

VIRTUAL TASK TRAINER

INTERACTIVE 3D SIMULATION SOLUTION FOR MAINTENANCE TRAINING

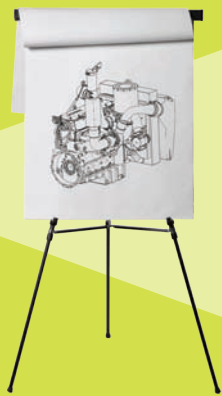


MODERNIZING MAINTENANCE TRAINING

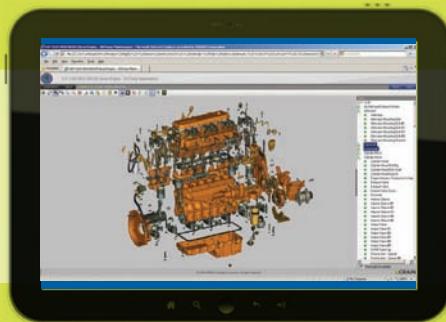
MAINTENANCE TRAINING HAS TRADITIONALLY INVOLVED CLASSROOM INSTRUCTION

where students receive training on theoretical concepts, followed by hands-on experience where students practice procedures on equipment and hard trainers.

The result of this approach has been a training gap, where the conceptual knowledge taught in the classroom is separated from the procedural knowledge learned by students in the workshop or hangar. For the past decade, NGRain® has been dedicated to helping the military close this gap, delivering 3D simulation software and solutions that improve the communication and comprehension of technical knowledge in the classroom, workshop, and field.



CLASSROOM
THEORY



NGRAIN
VIRTUAL TASK TRAINER



WORKSHOP
PROCEDURE PRACTICE

NGRAIN Virtual Task Trainer™ (VTT™) is an Internet Explorer-based, commercial-off-the-shelf software application that leverages 3D simulation to train personnel. Based on a proven instructional design framework, NGRain Virtual Task Trainer solutions have been found to accelerate training by as much as 60 percent, improve student test scores, and reduce failure rates, while also offering significant cost avoidance.

ACCELERATE
TRAINING BY
AS MUCH AS

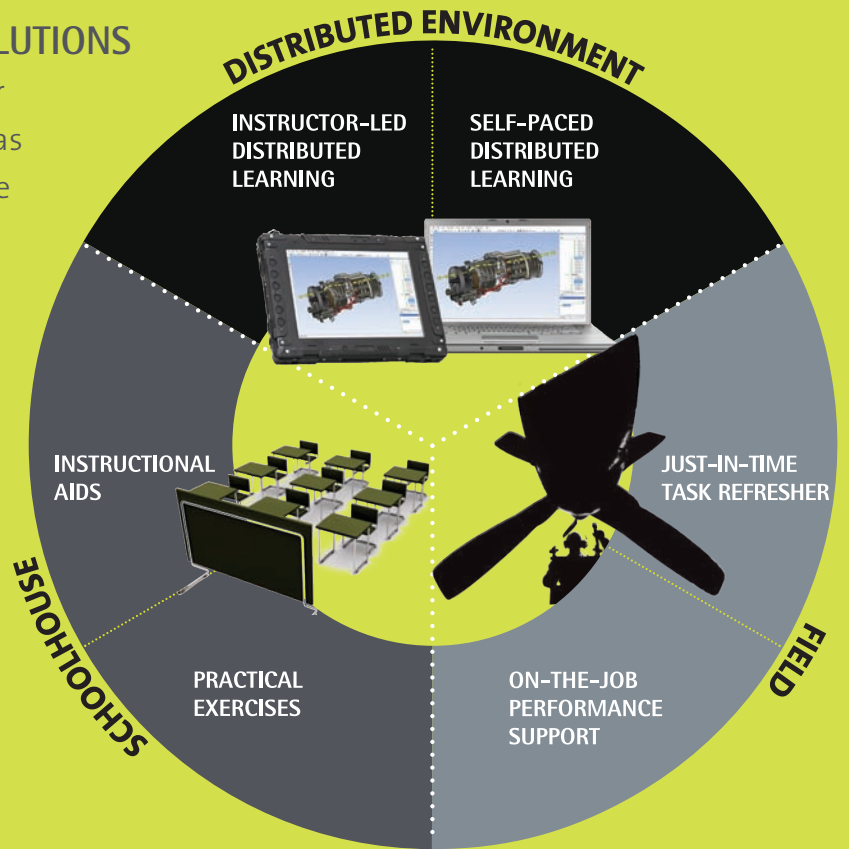
60%

LEARNING SCENARIOS

NGRAIN VIRTUAL TASK TRAINER SOLUTIONS

are implemented to meet specific customer learning scenario requirements, from use as an instructional aide in a classroom to use as self-paced learning delivered online.

