Rules

1. Introduction

The MTConnect Student Challenge Program seeks to engage the higher education community at large with three main goals:

1) Building a new skilled workforce by engaging, stimulating, and developing students' awareness of and interest in advanced manufacturing technologies through an incentive-based challenge;

2) Engaging and stimulating a broader base of software and future system architects to develop advanced enterprise, facility and machine control applications based on, and/or extensions of, the MTConnect® Standard to enable a more efficient and competitive domestic manufacturing infrastructure for the defense enterprise;

3) Creating valuable tools and applications that can be easily adopted by manufacturers, especially the lower tier producers, to enhance their manufacturing capabilities and support the Department of Defense (DoD) and industrial supply chain management.

There will be two separate components of this program, with cash prizes awarded at the conclusion of each stage. The Challenge team is seeking, in the first part (*Idea Creation*), the identification of ambitious yet achievable ideas that capture the public's imagination and that harness innovation and manufacturing intelligence breakthroughs. Running concurrent to this challenge will be the second part (*Application Development*). Here the Challenge team is seeking the submission of software applications that harness innovation and manufacturing intelligence breakthroughs that could benefit the DoD and their industrial manufacturing supply chain.

2. Background

In any given manufacturing enterprise, there can be hundreds or even thousands of types of equipment, devices, and independent systems operating simultaneously. The overriding goal of manufacturing is to produce goods in a timely and cost-effective manner with the highest levels of quality and minimal scrap. Manufacturing Intelligence seeks to use software applications and data collected from production operations to achieve these goals. Improving and enhancing Manufacturing Intelligence is essential to improving the competitiveness and profitability of manufacturing operations.

Manufacturing Intelligence can address a wide array of information types. It commonly provides measurements for production optimization, equipment utilization, productivity levels, maintenance processes, product quality, energy management, and more. Generally, collection of data and transforming that data into Manufacturing Intelligence is viewed as difficult and expensive. The objective of this Challenge is to define solutions for lowering barriers to useful information to improve the viability of manufacturing operations.

Each piece of equipment used in manufacturing typically has valuable information on its operating state, the products being produced, and its interaction with other pieces of equipment and/or plant personnel (operators). A significant challenge for enhancing Manufacturing Intelligence is that much of the equipment used in part production operations does not communicate that information in a standard format. As a result, it is often difficult to implement software applications used to improve

manufacturing operations or to determine how effectively the factory, and/or enterprise, is operating. These difficulties are further compounded in complex, extended enterprises where the need for visibility through a highly distributed supply chain is heightened even more.

Incidentally, this is the opposite of what has occurred in the computer or information technology arena – where a wide range of disparate devices communicate through standard interfaces (e.g., USB and networking technologies) using standardized communication protocols. Within the manufacturing sector, the challenge then becomes how manufacturing can replicate the success of this interconnectability, exploit an extended manufacturing technology community, and provide timely production data to the local and total enterprise to create manufacturing intelligence.

Recognizing the difficulties faced by manufacturers and the lack of a standardized communication protocol for parts manufacturing, AMT – The Association For Manufacturing Technology commissioned thedevelopment of the MTConnect standard. MTConnect defines the communication protocol, or the rules, that manufacturing equipment can follow to share data with software applications or other shop floor devices. The standard includes an extensible taxonomy, or dictionary, which provides a standardized structure and format for information and data available from parts manufacturing equipment. The data is represented in an XML schema and is transmitted using standard HTTP and Ethernet networking technologies. The MTConnect standard is open and royalty-free to facilitate the widest possible acceptance and utility. This approach allows connectivity and data standardization from the lowest levels of the manufacturing process, starting from the equipment used to produce parts and assemblies on the shop floor; to interactions with other devices in the manufacturing operation; and to higher level enterprise design, process planning, and execution systems.

The expectation is that the interoperability afforded by MTConnect will enable a host of solution providers to develop software and hardware products to make the entire manufacturing enterprise more productive. To date, a limited number of applications utilizing MTConnect have emerged. The MTConnect Challenge will focus on expanding awareness of the difficulties faced in manufacturing and fostering the development of new software applications to enhance Enterprise Intelligence.

