

Using 3Shape Data in Lava™ Design

Step by Step Instruction

Introduction

This document describes

- How to generate scan/design output from your 3Shape Dental System to be imported into 3M Lava™ design
- How to generate 3Shape Design for 3M Lava™ Digital Veneering System
- How to send these data to a Lava™ Milling Center
- How to import these data into Lava™ Design
- Troubleshooting

All 3Shape D250, D640, D700 and D710 scanners can generate the 3M scan/design output if enabled by the 3Shape reseller. To import the 3Shape scan/design data Lava™ Design **5.40 or higher** will be required.

Installation on 3Shape Dental System

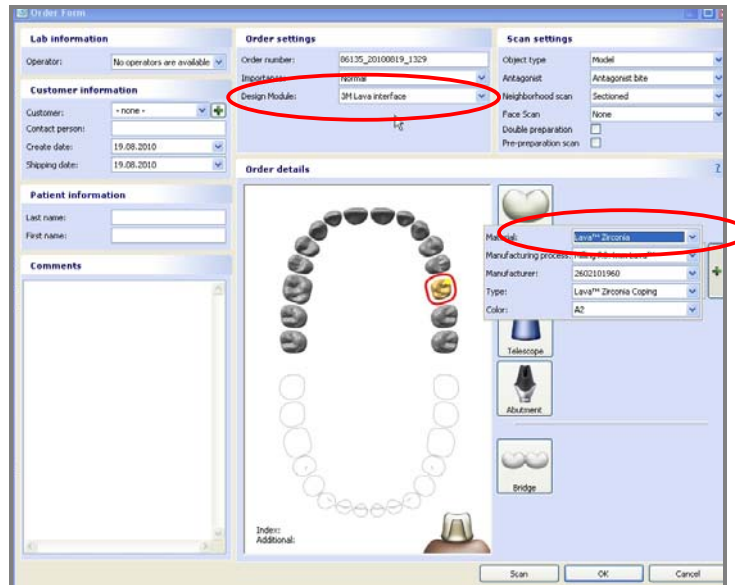
To install the 3M Lava™ output please perform the following steps:

1. Request your 3Shape reseller to send you the “**LavaMaterial ver 4_0.dme**” and to enable the 3M Lava™ output on the dongle.
2. Install the 3Shape Dental System **2.5.5.12** or higher. If already installed update the dongle in the 3Shape Control Panel | Dongle | Internet Update.
3. Obtain the “**LavaMaterial ver 4_0.dme**” files and import all materials using 3Shape Control Panel | Import / Export Material | Import. Accept all materials. It is critical that the import is successful.

Generate 3Shape SCAN output for 3M Lava™

Perform the following steps to generate a 3Shape scan output:

1. Create a new order in DentalManager and select the “3M Lava Interface” for the design module. For material choose “Lava zirconia”. **Please avoid special characters. This could lead in errors when exporting and importing.**



2. Perform the scanning as usual. The Lava quality regarding fit of restorations can only be ensured with a perfect and highly precise scan of a die cut model.
3. After completing the scan click the button “Design”. The “ScanItRestoration” will be closed and an ULDC file will be exported automatically. After a few seconds a message box will announce the export to be successfully completed.



4. The Lave output file (ULDC file) can be found in the order folder for the particular order (press F4 on the order in DentalManager). In case you want to export that file again please double click on the file name.
5. The ULDC file can then be imported into Lava™ Design software using the Lava™ Scan import workflow.

Generate 3Shape DESIGN output for 3M Lava™

Perform the following steps to generate a 3Shape design output:

1. Create a new order in DentalManager, select Indication and the Lava™ material - “Lava™ zirconia”, “Lava™ Wax” or “Lava™ other materials”
2. Perform the scanning as usual. The Lava quality regarding fit of restorations can only be ensured with a perfect and highly precise scan of a die cut model.
3. Perform the CAD design as usual using suggested Lava™ material settings.

Please note that warnings in your CAD Software for wall thickness, connector dimensions etc. are not necessarily applicable for Lava™ restorations. The requirements are described in the instruction for use “Lava Network Open Interface”.

4. After completing the CAD design click on the order in DentalManager and create Lava™ output file (generate CAM output). This file (ULDC file) can be found in the normal manufacturing output folder (<shift> F4 in DentalManager on the order).
5. The ULDC file can then be imported into Lava™ Design software using the Lava™ CAD import workflow.

