
ACE Installation and Licensing Guide (UG002)

All Achronix Devices



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Achronix Semiconductor Corporation

2903 Bunker Hill Lane
Santa Clara, CA 95054
USA

Website: www.achronix.com
E-mail : info@achronix.com

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Chapter 1 : General Information and Preparation

ACE and Synplify® 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 FPGA. 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](#)¹ 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](#)², 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.

¹ <https://www.achronix.com/registration-form/>

² <https://support.achronix.com>

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.com³. 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 \(page 3\)](#) chapter to obtain your software licenses. It may take up to one hour after the licenses are delivered to gain access to the instructions for downloading the software. See the section [Downloading Your Software \(page 9\)](#) 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.

³ <mailto:support@achronix.com>

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 on Windows platforms, 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. . . . . : 01-23-45-67-89-AB
    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 Tcpi. . . . . :  
Connection-specific DNS Suffix Search List :  
                                example.net
```

The minimum information required are the six pairs of hexadecimal numbers following the string "Physical Address" (01-23-45-67-89-AB 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:

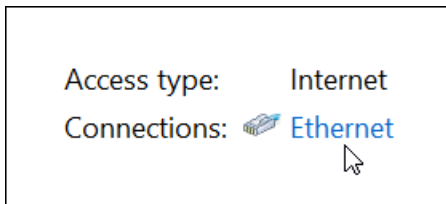


Figure 1 - Primary Connection Link Example

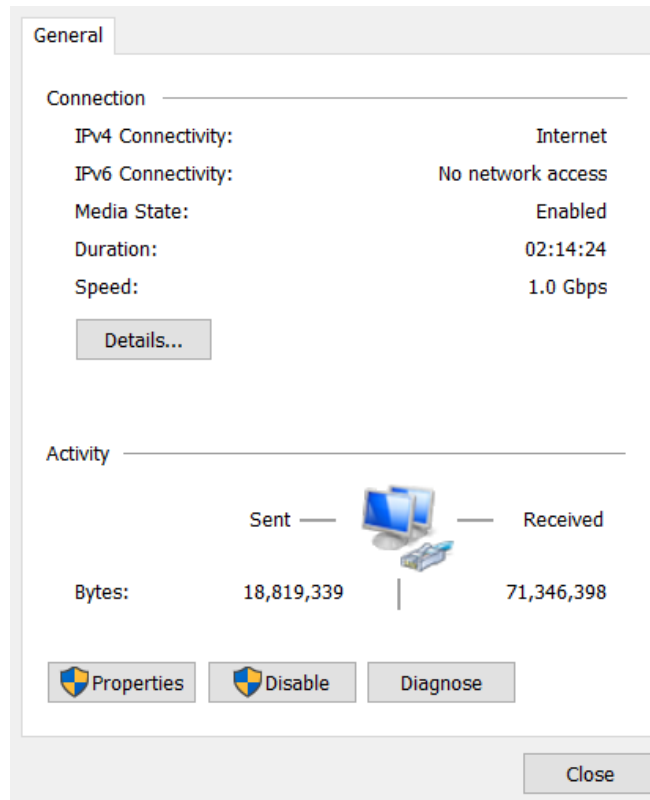


Figure 2 - Active Network Status Dialog

4. From the Active Network Status dialog, click **Details...** to open the Network Connection Details dialog as shown in the following figure. The required information is the group of numbers following **Physical Address** (the MAC address) in the form 01-23-45-67-89-AB.

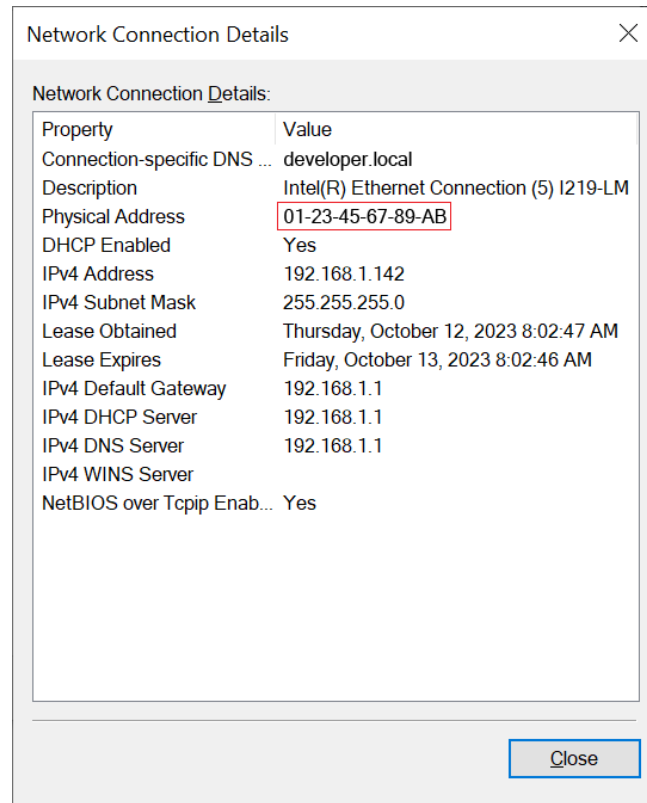


Figure 3 • Network Connection Details Dialog

5. Make note of the MAC address shown in the dialog.
6. Click **Close** on both windows and close the Network and Sharing Center and Settings to return to the desktop.

Linux

In Red Hat Enterprise Linux (RHEL), the physical network address (or MAC) value is typically called the Ethernet "HWaddr", reported in the form "01:23:45:67:89:AB" (six pairs of hexadecimal digits separated by colons).

From the Linux command prompt, run the `ip link` command to determine the MAC address of the license server. For RHEL/Rocky 8, the physical network address value is typically shown in group 2: on the second line following the label `link/ether`. The following is an example of the output:

Example ip link output from RHEL/Rocky 8

```
$ ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
```

```
2: enp5s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode
DEFAULT group default qlen 1000
    link/ether 01:23:45:67:89:ab brd ff:ff:ff:ff:ff:ff
```

If ACE has already been downloaded, the MAC address can be determined by running `rlnutil rlnhostid 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 \(page 1\)](#)" 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:

Submit a request

Please choose your issue below

-
General Support Issue
ACE License Request Ticket
Document Request

Figure 4 - ACE License Request Ticket Example

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

Subject *
New evaluation license for Speedster7t

Software *
ACE x Synplyfy Pro x
Select the needed software package(s)

Operating System *
Linux
Select machine operating system.

VM Support

Is virtual machine support needed?

License Type *
Node locked
Select the style of license

License Duration
60 days
If other is selected for the license duration, place details in comment section.

MAC Address *
01:23:45:67:89:AB
Enter the MAC address of the host machine (node-locked) or license server (floating). The expect format is 11:22:33:AA:BB:CC

Devices *
Speedster7t x
Select the devices desired. If selecting Other, please provide details below. Note: Selecting Other or Speedcore may delay license issuance.

Description *
New evaluation license for Speedster7t
Please enter the details of your request. A member of our support staff will respond as soon as possible.

Figure 5 - ACE License Request Fields Example

- 5. When your license is approved, an automatic email notification is sent (with a link to your license file) when this ticket is processed.

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.com⁴ 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](#)⁵
- [Synplify Pro Releases](#)⁶

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 10.0**).
2. Enter your email address if prompted.

⁴ <mailto:support@achronix.com>

⁵ <https://support.achronix.com/hc/en-us/articles/360039300832-ACE-Software-Releases>

⁶ <https://support.achronix.com/hc/en-us/articles/360041484791-Synplify-Pro-Releases>

- 3. Do either of the following:
 - a. Click the name of the desired file to start a download of the individual file:

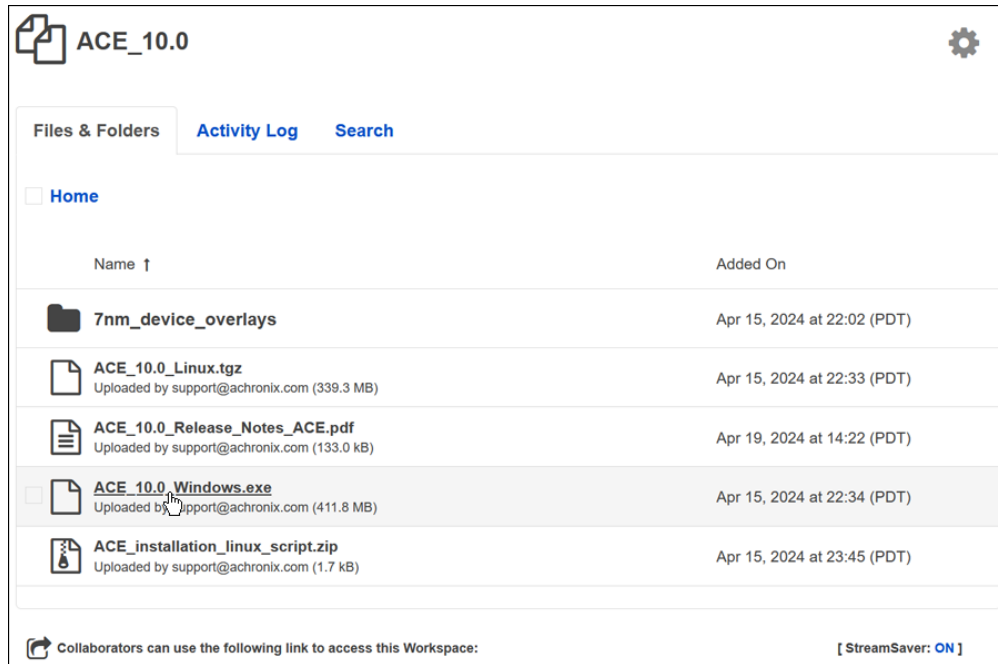


Figure 6 • Download Individual File Example

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

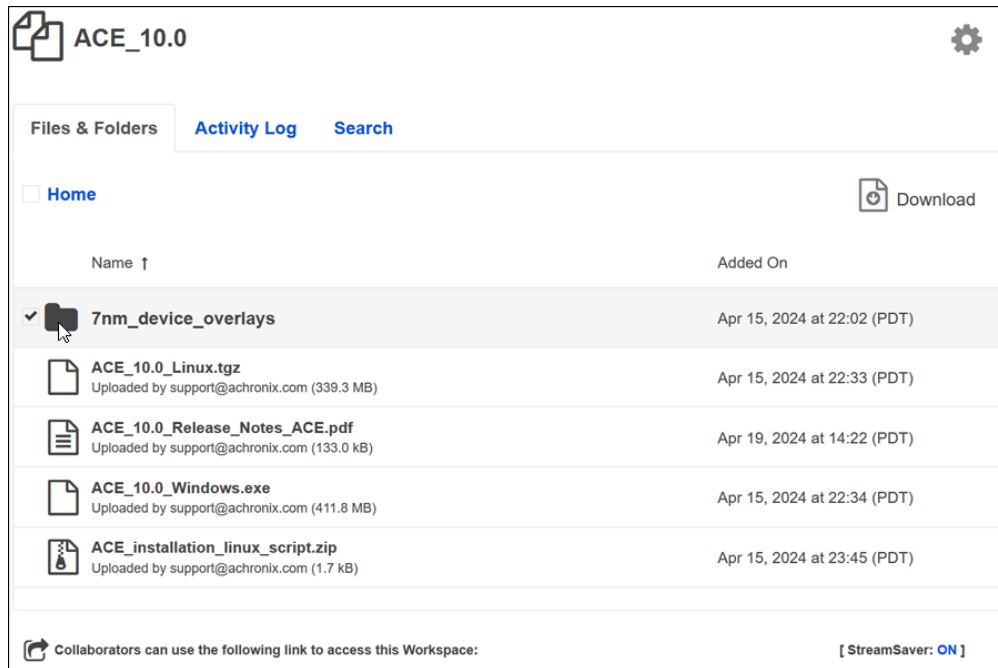


Figure 7 - Add file to Bundle List Example

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.

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 \(page 90\)](#).

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_10.0_Linux.tgz`)
 - The necessary device overlays (e.g., `ACE_10.0_Linux_AC7t1500.tgz` from the `7nm_device_overlays` directory)
 - If installing a version of ACE prior to 8.8, the ACX Device Manager MCU overlay is required (e.g., `ACE_8.7.1_ACX_DEVICE_MANAGER_MCU_overlay.zip`)
 - The `ACE_installation_linux_script.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_linux_script.zip` file. This creates a file called `install_ace.sh`.

4. Set the installation script to be executable:

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

5. 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

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.

6. (This step not required for ACE 8.8 and later releases)

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.

7. 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).
8. 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
```

9. Install the license file and verify the installation per "Floating-Node and Node-Locked Licensing," in [ACE License Installation \(Linux\)](#). (page 23)

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
```

For single-user installation:

```
$ cd /home/userid/ACE  
$ rm -r 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 \(page 90\)](#)). 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 four directories:

- The **download** directory (for this example, `/home/<userid>/Downloads/SynPro`)
- The **installer** directory (for this example, `/home/<userid>/Downloads/SynPro/Installer`)
- The **licensing** directory (for this example, `/home/<userid>/Downloads/SynPro/Licensing`)
- 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, copy the following:
 - The `install_synplify_pro.sh` install script
 - The Synplify Pro Linux release zip archive (e.g., `SynplifyPro_2023.03x-2_Linux.zip`)
3. To the **licensing** directory, download the following:
 - The Linux License Manager tarball (e.g., `SNPSOEM_2020.06_Linux.tar.gz`)
4. In the **download** directory, specify the installation script as executable:

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

5. 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:

```
SERVER hostname deadc0de1234 27000
VENDOR SNPSOEM /path/to/snpsoem
USE_SERVER
INCREMENT synplifypro_achronix_SNPSOEM_2020.10.12-jul-2021.1 \
```

Figure 8 • Synplify License File Sample

6. 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.
```

7. 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_2021.09x-2_Linux.zip
  creating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.09x-2_Linux/
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.09x-2_Linux/
SynopsysInstaller_v5.2.run
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.09x-2_Linux/
fpga_vU-2023.03X-2_common.spf
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.09x-2_Linux/
fpga_vU-2023.03X-2_linux.spf
  inflating: /home/<userid>/Downloads/SynPro/SynplifyPro_2021.09x-2_Linux/
synU-2023.03X-2_speedster7t_all_overlay_240416.tar

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

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

8. 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 5.2 into
#   the given directory
#
#   For help type:
#
#       SynopsysInstaller_v5.2.run -help
#
#*****

Installing Synopsys Installer 5.2 into the directory '/home/<userid>/Downloads/
SynPro/Installer'...

   Unpacking: SynopsysInstaller.tgz ...

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
(prompt e to exit):

```

9. 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 5.2.0

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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_vS-2023.03X-2_common.spf
Extracting release information from fpga_vS-2023.03X-2_common.spf successfully
Extracting release information from fpga_vS-2023.03X-2_linux.spf
Extracting release information from fpga_vS-2023.03X-2_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]:

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

27000

SYNOPTSYS
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 PRODUCT 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:

- 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]:

- Enter "A" to accept the EULA:

A


```
INFO: Accept License Agreement for U-2023.03X-2 release for fpga at 04/23/2024
10:13:41 AM
```

```
#####
##### Installation Summary #####
Product:    FPGA Synthesis Product for Achronix (fpga)
Release:    U-2023.03X-2
Platforms:  common linux
Disk Space: 748 MB
Target Dir: /home/<userid>/SynPro/fpga/U-2023.03X-2
```

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]:
```

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

```
INFO: Prepare for installing U-2023.03X-2 release of product fpga ...
INFO: Extracting common package from fpga_vU-2023.03X-2_common.spf ...
INFO: Extracting linux package from fpga_vU-2023.03X-2_linux.spf ...
INFO: Verify SHA256 sum for linux/fpga.tgz ....
INFO: Verify SHA256 sum for fpga.tgz ...
INFO: Installing S-2021.09X-2 release of product fpga to /home/<userid>/SynPro/fpga/
U-2023.03X-2 ....
INFO: Installing linux package for U-2023.03X-2 release of product fpga ...
INFO: Installing common package for U-2023.03X-2 release of product fpga ...
INFO: Installation for U-2023.03X-2 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/<userid>/Downloads/Installer/installer.log
Synplify Pro has been installed to "/home/<userid>/SynPro" ...
```

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

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

```
y

Proceeding to install overlays to "/home/<userid>/SynPro" ...

lib/
lib/generic/
lib/generic/achronix7t-C3.syn
lib/generic/achronixspd7t-C1.tim
lib/generic/achronixspd7t-C3.tim
lib/generic/achronix7t-C2.syn
lib/generic/speedster7t.vhd
lib/generic/achronixspd7t-C1tim.syn
lib/generic/achronix7t-C1.syn
lib/generic/speedster7t.v
lib/generic/achronixspd7tMLP-C2.tim
lib/generic/achronixspd7t-C3tim.syn
lib/generic/achronixspd7tMLP.tim
lib/generic/achronixspd7t.tim
lib/generic/achronixspd7t-C2.tim
lib/generic/achronixspd7tMLP-C1.tim
lib/generic/achronixspd7t-C2tim.syn
lib/generic/achronixspd7tMLP-C3.tim
lib/parts/
lib/parts/achronix_7t_parts.txt
lib/vhd/
lib/vhd/location.map
lib/vhd2008/
lib/vhd2008/location.map
lib/achronix_custom/
lib/achronix_custom/acx_custom_route_delay_1.tim
lib/achronix_custom/acx_custom_route_delay_2.tim
lib/achronix_custom/acx_custom_route_delay_3.tim
lib/achronix_custom/custom_parts.txt
lib/achronix_custom/custom_partdata.txt

Synplify Pro and device overlays have been installed to "/home/<userid>/SynPro" ...
```

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

15. Install any additional device overlays as detailed in [Device Overlays \(page 90\)](#).

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.

16. Install the Synplify Pro License Manager as detailed in [Synplify Pro License Installation \(Linux\)](#) (page 32).

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.

Unified ACE Flow

ACE 10.0 introduces the Unified ACE Flow (UAF). This new streamlined ACE project structure and flow fully integrates synthesis, simulation, and place-and-route into a single ACE project (`*.acxprj`) file and a single graphical user interface. For specific instructions on how to make use of the UAF, consult the [ACE User Guide \(UG070\)](#)⁷.

Synthesis

To make use of the UAF for synthesis, SynplifyPro must be installed in a directory accessible from the computer on which ACE is running. Create the environment variable, `ACX_SYNPLIFY_TOOL_PATH`, set to the full path to the Synplify Pro executable file.

Simulation

The UAF currently works with Linux installations of the following simulator tools:

- Mentor QuestaSim
- Aldec Riviera
- Synopsys VCS

⁷ <https://www.achronix.com/documentation/ace-user-guide-ug070>

To run simulations, the preferred simulator tool must be installed in a directory accessible from the computer on which ACE is running. Each simulator tool requires an appropriately set environment variable, as shown in the following table.

Table 3 • Environment Variables Needed for UAF Simulation

Simulator Tool	Environment Variable	Linux Path
Mentor QuestaSim	ACX_QUESTASIM_TOOL_PATH	Specifies the Linux executable QuestaSim launcher script path. A default launcher script example can be found in <ace_install_dir>/examples/simulation_scripts/questasim_launcher.
Aldec Riviera	ACX_RIVIERA_TOOL_PATH	Specifies the Linux executable Riviera launcher script path. A default launcher script example can be found in <ace_install_dir>/examples/simulation_scripts/riviera_launcher.
Synopsys VCS	ACX_VCS_TOOL_PATH	Specifies the Linux executable VCS launcher script path. A default launcher script example can be found in <ace_install_dir>/examples/simulation_scripts/vcs_launcher.

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 \(Linux\)](#) (page 12), determine the physical network address (or MAC) of the host system:

```
$ ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
   group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp5s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
   DEFAULT group default qlen 1000
    link/ether 01:23:45:67:89:ab brd ff:ff:ff:ff:ff:ff
```

Refer to the six hexadecimal numbers separated by colons following the word "ether".

Alternatively, the MAC address can be determined by running `rlmutil rlmhostid ether` from the `Achronix-Linux/bin64` directory:

- a. From the `Achronix-Linux/bin64` directory, execute the following:

```
$ ./rlmutil rlmhostid ether
rlmutil v14.2
Copyright (C) 2006-2021, Reprise Software, Inc. All rights reserved.

