ASCOM C# Drivers Development Framework Checklist

The following is a checklist and an annotated walk-through example of generating an ASCOM C# Driver for a fictitious company/product called Acme. The end result is a tested "working", "non-functional" ASCOM Focuser driver skeleton framework.

- - "working" means the driver passes the Conformance Checker tool
- - "non-functional" means it controls no actual hardware (yet)

Development Environment

- 64-bit Windows 7
- Visual C# 2010 Express Edition
- ASCOM Platform 6.1SP1 installed
- ASCOM Platform Developer Components installed
- ASCOM Driver Conformance Checker installed

Note: All projects in a multi-project solution in Express Editions of Visual Studio must use the same programming language.

Visual C# 2010 Express ← Run as administrator !!!

Checklist	Image
☐ 1) New Project - **ASCOM Device Driver (C#)** - Name: **Acme**	NewProject.png
☐ 2) ASCOM Driver Project Wizard - Device Class - **Focuser** - Device Name/Model - **Acme** - Create	WizardFocuser.png
☐ 3) File➢Save All – - Name: **Focuser** - Location: ...**\CSharp Projects\ASCOM** - Solution Name: **Acme** ← **MAKE SURE**!!! because Visual Studio makes same - [✓] Create directory for solution as Name!!!	SaveProject.png
☐ 4) Set Focuser Properties➢Application➢Assembly name: **ASCOM.Acme.Focuser**	FocuserAssemblyName.png
☐ 5) Build the solution (F6)	
☐ 6) Run the ASCOM **Conform** tool. If it is running in 64 bit mode, change it to run in 32 bit mode with: Options➢Conformance Options➢General➢Conform Settings: [✓] Run as 32bit on a 64bit OS (this is needed because Visual Studio's *Register for COM interop* only registers the drivers as a 32bit COM driver, but not also as a 64bit COM driver on a 64-bit machine - as would be done by the Inno Setup installer)	Conform64Bits.png Conform32Bits.png
☐ 7) Using the ASCOM **Conform** tool, Options➢Check Focuser, Options➢Select Driver, select the *ASCOM Focuser Driver for Acme*.	ConformChooserFocuser.png
☐ 8) Select ASCOM Focuser Chooser➢Properties... to get the Acme Setup dialog for the Focuser	ConformFocuserProperties.png
☐ 9) Run the Check Conformance and verify that no errors, warnings or issues are found and the Focuser driver passes ASCOM validation!!	ConformFocuser.png
☐ 10) Add New Project for application for testing driver - Right-Click solution name in Solution Explorer➢Add➢New Project... - **ASCOM Driver Test Forms Application (C#)** - Name: **TestDriver**	AddTestDriver.png
☐ 11) ASCOM Driver Project Wizard - Device Class - **Focuser** - Device Name/Model - **Acme** - Create	WizardFocuser.png
☐ 12) Right-Click Solution Explorer➢TestDriver project➢Set as Startup Project to set the **TestDriver** project as the startup project	
☐ 13) Build the solution (F6)	

☐ 14) Run the code (F5), click the test form's Choose button, select the *ASCOM Focuser Driver for Acme*., select ASCOM Focuser Chooser➢Properties... to get the Acme Setup dialog for the Focuser, OK those dialogs and verify the ASCOM.Acme.Focuser is shown on the test form. TestDriverResults.png

At this point, additional code can be added to the Focuser driver to control the Focuser hardware and additional code and controls can be added to the TestDriver project to exercise and debug the features of the in-proc DLL Focuser driver.

When the ASCOM driver development is complete, the ASCOM Driver Install Script Generator can be used to generate an Inno Setup script to generate a Windows setup executable that can be used to distribute the driver just developed.
Note: The driver project should be closed in the IDE before running the Inno Setup compiler.

