



Import of 3D models and scenes from 3ds max to VideoCAD

User manual

1 Introduction

Edition for VideoCAD4..VideoCAD7

VideoCAD has an opportunity for 3D modeling of video surveillance scenes using constructions and models distributed with the program. The distribution kit of VideoCAD includes several most relevant models for CCTV design. Though the standard package tends to be enough for accomplishing most of tasks, there may appear a need for library supplement.

Any 3D models and scenes which can be opened in 3ds max can be added to the VideoCAD library. Lots of 3D models can be downloaded from Internet for free. Some of them are distributed as libraries on CD-ROMs. You can also create models and scenes in 3ds max yourself.

*Google offers a huge open library of free 3D models, **3D Warehouse** <http://sketchup.google.com/3dwarehouse/>*

*To open and edit the Google 3D models, to create and publish your own 3D models you need **Google SketchUp** 3D editor <http://sketchup.google.com/>*

*There are 2 versions of **Google SketchUp**:*

- *a free version that allows to work with 3D models, create scenes, but does not allow exporting these models and scenes in other CAD formats.*
- *the paid version Google SketchUp Pro, allowing to export models and scenes in other CAD formats (including *. 3ds, *. dxf, *. dwg).*

** Paid version has a free trial period*

*File formats *. 3ds, *. dxf, *. dwg may be opened by **3ds max** 3D editor .*

*Thus any of the 3D models from Google **3D Warehouse** may be imported into VideoCAD. You can create entire scenes in **Google SketchUp Pro** and import them into VideoCAD using 3ds max.*

You can order a package for importing 3D models and scenes from free Google SketchUp directly, without 3ds max. [Click here for details](#).

This manual presents a step-by-step description of insertion a new 3D model into the VideoCAD library.

You don't have to be a proficient user of **3ds max** provided you have a ready-made model. You might need supplemental information, though.

Only VideoCAD Lite and Professional versions support import of new 3D model.

2 Model preparation

1.1 Start 3ds max.

3ds max version 6 was used in making this manual, but there are no limits on other versions.


1.2 Open or import a model from file. **File>Open** or **File>Import**

1.3 Adjust the model to **scale**. Model scale: **1 unit in 3ds max = 1cm in VideoCAD**. For example, a human being of 1.8m height should take 180 units on **Z** axis. Use the **Select and Uniform Scale**

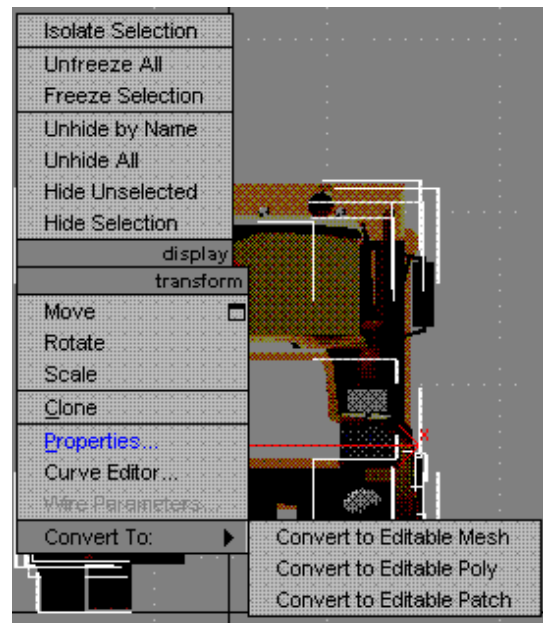
button  on the **Toolbar**.

Later on, in **VideoCAD6 and later versions** you can change the sizes of model during placing and editing.

1.4 Move the model to **origin of coordinates**. In **3ds max** it will comply with a click point in

horizontal projection of **VideoCAD** when allocating the model. Use the **Select and Move**  button on the **Toolbar**.

1.5 Convert the model into **Editable Mesh**. For this, select the model, click the right mouse button at the model to choose **Convert to:>Convert to Editable Mesh** in the pop-up menu.



