ACE Installation and Licensing Guide (UG002)

All Achronix Devices

Achronix®
Data Acceleration

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Chapter - 1: General Information and Preparation

ACE (Achronix CAD Environment) and Synopsys® Synplify Pro® for Achronix are provided by Achronix to support the development of user designs for the Speedster®7t FPGA and Speedcore™ eFPGA IP products. The Synplify Pro for Achronix utility synthesizes the user HDL design to produce a physical netlist which is provided to the ACE tool suite to place and route the design in the selected Achronix device. This guide provides details on obtaining, installing and licensing the ACE and Synplify Pro software packages.

Supported Operating Systems

ACE and Synplify Pro for Achronix are provided for both Windows and Linux platforms. For details on versions, releases and kernels, refer to the Release Notes, "System and Tool Requirements" section for the specific ACE version.

Minimum Memory Requirements

The recommended system RAM capacity to support ACE and Synplify Pro for Achronix is detailed in the following table.

Table 1: ***ACE and Synplify Pro for Achronix Recommended RAM Capacity***

Criteria		Amount
Minimum	≤100k LUTs	32 GB
Recommended	>100k LUTs	64 GB

Register for an Achronix Support Account

In order to obtain software and evaluation licenses, you must register for an Achronix support account by following these steps:

1. Fill in your details using our Registration Form to create your support account. Registration helps us set up your account and enable self-service so that you can request licenses and download our tools and documentation. The registration also creates your support account for answering technical questions. If this is your first time contacting Achronix, a sales person may contact you to obtain additional information about your needs and interests.
2. When you register for a support account, you will receive an email with the subject "Welcome to Achronix" which includes an invitation link to the Achronix Support Portal, our technical support site. Click the invitation link to set up your support account. If you do not see this email, please check your spam folder.
3. If you have technical questions, please log into the Achronix Support Portal, to file a support ticket. Alternately, when your support account is set up, questions can be sent via email to support@achronix.com. This automatically logs the issue in our support system. Feel free to file separate tickets for each issue you see.

Download the Software

Obtaining Credentials for Download Access

If you have not already done so, follow the instructions above to register for an Achronix support account. Follow the instructions in the Obtaining Software Licenses (see page 9) chapter to obtain your software licenses. Access to the instructions for downloading the software is granted up to one hour after the licenses are delivered. See the section Downloading Your Software (see page 15) for details.

Floating versus Fixed Node Licensing

ACE can be installed to use a node-locked or floating license. Node-locked licenses do not require a license server, while floating licenses do. The license server can be hosted on a Linux or Windows machine. Synplify Pro always requires a server.

Floating license configurations require that both client and server machines are connected to the same network. The client machines (i.e., the machines running the ACE and Synplify Pro installations) connecting to a floating license server can be Windows or Linux based regardless of the license server operating system. In other words, a Linux license server can provide licenses to both Windows and Linux clients. Likewise, a Windows license server can provide licenses to both Windows and Linux clients.



Note

Node-locked licensing for Synplify Pro is currently only supported on Windows. Linux installations require a floating license. If you request a node-locked license for Linux, you are automatically provided with a node-locked license for ACE and a single-seat floating license for Synplify Pro.

If you are accessing the license server remotely, you need a floating license.

Chapter - 2: Obtaining Software Licenses

This chapter describes the process of obtaining licenses for ACE design tools and Synplify Pro for Achronix. When installing ACE, you are asked to agree to the Achronix software license agreement. The process is as follows.

Determine the MAC Address of the License Host

Achronix needs the MAC address of the machine for which the license is being generated and the license type (floating or node-locked). MAC addresses are 12 hexadecimal digits long, represented as six pairs of hex digits, with each pair separated by colons (`12:34:56:78:90:AB`) or dashes (`FE-DC-BA-09-87-65`).

Windows

To determine the MAC address for Windows machines, enter the following from the command prompt:

Example ipconfig output

```
D:\examples>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : DEMO-PC
   Primary Dns Suffix  . . . . . . . : achronix.local
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : achronix.local
                                       example.net

Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . : example.net
   Description . . . . . . . . . . . : Realtek PCIe GBE Family Controller
   Physical Address. . . . . . . . . : DE-AD-BE-EF-12-34
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . :
   IPv4 Address. . . . . . . . . . . : 192.168.1.5(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . :
   Lease Expires . . . . . . . . . . :
   Default Gateway . . . . . . . . . : 192.168.1.1
   DHCP Server . . . . . . . . . . . : 192.168.1.1
   DHCPv6 IAID . . . . . . . . . . . :
   DHCPv6 Client DUID. . . . . . . . :
   DNS Servers . . . . . . . . . . . : 192.168.1.1
   NetBIOS over Tcpip. . . . . . . . :
   Connection-specific DNS Suffix Search List :
                                       example.net
```

The minimum information required are the six pairs of hexadecimal numbers following the string "Physical Address" (`DE-AD-BE-EF-12-34` in the example above).

Alternately, using the GUI:

1. From the Start menu, select **Settings** → **Network & Internet**.
2. Under "Advanced network settings", select **Network and Sharing Center** to open the Network and Sharing Center window.
3. Click the primary connection link in your active networks, for example **Local Area Connection**, to open the Status dialog:

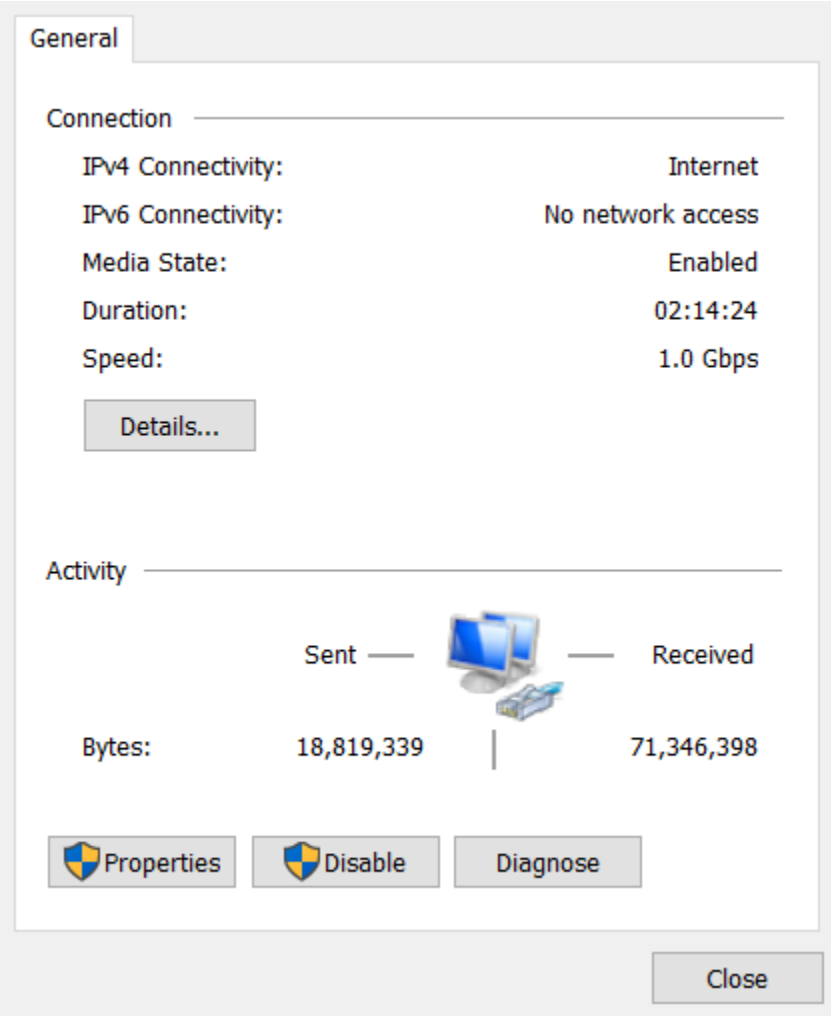


Figure 1: ***Active Network Status Dialog***

4. From the **Status Dialog Box**, click **Details...** to open the Network Connection Details dialog (see below). The information required are the numbers following "Physical Address" (MAC address) in the form 00-01-23-45-67-89.

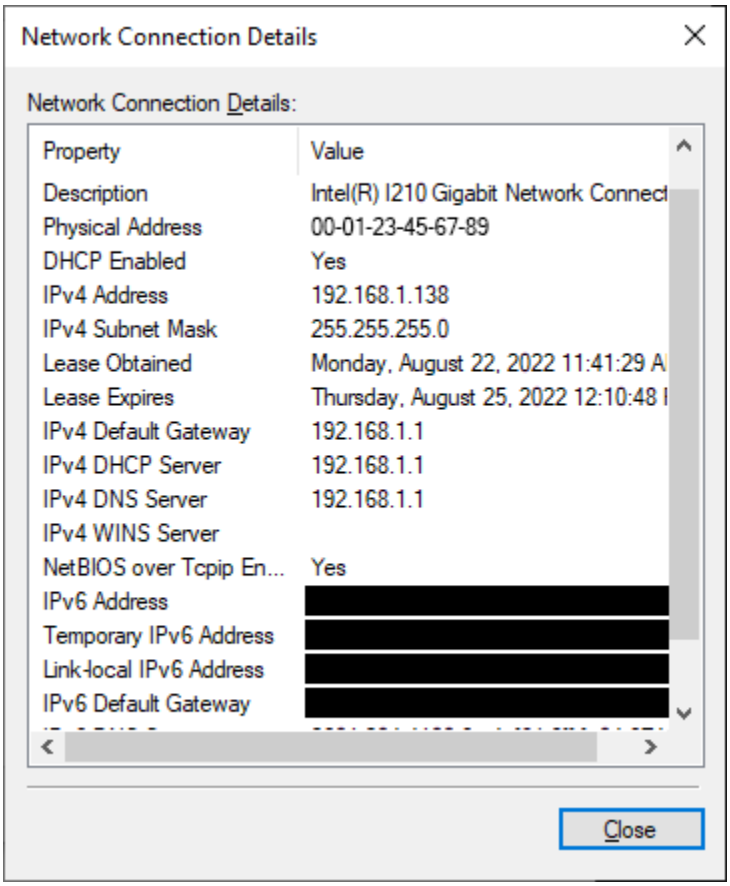


Figure 2: ***Network Connection Details Dialog***

5. Click **Close** on both windows and close the Network and Sharing Center and Settings to return to the desktop.

Linux

In RHEL, the physical network address (or MAC) value is typically called the Ethernet "HWaddr", reported in the form "`00:00:00:00:00:00`" (six pairs of hexadecimal digits separated by colons).

For Linux machines, run the `ifconfig` command to determine the physical network address (or MAC) of the license server. For RHEL/CentOS 7, the physical network address value is typically called "ether". Below is an example of the output:

```
example ifconfig output from CentOS 7

$ /sbin/ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.99.247  netmask 255.255.0.0  broadcast 192.168.255.255
        ether DE:AD:BE:EF:12:34  txqueuelen 1000  (Ethernet)
        RX packets 1763784155  bytes 3080686114867 (2.8 TiB)
        RX errors 0  dropped 35229878  overruns 0  frame 0
        TX packets 1251178054  bytes 2499128995736 (2.2 TiB)
        TX errors 0  dropped 29 overruns 0  carrier 0  collisions 0
```

If ACE has already been downloaded, the MAC address can be determined by running `rlmutil rlmhostid ether` from the `Achronix-Linux/bin` (or bin64) directory.

Request an Evaluation License

If you have not already done so, see the section "Register for an Achronix Support Account (see page 7)" to set up a support account with Achronix.

> **Warning!**
>
> When accessing a remote license server, running Synplify Pro in batch mode, or if remotely accessing a machine with the tools installed (including remote desktop) request a *floating* license. Requesting a node-locked license for Linux automatically provides a node-locked license for ACE and a single-seat floating license for Synplify Pro.

Follow these steps to request an ACE evaluation license:

1. Log into your Achronix support portal account.
2. Click the link "Submit a request" located next to your user name.

3. Select **ACE License Request Ticket** under Submit a request:

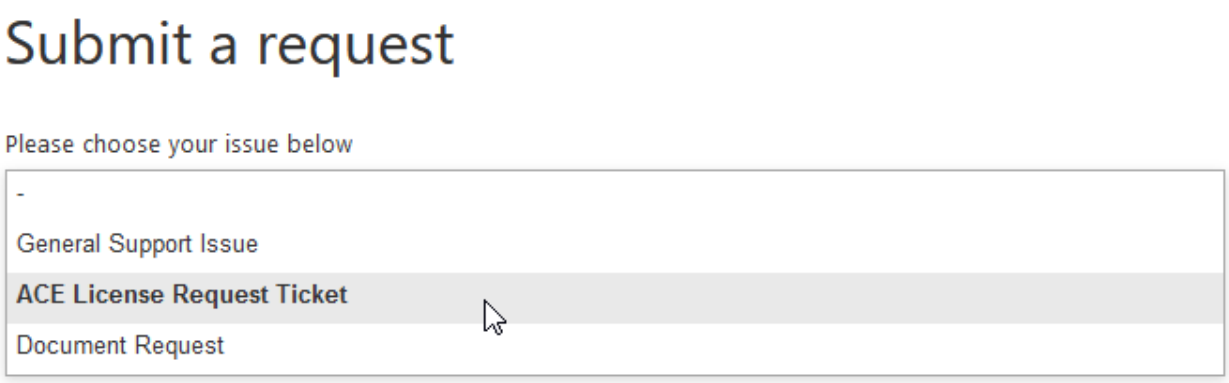


Figure 3: ***ACE License Request Ticket Example***

4. Fill in the fields per the example substituting your information:

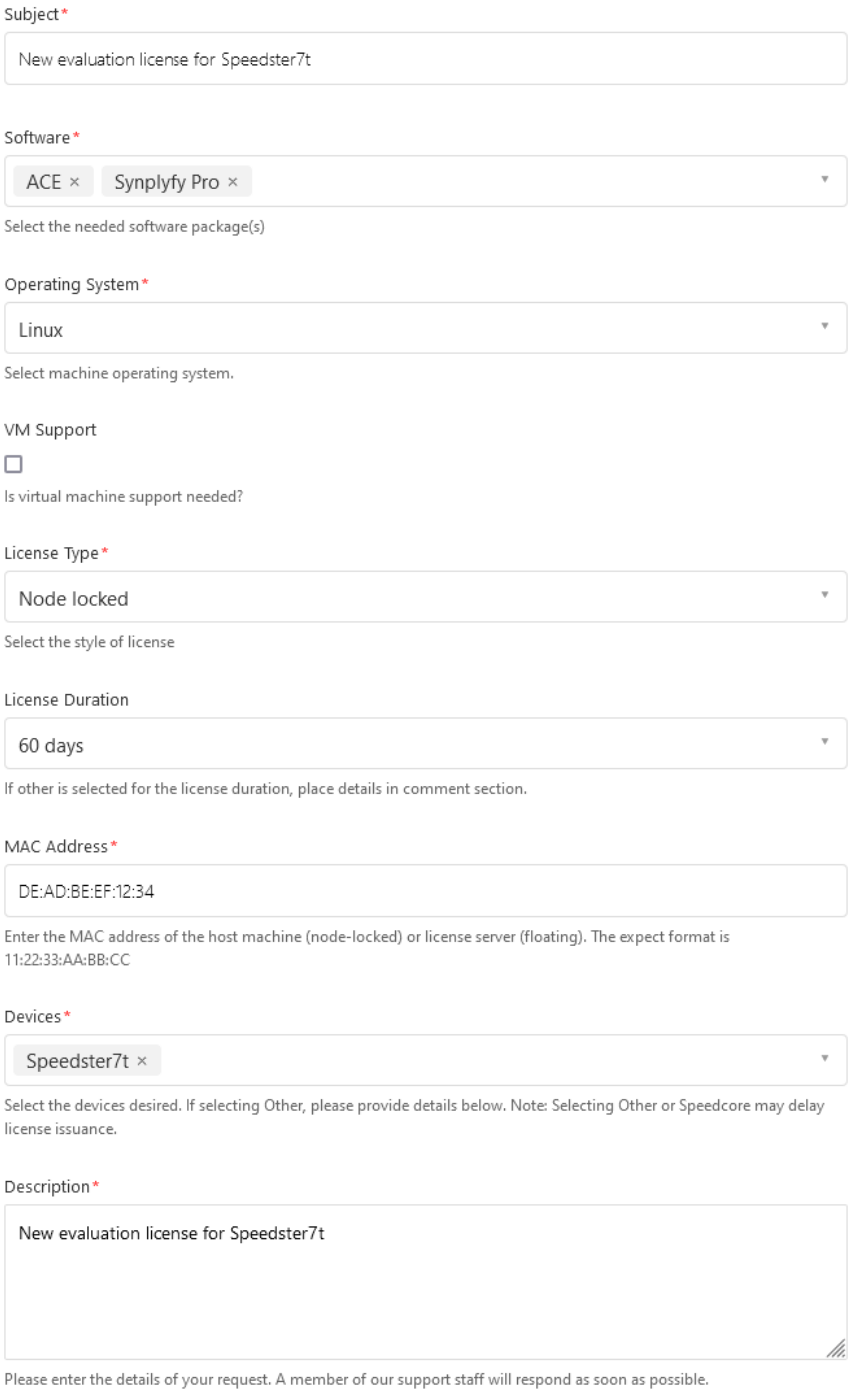


Figure 4: *ACE License Request Fields Example*

5. When your license is approved, a support engineer attaches your license files to the ticket. An automatic email notification is sent (with your license files attached) when this ticket is available.

For non-evaluation license requests, i.e., tool licenses attached to sales orders for devices, boards, IP or tools, please contact Achronix technical support at support@achronix.com or your sales representative directly to have a purchase order filled out for the generation of new licenses or renewing expired/expiring ones.

Downloading Your Software

Instructions for downloading your software are contained in two restricted-access knowledge base articles:

- ACE Software Releases
- Synplify Pro Releases

Access to these articles is granted with your license request. Follow the instructions in the articles to obtain your software files.

> **Note**
>
> Full authorization can take up to one hour to become active after software licenses are delivered.

Obtaining Files

The knowledge base articles above contain links to specific software releases stored on the Achronix download facility. Follow these steps to retrieve your files:

1. Click the link in the knowledge base article for the desired software release (i.e., **ACE Software Release 8.8**).
2. Enter your email address if prompted.
3. Do either of the following:
    a. Click the name of the desired file to start a download of the individual file:

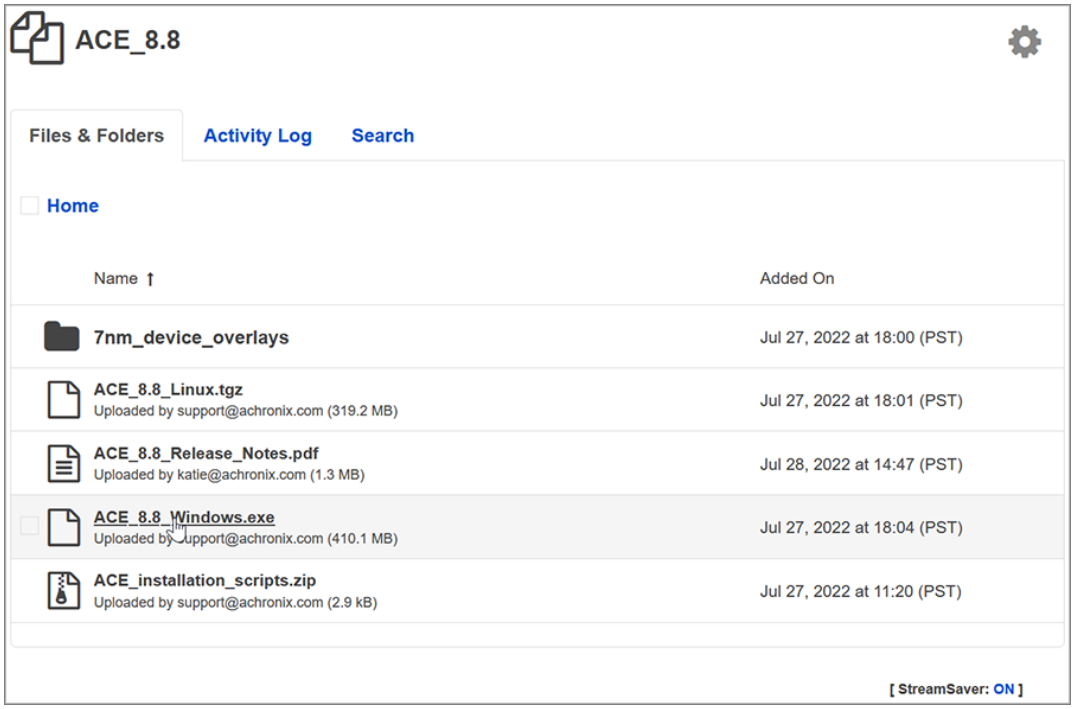


Figure 5: ***Download Individual File Example***

b. Click the file or folder icon to add the file to a bundle list to be downloaded in an archive file:

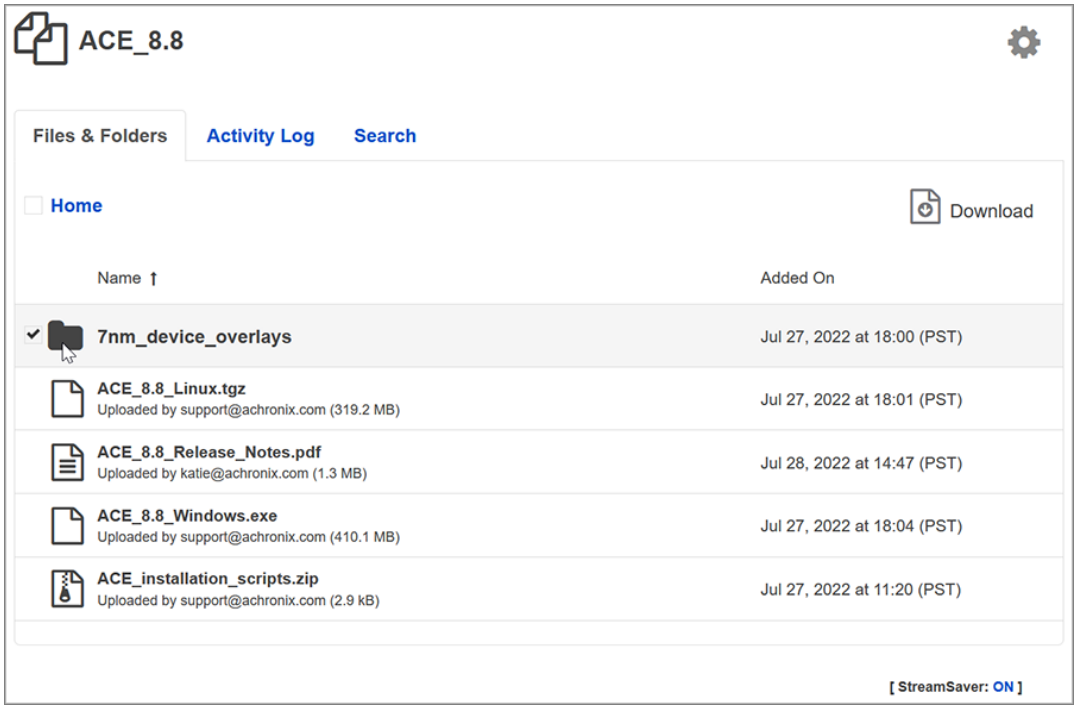


Figure 6: ***Add file to Bundle List Example***

If necessary, click the icon again to remove the item from the list.
Click the Download icon in the upper right corner to start the bundle download.