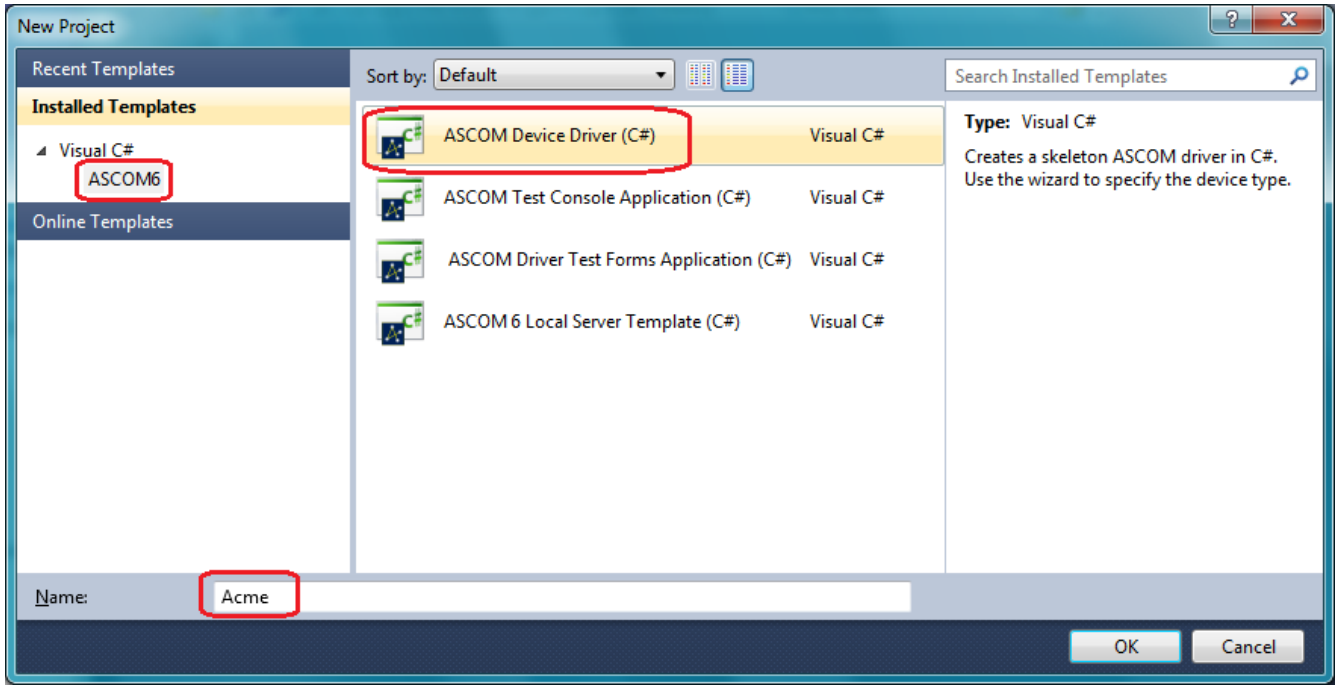
☐ 15) Clean the solution with Build➢Clean Solution so that the driver will be automatically unregistered from COM and ASCOM
(if menu Build➢Clean Solution is not shown, use Tools➢Customize➢Commands➢Menu bar: Build➢Add Command...➢Categories: Build, Commands: Clean Solution, OK, Close to add that menu item)

At this point, the *ASCOM Focuser Driver for Acme.* should no longer be available in **Conform**'s Select Driver.

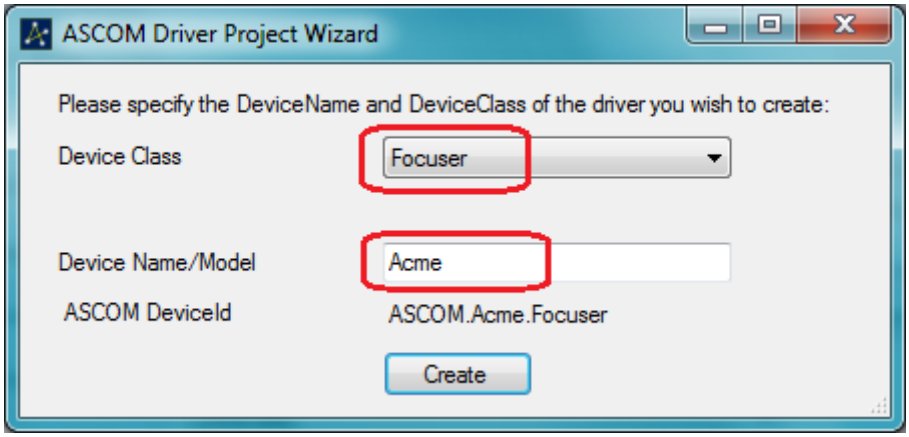
ASCOM C# Drivers Development Framework Walk-Through

Visual C# 2010 Express ← Run as administrator !!!

