White Paper

MaestroEDE

A No-Fail Solution for Exercise
Developers Managing Complexity

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The division commander just directed that she wanted to hold a Command Post Exercise (CPX) for the headquarters staff with elements of joint forces, and the exercise director (ED) was given five months to pull something together. The ED provided the planning team with a list of training objectives (TO) that the commander wanted linked to mission essential tasks (METS)/battle task standards (BTS) that carry through to exercise injects. To save money on travel and living expenses the ED wants to do most of the development remotely, with the scripting happening in different locations—but version control and tracking development progress with a dispersed team will be difficult.

The ED was very clear that he wants to ensure that the pace of the exercise will provide an even, robust strain on the HQ staff and would like some way to visualize the workload. Additionally, the ED wants to be able to dynamically and simply move inject timings around during delivery without having to change the dates and time on each individual inject—and he wants those changes immediately conveyed to the exercise control staff in all dispersed locations. Finally, the ED wants a robust after-action review capability with a simple way for observers to track the training audience's performance and compile that into comprehensive debriefing products.

The ED has made you the exercise lead and you have a small planning team to coordinate the unit's efforts to design, develop and deliver a high-quality exercise that incorporates all of the commander's direction. Delivering a great exercise with dispersed teams on this timeline will be challenging. A successful exercise will result in tea and medals for the staff, while a poor event will have the planning team breaking out their parkas for remote duty somewhere that buses don't run. Luckily, MaestroEDE can provide solutions to real-world exercise challenges and can help any team put together a great exercise.

1 A Complete Solution—from Concept to Delivery

MaestroEDE is a software system used to design, develop and deliver collective military training exercises. It provides a single environment where teams—including distributed teams—can collaborate to design and develop exercise concepts, objectives and the corresponding events and injects to achieve results. MaestroEDE streamlines the exercise development process by using a single web-based environment to manage all aspects of military exercises, from concept to delivery.

MaestroEDE was purpose-developed to meet the needs of military customers, based on the challenges they face in developing and delivering training. To be relevant, training needs to be realistic to prepare military units for the kinds of complex challenges they will face on operations. Maintaining order and structure for exercise—from concepts to events and injects—and keeping track of workflows and open items is more challenging the larger the exercise.
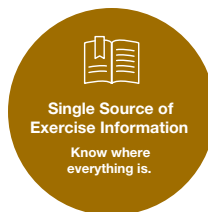
Working side-by-side with military leaders responsible for delivering collective training, Calian developed MaestroEDE to make development and delivery of training easier, faster and more effective than relying on existing tools and approaches.

MaestroEDE delivers:

- A single environment for constructive military exercises—from concept to delivery
- A single environment for all development activity—from concept to storyboards, to all the events and injects that drive the exercises
- Version control of all exercise documents and a centrally managed storage location for smooth development and delivery.
- A collaboration space—storyboard phases of the exercise identify requirements and manage workflow, even if your team is distributed across different locations
- Timing and delivery coordination—coordinate the delivery of all exercise injects to keep your exercise on schedule and easily reschedule if necessary. Never early, never late.
- Re-use of key content—save key events and injects for future exercises. Reduce rework for recurring events and injects.
- An intuitive and user-friendly interface with a low training burden.

Single Source of Exercise Information
Know where everything is.

Reduce Training Costs
Improves efficiency and coordination.

Drag N' Drop
Quickly create and reschedule items.

The Challenge

Military customers face a wide range of challenges when developing and designing complex collective military training exercises.

Organizational

- Growing demand: the demand for synthetic training environments is growing. Militaries around the world are facing pressure to maximize training value, which means a larger training audience for each exercise, more training objectives, and more complex scenarios with greater demands of the audience.

- Unclear process: while some organizations have standardized approaches, they are sometimes counter-intuitive or difficult to understand and follow. This is especially challenging when working across teams with diverse levels of training experience.

- Distributed teams: development teams and the training audiences are now regularly in different locations, creating challenges for coordination and information sharing.

