



Software Migration Guide

Metrics ICV

Version 4.2

Table of Contents

Introduction.....	3
Changes to Metrics ICV.....	3
New Instrument Support.....	3
User Interface.....	4
OLE Server Enhancement.....	4
File Exports and File Selection.....	5
General User Interface Improvements.....	5
Prober Enhancements.....	5
New Test Algorithms.....	6
VBScript Integrated Developer Environment (IDE).....	6
Obtain a Codeword.....	7
Upgrading from Metrics ICV 3.0 or later to version 4.2.....	7
Microsoft Windows 7 & 10 Installations.....	7
Step 1: Backup the Previous Metrics ICV.....	7
Step 2a: Upgrading Metrics ICV 4.0 or 4.1 to 4.2.....	8
Step 2b: Installing Metrics ICV - New Install.....	15
Procedure to Install ICV.....	15
Upgrading from Metrics ICV version 2.1 and Older.....	25
Step 1: Backup the Previous Metrics ICV.....	25
Step 2: Convert ICS Tests to Algorithms.....	25
Step 3: Modify Test Scripts.....	26
Step 4: Porting ICV version 2.1 Scripts.....	27

Installation of Metrics ICV 4.2

Introduction

The Metrics ICV software product starting with version 4.0 have undergone a significant change in its structure. Beginning with support for Windows 7, all software modules have been completely ported and update to full 32-bit and all Visual Basic 6 components have been updated to VB.NET in Microsoft Visual Studio 2010. Version 4.2 supports Windows 7 & 10.

Some of the modifications that were implemented are based upon years of email, support, and training observations. The new version of Metrics ICV makes a significant attempt to simplify the process of performing measurements for the causal as well as advanced users. Duplicate features, difficulty of using a probe station for automation, and integration have been addressed.

Changes to Metrics ICV

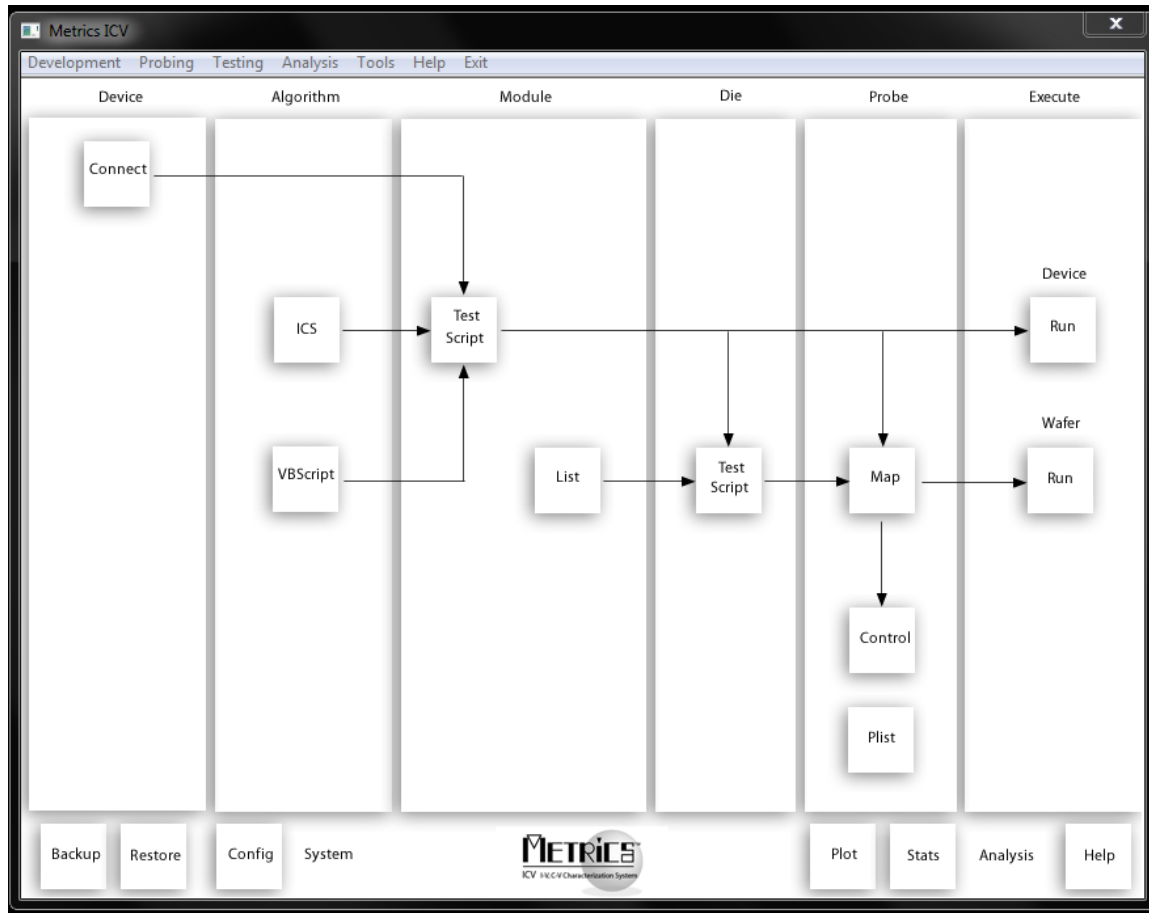
New Instrument Support

Parameter Analyzers/CV Meters

- Agilent B1505A Power Semiconductor Curve Tracer (HCSMU, HVSMU, DHCSMU, MFCMU (No PGU support at this time)
- Keithley 2600A Series Source Measure Unit (multi-instrument support utilizing LXI interface)
- KI 2601A, 2602A, 2611A, 2612A, 2635A, 2636A, 2657A
- Agilent B2900A Series Source Measure Unit (multi-instrument support utilizing LXI interface)
- AT B2901A, B2902A, B2911A, B2912A

Thermal Controllers (requires IDE 4.2 license)

- TMMCO Controllers via NetProbe
- Cascade controllers via Nucleus 4.x Thermal
- Cascade/Suss controllers via ProberBench 7.x Thermal
- Probe Stations
- 4-Dimensions CV92M mercury probe



User Interface

The Metrics ICV 4.x series has a new navigation map that provides a work-flow based model for configuring and executing your tests. The original menu system is still available for advanced users and the functionality of the editors are basically the same as previous versions of the software so there will be a very small learning curve necessary to use this latest version of the software.

OLE Server Enhancement

- Enhanced Metrics ICV ActiveX server functionality to allow for remote execution of tests from external applications.
- Updated example “ICVCtrl.vb” - Windows Forms application to provide code template for developing custom applications (i.e. custom operator interfaces written in VB.NET or from VBA in other Microsoft products like Excel).

File Exports and File Selection

- Updated File menu “Export” to IC-CAP file for Keysight IC-CAP 2016.
- Updated export dialog to detect file type and auto select correct file format (.ICS - ICS project binary files, .DAT, .TXT - ASCII output files, and MDM - IC-CAP 2016 measured data files).

General User Interface Improvements

- Increased default width of VBScript Editor in Metrics IDE and added keyboard accelerators for Save, Select All, Cut, Copy, Paste, Define Inputs, Outputs and Print.
- Increased the default width of VB script “Algorithm” setup wizard and added column headers explaining column content making parameter descriptions visible and easier to read.
- General clean-up of default window location coordinates for pop up wizards (i.e. execute VBScript Algorithm setup, Edit Wafer Map, Instrument polling window).
- Updated File “Save” and “Save As” dialogs to display the “Save” button instead of “Open”.
- Enhanced Runtime Reports to allow display of high precision values.
- Enhanced “System Config->Configuration Manager” by added “Output Format” and “Output Significant Digits” properties.
- Full implementation of block move of multiple selected items in module script and die script editor.
- Implemented “Stop” function in runtime status dialog during temperature testing to allow the pre-heat or temperature soak to be aborted by the user and have thermal chuck return to ambient temperature.

Prober Enhancements

- Updated “MoveChuckContact” command to support ProberBench 6 format in “pdpbench” driver for Suss PA200/PA300 stations.
- Updated “NucleusVision.svbs” driver to add additional error reporting and logging capability.
- Added auto naming for output datafile when performing full-auto probing with the "Append to single data file" if enabled. All wafer data is now written to an auto-generated data file “<user-prefix>__Lot__MM_DD_YY_HH_MM_SS_AM?PM.dat” to store test results for multiple wafers in a wafer test run.

- Changed 0 deg slot orientation for wafer map to match auto prober map definitions. Note: This will require that older wafer map files be updated to correct orientation in existing MAP files.
- Added OCR support for wafer Id to the TEL P8 prober driver. Now sends 'n' command to return wafer ID from OCR module. If OCR is not installed or supported then 'w' command returns slot number.
- Changed wafer flat location in Metrics Miner wafer view to coincide with changes to wafer map definition.

New Test Algorithms

(Not included with the Metrics ICV Perpetual License)

The Metrics ICV Annual license is now the IDE (Integrated Development Environment) optional add-on product which includes test algorithms for CV Analysis, Wafer Level Reliability, Non-Volatile Memory testing, and other general test algorithms. In addition, PGU libraries that support the Agilent 8110A/81110A are provided.