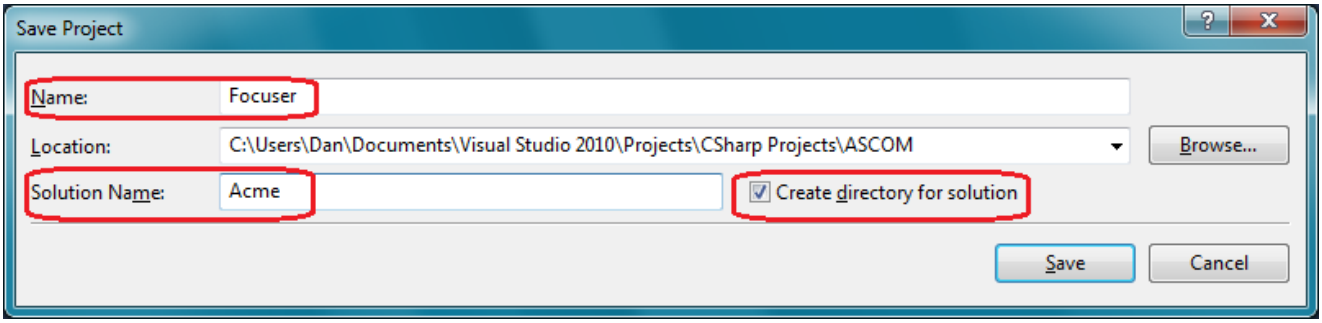
1) New Project - **ASCOM Device Driver (C#)**
- Name: **Acme**



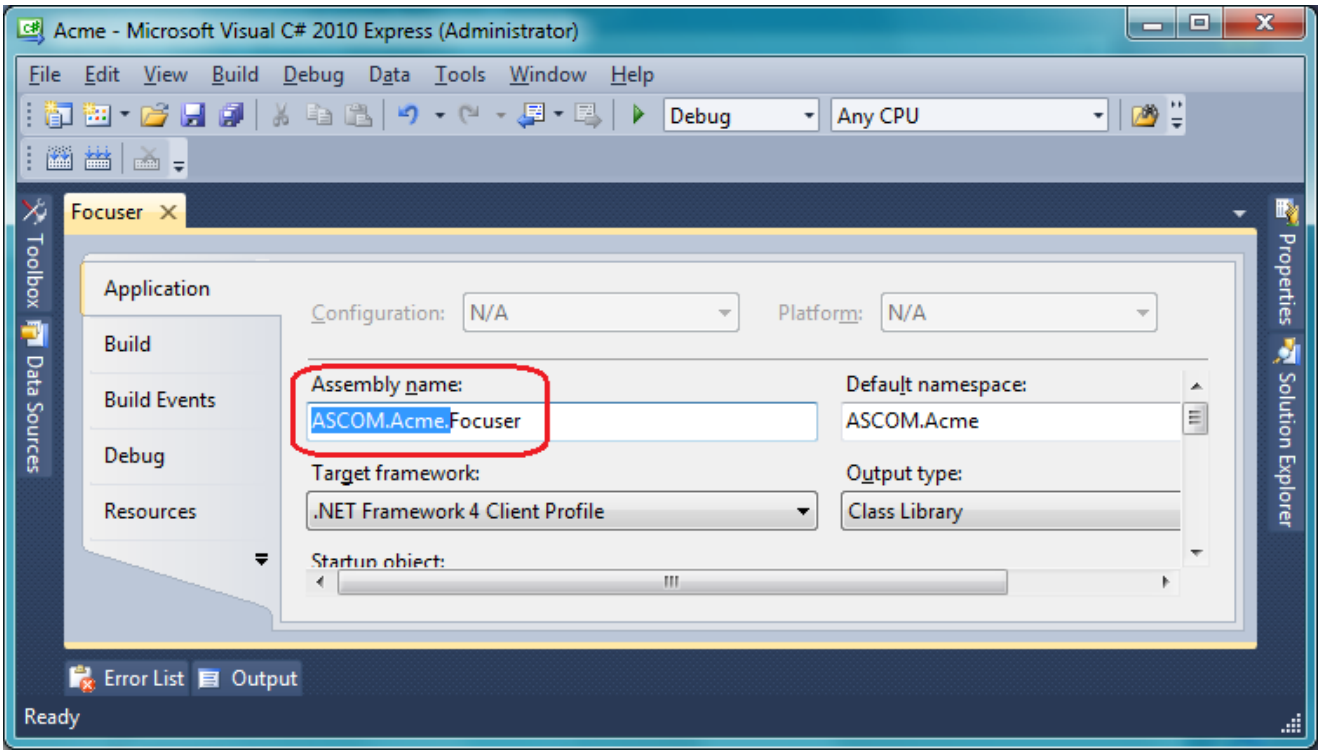
2) ASCOM Driver Project Wizard
   - Device Class - **Focuser**
   - Device Name/Model - **Acme**
   - Create