Data and User Management

- Common data storage repositories: most military training development does not rely on common data storage, creating risk for continuity and coherence in file management and data management approaches. This approach underpins all distributed work.

- Users deleting or modifying data that they shouldn't and requiring time-consuming management of user permissions.

- Poor context in scenario development: scenario developers do not always have the same contextual information, creating the risk of gaps in the scenario.

- Managing user rights: balancing edit and view-only privileges prevents some documents from being overwritten but can also prevent collaboration.

Timing and Coordination

- Coordinating timing: working in separate locations, timelines are not always consistent—differences in time zones and planning timelines creates challenges and increases the risk of initiating something out of turn.

- Workflow and data sharing: workflow and data sharing can be challenging when working across time zones and from different locations. A single environment enables better workflow no matter the time-zone or location.

MaestroEDE addresses all of the challenges by providing a single environment where all exercise developers and designers can collaborate. With file management, functional injects, dynamic timelines and time zone shifting, MaestroEDE improves organizational management of exercises, improves data and user management, and simplifies timing and coordination for all stages of an exercise.
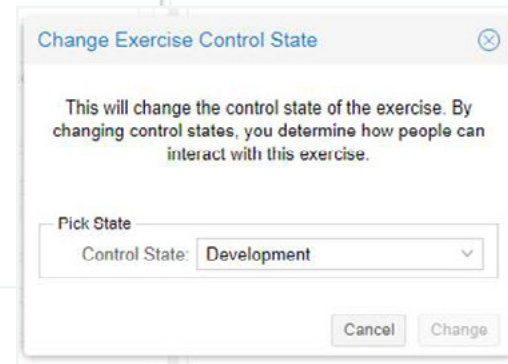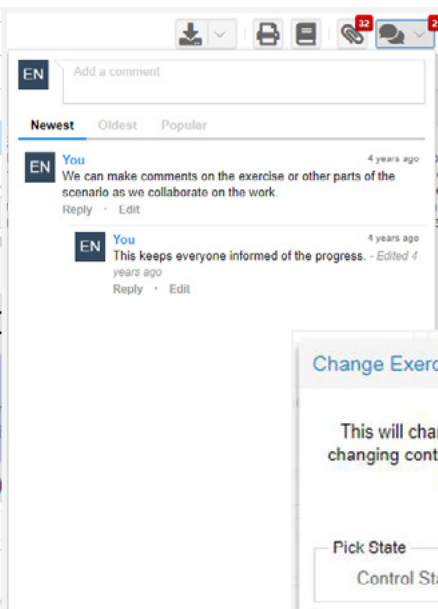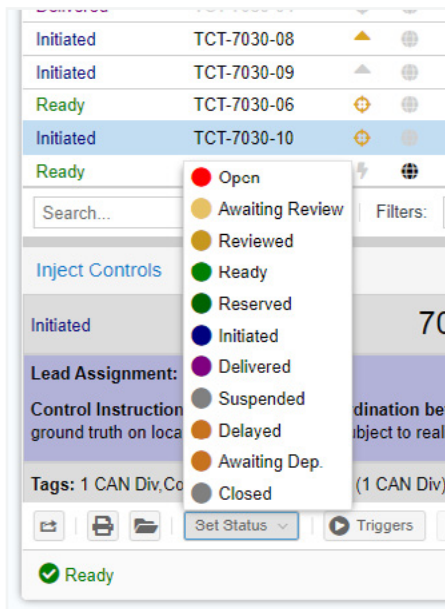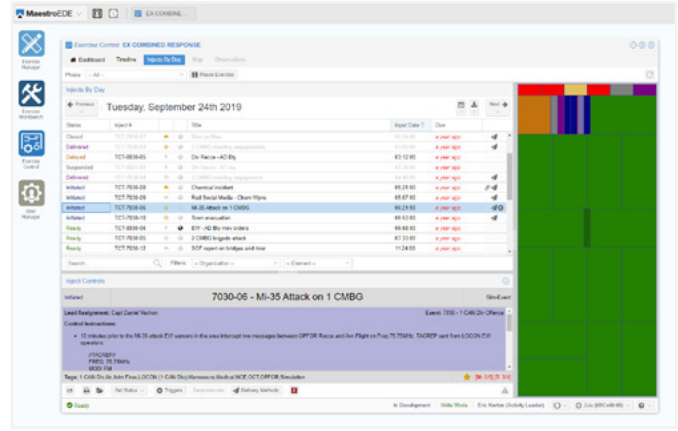
A Single Environment

