



## QuickVolumes – User Manual



Version 1.0

May 2019



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## 1. Introduction

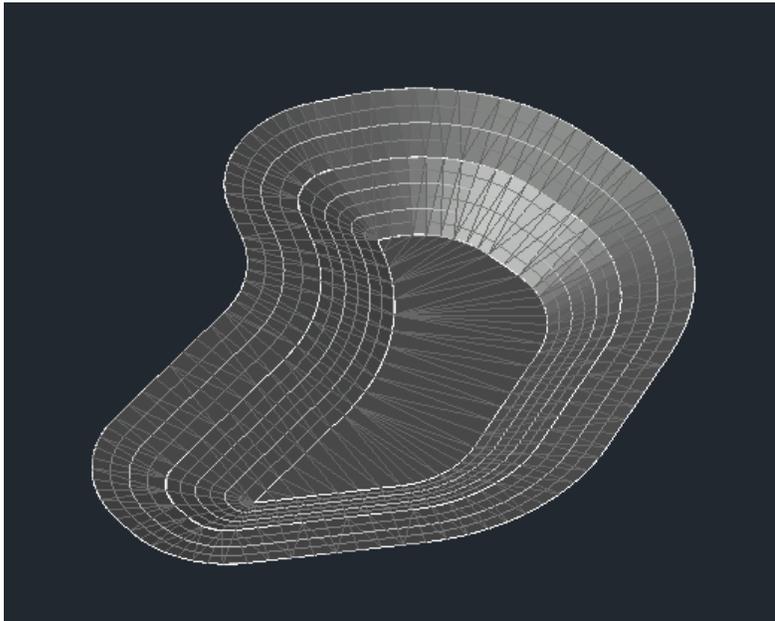
The *QuickVolumes* app for AutoCAD® Civil 3D® calculates the cumulative volume of a lake, pond or a reservoir by automating the creation of multiple TIN Volume Surfaces at a user-defined elevation interval. The app creates a table that shows the stage and accumulated volumes at each elevation interval, which can be easily exported to Microsoft Excel. **The app works both in imperial and metric units.**

### *Lake Bathymetry*

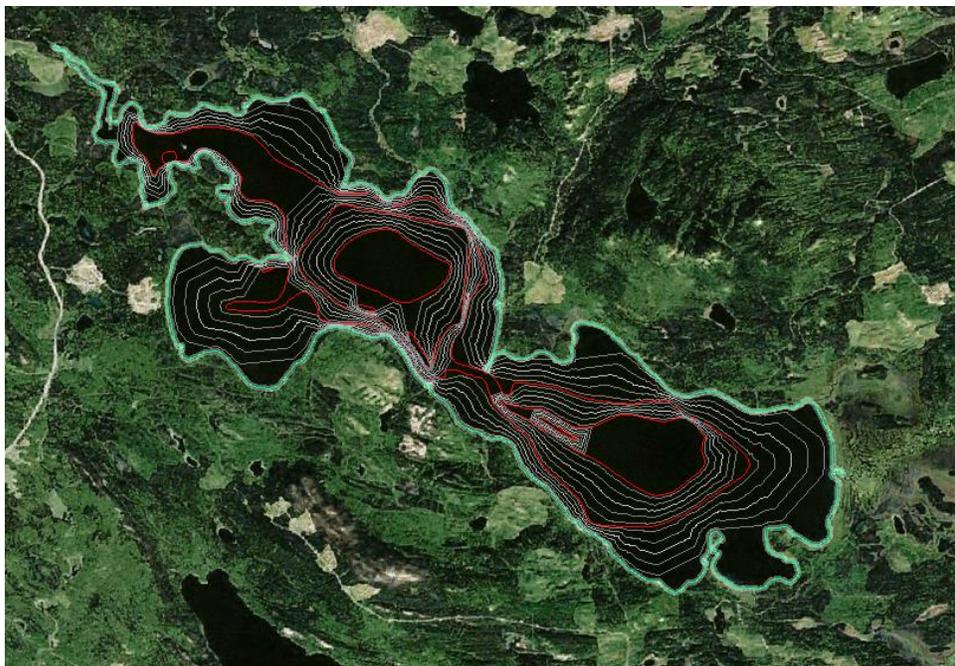
Civil 3D®'s *Stage Storage* tool calculates cumulative volumes using the contour area method. This calculation works for tub-shaped reservoirs like the one shown in *Figure 1*. However, the contour area method has shortcomings when calculating the storage volume of lakes and natural ponds of complex bathymetry, as the one shown in *Figure 2*. If the bathymetry includes multiple closed contours at the same elevation, the built-in *Stage Storage* tool may not be accurate.