Hostid of this machine: 0123456789ab
```

3. Request licenses from Achronix as described in [Obtaining Software Licenses](#) (page 3). Achronix Semiconductor responds with an e-mail containing links to the license files (typically, `ace.lic` and `synplify.lic`). Save these files to a safe location.

When ACE is installed as described in [Software Installation \(Linux\)](#) (page 12) (in this example, under `/opt`), the directory tree is configured as follows:

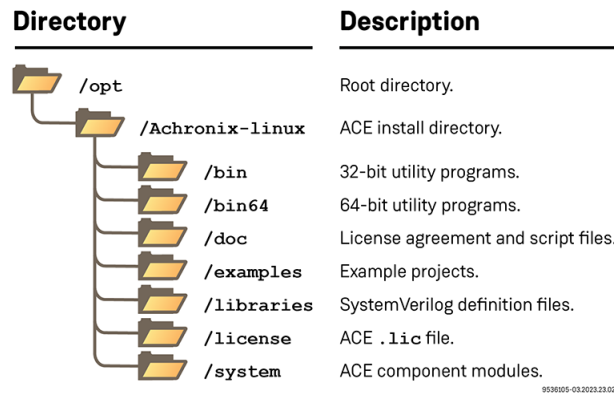


Figure 9 • Ace Linux Directory Structure

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
```

For a single user installation:

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 License Acceptance Dialog appears:

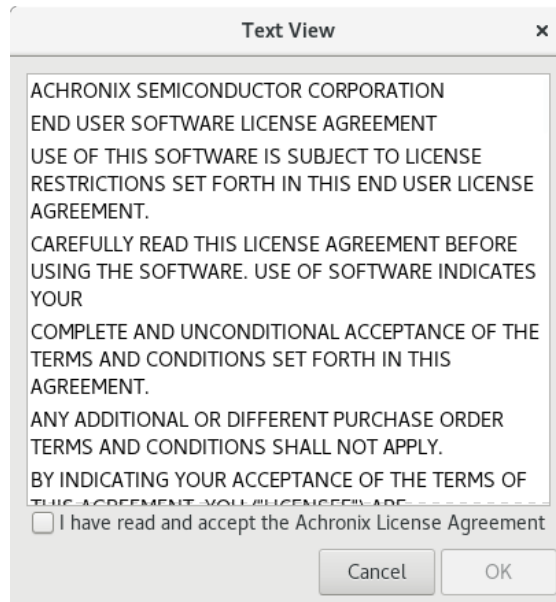


Figure 10 • ACE License Acceptance Dialog

- 6. Review the license agreement and click the **I have read...** checkbox to agree to the terms.
- 7. Click **OK** to continue.
- 8. After agreeing to the license, the startup window appears:



Figure 11 • ACE Startup Window

- 9. Next, ACE starts up and displays the welcome page:

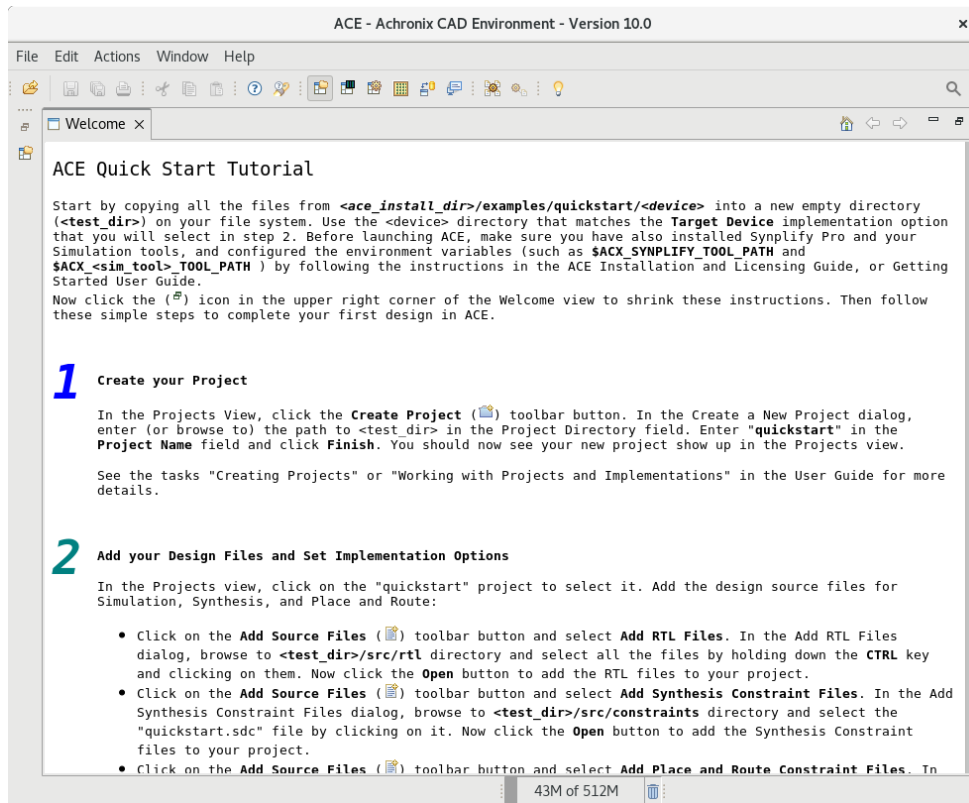


Figure 12 • ACE Welcome Page

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

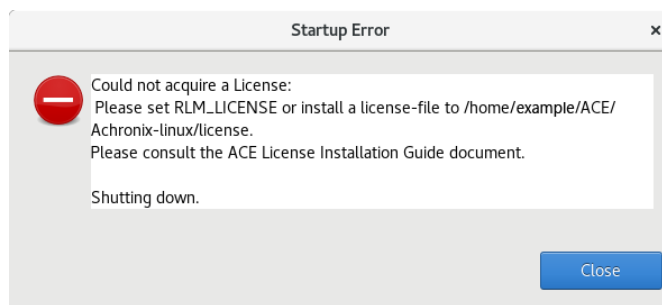


Figure 13 • Startup Error Dialog

Click **Close** to terminate ACE. Refer to "ACE Licensing Issues" in [Troubleshooting \(Linux\)](#) (page 40) or contact Achronix Technical Support at support@achronix.com⁸.

⁸ <mailto:support@achronix.com>

Floating-Node License Installation

1. If the license file has already been obtained, skip to step 4.
2. After installing the software on the client machine per "Installing ACE" in [Software Installation \(Linux\)](#) (page 12), or [Software Installation \(Windows\)](#) (page 46), determine the physical network address (or MAC) of the license server:

```
$ ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
   group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp5s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
   DEFAULT group default qlen 1000
    link/ether 01:23:45:67:89:ab brd ff:ff:ff:ff:ff:ff
```

Refer to the six hexadecimal numbers separated by colons following the word "ether".

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

- a. Copy the directory `<ACE_INSTALL_DIR>/Achronix-linux/bin64` from the client to the license server.
- b. From the `bin64` directory, execute the following:

```
$ ./rlmutil rlmhostid ether
rlmutil v14.2
Copyright (C) 2006-2021, Reprise Software, Inc. All rights reserved.

Hostid of this machine: 0123456789ab
```

3. Request licenses from Achronix as described in [Obtaining Software Licenses](#) (page 3). Achronix Semiconductor responds with an e-mail containing links to the license files (typically, `ace.lic` and `synplify.lic`). Save these files to a safe location.
4. Copy the license file, `ace.lic`, to an appropriate directory on the license server (`/<license_file_path>`).
5. If you have not done so already, copy the directory `<ACE_INSTALL_DIR>/Achronix-linux/bin64` from the Linux client to the license server. If ACE was installed on a Windows client, refer to [Software Installation \(Linux\)](#) (page 12), and download and install the ACE Linux version on the server (do not install overlays), then copy the `bin64` directory to the final location. The ACE installation may then be removed from the server if desired.
6. Edit `ace.lic` to add the license server name and path to the licensing agent:

```
HOST <license_server_host_name> 0123456789AB 1710
ISV achronix <install_directory>/bin64/achronix_license_agent
```

Where `0123456789AB` is the host ID (MAC) of the license server as obtained in step 1.

7. If both the license server and client machines are running on a local network behind a NAT router or another firewall, you may disable the firewall on the license server to simplify the installation. If it is required that the

server firewall remain enabled, skip to the section [Installation With Firewall Enabled \(page 31\)](#). Otherwise, disable the firewall as follows (root access required):

```
$ sudo systemctl stop firewalld
$ sudo systemctl disable firewalld
```

8. Set the environment variable on the *client* machine:

If the client is hosted on a Windows platform, see Steps 6 through 9 under the topic "Floating Node License Installation" in the [ACE License Installation \(Windows\) \(page 67\)](#) chapter.

If hosted on a Linux platform:

From a C shell:

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

From a bash shell:

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

Note

These commands can be added to the `.tcshrc` or `.bashrc` file to make them permanent.

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

```
$ echo $RLM_LICENSE
```

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

```
$ /<install_directory>/bin64/rlm -nows -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:

```
03/14 16:54 (rlm) RLM License Server Version 14.2BL5-p2
      Copyright (C) 2006-2021, Reprise Software, Inc. All rights reserved.
03/14 16:54 (rlm) License server started on <hostname>
```

```

03/14 16:54 (rlm) Server architecture: x64_l1
03/14 16:54 (rlm) License files:
03/14 16:54 (rlm)     /home/example/ACE/ace.lic
03/14 16:54 (rlm)
03/14 16:54 (rlm) Web server starting on port 5054
03/14 16:54 (rlm) Using TCP/IP port 1710
03/14 16:54 (rlm) ... adding UDP/IP port 5053
03/14 16:54 (rlm) Starting ISV server achronix on port 5550
03/14 16:54 (achronix) RLM License Server Version 14.2BL5-p2 for ISV "achronix"
03/14 16:54 (achronix) Server architecture: x64_l1

```

Copyright (C) 2006-2021, 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) 1998-2008 The OpenSSL Project. All rights reserved.
Copyright (c) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

```

03/14 16:54 (achronix)
03/14 16:54 (achronix) Server started on <hostname> (hostid: 0123456789ab) for:
03/14 16:54 (achronix) ace-v1.0 ac7t1500[a-z\d]* ac7t800[a-z\d]*
03/14 16:54 (achronix)
03/14 16:54 (achronix) License files:
03/14 16:54 (achronix)     /home/example/ACE/ace.lic
03/14 16:54 (achronix)
03/14 16:54 (achronix) File descriptor limit increased from 1024 to 4096

```

Caution!

If RLM is started without the `-nows` option, the RLM webserver will start up. While the RLM webserver is useful for license administration and gives oversight over license usage, running with the webserver requires the user to set up a password file, as only log-ins with passwords are allowed. *If a user fails to log in and/or set a password within the first 10 minutes, RLM will shut down.* For the sake of simplicity, Achronix strongly recommends starting RLM with the `-nows` option.

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

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

11. 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 the welcome page:

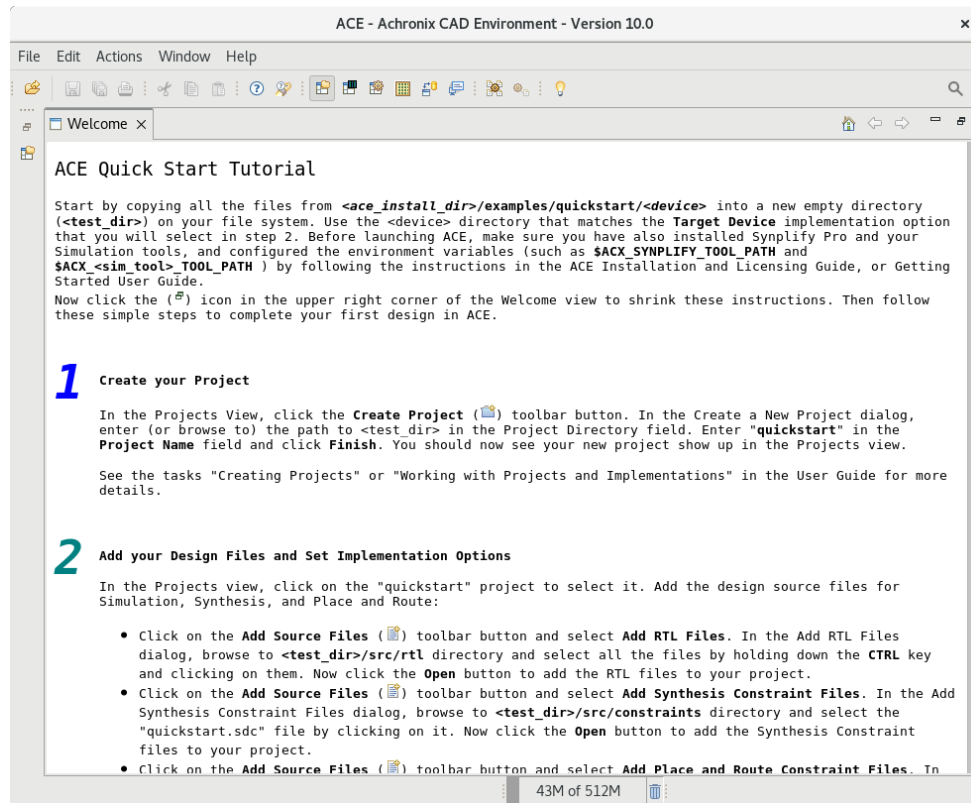


Figure 14 • ACE Welcome Page

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

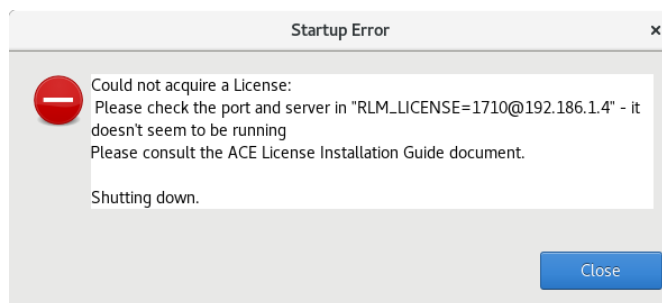


Figure 15 • Startup Error Dialog

Click **Close** to terminate. Refer to "ACE Licensing Issues" in [Troubleshooting \(Linux\)](#) (page 40) or contact Achronix Technical Support at support@achronix.com.⁹

⁹ <mailto:support@achronix.com>

Installation With Firewall Enabled

To allow the client machine access to the license server with the firewall enabled, follow these steps:

1. Pick a port number to serve as the ISV license server port. Most ports should be free on the license server machine. For this example, use port 5550.
2. Edit `ace.lic` to add the ISV server port to the end of the ISV line in the license file:

```
ISV achronix <install_directory>/bin64/achronix_license_agent port=5550
```

3. Open the license server ports as follows (root access required):

```
$ sudo firewall-cmd --zone=public --permanent --add-port=1710/tcp
$ sudo firewall-cmd --zone=public --permanent --add-port=5550/tcp
$ sudo firewall-cmd --reload
```

4. Return to [step 8 \(page 28\)](#) in the previous section to complete the installation.

Chapter 5 : Synplify Pro License Installation (Linux)

This chapter includes the installation of the new License Manager for Synplify Pro 2023.03x-2 on Linux platforms.

Synplify Pro License Manager SNPSOEM

Synplify Pro 2023.03x-2 requires the use of a 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.

Compatible license files are automatically returned when using the ACE License Request form on support.achronix.com¹⁰.

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/RHEL 7.9 RHEL 8.6+ Rocky 8.6+ SLE 15.4+ openSUSE 15.4+

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 \(page 15\)](#).

Installing the SNPSOEM License Manager for Linux

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

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

1. Create the directory shown above.

¹⁰ <https://support.achronix.com>

2. If installing a floating license to a separate license server, copy the `/home/<userid>/Downloads/SynPro/Licensing` directory from the client to the server machine.
3. If you have not already done so, request licenses from Achronix as described in [How Do I Request an Evaluation License for Achronix Tools?](#)¹¹
Achronix Semiconductor responds by sending an e-mail containing links to the license files. Save these files to a known location.
4. Extract the contents of the `SNPSOEM_2020.06_Linux.tar.gz` file to the license manager directory:

```
$ cd /home/<userid>/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
<code>lmgrd</code>	Shipped with FlexNet version v11.16.6
<code>lmutil</code>	Shipped with FlexNet version v11.16.6
<code>sclshoem</code>	SCL OEM license test client
<code>sclshoem_th</code>	SCL OEM license test client (threaded version)
<code>snpsoem</code>	SCL OEM license daemon

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

Example for bash

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

¹¹ <https://support.achronix.com/hc/en-us/articles/360037175972-How-Do-I-Request-an-Evaluation-License-for-Achronix-Tools->

Example for csh

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

6. Copy the license file, `synplify.lic`, to an appropriate directory on the license server (floating) or client (node-locked) machine (e.g., `/home/<userid>/SNPS`).
7. 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 new-line sequence. Moving text files between Windows and Linux machines can cause the new-line sequence to be lost or altered. If new-lines are lost, licensing problems can occur.

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

```
$ ./lmgrd -c /home/<userid>/SNPS/synplify.lic -reuseaddr -l server.log
```

Note

If running on Rocky Linux 8+, and this command returns `./lmgrd: No such file or directory`, execute the following command as root and try again:

```
$ dnf install lsb
```


9. 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:

```

11:10:30 (lmgrd) Server's System Date and Time: Tue May 07 2024 11:10:30 PDT
11:10:30 (lmgrd) SLOG: Summary LOG statistics is enabled.
11:10:30 (lmgrd) FlexNet Licensing (v11.16.6.0 build 260203 x64_lsb) started on
veryzen.com (linux) (5/7/2024)
11:10:30 (lmgrd) Copyright (c) 1988-2019 Flexera. All Rights Reserved.
11:10:30 (lmgrd) World Wide Web: http://www.flexerasoftware.com
11:10:30 (lmgrd) License file(s): /home/example/SNPS/synplify.lic
11:10:30 (lmgrd) lmgrd tcp-port 27000
11:10:30 (lmgrd) (@lmgrd-SLOG@) =====
11:10:30 (lmgrd) (@lmgrd-SLOG@) === LMGRD ===
11:10:30 (lmgrd) (@lmgrd-SLOG@) Start-Date: Tue May 07 2024 11:10:30 PDT
11:10:30 (lmgrd) (@lmgrd-SLOG@) PID: 2625
11:10:30 (lmgrd) (@lmgrd-SLOG@) LMGRD Version: v11.16.6.0 build 260203 x64_lsb
( build 260203 (ipv6))
11:10:30 (lmgrd) (@lmgrd-SLOG@)
11:10:30 (lmgrd) (@lmgrd-SLOG@) === Network Info ===
11:10:30 (lmgrd) (@lmgrd-SLOG@) Listening port: 27000
11:10:30 (lmgrd) (@lmgrd-SLOG@)
11:10:30 (lmgrd) (@lmgrd-SLOG@) === Startup Info ===
11:10:30 (lmgrd) (@lmgrd-SLOG@) Server Configuration: Single Server
11:10:30 (lmgrd) (@lmgrd-SLOG@) Command-line options used at LS startup: -c /home/
example/SNPS/synplify.lic -l server.log
11:10:30 (lmgrd) (@lmgrd-SLOG@) License file(s) used: /home/example/SNPS/
synplify.lic
11:10:30 (lmgrd) (@lmgrd-SLOG@) =====
11:10:30 (lmgrd) Starting vendor daemons ...
11:10:30 (lmgrd) Started SNPSOEM (internet tcp_port 41281 pid 2633)
11:10:30 (SNPSOEM) FlexNet Licensing version v11.16.6.0 build 260203 x64_lsb
05/07/2024 11:10:30 (SNPSOEM) INFO: Pooling on VENDOR_STRING is Disabled (to enable,
set SCL_POOL_VS=1)
05/07/2024 11:10:30 (SNPSOEM) Synopsys Corporate Licensing (SCL) Release: version
SCLOEM_2020.06
05/07/2024 11:10:30 (SNPSOEM) INFO: License sanity check enabled (3600)
05/07/2024 11:10:30 (SNPSOEM) INFO: File descriptor limit (soft, hard) for snpslmd:
1024, 262144
05/07/2024 11:10:30 (SNPSOEM) INFO: TCP - tcp_keepalive_time - 7200 |
tcp_keepalive_intvl - 75 | tcp_keepalive_probes - 9 | tcp_fin_timeout - 60

11:10:30 (SNPSOEM) SLOG: Summary LOG statistics is enabled.
11:10:30 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT1
11:10:30 (SNPSOEM) SLOG: VM Status: 0
11:10:30 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT5
11:10:30 (SNPSOEM) SLOG: TPM Status: 0
11:10:30 (SNPSOEM) SLOG: FNPLS-INTERNAL-CKPT6
11:10:30 (SNPSOEM) Server started on veryzen.com for: synplifypro_achronix

```

```

11:10:30 (SNPSOEM) EXTERNAL FILTERS are OFF
11:10:30 (lmgrd) SNPSOEM using TCP-port 41281
11:10:30 (SNPSOEM) SLOG: Statistics Log Frequency is 240 minute(s).
11:10:30 (SNPSOEM) SLOG: TS update poll interval is 0. TS update is detected by
midnight reread only.
11:10:30 (SNPSOEM) SLOG: Activation borrow reclaim percentage is 0.
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) =====
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) === Vendor Daemon ===
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Vendor daemon: SNPSOEM
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Start-Date: Tue May 07 2024 11:10:30 PDT
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) PID: 2633
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) VD Version: v11.16.6.0 build 260203 x64_lsb
( build 260203 (ipv6))
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@)
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) === Startup/Restart Info ===
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Options file used: None
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Is vendor daemon a CVD: No
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Is FlexNet Licensing Service installed and
compatible: No
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) FlexNet Licensing Service Version: -NA-
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Is TS accessed: No
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) TS access time: -NA-
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Number of VD restarts since LS startup: 0
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@)
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) === Network Info ===
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Listening port: 41281
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Daemon select timeout (in seconds): 1
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@)
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) === Host Info ===
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Host used in license file: server
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) HostID node-locked in license file: 0123456789ab
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) HostID of the License Server: 0123456789ab
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) Running on Hypervisor: Not determined - treat as
Physical
11:10:30 (SNPSOEM) (@SNPSOEM-SLOG@) =====

```

10. Locate the `=== Network Info ===` line in the `server.log` file (2nd occurrence) and make note of the listening port number shown on the line below.
11. Locate the `=== Host Info ===` line in the `server.log` file and make note of the host name shown on the line below.
12. For a floating license, if both the license server and client machines are running on a local network behind a NAT router or another firewall, it is recommended to disable the firewall on the license server to simplify the installation:

```

$ sudo systemctl stop firewalld
$ sudo systemctl disable firewalld

```

If it is required that the server firewall remain enabled, do not disable the firewall and, instead, open the listening port as follows:

```
$ sudo firewall-cmd --zone=public --add-port=54651/tcp
```

Note

This step must be performed each time the license server is restarted as the port number may vary with each invocation.

