

---

# Digitally Signing Electronic Contract Documents

Design Manual  
Chapter 21  
Automation Tools  
Instructions

Originally Issued: 07-17-18

---

Digital contract documents must be digitally signed (locked) with a verifiable digital certificate to ensure integrity of the contents of the digital files. By Iowa Administrative Code [193C.6.1\(9\)](#):

“Secure electronic signature. An electronic signature as defined in or governed by Iowa Code chapter 554D meets the signature requirements of this rule if it is protected by a security procedure, as defined in Iowa Code section 554D.103(14), such as digital signature technology. It is the licensee’s responsibility to ensure, prior to affixing an electronic signature to an engineering or land surveying document, that security procedures are adequate to (1) verify the signature is that of a specific person and (2) detect any changes that may be made or attempted after the signature of the specific person is affixed.”

The Iowa DOT has chosen a private certificate authority to provide a digital certificate that meets the criteria of IAC 193C.6.1(9) and Iowa Code [554D.103\(14\)](#). Any digital certificate used by the Engineer of Record or their representative needs to meet the Iowa code requirements. The Engineer of Record or their representative in their organization will lock the files with a digital signature after the Engineer of Record approves of the final content within the files. The Engineer of Record will apply their Engineering seal and signature for the digitally locked documents through Appendix A of the Special Provision for Digital Contract Files.

Files that will be digitally signed (locked) are specified in the Special Provisions for Digital Contract Files:

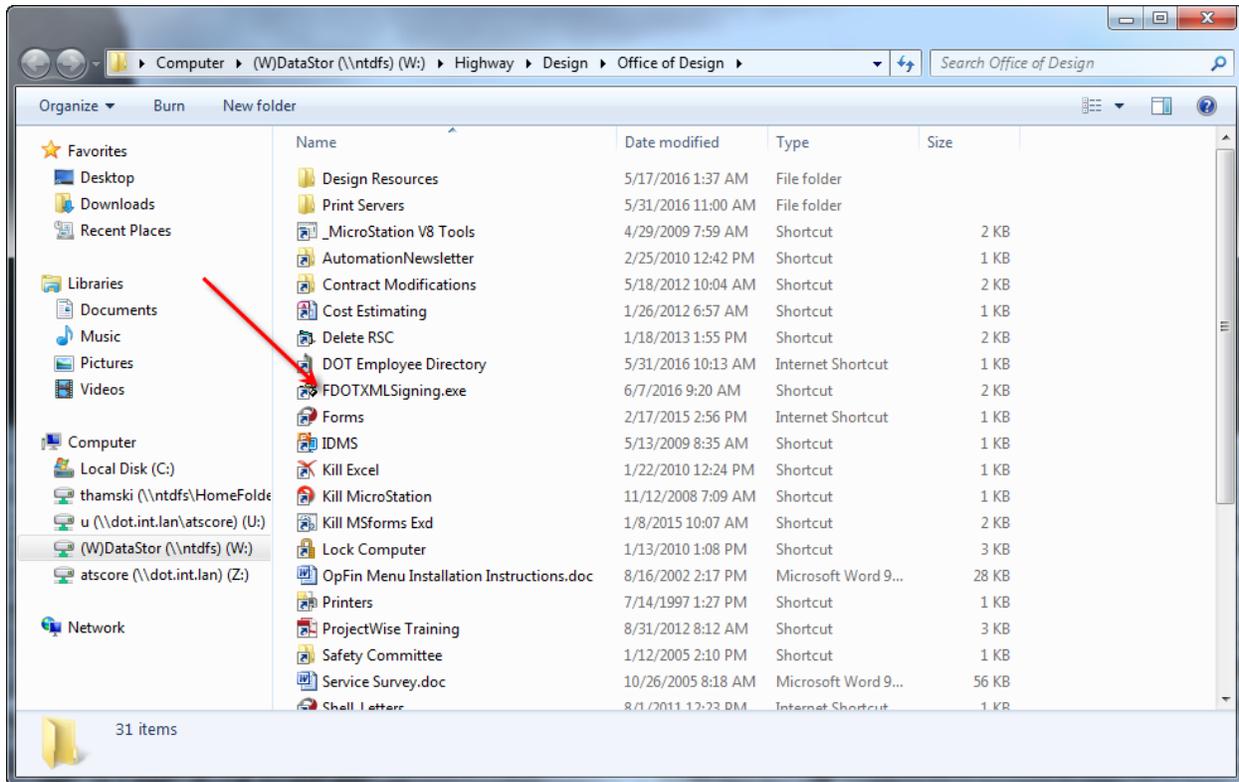
- LandXML files
  - Proposed Geometry file(s).
  - Proposed surface files of grading (subgrade embankment) and top of grade (top of pavement & side slope embankment).
- DGN files
  - Three dimensional line string lines of break lines of proposed surfaces.

The Engineer of Record should include the names of all locked digital files in Appendix A of the Special Provisions for Digital Contract Documents that was under their direct supervision. For example, if the Engineer of Record did not oversee the existing ground terrain model, the Engineer of Record will not sign for that file; however, it would still be provided to the customer for information only.

## Digitally Signing (Locking) LandXML Files

The utility to be used to digitally sign XML files can be accessed from the Office of Design folder (W:\Highway\Design\Office of Design\).