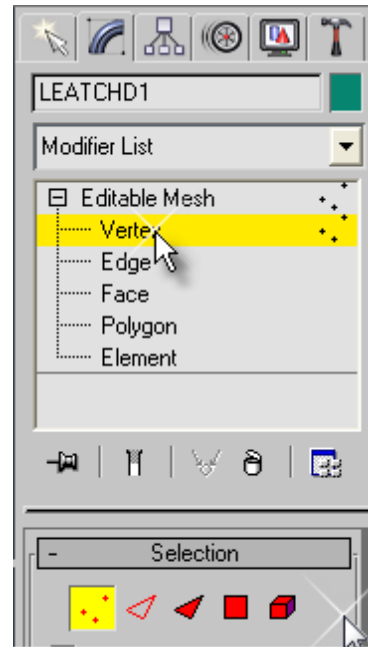
1.6 Divide the model into **separate objects**. Every detail having its own color must be a separate object. If your model does not comply with this rule, divide it into separate objects, otherwise you will have a single color model.

To divide the model:

1.6.1 Perform item **1.5**.

1.6.2 On the rollout on the right, in the **Editable Mesh** tree choose **Vertex**.

1.6.3 Keeping **Ctrl** pressed, select all vertices of the model part, which is necessary to detach.

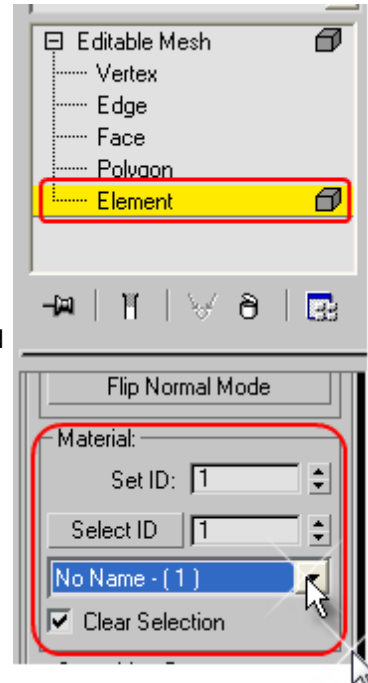


In case of the model consists of elements, in the item **1.6.3** instead of **Vertex** it is possible to choose **Element**.

Then scroll the rollout downwards and choose the element on the **Material** panel. Or select by clicking the element which is necessary to detach.

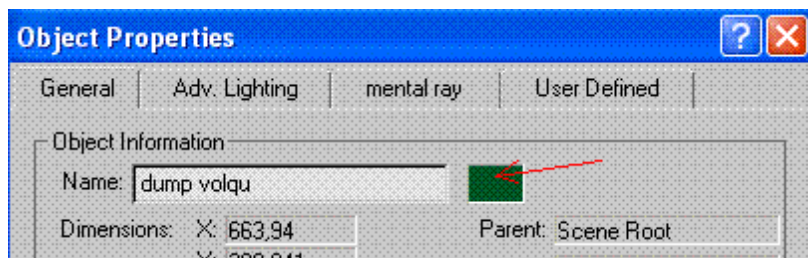
As a result the part of model, which is necessary to detach, will become selected.

1.6.4 Right-click on the selected part of model and choose **Detach** in the pop-up menu. Click in the appeared dialog box.



1.7 Assign every object the **color of grid** corresponding to the **real color of that detail**. For that you should select the object, click the right mouse button at the object to choose **Properties** in the pop-up menu. Choose the color by clicking the rectangle in the **General** tab.


Textures and materials are ignored in exporting. It is only the color of grid that matters.



1.8 It is recommended to simplify complex 3D objects which contain many vertices using the **MultiRes** modifier. See the 3ds max **Help system** for more details of the **MultiRes** modifier.

3 Model export

2.1 Copy **VideoCAD.ms** script file from the **files** folder in this archive to **/Scripts/** folder in the installation directory of **3ds max**.

2.2 Choose **Utilities**  in the **Command panel** of **3ds max**.

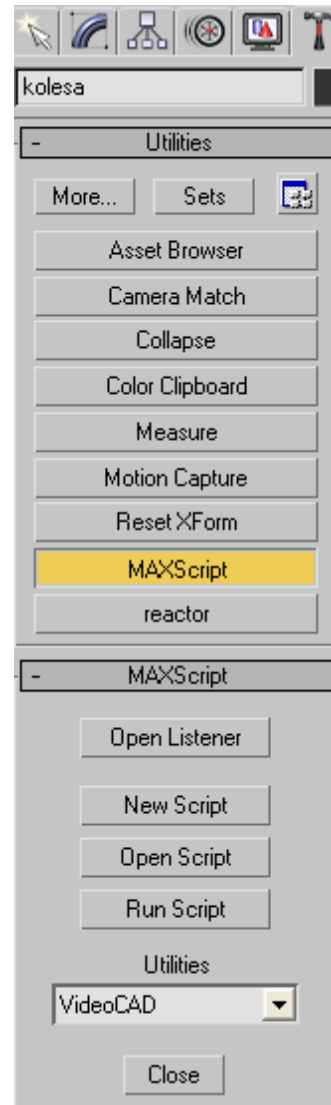
Then click **MAXScript** in the **Utilities panel**.