Caution

Clicking the folder icon adds every file in the folder to the list. This is not recommended (especially with the `device_overlays` folder) because it creates a very large file which might cause issues with download-limited internet plans. Click the folder name to open a list of the files in the folder and download the desired individual files.

Note

If using the Firefox browser, or if experiencing difficulties with downloads, turn off the *StreamSaver* feature by clicking **[StreamSaver: ON]** in the lower right corner.

Chapter - 3: Software Installation (Linux)

This chapter covers installing Linux versions of ACE design tools and Synplify Pro for Achronix.

Installing ACE

Node-Locked and Floating Licensing

The ACE installation procedure is the same for both Node-Locked and Floating licensing and includes installing the ACE tool itself, along with any device overlays. The device overlays include library files for the specific device, example designs, etc. The device overlays are detected and installed as part of this flow. If more device overlays need to be added in the future, refer to Device Overlays (see page 80).

If access to ACE is to be shared among multiple users, it is recommended to install in the `/opt` directory. This requires administrator privilege so the installation might require some assistance. One option is to install in the user home directory then, with administrator privilege, copy the installation to the `/opt` directory.

For a single-user workstation, ACE can be installed in the directory of your choice under the home directory — no assistance required.

Installation requires two directories:

- The **download** directory (for this example, `/home/<userid>/Downloads/ACE`)
- The ACE **install** directory (for this example, `/home/<userid>/ACE`)

Perform the following steps:

1. Create the directories shown above.
2. To the **download** directory, download the following:
    - The ACE software archive (e.g., `ACE_8.8_Linux.tgz`)
    - The necessary device overlays (e.g., `ACE_8.8_Linux_AC7t1500ES0.tgz` from the `7nm_device_overlays` directory)
    - The ACX Device Manager MCU overlay (e.g., `ACE_8.7.1_ACX_DEVICE_MANAGER_MCU_overlay.zip` — not required for ACE 8.8 and later releases)
    - The `ACE_installation_scripts.zip` file (includes the install script, `install_ace.sh`)

    > **Caution!**
    >
    > Do not install multiple versions of ACE in the same directory or install ACE in the same directory as a previous install.

3. In the directory containing the downloaded files, unzip the `ACE_installation_scripts.zip` file. This creates a subdirectory called `ACE_installation_scripts`.
4. Copy the `install_ace.sh` file to the download directory and remove the `ACE_installation_scripts` subdirectory.

5. Set the installation script to be executable:

```
$ cd /home/<userid>/Downloads/ACE
$ chmod 755 install_ace.sh
```

6. Enter the following command to extract the software to the **install** directory:

```
$ ./install_ace.sh -d /home/<userid>/ACE

   - or -

$ ./install_ace.sh -i

   - or -

$ ./install_ace.sh -h
```

Table 2: *Installer Script `install_ace.sh` Options*

Option	Description
-d <install_directory>	Specifies the root directory to install ACE into. If omitted, ACE is installed in the current directory.
-i (interactive mode)	Prompts for the name of each TGZ file to install. If omitted, all TGZ files in the current directory are installed.
-h (help mode)	Invokes Help mode, listing all command line options.

7. Extract the ACX Device Manager overlay file (e.g., `ACE_8.7.1_ACX_DEVICE_MANAGER_MCU_overlay.zip`) into the resulting `/Achronix-linux` install directory.
   Answer **y** to any prompts to replace `.tcl` files.
   (This step not required for ACE 8.8 and later releases)
8. If ACE is to be shared among multiple users and was installed under a user home directory, copy the `/Achronix-linux` directory into the desired "ACE-Install" directory (usually `/opt` and requires administrator privilege).
9. If scripts are to be used outside of the install directory, create an environment variable, `ACE_INSTALL_DIR`, set to the path of the `/Achronix-linux` directory for use by the scripts to easily access ACE:
   From bash:

```
$ export ACE_INSTALL_DIR=/home/<userid>/ACE/Achronix-linux
```

   From csh:

```
set ACE_INSTALL_DIR = /home/userid/ACE/Achronix-linux
```

10. Install the license file and verify the installation per "FloatingNode and Node-Locked Licensing," in ACE License Installation (Linux). (see page 27)

Uninstalling ACE

To uninstall the current ACE installation, delete the directory used to install ACE (default is `/opt/Achronix-linux` and requires administrator privilege):

```
$ sudo rm -r /opt/Achronix-linux
```

Note

- Administrator privilege is not required to delete an install directory under the user home directory
- It is also recommended to remove the `~/.achronix` directory located in the home directory
  - This directory contains ACE session log files, ACE GUI metadata and logs from previous runs of ACE
  - When installing a new version of ACE, it is good practice to clear out this directory

Installing Synplify Pro for Achronix

Node-Locked and Floating Licensing

The Synplify Pro installation procedure includes installing the tool and the device overlays (the overlays alone can be installed if the tool has already been installed). (see Device Overlays (see page 80)). This version of Synplify Pro (provided by Achronix) must be installed to synthesize designs.

Note

If access to Synplify Pro is to be shared among multiple users, it is recommended to install to the `/opt` directory. This requires administrator privilege so the installation might require some assistance. One option is to complete the installation in the user home directory then, with administrator privilege, copy the installation to the `/opt` directory.

For a single-user workstation, Synplify Pro can be installed in the directory of your choice under the user home directory — no assistance required.

Installation requires three directories:

- The **download** directory (for this example, `/home/<userid>/Downloads/SynPro`)
- The **installer** directory (for this example, `/home/<userid>/Downloads/SynPro/Installer`)
- The Synplify Pro **application** directory (for this example, `/home/<userid>/SynPro`)

Perform the following steps:

1. Create the directories shown above.

2. To the **download** directory, download the following:
   - The `Licensing` folder which contains the License Manager
   - The `install_synplify_pro.sh` install script
   - The Synplify Pro Linux release zip archive (e.g., `SynplifyPro_2021.03x_release_Linux.zip`)
3. In the **download** directory, set the installation script to be executable:

```
$ cd /home/<userid>/Downloads/SynPro
$ chmod 755 install_synplify_pro.sh
```

4. Before executing the install script, open the `synplify.lic` file from the email received from Achronix support.
   Observe the last group of digits on the first line of the file. This is the *Site ID Number*. The install script prompts for this number:

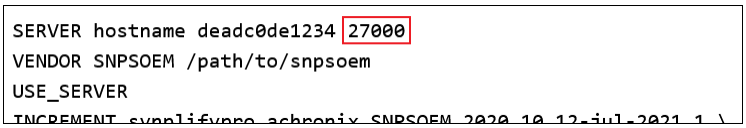


Figure 7: ***Synplify License File Sample***

5. Execute the install script. The script prompts for the desired action:

```
$ cd /home/<userid>/Downloads/SynPro
$ ./install_synplify_pro.sh

- Press 1 to install Synplify Pro.

- Press 2 to only install overlays.

- Press e to exit.
```

6. Enter '1' for the full install sequence. The script next prompts for the **installer** directory path:

```
1

Proceeding to extract ZIP file to "/home/<userid>/Downloads/SynPro" ...

Archive:  /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux.zip
   creating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux/
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux
/SynopsysInstaller_v5.1.run
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux/fpga_vR-
2021.03X_common.spf
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux/fpga_vR-
2021.03X_linux.spf
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.03x_release_Linux
/syn202103x_speedster7t_all_overlay.tar

ZIP file extracted to "/home/<userid>/Downloads/SynPro" ...

Please specify the full path of the installation directory for Synopsys Installer (press e
to exit):
```

7. Enter the full path to the **installer** directory (A null entry is not allowed nor can '~' be used — full paths must always be entered).
   The script next invokes the installer archive which extracts itself to the specified directory. The script then prompts for the desired path to the **application** directory for the Synplify Pro application itself:

```
/home/<userid>/Downloads/SynPro/Installer

 #*****************************************************************
 #
 #    Synopsys Installer Self-Extracting Executable
 #
 #    This script extracts and installs Synopsys Installer 5.1 into
 #    the given directory
 #
 #    For help type:
 #
 #       SynopsysInstaller_v5.1.run -help
 #
 #*****************************************************************

Installing Synopsys Installer 5.1 into the directory '/home/<userid>/Downloads/SynPro
/Installer'...

  Unpacking: SynopsysInstaller.tgz ...
  Unpacking: singularity.tar.gz ...

Installation complete.


Synopsys Installer has been installed to "/home/<userid>/Downloads/SynPro/Installer" ...

Please specify the full path of the directory where you want to install Synplify Pro (press
e to exit):
```

8. Enter the full path to the **application** directory. The installer creates a sub-directory, `fpga`, in the application directory to receive the tool suite.

```
/home/<userid>/SynPro

                Synopsys (R) Installer
                    Version 5.1.0

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This software and the associated documentation are proprietary to Synopsys, Inc.
This software may only be used in accordance with the terms and conditions of a
written license agreement with Synopsys, Inc. All other use, reproduction, or
distribution of this software is strictly prohibited.

Extracting release information from fpga_vR-2021.03X_common.spf
Extracting release information from fpga_vR-2021.03X_common.spf successfully
Extracting release information from fpga_vR-2021.03X_linux.spf
Extracting release information from fpga_vR-2021.03X_linux.spf successfully

Your site ID number is in the upper-right corner of your Synopsys license
key certificate. If you have trouble locating it, contact your Synopsys
representative.

Site ID number [000]:
```

9. Enter the Site ID number observed earlier from your license file. The installer next displays the EULA and prompts for acceptance:

```
27000

SYNOPSYS
END-USER SOFTWARE LICENSE AND MAINTENANCE AGREEMENT
Synplicity Software Products


This is a legal agreement between you and the contracting Synopsys entity
identified below ("Synopsys"). If you use the Synopsys products and services as
an employee of or for the benefit of your company, you represent that you have
the power and authority to accept this agreement on behalf of your company. In
such event, "you" refers to your company. YOU MUST READ AND AGREE TO THE
TERMS OF THIS AGREEMENT BEFORE ANY LICENSED PORDUCT CAN BE
DOWNLOADED OR INSTALLED OR USED. BY CLICKING ON THE "ACCEPT" BUTTON
OF THIS AGREEMENT, OR BY DOWNLOADING, INSTALLING OR USING A LICENSED
PRODUCT, YOU ARE AGREEING TO BE BOUND BY THE TERMS AND CONDITIONS
OF THIS AGREEMENT. IF YOU DO NOT AGREE WITH THE TERMS AND CONDITIONS
OF THIS AGREEMENT, THEN YOU SHOULD EXIT THIS PAGE AND NOT DOWNLOAD
OR INSTALL OR USE ANY LICENSED PRODUCT. BY DOING SO YOU FOREGO ANY
IMPLIED OR STATED RIGHTS TO DOWNLOAD OR INSTALL OR USE A LICENSED
PRODUCT AND YOU MAY RETURN IT TO THE PLACE YOU OBTAINED IT FOR A
FULL REFUND (IF APPLICABLE).



Press "Enter" to display next page or "q" to scroll to last page:
```

10. If you are using a terminal window that allows scrolling back, enter 'q' and review the EULA text. Otherwise, press **Enter** to page through the text. The installer then prompts for acceptance of the EULA:

```
q

     .
     .
     .

Do you accept the fpga End User License Agreement?[[A]ccept|[D]ecline]:
```

11. Enter 'A' to accept the EULA:

```
A

INFO: Accept License Agreement for R-2021.03X release for fpga at 06/09/2022 10:53:07 AM
######################################################
############### Installation Summary ################
Product:    FPGA Synthesis Product for Achronix (fpga)
Release:    R-2021.03X
Platforms:   common linux
Disk Space: 518 MB
Target Dir: /home/example/projects/tools/fpga/R-2021.03X

Licensed Products communicate with Synopsys servers for the purpose of providing software
updates,
detecting software piracy and verifying that customers are using Licensed Products in
conformity with
the applicable License Key for such Licensed Products. Synopsys will use information
gathered in
connection with this process to deliver software updates and pursue software pirates and
infringers.
######################################################
If the information is correct, continue with the installation.
Accept, Install? [yes]:
```

12. Press **Enter** to install Synplify Pro:

```
INFO: Prepare for installing R-2021.03X release of product fpga ...
INFO: Extracting common package from fpga_vR-2021.03X_common.spf ...
INFO: Extracting linux package from fpga_vR-2021.03X_linux.spf ...
INFO: Verify SHA256 sum for fpga.tgz ....
INFO: Verify SHA256 sum for linux/fpga.tgz ....
INFO: Installing R-2021.03X release of product fpga to /home/example/projects/tools/fpga/R-
2021.03X ....
INFO: Installing common package for R-2021.03X release of product fpga ...
INFO: Installing linux package for R-2021.03X release of product fpga ...
INFO: Installation for R-2021.03X release of product fpga has finished successfully.


Synopsys tools require that a supported version of Synopsys Common
Licensing (SCL) be installed and serving the necessary licenses.
For information on how to obtain SCL, or your license key file,
see http://www.synopsys.com/licensing

For any postinstallation setup requirements, see the product-specific
chapters in the Installation Guide at http://www.synopsys.com/install

INFO: See installer log file /home/example/projects/SynPro/inst/installer.log

Synplify Pro has been installed to "/home/example/projects/tools" ...

Do you want to proceed to install device overlays? (y/n) >$
```

13. Press **y** to install the device overlays.

```
y

Proceeding to install overlays to "/home/example/projects/tools" ...

lib/
lib/vhd2008/
lib/vhd2008/location.map
lib/vhd/
lib/vhd/location.map
lib/version.txt
lib/generic/
lib/generic/achronix7t-C2.syn
lib/generic/achronixspd7tMLP-C2.tim
lib/generic/achronixspd7tMLP-C1.tim
lib/generic/achronixspd7t-C3tim.syn
lib/generic/speedster7t.v
lib/generic/custom_partdata.txt
lib/generic/achronixspd7t.tim
lib/generic/achronix7t-C1.syn
lib/generic/achronixspd7t-C2tim.syn
lib/generic/achronixspd7t-C3.tim
lib/generic/speedster7t.vhd
lib/generic/achronixspd7tMLP-C3.tim
lib/generic/achronixspd7t-C1.tim
lib/generic/achronix7t-C3.syn
lib/generic/achronixspd7tMLP.tim
lib/generic/achronixspd7t-C2.tim
lib/generic/achronixspd7t-C1tim.syn
lib/parts/
lib/parts/achronix_7t_parts.txt

Synplify Pro and device overlays have been installed to "/home/example/projects/tools" ...
```

This completes installation of the Synplify Pro software. Additional steps are required before the software can be used.

14. Install any additional device overlays as detailed in Device Overlays (see page 80).

> **Note**
>
> The device overlays for Synplify Pro you select at download are included in the Synplify Pro Linux release zip archive and automatically installed with Synplify Pro.

15. Install the Synplify Pro License Manager as detailed in Synplify Pro License Installation (Linux) (see page 33).

Uninstalling Synplify Pro for Achronix

To uninstall the current installation, simply delete the `fpga` subdirectory in the Synplify Pro **application** directory:

```
$ cd /home/<userid>/SynPro
$ rm -r fpga
$ rm -r .installer
```

Note

The `.installer` directory (located in the **application** directory) contains information used by the installer program. If not removed, the Synplify Pro software cannot be re-installed to the same directory. Root permissions might be required to remove the install directory if placed under the `/opt` directory.

Chapter - 4: ACE License Installation (Linux)

Node-Locked License Installation

1. If the ACE license file has already been obtained, skip to step 4.
2. After installing the software per Software Installation (Linux) (see page 17), determine the physical network address (or MAC) of the host system:

   ```
   $ /sbin/ifconfig
   ```

   Alternatively, the MAC address can be determined by running `rlmutil rlmhostid ether` from the `Achronix-Linux/bin` (or `bin64`) directory.
3. Request licenses from Achronix as described in Obtaining Software Licenses (see page 9). Achronix Semiconductor responds with license files as an email attachment (typically, `ace.lic` and `synplify.lic`). Save these files to a safe location.
   When ACE is installed as described in Software Installation (Linux) (see page 17) (in this example, under `/opt`), the directory tree is configured as follows:
   Table 3: *Ace Linux Directory Structure*

Directory Structure	
`/opt/Achronix-linux`	
	`/ace`
	`/bin`
	`/bin64`
	`/doc`
	`/examples`
	`/libraries`
	`/license`
	`/system`

4. Navigate to the directory where the license file was saved, and copy `ace.lic` into the license sub-directory:

```
Multiple User Example

$ cp ace.lic /opt/Achronix-linux/license
```

```
Single User Example

$ cp ace.lic /home/<userid>/ACE/Achronix-linux/license
```

5. Start ACE by launching the executable.

```
$ ./<install_directory>/Achronix-linux/ace
```

The startup window appears:



Figure 8: ***ACE Startup Window***

Next, the License Acceptance Dialog appears:

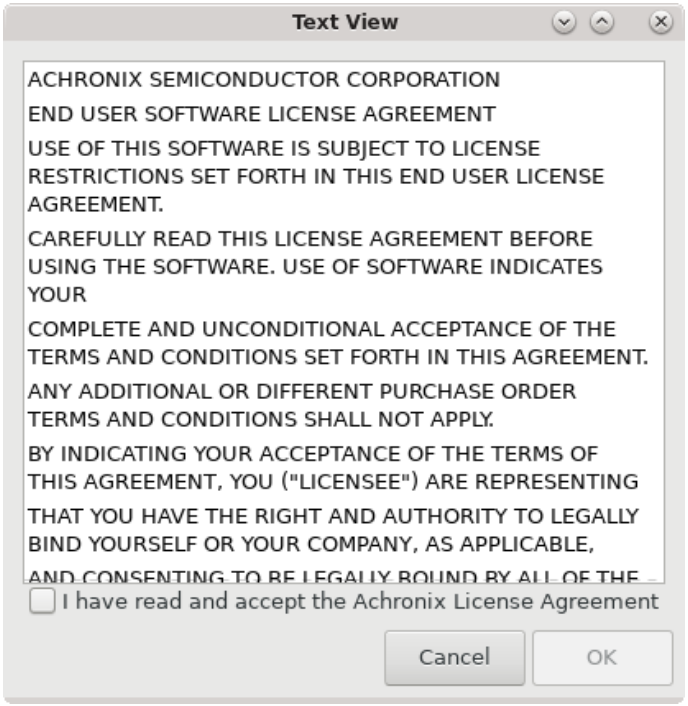


Figure 9: ***ACE License Acceptance Dialog***

6. Review the license agreement and click the **I have read...** checkbox to agree to the terms.

7. Click **OK** to continue.
   After agreeing to the license, ACE starts up and displays the welcome page:



Figure 10: ***ACE Welcome Page***

If the license was not found or was improperly installed, an error dialog appears:

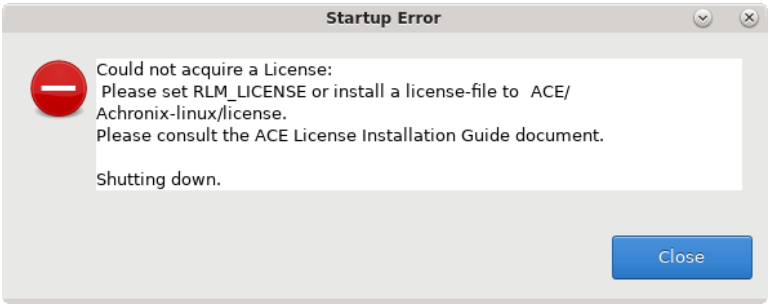


Figure 11: ***Startup Error Dialog***

Click **Close** to terminate ACE. Refer to "ACE Licensing Issues" in Troubleshooting (Linux) (see page 40) or contact Achronix Technical Support at support@achronix.com.

Floating-Node License Installation

1. After installing the software on the client machine per "Installing ACE" in Software Installation (Linux) (see page 17), determine the physical network address (or MAC) of the license server:

   ```
   $ /sbin/ifconfig
   ```

   Alternately, the MAC address of the license server can be determined by running the RLM utility copied over from the client machine where ACE was installed:

   a. Copy the directory <ACE install dir>/Achronix-linux/bin (or bin64) from the client to the license server.

   b. From the Achronix-Linux/bin (or bin64) directory, execute the following:

      ```
      $ rlmutil rlmhostid ether
      ```

2. Request licenses from Achronix as described in Obtaining Software Licenses (see page 9). Achronix Semiconductor responds with license files as an email attachment (typically, ace.lic and synplify.lic). Save these files to a safe location.
3. Copy the license file, ace.lic, to an appropriate directory on the license server (/<license_file_path>).
4. If you have not done so already, copy the directory<ACE install dir>/Achronix-linux/bin(or bin64)from the client to the license server.
5. Edit ace.lic to add the license server name and path to the licensing agent:

   ```
   HOST <license_server_host_name> DEADBEEF0123 1710
   ISV achronix <install_directory>/bin/achronix_license_agent
   ```

   Where DEADBEEF0123 is the host ID (MAC) of the license server as obtained in step 1.
6. Set the environment variable on the client machine: From a C shell:

   ```
   $ setenv RLM_LICENSE 1710@<license_server_host>
   ```

   From a bash shell:

   ```
   $ export RLM_LICENSE=1710@<license_server_host>
   ```

   Note

   Use the following command to check that the environment variable is properly set.

   ```
   $ echo $RLM_LICENSE
   ```

7. Start the remote licensing manager (RLM) on the license server:

```
$ /<install_directory>/bin/rlm -c <license_file_path> &
```

> **Note**
>
> The line above can be copied into `/etc/rc.d` to ensure the server is started each time the license server is restarted,

This command returns an indication that the license server is up:

```
07/14 18:18 (rlm) RLM License Server Version 3.0BL4
Copyright (C) 2006-2007, Reprise Software, Inc. All rights reserved
07/14 18:18 (rlm) License server started on <license_server_host>
07/14 18:18 (rlm) Server architecture: x86_l2
07/14 18:18 (rlm) License files:
07/14 18:18 (rlm)/opt/Achronix-linux/<license_file_name>.lic
07/14 18:18 (rlm)
07/14 18:18 (rlm) Web server starting on port 9000
07/14 18:18 (rlm) Using TCP/IP port 1710
07/14 18:18 (rlm) Starting ISV servers:
07/14 18:18 (rlm)... achronix on port 56255
07/14 18:18 (achronix) RLM License Server Version 3.0BL4 for ISV "achronix"
07/14 18:18 (achronix) Server architecture: x86_l2
Copyright (C) 2006-2007, Reprise Software, Inc. All rights reserved
RLM contains software developed by the OpenSSL Project for use in the
OpenSSL Toolkit (http//www.openssl.org) Copyright (c) 1998-2003 The
OpenSSL Project. All rights
reserved.
07/14 18:18 (achronix)
07/14 18:18 (achronix) Server started on <license_server_host>
(hostid: XXXXXXXX) for:
07/14 18:18 (achronix)ace-v1.0
07/14 18:18 (achronix)
07/14 18:18 (achronix) License files:
07/14 18:18 (achronix) /opt/Achronix-linux/<license_file_name>.lic
07/14 18:18 (achronix)
```

8. Start ACE by launching the executable on the client machine:

```
$ ./<install_directory>/Achronix-linux/ace
```

9. Review the license agreement and click the **I have read...** checkbox to agree to the terms.
   After agreeing to the license, ACE starts up and displays a welcome page (Figure: ACE Welcome Page (see page 30)).
   If the license was not found or was improperly installed, an error dialog (Startup Error Dialog (see page 30)) appears. Click **Close** to terminate. Refer to "ACE Licensing Issues" in Troubleshooting (Linux) (see page 40) or contact Achronix Technical Support at support@achronix.com.