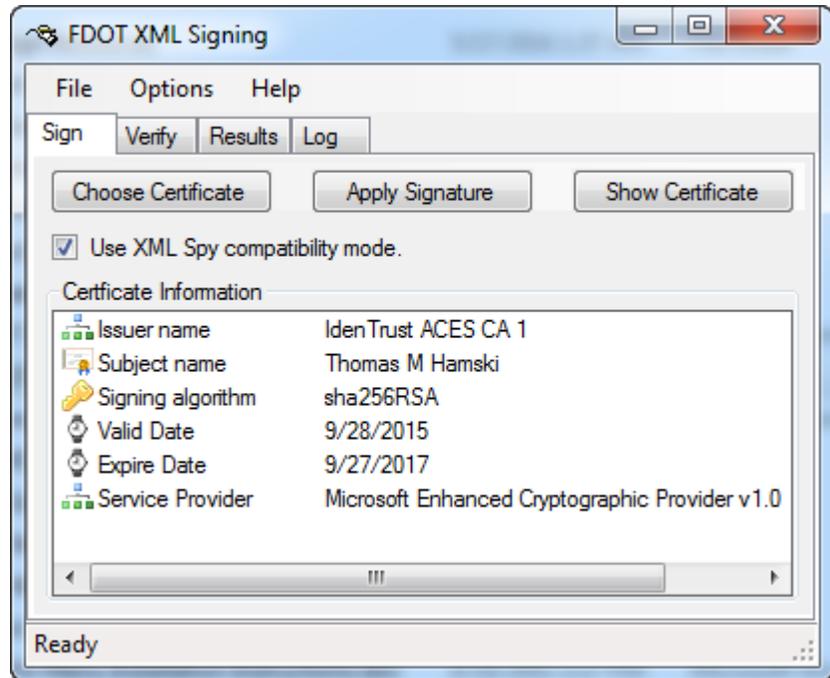
The utility is called FDOTXMLSigning.exe:



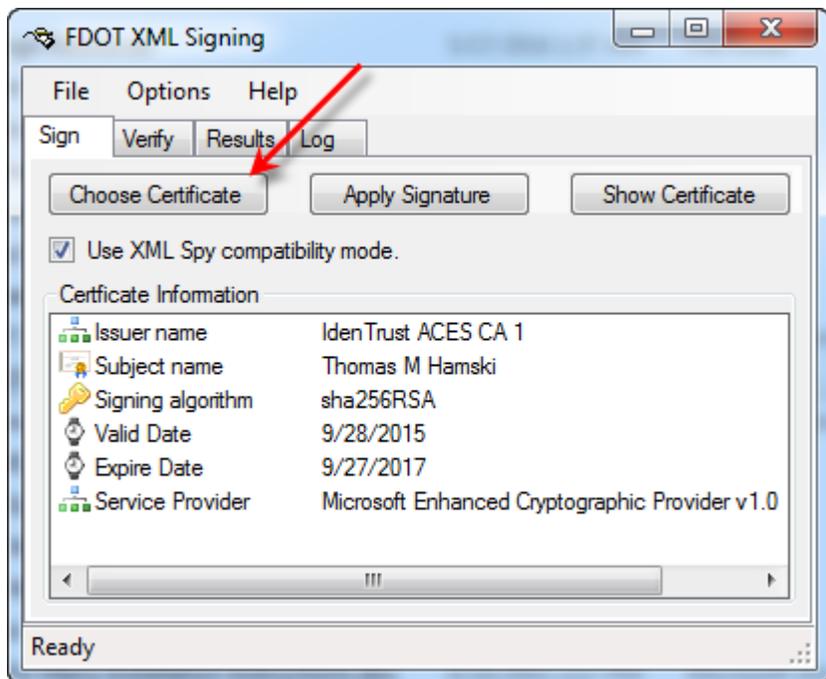
External users can download the program from the <https://iowadot.gov/design/automation-tools> under the Programs zip file [link](#).

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> <a href="#">Cell libraries</a> (ZIP file)  | <input checked="" type="checkbox"/> <a href="#">IowaRCS</a> (ZIP file)        |
| <input checked="" type="checkbox"/> <a href="#">Color tables</a> (ZIP file)    | <input checked="" type="checkbox"/> <a href="#">Macros</a> (ZIP file)         |
| <input checked="" type="checkbox"/> <a href="#">Configuration</a> (ZIP file)   | <input checked="" type="checkbox"/> <a href="#">Printing</a> (ZIP file)       |
| <input checked="" type="checkbox"/> <a href="#">Cost estimating</a> (ZIP file) | <input checked="" type="checkbox"/> <a href="#">Programs</a> (ZIP file)       |
| <input checked="" type="checkbox"/> <a href="#">Dgnlib</a> (ZIP file)          | <input checked="" type="checkbox"/> <a href="#">Resource files</a> (ZIP file) |
| <input checked="" type="checkbox"/> <a href="#">Documentation</a> (ZIP file)   | <input checked="" type="checkbox"/> <a href="#">Seed files</a> (ZIP file)     |
| <input checked="" type="checkbox"/> <a href="#">GeoPak</a> (ZIP file)          | <input checked="" type="checkbox"/> <a href="#">Survey</a> (ZIP file)         |
| <input checked="" type="checkbox"/> <a href="#">gINT</a> (ZIP file)            |   |

Upon opening the utility, it will remember the last digital certificate used to sign files. The first time you use it, you will have to select the correct digital certificate for signing files.



Click the **Choose Certificate** button to select the appropriate certificate for signing.