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*Figure 1*



*Figure 2*



*QuickVolumes* overcomes this limitation by calculating the volume using TIN Volume Surfaces instead of contours. The app creates multiple surfaces that represent the water surface at different elevations. Then, it creates a TIN Volume Surface at each elevation interval to calculate the volume between the water surface and the base bathymetric surface.

The user can decide between keeping or destroying the surfaces after creating the stage volume table. If the user decides to keep them, the app will automatically name the surfaces using the respective elevation.

## Installation/Uninstallation

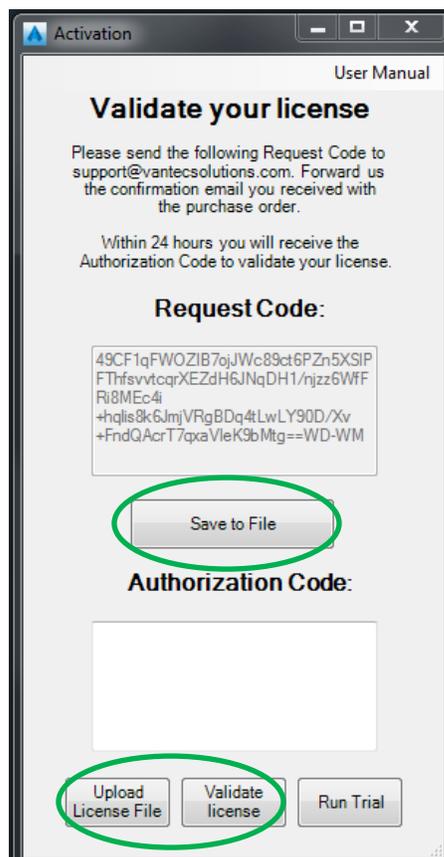
The *QuickVolumes* app can be installed by running the QuickVolumes.msi file and following the instructions in the wizard. This will install the program in the following location: C:\Program Files\Autodesk\ApplicationPlugins.

To uninstall the program, execute the same QuickVolumes.msi file and follow the instructions.



## 2. App License Validation

The first time the application is launched, the user will be asked to validate the license. As shown in *Figure 3*, the program will create a text file with a Request Code that must be sent to Vantec Solutions ([support@vantecsolutions.com](mailto:support@vantecsolutions.com)). Please also forward the confirmation email that you received either from our website or the Autodesk App Store with the order number.



**Figure 3**

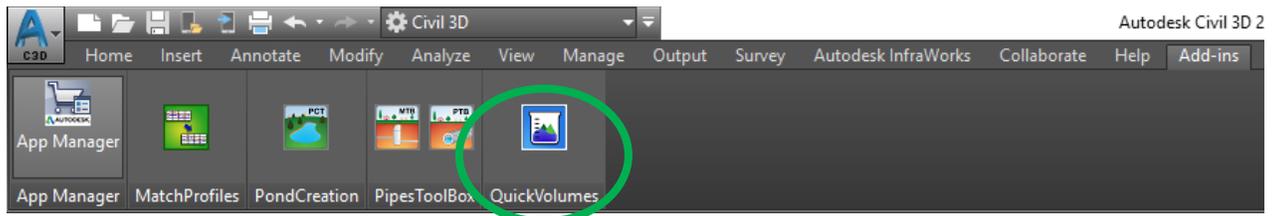


Within 24 hours we will send you back a text file with the Authorization Code. You must upload this file by clicking “Upload License File” and then “Validate License”. In the meantime, you can run the program in trial mode using the “Run Trial” button.



### 3. Main Interface

The app can be launched by clicking the corresponding button at the Adds-ins tab, as shown in *Figure 4*, or by typing **qvolumes** in the command line.



*Figure 4*



Figure 5 below shows the plugin interface.