Chapter - 5: Synplify Pro License Installation (Linux)

This chapter includes the installation of the new License Manager for Synplify Pro 2021.03x on Linux platforms.

Synplify Pro License Manager SNPSOEM

The introduction of Synplify Pro 2021.03x requires the use of a new license manager, SNPSOEM, for *all Linux licenses*. This license manager replaces the older license manager. The change of license manager increases the efficiency of the license generation process.

This license manager requires new format compatible license files. License requests using the ACE License Request form on support.achronix.com automatically return the new format license.

System Requirements

The license manager can be run on a different platform than the ACE tools. The requirements for the system hosting the license manager are shown in the following table. Not all of the OS versions listed in the table are supported by ACE. When hosting the license manager on the same system that is running ACE, please review the ACE release notes for the full list of supported OS versions.

Table 4: *SNPSOEM System Requirements*

OS	Supported Versions
Linux x86_64 — 64 bit (linux64)	• CentOS or RHEL 6.6–7.9 • SLES12, 12 SP2, 12 SP4

Obtaining the SNPSOEM License Manager

The zip archive containing the executable for Linux is located under the `/Licensing` directory in the Synplify Pro software download folder as detailed in Installing Synplify Pro for Achronix (see page 19).

Installing the SNPSOEM License Manager for Linux

The license manager requires a single directory. This example uses `/home/<userid>/SNPS`.

To install the SNPSOEM license manager in Linux, follow these steps:

1. Request licenses from Achronix as described in How Do I Request an Evaluation License for Achronix Tools?
   Achronix Semiconductor responds by sending a file, `synplify.lic`, as an email attachment. Save this file to a known location.

2. Create a new directory for the license manager software and extract the contents of the SNPSOEM_2020.06_Linux.tar.gz file to this directory:

```
$ cd
$ mkdir SNPS
$ cd SNPS
$ tar -xvf /home/<userid>/Downloads/SynPro/Licensing/SNPSOEM_2020.06_Linux.tar.gz
linux64/
linux64/bin/
linux64/bin/lmgrd
linux64/bin/lmutil
linux64/bin/sclshoem
linux64/bin/sclshoem_th
linux64/bin/snpsoem
```

   The directory where the SNPSOEM license server is extracted, located under the subdirectory linux64/bin, contains the executables listed in the following table:

   Table 5: *SNPSOEM License Server Executables*

Executable	Description
lmgrd	Shipped with FlexNet version v11.16.6
lmutil	Shipped with FlexNet version v11.16.6
snpsoem	SCL OEM license daemon
sclshoem	SCL OEM license test client
sclshoem_th	SCL OEM license test client (threaded version)

3. Ensure that the path to lmgrd is added to the local $PATH variable by including the following in your .cshrc or .bashrc file:

```
Example for bash

$ export PATH=$PATH:/home/<userid>/SNPS/linux64/bin
```

```
Example for csh

$ setenv PATH = $PATH:/home/<userid>/SNPS/linux64/bin
```

4. Copy the license file, synplify.lic, to an appropriate directory on the license server (e.g., /home/<userid>/SNPS).

5. Edit `synplify.lic` to set the hostname to `localhost` or the actual hostname, and set the path to the Synplify Pro license daemon:

```
License File Example

SERVER localhost 0123456789AB 27000
VENDOR SNPSOEM /home/<userid>/SNPS/linux64/bin/snpsoem
USE_SERVER
INCREMENT synplifypro_achronix SNPSOEM 2021.03 01-jan-2022 2 \
    ISSUED=02-Nov-2021 SN=RK:0000-0:150665:357682 \
    START=02-Nov-2021 AUTH={ SNPSOEM=( SIGN="105A E106 A00A 8288 \
    B4BF 4ADA 41B3 5887 A431 A762 05F9 692C 32F4 BED3 01F0 0029 \
    D876 4579 7ADD 9C94 4233 9CEE E652 04B5 FAD2 C2C0 FBFA AECC \
    4FB8 3772") }
```

> **Note**
>
> On an unconfigured Linux machine, the default hostname can be set to localhost.localdomain. This setting can cause a license problem to occur. Changing the hostname to `localhost` (using the command `hostname`), or any other name not containing a period (.) should resolve the issue. Also, the SERVER, VENDOR, USE_SERVER, PACKAGE, INCREMENT, or # lines in `synplify.lic` each need to end with a newline sequence. Moving text files between Windows and Linux machines can cause the newline sequence to be lost or altered. If newlines are lost, licensing problems can occur.

6. Navigate to the SNPSOEM license server installation directory, under `linux64/bin` and start the license server.

```
$ ./lmgrd -c <oem_license_file> -reuseaddr -l server.log
```

7. Verify that the license server has started correctly by reading the `server.log` file. The file should give an indication that both the license server and daemon are up:

```
11:43:36 (lmgrd) Server's System Date and Time: Tue Nov 02 2021 11:43:36 PDT
11:43:36 (lmgrd) SLOG: Summary LOG statistics is enabled.
11:43:36 (lmgrd) FlexNet Licensing (v11.16.6.0 build 260203 x64_lsb) started on my.machine.
local (linux) (11/2/2021)
11:43:36 (lmgrd) Copyright (c) 1988-2019 Flexera. All Rights Reserved.
11:43:36 (lmgrd) World Wide Web:  http://www.flexerasoftware.com
11:43:36 (lmgrd) License file(s): ../../../license/synplify.lic
11:43:36 (lmgrd) lmgrd tcp-port 27000
11:43:36 (lmgrd) (@lmgrd-SLOG@) ===============================================
11:43:36 (lmgrd) (@lmgrd-SLOG@) === VENDOR DAEMON ===
11:43:36 (lmgrd) (@lmgrd-SLOG@) Vendor daemon: SNPSOEM
11:43:36 (lmgrd) (@lmgrd-SLOG@) Start-Date: Mon Aug 15 2022 09:55:40 PDT
11:43:36 (lmgrd) (@lmgrd-SLOG@) PID: 2522
11:43:36 (lmgrd) (@lmgrd-SLOG@) VD Version: v11.16.6.0 build 260203 x64_lsb ( build 260203
(ipv6))
11:43:36 (lmgrd) (@lmgrd-SLOG@)
11:43:36 (lmgrd) (@lmgrd-SLOG@) === Network Info ===
11:43:36 (lmgrd) (@lmgrd-SLOG@) Listening port: 27000
11:43:36 (lmgrd) (@lmgrd-SLOG@) Daemon select timeout: (in seconds): 1
11:43:36 (lmgrd) (@lmgrd-SLOG@)
11:43:36 (lmgrd) (@lmgrd-SLOG@) === Host Info ===
11:43:36 (lmgrd) (@lmgrd-SLOG@) Host used in license file: example
11:43:36 (lmgrd) (@lmgrd-SLOG@) HostID node-locked in license file: deadc0de1234
11:43:36 (lmgrd) (@lmgrd-SLOG@) HostID of the License Server: deadc0de1234
11:43:36 (lmgrd) (@lmgrd-SLOG@) ===============================================
11:43:36 (lmgrd) Starting vendor daemons ...
11:43:36 (lmgrd) Started SNPSOEM (internet tcp_port 52039 pid 42500)
11:43:36 (SNPSOEM) FlexNet Licensing version v11.16.6.0 build 260203 x64_lsb
11/02/2021 11:43:36 (SNPSOEM) INFO: Pooling on VENDOR_STRING is Disabled (to enable, set
SCL_POOL_VS=1)
11/02/2021 11:43:36 (SNPSOEM) Synopsys Corporate Licensing (SCL) Release: version
SCLOEM_2020.06
11/02/2021 11:43:36 (SNPSOEM) INFO: License sanity check enabled (3600)
11/02/2021 11:43:36 (SNPSOEM) INFO: File descriptor limit (soft, hard) for snpslmd: 1024,
4096
11/02/2021 11:43:36 (SNPSOEM) INFO: TCP - tcp_keepalive_time - 7200 | tcp_keepalive_intvl -
75 | tcp_keepalive_probes - 9 | tcp_fin_timeout - 60

11:43:36 (SNPSOEM) SLOG: Summary LOG statistics is enabled.
11:43:36 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT1
11:43:36 (SNPSOEM) SLOG: VM Status: 0
11:43:36 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT5
11:43:36 (SNPSOEM) SLOG: TPM Status: 0
11:43:36 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT6
11:43:36 (SNPSOEM) Server started on my.machine.local for:   synplifypro_achronix
11:43:36 (SNPSOEM) EXTERNAL FILTERS are OFF
11:43:36 (lmgrd) SNPSOEM using TCP-port 52039
11:43:36 (SNPSOEM) SLOG: Statistics Log Frequency is 240 minute(s).
11:43:36 (SNPSOEM) SLOG: TS update poll interval is 0. TS update is detected by midnight
reread only.
11:43:36 (SNPSOEM) SLOG: Activation borrow reclaim percentage is 0.
```

8. Locate the `=== Network Info ===` line in the `server.log` file and make note of the listening port number shown on the line below.
9. Locate the `=== Host Info ===` line in the `server.log` file and make note of the host name shown on the line below.
10. On the client system (or the same system if hosting both license server and tools), set the required environment variable to point to the port and host as noted above. For example, from a C shell:

    ```
    $ setenv SNPSLMD_LICENSE_FILE = 27000@example
    ```

    From bash:

    ```
    $ export SNPSLMD_LICENSE_FILE=27000@example
    ```

    To verify that the environment variable is set:

    ```
    $ echo $SNPSLMD_LICENSE_FILE
    27000@example
    ```

11. Start Synplify Pro.

    ```
    $ cd /home/<userid>/SynPro/fpga/R-2021.03X/bin
    $ ./synplify_pro
    ```

    If the license is properly installed and the license server and daemon are up, the License Agreement dialog appears. Click **Yes** to start the program. The main program window opens.

    Note

    It can take Synplify Pro up to 30 seconds to check out its license and start.

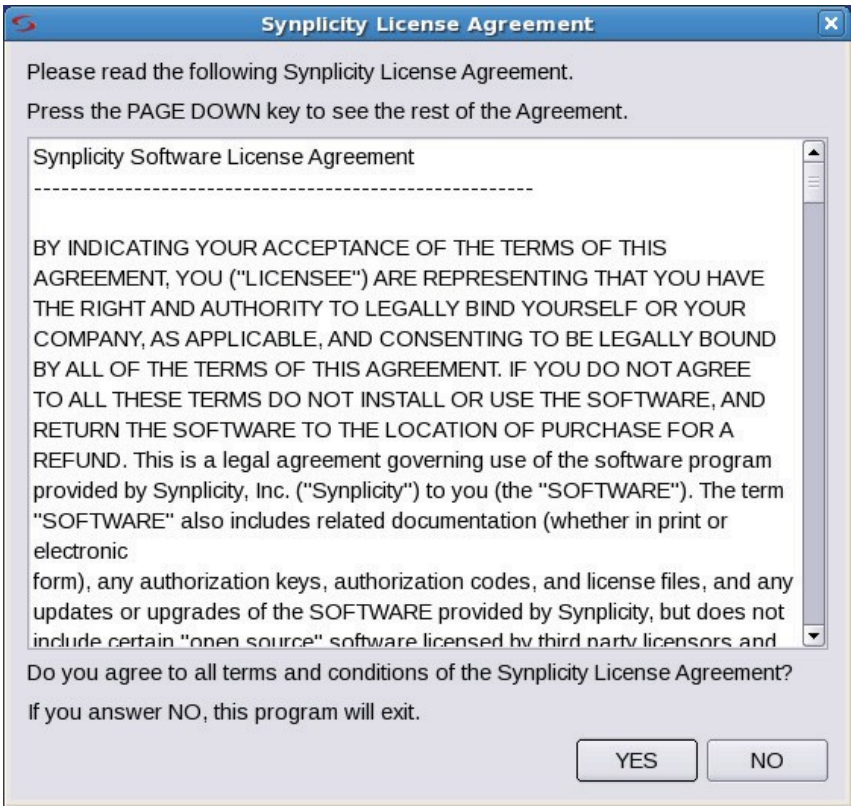


Figure 12: ***Synplify Pro License Agreement Dialog***

If the license is not found or is improperly installed, a license error page opens. Click **Close** to terminate. Refer to "Synplify Pro for Achronix Licensing Issues" in Troubleshooting (Linux) (see page 40) or contact Achronix Technical Support at support@achronix.com.

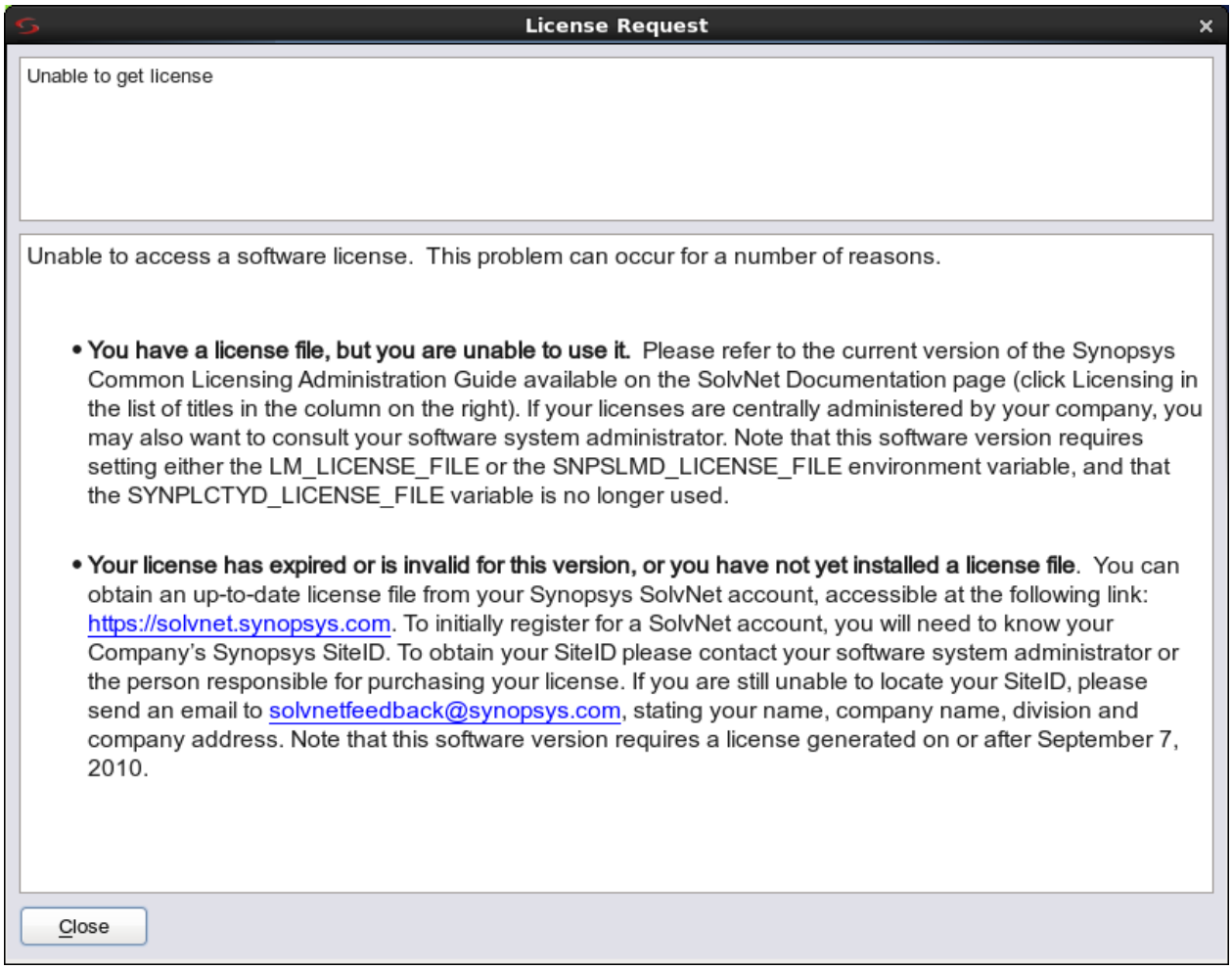


Figure 13: ***Synplify Pro License Error Page***

Chapter - 6: Troubleshooting (Linux)

ACE Licensing Issues

Checklist

Node-Locked Installations

- Verify that the host ID listed in the license file matches the MAC address of the first Ethernet adapter in the system (typically marked eth0).
- Verify the install path of the license is correct:

```
<install_directory>/Achronix-linux/license
```

- Verify that license file has the proper extension (`.lic`) and does not contain any illegal (nonalphanumeric) characters in the name.

Floating-Node Installations

- Verify that the correct type of license (nodelocked versus floatingnode) was requested.
- Verify that the host ID listed in the license file matches the MAC address of the first Ethernet adapter in the system (typically marked eth0).
- Ensure that the machine host name (HOST line), and license agent path (ISV path) are set correctly.
- Ensure that the port number listed in the `RLM_LICENSE` variable matches the port number listed in the license file.
- Verify the license manager is up on the server by checking the logs.
- If the license manager is running, but the client fails to receive a license, check the license manager logs for an entry showing the license being checked out by the client:

```
01/17 21:12 (achronix) OUT: ace-v1.0 v1.0 by user@client_host
```

…and returned when ACE is closed:

```
01/17 21:19 (achronix) IN: ace-v1.0 v1.0 by user@client_host
```

No entry means that the license request is not reaching the server. Verify that network communication between the client and server is working and that environment variables are properly set.
An entry of DENIED can mean that the number of requested licenses has exceeded the number specified in the license file.

32-bit Libraries

When starting the license server, if the error, `/lib/ld-linux.so.2: bad ELF interpreter: No such file or directory.` is returned, the Linux host is 64-bit but does not have the 32-bit libraries installed. Install the libraries with the following commands:

- On any RPM based distribution (CentOS/RedHat/Fedora/Suse/Mandriva):

```
$ sudo yum -y install glibc.i686
```

- On any DEB based distribution (Debian/Ubuntu/Mint/Crunchbang):

```
$ sudo apt-get update
$ sudo apt-get install ia32-libs
```

> **Note**
>
> For CentOS/RHEL installations, ACE 8.8 is officially supported on CentOS/RHEL 7.4 and up, and RHEL 8 only.

Synplify Pro for Achronix Licensing Issues

Checklist

- Verify that the license file name does not contain illegal (nonalphanumeric) characters in the name.
- Verify that the host ID listed in the license file matches the MAC address of the first Ethernet adapter in the system (typically marked `eth0`).
- Ensure that first Ethernet adapter in the system (typically marked `eth0`) is active.
- For "nodelocked" installations, ensure that the host name in the license file is set to `localhost`.

> **Note**
>
> 1. Synplify Pro node-locked licenses for Linux are actually single-seat floating licenses with the license server present on the client machine. When using a remote server, a floating license should be requested instead.
> 2. The host name can be changed via the command `hostname`.

- Verify that the path to **snpsoem** in the VENDOR line is set correctly.

- Ensure that the license file is formatted properly:
  - Do *not* remove the `USE_SERVER` line. This keyword must exist on a line by itself, before any `INCREMENT` lines.
  - Remove any `VENDOR` or `DAEMON` lines for nonsnpsoem vendor daemons.
  - All lines should start with `SERVER`, `VENDOR`, `USE_SERVER`, `PACKAGE`, `INCREMENT`, or #.
  - Lines may only wrap after a space and a continuation character (\), and all comment lines must start with #.
  - Blank lines must *not* be present in the license file as this can cause problems.
  - Strip out all extraneous characters, such as > or >> symbols at the beginning of lines.
- Ensure that the port number referenced in the `SNPSOEM_LICENSE_FILE` environment variable matches the port number listed in the license file.
- Problems can occur in batch mode when the license server has both Synplify Pro for Achronix and other Synopsys licenses available. This situation can be avoided by setting an environment variable that sets license preference or using a command line switch that sets license preference:

```
Environment variable
--------------------------
Variable: SYNPLIFYPRO_LICENSE_TYPE
Value: synplifypro_achronix

Command line switch
--------------------------
%synplifypro -batch -licensetype synplifypro_achronix <project_file>
```

License Server

If the command **lmstat** returns:

```
Cannot find license file -1,359:2 (No such file or directory)
```

…even though the license path is set correctly, try running the command with the following option:

```
$ lmstat -a -c /license_path/synplify.lic
```

If the license file is valid, the program returns the server and daemon status.

Running Multiple License Servers

When running a license server, it is recommended that the version of **lmgrd** be equal to or greater than the highest version of the vendor daemon. Also, two of the same vendor daemons cannot be running on the same system. If multiple Synopsys product licenses are being hosted on this server, the license features for Synplify Pro Achronix have to be appended to the existing license file using the following steps:

1. Stop the license server started for the Synplify Pro Achronix feature.

2. Append the INCREMENT lines for Achronix SynplifyPro to the main license file:

```
INCREMENT SSST
INCREMENT SCL_WAN_DISABLE
INCREMENT synplifypro_achronix
```

3. Confirm the versions of **lmgrd** and **snpsoem** being used with the main license file.
4. Run `lmutil lmreread` on the main license server, and then `lmutil lmstat -a` to confirm that the Synplify Pro Achronix feature is being read.

Other Issues

Host Name Resolution

For floatingnode (clientserver) licensing applications, the license manager normally uses the port@host convention for the license file environment variable set on the client. For example, for ACE licensing:

```
RLM_LICENSE=1710@main-server
```

Within some network topologies, the host name might not resolve. In this case, the actual IP address of the license server can be substituted for the host name as a workaround. For example:

```
RLM_LICENSE=1710@192.168.0.15
```

> **Note**
>
> This workaround might not be durable, as the server IP address could change.

"Bad ELF interpreter: No such file or directory"

When starting the Synplify Pro license server on CentOS 7, the server.log file might display an error similar to the following:

```
bad ELF interpreter: No such file or directory.
```

This occurs when the CentOS installation is based on the minimal install. A critical library is missing. To add the missing library, execute the following command from root:

```
$ yum install -y redhat-lsb.x86_64
```

"Bad version number - must be floating point number, with no letters" Error Resolution

The most probable reason for the error is the **LANG** environment variable which determines the local language. Different languages handle the decimal point (.) differently. In Europe, for instance, a comma (,) is used instead of the decimal point (.). This is the most likely cause: the value set for the **LANG** environment variable is converting the decimal point (.) value to a comma (,).

The solution is to add or create an additional environment variable with a value of **en_US.UTF-8**. Any one of the following should work:

```
LC_CTYPE
LC_NUMERIC
LC_TIME
LC_COLLATE
LC_MONETARY
LC_MESSAGES
LC_ALL (sets all categories to a locale)
```

For example, the **LC_NUMERIC** variable can be set to:

```
LC_NUMERIC="en_US.UTF-8"
```

Chapter - 7: Software Installation (Windows)

Installing ACE

> **Warning!**
>
> If this is not a first-time installation, refer to the Upgrading an ACE Installation (see page 55) section before proceeding. It is generally recommended to uninstall previous versions of ACE before attempting to install a new version of ACE.