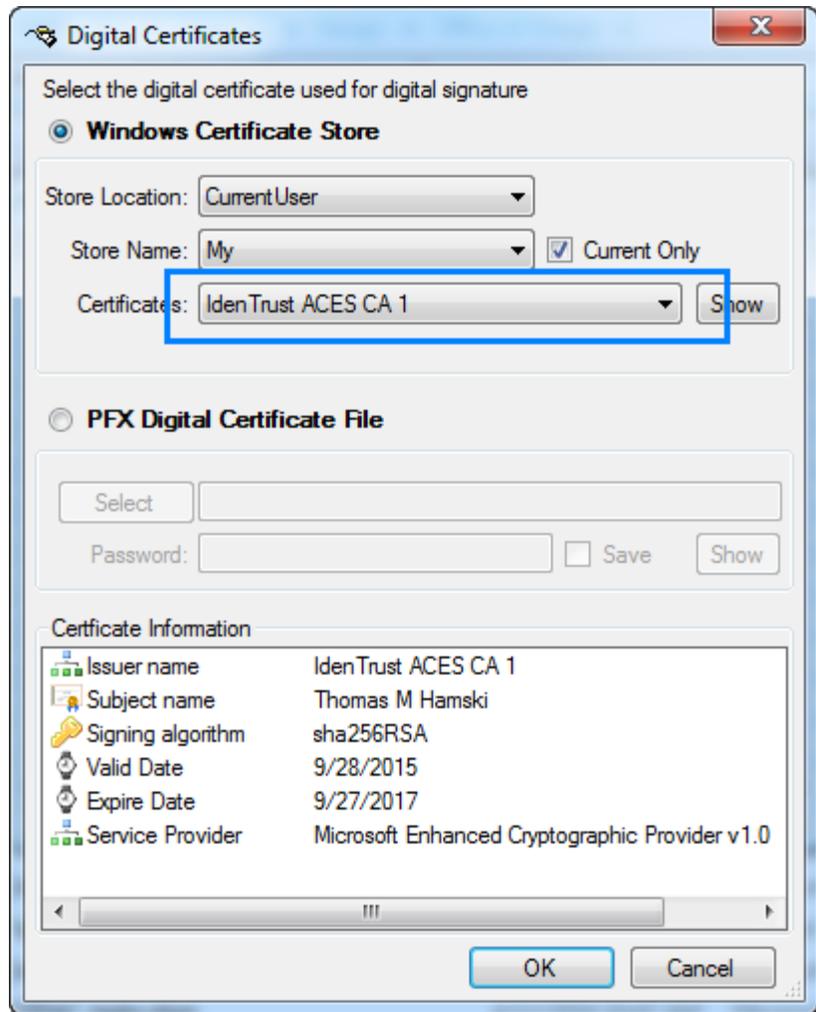


Store location: **Current User**

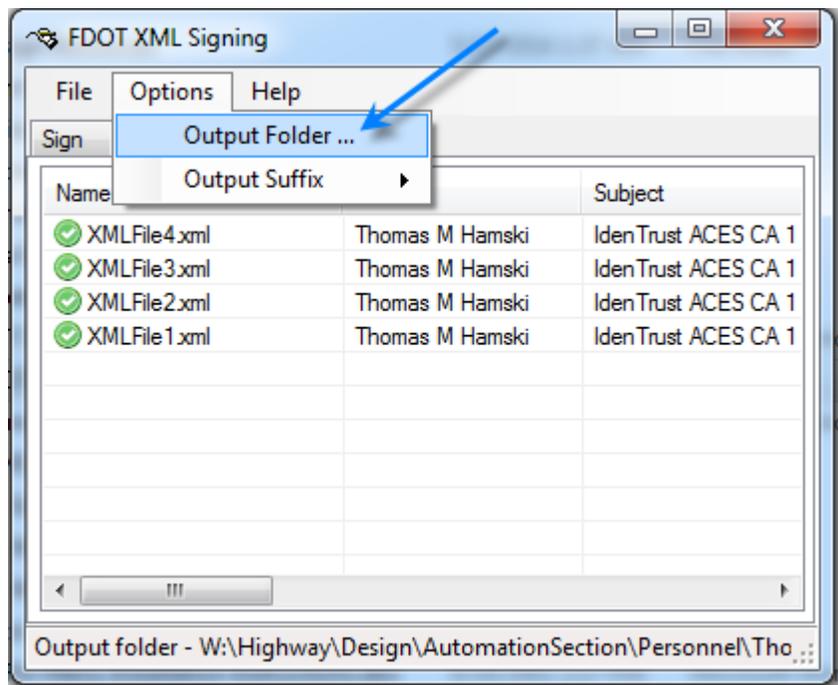
Store name: **My**

Certificates: *Your IdenTrust certificate*

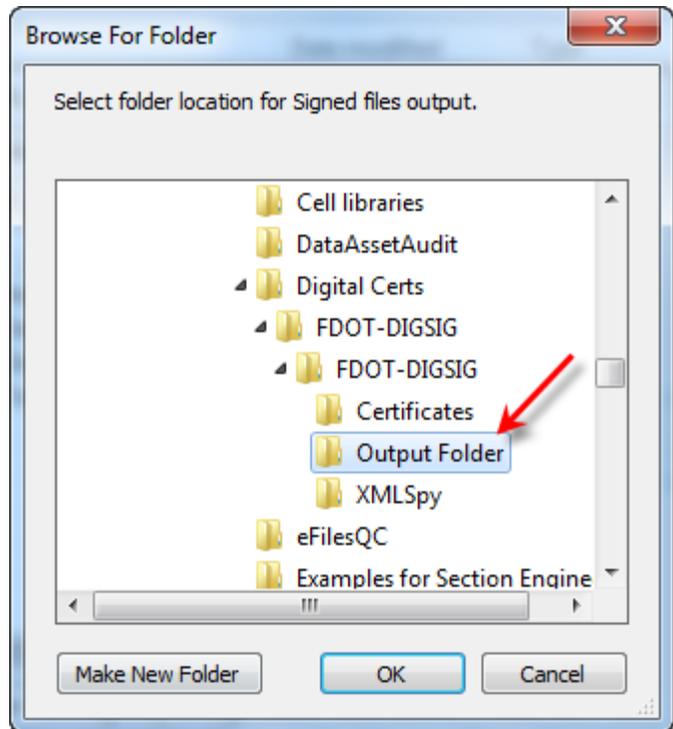
If your certificate is not visible in the dialog, refer to [21M-101](#) for instructions on exporting your certificate from Internet Explorer.



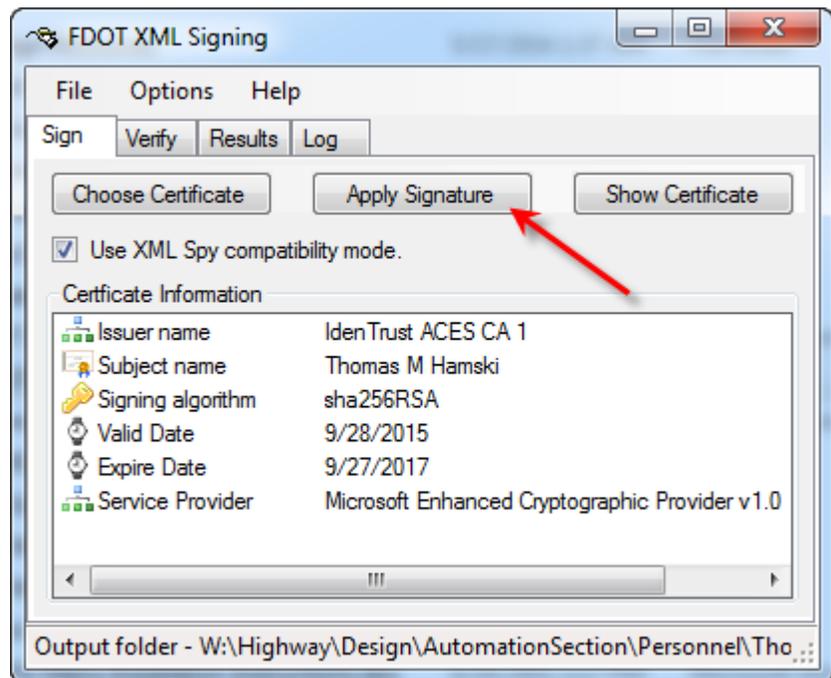