13. 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:

If the client is hosted on a Windows platform, see Steps 8 through 12 under the topic "Installing the SNPSOEM License Manager for Windows" in the [Synplify Pro License Installation \(Windows\)](#) (page 76) chapter.

On a Linux system, from a C shell:

```
$ setenv SNPSLMD_LICENSE_FILE = 41281@server
```

From bash:

```
$ export SNPSLMD_LICENSE_FILE=41281@server
```

To verify that the environment variable is set:

```
$ echo $SNPSLMD_LICENSE_FILE
41281@server
```

14. Start Synplify Pro.

```
$ cd /home/<userid>/SynPro/fpga/U-2023.03X-2/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.

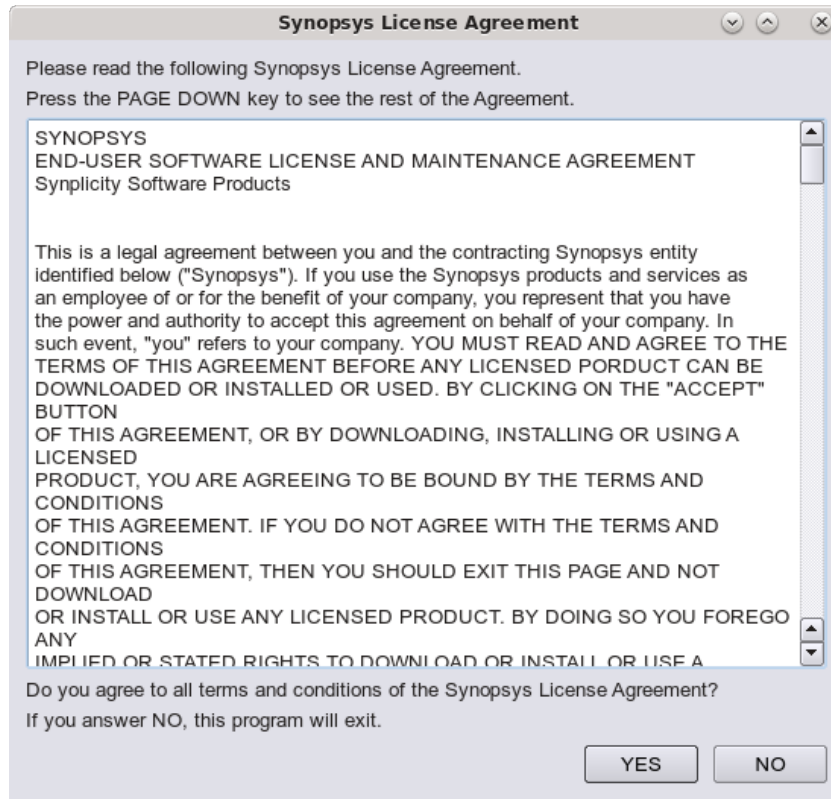


Figure 16 • Synplify Pro License Agreement Dialog

If the license is not found or is improperly installed, the following license error page opens. Click **Close** to terminate. Refer to "Synplify Pro for Achronix Licensing Issues" in [Troubleshooting \(Linux\)](#) (page 40) or contact Achronix Technical Support at support@achronix.com¹².

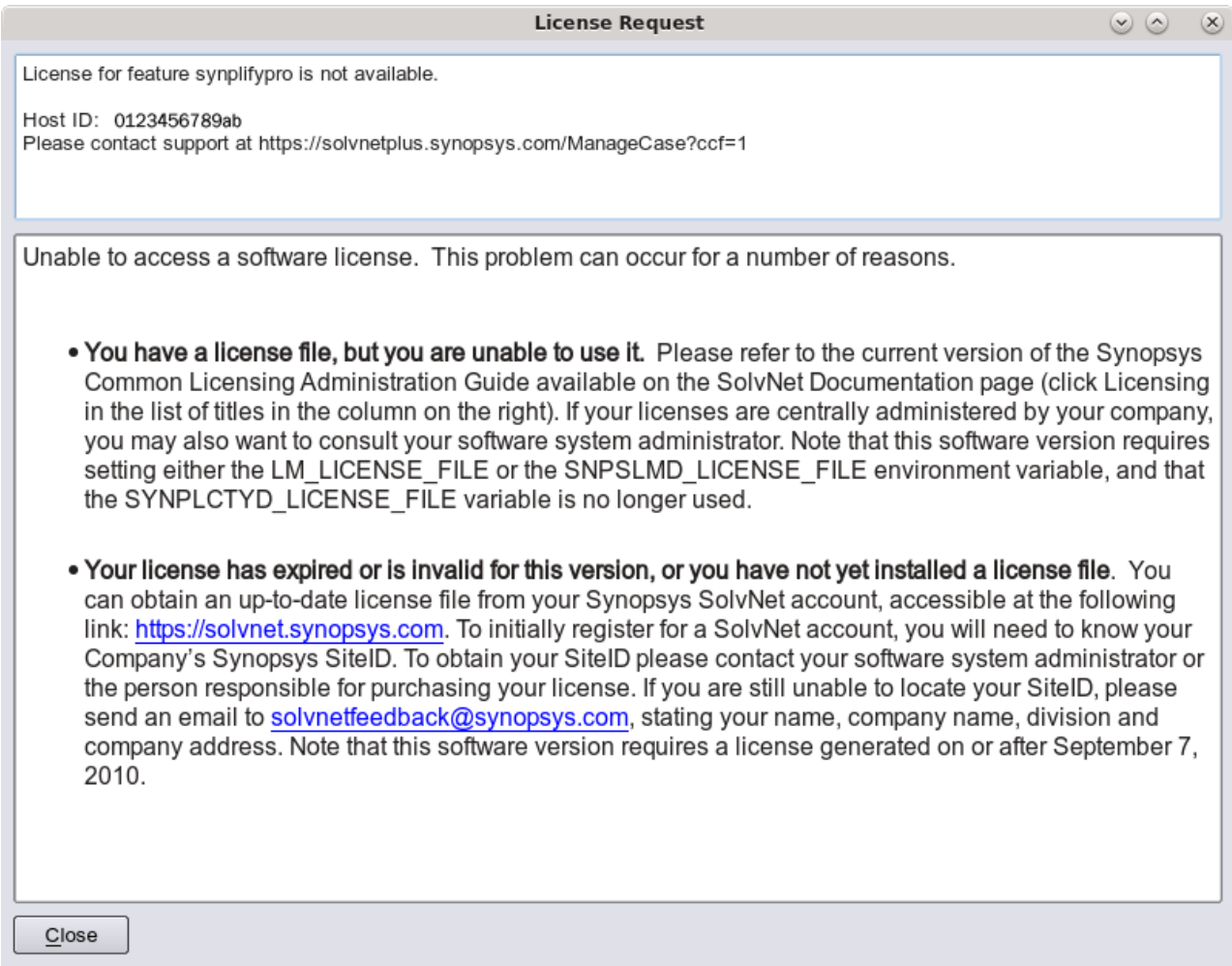


Figure 17 • Synplify Pro License Error Page

Note

This error occurs if you log out after setting the SNPSLMD_LICENSE_FILE system variable as shown. You must always set the variable after starting the license server as the listening port can change between invocations.

¹² <mailto:support@achronix.com>

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 (non-alphanumeric) characters in the name.

Floating-Node Installations

- Verify that the correct type of license (node-locked versus floating-node) was requested.
- Verify that the host ID listed in the license file matches the MAC address of the first Ethernet adapter in the system hosting the license server (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.

Note

To create a debug log file, start the license server with the following command (log file is created if not present):

```
$ /<install_dir>/rlm -c /<license_file_path>/ace.lic -dlog  
<log_file_path>/logfile.log
```

- 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 log entry means that the license request is not reaching the server. Verify that network communication between the client and server (including firewall configuration) 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/Rocky/RedHat/Fedora/Suse/Mandriva):

```
(RHEL 7.9)
$ sudo yum -y install glibc.i686
(RHEL 8.6+)
$ sudo dnf -y install glibc.i686
```

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

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

Note

See your ACE version Release Notes for the correct supported Linux distributions.

Synplify Pro for Achronix Licensing Issues

Checklist

- Verify that the license file name does not contain illegal (non-alphanumeric) 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 "node-locked" installations, ensure that the host name in the license file is set to `localhost`.

Note

- a. 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.
- b. 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 non-snpsoem 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 **lmgrd** returns:

```
bash: lmgrd: No such file or directory
```

...even though the file exists, the Linux host is typically missing the `lsb` package. Correct this problem by executing the following command as root:

On RHEL/Rocky:

```
$ dnf install lsb
```

On Ubuntu/Debian:

```
$ sudo apt-get install lsb
```

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 **snpspem** 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 floating-node (client-server) 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 work-around. For example:

```
RLM_LICENSE=1710@192.168.0.15
```

Note

This work-around might not be durable, as the server IP address could change.

JTAG Communication Fails On Ubuntu Linux

If Bitporter JTAG communication fails after installing ACE on Ubuntu Linux, enter the following command:

```
$ sudo <install_dir>/Achronix-linux/system/cmd/install_acx_bitporter_usb.pl
```

"Bad ELF interpreter: No such file or directory"

When starting the Synplify Pro license server on RHEL/Rocky 8, the server.log file might display an error similar to the following:

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

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

```
$ dnf 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 \(page 56\)](#) 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 9.0 and later releases, only *.tgz extensions for device overlays are available for Windows. The ACE 10.0 Windows installer allows adding the device overlays during the install process. This installer uses the *.tgz extension for the overlay files.

Follow these steps to install ACE on Windows:

1. Create an empty directory to receive the download files (e.g., C:\Users\\Downloads\ACE).
2. Download the ACE_10.0_Windows.exe, 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 \(page 90\)](#) chapter.

Note

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

3. Run the ACE_10.0_Windows.exe installer 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 the following figure). 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.

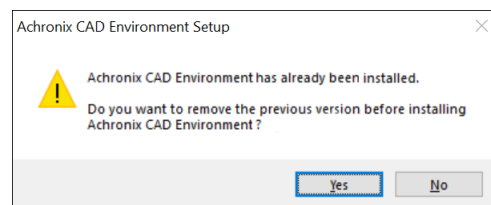


Figure 18 - Remove Previous Version Dialog

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

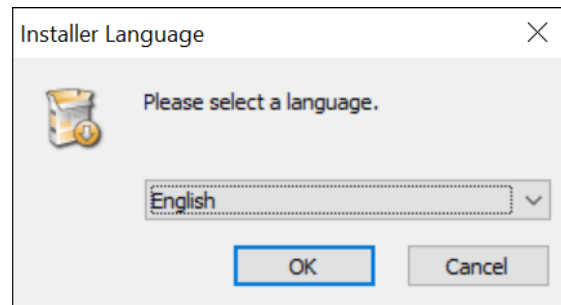


Figure 19 - *Installer Language Dialog*

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

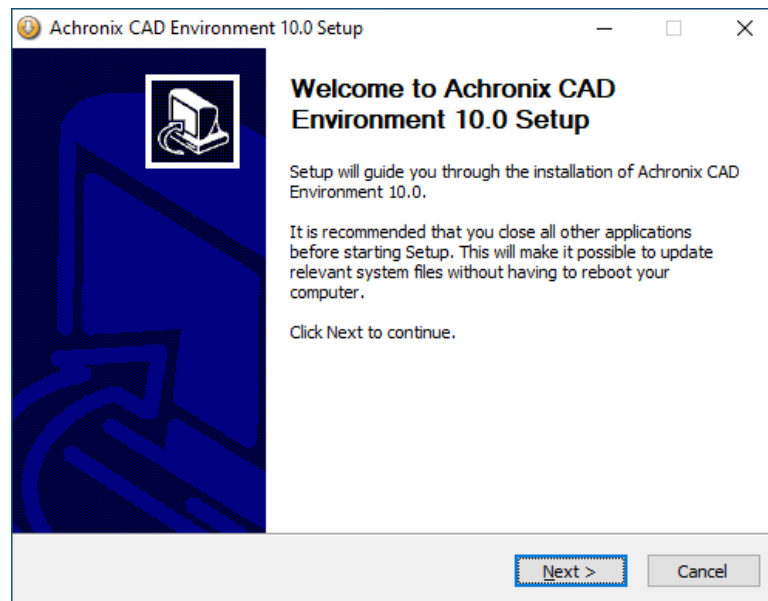


Figure 20 - *Achronix CAD Environment Setup Dialog*

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

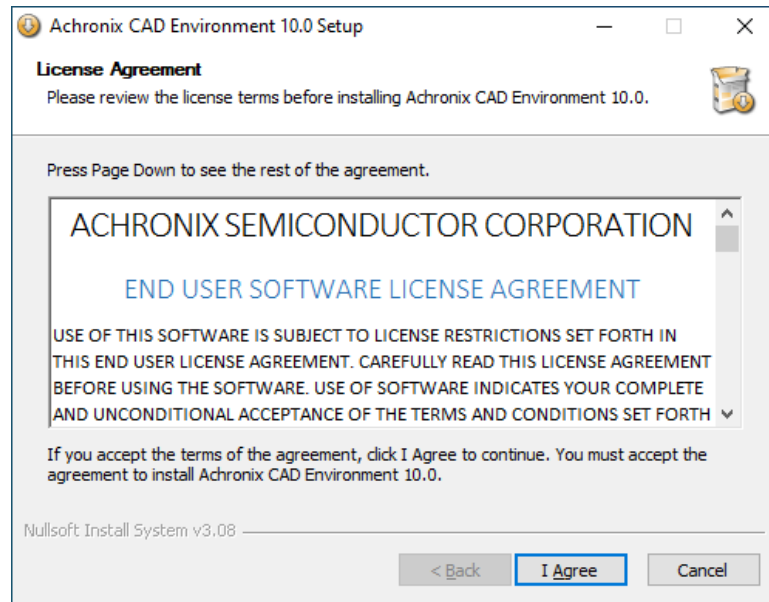


Figure 21 • License Agreement Dialog

- 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.

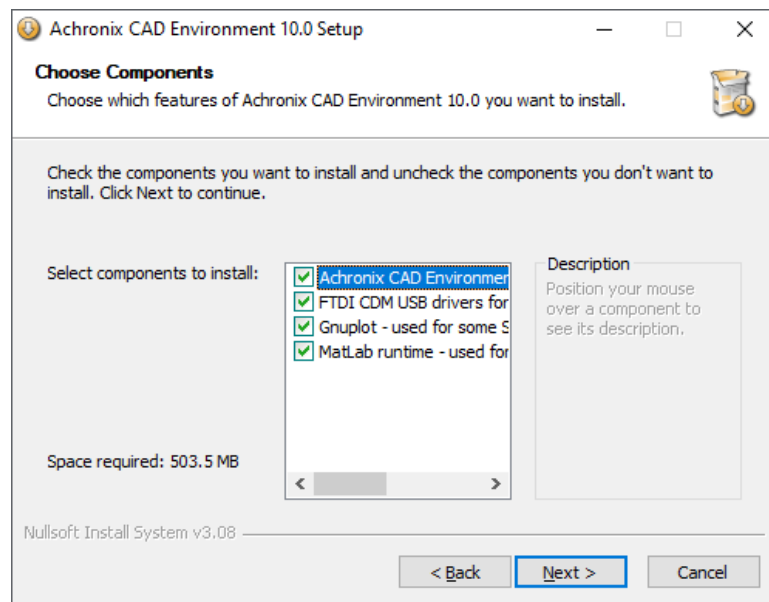


Figure 22 • Choose Components Dialog

- 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.

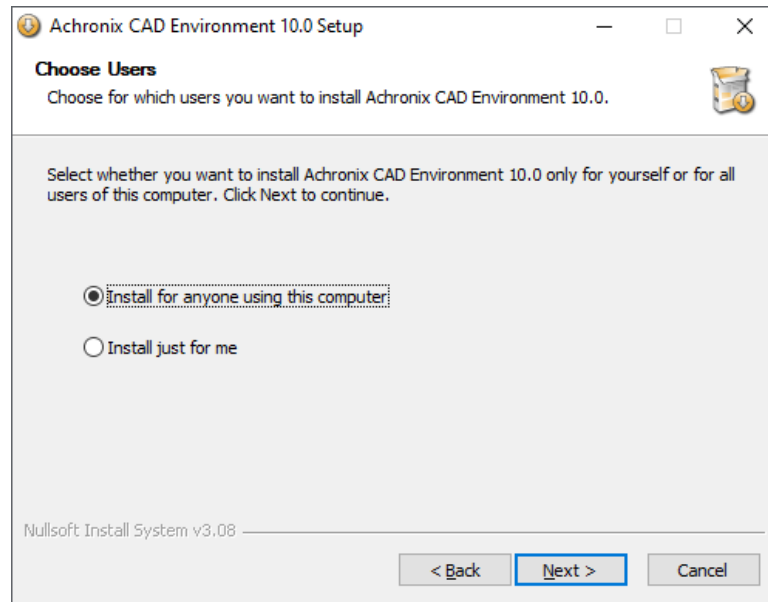


Figure 23 - Choose Users Dialog

- 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 a previous version, or versions, of ACE are being retained, pick a location other than where a previous version is installed.

⚠ Caution!

It is strongly recommended to replace the default **Destination Folder** string with one not including spaces. Spaces are known to cause problems with scripts. The recommended location string is C : \Achronix\ACE\\Achronix_CAD_Environment as shown in the following figure.

Click **Next >** to continue.

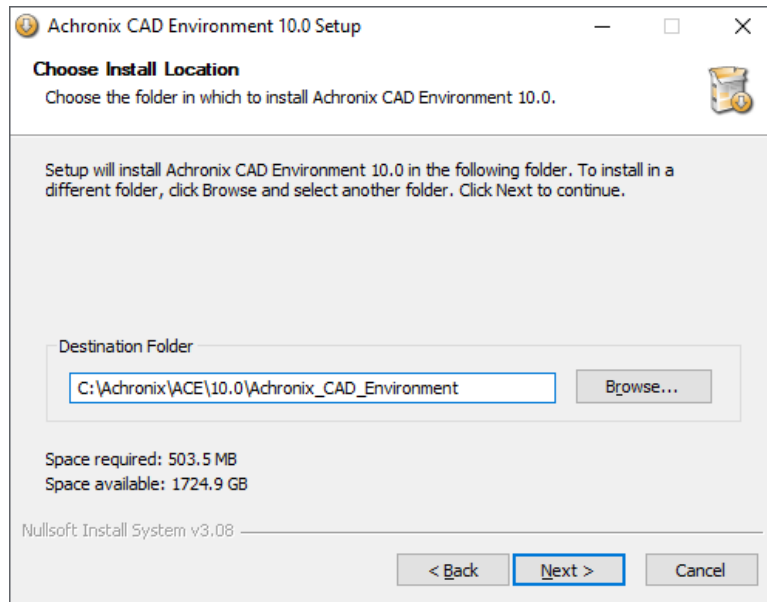


Figure 24 - Choose Install Location Dialog

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.