ACE installation includes installing both ACE itself, along with any device overlays. These device overlays include device-specific library files, example designs, etc. Previous ACE device overlay files for Windows only used the `*.zip` extension. In the ACE 8.8 release, both the `*.zip` and `*.tgz` extensions for device overlays are available for Windows. The ACE 8.8 Windows installer allows adding the device overlays during the install process. This installer uses the `*.tgz` extension for the overlay files. For backwards compatibility, the `*.zip` files are still available, but only one version of the desired device overlays needs to be downloaded (choose the `*.tgz` files unless you have a specific need for the older `*.zip` format).

Follow these steps to install ACE on Windows:

1. Create an empty directory to receive the download files (e.g., `C:\Users\<username>\Downloads\ACE`).
2. Download the `ACE_8.8_Windows.exe`, `ACE_installation_scripts.zip`, and all the device overlays needed for the desired version of ACE into this directory. The device overlays are detected and installed as part of this flow. If more device overlays need to be added in the future, see the Device Overlays (see page 80) chapter.

   > **Note**
   >
   > Only download the files for one version of ACE into this directory; do *not* mix files from multiple versions of ACE.

3. Unzip `ACE_installation_scripts.zip` into the same directory as in step 1 and run the `install_ace.bat` file by right-clicking the file in Windows Explorer and select **Run as Administrator**.

4. If the software was installed previously, the installer asks whether to remove the previous versions (see figure below). If previous version(s) of ACE are *not* desired on this client, click **Yes** to proceed with automatically uninstalling the most recent previous installation of ACE (regardless of version number). with multiple previous versions of ACE, it is necessary to manually uninstall them. To retain a previous version or versions, click **No** to proceed to step 5.

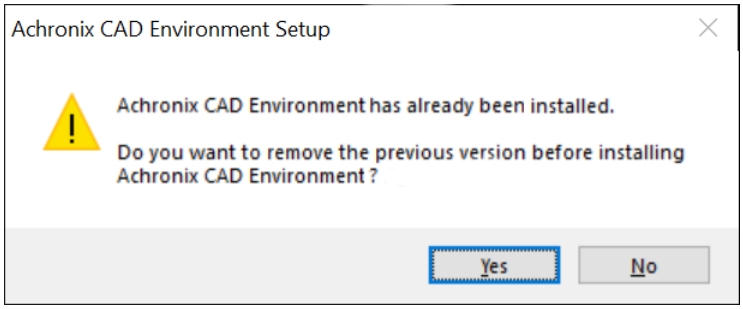


Figure 14: *Remove Previous Version Dialog*

5. The installer verifies the archive and opens the Installer Language dialog (see figure below). Select the desired language from the pulldown menu and click **OK** to open the Achronix CAD Environment Setup dialog.

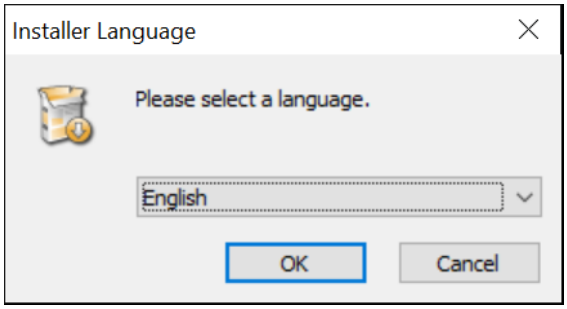


Figure 15: *Installer Language Dialog*

6. From the Setup dialog, click **Next >** to open the License Agreement dialog.

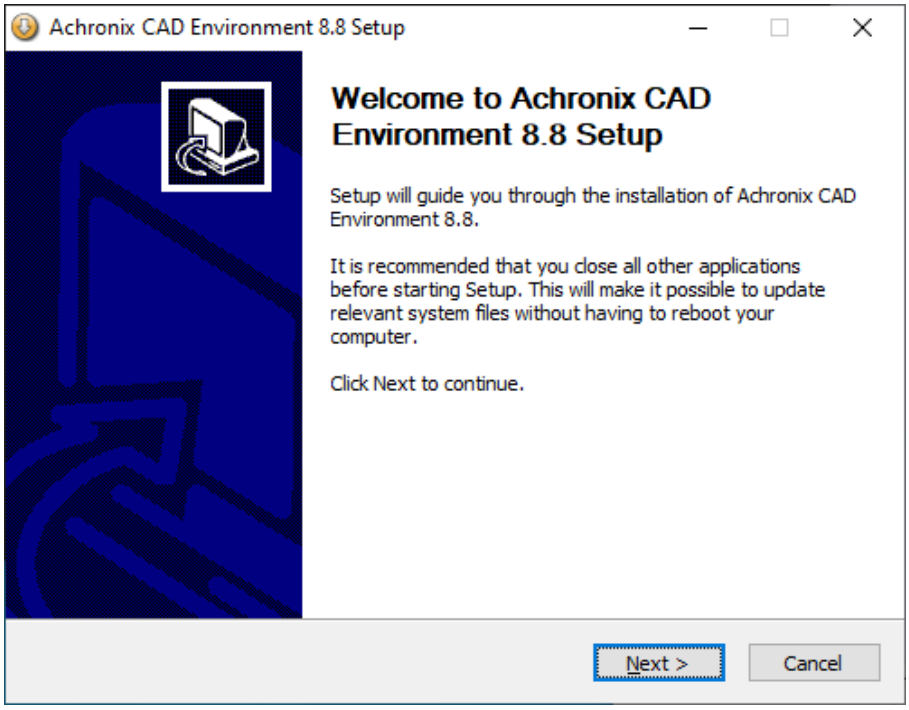


Figure 16: ***Achronix CAD Environment Setup Dialog***

7. From the License Agreement dialog, after reviewing the license, click **I Agree**.

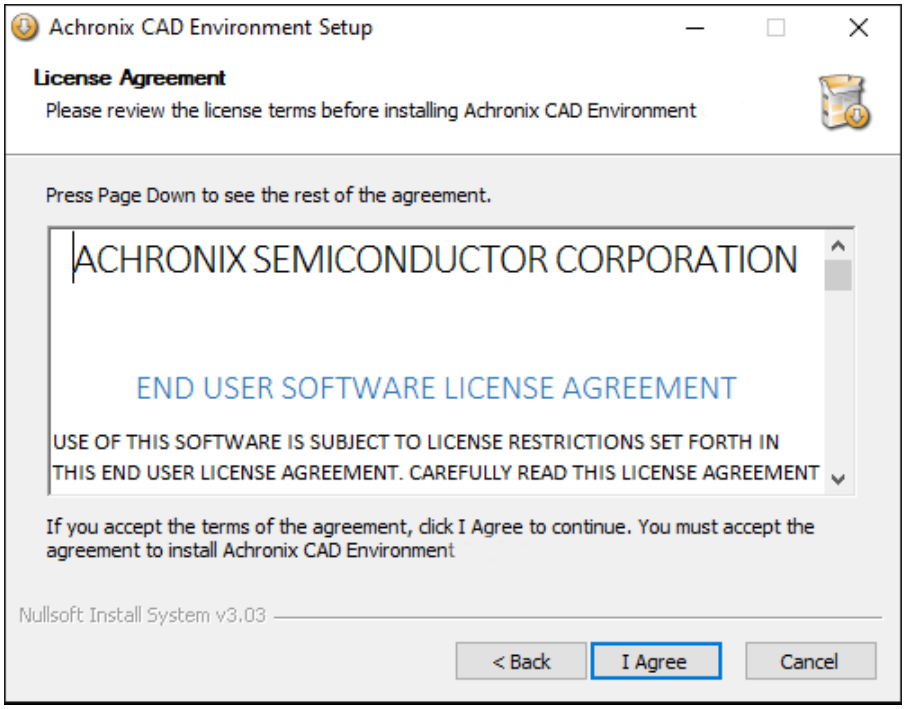


Figure 17: ***License Agreement Dialog***

8. From the Choose Components dialog, select the desired components to install. For example, uncheck **Achronix CAD Environment** to install only the software and drivers needed for programming. Click **Next >** to continue.

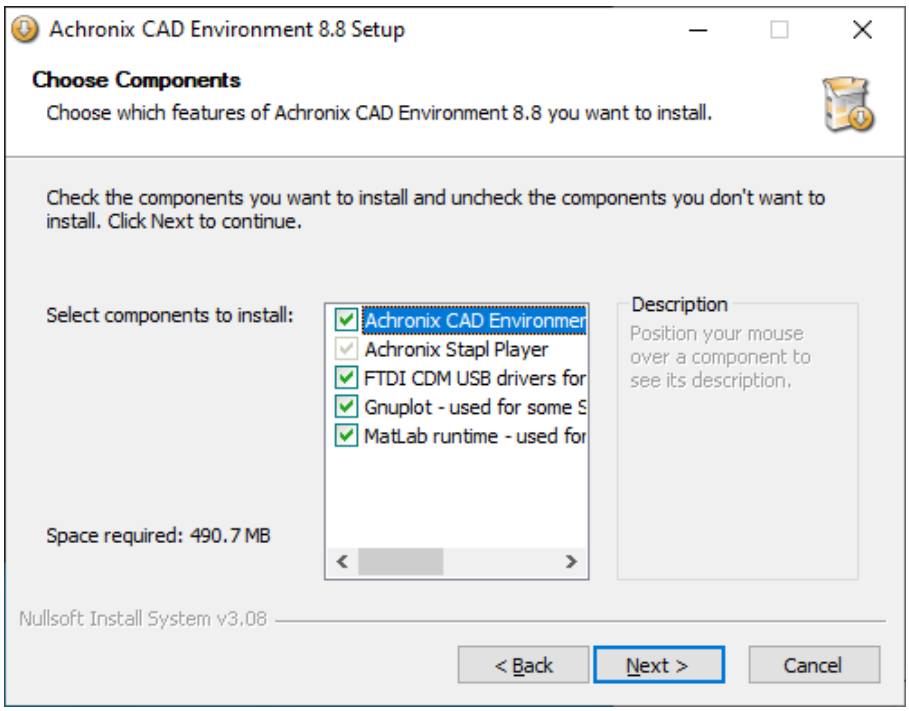


Figure 18: ***Choose Components Dialog***

9. From the Choose Users dialog, select the first option if this computer is shared with other users. Otherwise, select the second option. Click **Next >** to continue.

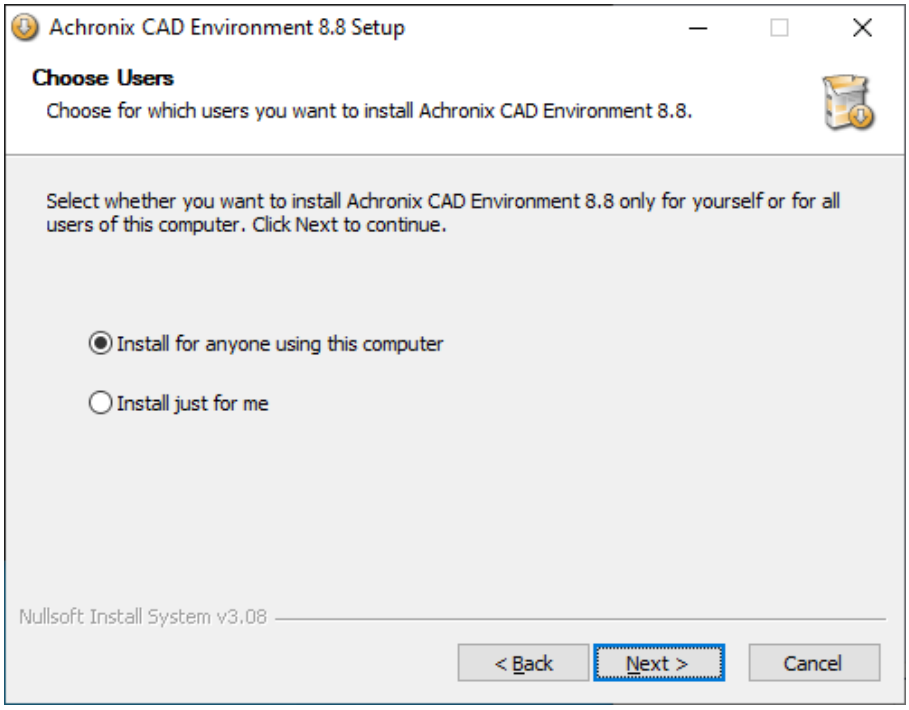


Figure 19: ***Choose Users Dialog***

10. From the Choose Install Location dialog, set the desired install directory by either typing the path under **Destination Folder** or by clicking the **Browse** button to navigate to the desired location. If previous version (s) of ACE are being retained, pick a location other than where a previous version is installed (this example uses the default location: `C:\Program Files\Achronix CAD Environment`). For ease of use with scripts, choose a directory name that does not use spaces. Click **Next >** to continue.

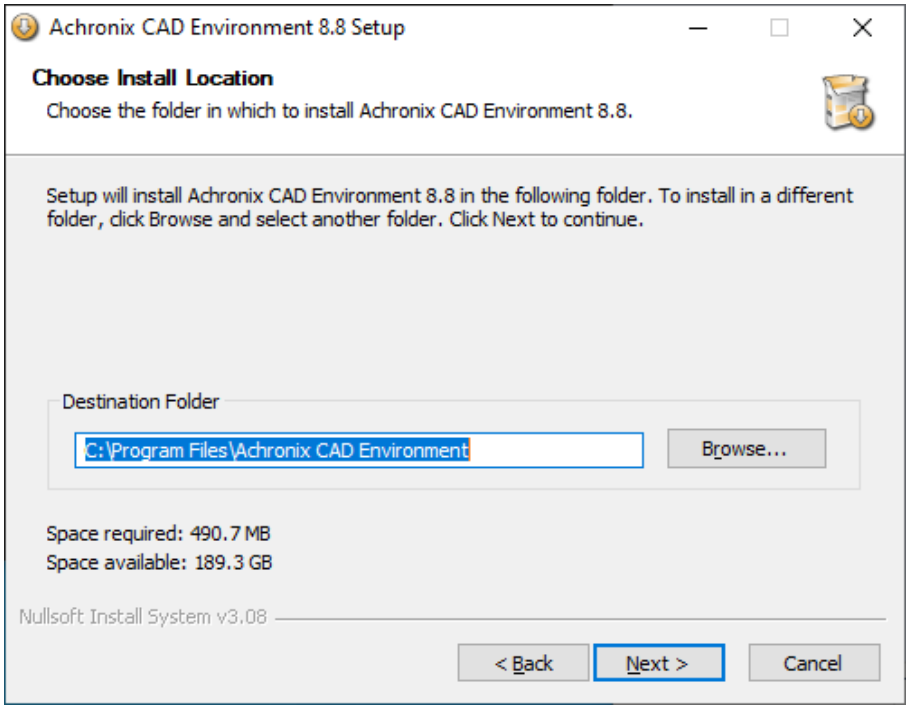


Figure 20: ***Choose Install Location Dialog***

11. From the Choose Start Menu Folder dialog, accept the default to create a unique ACE Start Menu folder. Select an existing folder if otherwise desired. Click **Install** to start file extraction and begin installation. If a Microsoft Visual C++ installer appears, click **Yes** to accept the license agreement.

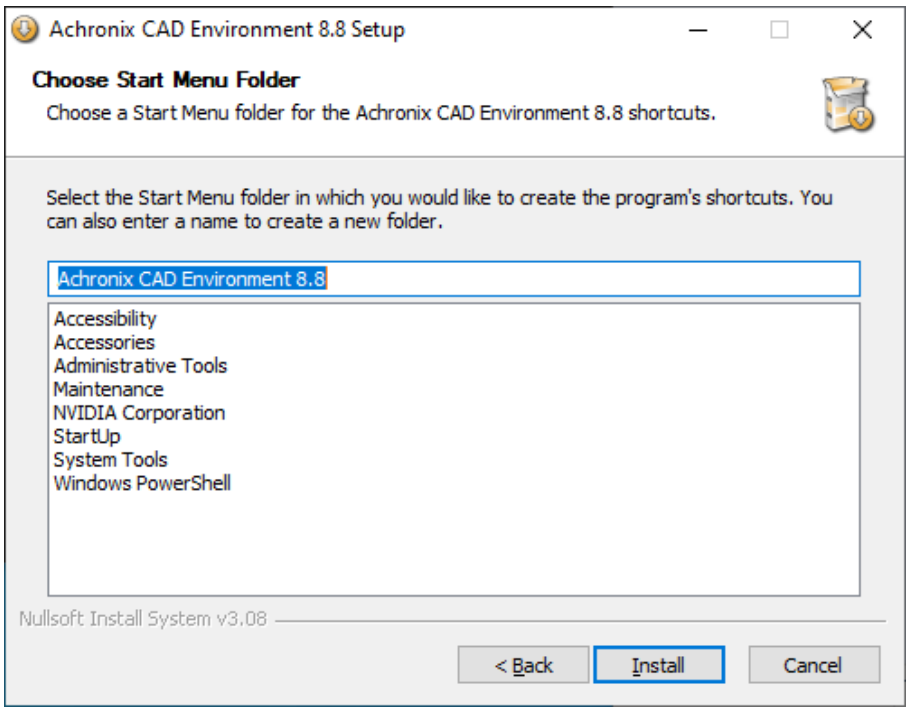


Figure 21: ***Choose Start Menu Folder Dialog***

12. The Installing Dialog appears showing the installation progress. Click **Next >** when complete.

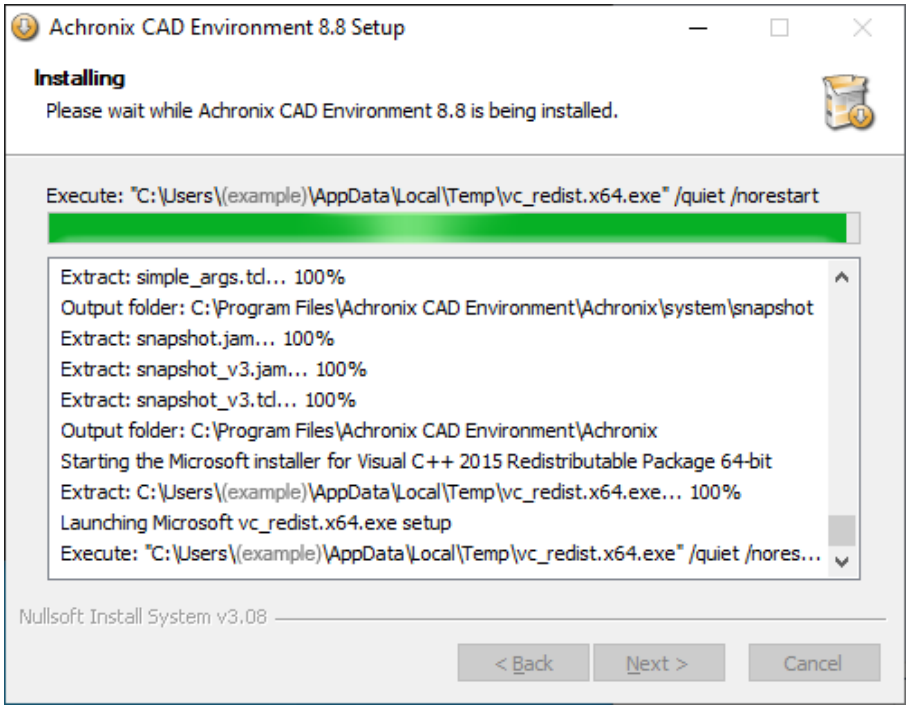


Figure 22: ***Installing Dialog***

13. If **FTDI CDM USB drivers for the Development Board DCC Interface** was selected in step 8, the FTDI CDM Drivers dialog appears. Click **Extract** to begin the installation of the drivers.

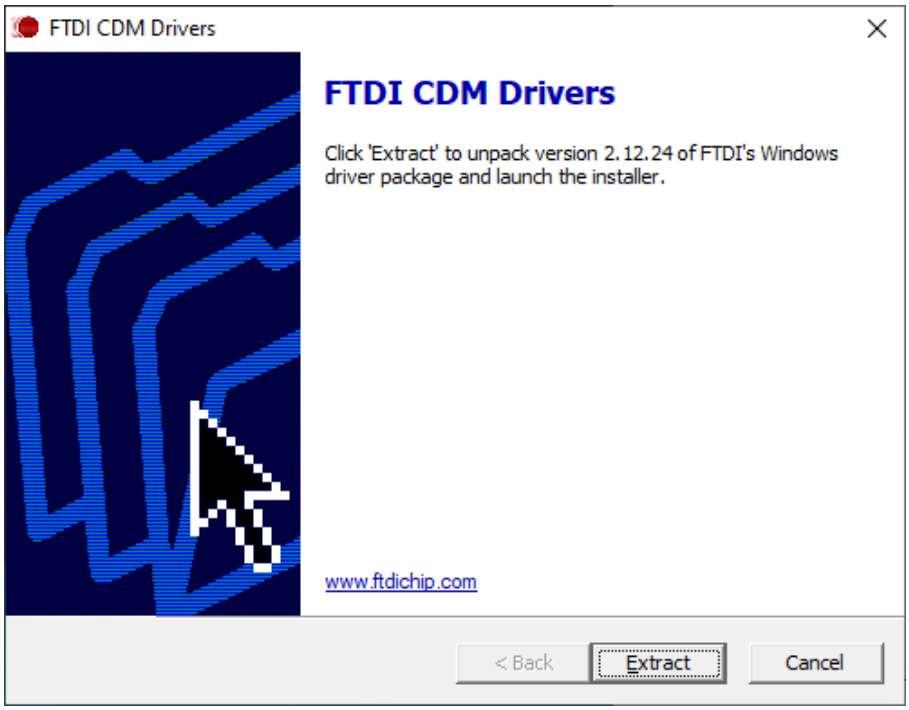


Figure 23: ***FTDI CDM Drivers Dialog***

14. The Device Driver Installation Wizard appears. Click **Next >** to continue.

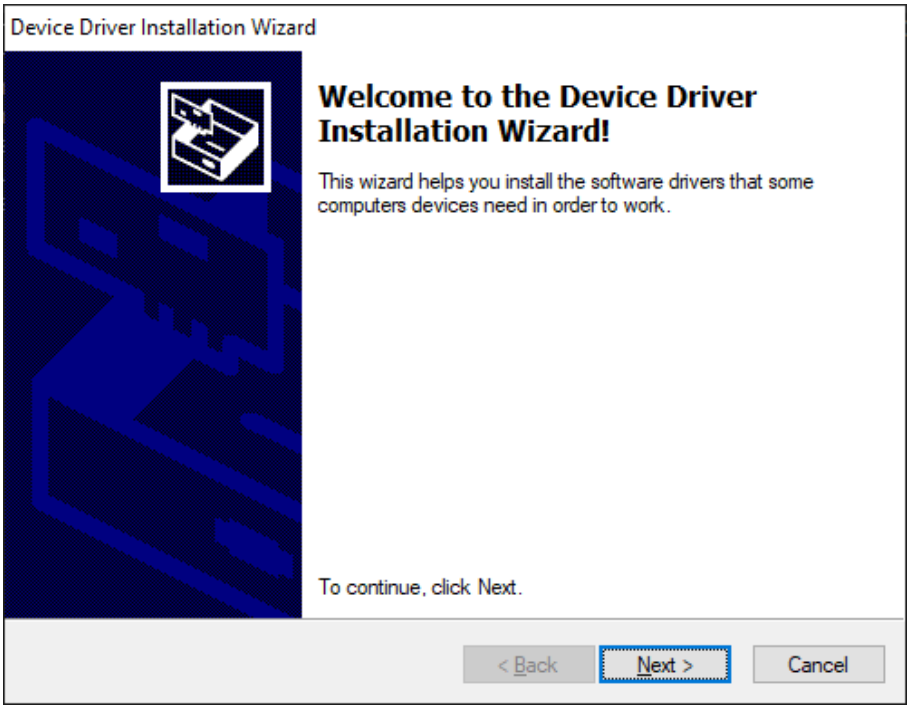


Figure 24: ***Device Driver Installation Wizard***

15. The License Agreement dialog appears. After reviewing the agreement, select **I accept this agreement** and then click the **Next >** button.