3) File➢Save All –
   - Name: **Focuser**
   - Location: ...**\CSharp Projects\ASCOM**
   - Solution Name: **Acme** ← **MAKE SURE**!!! because Visual Studio makes same
   - [✓] Create directory for solution as Name!!!

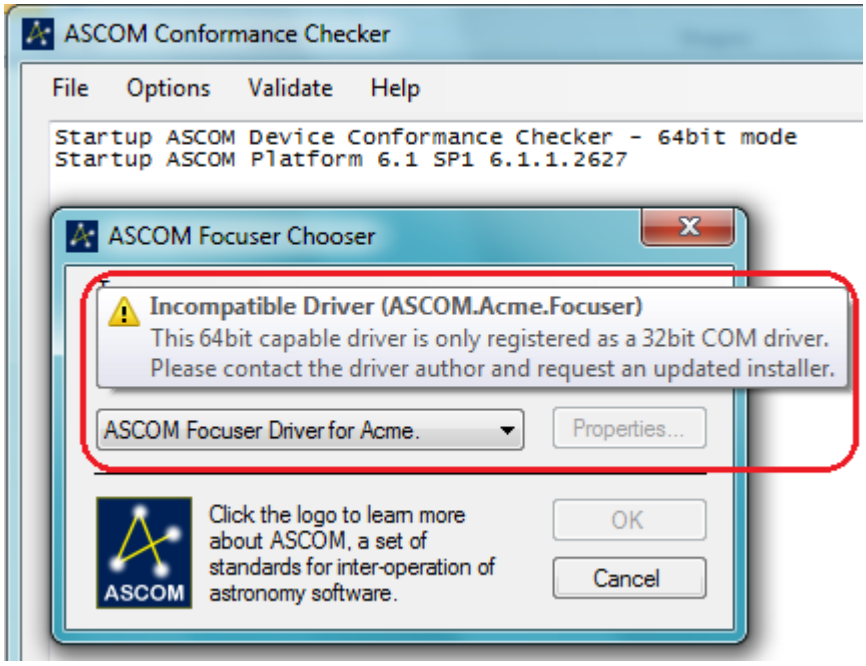