VBScript Integrated Developer Environment (IDE)

The Metrics ICV VBScript Algorithm support has undergone major enhancements. There is now an Integrated Developer Environment with libraries of control for IV instruments and switch matrix equipment. In addition, a published interface is provided for the creation of new customer-designed probe and thermal drivers.

New Libraries:

- Control for parameter analyzers
- Switching control
- Thermal Control
- Probing Control

Obtain a Codeword

Please visit our website at www.metricstech.com to register your software, obtain your log-in credentials and be issued a temporary or permanent codeword. This process is typically completed within 24 hours or less.

Upgrading from Metrics ICV 3.0 or later to version 4.2

Because there is no in-place upgrade for moving from Microsoft Windows XP to Windows 7 or 10 Operating System (OS) installations a new installation of Metrics ICV 4.2 is required. It is recommended that you also perform this process on a new computer with a new installation of Windows 7 or Windows 10, and then restore the ICS project files and ICV algorithms.

Microsoft Windows 7 & 10 Installations

To install Metrics ICV 4.2 with a Windows 7 or 10 OS, please perform the following steps:

Step 1: Backup the Previous Metrics ICV

The Metrics ICV setup program requires that you backup and uninstall the previous version. To do this, please perform the following steps:

DO NOT LEAVE YOUR BACKUP ARCHIVE IN THE METRICS DIRECTORY! COPY THE BACKUP.ZIP FILE TO A DIFFERENT LOCATION LIKE A USB DRIVE.

1. Go to the File Menu and select Backup
2. Enter the name of the backup ZIP archive in the default directory (i.e. C:\METRICS\ backup.zip)
3. Allow the backup utility to complete then copy the .ZIP file to another drive location.

After upgrading, some of the functions of the software will require that older projects or features be modified.

Metrics ICS files are now stored in the windows file system. Existing ICS tests should be opened and then saved in the C:\Metrics\algs directory. (*see Step 2 - Convert ICS Tests to Algorithms - p.25) of this document.

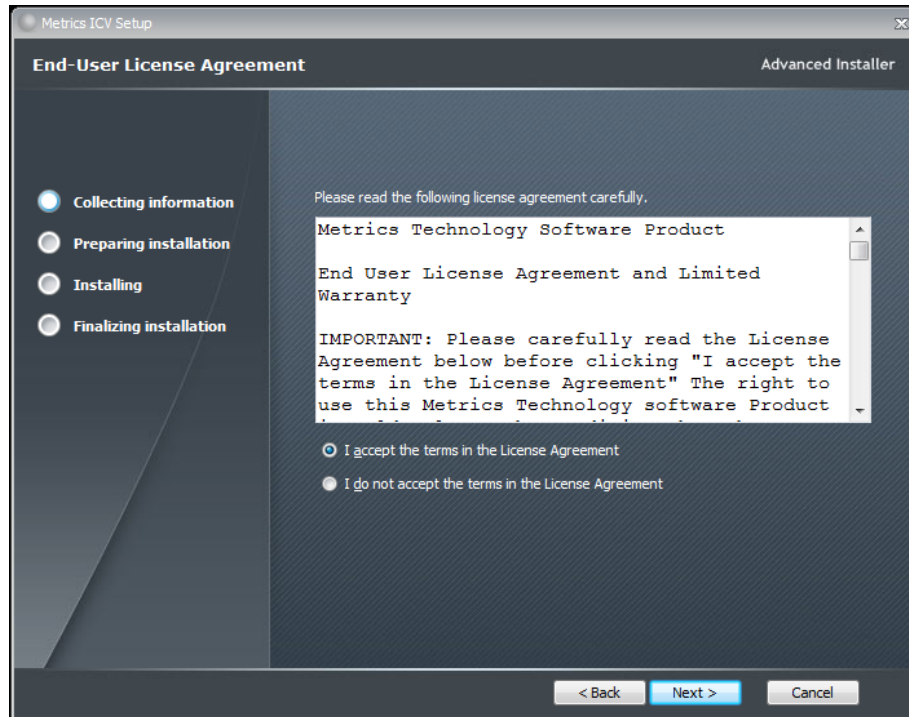
Step 2a: Upgrading Metrics ICV 4.0 or 4.1 to 4.2

1. Download the Metrics ICV installer **MTICV-42.exe** to the hard drive of your computer.
2. Select the **MTICV-42.exe** application icon to start the installation program.

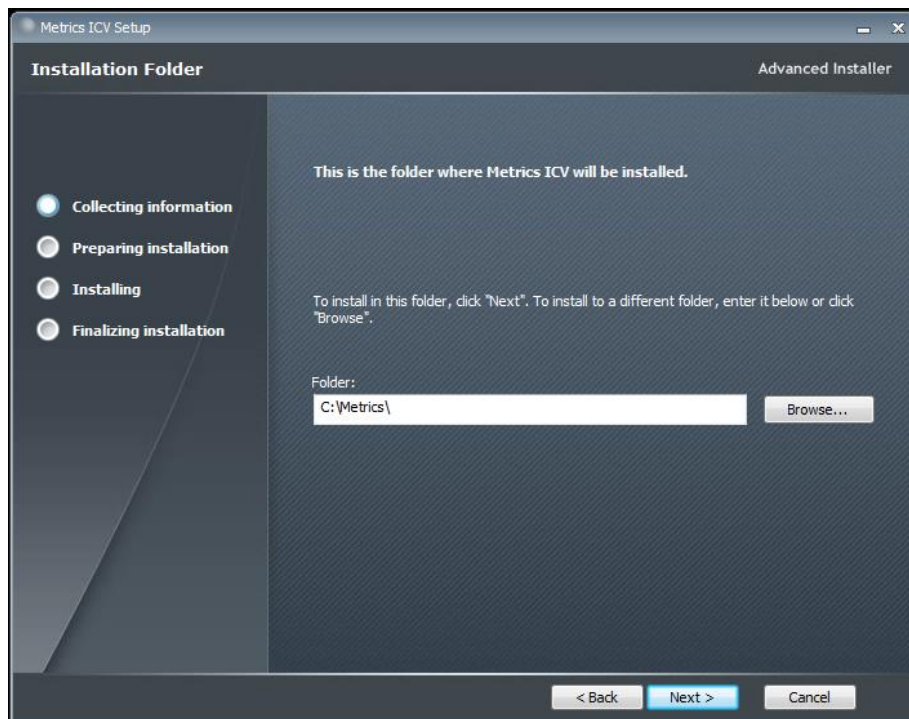
NOTE: The installer may take up to 10 seconds or longer to uninstall the previous version of the software before displaying the Welcome panel.



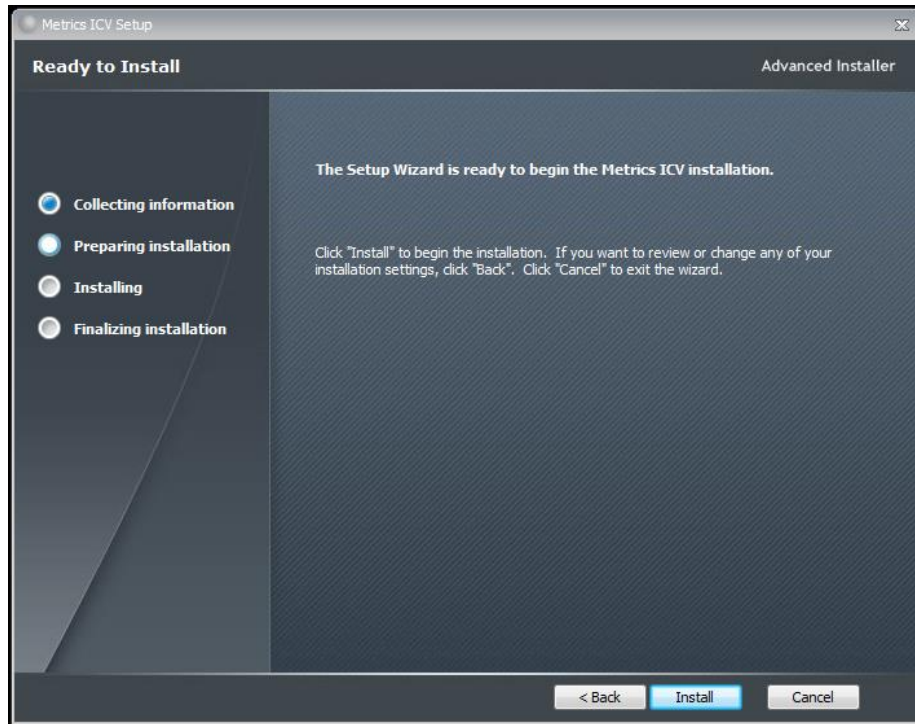
3. Click **Next** button on the "Welcome" panel.



4. Read the "Software License Agreement" and click the **I agree to the terms in the License Agreement** button to agree to the terms, if you agree. Then click **Next**.



