Joint Mission Environment Test Capability

JMETC Enables Distributed Testing

The Joint Mission Environment Test Capability (JMETC) is a corporate approach for linking distributed live, virtual, and constructive (LVC) test resources. JMETC is designed to support the acquisition community during system development, developmental testing, operational testing, interoperability certification, and Net-Ready Key Performance Parameters (KPP) compliance testing in a customer-specific Joint Mission Environment (JME). Established in 2006 under the Test Resource Management Center (TRMC), JMETC provides readily-available connectivity to the Services' distributed test capabilities and simulations. JMETC also provides connectivity for testing resources in the Defense industry. Incorporation of distributed testing and leveraging of JMETC provided capabilities by programs and users has repeatedly proven to reduce risk, cost, and schedule.

The JMETC Secret Network (JSN), which leverages the Secret Defense Research and Engineering Network (SDREN) for connectivity, is the test and evaluation (T&E) enterprise network solution for secret testing. SDREN is a network established to support research, development, testing and evaluation, and science and technology activities in the DoD. The persistent JSN infrastructure includes sites at Defense industrial facilities and peering with sites on other DoD networks at like classification such as the Secret Internet Protocol Router Network (SIPRNet).

JMETC also offers a network capability to its customers with a requirement for higher-than-secret classifications of distributed testing, cyber testing, or unique requirements that do not fit the JMETC JSN model. The JMETC Multiple Independent Levels of Security (MILS) Network (JMN) is the enterprise network solution for higher test event classifications, as well as those which are cyber-specific.

JMETC Support and Products

Persistent Connectivity – Readily available, robust connectivity; configured and accredited for exchanging distributed test data over an existing DoD network.

Middleware – Universal data distribution software used to perform real-time data exchange between systems. The Test and Training Enabling Architecture (TENA) is the middleware selected for use in JSN events.

Standard Interface Definitions – A collection of interface definitions, data formats, and common software algorithms (e.g., Radar, Time Space Position Information [TSPI], coordinate conversions, unit conversions, etc.) that provide a common language used for data exchange between systems.
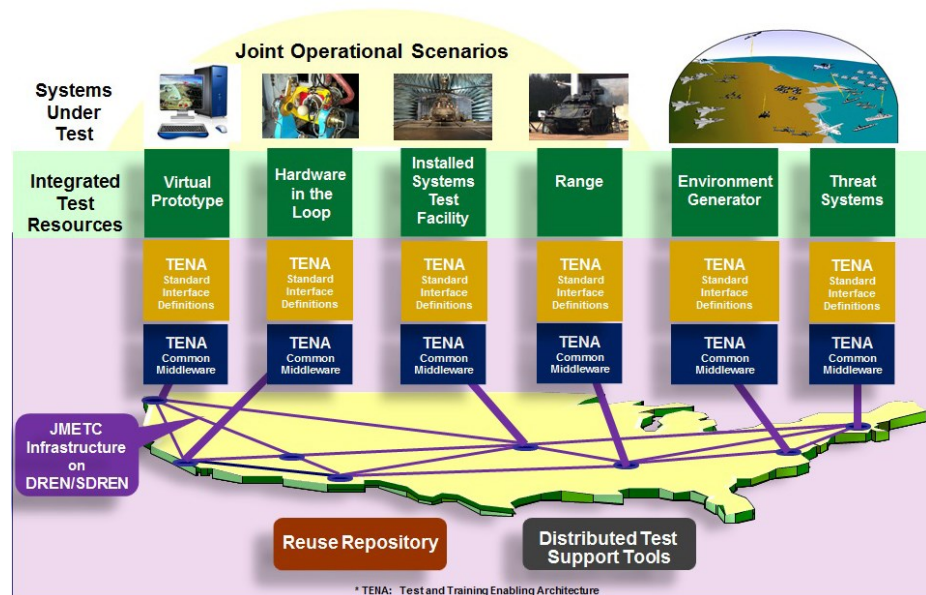
Distributed Test Support Tools – A collection of common software applications that assist test engineers to plan, prepare, set-up, conduct, monitor, and analyze the distributed test event exchanges between systems.

JMETC Reuse Repository – An on-line web portal with relevant distributed event information (latest middleware, software components, tools, documentation, lessons learned, meta-data, etc.) and web-enabled collaboration services.

