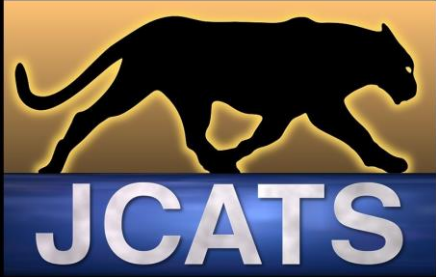




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LAWRENCE LIVERMORE NATIONAL LABORATORY

Joint Conflict and Tactical Simulation (JCATS)

What's New in JCATS

2023 JCATS International Users Conference

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06 July 2023



JCATS Current Status

➤ **The CSL supports the version in development, the latest version released and one version back**

➤ **Supported Release Versions:**

- V17.0
 - Patch 17.0.1
 - Patch 17.0.2 (in development)
- V17.1
 - No patches currently scheduled

➤ **RHEL Versions For Current Releases:**

- V17.0.x – RHEL 7.9
- V17.1.x – RHEL 7.9, 8.7, & 8.8

➤ **Version in development: JCATS v18.0**

- Anticipated Release Date: January 2024
- Anticipated Release to FMS: March 2024
- RHEL version: 8.8

Casualty Auto-Recovery



➤ **Concept: A capability to define a network of recovery, repair, and treatment nodes that automatically recover damaged/injured systems from the battlefield and transport them to the associated treatment facilities; utilize recovery resources; consume supplies; transfer to higher treatment facilities as necessary; and return to unit in the manner defined (return or replace)**

➤ **This will still require the entirety of the logistics system to be defined in Vista and the Force Organization**

- All units, systems, supplies, and casualty information must be defined
- Nothing will be notional; just automatic

➤ **This project is being funded primarily by Australia**

- Some additional funding from LLNL

➤ **Version 18.0 development**

- Start building the framework of the Casualty network into the software architecture
- Will integrate some work performed for a series of logistics analysis projects performed in 2023

➤ **The expectation is to have the first full implementation ready in JCATS v19**

- Patches and bug fixes will follow as necessary
- Recommendations for further enhancement is welcomed as well

Google Earth CAC KML Importer



➡ **Google Earth allows the creation of rudimentary CAC overlays that can be exported in a KML format**

➡ **JCATS can import this KML format into a Playbox**

- The overlay has lat/lon position data associated with it and must be imported into a playbox with the area in which the overlay was placed in Google Earth
- Google Earth currently only supports lines, polygons, and markers with a heading
- The Heading is imported; the marker is not