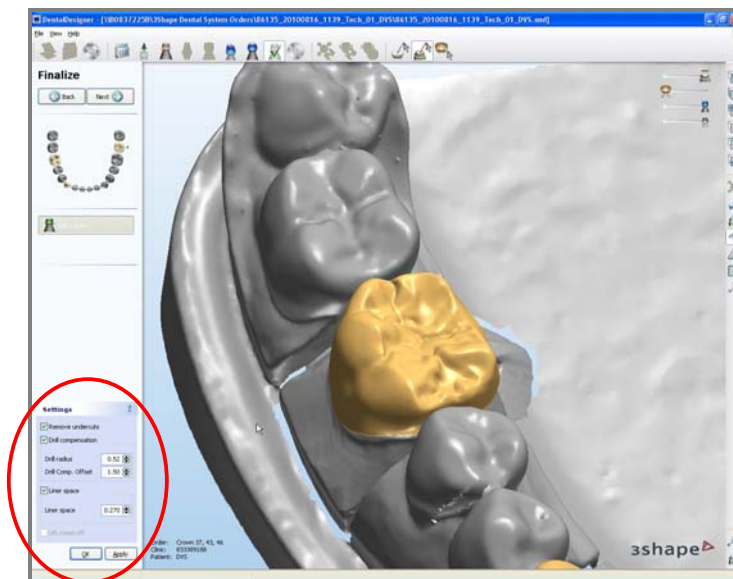
Generate 3Shape Design 3M Lava™ Digital Veneering System

Lava™ DVS is used for production of glass ceramic veneers on Lava™ Frame Zirconia frameworks. The Lava Frame Zirconia framework and die Lava DVS veneer are virtually designed. This can only be successful if sufficient space has been created by preparation. In order to be able to flawlessly mill the blanks as well as to attain a break-resistant restoration and an optimum color effect, the following design guidelines must be observed:

- Minimum wall thicknesses for anterior teeth: Lava Zirconia 0.3 mm*, Lava DVS 0.4 mm* (* is a decisive factor in stability when milling), Due to the additional “Liner space” the minimum overall thickness will be 0.97 mm in total.
- Minimum wall thicknesses for posterior teeth: Lava Zirconia 0.5 mm*, Lava DVS 0.4 mm* (* is a decisive factor in stability when milling), Due to the additional “Liner space” the minimum overall thickness will be 1.17 mm in total.
- Maximum layer thickness of Lava DVS veneer: 1.5 mm (there is a risk of breakage when the veneer is too thick).
- Optimum layer thickness on aesthetic grounds (based on previous experience): 1.1 mm-1.3 mm.

Perform the following steps to generate a 3Shape design for a Lava™ zirconia Framework with a Lava™ Digital Veneering on top:

1. Create a new order in Dental Manager (**Please avoid special characters**), select
 - **Lava™ zirconia “Anatomical Coping”** as Framework and
 - **Lava™ Digital Veneering System “Anatomy Crown”** as Anatomy on top
- comparable to overpress design -
2. Perform the scanning as usual. The Lava quality regarding fit of restorations can only be ensured with a perfect and highly precise scan of a die cut model.
3. Perform the CAD design both for coping and crown as usual using suggested Lava™ material settings.
 - We recommend a regular visual control in the 3D view – also when you are using the cutting functionality. Please always control the penetration of the restoration to the antagonist and adjacent teeth.
 - After splitting the file you can use the function “Lift crown off” to extract the veneering from the coping to control the design regarding holes. To measure the wall thicknesses please use the “Cross section”.
 - „Remove undercuts“ and „Drill compensation“ have to be activated. The activation of “Liner space” with suggested value of **0.270 mm** is also mandatory. Otherwise the coping and the veneer won't fit together. The space is needed for the fusion ceramic.
You find all setting in the working step „Finalize“ when using „Split File“.



Please note that warnings in your CAD Software for wall thickness, connector dimensions etc. are not necessarily applicable for Lava™ restorations. The requirements are described in the instruction for use “Lava Network Open Interface”.

4. After completing the CAD design create Lava™ output files for each order in the Dental Manger (generate CAM output). The so created ULDC files can be found in the normal manufacturing output folder (press <shift> F4 in Dental Manager on the order). In every case you get one ULDC file for the coping (Lava™ zirconia) and one for the crown (Lava™ Digital Veneering System).
5. The ULDC file can then be imported into Lava™ Design software using the Lava™ CAD import workflow.

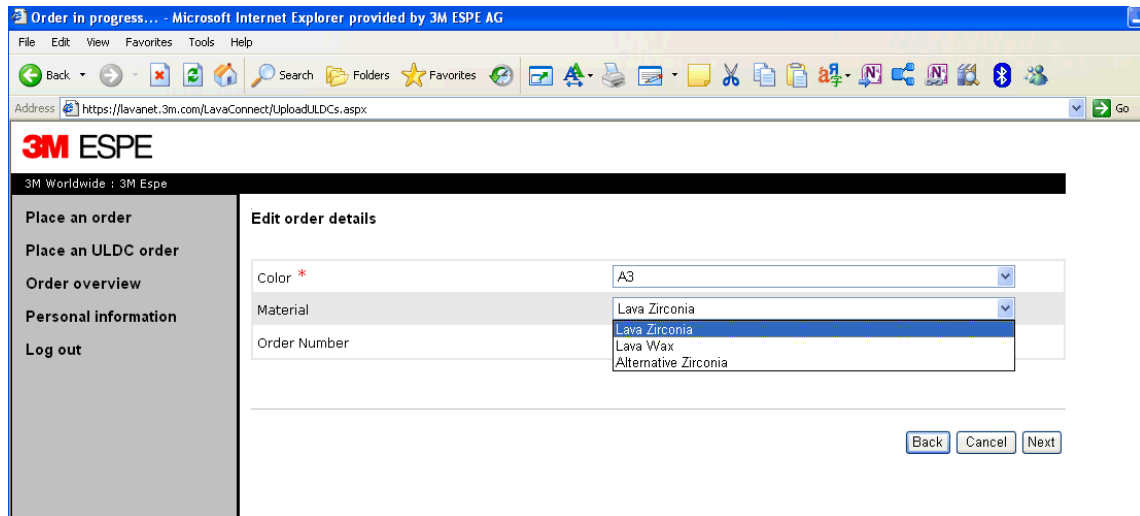
Generate 3Shape DESIGN output for 3M Essential