MaestroEDE provides a single environment for all design, development and delivery of large-scale exercises for military, national security, public safety and government customers. MaestroEDE enables collaboration across distributed teams, no matter where they are located. This means team members can contribute to the exercise at any time or place to design and develop the exercise.

The power of the single environment allows exercise developers and designers to collaborate on every aspect of the exercise and provides shared workspace with version control for all development. Even the very largest exercises become manageable; changes made by any team member are reflected in MaestroEDE, providing working versions for joint development and collaboration. With version control and a single repository for exercise information, a single version of the truth is maintained in MaestroEDE.

MaestroEDE also enables management of workflow, with accountabilities assigned across the team and status indicators (draft, briefed for approval, approved, final, etc.) to show what is completed and what is still in process. This allows leaders and team members to share status updated on progress for all events and injects in the development process. Connecting workflow to objectives makes training development more efficient, provides traceability throughout the development process, and provides easy-to-understand status updates on what tasks are complete and what tasks need more work.
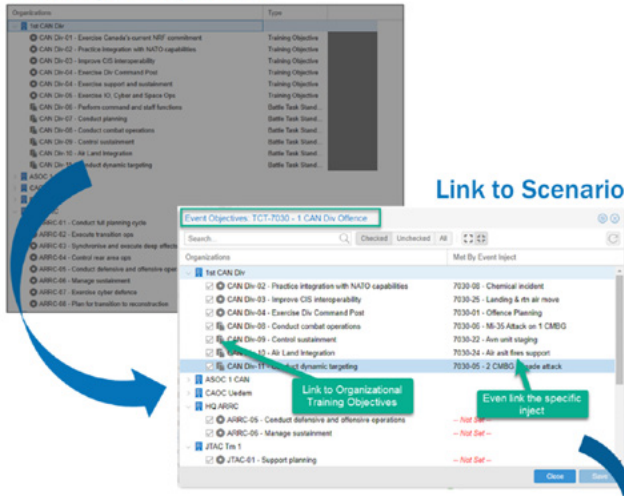

The full capabilities of MaestroEDE can be tailored to the customer's needs. Calian can host MaestroEDE in a secure, on-site environment for organizations who need to manage their own data. MaestroEDE is a proven platform to deliver distributed exercises using conventional means at multiple locations or using cloud-based solutions. Our distributed approach allows teams to collaborate at different locations for the development of exercises and allows exercise delivery at multiple locations. The distributed approach provides savings on travel and logistics, while delivering valuable, realistic training.
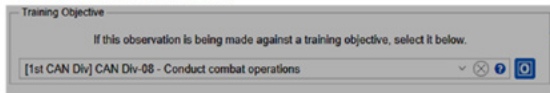
End-to-End Exercise Management

MaestroEDE allows for end-to-end management of all exercise design and development activity. Using MaestroEDE, the objectives for the exercises are defined, serving as the anchor for all the follow-on development. These objectives can be linked throughout the exercise and into the final observations and assessment.
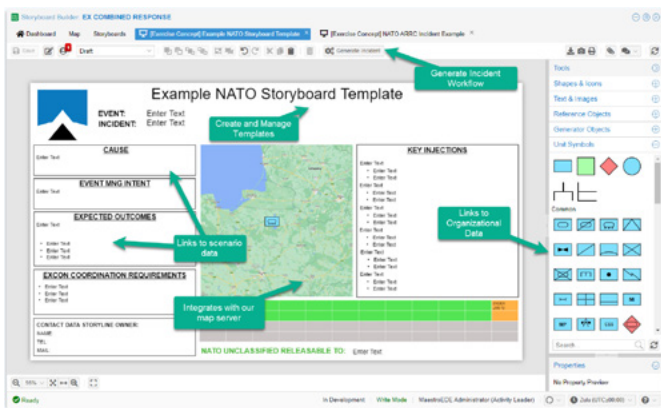

Storyboards enable users to build on exercise concepts to define story lines in detail. Storyboards connect events and injects to the training objectives. This unbroken connection ensures coherence from concept to delivery.

