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01.0 Introduction

Thank you for purchasing ProJet™ 3-D Printing System. We pride ourselves in our ability to offer customers three dimensional printing solutions. The 3D System team is confident your system will provide many years of service.

1.6 ProJet™ Systems Software

To install ProJet™ series upgrades, click on ProJet™ Systems Software to download the software and the software release notes that provide detailed installation instructions.

1.8 TIPS for our Customers

We want you to have the very best possible experience with the material delivery system on your new ProJet® 3500 system. These tips are important to ensure you understand the key points about the system; it is included in the accessory kit that shipped with your printer. Please see TIPS FOR OUR CUSTOMER in 3DS Central to get TIPS for Material Handling on the ProJet 3500.

1.1 About this Guide

This guide is created to give you an understanding of key features, system requirements and operating procedures for your ProJet™ 3500 printer. Click on the links which will lead you to the section of choice.

For support documentation, see **Other Documents**. To order material cartridges or parts, please contact your Authorized reseller or contact **3D Systems Customer Support** to locate your nearest Authorized Reseller. **Safety Guidelines:** Read and understand all safety guidelines before attempting to operate your printer. These guidelines provide important details on how to handle the VisiJet® material cartridge properly and also describe how to avoid personal injury and/or damage to the printer. For more detailed information on material safety, see **VisiJet® Material Guidelines.**

- **System Requirements:** This section provides all the necessary facility requirements for electrical, hardware, dimensional and environmental data.
- **Familiarization:** A pictorial view and description of printer functions and controls.
- **Operations:** Describes functionality and the build process when starting a new or an existing design.
- **Error Messages:** Flow chart describing the reason for printer's error message, what cause the error and the solution.
- **Maintenance:** Provides detail information when performing software, hardware and preventative maintenance to the printer.
- **Troubleshooting:** Describes how to diagnose problems pertaining to the printer's hardware and software.
- **Spare Parts Locator:** Quick access to parts that can be order through 3D Systems Customer Support.
- **Other Documents:** The Warranty and Maintenance Agreements information, along with the Material Safety Data Sheet (MSDS/SDS).
- **Support:** 3D Systems Customer Support will provide you information on how to obtain software updates; how to order parts and return parts through 3D Systems' Return Material Agreement (RMA). Information on how to get system upgrades and updates.
- **Help:** Quick access to answers to frequently asked questions (FAQ).
- **Glossary of Terms:** Alphabetical listing of terms that are frequently used through thsi user guide and their description.
- **Index:** Listing in alphabetical order for quick reference when you are uncertain of the section the term may be used in the guide.

1.2 Copyright

Improvements

3D Systems may (but shall not be obligated to) make improvements to this document from time to time. However, the Licensed User acknowledges that at any time after the expiration of the date of issuance, 3D Systems may institute a periodic charge or fee payable by the Licensed User in return for ongoing receipt of improvements. It is the responsibility of the Licensed User to provide 3D Systems with current information as to its name and address. The Licensed User also undertakes to notify 3D Systems promptly in the event that it considers any of the data contained in this document to be incomplete or erroneous in any respect, in connection with Licensed User's particular use or generally.

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This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Changes or modifications not expressly approved by 3D Systems could void your authority to operate this equipment.

Limitations of Warranty and Liability

1.3 Useful Documents

The documents listed below will help get the most out of your system, To access, click on the document title.

ProJet™ 3-D Printing Client Online Help: Run the client software, select **Help > Help Topics** in the printer's window or in Build Preview window to launch the client online help. The online help provide detailed instructions on how to use the client software to setup, run, and manage build jobs.

ProJet_3500_Quick Reference Guide.pdf: Download to have quick reference on the control panel functions, how to load / remove cartridges, and how to run a test build.

VisiJet® Material Handling and Post-Processing Guide: This document has everything needed to guide you in safely handling and disposing of VisiJet® material, including relevant regulatory guidelines for material disposal worldwide. It also provides information on how to clean parts once the build process is completed.

Projet™ 3-D Printers Facility Requirements Guide: This guide provides the dimensional data that is required when the 3D System's Field Service Engineer installs the printer. Click on the part number to view a copy for reference.

VisiJet® Material Safety Data Sheets (MSDS's): Ensure everyone who handles VisiJet™ materials is familiar with MSDS's and follows the safety guidelines. To order extra copies of MSDS's, request the appropriate document part numbers are located on the bottom left-hand corner of the MSDS.

1.4 What's Inside

Safety: Read prior to handling VisiJet® Materials or operating the printer. The safety sections inform you of handling the material properly and avoid damage and injury when operating the printer. For more detailed material safety information, refer to VisiJet® Material Handling Guide.

System Requirements: Provides electrical requirements prior to plugging in your printer for operation.   For more detailed facility requirements information, see the ProJet™ 3-D Printers Facility Requirements Guide.

Familiarization: Provides a brief description of the printer system.

Printer Setup: Provides information on preparing the 3-D printer for builds using the software, and how to send test and demo builds to the printer from your computer. Also refer to your online help for software instructions.

Operations: Describes loading and running the printer; start and stop build jobs; monitor and control build jobs; unload build parts; and disposing waste material.

Error Messges: Defines the error messages you may see on the printer's operator's panel and provide the actions to take.

Finishing:Provides information on finishing parts.

Maintenance: List printer maintenance procedures which must be done to ensure high part yield and low printer down time. Semi-annual preventive maintenance requires a certified 3D Systems Technical Support Representative.

Troubleshooting: If problems occur with the printer, look for solutions in this section first. It describes some common problems which can occur and suggests corrective actions.

Technical Support: List of contact numbers of sale and support personnel for your printer system.

1.5 Features and Benefits

ProJet™ HD3500 prints precision, durable plastic parts ideal for functional testing, design communication, rapid manufacturing, rapid tooling and more. It features selectable resolution choices for speed and quality.
Printing Mode: High Definition(HD), Ultra High Definition (UHD)
Net Build Volume (xyz): HD Mode: 298 x 185 x 203mm (11.75 x 7.3 x 8 inches); **UHD Mode:** 127 x 178 x 152mm (5 x 7 x 6 inches)
Resolution (xyz): *HD Mode: 328 x 328 x 606 DPI (xyz); 40μ layers; **UHD Mode**: 656 x 656 x 800 DPI (xyz); 32μ layers
VisiJet® Materials: *Part Materials*: VisiJet® Crystal; *Support Material*: S300
Part Stacking and Nesting: features part stacking and nesting capability in both build modes. The user can now utilize the entire build volume by stacking parts vertically in the z-direction to fill up the entire build envelop with parts. The user can control the space between layers to minimize support material usage and build time. Now, hours can be saved by stacking parts and submitting single, long builds overnight and weekends.
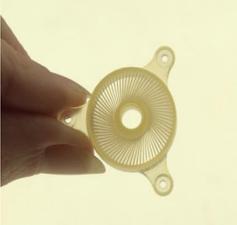
ProJet™ HD3500*plus* features a 60% expanded high definition build envelope and advanced print detail output. A 16 micron print resolution delivers exceptional hard plastic parts with unmatched micro-detail and surface quality.
Printing Mode: High Definition (HD), Ultra High Definition (UHD), Xtreme High Definition (XHD)
Net Build Volume (xyz): HD Mode: 298 x 185 x 203mm (11.75 x 7.3 x 8 inches); **UHD Mode**: 203 x 178 x 152mm (8 x 7 x 6 inches);
XHD Mode: 203 x 178 x 152mm (8 x 7 x 6 inches)
Resolution (xyz): HD Mode: 328 x 328 x 606 DPI; 40μ layers; **UHD Mode**: 656 x 656 x 800 DPI; 32μ layers; **XHD Mode**: 656 x 656 x 1600 DPI ; 16μ layers
VisiJet® Materials: *Part Materials*: VisiJet® Crystal, VisiJet® Proplast (natural),VisiJet® Navy, VisiJet® Techplast (Grey), VisiJet® Procast; *Support Material*: S300
Email Notification: Provides email notification to the user when their job begins, completes, aborts and if the system is low on material at any time during their build. Users can set their defaults and make changes as to what emails they will receive via the Job Options window.

ProJet™ CPX3500 mass produces 100% wax patterns with unmatched surface quality, extreme fine detail and exceptional precision. RealWax patterns are ideal for casting jewelry, apparel, micro-detail medical instruments and devices, medical implants, electrical components, figurines, replicas, collectables and more.
Printing Mode: High Definition(HD), Xtreme High Definition (XHD)
Net Build Volume (xyz): HD Mode: 298 x 185 x 203mm (11.75 x 7.3 x 8 inches); **XHD Mode:** 127 x 178 x 152mm (5 x 7 x 6 inches)
Resolution (xyz): *HD Mode: 328 x 328 x 700 DPI (xyz); 36μ layers; **XHD Mode**: 656 x 656 x 1600 DPI (xyz); 16μ layers
VisiJet® Materials: *Part Materials*: VisiJet® Hi-Cast; *Support Material*: S400
Part Stacking and Nesting: features part stacking and nesting capability in both build modes. The user can now utilize the entire build volume by stacking parts vertically in the z-direction to fill up the entire build envelop with parts. The user can control the space between layers to minimize support material usage and build time. Now, hours can be saved by stacking parts and submitting single, long builds overnight and weekends.

ProJet™ CPX3500*plus* features a 60% expanded high definition build envelope with up to 20% increased print speed. A new 20 micron high resolution option delivers exceptional wax patterns with smooth surface quality and fine feature detail in less time.
Printing Mode: High Definition (HD), Ultra High Definition (UHD), Xtreme High Definition (XHD)
Net Build Volume (xyz): HD Mode: 298 x 185 x 203 (11.75 x 7.3 x 8 inches); **UHD Mode**: 203 x 178 x 152mm (8 x 7 x 6 inches);
XHD Mode: 203 x 178 x 152mm (8 x 7 x 6 inches)
Resolution (xyz): HD Mode: 328 x 328 x 700 DPI (xyz); 36μ layers; **UHD Mode**: 656 x 656 x 1300 DPI; 20μ layers; **XHD Mode**: 656 x 656 x 1600 DPI, 16μ layers
VisiJet® Materials: *Part Materials*: VisiJet® Hi-Cast; *Support Material*: S400
Email Notification: Provides email notification to the user when their job begins, completes, aborts and if the system is low on material at any time during their build. Users can set their defaults and make changes as to what emails they will receive via the Job Options window.

ProJet™ CP3500 mass produces 100% wax patterns with smooth surface quality and exceptional precision, supporting almost unlimited applications capabilities. RealWax patterns are ideal for general foundry casting applications such as medium-sized to large mechanical parts for engines, pneumatics, aerospace, energy production and delivery, custom manufacturing equipment, restorations and other heavy equipment.
Net Build Volume (xyz): 298 x 185 x 203mm (11.75 x 7.3 x 8 inches)
Resolution (xyz): 328 x 328 x 700 DPI; 36μ layers
VisiJet® Materials: *Part Materials*: VisiJet® ProWax; *Support Material*: S400
Part Stacking and Nesting: features part stacking and nesting capability in both build modes. The user can now utilize the entire build volume by stacking parts vertically in the z-direction to fill up the entire build envelop with parts. The user can control the space between layers to minimize support material usage and build time. Now, hours can be saved by stacking parts and submitting single, long builds overnight and weekends.

	ProJet™ SD3500 prints high definition, durable plastic parts for engineering and mechanical design applications including functional testing, form and fit verification, rapid prototyping, design communication, rapid tooling and more. **Net Build Volume (xyz):** 298 x 185 x 203mm (11.75 x 7.3 x 8 inches) **Resolution (xyz):** 328 x 328 x 606 DPI (xyz) **VisiJet® Materials:** *Part Materials*: VisiJet® Crystal, VisiJet® Proplast (natural),VisiJet® Navy, VisiJet® Techplast (Grey); *Support Material*: S100
	ProJet™ DP3500 accurately, consistently and economically manufactures precision wax-ups for dental professionals. The system can generate hundreds of units each cycle. The wax-ups have a smooth surface finish and can be cast or pressed with conventional techniques. The large build volume and optional part stacking and nesting capabilities enable unattended operation ideal for high-volume production. **Printing Mode:** High Definition (HD); Ultra High Definition (UHD) **Net Build Volume (xyz): HD Mode:** 298 x 185 x 203mm (11.75 x 7.3 x 8 inches); **UHD Mode:** 203 x 178 x 152mm (8 x 7 x 6 inches) **Resolution (xyz): *HD Mode**: 328 x 328 x 606 DPI; **UHD Mode**:328 x 328 x 606 DPI **VisiJet® Materials:** *Part Materials*: VisiJet® Dentcast; *Support Material*: S300 **Email Notification:** Provides email notification to the user when their job begins, completes, aborts and if the system is low on material at any time during their build. Users can set their defaults and make changes as to what emails they will receive via the Job Options window.
	ProJet™ MP3500 can produce any size parts with smooth surfaces. Multiple parts can be built at one time. Works with any compatible intraoral, plaster or impression scanner. This Printing System is designed for use in laboratories with extended unattended operation, same day processing - helps you reduce time and cost. **Printing Mode:** High Definition Plaster (HDP) **Net Build Volume (xyz): HDX Mode:** 298 x 185 x 203mm (11.75 x 7.3 x 8 inches); **UHD Mode:** 127 x 178 x 152mm (5 x 7 x 6 inches) **Resolution (xyz): HDX Mode**: 656 x 656 x 800 DPI **VisiJet® Materials:** *Part Materials*: VisiJet® Stoneplast; *Support Material*: S300

- 1.5.1 Description and Definitions

1.5.1 Description and Definitions

Depending on the model of your ProJet 3500 3-D Production System, your system features different types of build styles to meet a variety of part making applications. Please refer to Features and Benefits that will describe your extended choices for your particular system.

Description and Definitions

- **The High Definition (HD) Mode** allows the user rapid part making capability on a full platform. This mode produces high quality parts for concept parts, verification designs and patterns for casting.
- **The Ultra High Definition (UHD) Mode** allows the users to build extremely high resolution parts with exceptional surface finish and superior accuracy. Parts build in UHD mode are typically used for show parts, fit testing and direct manufacturing using patterns for investment casting of jewelry and small components.
- **Expanded UHD Mode:** Provides the user with an Expanded Ultra High Definition (UHD) mode build envelope.
- **Expanded XHD Mode:** Provides the user access to the new Extreme High Definition (XHD) Mode that features a new print resolution with the same expanded build envelope available in UHD.

- **Email Notification:** Provides email notification to the user when their job begins, completes, aborts and if the system is low on material at any time during their build. Users can set their defaults and make changes as to what emails they will receive via the Job Options window.

Part Stacking and Nesting

The new ProJet 3-D Production System, features part stacking and nesting capability in both build modes. The user can now utilize the entire build volume by stacking parts vertically in the z-direction to fill up the entire build envelop with parts. The user can control the space between layers to minimize support material usage and build time. Now, hours can be saved by stacking parts and submitting single, long builds overnight and weekends.

Bounding Box Display Added to Print Preview

A few new features have been added to Print Preview to allow it to handle up to two gigabytes of part data on a single build.

- The **Bounding Box Display** has been added to Print Preview to allow file sizes that were previously too large for Print Preview to load successfully. The Bounding Box Display only displays the bounding extents of a given geometry and does not try to resolve the triangles required to display an entire geometry. See Section 8.1 Preview Build Job.

- **Job Submission Checking** has also been added. Both the 3-D Printing Client and Print Preview now check to make sure that the maximum allowable accumulated build file size on the machine is not exceeded during job submission. The maximum threshold for job submission is roughly two gigabytes or 40,000,000 triangles. See Section 8.3 Submit a Build Job
  The new **ProJet™ HD 3500plus** production system introduces new enhancements including an expanded build envelope for the UHD build mode, the new XHD build mode and email notification.

1.7 Packaging

Packaging
Do not damage or discard any packaging materials or carton(s). If the printer needs to be returned to the manufacturer, it should be shipped in it's original packaging. If other packaging is used, the customer will be responsible for any shipping damages that may occur.

Only Certified/Qualifed Service Personnel can install the 3-D printer.

02.0 Safety Symbols & Definitions

	UV Radiation Hazard: Invisible UV radiation is accessible in the vicinity of this sign or behind the panel. Radiation can cause eye injury. Access panels are for service only and should be opened only by certified service personnel.
	Electrical Shock Hazard: High voltage electricity is accessible in the vicinity of this sign or behind the access panel. High voltage can cause severe burns or death. Access panels are for service only and should be opened only by certified service personnel or trained maintenance personnel.
	Hot Surface Hazard: A hot surface is accessible in the vicinity of this sign or behind the access panel. Avoid contact. Hot surfaces can cause severe burns. Access panels are for service only and should be opened only by certified service personnel or trained maintenance personnel.
	Harmful Irritant Warning: Indicates that skin or eye irritation could result while exposed to a chemical composition.
	Caution: Indicates something may happen that could cause loss of data, damage to equipment, or personal injury.
	Wear gloves when handling uncured VisiJet® build material.
	Ultraviolet radiation inside. Exposure may cause eye damage. Do not operate without covers. Wear UV eye protection.

03.0 Safety Guidelines

Before using the printer, your company should have a safety program in place. The safety program should:

- Label and point out hazardous equipment, materials, and procedures.
- Explain what to do in case of an emergency.
- Provide information about hazards of equipment and materials in the form of Material Safety Data Sheets (MSDSs). The MSDSs are provided with all materials supplied by 3D Systems.

- 3.1 General
- 3.2 Electrical
- 3.3 Ultraviolet (UV) Light

3.1 General

The printer is designed with built in safety features, improper use and malfunctions can cause injury to personnel. To prevent unsafe operation, the printer will automatically shut down if unsafe conditions are detected.

Follow these safety guidelines when operating the printer:

- Read and follow all printer instructions.
- Follow all safety rules and heed all cautions and warnings in this guide.
- Do not attempt to open chamber door while build in progress.
- Do not use any material without reviewing the Material Safety Data Sheets (MSDS/SDS.
- Dress power and communication cables behind printer to prevent tripping.
- Do not attempt to access, service, or adjust printer components. Do not attempt to perform any maintenance procedures unless specifically trained to do so.
- Operators who are trained to operate system and perform all necessary tasks to create a part.
- Certified service personnel are those who completed the 3D Systems service training package and certified to perform service tasks. Certification may occur at different levels, and service providers should only perform tasks they are authorized and certified to complete.
- Do not ignore warning signs posted during printer service operations.
- If an error message appears on the printer's LCD refer to Section 10.0 Error Messages within this guide before resuming operation.
- To prevent potential skin-irritation and sensitization due to contact with waste material, follow all guidelines within Build Material Safety.
- To prevent pinch and crush injuries to the hand, use caution when replacing platform inside the build chamber.

3.2 Electrical

> **DANGER: Hazardous voltage exists inside the printer. Injury or death from electrical shock can result if you remove the printer's external panels. Panels should only be removed for service by trained and certified 3D Systems Technical Support personnel or your certified service reseller.**
> **To prevent electrical shock, the printer will not operate unless external panels are installed. Check the facility's electrical service rating before you connect power to the printer.**

3.3 Ultraviolet (UV) Light

	CAUTION: Hazardous UV radiation exists inside the printer build chamber during build job. Eye injury or blindness can result if chamber door is opened while a build job is in progress. If a build job is running, abort build job before attempting to open chamber door. **To prevent eye injury, ultraviolet (UV) light inside the chamber will not operate when chamber door is open. When closed, the chamber door keeps UV radiation from escaping. The chamber door remains locked if build job is paused.**

04.0 Part Material Safety

Users of the printer should be informed of potential hazards of part material prior to working with a printer, or performing duties which may result in exposure to uncured part material, such as removal of material waste pan and empty material cartridges.

	Always wear gloves when handling part material that is uncured and not totally solidified.	

- 4.1 Disposal
- 4.2 Health Hazards
- 4.3 Material Handling
- 4.4 Personal Protection Equipment
- 4.5 Regulatory Information
- 4.6 Spilled VisiJet® Material
- 4.7 Waste Removal
- 4.8 Material Storage

4.1 Disposal

Disposal of **fully cured** parts produced are not subject to regulations of any known agency worldwide. VisiJet® support material cartridges may be disposed of in ordinary office trash.

Uncured part material waste is classified as regulated, and in some areas hazardous, requiring special packaging, transportation, and disposal. The disposal of partially cured or uncured part material must comply with all local, state, and federal environmental safety regulations. Applicable part "waste" includes cartridges(empty or full) and waste pans. Any materials used cleaning up uncured part material should be disposed of as uncured part material.
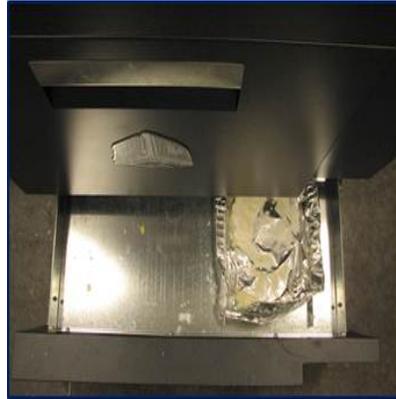
To find out facility disposal requirements, contact a local waste disposal provider. (Local environmental regulatory agency should have a list of qualified providers.) You will need to give disposal service provider a copy of the part material MSDS / SDS, and possibly other forms included in the Appendix of your **VisiJet® Material Handling Guide**, such as Waste Profile Worksheet and SNUR (Significant New Use Regulation - U.S. only). A report will be provided, indicating disposal requirements, as well as a quotation for regularly scheduled pickups. If assistance is needed locating a waste disposal provider, or completing a waste disposal form, contact local 3D Systems Technical Support Hotline.

3D Systems assumes no liability or responsibility for proper disposal of uncured part material. Proper disposal of uncured part material is the sole responsibility of the user.

4.2 Health Hazards

Health Hazards

Uncured VisiJet® part material is a sensitizer. Skin or eye irritation could occur when exposed to the chemical composition of the material.
Any chemical may exert harmful effects if contacts or enters the body. VisiJet® part material is a sensitizer and irritant.

Skin Sensitization

CAUTION: Uncured VisiJet® part material is a sensitizer. Skin or eye irritation could occur when exposed to the chemical composition of the material.

Uncured material is a sensitizer, and can cause allergic reactions if contacts skin without protective gloves. Refer to personal protection equipment for more information. To avoid sensitization, do not allow uncured material to contact skin. Consult the MSDS for specific information about the sensitization potential.

Inhalation

Under normal operation, inhalation is not an expected route of entry.

Ingestion

CAUTION: Uncured VisiJet® part material is toxic if ingested.

Uncured material is toxic if ingested. Uncured material must not be present where food and drink are stored, prepared, or consumed and not ingested. After handling materials, wash hands with soap and water before consuming or preparing food.

Handling Finished Parts

Finished (cured) parts can be handled or disposed of the same as standard household plastic products. VisiJet® parts are not recyclable. VisiJet® materials are not intended for, and cannot be used for medical implant, or food or drink handling applications.

Exposure control

The printer has a variety of built-in engineering controls which are designed to prevent operator exposure. Do not try to change or disable these controls.

Hygienic Practices

Appropriate hygienic practices should be followed, including washing with soap and water before meals, breaks, smoking, applying cosmetics, using toilet facilities, and after work.
Employees should be alerted to the need to clean and rinse off any contacted surface promptly in order to prevent further contamination.
Ensure a convenient washroom location is provided with access to soap, water, and disposable paper towels.

4.3 Material Handling

Emergency (MSDS)
Chemtrec USA **(800) 424-9300**; Europe **+1-703-527-3887**
Packaging Inspection
The VisiJet® material cartridge are packaged in shipping cartons. Upon receipt of material shipments, inspect cardboard carton exterior for signs of damage and leakage. If leakage is observed, DO NOT open carton, and contact 3D Systems's Technical Support Hotline. If no leakage is observed, keep the material cartridge in their cartons and store until material is used.
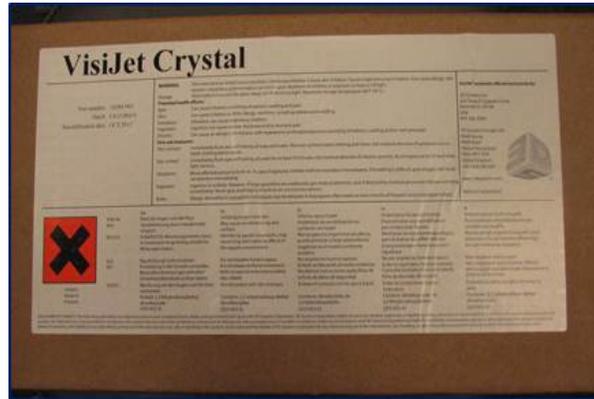
Part Building
If uncured material is observed on the part or platform after build, this is an abnormal condition, and is an indication the printer requires servicing by 3D Systems or a certified servicing reseller. Assume any liquid or paste-like material is part material. Do not directly touch uncured part material without protective gloves. Discontinue use of the printer pending service by a 3D Systems Technical Support Representative.
Flammability and Combustibility
Do not expose materials to heat at or above 230°F (110°C), flames, sparks, or any source of ignition. (Though the U.S. Department of Transportation does not consider VisiJet materials a "flammability hazard," they do classify them "combustible" based on flash points.) For more information on VisiJet material flash points and combustibility, see VisiJet® Material Handling and Post Processing Guide.

4.4 Personal Protection Equipment

	Exposure to uncured part material may occur when removing and disposing of the waste pan. To prevent contact, wear chemically resistant protective gloves - nitrile or neoprene gloves are recommended. Do not use Latex gloves.
	In the event of a leak or spill of uncured part material, wear safety glasses with side shields to provide eye protection
	Because of the printer's built in engineering controls, respiratory protection is not necessary during normal operation. A NIOSH-approved (or equivalent) dust mask is recommended when dry sanding cured material parts.

4.5 Regulatory Information

Support material has no known regulatory requirements.

In the U.S., **uncured** material is subject to special EPA disposal regulations and record-keeping requirements. "Uncured VisiJet® material" includes any part material cartridge (empty or full),and waste pan which is partly uncured part material. For complete disposal regulation details, see Appendix in your Material Handling Guide.

In the U.S., you must keep the following disposal records for five years after the date of disposal:

* The quantity of part material received (new or "virgin").
* The name and address of the shipping location (the "responsible party" - generally your waste disposal service provider).
* The quantity of part material shipped (disposed). For further information, see your Material Handling Guide.

For assistance, contact 3D Systems Technical Support.

4.6 Spilled VisiJet® Material

Spills of material are HIGHLY UNLIKELY, and should NOT occur in normal operation of the printer. If a leak occurs, it is an indication of a serious printer malfunction.

The first priority is to protect users from inadvertently touching material. Spills of support material can be cleaned without use of protective gear, and disposed of as office trash. Handling uncured part material requires use of gloves and other personnel protective equipment to ensure no direct contact with uncured part material. If you don't know which material it is, assume it to be uncured part material, and handle accordingly - with the recommended personal protective equipment.

Promptly remove spilled material, dispose of waste material, and cleanup materials per local regulatory requirements. Discontinue use of the printer, and contact 3D Systems Technical Support for a service visit to determine and repair the source of leakage.

Small spills of uncured liquid part material can be cleaned up using disposable towels, non-reusable rags, or absorbing materials such as sawdust, clay, diatomaceous earth, or activated charcoal. If spilled material is hot (liquid), wait until cools and gels before wiping up. After wiping up the spill, wipe surface with denatured or isopropyl alcohol and clean thoroughly with soap and water.

Consider avoiding placement of the printer over carpeting, or consider use of barriers to avoid the possibility of carpet damage if spills were to occur.

Advise service provider involved, of the spilled material, and provide MSDS and other material information prior to contact with the material. Advise them of disposal requirements for part material and clean-up products if part material (uncured) is the spilled material. Use of heat above 65°C (149°F) may prove helpful in removing spilled part material from carpet.

Tools contaminated with part material should be cleaned prior to reuse. Solvents such as denatured alcohol or Iso-Propyl Alcohol (IPA), are normally required to clean equipment and tools. Wash with soap and water to remove any traces of excess part material or solvent. Contact solvent suppliers for information on proper handling of solvents if used for clean-up.

4.7 Waste Removal

✖	CAUTION: Uncured part material is a sensitizer. Skin or eye irritation could occur when exposed to the chemical composition of the material.

Wear protective gloves before removing any waste product from the printer. Be careful not to spill, drop, or expose others to these materials - particularly part material or waste pan. Dispose of all waste material appropriately per local regulatory requirements.
Dispose of waste pan (if it is not reusable) containing both support and uncured part material. Replace the wastepan evertime or reuse pan if the pan is reusable.

