those who cannot connect through the platform, are hard of hearing, or for captioning services) and interpreter accommodations (for sign language or translation services).

> Schedule platform tests and rehearsals for all exercise planning team members and critical participants. Practice using the same equipment and internet connection that conduct will use, to builds competence in the platform and identify issues early. Provide numerous test sessions and offer individual sessions if needed.

3.4.   Exercise Documentation

- Consider your audience when developing effective and concise documentation. Participants may be unable to prepare for the exercise due to real-world operations, making exercise documentation crucial.

- o Design documentation to be read on a computer, tablet, or phone, as not all participants have access to printers, and some may wish to reference materials on an alternate device while conducting exercise play on their computer.

- o Develop a short document or double-sided placemat in addition to the larger Situation Manual (SitMan). Short documents are often more engaging to participants.

- Ensure accessibility of materials. Electronic versions (or "soft copies") of documents (e.g. agenda, supporting materials) should comply with the accessibility requirements in Section 508. Videos must be captioned and include sign language interpretation if applicable.

3.5.   Exercise Staffing

- Clearly define staffing roles and responsibilities prior to conduct, including backup roles. Build redundancies into the staffing plan.

- Consider the benefits and challenges of co-locating exercise staff.

  - o Geographically distributing exercise staff requires additional planning to coordinate and adjust emerging conduct challenges during the exercise.

  - o Having platform administrators or hosts in multiple locations reduces the risks to the exercise in case of an unforeseen issue.

- Consider assigning one or more team members as a direct point of contact for participant troubleshooting and accessibility issues. Scale the number of staff assigned this duty to the size of the exercise.

- Establish a method for the exercise staff to communicate during the exercise that is not visible to exercise participants.

  - o If using the chat function for this purpose, consider the risk of staff forgetting to specify a private recipient and accidentally sending the message to everyone. Possibly designate only one staff member to ever send chat messages to "Everyone," or setup a wholly separate window for organizer chat.

- Consider whether to include exercise facilitator(s) in the primary exercise staff communications mechanism or create a separate mechanism without the facilitator.

  - o Weigh the benefit of communicating participant chat content to facilitator(s) with the risk of distracting them during the exercise.

  - o Consider the level of responsibility the facilitator(s) takes in monitoring the chat and other interactive platform features.

- Make local backup copies of all documentation and access links in case connectivity to cloud sources becomes compromised.

Table 3 lists typical roles and responsibilities for exercise conduct.

Table 3: Staff Roles and Responsibilities

Exercise Staff Role	Exercise Staff Responsibility
Host & Co-Host(s)	- Open the virtual platform for exercise participants and staff to join - Retain all administrative privileges, such as muting, poll deployment and access control - Share, upload or display the conduct presentation or documentation - Notify facilitator of participant concerns - Record the event
Presenter/Panelist(s)	- Brief specific topics as a SME or serve on a pre-identified panel
Technical Support	- Provide group and individual technical support to participants or staff as needed
Interactive Feature Monitor(s)	- Monitor the chat and "raise hand" features - Respond to general, programmatic and platform questions - Notify the facilitator(s) when something needs attention - Assist the host with access control
Liaison	- Coordinate with presenters and panelists

3.6.   Facilitator Considerations

- Consider using multiple facilitators or supporting presenters to engage participants.

- A week prior to the exercise, conduct a walkthrough of the facilitator guide and conduct slide deck with the facilitator(s) to address questions and coordinate final logistical needs.

  o Invite SMEs and additional exercise planning team members.

- Determine the level of responsibility for the facilitator(s), such as whether they manage one or more platform features (e.g. screen sharing, integrating simulated videos, observing the "raised hand" feature, monitoring chat).

  o Provide the facilitator(s) with the necessary exercise documentation if they are sharing their screen during conduct, including the plans being discussed.

- Consider using physical props in the facilitator's space, such as a whiteboard, maps or other reference items; and the visibility of those items to participants including those with visual impairments.

4. Exercise Conduct

4.1. Exercise Staffing

▪ Open the virtual platform at least one hour prior to the start of the exercise. As with an in-person exercise experience, this lets staff answer any pre-conduct questions, request participants to identify themselves by organization/jurisdiction, document participants for registration and conduct a communications check. Do not wait until the published start time of the exercise to open the virtual platform.

▪ Assign a notetaker to keep a "parking lot" list off-topic items or issues to revisit if time allows.

Breakout Sessions

▪ Develop an exercise schedule that incorporates breakout times. Display a timer for participants' reference.

▪ Assign breakout rooms before the exercise.

