AtlasIED Application Note

How to Use IOB Files on Titan Frames

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Introduction

IED-24 OBject (.IOB) file is a capture of some or all IED-24 objects that may be loaded into a Titan frame such as a T9160 or T9032DSP. The file format is a human-readable definition of objects. The top portion has one line per object. The top portion ends at a line with lots of hashtags and the text "BLOB Data to Follow". For the intellectually curious, BLOB (Binary Large OBject) data are things like tables contained in some objects, such as the Test Settings Table or the Monitor/Test Points Table.

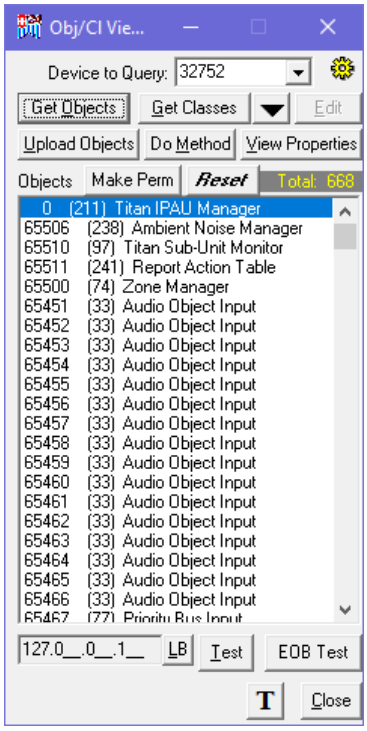
```
231,65492,65501,20,(14,2,"Test Settings Table"),(13,6,1)
############## BLOB Data to Follow ############
65490,0,469,
(1,0,73,110,97,117,100,105,98,108,101,32,84,101,115,116,0,(
```

When captured from a simulator or live frame that has been specially configured, an IOB file will have all the objects that define the frame functions. However, to make these files simpler to use and more useful, quite often an engineer has trimmed the files down to just the differences between it and the standard or default object set for that Titan frame. There is no outward sign of whether an IOB file has been trimmed down or not, so that becomes one of the critical steps in applying an IOB file to a new Titan frame.

How to Apply an IOB File

It is basically a three-step process:

1. Determine what type of IOB file you have: complete or differences
2. Download using ViewProp
3. Make Permanent in ViewProp



Before getting into the steps, here are some points to note about properly using ViewProp. Usually, the first step should be to enter the Device to Query in the edit box at the top. You can enter the frame's actual IED-24 Device ID if you know it, but typically you enter the universal address of 32752. At this point, the IP address box at the bottom may turn red. If so, you need to click on the box and enter the IP address in the pop-up box (if different), followed by the [OK] button.

(For the screenshot shown, ViewProp is talking to a Titan frame simulator running on the same desktop computer, and so I just clicked on the [LB] button to insert the loopback IP address of 127.0.0.1).

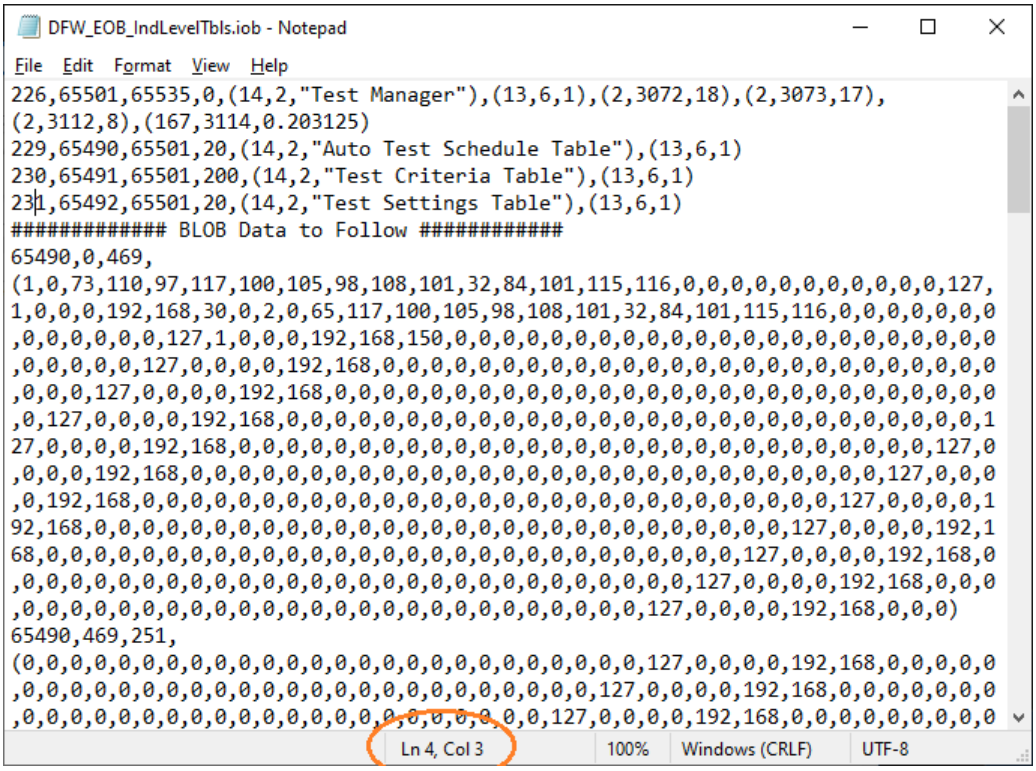
Some, but not all operations work without the Device to Query entered. But, if you get an error messages about IP address not being bound to a Device ID, then the problem was not following the above steps.