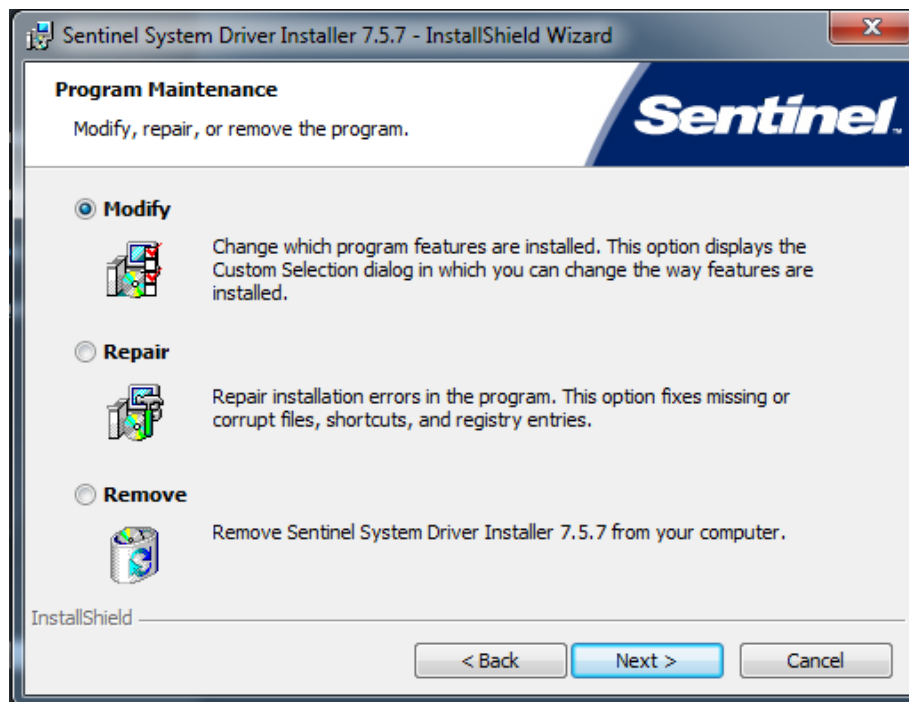
5. Choose "destination location" for installation and click the **Next** button.
NOTE: It is recommended to select the default C:\Metrics\ as the location to maintain compatibility with previous versions of the software backups.



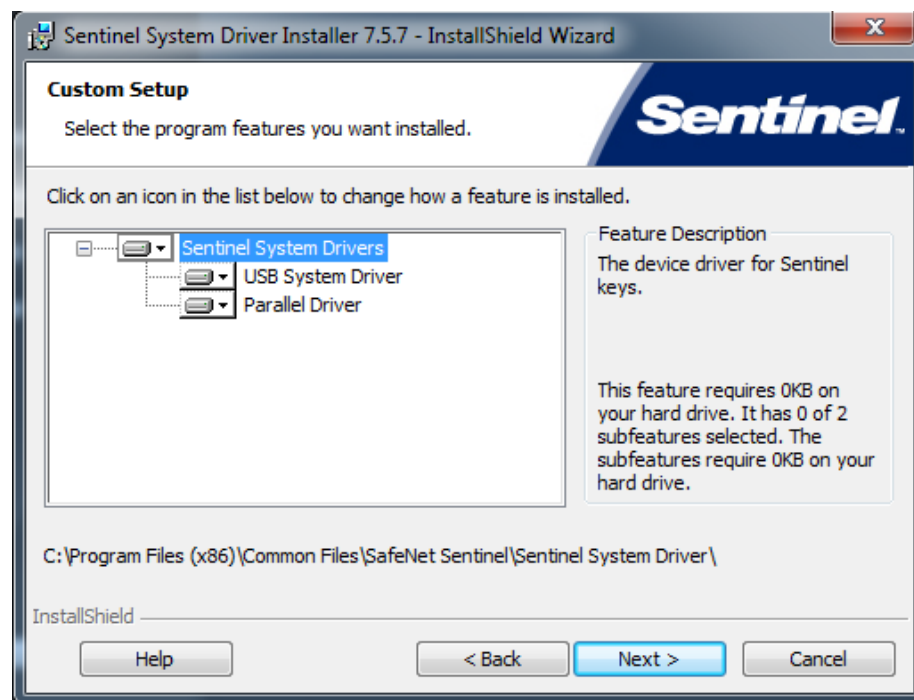
6. Click the **Install** button to begin the Metrics ICV installation.



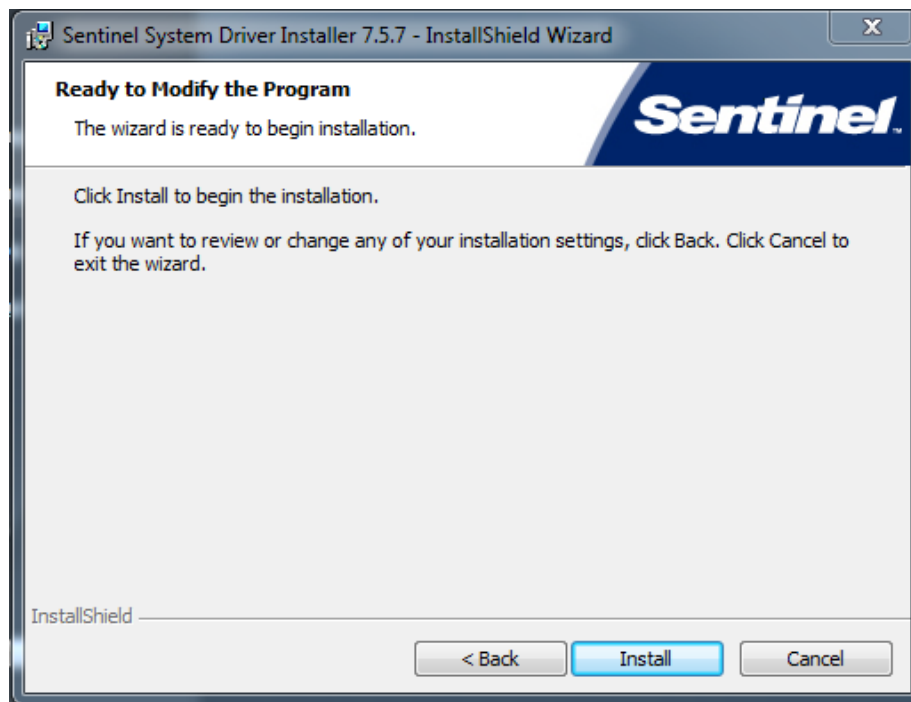
7. The Safenet Sentinel Pro driver installation will now be started to install the security license components.



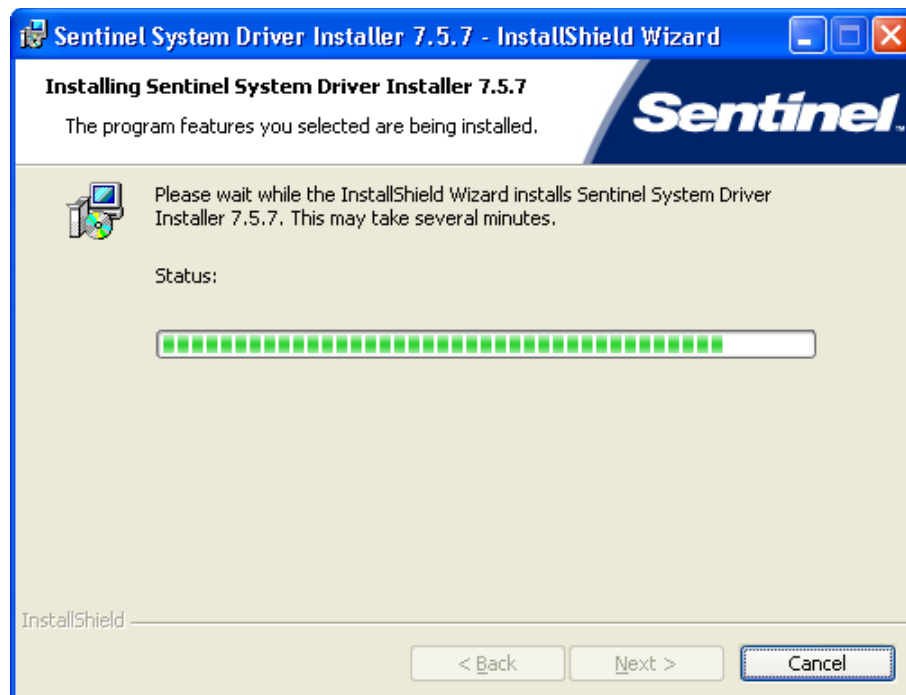
8. Select **Modify** setup type and click the **Next** button.