4.8 Material Storage

BUILD MATERIAL	SUPPORT MATERIAL
Shelf life for VisiJet Build Materials with the exception of HiCast & ProWax - 2 yr **Shelf life for VisiJet HiCast & ProWax** - 5 yr	**Shelf life** - 5 yr
Climate - Cool, dry area with adequate ventilation	**Climate** - Cool, dry area with adequate ventilation
Temperature Range - 60°F (16°C) to 80°F (27°C)	**Temperature Range**- 60°F (16°C)to 80°F (27°C)
Maximum Storage Temp - 95°F (35°C)	**Maximum Storage Temp** - 95°F (35°C)
Environmental Conditions - No direct sunlight, heat, flames, or UV energy.	**Environmental Conditions** - No direct sunlight, heat, flames, or UV energy.

NOTE: For optimal results, keep stored cartons closed and sealed until material cartridges are ready for use.

Always check material "Recertification Date" before use. Do not load material cartridges into printer if cartridge date has expired. When printer detects an expired cartridge, it aborts the build and rejects the cartridge.

Support (**white**) material must be loaded in the **left** side of material drawer. VisiJet part (**black**) material cartridges must be loaded in the **right** side of material drawer. Before loading cartridges into printer, inspect the cartridges for signs of damage or leakage. Do not load a damaged or leaking cartridges. Dispose of material cartridge according to local regulations.

Storing a Partially Used Material Cartridges

It is important not to lay material cartridges that are partially used on their side. Doing so will cause material to seep through the vent cap and clogging cap. This will cause damage to the material cartridge if used for a later build.

To store a partially used material cartridges, insert cartridge into a plastic bag with the vent cap up; place cartridge into its original shipping carton's sleeves and carton. Do not remove a partially used Support Bottle from the MDM if the MDM is NOT heating; the material will solidify and cause a breakage.

05.0 System Requirements

Power Rating

Country	Voltage	Frequency	Amps (A)	Phase	Power Cord
USA	100-127 VAC	60 Hz	15 A	1	P/N 23417-802-XX
France	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX
Germany	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX
Hong Kong	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX
Italy	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX
Japan	100-127 VAC	60 Hz	15 A	1	P/N 23417-802-XX
Switzerland	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX
United Kingdom	200-240 VAC	50 Hz	15 A	1	P/N 23417-802-XX

If connecting the printer to a 200-240 VAC facility power outlet, connect the power cord (located inside printer's country kit)to the external transformer. Connect the transformer's power supply to the facility's outlet.

06.0 Familiarization

The 3-D printer system is a Multi-Jet-Modeling (MJM) line of printers. The solid imaging printer produces plastic prototype parts from 3D solid Computer-Aided Design (CAD) models and through the printer client software. The parts are generated in a rapid prototyping (RP) environment. The primary features of the 3-D printer are the user interface, build chamber, material delivery module, and the waste material drawer. The back of the printer houses the power switch, internet and the power cord connections.

Touchscreen Operator Panel

NOT PRINTING

2 PART 2 SUPPORT

ONLINE,MENU?

| Yes | No |

| Play | Pause | Stop |

Main Menu

Back   Main Menu

Waste
Filter Fan Speed
Network Setup
System Statistics
Software Versions
Configuration Style
Materials
Available Upgrades
Shutdown Modeler
Restart Service
Test Print
Repeat Print
Print Demo
Toggle Chamber Lamp

- Status of Printer
- Status of Material
- Yes / No to confirm an operation or cancel the operation
- Play to start a build; Pause to momentarily stop the build and Stop to abort a build.
- Press Main Menu to view the Touchscreen operations.

The operator panel provides printer status, and printer operation functions that are controlled by the operator. Press the "Main Menu" to view the touch screen of other systems operations. To select a operation, use your finger and tap on the function that you want the printer to perform.

**2A Build chamber 2B Support and part material module
2C Waste drawer and waste pan 2D Operator Panel**
Support materials (white bottles) are installed into the two modules on the left side of drawer. The part material s (black bottles) are install into the two modules on the right side of drawer.

The three dimensional solid parts built by the printer consist of two materials (support material and part material). The support material is a wax based material providing adhesion to build platform, as well as, providing material used to produce supports required to build the model.
The part material used to build the parts is an ultraviolet (UV) curable material. After a layer of material is deposited in the build chamber, the part is exposed to a UV flashlamp. The UV energy is absorbed by the material converting a liquid part material to a solid polymer. When the build is complete the part (consisting of the two materials) is adhered to the build platform by means of the support material.

The material delivery module consist of four material cartridge holders; the two left side holders are for the support material (white) cartridges. The right side of the module are for two part material (black) cartridges. Once materials are heated, the materials are feed to the printhead. Material waste is generated by two processes; cleaning the printhead array plate and planarization. The cleaning process involves purging jets and wiping the printhead array plate. Gravity pulls the waste material from the Head Maintenance Station (HMS) trough into the waste umbilical. The combined waste material is then purged. The printhead cleaning process is invoked automatically prior to test build and parts build.

Support Material (two left side material delivery modules)

Build Material (two right side material delivery modules)
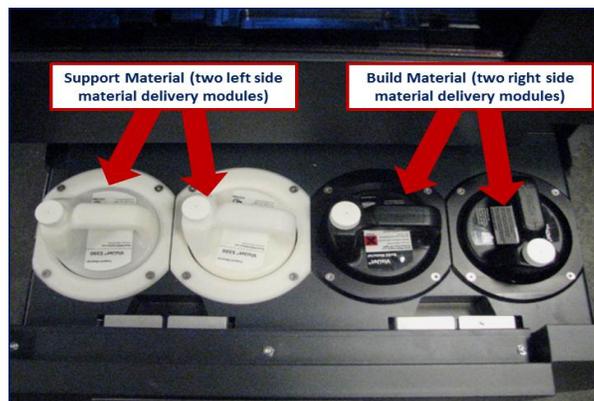
After the build is complete, the platform and the part is then removed from the printer. A secondary operation, known as finishing, is required to provide a finished/cleaned part. Refer to your ProJet™ Finisher's Guide for more information.
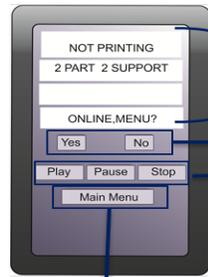
6.1 System Functions

Menus: Menu names and menu options are capitalized in boldface text. Instructions for selecting menu options look like this: "Select **Menu>Option**." This means "select (click or highlight) the **Menu**, then select **Option** on the menu."
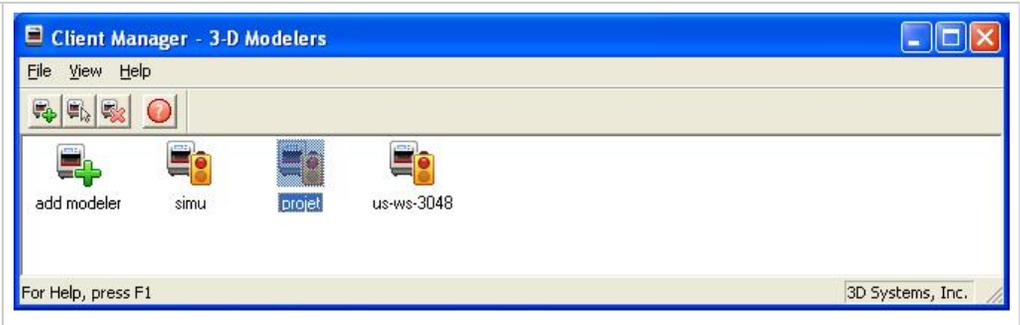
Operator's Touchscreen Control Panel

Main Control Panel

NOT PRINTING
2 PART 2 SUPPORT
ONLINE,MENU?
Yes   No
Play   Pause   Stop
Main Menu

Printer or Build Status- notifies the state of the printer; error messages; material bottle quantities in use; if interaction is needed by the operator,

Confirm **Yes** or **No** to printer's message that appears in "**Printer or Build Status"**

Play: Begins a build or brings printer online
Pause: Stops printing momentarily to change material bottles or empty waste drawer. Press Pause again to resume printing
Stop: aborts a print job

Back   Main Menu
Waste
Filter Fan Speed
Network Setup
System Statistics
Software Versions
Configuration Style
Materials
Available Upgrades
Shutdown Modeler
Restart Service
Test Print
Repeat Print
Print Demo
Toggle Chamber Lamp

Touchscreen Main Menu Functions	
Back Button	Press the back button to return to the previous screen.
Waste Status	Support Waste & Part Waste Categories: Waste Drains: Support & Part Needed Categories:
Filter Fan Speed	Fan Mode: User Mode Low Speed Medium Speed High Speed
System Statistics	Machine Total Hours: total hours of printer operation Machine Build Hours: total hours of build time on the printer Lamp Cure Hours: total hours of lamp usage Part Material Use: Displays number of part material bottle usage Support Material: Displays number of support material bottle usage
Software Version	Software Version: tells the version of software that is currently on your printer. Date Compile: The release date of the current software that is currently on your printer.
Configuration Style	Machine Configuration: "B" is the style of machine that was released.
Materials	Displays the type of part material that has been used. Displays the type of support material that has been used.
Available Upgrades	Notification of system upgrades or no upgrades available
Shutdown Modeler	Shuts down the printer and returns to the operator's panel to continue printer shutdown.
Restart Service	Restarts printer service. When services comes back online, the touchscreen will refresh.
Test Print	The test print file consist of 1 layer strips of materials; one strip for support material and one strip for part material.
Repeat Print	Repeats the last completed build that was printed.
Print Demo	Prints an actual part
Toggle Chamber Light	Finger tap to turn chamber light on and off.

07.0 Printer Setup

To prepare and build part files, connect your PC and printer to the network. For additional information refer to ProJet Facility Requirements Guide.

Component Type	Software Requirements
PC	Microsoft ® Windows® 98, Millennium Edition (Me), New Technology (NT) 4 (SP 3+), 2000, XP or Windows 7.

- 7.1 Power on Printer
- 7.2 Install Material Cartridges and Print Platform
- 7.3 Install and Run ProJet™ 3-D Client Software
    - 7.3.1 Setting Up E-Mail
- 7.4 Create STL File(s) to Build
- 7.5 Submit a Test Print or Print Demo

7.1 Power on Printer

⚠	WARNING: Read and follow safety guidelines in Electrical Safety. Ignoring these guidelines could result in death, bodily injury, or printer damage due to electrical shock or fire.
⚠	CAUTION: Verify printer's rear panel power switch is OFF. Connecting power with switch on can damage printer and cause bodily injury or death due to sudden, unexpected mechanical motion.

1. Plug printer power cord P/N 23417-802-XX into printer's rear panel socket. Plug power cord into a grounded power outlet.
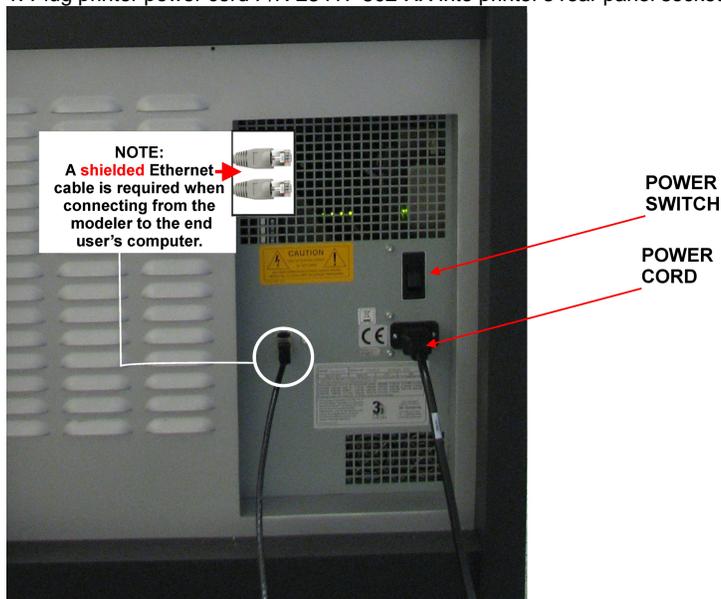
2. If 200-240 VAC required, connect power cord to external transformer in kit P/N 23418-801-XX, then plug transformer power cord into a grounded power outlet.

3. Place switch located at the rear of printer to the ON position.
4. Wait 4 hours for printer to warm up before bringing printer online to start a build job.

NOTE:	You can submit jobs while the printer is warming up.

7.2 Install Material Cartridges and Print Platform

Material Cartridges

The printer's material delivery module houses two support material cartridge holders and two part material cartridge holders. The delivery module is located
below the build chamber.

- The part material cartridges are installed into the two holders located in the right side of drawer.
- The support material cartridges are installed into the two holders located in the left side of drawer.

NOTE: Before handling the part material cartridge, read the Material Safety Data Sheet (MSDS.

After powering on the printer, there is a 15 minute warmup period before the material cartridges can be installed. The user touchscreen operator's panel will direct you when the printer is warm enough to install material cartridges.

⚠	**CAUTION: Do not remove a cold material cartridge from the printer that has started the warming stage. Doing so could cause damage to the material cartridge and the MDM. Wait the required 15 minutes if it is necessary to remove cartridges.**

⚠	**CAUTION: When fully melted hot material cartridges are removed from the MDM, do nor lay the cartridges on the side; the material will solidify in the vent cap cause the vent to clog. Do not reuse the cartridge in the MDM without turning the clogged vent cap, 1 1/2 turns. Doing so will cause the cartridge to collapse and may cause damage to the MDM.**

Vent sealed from solidify material.

Collapsed bottle

⚠️ **CAUTION: Please keep bottles clean to avoid any chemical or particulate contamination of the bottle surface or bottle cap. Any contamination can be transferred from the bottle to the MDM and cause problems. The MDM must also be kept clean from chemicals or particulate contamination.**

Installing Material Cartridges

1. Unpack cartridges and the MSDS/SDS Sheet from cartons. Save sleeves and material carton to store partially used material cartridges.
2. Using a lint free wipe and IPA, wipe the cartridges on all sides including the handle and the colder cap to ensure that no chemical or particulate contamination are present before installing them into the MDM.
3. Open material delivery module and install two parts cartridge into the right side of module. Push cartridges down into holder until they are fully seated.
4. Insert the support material cartridges; ensure they are fully seated into the two left side holders. **NOTE: If cartridges are not fully seated in holders, the drawer will not close.**

Removing Material Cartridges

1. Each holder has a a latch located at the front of cartridge holders. To remove cartridges, open drawer and pull latch up; lift cartridge out of module.

Cleaning MDM Holders

When changing material bottles during printing, molten material may be present in the MDM holder after the bottle is removed. If a large pool of

material is present (latch is submerged and walls of MDM are reached), do not place a clean material bottle into holder. The holder will require cleaning before inserting a new bottle.

> ⚠️ **Caution: The MDM holder and molten material will be hot; avoid touching the sides of the holder during the cleaning process. Wear heat resistant gloves and goggles.**

To Clean:

- Insert a lint free cloth to absorb the material in the MDM holder.
- Using a long tool, such as tongs; remove the saturated cloth from the holder and place in a waste bag. Continue to clean the holder until all material is removed.
- After the holder is clean, ensure there is no debris or lint left inside of holder.
- Dispose of waste material and according to your local codes.

Install Print Platform

1. Clean platform using Isopropyl Alcohol before installing into printer.
2. Open the chamber door.
3. Align platform's rear notch into x-carriage's locating tab at the back of carriage (4A).
4. Align platform's front notch (4B) front locating tab.
5. Slide the red latch release back and insert latch's tab into the print platform's front notch (4C).
6. Insert latch into the x-carriage's front loop bracket (4D). Release latch to secure print platform.
7. Close the front door and press "Play" on operator's panel to bring the printer ONLINE (4E).

To remove the platform, push latch back and lift platform from x-carriage.
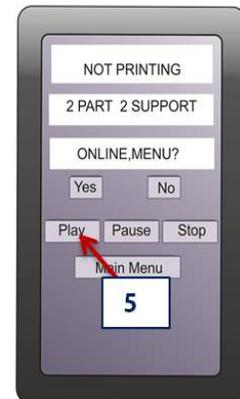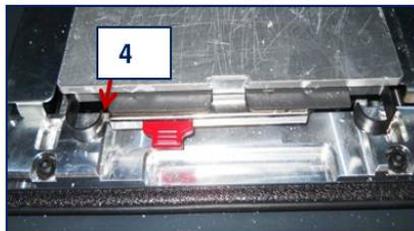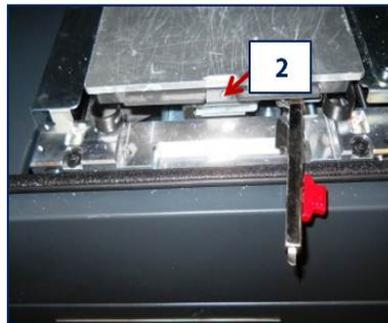
7.3 Install and Run ProJet™ 3-D Client Software

- 7.3.1 Setting Up E-Mail

| NOTE:	Before installing software, ensure network and PC meet Printer Setup requirements.

1. Load the **3-D Modeling Client Software** from the USB packaged with the printer accessories kit. An autorun file on the USB will automatically load when USB is inserted into USB port in the computer. If installation program does not start when loaded, select and run **Setup.exe** from the root directory of the USB.
2. After successfully installing software, select **Start** from the **Program** menu and then select >**3-D Modeling Client** icon. The printer window appears.


3. Power up printer as described in 7.1 Power on Printer. Establish a network connection between printer and PC.

4. You can only submit build jobs to printer having icons in the window. To create an icon for a printer, click **Add printer** icon (or choose **File > Add 3-D printer**), the "Add Printer" window appears, prompting to choose the printer's IP address from list of available printers.
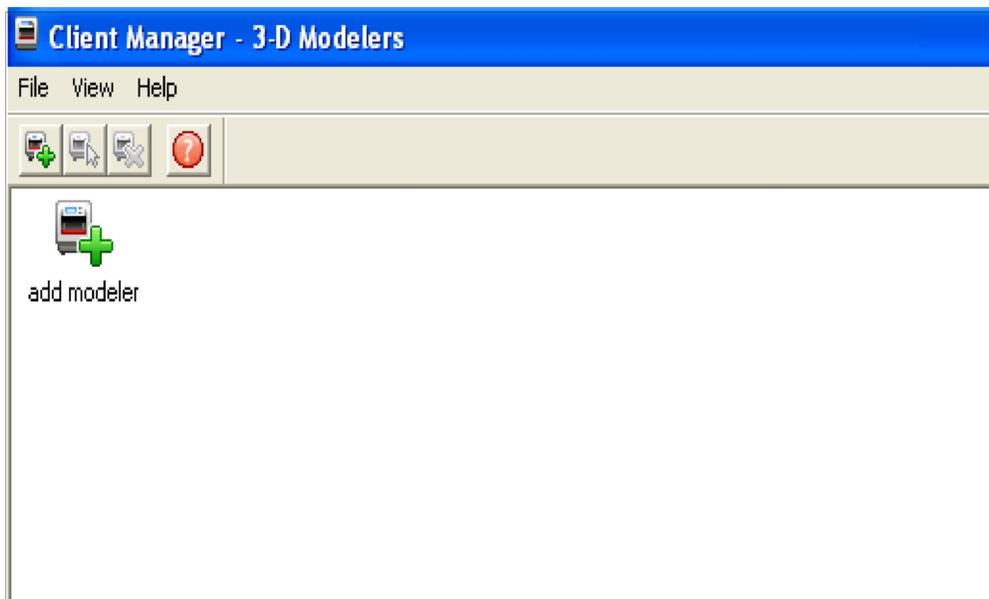
5. Select the IP address for desired printer, click OK. The client software prompts for a printer name. After entering a name, an icon for the printer appears in the 3-D printer window. Once an icon for a printer exists, click it to add files for a build job, preview a build job, sumit a build job, or manage a build job in progress.
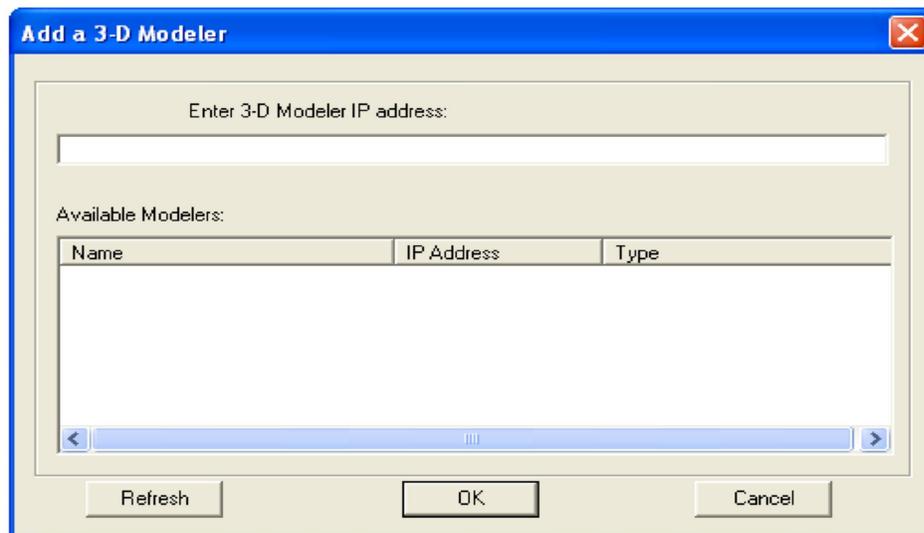
6. After the printer is added, click on the icon in the 3-D printer window or choose **File > Open 3-D printer** to submit build jobs to the printer, or manage build jobs in it's queue. If the printer icon has a red lightning bolt, your PC is not communicating with the printer. Jobs cannot be submitted to the printer until communication is restored.

7.3.1 Setting Up E-Mail

Note: It is encouraged that you determine what the proper SMTP and DNS server information is before proceeding.

- Press the Main Menu to display the touchscreen.
- Finger tap "Network Setup"
- Once in the "Network Setup" menu, finger tap the "Email Setup;" the Email Setup touchscreen will display.
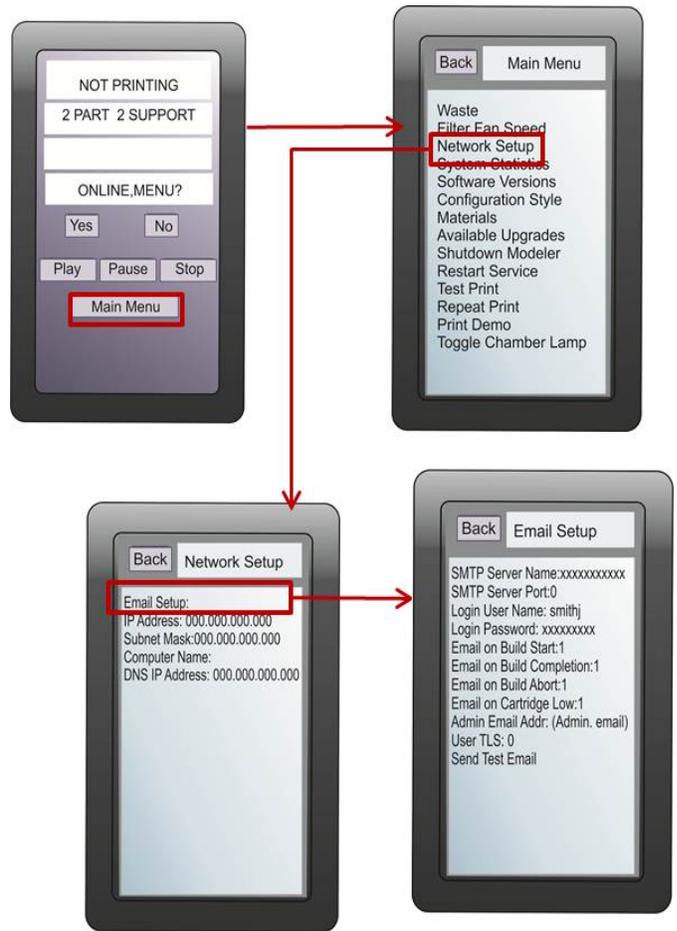
- In the Email Setup Menu, finger tap on the each option using the keypad. Select Save after setting up the individual options: SMTP Server Name; SMTP Server Port, Login User Name; Login Password; Admin Email Address; Use TLS.
- Set up according to your preferred providers SMTP settings and local DNS settings.
- The last thing you need to do is set your DNS Server. This can be accessed and changed via the Network Setup Menu.
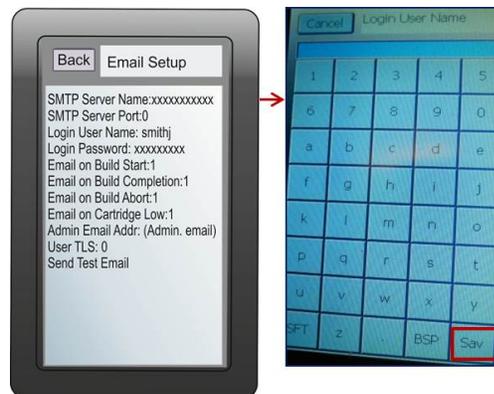

NOTE: The best way to determine your DNS Server, open a command window on your local pc and type in the following: ipconfig /all. Your local DNS Server will be displayed in the returned list. Enter that value in as your DNS Server using the keypad.

Suggested Settings for Internal & External SMTP Settings: **IMPORTANT: It is very important that you use the Send Test Email option when setting up your email. If you are not receiving emails after setup, please check your Junk Mail before changing your settings to see if your system email is getting sent to that location.**	
Internal SMT •   - SMTP Server Name: your internal server   - SMTP Server Port:* "00000" or your internal server's port   - Login User Name:* your server's user name   - Login Password:* your server's password Admin E-mail address: your email   - Use TLS: N
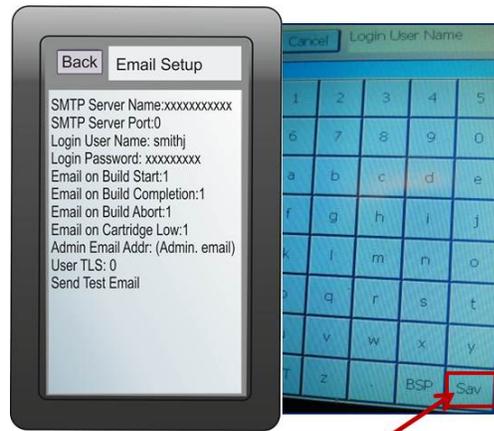
Remember to SAVE each individual settings. |

Google Mail (i.e. Gmail)*

•
- SMTP Server Name: smtp.gmail.com or 74.125.45.109
- SMTP Server Port: 00587 or 00465
- Login User Name: your user name*Login Password: your passwordAdmin E-mail address: yourusername@gmail.com
- Use TLS: Y

Hotmail Live

•
- SMTP Server Name: smtp.live.com
- SMTP Server Port: 00587 or 00025
- Login User Name: yourusername@live.com (Must have "@live.com" after your username)
- Login Password: your password
- Admin E-mail address: yourusername@live.com
- Use TLS: Y

Yahoo! Mail
IMPORTANT: You must be a Yahoo mail plus account subscriber to use their SMTP Server.

•
- SMTP Server Name: smtp.mail.yahoo.com
- SMTP Server Port: 00465
- Login User Name: your user name
- Login Password: your password
- Admin E-mail Address: yourusername@yahoo.com
- Use TLS: Y

NOTE: The external SMTP settings provided here are suggestions that were verified as working at the time of this software release. However, these are subject to change if the provider makes a change. Please verify the settings per your external SMTP provider if you are experiencing problems receiving email.
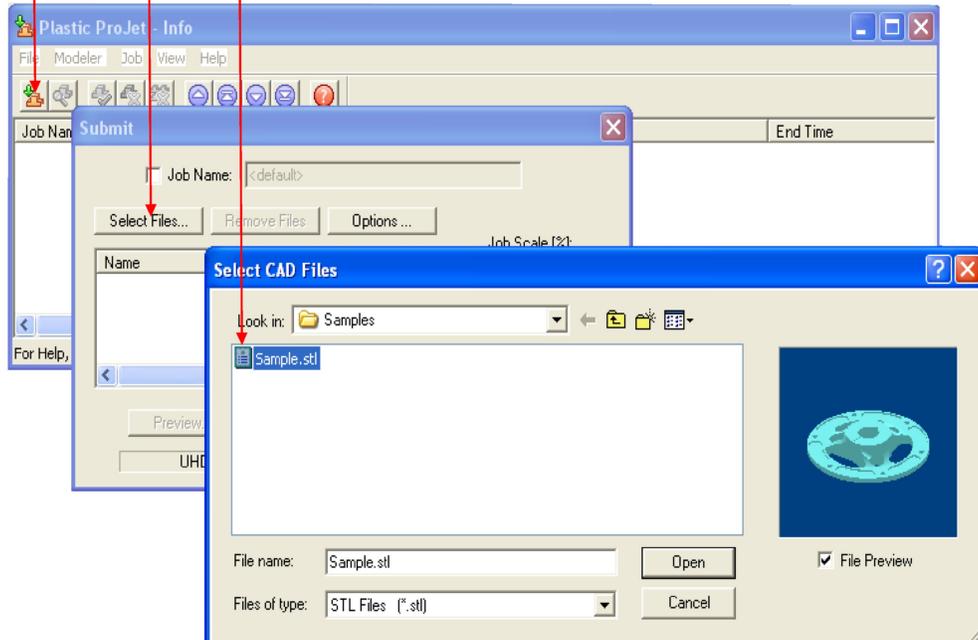
7.4 Create STL File(s) to Build

The printer builds 3-D models from files using industry-standard **.STL** (**ST**ereo**L**ithography) format. Most popular 3-D modeling CAD software packages can save files in STL format. Sample STL files are in the \3-D Modeling Client\Samples folder.