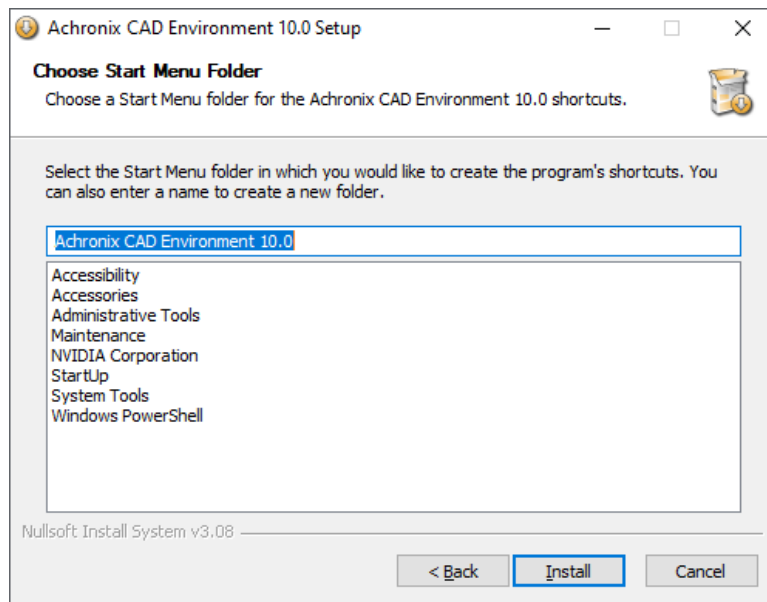


Figure 25 - Choose Start Menu Folder Dialog

12. The Installing Dialog appears showing the installation progress.

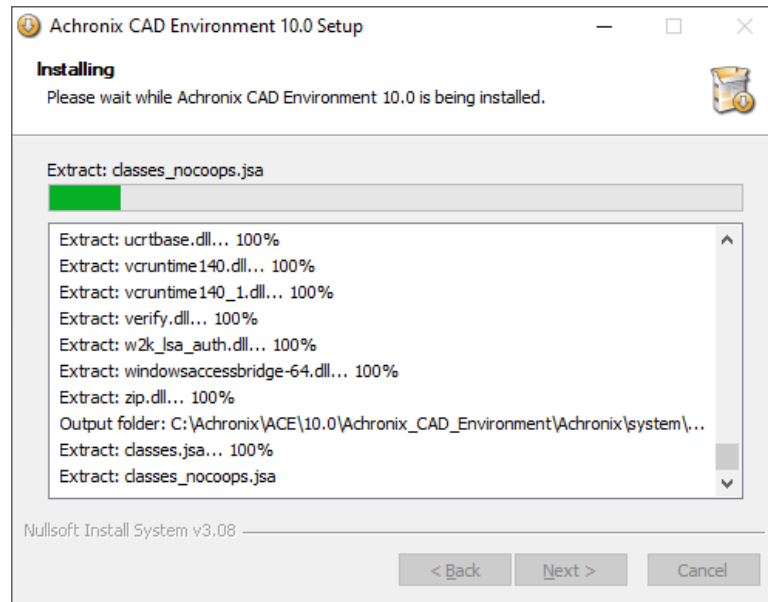


Figure 26 • Installing Dialog

13. Click **Next** on the Installing dialog when the process completes.
14. If the device overlay `.tgz` files were placed in the same directory as the installer, they should appear in the list window on the Device Overlay Install dialog. If so, simply click **Next>**.

If the device overlay files are in a separate directory, do the following:

- 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** followed by the [...] browse button to select any additional files.

Click **Next>**.

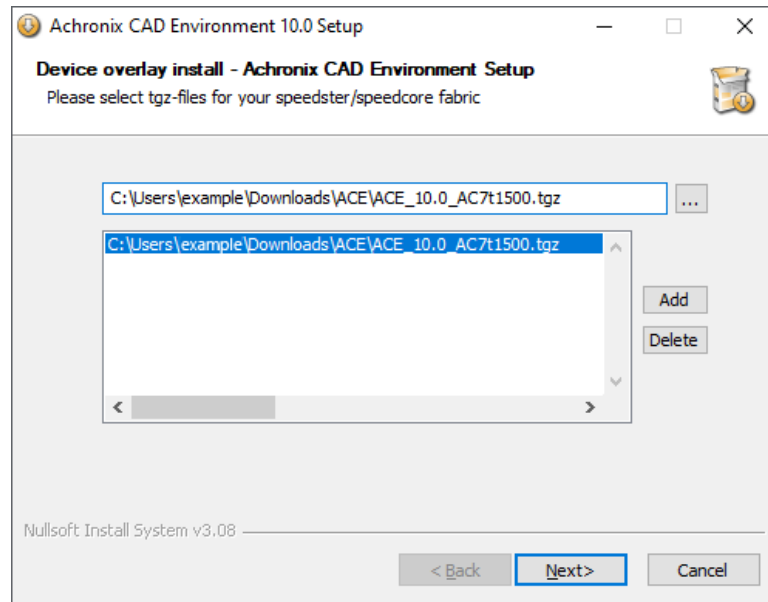


Figure 27 • Device Overlay Install Dialog

Note

This process can take several minutes as the overlay files are quite large and there is little feedback.

15. 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 >**.

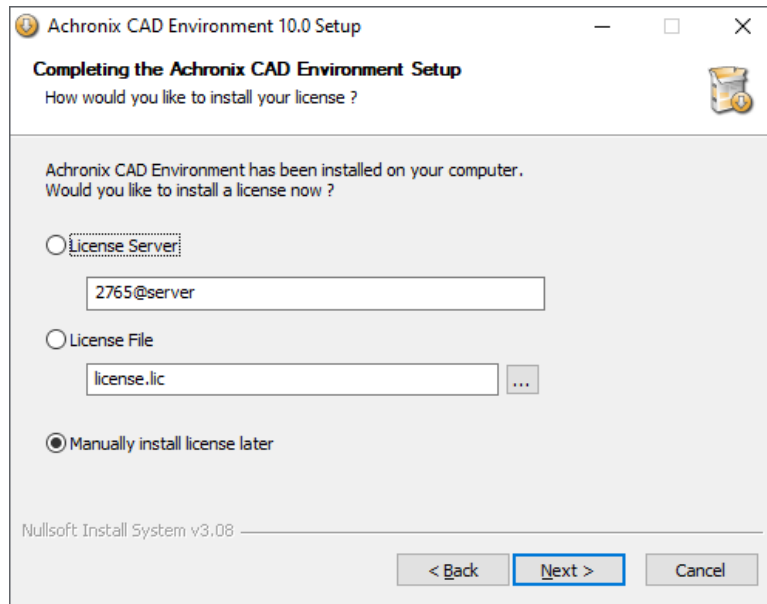


Figure 28 • License Selection Dialog

16. From the Completing Setup dialog, click **Finish**. Install the license file and verify the installation per the [ACE License Installation \(Windows\)](#) (page 67) chapter.

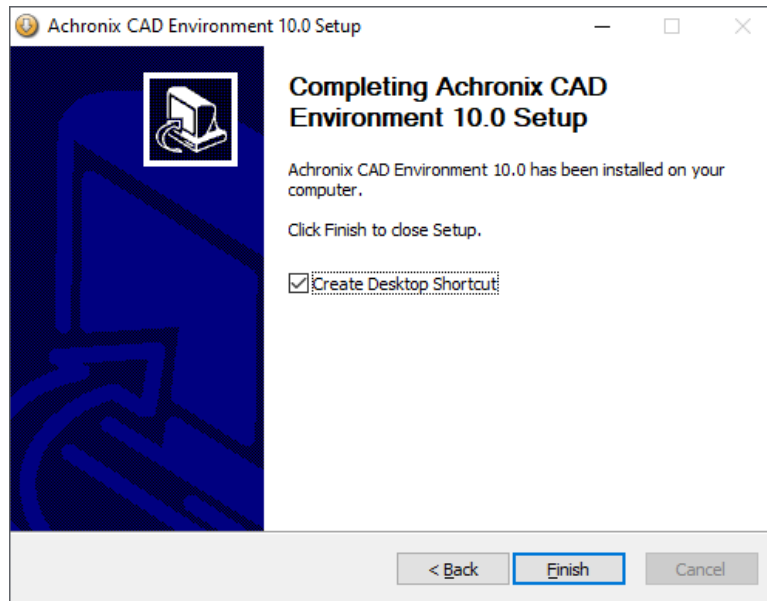


Figure 29 • Completing Setup Dialog

Environment Variable

For Achronix script flows and other relocatable designs in which different versions of ACE may be supported, it is strongly recommended to create an environment variable, `ACE_INSTALL_DIR`, to set the location of the directory containing the ACE executable.

Follow these steps to create the variable:

1. From the Start menu, select **Windows System** → **Control Panel** → **System**.
2. On the **About** page under **Related settings**, select **Advanced system settings** to open the System Properties dialog (see the following figure).
3. Click **Environment Variables...** to open the Environment Variables dialog.

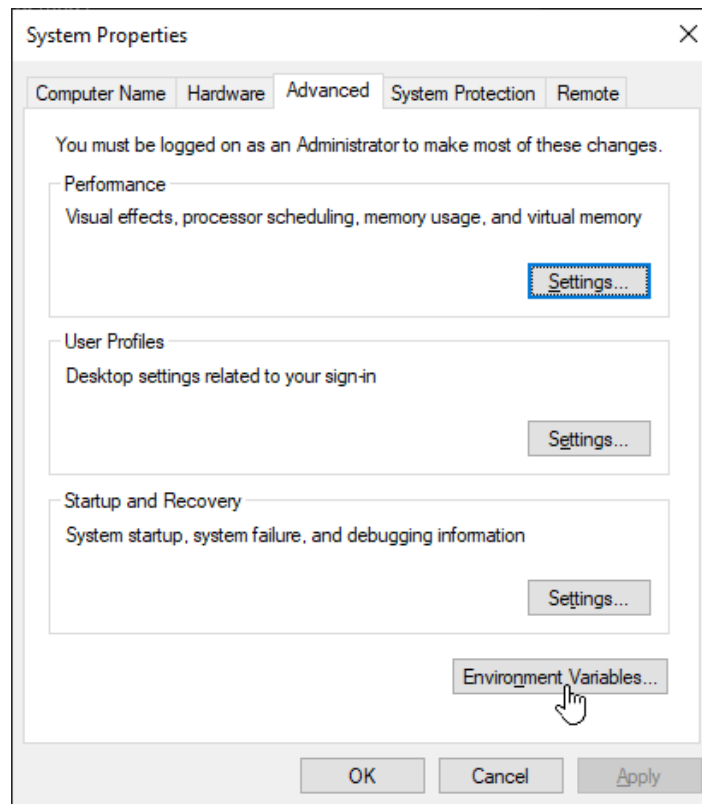


Figure 30 • System Properties Dialog

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

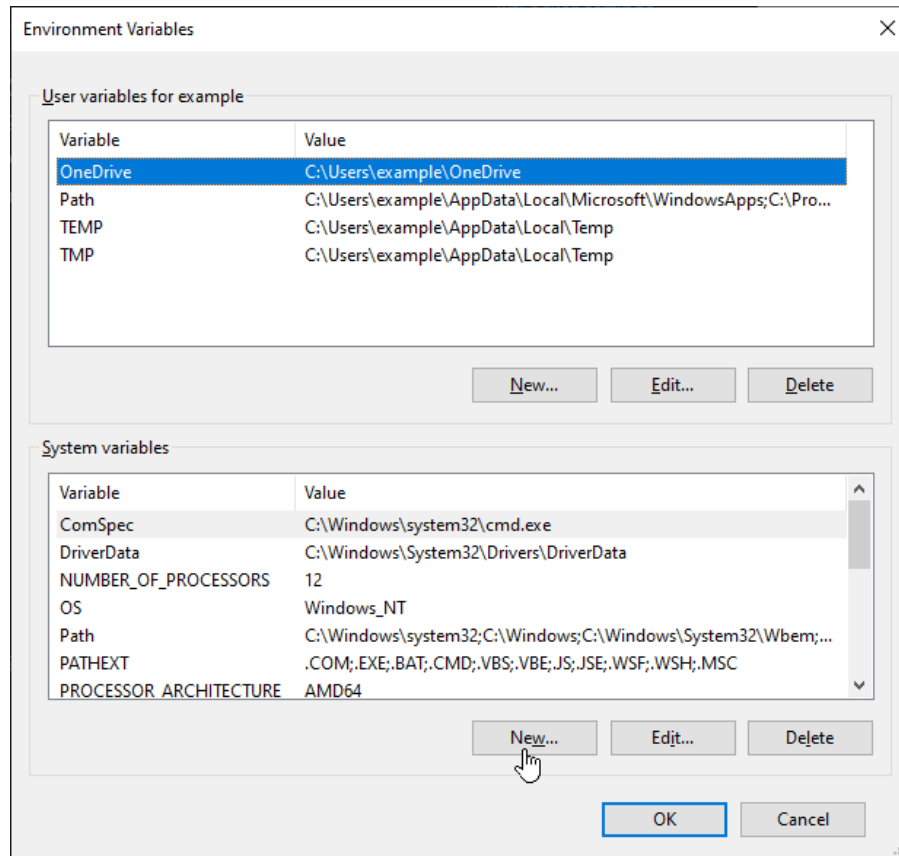


Figure 31 • Environment Variables Dialog

5. Enter:

Variable name: **ACE_INSTALL_DIR**

Variable value: **C:\Achronix\ACE\<version>\Achronix_CAD_Environment**

Note
Substitute the actual path where ACE is installed in the **Variable Value** field.

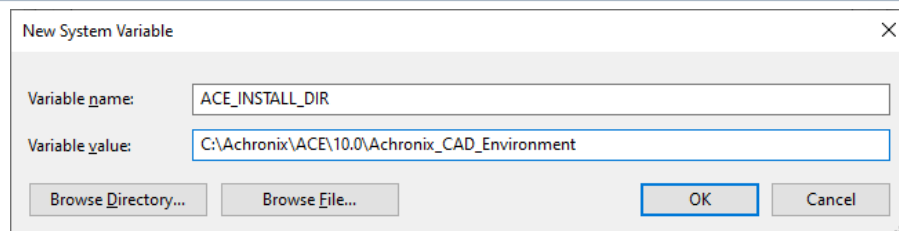
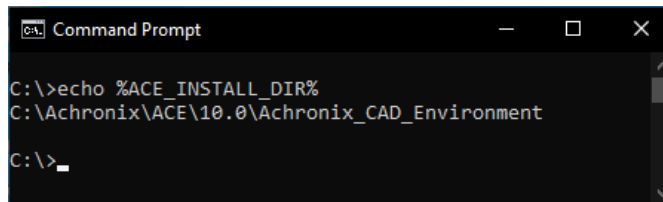


Figure 32 • New System Variable Dialog

6. Click **OK** to set, followed by **OK** to close the Environment Variables window and **OK** to close the System Properties window.
7. To verify that the environment variable is set, open a Command Prompt window and enter the following:

```
C:\>echo %ACE_INSTALL_DIR%
```

The proper response is:



```

Command Prompt
C:\>echo %ACE_INSTALL_DIR%
C:\Achronix\ACE\10.0\Achronix_CAD_Environment
C:\>_

```

Figure 33 - Environment Variable Verification

Upgrading an ACE Installation

Each version of ACE should ideally be installed into a new, empty directory! Never install ACE in the same directory as a prior install, unless that prior version has already been uninstalled first.

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. Optionally, uninstall the prior version of ACE.
4. Install the desired version of ACE to a new directory.
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.

Uninstalling ACE

Caution!

The ACE (un)installer prior to version 8.8 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. Versions 8.8+ allow multiple versions to be installed however each version must be installed in its own directory. See the section [Upgrading an ACE Installation \(page 56\)](#) 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**.

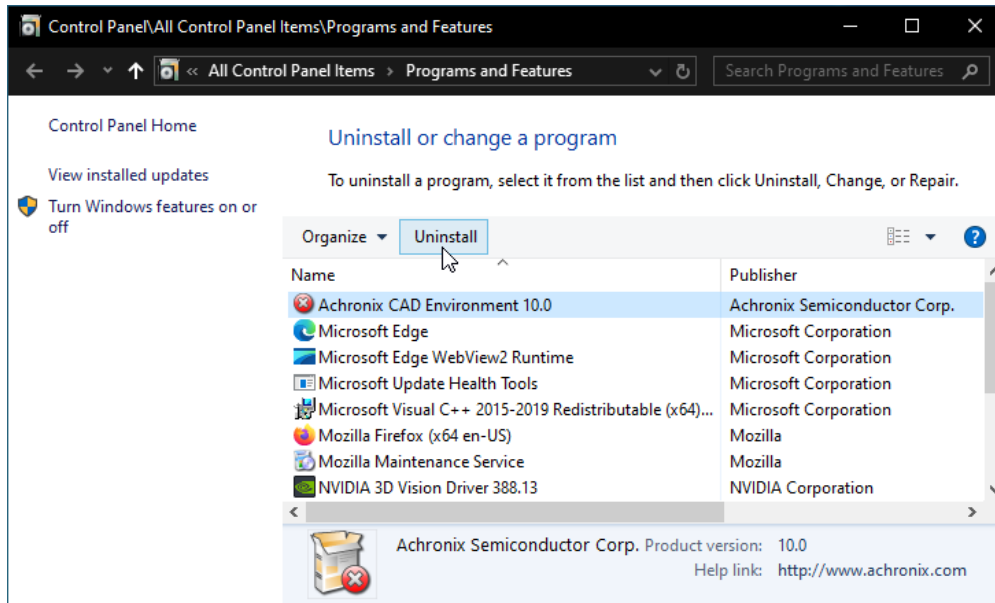


Figure 34 • Uninstall Or Change a Program Dialog

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

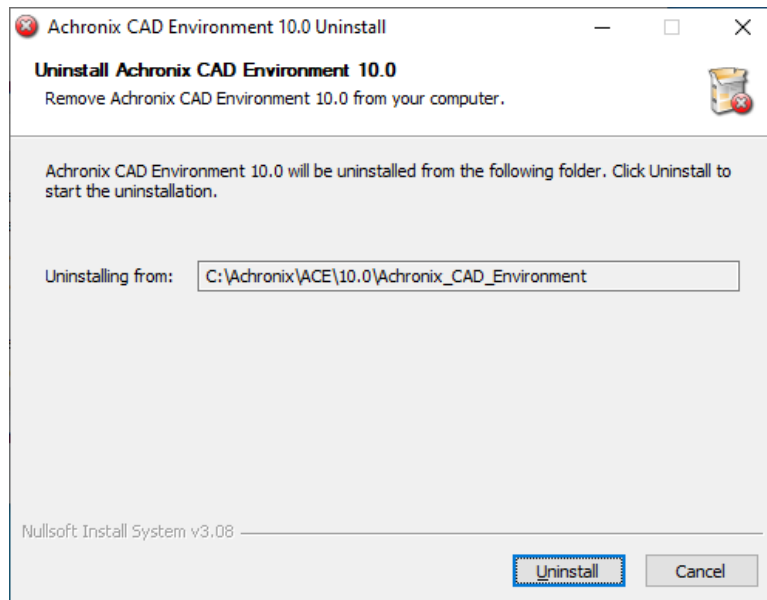


Figure 35 • Achronix CAD Environment Uninstall Dialog

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 these steps to install Synplify Pro:

1. Create an empty directory to receive the download files (e.g., C:\Users\\Downloads\SynPro)
2. Download the Synplify Pro ZIP file (e.g., SynplifyPro_2023.03x-2_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. Double-click the install program (e.g., fpga_vU-2023.03X-2_win.exe) to begin the install.
4. From the Synplify Pro for Achronix Setup dialog, click **Next >** to open the License Agreement dialog.