After selecting the appropriate certificate, an output folder must be selected. This is done by clicking on the **Options** menu and selecting **Output Folder**.



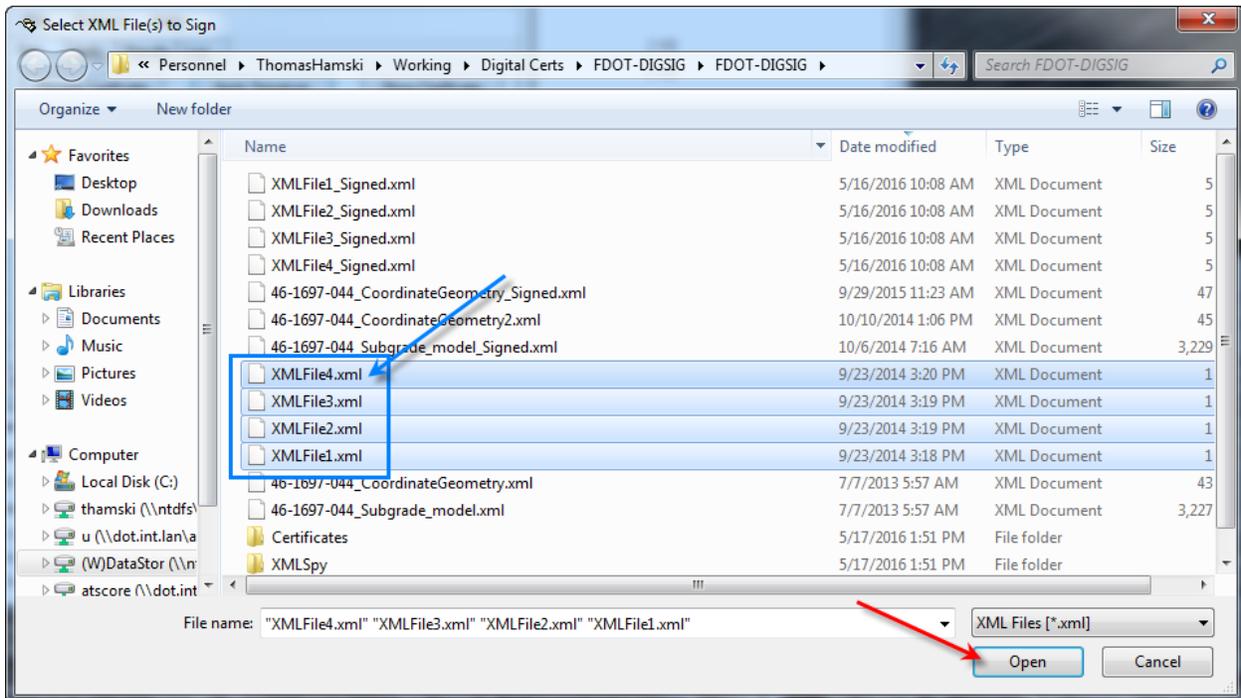
Select the appropriate folder to place the signed XML files. This utility is not integrated with ProjectWise. All locations must be on either the local computer or a network drive location.