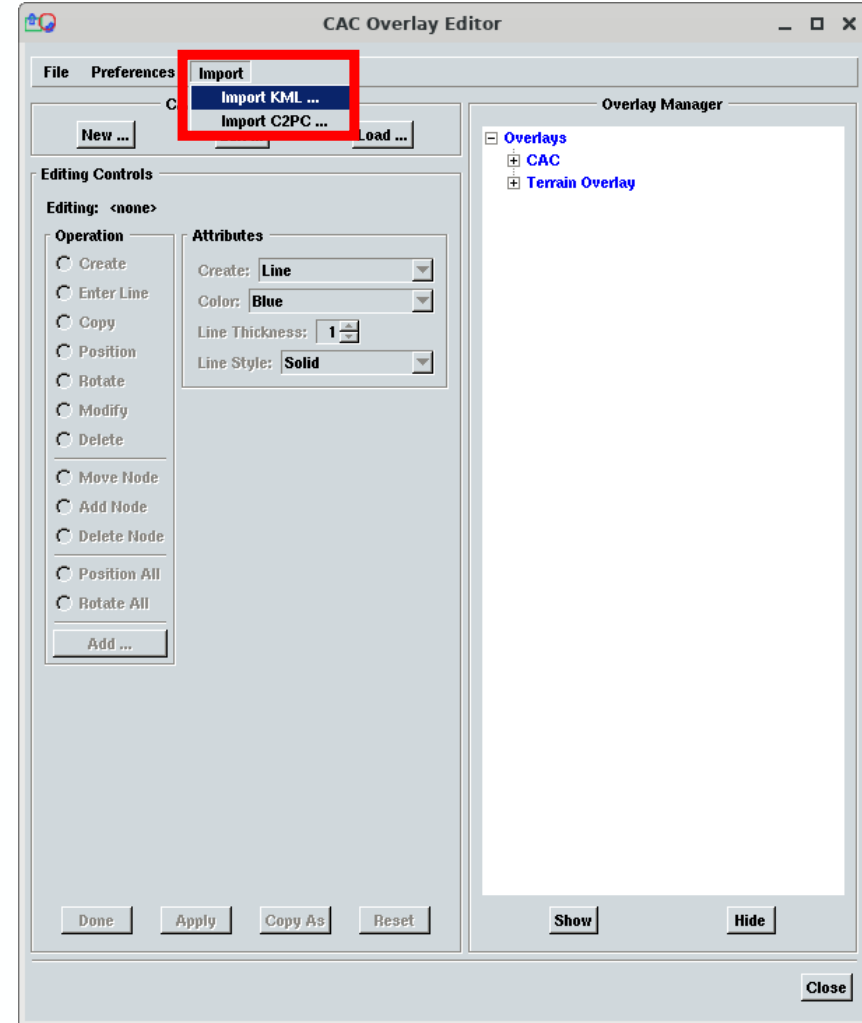
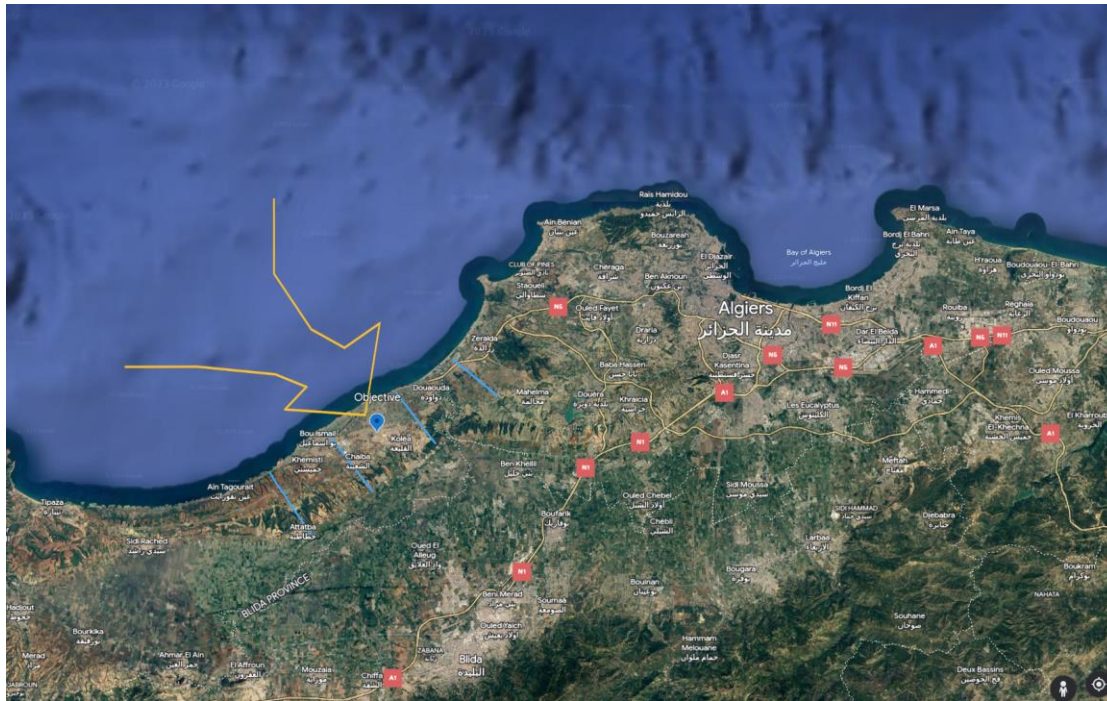
➡ **Editing imported KML overlays**