2.1 Use of Data in the Manufacturing Industry

The world of manufacturing includes a wide variety of processes, products, and facilities. This Challenge is focused on that portion of manufacturing engaged in the production and assembly of discrete parts – metals, plastics, and other materials (e.g. automotive, aerospace, discrete parts manufacturing, etc.). Because of the types of equipment commonly used in the production of these types of parts, manufacturing companies typically do not have access to significant data from their production operations. However, they recognize the need to more effectively use data and the information derived from that data to improve the operation of their facilities (Manufacturing Intelligence).

In a study of parts suppliers for defense industries, it was found that the vast majority of companies use shop floor data from their production operations. However, it was also found that requirements for information derived from data are much greater than what can be effectively realized today. It

was also found that data is commonly collected manually for record keeping and documentation purposes. Once collected, it is never converted to an electronic form to allow for further analysis.

Today, there is an extensive amount of data produced relative to the manufacturing process. However, this data is typically "trapped" in the individual pieces of equipment and devices used in the production of products or the operation of facilities, or it is recorded on paper where it cannot be easily analyzed. The purpose of MTConnect is to "unlock" this data and provide it in a common format that can be easily used by software applications.

The study of suppliers for the defense industries showed that most facilities have programs in place to continuously improve their manufacturing operations. All of these programs require the analysis of data from the production operations to drive the decision making process. The study found that 69 percent of the facilities capture part quality data, 51 percent capture data relative to equipment maintenance and maintenance scheduling, and only 29 percent capture data relative to the production process and performance monitoring.

There is significant diversity in the types of data collected in manufacturing operations. Across the 46 companies studied 53 distinct types of production metrics were identified as being important to the various companies. Of these, only five were commonly used in the majority of the facilities. This study clearly demonstrated the need for a more diverse set of software applications to support production operations.Other data obtained from the study shows that the following information types were the most valuable to plant personnel:

- Machine Health/Machine Behaving Properly
- Equipment Performance Metrics: Availability, Utilization, and Reasons for Downtime
- Operating Performance – Amount of Equipment Idle Time and Reasons for Idle Time
- Identification of Equipment Failures and Prediction of Pending Failures
- Part Conformity (Part Quality) and a Machine's Ability to Produce a Conforming Part

Finally, the study found that the majority of the Continuous Improvement Programs used in the production facilities relied most heavily on data relative to equipment availability and utilization. Additionally, the data that was most lacking, but desired, was machine health monitoring and the tracking and scheduling of equipment maintenance.

2.2 Sponsorship

The MTConnect Student Challenge is a project sponsored by the Office of the Secretary of Defense (OSD) Defense-Wide Manufacturing Science and Technology (DMS&T). The U.S. ARMY – ARDEC Benet Labs; the National Center for Defense Manufacturing and Machining (NCDMM); and MTConnect Institute, a subsidiary of AMT – The Association For Manufacturing Technology, are the joint executors of the Challenge and are pleased to partner with both the Society of Manufacturing Engineers and the National Tooling and Machining Association in presenting this challenge.

3. MTConnect Student Challenge
3.1 Goal
The primary goal of *"MTConnect Student Challenge: Application Development"* is to develop

innovative and deployable advanced manufacturing intelligence applications utilizing data acquired using the MTConnect standard.

3.2 Objectives

The objective of *"MTConnect Student Challenge: Application Development"* is to develop a demonstrable and deployable application that solves a real-world manufacturing need. Participation in the associated *MTConnect Student Challenge: Idea Creation* is not a prerequisite for participation in the *MTConnect Student Challenge: Applications*.