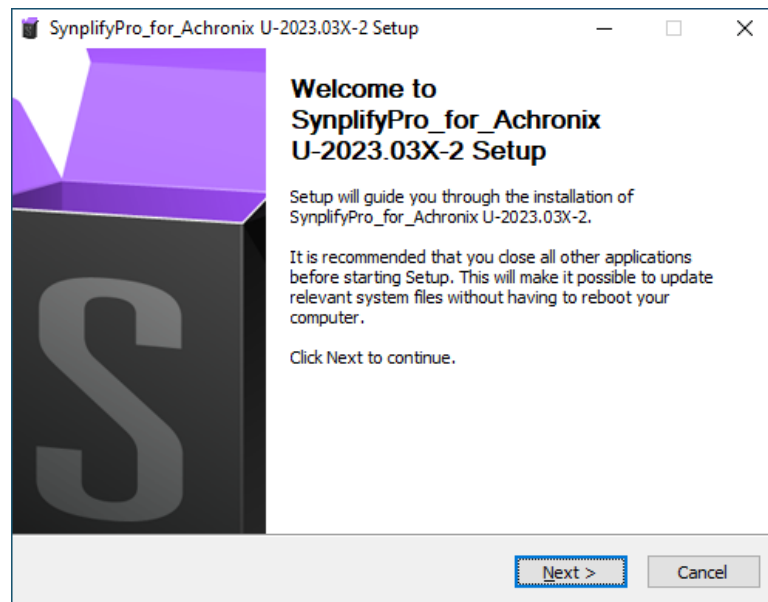


Figure 36 - Synplify Pro for Achronix Setup Dialog

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

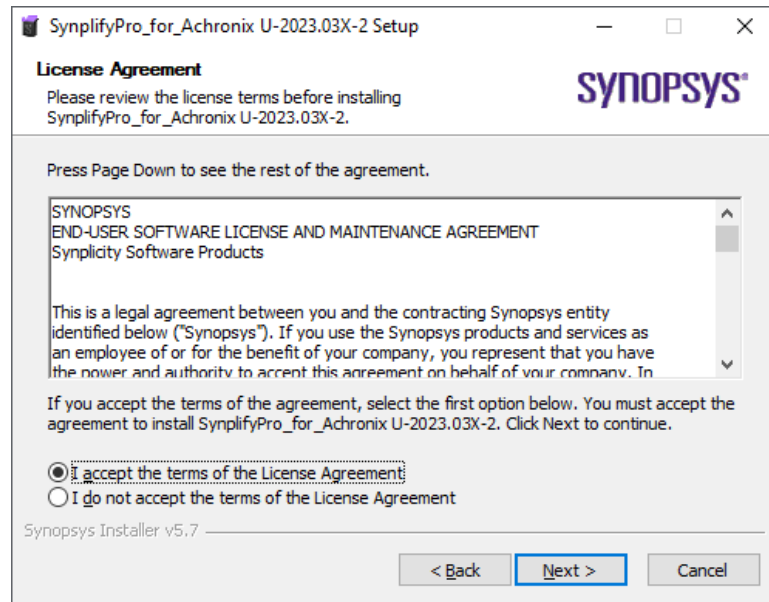


Figure 37 • Synopsys End-User License Agreement

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

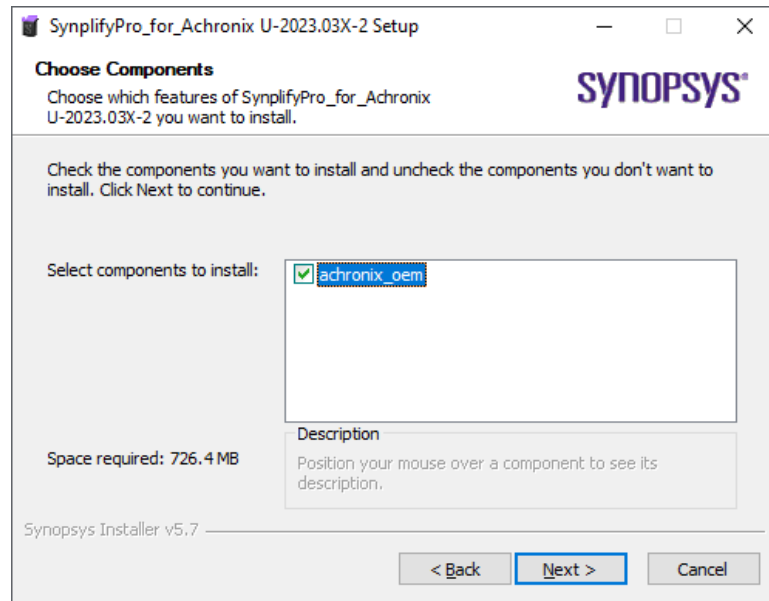


Figure 38 • Choose Components Dialog

- 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_U-2023 . 03X-2). Click **Next >** to continue.

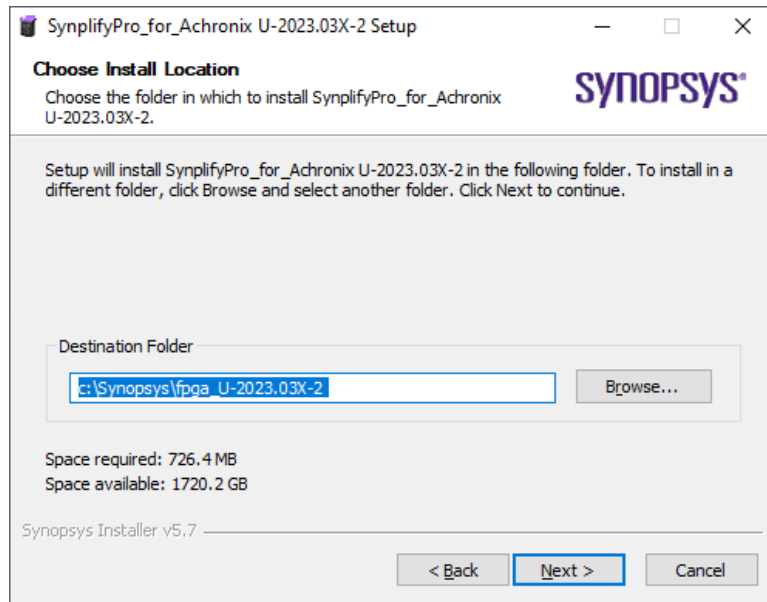


Figure 39 - Choose Install Location Dialog

- 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.

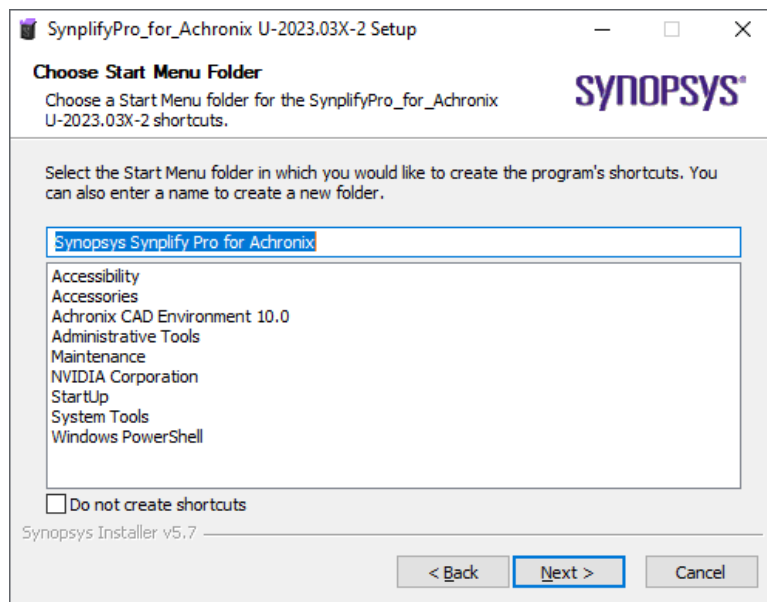


Figure 40 - Choose Start Menu Folder Dialog

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

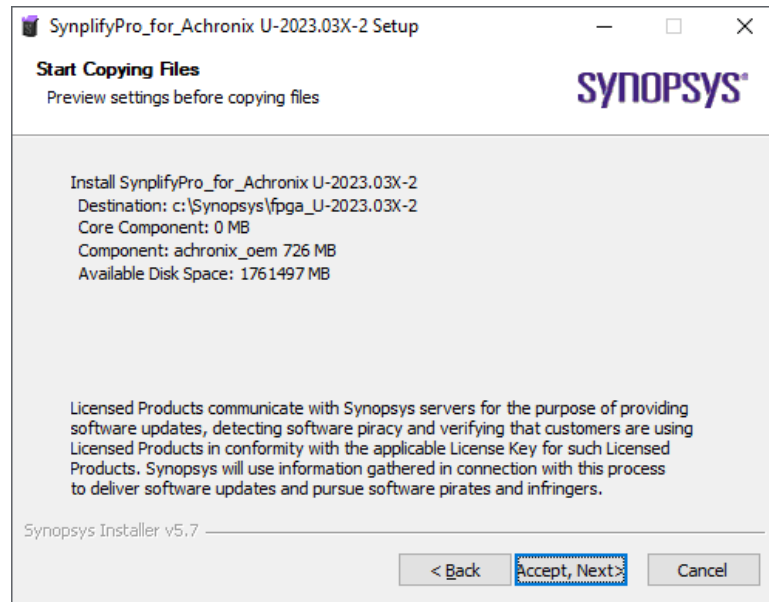


Figure 41 • Start Copying Files Dialog

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

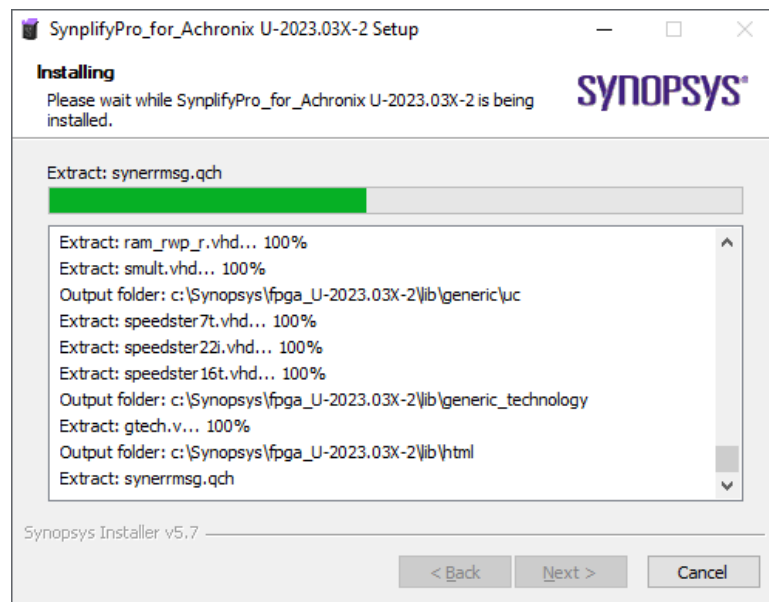


Figure 42 • Installing Progress Dialog

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. Double-click each downloaded .crt file name to invoke the Windows certificate installer.

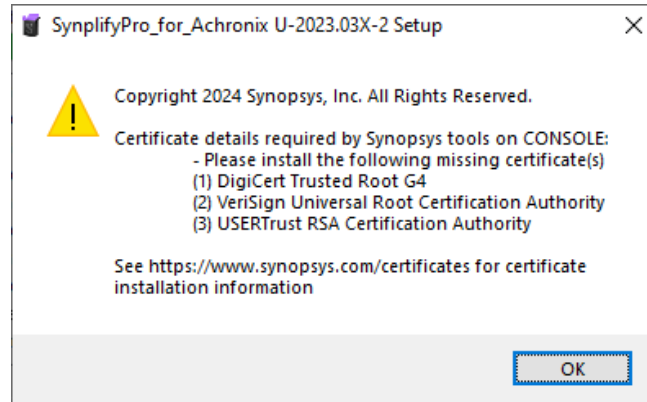


Figure 43 • Synopsys Certificate Details Dialog

12. From the Completing the Setup Wizard dialog, click **Finish** to complete the installation.

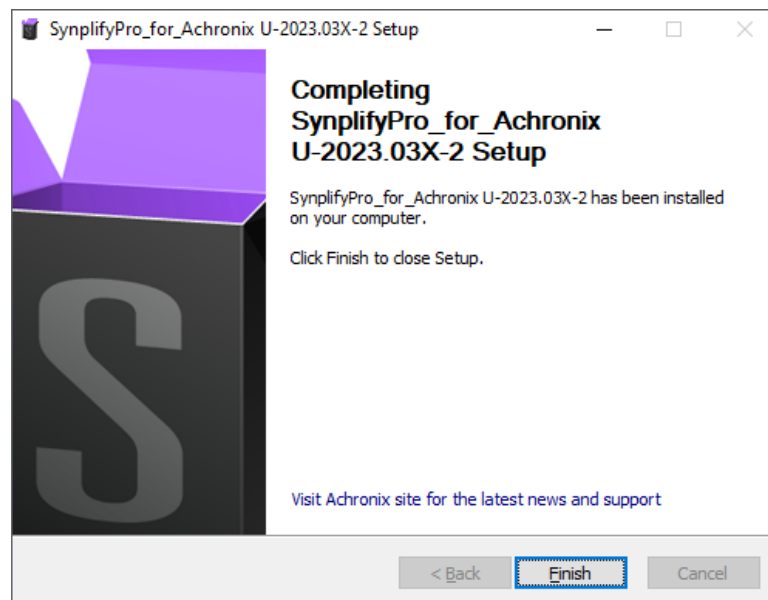


Figure 44 • InstallShield Wizard Complete Dialog

13. Install the license file and verify the installation as detailed in "Synplify Pro License Manager SNPSOEM" in the [Synplify Pro License Installation \(Windows\)](#) (page 76) chapter.
14. Install the device overlays as described in the [Device Overlays](#) (page 90) chapter.

Uninstalling Synplify Pro

To uninstall Synplify Pro on Windows:

1. Click **Start**.
2. Right-click **Synplify Pro U-2023.03X-2** and select **Uninstall**.

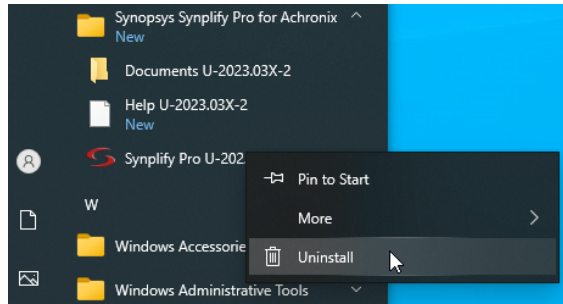


Figure 45 • Uninstalling Synplify Pro

3. From the Uninstall or change a program dialog, select **Synopsys Synplify Pro for Achronix U-2023.03X-2** and click **Uninstall**.

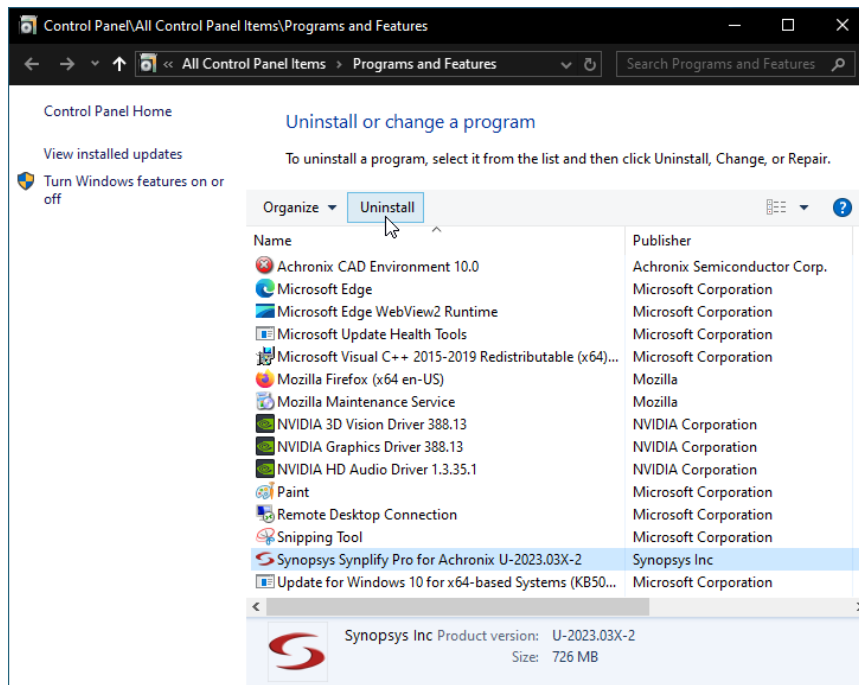


Figure 46 • Uninstall or Change a Program Dialog

4. From the Uninstall Wizard dialog, click **Next** to start the uninstall process.

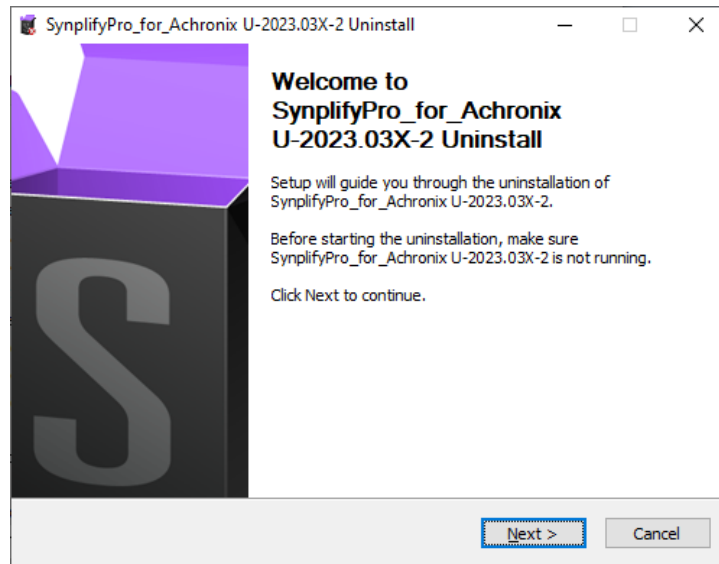


Figure 47 • Synplify Pro Uninstall Wizard Dialog

5. The Synplify Pro Uninstalling dialog displays the progress of the uninstall procedure.

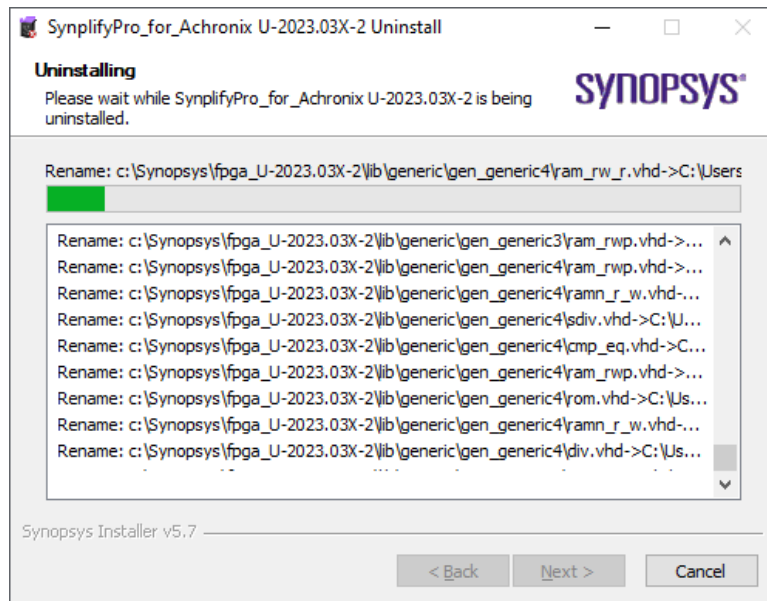


Figure 48 • Synplify Pro Uninstall Progress Dialog

6. From the Uninstall Complete dialog, click **Finish** to complete the process.

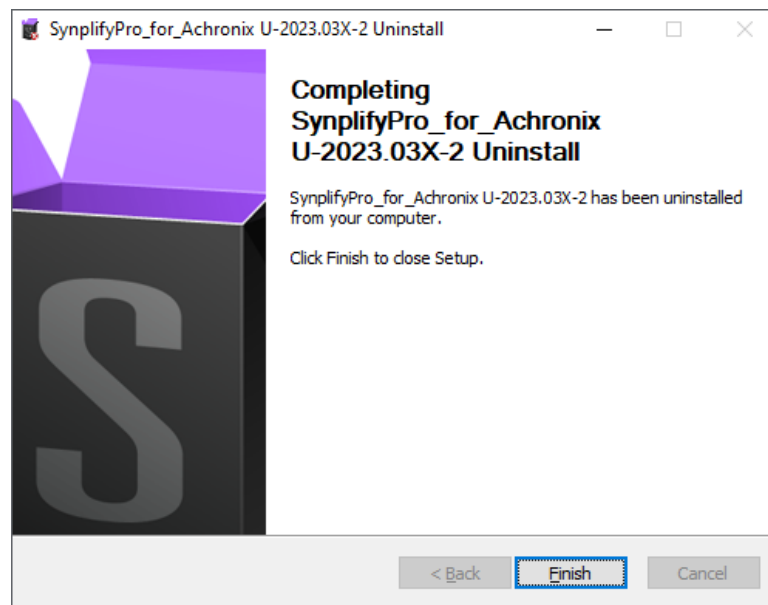


Figure 49 • Synplify Pro Uninstall Complete Dialog

Unified ACE Flow

ACE 10.0 introduces the Unified ACE Flow (UAF). This new streamlined ACE project structure and flow fully integrates synthesis, simulation, and place-and-route into a single ACE project (*.acxprj) file and a single graphical user interface. For specific instructions on how to make use of the UAF, consult the [ACE User Guide \(UG070\)](#)¹³.

Synthesis

To make use of the UAF for synthesis, SynplifyPro must be installed in a directory accessible from the computer on which ACE is running. Create the environment variable, ACX_SYNPLIFY_TOOL_PATH, set to the full file path to the Synplify Pro executable file.

Simulation

The UAF currently works with Windows installations of the following simulator tools:

- Mentor QuestaSim
- Aldec Riviera

To run simulations, the preferred simulator tool must be installed in a directory accessible from the computer on which ACE is running. Each simulator tool requires an appropriately set environment variable, as shown in the following table.