Click the **Submit** Icon

Click the **Select Files...**

Double Click on **Sample.stl** file

7.5 Submit a Test Print or Print Demo

To ensure that the printer is functioning properly, a **Test Print** is recommended. This print print is provided on the ProJet 3500 hard drive. It consist of 1 layer strips of materials; one strip for support material and one strip for part material.

The **Demo Print** is an actual part file that you can use as a test build. Please follow the operation procedure described below.
To Start a **Test Print** or **Print Demo**:

- Press **Main Menu** and tap on **Test Print** or **Print Demo** on the touch screen; once selected, it will high-light and then return to the operator's panel.
- In the operator's panel , the message **"PLATFORM CLEAR / DOOR CLOSED? "** or a message to check the waste drawer will display.
- Press **Yes** if the platform is clear and door is closed, otherwise press **No** and ensure that platform is installed and the door is closed.
- If Yes is selected, the printer will begin printing.
- After the print is completed, the message "Remove Print" will display. Open the printer door, and remove the print platform as described in Step 4, "Print Platform * Installation." For parts post processing instructions, refer to VisiJet® Part Processing User Guide.
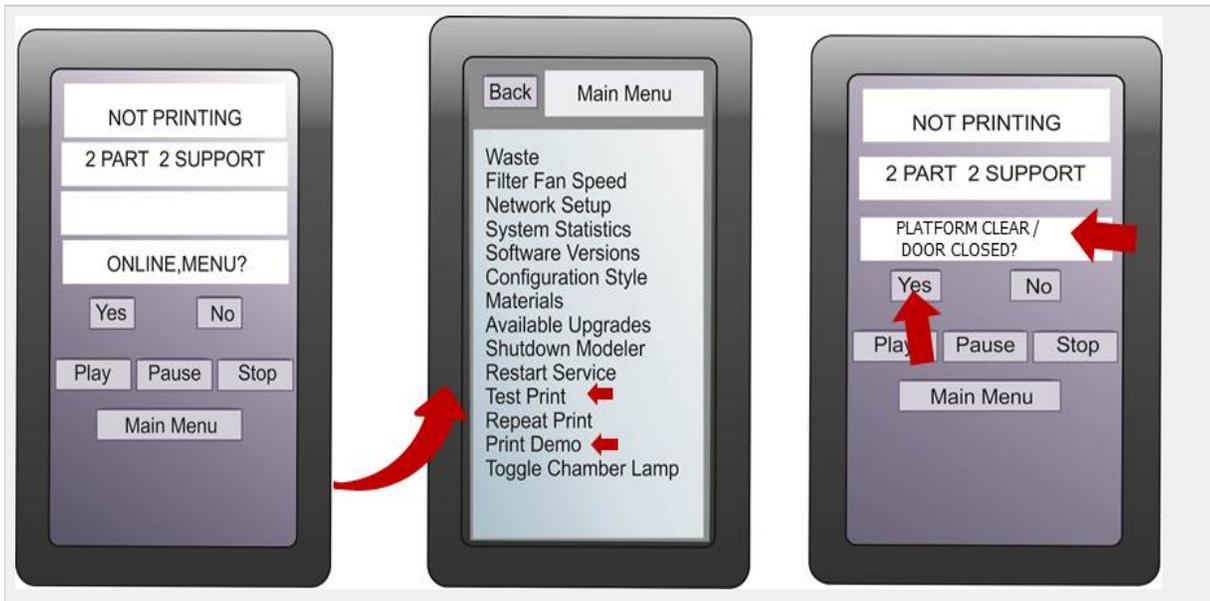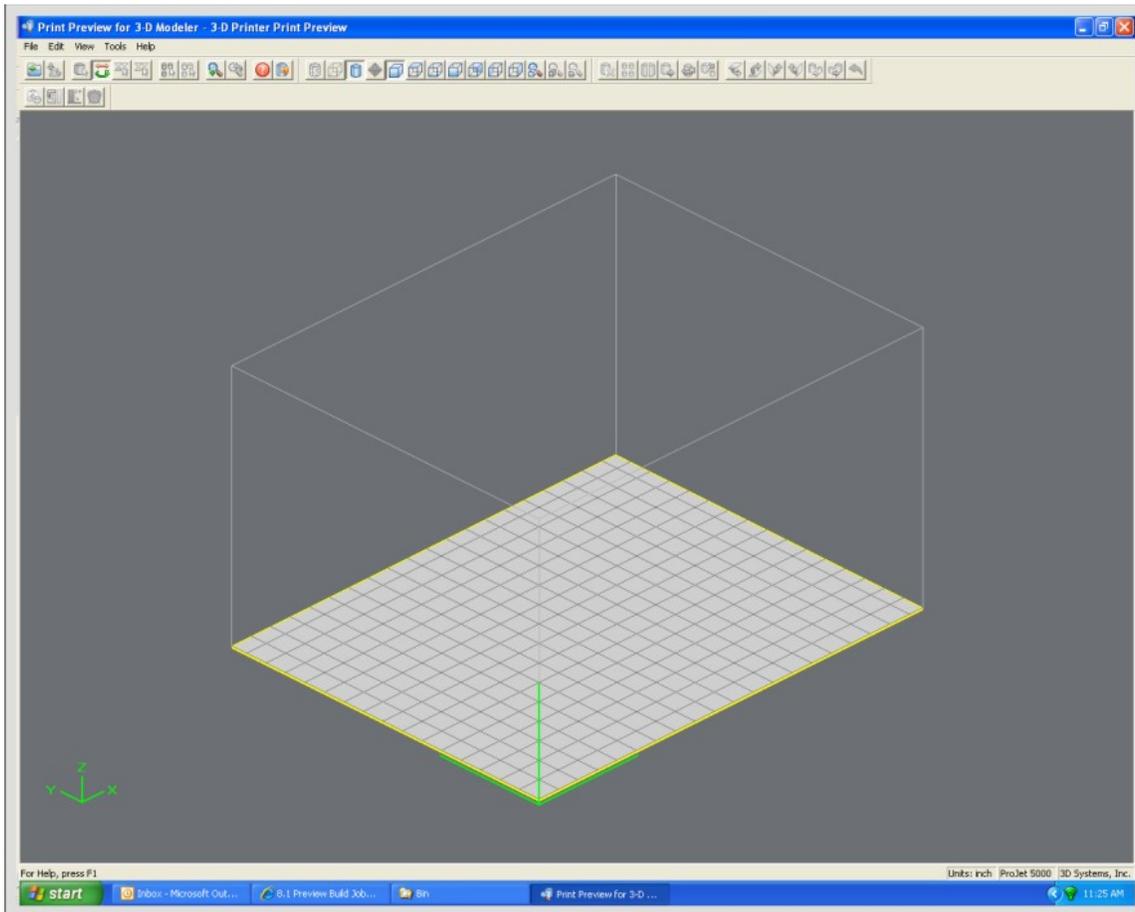
08.0 Operations

This section provides information on Previewing, Saving, Submitting, and Managing jobs through the printer's operator panel menu and 3-D Client Software. In addition this section describes how to remove the build platform, how to empty the waste drawer and how to shut down the printer.

NOTE	Make certain the printer is **Off-Line** during the job submittal process. Place the printer on-line after the job is submitted.

8.1 Preview Build Job

Click on the icon to view the functionality of the print preview icons.

Preview a build job before submitting.
Preview jobs before submitting them to the printer.

1. Click **Preview**...button on the Client's Submit dialog box. At least one part must be added for build in the Submit dialog box before able to preview.
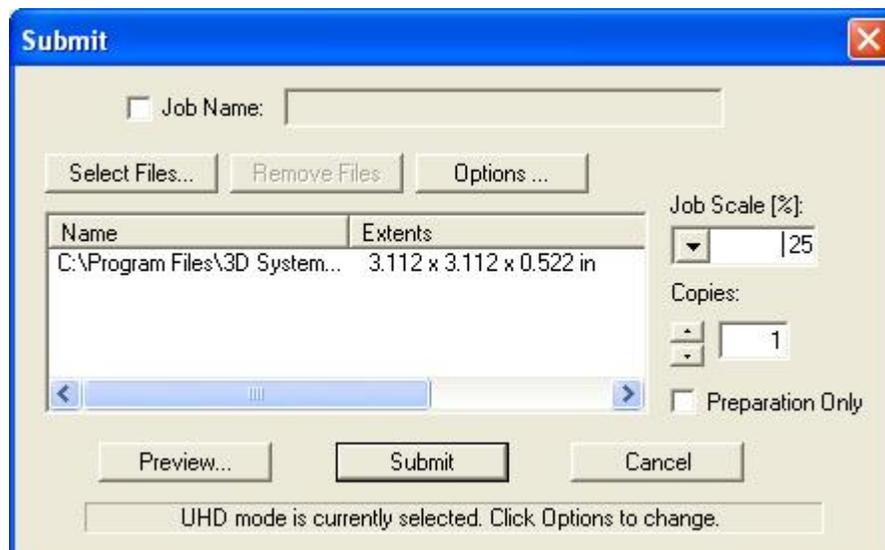
2. Highlight a Job Name in printer's Info window, click **Preview** button or choose **Job > Preview**.

When the preview window opens, STL files can be added and removed, parts can be changed, rearranged, and submitted. The modified jobs can be sent directly to the printer's queue.

8.1.1 Cad File

To add a part, click the **Add Part** button or select **File, Add a STL or CTL File**. The system displays a file browser dialog box which you can use to select one or more parts. Select open on the dialog box to add part to the print preview platform.
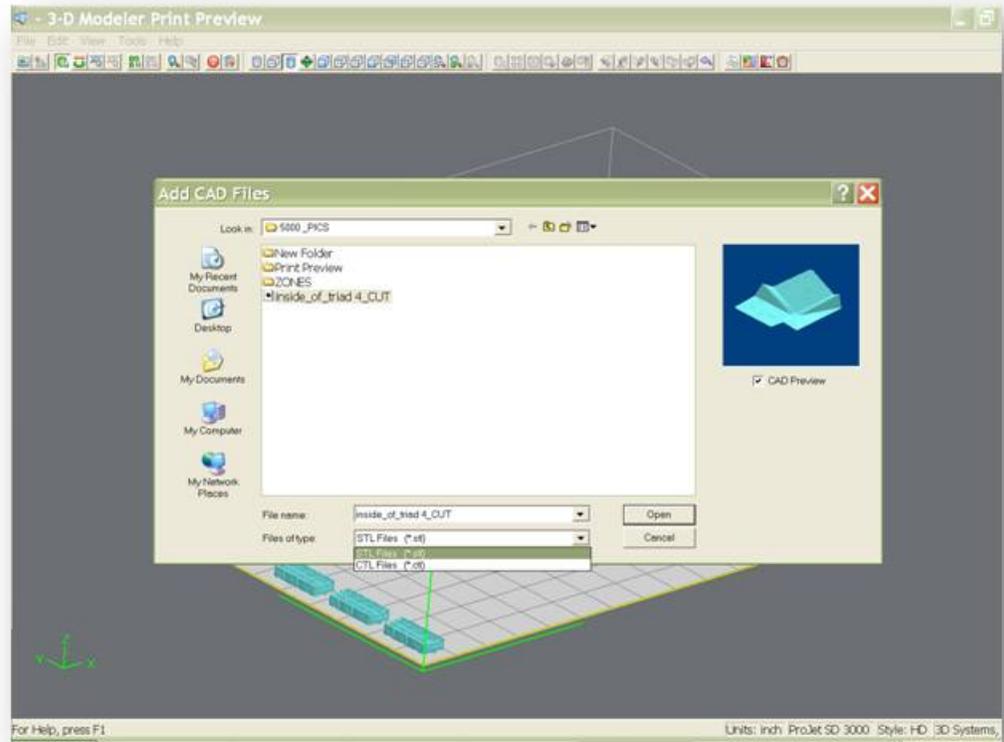
Click here to return to Print Preview Browser.

8.1.2 Submit a Build Job

1. Click on printer's icon in the printer's window. The printer's Info window opens.

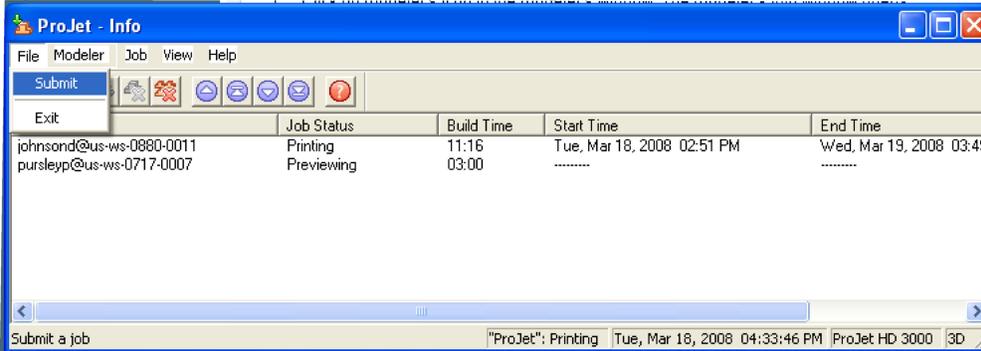2. In printer's Info window, click **Submit** to open Submit dialog box.

3. Click **Select Files** on the Submit dialog box to add one or more parts to the build job. **NOTE: More than one STL file can be selected at a time.** In Select CAD Files dialog box, hold down the Ctrl key and click on several STL files. Add parts in Preview window. After you have added at least one STL file, use Preview window to view build jobs in three dimensions, and to add more STL files if desired. Sample STL files are in the \3-D Modeling Client\Samplesfolder.

Click the **Submit** Icon

Click the **Select Files...**

Double Click on **Sample.stl** file
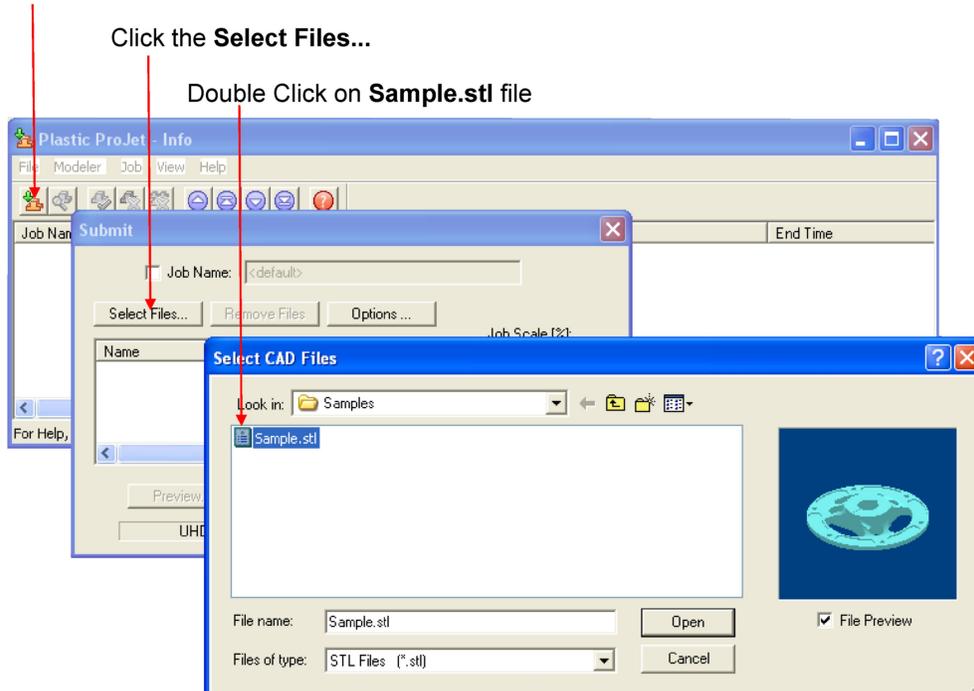
4. Browse files in Select CAD files window. When files are selected, file names appear in build job parts list of Submit dialog box.

5. Click **Options**...button on Submit dialog box. The Default Job Options dialog box appears.
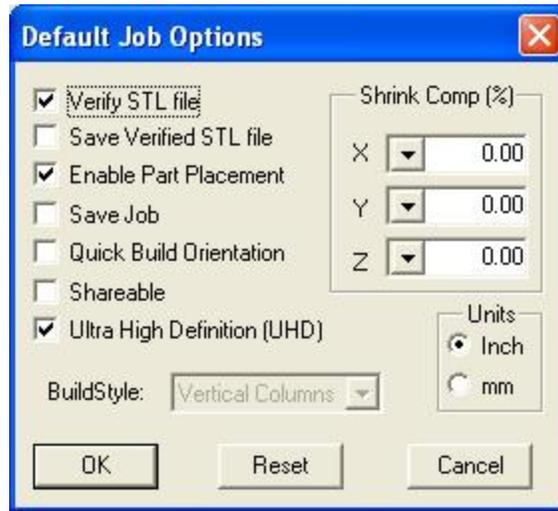
6. Change or reset values, such as Build Style, Shrink Comp (%), and Units. (See "Default Job Options Dialog Box" in the 3-D Modeling Client online Help for job options definitions.)

   Parts shrink in X and Y. The degree of shrinkage depends on part geometry. To improve part accuracy, apply the X, Y, and Z Shrink Comp (%) values then measure your parts and refine these values. Refer to 8.10 Shrink Compensation for ProJet VisiJet® Materials.
7. Click **Preview** on Submit dialog box. If the file you are trying to preview is beyond the threshold of a certain file size, the system will automatically access the **Bounding Box Display** feature. See Section 8.1 Preview Build Job for details.
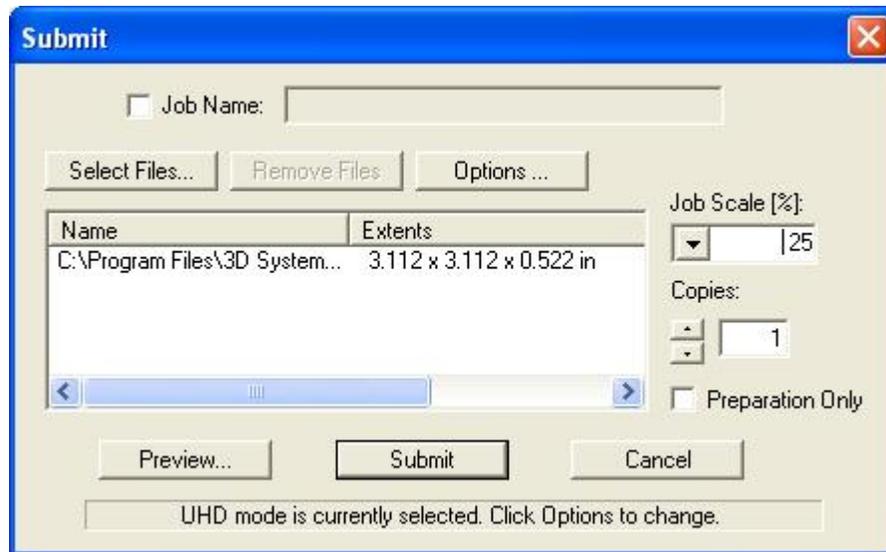
8. Manipulate parts interactively in the Preview window's virtual printer 3-D build workspace.
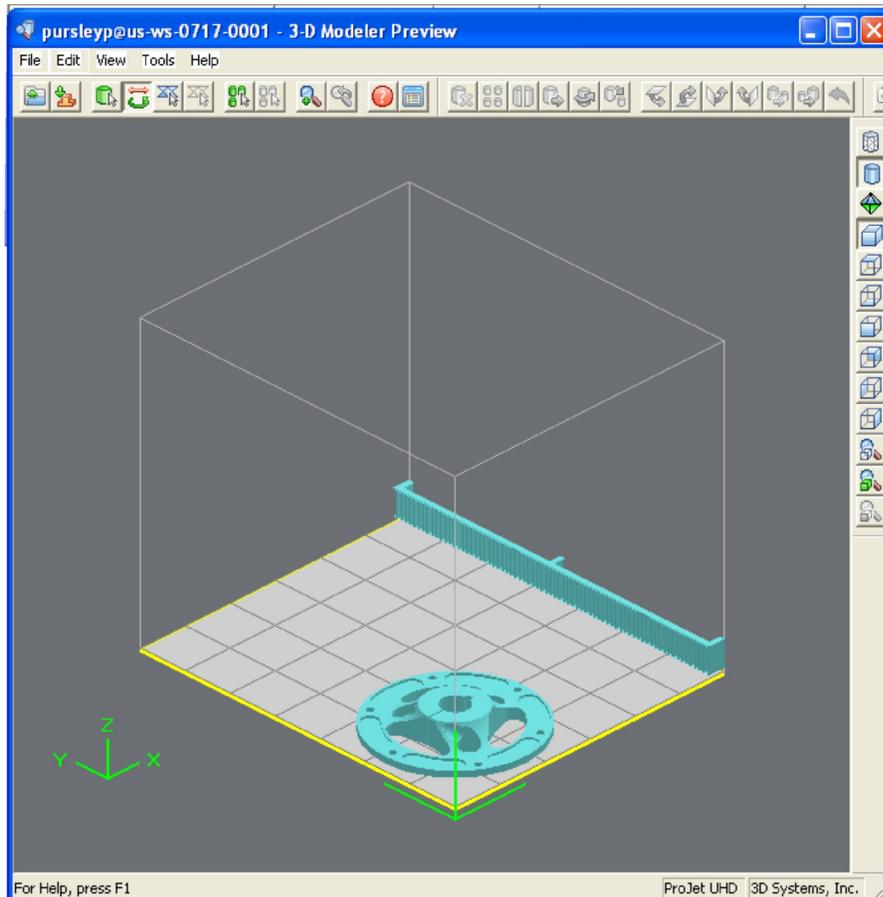
9. If required, resize all parts in build job by the same scale factor, enter a Job Scale % in the Submit dialog box before clicking **Submit**. To resize some of the parts of your job, use **Edit > Scale** in Preview. (See the topic "**Previewing Print Jobs > Scaling Parts**" in your ProJet Client online Help for instructions.)

NOTE	Applying Job Scale % (or scale percentage(s) using **Edit > Scale** in Preview)) is different than applying Shrink Comp % values in the Default Job Options dialog box. Applying scale percentages changes "nominal" part dimensions in the STL file(s). Applying Shrink Comp percentages does not change nominal part dimensions in the STL file(s). Rather, Shrink Comp adjusts for expected shrinkage during the build so the actual final part dimensions more closely match the nominal dimensions.
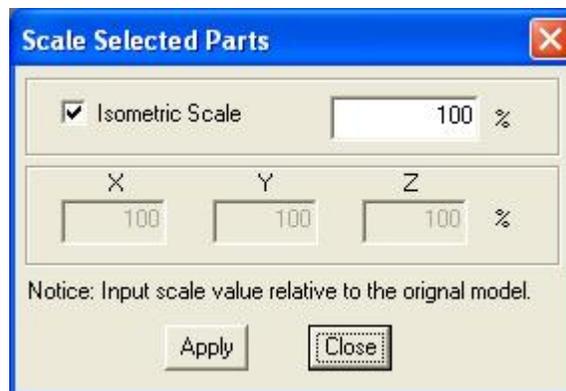
10. See Section 8.1 Preview Build Job.

11. Click **Submit** on Submit dialog box if you did not preview the job, or click **Submit** toolbar button in the Preview window if you did preview the job.

Submit

☐ Job Name: [   ]

[Select Files...] [Remove Files] [Options ...]

Name	Extents
C:\Program Files\3D System...	3.112 x 3.112 x 0.522 in

Job Scale [%]: [▼] [25]

Copies: [1]

☐ Preparation Only

[Preview...] [Submit] [Cancel]

UHD mode is currently selected. Click Options to change.
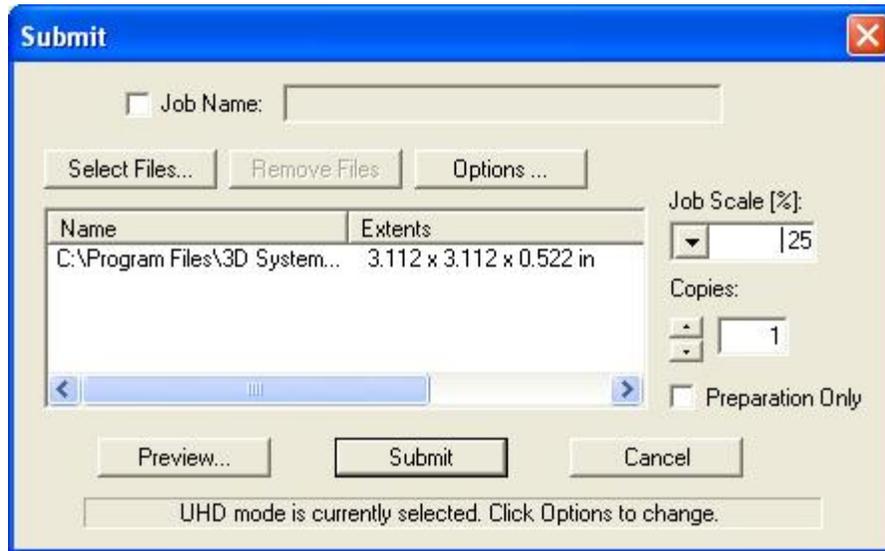
Both the 3-D Modeling Client and Print Preview now check to make sure that the maximum allowable accumulated build file size on the machine is not exceeded during job submission. The maximum threshold for job submission is roughly two gigabytes or 40,000,000 triangles. If a User attempts to submit a job to the build queue that exceeds this threshold, the following message will be displayed.

Submit Job

The total number of triangles is 40982940 and over the modeler's capability (40000000 triangles). Job can not be submitted

[OK]

12. The build job submitted will be built when printer is ready unless:
   - It is **OFFLINE**, in which case press the **Play** button on the operator's control panel.

NOT PRINTING

2 PART 2 SUPPORT

ONLINE,MENU?

[Yes]   [No]

➡️ [Play] [Pause] [Stop]

[Main Menu]
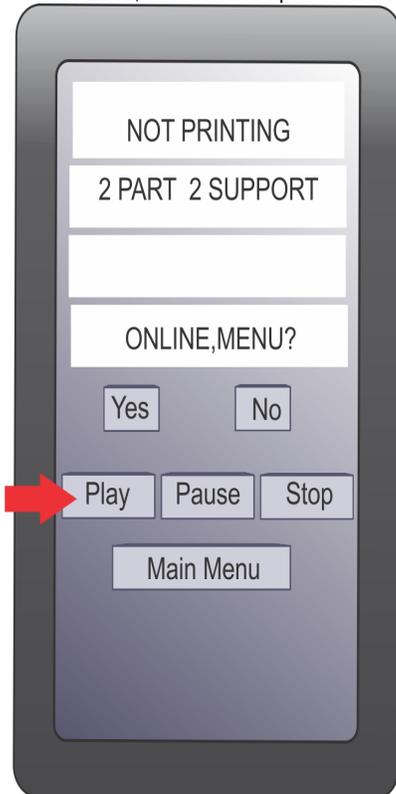
- It does not have a clean build platform installed; install clean one and press **ONLINE**.
- The Preparation Only option in the Submit dialog box was checked. This causes the printer to wait until the build job was confirmed before building --- enabling you to change the job in the Preview window again before confirming.

| NOTE	See "Checking Printer Status" and "Confirming Build Jobs" in the online Help for more information.

13. When the Operator panel shows **PLATFORM EMPTY? Y/N**, verify platform is clean and free of debris. If required, press **NO** and remove build platform from the printer to replace.

NOTE:	Prior to installing a build platform verify both sides of platform and x-carriage mating surface are free and clear of debris.

14. Open chamber door and carefully position rear of clean platform onto X-carriage under tab on back of X-carriage.
\
15. Lower platform onto X-carriage. While holding onto platform tabs close latch. Ensure latch clicks.

