

# Ada to C++ U.S. Army SEC — CECOM Life Cycle Management Command Variable Message Format Test Tool (VTT)

**CLIENT**  
U.S. Army

**SOFTWARE**  
VTT

**LANGUAGE PAIRING**  
Ada to C++

**COMPLETION TIME**  
8 months

## HISTORY

The Software Engineering Center (SEC) of the U.S. Army was faced with a dilemma. The Variable Message Format Test Tool (VTT), a critical tool used daily by the Army's developers and testing facilities, had new requirements regarding the grouping of multiple messages and their respective display. Because this application was written in Ada, the Army was already faced with excessive costs to maintain the system, difficulties integrating modern technologies, and resourcing scarce Ada programmers. This meant adding new features would be expensive and time-consuming.

Initially, the SEC was considering a manual rewrite from Ada to C++, which was expected to take 2 years. Their integrator, L-3 Communications, introduced them to the automated modernization processes of TSRI. After a careful assessment of risk, schedule, and budget, the SEC abandoned their manual conversion efforts and contracted TSRI to perform the entire transformation.

TSRI participated as a member of the Defense Engineering Services Division (ILEX) for the Data Engineering Development and Support Task. TSRI documented the legacy system, converted the VTT legacy Ada source code to C++, supported system integration and testing process, performed refactoring to reduce technical debt, and documented the modernized code base.

## CHALLENGE

During the setup, TSRI successfully modified their parser and extended rules to the *JANUS Studio*® toolset to achieve a complete language-neutral model of the Ada source code. This enabled complete automation in the process to rapidly convert the VTT's Ada code to C++ with high accuracy.

## HIGHLIGHTS



**Near-100% Automation**



**Low Technical Risk**



**Completed On Schedule**



**Full Blueprint Documentation**

The automatic refactoring process eliminated 15,000 lines of dead and redundant code, improving overall system response time by 15%.

## RESULTS

TSRI transformed over 77,000 lines of Ada code to C++ successfully at nearly 100% automation. The automatic refactoring process eliminated 15,000 lines of dead and redundant code, improving overall system response time by 15%. The modernization was delivered on-time — in just 8 months.

The SEC took full advantage of the suite of TSRI services beyond the code conversion including test telemetry, automatic and semi-automatic refactoring, system integration and testing, engineering support and training, and final documentation of the transformed system. The automated transformation TSRI delivered proved to be more cost-effective, faster and lower risk than manual conversion.

### When failure is not an option, TSRI is here for you.

As a leading provider of software modernization services, TSRI enables technology readiness for the Cloud and other modern architecture environments. We bring software applications into the future quickly, accurately, and efficiently with low risk and minimal business disruption, accomplishing in months what would take years otherwise.

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