A previous contest, known simply as the "MTConnect Challenge", was held during 2013-14, where Part 1 solicited ambitious, yet achievable, ideas from the public that harnessed innovation and manufacturing intelligence breakthroughs that could benefit the DoD and their industrial manufacturing supply chain. The ideas generated from the 2013 MTConnect Challenge Part 1 can be found at https://MTconnect.challengepost.com/. These ideas may be used by anyone participating in the *MTConnect Student Challenge: Application Development*. Of course participants in *MTConnect Student Challenge: Application Development* may propose their own unique ideas for application solutions that address the objectives of the Challenge.

The MTConnect Student Challenge seeks submissions from a wide variety of diverse perspectives to include students or teams of students pursuing degrees in higher education. For the purpose of this challenge, higher education is defined as Community College, College and University, and Graduate level programs at Colleges and Universities.

4. MTConnect Standard

MTConnect® is an open, royalty-free standard that is intended to foster greater interoperability between devices and software applications. It is based on an open protocol for data integration. By establishing an open and extensible channel of communication for plug-and-play interconnectivity between devices, equipment and systems. MTConnect allows sources to exchange and understand each other's data and reduces the cost of system integration.

MTConnect® is built upon the most prevalent standards in the manufacturing and software industries, maximizing the number of tools available for its implementation and providing the highest level of interoperability with other standards and tools in these industries. The key technology components used in MTConnect are Extensible Markup Language (XML) and the networking technologies Hyper-Text Transport Protocol (HTTP) and Ethernet.

To facilitate this level of interoperability, a number of objectives are implemented in the standard. First and foremost is the ability to transfer data via a standard protocol, which includes:

- A device identity (i.e. model number, serial number, calibration data, etc.).
- The identity of all the independent components of the device.
- A device's design characteristics (i.e. axis length, maximum speeds, device thresholds, etc.).

Most importantly, data must be captured in real or near-real time (i.e. current speed, position data, temperature data, program block, etc.) by a machine or part and be in a form that can be utilized by

other devices or applications (e.g. utilized by maintenance diagnostic systems, management production information systems, CAM products, etc.).

MTConnect also provides a Data Dictionary with standard definitions and terminology for thousands of types of data found in the manufacturing environment. An XML schema is provided for each data type to provide a structure for exchanging data between devices and applications. MTConnect is also an Extensible Standard – allowing developers to extend the Data Dictionary to support data types not yet defined in the standard. The types of data that can be addressed in MTConnect® include:

- Physical and actual device design data
- Measurement or calibration data
- Near-real-time data from the device

MTConnect has been purposely defined as a "Read Only" protocol to address a number of implementation concerns specific to the production environment. Application techniques commonly referred to as "Read-Read" may be employed to provide for the dynamic exchange of data between devices and to facilitate interoperability between them.

Visit the "Getting Started" section of MTConnect.org for more information on the MTConnect Standard, connection to equipment types, and manufacturing functions that commonly use MTConnect data. The Getting Started section contains a number of resources to introduce the new user to the MTConnect standard and assist the application developer.

5. Prizes

This Challenge is being conducted under the authority of the America COMPETES Act of 2010, 15 U.S.C. § 3719.

The total dollar amount of the prize pool is $22,500.00, subject to the availability of funds.

There will be three cash prizes for winners of the *MTConnect Student Challenge: Application Development*:

$10,000 for First Place
$7,500 for Second Place
$5,000 for Third Place

The winners of the Challenge will also receive marketing support for a period of two months, to end November 2016, should they decide to commercialize their submissions. The top five finalists will be given an opportunity to present IMTS-The International Manufacturing Technology Show, one of the largest manufacturing trade shows in the world, taking place September 12-17, 2016.

DoD reserves the right to suspend, cancel, extend, or curtail the Challenge as required or determined by appropriate DoD officials. Nothing within this document or in any documents supporting the Challenge shall be construed as obligating DoD, the Federal Government, NCDMM, AMT or a related instrumentality to any expenditure of appropriated funds or to any obligation or

expenditure of funds in excess of or in advance of available appropriations. Within 15 business days of winner notification, the DoD will award a single dollar amount to winning team(s) and each team is solely responsible for allocating any prize amount among its member contestants as they deem appropriate. DoD will not arbitrate, intervene, advise on, or resolve any matters between entrant members. It will be up to the winning team to reallocate the prize money among its member contestants, if they deem it appropriate.