16. Close chamber door and press **Plat** to bring the printer online. When the Operator panel LCD shows **PLATFORM EMPTY? Y/N**, press **YES**. If the display shows please empty waste or next build will exceed waste capacity, open the waste drawer and dispose of waste material.

17. Close waste drawer. The job starts automatically.

Waste Drawer
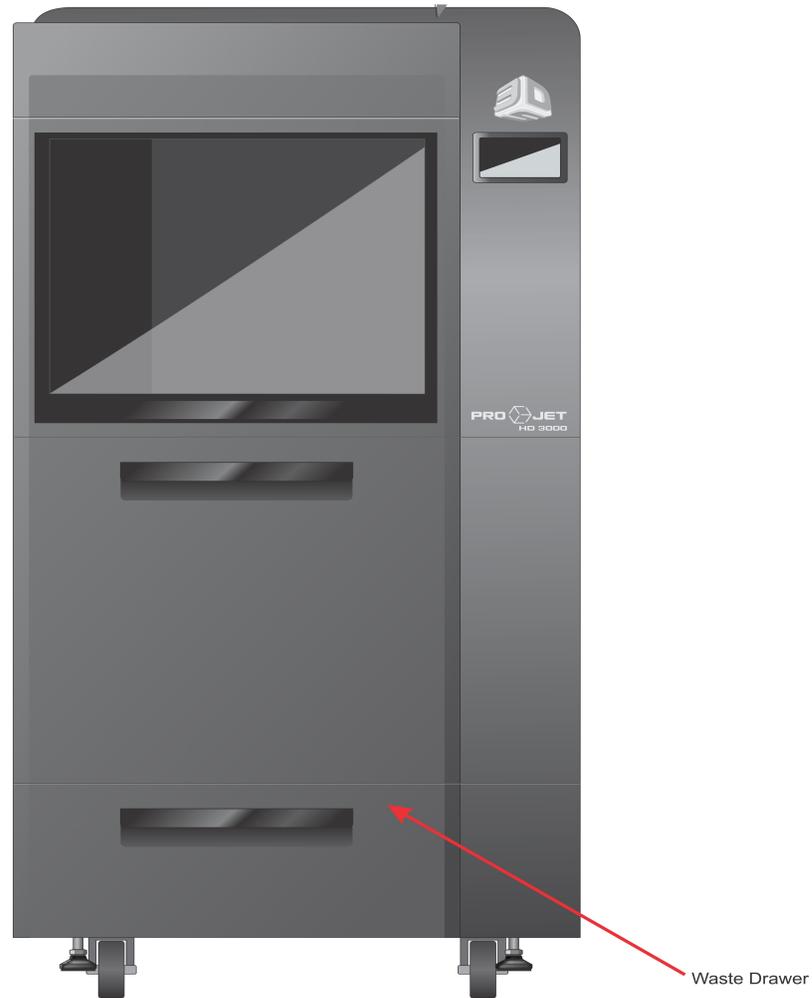
NOTE	If the display shows **WAITING FOR JOB**, no jobs are in the printer's queue. Go back to Step 2 and submit a build job to the queue. Once in the queue, the job starts automatically.

18. Refer to Manage build jobs for additional information.

8.1.3 Part Selections, Translation,Rotation

Use part selection, translate, rotate tool to move parts in specified X and Y axis as well as in the X,Y coordinates. The parts must be viewed in top, bottom left or right to manipulate them.
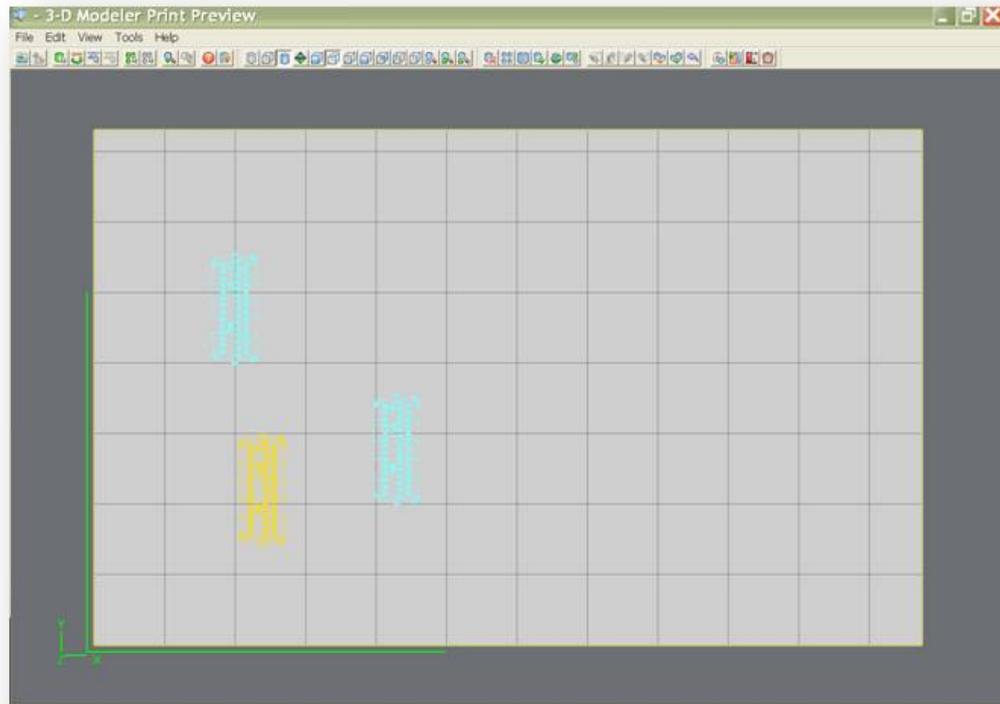
8.1.4 Trackball View

Use the trackball view to change the platform viewing area. Normal dragging (with the left mouse button pressed down) rotates the viewing area. When using the right mouse button, the build envelope can be dragged around within the viewing area.
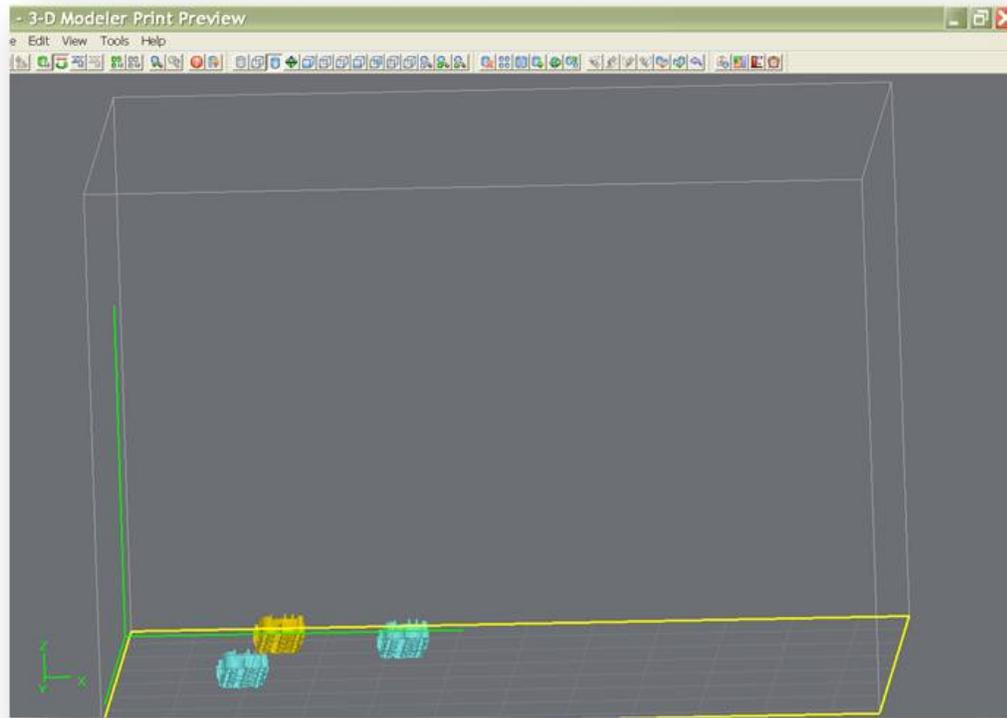
8.1.5 Triangle Selection

Use the triangle selection to select one or more individual triangular facets on parts. After you select more than one facet, press the shift key while clicking. If you select more than one facet on a single part, that part will not be reoriented when you use the align facing button. You may find it easier to select specific triangles if viewing parts as wireframe. The 2-D views may also help find the triangles that you want to select.
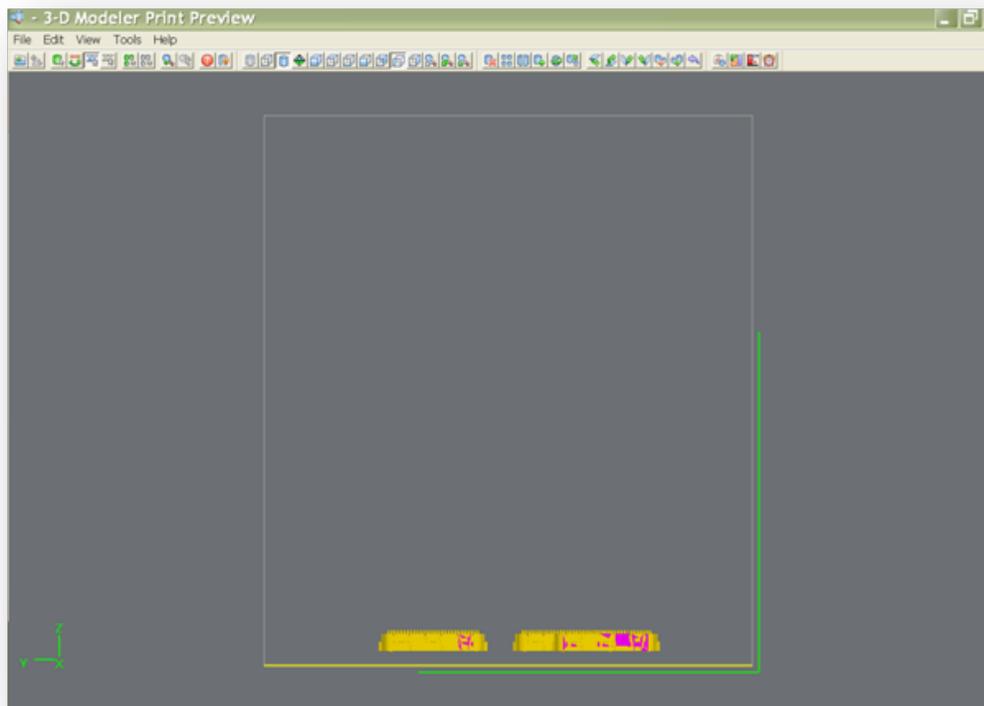
8.1.6 De-Select all Triangles

Use the de-select all triangles to de-select the triangular facets on parts.
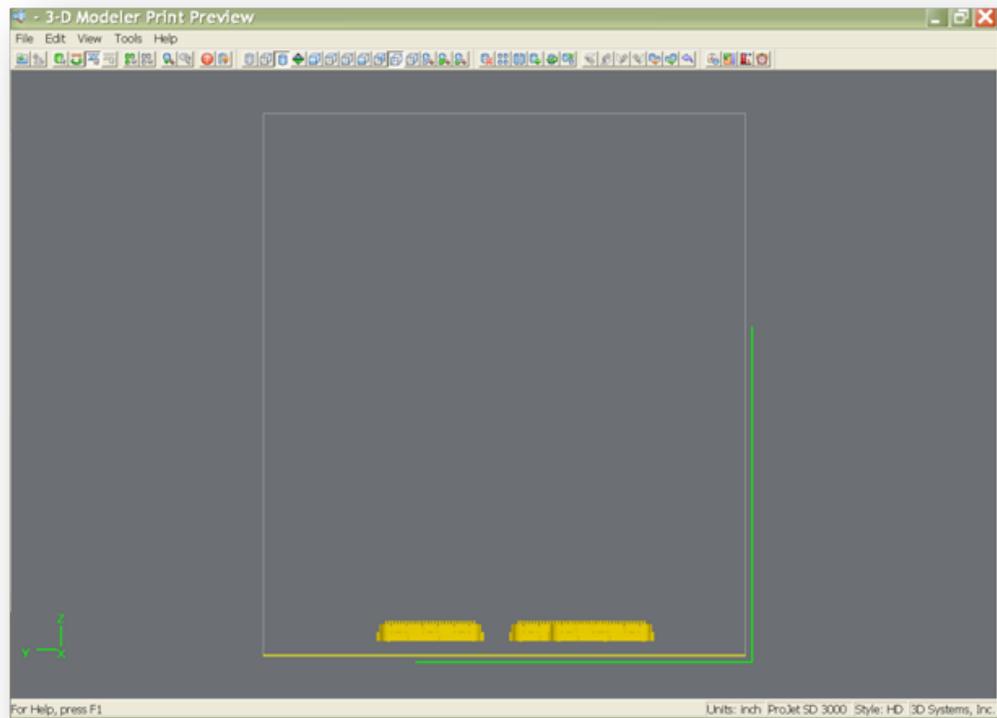
8.1.7 Select all

When using the De-Select all icon, all parts on the platform will become stationary.
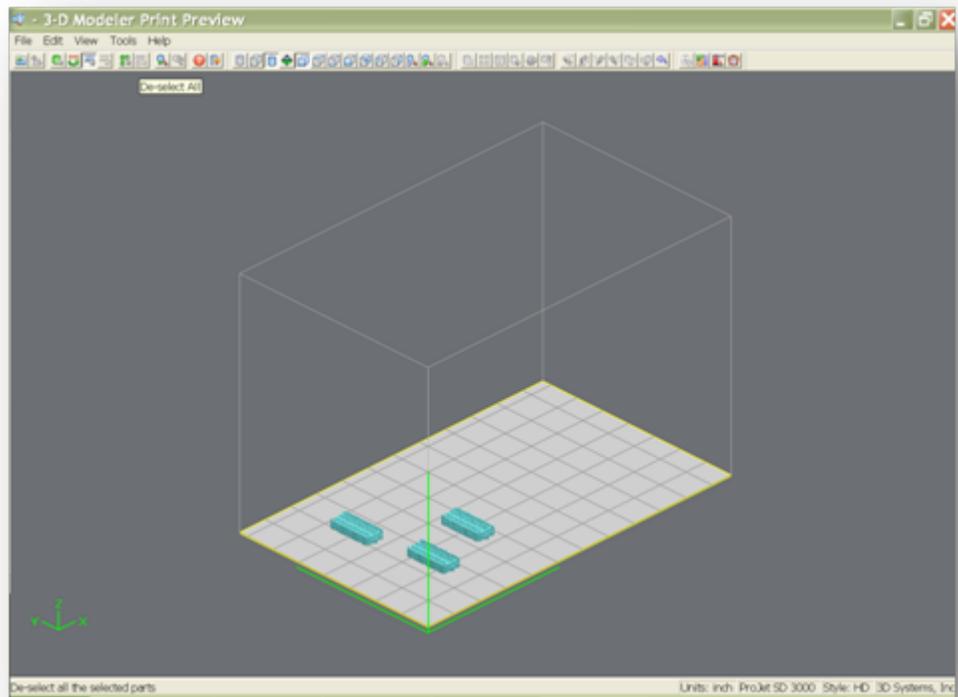
8.1.9 Zoom

Zoom in on the parts incrementally to enlarge until they fill the viewing area. Click and hold the mouse button until and drag across the area that you wish to zoom in on for part detail.
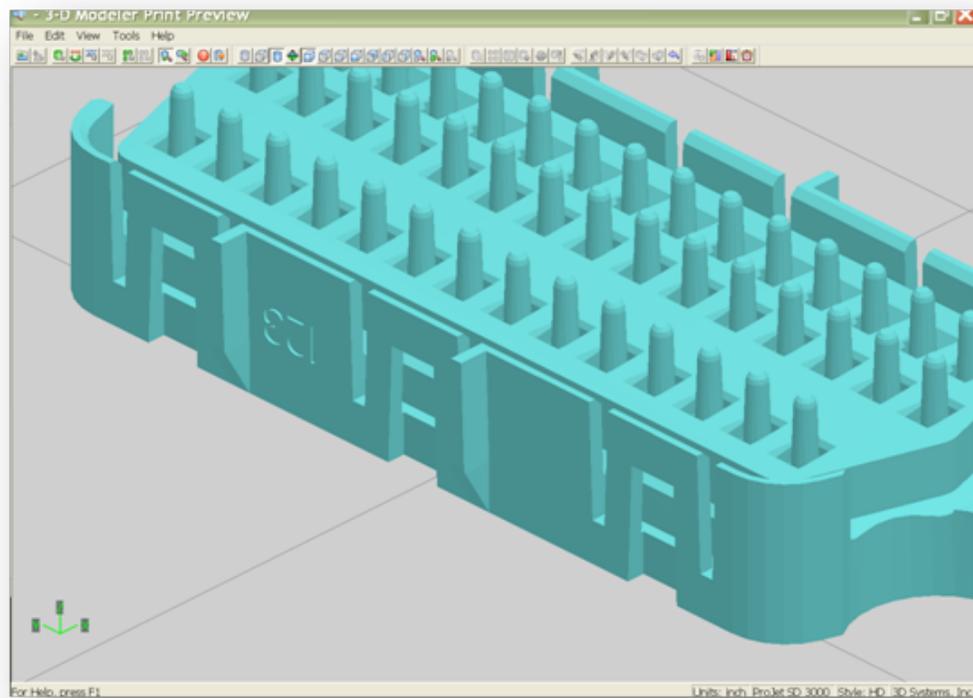
8.1.10 Undo Zoom

Click on the undo zoom button continously, the build envelope will reduce incrementally until they are at the normal viewing area.
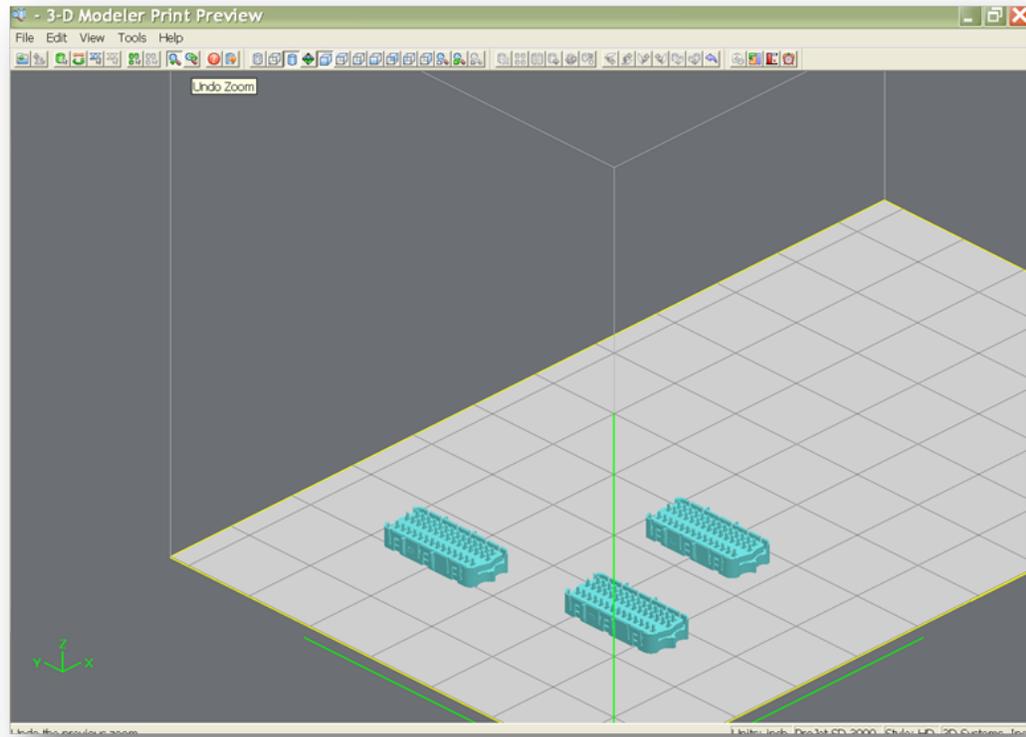
8.1.11 Help Topics

When selecting the help topics icon, 3DS Central log in page will automatically display asking for your User Name and Password. After typing in the log in information, select "Remember my login on this computer" and then click on "Log In". The ProJet 3500 Documents will become available to help in searching for information in question.

8.1.12 Selected Part Information

Click on the selected part information icon to display the part's information dialog with details about the currently selected part.

Part Information

File: '1.stl' '6.stl' '1.stl'

Length Units:	inch
Surface Area (sq. units):	85.687
Part Volume(cubic units):	7.216
Weight Units:	lb
Weight of Part:	0.297183
Weight of Support:	0.398126
Part Cartridges Estimated:	1
Support Cartridges Estimated:	1
Number of Triangles:	138178

Extents Information

	Min	Max	Total
X	0	5.76916	5.76916
Y	0.034598	6.91616	6.88156
Z	0.11	1.29676	1.18676

Build Platform Extents

X: 6   Y: 7.02   Z: 6

OK

8.1.13 Wire Frame Display

Using a wire frame allows visualization of the underlying design structure of a part.
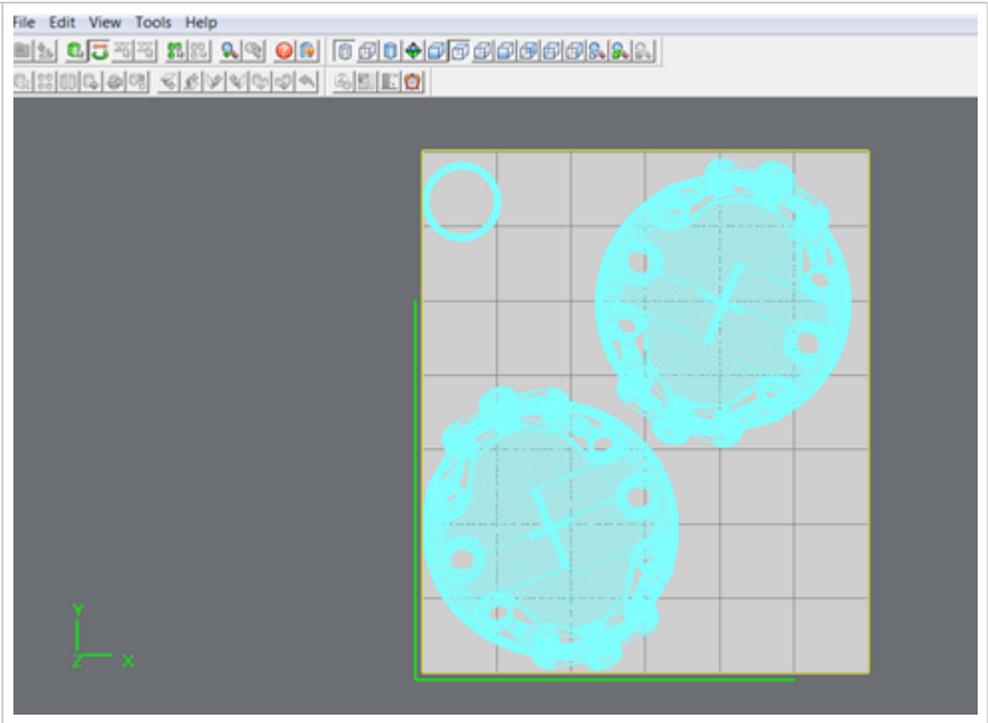
8.1.14 Bounding Box Display

Three-dimensional geometric figure consisting of six rectangular plane faces, each set at right angles to the four sides adjacent to it.
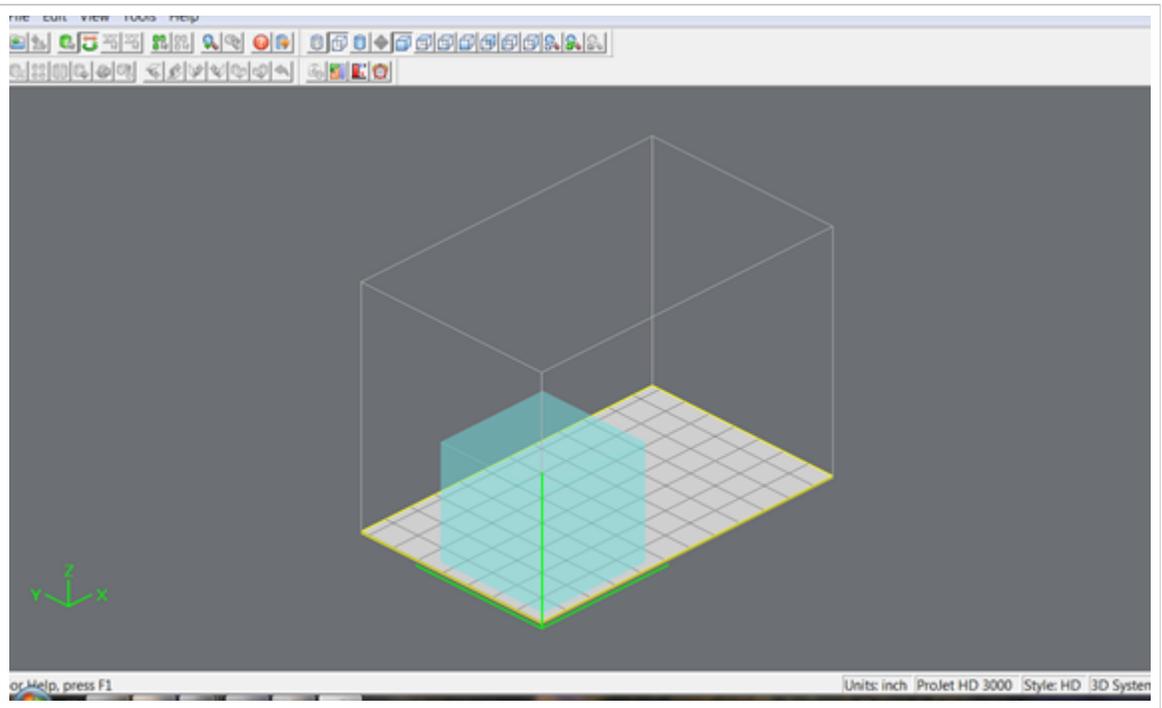
8.1.15 Display Support Creation Surface

Select the part and click on the Display Support Creation Surface to identify where the supports are placed on the part. The support structure will be high-lighted green. Use the trackball to rotate the platform to view structure. Note: The support structures are high-lighted in green.
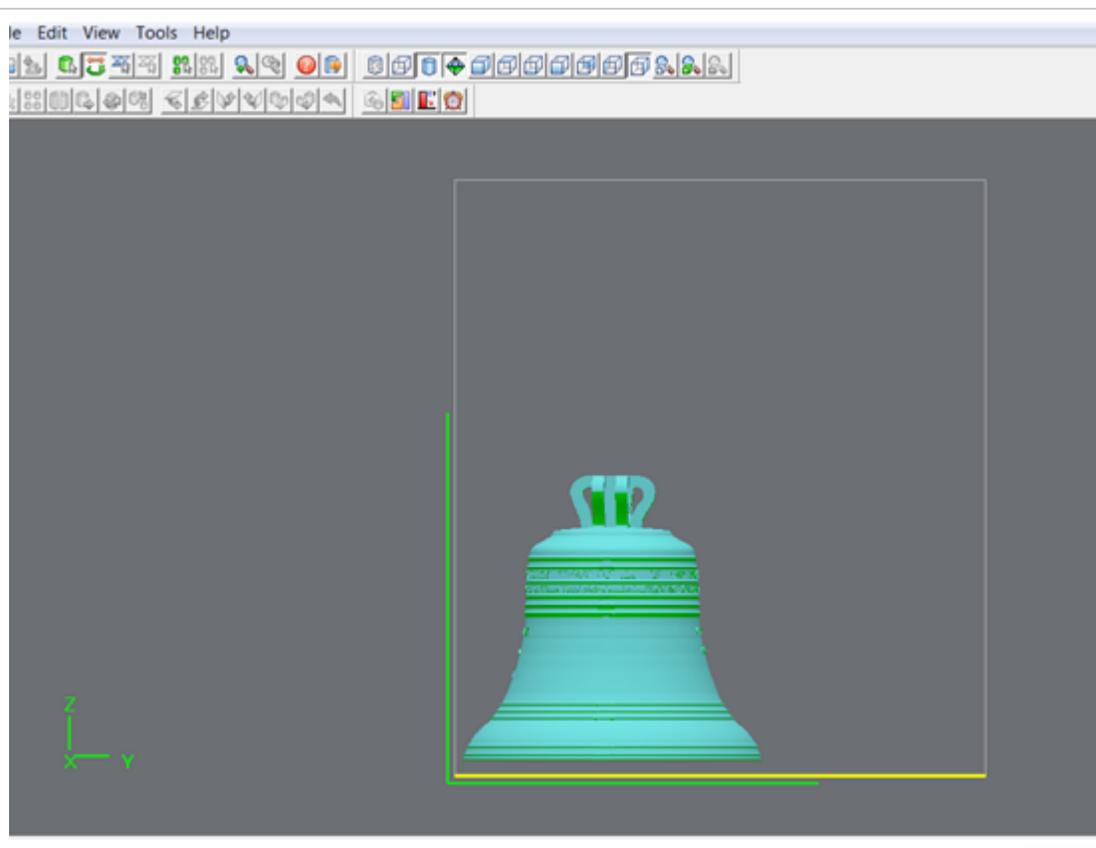
8.1.15 Shaded Display