In order to generate 3M Essential, and not Lava™ Zirconia, you will need to change the material type after you design and upload the file. Perform the following steps:

1. Create a new order in DentalManager, select Indication and the Lava™ material - **“Lava™ zirconia”**, “Lava™ Wax” or “Lava™ other materials”
2. Perform the scanning as usual. The Lava quality regarding fit of restorations can only be ensured with a perfect and highly precise scan of a die cut model.
3. Perform the CAD design as usual using suggested Lava™ material settings.

Please note that warnings in your CAD Software for wall thickness, connector dimensions etc. are not necessarily applicable for Lava™ restorations. The requirements are described in the instruction for use “Lava Network Open Interface”.

4. After completing the CAD design click on the order in DentalManager and create Lava™ output file (generate CAM output). This file (ULDC file) can be found in the normal manufacturing output folder (<shift> F4 in DentalManager on the order).
5. The ULDC file can then be imported into Lava™ Design software using the Lava™ CAD import workflow.
6. **In order to generate 3M Essential, and not Lava™ Zirconia, you will need to change the material type in Lava Connect. Change the material selection from “Lava Zirconia” to “Alternative Zirconia”.**



Send ULDC data to your Lava™ Milling Center

3M ESPE provides a free of charge high secure data transfer platform for sending ULDC files to your Lava™ Milling Center. To use this functionality and to get access to a Lava™ Milling Center you can easily get registered (www.3m.com.....)

After the Registration you will receive username, password and the URL address to use. Afterwards you can start sending data by performing the following steps:

1. Open the link to the data transfer platform (Lava™ Connect) using Internet Explorer 5 or higher. To simplify the process for the next time you can easily place a shortcut on your Desktop.
2. Login with your Username and Password.
3. After your first login please change the Password and complete your personal settings (like address, phone number, e-mail, ...)
4. Now you can upload the ULDC file using the appropriate function in the menu.
5. Select your Lava™ Milling Center.

If you are an ALMC proceed as usual to download ULDC files

For a more detailed description see accompanying documentation "Using Lava™ Connect for ULDC File transfer".

Import 3Shape scan/design Data into Lava™ Design

Perform the following steps to import 3Shape scan/design data:

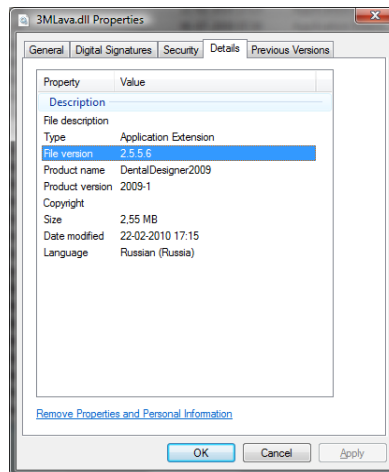
1. Download or copy the 3shape scan/design ULDC data files into the folder D:\LavaData\Import on your Lava™ Design system
2. Choose “open menu”
3. Select the appropriate file in the Download directory and push the button “Open”.
4. Control the data entries in the case information dialogue, correct entries if necessary, and fill in empty fields such as shade. If a required entry is missing (e.g. patient name), an error message will be displayed, prompting for a correction.
Note: Only Lava™ indications are allowed.
5. If an invalid ULDC file is imported an error message will be displayed.

Troubleshooting

- If you have problems with your 3Shape Scanner or your Dental Designer Software during the design or export process please contact your 3Shape service provider.
- If you have problems export the files the problem is related to installation of the interface. To validate the installation please make sure the Lava™ scan out interface is present, see below.

If the interface is not available in the drop down the problem typically related to:

- The “3MLavaCADoutput.dll” was not installed properly. Check the “3MLavaCADoutput.dll” is available in: C:\Program Files\3Shape\Dental System Control Panel\library\DLLs
- The version of the 3Shape Lava™ dll is not matching the Dental System version. Check the version number of “3MLavaCADoutput.dll” by right clicking on the file and select properties. The version should be identical to your Dental System version.



- The output is not enabled on the dongle.

In all cases above please contact your reseller to obtain the *.dll or configure the dongle.

- If you have problems with the data transfer platform Lava™ Connect or your Lava™ Design Software after importing the ULDC file please contact your Lava™ Service Team.
- If you have problems with milling path calculation or the like please also contact your Lava™ Service Team.