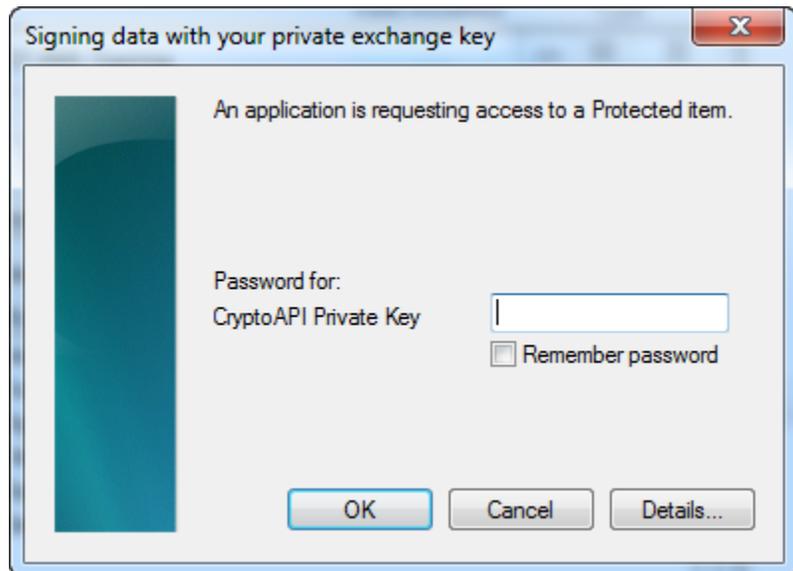
To sign XML files *Click* on the **Apply Signature** button.



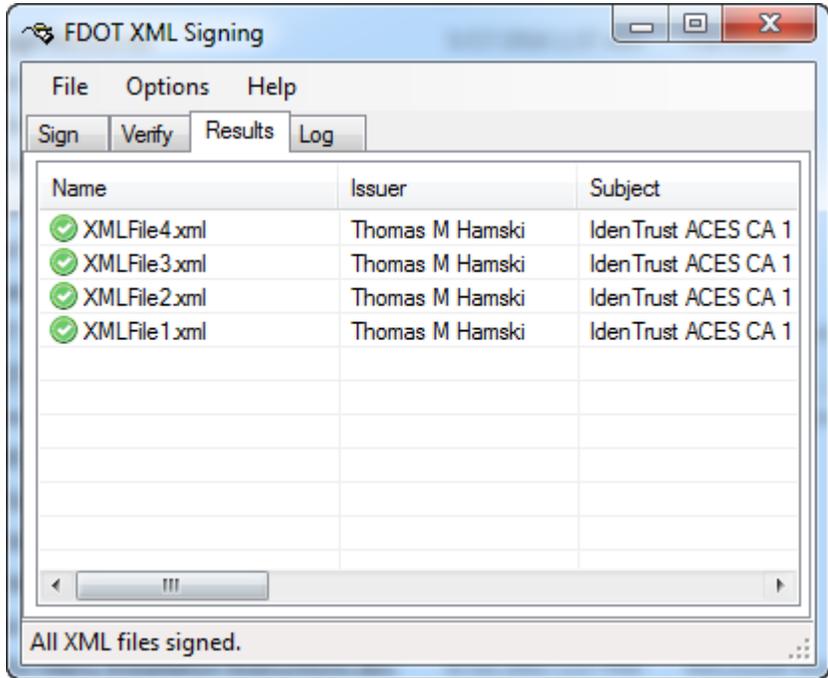
Select the files to be signed. Multiple files can be signed at once. The files to be signed must be outside of ProjectWise because the signing program is not ProjectWise integrated.



Enter your certificate's password.