9. Select **Custom** setup type and click the **Next** button.



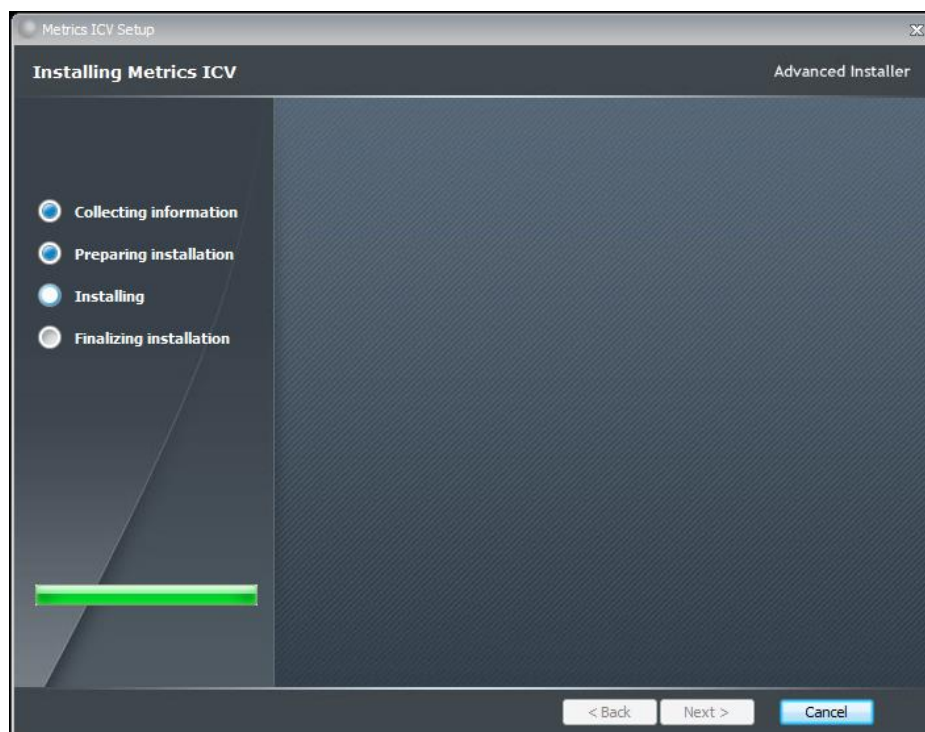
10. Click **Install** to start the Sentinel Driver installation.



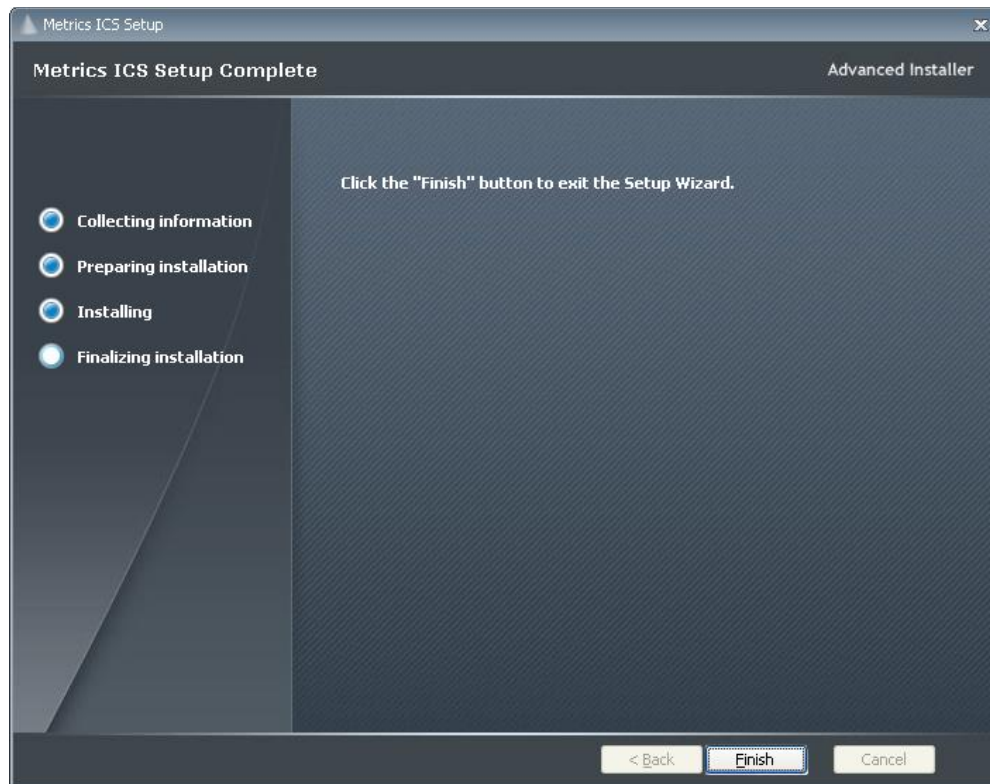
11. Allow the installation to complete.



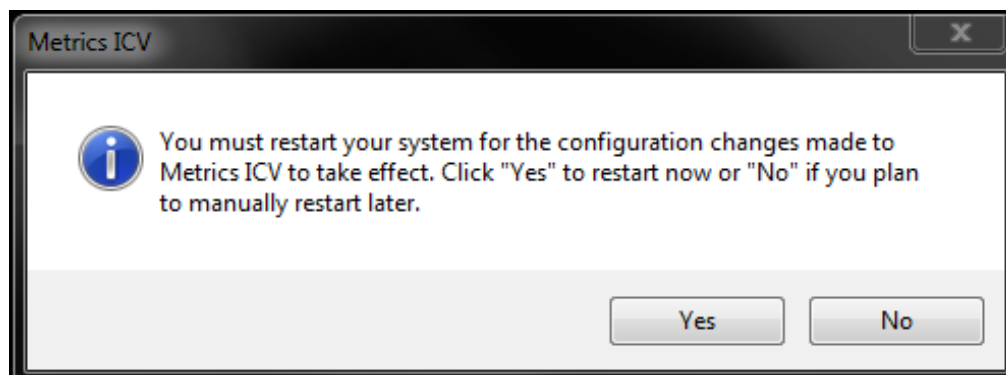
12. Then click Finish to continue with the Metrics ICS installation.



13. Allow the Metrics ICS installation to complete.



14. Then click Finish to complete the installation.
15. After the installation is finished, re-start the computer.



16. Connect the USB Security Key to the USB port of your computer. The Windows Hardware Manager should detect the USB device as Safenet USB SuperPro/UltraPro and should automatically install the driver for the device.

NOTE: It is recommended the security plug be connected directly to the computer instead of through a USB hub or keyboard port if possible.

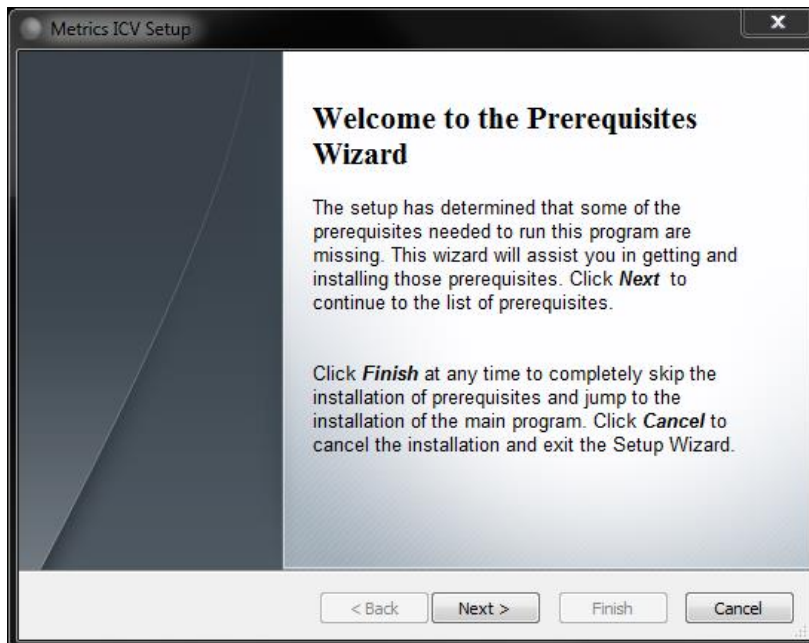
Step 2b: Installing Metrics ICV - New Install

The installation program for the Metrics ICV software installs all components necessary to run Metrics ICV.