Participation in *MTConnect Student Challenge: Idea Creation* is not a prerequisite for participation in *MTConnect Student Challenge: Application Development.*

6. Eligibility

Only students who are lawfully admitted and enrolled in a degreed program at an institution of higher education, located in the U.S., are eligible to participate in any part of the MTConnect Student Challenge. For the purpose of this challenge, higher education is defined as Community College, College, or University. Undergraduate and Graduate level students are both eligible.

Addendum: Students graduating in 2016 are eligible to participate in this challenge.

7. Submission Requirements

Participation in the *MTConnect Student Challenge: Idea Creation* is not a prerequisite for participation in the *MTConnect Student Challenge: Application Development.*
Explore the MTConnect information and other resources available at www.MTConnect.org, under the Getting Started menu.

Submit your innovative idea. This idea must make use of the MTConnect standard. Submissions will be accepted between 12am EST on 8 JUNE 2015 and 11:59:59pm EST on July 2016. Visit http://mtconnect.challenge.gov/submissions/new and confirm that you have read and agree to the Official Rules, and submit your application by including the items listed in the requirements section. Finalists will be announced by September 17, 2016.

The Administrator's computer, within the ARMY's ARDEC-Benet Labs, is the official time-keeping device for this Challenge.

7.1 Application & Submission Requirements
7.1.1 Application Requirements

For submission to *MTConnect Student Challenge: Application Development*, an application may be either an independent application that meets the objectives of the Challenge or it may be an extension to a pre-existing application, where the extension to that application meets these objectives. When the application is an extension to an existing application, the applicant must clearly define the part of the application that is the extension that has been developed specifically for *MTConnect Student Challenge: Application Development*. Only the extension, not the entire application, will be judged for its contribution towards manufacturing intelligence and the objectives of *MTConnect Student Challenge: Application Development*.

7.1.2 Submission Requirements

Submissions to *MTConnect Student Challenge: Application Development* shall include a written summary of the application describing the benefits that can be derived from the application, a video of the application in action, and a thumbnail image representing the application. It is not necessary to submit the actual application software or code. However, the applicant must demonstrate the actual application directly to the judges in Rounds 2 and 3 of the judging process.

The format for the written summary is provided below. The submission may also include supporting materials that demonstrate the capabilities of the application and/or the benefits that may be derived from the application. These supporting materials may be in the form of presentations, story boards, video, flash, or any other electronic format generally available to the public. Materials in formats that require specialized viewers or the installation of additional software to allow the judges to view the materials will not be accepted.

The total submission may not exceed 35 MB (megabytes) in size.

Please DO NOT submit source code or executable files. Submissions should only include items listed in the requirements. The descriptions, videos, and graphics submitted may be made public. The applicant must define how MTConnect and MTConnect data is used by the application solution submitted. In Rounds 2 and 3 of the judging, the application must effectively demonstrate the use of MTConnect and MTConnect data.

It is also encouraged that submissions identify extensions that may be required to the MTConnect Standard to more fully implement the solutions identified in the proposal.

8. Evaluation Criteria
(A) Benefit to Manufacturing Intelligence
Each submission will be rated based on the strength of its potential to create achievable and measurable benefits to manufacturing intelligence.
Cost Benefits: The extent to which the solution developed uses data generated from or provided to the production environment to reduce costs associated with the deployment, implementation, or operation of a manufacturing process. Cost benefits may also include reduction of costs associated with the implementation, support, or maintenance of systems or processes related to discrete parts manufacturing; training of personnel required to operate or maintain a manufacturing process or application solution; the number and/or the qualifications of personnel required to operate or maintain a manufacturing process or application solution; the collection and retention of data or documentation associated with a manufacturing process or application solution in a manufacturing process; and/or waste and scrapped materials resulting from the manufacturing process.
Productivity Benefits: The extent to which the solution developed uses data generated from or provided to the production environment to reduce costs, improve productivity, or increase production output associated with the deployment, implementation, or operation of a manufacturing process or application solution used in the manufacturing environment. Productivity benefits may also include reduction in cycle times associated with a production process; improved utilization of resources and personnel in the manufacturing process; reduction of non-productive time related to the manufacturing process; and/or the collection and retention of data or documentation associated with

a manufacturing process or application solution in a manufacturing process.