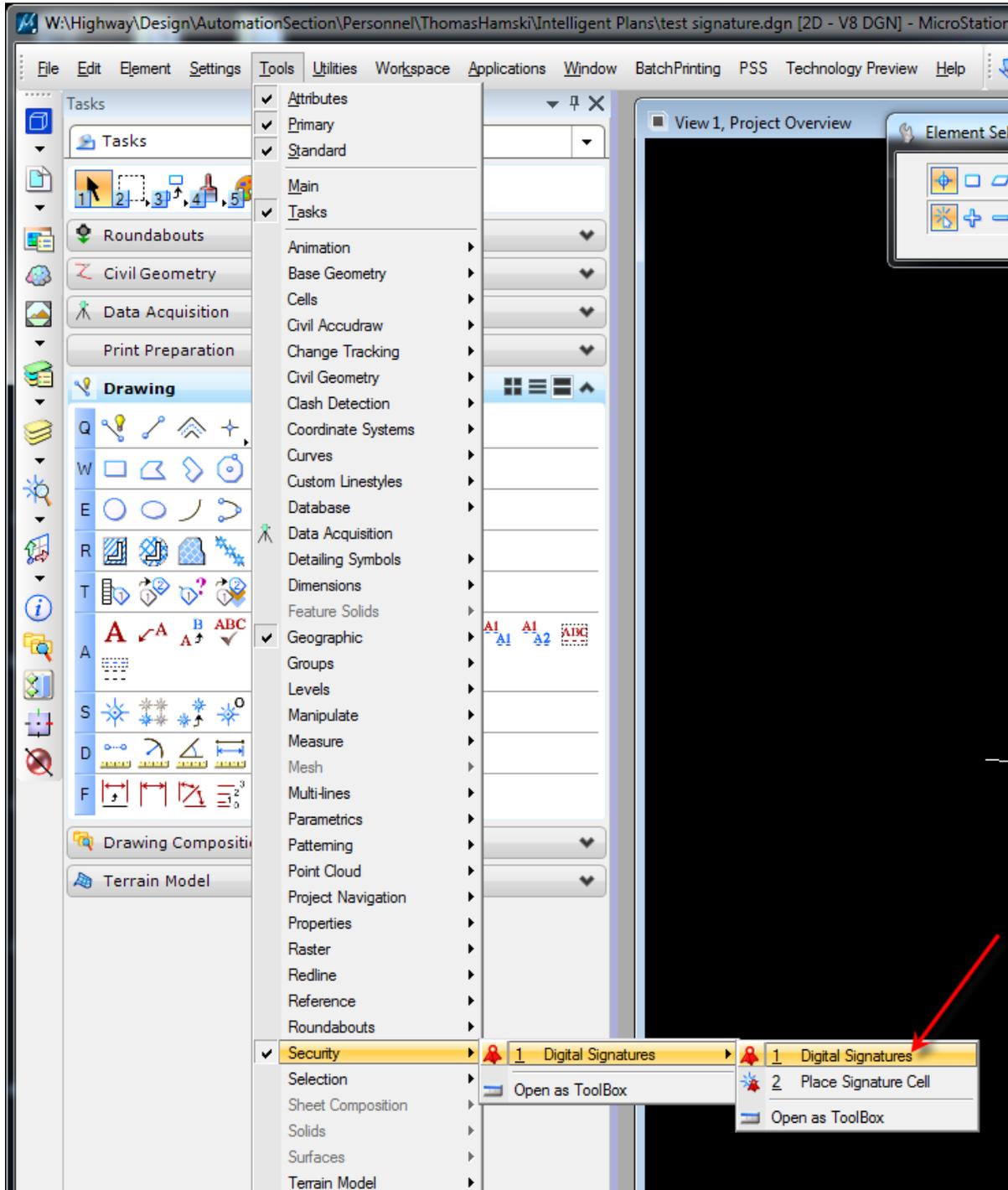


The utility has now applied your digital certificate to the XML files.



## 3D DGN Files

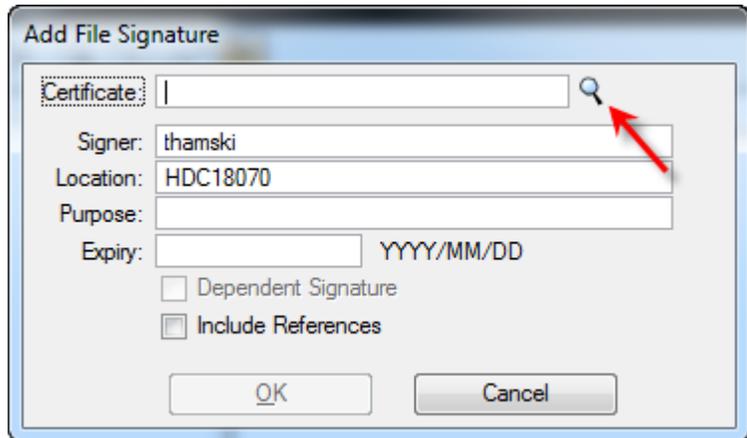
MicroStation files can only be signed one at a time. Open the files to be signed one at a time and repeat the following steps.



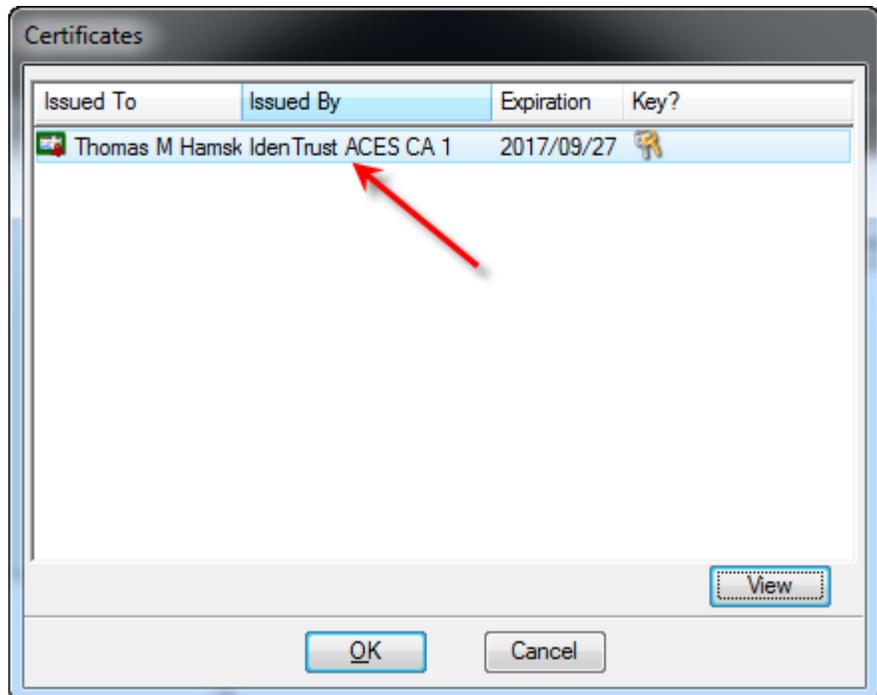
Digital signatures in MicroStation are accessed from **Tools>Security>Digital Signatures>Digital Signatures**