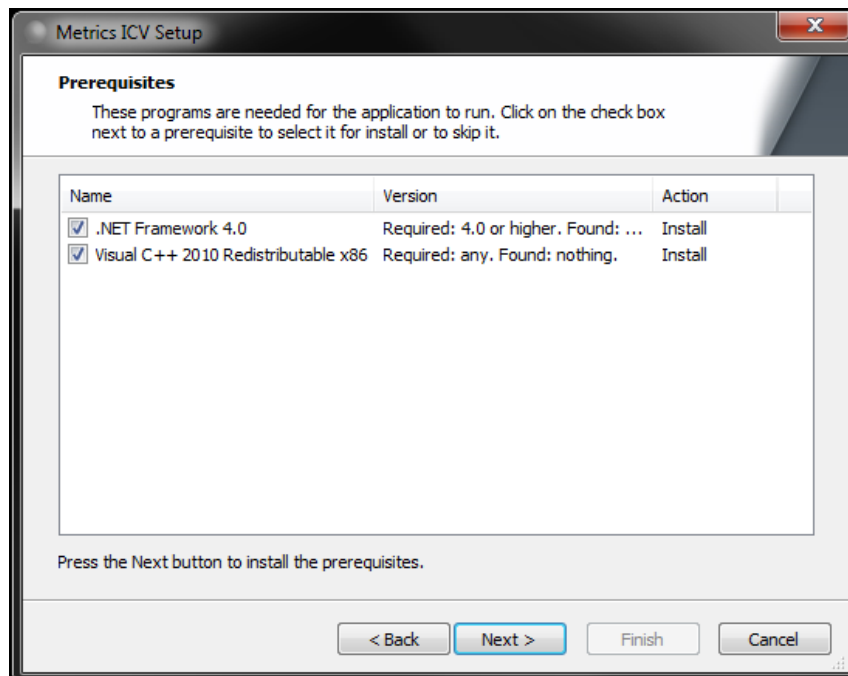
Procedure to Install ICV

1. Insert the Metrics ICV install CD into the CD-ROM drive of your computer.
2. The CD-ROM should automatically start the **MTICV-42.exe** installation program. If the installation does not start automatically then select right click on the CD drive icon in Windows Explorer and then select "explore". Select the **MTICV-42.exe** application icon to start the installation program manually.

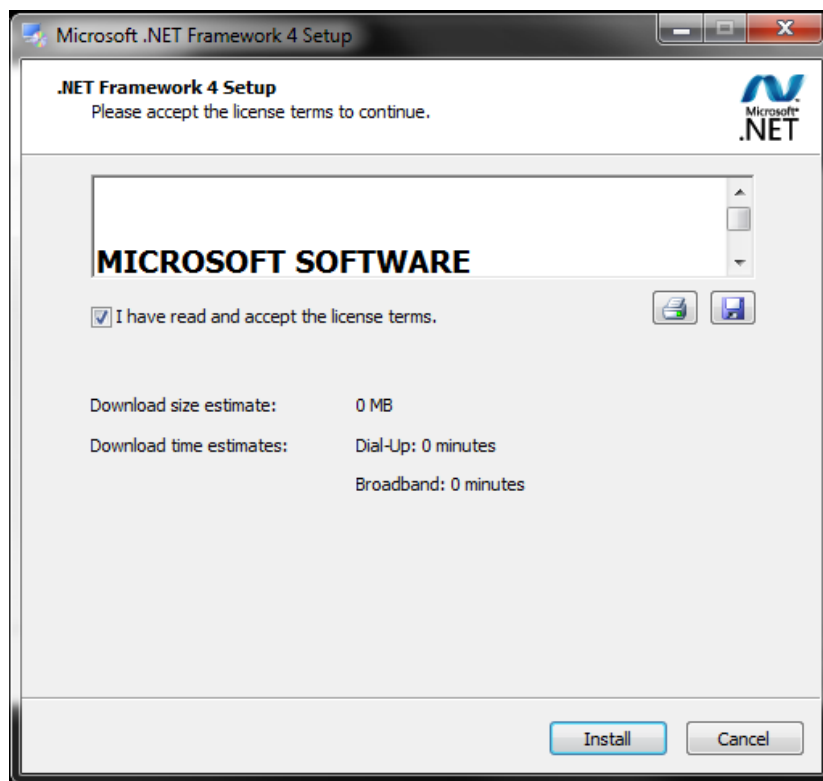
The installation will check for any prerequisites and start the Prerequisites Wizard to install the necessary software. Please note installation of some of these software components requires acceptance of the 3rd Party license agreements displayed during installation. Installation of some components can take some time so you should allow more time for installation if these components are not already installed on your workstation PC.



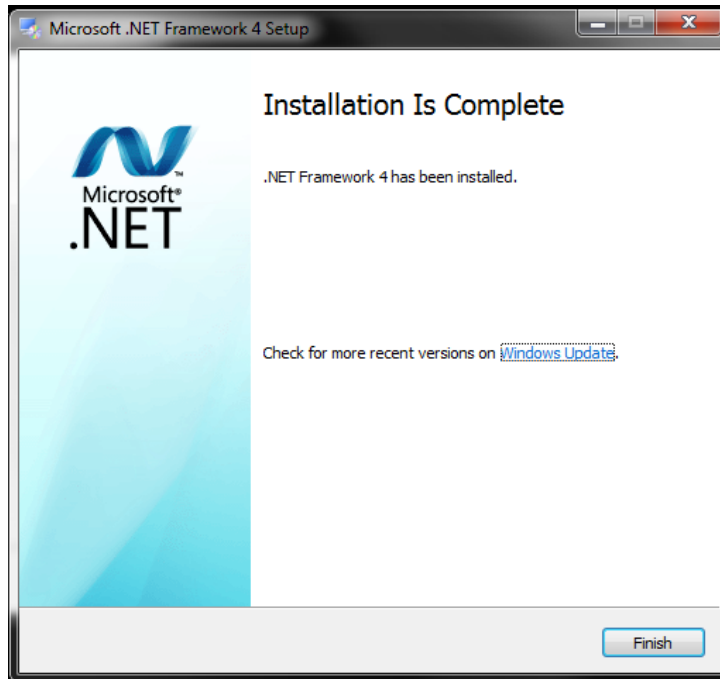
3. Click **Next** button on the "Welcome" panel.



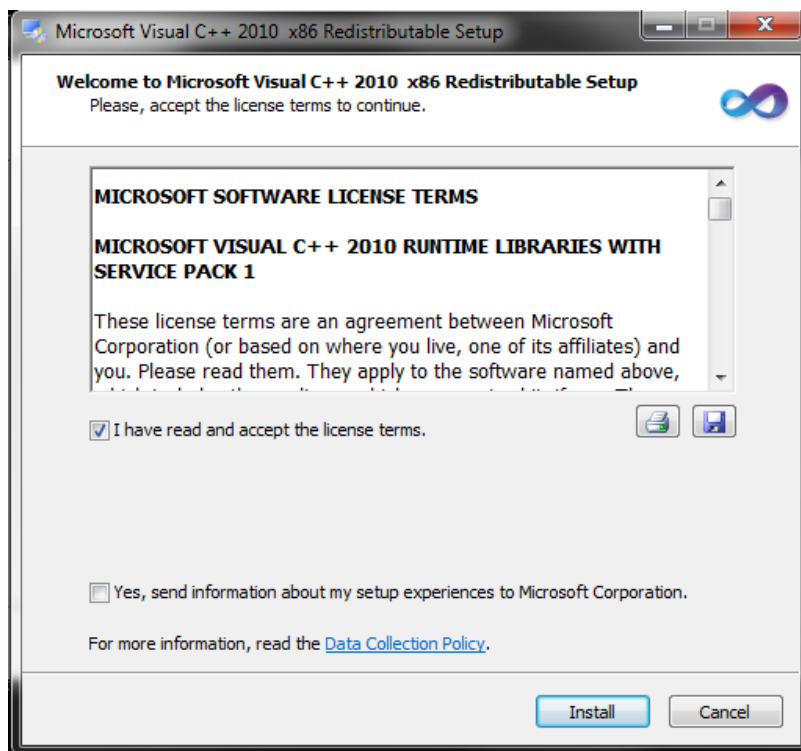
4. Click **Next** button on the "Prerequisites" panel.



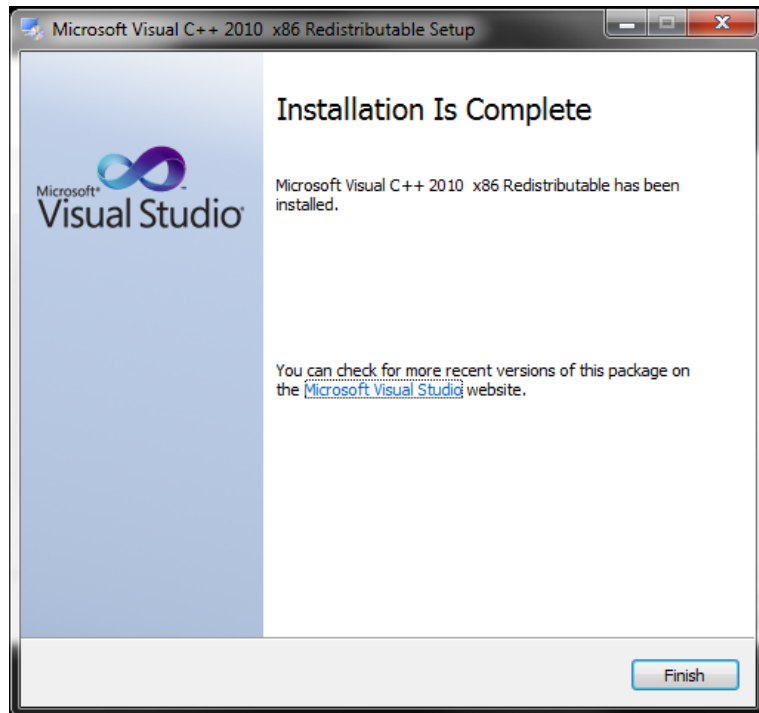
5. Click **I have read and accept the license terms** then click the **Install** button on the "Microsoft .NET Framework" panel.