Available Subject Matter Expert (SME) Support

JMETC provides effective JSN connectivity by proactively troubleshooting and optimizing end-to-end network infrastructure. The analysis is done each day to look for potential issues, and more extensive testing occurs to characterize and resolve any issue.

JMETC teams can provide direct on-site test activity support regarding test planning / design, execution, and post-test lessons learned and infrastructure gaps / limitations if needed.

JSN SYSCON – JSN tier 1 help desk, full mesh network characterization testing, proactive troubleshooting, test event collaborative systems (Voice over Internet Protocol [VoIP], Adobe Connect, Chat, file server), security patches.

JSN Connectivity Team – JSN tier 2 network engineering support, network characterization and analysis, onsite network troubleshooting support, assistance with site installation, ports, protocols, and services (PPS) management, and Connection Approval Process (CAP).

JMETC User Support Team – Test planning, test event support tools, TENA, test execution, on-site assistance.

The JMETC / TENA Link in LVC Distributed Testing

TENA is an important component in the value JMETC brings to distributed testing. Developed as a Central Test and Evaluation Investment Program (CTEIP) project, TENA has been an active force in achieving range interoperability and range resource reuse across the DoD range community. TENA, used in numerous distributed test events as well as major field exercises since 2002, provides JMETC with a proven DoD deployed technology that is specifically designed to address disparate system intercommunication within an LVC environment.

TENA's continuing development and refinement is managed by the TENA Software Development Activity (SDA), a DoD TRMC office. The TENA Middleware is government owned, free, and available for download, along with supporting documentation, at the TENA SDA website. The web site offers information, documentation, downloadable software, helpdesk, and on-line TENA event and training class registration. Beyond the website, TENA users, as well as prospective users, are further supported by a TENA SDA User Support team that can help design, integrate and coordinate TENA activity in distributed test and training events.

Sampling of Distributed Events Supported By JMETC on the JSN

Navy Service Interoperability Test (NAVSIT) – This is a U.S. Navy series of Naval Information Warfare Center (NIWC) Pacific Tactical Data Link (TDL) operational verification and certification tests for all TDL-equipped ships and tactical aircraft. NAVSIT uses the JMETC infrastructure to execute their distributed interoperability testing to save in personnel travel, resource transportation, and to allow for more agile test cases in a distributed environment.

Gemstone Series – Naval Air Systems (NAVAIR) Gemstone series of events execute operationally representative test scenarios via the use of LVC entities. These events provide information and data about current and future fleet capabilities, as well as analysis of future threat systems.

Tactical-to-Tactical (TAC-to-TAC) – The TAC-to-TAC test is a Naval Sea Systems Command (NAVSEA) series of tests that provide system-level interoperability testing and certification to validate compliance to tactical data link (TDL) and Cooperative Engagement Capability (CEC) standards. Use of the JMETC infrastructure continues to save NAVSEA considerable infrastructure sustainment costs over supporting their own test infrastructure.

Joint Interoperability Tests (JITs) – The Ft. Huachuca Joint Interoperability Test Command (JITC) conducts a series of JITs. The purpose of the JITs is to certify that systems properly implement interoperable Joint and Coalition Tactical Data Links (TDLs).

Navy Interoperability Development & Certification Testing (IDCT) – Comprises Multi-Site Developmental Testing and Distributed Integration & Interoperability Assessment Capability (DIIAC) certification testing of the Navy Strike Force systems.

Naval Integrated Live, Virtual, and Constructive (LVC) Environment (NILE) – The NILE events are a series of Department of Navy (DoN) Modeling and Simulation (M&S) events utilizing the JSN infrastructure for readily-available site connectivity and distributed LVC support.

For More Information

For more information about JMETC and TENA, contact Ryan Norman, Lead, Joint Mission Environments and TENA Software Development Activity (SDA) Director, contact jmetc-feedback@trmc.osd.mil or tena-feedback@trmc.osd.mil. For the Unclassified, For Official Use Only (FOUO), U.S. Government / Contractor website, go to https://www.trmc.osd.mil; for Distribution A, non-U.S. Government / Contractors, please visit https://www.tena-sda.org.