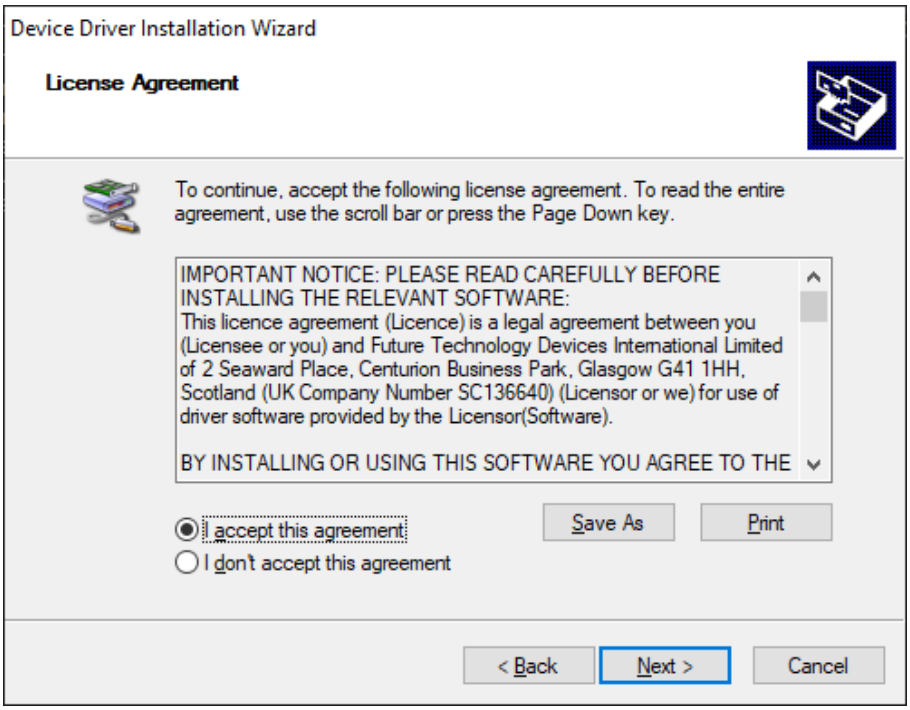


Figure 25: ***License Agreement Dialog***

16. Click the **Finish** button on the Completing the Device Driver Installation dialog to continue with the ACE install.

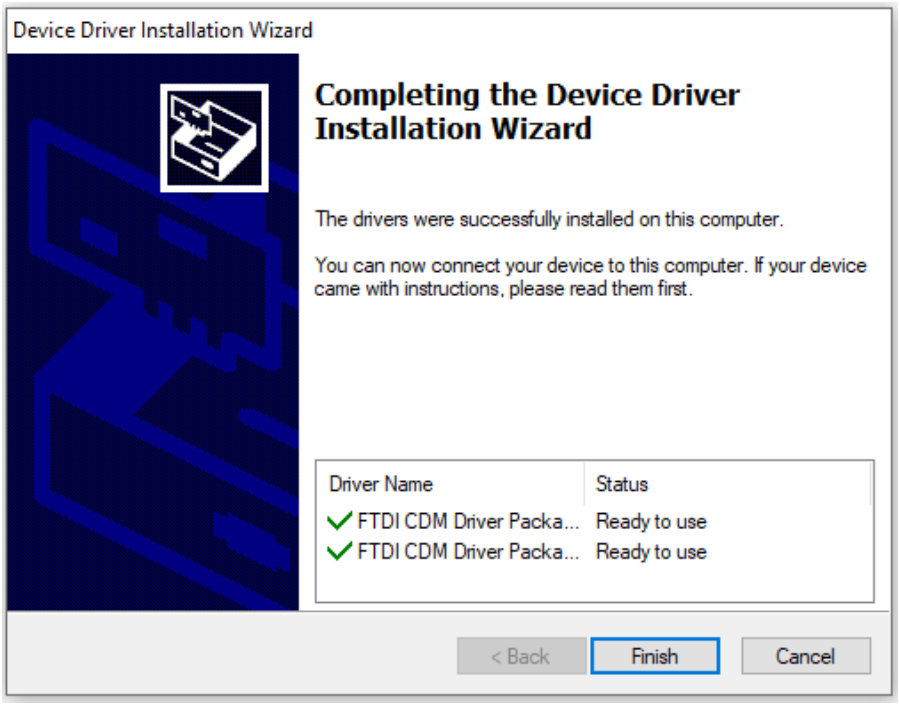


Figure 26: ***Completing the Device Driver Installation Dialog***

17. From the Device Overlay Install dialog:
    a. Click the [**...**] browse button.
    b. Navigate to the download directory containing the device overlay(s).
    c. Select the desired device overlay file.
    d. Click **Add** to select any additional files.
    e. Click **Next>** to continue (this process can take several minutes as the overlay files are quite large.

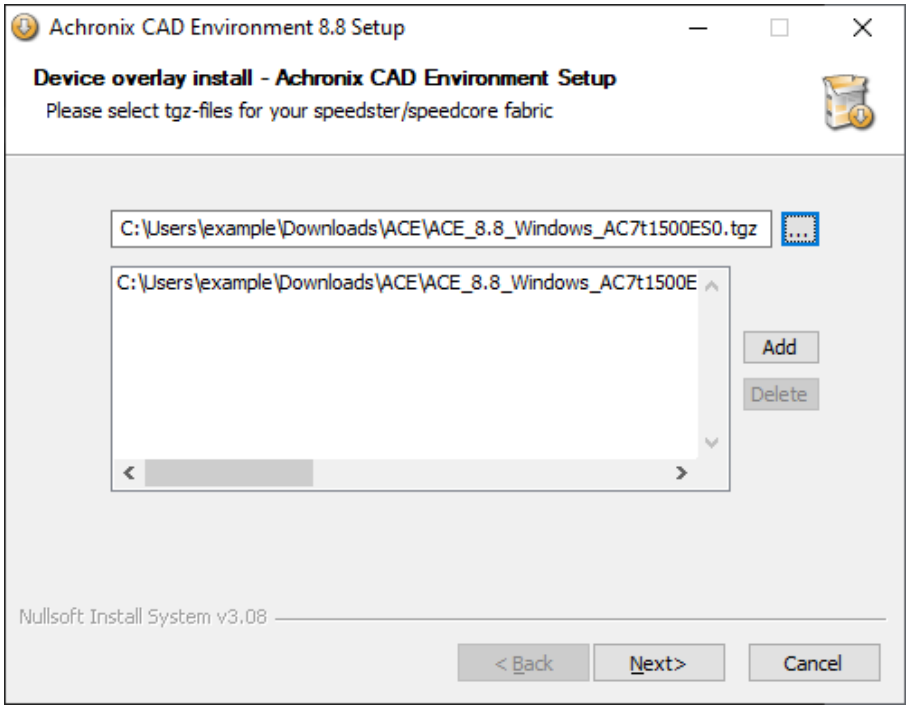


Figure 27: ***Device Overlay Install Dialog***

18. For a first-time installation, from the License Selection dialog, select **Manually install license later** and click **Next >**. Otherwise, if a node-locked license or a license server has already been installed, select the appropriate license type and enter the address of the license server or the license file path (click the **[...]** browse button to navigate to the license file) and click **Next >**.

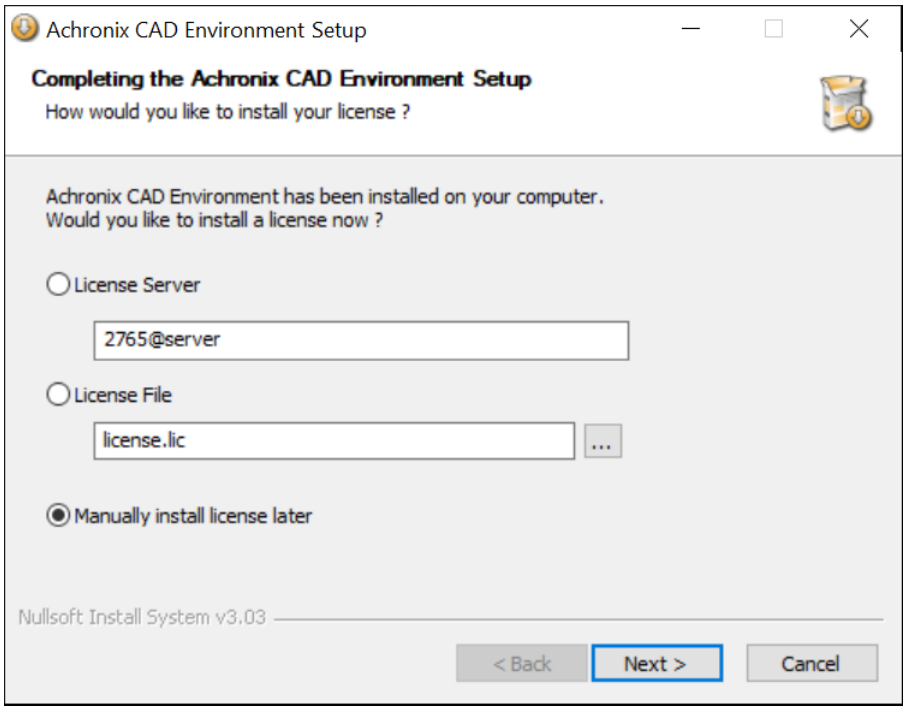


Figure 28: ***License Selection Dialog***

19. From the Completing Setup dialog, click **Finish**. Press **Enter** to complete the `install_ace.bat` file. Install the license file and verify the installation per the ACE License Installation (Windows) (see page 65) chapter.

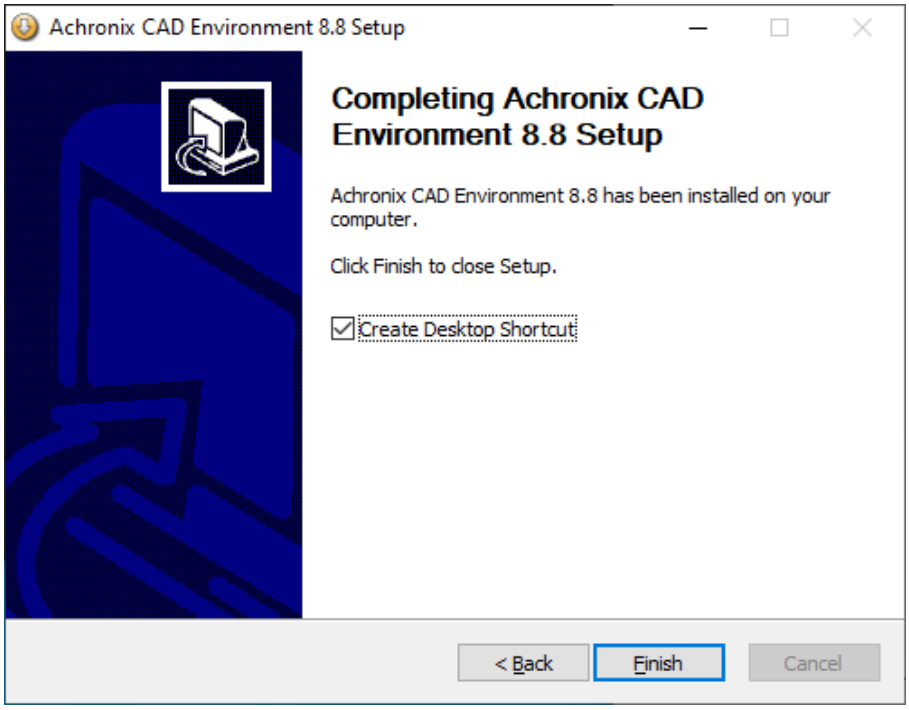


Figure 29: ***Completing Setup Dialog***

20. Optionally create an environment variable `ACE_INSTALL_DIR` to set the location of the `/Achronix` directory that can be used by scripts to easily access ACE.

Upgrading an ACE Installation

Achronix presently does not support multiple parallel versions of ACE on the same machine. Thus before upgrading ACE, the prior version should be uninstalled.

1. Disconnect any USB Bitporters
2. (If a node-locked license is being used for ACE:) Copy the `license/*.lic` file from the ACE installation directory to another location (somewhere not under the ACE installation directory).
3. Uninstall the prior version of ACE
4. Install the desired version of ACE
5. (If a node-locked license is being used for ACE:) Copy the `license/*.lic` file back to the proper location within the new ACE installation directory.
6. Re-connect any USB Bitporters
7. Run ACE

Installing multiple versions of ACE at the same time is not supported in Windows

Unsupported: Installing multiple versions of ACE at once

This is not officially supported due to limitations in the existing installer/uninstaller framework used by ACE. We do hope to support this scenario in a future ACE release.

Unsupported Workaround:

1. Disconnect any USB Bitporters
2. Install each version of ACE into a separate directory. See the directions below regarding uninstalls.
3. Re-connect any USB Bitporters
4. Run the desired version of ACE.

Be aware that the most recently installed version of ACE is also the first one in the PATH environment variable, which affects the version of ACE and the `acx_stapl_player` that gets executed if/when running those tools manually from the Command Prompt.

Unsupported: Uninstalling ACE after having previously installed multiple versions of ACE at once

This scenario is not officially supported, though we do hope to remedy this in a future version of ACE.

At this time, the ACE uninstaller is only able to uninstall the most-recently-installed version of ACE. (Note that this is not the same as the most recent release of ACE.)

Unsupported Workaround (if the version-to-be-uninstalled is not the version most recently installed):

1. Disconnect any USB Bitporters
2. Re-install the EXACT version of ACE you wish to uninstall on top of itself. ***The installation directory must match exactly.***
3. Uninstall that unwanted version of ACE. When complete, all remnants of that ACE version should have been removed.
4. Repeat steps 2 and 3 (re-install, then uninstall) for each remaining unwanted version of ACE.
5. Re-install the current favorite version of ACE on top of itself. This ensures the favorite version of ACE is once-again the first version in the PATH environment variable (required when running "`ace`" and "`acx_stapl_player`" from the Command Prompt), and also makes the uninstaller once again aware of that version.
6. Re-connect any USB Bitporters

Uninstalling ACE

> **Caution!**
>
> The ACE (un)installer does not fully support multiple copies of ACE being installed on the same machine simultaneously. The uninstaller always uninstalls the most recently installed version of ACE, regardless of version number. See the section Upgrading an ACE Installation (see page 55) for further details and workarounds.

To uninstall ACE on Windows:

1. Click **Start**. Right-click **Achronix CAD Environment**. Select **Uninstall** and skip to step 3.
2. Alternately, Select **Start** → **Windows System** → **Control Panel** → **Programs and Features**.
3. From the Uninstall or change a program dialog, select **Achronix CAD Environment** and click **Uninstall**.

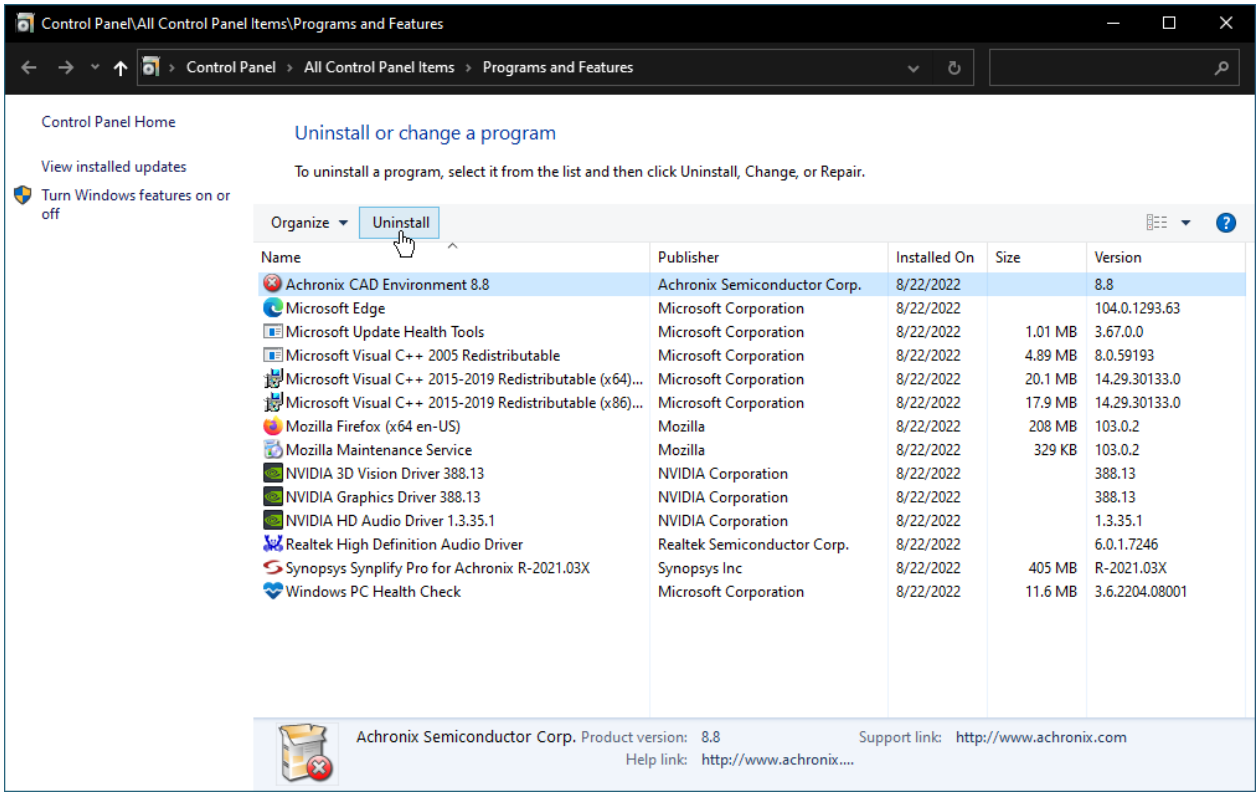


Figure 30: ***Uninstall Or Change a Program Dialog***

4. From the Achronix CAD Environment Uninstall dialog, click **Uninstall** to start the uninstall process. The window closes when the process completes.

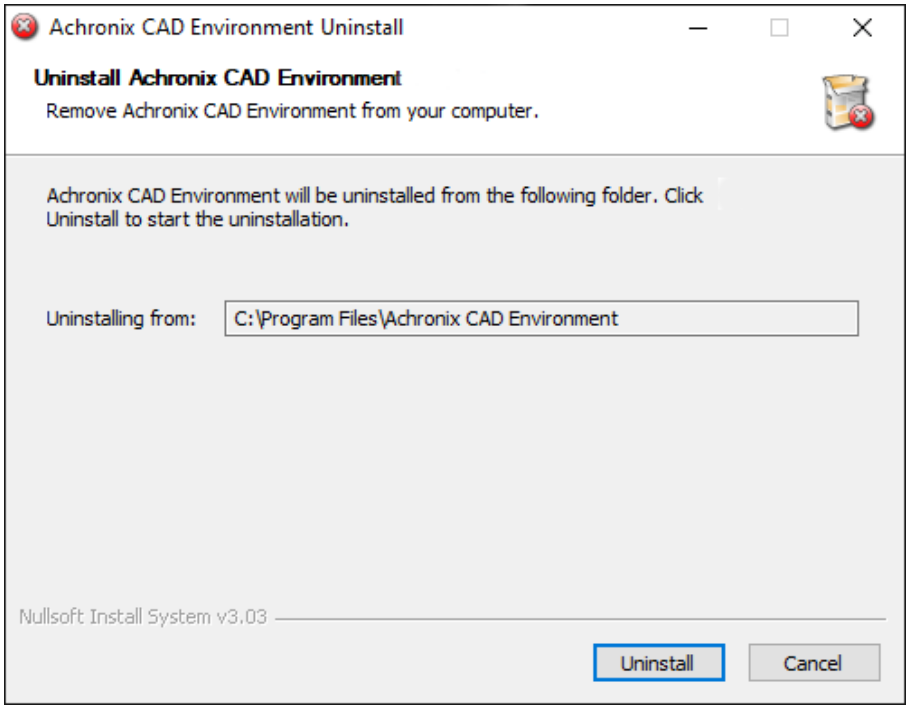


Figure 31: ***Achronix CAD Environment Uninstall Dialog***

Installing Synplify Pro for Achronix

> **Warning!**
>
> If the license configuration is node locked when upgrading Synplify Pro for Achronix, any existing license files in the directory `\Synopsys` might be removed or overwritten. Be sure to save a copy of the license file in a safe place for reuse after a program upgrade.

Follow the steps below to install Synplify Pro:

1. Create an empty directory to receive the download files (e.g., `C:\Users\<username>\Downloads\SynPro`).
2. Download the Synplify Pro ZIP file (e.g., `SynplifyPro_2021.03x_release_Windows.zip`) and extract its contents.

   > **Note**
   >
   > The device overlay ZIP files are located in the Synplify Pro ZIP file, but are installed after the Synplify Pro installation.