Depending on the scenario, the Virtual Task Trainer may be configured to be launched and tracked by a Learning Management System, and student movement through the Virtual Task Trainer content may be set to be controlled or uncontrolled.

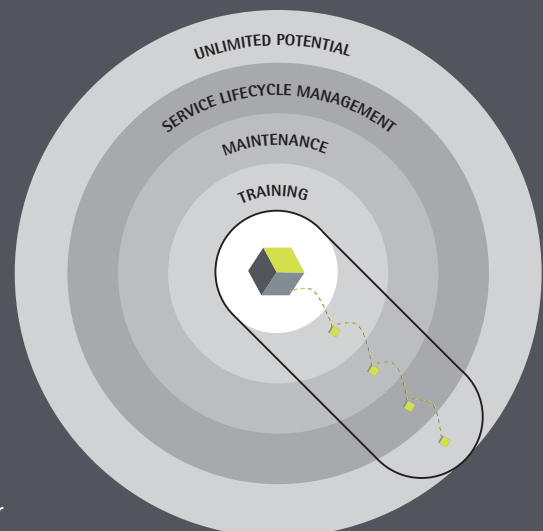


3D KNOWLEDGE OBJECT™ (3KO®)

At the heart of the Virtual Task Trainer is the 3D Knowledge Object (3KO) file, a 3D digital model that contains and visually communicates knowledge about the system it represents.

Based on NGRAIN technology, 3KO simulations are designed for industry standard IT infrastructure and have the following key attributes.

- ▶ **REUSABLE:** 3KOs delivered with a Virtual Task Trainer can be easily reused in other applications, including Microsoft® PowerPoint®, Word, and PDF files.
- ▶ **PORTABLE:** Each 3KO is a discrete, compressed IT asset that is optimized for web deployment.
- ▶ **INTEROPERABLE:** 3KOs are optionally conformant with the Shareable Content Object Reference Model (SCORM) and can be launched and tracked by Learning Management Systems.
- ▶ **SUSTAINABLE:** With NGRAIN® Producer®, users with no 3D experience or programming skills can update the knowledge contained within 3KOs.



TRAINING ACTIVITIES

Based on a proven framework for instructional design, NGRAIN Virtual Task Trainer solutions support a range of training activities, from system orientation to theory of operations to procedures. Activities supported in a specific customer Virtual Task Trainer solution depends on customer requirements. For example, a Virtual Task Trainer may support just remove and install procedure training, or may also include parts familiarization and cycle of operations training.

TRAINING ACTIVITIES

Familiarization	▶ Parts Familiarization
	▶ Schematics & Diagrams Familiarization
Theory of Operations	▶ Cycle of Operations
	▶ Fluids & Flows
Procedures	▶ Removal & Installation

PARTS FAMILIARIZATION

ACTIVITY STUDENTS LEARN ABOUT THE KEY COMPONENTS OF A SYSTEM, THEIR LOCATION & FUNCTION

OUTCOME STUDENTS CAN LOCATE SPECIFIC SUB-SYSTEMS AND COMPONENTS, & STATE THEIR PURPOSE

Parts Familiarization may include one to three modules:

OBSERVE

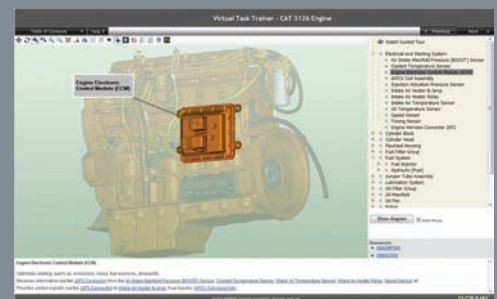
- ▶ Watch and interact with a 3D animation, providing a quick tour of the equipment in a defined learning sequence, with audio narration if desired
- ▶ Navigate through a series of predefined snapshots that identify, locate and describe relevant equipment parts
- ▶ Select parts to view on the 3D Knowledge Object, and learn their main function and characteristics