6. Click **Finish** to continue.



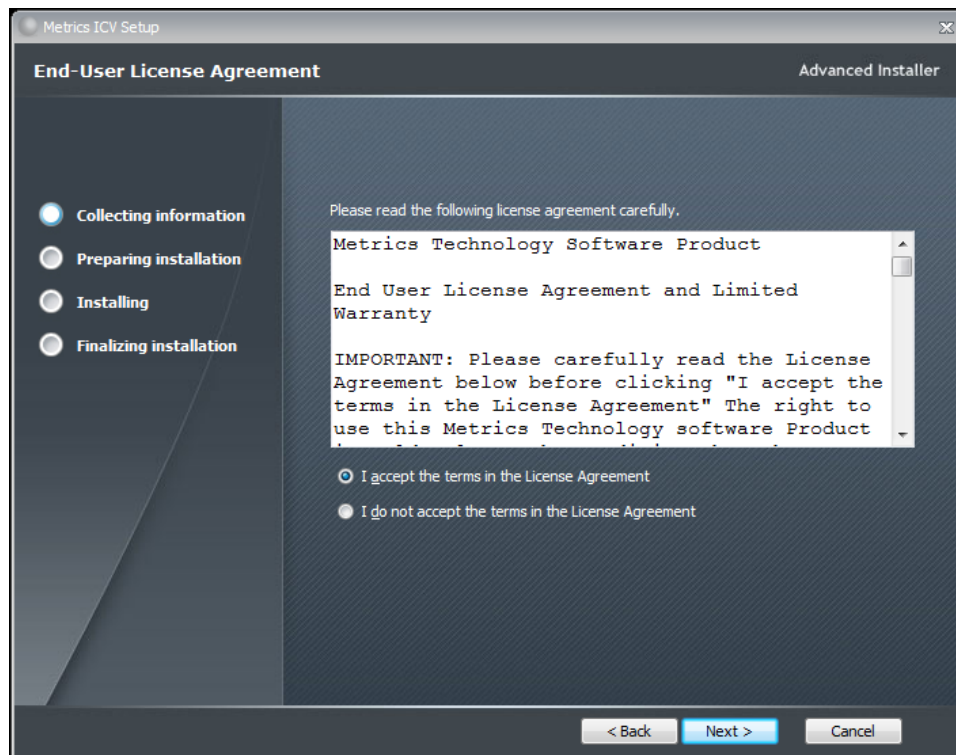
7. Click **I have read and accept the license terms** then click the **Install** button on the "Microsoft Visual C++ 2010 Redistributable " panel.



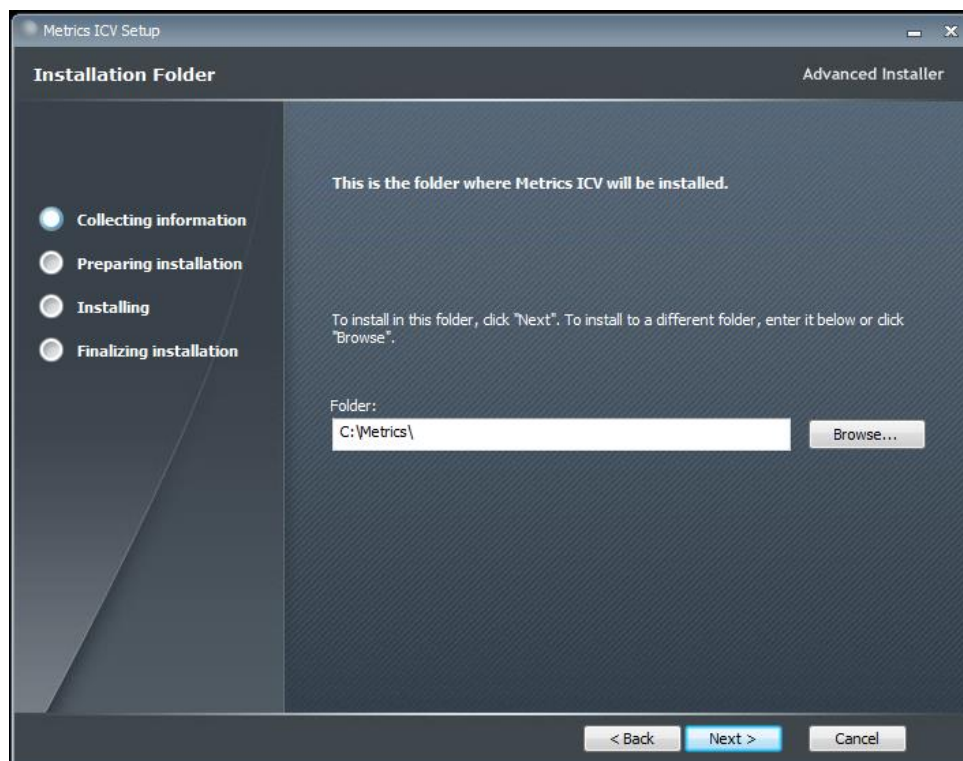
8. Click **Finish** to continue.



9. Click **Next** button on the "Welcome" panel.

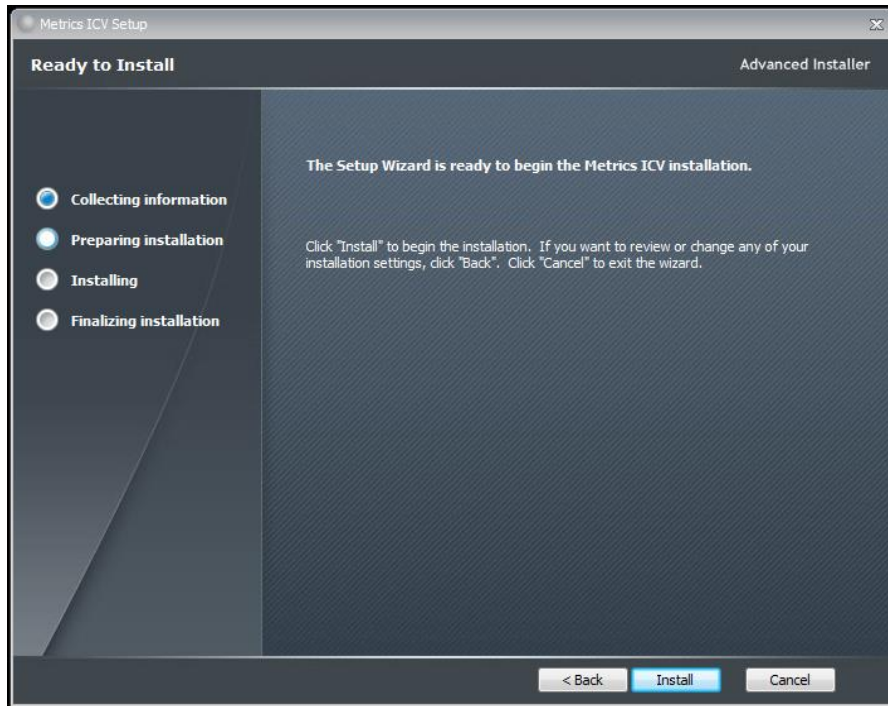


10. Read the "Software License Agreement" and click the **I agree to the terms in the License Agreement** button to agree to the terms, if you agree. Then click **Next**.



11. Choose "destination location" for installation and click the **Next** button.

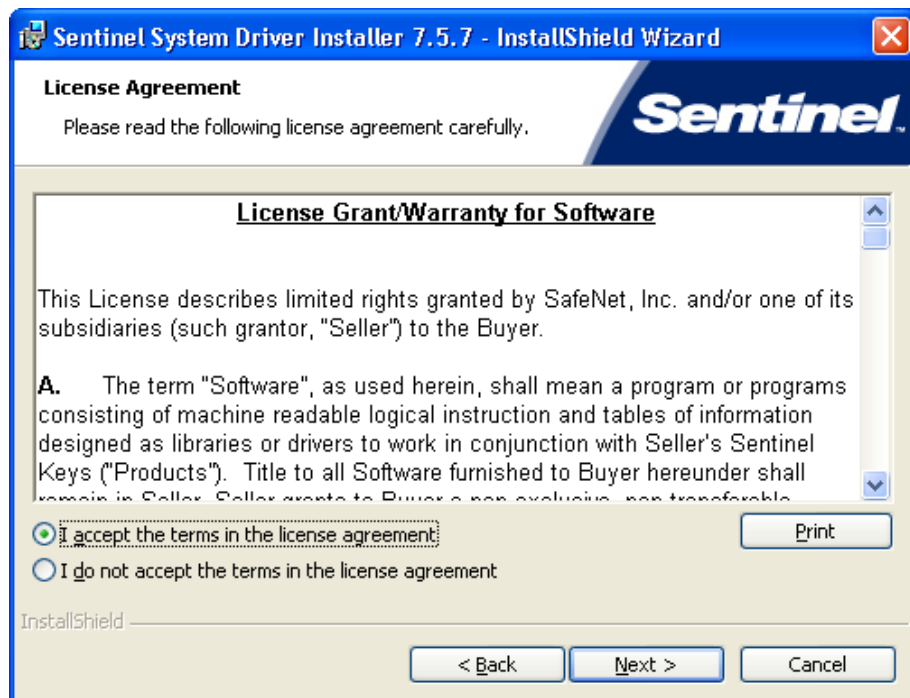
Note: It is recommended to select the default C:\Metrics\ as the location to maintain compatibility with previous versions of the software backups.