- Each object created in Google Earth is imported as a whole object
- Objects can mostly be edited by the JCATS CAC editor in the same way as standard JCATS CAC overlays.
 - the object can be positioned or rotated, or the color changed
 - the shape of the object is fixed; nodes cannot be moved, deleted or added

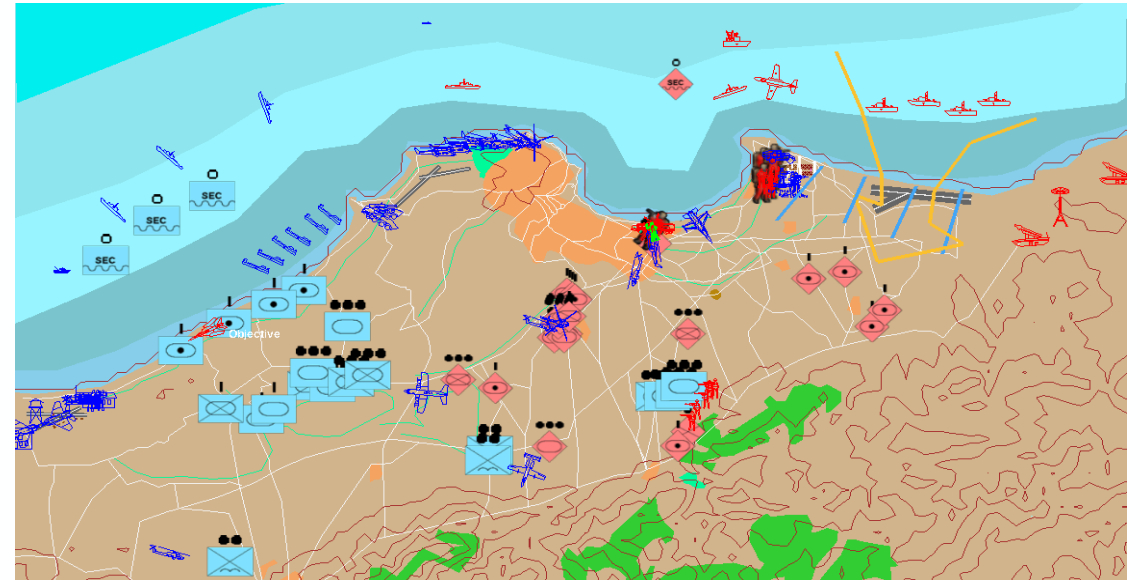
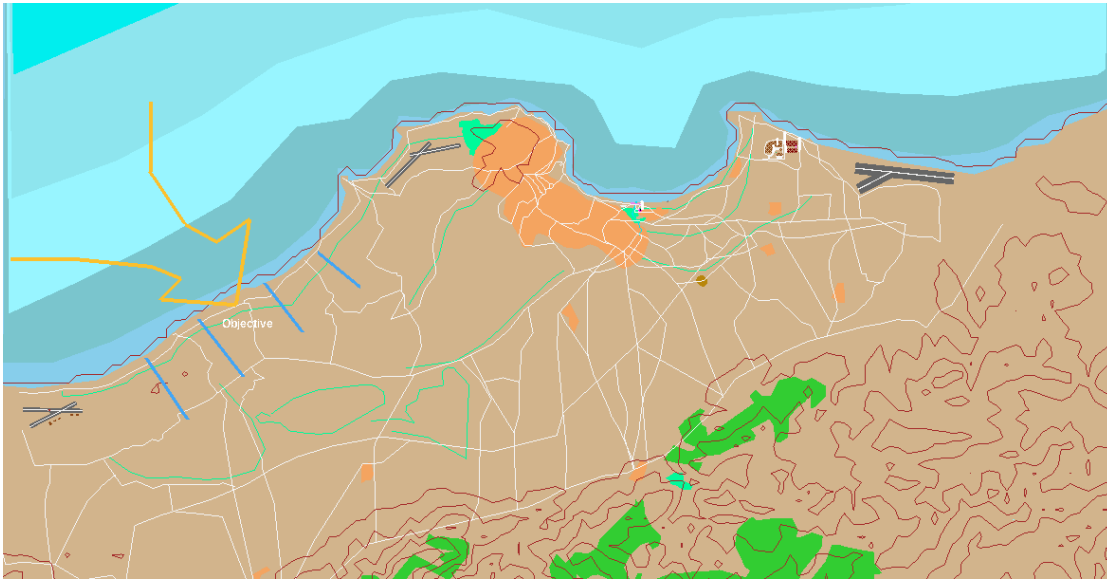
Google Earth CAC KML Importer