PRACTICE

- ▶ Perform a real-time practice task that has students select parts based on challenge questions, and answer multiple choice questions to recall critical facts about parts
- ▶ Receive automated feedback and guidance when mistakes are made

TEST

- ▶ Answer questions about a sub-set of practiced parts, including questions that require knowledge of part functions
- ▶ Optionally report test results to a Learning Management System



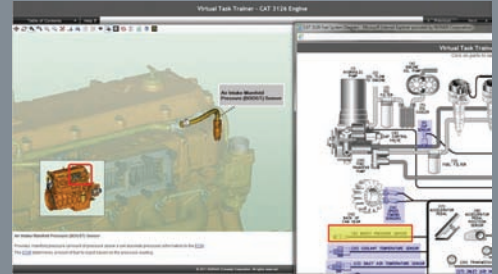
SCHEMATICS & DIAGRAMS FAMILIARIZATION

ACTIVITY STUDENTS LEARN HOW TO RELATE COMPONENTS TO THEIR REPRESENTATION ON STANDARD SCHEMATICS

OUTCOME STUDENTS CAN CORRELATE COMPONENTS ON A 2D SYSTEM SCHEMATIC WITH COMPONENTS ON THE EQUIPMENT & VICE VERSA

Schematics and Diagrams includes an interactive Observe module, where the student:

- ▶ Highlights and names each part, both on the 3D Knowledge Object and the 2D schematic
- ▶ Selects parts on the 3D Knowledge Object and the same part is highlighted on the 2D schematic and vice versa



CYCLE OF OPERATIONS

ACTIVITY STUDENTS LEARN HOW THE EQUIPMENT WORKS, ACQUIRING FUNDAMENTAL "THEORY OF OPERATION" KNOWLEDGE TO APPLY ON-THE-JOB

OUTCOME STUDENTS UNDERSTAND FUNCTIONING PRINCIPLES OF EQUIPMENT, AND HOW SUB-SYSTEMS & COMPONENTS INTERACT WITH EACH OTHER

Cycle of Operations may include one to three modules:

OBSERVE

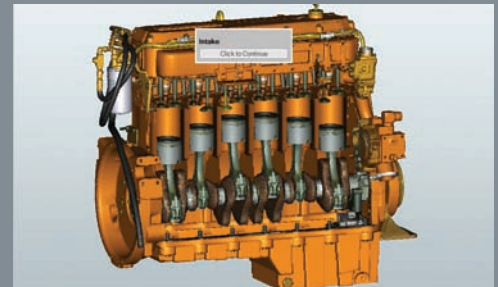
- ▶ Watch and interact with a 3D animation, which shows the phases of operation in normal and abnormal cycles
- ▶ Navigate through individual phases or steps throughout the described cycles of operation

PRACTICE

- ▶ Perform a real-time practice task that has students identify the next action in a sequence
- ▶ Receive automated feedback and guidance when mistakes are made

TEST

- ▶ Answer predictive questions about sequence of operations and probable causes of malfunction by selecting parts in real time
- ▶ Optionally report test results to a Learning Management System



EXPLORE MODULE

All NGRAIN Virtual Task Trainer solutions include an Explore module, which allows students to interact freely with the 3D Knowledge Object. Instructors and students can: move, rotate, and cross-section parts; view parts in "ghosted" context of the whole system; x-ray the equipment; and navigate through the parts tree.