The master events lists/master injects list (MELMIL) is automatically populated in MaestroEDE, as the events and injects are developed. This provides a comprehensive overview that shows all the events and injects in one MELMIL. Any changes that are made to the content of events and injects, the timing, accountabilities, or any other information element, will be automatically reflected in the MELMIL and the system-generated documentation.

The exercise delivery capability allows exercise controllers to start or stop exercise activity, as required. Timings can be easily and dynamically shifted with drag-and-drop timeline editors. Any interruptions or deviations from the master schedule can be accommodated in real time using MaestroEDE. Unexpected or unplanned challenges will not end your exercise—they can be managed effectively using MaestroEDE, allowing controllers to adjust and continue with training.
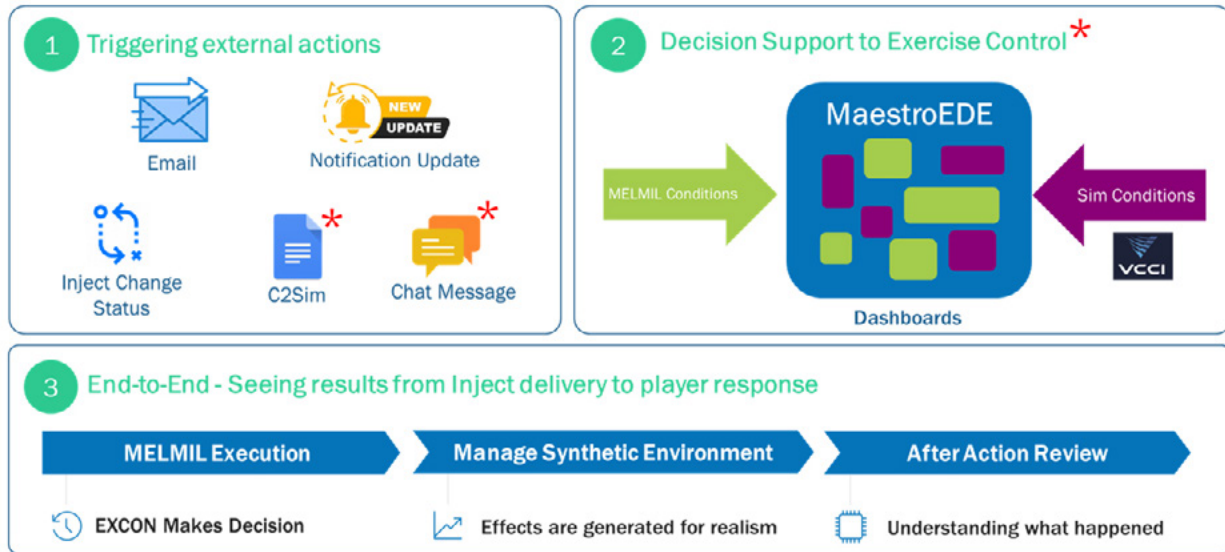
Drag N' Drop
Quickly create and reschedule items.

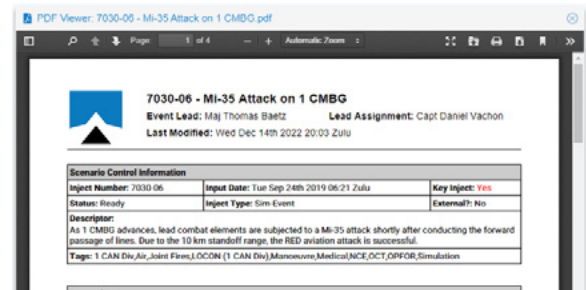**Dependency Updates**
Will reschedule related items.