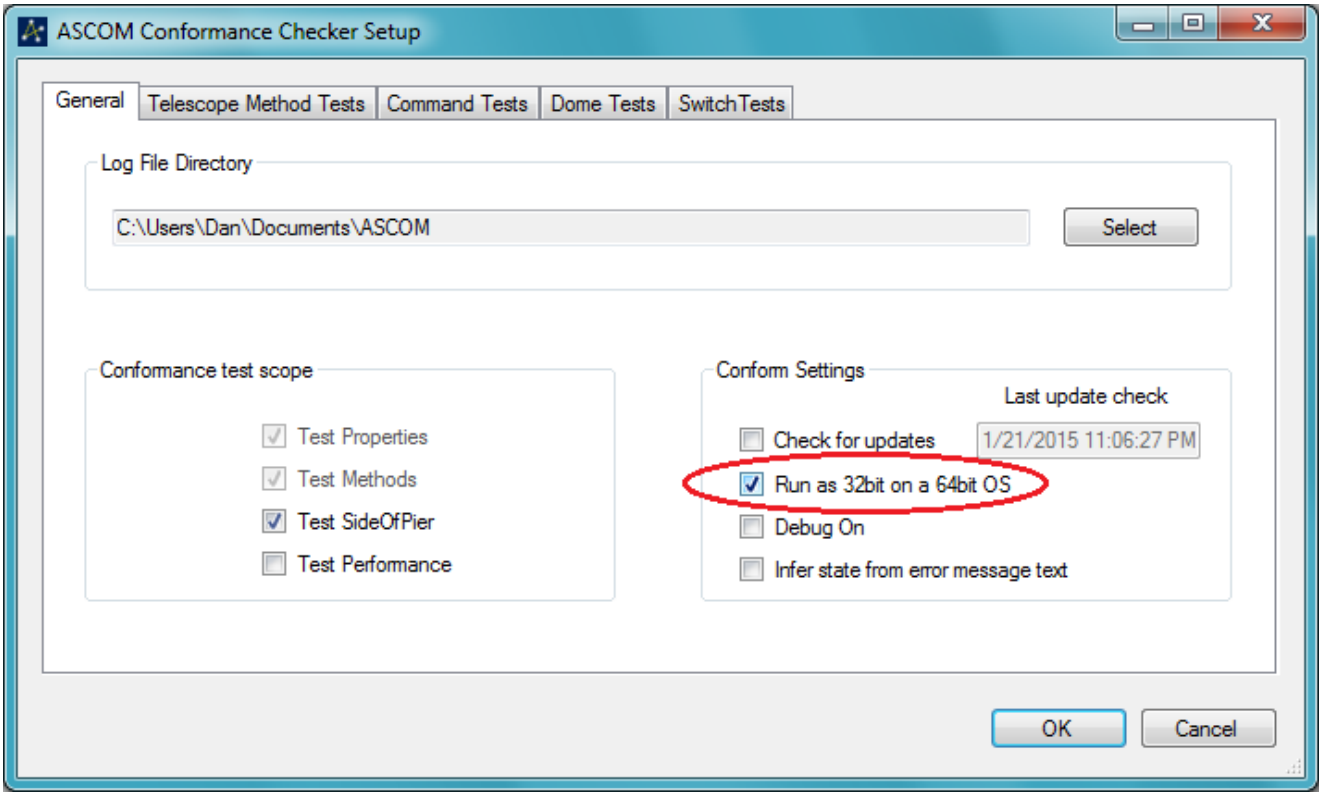
4) Set Focuser Properties➢Application➢Assembly name: **ASCOM.Acme.Focuser**
(The template wizard does not include full assembly name - done here for LocalServer consistency.)



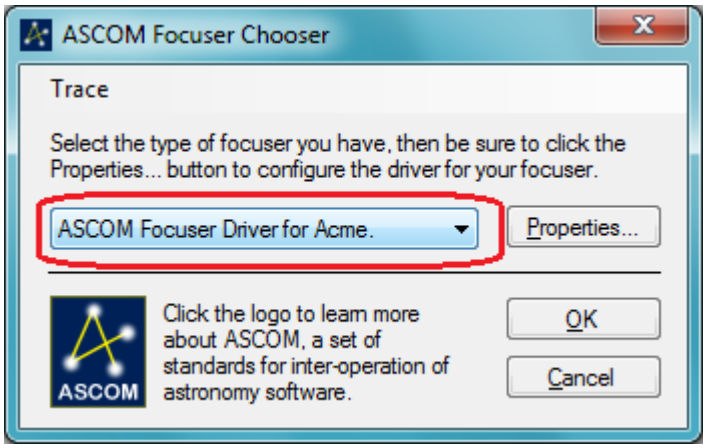
5) Build the solution (F6)