Step 1 – Determine What Type of IOB File You Have

The first step is to determine whether you have a "complete" object file or just a file of differences. These differences could either be just object property changes on existing objects or additional/new objects to be created in the Titan frame. This is ascertained by determining how many objects are defined in the IOB file as compared to the object count currently in the frame.

The latter number is reported in ViewProp as the yellow text against a gray background right next to the [Reset] button after a [Get Objects] operation is done. In the screenshot above, the object count is 668.

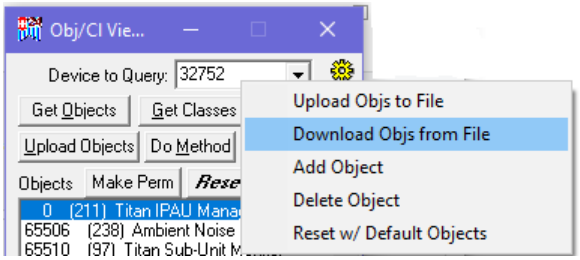
So, then one opens the IOB file in any text editor and determines how many objects are defined in it. This count is the number of (non-wrapped) lines of text above the BLOB separator. If you put your cursor on the last line of text above the separator, the editor should tell you which line you are on. In the example below, it is Line 4. If you are using Notepad and do not see the line/column count at the bottom, you can turn this feature on by selecting the View Menu → Status Bar option.



Now, you simply compare the two numbers. If the IOB object (line) count is *approximately* the same as the Titan frame's current/default object count, then the IOB file is complete. It is "approximately" because the IOB file may remove or add objects to the default object set and so the count may be slightly higher or lower than the frame's count. Usually, a difference type IOB files are blatantly obvious such as the examples shown of 4 objects vs. 668 objects.

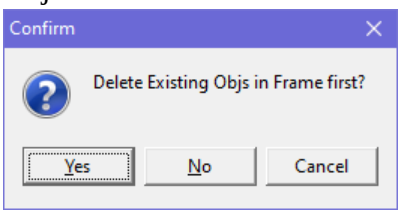
Step 2 – Download the IOB File

First or all, if the Titan frame's objects are in an unknown and possibly messed up state (e.g., due to a previous misstep in downloading an IOB file), you can reset it back to Factory Default Objects via the down-arrow menu in ViewProp.



Then, the real download is done with the "Download Objs from File" menu option as shown at right. This menu choice first presents a standard Windows Open dialog box when you select the IOB file you want to download.

The next thing that will happen is ViewProp will prompt you to delete all objects first or not. This is the Big Question and why you did Step 1 first. If the IOB file is a file of Differences, then select the [No] option. If the IOB file appears to be a Complete file, then select the [Yes] option.



Now, you should be able to sit back and watch the progress bar as it downloads. Errors can sometimes occur during the download operation. Some errors are more concerning than others. For example, a simple -2 communication error may be simply due to the Titan frame still being too busy creating the previous object to respond to the message to create the next object. You can simply click on the OK/Continue button to go on to the next object. If this happens a lot, you may want to abandon the download and adjust the time-out value upward (e.g., several seconds) in the ViewProp settings (gear icon). Then, [Reset] the frame to clear any changes and start the download again.

Other errors could be cause for concern, such as an error because the Titan firmware is not up to the latest and the IOB file is trying to create an object of a type (Class) that the firmware doesn't understand. Of course, if this looks to be the case, one should abandon the download and see about updating the firmware first. One can clear out any new objects already sent by simply doing a reset of the Frame (e.g., the [Reset] button in ViewProp). As long as you haven't done Step 3 to make permanent yet, any changes just made will be erased.

There are known cases where errors occur, but the download still goes through successfully. In these cases, knowing the download was a success may only be determined by testing the new frame for all its intended functions before moving ahead.

Step 3 – Make Permanent

To make the object changes persist through a reset or power-cycle, they need to be made permanent by clicking on the [Make Perm] button in ViewProp, followed by [Yes] on the prompt dialog box. The frame reports back success immediately but can actually take 10-15 seconds to fully complete down on the frame. So, do not reset the frame until sufficient time has been allowed.

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