▪ Many platforms only allow breakout rooms to be labeled by room number (1, 2, 3, etc.)

▪ Assign breakout rooms to participants who had not pre-registered before the first scheduled breakout session.

▪ Notify participants of their assignments during the player briefing.

▪ Each breakout room should have communication with exercise staff. Consider assigning an exercise staff member to monitor each breakout room, communicate with exercise staff regarding session issues, and remain until all participants have left.

▪ Each breakout room should have communication with exercise staff.

▪ Before a breakout session starts, the facilitator and moderators should identify a spokesperson from each group to represent the breakout during the plenary session, so that individual may prepare by taking notes as needed.

4.2. Exercise Documentation

▪ Prepare documentation for participants.

o Assign a staff member to email the read-ahead material to participants who register on the date of the exercise.

o If the material should not be emailed, host the applicable files on the platform for download if applicable.

o All materials must be 508 compliant per the Rehabilitation Act and make accessible in any additional requested formats.

4.3.   Facilitator Considerations

- On open-ended discussion questions, ask participants to use the "raise hand" feature so the facilitator can call on individuals in an organized fashion.

- Ask facilitators to:

  - Target questions or speaking prompts to an individual or organization/jurisdiction, to avoid participants speaking over one another.

  - Address participants by title, name and organization/jurisdiction to cue participants on who is expected to speak and to support notetaking and documentation.

- Notify facilitators when a representative is away, so they can hold questions and discussion.

- During conduct breaks, conduct a staff hotwash to assess exercise play and identify additional engagement methods.

4.4.   Participant Engagement

- Provide information specific to the virtual exercise and the chosen platform during the player briefing, including the following:

  - If the exercise is recorded.

  - Their expected level of engagement (key speaker or observer).

  - How to use features to communicate via raising their hand, using reactions, polling, chat, etc.

  - Ensure that people identify themselves and their title when speaking to ensure those participating via captioning can understand who is addressing the group.

  - The desired way for people to indicate on the platform they step away (such as to attend to real-world issues), and when they return from a break (e.g., chat, polling, raise hand).

  - Expectations to keep the microphone muted.

  - How to turn video on and off.

- Provide one-on-one technical support for participants, so the exercise can continue while troubleshooting occurs.

- Provide information to participants on whether the platform:

  - Has keyboard-accessible media player controls.

- o Includes descriptions of visual content for speaker narration or provides audio descriptions for information relayed through graphics and pictures.

- o Includes live caption and/or translation features with multi-language capabilities.

> Remind participants of the contingency platform or teleconference line during the exercise. This allows participants to transition to backup technology and limits exercise disruption, if needed.

5. Post-Conduct Activity

5.1. Hotwash

- Engage all participants in the exercise hotwash, either via chat or the audio connection.

- Conduct a staff debrief that includes core planning team members and the facilitator.

  - o Use outcomes from the staff debrief to develop lessons learned for exercise design and effectiveness of the chosen platform and to provide initial feedback on the findings of the exercise from evaluators.

- Conduct post-exercise interviews to obtain additional context on the plans and procedures used for evaluation during the exercise.

- Encourage participants to provide feedback through email, survey or polling feature, should they have information to include in the After-Action Report.

5.2. Evaluation Considerations and Participant Feedback

- At the end of the exercise, consolidate the chat comments into one document. Participants may type key findings or provide feedback through this feature to incorporate into the AAR.

- Invite participants to submit a participant feedback form online or through an electronic fillable document returned via email. Request this as soon as possible and consider sending reminders as appropriate/needed.

  - o Provide participants with the option to remain anonymous.

  - o Consider combining feedback on exercise design and objectives, when appropriate.

  - o Use an online form to extract key analysis and metrics for lessons learned in exercise design.

  - o Allow SMEs to provide feedback and additional key findings on exercise outcomes, as needed.

Appendix A: Supporting Checklists and HSEEP Video Series

These checklists include critical items to considered when determining a platform that meets the needs of the sponsor, exercise planners, and participants. After determining the platform requirements based on exercise objectives, conduct platform research and testing with expected stakeholders and participants to identify issues and barriers. Validate all assumptions.

NOTE: This selection testing precedes the final testing and competence sessions just before exercise conduct with the pool of participants registered for the exercise.

The HSEEP video series includes a video on Virtual Exercise Best Practices.

Platform Comparison Considerations and Virtual Master Task List

HSEEP Policy & Guidance - HSEEP Resources - Preparedness Toolkit (fema.gov)

Exercise and Preparedness Tools | FEMA.gov

HSEEP Video Series

HSEEP Video Series - YouTube