Click **Run Script** in the rollout.

Choose **VideoCAD.ms** file in the **Choose Editor File** dialog and click **Open**.

Choose **VideoCAD** in **Utilities** combo box on the **MAXScript** rollout.

Scroll the rollout until you find the interface of **VideoCAD** script.



2.3 Choose any **unique integer number** in **Model ID** box. All models in VideoCAD must have different IDs. Models with equal IDs will lead to errors in displaying. It is recommended to set ID not less than 100.

2.4 If the **Selected Only** checkbox is selected, only selected objects will be exported. Otherwise – all the objects of the scene.

2.5 If you have a **car** as an object and you want it to be displayed with **license plates** – select boxes in **License plates** panel:

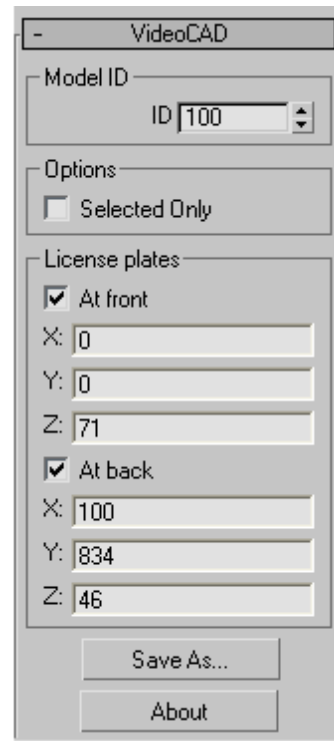
At Front – to display the front license plate

At Back – to display the back license plate

Insert **coordinates of the front and back license plates** into **X,Y,Z** boxes in **3ds max units (centimeters in VideoCAD)**. You can read out the coordinates at the bottom of the program window placing cursor at the desired point for license plate.

Having a different model but car leave boxes in the License plates panel empty.

2.6 Click the **Save As** button, enter the file name with *.**vcm** extension and click **Save**. The export operation can take some time depending on the complexity of model.



4 Insertion the model in VideoCAD

Only VideoCAD Lite and Professional versions support import of new 3D model.

3.1 Copy the *.vcm file of your model to **/Models/** folder in VideoCAD installation directory.

3.2 Start VideoCAD. The new model will appear in the **Constructions>3D model** menu. You can place it, and watch it through video cameras. Though you will not have the image of the model in the Graphics window. It will look like a gray rectangle instead.

3.3 Place the model and a camera next to it. Direct the camera downwards at the model. In **3D window main menu** choose **Image>Save as *.bmp** and save the image into the file.
The model image size in pixels must be minimum-acceptable not to slow-down redrawing speed.

3.4 Open the obtained image in **Paint** or another graphics editor and cut it out exactly along the borders. Fill the free gaps with **Teal color** (it will be transparent when displaying the model projection).

3.5 Rename the *.bmp file with the same name as the *.vcm model file and copy it to **/Models/** folder in VideoCAD installation directory.

3.6 If you are going to place model not only in the horizontal projection, but also in the vertical projection (it is possible since VideoCAD 6), then make side view image of the model in the same way as you have made the image of model view from above (items **3.3, 3.4**).
Rename the obtained *.bmp file with the same name as the *.vcm model file but with the '_v' ending and copy it to **/Models/** folder in VideoCAD installation directory.

3.7 Start VideoCAD. The new model is ready for use.

This manual is accompanied by the sample file **truck.max** and resulted files of a truck model with license plates **truck.vcm**, **truck.bmp**, **truck_v.bmp** and **truck.bmp**. You can find these files in the **files** folder.

Wishing you success in using VideoCAD!

Please, do not hesitate to ask for more information and technical support info@cctvcad.com.