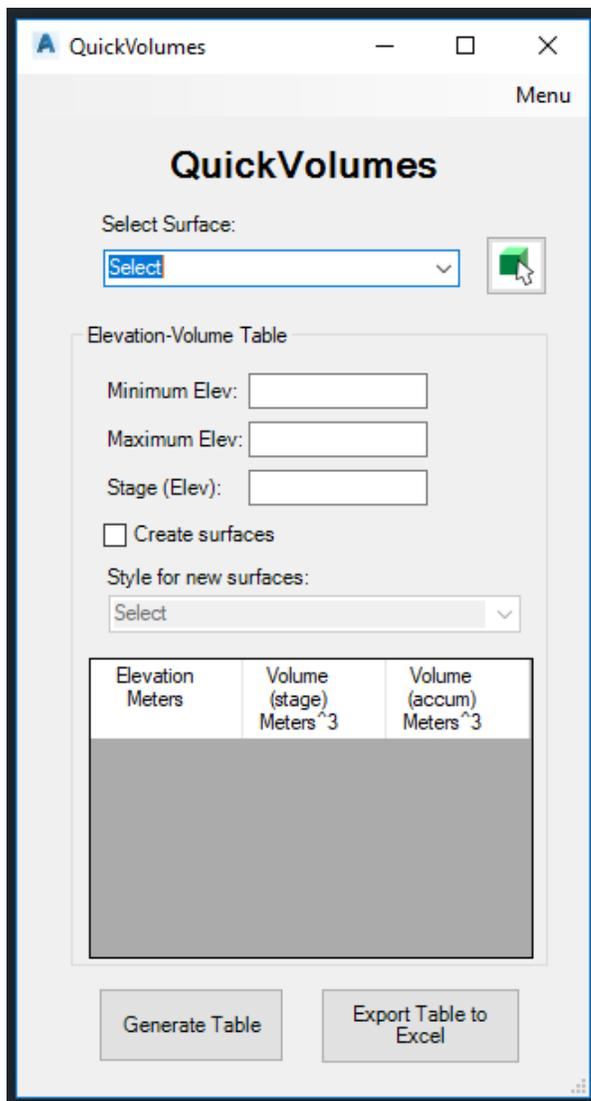
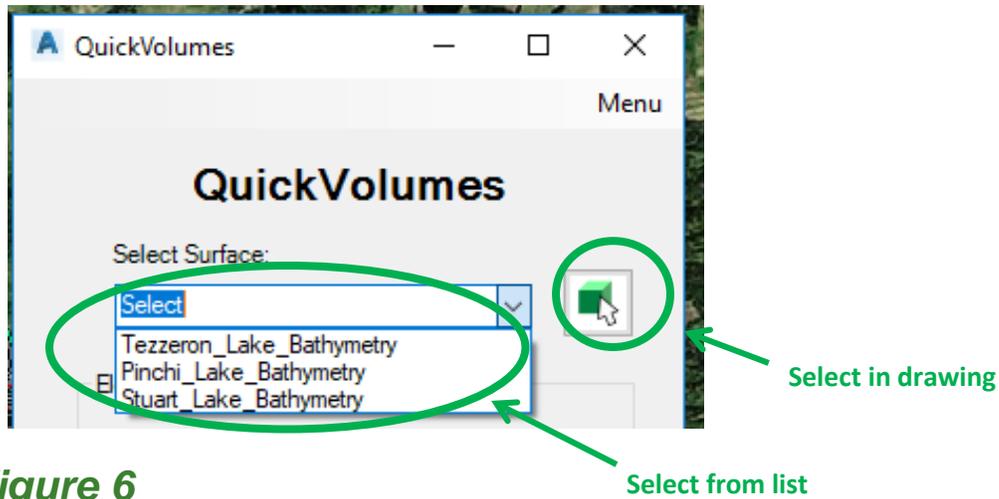


Figure 5



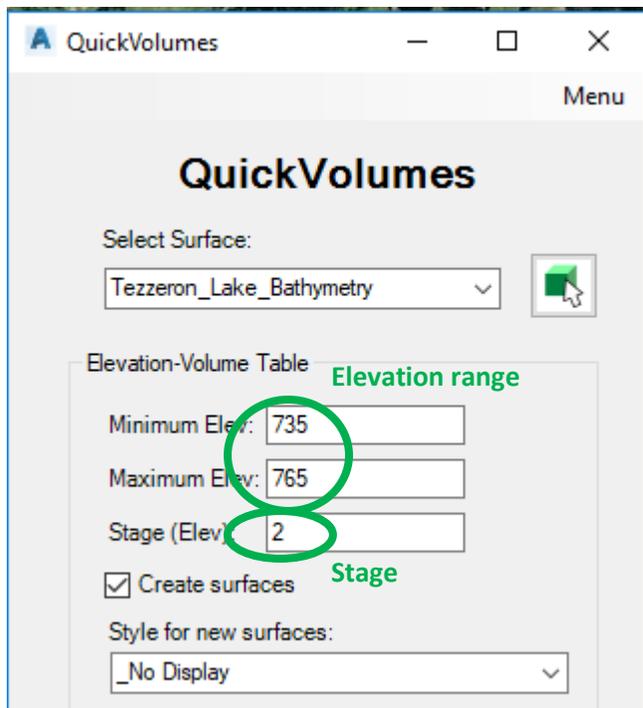
The first step is to select the surface from the list displayed in the plugin interface. The user can also select the surface in the drawing, as shown in *Figure 6*.