3. Doubleclick the install program (e.g., `fpga_vR-2021.03X_win.exe`) to begin the install.

4. From the Synplify Pro for Achronix Setup dialog (shown below), click **Next >** to open the License Agreement dialog.

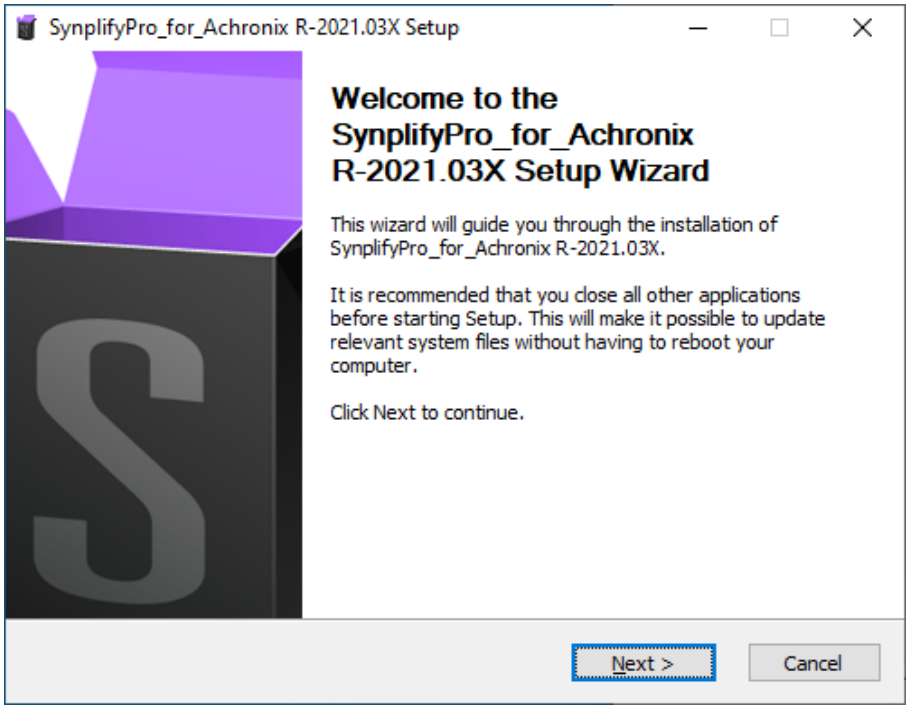


Figure 32: ***Synplify Pro for Achronix Setup Dialog***

5. Select **I accept the terms of the license agreement** followed by **Next >**.

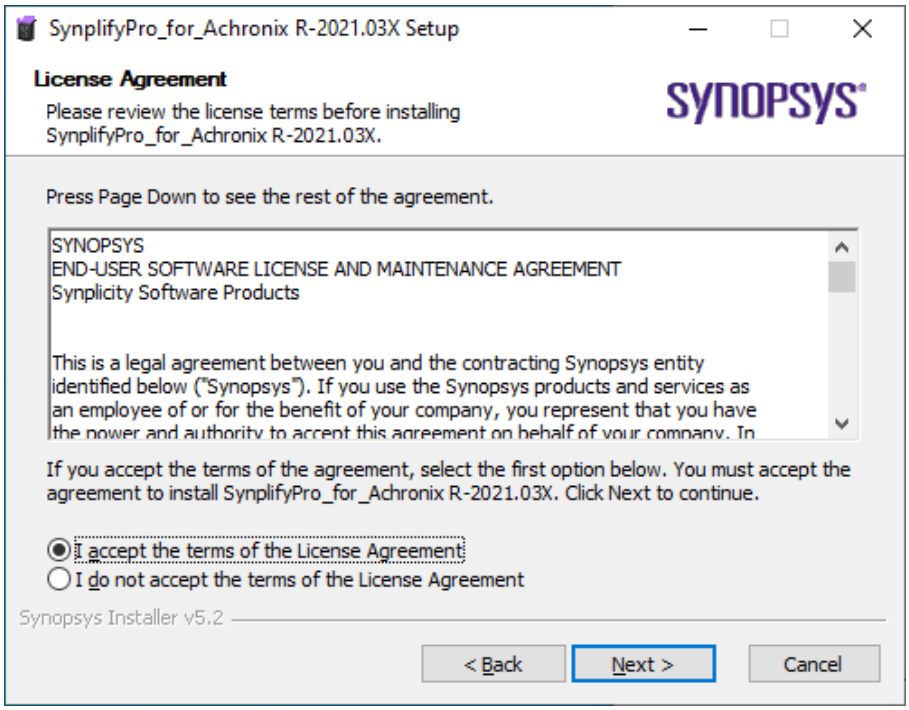


Figure 33: ***Synopsys End-User License Agreement***

6. From the Choose Components dialog, ensure that **achronix_oem** is checked and click **Next >**.

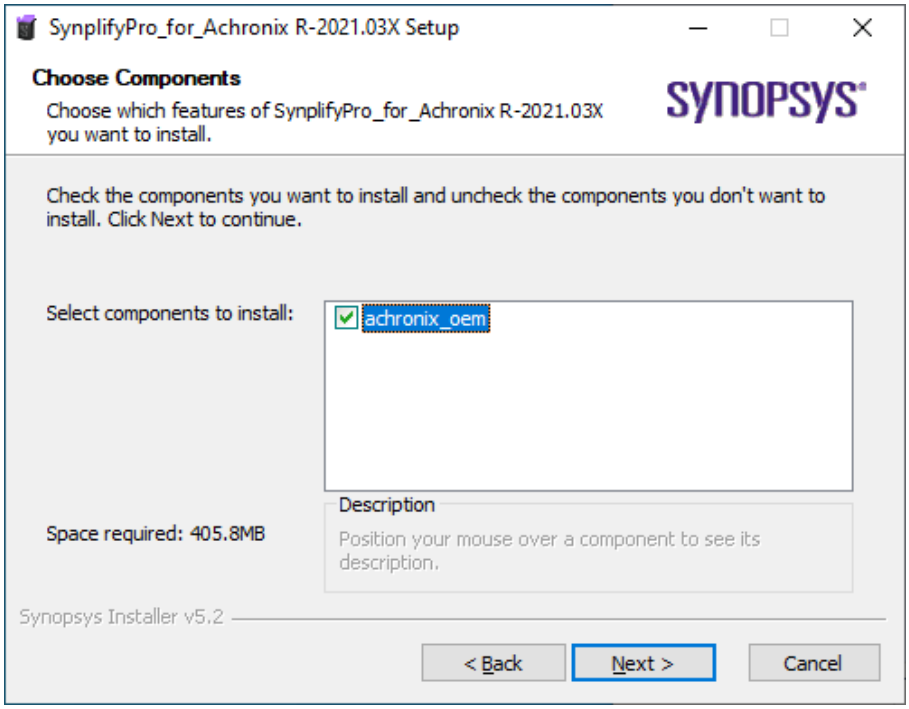


Figure 34: ***Choose Components Dialog***

7. From the Choose Install Location dialog, set the desired install directory by either typing the path under **Destination Folder** or clicking the **Browse...** button to navigate to the desired location (this example uses the default location: `C:\Synopsys\fpga_R-2021.03X`). Click **Next >** to continue.

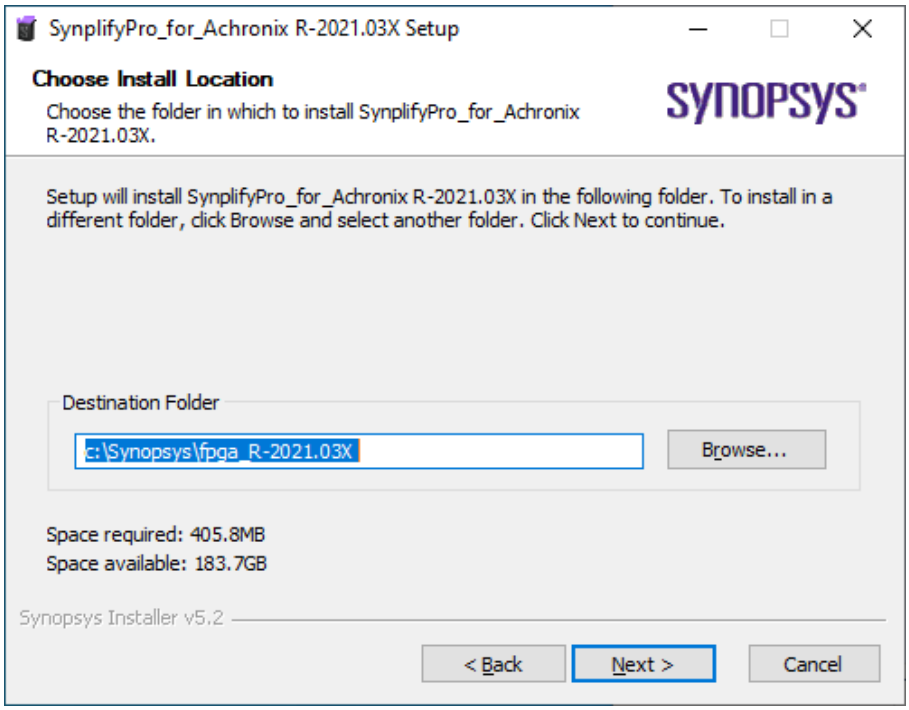


Figure 35: ***Choose Install Location Dialog***

8. From the Choose Start Menu Folder dialog, accept the default to create a unique Synplify Pro Start Menu folder. Select an existing folder if otherwise desired. Click **Next >** to continue.

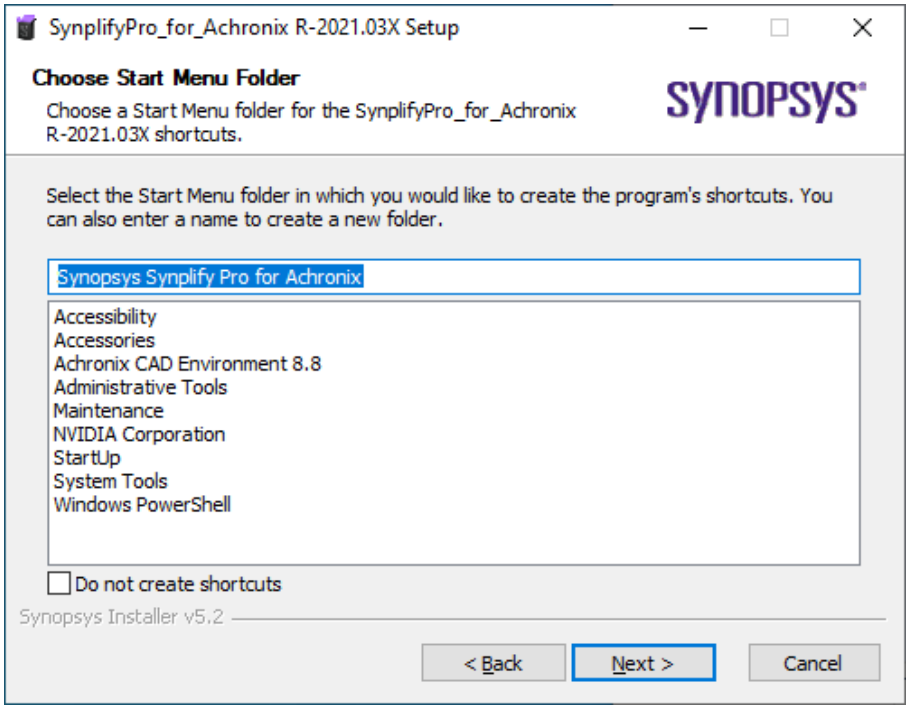


Figure 36: ***Choose Start Menu Folder Dialog***

9. From the Start Copying Files dialog, select **Accept, Next >** to begin the installation.

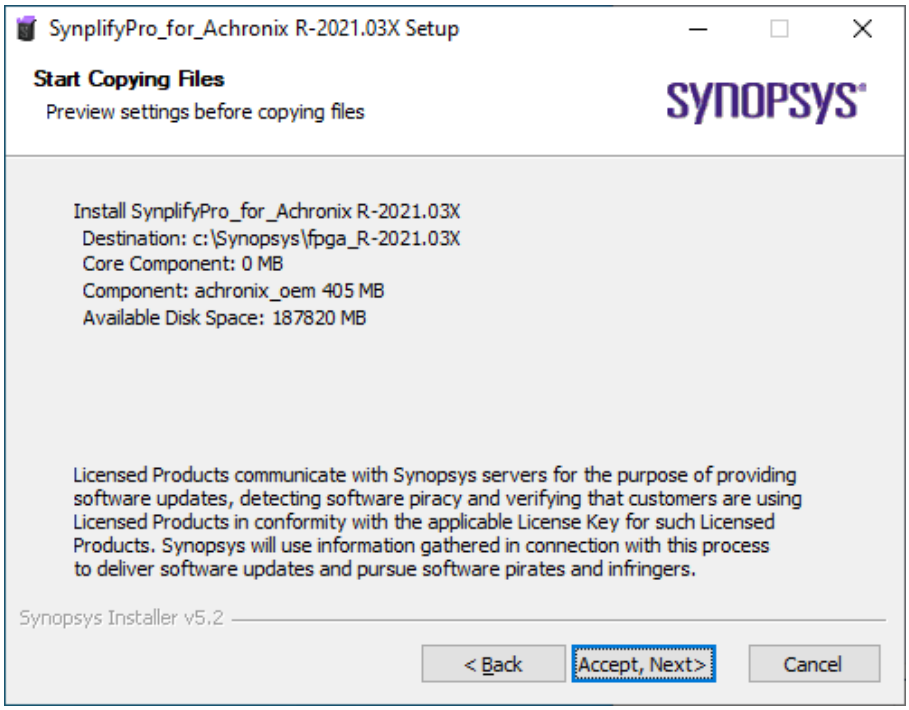


Figure 37: ***Start Copying Files Dialog***

10. The Installing progress dialog shows the installation activity as it progresses. When complete, click **Next >** to finish the installation.

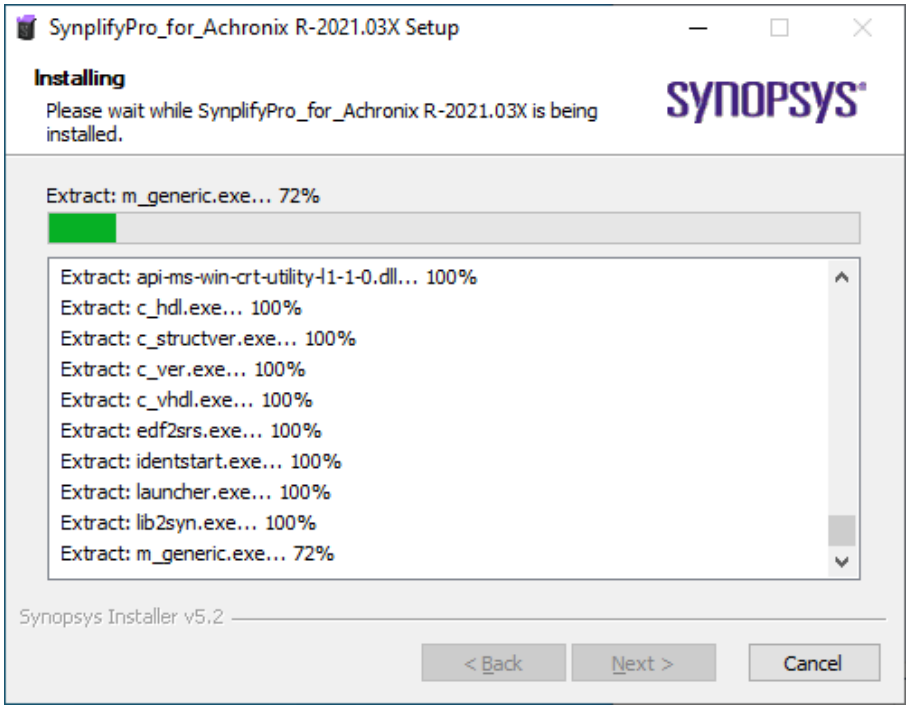


Figure 38: ***Installing Progress Dialog***

11. If the Certificate Details dialog appears, it indicates that the Windows installation on your system is missing the certificate files shown in the dialog. If this Synplify Pro installation is using a single-user node-locked license or an external license server, this warning may be ignored. For a floating license installation with the license server on the same system, you need to acquire the certificate files noted in the dialog in order to start the license server. Click **OK** to continue. When installation is complete, visit https://www.synopsys.com/certificates to obtain the files.

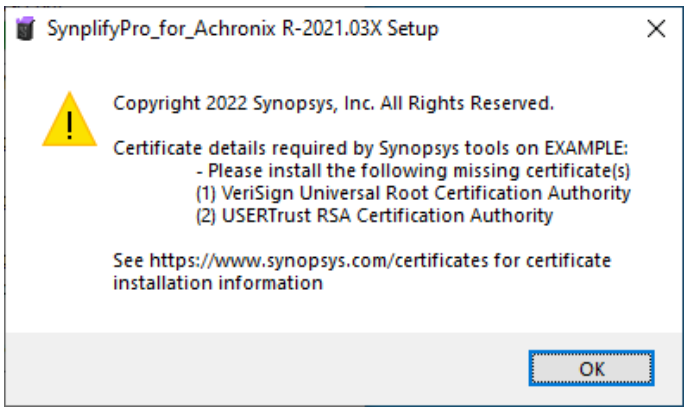


Figure 39: ***Synopsys Certificate Details Dialog***

12. From the InstallShield Wizard Complete dialog, click **Finish** to complete the installation.

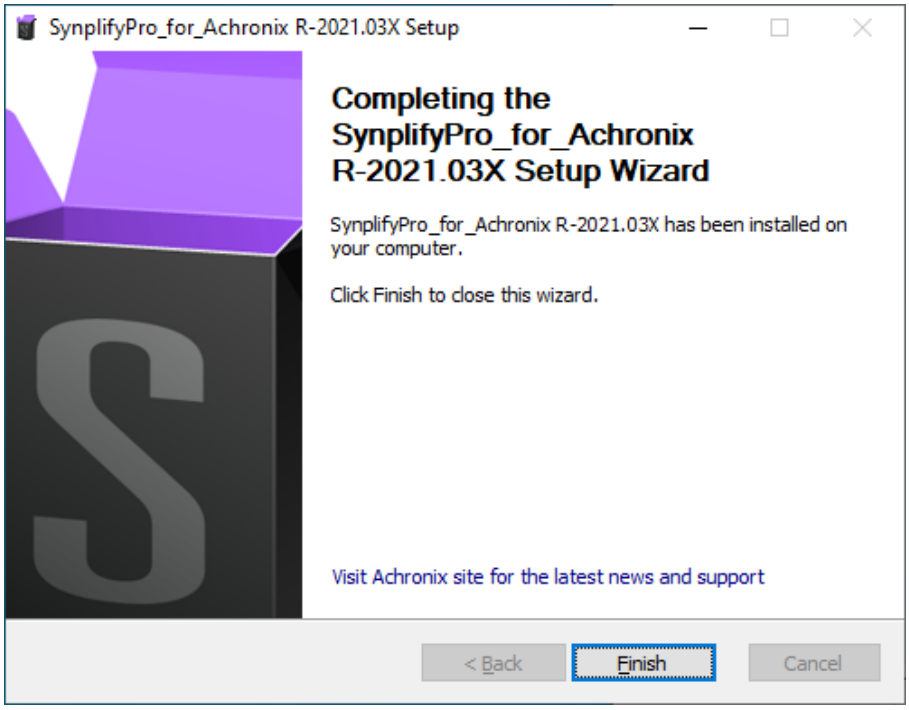


Figure 40: *InstallShield Wizard Complete Dialog*

13. Install the license file and verify the installation as detailed in "Synplify Pro License Manager SNPSOEM" in the Synplify Pro License Installation (Windows) (see page 72) chapter.
14. Install the device overlays as described in the Device Overlays (see page 80) chapter.

Uninstalling Synplify Pro

To uninstall Synplify Pro on Windows:

1. Click **Start**.
2. Right-click **Synplify Pro R-2021.03X** and select **Uninstall**.
3. From the Uninstall or change a program dialog, select **Synopsys Synplify Pro for Achronix R-2021.03X** and click **Uninstall**.

4. From the Uninstall Wizard dialog, click **Next** to start the uninstall process. The window closes when the process completes.

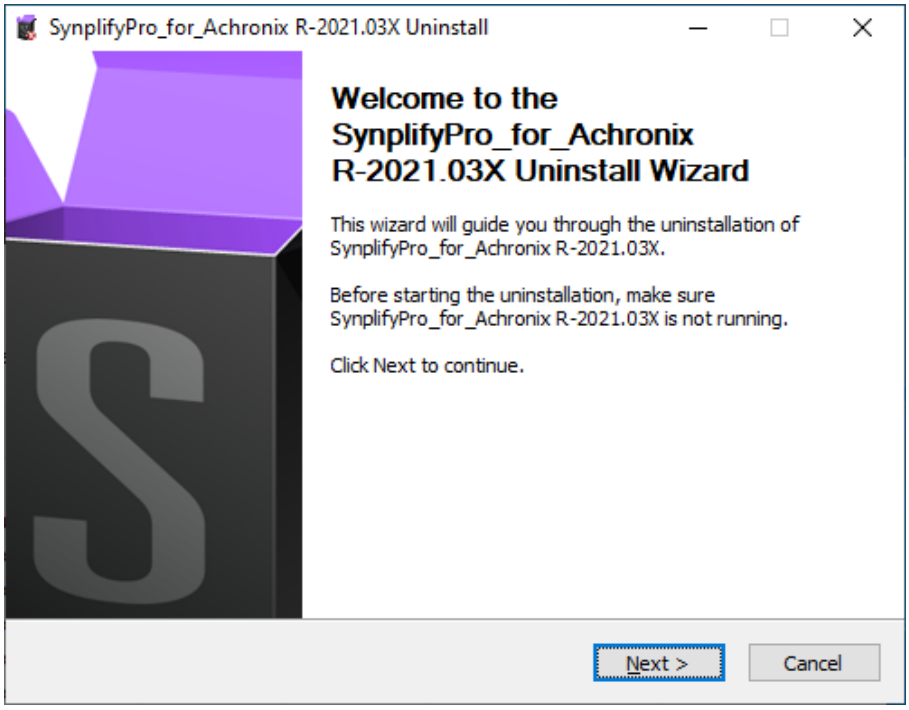


Figure 41: ***Synplify Pro Uninstall Wizard Dialog***

Chapter - 8: ACE License Installation (Windows)

Node-Locked License Installation

Follow these steps to install a node-locked license on Windows:

1. Determine the physical network address (or MAC) of the host system.
2. Request licenses from Achronix as described in Obtaining Software Licenses (see page 9). Achronix Semiconductor responds by sending a file, `ace.lic`, as an email attachment. Save this file to a safe location.
3. When the Achronix CAD Environment is installed as described in the Software Installation (Windows) (see page 45) chapter, save `ace.lic` to the directory `\Program Files\Achronix CAD Environment\Achronix\license`, or to the location used during install if the default location was overridden. Ensure there are sufficient write privileges for the target directory.
4. To verify installation and licensing, select from the Start menu, **Achronix CAD Environment** → **Achronix CAD Environment** to start ACE. ACE starts up and displays the welcome page shown below.



Figure 42: ***ACE Welcome Page***

If the license is not found or is improperly installed, an error dialog (shown below) appears. Click **Close** to terminate. Refer to Troubleshooting (Windows) (see page 78) or contact Achronix Technical Support at support@achronix.com.

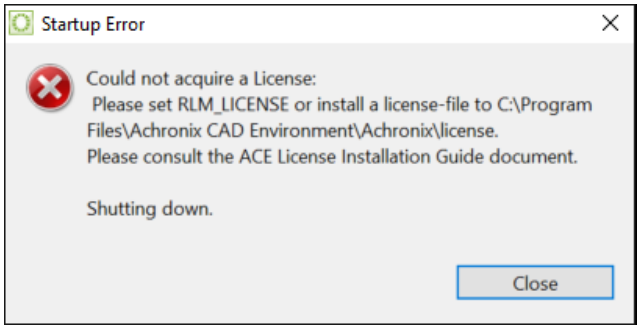


Figure 43: ***Startup Error Dialog***

It is possible that the windows firewall configuration might prompt for permission to allow ACE access to the network (an example is shown below). Grant permission by clicking **Allow access**.