Using a Shaded Display allows visualization of the solid design structure of a part. When using the wireframe display, toggle back to the Shaded Display to view the solid design.
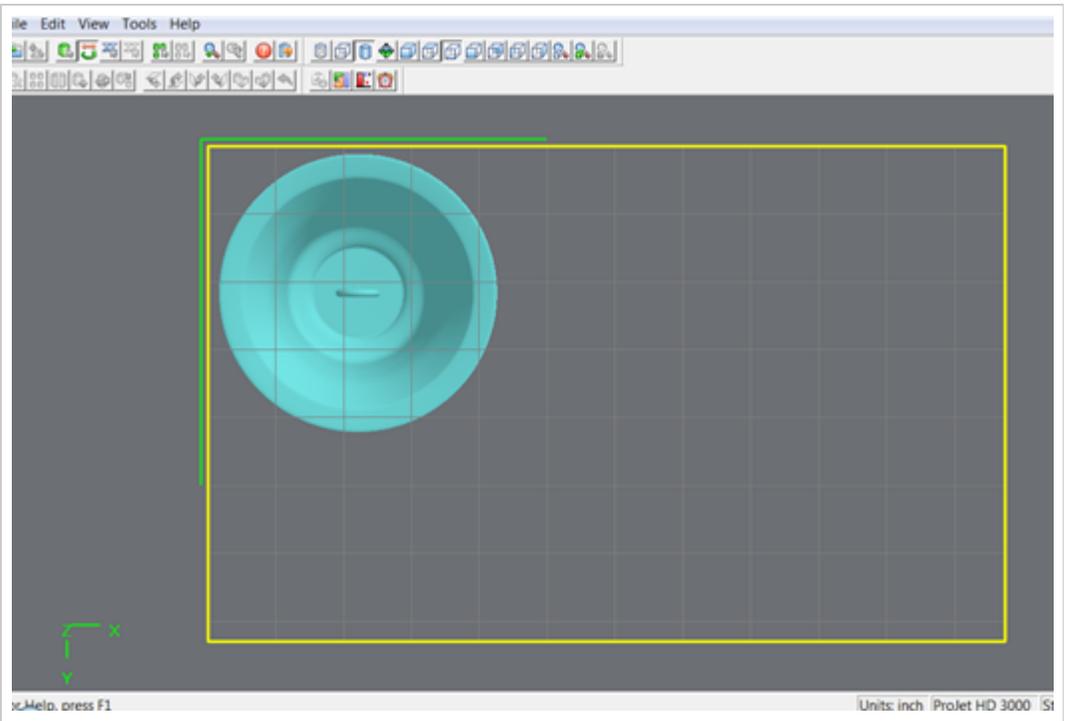
8.1.16 Isometric View

View parts on the platform in 3-D isometric or view the top, bottom, front, back, left, and right using the viewpoint buttons. It scales and orients the display to the standard view point from one corner of the build envelope.
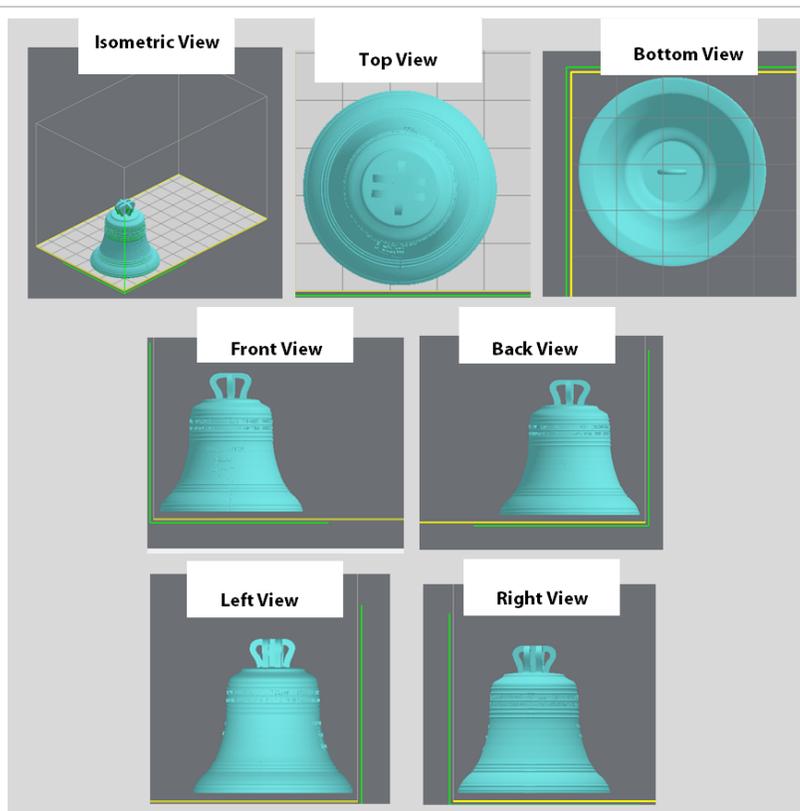
8.1.17 View Platform and Parts

This predefined view zooms the view to include the entire build envelope and all the parts on the platform.
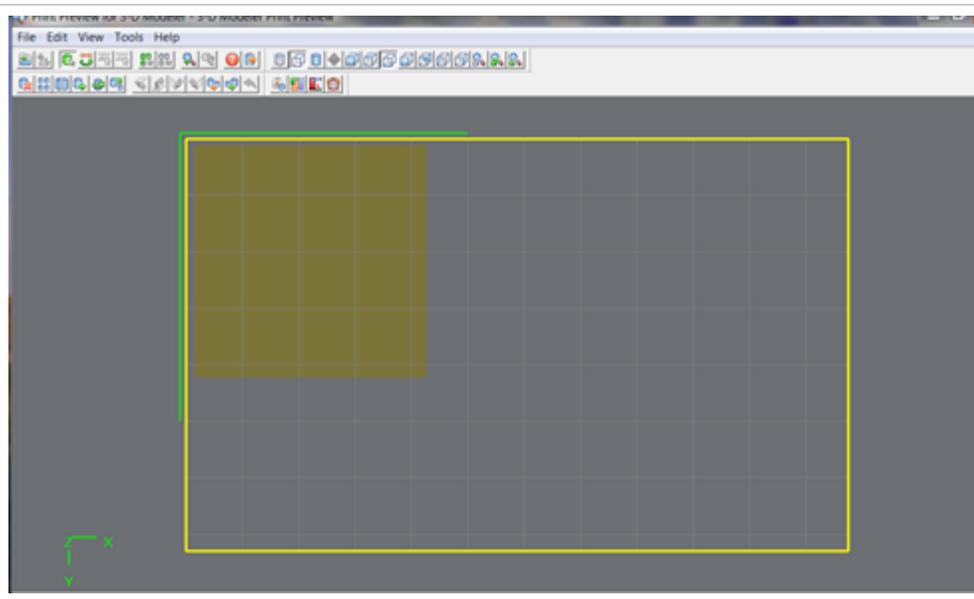
8.1.18 View All Parts

View all parts display the parts, and enlarges them as much as possible omitting empty portions of the build envelope.
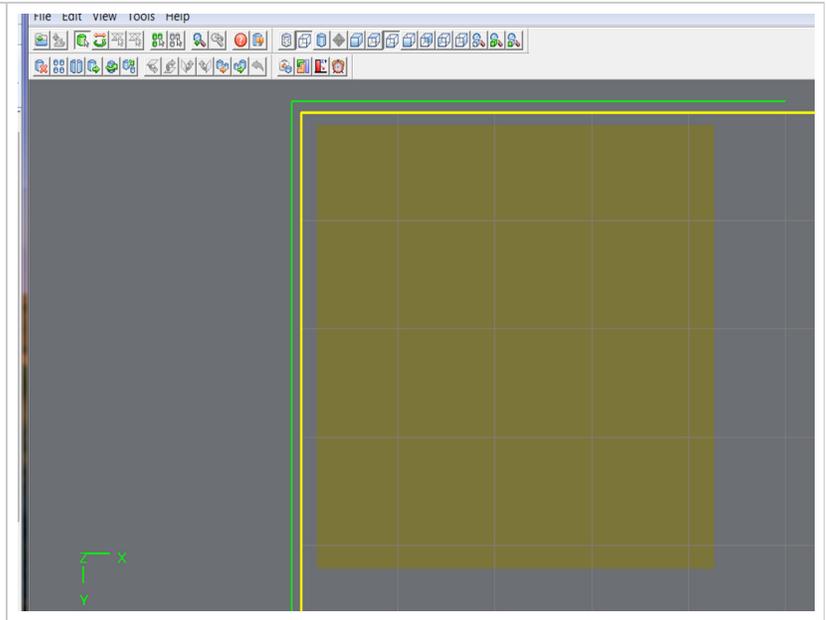
8.1.19 Selected Parts

View selected parts enlarges the selected parts until they fill the viewing area. The selected part is yellow high-lighted.
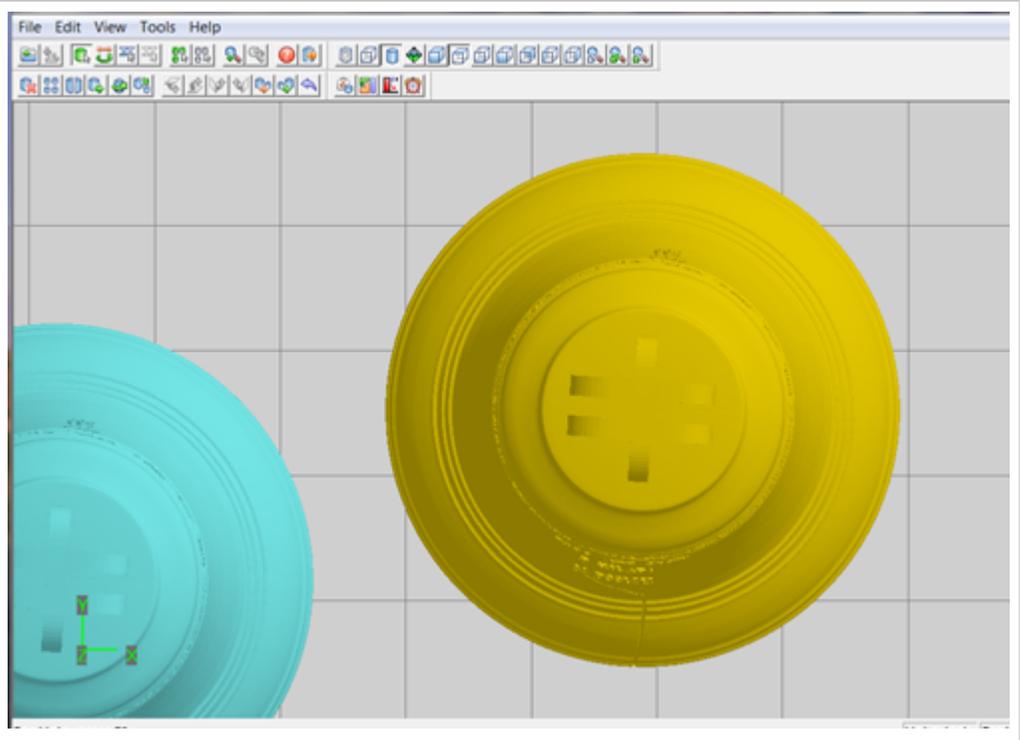
8.1.20 Delete

To delete a part / parts from the platform, select a part using the "Select part" or "Select all" tool and then click the delete icon to delete the selected part / parts.
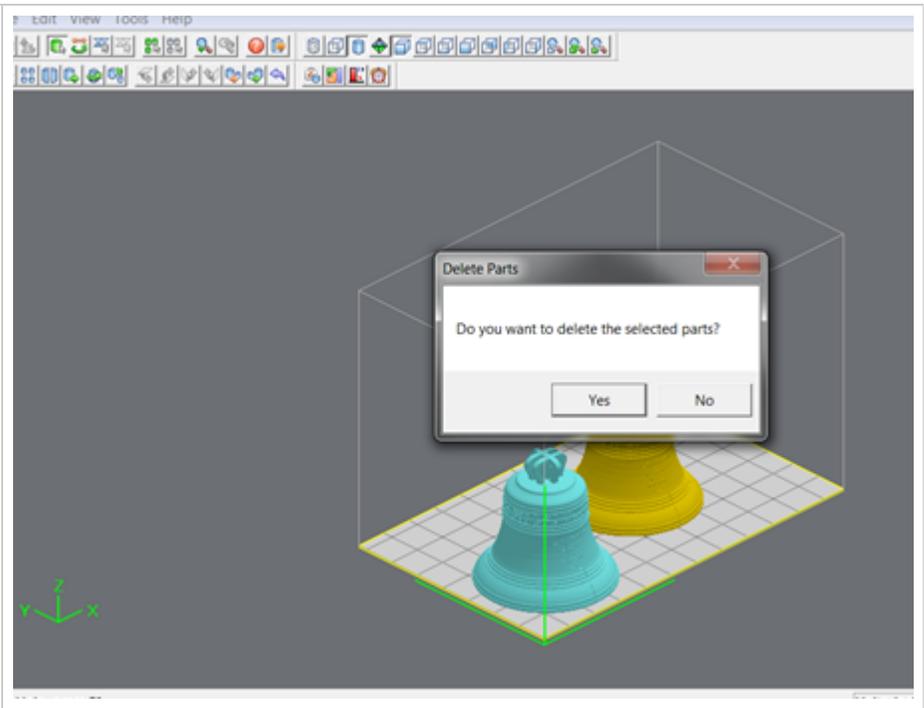
8.1.21 Copy

To copy a part, select part and click on the copy icon. A dialog box will appear asking for the number of copies and the distance between them. Enter the number of copies and distance, click Apply to generate the copies.
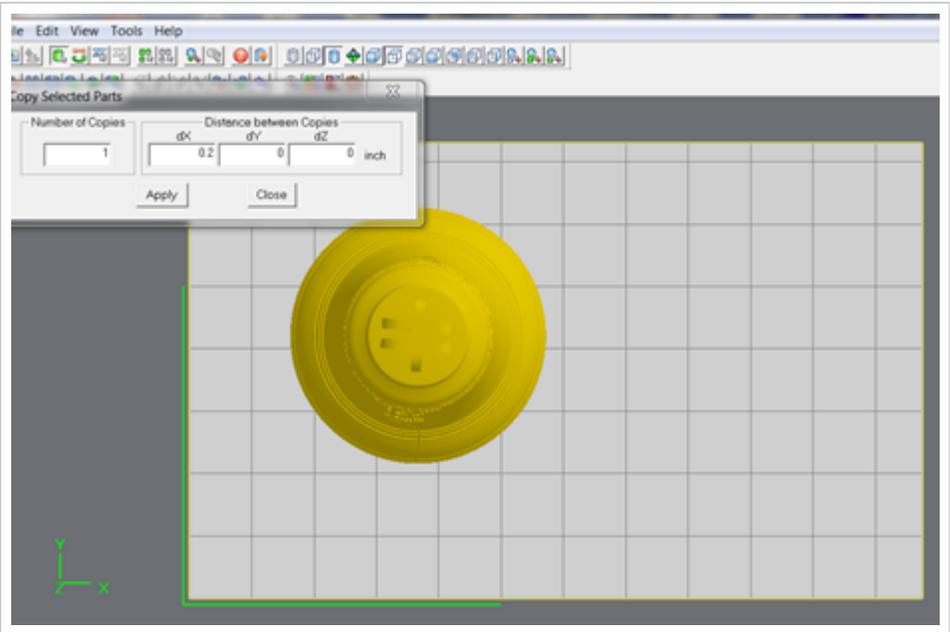
8.1.22 Mirror

To create a mirror image of one or several parts, select the parts and click the mirror icon; the dialog box will appear. Choose an axis around which to mirror the part, and a separation distance, click Apply.
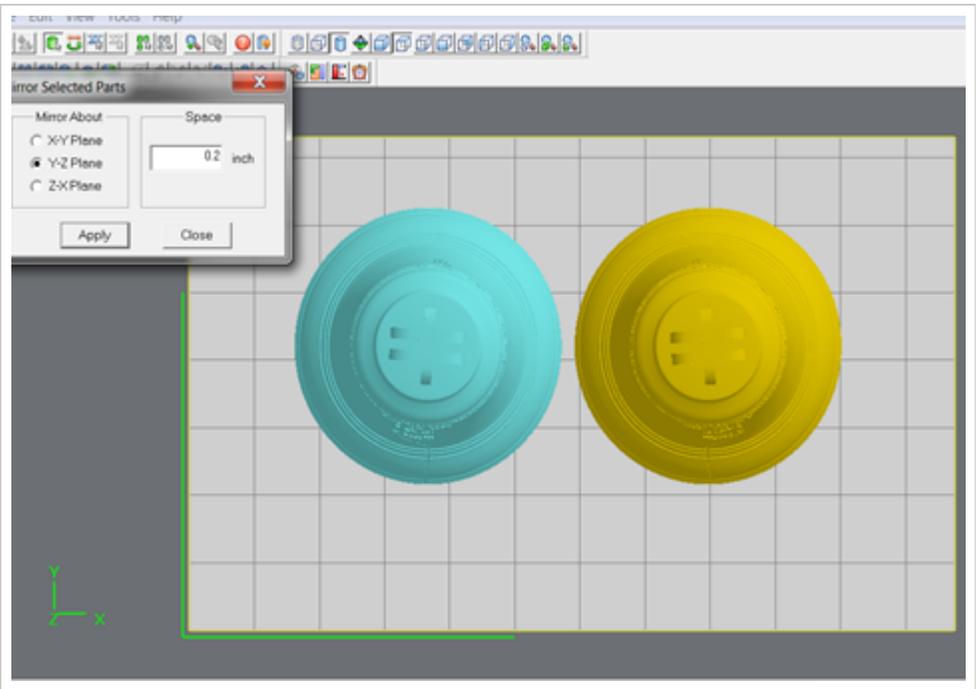
8.1.23 Translate

Use the translate part dialog box to move parts by entering inch values. The dialog box allows relative movement (parts are moved from their current location in specified X and Y axis) as well as absolute (parts are specified in the specified X,Y coordinates).
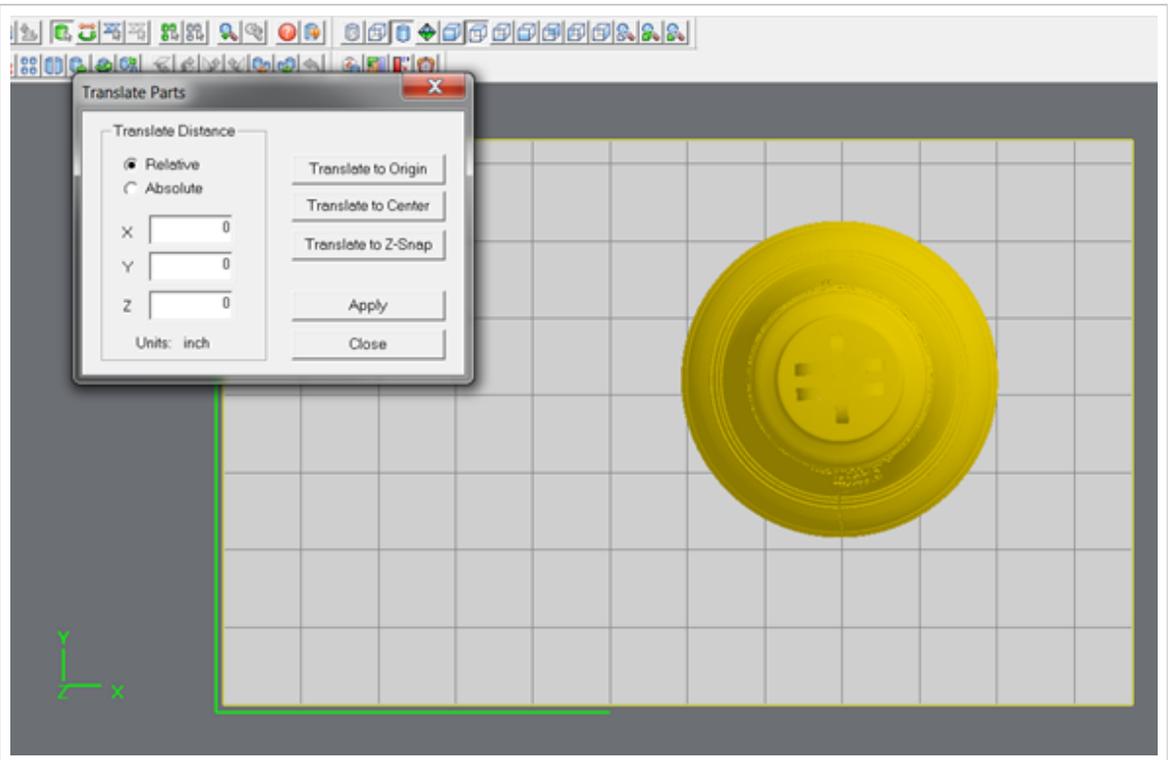
8.1.24 Rotate

Select the part to rotate and click on the rotate icon. Use the dialog box to rotate the degree amount in Y,X,Z directions in the maximum of 180°.
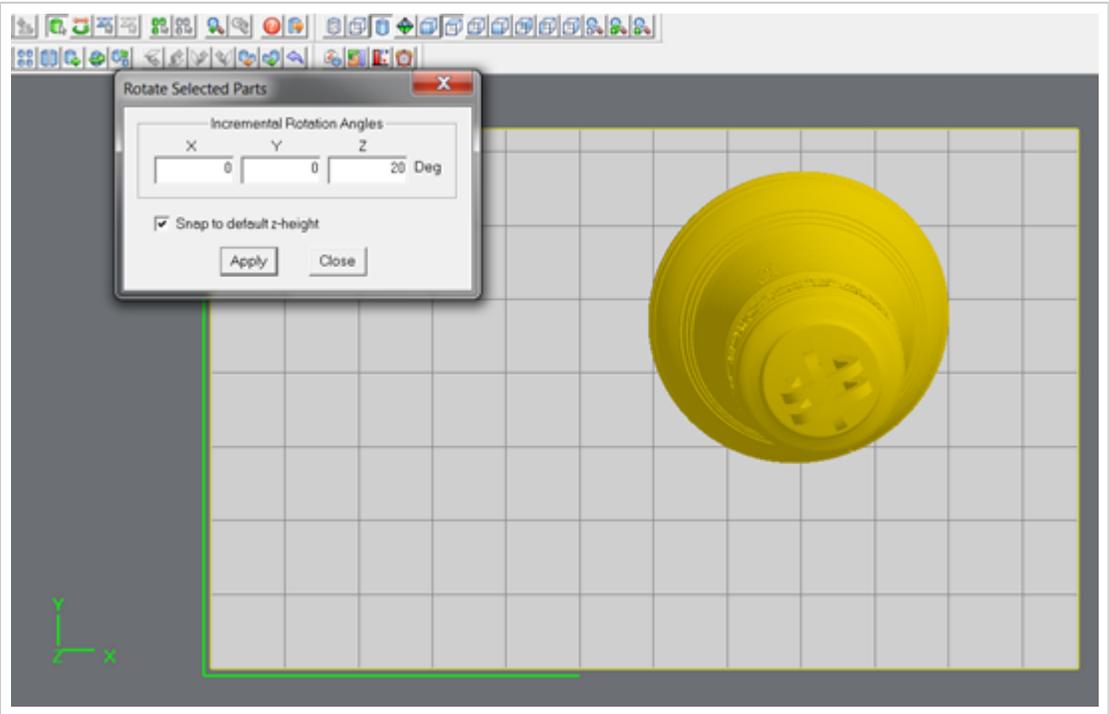
8.1.25 Scale

Parts can be scaled by percentages, eith isometric meaning all axes get the same scale factor or differently in each axis. Select one or several parts and click on the scale icon; the dialog box appears. Enter a scale value, then click the apply. Scale values are absolute. A value of 100% always returns the object to its original scale; 200% is always twice the size of the original.
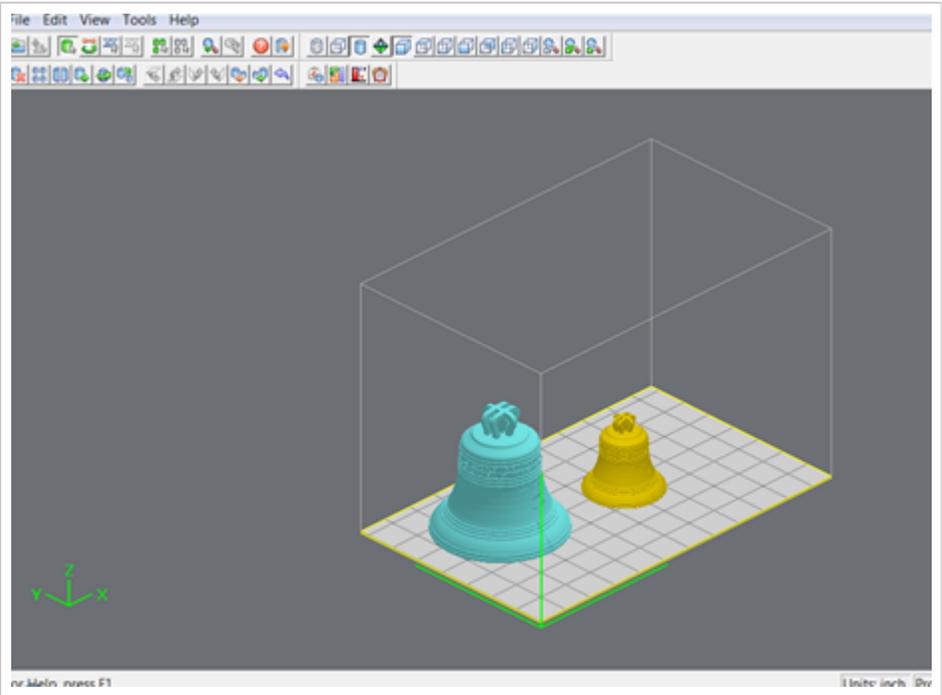
8.1.26 Align Parts Facings

Instead of manually rotating parts, you can select a triangle on the part and have the system align the part until the selected triangle faces a desired direction: up, down, the X-Z axis or the Y-Z axis. Select a triangle using the triangle selection tool, the align facing buttons become enable. Click the align part icons to rotate the part until the selected triangle faces the selected direction. Triangles can be selected on several parts before clicking an align Parts Facing icons so that all parts can be aligned together.
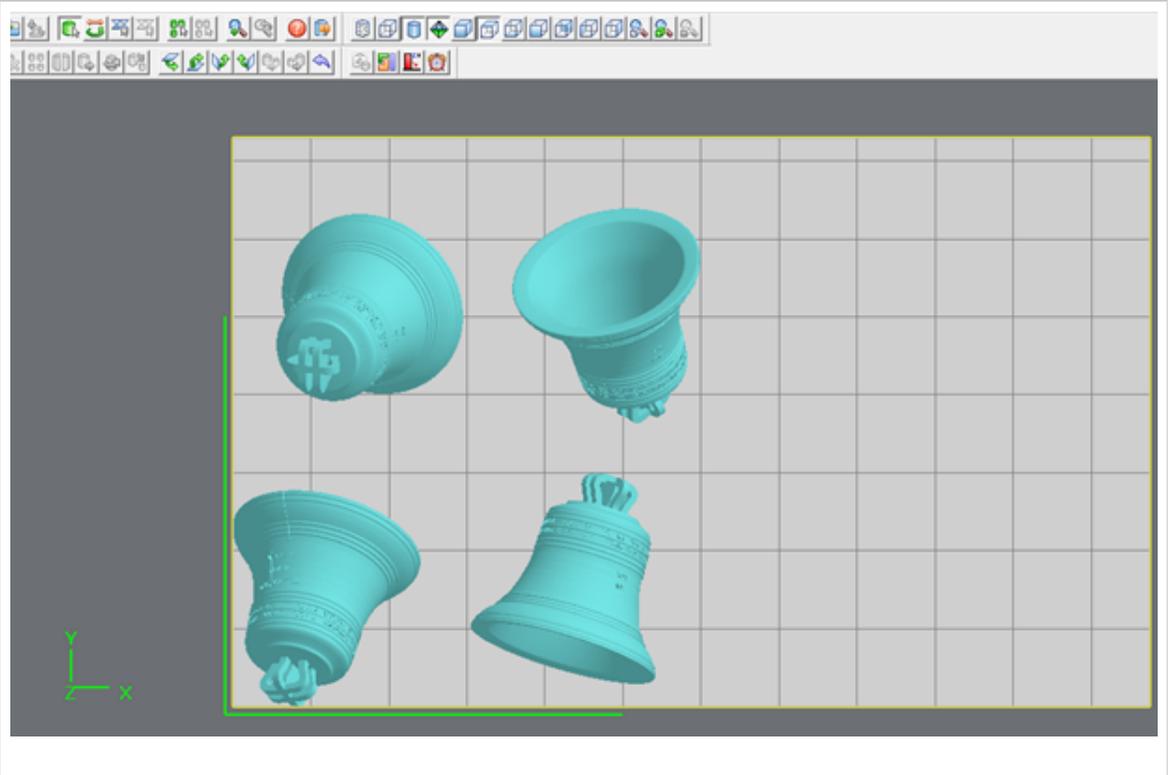
8.1.26 Scale mm to inch

The parts unit can be changed from millimeters to inch by dividing 25.4 into the part measurement. Select the part and click Scale to inch icon. A dialog box will ask if you want to proceed with the modifications; select "Yes" to proceed with the parts unit changes or select "No" to discontinue.

