



Australian Government

ICPPTD303 Set up and produce 3D scans

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICP Printing and Graphic Arts Training Package Version 3.0.

Application

This unit describes the skills and knowledge required to set up and operate a three-dimensional (3D) scanner to scan 3D objects and output data to a specified data file type.

It applies to individuals working in a variety of industry sectors, who utilise 3D images for graphical, artistic and manufacturing applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Three-Dimensional Printing

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare object to be scanned	1.1 Select appropriate scanner based on availability, and the type and complexity of object to be scanned 1.2 Identify and document output requirements of scan in accordance with client specifications 1.3 Treat surface of object in accordance with scanner's operating requirements 1.4 Orientate object in accordance with organisational policies and procedures

2. Prepare scanner	2.1 Check and adjust scanner in readiness for operation according to manufacturer operating procedures 2.2 Report any malfunctions to designated personnel for repair or maintenance in accordance with organisational policies and procedures 2.3 Select resolution of the scanner in accordance with client requirements
3. Operate scanner	3.1 Operate scanner according to manufacturer operating procedures and organisational work health and safety (WHS) procedures 3.2 Monitor scanner settings and adjust as required in accordance with manufacturer operating procedures 3.3 Check data and images to ensure quality meets client requirements 3.4 Convert scanner output files into specified file format 3.5 Shut down and reset scanner according to organisational policies and procedures and manufacturer operating procedures
4. Prepare output file ready for end user	4.1 Import scan data into secondary software according to organisational policies and procedures 4.2 Align scan data to real world planes according to client specifications 4.3 Present data files to the client and confirm requirements have been met

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Analyses graphics files and other documentation to determine scanning requirements
Writing	Names data files according to naming conventions
Oral communication	Effectively participates in verbal exchanges using active listening and questioning to convey and clarify information

Numeracy	• Uses mathematical processes to estimate size • Performs mathematical calculations to check and adjust software to reflect appropriate tolerances for scanning
Navigate the world of work	• Understands roles and responsibilities for tasks and makes basic decisions on work completion parameters • Complies with legislative and organisational requirements
Interact with others	• Understands what to communicate, with whom and how, in routine work situations
Get the work done	• Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes • Makes routine decisions and implements standard procedures to address problems • Uses familiar digital technologies and systems to control equipment, access information, enter data and save files

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPPTD303 Set up and produce 3D scans	ICPPRP398 Set up and produce a 3D scan	Updates to elements, performance criteria and assessment requirements	Not an equivalent unit

Links

Companion Volume Implementation Guides are available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d>

Assessment Requirements for ICPPTD303 Set up and produce 3D scans

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Performance Evidence

The candidate must demonstrate they can perform the following according to the standards defined in the elements, performance criteria and foundation skills of this unit.

The candidate must demonstrate the ability to produce at least two 3D scans in accordance with work health and safety requirements and workplace procedures to meet required outcomes. This includes demonstrating the ability to:

- communicate with client to identify needs
- determine scan requirements from client specifications and object criteria
- select an appropriate scanner and prepare the surface of the object
- prepare the scanner and orientate the object effectively
- scan the object safely and efficiently
- create files from scanner to client specifications.

Knowledge Evidence

The candidate must be able to demonstrate the following knowledge to effectively complete the tasks outlined in the elements and performance criteria of this unit, and to manage tasks in the context of the work role:

- common three-dimensional (3D) scanner technologies and their respective applications, capabilities and limitations
- current industries where 3D scanning is used
- workplace procedures and safety requirements when using 3D scanners
- importance of adjusting or considering scale, units of measurement, calibration, distance from subject, tolerance, and resolution for efficient 3D scans
- output file types for various applications, including but not limited to, the following file extensions:
 - STL - standard triangle language/standard tessellation language file format
 - OBJ - geometry definition file format
 - PLY - polygon file format
 - VRML - virtual reality modelling language file format

- XYZ/PTX - point cloud file formats
- AMF - additive manufacturing file format
- file conversion process required to prepare files for various applications
- intellectual property and copyright laws and requirements in relation to 3D printing.
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Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the printing and graphic arts field of work and include access to:

- a 3D model
- a 3D scanner
- specifications for scanner output files
- organisational and manufacturer operating procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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