Google Earth



Google Earth CAC KML Importer



Analysis Duplicate Scenario



- The Analysis controls have an option to duplicate a scenario; it acts as a combination Save All and Save As
- In analysis projects, it's sometimes necessary to take the existing scenario, make changes to it, and save it as a new scenario
- In some cases, many of these excursions may be required to capture many different contingencies
 - Duplication saves the modified Fplan file with a new, user-defined name and associates the fplan with a new Setup file created in the same process
 - Duplication is limited to only and both the Setup & Fplan files
- The enhancement lets the operator choose which file(s) to duplicate; similar to the Setup-Files editor

The screenshot illustrates the process of duplicating a scenario. In the 'Analysis Controls' window, the 'Duplicate Scenario...' button is highlighted. This opens the 'Specify new Scenario Name' dialog, where the current scenario's setup and fplan files are listed. The 'New Scenario Name' is set to 'Duplicate_Scenario_1'. The 'New Setup' and 'New Fplan' fields are highlighted in red, indicating the files to be duplicated. A red arrow points from the 'New Setup' field to the 'Setup Editor' dialog, which shows a list of files to be duplicated, including 'Force Char', 'Force Planning', 'Parameter', 'Symbol', 'Picmap', 'Mesh', 'Terrain', 'Raster', 'PHPC', 'CAC Symbol', and 'Client Configurations'.

Analysis Duplicate Scenario



VISTA

File Tools Force Objects Lists/Classes Organization Parameters PhPk Setup Compare Help

APS Casualty Force Objects Lists/Classes Organization Parameters PhPk Setup

Barriers Camouflage Nets... CBRN Sensors... Checkpoints... Munitions... PPS... Sensors... Supplies Systems... Unattended Sensors... Units... Weapons...

Force Char: NONE Force Planning: NONE
 Parameter: NONE PhPk: NONE
 Client Gui Config: NONE Symbol: NONE
 Setup: /home/jcats1809/data_180/scenario/Duplicate_Scenario_1.setup Pixmap: NONE
 Mesh: NONE

Open Setup file

Directory: scenario

Duplicate_Scenario_1.setup
 dup_1.setup

File Name: Duplicate_Scenario_1.setup
 File Filter: *.setup

Setup Editor

Support Files | Planning | Workstations | Browser Clients

Force Char:	/home/jcats1809/data_180/scenario/sample_v180.fchar	Browse	Public	Private
Force Planning:	/home/jcats1809/data_180/scenario/Duplicate_Scenario_1.fplan	Browse	Public	Private
Parameter:	/home/jcats1809/data_180/scenario/sample_v180.param	Browse	Public	Private
Symbol:	/home/jcats1809/data_180/symbol/sample_v180.symbol	Browse	Public	Private
Pixmap:	/home/jcats1809/data_180/symbol/systems_v180.pixmap	Browse	Public	Private
Mesh:	delta3d.mesh	Browse	Public	Private
Terrain:	/home/jcats1809/data_180/terrain/algers_v180.DAF	Browse	Public	Private
Raster:	algers.jraster	Browse	Public	Private
PhPk:	/home/jcats1809/data_180/phpk/sample_v180.phpk	Browse	Public	Private
CAC Symbol:	cac.symbol	Browse	Public	Private
Client Configurations:	/home/jcats1809/data_180/scenario/sample_v180.jgc	Browse	Public	Private
Replay:		Browse	Public	Private