¹³ <https://www.achronix.com/documentation/ace-user-guide-ug070>

Table 6 • Environment Variables Needed for UAF Simulation

Simulator Tool	Environment Variable	Windows Path
Mentor QuestaSim	ACX_QUESTASIM_TOOL_PATH	Specifies the directory path containing the Windows executable files, vlog.exe, vcom.exe and vsim.exe (for example, D:\questa_base64_2023.3\win64).
Aldec Riviera	ACX_RIVIERA_TOOL_PATH	Specifies the file path of the Riviera runvsimsa.bat file (for example, D:\Aldec\Riviera-PRO-2020.10-x64\runvsimsa.bat).

Chapter 8 : ACE License Installation (Windows)

Node-Locked License Installation

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

1. If the ACE license file has already been obtained, skip to step 4.
2. Determine the physical network address (or MAC) of the host system:
 - a. Enter the following at the command prompt:

```
C:\>ipconfig /all
.
.
.
Physical Address. . . . . : 01-23-45-67-89-AB
```

The minimum information required are the six pairs of hexadecimal numbers following the string "Physical Address" (01-23-45-67-89-AB in the example above).

3. Request licenses from Achronix as described in [Obtaining Software Licenses \(page 3\)](#). Achronix Semiconductor responds with an e-mail containing links to the license files (typically, `ace.lic` and `synplify.lic`). Save these files to a safe location.
4. When ACE is installed as described in the [Software Installation \(Windows\) \(page 46\)](#) chapter, save `ace.lic` to the directory `\Achronix\ACE\<version>\Achronix_CAD_Environment\Achronix\license`, or to the location used during install if the default location was overridden.
5. To verify installation and licensing, select from the Start menu, **Achronix CAD Environment <version>** to start ACE.
6. ACE displays the Startup window:



Figure 50 • ACE Startup Window

7. Next, ACE starts up and displays the Welcome view showing the Quick Start Tutorial:

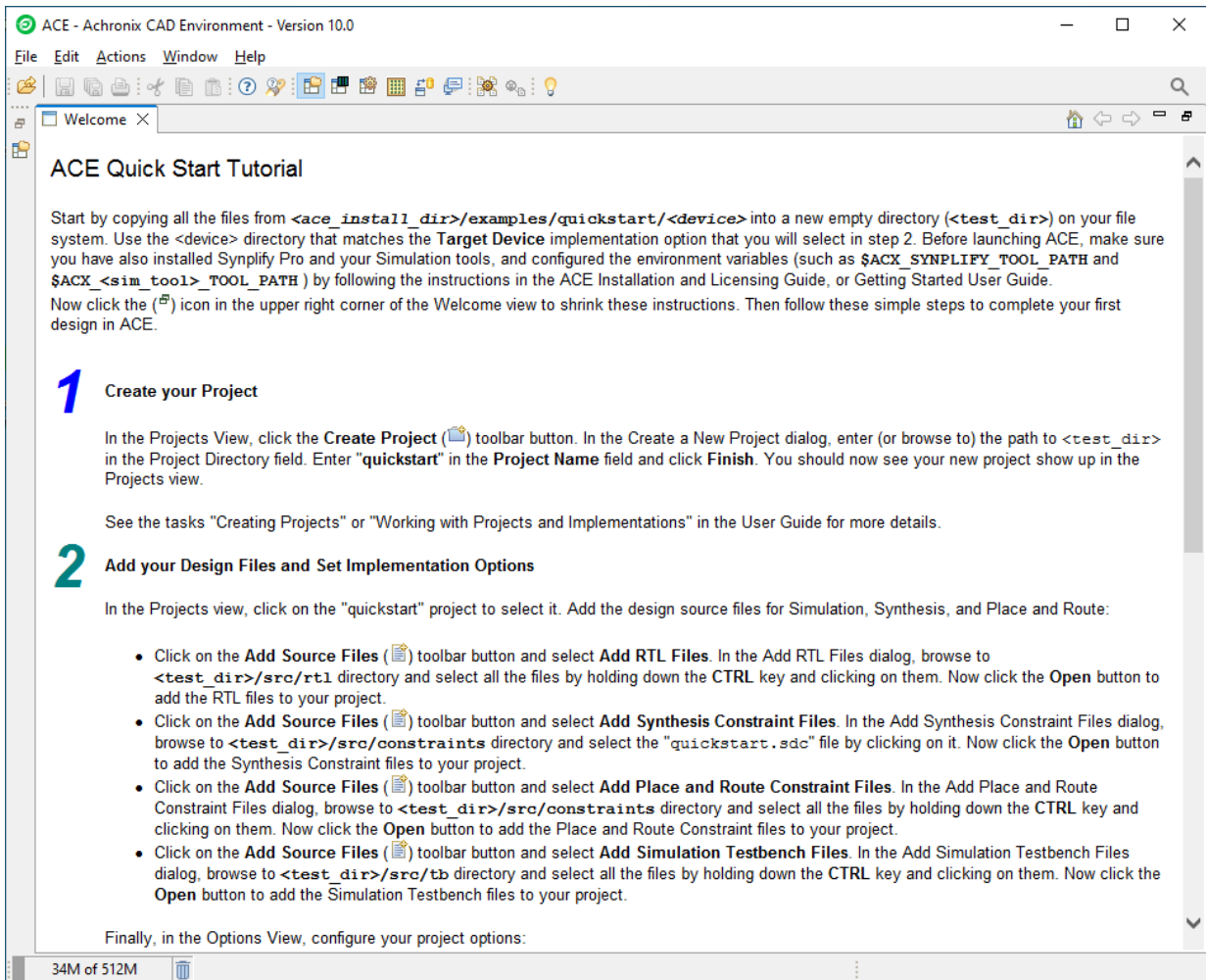


Figure 51 • ACE Welcome View

If the license is not found or is improperly installed, the following error dialog appears. Click **Close** to terminate. Refer to [Troubleshooting \(Windows\)](#) (page 87) or contact Achronix Technical Support at support@achronix.com¹⁴.

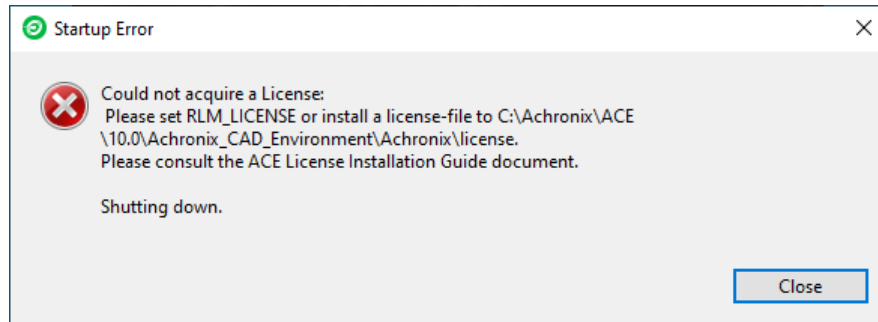


Figure 52 • Startup Error Dialog

It is possible, when using a floating license, that the windows firewall configuration might prompt for permission to allow ACE access to the network (as in the following example). Grant permission by clicking **Allow access**.

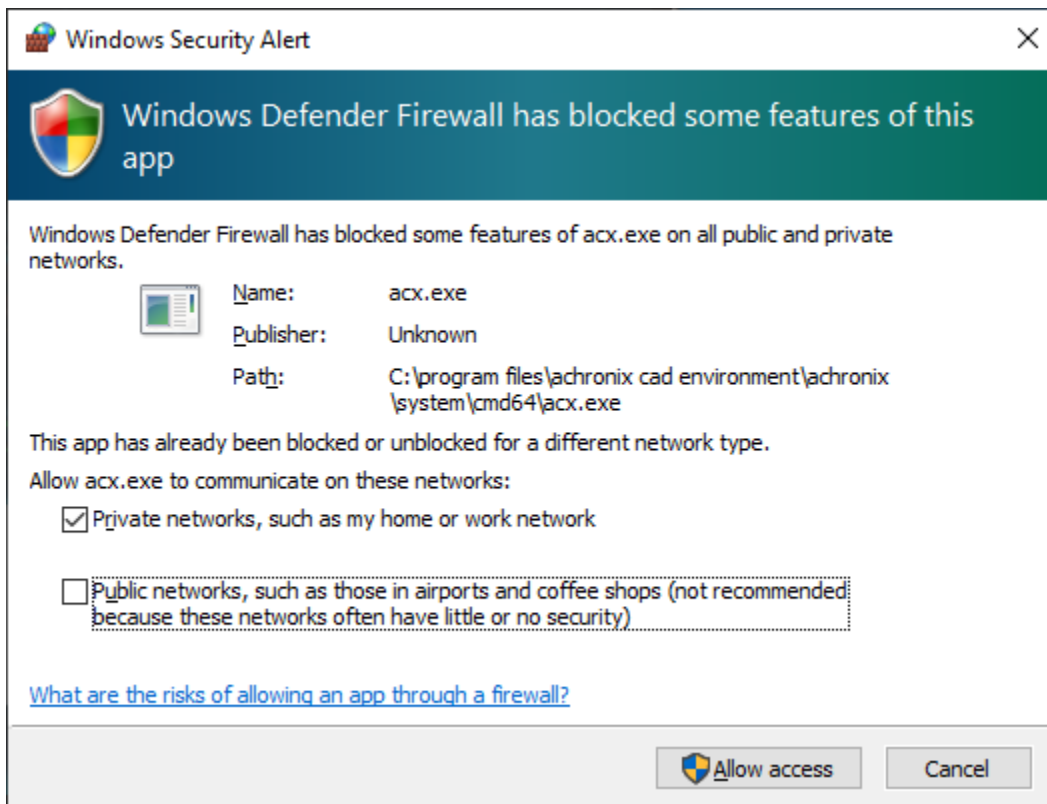


Figure 53 • Windows Security Alert Dialog

¹⁴ mailto:support@achronix.com

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 \(Linux\) \(page 23\)](#) 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 \(Windows\) \(page 46\)](#) 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 \(page 3\)](#).
2. Request licenses from Achronix as described in [Obtaining Software Licenses \(page 3\)](#). Achronix Semiconductor responds with an e-mail containing links to the license files (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 (for this example, `C:\Achronix\License`).
4. Copy the following directory from the client to the license server:
`C:\Achronix\ACE\\Achronix CAD Environment\Achronix\bin`.
5. Edit `ace.lic` to add the license server name and path to the licensing agent:

```
HOST servername 0123456789AB 1710
ISV achronix C:
\Achronix\ACE\9.0\Achronix_CAD_Environment\bin\achronix_license_agent.exe
```

Where 0123456789AB is the host ID (MAC) of the license server determined in step 1.

6. Set the environment variable on the *client* machine:
If the client is hosted on a Linux platform, see Step 7 under the topic "Floating Node License Installation" in the [ACE License Installation \(Linux\) \(page 23\)](#) chapter.
 - 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 the following figure).

- c. Click **Environment Variables...** to open the Environment Variables dialog.

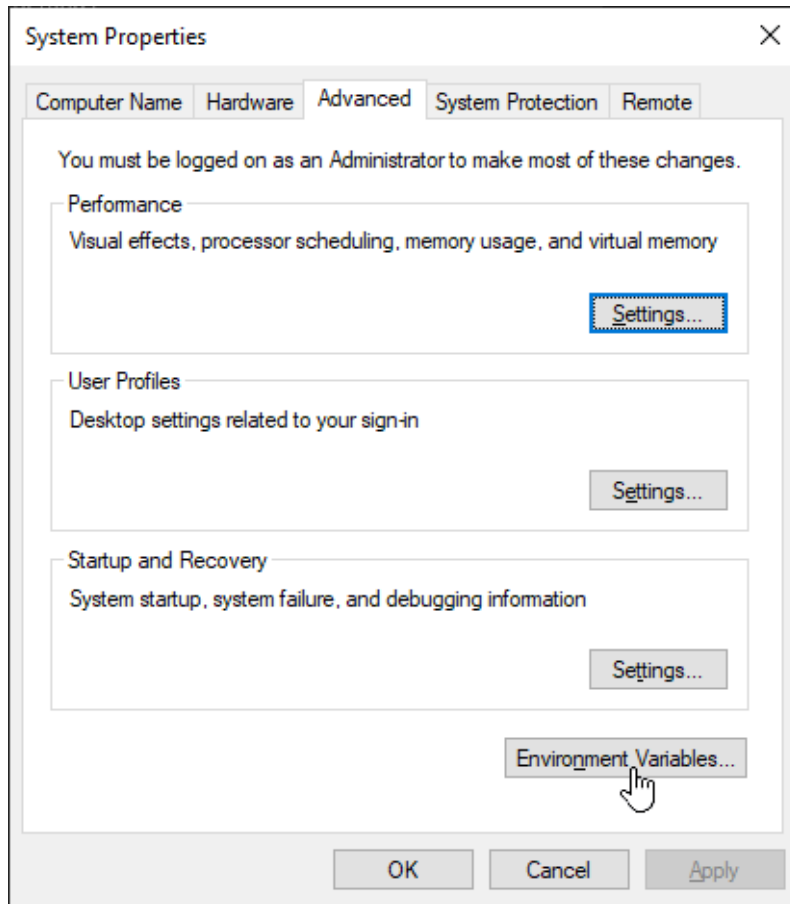


Figure 54 • System Properties Dialog

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

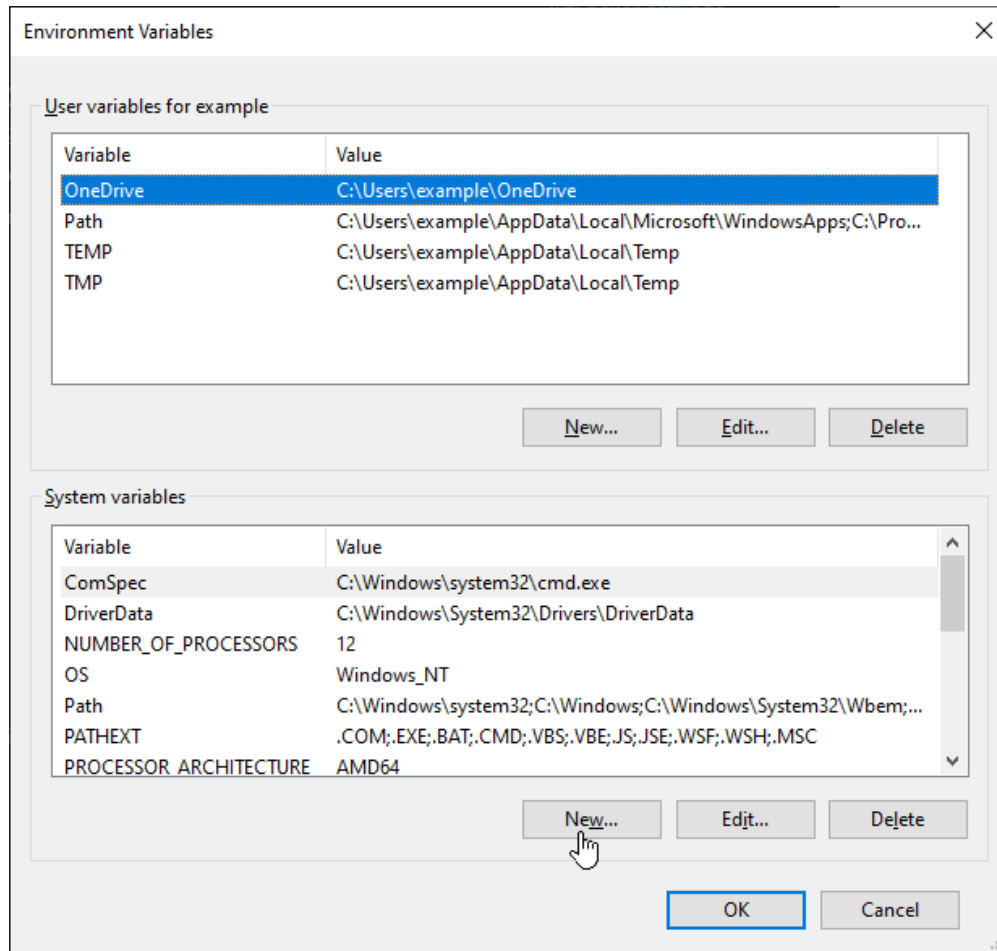


Figure 55 • Environment Variables Dialog

8. Enter:

Variable name: **RLM_LICENSE**

Variable value: **1710@<license_server_host>**

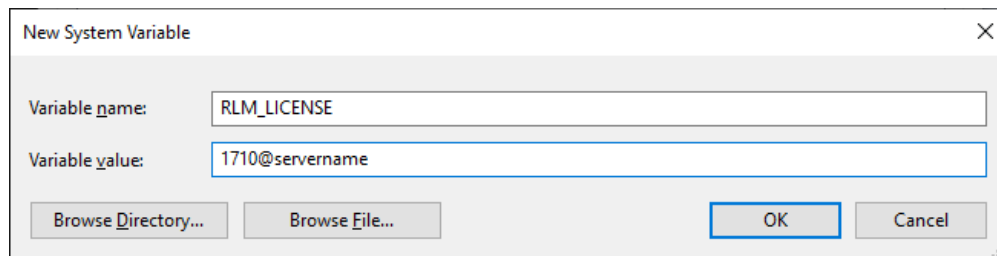


Figure 56 • New System Variable Dialog

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@servername
```

To verify that the environment variable is set:

```
C:\>echo %RLM_LICENSE%
```

10. Start the remote licensing manager (RLM) on the license server. The remote licensing manager runs 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. The RLM parameters are as follows:

```
rlm [-c <lic file path>] [-dat]
    [-dlog [+]<debug log path>] [-info] [-l] [-noudp]
    [-nows | -ws <port>] [-x [rlmdown|rlmremove]] [-v]
    [-verify] [-z]
    [-install_service] [-delete_service] [-service_name <service name>]
    [-display_name <service display name>]
    [-user <service user name> -password <service password>]
    [-isv_startup_delay <ISV server startup delay>]
```

To install RLM as a service, enter the following in the `bin` directory from a command prompt running as administrator:

```
> rlm -install_service -service_name rlm-xyz -dlog C:\Achronix\rlm.log -c C:\Achronix\License\ace.lic
```

This example installs `rlm.exe` as a service under the name "rlm-xyz". When started via the Services control panel or at boot time, `rlm.exe` receives arguments from the file `C:\Achronix\License\ace.lic`, and writes debug log information to the file `C:\Achronix\rlm.log`.

11. Start the newly-installed RLM service:
- Select **Start** → **Windows System** → **Windows Administrative Tools**.
 - From the Administrative Tools panel, double-click **Services**.
 - Find and right-click the assigned RLM service name in the list.
 - Select **Start**.
 - Observe the status "Running" next to the service name in the list.

The following log file excerpt is an example indication that the license server is up:

```
03/31 19:42 (rlm) RLM License Server Version 14.2BL5

    Copyright (C) 2006-2021, Reprise Software, Inc. All rights reserved.