6) Run the ASCOM **Conform** tool. If it is running in 64 bit mode, change it to run in 32 bit mode with:
Options➢Conformance Options➢General➢Conform Settings:
[✓] Run as 32bit on a 64bit OS
(this is needed because Visual Studio's *Register for COM interop* only registers the drivers as a 32bit COM driver, but not also as a 64bit COM driver on a 64-bit machine - as would be done by the Inno Setup installer)

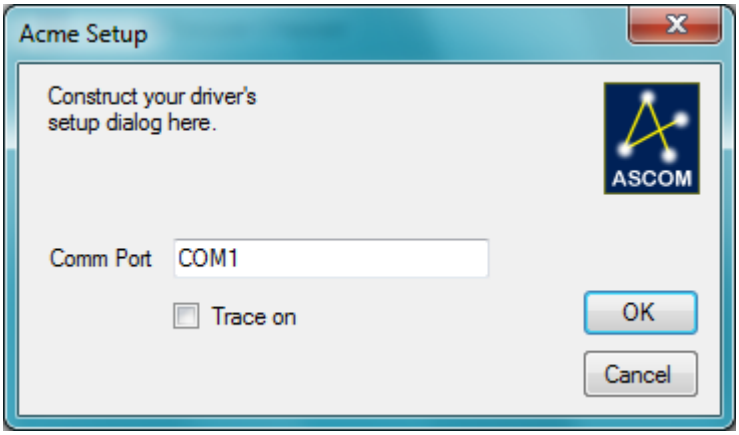




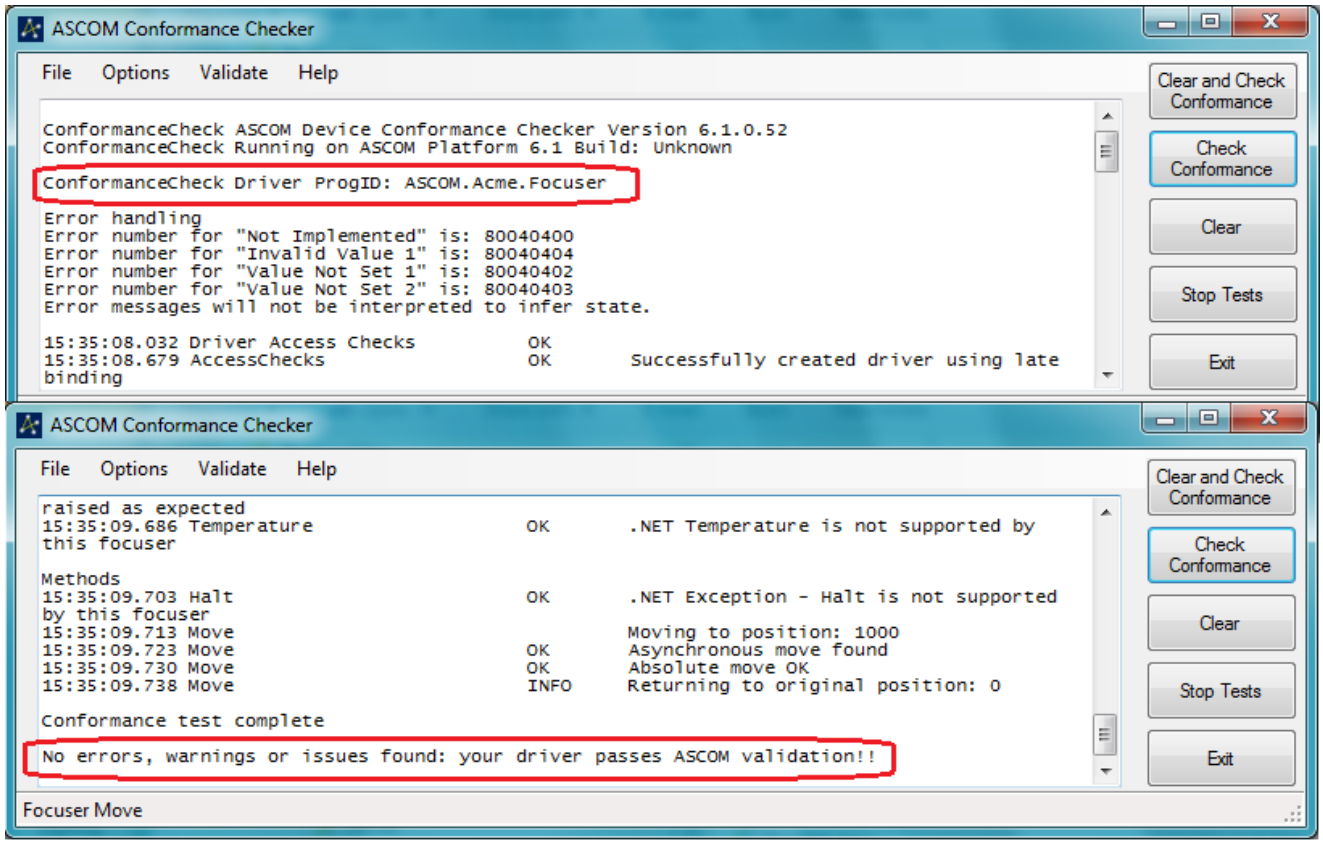
7) Using the ASCOM **Conform** tool, Options➢Check Focuser, Options➢Select Driver, select the *ASCOM Focuser Driver for Acme*.



