



## 3D Scanning at the Moncton Public Library TIP SHEET

### A few definitions:

**.MFCX file:** Matter and Form Inc.'s proprietary file format is the quickest and easiest format to use with the software. Third party software doesn't recognize this file format so files must be saved in .XYZ, .PLY, .OBJ or .STL formats to view or edit scans with other software.

**.XYZ file (point cloud):** The most basic point cloud format. Saving your scan as a .XYZ file will store all of the points on a Cartesian coordinate system with X,Y and Z axes.

**.PLY file (point cloud):** Supports a relatively simple description of a single object as a list of nominally flat polygons.

**.OBJ file (meshed):** The point cloud is meshed to create another type of 3D model file. It is used less for 3D printing than the .STL file. An .OBJ file captures texture better than an .STL file because it contains both triangles and other polygons.

**.STL file (meshed):** The point cloud is meshed to create another type of 3D model file. This is a widely-used 3D model file that consists of surfaces made up of triangles.

**Mesh:** Is the collection of vertices, edges and faces that define the shape of a polyhedral object in 3D computer graphics and solid modeling.

### Tips on 3D scanning with the Matter and Form scanner and software:

**Calibration:** In order to maximize the scanner's accuracy, it's recommended that the scanner is calibrated each time it has been moved. Please ask staff for assistance.

**Single Colour or Multi-coloured:** The difference between Single and Multi-coloured scanning is in the number of camera exposures used to detect the lasers. To choose the best option, determine if your object's colours are contrasting or if they are in the same colour spectrum.

***\*TIP\*: Use the Matter and Form User Manual (saved on the iMac Desktop) for more detailed information on choosing the best settings.***

**Materials and surfaces:** There are some materials that laser scanners have trouble scanning. Because the scanner works by capturing the data made by the laser hitting the surface of the object, any material that makes it difficult for the camera to record where the laser is hitting will not scan well:

***Shiny surfaces:*** will reflect or bounce the laser away from the object. The result is a scan that looks “puffy” with points scattered all around the object.

***Translucent surfaces:*** will let the laser light pass through the object. The scan will not look solid.

***Very dark or light-absorbing surfaces*** (for example velvet): the laser light will be absorbed causing an inaccurate scan.

***\*TIP\*: Some objects can be pre-treated with a matte spray paint, powder (talcum or flour) or water soluble colored hairspray. Creating a more matte surface will increase the quality of your scan.***

**Combining scans:** The software allows you to join two separate scans into one 3D file with the help of the Align tool. This is a helpful tool for instances where features of an object have been missed because of the scanning angle. By performing more than one scan at different angles, missing details can be captured and combined to form one complete object.

## **How to 3D Scan at the Moncton Public Library:**

It's easy and free! The Matter and Form 3D scanner and software is available on the iMac workstation. This workstation can be borrowed with your library card. Ask at the Reference Desk to borrow this workstation and let them know if you need assistance launching the 3D scanner.

Files cannot be saved on the iMac so users must have a way to save their own files; a USB key is recommended.