Quality Benefits: The extent to which the solution developed uses data generated from or provided to the production environment to improve the quality of products produced in a manufacturing process. Quality benefits may include the overall quality, precision, or conformity of products produced in the manufacturing process; improved stability or repeatability of the manufacturing process; detection or identification of in-process quality defects which reduce scrap, rework and/or non-productive production time; and/or the collection and retention of quality data associated with a manufacturing process or products produced in a manufacturing process.

(B) Creativity and Innovation

Each submission will be rated based on the extent to which it exhibits a breakthrough concept and/or methodology. This may be through a new concept, methodology, or means of implementation.

Breakthrough Concept: The extent to which the solution developed fundamentally improves or enhances a manufacturing process through the use of data using a method or technique that has not traditionally been deployed in the manufacturing environment.

Breakthrough Methodology: The extent to which the solution developed implements a strategy for using data to address a manufacturing solution that has not traditionally been deployed in the manufacturing environment.

Breakthrough Implementation: The extent to which the solution developed fundamentally improves or enhances how data is used in an existing manufacturing process or application solution used in the manufacturing environment resulting in a significant improvement to the overall implementation including reductions in the cost, time, or expertise required to deploy the process or application solution; fundamental enhancements in the process stability, product quality, or productivity of the production process; or significant enhancements in the value of the information gathered from the manufacturing process.

(C) Practicality of Concept

Each submission will be rated for its viability — its ability to be effectively implemented and deployed in a manufacturing setting.

Feasibility of Implementation: The extent to which the solution developed may be reasonably deployed to the benefit of the manufacturing processes, equipment, and/or facilities targeted by the concept. Feasibility also includes an assessment of how effectively the solution uses data to address identified needs or problems associated with manufacturing processes or equipment.

Deployment: Deployment includes an assessment of the effort, costs, and potential disruption to the manufacturing process associated with the implementation of the solution relative to the benefits to be derived from that implementation. Deployment also includes an assessment of whether the technologies and infrastructure required to implement the solution are readily available in the targeted manufacturing facilities or can be reasonably provided or installed at these facilities.

Usability: The extent to which the concept to be developed based on this proposal may be effectively implemented and utilized by the personnel typically employed in the facilities targeted for this solution. Solutions that may be fully implemented and utilized with the resources and expertise available from the personnel typically employed by the targeted manufacturing facilities will be scored higher than concepts requiring extensive training of plant personnel, specialized expertise or resources, or the use of contracted resources or expertise.

Economic Assessment: The solution developed will be assessed relative to the likelihood that the facilities targeted for installation of the solution will financially be able to justify the expenditure to implement the solution in a traditional budgeting process. Solutions that require extraordinary budgeting approvals shall receive a lower score, since the likelihood of deployment of the proposed concept may be reduced due to the budgeting process.