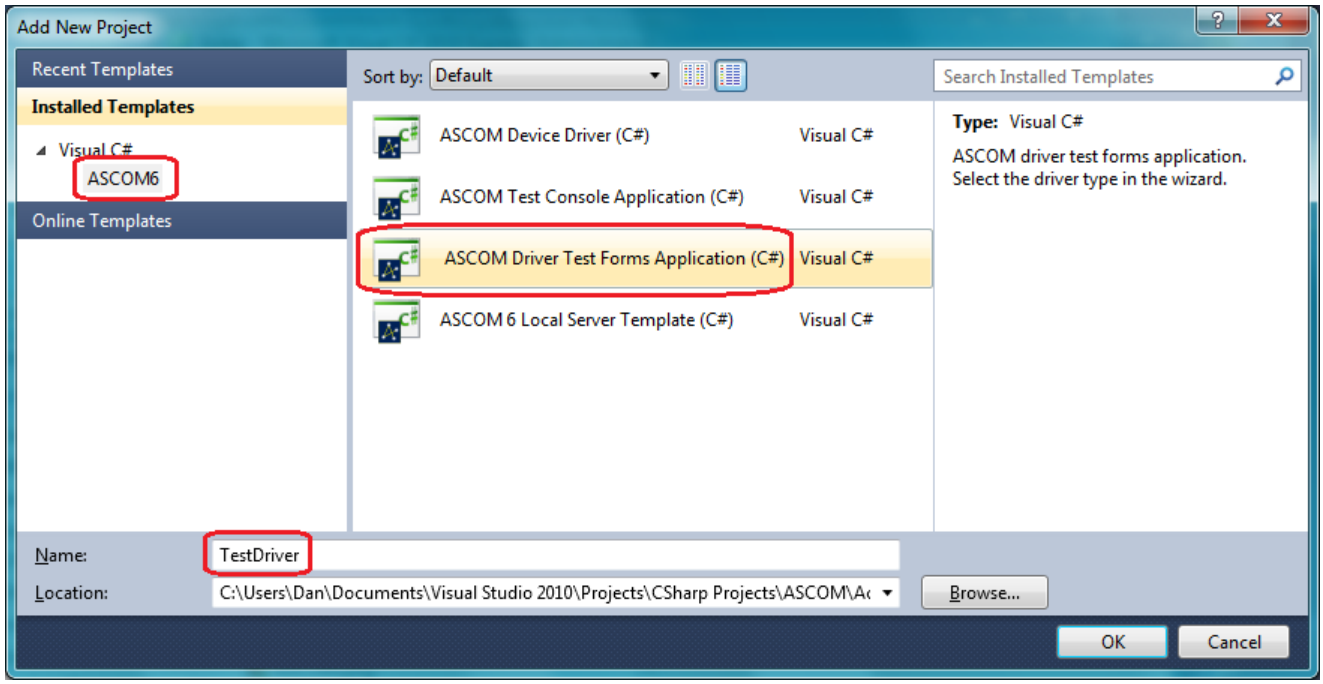
8) Select ASCOM Focuser Chooser➢Properties... to get the Acme Setup dialog for the Focuser



