A Del Rey Oaks company is headquarters for military simulations used by U.S. forces and NATO.

Sep 5, 2019

"It's not an Xbox game, you don't see the flashes and bangs," says Jay Roland, right; Ellen Roland, seated, is principal engineer of JTLS-GO.

Nic Coury

From an office building in Del Rey Oaks, Ellen Roland sends an order to a U.S. military reconnaissance plane to fly out of Kadena Air Base in Okinawa, Japan and over the Chinese border to scope out potential military assets. On a projection screen at one end of

the conference room, a small green icon representing the plane starts moving over the East China Sea. Once flying over land, the plane detects some potential threats below, noted on the screen with red boxes.

A U.S. plane on a spy mission invading China's airspace would probably result in the aircraft getting shot down, leading to a major international incident, even war. But this isn't real life; it's a simulation – think "Risk" rather than "Call of Duty." Ellen Roland, senior principal engineer and co-founder with her husband and president, Ronald J. "Jay" Roland, of Rolands & Associates, serves as gamemaster on this day. She marks China as a friend of the U.S. and tells the game to let the plane fly over without shooting it down.

"There are no real rules in the game other than what you tell it," Ellen says. From thousands of choices that have been built into the software using mathematical algorithms, she can speed up time, or change the weather, time of day, routes, types of transportation and more.

For the sake of this demonstration, Ellen speeds up the game from 1-to-1, or one minute of real time equaling one minute in the mission, to 25-to-1. The software is layered with programmed activity, so even as the plane is flying to China in the simulation, there's a network of supply trucks on the ground in Japan, North and South Korea, on the sea – everywhere within a 3,000-mile radius in this particular exercise – in order to keep an imagined array of forces supplied with gas and food.

The name of the Rolands' software is Joint Theater Level Simulation – Global Operations, or JTLS-GO for short. It's a program that the couple and their staff have been developing ever since they founded the company in 1983, constantly adding new military, weather and other relevant information gathered from publicly available sources.

"There is nothing in this building that is classified," Jay is quick to point out. Users of the software – military leaders from the U.S., NATO and more than 20 different countries – can add classified information into JTLS-GO simulation software that their forces purchase from Rolands & Associates. (The ownership of the software is shared with the U.S. military; U.S. forces have access to use it, but may buy a maintenance license from the Rolands; foreign countries must first obtain U.S. permission to purchase it.)

The software is used by clients for simulating joint civil-military operations, meaning situations where air, ground, naval and other forces or intelligence support must work together. It's a tool, Jay says, aiding mid-level officers in planning troops and supplies needed in a wide array of scenarios they create.

The software isn't all about war games. Some countries are also using JTLS-GO for planning humanitarian aid in cases of natural disasters. Taiwan, for example, simulates typhoons and hurricanes to plan for potential rescue operations.

The couple got their start in military careers: Jay was an Air Force pilot for 25 years, retiring as a lieutenant colonel; Ellen served in the Navy as a staff mathematician on the Joint Strategic Target Planning Staff at Offutt Air Force Base, where the two met. After moving to Monterey, Jay taught computer science at the Naval Postgraduate School and Ellen earned her master's in operations research, later teaching wargaming in NPS' wargaming laboratory.

The Rolands were asked in 1983 to create a simulation for the U.S. Readiness Command, the U.S. Army Concepts Analysis Agency and the U.S. Army War College, using the NPS computer science lab at night. They worked from 6pm to 6am, six days a week for six months. Each night Jay replaced the NPS computers' operating system with the one the couple was using for the project. In the morning, he'd reinstall the NPS operating system.

Throughout the project that launched their company, the two were on the phone with U.S. military advisers getting input to build simulations as the Army wanted. That practice continues to this day.

At the Rolands' headquarters, representatives from every U.S. military force and foreign nations come for multi-day trainings throughout the year. On Sept. 4-5, they're hosting about 50 users from at least nine countries including South Korea, Japan, Thailand, Germany, Poland and the United Arab Emirates and 15 different U.S. agencies for its 21st annual JTLS-GO International Users Conference. The company benefits from information to make changes to the ever-evolving game.

"It's always been the same simulation," Jay says, "except it gets better every year."

Editor's Note: The print version misspelled the name Rolands as "Rowlands."