(D) Impact on Industry
Each submission will be rated based on its proposed impact to the creation of manufacturing intelligence from differing manufacturing processes, facilities, and types of equipment and devices.
Breadth of Impact: The extent to which the solution developed is applicable to differing manufacturing processes and types of equipment.
Solutions may be applicable to a specific manufacturing process or may generically be applied to many manufacturing environments. The solution will be evaluated based on how readily it may be deployed in a broad set of manufacturing processes and/or applied to a variety of manufacturing equipment.
Constrained Solutions: Constrained Solutions are solutions that address a limited set of manufacturing processes or types of equipment, which are typically deployed in a small number of manufacturing facilities. These solutions may be highly valuable to a specific manufacturing process or type of equipment but would be deployed in a limited number of facilities that utilize these specific processes or types of equipment.
Restricted Solutions: Restricted Solutions are solutions that address a limited set of manufacturing processes or types of equipment, but those processes and/or equipment types are widely prevalent throughout the manufacturing industry. Restricted Solutions also include those which utilize data from a limited set of manufacturing processes or types of equipment to the benefit of a wide variety of other types of equipment, production processes, or application solutions used in the manufacturing environment.
Open Solutions: Open Solutions are solutions that address a wide set of manufacturing processes or types of equipment, and those processes and/or equipment types are widely prevalent throughout the manufacturing industry. Open Solutions also include those that utilize data from many different manufacturing processes or types of equipment to the benefit of many other types of equipment, production processes, or application solutions used in the manufacturing environment.
Scoring of solutions for Breadth of Industry Impact in Phase 2 of the Challenge will place the highest value on Open Concepts. Restricted Concepts will be scored lower, and Constrained Concepts will be scored lowest.

(E) Overall Quality
Each submission will be rated on the extent to which it adheres to all requirements set forth by the MTConnect Challenge, completeness and clarity of the vision and approach, and utilization of the existing MTConnect standard and/or an extension of the standard.
Adherence to the Challenge RFQ Requirements: The extent to which the solution delivered complies with the requirements and structure specified in the Request for Proposal.
Clarity of Vision: The extent to which the solution developed is fully and precisely described in the submission.
In Round 1 of the judging, Clarity of Vision includes an assessment of how completely the

manufacturing issues and challenges addressed by the solution are articulated and constrained in the submission. It also includes an assessment of how effectively the solution addresses/improves those manufacturing issues and challenges and how the solution may be deployed in the target facilities.

In Rounds 2 and 3 of the judging, Clarity of Vision addresses how effectively the applicant can describe and defend the solution relative to each of the Evaluation Criteria.

Utilization of MTConnect: The extent to which the solution effectively utilizes the MTConnect Standard for the definition and transmission of manufacturing data. The submission must clearly define how the solution utilizes MTConnect data. In Rounds 2 and 3 of the judging, the applicant must demonstrate the use of MTConnect data in the submission.

9. Judging

All *"MTConnect Student Challenge: Application Development"* submissions will be judged in three (3) separate rounds. During the first round of judging, an expert panel, which will be appointed by the Department of Defense and may include both Federal and non-Federal employees, will evaluate the applications based upon the materials submitted and the Evaluation Criteria provided in Section 8. The Panel will select 10 semifinalists. In the second round of judging, each of the semifinalists will engage with the judges in a web conference, where they will be given an opportunity to present and defend their submissions to the judges and respond to questions. The judges will then select five finalists. In the final round of judging, the finalists will be required to present and defend their submissions at the IMTS-The International Manufacturing Technology Show held from September 12-17, 2016. The attendees of this event will vote for the first, second, and third place winners. The winner will then be announced at the event. Each finalist will be provided a standardized presentation format that must be incorporated into the presentation at the conference defining how the application (or extension to an application) addresses each of the Evaluation Criteria.

IMTS admission and travel expenses for one presenter from each selected finalist will be covered by the Challenge administrator up to $2,500.The finalists will be provided booth space in the Exhibit Area at IMTS to present their applications. Details on the conference participation and presentation format will be provided at the time that the finalists are selected.

9.1 Rating System

Submissions will be rated using a five-star rating system indicating how well each submission meets each of the criteria. Five stars represents the highest score; one star is the lowest.

Stars Description
1 Does not meet evaluation criteria
3 Meets evaluation criteria
5 Exceeds evaluation criteria

10. Terms and Conditions

Challenge Subject to Applicable Law: The Challenge is subject to all applicable Federal laws and regulations. Registering for this Challenge constitutes each Team and/or Contestant's agreement to these Official Rules ("Official Rules") and administrative decisions, which are final and binding in all matters related to the Challenge. Eligibility for a prize award is contingent upon fulfilling all

requirements set forth herein.