**Figure 6**



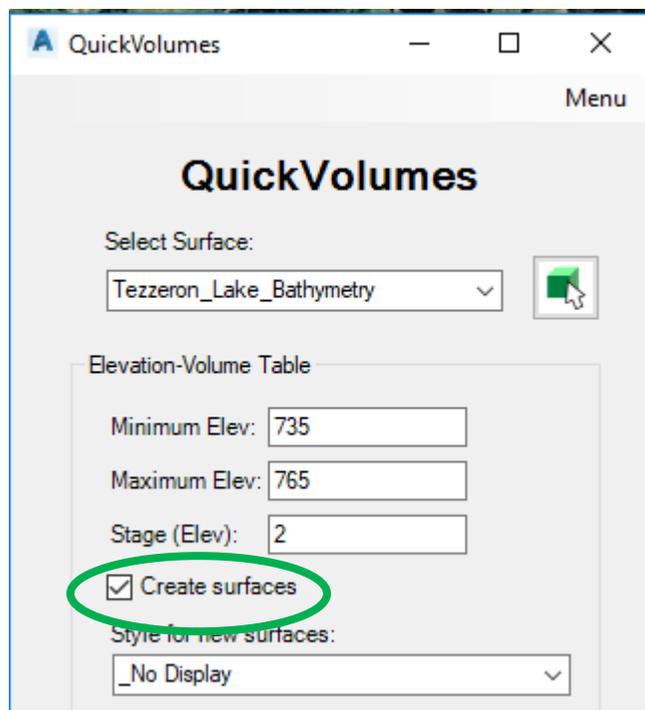
After selecting the surface, the plugin will automatically display the surface minimum and maximum elevation, as shown in *Figure 7*. This elevation range can be changed by the user. The plugin will generate an elevation-volume table for the specified elevation range. The user must specify the elevation interval (stage), as shown in *Figure 7*.



*Figure 7*



The *Create Surfaces* checkbox (see *Figure 8*) allows the user to keep the TIN volume surfaces after creating the stage volume table. The user must specify the surface style for the new surfaces. The plugin will automatically name the surfaces using the elevation interval, as shown in *Figure 9*. If the checkbox is not checked, the app will destroy the surfaces.



**Figure 8**



- Tezzeron\_Lake\_Bathymetry
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_737.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_739.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_741.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_743.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_745.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_747.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_749.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_751.00
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- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_763.00
- Tezzeron\_Lake\_Bathymetry\_SURFACEVOL\_765.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_737.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_739.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_741.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_743.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_745.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_747.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_749.00
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- Tezzeron\_Lake\_Bathymetry\_TopElev\_763.00
- Tezzeron\_Lake\_Bathymetry\_TopElev\_765.00

**Figure 9**



Figure 10 shows the elevation-volume table, which includes the stage volume and the accumulated volume. This table can be exported to a Microsoft Excel file by clicking the “Export Table to Excel” button.

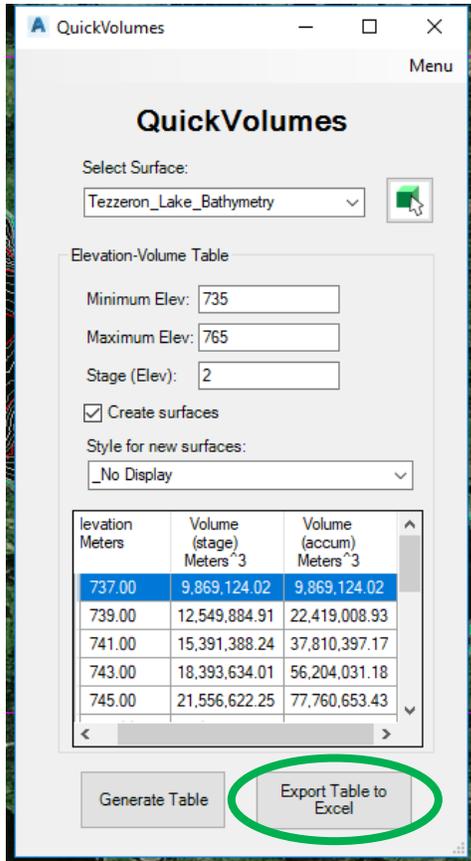


Figure 10



## 4. Support

Please let us know if you have further questions. Our contact email is [support@vantecsolutions.com](mailto:support@vantecsolutions.com).