3D Modeling Accelerator

All the modifications done to the selected files will be applied. Proceed?

Yes   No
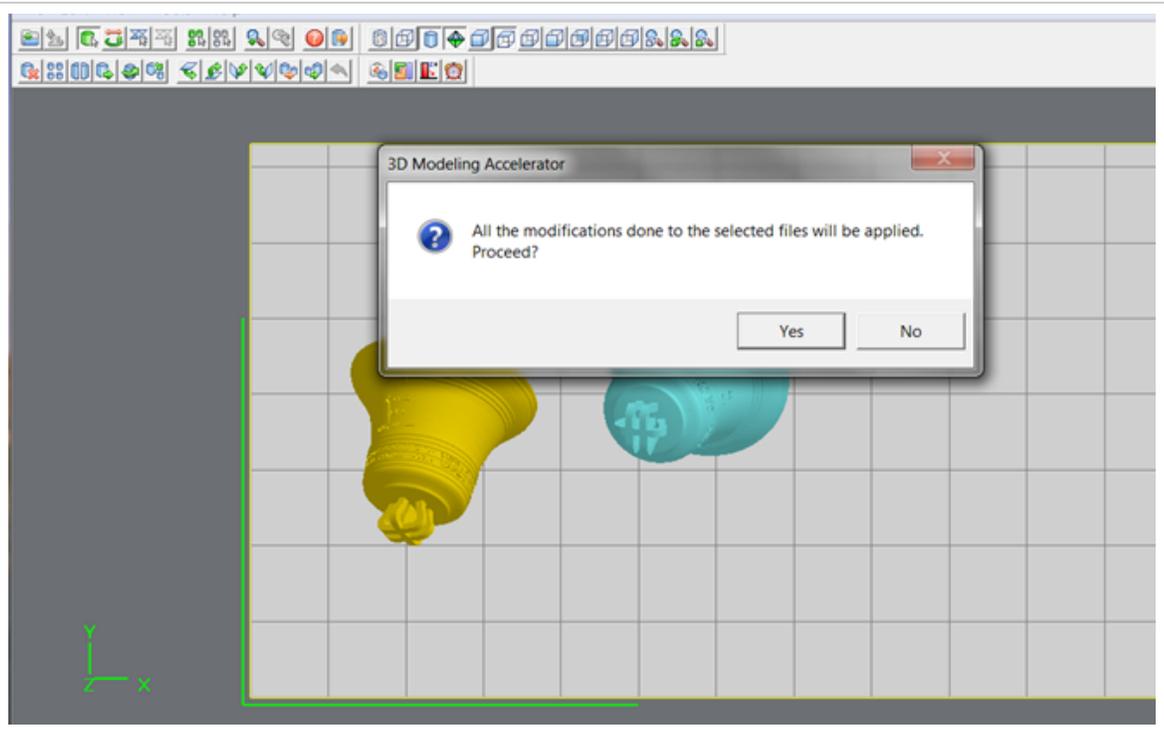
8.1.27 Scale inch to mm

The parts unit can be changed from inch to millimeters by multiplying 25.4 to the part measurement. Select the part and click Scale inch to mm icon. A dialog box will ask if you want to proceed with the modifications; select "Yes" to proceed with the parts unit changes or select "No" to discontinue.
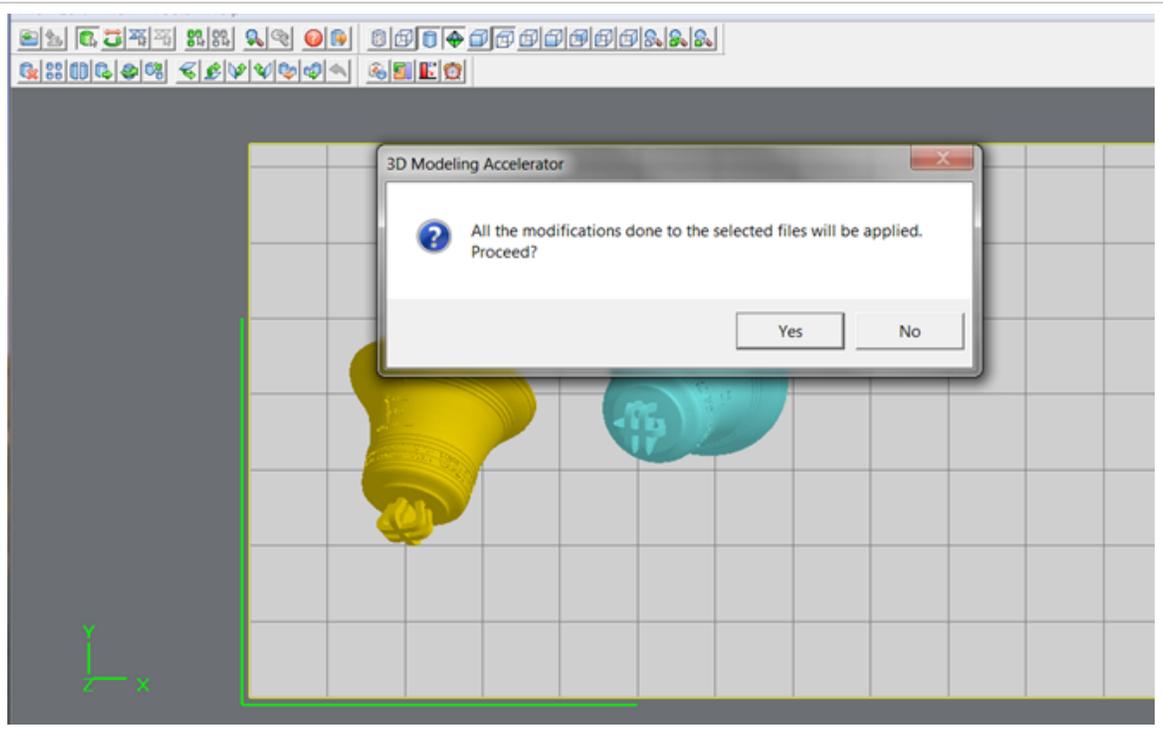
8.1.28 Undo

Click the undo icon to bring part back to its previous state after changes have been made.

Undo
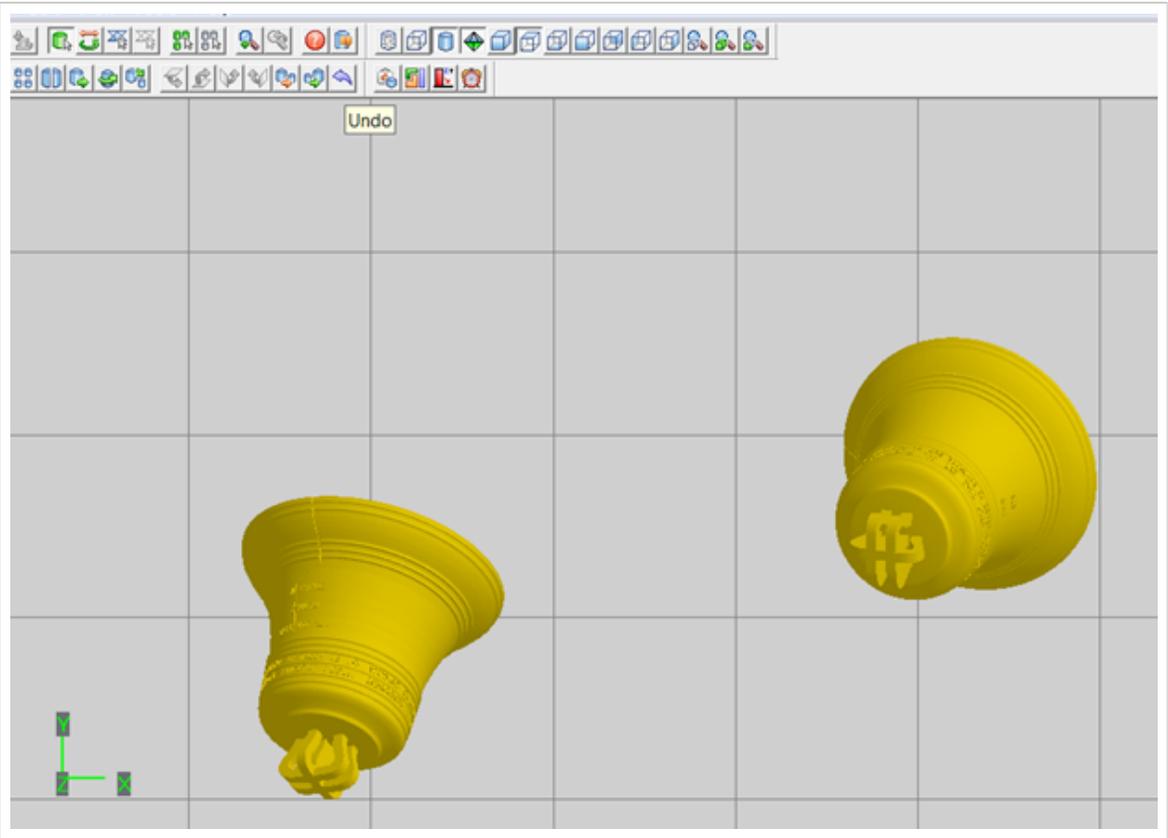
8.1.29 Verify

Verification detects and fixes problems in the STL. Also individual STL part can be verified by selecting it and then clicking the Verify icon.
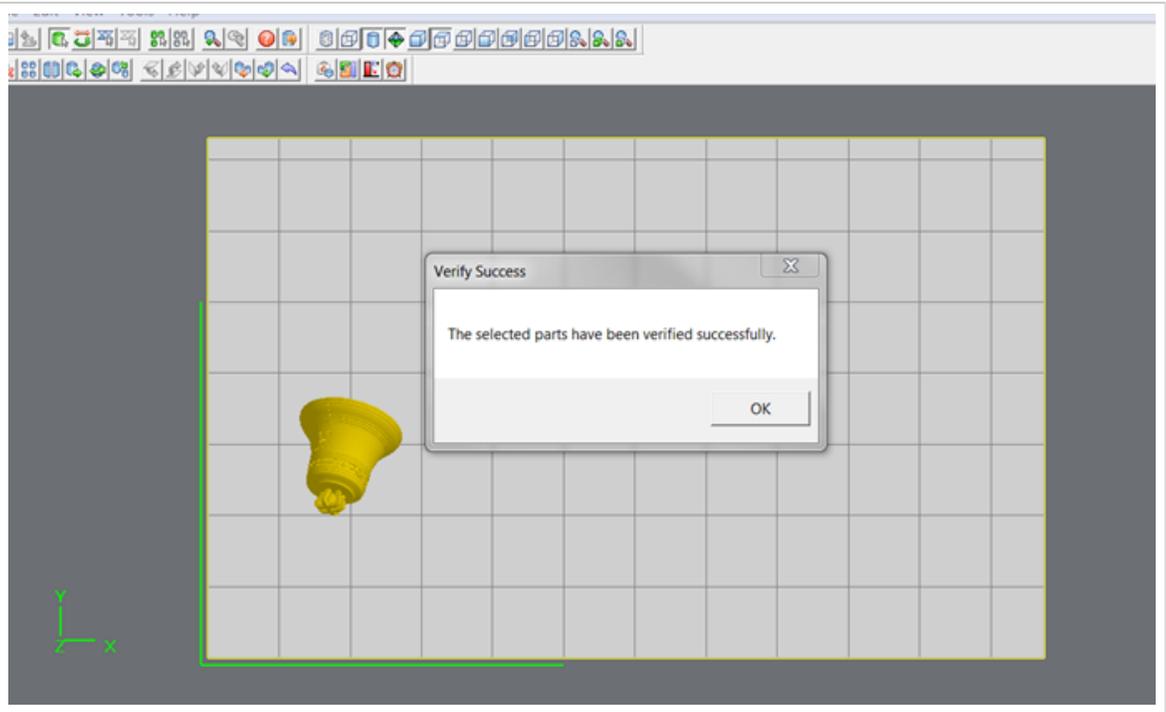
8.1.30 Auto Part Placement

This tool arranges parts for optimum build speed. Select the parts and click on auto place. The parts will automatically arrange in the build envelope.
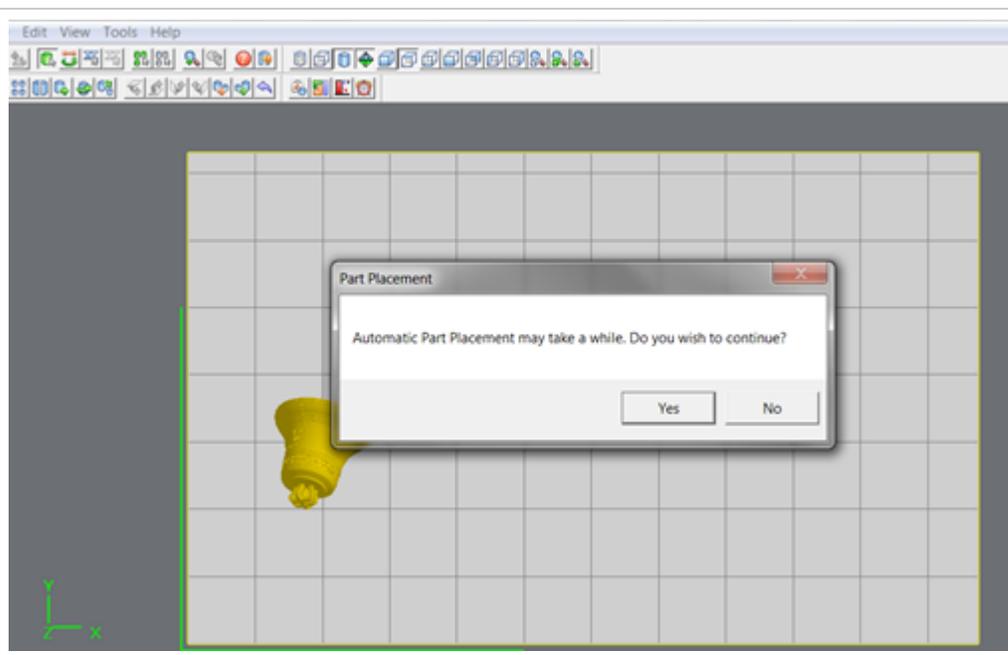
8.1.32 Estimate Build Time

Click on the estimate build time icon to estimate the time it will take to build the part.
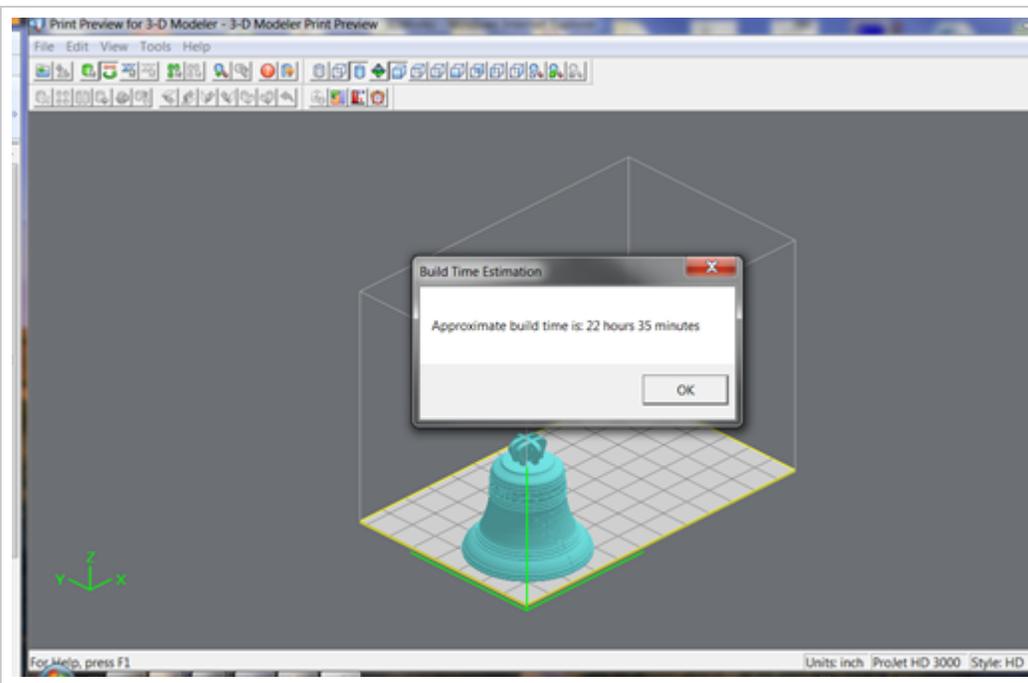
8.2 Save a Build Job

Prepare and save build job(s) on your PC. Later, submit the job, skipping preparation steps. A saved job is specific to a single PC and can only be built or deleted from that PC.

1. Click a printer's icon in 3-D printer's window to open printer's Info window.
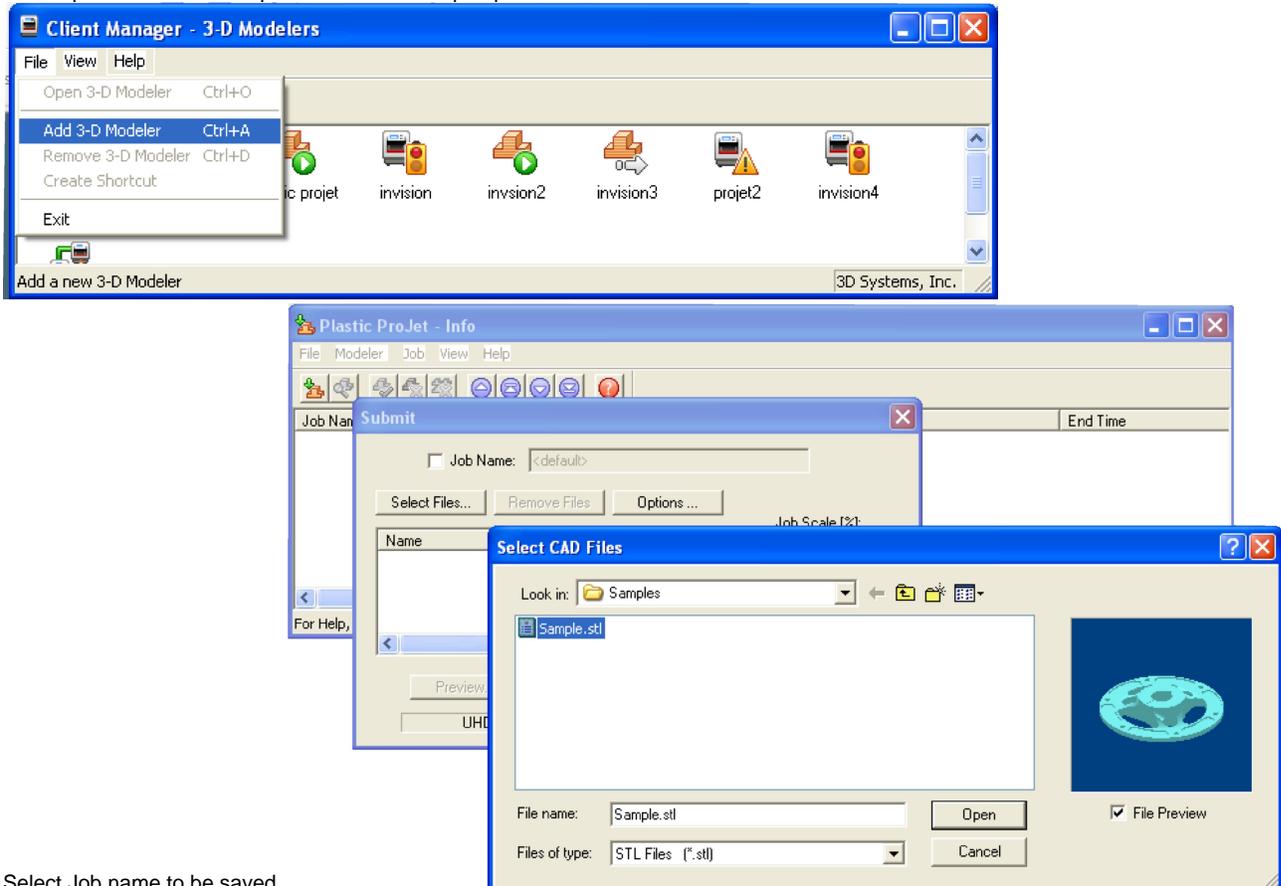
2. Select Job name to be saved.
3. Choose **Job > Default Options**.
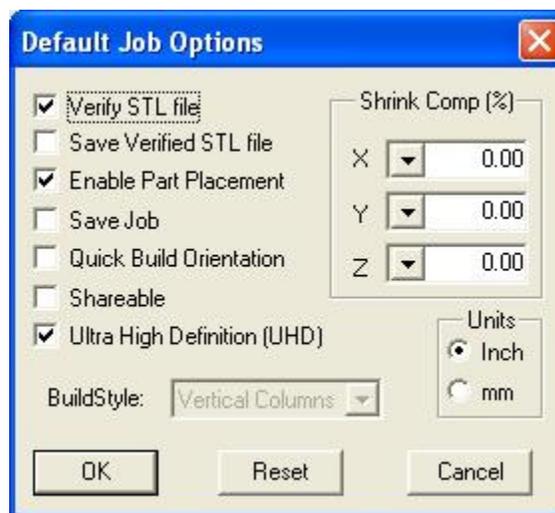
4. In the Default Job Options, select **Save Job**, then click **OK**.

| NOTE: | Jobs to printer queue cannot be saved unless Save Job was selected. When a build job with the Save Job option enabled reaches Pending status, another job (with the suffix "_s") is added to the queue. For more information see Saving, Repeat, and Confirming Build Jobs in your ProJet Client online Help for more information. |

8.4 Manage Build Jobs

The client software will not send build jobs to the printer until job confirmed by selecting **Preparation Only** checkbox on Submit dialog box or resubmit a saved build job.
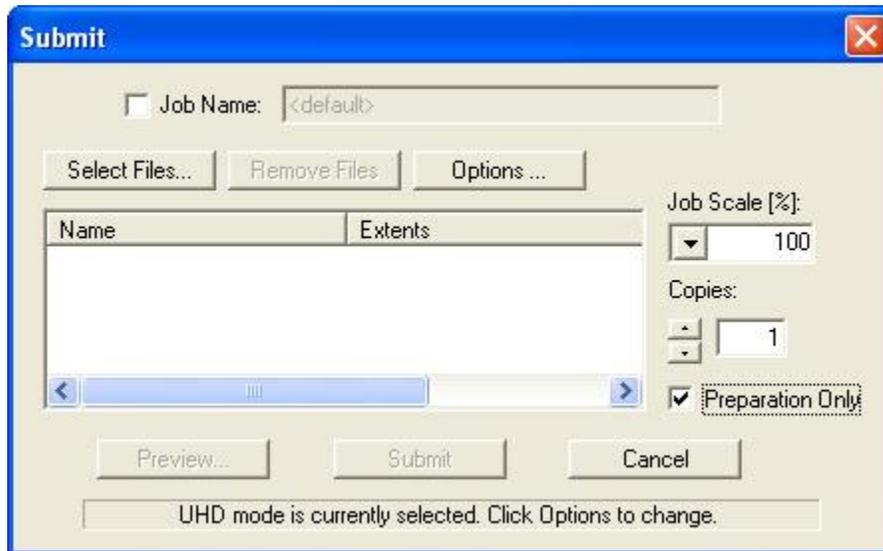
1. Click printer's icon in client software to open printer's Info window.
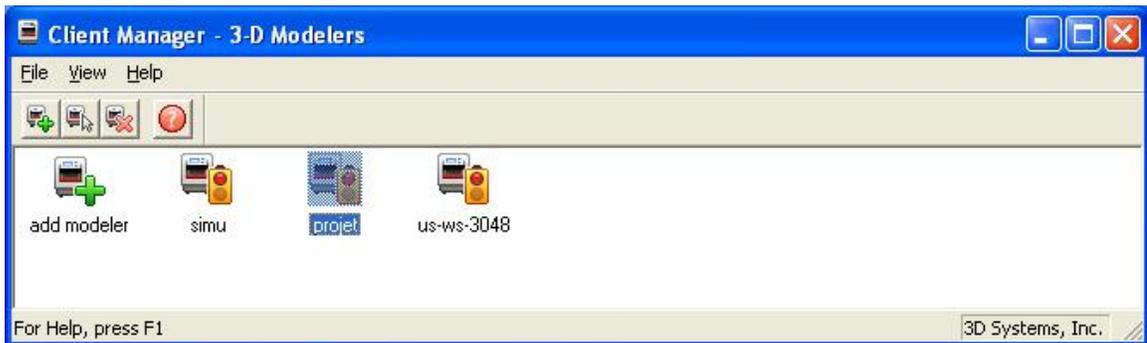
2. Select build job with **Job Status** of **Needs Confirm** or **Saved**.

3. Click **Confirm** button or choose **Job > Confirm** located on the tool bar of the printer window.
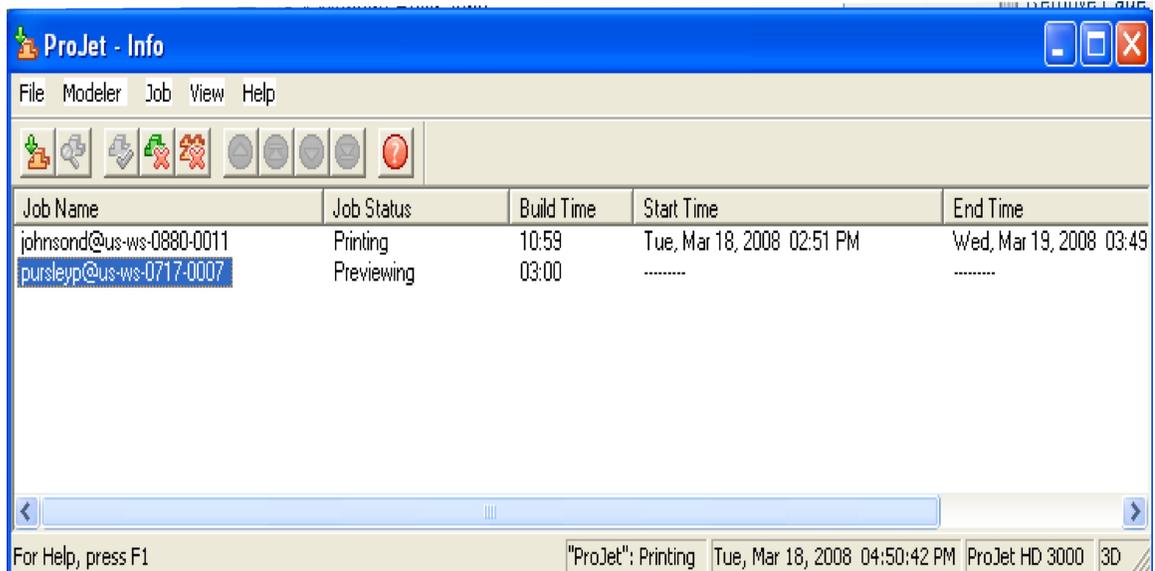
4. Click **Yes.** Job is sent to printer as soon as it's available.

