

DETER Research Education and Operations Mission Sustainment (DREAMS)

The project will advance sophistication, robustness and usefulness of the DETERLab testbed, a key scientific laboratory for cybersecurity research and education. Advances in the research, educational and operational missions of the testbed will directly benefit the hundreds of research projects, and thousands of classroom users currently using DETERLab. All proposed activities directly impact users, enabling them to experiment faster, easier, with higher fidelity and repeatability, and in more sophisticated environments. The research and development efforts taken together will expand capacity for both the research and education communities and are necessary to meet the growing need for cybersecurity professionals in our country today, and the growing need for repeatability, reproducibility and reuse of testbed experiments.

The project is comprised of 16 tasks across three mission objectives to (1) advance DETERLab's research mission – these include operationalization of new experimental capabilities, and addition of new tools for users, to allocate and manage experiments, (2) activities that advance DETERLab's education mission – these include creation of containerized versions of existing exercises, creation of new shared materials from various sources within and outside of DETERLab, and customization of lab exercises for each student, to prevent cheating, (3) activities that advance DETERLab's operational mission – these activities improve DETERLab's security, streamline experiment allocation and management, and allow for fast and automated handling of many errors. Many of the planned activities already have 1st generation prototypes, that will be improved, generalized and operationalized under the project. All the source and binary code developed under this proposal will be released publicly. All experimental and educational materials will be released via DETERLab's sharing portal.