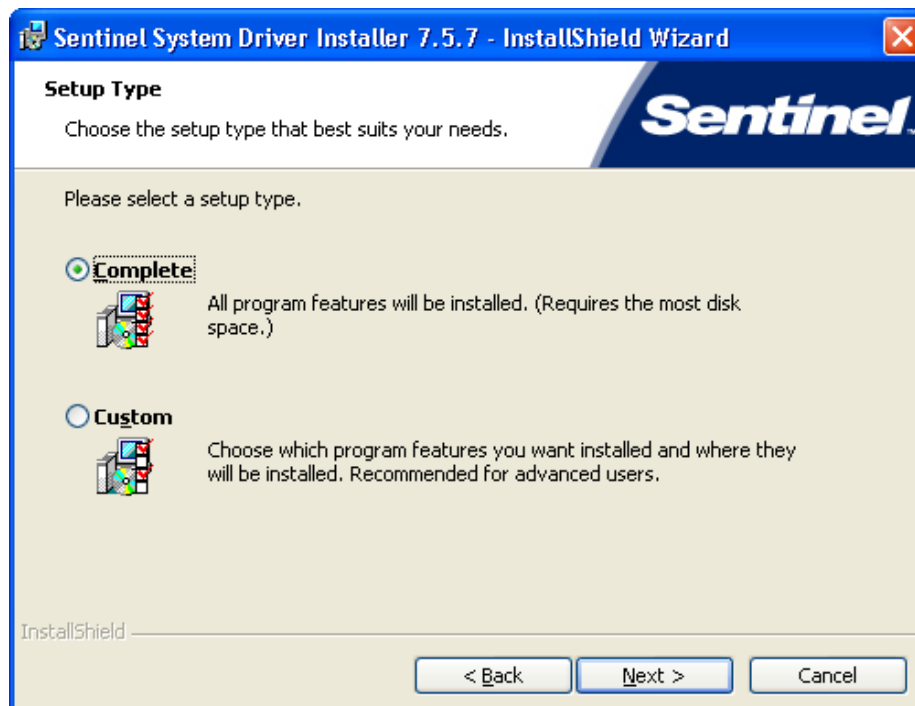
12. Click the **Install** button to begin the Metrics ICS installation.



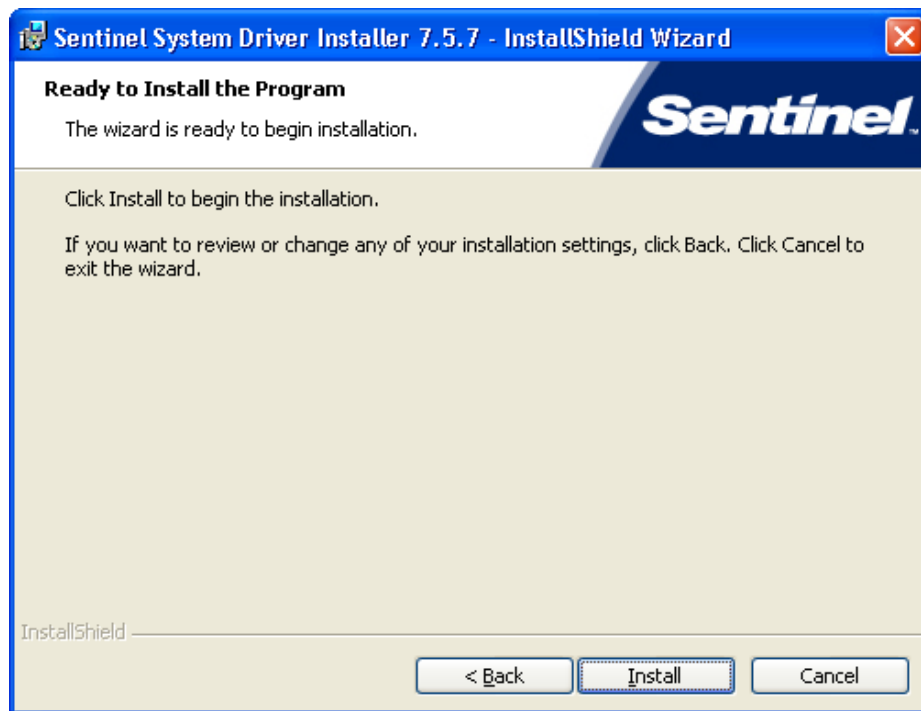
13. The Safenet Sentinel Pro driver installation will now be started to install the security license components.



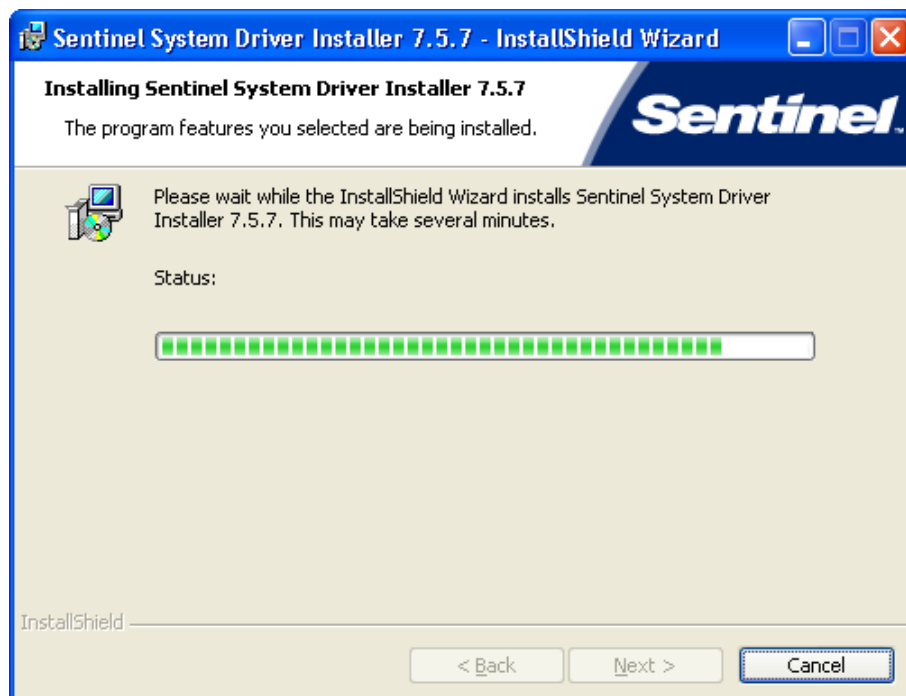
14. Read the "Software License Agreement" and click the **I agree to the terms in the License Agreement** button to agree to the terms, if you agree. Then click **Next**.



15. Select **Complete** setup type and click the **Next** button.



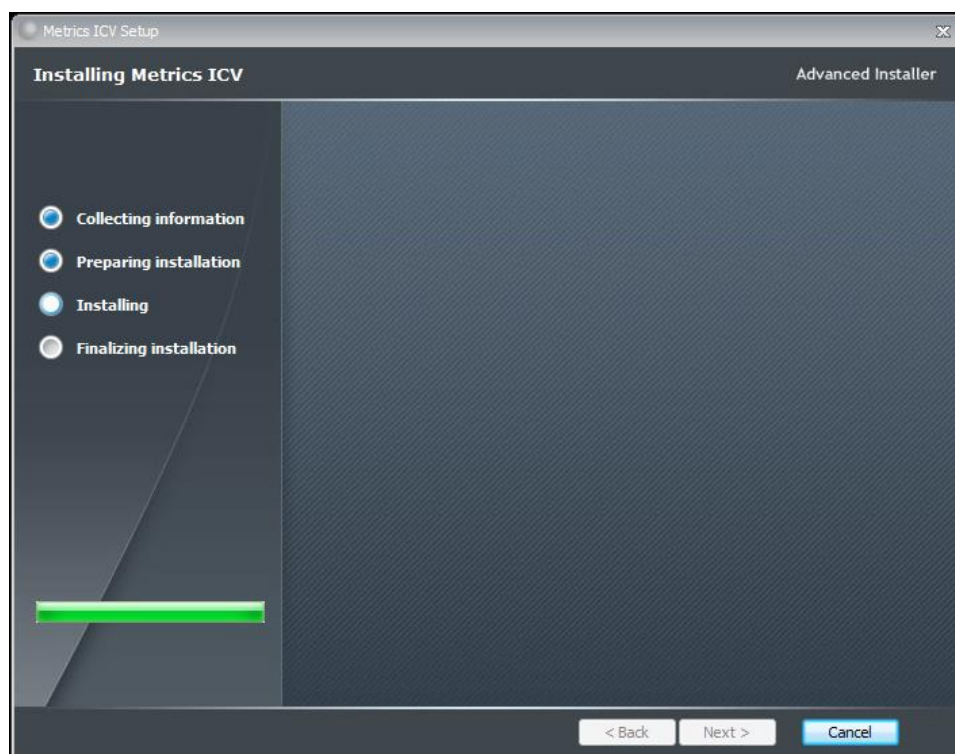
16. Click **Install** to start the Sentinel Driver installation.