A **Needs Confirm** build job status immediately changes to **Pending** when confirmed.

| NOTE | Confirming saved jobs generates a Pending build job whose name lacks the "_s" suffix. However, saved jobs remain in the queue. |

8.5 Printer Status

To view the printer's status, observe the operator's control panel for elapsed build time, build time remaining, material information, job status, name, time remaining on build, error messages, and system statistics.

NOT PRINTING

2 PART 2 SUPPORT

ONLINE,MENU?

Yes   No

Play   Pause   Stop

Main Menu

8.6 Empty Waste Drawer

![Harmful Irritant symbol] **Harmful Irritant**	
![Wear Gloves symbol] **Wear Gloves**	

Personal protection equipment is required before opening waste drawer. Follow all material handling and disposal guidelines. Always follow MSDS guidelines and local regulations regarding handling and disposal of regulated materials. Keep disposal records if local law requires.

Note: During operation, the user interface will prompt you to check the waste drawer periodically to see if waste pan needs to be empty.

ProJet 3500 comes with a waste pan kit that includes six (6) waste pans and six (6) waste bags. To order more waste pans and bags, please refer to the ProJet 3500 Parts Locator and locate the Waste Pan Kit part number in the spare parts numerical listing.

1. Press "Pause" on the operator's panel. When pause is completed, open waste drawer.	NOT PRINTING 2 PART 2 SUPPORT ONLINE,MENU? Yes No Play Pause Stop Main Menu
2. Open waste drawer.	Waste Drawer
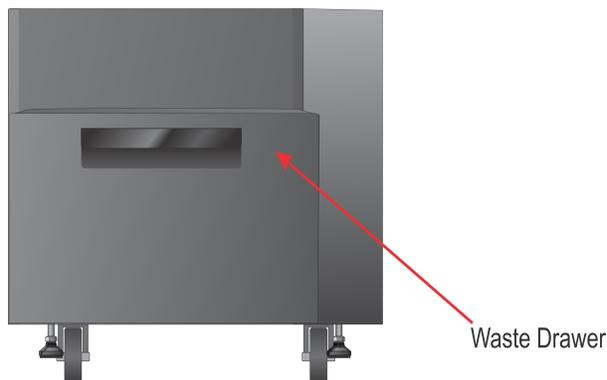
3. Remove waste pan and dispose waste pan in one of two methods: • • Place waste pan and contents in the bag after every build. **Dispose of waste bag according to your local codes.**		• • Remove contents by scraping the block of waste out from pan and putting the waste in the bag. The waste pan can be reused until it no longer holds its shape. **Dispose of waste bag according to your local codes.**	
4. Install new or reused waste pan in the back right corner of waste drawer.			
5. Close waste drawer and press **Pause** to resume build.	 NOT PRINTING 2 PART 2 SUPPORT ONLINE,MENU? Yes No Play Pause Stop Main Menu		
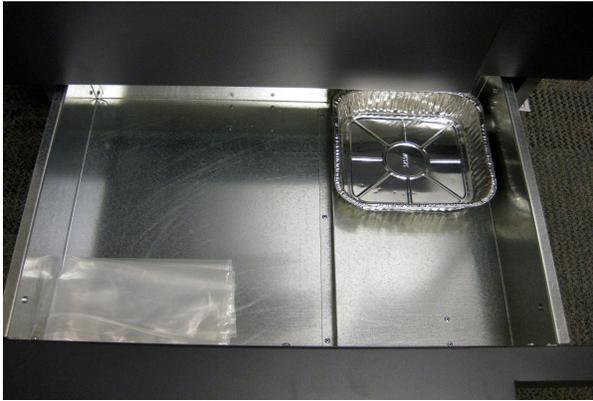
8.7 Shutting Down Printer

⚠	WARNING: Switching off or disconnecting the printer's power without going through a shutdown process can severely damage the printer. Always perform shutdown procedures before switching off printer's power unless power must be disconnected immediately for safety reasons.

The printer can take several hours to warm up after being shutdown and switched off. Before shutdown and switching off, verify that the need to build parts is not a factor.

Mode	
Standby	15 Min.
Conserve	25 Min.
Initial Pwr Up	90 Min.
NOTE:	It is recommended to leave your printer in either standby or conserve mode instead of shutting down if the printer is to be used within 7 to 10 days of last build.

After printer is idle 2 hours or 72 hours, it enters Standby or Conserve mode, respectively. In these energy-saving states, the printer's heaters are partially cooled and many other components are disabled. The heaters are cooler in Conserve mode more than Standby mode. It takes less time for the printer to warm up from Standby or Conserve mode than it does from full shutdown/power off. Warming up from Conserve mode takes more time than from Standby.

NOTE	To increase or decrease wait time before printer enters Standby mode or Conserve mode, contact 3D Systems Technical Support.

1. Verify printer is not building.
2. Press Main Menu, and tap on "Shutdown Modeler " on the touchscreen panel. Once selected, it will high-light and then return to the operator's panel.
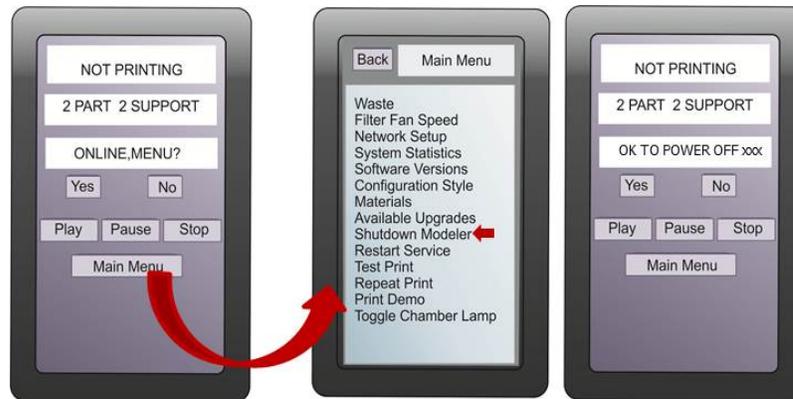
3. Press **YES** twice.
4. When the display shows **OK TO POWER OFF XXX**, press the power switch on the rear panel.
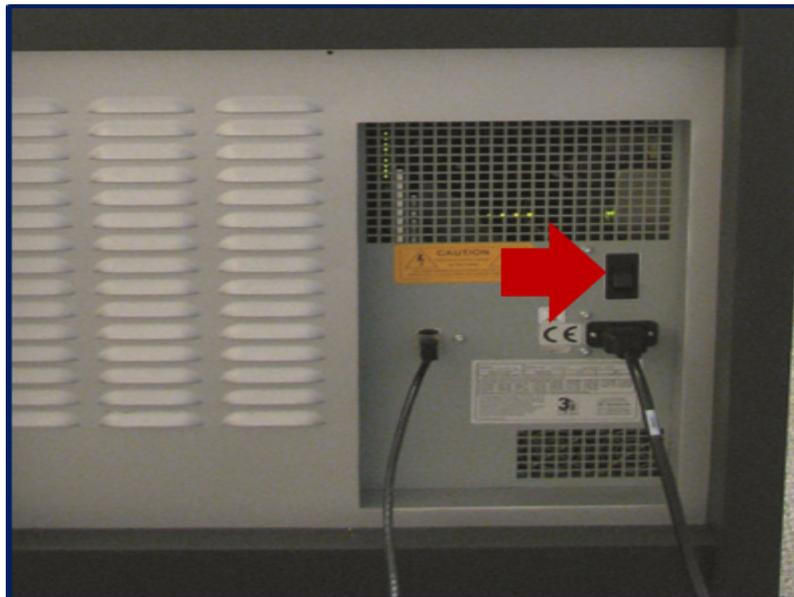
8.8 Remove Platform

When operator panel display shows <job_name> **Remove Print**; open chamber door.

1. Hold X-carriage, in place using the loop at the front of carriage.
2. Open latch securing build platform by pressing inward and releasing.
3. Lift up print platform and pull out, then install a clean platform or close chamber door.
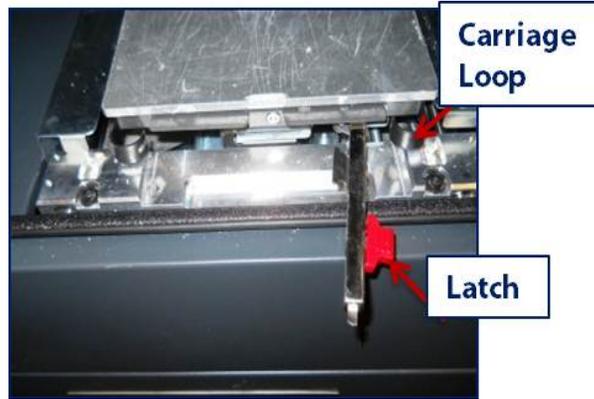
8.8.1 Remove Part from Print Platform

Remove print platform from printer. refer to 7.2 Install Material Cartridges and Print Platform

- Place warm platform of parts in a freezer for a few minutes. As the parts and platform cool, they contract at different rates and separate.
- Alternatively, the parts can be mechanically separated from the build platform by force using a tool such as a thin blade.

8.9 3D Printing Batch Submission for Production Environment

The printer batch processor allows users to prepare/send jobs and inquire job status for multiple printers across networks without using 3D Accelerator Client software, which requires human interactions. It is compatible with various 3D Systems' supported 3D Printers, including ProJet, InVision, and ThermoJet.

The ModelerBatch.exe application reads the job parameters from the given parameter file (.ini file), then prepares, packs and sends the jobs to a designated printer. The ModelerStatus.exe application allows the user to inquire the job status on a designated printer for both current and previous jobs including "printing", "pending", "completed", and "aborted".

Printer Batch Processing

Setting Job Parameters via INI File

Before running the ModelerBatch.exe, a text file must be created that specifies the desired parameters for the pending job. See example below:
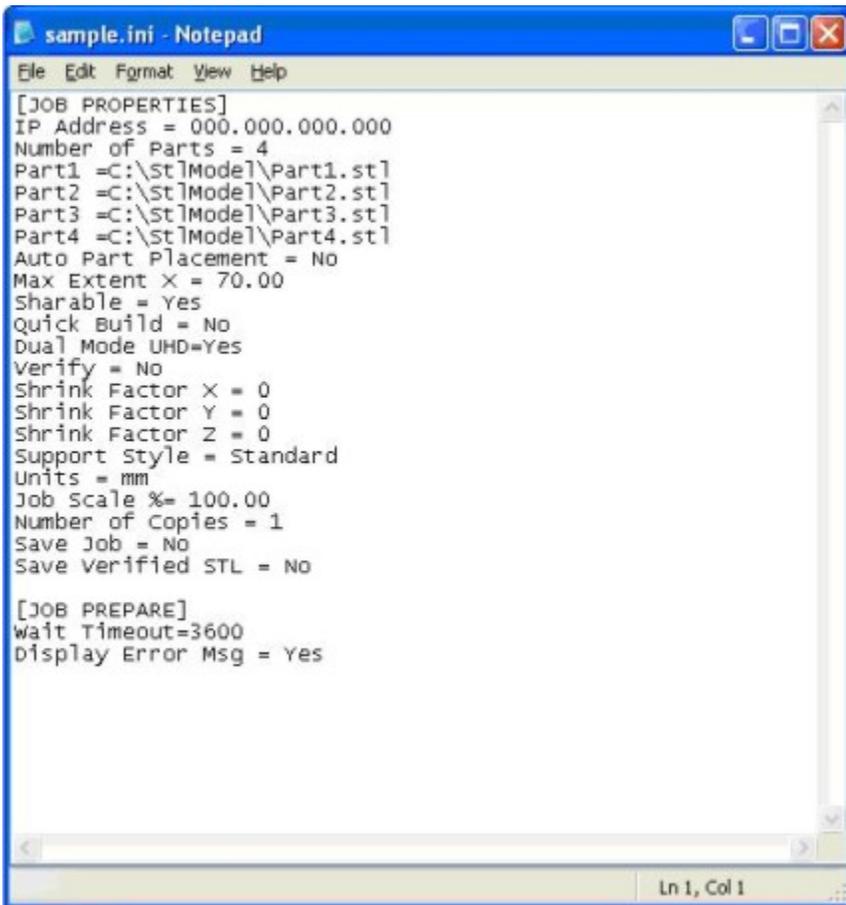
All the job parameters are categorized into two sections:

- Job Properties
- Job Prepare

The table below provides a description of the ModelerBatch INI parameters.

Parameter Name	Default Value	Description	Section Name
IP Address	N/A	IP address of the designated printer, e.g., 192.168.0.2 or 192.168.000.002	Job Properties

Number of Parts	0	Total number of parts in the job	Job Properties
Part#	N/A	Full path and name of the STL/CTL file. # must be replaced with numbers which start from 1, e.g., Part1, Part2, and Part3 ... The total number of parts must be consistent with the total number of parts. If a file name is one of: Modeler_Verification_Strip.STL Modeler_Verification_Strip_InVision.STL Modeler_Verification_Strip_ProJet.STL Modeler_Verification_Strip_ProJetCPX.STL ...then the file is the verficiation strip.	Job Properties
Auto Part Placement	No	Valid values are "Yes" or "No". If Yes, the Batch Processor performs auto part placement. If No, the parts will not be auto placed. However, the users should ensure the part sizes and positions are appropriate.	Job Properties
Max Extent X	dPlatExtX	Max job volume X extent, which is used to position the verification strip for optimal build speed. The default value is the max platform X extent, which is 6 inches for ProJet 0000 in high resolution mode.	Job Properties
Sharable	No	Valid values are "Yes" or "No", which specify if the print job will be shared with other jobs in the printer. The print job will not be shared if this field is absent.	Job Properties
Quick Build	No	Valid values are "Yes" or "No", which denote whether the parts should be oriented in the printer to save print time. Quick build part placement will not be performed if this field is absent.	Job Properties
Dual Mode UHD	Yes	Valid values are "Yes" or "No", which specify if ultra high resolution (UHD) mode is used to build the parts. UHD will be used if this field is absent. This option is only valid for the printers with dual-mode capability.	Job Properties
Verify	No	Valid values are "Yes" or "No", which specify if verify needs to be performed on the parts. Verify will not be performed if this field is absent.	Job Properties
Shrink Factor X Shrink Factor Y Shrink Factor Z	0.0	The corresponding shrinkage compensation factors desired in percentage. These fields will default to 0 if absent, which means no shrinkage compensation is added.	Job Properties
Supports Style	Standard	This key defines the type of supports desired. The Standard supports type will be used if this field is absent. Valid values are Standard, Vertical Columns, Universal Std, or Universal HiRes.	Job Properties
Units	Inch	This key defines the units for the job. The units will default to Inch if this field is absent. Valid values are Inch or mm.	Job Properties
Job Scale %	100.0	The key indicates the scaling desired for the print job. The scale will default to 100% if this field is absent.	Job Properties
Number of Copies	1	This key defines the number of copies of the specified parts in the list. The default is to created one copy for each part in the job.	Job Properties
Save Job	No	The key is used to specify whether the job is to be saved in addition to printing. The job will not be saved if this field is absent. Valid values are Yes or No.	Job Properties
Save Verified STL	No	The key is used to specify whether the verified STL is to be saved in the same folder of the STL file using the name STLFileName_v.stl. The verified STL will not be saved if this field is absent. Valid values are Yes or No.	Job Properties
Wait Timeout	3600	The key denotes the allowed wait time to send jobs from the client to the printer. The wait time depends on the client computer and network speeds. If the wait is more than the allowed wait timeout, the ModelerBatch.exe will be aborted. The default allowed wait timeout is 3600 seconds (or 60 minutes).	Job Prepare
Display Error Message	Yes	The key denotes whether to display an error message dialog (i.e. - Pop-up message) if any error happens.	Job Prepare

Running the application

The ModelerBatch.exe application can be invoked from command line or program. The command line format is as follows:

RootDir\bin\ModelerBatch.exe IniFile **ReportFile**

Descriptions:
RootDir - the installation folder of the ProJet client, which can be obtained from the registry by using:

Key = "HKEY_LOCAL_MACHINE\SOFTWARE\3D Systems\3D Modeling Accelerator"
Name= "RootDir"

ReportFile - returns a report to a specified file on the job submission

Note: If a filename is not specified for the report file, the data will be written to a default file named ReportFile.txt. This file will be overwritten every time the modelerbatch.exe or modelerstatus.exe applications are run without a report file specified

The DOS window show below is an example of running the ModelerBatch.exe via command window.
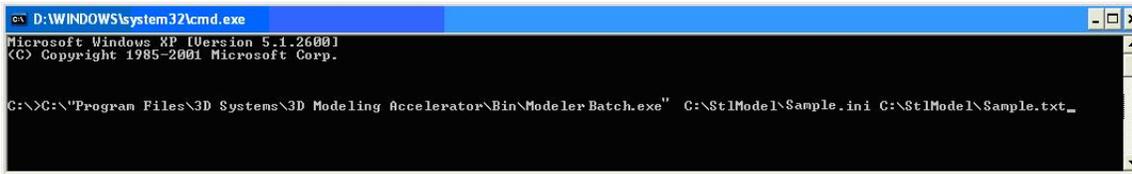
Note: If any of the directories specified in the command script have folders with spaces in the folder name quotes will required around the directory structure for the script to work. If no spaces are present, the quotes are unnecessary.

Example: "C:\Program Files\3D Modeling Accelerator\Bin\ModelerBatch.exe"

Output Report

After a successful run of the modelerbatch.exe application, the job will be submitted to the designated printer's build queue and the application will output a report (ReportFile or IniFile) to the location designated in the command script. The figure below is an example of the report output after the ModelerBatch.exe completion.
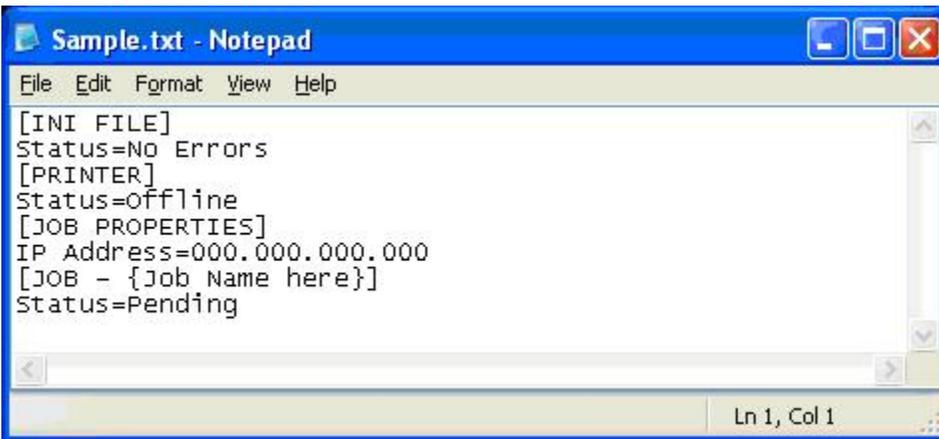
Printer Status Reporting

Setting up Status INI File

Before running the ModelerStatus.exe, a text file must be created that specifies the desired machine. See example below.
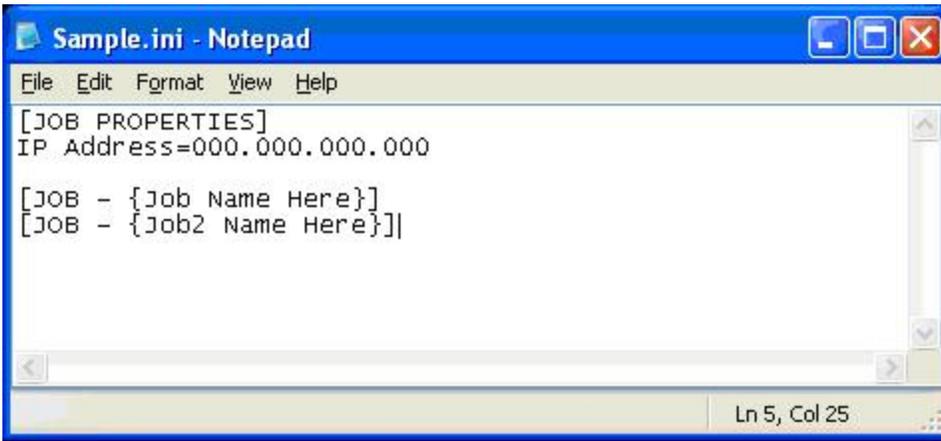
The table below provides a description of the Printer Status INI parameters.

Section Name	Parameter Name	Default Value	Description
JOB PROPERTIES	IP Address	N/A	IP address of the designated printer, e.g., 192.168.0.2 or 192.168.000.002
JOB - JobName	N/A	N/A	The job names are not necessary to request current printer status. However, individual job status will only be returned to the output ReportFile if the job names are specified in the INI file. The job name is formatted as "JOB - username@ComputerName-####", where #### represents the 4-digit job number.

Running the application

The ModelerStatus.exe application can be invoked from command line or program. The command line format is as follows:

RootDir\bin\ModelerStatus.exe IniFile **ReportFile**

Descriptions:
RootDir - the installation folder of the ProJet client, which can be obtained from the registry by using:

Key = "HKEY_LOCAL_MACHINE\SOFTWARE\3D Systems\3D Modeling Accelerator"
Name="RootDir"

ReportFile - returns a report to a specified file on the job submission

Note: If a filename is not specified for the report file, the data will be written to a default file named ReportFile.txt. This file will be overwritten every time the modelerbatch.exe or modelerstatus.exe applications are run without a report file specified.

The DOS window show below is an example of running the Modelerstatus.exe via command window.
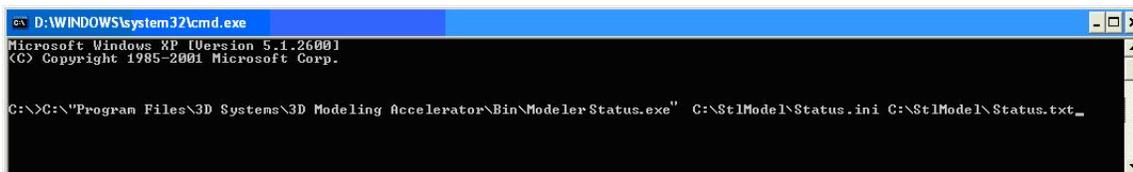
Output Report

After a successful run of the modelerstatus.exe application, the application will output a report (ReportFile or IniFile) to the location designated in the command script. See example below.

If building in UHD Mode, "Number of Parts" includes the Verification Strip in the part total.

After a machine is put "Online", there is a period of time that a job takes to initialize. During that time, the Status returned will be "Not Printing" and the End Time, Total Build Time and Remaining Build Time will all report "Not Estimated". Once the state changes to "Printing", these values will be reported accurately.

Exit Error Codes

The Printer Batch Processing applications including ModelerBatch.exe and ModelerStatus.exe will return exit error codes if there are any issues while the application is running. The following table gives a description of each possible error code that may be reported while running either application.

Exit Error Code	Error Description	Suggested Solution
0	No Error	
500	The iniFile is not specified for batch processing	Specify the parameter IniFile as the argument
501	The specified iniFile does not exist or cannot be opened	Please make sure the IniFile exist
502	IP Address field not present	Add the IP address
503	IP address cannot be validated	Check the IP address
504	Number of Parts field does not present	The number of parts must be specified and larger than 0.
505	STL file for Part# can not be found	Missing the STL file. Make sure it exists and accessible.
506	Communication error. Unknown printer type or unconnectable printer.	Please check IP address.
507	Verification Strip file cannot be found.	Reinstall the client or restore the verification strip files.
508	Wait timeout.	Please verify the network and increase the wait timeout in the IniFile.
509	Cannot connect to the printer.	Please check IP address.
510	Part outside platform or exceed platform size	Check the size and position of all parts to ensure that they will fit inside the platform
511	Too much part data for Auto Part Placement or Quick Build Placement	Please not use Auto Part Placement or Quick Build. For example, use Print Preview and manually position the gemetries.

8.10 Shrink Compensation for ProJet VisiJet® Materials

Material shrinkage occurs in thermoplastics as they transition from liquid state to solid state during the curing process.

The ProJet Accelerator Client Software has features that allow the user to compensate for the natural shrinkage of the material in order to fine tune the accuracy of a part.

These shrink compensation values serve as general guidelines to setting shrink compensation. Part building and cleaning in a controlled process will best determine the optimal shrink compensation values for a particular geometry.

SHRINK COMPENSATION VALUES FOR VISIJET® PART MATERIALS

Material	X value	Y value	Z value
Navy, Grey & ProPlast	1.01%	1.01%	0.00%
ProCast	1.01%	1.01%	0.00%
Crystal	0.50%	0.25%	0.00%
Dentcast	1.01%	1.01%	0.00%
Stoneplast	1.01%	0.75%	0.00%
MP200	0.48%	0.39%	0.00%
DP200	0.5%	0.5%	0.00%

1. Enter Standard Shrink Compensation Values for the material.
   a. Open ProJet Accelerator Client software and select the desired printer.
   b. Select the part to build.
   c. Select the "**Options**" button.
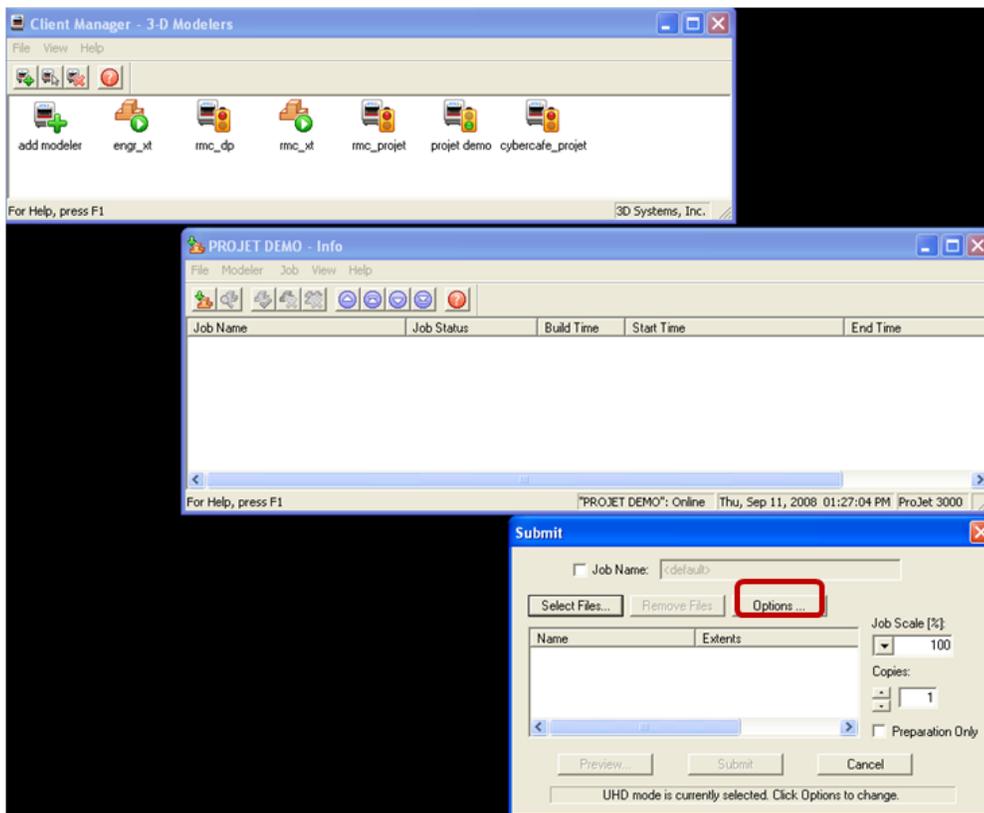
d. Within the Options panel, enter shrink compensation values for X or Y. Z compensation is rarely necessary (see table above for the values).*
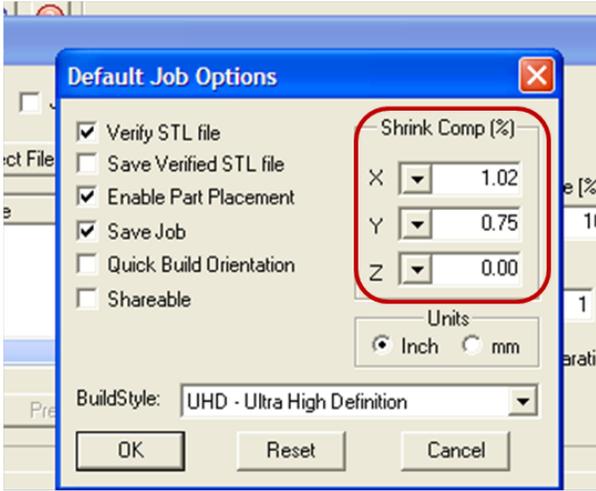
2. Identify the exact X and Y dimensions of the part using a CAD program.
    a. Most CAD programs and simple stl file viewers will provide a way to view a part with its dimensions.
    b. Make note of the actual X and Y dimensions as XCAD and YCAD.