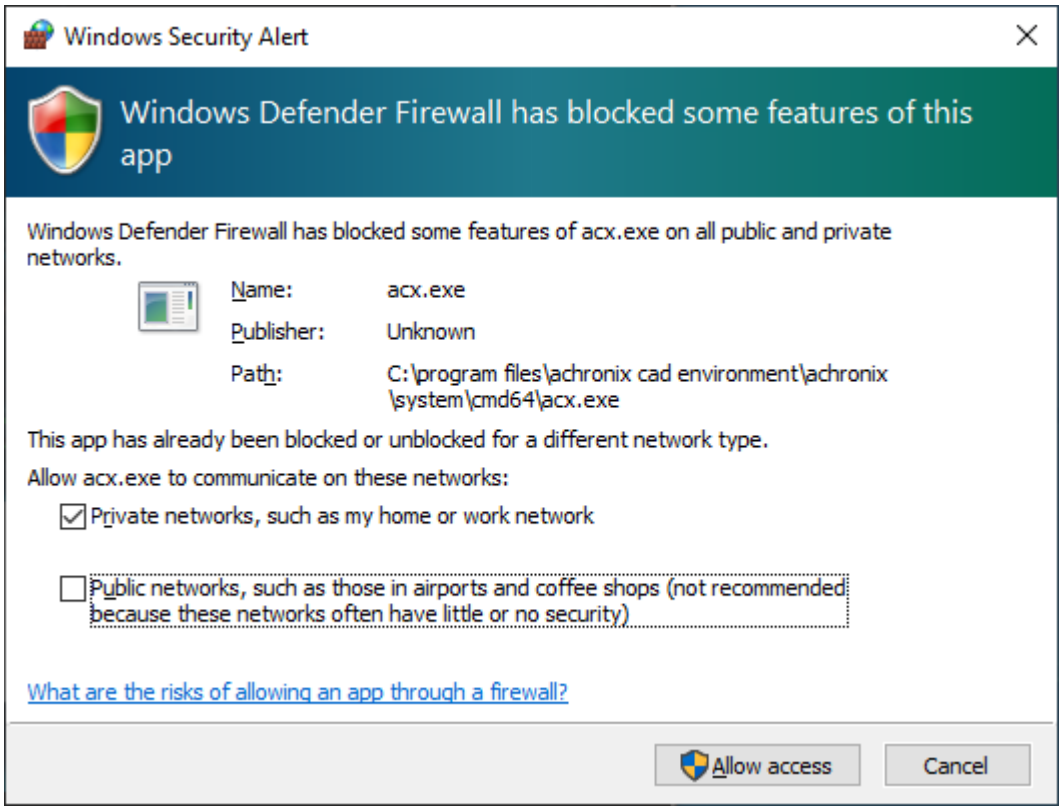


Figure 44: ***Windows Security Alert Dialog***

Floating Node License Installation

For a floating license, the option exists to host a license server on either a Linux or Windows platform, even if the specific license(s) are intended for use on Windows. If hosting a license server on Linux, refer to the ACE License Installation (Linux) (see page 27) chapter. Refer to the following if hosting the license server on Windows.

After installing the software on the client as described in the "Installing ACE" topic in the chapter, Software Installation (Windows) (see page 45) follow these steps:

1. Determine the physical network address (or MAC) of the license server. Refer to the "Windows" section under the topic "Determine the MAC Address of the License Host" in the chapter Obtaining Software Licenses (see page 9).
2. Request licenses from Achronix as described in Obtaining Software Licenses (see page 9). Achronix Semiconductor responds with a file, `ace.lic`, as an email attachment. Save this file to a safe location.
3. Copy the license file `ace.lic` to an appropriate directory on the license server.
4. Copy the directory `C:\Program Files\Achronix CAD Environment\Achronix\bin (or bin64)` from the client to the license server.

5. Edit `ace.lic` to add the license server name and path to the licensing agent:

```
HOST <license_server_host> DEADC0DE0123 1710
ISV achronix <install_directory>\bin\achronix_license_agent.exe
```

   Where `DEADC0DE0123` is the host ID (MAC) of the license server determined in step 1.

6. Set the environment variable on the client machine:
   a. From the Start menu, select **Windows System** → **Control Panel** → **System**.
   b. On the **About** page under **Related settings**, select **Advanced system settings** to open the System Properties dialog (see below).
   c. Click **Environment Variables...** to open the Environment Variables dialog.

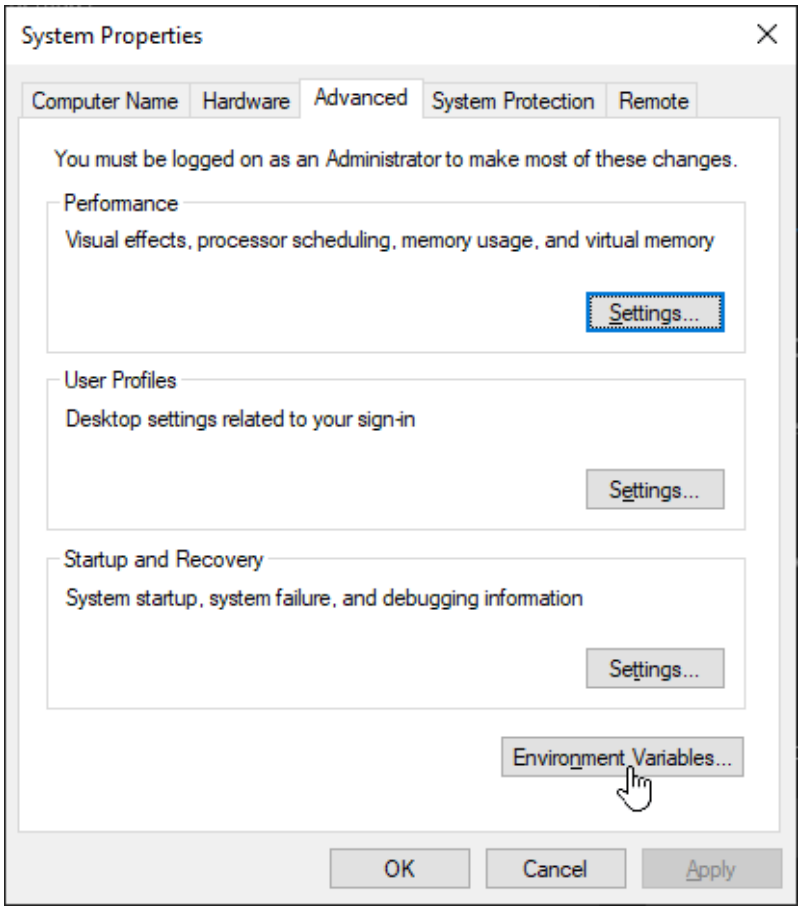


Figure 45: ***System Properties Dialog***

7. Under the **System variables** section, click **New** to open the New Environment Variable dialog.

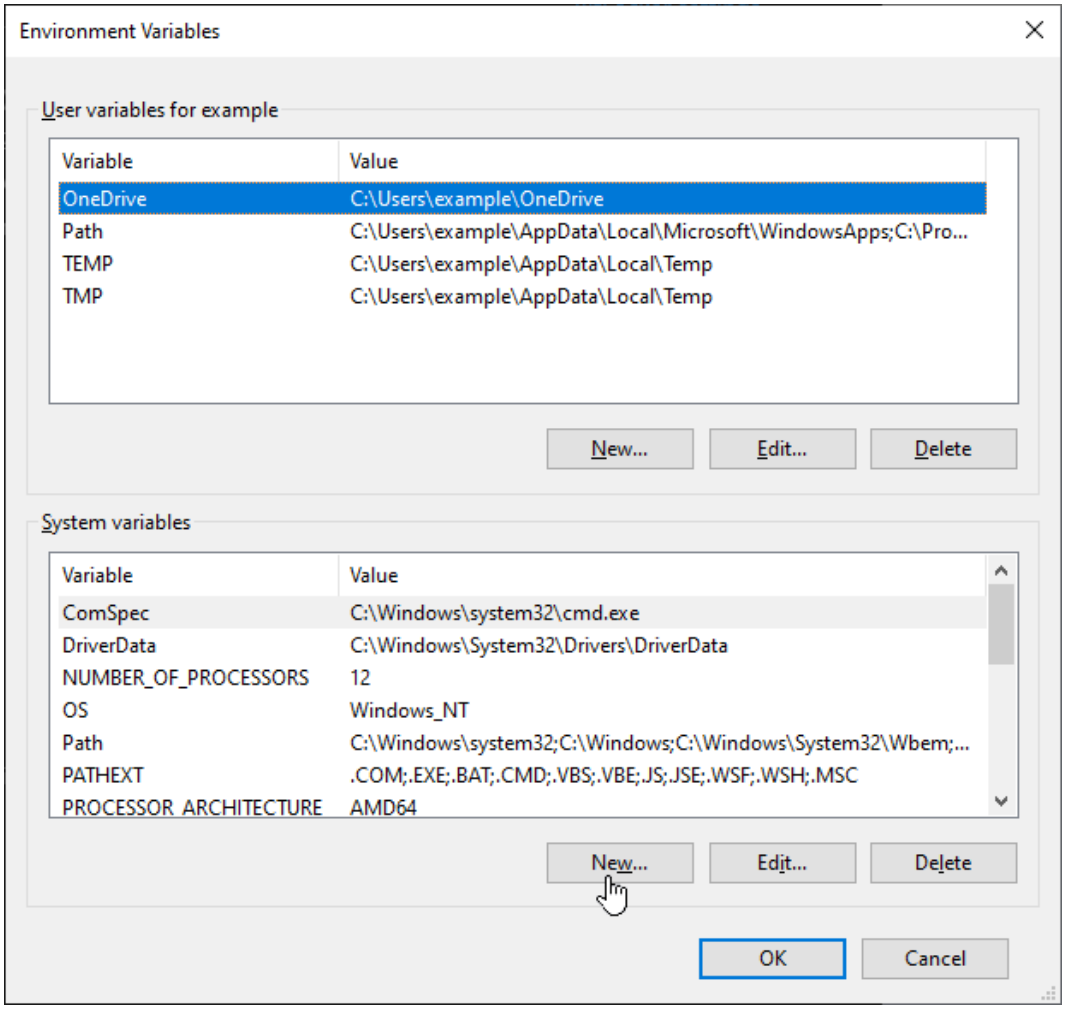


Figure 46: *Environment Variables Dialog*

8. Enter:
   Variable name: **RLM_LICENSE**
   Variable value: **1710@<license_server_host>**

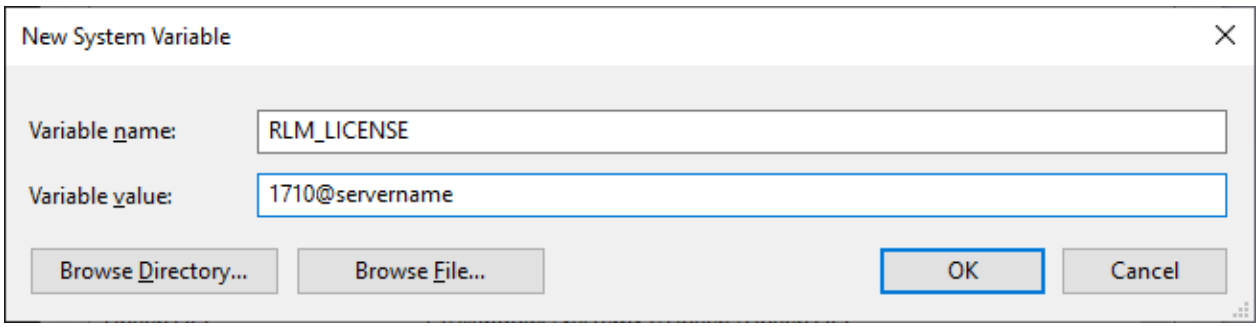


Figure 47: *New System Variable Dialog*

9. Click **OK** to set, followed by **OK** to close the Environment Variables window and **OK** to close the System Properties window.

> **Note**
>
> The environment variable can also be set from the command line (but is forgotten as soon as the command line window is closed):
>
> ```
> C:\> set RLM_LICENSE 1710@<license_server_host>
> ```
>
> To verify that the environment variable is set:
>
> ```
> C:\> echo %RLM_LICENSE%
> ```

10. Start the remote licensing manager (RLM) on the license server. This can either be run as administrator on demand from the server, or run as a Windows service process at startup. A service process set up to start automatically at boot time runs as long as the system is up. To install RLM as a service, enter the following from a command prompt:

```
rlm.exe -install_service -dlog [+]logfile [-service_name sname] [-user username] [-password
password] <rlm runtime args>
```

Table 6: *RLM Command Parameters*

RLM Option	Description
logfile	The path name for the server debug log. This parameter is required. If preceded by the (+) character, the logfile is appended, rather than created.
sname	An optional name for the installed service. If not specified, `sname` defaults to "rlm". If `sname` contains embedded whitespace, it must be enclosed in double quotes.
rlm runtime args	Any other command line arguments to be passed to rlm when it is started.

Example

```
rlm.exe -install_service -service_name rlm-xyz -dlog c:\logs\server.log -c c:\licenses\xyz.
lic
```

This example installs rlm as a service under the name "rlm-xyz". When started via the Services control panel or at boot time, rlm receives arguments from the file `c:\licenses\xyz.lic`, and writes debug log information to the file `c:\logs\server.log`.
This command returns an indication that the license server is up:

```
07/14 18:18 (rlm) RLM License Server Version 3.0BL4
Copyright (C) 2006-2007, Reprise Software, Inc. All rights reserved
07/14 18:18 (rlm) License server started on <license_server_host>
07/14 18:18 (rlm) Server architecture: x86_l2
07/14 18:18 (rlm) License files:
07/14 18:18 (rlm)/opt/Achronix-linux/<license_file_name>.lic
07/14 18:18 (rlm)
07/14 18:18 (rlm) Web server starting on port 9000
07/14 18:18 (rlm) Using TCP/IP port 1710
07/14 18:18 (rlm) Starting ISV servers:
07/14 18:18 (rlm)... achronix on port 56255
07/14 18:18 (achronix) RLM License Server Version 3.0BL4 for ISV "achronix"
07/14 18:18 (achronix) Server architecture: x86_l2
Copyright (C) 2006-2007, Reprise Software, Inc. All rights reserved
RLM contains software developed by the OpenSSL Project for use in the
OpenSSL Toolkit (http//www.openssl.org) Copyright (c) 1998-2003 The
OpenSSL Project. All rights
reserved.
07/14 18:18 (achronix)
07/14 18:18 (achronix) Server started on <license_server_host>
(hostid: XXXXXXXX) for:
07/14 18:18 (achronix)ace-v1.0
07/14 18:18 (achronix)
07/14 18:18 (achronix) License files:
07/14 18:18 (achronix) /opt/Achronix-linux/<license_file_name>.lic
07/14 18:18 (achronix)
```

Chapter - 9: Synplify Pro License Installation (Windows)

This chapter includes the installation of the new License Manager for Synplify Pro 2021.03x on Windows platforms.

Synplify Pro License Manager SNPSOEM

The introduction of Synplify Pro 2021.03x requires the use of a new license manager, SNPSOEM, for *floating Windows licenses*. This license manager replaces the older license manager. The change of license manager increases the efficiency of the license generation process.

This license manager requires the use of new style compatible license files. License requests using the ACE License Request form on support.achronix.com automatically return a new-style license.

System Requirements

The license manager can be run on a different platform than the ACE tools. The requirements for the system hosting the license manager are shown in the following table. Not all of the OS versions listed in the table are supported by ACE. When hosting the license manager on the same system that is running ACE, please review the ACE release notes for the full list of supported OS versions.

Table 7: *SNPSOEM System Requirements*

OS	Supported Versions
Microsoft Windows x86_64 — 64-bit (win32)	• Windows Server 2012 • Windows Server 2012 R2 • Windows Server 2016

Windows Node-locked Licenses

The SNPSOEM license manager is not used on Windows platforms with node-locked licenses. In the case of a Windows node-locked license, it is only necessary to save the license file to a known location and set the environment variable `SNPSLMD_LICENSE_FILE` to the path of the license file installed on the host machine. For details on how to set up the environment variables, refer below to steps 8–10 under Installing the SNPSOEM License Manager for Windows (see page 73).

> **Note:**
>
> Node-locked licenses only operate on a machine which you can physically access. If you are remotely accessing the machine, you *must* use a floating license.

Linux Node-Locked Licenses

If you requested a Linux node-locked license, you received a floating license for Synplify Pro. That license does not work in a Windows node-locked configuration.

Obtaining the SNPSOEM License Manager

The zip archive containing the executable for Windows is located under directory `/Licensing` in the software distribution folder.

Installing the SNPSOEM License Manager for Windows

To install the SNPSOEM license manager in Windows, follow these steps:

1. Determine the physical network address (or MAC) of the license server. Refer to the "Windows" section under the topic "Determine the MAC Address of the License Host" in Obtaining Software Licenses (see page 9).
2. Request licenses from Achronix as described in How Do I Request an Evaluation License for Achronix Tools?. Achronix Semiconductor responds with a file, `synplify.lic`, as an email attachment. Save this file to a safe location.
3. When Synplify Pro for Achronix is installed as described in Installing Synplify Pro for Achronix (see page 58), save `synplify.lic` to a directory (e.g., `C:\Synopsys\SNPS\License`). The license file location is assigned to an environment variable later in this process.
4. Download `SNPSOEM_2020.06_Windows.zip` from the `Licensing` directory on the Synplify Pro download page. Extract the contents of the zip file where you want to run the license server software (e.g., `C:\Synopsys\SNPS`). The zip file includes the following executables:
   Table 8: *SNPSOEM License Server Executables*

Executable	Description
`lmgrd.exe`	Shipped with FlexNet version v11.16.6
`lmutil.exe`	Shipped with FlexNet version v11.16.6
`snpsoem.exe`	SCL OEM license daemon
`sclshoem.exe`	SCL OEM license test client
`sclshoem_th.exe`	SCL OEM license test client (threaded version)

5. (Floating licenses only) Edit `synplify.lic` to set the hostname1 to "localhost" or the actual hostname, and set the path to the Synplify Pro license daemon:

```
SERVER localhost 012345678901 27000
VENDOR snpsoem C:\Synopsys\SNPS\win64\bin\snpsoem
USE_SERVER
INCREMENT SSST snpsoem 1.0 05-Jul-2021 1
ED1EDC268F3F082F8849 \
```

6. From the command line, navigate to the license server directory in which the zip file is extracted (e.g., `C:\Synopsys\SNPS`) and start the license server:

```
C:\> cd \Synopsys\SNPS
C:\Synopsys\SNPS> win32\bin\lmgrd.exe -c <oem_license_file> -zor

   - or -

C:\Synopsys\SNPS> win64\bin\lmgrd.exe -c <oem_license_file> -z
```

7. Verify that the license server has started correctly:

```
C:\Synopsys\SNPS\win64\bin> lmutil.exe lmstat -a
```

   This command returns an indication that both the license server and daemon are up:

```
lmstat - Copyright (c) 1989-2009 Flexera Software, Inc. All Rights
Reserved.
Flexible License Manager status on Mon 10/3/2011 22:04 [Detecting lmgrd processes...]
License server status: 27000@localhost
License file(s) on Australia: C:\license_dir\synplify.lic:
localhost: license server UP (MASTER) v11.16.6.0
Vendor daemon status (on localhost):
snpsoem: UP v11.16.6.0
Feature usage info:
Users of SSST: (Total of 1 license issued; Total of 0 licenses in use) Users of
synplifypro_achronix: (Total of 1 license issued; Total of 0
licenses in use)
```

8. Set the required environment variable on the host:
    a. From the **Start** menu, select **Windows System** → **Control Panel** → **System**.
    b. Scroll the About section down and, under **Related settings**, select **Advanced system settings** to open the System Properties dialog (see below).
    c. Click the **Environment Variables...** button to open the Environment Variables Dialog.

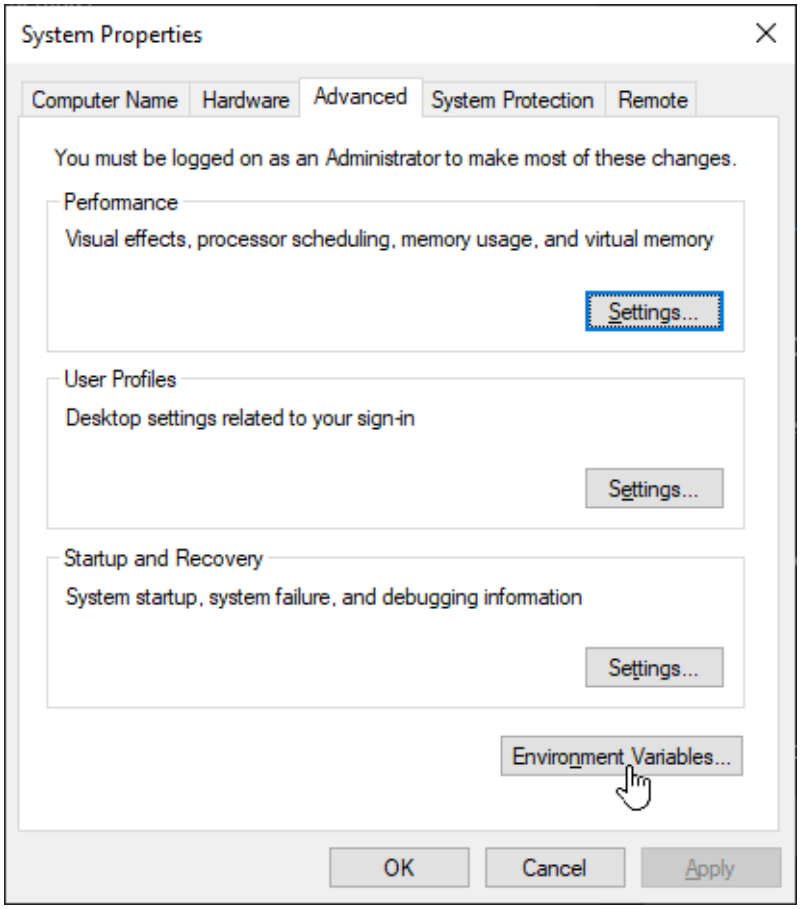


Figure 48: ***System Properties Dialog***

9. On the Environment Variables dialog, under the **System variables** section, click the **New** button.

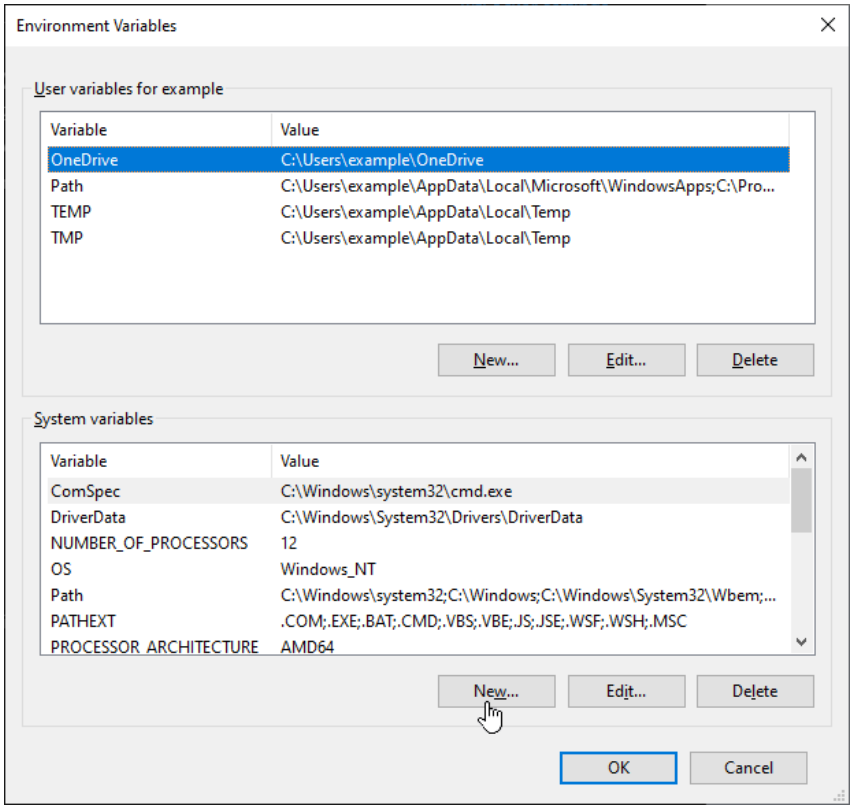


Figure 49: *Environment Variables Dialog*

10. Enter the following:
    Variable name: **SNPSLMD_LICENSE_FILE**
    Variable value: **C:\Synopsys\SNPS\License**

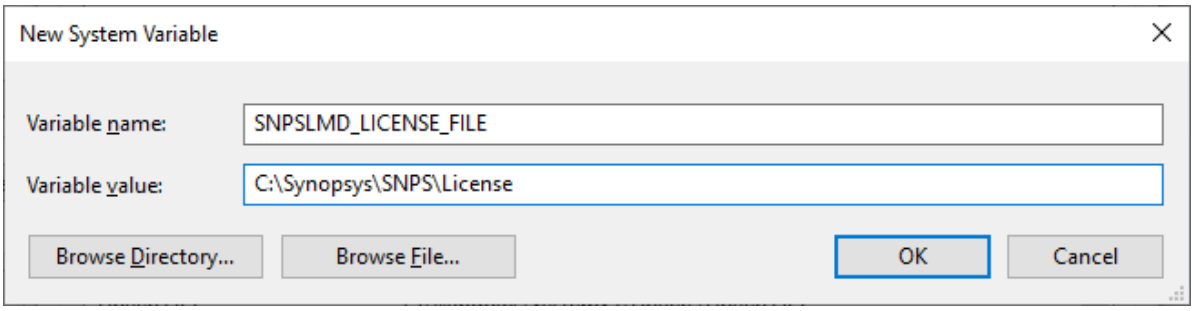


Figure 50: *System Variables Editor Dialog*

11. Click **OK** to set, followed by **OK** to close the Environment Variables dialog and again to close the System Properties dialog.