03/31 19:42 (rlm) License server started on WINLIC
03/31 19:42 (rlm) Server architecture: x86_w4
03/31 19:42 (rlm) License files:
03/31 19:42 (rlm)     C:\ProgramData\Reprise\reprise (file unreadable)
03/31 19:42 (rlm)     C:\Achronix\License\ace.lic
03/31 19:42 (rlm)
03/31 19:42 (rlm) Web server starting on port 5054
03/31 19:42 (rlm) Using TCP/IP port 1710
03/31 19:42 (rlm) ... adding UDP/IP port 5053
03/31 19:42 (rlm) Starting ISV server achronix on port 63526
03/31 19:42 (rlm) New thread created to watch ISV achronix
```

Server Firewall Settings

If both the license server and client machines are running on a local network behind a NAT router or another firewall, you may disable the firewall on the license server to simplify the installation. Follow these steps to disable the firewall on the server machine:

Caution!

This method should only be attempted if both the license server and client machines are running on a local network behind a NAT router or another firewall. It is recommended that you work with your IT/MIS department to determine the correct firewall settings to permit proper operation of the licensing system.

1. Click **Start** → **Windows System** → **Control Panel**.
2. Click **Windows Defender Firewall**.
3. Click **Turn Windows Defender Firewall on or off**:

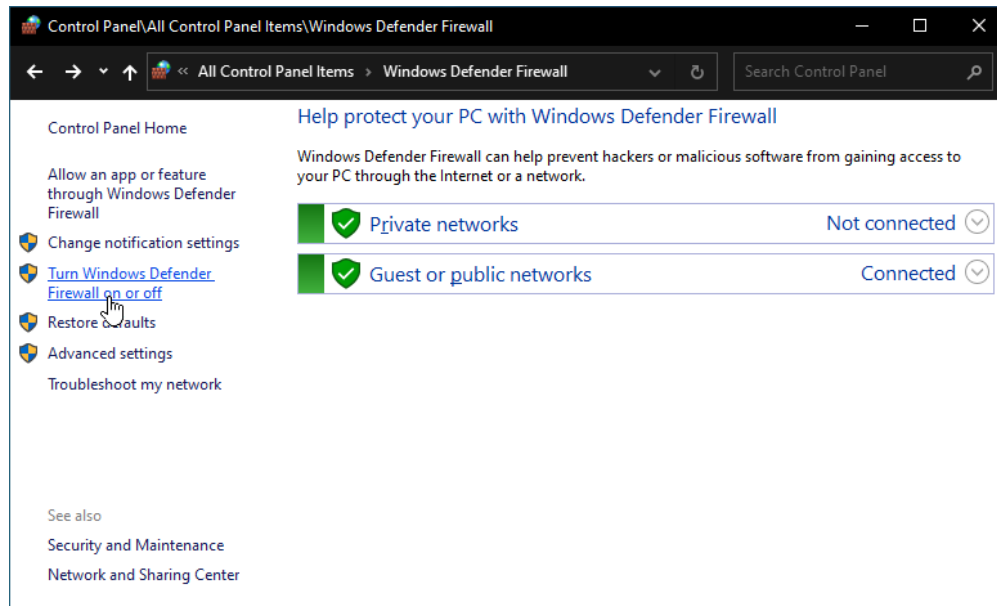


Figure 57 • Windows Defender Firewall Settings Dialog

4. Select **Turn off Windows Defender Firewall** in both Private and Public sections:

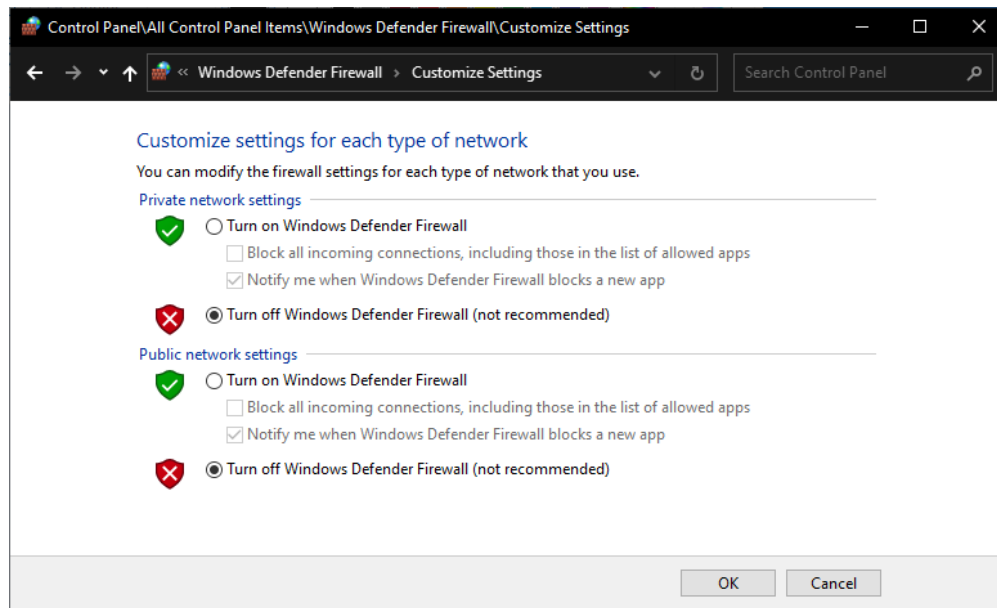


Figure 58 • Windows Defender Firewall Customize Settings Dialog

5. Click **OK** and close the control panel.

Proceed from **Step 5** (page 67) in the previous section to verify operation of ACE on the *client* machine.

Chapter 9 : Synplify Pro License Installation (Windows)

Synplify Pro License Manager SNPSOEM

Synplify Pro 2023.03x-2 requires the use of a 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.

Compatible license files are automatically returned when using the ACE License Request form on support.achronix.com¹⁵.

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)	<ul style="list-style-type: none"> • 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 (in this example, C : \Synopsys\SNPS\License) 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 the environment variable, refer to steps 9–11 under [Installing the SNPSOEM License Manager for Windows](#) (page 77).

Note:

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

¹⁵ <https://support.achronix.com>

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 the 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 \(page 3\)](#).
2. Request licenses from Achronix as described in [How Do I Request an Evaluation License for Achronix Tools?](#)¹⁶. Achronix responds with a file, `synplify.lic`, as an e-mail attachment. Save this file to a safe location.
3. When Synplify Pro for Achronix is installed as described in [Installing Synplify Pro for Achronix \(page 58\)](#), 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 directory from which 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
<code>lmgrd.exe</code>	Shipped with FlexNet version v11.16.6
<code>lmutil.exe</code>	Shipped with FlexNet version v11.16.6
<code>snpsoem.exe</code>	SCL OEM license daemon
<code>sclshoem.exe</code>	SCL OEM license test client
<code>sclshoem_th.exe</code>	SCL OEM license test client (threaded version)

¹⁶ <https://support.achronix.com/hc/en-us/articles/360037175972-How-Do-I-Request-an-Evaluation-License-for-Achronix-Tools->

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 20-Oct-2024 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\win64\bin
C:\Synopsys\SNPS\win64\bin> lmgrd -c <oem_license_file_path> -z
```

If the Windows Security Alert Dialog appears, click **Allow access**.

7. This command returns a log listing status information. Make note of the **Listening port** value in the "=== Network Info ===" section near the end:

```
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) =====
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) === Vendor Daemon ===
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Vendor daemon: SNPSOEM
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Start-Date: Sun Apr 02 2023 18:36:00 Pacific
Daylight Time
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) PID: 4900
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) VD Version: v11.16.6.0 build 260203 x64_n6
( build 260203 (ipv6))
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@)
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) === Startup/Restart Info ===
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Options file used: None
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Is vendor daemon a CVD: No
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Is FlexNet Licensing Service installed and
compatible: No
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) FlexNet Licensing Service Version: -NA-
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Is TS accessed: No
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) TS access time: -NA-
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Number of VD restarts since LS startup: 0
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@)
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) === Network Info ===
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Listening port: 49747
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Daemon select timeout (in seconds): 1
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@)
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) === Host Info ===
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Host used in license file: WINLIC
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) HostID node-locked in license file: 0123456789ab
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) HostID of the License Server: 0123456789ab
```

```
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) Running on Hypervisor: Not determined - treat as
Physical
18:36:00 (SNPSOEM) (@SNPSOEM-SLOG@) =====
```

8. Do not close the command prompt window. Verify that the license server has started correctly by entering the following from a *second* command prompt:

```
C:\Synopsys\SNPS\win64\bin> lmutil lmstat -c <oem_license_file_path> -a
```

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

```
lmutil - Copyright (c) 1989-2019 Flexera. All Rights Reserved.
Flexible License Manager status on Sun 4/2/2023 18:48

[Detecting lmgrd processes...]
License server status: 27000@WINLIC
  License file(s) on WINLIC: C:\Synopsys\SNPS\License\Synplify.lic

  WINLIC: license server UP (MASTER) v11.16.6

Vendor daemon status (on WINLIC):

  SNPSOEM: UP v11.16.6
Feature usage info:

Users of synplifypro_achronix: (Total of 1 license issued; Total of 0 licenses in
use)
```

9. Set the required environment variable on the *client* machine:
 - a. From the **Start** menu, select **Windows System** → **Control Panel** → **System**.
 - b. Under **Related settings**, select **Advanced system settings** to open the following System Properties dialog.
 - c. Click the **Environment Variables...** button to open the Environment Variables Dialog.

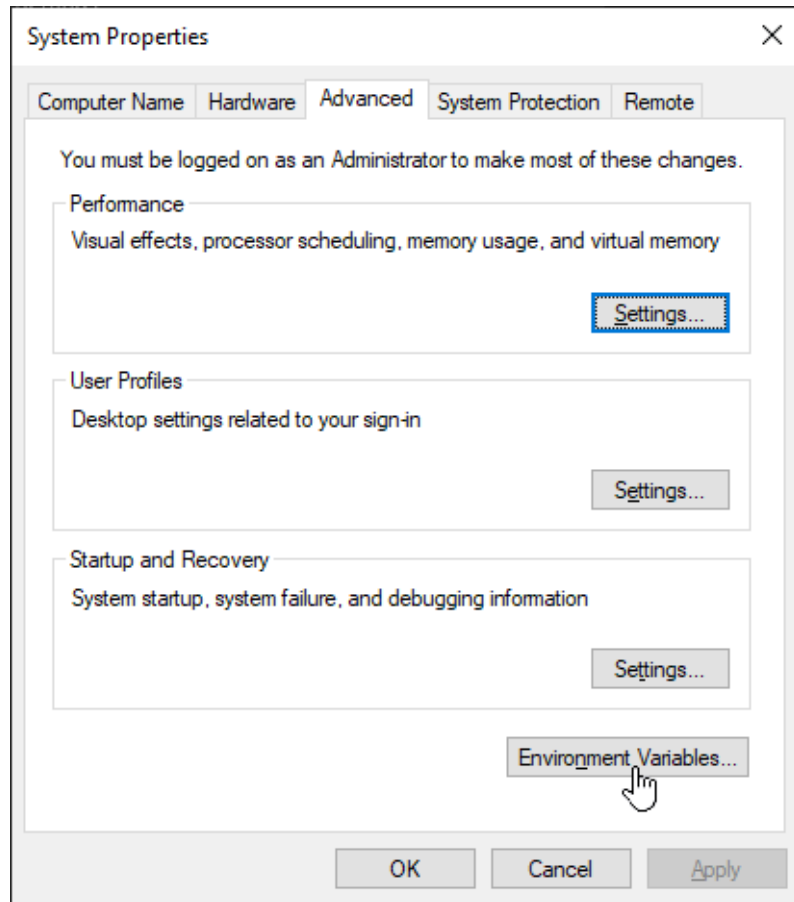


Figure 59 • System Properties Dialog

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

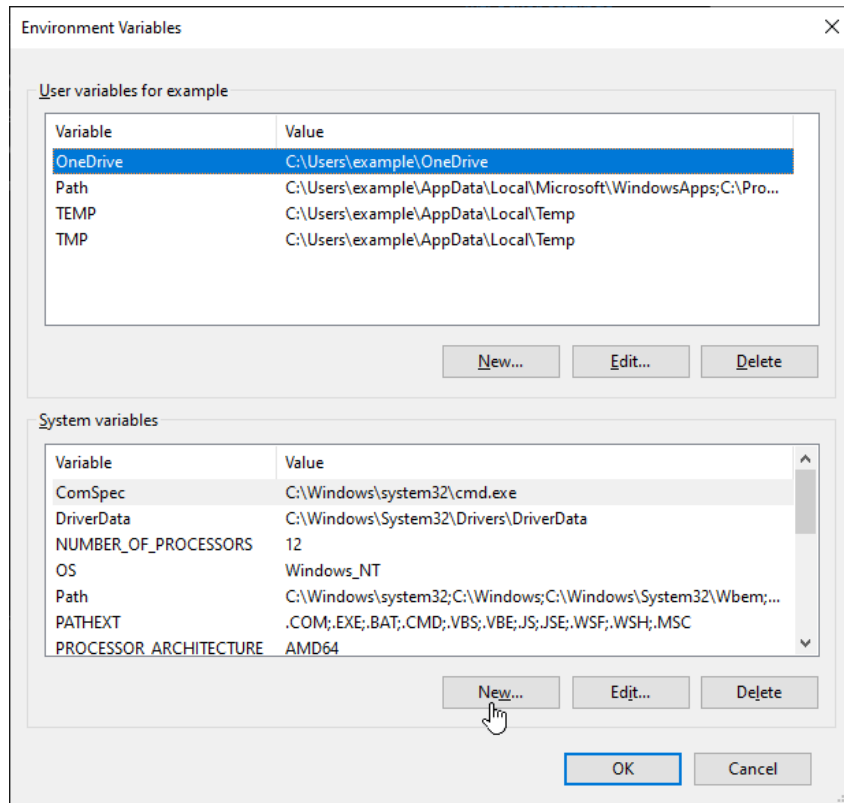


Figure 60 • Environment Variables Dialog

11. For a node-locked license, enter the following:

Variable name: **SNPSLMD_LICENSE_FILE**

Variable value: **C:\Synopsys\SNPS\License**

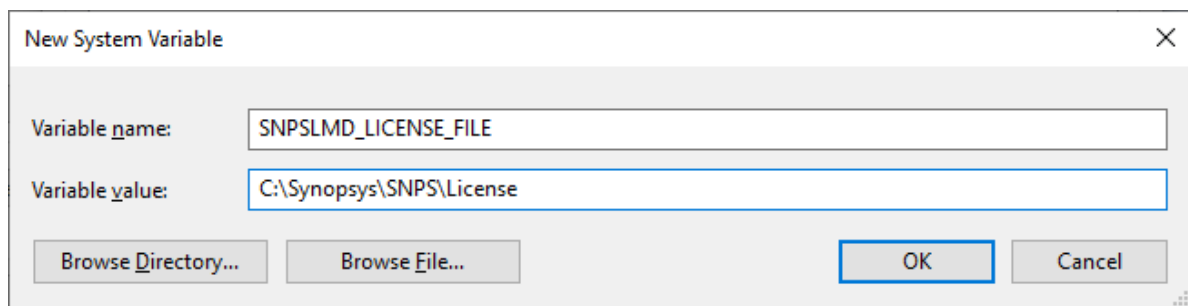


Figure 61 • System Variables Editor Dialog Node-Locked Example

For a floating license hosted on a Windows server, enter the following:

Variable name: **SNPSLMD_LICENSE_FILE**

Variable Value: <listening port>@<servername> (Windows server)

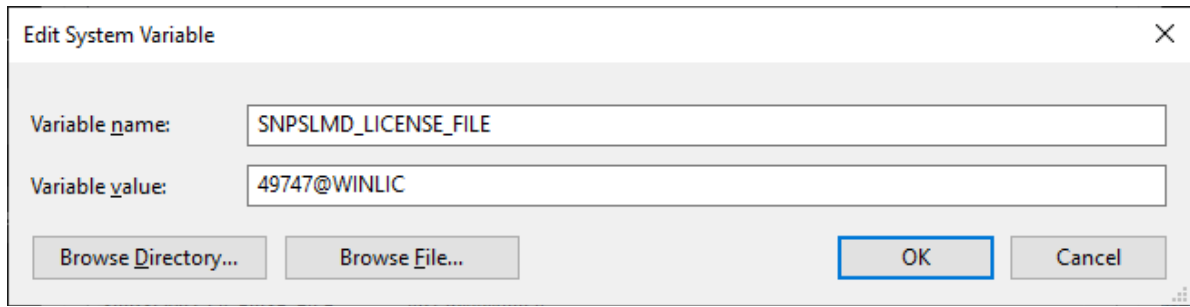


Figure 62 • System Variables Editor Dialog Windows Server Example

For a floating license hosted on a Linux server, enter the following:

Variable name: **SNPSLMD_LICENSE_FILE**

Variable Value: <listening port>@<server_IP_addr> (Linux server)

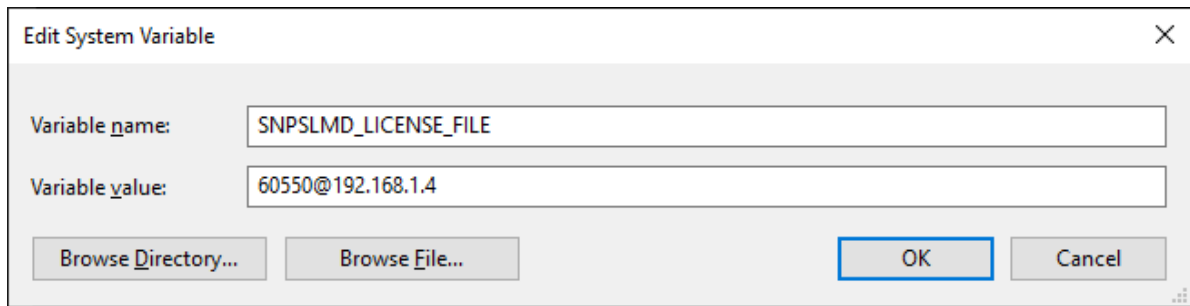


Figure 63 • System Variables Editor Dialog Linux Server Example

- 12. Click **OK** to set, followed by **OK** to close the Environment Variables dialog and again to close the System Properties dialog.
- 13. Start Synplify Pro.

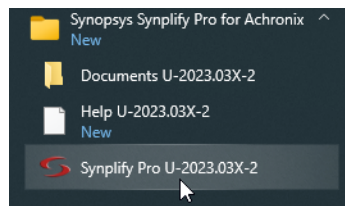


Figure 64 • Synplify Pro Start Menu Item

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

Synplify Pro first displays this License Agreement page. Click **Yes** to continue.

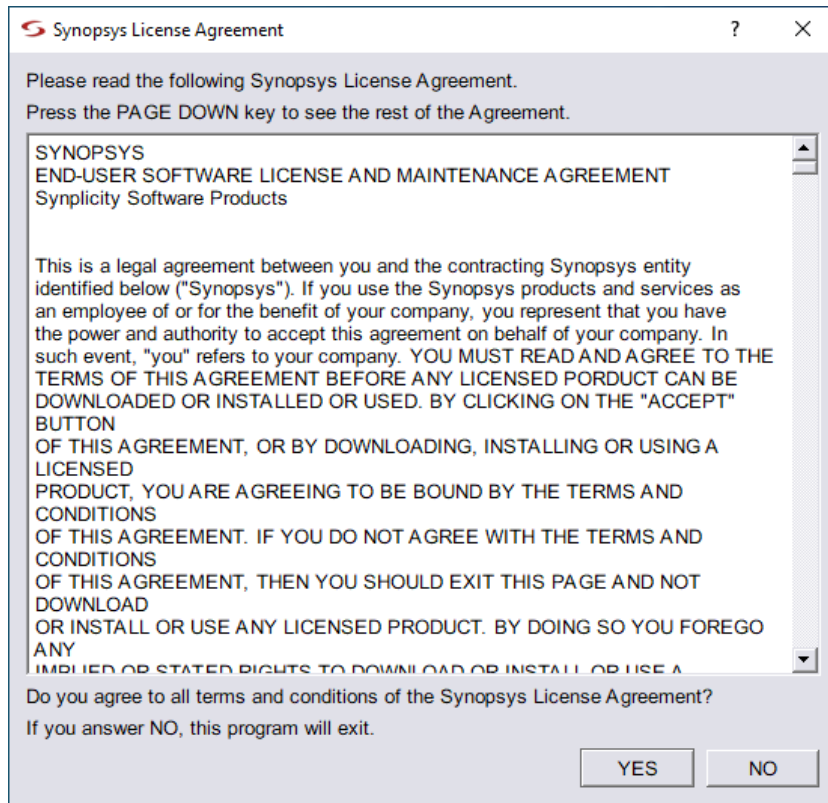


Figure 65 • Synopsys License Agreement Dialog

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 \(Windows\)](#) (page 87) or contact Achronix Technical Support at support@achronix.com¹⁷.

¹⁷ <mailto:support@achronix.com>

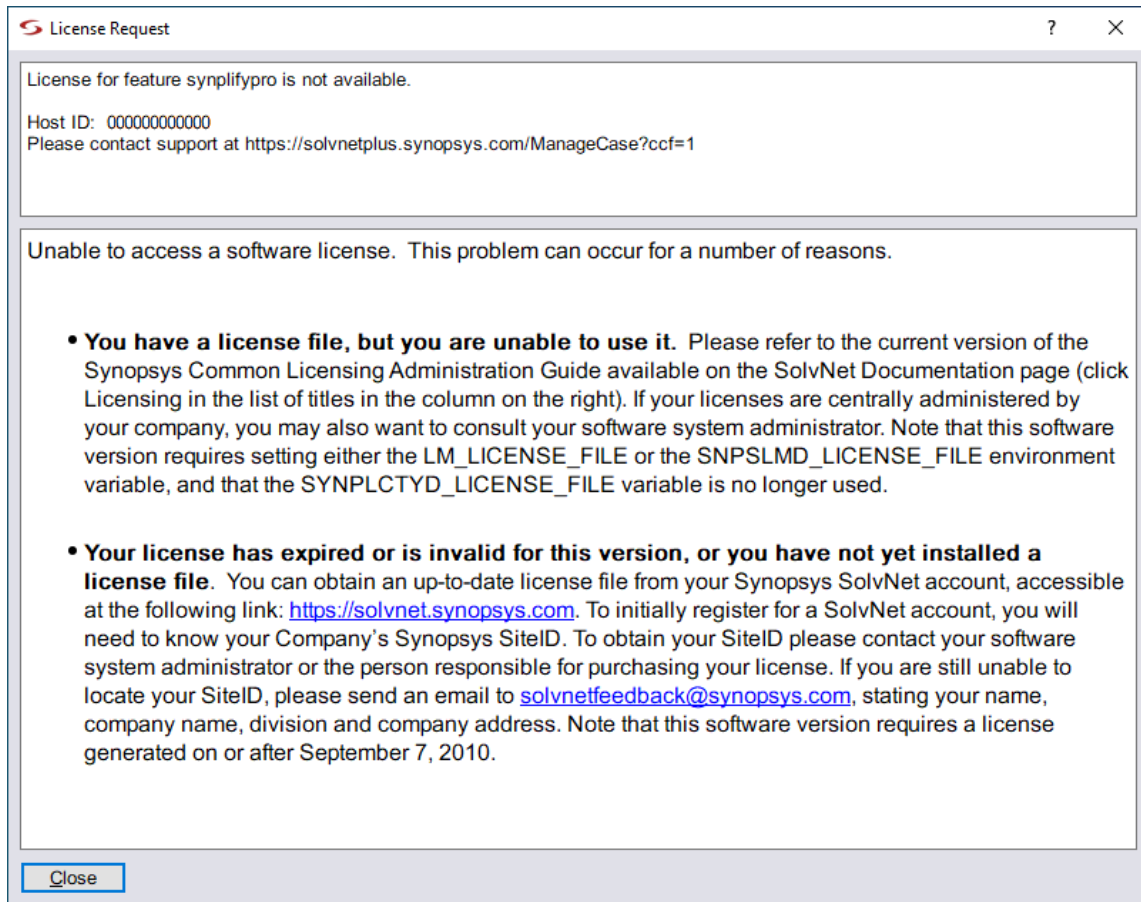


Figure 66 • Synplify Pro License Error Page

It is possible that the windows firewall configuration might prompt for permission to allow Synplify Pro access to the network (as in the following example). Grant permission by clicking **Allow access**.