Judges: The finalist's submissions will be reviewed by the judges listed at http://www.challenge.gov/challenge/MTConnectStudentApps, or by another qualified judging panel selected by the DoD at its sole discretion. The judging panel will judge the submissions based on the judging criteria identified in these Student Challenge rules to select winners in each category.

Publicity: Except where prohibited, participation in the Student Challenge constitutes each winner's consent to DoD's and its agents' use of each winner's name, likeness, photograph, voice, biographical information, opinions, and/or hometown and state information for promotional purposes through any form of media, worldwide, without further permission, payment, or consideration.

Liability and Insurance: Any and all information provided by or obtained from the Federal Government, NCDMM, and AMT – The Association for Manufacturing Technology is without any warranty or representation whatsoever, including but not limited to its suitability for any particular purpose. Upon registration, all participants agree to assume and, thereby, have assumed any and all risks of injury or loss in connection with or in any way arising from participation in this competition, development of any application, or the use of any application by the participants or any third-party. Upon registration all participants agree to and, thereby, do waive and release any and all claims or causes of action against the Federal Government and its officers, employees and agents for any and all injury and damage of any nature whatsoever (whether existing or thereafter arising, whether direct, indirect, or consequential and whether foreseeable or not), arising from their participation in the contest, whether the claim or cause of action arises under contract or tort. Upon registration, all participants agree to and, thereby, shall indemnify and hold harmless the Federal Government, NCDMM, and AMT – The Association for Manufacturing Technology and their officers, employees and agents for any and all injury and damage of any nature whatsoever (whether existing or thereafter arising, whether direct, indirect, or consequential and whether foreseeable or not), including but not limited to any damage that may result from a virus, malware, etc., to Government computer systems or data, or to the systems or data of end-users of the software and/or application(s) which results, in whole or in part, from the fault, negligence, or wrongful act or omission of the participants or participants' officers, employees or agents.

Records Retention and FOIA: All materials submitted to DoD as part of a submission become DoD records and cannot be returned. No confidential information will be accepted with any submission. Submitters will be notified of any Freedom of Information Act requests for their submissions in accordance with 29 C.F.R. § 70.26.

508 Compliance: Participants should keep in mind that the DoD considers universal accessibility to information a priority for all individuals, including individuals with disabilities. In this regard, the Department is strongly committed to meeting its compliance obligations under Section 508 of the Rehabilitation Act of 1973, as amended, to ensure the accessibility of its programs and activities to individuals with disabilities. This obligation includes acquiring accessible electronic and information technology. When evaluating Submissions for this contest, the extent to which a Submission complies with the requirements for accessible technology required by Section 508 will be considered.

Public Voting: DoD is not responsible for, nor is it required to count, incomplete, late, misdirected, damaged, unlawful, or illicit votes, including those secured through payment or achieved through automated means.

11. Contact Information

For questions about the use of MTConnect standard, use the public discussion forum at
MTConnectForum.com.

For questions about the Challenge, visit the Discussions section of this site.

12. Reference Material

MTConnect.org has a wealth of resources for those wishing to understand and download the standard:

– The MTConnect standard – http://mtconnect.org/getting-started/developers/standards.aspx

– Tutorials (videos) – http://mtconnect.org/getting-started/developers.aspx

– White Papers – http://mtconnect.org/getting-started/white-papers.aspx

Additional information can be found via the "Getting Started" menu on MTConnect.org.

The following industry supports have provided access to real-time MTConnect data:

Mazak Corporation

http://66.42.196.109:5604
http://66.42.196.109:5605
http://66.42.196.109:5606
http://66.42.196.109:5607

DMG Mori Seiki USA
http://DMGMoriMessenger.com:83/Simulator/current

Okuma America Corporation
http://74.203.109.245:5000/OKUMA.Lathe
http://74.203.109.245:5001/OKUMA.MachiningCenter

ITAMCO
http://phs.cloudapp.net:5000
http://phs.cloudapp.net:5001
http://www.itamco.com/kinect.html