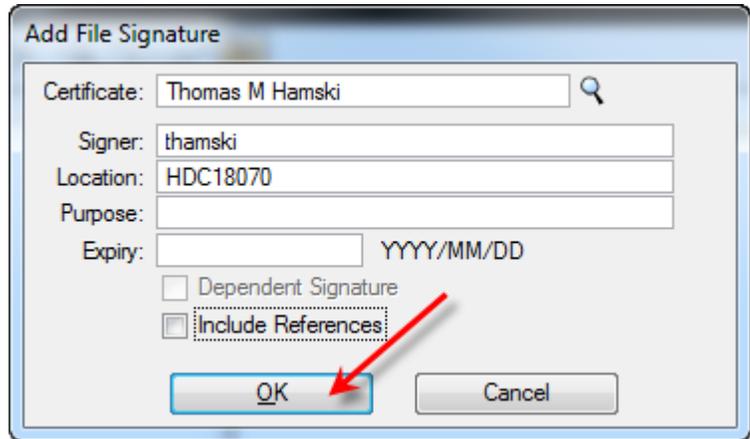
Click on **Add File Signature** button.  
 Click on the magnifying glass next to Certificate field.



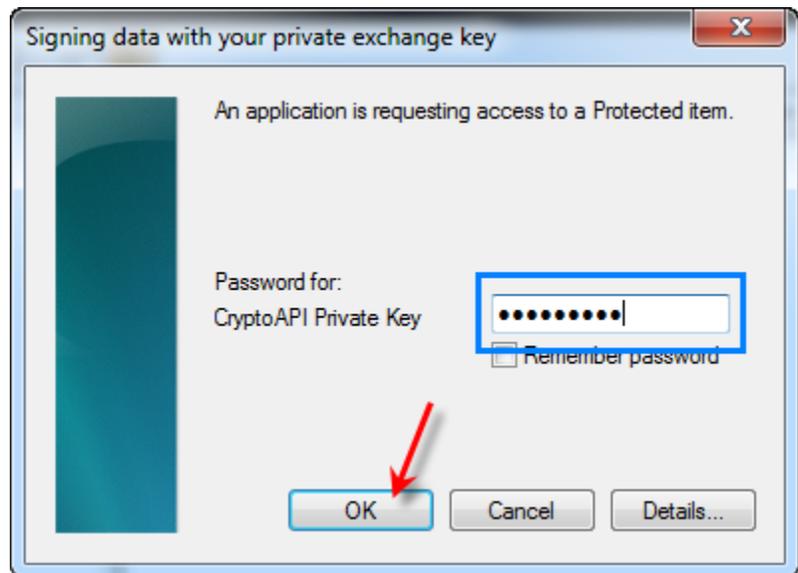
Select your IdenTrust certificate to apply to the file and *Click OK*.

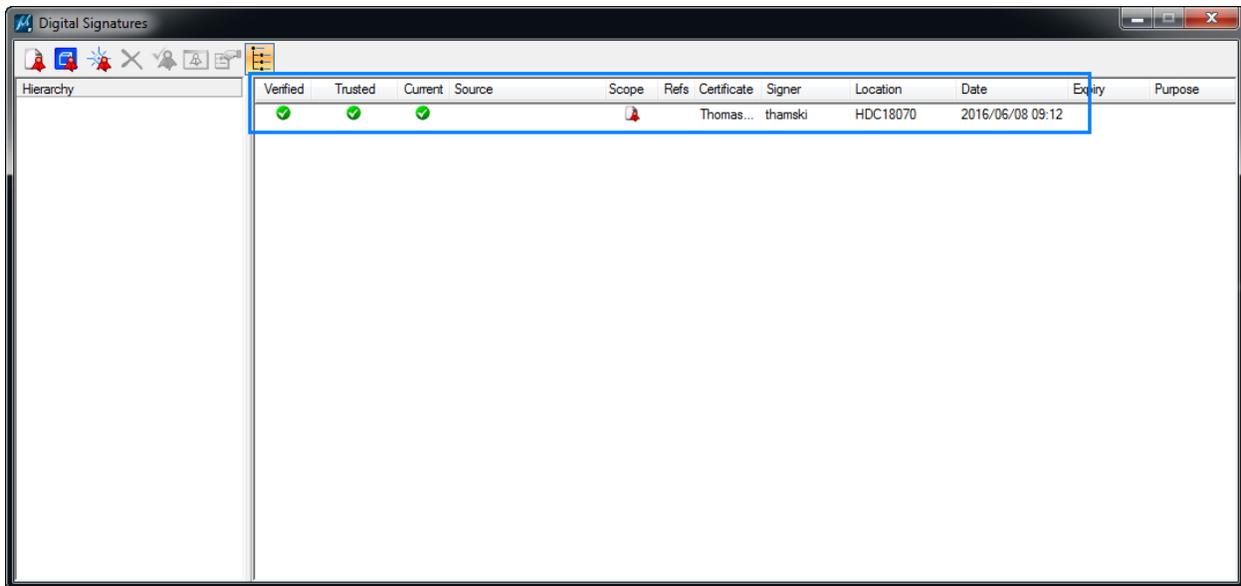


Click **OK** to apply the digital signature.