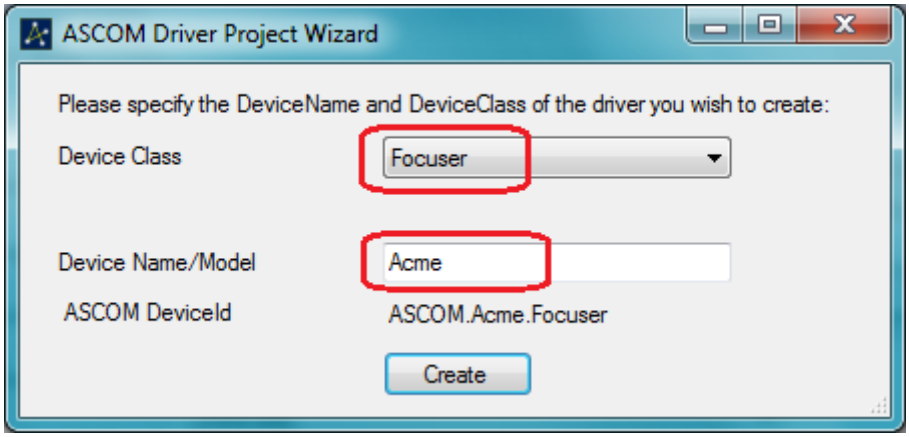
9) Run the Check Conformance and verify that no errors, warnings or issues are found and the Focuser driver passes ASCOM validation!!



10) Add New Project for application for testing the driver
- Right-Click solution name in Solution Explorer➢Add➢New Project...
- **ASCOM Driver Test Forms Application (C#)**
- Name: **TestDriver**



11) ASCOM Driver Project Wizard
    - Device Class - **Focuser**
    - Device Name/Model - **Acme**
    - Create



12) Right-Click Solution Explorer➢TestDriver project➢Set as Startup Project to set the **TestDriver** project as the startup project

13) Build the solution (F6)

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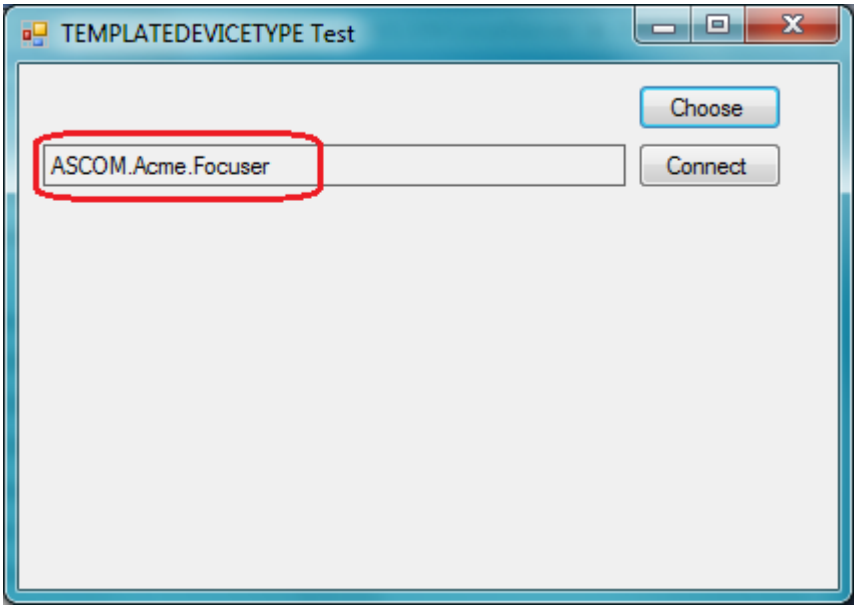

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