Apply Reset Print Dismiss

Other Analysis Upgrades



- ➔ Option to set the Batch Random Seed from SimExec
- ➔ Behavior code allows comments

Other Enhancements

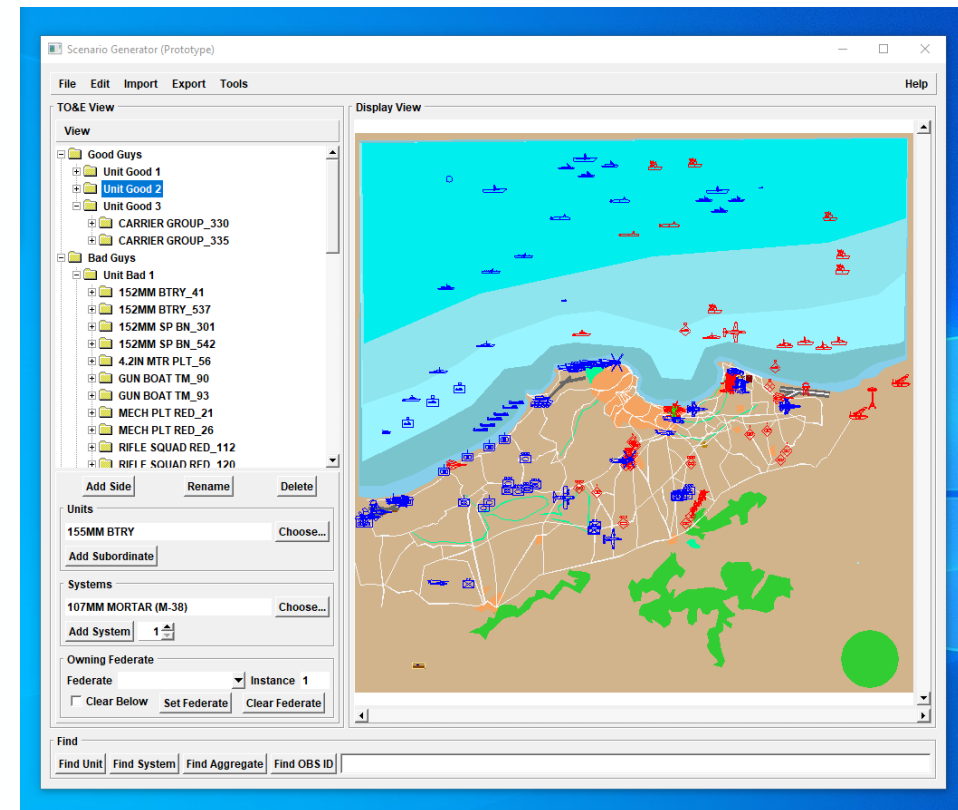


➤ FOM compatibility:

- NETN-MRM (Multi-Resolution Modelling)
 - Consume & process order to activate/deactivate, aggregate/deaggregate, & split/merge
- NETN-ETR (Entity Tasking & Reports)
 - Process requests to performs tasks and report state to the federation
 - Generate reports
 - Performs tasks
- NETN-ORG (Organization)
 - Dynamically create the Force Organization from Federation information
 - Publish Force Organization into the federation and assign modeling responsibilities to other federates
- RPR3 based on JLVC FOM

➤ Windows-based Scenario Generator

- Currently only provided to JFTC in v17.1



Containerized Web Server



- **Use a container for the Web Server**
- **Enhances Security**
 - Isolated from OS
 - Restricted access to resources
- **No noticeable change to JCATS operation**
- **Future work may extend containers to other aspects of JCATS**
- **Portable, isolated, self-contained environment with everything an application needs – binaries; configuration files, etc.**
 - Easy to modify and iterate upon
- **Operate in layer above OS**
- **Multiple containers may be run simultaneously – limited only by HW capability**
 - Only contain high-level software
 - Highly scalable
 - More efficient use of resources than VMs

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