FLUIDS & FLOWS

ACTIVITY STUDENTS LEARN THE PATHS AND BEHAVIOR OF THE AIR AND FLUID THAT FLOW THROUGH A SYSTEM

OUTCOME STUDENTS UNDERSTAND THE FUNCTIONING PRINCIPLES OF EQUIPMENT AND DETERMINE LIKELY CAUSES OF MALFUNCTIONS

Fluids & Flows may include one to three modules:

OBSERVE

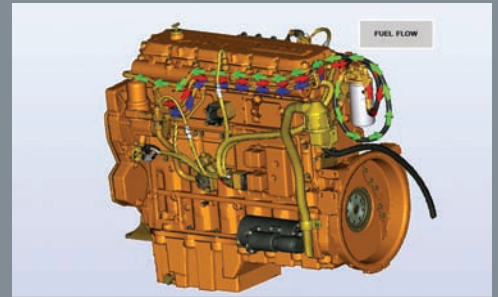
- ▶ Watch and interact in real time with 3D animations, which show normal and abnormal flows, using changing colors, density, spacing, size of indicators, to represent flow attributes, such as temperature, pressure, intensity, and speed
- ▶ Navigate through a series of predefined snapshots showing various flows throughout the equipment with associated description

PRACTICE

- ▶ Use the animations as a reference to answer questions about flow behavior, identify the next action in a sequence, and determine the probable cause of a malfunction
- ▶ Receive automated feedback and guidance when mistakes are made

TEST

- ▶ Answer predictive questions about flow behavior, flow progress or flow status
- ▶ Optionally report test results to a Learning Management System



DELIVERING VALUE

NGRAIN is the creator of interactive 3D simulation software and solutions that have set the standard for technical training and operational support, providing the most true-to-life, virtual hands-on experience. With NGRAIN Virtual Task Trainer, NGRAIN continues its commitment to solve business problems while delivering value.

Based on a proven instructional design framework and a decade of thought leadership, Virtual Task Trainer is an established, standardized solution for virtual maintenance training, which allows organizations to leverage the best of 3D technology and learning design cost effectively.

3D Knowledge Object files delivered with a VTT can be updated and repurposed using NGRAIN Producer, commercial-off-the-shelf software that allows Subject Matter Experts with no 3D experience or programming skills to produce and edit 3D animations and real time practice tasks. 3D Knowledge Objects can be easily inserted into Microsoft® Word documents, PowerPoint® slides, and Adobe® PDF files, as well as HTML pages.

NGRAIN makes it possible for organizations to transform how they share information, making complex technical knowledge simpler and more accessible to all.

REMOVAL & INSTALLATION

ACTIVITY STUDENTS LEARN PROCEDURES THAT INVOLVE TAKING EQUIPMENT APART AND PUTTING IT BACK TOGETHER

OUTCOME STUDENTS CAN REMOVE AND INSTALL PARTS ACCURATELY AND IN THE CORRECT SEQUENCE

Removal & Installation includes one to three modules:

OBSERVE

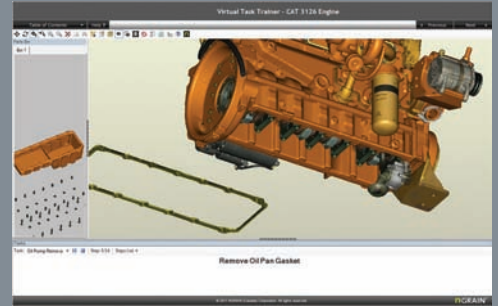
- ▶ Watch and interact with 3D animations, which show the remove and install procedures and include call outs with warnings and cautions, 2D images, and tooltips
- ▶ Navigate through individual phases or steps throughout the described procedure

PRACTICE

- ▶ Perform real-time practice tasks, dragging and dropping parts to detach and reattach them
- ▶ Receive automated feedback and guidance

TEST

- ▶ Perform the procedure in real time, dragging and dropping parts to detach and reattach them
- ▶ Optionally report test results to a Learning Management System



SUPPORTING FORCES WORLDWIDE



- ▶ UNITED STATES ARMY
- ▶ UNITED STATES NAVY
- ▶ UNITED STATES AIR FORCE
- ▶ UNITED STATES MARINE CORPS
- ▶ UNITED STATES COAST GUARD



- ▶ CANADIAN ARMY
- ▶ ROYAL CANADIAN NAVY
- ▶ ROYAL CANADIAN AIR FORCE
- ▶ UK MINISTRY OF DEFENCE
- ▶ F-35 LIGHTNING II PROGRAM



Seeing is believing. For more information, or to request a demo, email sales@ngrain.com or call 1.866.420.1781 today.

www.ngrain.com