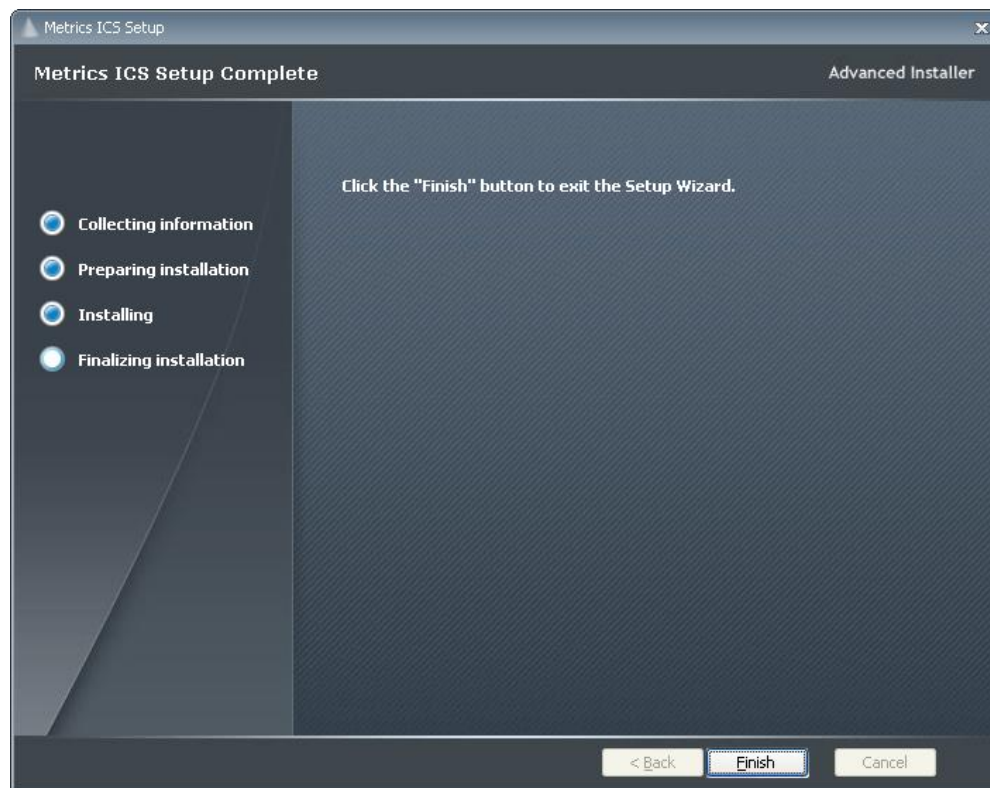
17. Allow the installation to complete.



18. Then click Finish to continue with the Metrics ICS installation.

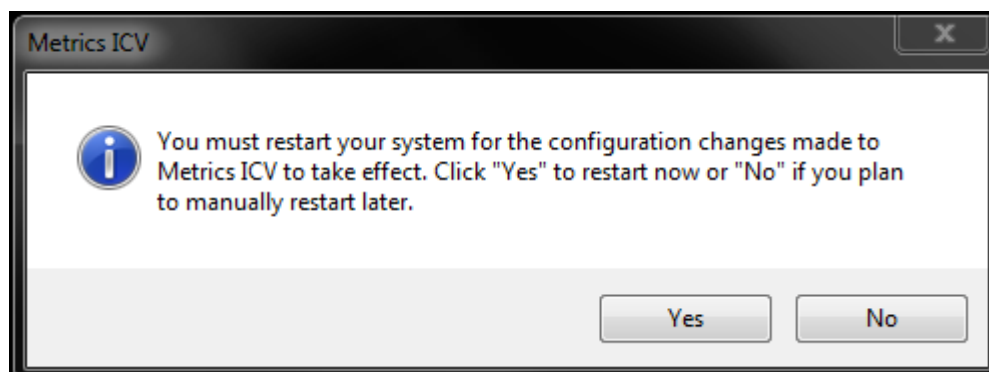


19. Allow the Metrics ICSV installation to complete.



20. Then click Finish to complete the installation.

21. After the installation is finished, re-start the computer.



22. Connect the USB Security Key to the USB port of your computer. The Windows Hardware Manager should detect the USB device as Safenet USB SuperPro/UltraPro and should automatically install the driver for the device.

Note: It is recommended the security plug be connected directly to the computer instead of through a USB hub or keyboard port if possible.

Upgrading from Metrics ICV version 2.1 and Older

The process to upgrade Metrics ICV requires that you backup and uninstall the previous version, install and configure the new version, convert tests to algorithms, and modify existing scripts. To do this, please perform the following steps:

Step 1: Backup the Previous Metrics ICV

The Metrics ICV setup program requires that you uninstall the previous version. To do this, please perform the following steps:

**DO NOT BACKUP YOUR SOFTWARE INTO THE METRICS DIRECTORY!
BACKUP TO A DIFFERENT LOCATION.**

1. Backup Module scripts (.scr).
2. Backup Die scripts (.die).
3. Backup Wafer Plans (.map)
4. Backup Module stepping lists (.mod)
5. Backup Probe Lists (.plist)
6. Backup Data files (.dat)
7. Run the Uninstall Programs from the Control Panel of Microsoft Windows. Delete all programs with Metrics in their name. Click yes to uninstall common components.
8. Delete the Metrics directory.

Step 2: Convert ICS Tests to Algorithms

In version 2.1 VBScript and ICS tests were treated as separate types of tests. The tests are generated using different tools, but the result is the same, an algorithm to perform a measurement. Beginning with ICV version 3.8 all such tests are referred to as algorithms, regardless of the tool (ICS or VBScript) used to generate them. As result, the algorithms are saved using the windows file system. The location of algorithms is within the Metrics\algs directory. Note that sub-directories may be used for organizing the groups of algorithms.

The first step for creating an algorithm from an ICS version 3.6.0 or older test is to use ICS Export (Project Binary) to save the ICS project to a .ICS file in the local Windows file system. These .ICS files can then be imported to the latest ICS 4.2 and then resaved to the ICV C:\Metrics\algs directory for execution from the module script "Execute Algorithm" component available from the Module Script Editor.

Note: It may seem like a lot of entries from the ICS database may need to be converted. However, the ICS database contains a combination of both the test settings (i.e. device, pin, source unit settings) and data generated. You only need the test settings for use with ICV as the data will be regenerated. This will result in the number of old ICS tests to be converted to actually be very small relative to the number of data files that are contained in the old ICS database.

To Convert a VBScript Test to an Algorithm

1. From your backup created in Step 1: Backup the Previous Metrics ICV, find the VBScript algorithm.
2. Copy the algorithm to the C:\Metrics\algs directory. Either copy the file in this directory or create a New Folder within this directory and copy the file to that directory.

Step 3: Modify Test Scripts

In version 2.1 Module and Die Scripts included some functions that have been deprecated.

The changed functions are annotated in the new module or die script editor with a {obsolete item} comment. To run in a ICV 4.2 all of these functions must be replaced. Some functionality will have to be re-implemented as algorithms using VBScript so there may not be a direct replacement (i.e. while, for-next, etc.).

To Convert an Obsolete Function

1. From ICV open a Module Test by selecting Development -> Module Test Editor or click the Edit Test button under the Module column on the main ICV navigation map.
2. Select the module script you want to modify.
3. Click the obsolete line in the script.
4. Click **Delete** and confirm that you wish to delete the line.
5. Click **Insert**.
6. Select the replacement function
7. Configure the replacement function that you wish to use.
8. Save the script when all functions are converted.

Step 4: Porting ICV version 2.1 Scripts

Several functions from ICV version 2.1 have been removed for the purpose of improving the software, providing operator safety, or improving the stability of the software. The result is that some ICV version 2.1 scripts will require modification to run in ICV version 4.2.

The following functions must still be ported to use ICV version 2.1 scripts:

- Switching Control- Changed to individual DC (device connection) files using the Device Connections Editor.
- Run ICS Test and Run ICS Sequence are replaced by Execute Algorithm.
- Inputs to ICS Tests accessed by the Execute Algorithm function will continue to be available, the values are limited to +/- 20V and +/- 100 mA. If a value is passed to the test that exceeds this level, the default value for the test will be used instead. For tests that require larger values to be received as Inputs, the ICS algorithm must be called by a VBScript algorithm (please see the VBScript documentation for instructions on how to do this).
- Run LabView- Deleted, this function is no longer supported.
- Run VEE- Deleted, this function is no longer supported.