

What need is the ATC addressing?

Testing for distributed simulation environments is usually a two step process: models are first tested individually based on the system design, followed by their integration into the larger system.

Functional testing of model components is essential for the success of the simulation achieving its goals. Functional tests ensure the models adhere to the interface specification defined in the system design.

Testing models individually, however is difficult due to the need to provide the appropriate stimuli in the correct order and circumstance. Additionally, data dependencies grow quickly and the circular dependencies force developers to test the system as a whole thereby skipping individual model testing.

Problems in systems integration arise because models are not tested for their adherence to system design before being integrated into the whole distributed simulation environment.

To address the difficulties of model testing in accordance with the system design, MATREX has an Advanced Testing Capability (ATC) application to facilitate functional testing of models (black-box testing).

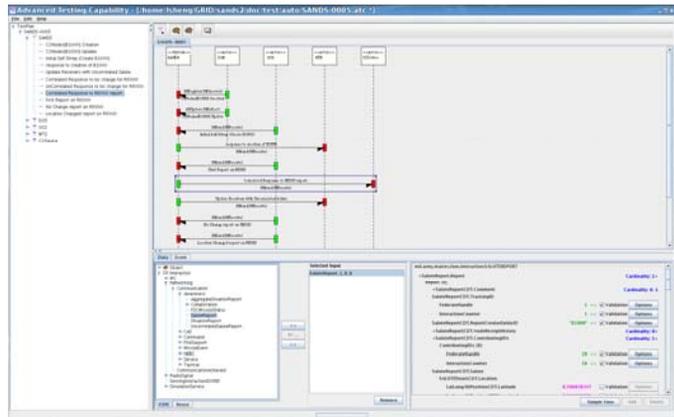
How is the ATC addressing this need?

The primary purpose of ATC is to provide model developers the capability to perform meaningful and repeatable "black box" on individual components build on the MATREX tools.

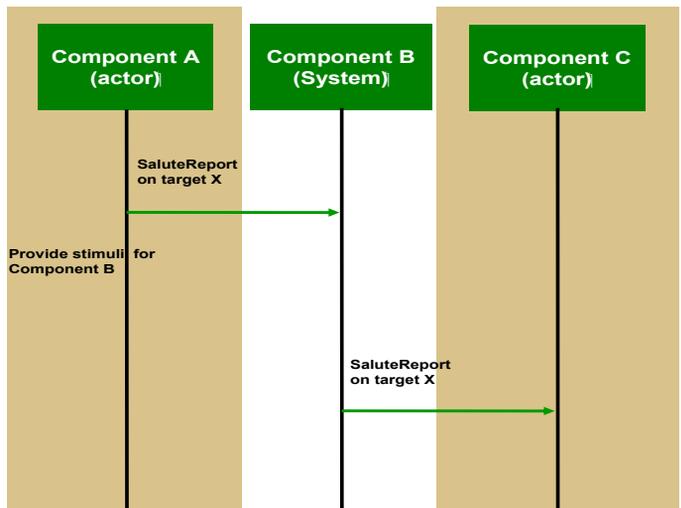
The ATC is an applicable testing tool that is a black box test harness built on the use case paradigm; the model, or system in this context, is treated as a black box; all other components, or actors in this context, that would normally interact with the system are represented by the ATC.

The system/actor relationship allows individual model component testing without having to stand up the whole simulation environment; this makes debugging easier and lowers the cost of testing

Through an advanced graphical user interface (GUI) the user is allowed to graphically define tests that may be saved and recalled at a later time or sent to other users. thus, ATC also performs the function of documenting specific test cases in order to provide reproducibility. this allows for automation, and thus, regression testing becomes much easier.



The ATC allows the users to graphically create a sequence of actions or events to stimulate the system under test. The system responses generated by actor actions are validated.



The ATC generates source code, which is then run to execute the test and verify results.



Who is benefiting from the ATC Tool?

- Research, Development and Engineering Command
 - AMRDEC
 - ARDEC
 - ARL
 - CERDEC (Fort Belvoir and Fort Monmouth)
 - NSRDEC
 - STTC
 - TARDEC
- Future Combat System Lead System Integrator
- Various Other TRADOC and ATEC Customers

Benefits (Why) of using the ATC Tool?

- Provides users the capability to build, store and execute test for components built on the MATREX tools
- Provides the capability to perform meaningful and repeatable black-box testing on an individual components build on the MATREX tools
- Allows developers to test their individual components without having to bring up the entire federation, making debugging easier and lower the cost of testing
- Allows the Integration and Test team to debug issues during integration
- Can be used as an acceptance test for new and updated components

Where can an individual use the ATC?

- Laboratory Development and Testing Environments (both Distributed and non-Distributed Networks)
- Standalone Desktop Configuration
- Standalone Laptop Configuration

Points of Contact

www.rdecom.army.mil

www.matrex.rdecom.army.mil

Acronyms List

AMRDEC	= Aviation & Missile Research, Development and Engineering Center
ARDEC	= Armament Research, Development and Engineering Center
ARL	= Army Research Laboratory
ATC	= Advanced Test Capability
ATEC	= Army Test and Evaluation Command
CERDEC	= Communications-Electronics Research, Development and Engineering Center
FCS	= Future Combat System
GUI	= Graphical User Interface
LSI	= Lead System Integrator
MATREX	= Modeling Architecture for Technology, Research and Experimentation
NSRDEC	= Natick Soldier Research, Development and Engineering Center
STTC	= Simulation & Technology Training Center
TARDEC	= Tank and Automotive Research, Development and Engineering Center
TRADOC	= Training and Doctrine Command

Get the right M&S technology to the right place, at the right time, for the Decision Maker and the Warfighter.