Timing Control
Control when things are rescheduled.

Time Zones
Allows switching across time zones.

- **Collaborative space:** MaestroEDE provides a single collaborative space to connect all exercise design, development and delivery activities from concept to storyboard to delivery of the MELMIL. MaestroEDE will also track observations and assessments by your observer team for post exercise analysis

- **Microsoft tool compatible:** MaestroEDE is compatible with standard Microsoft desktop tools. This makes opening, editing and saving documents in MaestroEDE seamless.

- **Integrated toolset for intra-exercise communication:** Exercise development and delivery require constant communication. MaestroEDE has communications enablers built-in, connecting email, chat, notification of actions taken, and status tracking for inject delivery into the exercise. If required, Calian can integrate operational tools (radios, etc.) into the synthetic training environment.

- **Decision support to EXCON:** MaestroEDE includes dashboards that provide status tracking for exercise control (EXCON) throughout the exercise. Dashboard provides status on the simulation conditions, the MELMIL conditions, and other status updates based on user requirements.

- **After action review (AAR):** The end-to-end process allows exercise controllers to harness the data generated during the exercise for the after-action-review (AAR) process. MaestroEDE captures data throughout the process—what injects were delivered, when, the response of the training audience, and more—providing the baseline data for the AAR and lessons process.

- **Final briefing:** Providing a detailed overview to decision-makers and exercise controllers is a key feature in MaestroEDE. Once the exercise is developed, leaders can be briefed on the concepts, execution and storyboard for how the exercise will progress. This feature allows for a detailed summary to be presented for final approval.

- **Custom exports:** MaestroEDE can be customized for different document exports to meet organizational requirements. Exporting the right data to meet the user needs makes information sharing more efficient and delivers data to exercise participants in the format they prefer. This is especially valuable when designing and delivering exercises across national, organizational, and military element boundaries.

6   How is it different?

MaestroEDE is a unique capability in the military training environment. It was created by training experts to assist our teams with exercise design, development and delivery support, while other products in this market were designed by software companies. No other capability on the market includes exercise design, development and delivery into a single toolset that can track objectives, observations and trigger simulated events. No other product provides an end-to-end application from concept development to delivery to after-action review like MaestroEDE.

No other capability in the market provides a single environment for distributed collaboration, allowing your team to collaborate around the world, in real-time. MaestroEDE has automated capability for exercise delivery, and enabled human-in-the-loop intervention at every step of the way if required. This provides maximum flexibility for designers and developers.

At the level of architecture, MaestroEDE is very versatile. This allows exercise designers to customize the application of MaestroEDE to meet the needs of the exercise teams. The architecture is extensible and containerized and has the flexibility to meet security requirements at any location—including cloud applications. The MaestroEDE architecture can have micro-services to allow for easy management in a scalable cloud environment or as part of an on-site service catalog that allows for further custom integration.

| Extensible architecture | Containerized | Built with microservices | Cloud native | Security conscious | Web API |

What's Next

- Artificial intelligence (AI): utilizing large language models to enable teams to go from concept to well written and executable scenario content quicker. The first phase of research and development is complete. A platform-agnostic, initial operational capability with AI is imminent.

- Improving storyboards: military customers have given Calian positive feedback on the value of the storyboard feature. To improve the storyboard, we will be adding template management capabilities, adding more data reference objects, and improving the data generator function.

- Data analytics: MaestroEDE generates and collects significant amounts of data. The next step is to explore how we integrate data analytics and examine the potential for artificial intelligence.

- Dynamic visualization: images are always easier to understand than text. By including dynamic visualization in the MaestroEDE capability set, more images can be generated and updated to create more detailed shared situational awareness.

- Responding to emerging customer needs: MaestroEDE was developed to meet clear customer needs, working side by side with our military customers. As our customers expand their needs, Calian will be ready to improve and develop new toolsets.

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About Calian

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