Running Both Old and New License Managers on the Same System

It is possible to run both license managers on the same system. For example, the license environment variable can be set up using different ports as in the example below:

```
SNPSLMD_LICENSE_FILE 1234@hostname:5678@hostname
```

Here, 1234 and 5678 are different port numbers but the hostname is the same. SNPSLMD_LICENSE_FILE or LM_LICENSE_FILE and both the ports can be used in the same path.

Chapter - 10: Troubleshooting (Windows)

This chapter provides troubleshooting hints for Windows licensing.

ACE Licensing Issues

Checklist

- Verify the install path of the license is correct:
  `C:\Program Files\Achronix CAD Environment\Achronix\license`
- Verify that license file has the proper extension (`.lic`) and contains no illegal (nonalphanumeric) characters in the name.
- Verify that the host ID listed in the license file matches the MAC address of an enabled Ethernet adapter in the system.
- Ensure the program path below has been added to the Path statement:
  `C:\Program Files\Achronix CAD Environment\Achronix\system\cmd`
  The Path variable is set as follows:
  1. Select from the Start menu **Windows System** → **Control Panel** → **System** → **Advanced system settings** to open the System Properties dialog.
  2. From the Advanced tab, click **Environment Variables**.
  3. highlight the **Path** string and click **Edit**.

Other Issues

When upgrading ACE, any existing license files in the directory `\license` might be removed. Be sure to save a copy of the license file in a safe place for reuse after a program upgrade.

Synplify Pro for Achronix Licensing Issues

Checklist

- Verify the install path of the license is correct, for example:
  `C:\Synopsys\synplify.lic`
- Verify that license file contains no illegal (nonalphanumeric) characters in the name.
- Ensure that the `INCREMENT synplifypro_achronix ...` lines in the license file start on new lines.
- Verify that the HOSTID listed in the license file matches the MAC address of an enabled Ethernet adapter in the system.

- Ensure that the SNPSLMD_LICENSE_FILE environment variable exists and is set to the correct install path for the license file, for example:
  `C:\Synopsys\synplify.lic`
  The Path variable is set as follows:
  1. Select from the Start menu **Windows System** → **Control Panel** → **System** → **Advanced system settings** to open the System Properties dialog.
  2. From the Advanced tab, click **Environment Variables**.
  3. highlight the **Path** string and click **Edit**.

Other Issues

Save the License File when Performing an Upgrade

When upgrading Synplify Pro for Achronix, any existing license files in the directory `\Synopsys` might be removed or overwritten. Be sure to save a copy of the license file in a safe place for reuse when performing a program upgrade.

Ethernet Cards Present on the System

If the host system has multiple Ethernet cards, first install the Synplify license manager and run `lmutil lmhostid` from the command prompt to get the reported MAC address. Then, use this MAC address when requesting the license.

ACE Startup Error Due to Missing DLL Component in Windows 10

In some Windows 10 configurations, the following error dialog might appear when invoking the ACE GUI. This error occurs due to a missing DLL component from the Visual Studio redistributable installer. This situation can be resolved by reinstalling the `vc_redist.x64.exe` executable. This executable can be downloaded from the following link: https://www.microsoft.com/en-ca/download/details.aspx?id=48145.

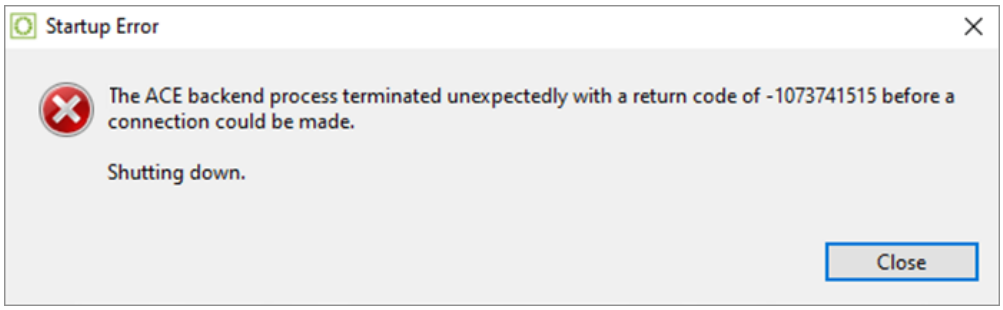


Figure 51: ***ACE Startup Error***

Chapter - 11: Device Overlays

Support for Achronix devices (e.g., Speedcore™ eFPGA IP or Speedster®7t FPGAs) is provided in ACE and Synplify Pro with the use of overlays. Achronix provides device overlays for downloading. All device overlays must be installed for the devices planned to be used.

ACE Overlays

Device overlays for ACE are delivered as a tar file containing the additional library and system files required for the device in use. For example, `ACE_8.8_Linux_AC7t1500ES0.tgz` and `ACE_8.8_Windows_AC7t1500ES0.tgz` contain the necessary overlays to support the Speedster7t AC7t1500 device in ACE version 8.8 in Linux and Windows respectively (release 8.8 also provides .zip overlay files for backward compatibility). To install ACE along with the device overlays on Linux, simply use the `install_ace.sh` script provided (refer to Installing ACE (see page 17) for directions). For Windows, the device overlays are also installed during the ACE installation process (refer to Installing ACE (see page 45) for directions). If it is necessary to install device overlays manually, follow the directions below.

The zip or tar file contains a directory structure similar to the following:

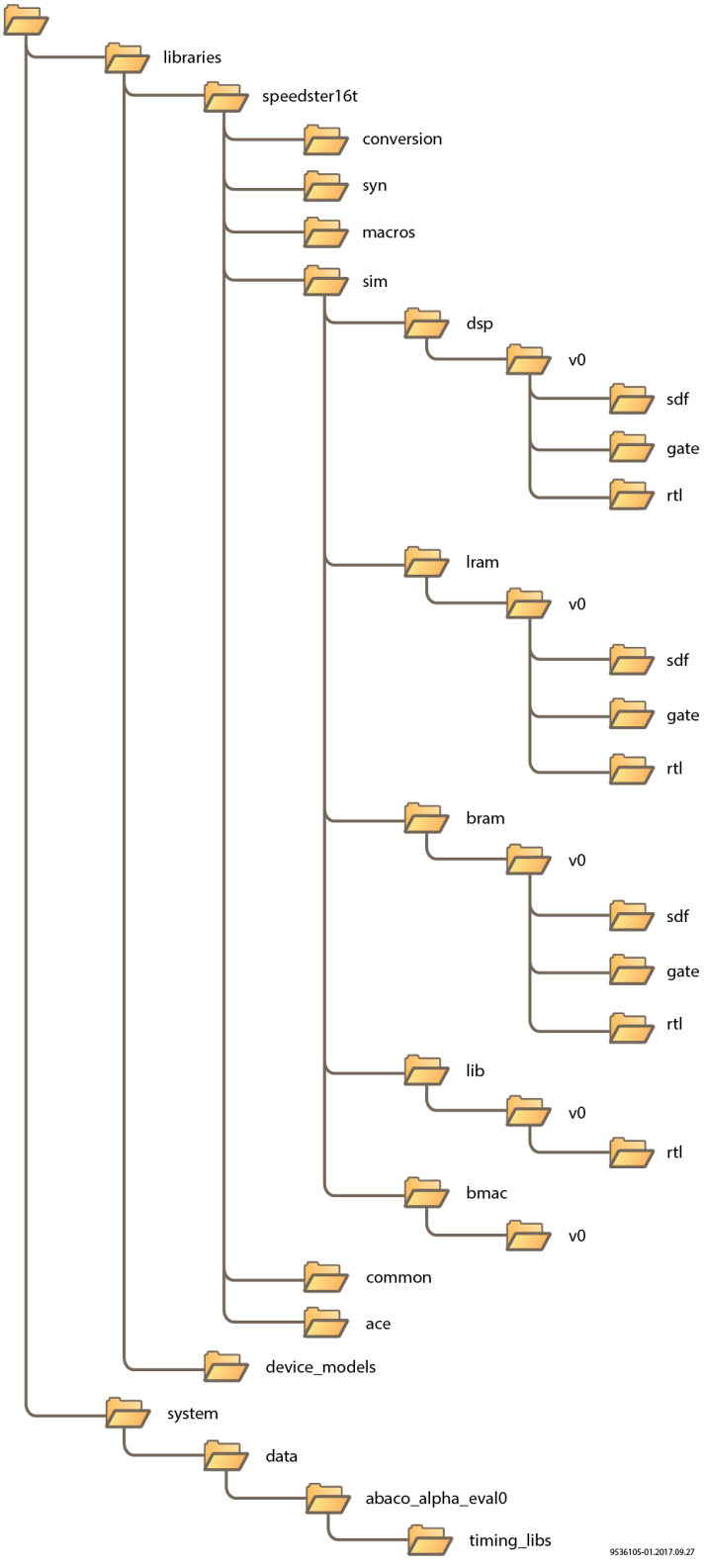


Figure 52: ***Overlay File Directory Structure***

Note

Before proceeding, make sure that write privileges are enabled for the ACE Install directory (usually `C:\Program Files\Achronix CAD Environment\Achronix` in Windows or `/opt/Achronix-Linux` in Linux). Also, if using Windows, run the unzip program as administrator by right-clicking the unzip program and selecting **More → Run as Administrator**.

Extract the contents of the zip/tar file into the ACE Install directory. ACE now allows the selection of device(s).

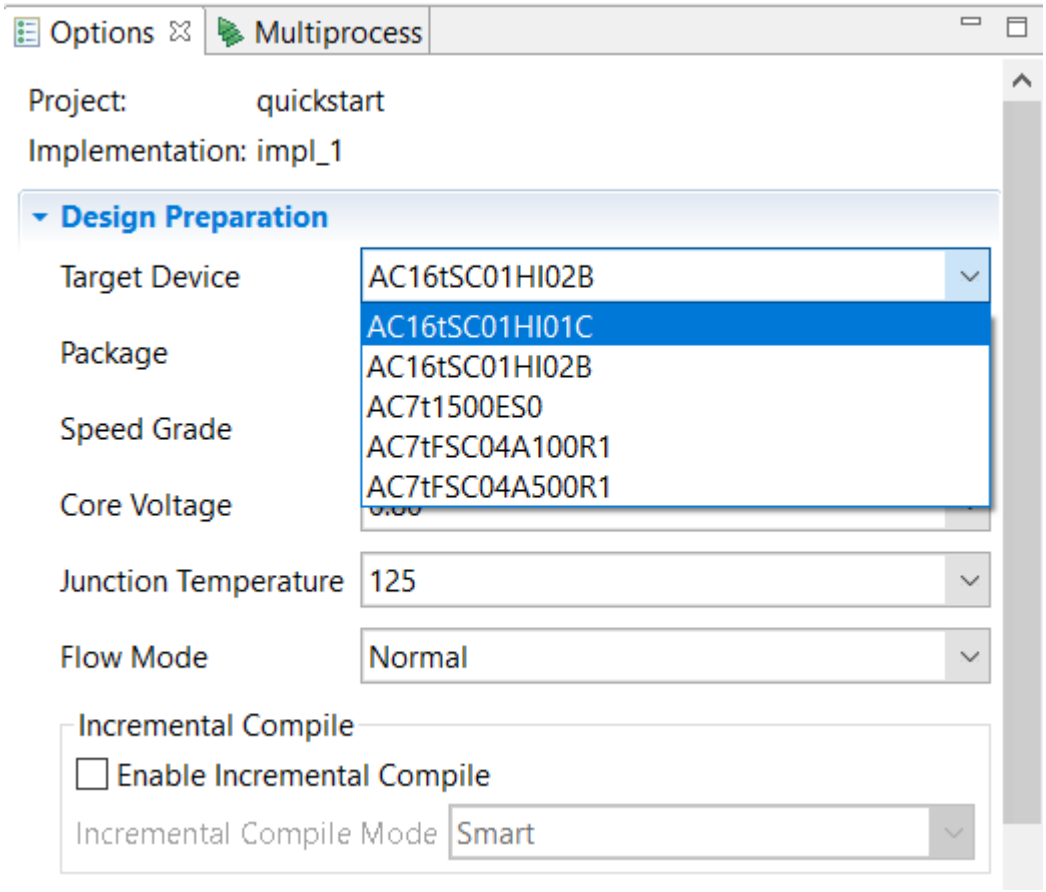


Figure 53: ***ACE Design Preparation Options Showing the Added Devices***

Synplify Pro Overlays

Synplify Pro overlays are delivered as a zip (for Windows) or tar (for Linux) file, with the name indicating the applicable version of Synplify Pro and the custom devices supported. For example, `speedster7t_16t_Linux_P-2021.03X_overlay.zip` represents the overlays for the Speedster7t FPGA and Speedcore eFPGA IP evaluation devices, with the overlays applying to version P-2021.03X of Synplify-Pro.

Caution!

Ensure that the overlay downloaded matches the version of Synplify Pro that is to be updated. If a new version of Synplify Pro is subsequently used, a new overlay file must be requested from Achronix.

After the zip or tar files are downloaded, extract them and continue to the next section.

Applying the Overlay

1. Locate the subdirectory `/lib` (if using Linux) or `\lib` (if using Windows) within the Synplify Pro installation directory.
2. All of the files from the extracted overlay directories should then be copied to their equivalent locations in the Synplify Pro installation directory. However, if other overlays have been downloaded, it might be necessary to manually merge some files.

> **Note**
>
> If using Linux, files `/lib/generic/custom_partdata.txt` and `/lib/parts/custom_parts.txt` must be manually merged if they already exist in the Synplify Pro installation. In both instances, add the contents of the new overlay file to the existing file using a text editor. If using Windows, the file paths instead are `\lib\generic\custom_partdata.txt` and `\lib\parts\custom_parts.txt`.

3. To ensure that all new devices have been installed, launch Synplify Pro. The splash screen should indicate that the new devices have been detected.

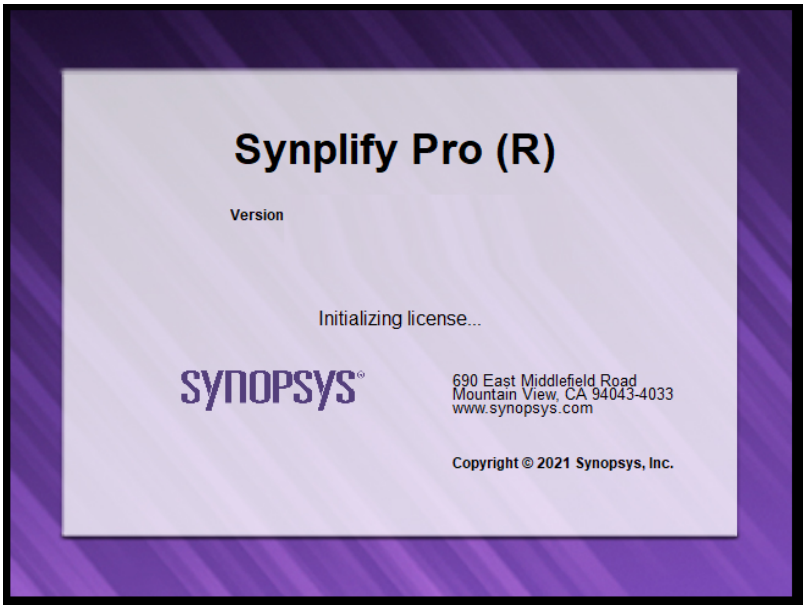


Figure 54: ***Synplify Pro Splash Screen***

4. To confirm the parts are correctly installed, after opening Synplify Pro, create a new project.
5. Select **Implementation Options** → **Device**.

6. The new parts should be available in the "Part:" drop-down list.

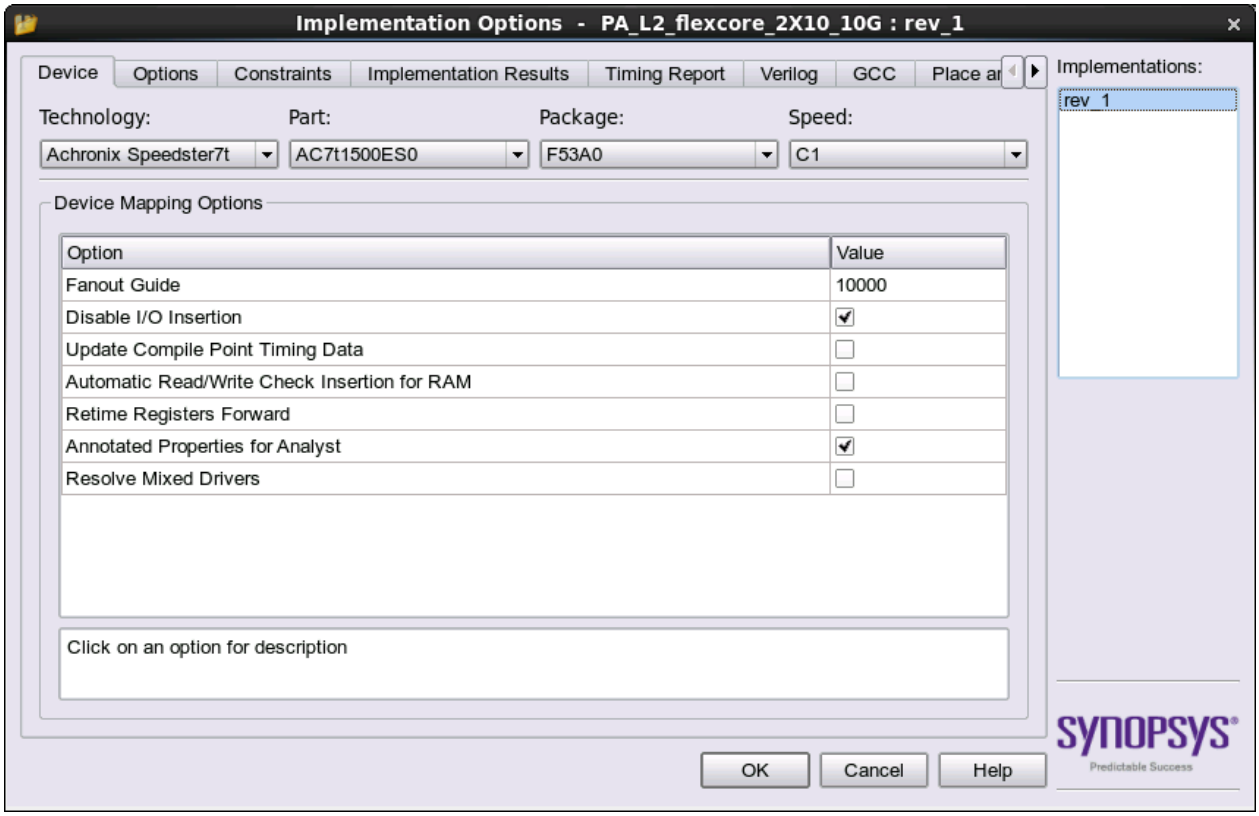


Figure 55: ***Synplify Pro Implementation Options Screen***

Revision History

Version	Date	Description
2.0	01 Oct 2017	• Significant set of updates for new Synplify-Pro and ACE installation licensing schemes and conversion of document to Confluence.
2.1	23 Oct 2018	• ACE License Installation (Windows) (see page 65): Updated ACE Welcome screenshot. • Obtaining Software Licenses (see page 9): Provided clarifications and a note to differentiate between requesting for an evaluation license and generating PO for licenses attached to sales orders.
2.2	25 Jun 2019	• Updated all pages and screenshots to reflect the newest licensing and installation schemes based on architecture specifications and after migration to the ACE 7.x infrastructure.
2.3	24 Mar 2020	• Updated Minimum Memory Requirements (see page 7). • Included install_ace.sh instructions for Linux. • Updated Synplify Pro Node-Locked License Installation (Windows) (see page 72) to exclude need for server. • Updates for Windows 10 and various screenshots.
2.4	20 Jul 2020	• Updated the Linux and Windows Troubleshooting sections. • Included the steps for running install_ace.bat in ACE Windows installation instructions. • Updated all screenshots to not include the product version.
2.5	16 Dec 2020	• Updated the Windows Troubleshooting section. • Updated steps for installing SCL. • Added note to inform users to request a floating license when accessing the license server remotely.
2.6	28 Jun 2021	• Added instructions for the ACE Windows floating license • Updated steps to run install_ace.sh • Added steps for the Windows FTDI CDM install prompt
2.7	16 Sep 2021	• Update to reflect new licensing procedure.
2.8	04 Jan 2022	• Added steps to set up the SNPSOEM License Manager. • Added steps to troubleshoot the "Bad version number - must be floating point number, with no letters" error upon launching Synplify Pro.

Version	Date	Description
2.9	26 Aug 2022	• Updated content for ACE ver. 8.8 • Revised software installation and licensing procedures. • Moved License Installation into separate chapters for ACE and Synplify Pro.