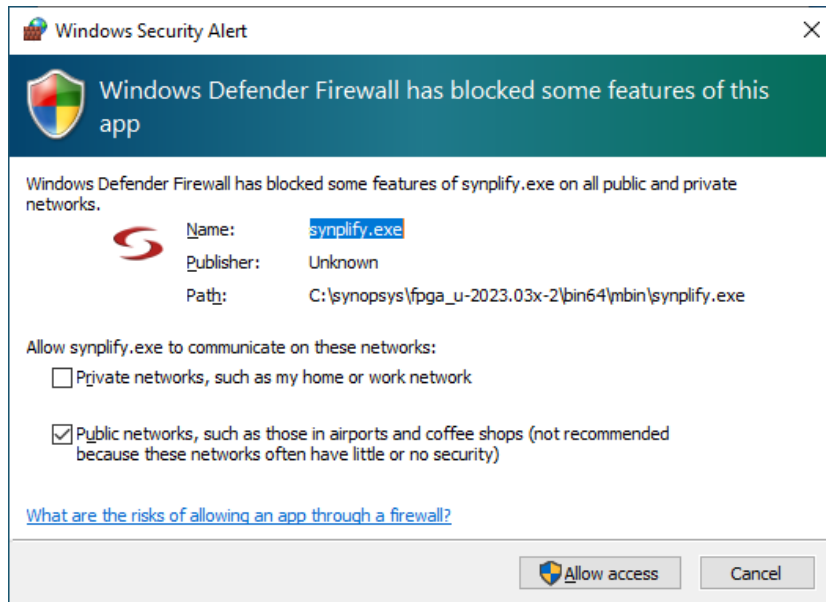


Figure 67 • Windows Security Alert Dialog

14. If everything is set up correctly, Synplify Pro next displays the Did You Know... dialog:

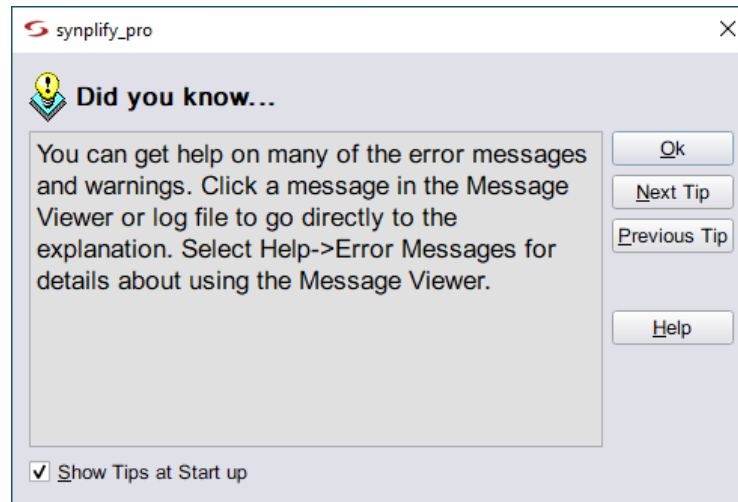


Figure 68 • Synplify Pro Did You Know... Dialog

Click **Ok** to close the dialog.

15. The Synplify Pro project window now appears indicating a successful installation.

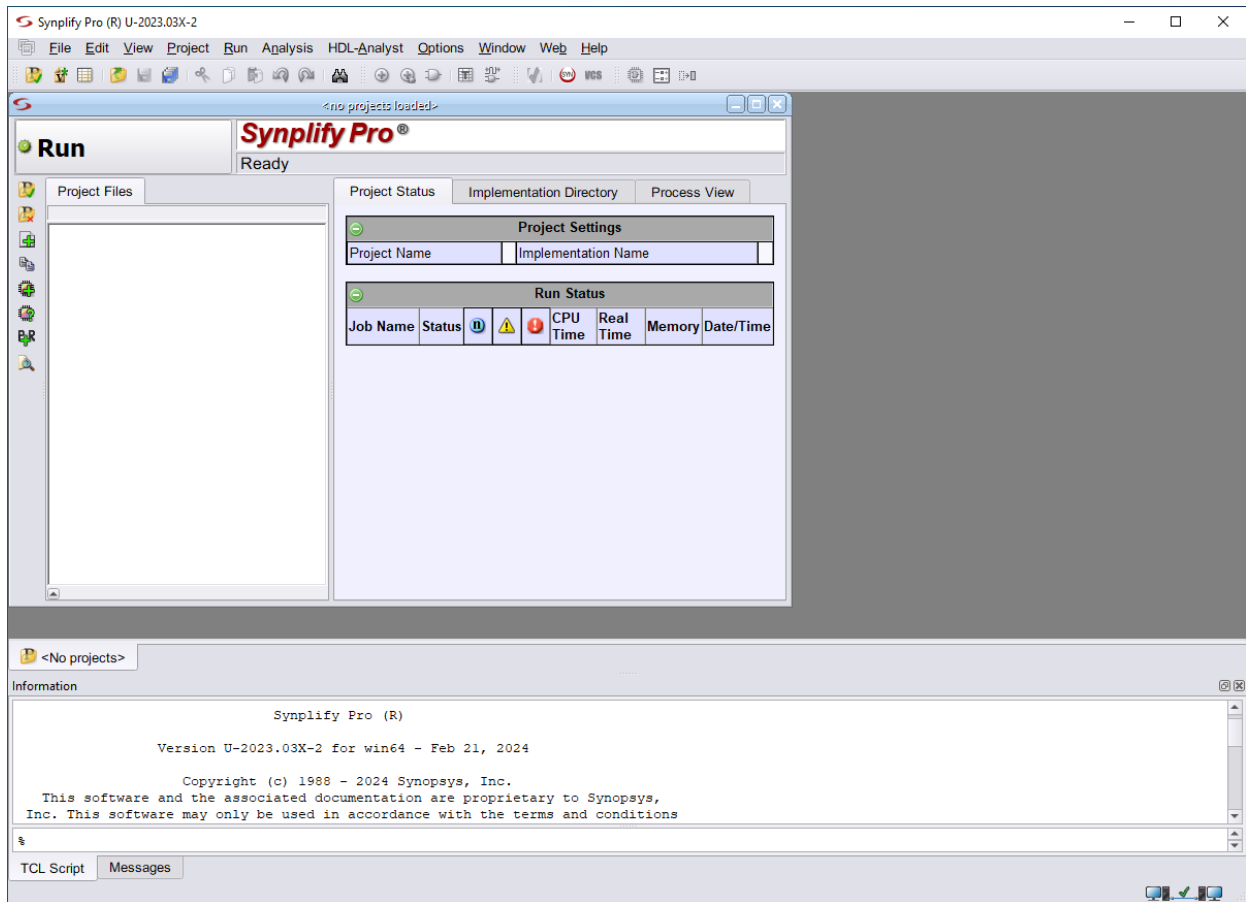


Figure 69 • Synplify Pro Project Window

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 following example:

```
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:\Achronix\ACE\`
- Verify that license file has the proper extension (.lic) and contains no illegal (non-alphanumeric) 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:\Achronix\ACE\
The Path variable is set as follows:
 - a. Select from the Start menu Windows System → Control Panel → System → Advanced system settings to open the System Properties dialog.
 - b. From the Advanced tab, click Environment Variables.
 - c. highlight the Path string and click Edit.`

Other Issues

When uninstalling or upgrading ACE, any existing license files in the directory `\license` might be removed. Before upgrading/uninstalling, be sure to save a copy of the license file in a safe place for later reuse.

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 (non-alphanumeric) 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 node-locked license file or the server ID for a floating license, as shown in the following table:

Table 9 • Environment Variable Examples

License Type	Variable
Node-locked	C:\Synopsys\SNPS\License ⁽¹⁾
Floating, Windows server	<listening_port>@<servername>
Floating, Linux server	<listening_port>@<server_IP_addr>

Table Notes

The node-locked license may be placed in any directory.
The path shown is an example and should be replaced with the actual path used.

The Path variable is set as follows:

- Select from the Start menu **Windows System** → **Control Panel** → **System** → **Advanced system settings** to open the System Properties dialog.
- From the Advanced tab, click **Environment Variables**.
- 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>.

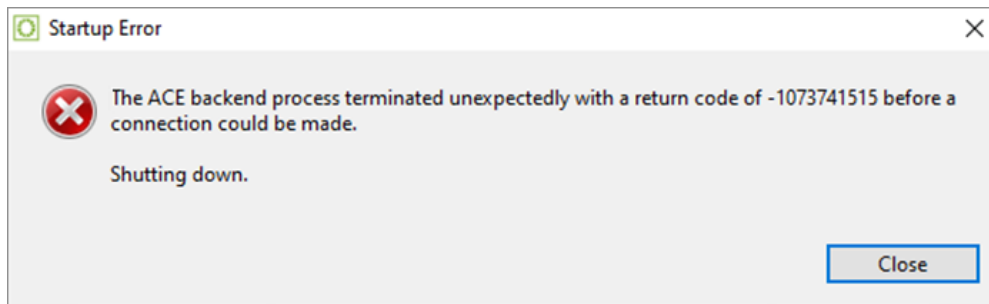


Figure 70 - ACE Startup Error

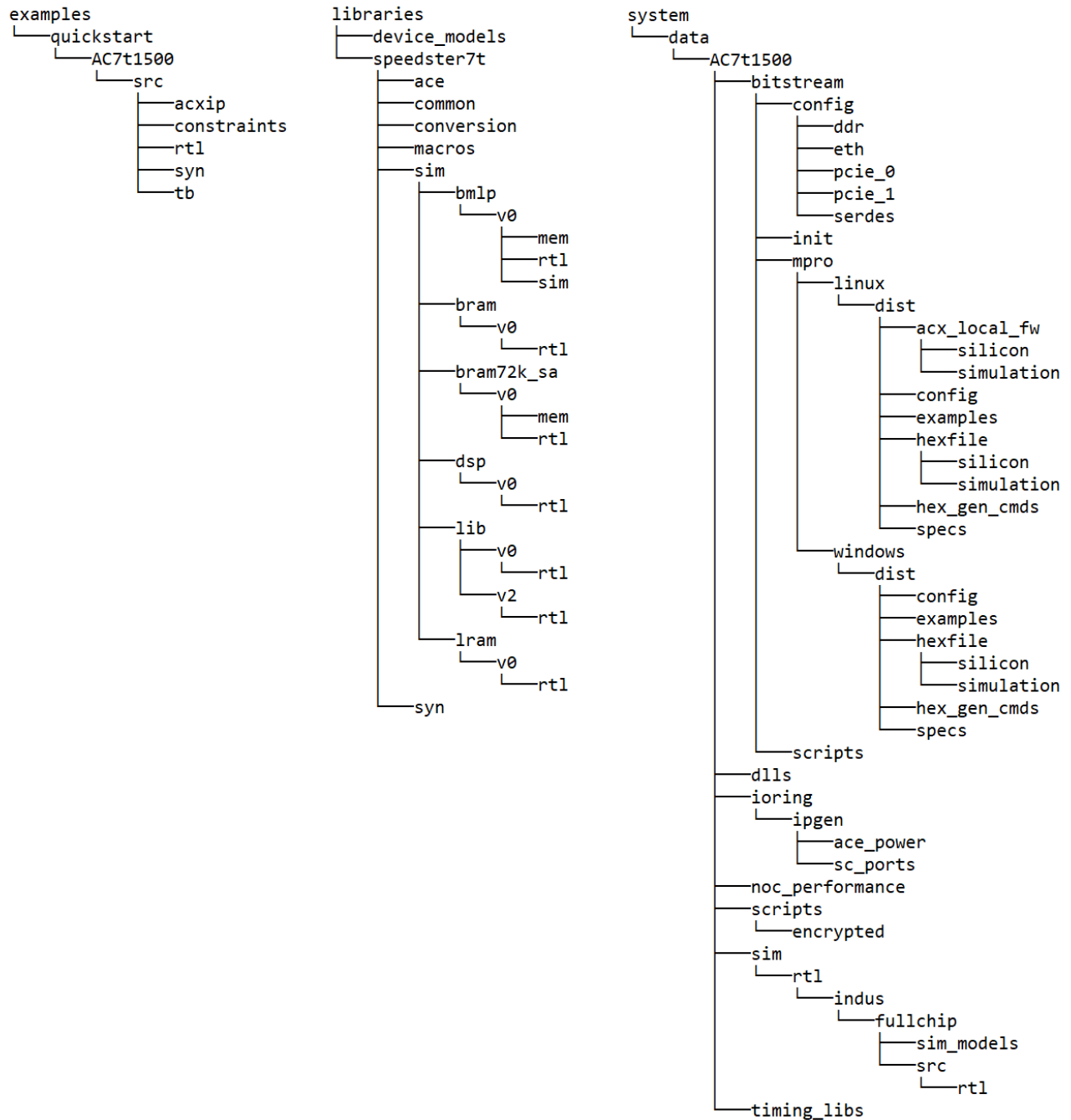
Chapter 11 : Device Overlays

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_10.0_AC7t1500.tgz` contains the necessary overlays to support the Speedster7t AC7t1500 FPGA in ACE version 10.0 in both Linux and Windows. To install ACE along with the device overlays on Linux, simply use the `install_ace.sh` script provided (refer to [Installing ACE \(page 12\)](#) for directions). For Windows, the device overlays are also installed during the ACE installation process (refer to [Installing ACE \(page 46\)](#) for directions). If it is necessary to install device overlays manually, use the following directions.

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



9536105-01.2024.05.06

Figure 71 • AC7t1500 Overlay File Directory Structure

Note

Before proceeding, make sure that write privileges are enabled for the ACE Install directory (usually C : \Achronix\ACE\\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 tar file into the ACE Install directory. ACE now allows the selection of device(s).

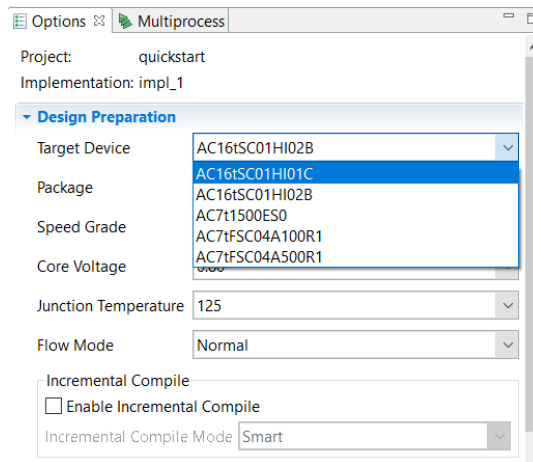


Figure 72 • ACE Design Preparation Options Showing the Added Devices

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, `synU-2023.03X-2_speedster7t_all_overlay.zip` represents the overlays for the Speedster7t FPGA and Speedcore eFPGA IP evaluation devices, with the overlays applying to version U-2023.03X-2 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.
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.

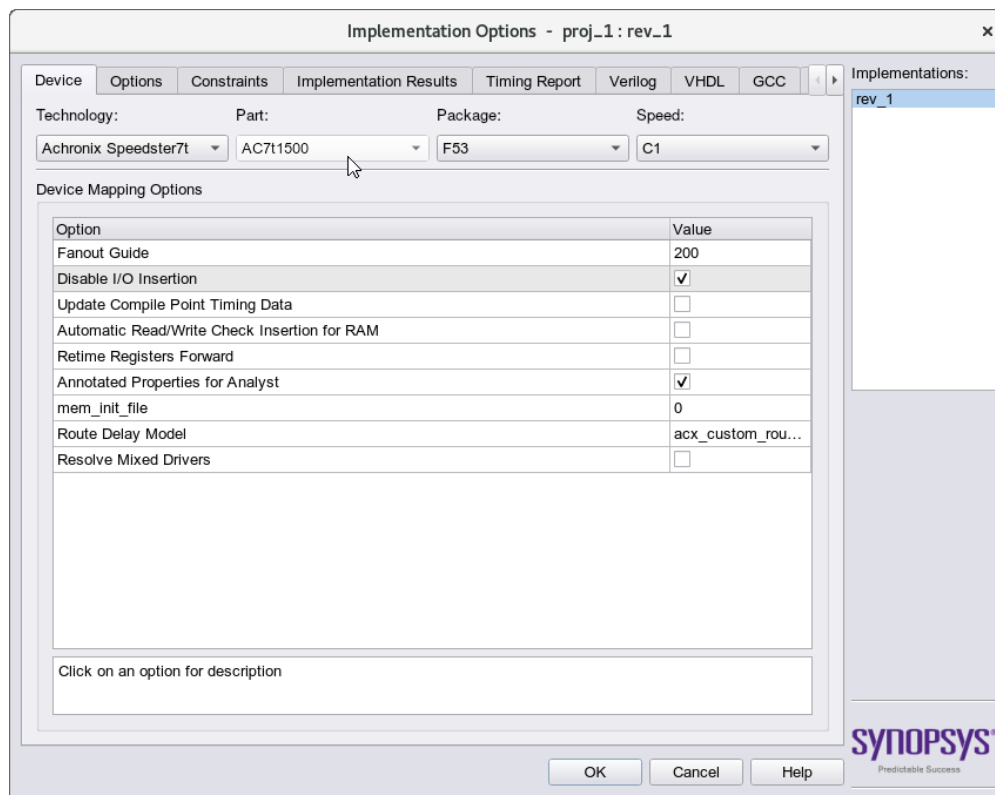


Figure 73 • Synplify Pro Implementation Options Screen

Chapter 12 : ACE Installation and Licensing Guide Revision History

Version	Date	Description
2.0	01 Oct 2017	<ul style="list-style-type: none"> Significant set of updates for new Synplify-Pro and ACE installation licensing schemes and conversion of document to Confluence.
2.1	23 Oct 2018	<ul style="list-style-type: none"> ACE License Installation (Windows) (page 67): Updated ACE Welcome screenshot. Obtaining Software Licenses (page 3): 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Updated Minimum Memory Requirements (page 1). Included install_ace.sh instructions for Linux. Updated Synplify Pro Node-Locked License Installation (Windows) (page 76) to exclude need for server. Updates for Windows 10 and various screenshots.
2.4	20 Jul 2020	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Added instructions for the ACE Windows floating license Updated steps to run install_ace.sh Added steps for the Windows FTDI CDM install prompt

Version	Date	Description
2.7	16 Sep 2021	<ul style="list-style-type: none"> Update to reflect new licensing procedure.
2.8	04 Jan 2022	<ul style="list-style-type: none"> 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.
2.9	26 Aug 2022	<ul style="list-style-type: none"> Updated content for ACE ver. 8.8 Revised software installation and licensing procedures. Moved License Installation into separate chapters for ACE and Synplify Pro.
2.9.1	13 Sep 2022	<ul style="list-style-type: none"> Updated Software Installation (Windows) (page 46) to emphasize installation in path with no spaces. Corrected minor details.
2.10	03 Apr 2023	<ul style="list-style-type: none"> Updated software and licensing installation chapters to reflect new procedures related to ACE version 9.0. and Synplify Pro 2021.09x-2. Corrected minor details.
2.11	25 Oct 2023	<ul style="list-style-type: none"> Updated software and licensing installation chapters to reflect new procedures related to ACE version 9.2. Removed reference to end-of-life devices.
2.12	08 May 2024	<ul style="list-style-type: none"> Updated software and licensing installation chapters to reflect new procedures and images related to ACE version 10.0.
2.13	13 Aug 2024	<ul style="list-style-type: none"> Added recommendation to start RLM with the <code>-nows</code> option.