You will be prompted to enter your digital certificate's password. Click **OK**.

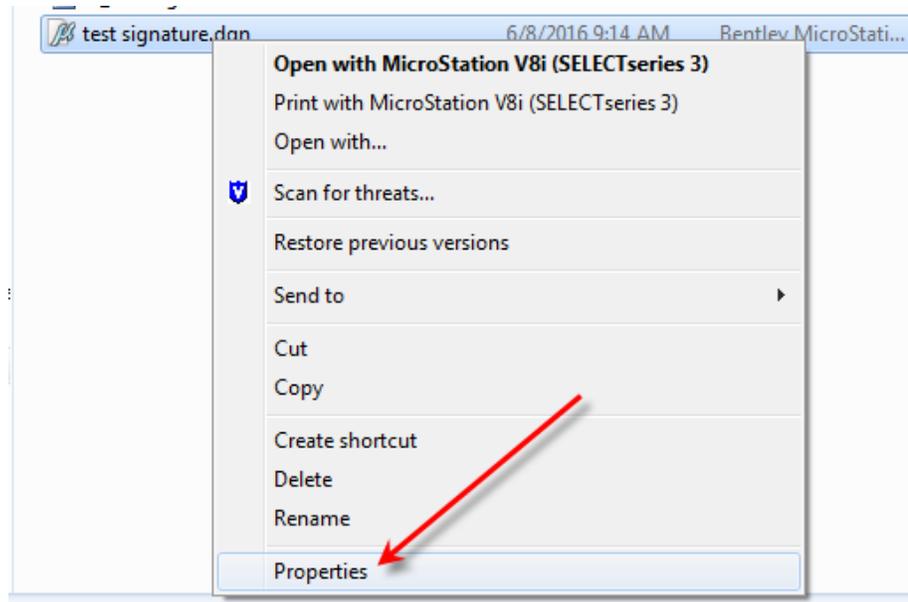




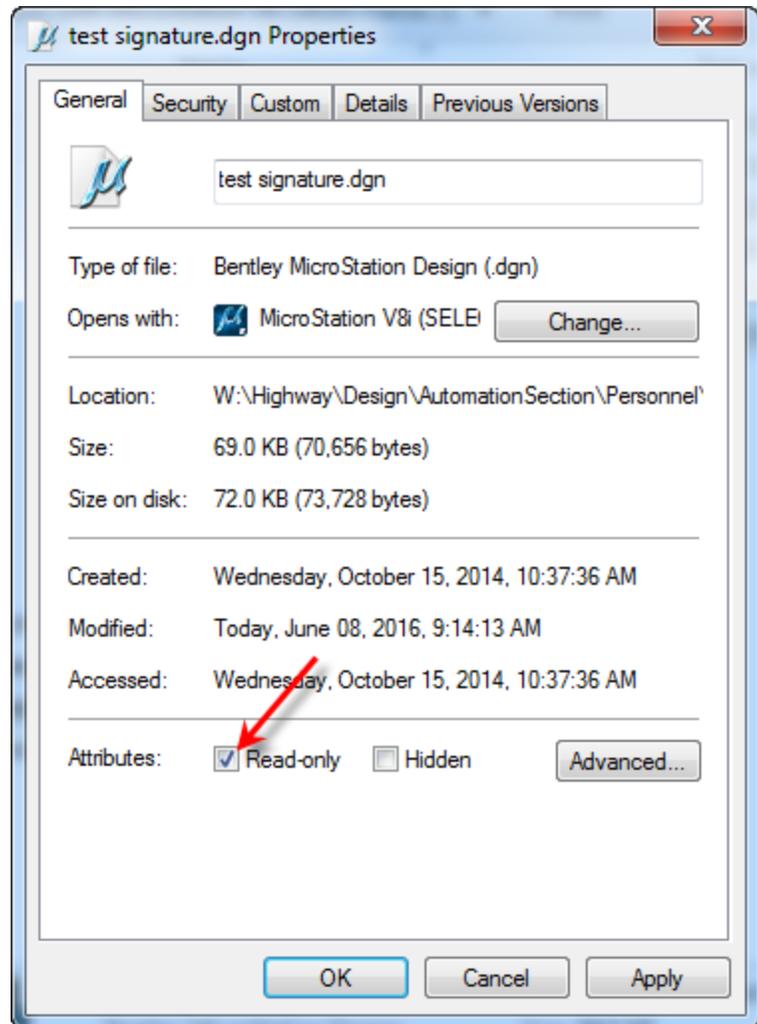
The Digital Signatures dialog will now show that the file has been digitally signed. Close the file.

**Note:** Do not save settings or modify the file in any way or the digital signature will be invalidated.

The file should now be set to read only. In windows Explorer right click on the file and select **Properties**.



On the General tab under Attributes, check the **Read-only** check box and *Click OK.*



**Chronology of Changes to Design Manual Section:**

**021M-100 Digitally Signing Electronic Contract Documents**

7/17/2018 NEW  
New.