3. Build and clean the part and take measurements of the finished part.
    a. It is recommended to measure along the critical dimensions of the geometry, take measurements in multiple areas and take an average of the values.
    b. Measurements can be made using calipers or more advanced metrology methods.
    c. Make note of the X and Y dimensions of the printed part and mark them as XPART and YPART

NOTE: If the measurement of the finished part is different from the measurements of the CAD model, fine tune the accuracy using scaling factors.

4. Determine "Scaling Factor" to use for the next build
    a. Use the following formula calculate the scaling percentage to be used on the "fine tuning" build:

X Scaling Factor = (XCAD - XPART)/ XCAD * 100 (answer will be as a percentage)
Y Scaling Factor = (YCAD - YPART)/ YCAD * 100 (answer will be as a percentage)

EXAMPLE:
X measurement of CAD model = 3.000"
Y measurement of CAD model = 5.000"
X measurement of printed part = 2.998"
Y measurement of printed part = 4.989"
X Scaling Factor = (3.000 – 2.998)/3.000 *100 = 0.067%
Y Scaling Factor = (5.000 – 4.989)/5.000 * 100 = 0.22%

5. Enter "Scaling Factor" for adjustment build
    a. Open ProJet Accelerator Client software and select the desired printer.
    b. Select the part to print
    c. Open Print Preview to view the part. Select the part (color should be yellow)
    d. Select the "Scale" Icon and enter the dialog box to enter the above scaling factors.
    e. Uncheck the "Isometric Scale" button. This allows user to make individual x and y adjustments.
    f. In the example above the x scaling factor should be 100% + 0.067% = 100.067%
    d. The y scaling factor should be 100% + 0.22% = 100.22%
    e. Enter these two numbers in the corresponding scaling boxes for x and y.

Scale Selected Parts

☐ Isometric Scale   100 %

X	Y	Z
100.067	100.22	100	%

Notice: Input scale value relative to the orignal model.

Apply   Close
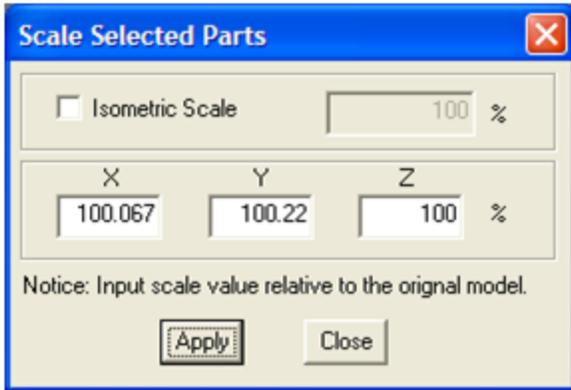
6. Build Part with Scaling Factors and measure

   a. Additional iterations of adjusting scaling factors and taking measurements may be necessary with certain geometries.

09.0 Maintenance

The following general maintenance procedures provided must be accomplished to help maintain high part yield and to lower printer's down time.

When changing material bottles during printing, molten material may be present in the MDM holder after the bottle is removed. If a large pool of material is present (latch is submerged and walls of MDM are reached), do not place a clean material bottle into holder. The holder will require cleaning before inserting a new bottle.
Caution: The MDM holder and molten material will be hot; avoid touching the sides of the holder during the cleaning process. Wear heat resistant gloves and goggles.
To Clean:

- Insert a lint free cloth to absorb the material in the MDM holder.
- Using a long tool, such as tongs; remove the saturated cloth from the holder and place in a waste bag. Continue to clean the holder until all material is removed.
- After the holder is clean, ensure there is no debris or lint left inside of holder.
- Dispose of waste material and according to your local codes.

- 9.1 Cleaning Surfaces
- 9.2 Cleaning the User Interface Touchscreen
- 9.3 Cleaning the Waste Drawer
- 9.4 Cleaning MDM Bottle Holders
- 9.5 Return Printer for Repair

9.1 Cleaning Surfaces

- Do not remove any outer panels when cleaning the printer. Panels must only be removed by qualified 3D Systems Technical Support Representatives.

1. Remove dust from outer surfaces of printer by wiping with a clean, dry, lint-free cloth.
2. Remove dirt and grease from printer's outer surface by spraying all-purpose cleaner on a clean cloth and gently wiping.

 Caution: Use only non-abrasive, alcohol-free cleaners to clean surfaces. Do not use all-purpose cleaners containing petroleum-based polishing agents such as liquid wax. Spray cleaner on cloth, not on surface. Do not use cleaning solvents on build chamber window doing so can damage the protective UV coating.

3. Gently wipe dirt and build material residue from operator control panel using a ammonia-based glass cleaner on a clean, lint-free cloth.

- Remove print platform before cleaning the operator panel. This will prevent the printer from initiating any actions if controls are accidently pressed.

Cleaning the Material Drawer

Using Isopropyl alcohol and lint free cloth, dampen cloth with the alcohol and clean around the cartridge holders' surfaces. **NOTE: Do not clean cartridge holders when the printer is running. Allow cartridge holders to cool before cleaning the interior of holders.**

9.2 Cleaning the User Interface Touchscreen

⚠	**CAUTION: If the LCD panel breaks, be careful not to get the liquid crystal on your skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. If the panel is cracked, and the panel is functional, do not use the touchscreen, contact your 3D Systems certified service technician or your servicing reseller.**

The touchscreen can be clean with a water base solvent such as Simple Green.

Do not Use:

- A dry cloth on the touchscreen*
- Any cleaning products that contains acetone, MEK or alcohol
- Any abrasive cleaning products
- Using these cleaning products can damage the touchscreen.*

NOTE: Before cleaning, the printer must be idle and not printing to avoid aborting a build.

To Clean the Touchscreen:

- Ensure to spray the cleaner onto a soft cloth; do not use a dry cloth or do not spray cleaner directly onto touchscreen.
- Gently wipe the touchscreen to remove debris.
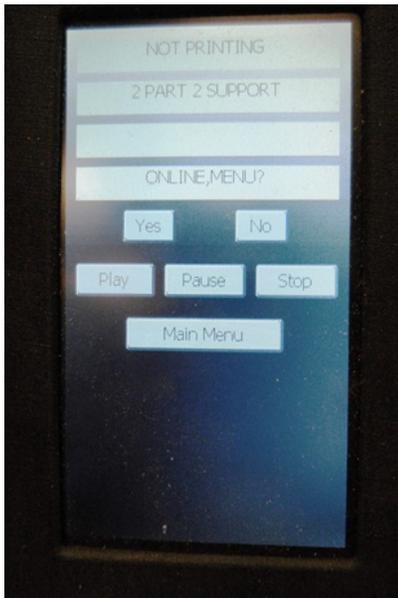
9.3 Cleaning the Waste Drawer

Review VisiJet material handling and disposal safety guidelines in Build Material Safety section of this guide before cleaning the waste drawer.

Clean printer's waste drawer as follows:

1. Verify that the printer is **OFFLINE**.
2. Wear protective gloves. Refer to Personal Protection Equipment.

3. Open waste drawer and remove waste pan.
4. Dispose of pan if required. Refer to Disposal.
5. Gently scrape any material stuck onto interior surface of waste drawer. Use a flexible plastic scraper to avoid damaging the paint.

6. Vacuum inside waste drawer to remove scrapings.
7. Wipe inside surfaces of waste drawer using a clean cloth and all-purpose spray cleaner. Replace waste pan.

9.4 Cleaning MDM Bottle Holders

Cleaning MDM Holders

When changing material bottles during printing, molten material may be present in the MDM holder after the bottle is removed. If a large pool of material is present (latch is submerged and walls of MDM are reached), do not place a clean material bottle into holder. The holder will require cleaning before inserting a new bottle.

> **Caution: The MDM holder and molten material will be hot; avoid touching the sides of the holder during the cleaning process. Wear heat resistant gloves and goggles.**

To Clean:

- Insert a lint free cloth to absorb the material in the MDM holder.
- Using a long tool, such as tongs; remove the saturated cloth from the holder and place in a waste bag. Continue to clean the holder until all material is removed.
- After the holder is clean, ensure there is no debris or lint left inside of holder.
- Dispose of waste material and according to your local codes.

9.5 Return Printer for Repair

Guidelines for repacking the printer

When shipping the printer for service or repair, use the original shipping carton and packing material. Shipping damage as a result of inadequate packing is your responsibility. If you have already disposed of the packing material, contact 3D Systems Customer Support for information on repacking the printer.

10.0 Error Messages

There are three primary types of error messages which could appear on the operator display panel of your printer. The primary types of error messages found will be Build, Material, and 10.3 Status and Message Lines.

NOT PRINTING

2 PART 2 SUPPORT

ONLINE,MENU?

Yes   No

Play   Pause   Stop

Main Menu

10.1 Build Messages

Use these messages to help you manage print jobs before, during, and after printing. The causes of and actions to take in response to various messages are described in the following table:

MESSAGE	CAUSE	ACTION
XX:XX.......XX:XX 2 SUPPORT....2 PART PRINTING	The printer is currently building. The display shows the elapse and remaining build time on the top line and the number of material cartridge in the on the second line. **NOTE** Add material when material cartridges are not in the material drawer.	None
NOT BUILDING	The printer is ready to build.	Press **Play** to bring printer online or **Main Menu** to view the touchscreen options.
ProJet™ [X.X] month dd yyyyTIME XX:XX:XX	When printer is initially powered-up the latest version of software is briefly displayed. **NOTE** This is the ProJet printer's control code version; not the ProJet Client software version.	None

10.2 Material Messages

Use the following messages to help manage build jobs before, during,and after building. The causes and actions to take to various messages are described below:

MESSAGE	CAUSE	ACTION
#X PART	The current number of black build material cartridges in the right side of material drawer.	None
#X SUPPORT	The maximum number of white support material cartridges in the left side of material drawer is two (2).	Add support material cartridges.
ADD PART	The maximum number of build material cartridges in the right side of material drawer is two (2).	Add build material cartridges.

10.3 Status and Message Lines

Messages appear either on the Status line or the Message line. Read both lines together to determine the exact state of the printer. The Status line generally indicates current state of the printer. The Message line shows the action to take to complete a function and move to the next step.

MESSAGE	CAUSE	ACTION		
ABORT	**Stop** button pressed. Refer to abort build job.	Press **YES** to abort or **NO** to cancel the command.		
ABORT ACKNOWLEDGED	You confirmed an abort command. The printer is aborting the current job.	None. Refer to abort build job.		
BUILD PAUSED	**PAUSE** button pressed during the build. The build platform moves forward and the chamber door and waste drawer remain locked. When you press **PAUSE** button during a build, the printer completes its current task before stopping.	Press **PAUSE** to continue. Refer to pause build job.		
CLEANING PRINTHEAD	The printer is cleaning the build jets.	None. (This occurs automatically before every build.)		
CLOSE DOORS	The chamber door is open.	Close the chamber door.		
CONFIRM PLATFORM CLEAR OR CANCEL	The printer is prompting you to verify the platform is clean and clear of obstructions. Refer to installation of build platform.	Verify the platform is clean and clear, then press **YES** to continue or press **Stop** to cancel.		
PRESS PAUSE TO CONTINUE	The printer is paused.	Press **PAUSE** to continue or **STOP** to cancel.		
CYCLE POWER TO CONTINUE	A severe error occurred. The printer cannot recover from it and must be switched off.	Cycle power to the printer.If the error message occurs again, contact your Technical Support Hotline.		
DONE REMOVE BUILD	The printer completed building the current job.	Remove the platform. Refer to removal of build platform.		
HOMING PRINTHEAD	The printer is initializing the Z-axis prior to building.	None.		
HOMING X - Y	The printer is initializing the X-axis and Y-axis prior to building.	None.		
INSTALL PLATFORM	The printer cannot detect a platform.	Install a clean platform. Refer to installation of build platform.		
NOT BUILDING	The printer is ready to build.	Press **Play** to build or **MAIN MENU** to list touchscreen options.		
OK TO POWER OFF	The printer completed its internal shutdown procedure and is ready to be shutdown. Refer to printer shutdown.	Toggle power switch on printer rear panel to the OFF position.	NOTE	Before you switch power off, verify you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on.

ONLINE/MENU?	The printer is ready to build.	Press **Play** to bring printer online and to start build, **MAIN MENU** to view touchscreen selections.		
PAUSE ACKNOWLEDGE	The **PAUSE** button was pressed. The printer is acknowledging and complying with the command.	None.	NOTE	If you press **PAUSE** during a print job, the current layer or process is completed before the pause takes effect.
PLEASE WAIT	The printer is cooling to shutdown temperature.	Wait for the printer to complete its shutdown procedures. Refer to printer shutdown.		
PRE-JOB CHECKS	Briefly displayed during printer build preparation.	None.		
BUILDING	The printer is currently building.	Allow the build job to continue or press **PAUSE** or **STOP** to stop building.		
RAISING PRINTHEAD	The printer is raising the printhead so you can remove the platform.	None.		
REMOVE BUILD	The printer completed a build job and unlocked the chamber door so you can remove the platform.	Remove the platform and replace it with a clean platform. Refer to removal of build platform.		
SHUTDOWN IN PROGRESS	You selected the **SHUTDOWN MODELER** menu option, then pressed **YES** twice. The printer is cooling down so power can be switched off. Refer to printer shutdown.	None. **DO NOT switch off the printer while shutdown is in progress.**		
SHUTDOWN COMPLETE	Printer cooldown is complete; printer is ready for power off.	Wait for **OK TO POWER OFF** message, then switch power off at the printer's rear panel.	NOTE:	Before you switch power off, verify you will not need to build parts again soon. It can take several hours for the printer to warm up after you switch power back on. Refer to printer shutdown.
STANDBY	The printer is in energy-saver mode. All internal subsystems are partially cooled and the printer is inactive.	None. The printer will warm to operating temperature when you press any button or submit a build job.		
WAITING FOR JOB	The printer is online, but there is no build job in it's queue. The printer is ready to build as soon as it receives a job.	Submit a build job to the printer. Refer to submit a build job.		
WARMING STAGE [4,3,2,1]	The material heaters and printhead jet heaters gradually warm up to either standby or build temperature.	None. The numbers on the Operator's Panel displays the count down as the printer warms up. At **Warming Stage 1**, all heaters and material are at build temperature.		

11.0 Troubleshooting

If problems occur with the printer, error messages display on the Operator's panel. Refer to appropriate troubleshooting table for assistance. There may be times when an unrecoverable error message will appear and will require a call to Technical Support Hotline. Prior to contacting Technical Support Hotline ensure you have serial number of the printer, a brief description of the problem including exact error message displayed on the panel, and when the problem occurred (while submitting a job, during the beginning or end of the build, after power off recovery, etc.).

- 11.1 Communication Errors
- 11.2 Head Maintenance Station Errors
- 11.3 Material Feed and Waste System Errors
- 11.4 Material Quality Guarantee Errors
- 11.5 Motion System Errors
- 11.6 UV Subsystem Errors
- 11.7 Vacuum Regulator Errors
- 11.8 Power Outage

11.1 Communication Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: No machine Identification (ID)	No network connection.	Ensure you have a valid network connection. Cycle power to the printer. If error message occurs again, contact your Technical Support Hotline.
evm6x_hpi_open()	A communication error occurred.	Cycle power to the printer. If this does not restore communication, contact your Technical Support Hotline.
evm6x_init_emif()	A communication error occurred.	Cycle power to the printer. If this does not restore communication, contact your Technical Support Hotline

11.2 Head Maintenance Station Errors

MESSAGE	CAUSE	ACTION
HMS ERROR Recovery	An error occurred during printhead maintenance (cleaning the printhead before beginning a build).	Cycle power to the printer. If error message occurs again, contact your Technical Support Hotline.

11.3 Material Feed and Waste System Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: AirPurge 1 (or 2) Not Responding	Fault detected in control circuitry.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.
RT_ERROR: AirPurge 1 (or 2) Position Error	Fault detected in control circuitry.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.
RT_ERROR: AirPurge 1 (or 2) Position Error	Fault detected in control circuitry.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.
Material 1 (or 2) Pump Engage Error	A new cartridge has been installed but did not satisfy the sensors.	Contact your Technical Support Hotline.

11.4 Material Quality Guarantee Errors

MESSAGE	CAUSE	ACTION
Support (or build) material cartridges not detectedd	Printer is out of material cartridge.	- Add the specified material cartridge, install a clean build platform and repeat the build job. - If error message occurs again, contact your Technical Support Hotline.
Support (or build) material cartridge not melted	A cold cartridge was added to the and it did not have enough time to melt before the printer requested material.	The build will abort if it needs to use the questionable cartridge to finish the build. - Install a clean build platform and repeat the build job after the printer has reached build temperature. - If error message occurs again, contact your Technical Support Hotline.
Support (or build) material cartridge expired	The material identification system detected expired material.	Follow the discard instructions posted on the touch screen.
Support (or build) material cartridge incorrect type	A material cartridge was inserted into the wrong holder.	The build will abort if it needs to use the questionable cartridge to finish the build. - Follow the discard instructions posted on the touch screen. - If error message occurs again and you have inserted the correct material cartridge into the correct holder in drawer, contact your Technical Support Hotline.

11.5 Motion System Errors

MESSAGE	CAUSE	ACTION
X-Following ERROR	An attempt to open the build chamber door was made, or position sensor errors occurred.	Ensure the build chamber door is secured, then cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.
Negative Firing Delay	Variations in scanning axis velocity.	Cycle power to the printer. If error message occurs again, contact your Technical Support Hotline.
Pause Timeout ERROR	Position sensor contamination.	Cycle power to the printer. If error message occurs again, contact your Technical Support Hotline.

11.6 UV Subsystem Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: UV Lamp Power Too Low	UV sensor detected a possible fault.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline. **CAUTION** To prevent skin exposure to uncured part material, do not handle parts in a build without wearing gloves if a UV lamp problem occurred during the build.

11.7 Vacuum Regulator Errors

MESSAGE	CAUSE	ACTION
RT_ERROR: Printhead Vacuum Low	Indicates a fault within the vacuum system.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.
RT_ERROR: Printhead Vacuum High	Indicates a fault within the vacuum system.	Cycle power to the printer. If error message occurs again, contact your Techncial Support Hotline.

11.8 Power Outage

If you are present during a power outage, or discover the main power OFF, complete the following steps:

1. Switch power OFF on printer's rear panel so it does not automatically start when power is restored. This prevents printer damage due to power flickers and surges.

2. When power is restored and stable, switch printer power ON on the rear panel.

If power outage occurs and is restored before anyone can take action, the printer will recover as follows:

The printer advances through warming stages until reaching the required build temperatures. If printer was not building when power outage occurred, the top line on the LCD panel will display "**Not Building**" and bottom line will display "**Online/Menu**?". The printer is ready to accept a build job.

If printer was building when the power outage occurred, the LCD panel will display "**Power Off Recovery**" after power is restored and printer has reached build temperature. This safety feature prevents accessing incomplete build until all build conditions are satisfied. Once occurred, the job will end, the LCD panel will display **"Done Remove Build"** and the build platform will move forward, and can be removed and repeat build job if desired.

NOTE	If the printer is in Power Off Recovery, the build chamber will not be able to open until printer completes recovery.

12.0 Finishing

When the build is complete, refer to the VisiJet® Material Handling and Post-Processing Guide for information on how to detach parts from build platform, remove support material from parts, and clean parts to a smooth finish.
Basic part coating and equipment maintenance recommendations are also included.

13.0 Projet™ Spare Parts List

13.1 Consumables and Replacement Modules

To view the parts and modules that are available, click on the Projet™ Spare Parts Locator.

14.0 Other Documents

- 14.1 Parts Finisher User Guide
- 14.2 Material Safety Data Sheets (MSDS- SDS)
- 14.3 Projet™ Quick Reference Guide
- 14.4 Facility Requirements Guide
- 14.5 VisiJet® Material Handling and Post-Processing Guide

14.1 Parts Finisher User Guide

When the build is complete, refer to the Parts Finisher Guide for information to detach parts from build platform, remove support material from parts, and clean parts to a smooth finish.
Basic part coating and equipment maintenance recommendations are also included.

14.2 Material Safety Data Sheets (MSDS- SDS)

To obtain a copy of the Material Safety Data Sheet (MSDS) or a Safety Data Sheet (SDS), click on the 3D Systems MSDS/SDS link. 3D Systems MSDS/SDS

14.3 Projet™ Quick Reference Guide

14.4 Facility Requirements Guide

Projet™ 3-D Modelers Facility Requirements Guide

14.5 VisiJet® Material Handling and Post-Processing Guide

VisiJet® Material Handling and Post-Processing Guide

15.0 Service and Support

15.1 Contacts

For information, questions, or comments about your ProJet™ 3-D printer system(s), VisiJet® materials, or request service, please contact a 3D Systems Customer Service or Sales Representative nearest you.

3D Systems
333 Three D Systems Circle
Rock Hill, SC 29730 USA
tel: 803.326.4080
fax: 803.324.8810
toll free: 800.889.2964
email: moreinfo@3dsystems.com
www.3dsystems.com
Nasdaq: TDSC

Customer Support Hotline

U.S.A. 800.889.2964

Asia-Pacific (+852) 29 23 50 77

Europe (+49) 6151 357-0

Sales and Service

FRANCE tel (+33) 1 69 35 17 17	ITALY tel (+39) 039 68904 00
GERMANY tel (+49) 6151 357-0	JAPAN tel (+81) 3 5451-1690
HONG KONG tel (+852) 29 23 50 77	UK tel (+44) 1442 282 600
SWITZERLAND tel (+41) 26 439 95 90	

15.2 How to Order Parts

New and refurbished parts made by 3D System's manufacturer are used when performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems, are parts or systems that have been returned to 3D Systems, some of which were never used by a customer. All parts and systems are inspected and tested for quality. Replacement parts and systems are covered for the remaining period of the limited warranty for the product you bought. 3D Systems owns all parts removed from repaired products.

To order replacement parts, contact 3D Systems Customer Service Support or contact your local reseller.

When contacting 3D Systems Customer Service Support, have your printer serial number available to give to customer support.

16.0 Online Help

Find Help topics on the Content Pages of each section.

- 16.1 Frequently Asked Questions (FAQ)
- 16.2 Getting Help
- 16.3 Build Material
- 16.4 Printer Hardware and Installation
- 16.5 Facility Requirements

16.1 Frequently Asked Questions (FAQ)

General

What is rapid prototyping?

Rapid prototyping(RP)is the process of building a part from a 3D Cad drawing and converting the drawing format into an .STL file. When the printing event takes place in the printer, it is constructed layer by layer using Accura VisiJet® materials.

What is 3D printing?

A type of rapid prototyping, typically defined by faster, more affordable, and easier-to-use technologies.

How does 3D Printing fit into the design process?

For a growing segment of designers using 3D CAD drawing, the ProJet Printer is quickly becoming an essential extension of overall CAD systems and a critical part of the entire design process by:

- Accelerating Time to Market - through shortening design and development cycles and ultimately get products to market more quickly enabling users to easily fine tune design and explore multiple design configurations.

- Generating Savings - by helping companies significantly lower production costs and reducing expensive revisions late in the development cycle.

- Enhancing Communication and Collaboration - through bringing ideas off flat screens and producing functional parts that can be easily shared, critiqued, and improved upon.

- Creating Better Designs - designers are no longer limited to the number of parts they can produce and test, resulting in more creative designs and better final products.

- Ensuring Confidentiality - eliminating the need to exchange confidential design files with service providers, allowing companies to maintain product confidentiality and control.

How does the 3D Printing process work?

The printer builds functional 3D prints from the bottom up, one layer at a time.
STL files are imported into the printer that automatically slices and orients the parts and creates any necessary support structures. The materials are fed into the printer in a heated semi-liquid state and accurately deposited in layers upon the build platform. After completion of the build, support structures are simply removed through a post curing process.

How do materials create accurate, detailed, and durable parts from your 3-D CAD designs?

Popular applications include concept parts, casting forms, prototype parts, and specialty tools. All the specific physical and process characteristics of VisiJet materials are detailed in VisiJet material safety data sheet.

Is post-processing required?

Yes, upon removing the part from the printer you will need to remove the support material from VisiJet® parts. The parts finisher makes removing bulk support material from VisiJet parts efficient and easy. Forced airflow and precision temperature control deliver faster, shorter, and more predictable VisiJet part finishing times.

Are there any special facility requirements or operating systems necessary to install and operate the printer?

Refer to the ProJet™ 3-D Printer Facility Requirements Guide.

Can more than one user process files and build parts?

Multiple users can send files to the printer build queue, move, delete, and set build priorities in the build queue. Depending on the size of the part, multiple files can be added onto the build platform in one build application.

Can parts be sanded, painted, dyed, and glued?

The parts can be sanded to remove imperfections or layer lines from the surface. After priming, the parts can be painted using any oil- or water-based paint that is compatible with the primer, or you can dye VisiJet parts with candle-craft dyes. You can also use super glue to join parts together.

What is Computer-aided design (CAD)?

Computer-aided design (CAD) is use of a wide range of computerbased tools that assist engineers, architects and other design professions in their design activities. It is the main geometry authoring tool within the Product Lifecycle Management process and involves both software and sometimes special-purpose hardware.

What is a .STL file?

A .stl file is a format used by Stereolithography software to generate information needed to produce 3D parts on Stereolithography machines. It is a triangular representation of a 3-D object. The surface of the object is broken into a logical series of triangles. These triangles represent the surface of the object.

How do I export an STL file from my 3-D CAD program?

Most CAD software offers STL conversion add-ins.

Are the build platforms reusable?

Yes the build platforms are reusable.

How many builds can one material cartridge produce?

This depends on the size and the complexity of the part being built.

If material runs out before the part has completed the build process, does the build abort?

Yes the build will be aborted. Ensure that there is sufficeint amount of materials to complete the build.

When submitting a build, will the 3-d modeling client software inform me if the amount of material is sufficient for completing a build?

The client software will tell you how many cartridges it will take to complete the build.

How do I order parts?

To order replacement parts you will need to contact 3D Systems' Customer Support.

16.2 Getting Help

This section provides quick access to operating, maintenance, troubleshooting, spare parts locator and contact information to 3D Systems Customer Support Centers.

- Projet Spare Parts Locator
- Material Safety Documentation, 3D Systems MSDS
- Contact 3D Systems Corporation

16.3 Build Material

Build Material Safety Guidelines

- Material Disposal
- Material Handling
- Material Safety
- Material Usage
- Spilled VisiJet Material
- Waste Removal

16.4 Printer Hardware and Installation

This section describes the printer setup appications and functions.

Client Hardware & Network Interface
Electrical

- Electrical Safety
- General Safety Guidelines

Ultraviolet (UV) Safety
Unpacking Printer
Network and System Setup
Install Material Cartridges and Print Platform
Installing & Removing Build Platform
Build Process & Previewing Build
Printer Status
Abort Build
Part Removal
Shutting Down System
Notification Messages
Return Printer for Repair

16.5 Facility Requirements

The requirements for electrical and room preparation are specified in the Projet™ 3000 Facility Requirements Guide.

17.0 Glossary of Terms

Build Platform - this part is used by the printer to build parts. Support structures link the part to the build platform and must be removed from the printer once complete.

.stl File -- is a 3-dimensional solid Computer-aided design (CAD) software system used to produce parts.

Material Quailty Guarantee - the printer reads an encrypted RFID tag on the cartridge to communicate parameters and ensure optimum build quality.

Chamber Door - the chamber door prevents harmful UV radiation from escaping the build chamber during the build process. The chamber door must be closed prior to starting or resuming a build job and is locked when a build is in progress.

Printing - the printer uses part and support material to create 3-dimensional plastic prototype parts.

Operator Panel - is used to display build job status, menu options, and command prompts for the printer.

Support Material - is a wax based material that provides adhesion to the build paltform and support for down facing surfaces and open volumes within the parts.

Build/Part Material - is a paste-like acrylic compound that is an ultraviolet (UV) curable material.

ProJet Client Software - is used to setup, run, and manage build jobs.

Shrink Comparison Percentage (Shrink Comp %) - is used to adjust for expected shrinkage during the build so actual part dimensions more closely match actual dimensions.

Job Scale Percentage (Job Scale %) - is used to resize parts during the build process.

Material Delivery System - stores and feeds the materials to the printer during the build process. The MDM hold two support cartridges and two part cartridges.

Waste Material - is any uncured support and/or build material generated during a build process.

Debug Log - is a text file used for obtaining information for resolving potential problems that may occur with the printer.

X-Axis - is the orientation of the part from front to rear on the build platform.

Y-Axis - is the orientation of the part from left to right on the build platform.

Z-Axis - is the orientation of the part height on the build platform.

Post Curing (Finishing) - is the final process to remove support material from parts and clean the parts to a smooth finish prior to surface finishing and coating.

18.0 Index